

Digital health devices are great, but their prices are widening the health gap

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Couple using in-home blood pressure monitor. Credit: www.shutterstock.com

Chronic conditions such as cardiovascular disease, diabetes and chronic respiratory diseases account for more than [85 percent](#) of all deaths in the United States. [Obesity and asthma](#) in particular are among the leading

causes of preventable deaths in the United States and constitute a large portion of health care expenditures. Type 2 diabetes costs alone [exceeded US\\$245 billion](#) in 2012.

Despite many medical advancements over the past decade, there is a growing recognition that disease prevention and better disease management are critical to reducing preventable deaths and [containing rising health care costs](#).

The private sector has begun to develop [tools to improve chronic disease management](#) with digital health technologies, and that [market is growing rapidly](#). These technologies, such as activity trackers and blood pressure and glucose monitors, empower patients with the necessary information to better manage their conditions.

The [Commonwealth Fund](#), a private foundation that aims to promote a high-performing health care system, has reported that [digital health technologies](#) can improve [health outcomes](#) by increasing patient engagement in self-care, closing communication gaps, identifying and tailoring services to meet the needs of patients and improving decision-making by consumers and providers.

Yet, these touted benefits can be realized only if those with chronic conditions have access to the technologies aimed at helping them. There is a [gap](#) between those who would receive the greatest benefit from using digital health technologies and those who actually have access to them.

This device gap results in a health gap: People who have access to digital health technologies have an opportunity to better manage their disease, leading to better health outcomes. For instance, low-income populations are most at [risk for diabetic complications](#). Yet, they likely cannot afford the technologies aimed at improving blood sugar control, which widens the health gap between diabetic complications of the poor and those who

are financially stable.

Patient populations with the [worst health outcomes](#) are often those who face challenges with self-care, such as remembering their medications and communicating with health care providers. Digital health technologies provide a way to empower these patients with the information they need to improve self-care, more effectively communicate with their doctor and track disease progress.

As public health researchers who study health disparities, we wanted to explore the ways that a device divide may be affecting the poor. We found that everything from product design to costs are contributing to a growing health divide. We need to know the extent of the divide so that we can learn how to narrow the gap.

Money, confusion with tech devices are problems

The cost of health technologies can be an impediment to access. Devices such as activity trackers, smart phone blood pressure monitors and glucometers and other e-health devices often [retail for \\$50 or more](#). Low-income patients may not be able to afford these devices. Many are not covered by insurance, even though studies have shown that the [devices actually save money](#).

Income is correlated with [poorer health outcomes](#). For [chronic diseases](#), such as obesity and diabetes, the poor share a [disproportionate disease burden](#). Therefore, technologies such as smartphone glucometer and blood pressure monitors, which are designed to overcome some of the barriers to improved disease management, are unavailable to the population most affected by the disease.

In addition to expense, many devices on the market are not user-friendly. For example, the majority of blood glucose monitors require a computer

connection in order to send information to a [health care provider](#). Due to the [complexities of electronic communication](#), many patients may forgo sending data to their health care provider, which prevents the patient from receiving the health benefits from the device.

Additionally, patients with multiple [chronic conditions](#) – the group that might benefit most from wearable technologies – [adopt digital health technologies at a low](#) rate. This may be due to the time required to input data, or because tracking data causes patients to feel depressed and scared, which is compounded by the belief that their physicians don't trust the data submitted.

New devices need a new direction

Product developers must recognize that patients don't have unlimited enthusiasm, resources and time to track data. Also, the data need to be in an usable format for physicians and other health care providers.

Ultimately, stakeholders such as patients and health care providers should be involved in the development process. Working with stakeholders to develop tailored devices at a low cost could aid in better chronic [disease management](#) in patients who need it most, which would reduce the digital health divide.

Additionally, technologies that focus on changing health behavior are critical. Developers could integrate motivational interviewing and data collection to help patients set goals, monitor progress and cope with negative feelings.

For example, devices could incorporate tools to support digital learning opportunities and to highlight connections between behavior change and disease outcomes (e.g., between diet, exercise and blood sugar levels). They also could involve social media support mechanisms. Innovative designs to support positive feelings will encourage patients to [continue](#)

[use of devices.](#)

The impact of chronic disease in the United States extends beyond the health of the affected individuals: It contributes to the exorbitant costs we pay as a nation for health care.

The most effective way to reduce the prevalence of chronic disease, and ultimately our [health care](#) spending, is through an investment in chronic disease prevention. [Digital health is rising exponentially](#) in the U.S., but most of the available technologies are not designed with and for the users who could benefit most – the most vulnerable of society. Yet, the burden is not on tech companies alone. More research is needed to understand how to best present data in ways that lead to desirable behavior changes.

Insurers can play a role in increasing access to digital health through coverage of evidence-based technologies, provider reimbursements for reviewing health data and creating a policy scheme that both supports development and yet appropriately monitors patient risk, cost and purported health benefits.

Digital health is here to stay. We just need to employ strategies to ensure digital health technologies are user-friendly and accessible to those who need them the most.

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