Proceedings of the 13th Annual International Network for Research into Inequalities in Child Health (INRICH) Workshop June 2022

The 13th Annual INRICH Workshop was held on June 15-17, 200 and was hosted by Neal Halfon MD MPH, Director UCLA Center for Healthier Children, Families, and Communities, PI for the Life Course Intervention Research Network (LCIRN) and Professor of Pediatrics, Public Health and Public Policy at UCLA, and Rob Kahn, Professor and Associate Chair of Community Health, University of Cincinnati Department of Pediatrics, Executive Lead Population and Community Health and All Children Thrive (ACT) Cincinnati. The Day 3 workshop was co-hosted with Sharon Goldfeld, Professor, Department of Pediatrics, University of Melbourne, Director, the Center for Community Child Health.

The UCLA organizing group comprised Shirley Russ, Senior Project Scientist, and Mary Berghaus, Program Manager, Life Course Intervention Research Network, UCLA Center for Healthier Children Families and Communities, and INRICH Administrative support was provided by Lucie Levesque. Although coordinated from UCLA, the Workshop was held virtually in light of the ongoing COVID-19 pandemic and sessions were repeated twice daily to accommodate attendees in different time zones. The Workshop was entitled **"Building Adaptive Interventions to Achieve Health Equity Across the Life Course."** The full program can be found on the INRICH website.

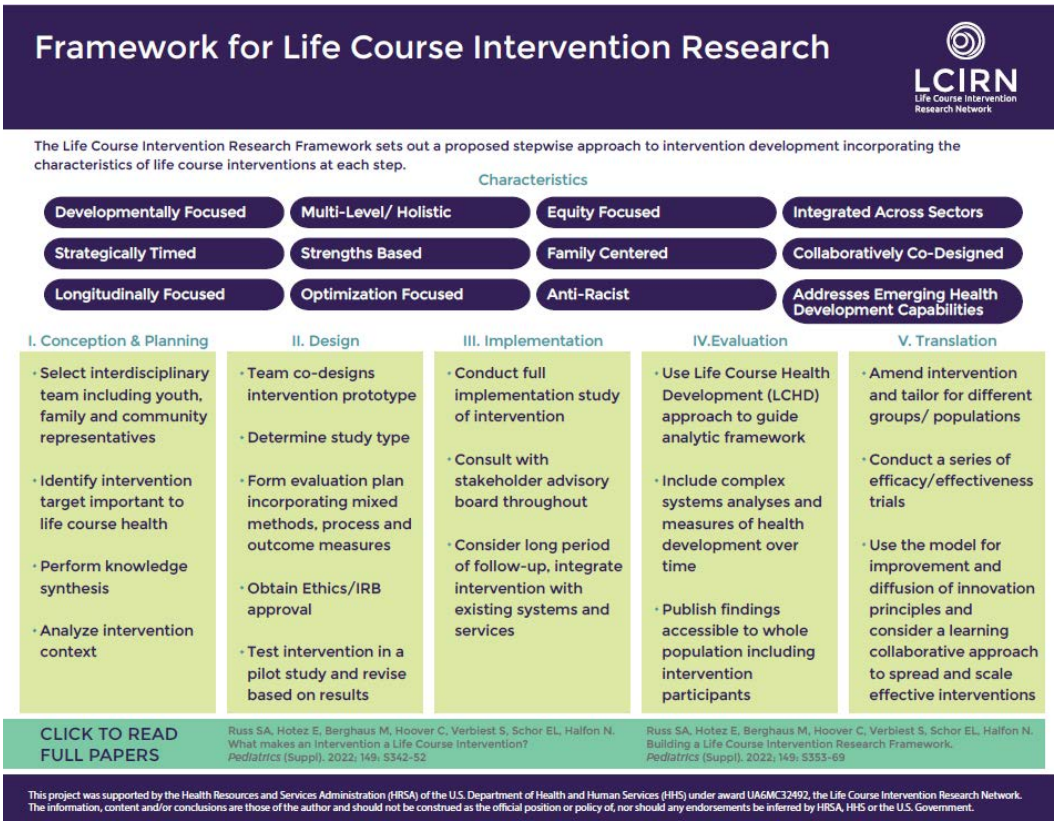
Day 1

The theme for Day 1 was "**Working Toward Shared Frameworks and Shared Metrics for Child Health Equity."**

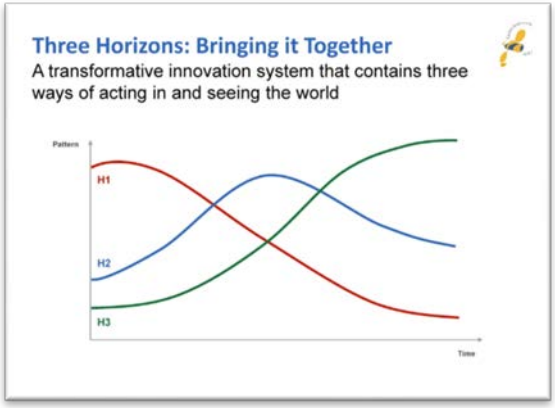
Following a welcome from INRICH Chairs **Nick Spencer**, Emeritus Professor of Child Health, University of Warwick, and **Louise Séguin**, Researcher and Honorary Professor, University of Montreal, **Neal Halfon** opened the workshop with an **Introduction to the Life Course Health Development Approach to Interventions**. His presentation highlighted:

- The development of health is an active process resulting from the interactions between each person and their environment.
- Health development is the consequence of multiple determinants operating in nested genetic, epigenetic, biological, behavioral, social, economic and policy contexts. So, the Life Course Health Development Framework provides us straight away with a model for understanding how seemingly distal factors like social circumstances, economic hardship, experiences of racism can literally "get under a person's skin" affecting not just their immediate health status but also their entire future health development trajectory.
- These health trajectories have ***critical and sensitive time periods*** many of which are at the very beginning of life- periconception, fetal life and early childhood. This is why it is so critical for us to get things right in the early years, and why equity from the start is essentially a pre-requisite for health equity in later life.

- The Life Course Intervention Research Network (LCIRN) has developed a framework showing how key characteristics of life course interventions can be incorporated across all stages of the research process to guide intervention development, testing and evaluation with the aim of finding ways to improve health trajectories. Characteristics included co-design of interventions with family and community engagement, strengths-based interventions focused on health optimization and interventions that were developmentally focused and strategically timed. Multi-level interventions, integrated across sectors that address emerging health development capabilities hold promise for health trajectory impacts.



Graham Leicester, Director, International Futures Forum, Kirkcaldy, Scotland, UK then gave an overview of **Three Horizons: A Framework to gauge the kinds of interventions that can have maximum impact**. Applying Three Horizons thinking to new approaches to tackling child health inequalities requires us to consider what is "business as usual" (H1); what is the outcome/ system we want to see (H3) and how do we act disruptively (H2) to achieve it?



- We acknowledge anxiety and learn our way through it to a transformative growth response.
- We don't just fix what is not working in the present but undertake transformative

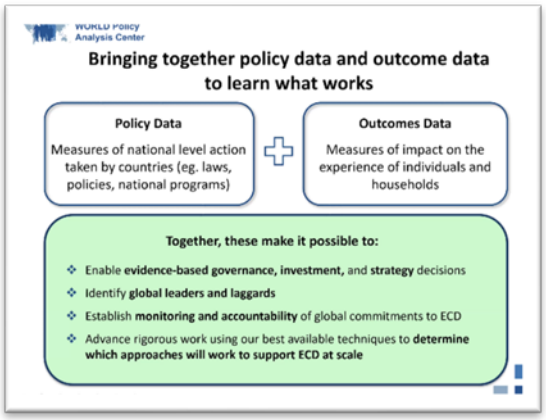
interventions so that the system shifts to a new pattern of viability.

- We envision the child health research and child health outcomes we want to see and work towards that vision and values.

Graham commented "Projects do not change systems. Patterns change systems because patterns are systems. We need to grow out of projects into self-sustaining patterns."

Jody Heyman, Director of the World Policy Analysis Center, UCLA presented on **Using Global Multi-Level Data to Understand Which National Policies Work**. She departed from her prepared remarks to comment on the recent gun violence in the US, pointing out that guns are now the leading cause of death for children in the US. She described her recent work in the policy arena to try to tackle this shocking threat to children's health. Some important themes from her presentation:

- There is a need for good quality data accessible to stakeholders and presented in a way that policymakers can understand and apply to policy development, and to monitoring the impact of policies on children.
- Data need to be "ready to go" when opportunities for movement on a policy arise.
- Good data help children's issues to be more visible in the policy arena. Her center is open for collaborations.

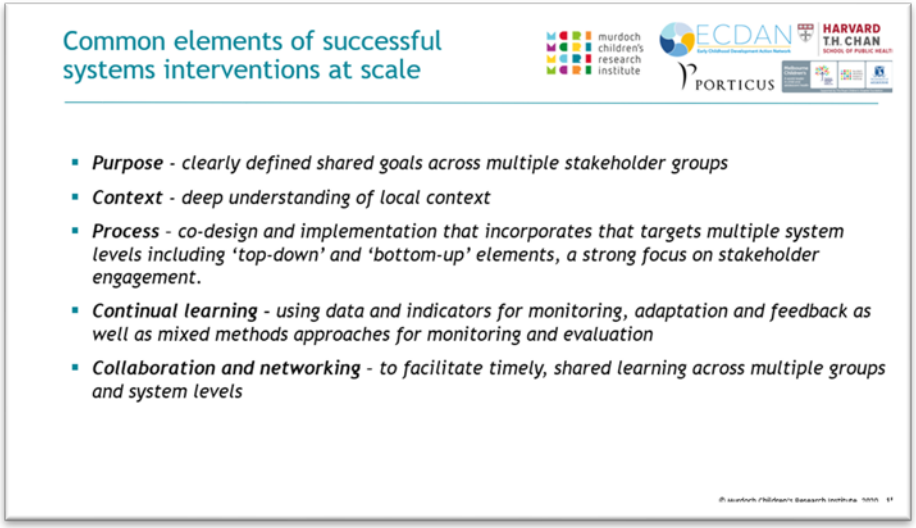


John Wright, Director, Bradford Institute for Health Research, Bradford, UK presented on "**A Little Less Association, A Little More Action;** new approaches to implementing and evaluating early life interventions. John reported on:

- Two important themes that emerged from the last 15 years of Born in Bradford (BiB) research: 1) the importance of early life; and 2) the social patterning of social and structural determinants of health. Inequalities and poverty are persistent and hard to change.
- Children's lives are not being shaped by individual risk factors but by the streets they play on, the houses they live in, the quality of schools, food options; by complex, interactive, systems factors.
- Bradford City Collaboratory aims to have a cumulative effect of public health interventions in one place where they are most needed. Key tenets include co-production with communities; harnessing and connecting routine data; and translating evidence into policy.
- RCTs are often not suitable for evaluating whole systems approaches to public health interventions- can we be more creative in how we build in evaluation to programs and explore greater use of learning health systems?

Sharon Goldfeld, Professor, Department of Pediatrics, University of Melbourne. Director, the Center for Community Child Health. Co-Group Leader Policy and Equity, Murdoch Children's Research Institute, Melbourne, Australia then presented on **"Learning from Comparative Systems Research to Accelerate Equitable Child Health Outcomes."** Sharon reflected that:

- Single interventions are not sufficient for sustainable, equitable impact. There are no silver bullets.
- In a recent review of over 42,000 papers, only 5 studies met criteria for quality systems interventions delivered at scale that had an impact on promotion of early child development. All were in low- and middle-income countries (LMIC).
- Successful system interventions had common elements-clear **purpose,** deep understanding of **context**, **co-design** and implementation with focus on **stakeholder engagement** plus "top-down, bottom-up" approach, using data for **continual learning** and **collaborative** shared learning and **networking.**
- Measurement matters. "Data itself can be a systems intervention which is deeply catalytic." Systems improvement can benefit from a platform that has the capacity to capture, make sense of, and share insights from data in actionable ways. It is rare to find an entity with robust research capabilities that also has the capacity to help actors implement and test innovations- is INRICH such an entity?



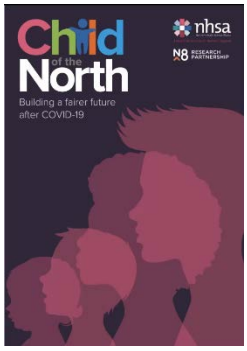
In the **speakers panel** and **breakout groups** that followed the presentations, conference attendees further explored whether there were common elements across the presented frameworks, albeit that these frameworks were developed for different purposes and settings, and also explored whether there were common or emerging measures of child health or child health equity that might be used in different settings and countries. The results of these discussions are captured on the MURAL Boards Archive.

Day 2

Day 2 began with a welcome from Nick Spencer, INRICH Chair, and some opening remarks from Rob Kahn on the day's theme of **Adaptive Multi-Level Interventions**. Rob challenged attendees to consider common themes across the presentations, and to explore whether there might be potential to work

together through INRICH more closely using a rapid learning or collaborative networking approach to take action on child health inequality.

Kate Pickett, Professor of Epidemiology, University of York, UK & **David Taylor-Robinson,** Professor of Public Health and Policy, Institute of Population Health, University of Liverpool, UK began the day with a presentation on **Deep causes of inequality, and why are multi-level, comprehensive interventions necessary.**



- David presented data from their recent Child of the North Report explaining that the north/south divide in child health in the UK explains the north/south divide in adult health.
- The life expectancy of a child born in Kensington, Liverpool is 10 years less than that of a child born in Kensington, London. This is profoundly unjust.
- Childhood adversity plays an important role in perpetuating inequalities across generations, with one study suggesting it mediates about half of the association between parental education level and mortality in early adulthood.
- In the UK, 23% of children experience persistent poverty, 12% persistent parental mental illness, 11% both persistent poverty and parental mental illness. Reducing poverty and adversity to low levels could eliminate up to half of mental health problems in adolescence and reduce many other health issues.
- To ensure an adequate quality of life for all families with children requires action and putting children at the heart of government policy. Children's voices should be at the center of the conversation. Children's Rights can play a central role in framing this approach and can serve as an organizing theme across initiatives.
- INRICH can be a vehicle for action at multiple levels to tackle child health inequalities.

Cynthia Rayner, Adjunct Lecturer & Senior Researcher, Bertha Centre for Social Innovation, University of Cape Town Graduate School of Business, South Africa then gave a presentation entitled **Systems Work: Harnessing Connection, Context & Power to Create Equitable Systems for All.** Based on her book "The Systems Work of Social Change" co-authored with Francois Bonnici, Cynthia's presentation explored how the ideas in the book might be applied to child health equity.

- We are the systems we seek to change. By participating in them, we maintain and extend them.
- How can we explore the day-to-day practices, beliefs and behaviors, values and assumptions about how systems work in order to change them?
- In order to build responsive and representative systems we can adopt the principles of fostering connections, embracing context, and reconfiguring power.
- To ensure that primary actors are at the heart of the process we can adopt systems work practices of cultivating collectives, equipping problem solvers, promoting platforms and disrupting policies and patterns.
- The principles and practices proposed by the authors focus on the process of change itself, rather than delivering pre-packaged "solutions."

This gives the people and communities seeking change broader agency in charting a better path for community, social and economic development.

- Adopting a systems approach means not just analyzing the system in "industrial" terms but also acquiring an in-depth understanding of the human relationships between the people within the systems.
- This approach reconfigures power towards those with lived experience of an issue, and who are part of the communities who are seeking change.

Rob Kahn, Professor and Associate Chair of Community Health, University of Cincinnati Department of Pediatrics, Executive Lead, Population and Community Health, USA then presented on **All Children Thrive (ACT) Cincinnati, Ohio, USA.** This learning network brings together professionals and families to work within local communities to design and implement multi-level interventions that incorporate the model for improvement with the aim of improving child health.

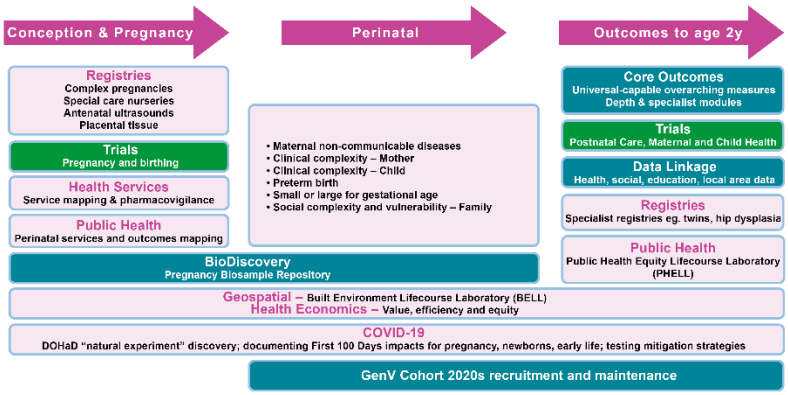
- Rates of hospital admission in Hamilton County, Cincinnati show a strong neighborhood gradient, with highest admissions from poorest areas. Physicians are often the first to be aware local conditions that might help explain some of these inequities e.g., landlords not providing habitable accommodation.
- Child Health-Law Partnerships help families address some the social determinants of health. Offering legal help reduced child hospital admissions in one study by 38%.
- Using quality improvement methods (e.g., Plan-Do-Study-Act cycles or PDSAs) has been successful within all sectors, e.g., increasing the percentage of completed preschool applications and reducing wait times for phone calls to the benefits office- critical parts of the system of care for young children.
- The whole community is at the table, enabling people to come together against powerful forces.

Melissa Wake, Scientific Director, GenV at Murdoch Children's Research Institute (MCRI), Melbourne, Australia presented on **Nesting Interventions in Cohort Studies.** The MCRI has an impressive over 30 years' experience with cohort studies. Gen V is a particularly ambitious cohort study that targets all 150,000 babies born in Victoria Oct 2021-Sept 2023 and their parents. Gen V is designed for intervention not just observation and presents an opportunity to test multi-level interventions within the context of ongoing cohort tracking.

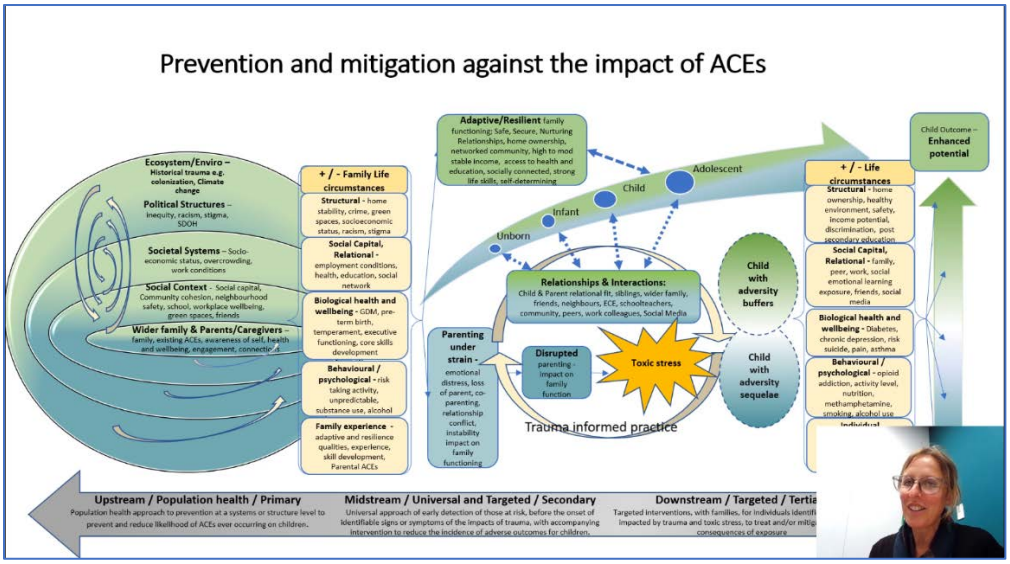
- One cohort can support many trials, and trails can be stacked shifting the focus from one-dimensional health interventions to action on the social and economic determinants that underpin the bulk of health and prosperity.
- Cohort studies can incorporate core outcome sets, minimum sets of core outcome measures that reflect the priorities of individuals, families, and services, not just researchers.
- Trials are already in progress - AIROPLANE (Owens) (room air vs 30% O_2 for resuscitation of late prems), OPTIMUM (Perrett) Acellular vs whole-cell pertussis vaccine to reduce allergy at 1-2

years. A multi-level intervention Rethinking Early Childhood Development-10 stacked interventions is planned.

- Tranches within the cohort experience great variation in environmental exposures e.g., air pollution due to bushfires allowing for multiple natural experiments.



Jane Kinsey, New Zealand Harkness Fellow in Health Care Policy and Practice, UCLA Center for Healthier Children, Families and Communities and General Manager Mental Health, Addictions and Disability Support services, Nelson Marlborough Health, NZ presented on work conducted during her Fellowship on **A Life Course Model of Adverse Childhood Experiences (ACEs)**



- Stark disparities in rates of white European vs Maori with adverse childhood experiences (ACEs) in New Zealand: 54% with at least 1 ACE vs 78%; 10% with 4 or more vs 27%. Additional adversities not measured include racism and discrimination, historical trauma, isolation, community violence, homelessness, climate change.
- Adverse childhood experiences can be viewed as a proxy measure for health equity
- At an individual level, adverse childhood experiences (ACEs) are not a destiny. They are one component of a complex web of risk and protective factors that surround every child.

- Families have the potential to buffer adversity when it occurs and to break intergenerational cycles of suffering. Family functioning becomes an important pivot point that can drive a child's health development.
- Interventions to prevent and address ACEs need to consider the child's entire developmental ecosystem and incorporate action at family and community levels as well as work with individual children.
- The proposed comprehensive model for prevention and mitigation against the impact of ACEs, illustrated above, positions family and life and circumstances as a key driver of children's future health trajectories.
- The model incorporates themes of life course health development, considering how chains of risk and protection can influence the course of a child's life.
- Relationships are key at all levels and stages of the model.

In the **Speakers Panel** and **Breakout Groups** that followed the presentations, conference attendees considered how frameworks might help guide multi-level interventions, and whether individual work on multi-level interventions could be part of a larger learning network to accelerate system change for children. The results of these discussions are captured on the MURAL Boards Archive

Day 3

Day 3 of the Workshop focused on **Aligning Rhetoric and Research to Impact Global Child Health Equity.** Participants discussed how this network can become more effective at making a major contribution to the issue of global child health equity. They considered whether there is, in fact, alignment around the drivers of health inequity, outcomes to be measured and levels at which we need to work.

In **Breakout Groups**, participants considered:

What's working in the current approach to child health equity research?
What's hopeful/ promising?
What's troubling/ not working in the current approach?
What's missing from the current approach?

and deliberated over next steps that the INRICH Community could take to move forwards together in new and potentially more informative and effective ways.

Themes Analysis

At the conclusion of this process, the Workshop organizing team reviewed all the speaker presentations, discussions, and MURAL boards, performing a preliminary, exploratory analysis of themes that had emerged. Emphasis was placed on those themes that could inform action in the near and medium-term. Seven principal themes were identified and are presented below:

I Co-Design and Implementation of Interventions to Address Child Health Inequalities

- There has been a strong movement internationally away from professionally driven top-down interventions to co-creation and implementation of interventions with communities, families, intervention recipients and other stakeholders.

- There are some unresolved tensions as to how this co-creation can extend to all aspects of intervention trials e.g., expertise is useful to avoid issues of study design bias, inadequate definition and precision of measures that could reduce research quality. How can quality be maintained or even increased at the same time as full community partnerships are embraced?
- Similarly, interventions designed by one discipline or service sector are frequently too narrow in their approaches- need integrated design across health, education, social services etc.

II Multi-Level Interventions

- There is an articulated desire to move from describing associations between conditions, exposures, and child health status, to actively intervening to improve children's health trajectories.
- Evidence accrued over many years, multiple settings and in high quality RCTs suggests that single interventions of limited scope are unlikely to materially impact children's health trajectories in such a way as to bring about health equity.
- Multi-level interventions hold promise for greater impact but are themselves largely unproven. In addition, they create formidable challenges for design, implementation, and evaluation.
- There are opportunities to embed multi-level interventions within cohort studies, taking advantage of the rich ongoing data being collected for an entire cohort to monitor change over long time periods in response to these interventions and to compare with control groups also in the cohort.
- Quantitative evaluations can be supplemented with qualitative data collection in mixed methods studies. Targeted qualitative enquiry as a form of supplemental data collection within an ongoing cohort could be one form of additional evaluation of a multi-level intervention, expanding evaluation scope.

III Potential for a Learning Network or Collaborative

- INRICH members engaged in similar work e.g., multi-level and multi-sector interventions, systems change efforts might benefit from participation in a broad learning network or collaborative.
    - Connecting and synergizing the work going on in Liverpool, Melbourne, Bradford, Cincinnati and other similarly transformative initiatives
- Meetings of this group could be held more frequently than the current annual exchange e.g., once every 2-3 months over Zoom.
- Meetings could be supplemented with information exchange via-web-based platform or portal.
- This approach could speed the spread of "what's working" and allow practical tips e.g., conducting effective PDSA cycles, methods of effective community engagement etc. to be shared in close to real time.
- Joint work on PDSA cycles can foster relationship-building across disciplines and locations.
- Unresolved issues include the need for a group to organize and conduct the meetings, potentially requiring dedicated finding for staff time and to build and post on the web platform.

IV Improved INRICH Informatics

- INRICH Members expressed a desire for more frequent, streamlined information exchange on what projects members are working on, together with updates on new publications and

opportunities to work together to develop new methodologies and approaches to child health equity research.

- Louise and Lucie currently share articles published by INRICH members and this was regarded as very valuable and should continue.
- INRICH Website could be a repository of brief summaries of member publications, possibly with policy implications of the findings highlighted in ways that would be easy for policymakers to find and use.
- Members could make brief (2-3 minute) videos/ interview about their work and recent publications that INRICH could post on the website or share via social media.
- Members could work on joint topics/ concept papers etc. through new types of technology platforms e.g., slack, dropbox, google groups. MURAL.
- Enhance opportunities for mentoring junior researchers, linking them with senior researchers internationally.
- Mapping the INRICH body of knowledge- who is working on what- could foster new collaborations and speed exchange of information that has traditionally been limited to the once yearly meeting.

V Systems Thinking

- Embracing a systems approach to child health equity requires different types of research, interventions, and evaluations than traditional linear conceptual models. This requires a shift in thinking and new approaches to methodology.
- There is interest in "going deeper" into Francois Bonnici and Cynthia Rayner's book "The Systems Work of Social Change."
- Interventions can act as a "nudge' to a system causing it to change in both expected and unexpected ways. Are we doing enough to capture all the changes (positive and negative) that follow from both policy and program interventions?
- There is very little evidence about how to change systems so that outcomes are more equitable. Systems are complex and adaptive.

VI New and Emerging Measures relevant to study of child health equity.

- INRICH Members suggested several new measures/ suites of measures:
    - Marmot Indicators being used at local levels in UK.
    - Lancet Commission Framework for indicators for global use for health equity for children.
    - Gen V Core Outcome Sets
    - National Neighborhood Equity Index (US) (developed by UCLA Center for Healthier Children)
- Important to include the voices of children
    - Subjective measures of child well-being
    - Qualitative data on experience of services
    - HRQOL
- Tracking trajectories over time
    - ASQ, SDQ, SWYC (Survey of Well-Being for Young Children)
- Health care utilization measures for chronic conditions. (e.g., asthma, mental health, diabetes).

- School readiness and EDI measures.

VII **Need for More Action on "Upstream" Social Determinants of Health**

- INRICH Members expressed a strong desire to play a more active role in tackling "upstream' social determinants of health but reported there is very little evidence to guide the best way to do this.
- There was debate as to how much lies in the hands of politicians and policymakers vs health and other professionals and the need therefore to translate findings from health research into actionable policy.
- Policy changes need to be comprehensively evaluated - when policies have changed in the past, the impact on child health equity has frequently been unclear.
- Policy change could be monitored through multiple evaluation channels to allow a full picture of the impacts on a complex system in relation to child health equity.
- Cohort studies provide an opportunity to monitor the results of "natural experiments"- changes in policy that come into effect during the course of the cohort study. This is especially so if the policy is implemented at different times in different areas allowing for control group comparisons.