Perceived Benefits of Electronic Tablet Technology in Clinical Care and Resident Education

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ABSTRACT

Objectives: The present study explores the potential utility of iPads for improving clinical efficiency and resident education in an otolaryngology program.

Study Design: Cross-sectional survey

Methods: All otolaryngology-head and neck surgery residents at a tertiary academic referral center were provided with an electronic tablet computer (iPad, Apple Inc.) and asked to explore the potential of clinical and educational tools to enhance residency training. Prior to distribution, a survey was administered to assess perceived future clinical and educational benefits. Pilot projects were then initiated based on resident feedback.

Results: 16 residents completed the survey. 56% perceived clinical activities as the area most likely to benefit, followed by education (37%). Specifically, residents anticipated improved efficiency in the storage and retrieval of clinical information not well captured by current electronic medical records. This includes laryngoscopic examinations, serial documentation of free flaps, and photographs of clinical findings on daily rounds and consults. Residents also anticipated utilizing electronic resources such as lecture notes, textbooks, or manuscripts to enhance resident education.

Conclusions: Otolaryngology residents perceive the iPad as a tool to improve clinical care and resident education. Based on these findings, several quality improvement projects are currently underway, including the improvement of resident-to-resident hand-off, free flap monitoring, rounding time efficiency, and electronic documenting of flexible laryngoscopy.

INTRODUCTION

• In an environment of increasing work hour restrictions, emphasis must be placed on efficiency in both resident education and clinical care.

• Smartphones have rapidly become incorporated into inpatient medical care (Burdette, et al.), assimilating the cellular phone, pager, and personal digital assistant (PDA) into a single technology.

• Tablet computers offer a growing number of applications that can provide immediate access to electronic medical records, educational materials, and teaching tools.

• The primary objective of this study was to assess the perceived utility of electronic tablets in resident education and service duties. A secondary aim was to assess the feasibility of incorporating these devices into clinical care.

METHODS AND MATERIALS

• Electronic tablets (16 GB, iPad 3, Apple, Cupertino, CA) were provided to each resident. Tablets were installed with remote desktop software including physician order entry, electronic charting, and radiology applications. Access to institutional journal subscriptions and online textbooks such as Cummings’ Otolaryngology-Head and Neck Surgery were available.

• Prior to receiving an electronic tablet, residents were surveyed on the perceived future benefit of these devices for clinical care and education and were encouraged to incorporate them into clinical care.

• After 6 months of use, a follow-up survey was completed to assess current tablet use, difficulties integrating the devices into clinical practice, and potential future applications.

RESULTS

• 16 residents completed the initial survey and 13 also completed the follow-up survey.

• All residents (100%) felt the electronic tablet reduced time spent on clinical rounds.

• Prior to receiving the tablets, residents felt the tablet devices would provide greatest benefit for clinical activities and education (figure 2). While similar results were seen after 6 months of iPad use, education was the activity deemed to have the greatest benefit from iPad use.

• Intermittent wireless connectivity can interfere with using the iPads for clinical care.

• Two chief residents cited frequent iPad use by junior residents during inpatient rounds as potentially negatively impacting patient perception of care.

• Current electronic tablet technology can be readily incorporated into residency training, providing rapid access to electronic medical records and physician order entry, and may improve rounding efficiency.

• Interfacing with electronic texts is fast and easy, with a majority of residents now preferring purchase of digital versions of commonly-used otolaryngology texts.

• Emerging technologies such as smartphones and electronic tablets may improve educational and clinical efficiency for surgical residents.

CONCLUSIONS

• Prior to receiving tablets, most residents preferred a hard copy of Cummings’ Otolaryngology textbook (68%, 11 of 16), whereas 6 months after using the tablets, a majority 61% (8 of 13) would prefer an electronic version of the text.

• The majority of residents currently use a smartphone over a pager for most inpatient communications (84%). The majority (54%) do not feel sending messages via iPad would be efficient. Cited reasons include the more cumbersome size and institutional protocols for answering messages while scrubbed into the operating room.

• 92% (12/13) of residents report at least occasionally using the iPad to review radiology images. While all 12 respondents agree that image resolution is adequate, 33% feel the screen size (9.5 x 7.3 inch) hinders usefulness for reviewing clinical scans.

REFERENCES


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