Capturing Clinical Narrative: What Factors Dictate the Decision to Type?

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Introduction
The Online Medical Record (OMR) at the Beth Israel Deaconess Medical Center facilitates direct clinician interaction with the clinical computing system. Medications, problems, and screening sheet entries are typed directly into OMR by clinicians, however clinical notes may be dictated and transcribed into OMR by secretarial staff. Once online, notes may be edited and electronically signed by the clinician author. Dictated and transcribed notes comprise 46% of all OMR notes and costs the institution over $200,000 annually. Direct entry of information by clinicians is felt to not only eliminate delays and costs associated with transcription, but also to improve the accuracy of the information and promote clinician interaction with knowledge-based computer systems[1]. In order to determine what factors contribute to the clinician’s decision whether to enter notes directly, or to dictate and have the information transcribed, we analyzed clinical notes entered into OMR.

Methods
Four hundred and ninety clinicians from 44 clinics entered 18,071 notes into OMR during the last three months of 1997. We excluded 1,477 because of inadequate descriptive information about the note or its author, leaving a database of 16,594 notes. We collected data on the following variables: the type of note that was written, the length by lines of the note, the type, age and gender of the author of the note, the number of patients the clinician sees per month, the type of clinic setting in which the note was written and the number of problems the patient had at the time the note was written. Using the SAS System for Windows, we built a multivariate logistic regression model to predict the dichotomous outcome variable ‘dictated’. Confounding variables were identified and retained in the model. To identify and remove collinear variables from the model we compared standard errors between univariate and multivariate model combinations. The final model was tested for overall statistical significance, including the area under the ROC curve.

Results
Univariate analysis revealed that all variables, except the number of patient problems, had a statistically significant relationship with the outcome ‘dictated’ (p<0.0001). Multivariate analysis results indicate that the longer the note, the older the provider and the busier the provider’s clinic schedule, the more likely the clinical note would be dictated and transcribed. Staff physicians were more likely to dictate their notes than all other providers. Female providers were more likely to dictate notes and mental health providers were more likely to directly enter their notes. The overall statistical significance of the final model was p<0.0001, with a c statistic of 0.883.

Discussion
We have found that the primary predictors of whether a clinical note will be dictated or entered directly into an online medical record, are the length of the note, the age of the provider and the number of clinic visits per month by provider.

Both the length of the note and the busy clinic schedule factors may be related to the clinician’s perception that it will take more time to type in the note than it will to dictate it. Our mainframe-based word processing program is crude in comparison with modern PC-based programs, and templates, macros, and other tools might improve the ease with which notes are typed. Also a clinician’s level of comfort with the keyboard may be a factor when deciding whether to type or dictate a long note during a busy clinic session. For these reasons, reliable continuous voice recognition systems might be the best solution for capturing free-text narrative in a variety of practice settings. We also found that older clinicians and staff physicians were more likely to dictate their notes. An opportunity exists to change behavior in this group. More study needs to be done to understand the factors that contribute to this relationship.

Acknowledgements
Funded in part by a cooperative agreement with the AHCPR and the NLM (U01-08749), and the Douglas Porter Fellowship, Harvard Medical School.

References