



# Landscape analysis for a community-designed intervention to enhance early childhood development in San Francisco

Kyle Lakatos\*, Elizabeth Uy-Smith

Department of Family and Community Medicine, University of California, San Francisco, Family Health Center, Zuckerberg San Francisco General, 995 Potrero Ave. Bldg. 80, Ward 83., San Francisco, CA 94110, United States

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## ABSTRACT

To determine the appropriate components for a community-based intervention for early childhood development, a broad series of stakeholder interviews was completed in a three-month period (January–March 2019) and a systematic review of their responses was performed. Additionally, 11 citywide assessment reports for child equity were reviewed and added to the information matrix. We performed this population-based assessment in San Francisco, a dense urban environment with roughly 43,000 children under the age of 5. The city has high rates of income inequity, with roughly half of the children considered to be living in low-income or poverty conditions. Interviews were conducted with 34 stakeholders representing various sectors, including community organizations, government, healthcare, and academia. Nine main concerns surrounding low-income families and children (LIFC) living in San Francisco were extracted from stakeholder interviews. The concerns were divided into subcategories based on a socioecological health model. City-funded, community-based, family resource centers were an identified space for performing an early childhood health intervention supporting LIFC. Furthermore, any proposed intervention to support LIFC must be implemented with a culturally tailored focus, as a one-size-fits-all, clinic-based model is not desired. Community-engaged and culturally specific activities are requested and required for effectively promoting early childhood development in an urban environment. In this article we propose that additional work towards implementing community-based interventions with support from the clinic are needed.

## 1. Introduction

In our current healthcare system, a physician's ability to impact their patient's health is often limited to a short 15-minute visit in an overbooked clinic (British Medical Association, 2011; Fenton and RWJF, 2011). The fast-paced and infrequent visits to primary care providers are ineffective and expensive deviations from addressing the underlying social determinants of health (SDOH) impacting a patient's lifelong health (Braveman et al., 2011; Frieden, 2010; Marmot and Allen, 2014). Indeed, many chronic conditions are more commonly attributed to one's lived experience and access to readily available and accessible social support services rather than a periodic check up with a clinician. Preventative and primary care services hinge on a patient's adherence to the clinician's recommendations. Given the broad scope of activities requested from providers for their patients, which can include any combination of drug regimes, physical activities, and follow up

appointments, it is easy to see how intended health outcomes are not always met. Amplification of these disparities is well-known among clinics in urban settings as patient populations often face many socio-economic hardships that effect their health. For many low income families and children (LIFC), the periodic well-child preventative care visit is missed due to caregivers not having the time to take their child to the clinic or the knowledge of its importance (Samuels et al., 2015). The well-child preventative care visit has shown to be a critical point-of-care for LIFC as providers are able to disseminate important information on healthy body and brain development activities for engaging children at each stage of growth. One novel approach to disseminating this critical information early in the lifespan is to remove the barrier of the in-clinic visit, and instead shifting our focus on the development of health interventions within community spaces.

An encouraging starting point for engaging in community-based health initiatives is through supporting programs centered around

*Abbreviations:* ECD, early childhood development; FRC, Family Resource Center; LIFC, low-income families and children; RWJF, Robert Wood Johnson Foundation; SDOH, Social Determinants of Health; SF, San Francisco

\* Corresponding author.

E-mail address: [Kyle.Lakatos@ucsf.edu](mailto:Kyle.Lakatos@ucsf.edu) (K. Lakatos).

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building healthy early childhood development (ECD) and strengthening family dynamics. When considering the specific health and socioeconomic outcomes associated with ECD, there is growing evidence that supports the timely achievement of ECD milestones, which correlates to future higher quality-of-life, including higher rates of academic success, increased socioeconomic status, and decreased rates of obesity (Davison et al., 2019; Hanson et al., 2014; Luby et al., 2013; Wong et al., 2017). Utilizing the life course model, improving the lives of children can lead to improving the lives of populations over time (Ben-Shlomo and Kuh, 2002). It is well understood, that within the first five years of life, the framework of formative development in a child is assembled. During this formative time, the responsibility of caregivers and providers is to ensure a healthy rate of maturation and successful achievement of specific skills depending on the child's age. Although the tools and the resources in marking these milestones have been made available, they are not always accessible. Children from underserved populations are especially vulnerable to experiencing delays in their fluency of thinking, language, emotional, or social interactions; of these communities, children living in immigrant or low socioeconomic neighborhoods are most impacted (Guralnick, 2011; Johnson et al., 2016). To achieve a measurable change in ECD it is imperative that our outreach expands beyond the clinic and meets the need of each priority population.

Accessibility is major challenge in our current healthcare and health delivery systems. The U.S. is perhaps an outlier to other high-income countries that have universal healthcare systems. In addition to a rising trend in the number of uninsured children in the US since 2016, many adults forgo or lack health insurance because of its extensive costs. This barrier to even accessing healthcare poses a major threat to population health if we continue to solely utilize traditional healthcare models. One solution may be to identify nontraditional healthcare settings that can serve as a community-driven learning ground for child-caregiver interactions. This approach has already shown to be successful in multiple randomized controlled trials with long-term follow-up evidence on; cost-effectiveness, better pregnancy outcomes, improved child health and development and increased economic self-sufficiency (Olds et al., 1997; Schweinhart, 1993; O'Mara-Eves et al., 2015; Wells et al., 2013). Active support to caregivers is a necessary ingredient for cultivating ECD. This holds especially true to caregivers with lower sociocultural capital who may feel less equipped with skills to promote ECD. Thus, the first step in this work will be to identify the community-specific resources to which ECD interventions can be incorporated.

Previous work has shown that for low-income populations, group-based health interventions resulted in a greater shift in patient's attitude toward their own health (Nápoles et al., 2015). In urban settings, this behavioral change can be further augmented when adding a cultural lens to the equation. Large cities contain a diverse set of communities that each engage with healthcare within their own circumstances; by engaging with the language and idiosyncrasies of cultural groups, we can expect to see greater treatment plan adherence. San Francisco (SF) is a model city for exploring the community-based interventions in a diverse, urban environment. Over the last 20 years, the city has seen a spike in income inequality due to the rising computer technology economy. The result has been large demographic shifts, squeezing the multi-generational, low-income communities into smaller pockets with less socio-geographic resources. The goals of this work are to identify community-specific needs related to early childhood development in San Francisco and to propose an avenue for bringing the expertise of medical and behavioral health trained professionals out of the clinic and into community settings.

## 2. Methods

### 2.1. Identification of stakeholders and SF citywide reports

We researched the current climate for families living in SF and an

information matrix was built from a series of stakeholder interviews and a review of SF citywide reports related to the well-being of young children and their families. Stakeholders represented a variety of professional agencies, including; community organizations, government officials, providers, and academics from across the city. Additionally, three interviewed stakeholders were out-of-state representatives of a similar urban environment to SF. These cross-country interviews prioritized learning about programs which have been either effective or ineffective for supporting low-income families. From the interviews, multiple summary reports developed for organizations or agencies within SF were suggested for further examination, and of which, 11 were reviewed. All reviewed summaries are publicly available, published by the City and County of SF or by organizations with special focus on early childhood programs and childhood equity.

### 2.2. Stakeholder interviews

From January through March 2019, 54 inquiry emails were sent out to stakeholders to gain insight on the current landscape of early childhood health equity in SF; of those, 34 stakeholders participated in voluntary interviews (63%). Stakeholders were identified using a snowball sampling method. Each stakeholder was interviewed either in-person or over the phone with a questionnaire developed to identify the following: 1) the current concerns for LIFC living in SF; 2) locations where the stakeholder organizations felt would be most appropriate to house a community-based ECD initiative; 3) the components of an ideal ECD intervention; and 4) the metrics and evaluations most appropriate to track the intervention effectiveness. The responses were documented in a standard form.

### 2.3. Analysis of stakeholder interviews

The interviews were systematically reviewed in two passes. First, all the stakeholders were stratified into one of four categories based upon their affiliation [i.e., community organizations (n = 11), government officials (n = 13), healthcare (n = 4), or academics (n = 6)]. Along with stratification, each interview was reviewed to identify common qualitative themes, with similar topics being grouped together (e.g. oral and nutritional health, and food and housing insecurity). If a topic was explicitly mentioned, it received one count per interview. The number of counts of each theme was summed and any theme mentioned by at least 14 interviewees (40%) was considered a priority and included in the subsequent steps. In the second half of stakeholder analysis, themes identified as priorities were then reviewed and further stratified into one of three barrier categories based upon the Robert Wood Johnson Foundation (RWJF) Commission to Build a Healthier America's model of the SDOH ranging from socioeconomic and political factors, community and family factors, or health and behavior factors shown in Fig. 1 (Braveman et al., 2011).

### 2.4. Surveying of families

Upon completion of the stakeholder interviews, the areas of need within ECD promotion in the community were identified. To ensure that the concerns and desires of parents matched that of what was expressed by stakeholders, a parent survey was designed and distributed amongst four community resource centers who volunteered to participate during April 2019. The one-page parent survey was made available in English, Spanish, and Chinese and included questions to identify the following: how the family originally learned about the community resource center; the families' comfort and access with using digital technology; their ranked interest in the needs expressed by stakeholders; and whether or not they currently had health insurance. Parents responses were gathered via convenience sampling and recorded by staff at the organizations. Total responses were aggregated based on location of acquisition.

Health	Category according to RWJF Commission's SDOH Model	Stakeholder per category (# interviewed)	Highest priority barriers identified from across the stakeholder interviews (>40% respondent reported)	Needs & Resource identified from citywide summaries and reports (n=11)	
				Needs	Resources
	Economic & Social Opportunities and Resources	Government (n=13)	<ul style="list-style-type: none"> <li>Housing and Food Insecurity</li> <li>Immigration Support</li> <li>Cultural Sensitivity (Racism)</li> </ul>	Research (to drive policy)	Funding
	Not included in RWJF SDOH Model	Academics (n=6)	--- N/A ---	Funding	Research
	Living & Working Conditions in Home & Communities	Community Organizations (n=11)	<ul style="list-style-type: none"> <li>Navigation of Resources</li> <li>Parent-Child Dyad Development</li> <li>Childcare Services</li> </ul>	Community Partnerships	Program Evaluation
	Medical Care and Behaviors	Healthcare (n=4)	<ul style="list-style-type: none"> <li>Oral Health and Nutrition</li> <li>Screening for Trauma and Abuse</li> <li>Screening for Developmental Milestones</li> </ul>	Program Evaluation	Community Partnerships
				More Families	Case Management for ECD SDOH
				Case Management for ECD SDOH	More Families (90% attendance to well-child visits*)

\*Data comes from Child Trends analysis of the National Health Interview Survey, 2000-2017.

**Fig. 1.** Tabular adaptation of the Socioecological Model of the Social Determinants of Health by Braveman, RWJF. (Left) The nine highest priority barriers for families are categorized by magnitude and scale of the institutional inertia required to make change across these different systems. (Right) An interdependent model of the needs and resources identified across sectors from the citywide report analysis. Given the unique sets of needs to resources for each sector, the collaborative cascade model is used to demonstrate the case for more cross-sectoral partnerships. Each sector has unique needs that other sectors naturally possess as resources; it is worth considering that forming collaborations can lead to greater success for all sectors in working to support LIFC.

### 3. Results and discussion

#### 3.1. Stakeholder-identified barriers for LIFC in SF

We grouped the stakeholder feedback into various categories of barriers faced by families across SF (Fig. 1). Using an adapted SDOH socioecological model, the categories can be summarized by the political capital and funding required to make significant change (Braveman et al., 2011). First, larger systemic and structural barriers within the city which would require multiple cross-sectoral activities to address. Within our stakeholder interviews, many anecdotal experiences were also shared, with stories of families facing stigma or arduous amounts of paperwork and wait times for financial subsidies. The barriers, in some cases, have discouraged families from seeking future federal support services.

The mid-tier barriers occur at the inter-community level. The most frequently identified barrier of resource navigation was included here, where 29 of the 34 respondents (85%) clearly identified it as a concern. The third level of hardship families face are centered within the limitations of the current healthcare system. Additionally, our findings highlight well-established needs and resources of each stakeholder group interviewed based on the 11 summary reports reviewed during the landscape analysis. An interdependent collaborative cascade model is used to show the connecting points for producing potential productive collaborations.

#### 3.2. Geographic socioeconomic identified through the review of city and county reports

Collected demographic data of the city of SF shows that nearly half of children living in SF are considered low-income. Review of the 2017 SF-CPAC Early Childhood Education Needs assessment provided a map showing the zip code distribution of where children between ages 0–5 are currently living in the city (San Francisco CPAC Early care and education needs assessment 2017, 2018). A further sub-categorization of the neighborhood income level shows that historically Black and immigrant (LatinX and Asian) neighborhoods are primarily affected by low-income or poverty living conditions (Fig. 2). According to our literature review, there is evidence that families who may qualify for federal or state subsidies often do not access the available programs due to geographic strain from inadequate or lengthy public transit services.

#### 3.3. Suggested sites of a community based ECD intervention

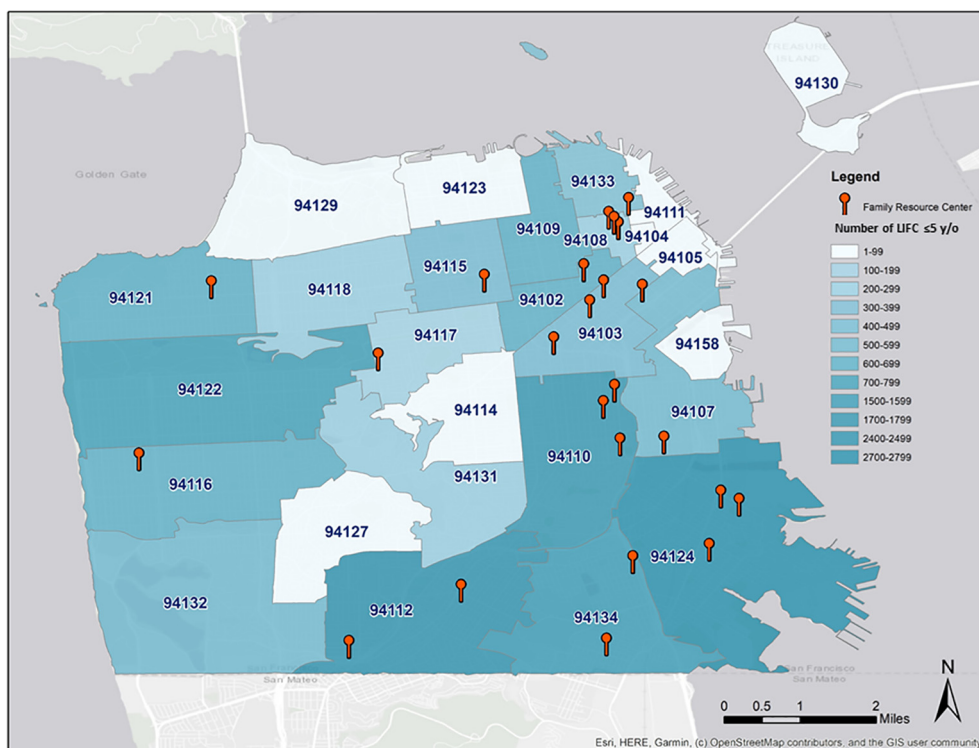
Twenty-three (68%) of the responses specifically called for working with existing neighborhood community centers as a primary touch point for parents. Of all responses, the most frequently named resource (n = 5) were the Family Resource Centers (FRCs). Within SF, the FRCs function as our neighborhood community centers. There are a total of 26 FRCs located around the city, each with focus on a different demographic and community. The FRCs are funded in-part through First5 SF, a county subgroup of the larger statewide program First5 California, which is funded through a CA Tobacco Tax. Each FRC focuses their efforts to support families living within their surrounding area through promotion for the following services (First5 SF website):

- Culturally relevant teaching of parenting techniques
- Providing navigation of social support systems to families
- Community building for families to connect with other families
- Fostering happy and healthy development to be successful in school
- Promoting activities to support healthy brain and socioemotional development.

Additional evaluation of the location of the FRCs, shows that their spread throughout the city correlates well with the neighborhoods the highest levels of LIFC (Fig. 2.) The combination of factors listed above makes FRCs an attractive site for building stronger collaborations with healthcare delivery services. Further discussion of a cross-sectoral partnership between First5 SF and Zuckerberg San Francisco General, the city’s public safety net hospital, is an encouraging prospect warranting further exploration.

#### 3.4. Suggested components of a community-based early childhood development intervention

The most suggested component of an appropriate intervention was to ensure the cultural relevance and competency of any programming introduced. Cultural humility and the importance of community-specific programming was articulated by 20 of the 34 representatives (59%) with representatives from across each sector articulating this need.



**Fig. 2.** Neighborhood map of where children (ages 0–5) in low-income families are living across SF, a darker blue neighborhood correlates to higher numbers of children. The pins indicate the location of the 26 FRCs across the city. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

### 3.5. Results from the parent surveys

Feedback from parent surveys indicated that although two-thirds of families had comfort with phones ( $n = 30$  of 46 families), only half had adequate access to digital technology to utilize either apps or websites ( $n = 24$ ). In addition, FRC leaders observed many LIFC do not utilize or desire digital resources due to concerns with traceable information (fear of U.S. Immigration and Customs Enforcement) or limited data plans on mobile devices. As resource navigation was the highest priority topic identified by stakeholders, this point is of particular interest to the research team in hopes that a cost-effective app or web service (such as 1degree.org) may provide appropriate support. In a city as tech-forward as SF, it appears technology may not be an apt solution for supporting LIFC populations. Additional findings were not determined from the parent surveys as detailed in the limitations section below.

### 3.6. Study limitations and strengths

With the use of a snowball sampling method for the identification of stakeholders, there exists some bias in the representation of the participants. As even through a broad network was surveyed, the stakeholder’s recommendations were to other individuals known to be actively involved in this work, this leaves out potential organizers who operate peripherally to city-wide measures. Additionally, the questions asked to stakeholders did not prompt for any specific barriers, thus some stakeholders may have omitted challenges not spontaneously recalled during the interview. This methodology attempts to provide a glimpse into the current and actively attention-demanding issues in San Francisco but may not include other historical root-causes and less prominent issues.

The parent survey had additional limitations in its use. Collected data was selected by community organizations based on convenience sampling, and only represent a subset of parents who came to utilize the services throughout the month of April. many of the survey responses were not filled as intended (e.g., ranking all options for the barriers suggested by stakeholders as high priority. Additional work is needed in the future to explore how to work with parents on strategizing best

engagement and feedback methodologies.

### 3.7. Dissemination of findings and next steps

Results of this work will be shared with all interviewed stakeholders as well as multiple participating community organizations across San Francisco. Additional dissemination will be passed throughout social media and local media outlets to help inform policy changes across all the levels of health in the RWJF model. The next steps will be to actively explore how our expansive health ecosystem in San Francisco can build and bridge meaningful partnerships with community organizations focusing their efforts on ECD and developing healthy neighborhood support networks.

## 4. Conclusion

Addressing the SDOH represents an upcoming milestone for the healthcare industry. Potentially through developing more reliable mechanisms to support families outside of the provider visit, we can begin to address the mid-tier health concerns that occur beyond the clinic walls. This review started with the vision of bringing a health intervention out of the medical setting to better support our families within their own neighborhoods. As researchers based within an FQHC, the majority of our patient population is low-income qualifying for Medicaid coverage or living without any form of insurance. Additionally, we know of the myriad of barriers faced by our patients within their day-to-day lives that can impede them from simply having the protected time and means to travel for a clinic visit and receive adequate support. These challenges are further amplified for our families with young children who may not have access to childcare services.

Supporting patient populations in an urban environment can sometimes feel insurmountable. Addressing the SDOH for a variety of needs can be difficult to accomplish if we seek to find a one-size fits all model. A focused effort is needed; both, directly towards programming and policies supporting community-based care models, and indirectly through mandating SDOH and community engagement best-practices

training for all health professionals. As made clear through our landscape analysis, we need to respect the community dynamics already built and uplift existing programs to support and meet people at their own starting point on the health journey. Given the consistent responses to find culturally focused health interventions across various sectors, the opportunity is ample and desired. Keeping culture in mind, we believe the power of intra-community knowledge and existing neighborhood resources builds a strong foundation to promote early childhood development within a diverse city.

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## CRedit authorship contribution statement

**Kyle Lakatos:** Conceptualization, Methodology, Investigation, Resources, Data curation, Writing - original draft, Visualization, Funding acquisition. **Elizabeth Uy-Smith:** Validation, Writing - review & editing, Supervision, Project administration.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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