

# **Evidence Based Library and Information Practice**

## Evidence Summary

## PDA Use by Clinicians has a Positive Impact on Clinical Decision Making

#### A review of:

Dee, Cheryl R., Marilyn Teolis, and Andrew D. Todd. "Physicians' use of the personal digital assistant (PDA) in clinical decision making." <u>Journal of the Medical Library Association</u> 93.4 (October 2005): 480-6.

### Reviewed by:

Suzanne P. Lewis Library Manager, Central Coast Sector Northern Sydney Central Coast Health Gosford, New South Wales, Australia Email: <a href="mailto:slewis@nsccahs.health.nsw.gov.au">slewis@nsccahs.health.nsw.gov.au</a>

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#### **Abstract**

**Objective** – To examine how frequently attending physicians and physicians in training (medical students, interns and residents) used PDAs for patient care and to explore physicians' perceptions of the impact of PDA use on several aspects of clinical care.

**Design** – User study via a questionnaire.

**Setting** – Teaching hospitals in Tennessee, Florida, Alabama, Kentucky, and Pennsylvania in the United States.

**Subjects** – A convenience sample of fiftynine attending physicians and forty-nine physicians in training (108 total), spread unevenly across the five states.

Methods – Subjects were recruited by librarians at teaching hospitals to answer a questionnaire which was distributed and collected at medical meetings, as well as by email, mail, and fax. The subjects were required to have and use a PDA, but prior training on PDA use was not a requirement, nor was it offered to the subjects before the study. Most of the questions required the respondent to choose from five Likert scale answers regarding frequency of PDA use: almost always, often, a few times, rarely, or never. In the reporting of results, the options 'almost always' and 'often' were combined and reported as 'frequent', and the options 'a few times' and 'rarely', were combined and reported as 'occasional'. Subjects could also record comments for each question, but only for affirmative responses.

Subjects were asked about their frequency of PDA use before, during, or after a patient encounter. They were also asked if PDA use had influenced one or more of five aspects of clinical care – decision making, diagnosis, treatment, test ordering, and in-patient hospital length of stay.

Data analysis included chi square tests to assess differences between attending physicians and physicians in training regarding frequency of PDA use and the influence of PDA use on the five aspects of clinical care. The subject population was also divided into frequent and occasional users of PDAs, and chi square testing was used to assess differences between these two groups regarding the influence of PDA use on clinical care. A significance value of *P*<0.05 was considered statistically significant.

Main results – Ninety-four (87%) of the 108 respondents used PDAs for patient encounters. Of this group, 59 were frequent users and 35 were occasional users. There were no significant differences between attending physicians and physicians in training with regard to frequency of PDA use in patient encounters.

Sixty-seven percent of the 108 respondents reported that using a PDA had influenced their clinical decision making; over 50% reported that PDA use had influenced changes in patient treatment; 16% reported that PDA use had helped avoid unnecessary tests; 10% reported that PDA use had helped change a patient's diagnosis; and 6% reported that PDA use had helped shorten a patient's length of stay. Within these results, there were no statistically significant differences between the attending physicians and the physicians in training.

More than 85% of the frequent PDA users (n=59), and 60% of the occasional PDA users (n=35), reported that PDA use had influenced their clinical decision making. The difference between these two groups

was statistically significant (*P*<0.007) with regard to the influence of PDA use.

Fifty-six percent of respondents recorded comments on the survey. More than 75% of the comments included using PDAs to access drug-related information for clinical decision making.

Conclusion – PDA use has a positive impact on clinical decision making and patient care. Frequency of PDA use appears to be a factor in determining the perceived impact of PDAs on clinical decision making. However, even those physicians who used PDAs only occasionally reported a positive impact of PDA use on clinical decision making. The status of physicians (attending or in training) does not appear to be a determining factor in the frequency of PDA use for patient encounters. Health sciences librarians are well positioned to provide resources and training for PDA use by clinicians.

#### Commentary

This is an interesting study which builds on recent research into clinicians' use of PDAs. Not only does this study examine frequency of PDA use for patient encounters, it also explores physicians' perceptions of the impact of PDA use on clinical decision making, diagnosis, treatment, test ordering, and length of stay. The researchers successfully achieved their stated objectives and relate their results to previous relevant studies.

The study is not without faults. The sample size of this study (n=108) is much smaller than in the comparable studies (n≥946) cited in the article. The authors acknowledge this and go on to say, "The data from this study cannot be broadly generalized to the entire population of PDA users, because the small sample is a sample of convenience . . . ." (484). There is potential response bias due to the questionnaire being self-reporting. Additionally, neither the sample size nor the response rate is clearly reported; the reader

must assume that all respondents (n=108) comprised the entire sample, and that the response rate was 100%.

The report provides useful information about the study subjects, particularly a definition of 'physicians in training', allowing readers unfamiliar with this term to translate it to their own settings. One of the most interesting findings is that the level of medical training achieved by the subjects was not found to be a significant factor in either the frequency of PDA use or in the perceived impact of PDA use.

Inclusion of the survey instrument in an appendix, plus sufficient information in the methodology section about how the results were collated and analyzed, means that the study could be repeated by other researchers in similar clinical settings. The authors do not state whether the survey instrument was validated, whether they devised it themselves, or whether they adapted it from another study.

The only statistically significant result was that frequency of PDA use was a factor in determining the perceived impact of PDA use in clinical decision making. Analysis of the respondents' comments is valuable in highlighting prescribing as the area of clinical activity where most value is seen to be derived from PDA use.

This research makes a valuable contribution to understanding physicians' perceptions of the impact of PDA use in clinical care. The methodology is reliable and applicable to most health care settings in developed countries. The study is relevant to health librarians seeking to understand the attitudes of physicians towards emerging technology. The results suggest that health librarians can have a positive impact on clinical decision making by supporting PDA use with training and resources.

A valuable suggestion for future study would be to quantify the potential savings in drug costs, reduction in prescribing errors, and/or reduction in adverse drug interactions that could be achieved by physicians' routine use of PDAs in patient encounters. This would provide an evidence base to those health librarians who wish to present a business case for providing PDA resources and training to clinicians.