

The Effect of Computerized Resident Sign-Out on Clarity

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ABSTRACT

We present a before-and-after study to measure the effectiveness of a computerized system for resident sign-out in an Internal Medicine residency program.

BACKGROUND

Problems with the exchange of information between physicians during a change-of-shift may contribute to as many as 80% of cross-cover errors [1]. According to a survey of Internal Medicine chief residents, few residency programs have systems or training in place for the comprehensive transfer of patient care [2]. Recent efforts to develop sign-out systems focused on centralization of data, elimination of duplicate data entry, and standardization of data format [3,4,5].

METHODS

We present a before-and-after study of a computerized resident sign-out system. The sample included consecutive patients signed out by the 4 general medicine teaching services to the night float service. This occurred during a two-week period in 2006 and another two-week period in 2008.

The pre-intervention group generated sign-out using a word processing program. The post-intervention group used PowerChart (Cerner Corp.) to generate sign-out. All study data were obtained from sign-out sheets, with residents blinded to the study. The cross-cover tasks were reviewed for clarity by an attending Internal Medicine physician in a blinded fashion.

The principal outcome variable was the clarity of each cross-cover task. A task was clearly defined if (1) the subject of the task was identified, (2) the action to take was specified, (3) the task contained the logic to make clinical decisions, and (4) the timing of the task was included.

RESULTS

There were 342 patients in the pre-intervention group for which 224 tasks were signed out. In the post-intervention group, there were 308 patients for which 326 tasks were signed out. No patient was excluded. The patients in each group were not statistically different with respect to admission diagnoses. See Table 1. The post-intervention group contained a greater number of clearly defined tasks. See Table 2.

Admission Diagnosis	Pre	Post	p
Cardiac	7%	12%	0.241
Gastrointestinal	23%	17%	0.203
Infectious	29%	37%	0.184
Oncologic	13%	11%	0.687
Other	28%	23%	0.440

Table 1 - Primary Diagnoses

	Pre	Post	p
Task Clarity	81 (36%)	193 (59%)	<0.001

Table 2 - Clarity of Signed Out Tasks

DISCUSSION

Improvements in the post-intervention group were likely due to several factors, including data entry templates and automated extraction of key data from the electronic medical record. Areas for improvement include speeding up the data retrieval time and adding annotations from cross-cover physicians.

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