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# Prevent diabetes? Doctors may soon have an app for that

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Preventing the onset of debilitating illness requires making healthy choices, every day. This is especially true for diabetes. In Europe, a new program is empowering patients who are in danger of developing diabetes to play an active role in turning their health around, through clever integrated use of familiar devices.

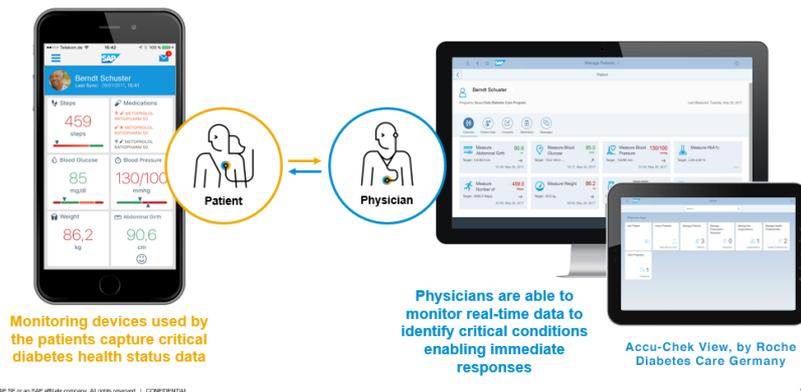
The stakes are high. Worldwide, 422 million adults have diabetes, and this disease kills 1.6 million people per year. In the U.S. and Europe, nearly 10% of adults are diabetic. One in three Americans is prediabetic, but the vast majority of them don't know it. Fortunately, prediabetes can be managed effectively, and even reversed, with lifestyle changes rather than medication.

In 2016, 170 patients with metabolic syndrome around Germany were enrolled in the Accu-Chek View pilot project in general or internal medicine practices, conducted by Roche Diabetes Care Germany in cooperation with a health insurance company. Patients were given a glucose monitor and a fitness tracker, all of which transmit data wirelessly via Internet of Things (IoT) technology. They were also given an easy-to-use smartphone app that automatically collects data from those devices and other medical and activity parameters which are crucial for therapy guidance. The app transmits all of this information to their doctor.

On the healthcare provider's side, the system provides alerts of potentially critical patient data, as well as a clear visualization of the patient's progress toward goals for weight and other key medical and activity parameters. A doctor or diabetes coach can then use the system to communicate back to the patient via the app, to ask questions or offer congratulations and encouragement for positive results. This system also empowers

doctors to know when to reach out directly to a patient, or recommend an office visit, if the data shows reason for concern.

### SAP Health for Patient Engagement – Diabetes II Monitoring



“Lifestyle intervention and behavioral change are notoriously hard to accomplish and sustain,” said Lars Kalfhaus, CEO of Roche Diabetes Care Germany. “This solution takes the necessary measurements and gives patients clear daily feedback on where they stand with their health status. It also makes it simpler for doctors to stay in touch with how patients are doing, and offer well-timed feedback and care. This closes the engagement loop to support the journey to lifestyle change.”

This program also includes education. Patients who opt in also receive several training programs in a year, on topics such as diet and how to exercise. In addition, the app provides links to vetted resources on diabetes and related topics, to support patients’ self-education process. In this way, remote monitoring and ongoing engagement can amplify and reinforce education.

Typically, only a fraction of diabetes patients succeed in reaching their clinical targets. Accu-Chek View offers the potential for substantially better outcomes.

“We were very impressed by the outcomes we saw,” said Kalfhaus. Roche conducted an observational study for the first year of this project. Those results will be published in a peer-reviewed journal in December, but for now he offered, “We documented substantial average weight loss after four months of participation, which was sustained over 12 months. Much better than most weight loss programs.”

On the back end, Roche collaborated with SAP Health to develop key digital components of this project, especially the mobile app and physician online interface.

“Remote support means fast reaction time,” said Jonas Dennler, Value Engineer for life science and healthcare at SAP. “Doctors or coaches can reach out to patients as soon as something seems to be going in the wrong direction. This is a huge improvement over the traditional approach to diabetes data gathering, where patients had to manually keep a daily journal, which was usually handwritten rather than digital and only reviewed occasionally by their doctor.”

An integrated digital approach to monitoring prediabetic conditions also can make healthcare more efficient. Not only do participating patients enjoy more frequent interaction with healthcare providers; Accu-Check View also enables doctors to schedule office visits.

Based on its strong initial success, Roche has begun rolling out this program more broadly in Europe. Such an integrated, digital solution offers potential benefits for prevention and treatment of other chronic illnesses.

This kind of integrated digital innovation could have tremendous impact on the medical device industry. In past years, in developed nations, there has been considerable advancement in pharmaceutical treatment for chronic illnesses known as “lifestyle diseases.” But smart, integrated interventions involving medical devices and apps could prove even more valuable as lifestyle diseases become endemic in developing nations.

A deployment advantage of the approach developed by Roche and SAP Health is that it does not actually involve data integration, in the sense of bridging data silos within an organization, or into business processes. Rather, it simply displays data from several sources through an integrated mobile/online interface. This makes the standalone solution technically simpler to implement.

While ultimately patients are the winners in better management of prediabetes, healthcare payers can play an important role in expanding the market for integrated digital solutions for preventative healthcare. These organizations potentially have much to gain, since treatment after the full onset of chronic disease tends to be more costly than effective prevention. And this, in turn, can improve the return that medical device companies see on their investments to develop such innovations.

A major German healthcare payer was a key supporter of the Roche and SAP Health project. “Historically the mindset of the insurance industry has been on paying for treatment and cures more than prevention. This is a real mindset shift happening in that industry,” said Kalfhaus.

Meanwhile, prediabetic patients appear to be especially open and eager to this highly engaged approach to prevention. Most of the patients enrolled in Accu-Chek View are middle-aged or older, yet they easily adopted and accepted the mobile/IoT aspects of this program. “The acceptance within older demographics shows how well-designed this solution is,” said Kalfhaus. “We’re very optimistic about its prospects to prevent diabetes.”