



TITLE: Voice Recognition Documentation Systems: Clinical Effectiveness

DATE: 12 March 2012

RESEARCH QUESTION

What is the clinical evidence regarding the use of voice recognition tools for nurse charting to decrease the time required for documentation?

KEY MESSAGE

One relevant non-randomized study was identified regarding the use of voice recognition tools for nurse charting to decrease the time required for documentation.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2012, Issue 2), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and abbreviated list of major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2007 and February 29, 2012. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, and non-randomized studies.

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One relevant non-randomized study was identified regarding the use of voice recognition tools for nurse charting to decrease the time required for documentation. No relevant health technology assessment reports, systematic reviews, meta-analyses, or randomized controlled trials were identified. Additional references of potential interest, including information regarding voice recognition software use by health professionals other than nurses, are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The identified non-randomized study examined the use of a voice recognition system used to input data into electronic nursing records.¹ Both the system and a template for an electronic record were examined and authors found that the voice system was faster when compared with keyboard input

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Marukami T, Tani S, Matsuda A, Takemoto K, Shindo A, Inada H. A Basic study on application of voice recognition input to an electronic nursing record system -evaluation of the function as an input interface-. J Med Syst. 2010 Sep 9.
[PubMed: PM20827571](#)

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – contexts other than nursing

2. Basma S, Lord B, Jacks LM, Rizk M, Scaranelo AM. Error rates in breast imaging reports: comparison of automatic speech recognition and dictation transcription. *AJR Am J Roentgenol*. 2011 Oct;197(4):923-7.
[PubMed: PM21940580](#)
3. Derman YD, Arenovich T, Strauss J. Speech recognition software and electronic psychiatric progress notes: physicians' ratings and preferences. *BMC Med Inform Decis Mak*. 2010;10:44. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2939584>
[PubMed: PM20738875](#)
4. Hart JL, McBride A, Blunt D, Gishen P, Strickland N. Immediate and sustained benefits of a "total" implementation of speech recognition reporting. *Br J Radiol*. 2010 May;83(989):424-7.
[PubMed: PM20223906](#)
5. Hoyt R, Yoshihashi A. Lessons learned from implementation of voice recognition for documentation in the military electronic health record system. *Perspect Health Inf Manag*. 2010;7:1e. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2805557>
[PubMed: PM20697464](#)
6. Krishnaraj A, Lee JK, Laws SA, Crawford TJ. Voice recognition software: effect on radiology report turnaround time at an academic medical center. *AJR Am J Roentgenol*. 2010 Jul;195(1):194-7.
[PubMed: PM20566816](#)
7. Bhan SN, Coblenz CL, Norman GR, Ali SH. Effect of voice recognition on radiologist reporting time. *Can Assoc Radiol J*. 2008 Oct;59(4):203-9.
[PubMed: PM19069605](#)
8. Kauppinen T, Koivikko MP, Ahovuo J. Improvement of report workflow and productivity using speech recognition--a follow-up study. *J Digit Imaging*. 2008 Dec;21(4):378-82. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3043847>
[PubMed: PM18437491](#)
9. Trumm CG, Morhard D, Ertl-Wagner B, Glaser C, Reiser MF. Impact of RIS/PACS integrated speech recognition on report availability. *Radiol Manage*. 2008 Nov;30(6):16-23.
[PubMed: PM19115708](#)

Additional References

10. Wirkus M. Voice-assisted care technology improves nurse efficiency and patient care [Internet]. San Diego (CA): NurseZone; 2008 May [cited 2012 Mar 05]. Available from: http://www.nursezone.com/nursing-news-events/devices-and-technology/Voice-Assisted-Care-Technology-Improves-Nurse-Efficiency-and-Patient-Care_24726.aspx
11. Kolbasuk McGee M. Voice recognition makes rounds at hospitals [Internet]. Information Week; 2009 [cited 2012 Mar 05] Sep 17. Available from: <http://www.informationweek.com/news/healthcare/EMR/220000726>
12. Wolf DM, Kapadia A, Kintzel J, Anton BB. Nurses using futuristic technology in today's healthcare setting. Stud Health Technol Inform. 2009;146:59-63.
[PubMed: PM19592809](#)
13. Chang P, Sheng Y-H, Sang Y-Y, Wang D-W. Developing a wireless speech- and touch-based intelligent comprehensive triage support system [Internet]. CIN: Computers, Informatics, Nursing. 2008 [cited 2012 Mar 05] 26(1). Abstract available from: http://www.nursingcenter.com/library/JournalArticle.asp?Article_ID=760436