

Impact of Portable Medical Devices

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The portable medical devices industry is a fast growing world. With the advent of various smart technology and wireless capabilities, this medical field has become one of the most intriguing with the promise of great potential for future healthcare.

In a field like medicine, it's particularly important to keep an eye on the horizon to see what's coming up next. Devices will continue to get smaller, but a key focus in the future will be intercommunication and wireless information sharing. This has both medical and legal ramifications, not to mention some serious potential safety concerns.

Healthcare Reform

One thing that's on everybody's mind when it comes to medical devices is how healthcare reform in the U.S. is going to affect the day-to-day workings of a hospital or medical facility.

"I think in the past, the focus was on asking 'Is this a clinically efficient device and how does it address issues like assessing an insulin pump in terms of delivery,'" says Venkat Rajan, advanced medical technologies industry manager for [Frost and Sullivan](#) [1]. "With the reform initiative—this would have happened anyway—health economics come into play in terms of how cost effective a treatment can be."

Essentially, medical professionals will be restricted by a strict price ceiling, so they'll have to be thinking not solely about prescribing the best product, but long term savings in cost of care as well. Rajan believes that this change was inevitable; healthcare reform simply accelerated the timeline for the change in fundamental thinking.

Preventative Care

While the restrictions from healthcare reform may seem dire, they provide an opportunity to shift the focus to preventative care. The advantage to most portable medical devices is that they extend care from the doctor's office into the home so diseases that are caught earlier are more easily treated. Heart problems and diabetes are much less expensive to monitor or treat with devices a patient can take home. Insulin pumps can track, calculate, and adjust blood sugar. Pacemakers track the heartbeat and send the information to a doctor who may be able to adjust the device from the office or monitor the battery so the patient only has to come in when it needs to be replaced. The result is two-fold. First, it means a reduced amount of doctor visits for a patient. Secondly, because these devices are designed to treat the issues from an earlier stage, doctors might have more options when it comes to deciding which device will prevent or slow the disease's progress.

Baby boomers are a big factor in preventative care. They're at an age where they've put parents in retirement homes or assisted living facilities and they know

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they'd rather be treated at home, says Rajan. Portable medical devices are improving the homecare environment in terms of monitoring and treatment. This will only improve with the continuing integration of smart technology into the devices, which allows minor adjustments to be performed at home instead of in a hospital. The major upside is insurance companies might be more forgiving of expensive technology being used to prevent future expensive procedures.

Security

One aspect of portable medical devices that's not as positive as preventative care is the security threat. Though researchers have recently shown you can hack an insulin pump and tell the device to dump all the insulin at once and also that a pacemaker can be hacked to deliver a fatal shock to the wearer, Rajan says mass murders by portable medical device isn't a real concern. What is a concern is malware and system crashes with connected devices. Like any computer system, these devices are vulnerable to malfunctions. Unfortunately, unlike a desktop PC, a crashed pacemaker could be a deadly situation. The corrective measures are proving just as scary as the malware itself. Because these devices are regulated by the FDA, all firmware updates or changes must go through a series of stringent tests and, oftentimes, that can be a long process. "With the fast changing nature of these things, by the time things get through, it's already too late," says Rajan. The next step is creating an approval process that allows for safety check, but not so long that the changes become obsolete.

Consumer Devices

With the advent of easily available advanced technology came the inevitable flood of the consumer market of devices, ranging from heart monitors to pedometers. In this market, the next big thing will be Bluetooth smart ready devices that allow the technology to communicate with more than one corresponding device, says Jonathan Collins, principal analyst for [mHealth & M2M](#) [2]. For example, Nike Plus allows users to collect data about their health and fitness, but originally it could only correspond with designated Nike Plus devices. Now, they've moved away from that proprietary way of thinking to partner with Apple, so the information is now accessible on a smartphone that can integrate the information with online programs. By standardizing the technology universally, designers are opening doors to using the information in ways that was restricted by various platform discrepancies.

While monitoring your daily steps targets a fairly small market, the developments in the industry are moving toward even bigger applications. For example, the smart devices emerging include smart toothbrushes that track how often you brush your teeth. That information could be sent to dental insurers for lower rates or taken to the dentist to show how you could improve your brushing. As with everything involving portable medical devices, the possibilities are endless.

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[1] <http://www.frost.com>

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