Implementation of the Electronic Medical Record: The Team Approach

Elizabeth Souther, PhD

The implementation of the electronic medical record (EMR) is a process that involves knowledge and skills of technology and group dynamics. The literature was reviewed to identify the most effective methodology for EMR implementation. Integral to the success of any EMR implementation is the 'buy-in' of the organization. To facilitate the implementation the use of a tiered team approach is advantageous. There must be an executive steering team whose role is to provide the vision, the approval, and the money for the project. The project steering team makes major policy decisions based on user needs and requirements, organization infrastructure, and general implementation strategies. The project work team has the responsibility of ensuring the implementation is satisfactory to the organization. This article discusses the membership, roles, and functions of the three EMR implementation teams.

Key words: EMR implementation, Team approach, Executive steering team, Project steering team, Project work team

Economic, regulatory, and technological forces are changing the healthcare system in the United States. An important trend driving the adoption of the electronic medical record (EMR) is the well-educated aging consumer who is demanding the most technologically advanced healthcare in an environment geared toward rationing.¹² Healthcare expenditures in the U.S. are in excess of $1 trillion, accounting for 14% of the gross domestic product (GDP),¹ which reflects a yearly rise in healthcare costs. Financial concerns coupled with regulatory guidelines determine the quantity and quality of deliverable healthcare to the consumer. Fierce competition among healthcare organizations forces economic and regulatory pressures to trickle down within the organization. This process has a profound impact on the health provider level.

Pressures to cut costs, improve quality, streamline operations, and meet higher regulatory and accreditation requirements affect the provider-patient relationship. Providers have been asked to alter practices while facing increasing threats of litigation and denial of reimbursement. These forces make it imperative that the provider work harder and smarter. The single most effective method to work more effectively and efficiently is the EMR. As each enterprise approaches implementing the EMR process, issues surface that, if handled correctly, make the implementation less chaotic and ensure satisfied end users.

There are a number of key functions that must occur for the implementation process to be effective. The team approach is the one common methodology that surfaces in the literature on EMR implementations. Various enterprises can have from one to several teams that attempt the implementation, but the global vision of the key players dominates the entire process and is the supportive framework for other teams to follow.

EMR Implementation Using the Team Approach

Prior to the first official meeting with the enterprise decision makers to discuss the wisdom of implementing the EMR, there is an enormous covert effort that has slowly garnered strength and numbers among the rank and file of the enterprise physicians and nurses. By the time the enterprise has made the decision to implement a clinical EMR, many internal and external forces have prevailed. The beginning of an EMR implementation within an organization is the culmination of a multitude of decisions and policies that have occurred. These EMR policies have been influenced by key individuals who feel so strongly about the necessity for an EMR implementation that they will 'champion' the political battles of acceptance and the skirmishes of implementation.

Within the healthcare organization implementing the EMR, key individuals with the understanding and appreciation of the benefits of an EMR must unite on an informal basis to begin sponsorship of the system or failure is certain.³ Physician frustration with the paper system, the pressures of managed care, and the external pressures of legislation and re-
The Roles and Functions of the Team Approach

All EMR implementations use the committee or team approach. For the purpose of this article, the term team will be used. Clearly, the teams are arranged in a hierarchical pyramid-shaped manner. The executive steering team is composed of fewer members, who have the most power and can delegate complex tasks to the teams they command. The teams or committees that follow become larger as the roles and functions expand. Each subsequent team must address all of the issues; however, the level of complexity and accountability varies for each team. The following concepts are addressed by each EMR implementation team. Roles and functions can be assigned across team boundaries by reassignment of steps or assigning members to multiple teams.6 7

The Executive Steering Team
Scope and process
Technical assistance
Goals and measurable outcomes
Drivers

The Project Steering Team
Requirements analysis
Analysis of alternatives
Benefit-cost analysis
Return on investment analysis
Request for proposal

The Project Work Team
Project plan
Work-flow analysis
Roll-out
User training
Evaluation

Defining the number of teams and the roles of each team varies from enterprise to enterprise. One of the first steps of any implementation is to identify the teams that will be responsible for the above tasks.4 Implementations vary from enterprise to enterprise; however, a hierarchical team approach that reflects the multitier levels of responsibility and implementation tasks is a fairly common methodology that helps mitigate the risk of failure.5

The Executive Steering Team
The first team is the Executive Steering Team (EST) or the Strategic Team. This team has heard the rally of the physicians and has come together to initiate the vision. The EST is composed of the chief executive, chief financial, and chief information officers (CEO, CFO, CIO) and the medical director, depending on the structure of the organization. A consultant should be on the EST if the implementation has consulting dollars. Additionally, Burns identified legal counsel as a key element at this level.8 This team should be the first team in place. The EST is responsible for setting global enterprise policies within the enterprise and between enterprises in multi-institutional implementations.

Scope and process. It is the EST that must consider the multihospital, multi-institutional global relationships and financial implications as well as the capitated/managed care market.6 10 11 The EST commissions the development of the investment analysis. Clearly, the financial scale of the EMR investment must be established and appropriately reflect the size and complexity that differentiate the enterprise.12

Technical assistance. The EMR implementation is of an enormous magnitude with few individuals available who have successfully technically implemented the EMR on a large scale.13 According to Davis et al., there have been only 32 integrated delivery systems (IDSs) of the 341 surveyed that have implemented an enterprise-wide system in both inpatient and ambulatory areas.14 Another 65 IDSs have plans to implement either the inpatient or the ambulatory EMR. Davis et al. stated that by the end of 2000, fewer than 30% of IDSs will have implemented both an inpatient and an outpatient EMR.14 At this time IDS information technology initiatives continue to focus on the enterprise master patient index (EMPI) and clinical data repository (CDR) applications. The researchers cite barriers that account for the slowness in implementing the EMR, which are the financial tentativeness of our current IDS market and the immaturity of the enterprise applications.

The EST may find it wise to enlist a technical consultant to assist the CIO in assessing, developing, and planning technical needs of the enterprise. Many of the implementation protocols used by the other teams stem from these policy decisions. Getting the support of enterprise information technology (IT) professionals is crucial. The enterprise IT cohort is fundamental to the development of security and maintenance of policies and protocols.4

Goals and measurable outcomes. Among the key factors identified by Ladd is the creation of the preliminary Scope Statement that is derived from the information services (IS) goals and objectives, which
must be consistent with the enterprise mission and vision. The goals and outcomes must be quantifiable. The preliminary Scope Statement is a document that must be specific and is the formal basis of the Project Charter. The EST may develop this document or may delegate the responsibility of developing the Scope Statement to the next team in the hierarchy, the Project Steering Team.

The goals and outcomes are the foundation for the formative and summative data collection reflected in the preliminary Scope Statement. Data are gathered by the Project Steering and the Project Work Teams and periodically reported back to the EST.

Drivers. External forces that play a major role in driving the development and implementation of the EMR market are regulatory and accreditation requirements, administrative simplification legislation, clinical documentation requirements, evolving managed care guidelines, and healthcare consumerism. These forces are creating the market for the development and implementation of the EMR.

In 1991, the Institute of Medicine (IOM) Committee on Improving the Patient Record recommendations included the adoption of the computer-based record (CPR) as the standard for medical and all other records related to patient care. The Computer-based Patient Record Institute (CPR) was created to facilitate the national development and adoption of the CPR. Additionally, the IOM proposed the goal of putting the CPR into effect by announcing national standards for data and security. Today, CPR is a major force in driving the adoption of the EMR across the U.S.

The provisions of the 1996 Healthcare Insurance Portability and Accountability Act (HIPAA) required the Secretary of Health and Human Services to issue regulations by February 2000 if Congress failed to enact such legislation by August 1999. As a result of Congress’ inability to meet the provisions of the 1996 HIPAA, the nation is slowly moving forward on HIPAA actions. HIPAA is a tremendous force driving the development and adoption of EMRs and the defining standards that support them.

Among the major influences affecting the EMR is that significant resources will be required not only at the national level but also at the enterprise level. IT retooling will be needed whereby resources will be focused on operational and procedural changes, standards to guarantee the security of electronic data exchange, and other security and privacy regulations.

The Project Steering Team

The second team is the Project Steering Team, which is composed of the physician champions, IS members, a consultant, nurse champions, and an interface coder. According to Hanlon and Shaheen and Burns, the Project Steering Team should be composed of the physicians who believe they have ownership of the project and will 'champion' the project to the end. Burns expressed the view that physicians who have the right 'attitude' can, in essence, garner the support needed for a successful EMR implementation. Physicians are motivated by how the EMR can help them work more effectively.

Ladd emphasized the importance that the team members be carefully chosen on their skill sets for each phase of the implementation, interpersonal skills, and commitment to the project. The project manager is the key individual for a successful implementation. The manager fills three key functions: the management of resources, the management of expectations, and the project timelines. This individual needs to possess vision and global perspective. Frequently, a consultant experienced in EMR implementation is a wise choice for project manager.

Requirements analysis. According to Scarff, defining user requirements is an absolutely necessary step prior to sending out requests for proposals. Logan and Blackman developed a set of 233 questions designed to assist users in identifying functionality features that meet industry standards. These questions are available at http://medir.ohsu.edu/loganjw/CRP.html. Even when using the Logan and Blackman document as a baseline, establishing user requirements may take up to three months of intensive user interviews to establish all the user functionality needed of the EMR system. It is difficult for end users to articulate exactly what they want and need. If an existing system is in place, the Project Steering Team can use the existing functionality as a baseline. The resulting detailed list must be compiled and organized in a hierarchy of 'absolutely must have' to 'nice to have' functionality. Generally, a 3- or 5-point Likert-type scale is sufficient.

A User Requirement document is the outcome of this phase. The document includes functionality that is described as quantitatively as possible. Minimum performance standards need to be included. An integral part of the document is an accounting of the enterprise support infrastructure. It is important that deficiencies of staffing, space, hardware, software, communications, and network capacity be identified.

Plans to rectify infrastructure shortfall and their budgetary considerations need to be part of the document. Additionally, projections for necessary system capacity, system life, and expandability and extensibility need to be identified. Plans for data storage, user base, processor use, and communication protocols must also be documented. Issues of physical space need to be identified that relate to size of the
facility, electrical power, power back-up, cabling, wiring, air-conditioning, heating, and the safety and security of the equipment. Any modifications to the physical environment must be listed.

Once the document is prepared it should be reviewed, modified, and signed by all managers affected by the EMR system selection, senior management, and the strategic team. This process may result in revising the Scope Statement and enhancing the existing infrastructure to accommodate user requirements.

Benefit-cost analysis. According to Middleton, there is a Benefit-Cost Analysis Ratio of 5 to 3 ($250B/$150B) on Health Information Technology (HIT). In other words, for every $1 of expenditure on HIT, a savings of $1.67 can be expected. There are four major elements of a benefit-cost analysis.

The first element is the identification of assumptions and constraints as specific explicit statements that clarify the scope of possible fiscal components. According to the Centers for Disease Control, the second element is the identification and quantification of benefits and costs. This is quantification of the life cycle and associated expenses for the project. The EST is searching for the cost benefits of implementing the project to justify the expenditure. Without a significant quantification of the project benefits, the EST may not go forward with only a value justification that does not clearly provide quantifiable rationale.

The third element of the benefit-cost analysis is the evaluation of alternatives using net present value criterion. This method evaluates the project in terms of ranking the expected benefits against the discounted value of expected costs. The fourth element is the risk and sensitivity analysis that attempts to correct for uncertainty. This step identifies the existence of uncertainties that may need to be addressed and resolved. A sensitivity analysis is used to test the project’s net present value to changes in key assumptions.

Return on investment analysis. The return on investment analysis (ROI) is difficult to realize at the enterprise level with traditional methodologies of computing ROI that are not adequate in the clinical information arena. Clinical value is qualitatively different from financial and accounting systems. Healthcare CEOs and CFOs, who usually understand and relate to financial systems, express the need to cost-justify their HIT investment in accounting terms. Clinical technology, such as telemedicine and EMRs, is difficult to place in a quantitative calculation. As a result, CIOs are demonstrating HIT value as improvement in quality, customer services, and clinical processes that could not have occurred without HIT.

Vogel and Priebe compared the financial and clinical systems perspectives. The financial systems are in a controlled, predictable environment and involve retrospective processes that are usually conducted by clerical end users. Additionally, financial systems have fewer imposed guidelines and unknowns because they function within a limited set of rules and regulations. The financial systems function on a 5-day, 8-hour per day cycle with no life-threatening emergencies. On the other hand, Vogel pointed out that clinical systems have to capture an unpredictable environment with multiple concurrent processes for the professional end user. Multiple rules and regulations and scientific knowledge bases control or influence the system on a 24-hour 7-days-a-week activity schedule where emergencies are common. It is no wonder that CEOs and CFOs who are educated and deal in a world of predictability and stable absolutes have difficulty understanding the intrinsic and extrinsic benefits of a computerized tool that can organize chaos.

Value is difficult to define and to quantify because it cannot be calculated, only demonstrated as improvements in (1) outcomes, (2) risk management, (3) provider time savings, (4) clinical processes, (5) provider-patient satisfaction, (6) access to information, (7) accuracy of medication administration, (8) decision support, (9) patient flow, (10) legal/regulatory compliance, (11) physician benchmarking, and (12) case management. Additionally, Vogel identified common sense justifications of clinical systems that (1) save time, (2) save money, (3) improve quality of care, (4) improve reimbursement, (5) decrease malpractice risk, (6) understand current outcomes, (7) change current practices, and (8) maintain a competitive edge.

Priebe developed the Quality, Time, Money, and Strategy (QTMS) method as a matrix tool to mitigate the extensive difficulties in determining ROI for clinical systems. Priebe devised a 3-point scale (-1, 0, +1) that can be used to evaluate any aspect of the EMR implementation at any point during the implementation using the QTMS matrix. Periodic reporting and evaluating of ROI as the implementation progresses is important, and a simple tool facilitates this process.

Angelocci et al. and Reeder identified extensive benefits/improvements for the patient, physician, and payor. The patient benefit categories are continuity of care, time-savings and convenience, safety, improved outcomes, preventive health guidelines, patient education, and improved access to physicians. The type of physician benefit categories include improved support tools, time savings, increased profitability, management of managed care, use of midlevel providers, improved satisfaction in practicing medicine, improved physician adherence to guidelines, enhanced pharmacology in practice, and future
online communication with patients and other physicians. Payors benefit include physician adherence to guidelines, drug formulary use, reduced per-member per-month costs, cleaner claim forms, reduced audit costs, improved tracking, and credentialing.

Despite the difficulty of quantifying HIT investment with traditional ROI methodologies, Anderson insisted that delaying clinical information system (CIS) implementation would place the institution at a distinct disadvantage in the competitive healthcare market. The author’s research indicated that there are four actual ROI factors for CIS. These are reduced labor and benefit costs, reduced unnecessary and duplicate order cost, improved charge capture, and reduced clinical protocol costs.

Request for proposal. According to Welebob the purpose of the request for proposal (RFP) is to compare and contrast vendors and their EMR systems.

The previously prepared Request for Information (RFI) and User Requirement documents form the informational structure of the RFP. There are specific components that must be included in the RFP. Typically, all RFIs include introducing the enterprise and their vital statistics, current enterprise IS systems, required interfaces, needed instructions, and dates for completing the RFP. Many enterprise IS departments have their own standard format. A well-thought-out vendor questionnaire is included, along with system and technical requirements based on the User Requirement document. Additionally, a cost schedule, implementation support and timetable, and training and post-live support information are important to request. An easy-to-follow format facilitates vendor response and enterprise analysis.

During the preparation of the vendor’s response, the vendors may contact the project manager for additional information. The manager should record the vendor, the contact person, and the topics discussed. This information may be useful later in the selection process.

When the RFIs are returned by the vendors, the Project Steering Team will prepare a parallel document to the RFP. This document is designed to facilitate the evaluation of the various vendor proposals. The Project Steering Team must narrow the vendors to a manageable number and present the list and the final document to the strategic team for their approval.

According to Welebob, to facilitate the evaluation process, Project Steering Team members should develop a weighted evaluation that aids in the objective evaluation of the vendors capabilities to meet the enterprise needs. Vendors’ responses need to be analyzed and compared to other vendors and results summarized for the strategic team. A database can facilitate this process.

The Project Steering Team will prepare the RFP Evaluation document that will begin with an executive summary followed by the RFP evaluation items and each vendor’s score and a cost summary analysis. The Project Steering team will submit the vendor finalist, summary matrix, vendor references, and IS market matrix.

Hanlon and Shaheen stated that the system administrator needs to be appointed with sufficient time to allocate to the project. This is the position that an outside consultant experienced in EMR implementation can assume. Although an outside consultant is expensive, the consultant is 100% on the project and not spread thin among multiple duties and in-house political games.

The Project Work Team

According to Barnes and Endicot-Sullivan, the third team is the Project Work Team, or the roll-out team, whose responsibilities include bringing the EMR to the users of the enterprise. The Project Work Team is usually composed of the vendor, implementation team, trainers, and the superusers. This team accepts the configured product and the policies and procedures that are handed off to them. Their concerns focus on the adherence to security policies, training, user interface, testing, and pilot implementation. This team needs to be identified early in the timeline and its input solicited in the planning phase.

The Project Work Team is responsible for the actual selection and implementation of the EMR product within the enterprise. As with any successful implementation, there are domains within the healthcare system that must be assessed and evaluated. These domains are the enterprise infrastructure, the physical hardware, the depth of previous software implementation, the organizational structures and processes, and the level of practitioner use. Other issues that the team must address and that can be categorized into the domains are locations of care, care specialties, patient care efficacy, and technical components (i.e., clinical data repository, security, patient identifier, medical lexicon, work-flow analysis, notifications, messaging, clinical protocols, legacy systems, multiple data formats, and data quality).

According to Roman, prior planning is the hallmark of the Project Work Team whereby goals and objectives, process analysis, and communication processes are established. A thorough cognitive walkthrough of the clinical and business procedures, the needed interfaces, and the computer system architecture is needed. This should be done prior to vendor selection to maximize the selection process. Input from multiple sources within the enterprise is needed to capture all needs and expectations of the system and to facilitate ‘buy-in’ of those who are expected
to use the system. Additionally, all evaluation tools should be drafted early in the process and reviewed by each team member. This gives the team time to think through all the processes and edit the documents as ideas surface and prevents time crunches when the team is forced to develop tools that are not adequate because they are rushed.

According to Keshavjee et al., site selection is an important feature of the EMR implementation if the implementation is to be conducted in the ambulatory setting or if there is a choice of in-house units to select from. The team needs to conduct on-site interviews to assess the site's physical and human resources and emotional ability to support an EMR. Technical members of the team should assess the physical layout and the hardware and cabling needs. Other team members should pay close attention to the unit or office dynamics. Difficult physicians and office staff have the potential to ruin an implementation.

Project plan. After site selection and the cognitive walk-throughs are finished, the project plan can be finalized. The written project plan is composed of goals and objectives, a scope, assumptions, key players, user requirements, technical requirements and major milestones and timeline of the project. The project plan must have all the steps identified in the order that they must occur for a smooth and orderly project with adequate time allocations for each step. The vendor, enterprise senior managers, and physicians must be included in this process because these documents blend the human resource components into a 'buy-in' document.

Work-flow analysis. According to Mayor, work-flow analysis is the next major step of the Project Steering team once the project plan has been approved. One mistake that system administrators tend to make is the focus on system configuration rather than work flow. Failure to adequately consider the end user and her needs can defeat the project. Work flows with end user needs analysis determine user satisfaction, which, in turn, determine project success.

Protocol decision making based on clinical work flows constitutes a large part of the cognitive labor of the Project Work Team. Oates discussed the need to establish protocols or policies and procedures to deal with a variety of issues. Among such issues that each implementation unit must address are how to handle (1) patient, lab, physician, nurse, telephone, and e-mail messages; (2) chart abstraction/retirement; (3) duplicate charts; (4) clinician documentation; (5) incoming and outgoing paper correspondence and reports; (6) electronic data interchange (EDI); (7) photographs; (8) managed care referral forms; (9) prescription services; and (10) legal back-up documentation. Clearly, the Project Steering Team must set up weekly meetings with the staff to discuss how to handle all the issues of the work flow. The resulting decision must be organized and processed into a policy and procedure manual.

User Interface

Driven by the specific EMR attributes, the user interface is addressed. Mayor stated that the workflow analysis conducted by the Project Work Team is translated to a paper specification and used in soliciting needs and desires from the end user to develop the user interface. This is a tedious process that requires multiple iterations until the end user has determined all her needs and is pleased with the product. Changing the user interface after 'Go-Live' has repercussions related to the lexicon and database depending on the flexibility of the EMR and the database architecture. Consequently, Mayor and Joseph practice user interface development over an extended time period so that the end user has sufficient time to think through the processes and has the opportunity to manipulate the user interface with a single-user version of the EMR that is not tied to a database.

The Project Work Team must have an adequate number of knowledgeable technical members. The technical members of the Project Work Team are responsible for testing the system configuration and data migration. All glitches need to be identified and remedied prior to the Go-Live.

Additionally, the Project Work Team is responsible for the Go-Live experience. Attention to detail and organization are the hallmarks of the Go-Live process. Enterprise staff must be able to relinquish other responsibilities, and the vendor must be present during Go-Live. Each team member needs to be armed with protocols and configuration data. Cell phones or two-way radios are helpful for instant team communication. Lessons learned should be the focus of the Post-Go-Live wrap-up.

User training. According to Barnes and Endicott-Sullivan the Project Work Team has the responsibility to provide user training. After work-flow analysis has taken place and decisions regarding the user interface have been determined, training must begin. Superuser and system administrator training is initiated first. Training is done on two levels, system administrator and end user. System administrator training is for those enterprise Information System (IS) staff and clinical staff who will be responsible for system configuration. Again, work-flow and user analysis are key to a good system configuration because system administrators must understand the enterprise work processes and the functions of various physician and staff roles as well as the functions and
limitations of the EMR system. Security issues are paramount in system configuration.

Training educators should be brought into the project at the beginning of the project to ensure timely and proficient training. All staff members using the EMR once the Go-Live date is determined must have hands-on training. The end user needs to feel comfortable with the system and have adequate documentation available to them. Keshavjee et al. pointed out that the enterprise needs to make sure that the end users have a sufficient amount of uninterrupted time in training sessions. Structured and unstructured practice sessions should be mandatory.

Additionally, Keshavjee et al. pointed out that in planning training the team should expect that some of the potential end users may not have enough computer skills to use a mouse or may be slow to understand the user interface and that some end users may be disruptive to the process. These individuals should be identified early so that their special needs can be addressed individually and over a period of time that enables them to develop the computer skills necessary to navigate the EMR.

Roll-out. According to Mayor, the third team has the option of planning the roll-out of the product by either a shotgun approach (all at one time) or a phased roll-out. Roll-out methodology must be decided upon early in the project. Hanlon and Shaheen voiced support for the phased roll-out particularly in a large multifacility, multispecialty enterprise. This allows for problem identification and problem resolution to be handled on a smaller scale and the resolutions and lessons learned applied to the subsequent implementation phases. According to Mayor, the pilot or initial sites that are being rolled out should be done in the physician champion’s offices or on the units their patients populate. Physician champions are more likely to be tolerant of initial problems. The EMR roll-out is more likely to be received positively by the rest of the enterprise if there is good press by the first roll-out sites. Mayor added that it is helpful to use demographically different sites to roll-out at the same time either in a pilot or as the first sites in a phased roll-out. This gives the team more implementation, logistic, and problem resolution data that will help in the remainder of the roll-out.

Evaluation. Methods for measurement and feedback are necessary once the EMR system is in place. Use the directives from both the EST and the Project Steering team to design a measurement tool that collects the data the teams request. Since the Project Work Team is with the physicians and staff in the day-to-day roll out of the EMR, it is reasonable for them to conduct data gathering at key points along the implementation process. Fact-based reporting is the basis to evaluate goal attainment and to schedule future maintenance, timelines, and feedback on user performance.

CONCLUSIONS

Clearly, the EMR implementation teams must rely upon the driving forces of our society that will bring the enterprise decision makers to accept the EMR as a standard practice tool. The organizations that do not adopt the EMR will be at a tremendous disadvantage to remaining viable in a highly competitive healthcare market. Implementation teams must plan for future regulatory standards by the federal government that will change over time. Additionally, the implementation teams continually address the demands that insurance companies make for specific information that must be collected in individual and aggregate form. Data capture, storage manipulation, and retrieval will be the cornerstone of the future. Data quality will be scrutinized by researchers and reimbursing agencies. The EMR system must be flexible to adapt to evolving standards and regulatory requirements imposed by federal and state legislation and regulations and insurance reimbursement requirements.

While medical decision support is in its infancy, EMR implementation teams must encourage future physicians to explore the use of support systems due to the litigious nature of our society. The EMR implementation teams must assist their enterprise in accepting the EMR as a major tool in practicing defensive medicine. Physician credentialing and peer review will be dependent upon adherence to decision-support systems and the quality of documentation when the support system is not followed.

As our current health providers age and retire other computer savvy providers enter the medical field. In 2025 we will look back at our technology issues and wonder why did it take so long. Implementation teams of tomorrow will not face the resisting forces of today’s enterprises but will strive to keep up with the healthcare provider’s demand on information technology.

REFERENCES


34. Joseph K. Why integration is key to ambulatory care systems. Proceedings from Toward an Electronic

Elizabeth Souther, PhD, has been in healthcare for more than 25 years. She has taught nursing for 16 years. This article represents the insights she was given during her practicum experience while a student at the University of Texas School of Allied Health, Health Informatics Program.

*Address for correspondence*: Elizabeth Souther, PhD, 2026 Woodland Springs, Houston, TX 77077.