Content and Organization of the Computerized Ambulatory Record

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To help guide our design of the ambulatory features of a computerized patient record(CPR), we asked a random sample of outpatient users of the paper record what information items they needed from the chart. Use of the record was evenly balanced between nurses, physician faculty, house staff, and support personnel. In our institution containing a broad spectrum of medical and surgical specialties, the most common items accessed were progress notes and medication, allergy, and problem lists. (Table 1) Progress notes were cited as needed by users of the record in all but 7% of chart requests. Record components consisting of documents accounted for 39% of all information items that were mentioned.

We compared these observations to patterns of use from our *COSTAR® computerized ambulatory record. All user menu choices are logged by COSTAR, allowing us to compute the frequency of use of an information item. COSTAR record organization is radically different than the paper chart, disallowing direct comparison of use data. However, we found that document access remained very substantial, representing 30% of items (Table 2) chosen by users despite the fact that COSTAR offers codification and flexible formatting of medical data.

Encounter data views (37%) were most often selected, offering an organization of medical record by episode of care which is sometimes difficult to obtain in a paper record. Custom data views (12%), including flow-charts and problem oriented summaries were next most common, suggesting a slow evolution towards more creative use of medical data.

We observe that migration of medical records functions from paper to the computer modifies the form of medical information both by design and by evolution. During an evaluation of hospital information system vendors, we noted that organization of the computer record by encounter is frequently not supported. This seems imprudent based on experience with our users. Furthermore, although many system developers de-emphasize the integration of document based data, patterns of use in our institution suggest that this is an important feature in both environments. It appears to us that computerized records have an otherwise limited capacity to describe the qualitative features of the patients symptoms and the process of care. Until we develop better methods of organization and display, computer record developers must give attention to document based data as an element of systems design.

Table 1
PAPER MEDICAL RECORDS USE

RECORD ITEM	ACCESS BY ITEM N=1621	ACCESS BY USER N=479
Progress Notes	27*%	93%
Medication List	15%	50%
Problem List	14%	46%
Allergy List	14%	46%
Correspondence	6%	19%
Lab Report	5%	17%
Radiology Report	3%	11%
Discharge Summary	3%	11%
History and Physical	3%	9%

*COSTAR is a registered trademark of Massachusetts General Hospital

Table 2
COSTAR MEDICAL RECORDS USE

RECORD ITEM	ACCESS BY ITEM N=40598
Encounter View Data	37%
Documents	30%
Custom Data Views	12%
Medication Summary	8%
Demographic Data	7%
Lab/X-ray Summary	7%
Problem List	6%
Allergy Summary	3%

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