

RBApp: Usage Patterns and Evaluation of a Mobile Application for Radiobiology Calculations in Radiation Oncology

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Abstract

Purpose: RBApp is a software program that calculates biologically effective dose and equivalent dose in 2 Gy fractions, allowing conversion between dose-fractionation schemes in radiation therapy. The purpose of this study was to describe adoption and current patterns of use of this tool.

Materials and Methods: RBApp has been available as a native application (app) for Android and BlackBerry, and a web app for Apple iOS and other devices since March 2012. User and device characteristics were collected from app store dashboards and server logs; expected values were retrieved from StatCounter Global Stats. A web-based questionnaire was created to collect participant demographics, frequency and patterns of use, and user satisfaction between April-December 2014. 95% confidence intervals (CI) were calculated using the modified Wald method.

Results: Over a 2.75-year period, 8 074 unique visits were logged to the web app with 2 291 installations on Android and BlackBerry devices. 25 respondents completed the web-based questionnaire; RBApp was used by radiation oncologists (44%), physicists (32%), and resident physicians (24%). It was used for clinical decision-making by 78% of users, education & training by 43%, and for research purposes by 30%. 17 users (68%) used RBApp at least weekly or more frequently. Common locations of use of RBApp included the clinic (58%) or in an office (46%). Mean app rating was 4.6 out of 5 among Android users (n = 21). 20 of 22 users (91%) were satisfied with RBApp, with almost all users (96%) preferring RBApp over pen-and-paper. A greater proportion of RBApp users used obsolete software to access the web app as compared with the rest of the global internet population; 15.2% (95% CI 12.3-18.6%) used Windows XP and 16.0% (95% CI 13.0-19.5%) used Internet Explorer 8.0 (expected global proportions 8.5% and 3.1%, respectively).

Conclusions: RBApp is accepted as a useful tool in the radiation oncology community for both clinical decision-making and educational purposes. However, legacy software use remained prevalent, which may have implications for data security. Although there is significant focus on technology in treatment planning and delivery, greater vigilance in keeping supporting computer infrastructure up-to-date may be required.

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65