

WHITE PAPER

Managing Paper Patient Records in a Clinical Practice

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For nearly ten years, implementation of electronic health records (EHR) in ambulatory medical practices across the U.S. has been encouraged through legislation. President Bush established the Office of the National Coordinator for Healthcare Information Technology in 2004 to facilitate expansion of health care information technology, including certification of EHRs and establishment of various health information exchange initiatives. In order to stimulate growth and expansion of EHR implementations, the Federal government passed legislation in 2009 (the HITECH provisions, part of the American Recovery and Reinvestment Act) which included reimbursement incentives for practices that implement EHR systems and meet meaningful use requirements. Each of these government initiatives designed to urge greater use of EHR systems in clinical practices sought to gain improvements in safety, efficiency and cost thought to result from the successful implementation of EHR. However, as recently as 2009, a National Ambulatory Medical Care Survey (Centers for Disease Control and Prevention) showed that only 6.3% of physician practices had a fully capable EHR (defined as an electronic record system with order entry, e-prescribing, documentation and clinical decision support) and 20.5% having a basic system. The same survey reported higher percentages (43.9%) when asked whether any EHR system is used, but these were thought to represent a mix of practice management systems focused mostly on billing.

Executive Summary

Recently Nuance Communications commissioned a two-part study to better understand the implications of the slower than expected uptake in EHR on the clinical operations of outpatient healthcare providers. The study shows that healthcare providers continue to rely heavily on paper documents as a common medium for exchange between providers in the patient care continuum.

The two-part study, commissioned through the independent market research firm, Gerson Lehrman Group, consisted of an open-ended online survey of forty physician practices with five or more full time physicians plus follow-up telephone interviews with six of them. The survey and interviews were conducted by Dr. Scott Finley and Dr. Jack Varga, seasoned clinicians and informatics experts. The objective of the study was to understand how practices handle paper within their practices, the challenges that arise in a paper-based or hybrid medical record system and their satisfaction with their current practices. The results of the study provide interesting insight not only into the progress the United States healthcare system has made in adopting electronic health records but also just how far it has to go before patient care documentation processes are predominantly electronic. While the study was based on U.S. physician's offices it is our belief that the results of the study are representative of ambulatory care providers operating in healthcare systems outside of the U.S. The biggest differences between national healthcare systems tend to be related to the payment or reimbursement processes while clinical workflows—particularly those involving the exchange of patient information between care providers—tend to be similar.

Online Survey Summary Results

The online survey consisted of fourteen questions of which four were open-ended responses in which survey participants' responses were unprompted. These questions inquired about types of documents, description of current workflows, what information is most important and what problems, if any, result from and their impact upon the practice.

Online Survey Demographics

Survey participants were qualified based on size of practice. Respondents from practices with fewer than five full time practicing physicians were disqualified and their responses were not tallied. The respondents represented a wide range of practice types and sub-specialties.

How Many Physicians Practice at Your Location?	
n=40	
Smallest	5
Largest	120
Mean	18
Median	7

While 80% of the practices surveyed have implemented an electronic medical record (EMR) system all forty practices that voluntarily participated in the study continue to generate, receive and manage paper records. Test results and consult notes are the two most frequently mentioned document types (80% mentioned unprompted) that continue to be predominantly paper based. This, we believe, is due to the lack of interoperability between care providers' EMR systems. Test results and consult notes are typically generated outside of a physician's practice and thus distributing copies to care providers along the patient care continuum is often done via fax, mail or hand delivery by the patients. Other documents frequently cited as remaining predominantly paper-based included consent forms, insurance authorizations, lab results, prescriptions, immunization and disability forms.

Less than half (17 out of 40) of the respondents mentioned they are currently scanning paper documents. Those that are scanning are mostly dissatisfied with their current scanning process citing most frequently the cost of labor, time lapses from receipt to online access and accessibility to scanned information in their EMR as their major complaints.

Two respondents in the survey mentioned they are completely paper-based and prefer paper records to EMR. Surprisingly, one of the respondents had previously implemented EMR but removed the system to go back to paper, which they found to be easier and more efficient. While we believe these two responses to be outliers, the sentiment that EMR haven't lived up to their promise is fairly widespread.

Of those that were scanning most thought the scanning process could be made to be more efficient and that scanned images of the documents were sufficient for their purposes with improvements in file naming and text searchable PDF being cited as ways scanned output could be improved to eliminate the need to open the file to know what information is contained. Only a handful mentioned the need to get information from the scanned document into EMR fields.

Physician Interview Overview

As a follow-up to the online survey, an in depth telephone survey of 6 physician practices was completed in April 2011 by Dr. J. Varga. Interview times ranged between 30 to 60 minutes in length.

The interviews confirmed the various types of paper documents (noted in the online survey) that enter into the clinical practice. Not all practices had the same paper documents, but all had paper documents that needed to be routed to the proper physician or staff member, acted upon and then included in the EHR. Most practices had some electronic interfaces (enabling exchange of structured electronic data) for laboratory results (primarily from large reference labs—Quest or LabCorp and rarely from a local hospital). The most common documents received in paper form were results from laboratory tests, radiology exams or physician consultations. The most voluminous documents were old medical records brought by a new patient transferring to the practice.

Primary Paper Workflows Identified

Of the six practices involved in the interviews, three separate workflows were identified. Two were unique (only a single practice using this workflow) while the other four used a common process.

(Process 1) This most common paper workflow involved scanning the paper documents once they arrived in the office (whether in the mail or hand carried by the patient). Once the documents were scanned (and added to any faxed document already in the electronic system), a staff member would route the scanned documents to the appropriate physician, usually via email. This process involved the staff reviewing each scanned document and making a judgment about urgency, type of document, as well as the appropriate physician for review. Once the physician had viewed the scanned document from his inbox and acted upon it, they would return it to the routing staff with a notation about whether to include it in the EHR and the appropriate location if that was not obvious, and any follow up instructions (call the patient, refill the medication or order a test).

(Process 2) One office had an interesting approach—over several years, they had negotiated with surrounding physician offices, radiology services, labs and hospitals to have them Fax “all” of these documents that would have been normally sent in the mail. This sped up the receipt of the document and allowed then to take another step to improve efficiency. This practice received and stored the faxed documents electronically in a fax queue, rather than printing out the document. The staff member in charge of routing the documents worked directly from this fax queue, but still had to view every document and make judgments as noted above. The physician that was interviewed stated that 95% of all paper entering this practice came in fax format.

(Process 3) One practice had a process that had evolved organically and admittedly was very inefficient and which they were actively attempting to improve. Any actual paper documents received in the practice were placed into a folder for each physician to review. In addition, any faxed documents (or any documents sent as an attachment to an email) were printed out and added to the “hard copy” folder. The physicians reviewed these documents, noted disposition and returned them to the staff. At this point, any that need to be added to the EHR were scanned and stored in the appropriate location within the EHR.

Issues Resulting from Paper and Document Scanning Workflows

All six of the practices interviewed (all of which had had an EHR for anywhere from four to twelve years) expressed similar problems with the handling of paper documents in their practices. Access to the content from these paper documents is problematic, as is integration with the data stored electronically in the EHR..

Timeliness for receipt and review of the document by the physician was bothersome. In the best case (the process where all documents were faxed and in an electronic queue), the time to distribute documents to physicians was reduced but if the staff member who normally performed this task was absent, it could also slow down. Other time consuming steps such as waiting for the paper to be opened (if mailed), sorted, scanned and then routed were all cited. If the scanner was malfunctioning, it could take 1-2 days to get the process back up and running and make it through the backlog. None of the practices that routed documents electronically had a manual backup process if the scanner failed. In many cases, multiple staff members participated in the paper handling process, often in an ad hoc basis. In nearly all practices, staff time in handling paper documents was equivalent to one full time equivalent position for every ten physicians.

Misrouting of the documents was also noted as a fairly common occurrence. This misrouting occurred mostly through human error resulting from mis-entry of the appropriate physician into the “destination” field or inability to determine the type or priority of the document (e.g. - consult result vs. pathology result, or normal vs. abnormal lab results). At the very least, this results in a delay in getting the document to the correct physician. At the worst, he could result in a patient safety issue with delay in responding to a serious, time sensitive communication. If the misrouting occurs at the stage where the document is being appended to the EHR, then the

document may indeed be “lost” from the electronic record of the correct patient and very difficult to retrieve. These types of erroneous entries can also cause issues in the record of the patient where it is wrongly inserted.

Structure Data & Natural Language Processing

All of the interviewees thought that some level of conversion of scanned data into structured data would be helpful. In particular, laboratory test results, as well as coded radiology and pathology results were the most commonly cited. All physicians expressed the view that having this type of structured data assimilated directly into the EHR (at the appropriate location) would be extremely beneficial and add to efficiency and quality. Since the scanned documents would almost always be located in a different location within the EHR than corresponding data received electronically or entered directly, there was a significant chance that this information could be missed when reviewing the electronic record.

On the other hand, none of the physicians interviewed were aware of natural language processing (NLP) technology and how it might be adapted to the scanning of paper documents with a bridge of optical character recognition in between. Once this type of technology approach was explained, they all agreed that this could be very useful and lead to the above-mentioned assimilation of the necessary structured data elements into the EHR.

Provider Attitudes Toward EMR Adoption

On April 28, 2011, Nuance sponsored a webinar, led by Dr. J. Varga and Greg Gies, Manager, Product Marketing, Nuance Communications entitled “What to Do about Referral Sources that Aren’t Meaningful Users.” A summary of the ARRA HITECH Act was provided with insight into statistics and studies indicating that a significant group of practices may not receive sufficient benefits from the HITECH incentives around meaningful use and therefore not adopt an EHR in the near term. A poll taken during the webinar showed that only 14% of participants thought a large majority (61-100%) of their own referral sources would take advantage of the HITECH incentives. A high percentage of physician practices will continue to receive clinical information in the form of paper documents for some time to come, even if they themselves convert to an EHR (as noted by our own survey of physicians above). The process of near complete conversion of U.S. physician practices to EHR and thus the elimination of most paper documentation may take upwards of twenty years, or more, if current trends of technology adoption hold true. The poll result on this question agree, with nearly a third of participants thinking it would take 11-20 years or longer for a critical mass of meaningful users to develop.

The webinar included a discussion of Nuance technology in the area of document management and how this expertise could be adapted to the clinical workflow of the physician practice.

Discussion and Summary

Persistence of paper in an EHR environment will continue to be a topic of discussion and area needing further technological improvements in document capture and recognition algorithms. A recent study to be published in the International Journal of Medical Informatics (Saleem, et al. — July 2011) previewed in CMIO magazine and conducted at a Veterans Affairs Medical Center with longstanding implementation of an EHR system showed examples of paper persistence, including “shadow processes and tools”, communication breakdowns and redundancies in computerized consult management.

As summarized in the two studies detailed above and from polling conducted during the recent webinar, several important points stand out in ambulatory physician practices in relation the use and implementation of an EHR:

- Review of paper documents in the clinic workflow and integration into the EHR are major issues
- No ideal solution is available whether through technology or process
- Personnel intensive workflows are common in handling the paper, along with the errors that result when humans are involved
- A technology solution that helps automate handling of paper is needed
- The ability to extract data from unstructured paper documents would be welcome
- Complete implementation of EHR systems by ambulatory physician practices with meaningful use of those tools and elimination of the vast majority of paper in these practices will take at a minimum of 10-15 years and potentially many years longer.

Although one of the physician practices in our survey had managed to negotiate with their “paper” sources to Fax these documents, and thus pass a considerable amount of the personnel effort onto the shoulders of the sender, this will probably not be the rule. There are many sources of these paper documents, including the patients themselves, and negotiating with every source might be impractical in many practice situations. Therefore, until all practices, hospitals and sources of paper forwarded into physician offices have electronic transmission capabilities (preferably with structured interoperable interfaces), there will continue to be a need to handle “paper”, including review, action and documentation for a long time to come. Assistance in the form of new technology, process improvement, reengineering and change management will be needed to enable physicians and their office staff to more efficiently, safely and economically manage information, whether electronic or paper, in the provision of healthcare.

Author's Bio

Dr. John Varga is President of JHV Consulting, Inc., specializing in healthcare information technology implementation and strategic planning. With 20 years of clinical experience and over 10 years experience in healthcare information technology, Dr. Varga has held positions with industry (Cerner Corporation, EDS/HP and Apttis) and the federal government, including 20 years as an active duty naval officer. Currently, Dr. Varga provides clinical informatics expertise and support in the Federal Government. He has experience in electronic health record and healthcare information systems design and implementation, including physician change management and workflow improvement. Dr. Varga has spoken extensively at regional and national meetings and published in peer reviewed journals. He received a BS and MD from the Ohio State University, a Master's in Health Policy from the George Washington University and a Graduate Certificate in Health Information Technology from George Mason University. Dr. Varga is a board certified ophthalmologist and fellow of the American Academy of Ophthalmology, American College of Surgeons.

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Nuance Document Imaging Solutions in Healthcare

Over 2500 healthcare providers use Nuance document imaging solutions to accelerate clinical and administrative document workflows ensuring critical patient information is accessible to care givers when its needed and accelerating reimbursement turns to reduce days receivables outstanding. ■

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