

Using the iPad in Surgery By Michael B. Peterson, MD

I use the iPad every day while rounding at work and connected to the encrypted hospital wireless network, finding web information for patients and showing educational videos. I use a Bluetooth keyboard and sometimes a stylus that fit into a netbook soft case when I need to do heavy typing.

We were doing a complicated vascular surgery, an axillary femoral femoral bypass. I had dissected out the blood vessels on the right groin, but the surgeon working on the left could not locate the critical arteries and branches. The patient did not have any pulses in the groins because of severe vascular disease.

I had the nurse drop the iPad into a sterile sleeve and seal it. I used it to pull up the CT scans on the table and paged to the proper level so we could compare the right to the left. Then we knew where to go. We could place the iPad right on top of the patient and visualize what we needed.

Then while my colleague and our PA completed the left side, I checked my Lotus Notes e-mail, went into the vascular econsult program and triaged some vascular consults to the appropriate clinics, and checked my inbasket in our Epic EMR to read labs and answer messages (the iPad runs Epic very well.) When I was done, we were ready for the rest of the surgery.

The x-ray viewing is an innovative project on which we are partnering with with [Thinking Systems](#).

We are using the latest Citrix Receiver to host our version of Epic on the iPad and other devices as well. Since the rollout of Epic Summer '09 across the country in all Kaisers, the old web address we used for Spring '06 access no longer works for the iPad. In addition, there are additional video requirements for Summer '09 that our current web servers need that the Citrix receiver cannot handle. Attempting access to the Summer '09 environment will result in a connection failure with a "USKIN" error message.

Fortunately our Kaiser web engineers were aware of this and understood the need for iPad functionality. They created special web addresses for Kaiser iPad users in Northern and Southern California, Hawaii, and Pacific Northwest. The official term is PNAgent Site. Setting it up is complicated, but the iPad works very well.

Of course there are ergonomic challenges with a smaller screen, and accurate tapping is critical. But it is so fast and convenient — you don't have to wander around looking for an unoccupied keyboard and computer. If I need to look up something, I just do it where I am. It has really spoiled me.

I don't know if there is any way to demonstrate improved outcomes with the iPad. Kaiser is starting to roll it out to other medical centers with different specialties. My general feeling is that with the EMR, there is a 20% productivity hit with data entry and typing your note. It does take longer on the generic computer, but the iPad is so much faster and it literally puts the medical record at your fingertips... or perhaps the patient's.

I plop the iPad down in front of the patient and point out pictures, diagrams, and a quick graphic plot of their rising creatinine. I run the lymphedema pump movie to show them how it works, or review the online video again to remind me or others how that endovascular closure device works again before I actually do it.

I have invested the time it took to get comfortable with the iPad and arrange it the way I want. I could not do without it. I have very little specialized software on the iPad except for the VPN and the Citrix Receiver. And my medical apps, books, and games!



Michael B. Peterson MD is a surgeon with The Permanente Medical Group in Hayward, CA. His use of the iPad in the operating room was featured in the April 2012 edition of Macworld. Since Mike is an old friend of H1Stalk, I asked him for more detailed information, which he provided above.