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## **Top 10 Cardiology apps for Junior Doctors**

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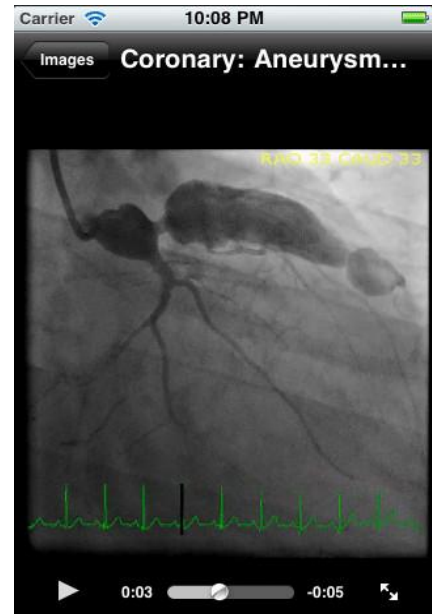
### **ABSTRACT**

The unrelenting evolving nature of the technology industry has not only changed the world of medicine but somewhat engulfed it. The acquisition of smart phones has unleashed an incomprehensible volume of information into the most compact devices. As a result the stereotypical junior doctor clutching the *oxford handbook of clinical medicine* is an uncommon sight in today's hospitals. They have been replaced by competent, technologically equipped individuals with the capacity to access any condition through a world of smart phone apps. In this article I review some of the most useful cardiology apps which I have personal firsthand experience using as a junior doctor working in a cardiology ward. I review the advantages and disadvantages of some of the most commonly downloaded apps and tell you how good they really are. All the apps were reviewed on an iPhone 4, although are widely available for all smart phones.

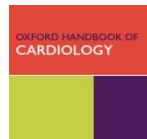
# Top 10 Cardiology apps for Junior Doctors

**Conor McQuillan** reviews some of the most popular cardiology apps for smart phones

The world is changing, new ground breaking advances in technology are occurring on a daily basis and the boundaries of possibility are routinely being pushed. With it the world of medicine is also changing, from cutting edge proton beam therapy to medical apps for smart phones. Junior doctors clutching medical handbooks is now a rare sight owing to the rapid development of the smart phone industry, with a wealth of knowledge quite literally at your fingertips and more information than you could possibly need in a lifetime on one compact device. The smart phone industry has not just penetrated the medical world but somewhat engulfed it, with 72% of physicians using smart phones.<sup>1</sup> I am a self confessed iPhone fanatic with an addiction to smart phone apps. I routinely use medical apps as part of my daily work routine. Here's an account of some of my favourites.<sup>2</sup>



## 1. Oxford Handbook of



## Cardiology

Cost: £34.99

The entire *Oxford Handbook* series are available as apps and are exact replicas of the books. The information is downloaded to the phone so an internet connection is not required. Just as the original *Oxford handbook of Clinical Medicine* contained notes on every possible disease, the Cardiology specific book addresses all common conditions in depth along with the 'weird and wonderful' conditions not commonly encountered. As both a quick reference guide between ward rounds and clinics, or as a general read to 'refresh your memory', this app is a must have for Cardiology rotations.

## 2. ECG Guide:

Cost: £0.69



This is an excellent, value for money app. It provides over 200 common and uncommon ECG's. It also has a quiz section with over 100 multiple choice questions. The high quality ECG pictures and explanations distinguish it from other ECG guides. There are numerous ECG apps available and many of them are poor quality, but this one is easily the most helpful.

## 3. iResus:

*Cost: Free*

With most Cardiology Doctors contributing to the cardiac arrest team, this app produced by the Resuscitation Council UK is an invaluable addition to your smart phone. It outlines clearly the algorithms and guidelines for managing a cardiac arrest and it is frequently updated. It is an aid to Advanced Life Support training, although more thorough knowledge and simulation training is required to effectively manage an arrest situation. I have yet to encounter a situation where someone has used a smart phone in an arrest scenario, although I suspect it is only a matter of time.

## 4. AF

*Cost: Free*

Guide:

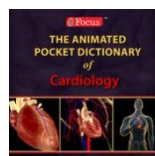
This handy app provides a quick reference for managing patients with atrial fibrillation. It acts as a refreshing aid for referencing causes of AF as well as how to treat both the acute and persistent forms of the arrhythmia. It even displays a sample ECG of a patient with AF. It outlines treatment options including drug dosages. This app is an extremely useful resource for junior doctors encountering the most common cardiac arrhythmia. While this app is particularly useful, it is no substitute for clinically assessing the patient's suitability for anticoagulation and should only be used as a reference guide.

## 5. Qx Calculate:

*Cost: Free*

This simple app incorporates over 150 formulae across 10 specialties and provides scores and calculations to determine risks and benefits of treatments. In particular it is useful when assessing patients in emergency departments and admitting patients to hospital. The CHADSVASc, TIMI and WELL's scores also justify your treatment and support your diagnosis. It can also be used to impress your consultants with knowledge of the alveolar gas equation.

## 6. The animated pocket dictionary of Cardiology:



*Cost: £5.49*

This entertaining app provides explanations of disease processes and interventions, along with inventive animations and commentary of how the procedures work. Personally I have found it extremely useful in explaining angiography to both patients and medical students.

7. Heart murmur pro:

*Cost: £1.99*



This app is great for practising the identification of heart murmurs. It provides an audio of 23 different heart murmurs and gives a detailed explanation of how to perform the clinical examination. It systematically provides information on the aetiology, pathophysiology and treatment of each murmur. This app is most helpful for medical students beginning auscultation. Although useful in distinguishing between different murmurs, it is not a substitution for clinical examination.

8. CathSource:

*Cost: £2.49*



A detailed app providing an overview of cardiac catheterization which is above the knowledge required by most junior doctors. It is however very interesting. There are over 30 videos of angiograms, ventriculograms and aortograms which are useful from an educational aspect. There are complex formulae for calculating the stenotic area of cardiac valves which many cardiologists would not be able to regurgitate, but if you have even a slight interest in cardiology this app is worth purchasing.

9. Dictionary of Cardiac Pacing, Defibrillation, resynchronization and arrhythmias:

*Cost: £5.49*



This is an advanced app with extensive information on different types of cardiac devices, their settings and how they function. Admittedly it is too comprehensive for the junior doctor, but the basics of cardiac devices are understandable and applicable to every day practice.

## 10. NICE Guidance:

*Cost: Free*



NICE recommendations are based on the best available evidence of the most effective care. This app is amazing. It comprises 147 clinical guidelines along with 368 guidelines on interventional procedures. There are 142 published guidelines relating to cardiovascular medicine (and more in development). This app is highly recommended for those ‘tough questions’ such as ‘indications for pacemakers’ and ‘what type of drug eluting stents should be inserted’. It is constantly being updated and the app itself very user friendly.

### ***In Summary:***

These apps are available for most smart phones. They have been reviewed on an iPhone 4, although they function equally well on Blackberry’s and Androids. There are thousands of medical apps available on the app store and hundreds specific to cardiology. I have given my view on the ones that I have had most experience using and which I have found most useful when working in a cardiology ward. Many of the apps are free, and many more offer a ‘lite’ version allowing you to sample the app prior to purchasing so that you can determine if the app would suit you. My advice is to give them a go. Start with the free ones and work your way up the ladder. If you have no experience with them you’ll be amazed at what the app store has to offer. And who knows what the future holds, perhaps the smart phone could eventually replace the stethoscope.

### ***References***

1. Dolan B. 72 percent of U.S. physicians use smart phones. Available at: [www.mobihealthnews.com/7505/72-percentof-us-physicians-use-smartphones/](http://www.mobihealthnews.com/7505/72-percentof-us-physicians-use-smartphones/)
2. Apple app store: <http://www.apple.com/uk/iphone/from-the-app-store>

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