## Title

Innovations in social health delivery to advance equitable pediatric and adolescent life course health development: A review and roadmap forward



## Journal

Current Problems in Pediatric and Adolescent Health Care, 53(6)

## ISSN

1538-5442

## Authors

Liu, Patrick Y
Spiker, Steve
Holguin, Monique
et al.

## Publication Date

2023-06-01

## DOI

10.1016/j.cppeds.2023.101451

Peer reviewed

HHS Public Access

Author manuscript

*Curr Probl Pediatr Adolesc Health Care*. Author manuscript; available in PMC 2024 January 22.

Published in final edited form as:

*Curr Probl Pediatr Adolesc Health Care*. 2023 June ; 53(6): 101451. doi:10.1016/j.cppeds.2023.101451.

# Innovations in social health delivery to advance equitable pediatric and adolescent life course health development: A review and roadmap forward

**Patrick Y. Liu, MPH**[a,*], **Steve Spiker, MGIS**[b], **Monique Holguin, PhD,LCSW**[c], **Adam Schickedanz, MD PhD**[c,d]

[a]Medical and Imaging Informatics (MII) Group, Department of Radiological Sciences, UCLA, Los Angeles, California, United States

[b]One Degree, Inc., 360 Grand Ave, Unit 190, Oakland, California, United States

[c]Department of Pediatrics, David Geffen School of Medicine at UCLA, Los Angeles, California, United States

[d]Department of Health Policy and Management, UCLA Fielding School of Public Health, Los Angeles, California, United States

## Abstract

Recognizing the influence of social determinants on health and development, health care has increasingly advocated for interventions that target upstream factors as part of routine pediatric care delivery. In response, clinic-based social risk screening and referral programs have proliferated wherein patients are screened for health-related social needs (HRSNs, such as food and housing insecurity) and referred to community-based organizations (CBOs) and social service providers to address those needs. In recent years, an array of digital platforms, known as Social Health Access and Referral Platforms (SHARPs), have emerged to facilitate the scale and implementation of these models amidst growing system demand.

Recent evidence on the effectiveness of social risk screen and refer models and SHARPs has been mixed, giving researchers pause and calling for more nuanced understanding of the limitations of such models, especially for promoting child and family health. Design thinking informed by the Life-Course Health Development (LCHD) framework provides a particularly useful lens for synthesizing emerging limitations of such models in the pediatric context, given the dynamic and developmentally-driven circumstances that shape family health and well-being in the early life course. By (1) *focusing* on addressing deficits-based social risks, (2) *scoping* to act upon narrow, downstream needs, (3) *timing* to react to social needs that have already caused harm rather than preventing them, and (4) limiting *scale* to individual-by-individual responses rather than structural and population-wide interventions, the current design of prevailing social risk screen and refer

[*]Corresponding author at: 10833 Le Conte Avenue, Los Angeles CA 90095, United States, pyliu@mednet.ucla.edu (P.Y. Liu).

Author Disclosures

Steve Spiker is an employee of the technology nonprofit One Degree, Inc. The other authors have no financial relationships relevant to this manuscript to disclose.

programs fundamentally limits their potential impact and misses opportunities to improve health equity over the life course.

How can health care, social care, and technology partners move forward in collaboration with families and communities to better support equitable lifelong health and social development? In this narrative review, we will summarize the current design, implementation, and limitations of the predominant social risk screen and refer approach in the context of early childhood and adolescent care delivery. We then will apply LCHD principles to advance and improve on this approach from a reactionary focus towards a Family Journey Model that better supports life course health development.

## Introduction

Multi-sector collaboration between health care and social services can support life course health development if designed and implemented thoughtfully with a holistic understanding of factors influencing child and family health[1] This is a core tenet of the Life Course Health Development (LCHD) framework, which orients interventions, policy, and funding towards multi-sector, upstream, and developmentally attuned and aligned investments, particularly in the critical periods of early childhood and adolescence.[2–4]

Over the past decade, there has been growing awareness in the health care sector of the role that upstream social factors—early life structural determinants such as poverty, racism, and other forms of social marginalization, and consequent material hardships (often termed “social needs” or “health-related social needs”, HRSNs)—play in affecting health development.[5] In parallel, US health care financing has trended towards value-based payment models designed to reward care quality and outcomes over service volume while simultaneously giving health systems more options for investing in upstream health interventions if they assume greater accountability for demonstrating population health improvement.[6,7] Together, these developments have fostered a national dialogue about what role health care should play in addressing patients’ HRSNs (e.g., housing insecurity, food insecurity, lack of employment, transportation, etc.) as a means of improving equitable health outcomes and reducing growing health care costs.[8]

Health care systems typically lack the intrinsic capacity and expertise to address patients’ HRSNs through traditional health care infrastructure and personnel, which has led to some integration of social care capacity into health care but a much larger proliferation of clinic-based “screening and referral” programs in which patients are screened for HSRNs then referred to community-based organizations (CBOs, i.e. outside of the health care system) who provide services to meet any identified needs.[9,10] Such models of care have been promoted by the National Academies of Science, Engineering, and Medicine (NASEM) and the American Academy of Pediatrics, and implemented into Medicaid policy.[11–13] Pediatric practices have been at the forefront of the adoption of these programs in order to address a host of risks not traditionally captured through medical care but that are becoming the standard of care for health care systems. Such social risk “screen and refer” programs follow workflows similar to other established pediatric care practices, such as screening for developmental risk, maternal depression, and adverse childhood experiences (ACEs) to

identify social and environmental concerns in hopes of being able to respond and promote healthy development in children.

To date, social risk screen and refer models have seen mixed impact on addressing social needs, health outcomes, and costs.[14,15] Many of their challenges have, in part, been attributed to a lack of thoughtful cross-sector collaboration between health care and social services, which has resulted in scenarios where patients bear a growing burden of the time and effort needed to navigate to social services in the hopes that it will address their needs.[14] In an attempt to foster greater alignment and accelerate the efficiency and scale of social risk screen and refer programs, an array of new technology platforms—termed Social Health Access and Referral Platforms (SHARPs)—have emerged with the aim of streamlining and enhancing the process of "screen and refer" between clinical and social service organizations.[16] As SHARPs continue to shape current norms around social care delivery, however, they risk further institutionalizing and scaling present limitations of the prevailing social care models.

Beyond challenges with implementation, there are emerging critiques, more fundamentally, around the approach of screen and refer models (and the SHARPs that structure and facilitate them).[17,18] For example, social risk screen and refer programs may over-medicalize social risks by relying on clinical screening and referral practices that mirror the deficit-based diagnosis and treatment of disease only once it has occurred, shifting attention away from interventions that prevent the harms of social risks by anticipating and investing early in equitable health and social development at critical life stages. Over-investment in screen and refer approaches may ultimately detract attention away from needed structural reforms that more fundamentally address upstream causes of poverty and social marginalization—and contribute to upholding systems that benefit from treating their downstream outcomes.

Design thinking informed by LCHD may be especially relevant to upstream social care innovations, given their complexity and the unique, dynamic, and developmentally-driven circumstances that shape family health and well-being in the early life course. LCHD intervention principles could be applied to the conceptual design and technical infrastructure of upstream social care intervention models in terms of (1) their *framing* being family-centered and strengths-based; (2) their *scope* being bundled to integrate supports across sectors; (3) their *timing* being anticipatory, developmentally, and longitudinally-focused; and (4) their *scale* supporting equity across multiple levels (e.g. family, community, policy) in the ecosystems where children are born, live, learn, and grow. Understanding of current limitations of screen and refer models and SHARPs through the lens of LCHD intervention principles may help illuminate the necessary steps to overcome many of these challenges.

In this narrative review, we explore emerging lessons from the implementation of social risk screen and refer models in health care through the lens of the LCHD framework, with a particular focus on SHARPs and how they can advance the field. We will apply LCHD principles to envision how their design and implementation can evolve through thoughtful reframing from a focus on reactionary downstream care towards proactive and strategic early investments in the foundations of life course health development. We use

these LCHD principles to articulate a Family Journey Model of social risk conceptualization and intervention, which reshape how health care, community social service partners, and families themselves work across sectors to further patient- and family-centered priorities at key developmental periods, and how these supports evolve and adapt over the life course.

## Health care moving upstream

As US health care systems have looked upstream to encompass activities that identify HRSNs and address whole-person health, the frameworks for how clinicians and other health professionals conceptualize this scope of work have also developed. Simultaneously, the health system has increasingly recognized the time, resources, and expertise needed to address socio-environmental inequities, many of which each have entire sectors of social services, policies, practices, and workforces that have already evolved to address them outside of the health care system. This realization has put pressure on the health care systems to either invest heavily in creating structures within hospital and clinic walls to address the dimensions of social care (e.g., Kaiser Permanente's $400 million direct investment in affordable housing for beneficiaries)[19] *or* to find ways to connect patients with existing resources and established social service sectors outside of the health care system.

The latter approach has predominated, with the most common clinical programs for addressing social risks involving the identification of social needs by piggybacking social risk screening onto pre-existing clinical screening infrastructure and referral processes (e.g., as a part of patient intake paperwork and existing clinical workflows) — thereby avoiding the need to more fundamentally reshape the medical encounter or venture from the narrow medical model of "screen/diagnose and refer/treat". Alongside this heavily health care-framed approach to social care, another ecosystem has evolved to assist health care systems in achieving these new dimensions of patient services – technology platforms that facilitate social risk screening and service connections so that health systems do not have to develop these capabilities from scratch. First, we'll discuss the evolution of the social care enterprise framework in health care, followed by how technology platforms have evolved to ostensibly help health systems keep pace.

### Social risk screen and refer models with SHARPs as the predominant approach

The 2019 NASEM report on the integration of social care capacities into health care delivery has served as a seminal roadmap for US health care systems seeking to build capacity to address HRSNs[11] The report framework includes five core activities to achieve this—awareness, adjustment, assistance, alignment, and advocacy. The two most commonly implemented of the core activities adopted by health systems include "awareness" (screening of social risks and assets of patients) and "assistance" (referral to community-based social service organizations that reduce social risk), where the degree of patient engagement with referrals can range from cursorily providing patients with a list of community resources to working with a clinic-based navigator to facilitate connections to social service providers. Although these screening and referral programs vary by screening questions, staffing models, and technology supports, they all generally aim to connect patients with community social service providers to address unmet social needs.

To date, the most prominent implementation of such a model is the Center for Medicare and Medicaid Innovation's Accountable Health Communities (AHC) Model.[20] Launched in 2017, the AHC is a large experiment across thirty-two health care entities and geographic communities evaluating the impact of identifying and addressing Medicare and Medicaid beneficiaries' HRSNs on health care use, outcomes, and costs. Within the model, "bridge organizations" support clinic-based referral to community services to address HRSNs and participated in one of two model tracks: 1) the "assistance" track, where eligible beneficiaries were universally screened and referred to community service providers, and 2) the "alignment" track, expanded on the assistance track to include a community collaborative with patients, health care partners, and CBOs to identify and address gaps in community services relative to community needs. The AHC model has served as a national flagship for similar programs in both adult and pediatric contexts, due to both its scale and what it signaled in terms of interest from the Centers for Medicare and Medicaid Services in upstream care investment.

In parallel, an array of new technology platforms have emerged and been framed as being able to support easier implementation of social risk screen and refer models and improve coordination of care between health care and social service providers.[16,21] Platforms have been marketed to support service delivery through coordination between entities around service identification, communication, and outcomes tracking in addition to generating population-level data on service needs. While such technology tools cannot replace support provided by human interdisciplinary teams across health and social care, they have the potential to help improve efficiency and alignment in the work.

These community-resource referral platforms—also referred to as Social Health Access and Referral Platforms (SHARPs)— are designed with two principal functionalities in an attempt to "bridge" both information and process across sectors: 1) a digitized, searchable, and regularly-updated resource directory of community-based social service providers and the services they offer—often integrated with social needs screening tools (e.g., WE CARE, PREPARE), and 2) technology to send referrals to CBOs and track referral outcomes. Referral modes can either be unidirectional, where patients are sent referrals to social service organizations electronically and must act on the referral themselves, or closed-loop-referrals (CLRs), where clinic-based and social-care providers are able to communicate about the status of a referral, and in some cases share relevant information about the patient's care. Other features include the ability to integrate data on service utilization directly within the electronic health record and algorithms that suggest social care resources to meet needs identified in integrated screening tools.

## Evidence from social risk screen and refer programs and SHARPs

Widespread uptake of social risk screen and refer programs over the past few years has been seen by some as an early sign of upstream care's progress and success, with multiple studies demonstrating the feasibility and acceptability of screening across adult and pediatric care settings.[9,10,22] However, early evidence evaluating the impact of social risk screen and refer programs on long-term prevention of social needs, improvement in health outcomes, and

health care costs have been mixed and reveal important limitations of both the model and the implementation of SHARPs.

Renaud et al., 2023 and Parish et al., 2023 describe the first independent review of interim outcomes of the AHC experiment on social needs and health utilization and costs, respectively.[23,24] While the AHC model has been successful in engaging participants, with more than three-quarters of eligible patients opting to receive navigation, the impact on social needs, health outcomes, and costs was more limited. There was no significant difference for "assistance" track participants in the rate of connection to service providers or resolution of HRSNs compared with a randomly assigned control group who received screening results without navigation. Moreover, the sole difference in observed health utilization outcomes was a decline in ED visits compared to the control group, and there was no statistically significant impact on other health utilization outcomes or total health expenditures during the study period.

Studies in pediatric contexts have similarly been mixed and highlight challenges with connection to services following screening as well as maintaining program delivery.[9,10,25] For example, Gottlieb et al., 2016 report findings from a cluster-randomized trial of a screen and refer program in pediatric primary care and urgent care clinics.[25] While they observed a statistically significant decline in social needs following intervention, the absolute difference was marginal, with an average difference of less than one need met among those in the intervention group relative to controls. Similarly, Garg et al., 2015 describe findings from a pilot cluster-randomized trial of the Well Child Care, Evaluation, Community Resources, Advocacy, Referral, Education (WE CARE) screening instrument in 8 urban pediatric clinics.[26] While the authors observe significant differences in social needs enrollment following intervention, the absolute rate of successful connections was relatively infrequent (i.e. 2–15%, by service). A follow-up evaluation conducted in 2023 to evaluate its implementation in real-world care delivery contexts found that the program was difficult to sustain—evidenced by infrequent screening and appropriate referrals—and resulted in mixed impacts on health outcomes (e.g., a paradoxical increase in ED visits in the intervention group).[27]

Systematic reviews on the impact of screening and refer on health outcomes and health care costs in both adult and pediatric settings, has been limited, in part due to inconsistent measures and varying study quality.[14,22] To date, most evaluations have focused on process outcomes, with few reporting on the impact of preventing social needs or traditional health outcome measures.

Early reviews of SHARP implementation have also found mixed results. There are clear examples of partnerships where SHARPs have been implemented in a way that facilitates equitable alignment, coordination, and collaboration across organizations on equal footing.[14] In practice, however, most health care systems have implemented SHARPs without simultaneously investing in meaningful cross-sector alignment and have simply scaled limitations with their approaches.[21] Without a strong perceived benefit, social service organizations–which are often underfunded and with lower technology capacity–can't justify the time and resources needed to fit these new platforms into their existing workflows.[10]

Moreover, with multiple health systems using different platforms, social service partners are often asked to participate in multiple referral systems that don't align or interface with their existing case management and documentation systems. Unaddressed power imbalances can derail these social risk screen and refer models, with health care systems often brokering access to social risk screen and refer systems for community partners, SHARPs vying for health system dollars, and patient priorities becoming an afterthought. Ongoing challenges suggest SHARPs cannot replace the time and effort needed to build a more equitable and sustainable cross-sector partnership between health and social care.

## Emerging critiques of "screen and refer" and SHARPs from an LCHD lens

### Design limitations of current approaches and tools from an LCHD lens

The upstream social care field has begun to identify key drivers that may help explain why programs have not yet observed sustained impact on addressing social needs or health outcomes. Particularly in the pediatric context, there exist fundamental limitations with social risk screen and refer approaches amidst the complexity, dynamic, and developmentally-driven circumstances that shape family health and well-being in the early life course.

Despite pediatric practices being among the first to adopt social care innovations in health care and driving many of the advances in the field, in part due to child health care's emphasis on early life prevention, key principles that should shape child health system innovations like the Life-Course Health Development (LCHD) model have yet to be formally applied to clinical social care in this context. However, LCHD implementation principles around *focus, scope, timing*, and *scale* of programs provide a particularly useful lens for synthesizing several important shortcomings of the current state of the clinical social care field's prevailing approaches when it comes to optimally serving families and communities:[2,3] Here we summarize limitations of the prevailing social risk screen and refer models from an LCHD perspective:

1. *Framing - Deficits-based, top-down* - The design of current social risk screen and refer models, by and large, do not center the goals, motivations, and strengths of families. Moreover, current predominant intervention models are developed and delivered in a top-down fashion and are not adaptive to the values and needs of communities within local contexts.

Framing families not as directors of their care, but as participants who "need help", may contribute to many of the observed implementation challenges with current screen and refer models. Studies evaluating patient-reported barriers to accessing referred resources find that lack of acceptability (e.g., competing priorities, distrust, or prior negative experiences) and appropriateness (e.g., no longer interested in resource) of referrals are as prevalent as structural barriers such as service availability or accommodations.[28,29] Patients may simply not want to be screened for and referred to services due to prior negative experiences with health care, including prior experiences of discrimination. Identification of social needs through screening by the health care system certainly isn't the moment at which the patient

becomes aware of the social need, so why would that be the moment they take action if they hadn't already sought out help before that point?

Instead, LCHD theory places a family's journey and self-determined goals on center stage to align health care, social care, and other sectors around a common directive. It reorients care partners to move beyond a response to deficits by supporting a family's goals proactively, longitudinally, and with an understanding of the sequential cascading stages of health development in order to prevent the consequences of adversity and promote health equity over the life course. For example, the Harbor-UCLA Medical-Financial-Partnership provides longitudinal financial coaching to low-income parent-infant dyads attending pediatric preventive care visit and centers the focus of care around parent-identified, strengths-based financial goals (e.g., employment, savings, public benefits enrollment).[30] Early evidence on early life health outcomes has shown that children of participating families are less likely to miss preventive pediatric care visits and recommended child immunizations.

1. *Scope - Narrow, uncoordinated responses to isolated risks* - Existing approaches to social risk screening, by design, reduce the many dimensions of the family and social-environmental context into narrow, downstream, deficit-based checkboxes (e.g., housing instability, food insecurity, difficulties paying utilities) in an attempt to "diagnose" varieties of social risk. While they may help identify and categorize discrete social needs, they are not sufficient to understand or reflect the complexities of the whole patient context or that of their families or their communities that more fundamentally explain those social circumstances while also informing practicable solutions. Current social risk screen and refer models risk promoting checkbox solutions that respond piecemeal (e.g., referral to each poverty-related and structurally-linked material hardship resource separately – housing, food, and utilities services independent of each other), without acknowledging how social factors may influence and compound one another, shift over time, or are influenced by the same upstream drivers (e.g., poverty, structural racism).

Instead, LCHD theory prioritizes the *scope* of interventions to focus on a more holistic view of health and well-being, focusing on upstream interventions that bolster social supports, financial stability, and health and development more broadly. Where appropriate, care is integrated across partners to support the whole person or whole family in the context of their community. For example, an intervention that ensures eligible families are connected to bundles of public benefits, tax credits, and discounts—including the Earned Income Tax Credit (EITC), SNAP, WIC, utilities and broadband internet discounts—are more effective than each offered alone or as reactionary interventions.

1. *Timing - Reactive, sporadic without memory or anticipation* - Evidence is clear that the effects of the socio-environmental context on health and development begin before birth, compound throughout the life course, and have intergenerational effects[2] The current approach within health care of "awareness" of and "assistance" limits social care interventions to ad-hoc responses to social risks that are already causing harm or have caused it in the past. This perspective misses key opportunities to anticipate and prevent harm outright

through investing in families at critical periods of development, particularly during the rapid periods of adjustment, social and economic vulnerability, and opportunity for life course health investment throughout critical periods in pregnancy and during early childhood.

For example, expecting families in the United States experience notable financial shocks during pregnancy and in early childhood due to lost wages, health care costs associated with pregnancy and delivery, and the costs of supporting a newborn.[31] The increased financial stress that low-income families face during this period has been linked, through decades of research, to harmful health and social impacts to the child and family spanning decades, and often intergenerationally.

Rather than wait to respond to the harms of early life adversity (e.g., waiting until ACEs impact health to address them), LCHD theory prioritizes the strategic *timing* of interventions and investments that promote healthy and equitable development (e.g., mitigating financial stress during pregnancy to potentially prevent ACEs before they occur, along with their downstream health impacts). This requires greater alignment not only across health care, social service organizations, and communities but also within health care across the life course (i.e., prenatal to pediatric to adult care).

1. *Scale - Individuals not communities* - Importantly, current models prioritize an individualized approach, and risk doing little to understand or sustainably alter their root cause drivers at the child, family, community, and structural and policy level. For example, screening and referring a family to a food bank to address food insecurity may alleviate an immediate need but does little to understand or alter its root causes—including community-level poverty and structural violence, e.g., lack of affordable food access—and risks continued harms on health and well-being for not only that child or family but for the broader community.

Instead, LCHD theory aligns intervention and advocacy at the appropriate *scale* to the child, family, community, and/or policy levels. Moreover, it is imperative that health care and social sector partners closely examine and disassemble the structures, policies, and practices that they, themselves, uphold which further structural inequities at the community and policy level.[32,33] To not do so simply runs counter to their purported aims of social health delivery.

If models of care do not address the above LCHD-informed limitations, they are unlikely meaningful and sustainably impact the life course trajectories for families or achieve their desired impact on health outcomes and cost mitigation.

## Broader challenges with cross-sector alignment

Beyond these design limitations, current lessons point to a broader structural misalignment between health, social care, and technology partners in the implementation of screen and refer programs. This limitation, again, links to key principles of LCHD interventions, which call for the equitable governance co-design of interventions across sectors and with families.

The social services sector has not had the same national focus, funding, and infrastructure that has been invested in health care over the past several decades. In lieu of investing in

thoughtful cross-sector partnership between health care, social services, and communities, most health care systems have proceeded with a model and technological infrastructure that failed to fully appreciate the existing social service ecosystems (and the priorities, values, practices, capacity) that the community-based social care organizations have worked in. For example, health care funding for technology and data modernization in social care has focused primarily on clinical-facing systems, whilst rarely financially supporting such efforts by investing directly in social services[11] For example, the community of social service agencies has been largely missing from the design of efforts to develop data standards (e.g., Gravity Project[34] Open Referral[35] and FHIR[36]) or information exchanges (e.g., California DHHS Data Exchange Framework[37]) that enable interoperable community resource data and information exchange between health and social care.

As a result, while health care systems have identified an immense need among the patients and communities they serve, there has not yet been a systematic effort to invest and partner with community-based social service agencies that have deep expertise in areas such as housing, transportation, and financial stability to ensure that those needs can be met. Current practices risk misalignment in the capacity to assist and the amplification of structural barriers that prevent families from accessing desired supports. For example, families face sizable practical barriers to accessing services, such as complex administrative enrollment and re-enrollment requirements or the linguistic or cultural competency of service providers which are not made clear at the time of referral.[28] Rather than health care understanding service fit prior to referral or supporting families through this process, the effort is commonly displaced onto the community service provider and families, risking wasted time and effort and eroding trust if the service provider does not match the family's needs. More concerning is when families are sent seeking service providers that simply lack the capacity to meet their needs. This can lead to *lose-lose-lose scenarios*, particularly for high-demand, low-capacity services: families are sent seeking support that may not align with their goals or an agency's eligibility requirements; community agencies, already stretched thin, bear increased workload and the responsibility of delivering bad news; clinic navigators waste time and effort.[38] Despite good intention, time, effort, and trust is worn thin across all sides.

These observations indicate that health care systems and community social service providers are not yet practically or financially aligned to sustainably collaborate with one another in the way that health care has envisioned. At the very least, there needs to be a greater focus on sustainable funding channels to strengthen capacity for the social work sector and community-based services to better meet the needs for patients. These critical resources and alignment are paramount for moving the partnership between health care and social care forward.

## Opportunities forward - Towards an LCHD-informed Family Journey Model

There are clear opportunities to reframe and enhance the currently predominant social risk screening and referral models and technology supports for social health interventions to overcome the challenges we have discussed and better support the healthy development of children and the well-being of their families. Drawing from LCHD theory, we synthesize

key learnings and offer ideas for how health care, social care, and technology partners can move forward in closer partnership with families and communities to more sustainably support healthy development across the life course. Using the same principles around *framing, scope, timing,* and *scale*, we articulate the design and structural foundations of a model of care that addresses ongoing challenges in alignment across sector partners and reframes the activities of screen and refer to move beyond their current limitations.

## Family Journey Model Design

We introduce the concept of the Family Journey to build upon the framing and technological infrastructure of current screen and refer models. This model helps move beyond risk and single instance-based, reactionary interventions to a framing that facilitates equitable and longitudinal social, financial, and health development for children and families. An individual or family's journey is the bedrock of the model, around which opportunities and benefits across sectors are organized. Leveraging the principles of *framing, scope, timing,* and *scale* as key intervention principles within LCHD theory, we articulate core design features for this approach (Table 1).

**Principle 1: Family-Centered and Strengths-Based Framing -—**The care model is rooted in an approach that centers patient and family voice, goals, and strengths throughout. Its basis is the *Journey Map* (Fig. 1), which moves beyond the screening approach of identifying downstream needs to document an individual or family's social, financial, and health development goals (e.g., increasing financial stability, and building stronger social connections). Building on the theoretical advances of OpenNotes and patient-directed notes in health care, this is a digital document that is owned by patients and can be self-directed or completed within SHARPs and updated with the support of trusted community health workers or CBO-based family-advocate navigators. It provides a common language and a shared roadmap to align care delivery across sector partners for services and benefits that support those goals. The Journey Map is changing over time and is responsive to the changing goals and needs of individuals and families.

**Principle 2: Scope Encompassing Bundled and Compounded Supports -—** Services and supports across sectors are aligned to invest towards the goals identified on the Journey Map. They are not offered in isolation of one another, but bundled to function as a network of care to support a family's journey. Service bundles are constructed by leveraging publicly accessible community resource directories within SHARPs through self-identification or with support from navigators. They move beyond narrow interventions that address deficit-based needs to those that support developmental goals and priorities (e.g., the California Black Infant Health Program, which facilitates empowerment-focused pre- and postnatal groups for Black mothers). They prioritize interventions such as public benefits and tax credits (e.g., EITC, WIC, SNAP, child savings accounts), which impact poverty as an upstream driver of social needs and can be bundled together given policy linkages in eligibility criteria and delivered proactively, not reactively, to families at different life stages.

As acute needs arise that families seek support for (e.g., support with housing), they are identified by the family and connected to service providers for support. Responses to acute

needs identified by families are not responded to in a piecemeal fashion, but align sector supports to respond to those needs. For example, a family seeking support for housing insecurity identifies and connects to a bundle of supports (e.g., eligible anti-poverty benefits, community mutual aid groups, tenants rights advocates in addition to housing supports).

**Principle 3: Anticipatory, Developmentally-Attuned, and Longitudinal Timing -—**Intervention bundles are timed strategically and leverage decades of evidence that identify critical periods in child and family development (e.g., prenatal, birth and infancy, early childhood, adolescence) to prioritize upstream investment.[3] They anticipate common shocks (e.g., financial stressors during pregnancy) to mitigate their longer-term effects on health and development. Intervention bundles (e.g., anti-poverty benefits and discounts for those eligible or enrolled in Medicaid) are delivered proactively and with a longitudinal framing in service of supporting family goals. They are layered longitudinally to support achieving a family's goals over the critical periods, rather than respond at single snapshots in time. The care model learns iteratively through family and community-directed insight and design —interventions are not static but adaptive to the changing context and needs of families.

There is an opportunity to leverage technology to extend models of care delivery beyond ad-hoc interactions during health care encounters. Adopting continuous and remote modalities (e.g., video or phone encounters, text nudges, web forms) may help lower structural access barriers for families (e.g., time, distance) and enable longitudinal care delivery with sector partners.[39] Adoption of these modalities must be done thoughtfully to support communities with known barriers to digital access and meaningful use.[40] In addition to ensuring that SHARPs are designed with usability across a broad range of populations as a priority, there are opportunities for sector partners to support families with access to digital tools and infrastructure (e.g., with support from federal programs like the Lifeline and Affordable Connectivity Programs) and support meaningful use (e.g., through tailored training).

**Principle 4: Scale for Communities and Collective Impact -—**Building upon the above, the model aims to move beyond supporting individuals and families to support sectors with identification of population-level trends as well as advocacy and action upon structural drivers in the community and policy contexts. SHARPs have already begun to develop some capacity for translating the data gathered from individuals to provide community-level data about social and structural needs that can inform community advocacy, programmatic response, and policy (e.g., identifying community hot-spots of housing insecurity to support cross-sector response and aligned policy-advocacy). The Family Journey approach builds upon this existing infrastructure to support community-level sensing of family priorities, goals, and longitudinal development. Such an approach, if done with family consent, has the potential to provide immense value at the community and population level where current approaches to identifying these trends (e.g., the American Community Survey) are too costly, infrequent, and generalized to be tailored to community values and priorities.

The Family Journey model has the potential to more fundamentally address ongoing theoretical limitations with current screen and refer approaches. However, such a model

cannot be meaningfully, equitably, and sustainably implemented without strong structural foundations.

## Structural foundations to support the Family Journey Model

In addition to the model principles, we describe how key structural foundations that align health care, social care, and technology partners, such as governance and funding, can be furthered from their current approaches to support such a model. We emphasize that the specific elements and implementation strategy across each must be designed in equitable partnership with families to work effectively and sustainably. If approached thoughtfully, the design can optimize opportunities for sectors to listen, learn, and appreciate the authentic priorities, pressures, and values of patients, families, and frontline providers. We describe initial hypotheses about their design:

1. *Governance* - The greatest practical barriers in screen and refer models, to date, have resulted from inequitable partnerships between health care, social care, technology partners, and the families they aim to serve. To move forward, sectors must move towards cross-sector partnerships with leadership and accountability structures that enable more equitable distribution of resources, representation, and power across sector partners and with communities to enable: (1) a clear understanding and respect for how partners and the community currently operates, and their respective priorities and capacities; (2) trust across partners; (3) listening and learning that leads to co-created, co-owned, publicly-accessible design of the Family Journey Model, its technical components in SHARPs, process and workflows; and (4) continuous learning to improve and adapt delivery to the needs of families.

An example model that exemplifies many of these properties includes the Community Information Exchange (CIE) (which supports the 211 San Diego System), a community-led ecosystem connecting multi-disciplinary network partners (including public agencies, CBOs, health care providers, families) who use a shared language, resource database, and integrated technology platforms to deliver enhanced cross-sector service connection and delivery. The CIE was created in 2011 with the goal of connecting the databases of housing providers and other community-based organizations to “better coordinate the complex health and psychosocial needs of the city’s most vulnerable individuals”. At present the CIE Participant Network includes 34 social service organizations, health care providers, and government agencies who share information bi-directionally across organizations, and participate in community care planning. The CIE is governed by an Advisory Board, made up of representatives from health care and provider organizations, CBOs, health plan partners, and the local Health Information Exchange. Additionally, Network members regularly convene to share experiences and best practices, develop new governance policies, and collaborate on new opportunities for use cases.

1. *Funding* - We describe two areas of funding that are needed to move sectors forward that can sustain the more equitable partnership described above: (1) investments to support workforce and technology modernization capacities in the social care sectors, and (2) financing mechanisms to sustain and scale cross-sector partnership between partners.

Medi-Cal's Providing Access and Transforming Health Initiative (PATH) is an example of the former, which, through a $1.85 billion investment aims to build capacity and infrastructure for community-based organizations (CBOs), public hospitals, county agencies, to participate in an enhanced care management ecosystem much like the Family Journey approach described above.[41] It aims to transition partners into more sustainable funding schemes required for the latter such as alternative payment models (APMs) which are designed to sustain and scale partnerships across sectors. APMs include mechanisms that can more equitably distribute funding across sectors such as bundled payments targeting life course health promotion processes and outcomes, capitation to maintain funding continuity, and strategically-targeted investments in key infrastructure to enhance cross-sector service capacity and capability. APMs require a funding entity that understands not only the costs and value of each service sector partner but the potential value of activities only possible through new applications of the partnership, as well as the long-term return on near-term activities that might take decades to realize.

1. *Technology Infrastructure* - Technology partners have a clear role to play to support advancement beyond current screen and refer approaches through advancing the scope and functions of SHARPs. They have the opportunity to adopt LCHD principles and work with families and stakeholders across sectors to identify how to best: (1) connect clients/patients to the right services and make sure they reach those services (e.g., through interoperable coordination capacities that integrate into existing workflows), (2) develop the resource bundles that are designed to be proactively deployed in anticipation of risks and that adapt to the developmental and environmental context of the child and family. In addition to supporting individual and family-level care delivery, there is an opportunity to (3) support community-level, structural change-making through public data sharing on service opportunities and population-level data on service needs, and (4) support the implementation of APMs that distribute funds from upstream reimbursement mechanisms to community social care partners.

## Looking ahead and forward risks for social health delivery

Given the current structure and power dynamics across sectors and ongoing trends with SHARPs, there are several concerning trends in social care delivery that oppose the potential implementation of LCHD principles. For example, while the ideal evolution for SHARPs is to operate as public goods that share information and allow for innovation that is equally accessible to sector partners—several SHARPs have positioned themselves to commodify access to community resource lists, limiting access to both community providers and the general public without subscription.[16,21] Most recently, SHARPs have begun to develop funding models that use their platforms to reimburse CBOs directly through health care systems. While this begins to establish financing mechanisms to distribute much-needed funding to the social care sector, doing so through health care may contribute to furthering inequitable power gradients between the two sectors—creating a system of dependence in which incentives are dictated by health care payers rather than equitable alignment across sectors. Moreover, this may risk further institutionalizing the limitations of screen and refer practices while ultimately scaling inequities across communities by closing patient

access to social service providers outside of contracted networks. Each of these practices risks further entrenching structural barriers to what they're purporting to address. Going forward, careful attention must therefore be paid to prevent these harms. Adhering to LCHD principles in the design and implementation of upstream health care models to address the social and structural determinants of life course health can continue to create more effective interventions.

## Conclusion

A life course health development-informed approach to developing social health delivery models holds great promise that has yet to be fully realized to guide their design, standardization, and scale. The Family Journey model presented in this article is a starting point that consolidates key lessons to date using the LCHD framework to advance health care, social services, and technology partners and further the field of social health delivery in a way that is capable of delivering family-driven, proactive, holistic, integrated, and equitable services at the individual, family, community, and systems-levels.

## Funding Source

This work was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under award UA6MC32492, the Life Course Intervention Research Network. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. Patrick Liu's time was supported by the NIH/National Center for Advancing Translational Science (NCATS) UCLA CTSI Grant Number TL1TR001883. Adam Schickedanz's time was supported by The Eunice Kennedy Shriver National Institute of Child Health and Human Development (award number 1K23HD099308). The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of any of the sponsors.

## References

1. Liu PY, Beck AF, Lindau ST, et al. A framework for cross-sector partnerships to address childhood adversity and improve life course health. Pediatrics. 2022;149(5): e2021053509O. Supplement. 10.1542/peds.2021-053509O.
2. Halfon N, Hochstein M. Life course health development: an integrated framework for developing health, policy, and research. Milbank Q. 2002;80(3):433–479. 10.1111/1468-0009.00019. [PubMed: 12233246]
3. Halfon N, Forrest CB. The emerging theoretical framework of life course health development. In: Halfon N, Forrest CB, Lerner RM, Faustman EM, eds. Handbook of Life Course Health Development. Springer International Publishing; 2018:19–43. 10.1007/978-3-319-47143-3_2.
4. Russ S What makes an intervention a life course intervention? Pediatrics. 2021. In this volume.
5. Braveman P, Gottlieb L. The social determinants of health: it's time to consider the causes of the causes. Public Health Rep. 2014;129(2):19–31. Suppl.
6. Counts NZ, Roiland RA, Halfon N. Proposing the ideal alternative payment model for children. JAMA Pediatr. 2021. Published online April 5. 10.1001/jamapediatrics.2021.0247.
7. Arons A, Schickedanz A, Halfon N. Using a life course health development framework to redesign medicaid. Acad Pediatrics. 2022;22(3):367–373. 10.1016/j.acap.2021.09.008.
8. Brewster AL, Fraze TK, Gottlieb LM, Frehn J, Murray GF, Lewis VA. The role of value-based payment in promoting innovation to address social risks: a cross-sectional study of social risk screening by US physicians. Milbank Q. 2020;98(4): 1114–1133. 10.1111/1468-0009.12480. [PubMed: 33078875]

9. Garg A, Cull W, Olson L, et al. Screening and referral for low-income families' social determinants of health by US pediatricians. Acad Pediatr. 2019;19(8):875–883. 10.1016/j.acap.2019.05.125. [PubMed: 31129128]
10. Massar RE, Berry CA, Paul MM. Social needs screening and referral in pediatric primary care clinics: a multiple case study. BMC Health Services Res. 2022;22(1):1369. 10.1186/s12913-022-08692-x.
11. National Academies of Sciences, Engineering, and Medicine. Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health. The National Academies Press; 2019. doi:10.17226/25467
12. Gitterman BA, Flanagan PJ, et al. , COUNCIL ON COMMUNITY PEDIATRICS. Poverty and child health in the United States. Pediatrics. 2016;137(4):e20160339. 10.1542/peds.2016-0339. [PubMed: 26962238]
13. Medicaid Accountable Care Organizations: State Update. Center for Health Care Strategies. Accessed September 5, 2023. https://www.chcs.org/resource/medicaid-accountable-care-organizations-state-update/
14. Yan AF, Chen Z, Wang Y, et al. Effectiveness of social needs screening and interventions in clinical settings on utilization, cost, and clinical outcomes: a systematic review. Health Equity. 2022;6(1):454–475. 10.1089/heq.2022.0010. [PubMed: 35801145]
15. Marchis EHD, Aceves BA, Brown EM, Loomba V, Molina MF, Gottlieb LM. Assessing implementation of social screening within US health care settings: a systematic scoping review. J Am Board Fam Med. 2023;36(4):626–649. 10.3122/jabfm.2022.220401R1. [PubMed: 37468216]
16. Cartier Y, Fichtenberg C, Gottlieb L. Community Resource Referral Platforms: A Guide for Health Care Organizations.
17. Andermann A Taking action on the social determinants of health in clinical practice: a framework for health professionals. CMAJ. 2016;188(17–18):E474–E483. 10.1503/cmaj.160177. [PubMed: 27503870]
18. Islam MM. Social determinants of health and related inequalities: confusion and implications. Front Public Health. 2019;7:11. 10.3389/fpubh.2019.00011. [PubMed: 30800646]
19. Doubling Affordable Housing, Economic Opportunity Investment. Accessed August 31, 2023. https://about.kaiserpermanente.org/content/internet/kp/kpcomms/en/commitments-and-impact/healthy-communities/news/doubling-affordable-housing-economic-opportunity-investment.html
20. Alley DE, Asomugha CN, Conway PH, Sanghavi DM. Accountable health communities–addressing social needs through medicare and medicaid. N Engl J Med. 2016;374(1):8–11. 10.1056/NEJMp1512532. [PubMed: 26731305]
21. Cartier Y, Fichtenberg C, Gottlieb LM. Implementing community resource referral technology: facilitators and barriers described by early adopters. Health Aff. 2020;39(4):662–669. 10.1377/hlthaff.2019.01588.
22. Gottlieb LM, Wing H, Adler NE. A systematic review of interventions on patients' social and economic needs. Am J Prev Med. 2017;53(5):719–729. 10.1016/j.amepre.2017.05.011. [PubMed: 28688725]
23. Renaud J, McClellan SR, DePriest K, et al. Addressing health-related social needs via community resources: lessons from accountable health communities. Health Aff. 2023;42(6):832–840. 10.1377/hlthaff.2022.01507.
24. Parish W, Beil H, He F, et al. Health care impacts of resource navigation for health-related social needs in the accountable health communities model. Health Aff. 2023;42(6):822–831. 10.1377/hlthaff.2022.01502.
25. Gottlieb LM, Hessler D, Long D, et al. Effects of social needs screening and in-person service navigation on child health: a randomized clinical trial. JAMA Pediatrics. 2016;170(11):e162521. 10.1001/jamapediatrics.2016.2521. [PubMed: 27599265]
26. Garg A, Toy S, Tripodis Y, Silverstein M, Freeman E. Addressing social determinants of health at well child care visits: a cluster RCT. Pediatrics. 2015;135 (2):e296–e304. 10.1542/peds.2014-2888. [PubMed: 25560448]

27. Garg A, Brochier A, Tripodis Y, Messmer E, Drainoni ML. A social care system implemented in pediatric primary care: a cluster RCT. Pediatrics. 2023;152(2):e2023061513. 10.1542/peds.2023-061513. [PubMed: 37492934]
28. Gagnon K, Ortiz-Siberón Á, Patel ND, et al. Identifying facilitators, barriers, and strategies to implement social determinants of health screening, referral, and follow-up in the US: a scoping review protocol. JBI Evid Synth. 2022;20(6):1568–1577. 10.11124/JBIES-21-00161. [PubMed: 35184099]
29. Sandhu S, Lian T, Smeltz L, Drake C, Eisenson H, Bettger JP. Patient barriers to accessing referred resources for unmet social needs. J Am Board Fam Med. 2022;35 (4):793–802. 10.3122/jabfm.2022.04.210462. [PubMed: 35896446]
30. Schickedanz A, Perales L, Holguin M, et al. Clinic-based financial coaching and missed pediatric preventive care: a randomized trial. Pediatrics. 2023;151(3):e2021054970. 10.1542/peds.2021-054970. [PubMed: 36727274]
31. Stanczyk AB. The dynamics of U.S. household economic circumstances around a birth. Demography. 2020;57(4):1271–1296. 10.1007/s13524-020-00897-1. [PubMed: 32705567]
32. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. Lancet. 2017; 389(10077):1453–1463. 10.1016/S0140-6736(17)30569-X. [PubMed: 28402827]
33. Brown AF, Ma GX, Miranda J, et al. Structural interventions to reduce and eliminate health disparities. Am J Public Health. 2019;109(1):S72–S78. Suppl. 10.2105/AJPH.2018.304844. [PubMed: 30699019]
34. Gravity Project. Accessed August 31, 2023. https://thegravityproject.net/
35. Open Referral. Accessed August 31, 2023. https://openreferral.org/
36. Index - FHIR v5.0.0. Accessed August 31, 2023. https://www.hl7.org/fhir/
37. Governance - California Data Exchange Framework. California Data Exchange Framework. Published March 30, 2023. Accessed August 31, 2023. https://dxf.chhs.ca.gov/governance/
38. Kreuter M, Garg R, Thompson T, et al. Assessing the capacity of local social services agencies to respond to referrals from health care providers. Health Aff. 2020; 39(4):679–688. 10.1377/hlthaff.2019.01256.
39. Lyles CR, Wachter RM, Sarkar U. Focusing on digital health equity. JAMA. 2021; 326(18):1795–1796. 10.1001/jama.2021.18459. [PubMed: 34677577]
40. Vogels EA. Digital divide persists even as Americans with lower incomes make gains in tech adoption. Pew Research Center. Accessed October 4, 2023. https://www.pewresearch.org/short-reads/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption/
41. Services D of HC. CalAIM-PATH. Accessed October 4, 2023. https://www.dhcs.ca.gov/CalAIM/Pages/CalAIM-PATH.aspx

### Callouts

"Ongoing challenges suggest SHARPs cannot replace the time and effort needed to build a more equitable and sustainable cross-sector partnership between health and social care."

"Health care systems and community social service providers are not yet practically or financially aligned to sustainably collaborate with one another in the way that health care has envisioned."

"LCHD theory places a family's journey and self-determined goals on center stage to align health care, social care, and other sectors around a common directive"

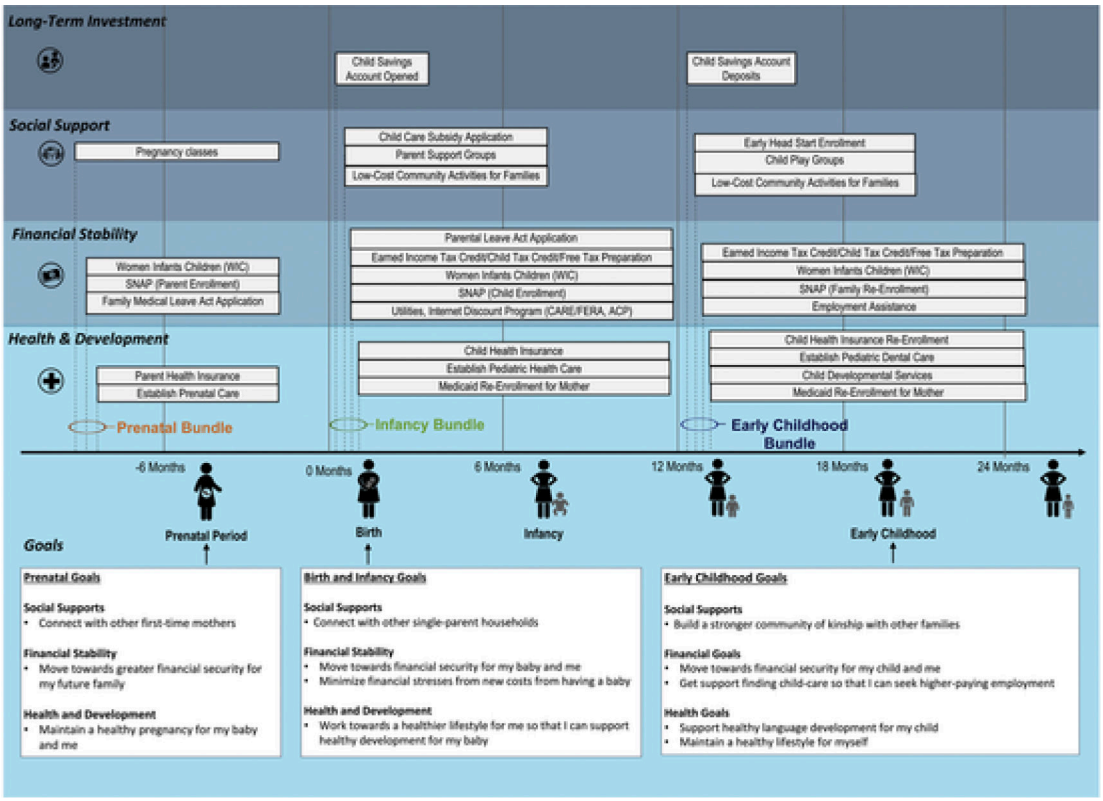


**Fig. 1.**

Example Journey Map identifying LCHD-oriented goals and supports for a single-parent mother and her child from the preantal period through early childhood

## Table 1

Aligning present limitations with opportunities forward in LCHD-informed social care delivery

| Core Life-Course Health Development (LCHD) intervention characteristics[1] | Limitations with current design and implementation of screen and refer models | Design principles of the Family Journey Model |
|---|---|---|
| **1 *Framing***<br>*What is the focus and goal of interventions?* | *Deficits-based, top-down:*<br>• Designed by health care to screen and respond to downstream, deficit-based risks (e.g., food and housing insecurity)<br>• Minimal understanding and alignment with a family's goals, motivations, values, limiting meaningful engagement | *Family-centered, strengths-based:*<br>• Organized around the *Family Journey Map* of self-identified social, financial, and health development goals<br>Common language and framing to align family, health system, community partners |
| **1 *Scope***<br>*What kinds of interventions are considered (within and across sectors?* | *Narrow, uncoordinated responses to isolated risks:*<br>• Piecemeal response to social risks (e.g., food-based responses to food-insecurity vs supports to address poverty as an upstream cause)<br>• Minimal coordination of interventions across sectors | *Bundled and compounding supports:*<br>• Leverages SHARPs to bundle services, programs, and opportunities across sectors and designed to support family social, financial, and health goals<br>• Prioritize upstream, developmental opportunities (e.g., anti-poverty public benefits, tax credits) |
| **1 *Timing***<br>*When are interventions identified and delivered?* | *Reactive, sporadic without memory or anticipation:*<br>• Reactive to social drivers that have already presented as harms (i.e., does not anticipate and prevent known stressors at key time periods)<br>• Ad-hoc identification and response, dependent on existing cadence of clinical encounters | *Anticipatory, developmentally-attuned, and longitudinal timing:*<br>• Timed strategically, with anticipation, at key developmental time periods (e.g., prenatal, birth and infancy, early childhood)<br>• Uses asynchronous, remote strategies to enable longitudinal partnership with families |
| **1 *Scale***<br>*What socio-ecological level (individual, family, community, population) does the intervention act upon?* | *Individuals not communities or structures:*<br>• Act upon individuals, with limited awareness response to structural drivers (incl. those that systems perpetuate) | *Community and collective impact:*<br>• Supports population- level sensing, advocacy, and action upon structural drivers through insights on longitudinal development from operational data |

[1] Adapted from Russ SA, Hotez E, Berghaus M, et al. What Makes an Intervention a Life Course Intervention? Pediatrics. 2022;149(Suppl 5): e2021053509D. doi:10.1542/peds.2021-05350