

An Interview with Robert Kahn

Robert Kahn is an Associate Professor of Pediatrics at the University of Cincinnati and Cincinnati Children's Hospital Medical Center. He trained in pediatrics at Boston Children's Hospital and received his MPH from Harvard School of Public Health. His major research interests are in the underlying pathways that lead to health disparities and innovative interventions to mitigate them. His current work includes a focus on understanding disparities in asthma outcomes taking a 'genes to geocode' approach. He is also collaborating with the UCLA Center for Healthier Children, Families and Communities on a project to transform how communities jointly support early childhood trajectories.

This interview – which was conducted by Kandyce Larson, PhD, MSW, Research Associate at the UCLA Center for Healthier Children, Families and Communities – is the eighth in a series of interviews with national and international experts in life course health development. The series is produced by the Maternal and Child Health Life Course Research Network (MCH LCRN), which is managed by the UCLA Center for Healthier Children, Families and Communities, and made possible by funding from the federal Maternal and Child Health Bureau (grant #UA6MC19803).

KL: How did you first become involved with research that contributes to our understanding of how health develops across the life course?

RK: My interest emerged out of clinical experience and repeatedly coming across mothers who had their own health issues - maternal depression, maternal smoking, failing to take folate, unintended pregnancy, domestic violence – that I knew were contributing to the kids' issues. I first became curious how that constellation of adult health issues ultimately translated intergenerationally into children's health issues. Then I stepped back and thought more about where those maternal health issues evolved from. I realized that by the time they were teenagers, most of those mothers had the seeds of those issues already – smoking started by age 12 or 14, self-esteem issues before that, etc. My life course interest is not just in tracking the child from 0-50. It's really in the trajectory of women's health through the reproductive years, and its implications then for their children.

KL: What has been the biggest achievement in life course research to date?

RK: One is the work around cardiovascular disease and its antecedents in childhood. It grounds itself in important, well-recognized adult morbidity, and the outcome is critical to a number of stakeholders whether you are an internist, Medicare payer or an employer. Being able to find the roots of carotid artery disease emerging in the teenage years is the kind of thing that not only traces it backwards, but also gives it a biological basis. So to me, the cardiovascular track of life course research is very important.

I find that the antecedents of adult disease [studies](#) by Felitti and Anda get cited by a lot of folks. The study starts with adults and is a retrospective survey, so I don't think it's that rigorous or that they controlled for all the things they should have controlled for, but I think the notion that serious adult morbidity is grounded in childhood has been an important set of findings. This includes important work in the antecedents of mental health problems. A third area that's gotten a lot of people thinking is the field of

epigenetics and how early exposures stick around to cause later problems, through it remains to be seen whether or not this is really going to be a big achievement.

KL: What would you say are the biggest knowledge gaps in your area of research?

RK: I still find the whole discussion of stress conceptually helpful but empirically hard to get one's hands around. The notion of measuring cortisol and cortisol reactivity has been around for a long time, but turning that into a cluster of empirical studies that may clarify how that works for disease in kids through adulthood would be helpful. I find stress itself to not be a very helpful word because there are good kinds of stress as well as toxic stress, and it's not easy to judge stress objectively. So I like to talk about hardships and deprivation more than stress. I know Jack Shonkoff and others are working very hard to frame it better publicly in [interviews](#) I've seen. It's still not clear to me how that should play out empirically.

Another area with a big gap is gene-environment research. There are a couple of arenas in which it was heavily touted at first - for example, polymorphisms related to depression - but it really hasn't progressed much beyond that. It seems like for every two positives, there is at least one negative study. We need to figure out how to move the world of gene-environment research forward, and we need to realize that genetics and genotyping is so much more complicated than we first thought. There are also not a lot of datasets with that kind of information available, so one could hope that the [National Children's Study](#) (NCS) stays funded.

KL: What do you think are some of the biggest barriers to closing these gaps?

RK: One is around disciplinary gaps – adult researchers versus child health researchers, sociologists versus epidemiologists versus biologists. It's very rare to have everyone in the same room trying to come to common language. The [Mac Arthur networks](#) are the closest it comes, and there are a few people like [Tom Boyce](#) that really try to cover a lot of ground – everything from biology and epigenetics to a nuanced understanding of economics and sociology. But wouldn't it be great to get the best of each branch in one room speaking the same language?

Another, I think, is large longitudinal studies where you can see the trajectory played out, and where the best of these potential exposures - sociologic and biologic - are actually measured well. How do we partner with the Scandinavian countries and England to ensure that we are learning from their large population cohorts?

KL: What role can the LCRN play in helping to close these gaps?

RK: Facilitating better interaction between the disciplines. Increasing familiarity and accessibility to some of the important international cohorts. Seed grants for analysis of that data for people who want to take on life course research.

KL: What would be a dream project for you to work on through the LCRN?

RK: In the absence of existing truly-life-course-enabled cohorts here, hanging out in England for a month with UCLA researchers thinking about how to make good use of the English cohort – so, facilitated access to existing datasets, and thoughtful collaboration across disciplines. Since everyone's time is so limited, part of it would be finding a group

of mentors for the junior people, and linking all of us together to do that. For example, a sociology post doc at University of Michigan collaborating with a cortisol researcher/geneticist at Hopkins, where the network is helping to mentor and move together people who have the time to do the research.

KL: Have you participated in any other research networks that you have found beneficial to your work that we can consider modeling the LCRN after?

RK: I was once a part of the AAP inequality research network, but it was de-funded after 9 months. We had about 3 meetings and were just beginning to speak the same language when it was de-funded. It was lead by non-pediatricians – Michael [Weitzman](#) was involved. That general notion of networking with people you wouldn't normally network with involves joint meetings, white papers... it was pretty thoughtful work.

I was also part of the Robert Wood Johnson Faculty Scholars [network](#). That, too, gave money to the junior people. It brought senior people to the first meeting. The senior people liked to go because there was a smart crowd, funding and a good party!

KL: How can we best design the LCRN so that it is useful for both senior and junior researchers?

RK: I like the idea of trying to bring some of the resources and ideas together, and trying to seed the junior people to do the work and bring the senior people with them. Because whenever I get senior people in a room, as soon as you leave, you go back to the huge pile of things on your desk. Thinking about where would big chunks of work go, perhaps to come up with something thoughtful around NCS, or some basket of research generated around the international cohort, some early cohesion around the national children's study, and maybe small pots of money to attract people to each, and then the mentors start meeting about those activities.

KL: What is something unique that the network could do to support you in your research endeavors?

RK: Both the NCS and the international work would draw my interest. It is a pretty impressive group, so the chance to work on early NCS and early international stuff would be great.

KL: We know how busy you are. What would make it easier for you to participate in the network?

RK: Webinar access, with the occasional in-person meeting, and also things that actively lead to papers. I'm a little less interested in funding.

KL: What should the network do to advance the methodology of life course health research?

RK: I think there are tools at hand for understanding trajectories, but I think MDs are not nearly well-trained enough in the methods. I imagine one-week seminars about advanced methodologies where, say, NICHD paid for every six months or once a year where one could send all your MDs or PhDs who never had longitudinal methodologies training, and you could also have other tracks with basic science like epigenetics.

KL: One question commonly raised is, “Life course is an interesting theory, but what are the implications for practice based on what we know to date?” What would you say to that question?

RK: A renewed focus on what primary and secondary prevention activities we should be doing that could avert long-term disease and disability. We know that obesity is an issue, but frankly type II diabetes is not that common before the ages of 15, 16 or 17. The more the lines are drawn backward, the more I think it could and should guide what our anticipatory guidance practices are and how we work with families to understand the implications of changing behavior now versus changing it later. I think we have a different level of intensity if those lines are drawn clearly. We do a family history, but we don't really draw the lines of what that family history could and should mean for the behavior change in the child now.

KL: What do you think would help enable the translation of knowledge into practice?

RK: Demo one or two diseases - maybe cardiovascular disease or depression - and maybe there is a thought piece or two, or an AAP policy statement that really draws on those two examples. What is the relative level of importance? Given what we know about life course, should they be more prominently addressed in well-child care? That is the pediatric relevance, and there is a whole other set of importance for other disciplines as well.

KL: What do you think is the highest priority research in the maternal and child health field that the network should focus on?

RK: Life course maternal health and its implications for infant health. The only way we are going to achieve better neonatal outcomes and infant outcomes is if we understand a woman's life course into the reproductive years better. The second one would be mental health. What do these mental health trajectories mean, and what are all the ways that the consequences are seen once they are adults, everything from depression to prison to unemployment. There are just such huge societal costs versus the amount of effort we put into the early years around behavior - it's completely disproportionate! And also maybe furthering the cardiovascular work into childhood, as well as looking at toxic stress.

KL: Do you have suggestions on topic areas to be considered in the 8-9 “state of the science” papers that we will be commissioning?

RK: I think one might be how different disciplines have approached life course, how they have either worked across disciplines or haven't, and how they can do it better – so epi versus psychology versus biologically-driven ones versus more sociologic life story or life history ones. I think of Burton [Singer](#)'s reference to narratives and stories versus the life course of a piece of DNA with methyl groups being attached. I think it would highlight why we need more interdisciplinary work. There are rich pieces in each of the kinds of literatures, but there are still distinguishable literatures that aren't working together. If we don't pay attention to it, then everyone just goes back to their own silos and no one takes the time to get a sociologist and a biologist and a geneticist talking to each other.

[I would also suggest] a state of the science paper on where we are with cardiovascular disease or depression where the “Best Of” really comes through for what we should be doing for a variety of other outcomes. Also, a methodology paper on how to track health and well-being over time – here are some framing disadvantages, here’s why it’s so hard to tell a story when you have 500 coefficients in a structural equation model, what is the most robust way to use the data, etc. And perhaps something about epigenetics and the biologic basis for life course history.