

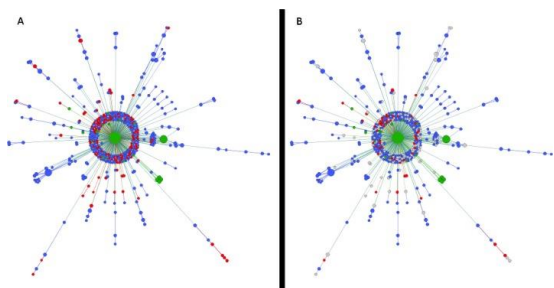


[Kar-Hai Chu](#) is an Assistant Professor of Medicine, Pediatrics, and Public Health at the [Center for Research on Media, Technology, and Health \(MTH\)](#). Before joining MTH in 2016, Dr. Chu completed his PhD at the University of Hawaii and was a public health researcher at the University of Southern California. Dr. Chu's current research focuses on using social network analysis (SNA) and online technologies to maximize tobacco cessation, particularly among adolescents. He has also contributed to the [ETUDES pilot studies](#) by analyzing the network connections between different sites.

The Center's [Sarah Crowe](#) spoke with Dr. Chu about his work surrounding tobacco cessation and his transition to conducting clinical research.

Your education was particularly interdisciplinary. Can you tell me a little bit about your background?

Originally I was trained as an engineer. My background is in computer science, but my interest has always been in applied technology. The majority of my work as an undergraduate at Johns Hopkins University was with health sciences, because we learned about databases in the context of medical records. When I went to get my Master's degree at Columbia University, I began applying my work to education. I used technology to teach kids about critical thinking and complex logical processes. I spent a lot of time in schools as well as seeing how technology works in the real world. I started to do a lot of work with SNA, which provides a set of theories, techniques, and tools useful for understanding a broad range of human behavior changes as people interact with certain others. This type of work is closely tied to education and public health, so entering these fields felt like a natural step to me even though I didn't have formal training in them until my postdoc.



SNA of JUUL retweets

KH Chu, JB Colditz, BA Primack, *et al.*, **JUUL: Spreading Online and Offline**; *J Adolesc Health*, 63 (5): 582-586 2018, doi: [10.1016/j.jadohealth.2018.08.002](https://doi.org/10.1016/j.jadohealth.2018.08.002)

How did you end up in Pittsburgh?

I'll answer that in two ways. My partner and I have two daughters, and we were living in Southern California. We wanted to move to an affordable city with good public schools. I was also looking for an academic group that fit my interests but that would allow me to learn something new. I wanted to work someplace that would make me a little uncomfortable. Working with this team at MTH was appealing because I would work at a school of medicine and do clinical research for the first time, but I would still be able to apply my background in social networks, technology, and public health. I wanted to learn how to do clinical research so that I could work with individuals rather than only large-scale data.

Who are your mentors? How have they influenced you?

I have been really lucky with all of my mentors so far. They have all offered wonderful support, but none of them have tried to mold me in their image. [Dan Suthers](#) was my PhD advisor at the University of Hawaii. He works in technology and education, and he encouraged me to take my own path with research. I am still in touch with him, and it's great to have someone in technology that I can bounce ideas off of. [Tom Valente](#) was my postdoc advisor at USC. He's particularly known for his work surrounding social networks and health. He comes from a communications background and thinks deeply about interpersonal relationships. This is very different from my engineering



Daniel Suthers, PhD
Director, [Laboratory for Interactive Learning Technologies](#)

background, so it was helpful to hear his perspective. [Brian Primack](#) was my mentor when I arrived in Pittsburgh. He is a physician and does many behavioral health studies. He was very good at providing resources and suggestions as needed, but he never pushed me to do specific clinical trials. All of my mentors have been flexible and guided me when I've needed it, and I am really grateful for that.

Your recent research has focused heavily on tobacco control among adolescents. What inspired you to pursue research in this field?

I became interested in tobacco control partially for personal reasons. Most of my family smokes, and many of my older family members have died from smoking related diseases and cancer. I began working with adolescents, however, because of the type of work that I do. SNA is my main methodology, and peer networks and relationships are most important for younger people. Teenagers also tend to use technology more than other age groups. I've really enjoyed working with adolescents, partially because I think people who work with adolescent populations are very motivated and driven, and working with kids is often considered a calling.



I know that you are currently working on a study funded by the [National Cancer Institute](#) that aims to use mobile apps and social network analyses to maximize tobacco cessation. Can you tell me more about that particular project?

The short version is that it's an app that supports hospitalized patients with quitting smoking. Because smoking isn't allowed in the hospital, inpatients often need a method to help them stop. I didn't want to pitch the app as something that would automatically solve a person's smoking problems, but if someone is hospitalized, he has already started to quit and having something to support him after he is discharged might be useful. The app is called Kwit, and it was developed by a group of ex-smokers. It wasn't based on evidence or research, but it has more than a million downloads from the Android and Apple stores. So instead of trying to create my own app and worrying about bugs and marketing, I am taking something that already works and trying to figure out why it does. So far, I think that a lot of its popularity comes down to usability. If an app isn't engaging, the strength of its theoretical frameworks doesn't really matter, because people won't use it.

What has been the most rewarding part of your work at MTH?

I think the most rewarding part has been the clinical side and learning about patient-centered outcomes. When I was exclusively in population health, I worked with large-scale populations and never saw any patients face to face. Now, I am able to interview patients and find out what is important to them. Maybe a study participant wasn't able to quit smoking, but she is proud because she takes the stairs instead of the elevator now. It's been really interesting and rewarding for me to hear those personal perspectives.



What has been the most challenging part of your work in this field?

This whole experience has been extremely challenging for me. I've had to learn an entirely new vocabulary and a new way of thinking about research. Instead of working with a survey of 200,000 kids, now I often have a 16-year-old sitting in front of me and I have to explain to him what it means to get cancer 20 years after he's started using tobacco. I've never done that type of work. There's been a steep learning curve and the path hasn't always been smooth, but each time has gotten better and I'm continuously learning about the field.

