Assessment of Information Needs for Informed, Coordinated Activities in the Clinical Environment

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Introduction. The study of errors in medicine has evolved from simply measuring their occurrence to a more detailed examination of the source of such errors. With many errors associated with of lack of access to information and inefficient coordination among team members, interventions are clearly desirable. The goal of our study was to examine the information and coordination needs in an internal medicine environment, with respect to the current clinical information systems.

Method. Through observation of six hours of "teaching rounds," we recorded information and coordination needs involving diagnostic and treatment decisions. Observation of eight and three-quarter hours of "walking rounds" identified needs encountered during actual patient care. Table 1 provides the coding scheme.

Category	Definition	Example
Success	The need was met	A relevant journal article was found
Failure	Attempts to meet the need failed	No relevant journal articles were found
Unmet	The need had yet to be met at the end of observation	The literature search was not started by the end of observation

Table 1. Coding Scheme

Results. Table 2 shows the mean number of needs that met with Success, Failure, or were Unmet, for both observation types.

Teaching Rounds, Coordination Needs: Only 11.5% of coordination needs were met successfully, while the remaining 88.5% either failed or had not been addressed by the end of the observation periods.

Teaching Rounds, Information Needs: While a substantial number of information needs were satisfied (32%), many remained unsatisfied or met with failure (68%). As expected in teaching rounds, other team members were the most frequent resource for information needs (60%), and most needs pertained to medical science (57%) or patient information (34%). 80% of attempts to find information from medical resources remained unsatisfied at the end of the observation period.

Walking Rounds, Coordination Needs: While 30% of coordination needs were met successfully, 26% met with failure, and 44% were unmet by the end of our observations. Most of the unmet needs involved waiting for feedback from another team member.

Walking Rounds, Information Needs: 64% of the interns' information needs either met with failure or remained unmet at the end of the observation period. As would be expected during walking rounds, the majority of the needs pertained to the patient (79%). In addition, the most common resource was the medical record (50%).

Discussion and Conclusion: Overall, the results of our study show that there are many instances of unsatisfied information and coordination needs. The failure to satisfy information needs stemmed predominately from a lack of access to existing information, as opposed to an inherent lack of information. Similarly, difficulty in achieving successful coordination of patient care most often resulted from inefficient communication, rather than from indecision or belligerence. This suggests that successful and efficient resolution of information and coordination needs may be facilitated by well-designed implementations and modifications to the current clinical information system, such as "infobuttons" (automated links from the clinical system to on-line information resources) [1], and a "virtual whiteboard" [2] that would allow monitoring of activities by all parties involved. We believe that facilitating information access and enhancing coordination among clinical team members, can reduce some proximal causes of serious medical errors.

References

1. Cimino JJ, Elhanan G, Zeng Q. Supporting infobuttons with terminological knowledge. JAMIA 1997; 4 (Suppl):528-532.

2. Coiera E. Clinical Communication: A new informatics paradigm. Proceed. AMIA. 1996: 17-21.

	Coordination Needs				Information Needs			
	Success	**Failure**	**Unmet**	**TOTAL**	**Success**	**Failure**	**Unmet**	**TOTAL**
Teaching Rounds	1.0	1.2	6.5	8.7	5.7	2.0	10.0	17.7
Walking Rounds	1.0	0.9	1.5	3.4	1.4	1.4	1.1	3.9

Table 2. Mean Number of Needs per Hour