

EDITOR'S PAGE

The iPad in Cardiology

Tool or Toy?

The recent introduction of *JACC* to the iPad (Apple, Cupertino, California) is a very exciting development for cardiologists and has changed the way that many have organized their workflow. While we will not see a seismic quantum shift in work patterns, the accelerating evolution of information transmission will be facilitated by the adoption of this technology into the cardiology culture. Once a critical mass of people adopts a new standard, a cultural shift will occur.

When one buys a car, compromises must be made. There is no sexy convertible minivan that is sporty, attractive, fuel efficient, and luxurious and that can haul stuff. So, too, it seems that electronic devices are designed to do many different things. There are traditional desktop personal computers, portable laptop devices, tablets, "smart" communication devices, and other funny plastic boxes that even provide us and our children with what some people consider entertainment and exercise. Because of the exponential progress in chip technology, and a strong market (the driving pressure) for computer devices, electronic devices probably evolve faster than other technologies. This means that new uninhabited niches will be filled faster. In developing the iPad, it seems that Apple was aiming for the sweet spot in the tablet market that would give an attractive balance of the right compromises for the market's desires. The iPad is not a desktop computer, it is not a phone, and it is not a laptop. It is a little of each, but at the same time it really seems to be a new thing.

The iPad was conceived and developed before the iPhone, but it was put on hold (1). Released in April 2010, it is a tablet computer made by the Taiwanese company Foxconn. The iPad has a 9.7-inch, LED backlit, high-resolution, multitouch display. It is 1.5 lbs and is only one-half inch thin. It is equipped with Wi-Fi, an accelerometer, headphone jack, speaker, microphone, and optional 3G and GPS. There is speculation that future iterations of the iPad will include a USB port, phone connection, included 2-way camera, and other additional features.

Everyone agrees that the iPad is better suited for use on the consumption side rather than the production side. The human interface of the device is very friendly, simple, and attractive. It feels like it wants to invite you in, and it seems to be expecting you. For routine use, it knows what you want to do, and it points out the way to do it cleanly and simply. There are add-on devices (keyboard, dock, camera connection, printer, and so on) that can expand the range, but to me it does not seem like the iPad should be converted to a laptop. Its beauty is in its consumption side display, and its "lean and mean" profile.

The iPad seems to be a device that no one needs (yet), but everyone wants. Apple has earned a reputation for doing things well, and that makes it easier for people to give the iPad the benefit of the doubt. The question that many people are still wrestling with is whether the device is a toy or a tool. I guess this question reflects the contrast between our work lives and our personal lives, but we physicians are well aware that this distinction is often very blurry. Of course, it does not really matter how we label it. A potential consumer may want to know what void or problem in their life this technology will fix or improve. That is hard to predict.

I am not typically an early adopter, and by any measure I am clearly tight with money. I have strong willpower and can usually resist the lure of shiny things. I would usually have asked myself if having an iPad in my life would be a change for the sake of change or a change for the sake of improvement. Yet, for some reason, I was compelled to jump in early on this one, and my high expectations have been exceeded. I have enjoyed the device more than anticipated.

I have evolved a "lean and mean" rounding style in the hospital. The only hardware for me that are defined as mandatory in the hospital include my cell ("smart") phone, a pen, and my stethoscope. (I still



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actually touch patients and I use the same nonelectronic stethoscope that I purchased in medical school.) Occasionally I will abandon my stethoscope in the interest of improved aerodynamics (less drag) on rounds. (I can borrow one when I hit the floor.) My iPad has not made this high bar for necessity, but I do regularly take it on rounds or to the catheterization laboratory. I commonly (perhaps too trustingly) leave it at the nursing station when I enter a patient's room. Sometimes I bring it in the room with me, but I try to keep it away from bodily fluids and "icky" stuff. It could be colonized with MRSA. I have not checked.

So far it is not the cardiovascular part of the iPad that makes it worth it. In addition to *JACC*, the cardiovascular applications that I have seen include things like simple cardiac calculators, an atlas, and a library of angiograms. My impression is that these are nice and fun to play with, but are mostly fairly basic and too simple to be of great use to the practicing cardiologist. New applications are constantly available, many for no charge. There are a number of applications that are designed for the iPhone that can be used on the iPad. Some of these are good resources, such as guideline summaries and appropriateness documents and algorithms, but these do not take advantage of the iPad's really cool graphic versatility. It is still the noncardiovascular part of the iPad that I find to be most useful and that allows me to fill the wasted minutes between tasks at work. When I have 3 min, I can read a *New York Times* (NYT), *Wall Street Journal*, or *BBC* news story. I have access to the Internet on the move with a reasonably-sized screen. I have music and video, and I could theoretically even watch a television show or a movie. I can obsessively delete all of my "noisy" e-mails as I walk. This makes me more efficient when I have more time to focus for longer periods at my desktop. Many people want to know if the iPad can replace their laptop when they travel. That, of course, depends on what they expect to achieve. I imagine there will be people who travel with both (kind of like towing a Miata behind your motor home), but for focused trips the iPad is a viable strategy.

While most of my iPad use involving the Internet has been with a Wi-Fi connection at home, work, or on the road, it is nice to have the 3G option to expand the versatility. You need not commit to long-term service contracts for 3G; you can opt in or out month by month. With 3G, I can read *JACC* from the last row of the bleachers at my son's baseball game or in a tent at a music festival. The battery life and portability are excellent. Each user will have a different experience and each device will develop its own "personality" depending on which

apps are used and how the user chooses to incorporate the flow of information through his or her life. My favorite apps (aside from *JACC*, of course) are NYT, TED, Netflix, and BBC News.

Thanks to the vision and hard work of Dr. DeMaria, the American College of Cardiology Foundation (ACCF), Cardiosource, and our publisher Elsevier, *JACC* can brag about being the first medical journal available on the iPad. Amazingly, *JACC* is available on the iPad to American College of Cardiology members at no cost. That is pretty cool, especially considering the large amount of energy that was needed to develop this new platform. The *JACC* application features easy attractive access to the traditional content of the paper edition, plus videos, CVN interviews, ACCF guidelines, and additional materials. Revisions of the *JACC* application will be made to continually enhance the experience. There will also be the addition of *JACC: Cardiovascular Interventions* and *JACC: Cardiovascular Imaging* to the iPad. These journals will be especially nice on that platform because the reader will have direct access to topical videos and other content related to original articles. Additionally, our "Images in Intervention" section will provide the ability to visit streaming videos embedded within the article section.

Although I could have written this on my iPad, this essay was 100% written on my desktop computer. It is still easier for me to have a full keyboard and a big honking monitor. Finally, in reference to the question raised in the title, obviously the answer is that it is a toy. There, I said it. As of now the iPad is still a toy. However, you can tell your spouse you have my permission to buy one. Maybe you are even more clever than me and can find a way for your department or practice to pay for it.

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