Equity from the Start:

Measuring Healthy Development in Neighborhood Ecosystems to Catalyze Community Action

Data Informed Futures

Knowledge and insights to transform children's lives.

UCLA

The Center for Healthier Children, Families & Communities

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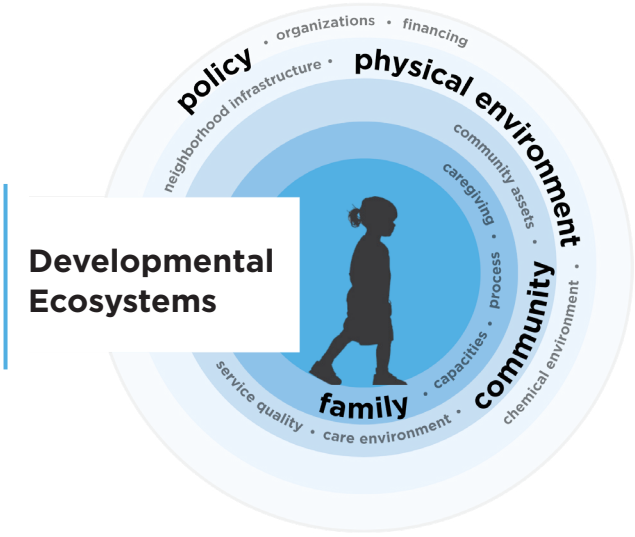
EQUITY FROM THE START

Equity from the start of life means that every child, regardless of their circumstances, should have an equal opportunity to thrive from the very beginning of their life. It is based on the understanding that early life experiences, starting from in-utero, play a foundational role in shaping an individual's lifelong health, cognitive development, and overall well-being. It is rooted in the belief that when all children are given an equitable start, not only do they individually benefit, but society at large reaps the rewards of healthier, more educated, and more resilient citizens. It also underscores the recognition that systemic inequalities (like those based on race, gender, or socioeconomic status) manifest very early in life, and addressing them from the start is both a matter of justice and a strategic approach to ensuring societal well-being.

Healthy development in the early years refers to the physical, cognitive, social, and emotional growth and well-being of children during the critical period from birth to about age eight. It encompasses a range of factors that support children's growth and prepare them for success in school and life. Healthy development in the early years is crucial because it lays the foundation for future learning, behavior, and health outcomes. Ensuring healthy development for all children is a complex task that involves multiple stakeholders and strategies. This is because a child's healthy development is not only influenced by their own genetic make-up, but by all aspects of the environments in which they live, grow, learn, and play. This includes their parent's health, the quality of their family relationships, their family routines, living conditions, childcare and education resources, the built environment, green space, and broader societal factors including healthcare and education policy, racism, and discrimination.[1,2]



This big, interconnected web of people, places, and relationships that help a young children grow, develop, mature, and learn is called the child's developmental ecosystem. Inequities at any level of this ecosystem drive in (depicted graphically above) equitable health, behavioral and social outcomes, not only in childhood but throughout life.

Deeply rooted health inequalities are the result of a complex interplay between external social & economic inequities and internal developmental challenges faced by children early in life.

If we imagine health inequality as a large tree, with its branches representing distinct inequalities (e.g., in physical health, emotional health), the roots of the tree represent the foundational factors that contribute to these inequalities. These roots represent broader societal and economic factors (e.g., income inequality, lack of affordable housing) and internal developmental challenges (e.g., adverse childhood experiences, inadequate early nutrition). These internal challenges are deeply embedded in each child's neurodevelopmental profile and are intertwined with the external challenges in complex ways to produce inequalities in health. Understanding this interconnectedness is vital for developing holistic strategies to promote health equity and address both the internal and external roots of health disparities at their source.[3,4]

If every child is to have a fair and full opportunity to thrive, it is important to recognize and understand the unique developmental context of each child's neighborhood. We must tailor essential interventions, promote equity, and effectively engage parents, neighbors, and other members of the community in efforts to optimize a child's developmental ecosystem. Understanding neighborhood ecosystems is critical to empowering parents and residents to effectively advocate for where and when resources can be put to the best use to optimize wellbeing for all children and provide input on how to target resources for those most in need.

Understanding both children's developmental wellbeing and neighborhood ecosystems across the entire community helps to ensure that solutions attend to the programmatic needs of children & families as well as the upstream policies & infrastructure needed to give them equal opportunities and access to information, resources, systems, and power.

Multidimensional population-based early childhood measurement systems like the EDI are essential tools for assessing and improving developmental ecosystems in local communities. They provide valuable data for decision-makers, educators, parents, and community leaders to guide their efforts, allocate resources effectively, and ensure that all children have the opportunity to thrive and succeed in school and life. These systems offer a strategic and data-driven approach to addressing the complex challenges faced by children and families. By supporting their implementation, policy makers and philanthropists can make informed decisions, drive positive change, and promote the well-being of children, ultimately contributing to the health and prosperity of communities & nations.

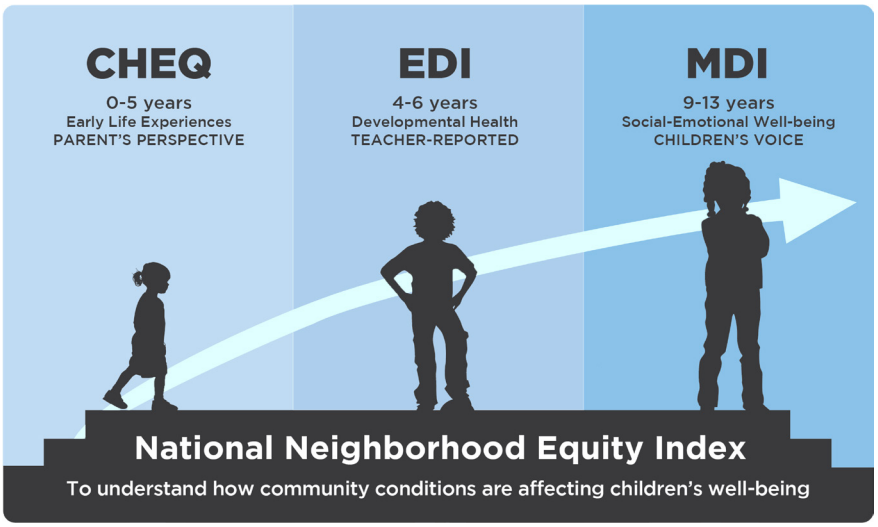
Our Approach

Over the past decade, the Data Informed Futures (DIF) team at the UCLA Center for Healthier Children, Families & Communities has championed equity from the start by promoting a unique measurement and learning system that fosters resilient and vibrant communities where children and families can thrive and have the power to shape their lives. DIF's approach is to work with communities to adopt and implement the ***Whole Child Equity Measurement and Learning System.*** This approach consists of a suite of population-level measures that communities can use to inform interventions tailored to addressing local problems, with ongoing monitoring of children's health development to assess their impact. The measures address individual, family, neighborhood, and systemic factors that together comprise aspects of the developmental ecosystem.

What makes our approach unique is that by geo-coding individual records to the census track of residence, we are able to provide results at a variety of key geographic levels such as at state, county, city and even neighborhood levels. It is this ability to generate data ***at the right level for the right audience*** that is so powerful in engaging local communities with finding solutions to longstanding inequities and in facilitating new forms of local parent-involved and peer-led governance.

This shift to measures that focus on population outcomes and neighborhood ecosystems at small geographic areas, means that instead of individual families trying to tackle challenges alone, with a short-term time horizon and limited agency for change, the whole community is engaged to address common problems that are negatively impacting children's development over these crucial months and years.

The Whole Child Equity Measurement and Learning System (below), tracks children's wellbeing throughout childhood and is comprised of three distinct population outcome measures that are overlaid with a measure that captures key elements of the neighborhood ecosystem. The three linked population measures are: the Early Development Instrument (EDI) completed by teachers on children ages 4-6 years; the Childhood Experiences Questionnaire (CHEQ) completed by parents of children ages 4-6 years; and the Middle Years Development Instrument (MDI) which is self-reported by children ages 9 to 14 years. The measure that examines key aspects of the neighborhood ecosystem is the National Neighborhood Equity Index (NNEI) which consists of eleven (11) census track indicators of neighborhood context.



The EDI, MDI, CHEQ and NNEI combined measurement system is a key step towards obtaining a full picture of children's developmental ecosystems at the population level. Child wellbeing is shaped by the quality of their ecosystems. Measuring children's health and development from multiple points of view over the entire 'child-span' provides a more comprehensive, nuanced, and actionable life course understanding of their growth and well-being. Consequently, these measures, together, allow communities to 'check in' on the characteristics of existing developmental ecosystems, understand where there are challenges and act to improve them. They allow communities to tailor early interventions to population needs, and to allocate resources in ways that are truly equitable taking the needs of all children in the community into account.

DIF's approach also provides a coaching and shared learning platform to help ensure a learning system is in place that promotes effective use of the data. The national shared learning network that meets every other month is where participating communities share effective strategies for engaging key stakeholders, including residents, in the process of forming a collective narrative about the root causes and identifying and acting on solutions.

When these powerful data are supported with a learning system, families, advocates, funders, policymakers, and community organizations are enabled to collectively make decisions about systems, programs, and policies at the neighborhood, city, state, & national level.

Powered by data, broad coalitions can do more to ensure that all children are supported in reaching their potential no matter where they live or the color of their skin.

Early Development Instrument

Measures Children's Development (4-6 years)

The EDI is a teacher- reported assessment of early child development completed typically in kindergarten for children 4-6 years of age. It was developed in Canada at McMaster University and is now well-validated in multiple settings with strong predictive value of future academic success.[5]

The EDI is a population-based measure of children's wellbeing and healthy development which can also inform efforts to understand the school readiness of the population. It examines five domain areas: physical health and well-being, social competence, emotional maturity, language and cognitive development, and general knowledge and communication skills.

The EDI has been used widely across the globe and, in the US, the Data Informed Futures team has supported over ninety communities in 18 states with collecting and using this information.

The EDI is a powerful tool in assessing equity from the start. EDI analyses reveal sharp income- related gradients, with 30% children in the lowest income neighborhoods vulnerable in one or more domains of health development compared with 17% in higher income settings.[6]

Across income levels, Black children demonstrated the highest levels of vulnerability, followed by Latino/x, with Asian children demonstrating the lowest.

Even in the highest income quartile, Black children still showed more developmental vulnerability, with the equity gap being substantially larger than in the other income quartiles.

Childhood Experiences Questionnaire

Parent-provided contextual information about children's early experiences prior to kindergarten (0-5 years)

The Childhood Experiences Questionnaire (CHEQ) is a survey completed by parents and caregivers of children ages 4-6 years. It includes questions about children's early experiences such as their interactions with others, activities at home and in the community, and access to and use of community resources and services. The CHEQ, developed at the University of British Columbia, can be linked to the teacher-reported EDI to provide information about how children's early experiences influence wellbeing.

The Middle Years Development Instrument (MDI) gives voice to older children (9-14 years of age) through a self-administered survey that captures their thoughts, feelings, and experiences in school and in the community from their own perspective. The MDI can also be linked with the EDI to provide a life-course perspective from age 4 to 14 years to help schools and communities gain a deeper understanding of the trajectories of children's social and emotional well-being through middle childhood.

Middle Years Development Instrument

Student-reported data about their thoughts and experiences inside and outside of school (9-14 years)

National Neighborhood Equity Index

Context measure to explore the neighborhood conditions in which children live, grow, learn, and play.

The Whole Child Equity Measurement and Learning System includes a measure that captures key elements of the neighborhood ecosystem called the National Neighborhood Equity Index (NNEI). The NNEI, developed by Charles Brunner at the Child and Family Policy Center, is a composite measure that consists of (11) census track indicators: 6 social indicators (e.g., % single parent households, % disconnected youth); and 5 economic indicators (e.g., % families with children living in poverty, % owner- occupied housing). Together, these indicators form a composite measure used to better understand the unnecessary and unfair differences in social adversity across neighborhoods.

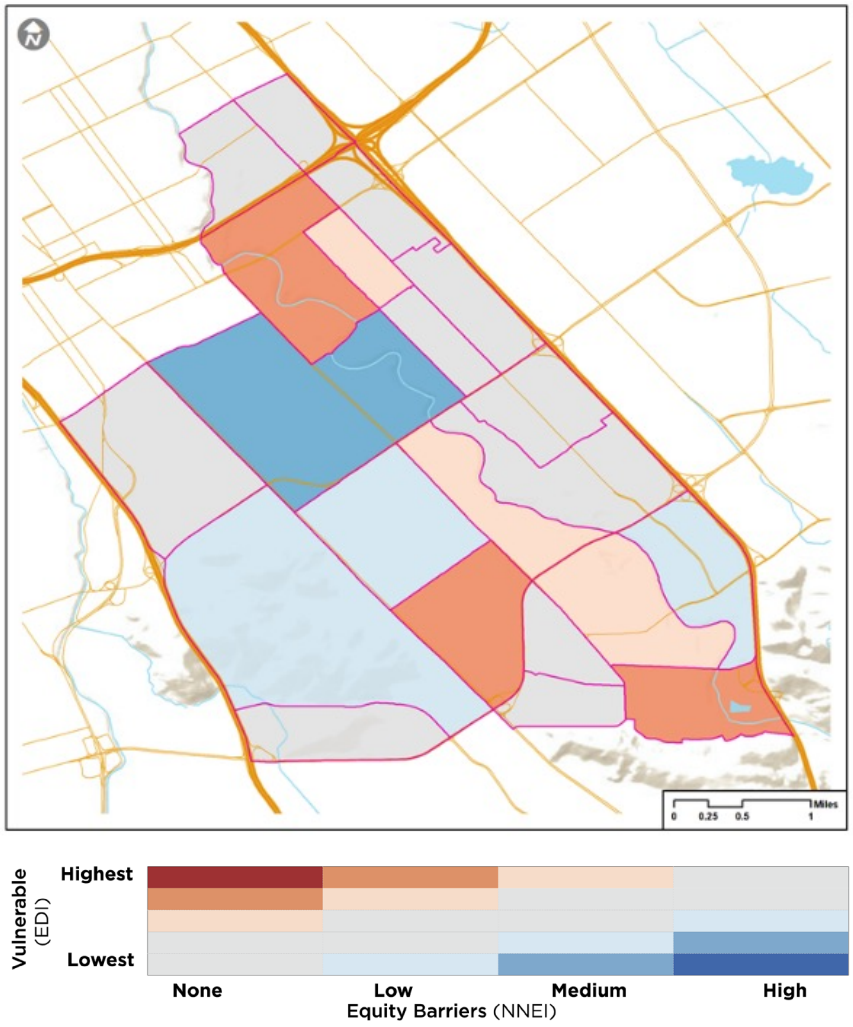
By overlaying the NNEI with EDI, CHEQ and MDI, communities can examine how their lived experiences and community conditions are impacting young children's wellbeing.[7]

For instance, our analyses reveal that children who live in neighborhoods with the highest number of equity challenges on the NNEI are 77% more likely to be vulnerable on at least one EDI domain than those children who reside in neighborhoods with zero equity challenges. These kinds of data visualization and analyses encourages new partnerships, new narratives, and new ways of informing community-inspired place-based planning and action.

The NNEI provides an entirely new way of measuring neighborhood-level socio-economic adversity, providing a more granular, multi-dimensional measure than single census indicators such as average family income.

Linking Children's Well-being Measures to their Neighborhood Conditions

An important benefit of overlaying population outcome measures like the EDI with a neighborhood ecosystem measure like the NNEI is that you can use GIS maps to identify local areas where children are faring better or worse (on the EDI) than might be expected based on the local neighborhood conditions (as measured by the NNEI). When children are doing better than neighborhood conditions might predict, these communities are considered "resilient neighborhoods". Our team has found that studying and understanding what makes resilient neighborhoods is a rich area for community exploration that is helping to understand, reinforce and spread successful strategies for improving children's healthy development.



Left: Resilience maps allow for the identification of neighborhoods that are faring better than expected.

Blue areas show more resilient neighborhoods - ones that have many equity challenges but are less vulnerable on the EDI. **Red** areas indicate more vulnerable neighborhoods - ones that have few equity challenges but are more vulnerable on the EDI. Communities can use these maps to inform action.

Examples from the Field

How Communities Use Population-Level Measures on Children's Well-being throughout the Life Course

Building new and stronger partnerships and shared accountability for children

Conducting data-driven collective planning and action

Monitoring and evaluating systems over time

Informing the creation of resources, practices, programs, & policies that ensure that all children thrive in school and in life

Examples from the Field

From Measurement to Resident Action
Anaheim, CA

First 5 Orange County began collecting children's well-being data in Anaheim using the EDI in 2009. As part of their investment, the city of Anaheim was chosen to dedicate additional resources based on the EDI results. First 5 found a ready audience in a coalition of community-based organizations, school districts, businesses and other partners that had a commitment toward ensuring the well-being of young children. This group, Network Anaheim, was founded in 2014.

As part of their goal to engage partners in creating data-driven, early childhood development policies, Network Anaheim and local families launched the Resident Leadership Academy in 2021. There, resident facilitators led residents to develop their leadership skills. As part of this, residents explored the city's EDI data and discussed the root causes of these results.

Participants were motivated by EDI data that revealed that many children were not meeting developmental expectations in the physical health and well-being domain, and more specifically, that children were behind in their gross motor skills development. Residents identified community conditions such as unsafe streets and crowded living conditions that were preventing families from having the space to enable their children to have ideal opportunities to develop physically. They saw beyond the family locus and instead thought about the systems that could be improved to enable families and children to thrive.

In their conversations, residents identified two possible changes to pursue and advocate for: 1) Safe routes to school – "Camino Seguros" and 2) Rent control – "Control de Renta en al Ciudad de Anaheim." Network Anaheim uplifted residents' voices and offered themselves as connectors to policymakers such as municipal and district leadership to convey their concerns and proposed solutions.

> **"What makes a difference is we don't tell families what trainings they should have. Instead, we let residents tell us what they want. The more that they know, they often want to go deeper. We meet them where they are.... We had to put our own agenda aside."**
> - Wendy Dallin, Network Anaheim

Their collective work paid off - on October 19, 2022, the community received support from the Anaheim Elementary School District Superintendent to fund a crossing guard at a school site. A city traffic engineer committed to collect 3 days of data on the traffic at areas of concern, which resulted in proposed improvements to the Walnut and Santa Ana intersections. Residents also appeared at a city council meeting to advocate for rent control (below).

Examples from the Field

Sustaining Attention to Children's Well-being
El Monte, CA

El Monte began collecting EDI data in 2013 to use it to inform collective efforts to improve child well-being across multiple partners. Armed with these data and an active cross-sector effort, they saw a steady pre-COVID decline in the percentage of children showing vulnerability in one or more domains of development. Partners have regularly met and implemented complementary strategies that improve programming, investments, and targeted supports.

- The school district incorporated lessons into their parent program to focus on the areas of development where children across El Monte were demonstrating weakness. They also used the data to inform the district's Universal Prekindergarten and Transitional Kindergarten plans as well as the focus of their before and after school programs.
- At the city level, EDI data were used to identify Little Library locations and community investment decisions. Sharing EDI data has also been used to inform intentional support for children 0-5 at city events, including back-to-school programs and the Children's Day parades that traditionally focused exclusively on school-age children.
- The EDI results also prompted the local El Monte Promise Foundation to develop a 0-5 Roadmap to success.

El Monte has now started to utilize the MDI to monitor how children are progressing during their early adolescent years and gain insight into their experiences both in and outside of school.

Uncovering System Gaps
Mountain View, CA

In examining their EDI and CHEQ data alongside their asset data, the Mountain View School District found that their EDI results indicated weaknesses, particularly in the physical health and well-being domain. When they overlaid their EDI data with existingmedical and dental care facilities, they noticed that medical and dental resources were lacking in their geographic area, which worsened as a result of the COVID pandemic-related impacts. They realized families needed to travel outside of their local neighborhood to access medical and dental care, revealing significant community transportation needs to access resources. In response, the Mountain View Family Center is now working towards providing medical and dental care at the center's facility to provide greater access to these services for families.

Examples from the Field

Creating a New Role within the City
Pasadena, CA

The City of Pasadena is nestled at the base of the San Gabriel mountains, not far from downtown Los Angeles, and is known for its annual Rose Parade. It has a historical reputation as a tourist center and winter resort for the wealthy, though there are wide geographic disparities in wealth across the community

As part of its commitment to the well-being of its youngest residents, Pasadena invested in assessing the developmental health of children entering PUSD Kindergarten using the Early Development Instrument (EDI) in the 2012-13 and 2016-17 school years. The 2013 EDI results were foundational to planning efforts to improve the well-being of Pasadena's 0-5 population.

Early findings of the EDI helped fuel the city to adopt a resolution to become an "Early Learning City" with a goal of improving outcomes for children born into "Generation Alpha" – kids born between 2010 and 2025.

Within Pasadena, this resolution led to the establishment of a new and independent ***Office for the Young Child*** (right) within the City.

PASADENA
OFFICE OF THE YOUNG CHILD

This Office coordinated a cross-sector effort to use the EDI and other key indicators to develop the City's multi-year ***Early Childhood Development Master Plan*** and carry out a city-level cross-department engagement for early childhood. More recently, the City of Pasadena has used the EDI to engage parents in process of informing the formation of an early childhood hub network called ***Growing Together PASadena*** (right).

Growing Together PASadena
Creciendo Juntos en PASadena
PASADENA • ALTADENA • SIERRA MADRE

When the first year of EDI results were shared with the city council and mayor [in 2015], it was like the lights were turned on for the city. The differences in how young kids were doing by neighborhood were visible to everyone and this changed the discourse. The EDI became a measure of how well the City government was serving for its youngest citizens.

Examples from the Field: Pomona, CA

Sparking Mayoral Commitment to Children's Well-Being

Pomona's Promise has been utilizing EDI data as their early childhood indicator to guide their collective impact efforts to improve the health and well-being of the Pomona community since February 2014. They engaged residents in World Café style discussions during two Pomona Community Summits on Early Childhood Well-being to reflect on the underlying drivers of the EDI results and how these could inform their five priority areas of health, education, public safety, economic development, and community engagement. The city leadership, especially the Mayor and the Superintendent, have been inspired to use the data to inform their efforts in transforming the city.

As a champion of the data, they have embraced the role that city government can play in designing a city ecosystem that enables children and families to thrive. The City of Pomona is now a member of the All Children Thrive - California initiative, aimed at preventing and healing adverse childhood experiences and promoting child and family well-being.

"Our city is a network of interconnected resources – our homes where we live, places of work, our schools, parks, streets, and community services, that work together to support daily life. Strong ecosystems protect the web of critical relationships and add new ones where support is weak or vulnerable to disruption."
- Mayor Tim Sandoval

Left: Mayor Tim Sandoval has served as Mayor of the City of Pomona since 2016. He has been a Pomona resident for over 35 years.

Pomona also invested in surveying the emotional well-being of their early adolescent students using the Middle Years Development Instrument (MDI). Students expressed a desire to engage in more outdoor play and social experiences, which was surprising to many of the community-based partners working with youth, who had assumed video games and screen time were more important to them. This finding motivated the partners in Pomona's Promise to utilize support from their participation in All Children Thrive-California to gather youth and family's voice on how the parks could be improved in the city.

In addition, the mayor hosted a Youth Provider's Summit to discuss youth services in Pomona, identify the assets that exist in the community to support youth, and highlight gaps. As a result, the city is building a "Community Dashboard" to facilitate community-based organizations, health care providers, school personnel, and others to work better together in providing comprehensive supports to children, youth and families.

LESSONS LEARNED AND EMERGING OPPORTUNITIES

Our experience over the past two decades working with communities to improve early childhood systems has shown us that data leads to action.

In the absence of good data about their healthy development and well-being, children are largely "invisible". They are overlooked in civic discourse, their needs go unrecognized, and they persist as a low priority for allocation of resources.

The typical reliance on administrative data as proxy measure for children's well- being gives an incomplete picture and severely limits the ability to make strategic improvements. Administrative data are agency-specific and are collected with the goals of that agency in mind, thus limiting their usefulness to drive wider ecosystem change. For example, health data collected by the health sector (e.g., infant mortality rates) confers ownership of the problem to the health sector who are tasked with "fixing" the problem. Absentee rates or third grade readings scores become the problem of the schools to fix.

With the full suite of developmental ecosystem measures - the EDI, CHEQ, MDI, and NNEI - we hope to bring new and augmented data and analytic capacity to communities seeking to do a better job at addressing the needs of their children.

This expanded set of linked and integrated measures, coupled with DIF's coaching expertise and a hosted national learning network, allows community leaders to engage even more widely with local families and community members, and to take action on a much wider range of factors in children's developmental ecosystems.

Combining the EDI measure of children's health development and well-being with the NNEI measurement of contextual resources allows us to measure health equity at a neighborhood level, and to compare health development and well-being based on neighborhood measures of disadvantage.

We believe this data-driven learning system that engages communities and drives action across the entire development ecosystem is key to bringing about long-term change in health equity and academic success.

It represents a new way to take positive action, building on community strengths, natural resources, local skills and abilities and local entrepreneurship.

A large component of this work continues to be devoted to developing and supporting local community leadership. We have learned that collecting and displaying the data is relatively easy. But community members are the sense-makers who can apply their lived knowledge of their own health ecosystems to shine a new light on potential pathways that are driving inequitable and sub-optimal health outcomes. Together, community members and researchers can co-develop and implement new solutions and design new measures to monitor progress towards agreed goals.

REFERENCES

1. Halfon N, Hochstein M. Life course health development: an integrated framework for developing health, policy, and research. *Milbank Q*. 2002;80(3):433-iii. doi:10.1111/1468-0009.00019
2. Russ SA, Larson K, Tullis E, Halfon N. A life course approach to health development: implications for the maternal and child health research agenda. *Matern Child Health J*. 2014;18(2):497-510. doi:10.1007/s10995-013-1284-z
3. Lu MC, Halfon N. Racial and ethnic disparities in birth outcomes: a life-course perspective. *Matern Child Health J*. 2003;7(1):13-30. doi:10.1023/a:1022537516969
4. Lu MC, Kotelchuck M, Hogan V, Jones L, Wright K, Halfon N. Closing the Black-White gap in birth outcomes: a life-course approach. *Ethn Dis*. 2010;20(1 Suppl 2):S2-76.
5. Halfon N, Aguilar E, Stanley L, Hotez E, Block E, Janus M. Measuring Equity From The Start: Disparities In The Health Development Of US Kindergartners. Health Aff (Millwood). 2020;39(10):1702-1709. doi:10.1377/hlthaff.2020.00920
6. Duncan RJ, Duncan GJ, Stanley L, Aguilar E, Halfon N. The Kindergarten Early Development Instrument Predicts Third Grade Academic Proficiency. *Early Child Res Q*. 2020;53:287-300. doi:10.1016/j.ecresq.2020.05.009
7. Block EP, Zimmerman FJ, Aguilar E, Stanley L, Halfon N. Early Child Development, Residential Crowding, and Commute Time in 8 US States, 2010-2017. *Am J Public Health*. 2018;108(11):1550-1557. doi:10.2105/AJPH.2018.304680

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