

Innovative, automated strategies to engage patients at home are key to improving health outcomes

June 20 2012

In a Perspective piece published Online First this week in the *New England Journal of Medicine*, a group of researchers from the Perelman School of Medicine at the University of Pennsylvania propose a multi-pronged approach to the new practice of so-called "automated hovering" that aims to improve patients' compliance with medication and dietary regimens and other positive health behaviors. These approaches combine newly discovered principles of behavioral economics that offer better ways to motivate patients to improve and protect their own health, technologies such as cell phones and wireless devices, and new reimbursement strategies for health care providers that require them focus more closely on patients' health outside of office visits and hospitalizations.

To be most effective, the authors say automated hovering approaches must be not only cost-effective – inexpensive to provide, without costly [medical](#) personnel oversight on a daily basis – but also guided by the growing field of [behavioral economics](#) research, which provides clues about what motivates and helps patients to remain engaged in behaviors that improve their health. "Behavioral economics explains why people are predictably irrational and provides tools for redirecting their behavior with carefully deployed nudges and financial incentives," they write.

"Even patients with chronic diseases might spend no more than a few

hours a year in front of a doctor or a nurse. But they spend over 5,000 waking hours a year doing everything else -- and that 'everything else' often has a big impact on their health." says lead author David A. Asch, MD, MBA, director of Penn's Leonard Davis Institute of Health Economics. "If we are to help patients improve their health, we need to find a way to engage them during those 5,000 hours."

The authors cite Penn research on an electronic pill box used to monitor patients taking the blood thinner warfarin as an example of an automated hovering approach that holds promise for management of other illnesses. The dispensers studied were electronically tied to a lottery system that offered patients a chance to win money each time they took their pill – but if they box recorded that they had skipped their warfarin the previous day, they were ineligible to collect the prize even when their number came up in the daily random drawing. The system, which the Penn team detailed in a 2008 paper, reduced the rate of incorrect doses from 22 percent to about 3 percent. The authors suggest that a similar system could be easily deployed to improve medication adherence among patients discharged from the hospital with congestive heart failure or after being treated for acute coronary syndromes.

Asch and his co-author, Kevin Volpp, MD, PhD, director of Penn's Center for Health Incentives and Behavioral Economics recently received a \$4.8 million Health Care Innovation Award from the Centers for Medicare and Medicaid Services to test out an automated hovering approach to help patients maintain their prescribed medication regimen when they are discharged from the hospital after a heart attack.

To be most effective, the Penn authors note that these approaches should target specific patient populations – especially those who are at risk of preventable hospitalizations, an enormous driver of U.S. health care spending. Diabetic [patients](#), for instance, who can keep their disease in check at home by following their recommended diet and exercise

guidelines and taking the proper medications, are an optimal target for automated hovering, as are those with heart failure or other cardiac problems who are well enough to manage their disease at home. In those groups, hovering could focus on promoting adherence to the medication regimens that are necessary to prevent costly hospital admissions.

Provided by University of Pennsylvania School of Medicine

Citation: Innovative, automated strategies to engage patients at home are key to improving health outcomes (2012, June 20) retrieved 26 April 2024 from <https://medicalxpress.com/news/2012-06-automated-strategies-engage-patients-home.html>

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