

ArthritisHack: Bringing Innovation to Arthritis

ORGANIZER

By Michelle Mika, ArthritisHack organizer from Hacking Health, Toronto Chapter

It takes courage to try something new. And that's exactly what the Arthritis Society (TAS) did. They partnered with Eli Lilly and Hacking Health in Toronto to explore how technology could generate innovative solutions to the challenges posed by arthritis. The format was a 48-hour-long hackathon called "ArthritisHack."

Watching healthcare providers, technology professionals and patients hunker down over an entire weekend to improve the lives of arthritis patients is inspiring. The energy, enthusiasm, and collaboration between disciplines is the real lesson of a health hackathon. Patients led tech-savvy developers and designers into a true understanding of the condition, while healthcare providers lent their deep knowledge. Eleven teams driven to help arthritis sufferers presented brand new ideas after multiple iterations over the course of the event. The result? Three winners with inspiring patient-centric solutions that no one could have developed alone. That's what I call courage!

PARTICIPANT

By Karim Mithani, MD candidate (2020), University of Toronto

From October 13–15th, I had the privilege of attending ArthritisHack at the MaRS Discovery District in Toronto. In interdisciplinary teams of programmers, designers, healthcare practitioners, and business professionals, we identified pressing challenges faced by arthritis patients, designed innovative solutions, and built working prototypes.

My team developed a mobile app to improve treatment and care for children suffering from juvenile idiopathic arthritis (JIA), called "Joint Space". One component of the app facilitates conversations between patients and caregivers about JIA symptoms and treatments through customizable, evidence-based, virtual storybooks. Another interactive feature allows for longitudinally tracking the symptoms and functional limitations of the disease, and includes a modified pediatric homunculus. Finally, a communal component of the app, designed to reduce stigma and enhance social



Karim Mithani with his team, *Joint Space*.

support, allows users to interact with other JIA patients in the community using emojis. Events such as ArthritisHack underscore the remarkable potential for technological innovation in healthcare, and the importance of multidisciplinary teams in achieving it.

JUDGE

By Vandana Ahluwalia, MD, FRCPC

I have never been to a hackathon. I have heard of them. When the Arthritis Society asked me to be a judge at an event called ArthritisHack, I was intrigued and immediately said YES!

The weekend was managed by Hacking Health, with support from Arthritis Society staff, as well as the innovation sponsor, Eli Lilly Canada. The event brought together healthcare professionals, IT professionals, designers, policy analysts, entrepreneurs, and – most importantly – people with arthritis to produce solutions to empower people with arthritis in all aspects of their lives.

The event started with a kick-off meeting on Friday eve-



Pictured from left to right: Isabelle Vezina (Executive Director of Hacking Health Global), Dr. Philip Baer (editor-in-chief of the *CRAJ* and a mentor at the event), and Michelle Mika (Corporate partnerships, Hacking Health Toronto).



Janet Rodriguez, a mentor at the event and a person with lived experience.

ning where individuals “pitched” their ideas for innovations to help address common issues that people with arthritis experience. Participants formed teams around the ideas they found most interesting and could most benefit from their particular expertise, and then the “hacking” began in earnest – and continued for the next 36 hours. I am sure that many of the 11 teams stayed up all night munching on snacks, drinking coffee and happily writing code!

The judging occurred on Sunday afternoon. Each team had five minutes to present their prototype – working prototypes that covered everything from symptom tracking to emotional support to building a volunteer network to provide people with help when they need it. I was pleasantly surprised with the creativity and productivity that the teams achieved in such a short period of time. The judging



was not easy as many of the entries were superb. After careful deliberation, the cross-disciplinary panel selected three winning teams who were awarded cash and in-kind prizes to work – with the assistance of the Arthritis Society – to further develop their prototype and implement it.

I think this event was a great way to foster collaborative innovation in the arthritis community, and to find elegant solutions to improve patient self-care.

MENTOR

By Philip A. Baer, MDCM, FRCPC, FACP

This was the second such event hosted by TAS. The overarching theme was: “Innovative Thinking, Empowering Solutions: How can we help people overcome the challenges of living with Arthritis in all aspects of care and life?”

Friday keynote speakers included Janet Yale, CEO of TAS and Dawn Richards of CAPA. Elevator pitches led to 11 teams being formed, competing for three prizes of \$2000-\$5000, as well as mentoring and support to further develop their project.

The themes identified included: Communication, Emotional Health, Arthritis at Work and Hacker’s Choice.

Team names included: *ArthWrite*, *JointSpace*, *AdaPT*, *Core365*, *Health Docker*, *2020UGarden*, *Ari*, *Spoons*, *Arthritis Pursuance*, and *KIZUNA*.

I noted great interest in symptom trackers, mood trackers, and correlating sleep, mood, exercise and medication adherence with functional status. As a clinician, I was able to discuss clinical practice, patient-related outcomes tools like PROMIS and MDHAQ, websites like www.rheuminfo.com, and issues around medical information transfer and privacy issues.

I really enjoyed the chance to interact with medical students, other mentors, coding and IT experts, biomedical engineers, patients and other participants.

First-prize Winners:

“Kizuna”- an application to connect patients to volunteers who can help them.