A Study of Community and Health Clinic Approaches to Addressing Toxic Stress and Promoting Protective Factors among Families with Infants

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Abstract

Background

Health care administrators must promote effective partnerships with community agencies to address social determinants of health, including reducing exposure to chronic stress in early childhood. Important targets for mitigating "toxic" levels of young child exposures are through reducing parents' experiences of chronic stress as well as protecting children from direct experiences of harm such as physical or sexual abuse. Conducting screening to identify when parents and children are exposed to early life adversity is a first step; bringing in or referring out families to needed support services is an essential component. This paper describes a multi-modal investigation of health care systems innovations to engage and support parents to prevent and mitigate children's toxic stress exposures through pediatric primary care and community services partnerships.

Methods

Key study features include: 1) multi-component, multi-site study in five U.S. communities of pediatric health care clinics and the families they serve, 2) a developmental evaluation approach that describes how systems innovations are experienced over time at three levels (community systems, pediatric providers, and families), and 3) rapid cycle feedback in partnership with communities, clinics and families to co-interpret data and findings. The methodology includes: 1) focus groups and interviews with community stakeholders, clinic staff, and families, 2) electronic health record and Medicaid services data extracted to assess health care quality, and 3) clinic-recruitment of 908 parents of newborns in a longitudinal survey.

Results

The sample is briefly characterized based on responses to the enrollment phase of the parent survey.

Conclusions

We discuss the study design elements' contribution to generate evidence needed by innovators, communities, and clinics to modify and sustain investments in these innovations.

Background

Health care screening and referring families to resources are appropriate roles for pediatric health care practices to consider as part of addressing social determinants of health (SDOH). Social determinants of health are the conditions or circumstances in which people are born, grow, live, work, and age, and the wider set of forces and systems shaping the conditions of daily life (1, 2). This includes social, cultural, economic, and political forces that contribute to health disparities (3). During the first post-natal year, these social determinants may help or hinder families' access to services and could play a significant part in parents' experience of strain (4, 5). For young children, toxic stress can result from strong, frequent,

or prolonged activation of the body's stress response systems while not being buffered by protection from a supportive, adult relationship (6). Protective factors including supportive relationships, and access to basic needs such as high-quality food and transportation, can mitigate chronic stressors and promote resilience. These positive childhood experiences in the face of adversity have been shown to independently predict adult health (7). Assessing parent experiences of stress and burden in the first year of infant life can ensure timely access to services and promote child health. The American Academy of Pediatrics and the American Academy of Family Physicians are just two of the professional practice organizations in the U.S. that underscore pediatric and family health care providers' role in addressing the social needs of families (8, 9).

Because the origins of both stress and protective factors are multi-faceted and multi-determined, reducing the development of toxic levels of stress must also be multi-systemic. One challenge facing pediatric health care is the effective integration of screening for families' social needs and referring to services (such as food banks or housing). Child health practitioners and managers frequently endorse recommendations for screening, however, they also report that community services (e.g. early childhood behavioral health) are often limited or unavailable and therefore are reluctant to implement screening guidelines (10, 11). Health care providers also do not typically have the capacity, nor the financial model necessary to monitor the available service array in their community. The impact of innovations in health care to prevent or mitigate toxic stress in children is therefore influenced by the available service continuum and effective partnership across health care and community-based services.

Child health insurance programs have extended well-child and illness care to millions of uninsured families throughout the U.S. (12), making more apparent the many unaddressed physical health and social needs they face. Latinx families in the U.S. have the highest uninsured rates, compared to other racial or ethnic groups, with only 49% reporting insurance coverage in 2017 (13). As a marker of socioeconomic adversity, lack of health insurance often co-occurs with other social needs including insecure housing and food (14, 15). There is evidence that accessing health and economic supports decreased from 2015–2018 among Latinx families (16). Public charge rules that were adopted in 2019 also created a chilling effect that further reduced Latinx families' enrollment in benefits.

In this paper, we describe a study that triangulates three important perspectives (community systems, health care clinics, and families) on promoting child health through bolstered health care and early childhood systems to partner and support families of infants, mostly who are Latinx. The study is designed to examine approaches to pediatric health innovations that are being implemented in the U.S. to prevent and mitigate conditions related to exposure to early childhood adversity and lack of protective factors. This study documents systems change, health provider behavior, and family engagement with health and community services in relation to health and stress outcomes over time. Our theory of change asserts that the effects of these innovations are first at the systems level, influencing collaboration, provider behavior and family engagement efforts. Strengthening these systems thus provides families with increased supports for both concrete and health needs. This in turn increases parent sense of agency, prompting behavioral changes that promote child health and well-being.

Developmental Understanding and Legal Collaboration for Everyone (DULCE) is a model for connecting families with infants, particularly families struggling with limited resources, to a local community's system of care through integrated pediatric, legal and early childhood services (17). The American Academy of Pediatrics' (AAP) Improving Screening, Connections with Families, and Referral Networks (I-SCRN) is a quality improvement collaborative to support pediatric primary care teams to implement effective processes for screening, referral, and follow-up with a focus on child development, postpartum depression, and social determinants of health (18). Help Me Grow (HMG) is a system model that utilizes and builds on existing community resources to develop a comprehensive network of early childhood services in a community (19). The model includes a centralized access point (e.g. call center), family and community outreach, child health care provider outreach, and referral tracking. The three innovations by design promote access to services that are difficult for the most stressed, marginalized populations to access and are particularly beneficial for women and children across socio-economic circumstances.

Study Overview

This paper describes a developmental evaluation study using mixed methods to understand the experiences of five communities, nine health care clinics, and 908 families as they work with DULCE, I-SCRN, and Help Me Grow innovations intended to promote resilience and reduce stress in the child's family during the first year of life. All study procedures were approved by the University of Chicago Social Services Administration-Chapin Hall Institutional Review Board (IRB).

The study's evaluation strategy is rooted in prevention science and incorporates two approaches critical for evaluating innovation. The first approach is an articulation of the multiple levels at which an innovation operates, including the intended versus actual level of innovation experienced by stakeholders. Second, because outcomes are rarely driven by single causes, it is important to document the paths of theoretically meaningful mediators of outcomes (20). This evaluation plan highlights multiple levels (community systems, clinics, and families) and pathways at which the innovations operate through the project design, measurement, and analysis strategy. We used a developmental evaluation approach to capture change beginning at the early stage of the initiatives (21, 22). Focus groups and interviews (qualitative methodology) with parents, clinic staff, and early childhood community leaders complemented parent longitudinal survey interviews and electronic health records extracted for the study.

Figure 1 illustrates the evaluation's focus on rapid-cycle feedback and co-interpretation approaches. This model, adapted from a synthesized member checking methodology for qualitative research, captures evolution of the health innovations and the communities in which they are embedded (23).

Methods

Study Implementation

Prior to the start of the study in 2018, we interviewed the innovation developers (n=16) and members of an early childhood systems transformation effort that was already underway in each community (n=11). The purpose of this investigation was to understand the innovations and implementation plans at study outset. The systems transformation effort in each community is the Early Childhood Learning and Innovation Network for Communities (EC-LINC; https://cssp.org/our-work/project/early-childhood-learning-and-innovation-network-for-communities/). In this model, an early childhood brokering or hub organization works with specific community partners to strengthen systems and services to better meet the needs of families with young children. Within the five communities studied, pediatric health care clinics self-selected and received resources to implement one of the innovations that are in our study. We describe each data collection method next. For quantitative data collection with families, Field Interviewers completed the interviews (see Parent/Caregiver Interview section). For qualitative interviews and focus groups, PhD, M.A. and B.A.-level study research team members (e.g. Researcher, Research Associate) trained in qualitative design, analysis and interviewing conducted data collection. Interviews and focus groups lasted 45 to 90 minutes and were audiotaped and transcribed.

Community-level Data

The study commenced in 2018 with data collection involving three groups: (1) community service providers, (2) the early childhood organizations, and (3) families with young children. We conducted focus groups with providers in each community and included participants (n = 36) recruited by the early childhood organizations such as mental and behavioral health providers, child care and early education providers, home visiting providers, regional centers, and public health departments. The focus groups inquired about approaches to mitigating toxic stress, healthcare-early childhood partnerships, policies and practices related to screening and referral for social needs, and family engagement strategies. With early childhood organizations, we inquired about the vision for early childhood-healthcare partnerships and lessons learned from DULCE and I-SCRN implementation and from supporting Help Me Grow as a centralized referral network.

We conducted focus groups with parents and caregivers (e.g. foster parents) in each community who had accessed early childhood or other community services (n = 45). Parents or caregivers with young children were recruited by early childhood organization staff and community service providers and were diverse in terms of their early childhood and community service experiences. Some of the caregivers were considered leaders in their community, and others were recruited because they had accessed one or more services such as home visiting or healthy pregnancy programs, and were known to the early childhood organization or provider/s. The 90-minute focus groups inquired about interactions with community providers and experiences with pediatric primary care in their community.

We partnered with one of the states in the study to understand the role of Help Me Grow in facilitating the referral network and bridging health care and community-based services for families. The purpose was to learn from HMG staff, community providers, health care providers, and families about their experiences with the roles of HMG as a centralized early childhood referral system. Staff at Help Me Grow affiliate

locations (two urban and one rural/suburban) participated in 45-minute interviews (n = 13). Families with young children (n = 17) and community providers (n = 24) in each location participated in focus groups. The 60-minute focus groups with families and providers explored facilitators and barriers to participating in the centralized referral system and critical opportunities to strengthen referral pathways in each community. Healthcare providers (n = 11) also participated in interviews addressing the same topics.

Clinic-level Data

We collected data from health care clinic staff at two time points to reflect earlier and later stages of implementation of the innovations. In 2018, we conducted interviews with members of each clinic's innovation team (n = 54). The interviews focused on core innovation components, opportunities, and barriers to integrating social need screening into the practice's standard of care. Participants were physician or nurse practitioner innovation "champions," trained family specialists, social workers, clinic administrators, and other salient team members supporting implementation. We then surveyed a broader group of clinic staff in 2019. We invited staff at each clinic (physicians, pediatricians, nurse staff, medical assistants and physician assistants) to complete an online survey, resulting in 63 completed surveys. The survey was designed to measure clinician attitudes and practices related to early childhood healthcare services, screening, and perceptions of occupational burnout.

We also conducted fifteen 90-minute focus groups (n = 110) with parents and caregivers in 2019 to examine how families experienced the health innovations at participating clinics. The focus groups inquired about experiences with screening and referral for social needs in the clinic setting, and interactions with community providers following referrals. These participating families were recruited from clinic implementation team members and early childhood organizations and referred to the study team. Reflecting the languages preferred by families served by the clinics, we conducted 7 focus groups in English and 8 focus groups in Spanish; at least one focus group was conducted at each clinic.

Electronic Health Records

The study used electronic health record (EHR) and Medicaid administrative data to examine trends in quality of care, health care utilization and financial impact of the innovations. Outcomes assessed include: health care quality (adherence to immunization and well-child visit schedules, developmental, maternal depression, and lead screening, and continuity of care); ambulatory care-sensitive hospitalizations; avoidable Emergency Department (ED) visits; and urgent care use among children served in the participating clinics. These data were used to analyze Medicaid spending on service use (recommended preventive versus urgent care/hospitalization) to inform the cost value of the innovations. We extracted the EHR and Medicaid data for all children age birth to two served in the participating study clinics from January 1, 2014 (corresponding with implementation of the Affordable Care Act) to February 29, 2020 (corresponding to study end). For each outcome using these data, analyses compare children's health care and ED use before and after implementation of the innovations, as well as outcomes for children who did and did not receive the innovations.

Parent/Caregiver Survey Interview

This element of the study design was intended to bring the voices of the many families engaged with participating clinics into consideration of their experiences. Aiming to enroll 110 families (i.e., caregivers and infants) per clinic, individual survey interviews were conducted with caregivers (mostly parents) who received services at the nine participating clinics. Surveys were administered in person by local field interviewers experienced in data collection; from the communities where the clinics are located; and bicultural and fluent in English and Spanish and in one community: Haitian-Creole. Interviewers contacted parents and obtained consent for three survey waves: enrollment (2 weeks to 6 months of birth), mid-point (infant age 7-11 months), and final (infant age 12-15 months). Each interview was scheduled to allow a period of no fewer than 30 days between interview waves. Data sharing agreements enabled collaboration between Chapin Hall and clinic staff and between clinics and field interviewers. Recruitment strategies were discussed, reviewed, and refined collaboratively with clinics throughout recruitment and interviewing to accommodate clinic flow and patient protection. Early challenges to recruiting families led to highly effective collaborative decisions. Recruitment techniques included waiting room recruitment (field interviewers approached families in the waiting room), warm hand-offs from clinic staff to the field interviewer, clinic staff introducing the study to parents by phone followed by field interviewer phone contact, and texting parents. Our strategy included field interviewer supervision by a bilingual and bicultural researcher that incorporated reminders, empathy, and problem-solving using real-time information and data about contact attempts and interview completion rates with parents. Field interviewers (1 to 2 per clinic) were provided monthly graphics that depicted their progress-towards-goals based on the targeted recruitment number, also discussed during monthly individual supervision. Study retention was 84% at midpoint, and 78% at the final interview.

Sample Description and Measures

The final study sample included 908 parents, primarily mothers (97.6%) averaging age 29.5 years. Nearly two-thirds report two-parent households (married = 42.2%, domestic partner = 26.8%). Additionally, the sample was predominately comprised of parents who report Hispanic ethnicity (69.2%). Target children in the sample were 46.9% male. Finally, although the mean income across the sample of $37,788 depicted a moderate income-level, across study sites, income varied substantially. Of note, families at six of the clinics reported average income near or below the Federal Poverty Line for a family of 5 (FPL = $30,170). The enrollment interview was completed by 97% of the sample (n=885). Table 1 presents sample demographics.

Parent Survey Measures

Parents' enrollment interviews included a group of established and newly developed measures of five areas of family experiences: (1) the home and neighborhood environment, (2) parent adverse childhood experiences, (3) resilience and personal mastery, (4) parenting, and (5) access to social support and resources. Measures were selected to provide a snapshot of comprehensive household and environmental risk and protective factors in infancy among families receiving pediatric care in

participating clinics. The study will use this snapshot to examine how clinic engagement and support for impacted families entering pediatric care with diverse constellations of strengths and needs. Among the measures assessed at enrollment, we collected parents' report of Adverse Childhood Experiences (ACEs), using the expanded scale developed by the Center for Youth Wellness (24). Though primarily interested in current household and environmental circumstances, caregiver ACEs are associated with factors directly impacting the child's environment, including caregiver mental health, substance use, and relational well-being and were therefore important to capture as part of the overall assessment of the household.

Results

At the time of enrollment (Table 2), 860 parents with complete responses reported an average of two adverse childhood experiences (X = 1.93, SD = 2.02). Nearly one-fifth of the sample (19%) had experienced 4 or more adverse experiences (n = 163), 51% between 1–3 experiences (n = 438), and 30% no adverse childhood experiences (n = 259). Most commonly reported were parents divorced (36% of families), saw or heard violence in neighborhood growing up (27%), harassment or bullying at school (25%), and caregiver drinking or drugs (21%).

Current levels of housing instability, quality, and neighborhood disorder and danger assessed through other enrollment measures all indicated that the sample, on average, was experiencing little difficulty in these areas. The sample average level of risks in the child's family environment similarly were low although one third of caregivers reported functional difficulty managing their schedule and one third had difficulty managing thinking. Measures of resilience suggest that the sample on average, had high access to resources and personal resourcefulness. While averages across the full sample on multiple measures show lower-than-expected challenges, the averages mask diversity in family experiences. A person-centered approach, specifically latent profile analysis will be used to identify groups of families with similar profiles.

Discussion

This paper describes the developmental approach used to execute a comprehensive, multi-level investigation of nine pediatric health care clinics in five U.S. communities. Innovations originating in pediatric primary care and involving community service partnerships were designed to enable clinics to screen for family stressors and refer caregivers to services to prevent and mitigate toxic stress in children. We used this developmental evaluation approach characterized by using multiple sources of data to describe the early stages of adoption of the innovations and the intersecting systems that influence the success of the innovations—health care, early childhood and community services—that are essential to addressing the multi-determined nature of toxic stress. This, layered with community, pediatric clinic, and family perspectives form a comprehensive view of families with infants and the health and community services they encounter. The rapid-cycle feedback using co-interpretation approaches enhances the study design by eliciting insight on preliminary findings from innovation developers, community providers, clinics, and families. This was a critical opportunity to gather early reactions from data sources guiding

how we translate and enhance credibility of findings and ensuring clinics could respond and adjust to early finding to enhance service delivery.

Through its community and family focus groups and health care interviews, the study answers questions about the value of social need screening and referral systems, both with case managers embedded within medical practices (such as DULCE) as well as those using existing health care practitioners and learning community approaches (such as I-SCRN). Barriers and facilitators to families connecting to and accepting services (such as early developmental interventions) is one of the significant challenges that must be addressed in the near term if the innovations are to be successful. Primary care practices are stretched thin in their efforts to connect families to needed social services (25). In order for any study in healthcare to provide useful directions for medical practices to follow, diverse families and communities must be included. Diverse strategies must be part of the solution. Initial qualitative results suggest the importance of actively adapting these approaches (as opposed to fidelity) to support families to disclose social needs in the pediatric setting; screening and referral practices that are family-centered and culturally responsive, supported by clearly articulated clinic work flows, are key to ensuring clinic-based changes engage and support families (Authors, under review). The specific types of staff capacity and community-specific expertise needed to start up and sustain these approaches, along with recognition that reorganizing care around family needs may require larger systemic changes—are also needed to address these issues meaningfully (Authors, 2019; 2020).

A unique aspect of this study is that a majority of parents surveyed were Latinx of diverse origins, as a majority of participating clinics are located in Latinx-dense communities. Our qualitative findings suggest that adding social needs screening and referral redefines the social context of well-child visits for Latinx parents (Authors, under review). Some Latinx parents reported that it was important and convenient to be asked about these personal circumstances within their child's health care, particularly when these conversations were embedded in interactions with nurses, family specialists, and other staff with whom they shared cultural background, spoke the same language, or viewed as non-judgmental and understanding. Others parents expressed that they perceived these questions as inappropriate in the health care setting or were reluctant to discuss personal circumstances with providers that they viewed as authority figures and outsiders. Further, parents stressed the importance of discussion and follow-up on screening results that elicited parent voice and prioritized needs and service responses from the family perspective.

Despite challenges related to poverty, health care insurance access, and disparate health outcomes observed among Latinx families in the U.S., caregivers in the current study reported relatively low levels of early childhood adversity. This is not unusual—a previous study of 1,523 low-income women found significantly lower ACE scores among Latinx women, compared with all other groups (26). The finding may reflect diversity of the Latinx caregivers in our study, where 64% are foreign-born, of whom 50% report immigration from Mexico and 45% from Central America. Several studies point to lower ACEs reported among foreign-born Latinx families compared with U.S.-born (27, 28). There are also results that indicate that ACE assessments with Latinx families insufficiently capture Latinx experiences (27).

Caregivers in the current study survey also reported relatively high levels of resilience, suggesting that Latinx families are able to draw on diverse sources of support to meet challenges facing them in the U.S.

The importance of this study is in advancing policy and practices in the field of health care and community partnerships that will help reduce the health implications of toxic stress exposure and lack of protective factors in infancy and early childhood. There is a business case that is central to integrating innovations such as those described in this study into pediatric health care: the potential for improved population health and reduced system cost over the life course, first among children—and later adolescents and adults—a preventive service model that is intended to shore up family access to resources early in children's lives so that children do not experience chronic stress that can have health impact.

Health care practices considering screening and referral innovations for social needs in their medical setting face three primary challenges. First, because there is yet insufficient evidence that investing in innovations to address families' social needs and reduce toxic stress will result in intended outcomes of improved health, increased health care quality, and cost savings, implementing these approaches currently requires practices to take a significant "leap of faith." Health care systems and payors need the backing of rigorous research and evaluation to make a business case for the models and this is not yet possible. There is preliminary evidence of similar models in the area of increasing families' access to resources and improving socio-economic circumstances. For example, using the WE CARE model to systematically screen and refer families to services, results of a randomized control trial including 336 mothers in 8 community health centers showed that mothers who received the intervention were more likely to be employed, less likely to be homeless, and to have accessed at least one resource compared with mothers who did not receive the intervention (29). Studies such as this are promising, but more is needed to understand health impact particularly. More evidence is needed about what works best for whom and in what context, the key ingredients to successful approaches, and the approaches that show the most cost efficiency.

Second, health care in the U.S. does not yet have a universal administrative framework to pay providers to implement screening and the service coordination and referral roles that accompany identifying families' social needs. A number of U.S. federal funding initiatives were launched in 2016–2017 to spark innovation through the Center for Medicare and Medicaid Innovation (CMMI). The initial phase evaluation results show challenges in areas such as having an adequate work force to address social needs, lack of standardization, adequate data systems, and closing referral loops between health care and community services (30, 31). Medicaid demonstration programs are also testing different payment and delivery models that can include broadening services to health-related needs such as providing community health workers to assist families with housing, food and income (32, 33). The recently introduced Social Determinants Accelerator Act of 2019 would convene a federal inter-agency technical advisory council to identify opportunities for state and local governments to coordinate funding and administration of federal programs that may be underutilized or unknown. These emerging approaches will provide many

lessons and eventually provide direction for more widespread adoption if positive financial and quality of care impacts are realized.

Finally, health care practices need to consider the strengths and gaps in their partnerships with community service providers. Linkages between health care and community services are absent in most communities and building these systems takes time. Our study identifies social needs reported by families of infants receiving pediatric primary care. From family interview data, we will create profiles of families formed by common characteristics in the areas of risk and resilience and assess differences in health care engagement and longitudinal child and family outcomes. This will help health care stakeholders prioritize and tailor services to meet common social needs.

Conclusions

This study is one of the first comprehensive investigations of health innovations in primary care designed to prevent and mitigate toxic stress. Our articulated theory of change asserts that the effects of systems change, provider behavior, and family engagement efforts will continue to evolve and as a consequence of this change, families will experience increased and enhanced health and concrete support, in turn, affecting parent sense of agency and behavioral change that promotes child health and well-being. As the number of families living in stressful environmental conditions exacerbated by poverty continues to increase in the U.S., it is critical to develop effective methods to mitigate the impacts of toxic stress. Crucially needed are cost-effective supports for families that occur at critical transition points, are driven by families, and sustainable within the existing funding structures. The products of the evaluation will serve as benchmark evidence in the field and provide not only a vehicle for clarifying approaches to reducing stress but seed a basis for beginning to discern critical ingredients that inform replication. Investigating how innovations arise and impact families in pediatric primary care-community service partnerships that provide services to low-income as well as middle-income families allows the documentation of under-told stories of family resilience and strain to systems serving families.

Abbreviations

ACEs – Adverse Childhood Experiences

AAP – American Academy of Pediatrics

CMMI - Center for Medicare and Medicaid Innovation

DULCE - Developmental Understanding and Legal Collaboration for Everyone

EC-LINC - Early Childhood Learning and Innovation Network for Communities

ED - Emergency Department

EHR - Electronic Health Records

FPL – Federal Poverty Line

HMG - Help Me Grow

IRB - Institutional Review Board

I-SCRN - Improving Screening, Connections with Families, and Referral Networks

SDOH - Social determinants of health

U.S. - United States

Declarations

Ethics approval and consent to participate

All study procedures were approved by the University of Chicago Social Services Administration-Chapin Hall Institutional Review Board (IRB). Written consent was obtained for all family participants in both interviews and focus groups. All other focus group and interview participants provided verbal consent.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

JM and JR were lead authors and major contributors to writing the manuscript. AS led the qualitative portion of the study and wrote these sections of the manuscript. KB led the quantitative portion of the study and wrote these sections of the manuscript. JA was a major contributor to the study design and implementation and contributed to these sections of the manuscript. All authors have read and approved the manuscript.

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Tables

Table 1 Sample description

Caregiver Characteristics		
Caregiver relationship to child (n = 886)	Frequency	%
Mother	865	97.6
Father	12	1.4
Grandparent	3	0.3
Foster Parent	4	0.5
Legal Guardian	2	0.2
Marital Status (n = 882)		
Married	372	42.2
Domestic Partnership	236	26.8
Single	244	27.7
Separated	16	1.8
Divorced	12	1.4
Widowed	2	0.2
Ethnicity (n = 887)		
Hispanic	614	69.2
White (non-Hispanic)	125	14.1
Black (non-Hispanic)	106	12.0
Asian	15	1.7
American Indian or Alaskan Native	2	0.2
Middle Eastern or North African	3	0.3
Pacific Islander	3	0.3
More than one race	7	0.8
Other race	12	1.4
	Mean (S.D.)	Range
Caregiver age (n = 889)	29.5 (6.09)	18-55 years
Child Characteristics	Mean (S.D.)	Range
Child age (in months)	2.6 (1.7)	0.1 - 8 months

Child gender (n = 785)	Frequency	%
Female	417	53.1
Male	368	46.9
Household Characteristics	**Mean (S.D.)**	**Range**
Household size (n = 885)	5.2 (2.2)	2 - 20 people
Annual household income (n = 786)	$37788 (44476)	$0 - $555000
Annual household income by clinic		
Clinic A (n = 60)	$60735 (41999)	$0 - $180000
Clinic B (n = 120)	$29263 (3698)	$1200 - $360000
Clinic C (n = 117)	$30991 (3467)	$9000 - $360000
Clinic D (n = 118)	$22293 (9434)	$0 - $52000
Clinic E (n = 84)	$26597 (32431)	$0 - $288000
Clinic F (n = 112)	$27340 (20375)	$1200 - $16800
Clinic G (n = 101)	$78797 (78108)	$5200 - $550000
Clinic H (n = 21)	$20517 (15787)	$5688 - $84000
Clinic I (n = 53)	$4921 (46258)	$500 - $200000

Table 2 Measures of parent report of stress and resilience at study enrollment

| Scale	n	Mean	SD	Min	Max	Total Possible
Safe Environment for Every Kid (SEEK) (34)	836	1.65	1.81	0	9	12
Housing Instability Index (35)	853	.95	1.42	0	9	10
Housing Quality Scale (36)	889	.13	.28	0	2	5
Neighborhood Disorder Scale (35)	889	.23	.41	0	2	5
Neighborhood Danger Scale (35)	881	.40	.69	0	3	3
Adverse Childhood Experiences (Items 1-12) (24)	860	1.93	2.02	0	10	12
Functional Impact of Toxic Stress on Parents (FITS-P) (37)	869	.96	1.08	0	4	4
Connor-Davidson Resilience Scale (38)	856	81.38	13.18	9	100	100
Pearlin Mastery Scale (39)	875	21.80	3.30	9	28	28
Infant Development Questionnaire (40)	793	12.91	1.90	3	15	15
Healthy Families Parenting Inventory Mobilizing Resources Subscale (HFPI) (41)	889	18.97	4.33	5	25	25
DULCE Social Connectedness (17)	886	3.54	.89	0	4	4

Figures
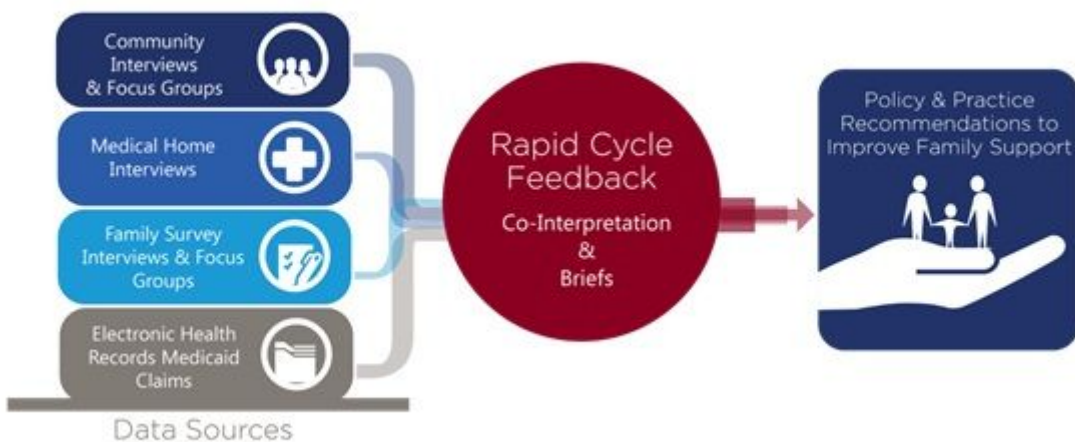
Figure 1

Figure 1

Supplementary Files

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- COREQChecklist.pdf