

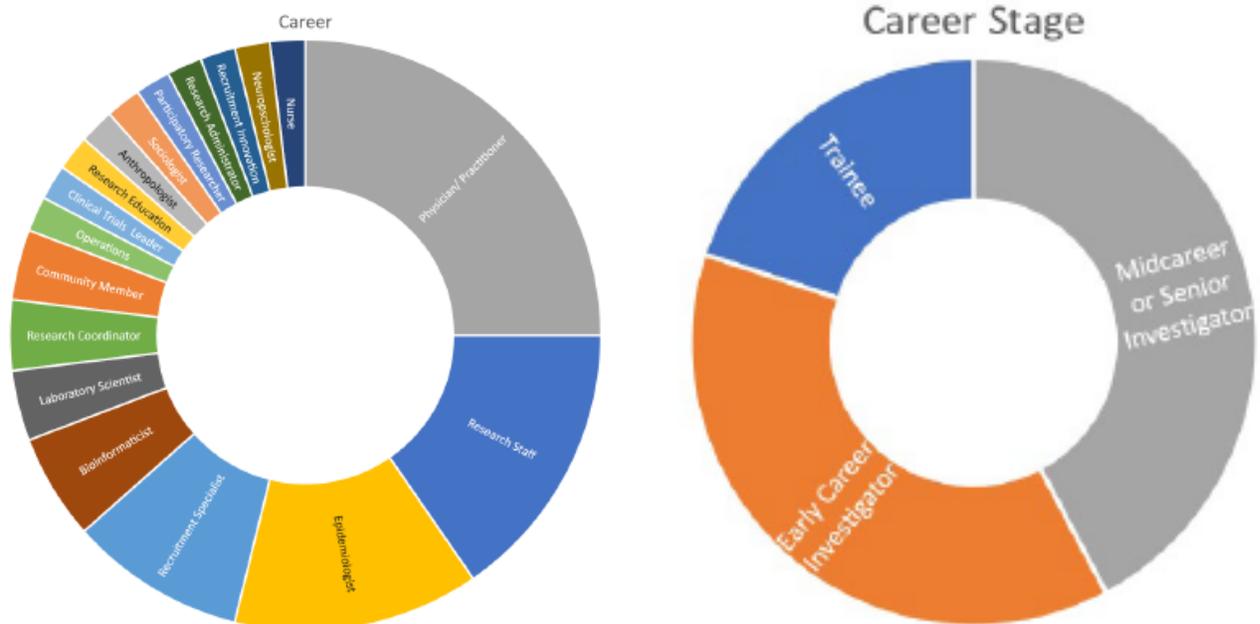
Un-Meeting on Lifespan and Life Course Research: Integrating Strategies on March 2, 2020 in Chicago.

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At the UH Rainbow Center for Child Health & Policy, our mission is to enhance the wellbeing of children and their families through research, evaluation, and advocacy that informs innovation in maternal-child health services and policy. Therefore, I was delighted to attend the “Un-Meeting on Lifespan and Life Course Research: Integrating Strategies” on behalf of the Cleveland CTSC. This Un-Meeting was hosted on March 2, 2020 in Chicago Illinois by NUCATS (Northwestern University Clinical and Translational Sciences) and CLIC (Center for Leading Innovation and Collaboration). The un-meeting was conceived by [CLIC's Lifespan Enterprise Committee](#) with the following aims: (1) to explore, enhance, and disseminate strategies for lifespan and life course research study design; (2) to enhance recruitment, enrollment and retention across the lifespan through partnerships; and (3) to share ideas and promote new collaborations. As noted by opening speaker Michael Kurilla MD, PhD, director of the Division of Clinical Innovation at NCATS, an explicit goal of this un-meeting was to begin to fill the gaps between silos that are created by typical categorical focus of funders and funding mechanisms across NIH. These silos can be particularly detrimental to multidisciplinary teams who study *Lifespan* (chronologic, biologic, and other measures of longevity) and/or *Life Course* (the interaction of contextual factors over time that affect health and development)

Un-Meetings are attendee-driven, with brief “Un-Plenary” sessions at the start of the morning and afternoon sessions intended to prompt creative thinking and generate topics for breakout groups. This particular Un-Meeting was notable in that, for the first time in CLIC history, TL1 trainees presented one of the Un-Plenary sessions. It should be no surprise, then, that attendees at this un-meeting represented diverse constituencies, with even distribution among trainees, early career investigators, and mid-to-senior level researchers, as well as a wide breadth of disciplines (see figure 1).

Figure 1. Un-Meeting Attendees Career Roles and Stages



Given Life Course Research’s focus on context at multiple levels of influence and over time, the day’s discussions were grounded in the [NIMHD Research Framework](#) (figure 2). Un-Plenary highlights of note for the Cleveland CTSC community:

Figure 2. NIMHD Research Framework

		Levels of Influence*			
		Individual	Interpersonal	Community	Societal
Domains of Influence (Over the Lifecourse)	Biological	Biological Vulnerability and Mechanisms	Caregiver–Child Interaction Family Microbiome	Community Illness Exposure Herd Immunity	Sanitation Immunization Pathogen Exposure
	Behavioral	Health Behaviors Coping Strategies	Family Functioning School/Work Functioning	Community Functioning	Policies and Laws
	Physical/Built Environment	Personal Environment	Household Environment School/Work Environment	Community Environment Community Resources	Societal Structure
	Sociocultural Environment	Sociodemographics Limited English Cultural Identity Response to Discrimination	Social Networks Family/Peer Norms Interpersonal Discrimination	Community Norms Local Structural Discrimination	Social Norms Societal Structural Discrimination
	Health Care System	Insurance Coverage Health Literacy Treatment Preferences	Patient–Clinician Relationship Medical Decision-Making	Availability of Services Safety Net Services	Quality of Care Health Care Policies
Health Outcomes		 Individual Health	 Family/ Organizational Health	 Community Health	 Population Health

Un-Plenary 1: 4x4x4 (4 presenters, 4 minutes and 4 slides each):

- [Heidi Hanson PhD](#) (University of Utah)– across disciplines, translational stages, and points on the life span, there are now (more than ever) growing opportunities for both “backward” thinking (leverage existing data sources such as residential, birth, death, environmental health with EMR data) and forward thinking (mobile device data, inclusivity across key time points) which may help overcome key limitations of classic longitudinal cohort and panel studies.
- [Shari Barkin MD MSHS](#) (Vanderbilt University Medical Center) – The CLIC Lifespan Enterprise Committee is assembling a “Lifecourse Toolkit”, grounded in principles and methods of complexity science with goal to
 - Integrate datasets across the lifespan
 - Build data science cores in CTSA’s across the country
 - Develop new multidimensional models and modeling methods
 - Expand use of network and systems analytic methods
 - Standardize measures across disciplines and ages

A series of webinars to explicate the toolkit is planned for the coming year, with details forthcoming on the EC website here: <https://clic-ctsa.org/groups/life-course-visual-toolkit-development>

- [Stephen Kritchevsky PhD](#) (Wake Forest School of Medicine) – Expansion of different measurement methods and techniques to document biologic vs chronologic aging (e.g., age-normalized physiologic assessments, accumulated deficits, methylation measures) should help support the identification of new opportunities to improve reserve at younger age vs reduce rate of decline
- [Phyllis Mitzen AM](#) (Skyline Village Chicago, Illinois Council on Aging) and [Christine Stake DHA](#) (Ann&Robert H Lurie Children’s Hospital of Chicago) – “*Nothing about us without us*”. For lifespan and life course research to successfully translate into meaningful outcomes, patient engagement and partnerships must also occur across the lifespan, with lifespan and life course research presenting both

unique opportunities and unique challenge to patient and community engagement, recruitment, and retention.

Un-Plenary 2: 4x4x4 with current TL1 scholars highlighting current research methods addressing key topics and frameworks related to lifespan (tailoring recruitment and retention, capturing health status across transitions, harmonizing data across organizations) and life course (development of resilience phenotype, measurements and methodologies)

- [Monica Bianco MD](#) (Ann&Robert H Lurie Children's Hospital of Chicago) – identification of early predictors for youth-onset type 2 diabetes
- [Lindsey Potter PhD](#) (University of Utah) – novel applications ecologic momentary analysis methodology in life course research
- Madison LeCroy (Albert Einstein College of Medicine) – diet and risk for cardiometabolic disease in immigrant ethnic minority populations
- [Emerald Rivers MSN RN](#) (Johns Hopkins School of Nursing) – application of Life Span Theory of Control to evaluation of interventions to improve physical function in older adults and their caregivers

The remainder of the Un-Meeting was spent in fluid break-outs with topics defined through two rounds of rapid brainstorming by meeting attendees. Sample topics and points of discussion points that may be of interest to the CTSC community include:

- Life Course Research Methods:
 - Researchers interested in integrating biomarkers for stress into their work may be interested in exploring an upcoming symposium scheduled (at the time of this writing) for June 22-24 at U Mass Amherst. For details, please see <https://www.umass.edu/family/crf-biomarkers>
 - Complex modeling methods: for literature, statistical software macros, and potential collaborators see: methodology center at Penn State <https://www.methodology.psu.edu/>
- Engagement – education and communication of patient partners
 - Are “adaptive engagement designs” the next frontier for research design?
- SDoH and lifecourse research
 - Intersectionality frameworks, role of systems dynamics and agent based modeling for understanding life course data
- Development of Shared and Common Measures
 - Need for cross-cohort measures
 - Need for “STROBE-like” set of shared guidelines for reporting process of qualitative and quantitative data harmonization
- Breaking Down Silos
 - Researchers should be sure to explore the CLIC clearing house on life course research – includes discussion forum, resource kits, and will host the forthcoming webinar series explicating the LifeCourse Toolkit described by Dr Barkin in Un-Plenary #1. Proposed webinar topics are outlined in figure 3.
 - Concept of “lifecourse” ambassador (akin to CTSC concierge services) to connect researchers working at different levels of translation and at difference stages of the lifespan

Figure 3. Proposed Life Course Toolkit Webinar Series

Webinar 1 - An Introduction to Life Course Research and Complexity Science
Webinar 2 - Creating systematic processes for longitudinal integration of datasets across the lifespan representing multiple levels of exposures from physiologic to sociologic
Webinar 3 - Utilizing data science core resources to prepare and package integrated datasets to make them accessible for researchers to generate and test new hypotheses
Webinar 4 - Developing and validating ways to model high dimensional data.
Webinar 5 - Promoting and applying existing methods that fit a complexity science methodological framework
Webinar 6 - Developing analytical methods that can capture the multiple dimensions of time (timing, dose, and duration).

Takeaways:

- There is an acute need for funding mechanisms with timelines and infrastructure that are friendly to longitudinal multidisciplinary research
- Data harmonization – need for common standards of methods reporting
- Integration of “special populations” as a matter of course into all types of research.

All Un-Meeting Materials will be available here: https://www.nucats.northwestern.edu/resources/un-meeting_lifespan_lifecourse.html