



Project Title: UC HEALTH HACK 2017

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UC Health Hack 2017 Summary

UC Health Hack (UC HH) was launched on March 4-5, 2017. It marked the first time UC San Diego Health, UC Irvine Health, Rady Children's Hospital-San Diego and the UC San Diego student-led chapter of Engineering World Health partnered to promote innovation in health care.

The UC HH focused on improving health care delivery using leading-edge technologies and methodologies. The event brought together a diverse, multidisciplinary group of technology professionals, engineers, clinicians and students, to propose and create solutions to various challenges in health care today. Teams designed and rapidly developed their solutions over a two-day period, then presented their concepts and prototypes to a panel of judges for prizes, recognition and honors.

Background

Popularized by the software-coding industry, a hackathon is a gathering where programmers and others involved in software development collaboratively code in an extreme manner over a short period of time to develop a new product or solve a problem.¹

In the last five years, academic health institutions have started to embrace the hackathon platform to promote innovation in health care. UC San Diego Health's Chief Information Officer, Chris Longhurst, MD, MS, took notice of the success of these events (including the BWH Hackathon – the Brigham and Women's Hospital (BWH) in collaboration with MIT H@cking Medicine) and introduced the concept to the Information Services Leadership Governance (ISG).

Discover and Connect

With full support from the ISG, a project subcommittee was formed in early July 2016. The subcommittee was charged with discovering how to run a hackathon in collaboration with our institution's engineering colleagues and local health care industry partners.

Within a few months, we had committed and enthusiastic representation from UC San Diego Health, UC Irvine Health, Rady Children's Hospital-San Diego and the UC San Diego student-led chapter of Engineering World Health. Together, our goals were to:

1. Improve standards of living in low-resource communities through low-cost innovations
2. Close health care gaps from the acute care setting to precision medicine at home, empowering patient and their providers

Within the first month, we confirmed our event date, worked out the details of the project plan, and put everything in motion. By this time, we had six months until launch.

The Event

The UC HH gave us a unique opportunity to meet several strategic goals:

1. Close health care gaps from the acute care setting to precision medicine at home, empowering patient and their providers
2. Inspire participants to pursue a career in health care and biotechnology
3. Recruit some of the best and brightest talent in engineering and health-related disciplines
4. Network with physicians, health care personnel and industry representatives dedicated to improving the current state of medical devices and technology.



To meet these goals and with guidance from our expert advisors, two tracks were developed – the Global Health Track, created by Engineering World Health, and the UC San Diego Health Track.

For the UC San Diego Health Track, we focused on three areas of improvement:

1. **Inpatient Experience** – How can we improve patient engagement and provide patients and family real-time updates on their inpatient care, disease process and care plans moving out of the acute care setting? How can we create a better communication environment within the hospital?
2. **Healthy Aging** – How can we engage patients and provide devices for those with new and chronic diseases to improve their daily activities and community participation? How can we focus on healthy aging within both younger and older populations? How effectively are we impacting our local and state aging populations?
3. **At Home Health Care** – How can we provide acute care at home? Can telemedicine improve care by eliminating the need for transportation? What devices are needed by providers to adequately treat patients at home? Can patients engage health care at home with their own devices? Can population health provide better insight for patients receiving care at home?



Collaboration

More than 70 academia and industry experts from UC San Diego Health, UC San Diego School of Engineering, UC Irvine Health and Rady Children's Hospital-San Diego participated in the event. They dedicated their weekend to serve as mentors, judges or volunteers to help unearth novel solutions to current issues in health care.



Additionally, several of our vendors participated – Optimum, Amazon Web Services, Epic, JAMF and West Health – providing monetary donations as well as their expertise, professional support and leadership at various sessions during the event. Mentors were coupled with software developers, user experience designers and data analysts to work directly with teams to provide guidance and steer project visions to reality

Through the support of the UC Health, Rady Children's Hospital-San Diego, and partnerships with our campus incubators, such as the Von Liebig Center for Entrepreneurship and The Pepper House, winning teams have the opportunity to pursue their ideas and develop them further through mentorship, were granted access to lab space, and were provided with funding opportunities.

Innovation

The UC HH attracted more than 181 participants from institutions including UC San Diego, UC Irvine, UC Berkley and the University of Southern California. Participants had approximately 36 hours to come up with solutions, develop documentation and create a presentation.

We assembled two diverse judging panels for each of the tracks, which included technical specialists, physicians, business leaders and domain experts. The judging panels evaluated the projects in each track based on the following criteria: Creativity and Prototyping, Research and Design Feasibility, Implementation Viability, Use Case and Assessed Needs, and Presentation/Overall Project Preparedness.



Two rounds of project evaluations took place: First the teams had a demo round to present their hacks to judges. Second, finalists from the first round were selected to give 5-

minute presentations in a final round. Based on the presentations in the final round, judges selected the top three solutions from each track.

The UC HH was proud to honor the following winners in the UC San Diego Health Track:

UC San Diego Health Track

1st Place

Reality Art Therapy: Incentivizing Patient Mobility through Augmented Art Reality.

Inpatients tend to have problems with lack of mobility, social isolation, and an overall reduced well-being. Augmented art reality allows them to gain motivation to get out of bed and visit art exhibits that can be implemented in hospitals virtually.



2nd Place

Medical Noise-Canceling Headset

This noise-canceling headset takes advantage of active noise-canceling technology and helps to mediate distress caused by the loud noises within hospitals, which have proven to cause adverse health effects.



3rd Place

Dr. Home

Dr. Home is an easy-to-use interface that allows for better patient-doctor communication for geriatric patients.



Additional Resources

1. Hackathon. Techopedia. <http://www.dictionary.com/browse/hackathon>. Accessed May 17, 2017.
2. <http://UCHEALTHHACK.UCSD.EDU>
3. Twitter for event history @UCHealthHack