BRIEF 4

Advancing the Collection and Use of Data through Rapid Testing and Evaluation

Change in Mind: Applying Neurosciences to Revitalize Communities

Robert Wood Johnson Foundation

Authors

Margaret. B. Hargreaves, Ph.D., M.P.P., Community Science
Mark Cabaj, MA., Here2There Consulting
Aimee White, M.Ed., Custom Evaluation Services
Jennifer A. Jones, M.S.W., Alliance for Strong Families and Communities

Suggested Citation

Hargreaves, M. B., Cabaj, M., White, A., and Jones, J.A. (2017). Advancing the Collection and Use of Data through Rapid Testing and Evaluation. Brief 4. Change in Mind: Applying Neuroscience to Revitalize Communities. Washington, DC: Alliance for Strong Families and Communities.

© 2017 Alliance for Strong Families and Communities All Rights Reserved

All of the contents of this publication are protected from copying under U.S. and international copyright laws. Any unauthorized copying, alteration, distribution, transmission, performance, display or other use of this material is prohibited. The contents of this publication are intended solely for the educational use of the purchasing organization. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, or other electronic or mechanical methods, without the prior written permission of the publisher.

For permission requests, email changeinmind@alliance1.org
17-054

Contents

Change in Mind Overview 4
Collection of ACEs, Resilience, and Related Data 7
Use of ACEs, Resilience, and Related Data 10
Advancing Data Collection & Use through Rapid Testing & Experimentation 12
Patterns of Rapid Testing and Experimentation 14
Lessons and Implications 16

Change in Mind Overview

Advances in Neuroscience

The past two decades have seen an explosion of new knowledge, research, and evidence on how the brain develops and how toxic stress can alter the brain's architecture. This has given us a window into the brain's neuroplasticity and how the skills and capacities we all need to be productive citizens and supportive and nurturing caregivers are developed. What we now know holds great promise for improving the effectiveness of how services are delivered to children, adults, families, and communities, and how we successfully engage and support our workforce. In fact, Mr. Kaku, a professor of theoretical physics and author of *The Future of the Mind*, said "the promise of this new revolution in neuroscience is profound, holding out the ability to someday alleviate suffering and enhance our true mental potential."[1] Nevertheless, this revolution in knowledge has yet to be fully integrated and aligned into the practices and policies of organizations and systems that provide social services, into government budgets, policies and regulations, and into the operations of the private business sector.

At the societal level, policies and interventions often run counter to the evidence that we know ensures the healthy development of young children. Aligning programs and policies with the core story of brain development[2] creates a solid foundation for later school achievement, economic productivity, responsible citizenship, and effective parenting. "This connection between early life experiences and the health of our nation underscores the importance of strategic investments" in our youngest citizens and their caregivers, that in turn, will benefit all of us socially and economically.[3]

Initiative Overview

In November 2014, the Alliance for Strong Families and Communities was awarded a $1.7 million grant from the Robert Wood Johnson Foundation, and with funding and collaboration from the Palix Foundation and it's Alberta Family Wellness Initiative launched Change in Mind: Applying Neuroscience to Revitalize Communities. The Center on the Developing Child at Harvard University also provided initial financial support as well as extensive consultation and guidance for the conceptualization of the initiative. Change in Mind is a learning laboratory for understanding how advances in neuroscience can be leveraged to create broader systems and policy change. Over the past two years, Change in Mind has demonstrated the impact of intentionally infusing brain science and evidence into programs and organizations, and identified new insights into the longer-term challenge of facilitating and accelerating change at the systems and policy levels.

Change in Mind Cohort Model

In 2015, Change in Mind created a peer learning community or cohort of 10 sites from the U.S. and five sites from Alberta, Canada. These 15 Change in Mind sites received grant funding to support their participation in meetings, webinars, and technical assistance on a range of topics, including advances in neuroscience research, theories of change, communication strategies, and developmental evaluation approaches. Change in Mind peer-learning activities included six in-person cohort-wide meetings and meetings of smaller "community of practice" work groups focusing on policy, measurement, and communications. The site-specific technical assistance consisted of neuroscience-related coaching and site visits, communications training and technical assistance from the FrameWorks Institute, and developmental evaluation training and technical assistance from an external evaluation team led by Community Science.

[1] Kaku,M. (August 21, 2014). The Golden Age of Neuroscience Has Arrived. Wall Street Journal, New York, NY.

[2] The National Scientific Council on the Developing Child synthesized decades of research relevant to neurodevelopment processes and translated it with help from the FrameWorks Institute into the core story of brain development (i.e. the Brain Story). http://developingchild.harvard.edu/wp-content/uploads/2015/09/A-Decade-of-Science-Informing-Policy.pdf

[3] Center on the Developing Child at Harvard University (2010). The Foundations of Lifelong Health Are Built in Early Childhood. http://www.developingchild.harvard.edu

Change in Mind Sites

The Change in Mind sites were selected based on their knowledge of adverse childhood experiences (ACEs), their experience providing trauma-informed care, their willingness and capacity to participate in the initiative, and their proposals for how to change their organizations, influence local service systems, and advocate for regulatory and legislative policy change.

The Change in Mind sites were diverse; they ranged in organizational size, population reach, service orientation (focusing on treatment or preventive social services), their sphere of influence (local, regional, or state/province), and country context. For analysis, the sites were grouped into five types (see Exhibit 1):

A. Large health systems
B. Multi-site organizations with state/province-wide geographic reach
C. Regional treatment facilities with state/province-level influence
D. Local multi-service organizations with regional influence
E. Neighborhood service centers with local influence

Exhibit 1: Change in Mind Sites, by Organizational Type

Type	Change in Mind Site
A	Children's Hospital of Wisconsin in Milwaukee, Wisconsin (CHW)
A	KVC Health Systems in Olathe, Kansas (KVC)
B	Big Brothers, Big Sisters of Calgary and Area in Calgary, Alberta (BBBS)
B	Children and Families First in Wilmington, Delaware (CFF)
B	Children's Home Society of Washington in Seattle, Washington (CHSW)
C	CASA Child, Adolescent, and Family Mental Health in Edmonton, Alberta (CASA)
C	LaSalle School in Albany, New York (LaSalle)
C	Sheldon Kennedy Child Advocacy Centre in Calgary, Alberta (SKCAC)
C	The Family Partnership in Minneapolis, Minnesota
D	CUPS Health, Education, Housing in Calgary, Alberta (CUPS)
D	Family Service Association of San Antonio in San Antonio, Texas (Family Service)
D	Wellspring Family Services in Seattle, Washington (Wellspring)
E	Boyle McCauley Health Centre in Edmonton, Alberta (BMHC)
E	East End House in Cambridge, Massachusetts (EEH)
E	Martha O'Bryan Center in Nashville, Tennessee

All the sites, regardless of their size and reach, were engaged in two sets of strategies that are the focus of this brief: In the collection and use of data on clients' adverse childhood experiences, trauma history, resilience, or brain development; and the use of rapid testing and evaluation methods to enhance the collection and use of these data for at multiple (program, organization, and system/policy) levels. These strategies and their interconnection are the subject of this brief.

Change in Mind Evaluation

The initiative used a developmental evaluation approach to understand how the Change in Mind sites addressed the challenges of:

- Infusing brain science research into their organizational cultures, programs, and practices
- Leveraging scientific advances in brain development to facilitate sector and systems change
- Accelerating systems change within a larger policy context
- Supporting peer learning through a peer-based learning community model

The evaluation was designed to monitor, track, and map the sites' development, identifying patterns of activity across organizational types and country contexts. The initiative's use of a development evaluation approach, rapid testing and evaluation of program and practice innovations, and evolution of the sites' theories of change distinguish Change in Mind's approach to understanding the sites' efforts to embrace and advance in the use of neuroscience.

Evaluation Briefs

This brief is part of a series of briefs of Change in Mind evaluation findings. These briefs present evaluation findings in four areas:

1. **Summary of Change in Mind evaluation findings and lessons learned:** To transform their programs, organizations, sectors, and communities, the sites designed and implemented multi-level theories of change. These pathways were often aligned with internal efforts leading to external action.

2. **Change in Mind sites' pathways of internal organizational change:** The sites worked to create internal organizational change by aligning brain-science informed organizational goals and resources, building organizational capacity, and adapting their programs and practices to incorporate neuroscience findings.

3. **Change in Mind sites' pathways of external systems and policy change:** The sites advanced systems and policy change by building networks of collaborators, educating their communities about brain science, facilitating sector-specific change, and advocating for larger cross-sector policy change.

4. **Enhancing Change in Mind sites' use of ACEs data through rapid testing:** The sites improved their collection and use of ACEs, and resilience data, and used rapid feedback methods to improve their data collection methods and other science-aligned programs and practices.

Collection of ACEs, Resilience, and Related Data

At the outset of the initiative, the Change in Mind sites were already somewhat familiar with the concepts of adverse childhood experiences (ACEs), trauma, toxic stress, brain development, and resilience, and were using a range of standardized and organization-specific data collection tools to measure these concepts. In 2016, the Change in Mind measurement community of practice (CoP) conducted a review of the sites' data collection measures and use. The review showed that all of the sites were collecting and using client-level ACEs data in a variety of ways, as shown in Exhibit 2. This information was updated through subsequent site interviews and reports (see Exhibit 2).

Exhibit 2: Site Data Collection, Use, and Rapid Testing Activities

Data Collection and Use	Change in Mind Sites
Data Collection	
Adverse childhood experiences	BBBS, CASA, CFF, CHW, CHSW, CUPS, EEH, Family Service, LaSalle, KVC, BMHC, Martha O'Bryan Center, The Family Partnership, Wellspring
Trauma and toxic stress	CASA, CFF, CHW, CHSW, Family Service, KVC, SKCAC
Child development and behavior	BMHC, CASA, CFF, CHW, Family Service, KVC, Wellspring
Resilience and executive functioning	BBBS, CASA, CFF, CHW, CHSW, The Family Partnership, KVC, Wellspring
Data Use	
Client intake and assessment	BBBS, BMHC, CASA, CFF, CUPS, CHSW, Family Service, KVC, The Family Partnership, SKCAC, Wellspring
Program improvement	BBBS, CASA, CFF, CHW, CUPS, Family Service, LaSalle, Wellspring,
Organizational development	BBBS, BMHC, CFF, CHW, CHSW, CUPS, Family Service, LaSalle, KVC, The Family Partnership
Systems and policy change	CFF, CHW, CUPS, EEH, Family Service, The Family Partnership
Rapid Testing and Experimentation	
Rapid Testing and Experimentation	BMHC, CASA, CFF, CUPS, EEH, Family Service, KVC, The Family Partnership

Measuring Adverse Childhood Experiences

ACEs are commonly defined as 10 categories of child abuse, neglect, and family exposure to toxic stress. The ACEs Questionnaire, originally developed for the Kaiser Permanente-CDC ACEs study, is a 10-item scale that measures:

1. Emotional abuse
2. Physical abuse
3. Sexual abuse
4. Emotional neglect
5. Physical neglect
6. Mother treated violently
7. Household substance abuse
8. Household mental illness
9. Parental separation or divorce
10. Growing up with an incarcerated household member

The measurement CoP review and subsequent data collection confirmed that almost all (14) sites were already using or were planning to collect and use ACEs information in some form. In the 2016 review:

- Eight sites reported that they were using the original 10-item ACEs Questionnaire to collect client-level ACEs scores
- Two other sites reported using an expanded version of the ACEs questionnaire that included additional items measuring post-traumatic stress disorder (PTSD) symptoms
- One site added community-level trauma measures to its organization's ACEs questionnaire
- Another site compiled client-level ACEs scores using data collected from organization-specific intake and assessment forms

Measuring Trauma and Toxic Stress

An individual's trauma can be defined as resulting from "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening, and that has lasting adverse effects on their functioning and mental, physical, social, emotional, or spiritual well-being."[4] In the 2016 review, seven Change in Mind sites (CASA, CFF, CHW, Family Service, CHSW, KVC, and SKCAC) reported using a range of instruments to collect data on clients' trauma histories, symptoms, and levels of stress. These data collection instruments included the:

- Child Report of Post-Traumatic Symptoms (CROPS)
- Parent Report of Post-Traumatic Symptoms (PROPS)
- Parenting Stress Index 4
- Parenting Stress Index-Short Form (PSI-SF)
- PTSD Short Survey
- UCLA Adolescent PTSD Screen
- Childcare Worker Job Stress Inventory (CCW-JSI)
- An organization-specific child development and trauma survey

In addition to PTSD screeners, Family Service reported using elder abuse screening tools. The organization's analyses of their clients' elder abuse and ACEs score showed a correlation between their elders' likelihood of experiencing abuse and having a high ACEs score.

Measuring Child Development and Behavior

Seven sites reported using tools to assess cognitive and social-emotional developmental milestones, as well as screen for cognitive, behavioral, emotional, and executive functioning challenges in young children. The sites conducted these developmental, cognitive, and social-emotional milestone assessments to:

1. Determine how well a child's actual age reflected their developmental age
2. Identify the child's need for additional services or referrals for additional care
3. Identify child behavioral changes (from the parent's perspective) before, during, and after treatment

To assess behavioral and emotional challenges in young children, the Change in Mind sites reported using observations of child and caregiver interaction, diagnostic screening tools, and parent questionnaires. Behavioral screening tools measured the presence, level, and severity of the child's behavioral and/or emotional difficulties.

[4] Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach (HHS Publication No. SMA 14-4884). Retrieved from https://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf

The sites reported using a wide range of data collection instruments, including the following:

- Allen Cognitive Levels Screen (ACLS)
- Child and Adolescent Functional Assessment Scale (CAFAS)
- Learning Accomplishment Profile 3 (LAP=3)
- Early Learning Accomplishment Profile 3 (ELAP)
- Ages and Stages Questionnaires, including the Social-Emotional Questionnaire (ASQ-SE) and Ages and Stages Questionnaire: Social-Emotional (ASQ-SE2)
- Wide-range Achievement Tests (WRAT4)
- Achenbach Child Behavior Checklist (CBCL)
- Connors, the Health of the Nations Outcome Scale for Children and Adolescents (HoNOSCA)
- Eyberg Childhood Behavior Inventory (ECBI)
- Functional Emotional Assessment Scale (FEAS)
- Behavior Rating Inventory of Executive Function—Preschool Version (BRIEF-P)
- Early Childhood Behavior Questionnaire (ECBQ)
- Parent Sense of Competence (PSOC)
- Flanker Inhibitory Control and Attention Test Age 12+ (Flanker)
- Parenting Interactions with Children: Checklist of Observations Linked to Outcomes (PICCOLO)

Measuring Resilience and Executive Functioning

In the context of exposure to ACEs, resilience is "both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful ways."[5] In the 2016 review, six Change in Mind sites reported using a range of data collection instruments to assess the resources, parenting practices, parent-child relationships, and family dynamics that can support or increase resilience.

These instruments included the:

- Brief Resilience Scale
- Child and Youth Resilience Measure 28 (CYRM-28)
- Protective Factors Survey
- Resilience Questionnaire
- A Change in Mind organization-specific survey

In addition, the sites reported using other data collection tools that focused more broadly on mental health status and overall quality of life. The quality of life and mental health assessments relied on self-rated, standardized measures that used a five-point rating scale to determine overall health status, life satisfaction and life circumstances, and symptom severity, primarily in adults with mental illnesses. Other self-rated measures assessed the behavior, impairment, symptoms, and social functioning of adults who have severe mental illnesses.

[5] Ulgar, M. (2011). *Counseling in challenge contexts: Working with individuals and families across clinical and community settings*. Belmont, CA: Brooks/Cole.

At the start of the initiative, none of the Change in Mind sites reported collecting executive functioning data, or using tools such as the Behavior Rating Inventory of Executive Function (BRIEF).[6] [7] Executive functioning is needed for the cognitive control of behavior, particularly in the areas of reasoning, problem-solving, planning, working memory, and inhibitory control. However, through expert lectures on brain development at cohort meetings, the Change in Mind sites were exposed to the role of executive functioning and its measurement. At least one site has started to measure executive functioning. In early 2017, CHSW reported that it has begun using the BRIEF in one FOI innovation project, and will start using the Effortful Control Subscales of the Rothbart Temperament Questionnaires in another pilot project.

Use of ACEs, Resilience, and Related Data

Data Use for Client Intake, Assessment, and Service Planning

In total, 11 sites reported on their collection and use of ACEs and resilience data as part of the intake process to triage clients and develop appropriate service plans. For example, KVC is using the 14-question version of the ACEs questionnaire as its primary trauma assessment tool, which is accompanied by a set of resiliency measures.[8] Both types of measures are being collected from 3,000 consumers (clients) per year to better understand the experiences and service needs of KVC's consumer population.

Wellspring is also collecting ACEs and resiliency data from adults at intake for its Domestic Violence Intervention Program (DVIP) and from parents at intake in its Early Learning Center. In the Early Learning Center, teachers are using the parent data to understand and build parenting capacity. For the DVIP program, a Wellspring manager explained, "This increases our understanding of the interrelatedness and prevalence of the trauma and toxic stress experienced by clients and the extent to which DVIP clients are different from the general population; 35 percent of DVIP clients have four or more ACEs, compared to 16 percent of Washington state residents and 12 percent of original ACEs study."

Data Use for Program Management and Improvement

A total of eight sites reported on their collection and use of ACEs and other data to review and revamp specific programs or program practices. For example, BBBS conducted an internal review of its client files from the organization's one-on-one community-based mentoring programs and found that 52 percent of the mentees in those mentoring programs had experienced four or more forms of childhood adversity. Those stressful early life experiences included family divorce, death, substance abuse, bullying, and more. BBBS reported using this information to elevate specific program and organization practices related to staff and mentor training, as well as screening volunteers for specific competencies would be most helpful in supporting vulnerable youth.

CASA also reviewed client-level ACEs data at the program level, specifically comparing clients' ACEs data across different programs. It found that clients' ACEs scores are significantly higher in its more intensive and specialized programs (such as the Concurrent Addictions and Mental Health Program) than in the organization's broad clinic program. This has helped confirm that its different programs are targeting appropriate populations. CASA staff also planned to start using client-level ACEs data in its residential program to test the hypothesis that, as currently designed, the residential program is less appropriate for children with high childhood trauma histories than for children with lower ACEs scores.

[6] The Flanker Inhibitory Control and Attention Test measures cognitive flexibility and attention, which are aspects of executive functioning. See http://www.healthmeasures.net/explore-measurement-systems/nih-toolbox/intro-to-nih-toolbox/cognition for details.

[7] Cognition Measures: NIH Toolbox Cognition Batteries. (n.d.). Retrieved August 25, 2017, from Health Measures website, http://www.healthmeasures.net/explore-measurement-systems/nih-toolbox/intro-to-nih-toolbox/cognition

[8] There are some exceptions; KVC's non-hospital services will continue to use the CROPS (Child Report of Post-Traumatic Symptoms) for all new intakes in Kansas. CROPS evaluates criteria for PTSD based on the APA's DSM-V.

Data Use for Staff and Organizational Development

In total, 10 sites reported that they were documenting and analyzing client and staff-level ACEs data for strategic planning and development purposes at the organizational level. For example, as part of its workforce development activities, LaSalle staff are being asked to complete the ACEs questionnaire anonymously on a volunteer basis. The intent of this activity is to help staff reflect on their own adverse childhood experiences and its impact on their lives and in their work. CUPS staff worked with University of Calgary researchers to conduct a baseline survey of the prevalence of ACEs among the organization's participants (clients). The initial pilot sample of 27 participants showed that 59 percent of those surveyed had a total ACE score of four or more. One CUPS manager noted, "We hope that the results of the final survey will help us better guide our programming for our participants, as case plans could look different for participants with higher cumulative ACEs scores than for those with lower scores."

In another example, BMHC physicians and intake staff collected ACEs data of 65 BMHC clients to understand the experiences and needs of the clinic's client population. The staff augmented the original ACEs questionnaire to collect ACEs information of the clients' children and grandchildren. The survey results showed that the average (mean) score for the sample of BMHC clients was relatively high—a score of 6.89; the median score was 7 points, and the mode (most reported) score was 10. Almost half (48 percent) of the BMHC clients had children under the age of 18, and 60 percent of the clients had access to those children. A third (35 percent) of clients had grandchildren under the age of 18, and 64 percent had access to them. The estimated average ACEs score for the children was 5.32, the median score was 6, and the modal score was also 6. BMHC staff have started to analyze the link between clients' ACE scores and the resilience they gain through their interactions with BMHC staff. This analysis will help the health center develop its plans to support adult clients in reducing the stress in the homes of their children and grandchildren, by treating the families' biopsychosocial conditions and by connecting them to community supports that can help buffer the effects of the toxic stress in those households.

Data Use for Systems and Policy Change

Six Change in Mind sites reported working at local, state, or national levels to collect or use ACEs and resilience data to identify and target ACEs "hot spots" for systems and policy change. For example, in Delaware, CFF collaborated with other organizations and organizations to fund the collection of ACEs data across Delaware through the Public Health Community Survey, conducted by the Delaware Public Health Institute (DPHI). After the survey was completed, CFF became part of a work group (including DPHI, the Delaware Department of Services to Children, Youth, and their Families, the Delaware Department of Health and Social Services, the United Way of Delaware, and the University of Delaware) to analyze and report on the data. In late 2016, the Delaware Public Health Journal published a series of articles featuring this data, including one coauthored by CFF staff.

In Wisconsin, CHW analyzed the ACEs data and housing data of the families in Milwaukee's child welfare system to understand the associations between housing instability and increased family vulnerability to child abuse and neglect. The study identified areas in which to work with CHW community health workers in targeted neighborhoods, to help increase the housing stability of families at risk of entering the child welfare system. The families' child welfare, housing, and ACEs data were compiled and analyzed to help make a case for intervening with families facing housing instability. CHW staff then conducted a resident housing survey in three targeted neighborhoods, and used the results to be working with residents, and city and county housing organizations to address residents' housing needs.

In Texas, Family Service participated in the State Trauma-Informed Cohort, where the organization advocated for the local collection and use of ACEs data to help community organizations adapt their services to address client and community trauma and adversity. The Texas Department of Family and Protective Services, the Health and Human Services Commission, the United Way of San Antonio, and Bexar County have since started requiring the provision of trauma-informed services and the collection of ACEs data in organizations' responses to their requests for proposals. Family Service reported that these new funding requirements have influenced the services and data collection practices of some local school systems and area nonprofit organizations.

Advancing Data Collection and Use through Rapid Testing and Experimentation

While a focus on innovation was not an original emphasis of the Change in Mind project, initiative sponsors and participating sites quickly embraced the necessity of doing so when it became evident that while the content of brain science concepts and findings was clear, and the case for the infusion of brain science into organizational practices was compelling, the manner in which these ideas were translated into concrete practices had to be developed and tailored to suit the unique needs and context of each organization.

This gap between interest and implementation was particularly clear in the case of sites' collection and use of ACEs data. In the start of the initiative, all the Change in Mind sites were interested in learning more about collecting and using ACEs to inform and improve their program practices. However, some sites had less capacity, expertise, or experience in collecting and using ACEs data than other sites, and looked for new ways to increase or improve their ACEs data practices. The Change in Mind evaluation team responded by teaching and coaching the sites to develop new ways to collect and use ACEs data in their organizations using rapid testing and evaluation methods.

Rapid Testing and Experimentation Overview

One of the best ways to innovate with new practices and policies is through iterative cycles of rapid testing and experimentation, an approach that emphasizes the development of small scale experiments to test the viability and feasibility of a new idea quickly and then decide whether the results warrant:

- A larger scale experiment
- Adoption and scaling up of the idea
- Dropping the idea altogether and trying out another new idea

Rapid experimentation can reduce the risk of failure and potential cost of program development, offer an opportunity to engage stakeholders in the innovation process, and encourage them to be more creative in testing out new practices or ideas.

While the practices and methodologies of rapid experimentation have been around for some time, their use and sophistication have increased dramatically in the last 10 years due to the growth and popularity of:

- Human centered design, with its strong emphasis on prototyping
- Adoption of lean start-up methods from the field of hi-tech and its emphasis on "fail fast" and "smart failure"
- The rapid spread of social innovation ideas and practices[9] [10]

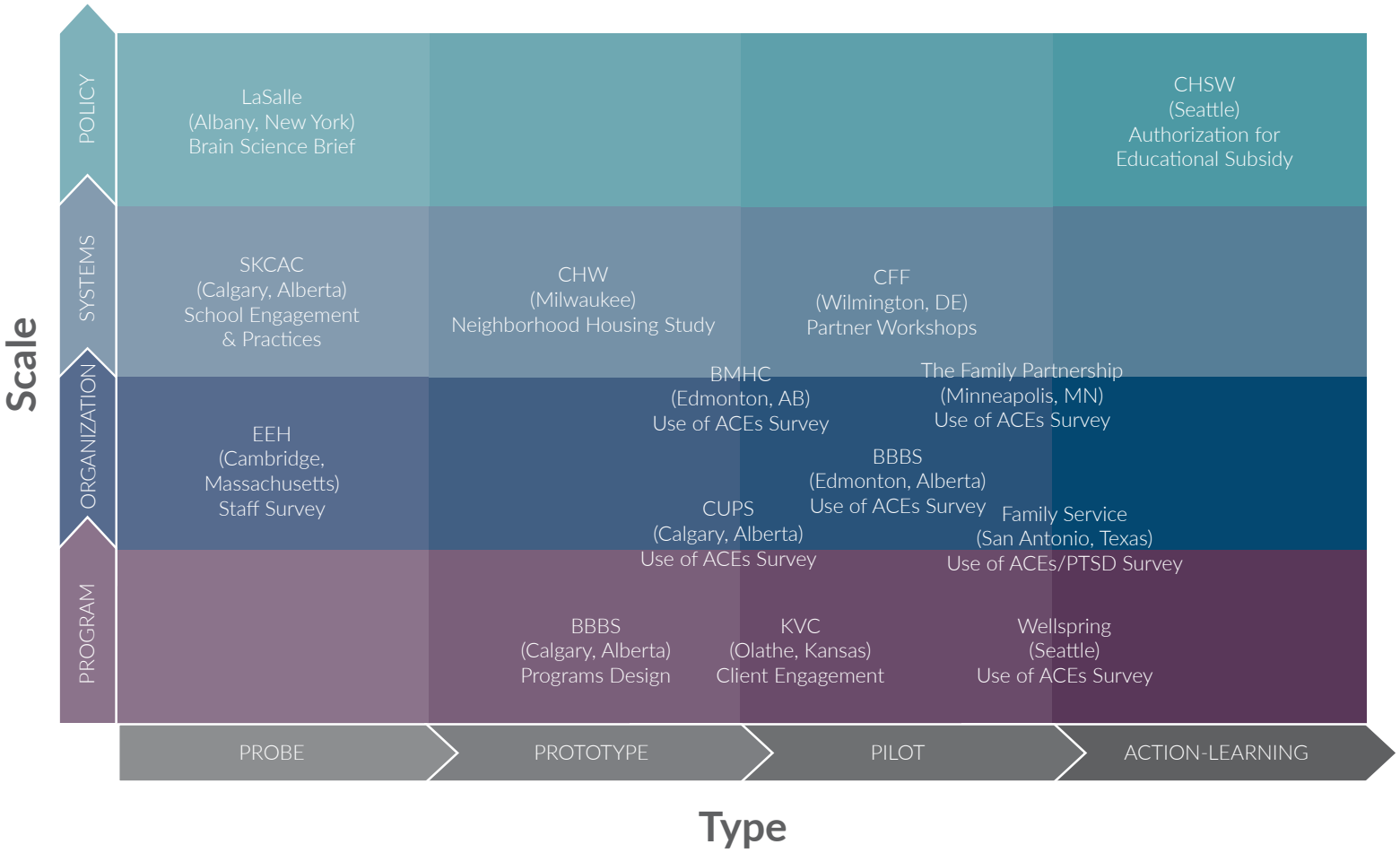
The Experimentation Continuum

The evaluation team found that the sites have been using four of methods or orientations to experimenting with new ideas: probes, prototypes, pilot projects, and action-learning. The sites used these approaches at four different scales—program, organization, system, and policy levels (see Exhibit 3).

[9] See: Human Centered Design toolkit (http://www.designkit.org/), Lean Start Up for Social Change (http://www.leanchange.net/blog/) and Stanford Social Innovation Review (https://ssir.org/)

[10] DesignKit. (n.d.). Retrieved August 25, 2017, from IDEO.org website, https://www.ideo.org/

Exhibit 3: Site Patterns of Rapid Testing and Experimentation



- **Probes** are the preliminary form of experimentation. They are designed to help innovators gain a better understanding of the challenge or system in which they are operating and to surface possible ideas that may be worth testing and experimenting within their organizations. Three sites reported employing probe approaches at the organization, system, and policy levels.
- **Prototypes** are small scale, rapid experiments used to develop and test an idea before an organization invests in more time and energy into developing and testing it in the field. While the methodology of prototyping emerged in the field of manufacturing and software design, social innovators are now adapting the process for human services. Two sites reported planning or implementing prototype approaches at the program and systems levels.
- **Pilot projects** are the most traditional approach to experimentation in which innovators systematically test an idea in the field. The process of developing a testable model may be quick, done in a planning session in the board room, or it can be longer, involving several testing cycles until innovators feel that the idea is fully formed, at which point they stabilize the model's design and delivery to allow and carry out a more formal pre- and post-evaluation of the model's outcomes. Eight sites reported implementing pilot projects at program, organizational, and system levels.
- **Action learning** or adaptive action is a problem-solving process based on experiential learning. The original action-learning approach—developed in the 1920s—involves an interative process of assessing a problem or opportunity that a group would like to address, planning a response, acting or implementing the plan, reflecting on the results, and repeating the results until the group feels it has made sufficient progress on the issue. One site reported using an action learning process at the policy level.

Patterns of Rapid Testing and Experimentation

Organization-Level Rapid Testing and Experimentation

At the organizational level, five sites reported using pilot projects to test the usefulness and feasibility of implementing the ACEs questionnaire in their sites. Below are three examples from CASA, The Family Partnership, and Family Service.

In Alberta, members of CASA's executive team were convinced of the value of the ACEs survey, but were unsure whether their clients would find it intrusive or difficult to fill out. They were also unsure whether their clinical staff were willing to use client-level ACEs data. To test this, the evaluation team met with selected clinicians to learn their views on the potential usefulness and feasibility of using the ACEs questionnaire. The evaluation team piloted its use in several different programs where staff were willing to administer the instrument. The results of these tests were mixed: while families did not express concerns with the ACEs questionnaire, clinicians had varying opinions of its value. While the results confirmed that clients had higher ACEs scores than the general population and highlighted specific adverse events that deserved special attention in counseling, they did not offer sufficient direction on what the implications might be for program design and delivery. As a result, CASA continues to carefully expand its use of ACEs in selective programs, and to investigate the question further about how the data can be used to shift and improve clinical practice and outcomes.

In Minnesota, The Family Partnership management team piloted the original 10-item ACEs questionnaire in three key service departments to see whether the survey results would offer additional insights into the characteristics and challenges of their clients. They discovered that:

- Their clients had higher ACEs scores than the general population
- Clients' ACEs scores were positively correlated with substance abuse relapse rates, the staff, board, and organizational stakeholders agreed that it was important to expand the use of ACEs across the organization

The Family Partnership has since expanded the rapid testing approach to other areas of the organization.

To increase the utilization of ACEs and PTSD screeners in their large organization, Family Service leadership employed rapid testing procedures to explore different ways to encourage staff to adopt and use measures across the organization's 72 projects. To assess the effectiveness of their "utilization push," the evaluation team staff compared the number of completed ACEs surveys and PTSD screener to the number of new enrollments. By early 2017, their efforts had been successful: 95 percent of the organization's clients—with five percent opting out—had completed both instruments. The organization's management is now using the results to inform organization processes and policies.

Program-Level Rapid Testing and Experimentation

At the program level, three sites reported using a range of rapid testing methods to test the usefulness and feasibility of new program tools. Examples from BBBS and KVC include a staff driven campaign of developing and testing prototypes of brain-science informed programs across the organization, and testing new ways to engage young persons with high ACEs to become more actively involved in their own development.

In Alberta, in the summer of 2016, BBBS managers hosted a one day meeting with front line staff to explore the question, "How might we as service delivery staff integrate brain science into existing practice to enhance mentoring relationships?" After reviewing the foundational ideas of brain science, the group was divided into five innovation teams. Each team was asked to develop a prototype that they would further enhance and test as part of a 90-day campaign of iterative experimentation. The process yielded five diverse prototypes. Each team participated in three 30-day sprints to further develop, test, and iterate their prototypes with diverse stakeholders, guided by their own unique sets of questions and metrics. After each 30-day period, the teams met over a brown bag lunch session where they shared their activities and the results and lessons learned from their efforts.

In the reflection and decision-making session that capped the end of the 90-day campaign, the teams determined:

- One of the five prototypes (a "Magical Match" process that matched mentors and mentees by their ACEs scores) was worth scaling up
- Participating staff felt that brain science had evolved from a "nice to have" element in their programs to a "must have" element that warranted further professional development
- The rapid prototyping methodology should be more fully integrated across the organization

In Kansas, KVC has used rapid experiments to test the hypothesis that educating their young clients about the development and function of the brain would increase their understanding of their own mental health issues, engage them more fully in their treatment services, and eventually increase their ability to self-regulate their emotions. To test this, KVC selected two brain science education tools for youth—"Strengthening my Brain" and "Regulating my Brain" exercises—and tested their effects on youth participating in two sessions in the organization's Learning Lab. Using a combination of participant surveys, expert observation and facilitator feedback, the evaluation staff documented increasingly positive scores on three measures: self-reported learning about brain concepts, skills for self-regulation, and willingness to participate in more training. The team used this feedback, along with a list of lessons learned, to inform enhancements in the tools. For example, KVC staff are now testing out a software application of the brain science tools to see how it might influence participants' experience with the tools and improve their effectiveness.

Systems and Policy-Level Rapid Testing and Experimentation

At the systems level, three sites are testing different ways to use information to increase community awareness and use of brain science concepts. Examples from SKCAC and CFF showcase efforts to shift the practices of educators at a systems level. An example from CHSW shows its efforts using rapid testing to improve its legislative advocacy efforts.

In Alberta, to strengthen the capacity of local schools to recognize, respond to, and report child abuse, SKCAC staff had a hunch that increasing teachers' and administrators' understanding of the impact of child abuse and trauma would prompt them to increase their rates of reporting and respond to students' behavioral challenges using a trauma-informed approach. In September 2015, SKCAC surveyed 388 staff in 22 schools to assess whether they suspected instances of child abuse, their pattern of reporting abuse, and factors that influenced their decisions to report abuse. In early 2016, SKCAC staff shared the survey results with school superintendents, which showed that a high number of respondents reported that they suspected cases of abuse but were unsure of how to respond. In the resulting discussions, center staff and school partners agreed to implement three initiatives:

1. Working with post-secondary school faculty to embed a curriculum of child abuse prevention, intervention, and trauma-informed practice
2. Developing a Youth Champion Model, designed to support student-led discussions on abuse, which lead to school-based action plans to increase awareness of abuse
3. Producing a video resource for school staff about recognizing and reporting suspected child abuse

The SKCAC evaluation is tracking and assessing the development of each of these initiatives, and will conduct a follow-up survey to assess changes to school staff awareness and referral practices after the initiatives have been implemented.

In Delaware, CFF's leadership team suspected that while college educators were familiar with trauma-informed care principles, they were less informed about the ACEs study, toxic stress and neuroscience, and implications for building resiliency in children and families. In February 2016, the organization developed and implemented a one-day pilot workshop designed to increase the awareness of college educators on these key topics. Graduate students tabulated the results of a pre- and post-training survey, including standard deviations, paired samples, tests, and paired samples correlations. They found that participants' self-reported increases in knowledge on a 5-point scale improved in all topic areas. Results showed an increase in scores from 2.84 to 4.16 on the use of ACEs, and from 3.52 to 4.27 on the effects of trauma on the brain. Based on the positive results of the pilot, CFF has since completed dozens more trainings, and each workshop was refined based on the feedback of the previous session.

In Washington, from the fall of 2014 to April 2015, CHSW sought to encourage state legislators to provide a 12-month authorization to children receiving child care subsidies through the child welfare system, which has already provided other non-child welfare for families receiving child care subsidies to allow them to work or engage in education. To test the willingness of state legislators and child advocates to seek support for filing and passing the authorization bill, CHSW created a draft case statement and met with state legislators and children's advocates to explore the following questions:

- Would your own organization and other powerful children's advocates support this policy change?
- What message would appeal to each political party?
- Would the organization and allies be able to acquire effective bill sponsors?
- If the bill does not pass, could the goal be achieved through a budget proviso?

In response to feedback from advocates and legislators, CHSW adjusted the case statement, and was partially rewarded for its efforts by having the bill filed in 2015. While the bill did not pass that year, another version of the bill was been submitted for the subsequent legislative session.

Lessons and Implications

Aces-Informed Approach to Transformational Change

The Change in Mind sites adopted a data-informed approach to embed brain science concepts and findings into their change efforts. Many sites started with analyses of the adverse childhood experiences, adverse community conditions, resiliency factors, and vulnerabilities of their clients, and used this information to determine where and how to focus their internal and external change efforts. They also used rapid cycle and developmental evaluation methods to assess, support, and accelerate their progress in adopting new programs and practices. For example, BBBS used its understanding of its clients' ACEs scores to develop a better mentor matching process, which contributed to stronger relationships, between adult mentors and their young mentees. Other sites added asset-informed resilience and executive functioning measures to enrich and balance their use of deficit-informed ACEs and trauma data collection tools.

Value of Rapid Testing and Experimentation

Before the start of the Change in Mind initiative, three quarters of the sites had never used rapid testing methods. Two years later, 80 percent of the sites report that they now have "some" or "a great deal of" capacity to use these methods. One KVC manager noted, "A better understanding of how to rapidly test new tools and strategies has increased our ability to be innovative.

"Prior to this project, we were constantly stuck seeking out evidence-based treatments that may or may not have reflected our unique environment. We can now rapidly test tools that we have developed internally. It has given us an avenue of dialogue about the effectiveness of program strategies, such as self-regulation and executive functioning, that have few available models and measures." KVC Manager

Prior to this project, we were constantly stuck seeking out evidence-based treatments that may or may not have reflected our unique environment. We can now rapidly test tools that we have developed internally. It has also given us an avenue of dialogue about the effectiveness of program strategies, such as self-regulation and executive functioning that have few available models and measures."

Implication

Data-informed planning, action, and assessment cycles are an effective entry point for transformation change, and these iterative cycles of action and planning can be enhanced using rapid-cycle testing and experimentation methods.

Larger Lessons

The Change in Mind evaluation identified several larger themes of transformational change that were common across the briefs and sites. These larger themes are highlighted here, and are covered in more detail in the overview brief of this Change in Mind series.

The Change in Mind sites made substantive changes inside their organizations and in their external Change in Mind activities. They used different strategies that were appropriate to their contexts to the needs of their clients. All found ways to identify and implement innovative changes, work with allies, and use available resources. No organization was too large or too small to make important changes in their programs, organizations, and external advocacy activities.

1. The Change in Mind sites were clear about the content of the brain science research they were infusing in their work; this information was provided to them through Change in Mind activities and resources. Some were less clear on how to incorporate the new science into pre-existing trauma-informed, resilience, and child mental health frameworks. This was a fundamental shift for some sites.

2. The Change in Mind sites used similar strategies inside and outside their organizations to facilitate change. They provided strategic leadership, developed networks of change agents, created clear, consistent messages, built workforce capacity, aligned internal and external resources, and worked across service sectors and along the prevention continuum to achieve their goals.

3. The Change in Mind sites adopted a data-informed approach to embed brain science concepts and findings into their change efforts. Many sites started with analyses of the ACEs, adverse community conditions, resilience, and vulnerabilities of their clients, and used this information to determine where to focus their change efforts.

4. The Change in Mind sites saw their work as both a technical challenge to adopt and implement existing evidence-based programs and practices as well as an adaptive challenge to design and test new innovations. They used formal evaluation methods to assess the effectiveness of specific program models and more developmental evaluation methods to monitor and map the ongoing evolution of other Change in Mind activities.

5. The Change in Mind sites originally designed their projects as complicated, multi-strand initiatives that were comprised of separate sequences of activities operating at different (program, organizational, system, and policy) levels. Through experience, sites learned that their activities were more iterative and intertwined across levels than originally predicted. Some sites modified their theories of change to reflect more adaptive, cross-level cycles of action and learning.