

Useful Apps for Orthopedic Surgeons

Orrin I. Franko, MD

Abstract

With the advent of smartphones and tablet computers, mobile platform applications, or apps, are now penetrating the orthopedic community. The appeal of apps in a medical setting is a result of their intuitive and interactive interface that allows for the quick reference of information on the go. This review serves to highlight some of the most useful apps available to orthopedic surgeons and trainees. Although this is not a comprehensive list, the apps mentioned below are either free or inexpensive and include both general medical as well as orthopedic-specific apps that can be useful to orthopedic providers at any level of training.

A mobile application, or app, is a self-contained application designed to run on a particular smartphone or tablet device. The appeal of apps in a medical setting is a result of their intuitive and interactive interface that allows for the quick reference of information on the go.¹⁻³ Apps have become an invaluable tool in the medical profession for busy clinicians and surgeons who require a fast method of referencing an infinite library of data quickly.

Although the Android mobile computing platform continues to gain market share, most orthopedic surgeons and residents use iPhones as their primary mobile phone.⁴

Dr. Franko is Resident Physician, Department of Orthopaedic Surgery, University of California San Diego, California.

Address correspondence to: Orrin I. Franko MD, 200 W Arbor Drive, MC 8894, San Diego, CA 92103 (tel, 619-543-7247; fax, 619-543-7510; e-mail, ofranko@ucsd.edu).

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Thus, it is not surprising that the iPhone has more overall apps, and more medical and orthopedic apps, than competing platforms.⁵ As orthopedic trainees and surgeons continue to purchase and use smartphones and tablets in clinical practice, there has been an increased awareness of the potential for clinically useful apps. A recent article highlighted the prevalence of smartphones and app use among orthopedic residents and surgeons,⁴ and this review serves to highlight some of the most useful apps currently available. The apps listed below include both general medical as well as orthopedic-specific apps that are likely to be helpful for many orthopedic providers.

GENERAL MEDICAL APPS

All apps are available on the iPhone platform. An asterisk denotes apps that are also available on the Android platform.

Epocrates*

A mobile drug-reference tool available for free, or a complete disease and lab reference guide with a paid subscription. This app (Figure 1) includes useful features such as drug dosing with a built-in dosing calculator, insurance coverage of prescriptions, and a “pill ID” feature to identify unknown pills based on shape, color, and imprint. The user interface is intuitive, and this application is repeatedly voted as the most useful smartphone application for physicians and surgeons.^{2,4}

Medscape*

Similar to Epocrates in functionality, Medscape provides a free drug reference, drug interactions, and pill identifier. In addition, the user can search for an abundance of articles and information about procedures and specific diseases with a full list of references.

MedCalc

MedCalc is a medical calculator for iPhone that costs \$0.99 with hundreds of common medical formulas. Note that there are a variety of various medical calculators available for both iPhone and Android with varying prices. This particular app has the added benefit of allowing the user to designate favorite formulas for quick reference. Some of the most useful features for orthopedic surgeons include body mass index calculator, a dermatome map, injury severity score, muscle strength scale, an opioid equivalence calculator, etc. A pro version also exists for \$4.99 that allows for additional features such as sharing and printing formulas as well as a patient management system.

Google Translate*

Although not specifically designed for physicians, this app can be invaluable when a translator is not accessible. Available for free, the app allows the user to speak into the phone and



Figure 1. Sample screen-shots from Epocrates for iPhone demonstrating drug dosing, the pill identifier, and the dosing calculator functions.

will translate spoken English into over 60 common languages. The app then displays the text on the screen in the language of choice, and for about half of the languages will also speak the translated phrase.

ORTHOPEDIC SURGERY APPS

AO Surgery Reference*

This invaluable reference tool (Figure 2) for any orthopedic trainee, organizes the treatment of fractures according to body region. With an intuitive and interactive user interface, the app walks the user through the diagnosis, decision process, preparation, surgical approach, reduction, fixation, and aftercare of fractures. The app also includes an abundance of reference material, including images and classification systems, as well as references to support all data.

AO Classification

This application allows the user to classify all long-bone fractures according to the Muller Arbeitsgemeinschaft für Osteosynthesefragen (AO) classification system. The user begins by



Figure 2. Sample screen-shots from AO Surgery for iPhone demonstrating the body part selector, positioning for surgery, and cross-sectional anatomy in preparation for the approach.

identifying the injured bone and progresses to region, fracture type, and fracture pattern. The app includes images and radiographs associated with all fractures. This serves as a useful reference tool for anyone taking trauma call or anyone who needs to accurately describe a fracture pattern.

BoneFeed*

This application is an RSS (Really Simple Syndication)-based abstract viewer and reader for orthopedic-related peer-reviewed journals. It is available for free on iPhone and for \$1.41 for Android, and allows the user to modify which journals and RSS feeds are presented along the home row of icons. In addition, the app includes Twitter, Facebook, and e-mail integration that allows users to share interesting abstracts or to send reminders about reading an article at a later time.

AAOS Code X-Lite*

This application, published by the American Academy of Orthopedic Surgery (AAOS), is an International Classification of Diseases (ICD) and Current Procedural Terminology (CPT) code reference app for individuals or institutions that already subscribe to the AAOS Codex service. Thus, while the application itself is free, a paid subscription is required to login and use the functionality. As would be expected, it includes descriptions of CPT/ICD codes that can be searched by number or region. Once a paid subscription is obtained, users must contact the AAOS for a registration password.

OrthoEvent

A useful free app for any orthopedic provider, OrthoEvent quickly organizes information about all professional orthopedic conferences worldwide. It includes dates, locations, abstract deadlines, and links to meeting websites. In addition to searching all conferences, it allows the user to filter a search by specialty.

AAOS Now*

Published by the AAOS as a supplement to the print edition, *AAOS Now* is a free digital version of the print publication that also includes additional media such as podcasts and video.

CONCLUSION

Users who intend to download and use apps should be aware of potential security and privacy concerns. While both iPhone and Android operating systems advertise enhanced security and privacy features, apps available on both devices have been accused of user-location and user-data sharing without permission. Thus, it is the responsibility of the user to ensure that privacy settings and location-based settings are appropriately set in all cases.

This list does not include all orthopedic apps currently available, rather it includes descriptions of the most useful apps as determined by prior studies, a website dedicated to rating medical apps, and professional opinion.

There is currently a small group of apps that are of great value to orthopedic care providers. However, as the prevalence of smartphones and tablet computers increases, the quality and quantity of useful apps is likely to increase as well. This article can serve as a starting point for any orthopedic surgeon or trainee looking to expand their collection of clinical smartphone apps.

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This paper will be judged for the Resident Writer's Award.