

## Orthopaedics and iPads: The Future of Resident Education?

The Orthopaedic Surgery Residency Program of the Einstein Medical Center is located in Philadelphia. It is a dynamic, community-based training program to provide residents aspiring to become orthopaedic surgeons with an excellent foundation. With two residents per graduating class, Einstein Orthopaedics provides early operative exposure in conjunction with protected daily didactic conferences. An important aspect of their training includes a component dedicated to using new technology to improve patient care and access information. The modern tablet computer is a very powerful and versatile tool that is rapidly changing the way physicians learn and practice medicine. The Einstein Orthopaedic Surgery Residency Program introduced the use of iPads in 2010; since that time, it has become an integral part of the residency training. Although it originally was designed to supplement resident education, use of the iPad will soon become part of routine patient care.

The goal for iPad program was to improve efficiency in patient care, improve academic accessibility and environmental sustainability of the educational curriculum. This project was funded by a grant from the Albert Einstein Society Innovative Grants Program. Creating this curriculum required cooperation with other disciplines (computer services and academic affairs) within the Einstein Healthcare Network. iPads with 16 GB memory and wireless internet access were distributed to each resident. To date, there have been no problems registering or operating the devices. Proper safeguards were implemented in accordance with HIPAA requirements safeguarding the privacy of protected health information. The users agreed not to enter, locally store, or access patient information in the iPad. In addition, each iPad is equipped with a

passcode, automatic security updates and a security application (Find My iPhone). In the case of a misplaced device, this security app will locate and remotely erase all iPad contents. In addition to the patient privacy agreement, each user agreed to a special iPad insurance policy in the event of a stolen or lost tablet.

Some of the highlights of the program include:

- 1. Patient care:** As hospital systems across the country continue to embrace electronic medical records (EMR), the iPad provides an efficient and portable method for immediate access to these programs. At Einstein Medical Center, the EMR system (ACEIS) has just recently become available for use on the iPad. The latest patient vital signs, blood work, medications, etc. will be readily accessible through the iPad. This helps facilitate patient rounding and will allow for orders to be immediately placed or discontinued. In hospital settings where patient medications and information are constantly changing, the iPad provides physicians with the unique opportunity to stay up to date with the dynamic healthcare system. The Einstein Orthopaedic Department has planned to initiate the ACEIS system to our iPad program by the summer of 2013.
- 2. Improved information access:** With the entire body of orthopedic literature at a resident's fingertips, information is rapidly accessed during daily didactic conferences or journal club meetings. This instant availability of information also facilitates fracture management, preoperative planning and surgical techniques. Residents have several orthopaedic iPad programs (apps) which provide

specific information about fractures, management and splinting techniques. For training physicians, these apps provide immediate information about specific injuries and their management. This provides a resident the ability to begin planning a definitive management strategy from the initial patient encounter.

- 3. Orthopaedic In-Training Exam (OITE):** The portable iPad gives residents immediate access to question banks and OITE preparation websites in any wireless internet location. In the first two full years of the iPad program, Einstein Orthopaedics achieved an OITE score in the top 2% and 5% of the country. Our orthopaedic residents report that the iPad portability provides them with a convenient study tool they can use at any time while they fulfill their daily operative and clinical responsibilities. These in-training exam results provide an objective measure that affirms the positive effect the iPad has on a resident's knowledge base.
- 4. Use of mobile applications (apps):** Each resident is required to install the mandatory apps including Find my iPad, iAnnotate, iBooks, Keynote, etc. These applications facilitate teaching, learning, and research. Applications also exist that allow residents to log duty hours and to keep notes on procedures performed in the operating and emergency room in real time. Emphasis for residents to record their procedures and duty hours has greatly increased over the past several years. This trend will undoubtedly continue to be stressed by the ACGME in order to properly evaluate the training programs of orthopaedic residencies across the country. The iPad provides

an immediate and convenient method for residents to stay up to date with these demands.

**5. Environmental responsibility:**

Before the implementation of the iPads, the residency program printed an estimated 25,000 pages of reading material every year. This practice has been almost eliminated as each daily reading is now accessible on the resident's tablet.

**6. Easy access to scheduling:** Utilizing the iPads, each resident has access to the on call and reading schedule through an online calendar system. The previous schedule was only available in the resident orthopaedic

office and was time-consuming to access. These schedules are now easily viewed with the use of iPads.

Modern technology has provided the orthopaedic resident with many options to enhance their training experience. At Einstein Medical Center, the Orthopaedic iPad Program has positively affected education, surgical planning, and research capabilities of each resident. The next frontier for the iPad includes integration into routine patient care through the use of electronic medical records. We firmly believe the iPad will improve and expedite patient management in a hospital setting. The portability of the iPad has many advantages but does require an effective protocol to protect sensitive patient

information in case of a misplaced or stolen device. As medicine and technology continue to develop at a rapid speed, it is important for physicians to embrace these advancements and utilize new innovations. The iPad Program is a testament to how technology and medicine can continue to develop together for a better educational and patient experience. ■

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