

Health care innovation isn't about smart phone apps, researchers say

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Health care has much to learn from innovative high-tech companies, but not in the way most people think, according to a Perspective published today in the *New England Journal of Medicine* and authored by innovation experts from the Perelman School of Medicine and the Wharton School at the University of Pennsylvania. Innovation, they say, can most effectively achieve meaningful outcomes by testing many new ideas quickly, cheaply, and contextually.

"Health care innovation is not about iPhone apps. It's about disciplined approaches to rapidly testing [new ideas](#) to promote better [patient care](#)," said co-author David A. Asch, MD, MBA, executive director of Penn Medicine's Center for Health Care Innovation. "We're moving into an era where 'getting away' with as little testing as possible is an essential feature of successful innovation - so long as that testing is done in a real context where the results are believable."

Co-author Roy Rosin, MBA, chief innovation officer at Penn Medicine noted, "In the business world successful innovators have moved away from surveys and focus groups that tell us what people say, and instead have created approaches that reveal what people actually want and actually do." In the Perspective, Asch and Rosin describe several techniques from the [business world](#) that [health care organizations](#) can use to learn quickly at low cost, including "vapor tests," "fake front ends," and "fake back ends."

In vapor tests, companies try to sell products they haven't yet created, to

get a credible sense of demand before they invest in creating a product that maybe no one wants. The "out of stock" message you receive when you try to order a product online might be real, or it might mean that the product you tried to order never existed in the first place. Retailers sometimes post a believable description of a fake product to gauge demand, to learn if enough people click on it to make it worthwhile to make it or sell it. The authors note that vapor tests "move from the wishful 'if you build it, they will come' philosophy, to the empirical and prescriptive 'if they come, you should build it'." "You can use vapor tests in health care," Asch said, "but you have to tread lightly, because they involve some deception and health care has strong traditions of truthfulness."

In "fake front ends" innovators create non-functioning prototypes and set them loose into practice to see how people might use them. The authors cite the example of doctors at a children's hospital wondering whether they could safely reduce hospitalizations among patients with sickle cell disease presenting at their emergency department with fever. Physicians made decisions to send some patients home when they thought it was safe. What was fake was that they didn't actually send them home, but instead observed them in the hospital to ensure they were ok. Learning this way preserved patient safety and showed the hospital they were right, and now by turning the fake front end into a real one, hospitalizations have been reduced by 27 percent.

In "fake back ends" innovators create temporary structures to simulate how new ideas would work in actual practice, before committing the resources to build something that in the end might not work. At Penn Medicine, one such effort involved using a text-based intervention to improve the care of postpartum women with preeclampsia, a potentially dangerous pregnancy complication characterized by high [blood pressure](#). Previous attempts to track this population had failed when patients didn't answer phone calls or show up for blood-pressure monitoring. But when

women were sent home with a blood-pressure cuff and asked to text their readings in every day during the critical first postpartum week, the majority sent their blood pressure reports in - not to the automated system a hospital would eventually put in place, but to an obstetrician who only pretended to be the automated system Penn might later develop.

"It took only a few days to learn that patients would text back their blood pressure readings more readily than they would attend monitoring appointments or answer the phone," Rosin said. "That information didn't prove the program would work, but it permitted fast decisions about whether to keep moving forward, abandon the idea, or change course due to new insights or unexpected problems."

In less than two months, the team ran half a dozen postpartum-hypertension mini-pilots sequentially, each addressing a question the previous pilot had raised and driving higher patient engagement. As Asch noted, "You don't get that kind of valuable insight by asking patients what they want. You get better direction by actually doing something and seeing how people react. That's often the best way to be patient-centered." Across each of these rapid validation methods rigor is maintained, as they're hypothesis driven and proceed based on explicitly stated metrics.

Efforts such as these "make us optimistic about the enduring contribution of health care innovation," the authors wrote. "They support a culture of experimentation, in which front-line clinicians and employees can turn insights into initial data, with snippets of time and small budgets. Other industries have advanced these techniques, but [health care](#) can adapt them to do much more than just build the next [health-related] app."

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