

Customizing the iPad - DeRosa and Keating

TITLE

Customizing the iPad to Support a Clinical Fellowship in Radiology: a Qualitative Study

AUTHORS

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OBJECTIVE

To determine the value of providing Fellows in the Breast Imaging Service (Department of Radiology) with iPad mini tablets pre-loaded with apps/resources/websites/tools, to test whether a tablet is a viable delivery platform for supporting the research needs of Fellows.

LITERATURE REVIEW

There is little evidence in the published literature describing use of a tablet to support the general needs of a clinical group in the hospital setting. Clinical information needs can range from bibliographic management support, research methods, literature searching, keeping current with research in the field, and workflow and knowledge organization support, to name a few. Most of the literature consists of using tablets/iPads for educational purposes in various settings, both clinical and educational [1-5] The most closely related research found to the content of this study was the Sharpe et al. study from 2013, which focuses on delivering a “Radiology Resident iPad Toolbox” to the residents at the University of Colorado [6] The approach taken in the Sharpe study is similar to our study in that the investigators come up with a collection of resources to support the needs of the Residents. The major difference is that the Sharpe study investigators anonymously surveyed the Residents three months after program implementation. Our plan includes surveying the Fellows pre- and post-clinical rotation.

RESEARCH QUESTIONS

What is the value of supplying Fellows with iPad mini tablets pre-loaded with productivity apps, pertinent e-books, diagnostic tools, health information resource pathways, and current awareness resources? Does a tablet with selected resources enhance the Fellows experience during a one-year clinical rotation in a Radiology service?

METHODS

The approach to gathering data to answer these questions consisted of pre- and post-clinical rotation survey questionnaires, administered via SurveyMonkey online. During the annual Fellows orientation, the Research Informationist introduced the iPad and provided an overview of the various clinical, productivity, and research tools available—at which time the first questionnaire was administered to garner initial impressions on the iPad and its resources. The post-survey was administered during the exit interview after the Fellows' rotation was complete. All Fellows (n=6) completed the pre- and post-questionnaire as a mandatory component of their fellowship. All Fellows agreed to participate in this IRB-waived study. Survey results were analyzed using qualitative techniques by both the Research Informationist and the Attending Radiologist who oversees the education program for rotating Fellows and Residents. A qualitative analysis approach and survey design was decided upon as the most appropriate method for garnering anecdotal feedback from Fellows and creating a narrative of survey results. See Pre-Fellowship Survey for questions asked (Post-Fellowship Survey grammar was adjusted to reflect the past tense, but all questions remained the same).

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Pre-Fellowship Survey:

1. At first glance, the resources provided on the iPad (apps, websites, tools, journals, etc.) seem to meet my productivity and workflow needs.
 - Strongly agree
 - Agree
 - Undecided
 - Disagree
 - Strongly disagree
2. Based on personal importance and what you think will be the top items you will use each day, please rank the following resources on the iPad (1=most important, 7=least important).
 - eBooks
 - eJournals
 - Databases
 - Productivity Tools (includes email, PDF annotation app, and Microsoft Office apps)
 - Web browser
 - Internal MSK webpages
 - Clinical Medical Librarian (your information specialist contact)
3. Generally, how often do you think you will use the iPad and its resources?
 - Once a day
 - More than once a day
 - Once a week
 - More than once a week
 - Monthly
4. How do you think you will most use the iPad in general or the resources available? Please select all that apply.
 - I will not use the iPad or its resources
 - Change approach to a particular patient and/or future patient(s)
 - Facilitate sharing/discussing information with colleagues
 - Presenting
 - Research or publish
 - Apply for grant funding
 - Revision of clinical pathways, practice guidelines, policies or procedures

RESULTS

Comparing the pre- and post-rotation survey results determined future perspectives on continuing an iPad program under the responsibility of the Research Informationist and assisted in prioritizing the selected resources and identifying future training opportunities. As the survey results suggested, 100% (n=6) of the respondents either agreed or strongly agreed that the resources/apps provided on the iPad met their productivity or workflow needs during their rotation. This was a change from the responses pre-rotation where 83% of Fellows agreed/strongly agreed and 16% were undecided at the time. Most free-text comments to this question consisted of the usefulness of the iPad for referencing the American College of Radiology's BI-RADS clinical e-book which provides standardized breast imaging findings terminology, report organization, assessment structure and a classification system for mammography, ultrasound and MRI of the breast [7].

When asked about why type of resources were most important for their clinical/research needs on the iPad, e-books and productivity tools (including MS Office and PDF annotation app) received the most votes with 83%. The top resources reported during the pre-rotation survey for this question included productivity tools, web browsing, and internal web pages, all at 83%.

When questioned about prospective usage of the iPad versus actual usage of the device, the responses varied from pre- to post-rotation. Before beginning their fellowship, 67% of respondents thought that they would use the iPad more than once a day. Upon completion of their fellowship, only 16% reported using the iPad and its resources more than once a day.

The final question to the survey consisted of how Fellows thought they would most use the resources or the iPad, generally. Pre-rotation survey responses indicated that 83% would use the iPad and its resources for sharing/discussion with colleagues, as well as, for general research or publishing. Post-rotation answers showed that the iPad was most used for presenting and/or general research/publishing (50%), as well as, revision of clinical pathways (50%).

DISCUSSION

Although the survey results indicated that the iPads were used less frequently than originally anticipated by the Fellows, the weighted importance of the resources provided and the impact of using the iPad throughout their fellowship was positive and well-received overall. Noteworthy findings include the shift in initial thoughts on reasons for iPad use versus how the iPads were actually used during the fellowship. Specifically, the shift from a more general-purpose research focus to a more clinical focus in terms of usage shows an opportunity for supporting more clinical research needs of the Fellows. This could include assistance with gathering the highest level evidence for difficult/interesting patient cases, and/or providing guidance in organizing clinical data for analysis and interpretation.

By examining the survey responses, changes or enhancements can be made to the resources/apps offered on the iPad for future fellowship cohorts. For instance, key eBooks can be made more prominent on the device as this type of resource ended up being used frequently (and voted highly important) by the Fellows. Outlook on the use of the liaison Research Informationist services (literature search, project guidance, bibliographic management tool support, general training/consult, etc.) remained the same both pre- and post-rotation. The services provided by the Research Informationist can be adapted to be more relevant and supportive of the actual research and clinical endeavors undertaken by the Fellows. This can take the form of training on targeted resources (such as the ACR BI-RADS) and key research services offered by the Library (such as scholarly communication and getting published). Enhancing the Informationist/Library component of the Fellows' research support services by way of the iPad, could have a positive impact on the Fellows' experience with the mobile device.

LIMITATIONS

The customization of the iPad was well received among Fellows in this pilot study but had certain limitations. Where it fell short was its inability to handle file transfer/storage of documents. Fellows reported consistently reverting back to using more traditional technology like a laptop or desktop computer to store and access large files. This is an inherent limitation of the iPad.

CONCLUSIONS

This survey study has revealed a positive impact, value, and experience on having a customized iPad during a clinical fellowship. Data gathered suggest that the iPad was a time-saver and provided in-context and in-the-moment resources. A noticeable upswing in research consultation and informal training requests were observed, although adapting to the changing needs of the Fellows to offer more targeted training would be beneficial. Including more clinical research-focused resources/apps to the iPad would help to bring more value to the iPad program as Fellows reported using the iPad to revise clinical pathways and support their clinical work.

FUTURE DIRECTIONS

More research in the area of providing technology solutions to clinical focus areas is needed to determine the lasting impact and value of this type of service. The pilot iPad program described in this study can be expanded to other clinical groups at other institutions. Librarians and Informationists are in a unique position to facilitate and disseminate knowledge in a variety of mediums and formats. Using the collective skills of the information and knowledge management profession could lead to added benefits of offering technology solutions to support the research and patient care needs of targeted clinical groups.

REFERENCES

1. Brown J, McCrorie P. The iPad: tablet technology to support nursing and midwifery student learning: an evaluation in practice. *Computers, Informatics, Nursing*. 2015;;33(3):93-98. doi: 10.1097/cin.000000000000131
2. George, P., Newey, C. R., & Bhimraj, A. (2015). The tablet device in hospital neurology and in neurology graduate medical education: a preliminary study. *Neurohospitalist*, 5(1), 15-21. doi: 10.1177/1941874414548802
3. Gerstle, T., Hassanein, A. H., & Eriksson, E. (2015). iPad integration in plastic surgical training: optimizing clinical efficiency, education, and compliance with the health insurance portability and accountability act. *Plast Reconstr Surg*, 135(1), 223e-225e. doi: 10.1097/prs.0000000000001014

Customizing the iPad - DeRosa and Keating

4. McCreadie, S. R., & McGregor, M. E. (2005). Experiences incorporating Tablet PCs into clinical pharmacists' workflow. *J Healthc Inf Manag*, 19(4), 32-37.
5. Soma, D. B., Homme, J. H., & Jacobson, R. M. (2013). Using tablet computers to teach evidence-based medicine to pediatrics residents: a prospective study. *Acad Pediatr*, 13(6), 546-550. doi: 10.1016/j.acap.2013.05.028
6. Sharpe, E. E., 3rd, Kendrick, M., Strickland, C., & Dodd, G. D., 3rd. (2013). The Radiology Resident iPad Toolbox: an educational and clinical tool for radiology residents. *J Am Coll Radiol*, 10(7), 527-532. doi: 10.1016/j.jacr.2013.02.007
7. American College of Radiology. (n.d.). Retrieved August 09, 2016, from <http://www.acr.org/Quality-Safety/Resources/BIRADS>

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Ayaba Logan earned her Bachelor of Art in Sociology and Public Health from Spelman College. She went on to pursue a Master of Public Health from the University of Michigan, and a Master of Library and Information Studies from The University of Alabama. Mrs. Logan is interested in Qualitative Research, Systematic Reviews, Citation analysis, Assessment and Evaluation, Data Visualization, and Instruction. Currently, Ayaba is a Research and Education Informationist at the Medical University of South Carolina under the leadership of Shannon Jones, MEd, MIS, MLS. Ayaba has joint appointments with the Department of Public Health Sciences (College of Medicine) and College of Nursing. As an Informationist/Librarian, Ayaba is heavily involved with conducting systematic and other reviews and library instruction evaluation/assessment. Lastly, Ayaba enjoys time with her hubby, their daughters, and traveling abroad.