

With new ventures to show, MIT Hacking Medicine shares its model for success

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Prize winners at a healthcare hackathon. Credit: MIT Hacking Medicine

Since 2010, MIT Hacking Medicine has grown from a one-time event to a global brand, with more than 80 healthcare hackathons being hosted this year, from Cambridge, Massachusetts, to Quito, Ecuador. The

programs are open to everyone, but are particularly popular with 20- to 30-something engineers, doctors, researchers, and entrepreneurs who form teams under mentorship and identify healthcare issues to solve. At least 15 groups have started companies and raised more than \$100 million in venture funding after meeting at a Hacking Medicine event. In a commentary published July 26 in the journal *Cell Systems*, the organizers describe how their model stands apart from typical hackathons.

"The short- and medium-term gains in healthcare are not going to be from one-off Thomas Edisons doing their own thing to invent the light bulb," says senior author Christopher Lee, a former engineer-turned-scientist at the David H. Koch Institute for Integrative Cancer Research. "Everything is so multi-disciplinary now that you need to know where you run short of expertise and complement your skill sets through collaboration."

A healthcare hackathon follows a four-phase approach: identification, description, alteration, and implementation. At the start of the weekend, each group chooses to work on a pain point that one of the participants brings up from their day-to-day experience working in healthcare (e.g., patients are waiting over an hour to see their doctors, children are accidentally pulling out wires next to their hospital bed). Once selected, the team interviews relevant people who are affected by the problem and researches existing solutions. They develop prototypes that solve problems they've identified and then compete for endorsement from mentors and judges.



Healthcare hackathon in progress. Credit: MIT Hacking Medicine

Some of the ventures that have so far evolved from these meetings include PillPack (prescription adherence), CAKE (end-of-life care), Augmented Infant Resuscitator (improved bag-valve-mask for neonates), Perfect Latch (breast pump design), Arsenal Health (patient scheduling), and Podimetrics ([diabetic foot ulcers](#)). Other former participants go on to work on research or non-profit projects such as mobile diagnostics applications, ultrasound probes, and electronic health record automation tools.

Lee emphasizes the social and academic values of the hackathons, which help participants meet like-minded individuals and learn how to

innovate. "Our goal isn't for our event to launch companies, it's to teach people to incorporate design thinking and user feedback—or how to conduct an interview so that you know what you're designing is hitting the right levers," he says. "We see ourselves as an education program that all the MIT Hacking Medicine community members have put a lot of love into."

MIT Hacking Medicine, which mostly covers the New England area, has been involved in about a quarter of the healthcare hackathon events that now take place around the world. In addition to university- and academic-sponsored events, the group also helps [healthcare](#) technology groups and institutions design accelerators and incubators and helps hospitals and pharmaceutical companies host internal hackathons.



Participant at a healthcare hackathon. Credit: MIT Hacking Medicine

MIT Hacking Medicine recently published a free handbook that serves as a resource for anyone looking to host these events in their community. Lee recommends hackathon planners raise money for space, prizes, food, and of course, coffee. Due to the popularity of the events, it sometimes is necessary to use an application system to screen for participants.

"Research is all about being out there and being totally new, and that's great, but at the same time, we have such a wealth of problems to solve today, right now," Lee says. "We are showing scientists and physicians that no matter what they are working on, they can be an entrepreneur and incorporate the design process without getting an MBA or being a consultant in a previous life. People come to our events and feel like they can do this."

More information: *Cell Systems*, Gubin et al.: "A Systems Approach to Healthcare Innovation using The MIT Hacking Medicine Model" [www.cell.com/cell-systems/full ... 2405-4712\(17\)30084-4](http://www.cell.com/cell-systems/full...2405-4712(17)30084-4) , DOI: [10.1016/j.cels.2017.02.012](https://doi.org/10.1016/j.cels.2017.02.012)

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