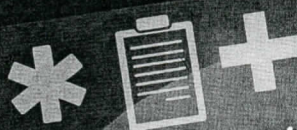




vitality

A New Era of Medicine: Mobile Health



The relationship
between technology
and medicine
is undeniably
vital. Get to know
some of the local
organizations
and experts that
are pioneering
the collaborative
business.

BY: CARLA VIANNA



It is a revolutionary

time for health care in the United States. Health care costs amount to about 18 percent of the gross domestic product, and this number is projected to rise sharply. The Affordable Care Act will insure millions, increasing the number of possible medical patients. That being said, the demand for doctors will increase exponentially, yet as of now the supply falls short. By 2020, The U.S. faces a shortage of up to 90,000 doctors, according to estimates by the Association of American Medical Colleges.

High costs, fewer doctors and more patients needing care are elements that create the perfect storm for a health care evolution.

The very nature of technology is to create, evolve and solve. The health care system is shifting its attention toward the developing industry of mobile health (mHealth). mHealth uses mobile platforms to make medical processes more efficient.

Spanning from medical devices that can be attached to a smartphone to applications that allow one to personally monitor his or her health, mHealth is creating a wide spectrum of possibilities.

"The health care environment is drastically changing," said Aaron Duthie, CEO of Apps for Docs. "Technology is being viewed as an effective solution to solve this issue. With the right technology in place, we'll be able to have fewer clinicians dealing with more patients, faster and smarter."

Apps for Docs is one of many technologically advanced startup companies budding at the Florida Innovation Hub. A Health IT company, it aims to help doctors make better decisions regarding a patient's health. SidekickCV was born from that vision, Duthie said.

SidekickCV is a web application, accessible through a PC or mobile device, that assists doctors' decision-making process within cardiovascular care.

Cardiac imaging tests are extremely cost-

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ly and may not always be beneficial to the patient. This app aims to reduce the number of unnecessary tests ordered by doctors.

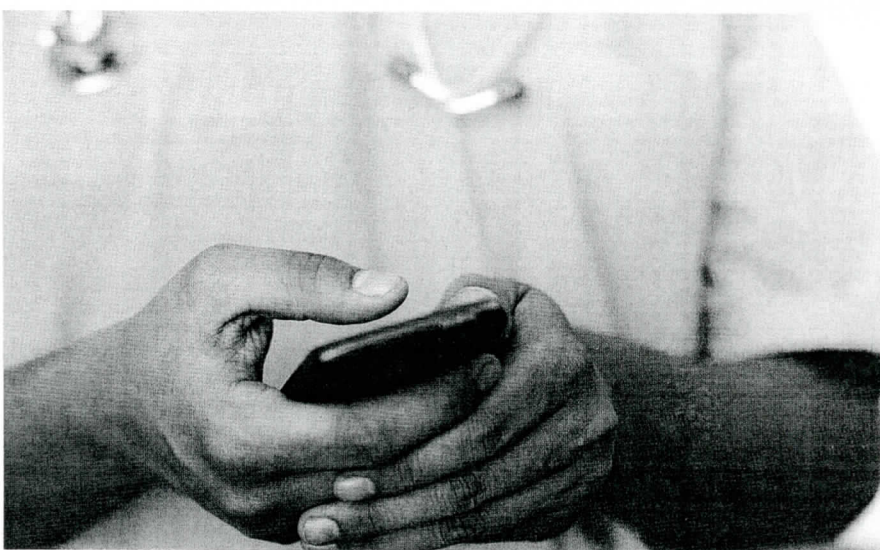
"We supplement the physician's decision-making process," Duthie said. "Say they decide to order an echocardiogram. At that point, they can run through our criteria to see whether or not it is necessary for the patient, meaning: Will it positively affect the patient's long-term health? Will the insurance payers accept it as medically necessary, thus will it be reimbursed? Is it the highest quality of care? Are there other procedures that would also be indicated that aren't so costly?"

If the system isn't integrated with the electronic health records of a patient, then a doc-

tor can manually input patient demographics. With that information, along with the patient's symptoms and past medical history, SidekickCV guides the doctor on what to do next. The medical content of the app comes from the American College of Cardiology, which provides national standards on how to handle cardiovascular conditions.

By focusing on the quality and not quantity of care, unnecessary tests will be ruled out, saving time for both doctor and patient, and reducing overall costs, Duthie said.

"A lot of physicians have been voicing



If the patient does not take the medication, the doctor can send reminders via phone call or text message.

their discontent with this shift toward electronic health records and subsequently with other mHealth technologies," Duthie said. "Right now what America is doing is building up an infrastructure of technology that will eventually create an efficient health care system that is sustainable."

In fact, by 2017 50 percent of mobile users will have downloaded mobile health apps, according to a "Mobile Health Market" report by Research2Guidance.

"Mobile health involves having a mobile platform that can be used to move data from one person to a health care professional without having to be face-to-face," said Eric Buffkin, president of local tech company eTect. "What I believe is fueling it is the unbelievable uptake of mobile technology in everything we do."

An office building turned into a technological haven, eTect is home to world-class electrical, material science and biomedical engineers. It was founded in 2009 with the purpose of creating an electronic pill that communicates with the outside world once ingested.

The ID-Cap is essentially a capsule containing a tag that holds an antenna and a microchip. The tag looks like a rectangular strip of film, and wraps around the outside of a pill capsule. Ingestible and flexible antennas lie on the surface of the tag making silver patterns. The microchip is a tiny silver

dot, about the size of a grain of salt. At each end there are metallic dots, which serve as the pill's power supply.

Here is how it works: A patient's medication is put inside the ID-cap. Once the person ingests the capsule, the pill's interaction with stomach fluid powers up the microchip. The microchip then sends information, verifying that the pill is in the stomach, to

crochip is capsulated in biomaterial, Buffkin said. No harm to the body is done, and the tag is eventually eliminated.

Currently the ID-cap has successfully completed two clinical trials, Buffkin said, and it is expected to hit the market in 2014.

eTect's first target will be the drug development industry, aiming to minimize costs in clinical trials for new drugs. Because there is no way to monitor whether or not participants are adhering to the medications given to them at a clinical trial, an immense amount of participants are needed to minimize that margin of error, Buffkin said.

Being able to measure whether or not someone is taking the medication properly could decrease the population needed for each trial, consequently decreasing costs to the drug company.

Eventually the ID-Cap will be available for doctors, Buffkin said. Improving medication adherence will improve the health

The microchip then sends information, verifying that the pill is in the stomach, to a "reader" that will be worn by the person.

a "reader" that will be worn by the person. The "reader" is about the size of a pager. That message is then sent to a database, accessible by a doctor through any wireless device.

The doctor can monitor whether or not the patient is taking the medication correctly. If the patient does not take the medication, the doctor can send reminders via phone call or text message.

The capsule is biocompatible and the mi-

outcomes of patients across the U.S.

"If you can show that when you haven't taken your medicine your health is here, and when you do your health is so much better — people may start taking their medication correctly," he said. "The medical costs are increasing within an aging population, yet a solution is being generated within a technologically savvy, younger population. It'll be interesting to see how the two will intersect." ●