Where's the Beef? The Promise and the Reality of Clinical Documentation

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Abstract

Physician-generated emergency department clinical documentation (information obtained from clinician observations and summarized decision processes inclusive of all manner of electronic systems capturing, storing, and presenting clinical documentation) serves four purposes: recording of medical care and communication among providers; payment for hospital and physician; legal defense from medical negligence allegations; and symptom/disease surveillance, public health, and research functions. In the consensus development process described by Handler, these objectives were balanced with the consideration of efficiency, often evaluated as physician time and clinical documentation system costs, in recording the information necessary for their accomplishment. The consensus panel session participants and authors recommend that 1) clinical documentation be electronically retrievable; 2) selection and implementation be evidence-based and grounded on valid metrics (research is needed to identify these metrics); 3) the user interface be crafted to promote clinical excellence through high-quality information collection and efficient charting techniques; 4) the priorities for integration of clinical information be standardized and implemented within enterprises and across health and information systems; 5) systems use accepted standards for bidirectional, real-time clinical data exchange, without limiting the location or number of simultaneous users; 6) systems fully utilize existing electronic sources of specific patient information and general medical knowledge; 7) systems automatically and reliably capture appropriate data that support electronic billing for emergency department services; and 8) systems promote bedside documentation and mobile access. **Key words:** documentation; information technology; electronic medical record. ACADEMIC EMERGENCY MEDICINE 2004; 11:1127–1134.

Since the beginning of the modern era of emergency medicine, physicians have used handwritten clinical charts, unstructured dictation, structured dictation, and voice-recognition systems for recording their clinical observations and conclusions. More recently, they have circled and slashed their way through a forest of customized and commercial template-based clinical charts or completed their clinical records in an emergency department (ED) information system. The practice tools have become more complex, if not better, than the ballpoint pen, which, with the stethoscope, was said to be the only medical "tool" an emergency physician must own in 1975.

This report, reflecting the outcome of a consensus process described elsewhere in this issue of *Academic Emergency Medicine*,[1] depends on certain definitions and conventions developed and applied during the process leading up to this report.

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- Clinical documentation is defined as information obtained from clinician observations and summarized decision processes.
- Only physician clinical documentation is addressed.
- The phrase "ED clinical documentation system(s)" was adopted as an inclusive term for all manner of electronic systems capturing, storing, and presenting clinical documentation.

This last point was heatedly discussed in the early minutes of the working group's session. Our intent was inclusive, not exclusive; these consensus recommendations apply equally to an electronically scanned pen-and-paper–based template that can be accessed on a personal computer and clinical documentation entered at a computer keyboard.

In examining emergency physician documentation in an ED information system, we contemplated four major purposes: 1) medical care and communication among providers; 2) payment, for hospital and physician, consequent to the patient's care; 3) legal defense from medical negligence allegations; and 4) symptom/disease surveillance, public health, and research functions. The examination balanced these objectives with the consideration of efficiency, often evaluated as physician time and clinical documentation system costs, in recording the information necessary for accomplishing these purposes.

Others may propose a lengthier catalog of functions, adding education, clinical and service quality evaluation, meeting public health requirements, and others. The scope of this conference session and the resulting report cannot encompass every worthy element. Thus, our focus is on these core elements, which include core clinical data recorded for the emergency clinician's reference, and for the next provider's reference, wherein this information will likely become part of the patient's previous medical history at that encounter.

Payment for care supports physicians, other providers, and the organizations within which we work. Many of those who actually pay for care base their payment decisions on detail and arcana that seem superfluous to emergency physicians until it is time to be paid. Similarly, emergency clinicians record at length, and with fantastical shading of meaning, details that are of scant value in clinical decision making yet may discourage a plaintiff's attorney from pursuing a lawsuit.

In a world where basic infection control measures are the cornerstone of managing communicable diseases and antibiotic resistance is fully evident in many common pathogens, surveillance and community information sharing have become increasingly important. Although recent efforts have received support and funding (at least in part) as a response to concerns of bioterrorism, mechanisms for reporting symptom patterns in communities are a welcome component of ED clinical documentation systems.

Most physicians believe that their work is with the patient, not with the record. For the purposes discussed above, we create a patient-care record. For reasons of economy and utility, we seek a record creation process that is as quick and efficient as possible, while sufficient for all purposes. However, economic utility theory assures us that no two emergency physicians will ever agree on the best method to accomplish this goal.

CONSENSUS RECOMMENDATIONS

1. There are not strong data supporting a particular documentation method, but ED clinical documentation should be electronically retrievable (nature of consensus: expert opinion).

Many mechanisms are presently in use for recording clinical documentation, including unformatted longhand writing on paper, writing on paper using a template, structured and unstructured dictation yielding paper output or electronic output, and direct entry with voice-recognition, typing, mouse, light-pen, or touch-screen selection.

After extensive review and discussion, it is clear that there is little scientific evidence comparing the effectiveness of clinical documentation methods.

Regardless of the method, any product of clinical documentation can and should be converted into an electronically retrievable format for all of the major purposes of documentation. In the information age, it is unacceptable to consider a documentation system that does not promote ready access to ED clinical information.

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2. Selection and implementation of ED clinical documentation systems should be evidence-based. Further research is needed to identify and validate metrics useful in the selection of ED clinical documentation systems (nature of consensus: expert opinion).

A recent review details the process of installing an ED information system incorporating a clinical documentation system,[2] but the ED information system literature offers scant advice on the "build or buy" question and vendor selection. The measures for assessing clinical documentation systems have not been clearly delineated, validated, or standardized. Validated metrics are needed in order to make technology decisions appropriately.

Clinical documentation systems should improve patient care, ensuring that the multiple aspects of quality patient care are identified and targeted. Direct outcomes should be defined, and the documentation systems should readily record actions (i.e., recording the use of aspirin and β-blockers in acute myocardial infarction) and report the defined outcome metrics. Some suggest that ED clinical documentation systems should not force the physician from the bedside. Measuring this can be difficult and may require indirect measures. These might include patient satisfaction measures of physician caring and communication as well as throughput metrics (e.g., waiting times).

Financial outcomes are important, and documentation systems that do not support the financial viability of institutions will contribute to their own demise. Documentation systems need to encourage adequate documentation in order to support (and preferably improve) reimbursement. The financial impact of a documentation system on an ED should be assessed.

Education and research should be supported by the documentation system. It should be possible for

residents and students to log procedures and readily identify patients for follow-up. Research and academic activities should be supported as well, with prompts and notices for ongoing studies, facilitating the identification of patients for study enrollment. Metrics of the ability of a clinical documentation system to support education and research should be developed.

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3. The user interface of ED clinical documentation systems should be rigorously crafted to promote clinical excellence by encouraging collection of high-quality information and efficient charting techniques (nature of consensus: evidence based and expert opinion).

Emergency clinical documentation software has tremendous potential to promote excellent medical care by enhancing patient safety, reducing medical errors, improving continuity of care, increasing efficiency, streamlining workflow, decreasing costs, advancing research, and supporting quality assurance and surveillance efforts.

The user interface should direct actions that promote quality (i.e., facilitating the use of aspirin and β-blockers in acute myocardial infarction). Locally configurable prompts and metrics should be displayed in order to drive improvements in patient care and satisfaction and to maintain situational awareness during the documentation process. These should be driven by factors such as patient wait times, clinician time at the bedside, number of clinician visits to a patient room, census, admissions, and physician efficiency and productivity and should provide other measures of crowding, chaos, and danger.

However, features and potential benefits alone are not sufficient to guarantee adoption of a computerized process. The usability of a program has significant impact on its acceptance and the degree to which its advantages are realized. Widespread adoption is dependent on clinicians' perception that the program assists them in the collection of high-quality data and does not adversely impact the efficiency of the ED.

In the field of human–computer interaction, a number of techniques have been developed to objectively describe the user interface of a system. These include opinion surveys, direct observation, and analysis of the efficiency, accuracy, and quality of the computerized process. Developers of ED information systems should use the methods of this discipline to quantify and maximize the usability of their systems. If formal

training is required before a system can be of use, then the design of the user interface should be reconsidered. An inexperienced user should be able to accomplish simple tasks purely by relying on the obviousness of the user interface.

To realize many of the benefits of clinical computing, data must be translated to a format that can be used by a computer. Artificial intelligence that allows computers to understand human language in free form is imperfect, so some systems require the clinician to enter information in an unfamiliar, structured manner. With thousands of potentially relevant findings for any given patient encounter, there is a significant challenge to helping clinicians rapidly communicate their thoughts while still providing a depth of choice and a usable interface.

Carelessly designed interfaces will promote bad medical care. Complex or error-prone data-entry methods result in charts that do not represent the intent of the author. Confusing data displays result in clinicians' misinterpreting the information that is being presented. Cumbersome user interfaces and long processing times slow down the charting task and leave clinicians with two suboptimal alternatives: complete charts concurrent to ED visits and allow inefficient documentation to delay care, or batch the documentation for later completion and risk inaccurate and incomplete recall.

To design an interface that simplifies and expedites such a complex task without adding significant constraints or sacrificing quality requires a combination of rigorous computer science blended with carefully crafted art. Further research and development are needed in the area of the ED information system documentation user interface design.

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4. Standards should be developed to prioritize the integration of clinical information into ED clinical documentation systems. These standards should then be applied within enterprises and across health and information systems (nature of consensus: evidence based and expert opinion).

There is no existing universal solution for documentation and electronic health records. The situation is complicated by competing needs for differing elements of health data. Clinicians are interested in accessing and updating information that relates to immediate patient care. These core clinical data include medications, allergies, and history. Those involved in the business aspect of medicine are keen to maximize reimbursement, with information detail that has limited benefit beyond medical billing. In the current environment, medicolegal concerns push for detailed documentation of items that rarely are reviewed but can be crucial in the small number of cases that end in litigation. Public health needs call for means of evaluating populations and surveillance of high-risk processes, and personal health needs call for means of recording and supplying information to individuals.

As electronic health record technology is evolving, the challenges for documentation are considerable. Multiple hardware and software processes are available, and some standardization is taking place (i.e., Health Level 7 [HL7] standards for general health data and digital imaging and communication in medicine [DICOM] for electronic radiology processes), but data priorities have not been set. The assembly of an electronic health record infrastructure at an enterprise depends on identified priorities. There is a necessary balance between resources and the scope of electronic record infrastructure development. As an example, existing electronic data (i.e., laboratory tests or dictated reports) may be more easily incorporated into electronic health records than the more complex direct patient care documentation.

As technology develops and national efforts are made to set standards, a clear hierarchy of importance needs to be developed for the incorporation and availability of clinical information. High-value clinical information needs to be defined, with the expectation that this information will be electronically accessible regardless of location, time, institution, agency, or vendor. Examples of high-value clinical information include allergies, medical history, and medication lists. ED documentation systems must be able to access and update these high-value data.

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5. ED clinical documentation systems should utilize accepted standards for bidirectional, real-time clinical data exchange, without limiting the location or number of simultaneous users (nature of consensus: expert opinion).

Many patients have a wealth of clinical data stored in electronic form, scattered among disconnected systems, both local and remote. Clinicians often require a deliberate, time-consuming search to aggregate this into a comprehensive picture of a patient's health. While "information is power," that power cannot be harnessed for emergency care unless the information is readily accessible to the clinicians taking care of the patient.

The need for standards to allow automated data communication between disparate sources has long been recognized, and accepted protocols are starting to be widely adopted. Data exchange at all levels of the health care infrastructure can be used to improve emergency care.

Data communication within an ED directly improves the delivery and quality of care by allowing the collection of data simultaneously without continuous searching for, and fighting over, the paper chart. For example, a nurse can import updated vital signs

from the monitor, while a resident can document a complete history and physical examination at the bedside, while an attending physician can simultaneously review laboratory and radiology reports. Both wired and wireless technologies should be used as appropriate to eliminate location constraints from the electronic charting process.

The ED is an acute care setting and also a portal into the health care system. The information gathered during an emergency encounter often serves as the starting point for a follow-up visit. Data sharing outside of the ED can promote continuity of care by facilitating transmission of the ED visit details to hospital information systems and electronic health record initiatives. Clinical information exchange also supports public health by feeding syndromic surveillance monitors as well as providing researchers and quality assurance directors unfettered access to all elements of the chart. It is imperative that ED documentation systems be capable of exporting all stored data elements in real time via accepted standards.

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6. ED clinical documentation systems should be capable of fully utilizing existing electronic sources of specific patient information and general medical knowledge (nature of consensus: evidence based and expert opinion).

Just as clinical data exchange standards can be used to export details of the ED visit, they can be used to import information from other systems to improve patient care. Medical care can be provided more efficiently by electronically prepopulating appropriate fields and providing clinicians with helpful default settings. Discrepancies between data sources could prompt a warning to call attention to the issue.

For example, an ED documentation system could take demographics and patient location from an admitting system, medical history and allergies from an outpatient medical record or discharge summary, laboratory results from the laboratory information system, radiology reports and images from the picture archiving and communication system, electrocardiogram readings from an electrocardiographic storage system, and vital signs from the bedside monitor. The triage nurse could save time by verifying a medication list imported from insurance records or a patient-carried smart card. That could give the nurse more time to focus on a review of systems, family history, and social history that could then be imported for the physician to verify.

The high-volume, stressful environment of the ED makes this area especially prone to medical errors. The highly variable arrival and outflow rates of the ED can lead to overcrowding, and clinicians wind up pushing the limits of their multitasking abilities. These situations often result in a loss of situational awareness and decreased clinical vigilance. There is a well-established body of literature that shows computerized alerts and reminders can help avoid medical errors and improve the response to changing patient conditions, yet busy clinicians do not have the time to enter the data that are used for the clinical rules. This operational challenge can be circumvented by using data imported from other systems to populate the alert rule sets, improving patient safeguards during the times that they are needed most.

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7. ED clinical documentation systems should automatically and reliably capture appropriate data that facilitate electronic billing for ED services (nature of consensus: expert opinion).

Increasing malpractice costs combined with decreased reimbursements make it more important than ever for emergency physicians to maximize their ability to bill and collect for the services they provide. Before the adoption of electronic medical record systems, the coding and billing of charts involved predominantly a manual process of reviewing handwritten, paper-based charts. Despite the recent increase in deployment of electronic documentation systems, ED coding and billing are still largely a manual process in many health care systems. This process is inefficient, redundant, and expensive.

The advent of clinical documentation systems has created an opportunity for automating some of the work of electronic billing of ED services. Charge capture logic, for example, would support the automated billing for such physical items as medications and orthopedic supplies; while not directly remunerative to clinicians, this demonstrates to administrators both the primacy of the clinical record in driving administrative functions and the clinicians' understanding and willingness to partner with the hospital.

More challenging, however, is capturing charges for nonphysical items, including procedures performed and evaluation and management services. Because evaluation and management services amount to approximately $18 billion per year and account for 80% of all emergency physician service revenue, accurately and efficiently extracting this information from the clinical chart is of critical importance. Systems should be designed to make this possible without detracting from the caregiving process.

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8. ED clinical documentation systems should promote bedside documentation and mobile access (nature of consensus: expert opinion).

Many colleagues fear that ED clinical documentation systems will pull them away from the patient's bedside and as a consequence diminish both the quality of care and the patient's perception of quality. Multivariate analysis has identified the satisfaction of patients with their interpersonal interactions with physicians and nurses as the strongest predictor of overall patient satisfaction.[3] Intuitively, more time spent at the patient bedside in communication with the patient can contribute to improving that interpersonal relationship.

Mobile technology, whether handheld wireless devices, tablets, or "computers on wheels," may facilitate work at the patient's bedside, but a recent report suggests that nurses are not persuaded.[4] Physicians at the location of three of the authors (SJD, KNS, ANGAK) have similarly rejected tablets and computers on wheels after extensive trials. However, these physicians worked at an institution with an unusually high density of patients per square foot and it is unclear whether their experience will generalize to other institutions.

In the near term, only patient satisfaction data may be available to guide the assessment of mobile technologies used for ED clinical documentation systems. The evaluation should be in the aggregate rather than as a focus on individual practitioners. Otherwise, the emphasis on individual practitioners may delay effective adoption of ED clinical documentation systems, because physicians will certainly disagree about the benefits of a particular implementation of an ED clinical documentation system and the costs in bedside attention. Economic utility theory

tells us that there can be no perfect answer for all EDs and all practitioners.[5]

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CONCLUSIONS

Providing for the respective needs of the four major uses of clinical documentation is a challenge for practitioners, patients, and institutions. Only immediate medical care and communication directly serve patients' interests. Reimbursement, medicolegal issues, and history/surveillance functions primarily benefit physicians' and institutions' interests and only second-arily patients' interests. As technology is implemented, standards and requirements for documentation systems need to be established. Ultimately electronic clinical documentation will improve immediate care, promote efficiency, and permit ready communication of critical patient information and be considered one of the great developments in patient care.

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