

Improved Patient Care Through Immediate Access to Useful Clinical Data: Epocrates® ACC Essentials for Cardiology

By Chi-Ming Chow, MDCM, MSc, FRCPC, FACC, FASE

Introduction

With the explosion of medical knowledge, it has been getting more and more difficult to stay up-to-date. There has also been an increasing need to bring the latest medical information to the bedside to help make clinical decisions for our patients. Fortunately, personal digital assistants (PDAs) have become indispensable clinical tools to help us stay current and serve as our "peripheral brains" in our day-to-day clinical activities. As an academic cardiologist with a busy inpatient and outpatient practice, I was one of the early adopters of PDAs and mobile medical software. I immediately noticed a significant difference in patient care and efficiency in information retrieval. I no longer have to interrupt a patient encounter or exit the exam room to thumb through heavy medical texts and drug reference books when I am seeing patients. In this article, I will address how the PDA reference has been a great help to me, by providing valuable point-of-care information at the bedside and how customized cardiology content improved efficiencies and accuracy in clinical practice.

Cardiology Goes Digital

After trying multiple mobile medical software and references on my PDA, I found most of what I need is in Epocrates. I have

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been using Epocrates® Essentials for Cardiology regularly to look up drug dosages, interactions among different drugs and alternative medications. In fact, nearly 60 percent of physicians reported avoiding one or more medical errors per week using Epocrates' references [1].

I can attest to the relevance of the cardiology tools as the developer and author of the CardioMath application featured in this software bundle. I conceived the idea of CardioMath when I was a cardiology fellow. In preparation for the board certifying examination, I had to remember many formulas used in echocardiography, hemodynamics, exercising stress testing, etc. When I entered into practice, I found it hard to remember all the formulas, and it was very time-consuming to do the calculations. Remembering the formulas and manually applying them created a barrier to operating a smooth and efficient practice and this problem became the impetus behind the creation of CardioMath PDA and online calculators. A recent survey conducted among the online CardioMath calculators (www.csecho.ca/cardiomath), showed that 80% of the users thought that using CardioMath increased quantification in their clinical practice, and 80% thought that the program improved patient care[2]. To further support the growth and value of mobile technology, the American College of Cardiology (ACC) partnered with Epocrates® to create a customized and comprehensive set of cardiology applications for practicing physicians, known as Epocrates® ACC Essentials for Cardiology. This specialized product combines Epocrates® Essentials' premium drug, disease and diagnostics guide, with relevant cardiology applications including cardiac calculations, an obesity tool and a cardiology news channel.

Cardiology-Specific Application

1. **Epocrates® Essentials** – A premium guide that includes information about more than 3,300 drugs; over 1,200 diseases and conditions; hundreds of lab test panels; and decision support tools such as drug interaction checking, symptom assessments and treatment recommendations. In addition, there is a database of more than 400 alternative medications. For example, you can look up interactions between green tea, ginseng or warfarin with a prescription drug. In addition to the USA, the drug database also covers medications available in Canada, the UK, and Germany.
2. **CardioMath®** – A suite of 50 commonly-used formulas in cardiovascular medicine. The application was designed to provide a way to perform day-to-day calculations associated with echocardiography, ECG, epidemiology, exercise stress



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test, general medicine, hemodynamics and unit conversion (SI and US), both accurately and efficiently. Each area includes the formulas, as well as supporting information such as reference values and the clinical use. For example, you can calculate the Duke Treadmill Score without leaving the testing area and look up the patient's prognosis as well. In addition, you can calculate the Qp/Qs by using the echocardiogram or catheterization data.

3. **Body Mass Index (BMI) and Obesity Application** – During the past 20 years, obesity among adults and adolescents has risen significantly in the North America. To support cardiologists with patient diagnosis, education and treatment, this mobile application features a detailed weight management tool. The application, using body mass index (BMI) and waist circumference measurements, provides recommendations, weight loss guidelines, a Basal Energy Expenditure calculator and other useful information.
4. **Clinical Messaging Alerts** – Timely medical news and interesting journal abstracts are delivered to cardiologists on their mobile device to keep them up to date. ACC CardioSource is a valuable contributor to the cardiology messaging channel by providing access to relevant headlines such as, "Ten Facts to Remember about Atrial Septal Defects in the Adult" and "Influenza Vaccination as Secondary Prevention for Cardiovascular Disease."

No Cardiologist Left Behind

Cardiologists who do not own a mobile device, are not bound to the traditional textbooks, which are outdated as soon as they are printed. Most of Epocrates® clinical content is also available online. In the hospital where I work, Internet access is available on all our exam room desktop computers and in inpatient wards, so there is no trouble accessing the online version. Epocrates® Online provides information about medications and alternative medications similar to the PDA version. The MultiCheck function is also very easy to use and remembers my last search. I can also print out potential drug-drug interactions for my patients and my students.

Epocrates® Online has two new features that I find particularly helpful: the pill identifier and the patient handouts. Since a large proportion of my patients are non-English speaking immigrants, it is often hard for them to recall the names and dosages of the medications that they are taking. I have been using the pill picture function to help identify the medications and dosages that my patients are taking. I have many patients who take warfarin. I can bring up the pictures of the different dosages of warfarin from Epocrates® Online. Plus, the patients in identifying the dosage of their medication by the color of the pill that they are taking. In addition, there is a new patient education handout section in Epocrates® Online, which is available in English or Spanish. I have been printing these handouts for patients who have questions on how to take the prescribed medications. This feature really saves a lot of time and space



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for me to keep all the patient handouts on medications, and allows my patients to go home with answers to many of their questions on one sheet of paper. Epocrates® Online well-complements the PDA version and I have been using both of these versions frequently.

Summary

As technology advances, the use of heavy paper-based medical references will be a thing of the past. A plethora of ever more powerful PDAs and ultra-mobile personal computer (UMPC) that are linked to the Internet in real time are becoming ubiquitous in the clinical setting. By having clinical information readily available at the point-of-care, cardiologists can make better-informed decisions for the patients. Epocrates® ACC Essentials for Cardiology is a useful collection of mobile references and tools that can help us stay current, be more efficient, and potentially provide better care for our patients. Epocrates® ACC Essentials for Cardiology is available for both the Palm OS device as well as for Windows Mobile / Pocket PC devices. Epocrates® for PDAs and Epocrates® Online are available at: www.epocrates.com.

References

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