



A Framework for Evaluating Electronic Health Records

Guidelines for the Full Application for the Davies Recognition Program Organizational Healthcare

Revised January 2010

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Step 2. Full Application

Organizations submitting Threshold Applications will be contacted by phone with the Review Committee’s decision on whether or not they will be invited to complete a Full Application, and provided feedback. After receiving notification, the organization may proceed with the preparation of the Full Application. All organizations preparing a Full Application should review previous Davies applications on the [HIMSS Davies Web site](#).

The Full Application should be at least 15 pages and must not exceed 30 pages in length, including graphics, and a maximum of five pages for appendices. It is suggested that at least 50 percent of the pages submitted be focused on the “Value” section. Applications exceeding 35 pages (30 pages, plus five pages for appendices) will not be accepted. The application should be submitted as a PDF in Times New Roman 12-point font. Margins shall be no less than one inch with page numbers on all but first page. The application should augment but not repeat the information in the Threshold Application, including illustrations and graphics. Include all information needed to respond to the questions within the pertinent section and subheading.

A list (bibliography) of published references supporting important points in the application may be included within the Appendix. These references may be peer- or non-peer reviewed published articles. They may also be documents published within the organization.

A CD containing an electronic copy of the Full Application should be received by Ms. Pat Johnson at 230 E. Ohio Street, Suite 500, Chicago, IL, 60611-3270 and an e-mailed copy sent to David Collins, dcollins@himss.org, by **Friday, May 28, 5pET**. All applicants will be notified of results by **mid-July**.

Organizational Davies Full Application

The content of the application is organized into four sections:

1. Management. The organizational aspects of EHR implementation: strategy, planning, project management and governance.
2. Functionality. The capabilities the EHR delivers to meet the needs of users and the objectives of the organization.
3. Technology. Technical design and architecture that enable the EHR to deliver the required functionality and performance.
4. Value. The benefit to the organization, caregivers and patients from implementing the EHR.



Management

Successful introduction and use of EHR systems requires developing a strategy, providing leadership, engaging widespread support and proactively managing throughout the planning, implementation and ongoing operation. This section addresses how the healthcare organization manages these important requirements.

1. EHR System Planning

Assess the planning process for the EHR system: the relationship between system planning and the business strategy of the healthcare organization and the business case used to justify and guide the investment.

a. Organization Strategic Goals & Objectives

Identify the strategic goals and objectives for the organization and describe how they guided the vision, goals and objectives for the EHR. Organization entities discussed should match the Facilities Table in Appendix 1 of the **Threshold Application**.

b. EHR Vision, Goals & Objectives

State the vision for the EHR system. Describe how the vision was developed, reviewed and accepted. List the EHR project goals and objectives. Illustrate the relationship of these goals and objectives to the organization's strategic goals and objectives. Define the measures to be used to determine the achievement of the objectives.

c. Leadership & Governance

Describe how the governing board(s) and executives of the organization defined, guided and supported the EHR system project. Describe the EHR project leadership team, including discussion of clinical leadership, e.g., the CMIO. Include an EHR project organization chart during planning phase. Include description of any groups or committees that oversee EHR features (such as decision support) and content (such as rules, order sets, note templates, etc.).

d. Key Stakeholder Involvement

Discuss how key stakeholders were identified. Identify key stakeholder groups. Define the involvement of key stakeholder groups (particularly physicians) in planning for the EHR system. Describe the process for gaining agreement/consensus among stakeholders.

e. Needs Identification & System Acquisition

Describe how the organization defined its needs/functional requirements for an EHR. Outline how the organization acquired and/or built an EHR system to meet those identified needs/functional requirements and to achieve the value and results desired by the organization. Describe the decision-making process used in acquiring the EHR system.



f. Business Case

Explain how the organization justified the investment in the EHR system. Include a description of any return-on-investment (ROI) models used with projected costs (one time and ongoing) and benefits.

Other benefits could be clinical and financial and should have qualitative or quantitative measures of success. (These should be referred to in the Value section of this application to demonstrate how the organization met identified metrics with the EHR implementation.)

g. Marketing and Communications

Explain how the EHR project vision, goals, objectives and progress were communicated and marketed to stakeholders during the planning and implementation phase. Outline any formal communications plan.

h. Project Risk Management

Discuss how the organization identified the risks of implementing the EHR. Describe how the organization monitored, mitigated and managed those risks. Describe any risks that were not mitigated in the lesson learned Section 4 below.

2. EHR System Implementation

Assess the approach to implementation of the EHR system.

a. Implementation Planning

Explain how the organization planned for the implementation of the EHR system. Describe how the organization identified the phases and roll-out schedule. Describe the implementation phases. Compare the projected schedule with the actual implementation timeline. Clearly identify any pilot phases.

b. Implementation Staffing

Describe how the organization planned to staff the implementation of the EHR system. Include an EHR project organization chart for the implementation phase (if different from the planning phase.) Share any strategies utilized to minimize disruptions to patient care during the implementation. Include any data that illustrates planned compared to actual staffing during implementation.

c. Training and Support During Implementation

Relate the overall strategy and approach to training and support of users during implementation. Discuss how training time was minimized and user competency was maximized. Elaborate on any methods used to target specific user groups (especially



physicians). Outline successes and challenges in gaining broad participation in training. Describe how the organization measured training effectiveness.

3. Ongoing Operation of the EHR System

Assess the management of ongoing operation of the EHR system.

a. Management Policies & Procedures

Summarize changes to policies and procedures needed to support the EHR data capture and management. Describe how these changes were developed and managed within the process of the implementation.

b. Impact on Operations

Communicate the organization's success in incorporating the EHR system into routine operations such that users are able to use the system proficiently and effectively in providing care.

c. Approach to Remaining Paper Medical Record

Identify any remaining portions of the medical record that are maintained on paper during or after the patient encounter. Discuss the organization's approach to ongoing management of any remaining paper medical records (e.g., replace paper totally or incrementally, scan paper document, provide sufficient information online to meet most routine needs). Address the clinical workflow related to any hybrid record environment. For scanning that supplements electronic documentation, address the organizations paper retention processes, and the filing of scanned documents in the EHR to facilitate *single-point access* to any given document type.

d. Ongoing Planning

Describe the organization's ongoing planning process that guides resource allocation and decision-making for the EHR system. Include how the organization assures that new or modified organizational strategies are incorporated into EHR system planning. Discuss the process for evaluating and incorporating emerging technologies and new knowledge regarding best practices in EHR system use.

e. Ongoing User Support

Describe how the organization supports EHR system users post-implementation. Include the process for handling requests for changes and enhancements.

Describe how the organization provides ongoing support for users, including types of support provided (phone, remote access, etc.) and the hours of availability. In addition, describe how the organization deals with the infrequent physician user.

f. Ongoing User Training



Delineate the organization’s approach to ongoing user training, including training for new system users, training on enhancements and training for software version upgrades.

4. Challenges and Lessons Learned

Identify the challenges and lessons learned during the implementation of the EHR system. Include successful and not-so-successful strategies utilized. Give clear examples of areas where the organization evaluated the effort and chose a new path to achieve success. Include those areas where “we wish we had known that from the beginning” of the project. Describe any unintended consequences, positive or negative, resulting from the system implementation, including impact on quality and safety.

Functionality

Given the strategic objectives of the organization and the business case outlined above, the functionality of an EHR system must support patient care, management, reporting and other key processes of the organization. This section addresses the need for information and process support that the EHR system is intended to meet and how the EHR system is designed to meet it. This section also addresses the extent to which users and other customers of the EHR system adapted to the new computerized workflow processes. Not all functional areas may be equally important to an individual organization’s strategic objectives or business case.

1. Targeted Processes

a. Processes

Describe quality, efficiency or reliability gains of the specific processes identified in Process Automation Section (fourth page) of the **Threshold Application** (these may be clinical, administrative or financial processes). For each of these processes, indicate to which EHR project goal in the management section it relates, which EHR functions were intended to support it and how the changes were to be measured. If the EHR system is still being phased in or evolved, differentiate the current process(es) from the eventual processes or options.

b. Provider Roles

Describe the role of physicians and other caregivers in designing the process changes and in defining the EHR system functions needed to enable the change. Describe the partnership between clinicians and IT, specifically where it impacts leadership roles in EHR implementation.

c. Overall Staff Response

Elaborate on the response of the organization to the change in work processes. Discuss how well the staff adapted to the EHR system functionality.



2. Information Access

Describe the extent to which information managed by the EHR system meets critical organizational needs.

a. Comprehensive Data

Refer to the Information Flow graphic in Appendix 3 of the **Threshold Application** and narrative submitted in Section 4 of the **Threshold Application**. Describe the extent to which the EHR system captures the data necessary for a longitudinal healthcare record (i.e., continuous lifetime record) from multiple systems. Describe any data that is needed by the clinician that does not presently reside in the EHR system and how that data is accessed.

b. Data Capture

Discuss data capture from the point of care and from other sources. This should include a description of the means whereby patient data are captured, including data collected/generated by health care professionals and patients, interfaces and linkages with external systems. Elaborate on areas addressed by the Self-Evaluation Forms in Appendix 5 included in the **Threshold Application**, including:

1. Data entered directly by users, including healthcare professionals. Describe any system features geared to the ease and speed of data entry.
 - a. Describe CPOE and real-time rules to reduce errors and improve quality.
 - b. What orders are not entered through CPOE and how are they entered?
 - c. Care Documentation entry by physicians, nurses and other providers. How does the organization assess, plan, and document care?
 - d. Describe any methods for capturing data from providers other than typing, such as dictation, voice capture and natural language processing.
 - e. Describe how medication administration and reconciliation is handled to comply with best practice and regulatory standards. Address overall medication management, methods of documenting medication administration and if the organization has achieved a closed loop medication process.
2. Data from other sources, including:
 - a. External information systems (i.e., ancillary/support systems not provided by primary vendor)
 - b. Devices (medication dispensing devices, IV infusion pumps, vital sign devices and monitors, bar codes, etc.). Describe any automated biomedical device interfacing for point of care data capture.
 - c. Describe any data capture directly from patient.

c. Information Availability and Ease of Access

Building on the Applications Implemented Table included in Appendix 2 of the **Threshold Application**, describe the extent to which data are integrated across sites of care and can be assembled to support care management.



Describe the availability of the EHR system in relevant healthcare provider organizations (e.g., hospital, practitioner office, clinic, ED, etc.) and whether providers have access to all relevant patient encounters.

Describe how the data from multiple organizations are aggregated or integrated to provide a seamless view of the patient's record.

Describe how necessary data is available to allow orders to be placed safely.

Describe how patients are identified, how data is compiled and accessed from various setting of care.

It is assumed that all sites and all major patient care systems are part of the single EMPI; please confirm as such, or identify any exceptions.

3. Decision Support

Describe the extent to which the EHR system provides tools for supporting clinical decisions at the point of care and for improving clinical practice and care delivery. The mix and specifics of decision support capabilities may differ according to the setting and organizational objectives. Where relevant within each of the topic areas below, include system support for ensuring and improving the accuracy, completeness and usefulness of patient data captured by the EHR system (e.g., editing, defaults, guided choices, templates, etc.)

a. Tailored Information Integration

Illustrate how the system facilitates access to patient specific information in the way that users need for review and use in specific patient care situations. Include features that combine, integrate, and format patient specific information (within the core EHR or interfaced systems) in displays tailored to particular user groups (e.g., practitioner, clinic receptionist, case manager, community health nurse, clinical psychologist) and patient care situations (e.g., follow-up visit with patient in a disease management program, nurse triage, routine physical examination, specialist consultation follow-up).

b. Decision Support

Describe the features that alert users to possible indications or contraindications for specific interventions during the CPOE or other processes. Refer to the CDS Table included in Appendix 4 of the **Threshold Application**. These may be prompts, alerts, rules, medication algorithms or other system features that are presented when the order is generated. Include medication-related interaction and dosage checking, duplicate checking, substitute therapy checks, display of linked appropriateness criteria, rules-based alerts (e.g., triggered by new laboratory results on renal function). Describe the organization's approach to deciding which of these decision support categories, and



specific rules within each category, are made available for use during CPOE. Describe any monitoring of the frequency with which decision support tools are used, and whether prompts are overridden or accepted by ordering clinicians.

c. **Order/Clinical Practice Standardization**

Discuss the system features that guide users to incorporate recommended practices in patient assessments and care plans and to enter complete orders and documentation. Include features such as branching assessments or assessments that are triggered by patient condition, order and note templates, order sets, clinical pathways, time-based care plans based on risk or population group (e.g., patient with newly diagnosed diabetes or high-risk CHF), common choices (provider and departmental) and provider favorites. Indicate prompts and alerts that occur during the assessment process and any type of treatment recommendations generated by assessments. Where preferred treatment algorithms are defined, show how these are implemented, how patient progress is assessed and how variance from standard treatment is monitored.

4. Workflow and Communications

a. **Provider Communications**

Discuss the capabilities of the EHR system designed to facilitate communication among personnel participating in the care delivery process, including patients. Describe ways in which they support the clinical workflow.

Include any functions that support hand-offs (sign-out systems) among entities, care teams care professionals, and cross-facility communication in general. Describe any communications issues that have emerged from the use of the EHR rather than paper reminders. Discuss electronic communication between care providers and patients, if relevant.

b. **Knowledge Access**

Explain the system features that provide clinicians with easy access to relevant (context sensitive) institutional and external knowledge, such as policies, clinical guidelines and the latest clinical research.

c. **Patient Decision Support**

Describe the system features that support collaborative decision making about options and approaches for health management, coaching/teaching by caregivers and patient self-management tracking tools outside of the face-to-face encounter.

5. Data Sharing with Other Organizations and Patients

5.1. **Data Sharing with External Organizations**



- a. Describe data exchange with external (non-owned) organizations that contribute to a longitudinal view of patient's medical record, including other hospitals, providers, labs, testing centers, long-term care, etc.
 - b. Describe participation in any regional or state health information exchanges.
- 5.2. Data Sharing for Population Analysis and Reporting
- a. Describe data sharing for federal agencies, public health reporting, bioterrorism surveillance, quality monitoring and clinical trials.
- 5.3. Data Sharing with Patients
- a. Describe any data sharing with patients, including access to the organization's portal for appointments, prescription refills, pre-visit health questionnaires, registration, education, etc. Include ability to communicate data to their personal health record (PHR). Include any capability of patients to input data into the EHR.
 - b. Describe any monitoring of live-feed data from the homes of the patient to inform clinicians and/or family members about medications, ambulation, consumption and other actions of daily living.
 - c. Describe any device feeds to report patients' physiological status to physicians and monitoring centers.

6. Secondary Uses of EHR Data

Describe the extent to which the data gathered from the EHR at the patient level or in the aggregate can help improve operations, identify beneficial health practices, influence patient care and support population health and clinical research.

a. Administrative Uses

Discuss which administrative and financial management functions, such as quality assurance, patient accounting, managed care and cost accounting, are integrated with or supported by the EHR system.

b. Clinical Data Acquisition

Describe which data in the EHR is available in discrete data elements that the organization is able to report against.

Are reports easily available to physicians and other caregivers; to local or organizational committees working on patient safety or quality improvement; and to organization management/clinical leadership?

Describe the system features and tools for extracting and aggregating patient information for purposes such as practice analysis/improvement, population-based care, community wellness assessment, quality assurance, research and external performance "report cards" (e.g., NCQA HEDIS, The Joint Commission, FDA, CDC, Core Measures, PQRI, state requirements).



c. Patient Safety

Indicate if the system supports the organization's processes to reduce medical errors and improve the overall quality of patient care.

6.1. Research

Relate how the EHR system supports research and education, clinical trials, epidemiological surveillance, technology assessment and linkages to larger, multi-institution research and evaluation databases.

Technology

The technology employed in the EHR system affects the ability to meet users' functional needs, the flexibility to evolve, the ability to provide reliable and responsive support to patient care, and the resources that must be invested to acquire and maintain the system. This section addresses specific technologies and how they are integrated with each other and with external systems. More importantly, it addresses the ability of the EHR technology to support business requirements and to deliver the required functionality and performance to the organization.

1. Scope and Design of EHR System

Describe the scope and technical design of the EHR system, including software applications and tools used to implement and operate the system.

a. System Description

Provide an overall description of the EHR system, including hardware, database management, data input technologies, linkages with external systems and databases, image processing and storage, etc. Describe use and experience with portable and wireless point-of-care devices.

b. Application Design

Discuss whether any given patient that presents to multiple facilities within an enterprise has their data in a single clinical data repository (CDR) or multiple linked CDRs. If the latter, describe the linkages and how clinicians access data from different facilities.

c. System Architecture

Describe the system architecture and the underlying rationale for its selection, including the approach to data storage (e.g., central vs. distributed).

d. Interoperability

Explain the approach to integrating the EHR system with other current systems within the healthcare organization, as well as those owned and operated by external parties. Document the approaches to enabling integration of patient information of all types and



from multiple care settings so that users can effectively manage patients care across the continuum of care.

e. Customization/Optimization

Describe the organization's rationale used for making design tradeoffs between standardization and flexibility, between general and setting-specific solutions.

f. Scalability

Explain the organization's approach to ensuring that the EHR system can be scaled up or down (e.g., physical access, applications, growth of the healthcare business) without compromising functionality, performance and integration.

g. Emerging Technologies

State the organization's strategy and approach to ensuring that the system can accommodate emerging technologies and innovations in medical technology. Describe the rationale and process employed for updating technology to maximize the value of the EHR system for users and minimize disruption during transition.

h. Data Warehouse

List the architecture of any clinical data warehouse, the periodicity of extraction from the primary repository, and data stewardship and standards associated with such repositories. Describe the co-location of financial, research and clinical data in an enterprise data warehouse, if your institution has one.

2. Security and Data Integrity

Describe the strategy and approaches for managing, maintaining and enabling audits of system security, data confidentiality and data integrity in support of the standards and business objectives of the healthcare organization. Compliance with HIPAA security and privacy requirements should be addressed.

a. Security/Confidentiality and HIPAA Compliance

Identify technologies and design features employed to secure and protect access to confidential patient data and to ensure accountability for user updates and access. Discuss how the organization maintains a balance between system security/patient confidentiality and providers' access to patient information. Show evidence that the EHR system provides adequate protection against unauthorized and inappropriate data access and entry. Include a description of relevant policies and procedures geared toward leveraging system security features and meeting the needs of the healthcare organization. Include processes for user education, monitoring and enforcement. Indicate whether all clinicians are covered by these policies of education, monitoring and enforcement. Describe any



efforts made for specific patient populations, e.g., psychiatric, over and above the normal security provisions.

b. Data Quality and Integrity

Present the system design features that ensure the reliable collection of complete and accurate data in a timely fashion. Give an overview of the relevant policies and procedures relating to data capture and management. Outline technologies and design features employed to ensure data integrity, including those used to restore data integrity once a problem has been detected. Describe the process and elapsed downtime to accomplish recovery.

c. System Integrity and Disaster Recovery

Describe the technologies and features employed to ensure system integrity and restore it when hardware or software components fail. Show evidence that the EHR system is adequately protected from accidental or deliberate loss or destruction of data. Describe the backup systems in place to minimize interruptions in system availability, and the process and elapsed down time for recovery in the event of system failure. Indicate specifically the Recovery Point Objective and the Recovery Time Objective for the significant systems. Describe any parallel technical or paper systems used for scheduled and unscheduled downtime; specifically address the time before any paper system is available and the process followed for updating the electronic record after the downtime.

d. Data Archiving and Storage

Explain the extent and manner in which the EHR system design and policies and procedures meet legal requirements concerning the longevity and indelibility of patient record information. Describe how patient records are made available to surveyors and outside parties (such as legal bodies and courts of law) when subpoenaed.

3. Standards

Describe the adoption of standards to facilitate data standardization and data sharing within the health care organization and with external organizations and parties.

a. Common User Interface Standards

Indicate the extent to which the EHR system has achieved a consistent user interface, including in different physical locations and entities within the healthcare organization.

b. Data Model

Document the data modeling methodology and approach to defining, standardizing and maintaining data definitions. Describe any efforts made to standardize terminology between sites and providers. If any software tools have been used, describe the functionality and vendor. Describe any data dictionaries and rules engine in terms of the scope of the EHR database it supports.



c. Standards

Describe the extent to which the EHR system adopts industry and professionally developed interoperability standards to ensure consistency in documents and data; and to permit electronic data to be exchanged among systems.

- 1) Describe use of standards for data exchange, including use of base data exchange and data standards, such as HL7, DICOM, LOINC, SNOMED or composite standards such as IHE and NCPDP.
- 2) Describe any use of document standards—HL7 Clinical Document Architecture (CDA), including Continuity of Care Document (CCD), lab reports, etc.
- 3) Describe any plans for use of Healthcare Information Technology Standards Panel (HITSP) interoperability specifications or capabilities.
- 4) Describe any electronic communications with payors and the use of ANSI ASC X12 transactions.

4. Performance

Assess how the technology for the EHR system has supported its end-users such that it 1.) ensures that the EHR system meets desired levels of performance necessary to support key users and business processes on a reliable, sustained basis; and 2.) supports advances in technology and growth and organizational changes in the business of the healthcare organization.

a. Availability

Describe how the EHR system is accessed for direct patient care functions whenever and wherever it is needed. Summarize steps taken to minimize downtime and not adversely affect patient care. Provide actual uptime performance and scheduled and unscheduled downtime as precisely as possible. Describe both physical on-site access, as well as remote-access technologies for both direct care providers and referring physicians.

b. Response Time

Give system response time for meeting data entry and retrieval requirements of direct patient care processes for physicians and other providers at peak usage periods. Provide actual results and discuss physician feedback and satisfaction with response times.

c. Continuity Planning

Give an overview of the organization's operational plans for access to patient information and provision of uninterrupted patient care in the event that the system becomes unavailable due to a failure, such as a network outage.

d. Service Level Agreements



Describe the commitment to the consistent and reliable operation of the EHR system by IT staff. Summarize any the standards set in service level agreements and compare to actual performance.

Value

- 1. Documenting the actual value of the EHR system serves several important purposes:**
 - a. The investments in system components and implementation are huge. Consequently, many organizations set very explicit expectations for the implemented system in terms of its impact on overall quality improvement. Important areas to consider include patient safety, effective care delivery, patient care efficiency, clinician efficiency, regulatory compliance, user satisfaction, access to care, equity in care, ROI and other strategic objectives. The ability to understand and articulate actual progress is important to justify the investment to those who funded it and to obtain funding and approval for pushing ahead. It takes years to achieve the maximum benefit from such an investment.
 - i. The value section should highlight the initial benefits derived, the metrics and methodology which have been chosen to evaluate these benefits and the plans for future measurement of improvements and ROI.
 - b. For those managing the project, a clear understanding regarding the results actually achieved can be extremely useful as a checkpoint to verify the success of implementation (both during pilot implementations and full-scale roll-outs), to guide expectations for further rollout within the organization and to indicate opportunities for increasing value through enhancements to capabilities and fine-tuning the implementation strategy.
 - c. Implementing an EHR is a community effort, requiring extra work and energy from virtually every employee of the organization.
 - i. Publicizing and celebrating EHR achievements validates the accomplishments of individuals and the community as a whole. Describe any of these activities and efforts.
 - d. The EHR projects that have had the greatest influence on the healthcare industry have communicated their experience with achieving value from their EHR projects by providing detailed analyses of both the resources expended and return gained from their project.
 - e. Provide any updates addressed from the Threshold Section 10, Meaningful Use.

For all of these reasons, demonstrated value is an important and required element of a successful EHR implementation in the Davies Awards Program. This section addresses the value achieved in terms of meeting objectives for the system and in bringing about the desired change in processes.



2. Success in Meeting Expectations of the Project Goals, Objectives and Business Case

The value proposition for each EHR project logically flows from the strategic objectives and justification and this is the appropriate framework for presenting evidence of success.

Organizations take different approaches in framing the value proposition or business case. Some who expect impacts that can be dollar-quantified perform a cost-benefit analysis comparing the EHR-supported process with a paper-based one or examine the ROI. However, the EHR system is increasingly viewed as a strategic investment with many objectives that are difficult to measure or express in dollars. In some organizations the major objective is to improve quality of care, with operational cost savings viewed as a way to offset the investment in systems and organizational change to achieve quality goals.

Among the barriers to broader adoption of EHRs is uncertainty as to whether the large expenditure required will have demonstrable ROI, or whether such return should be expected. Rigorous ROI analysis is difficult for many reasons, but explicit description of whether an ROI study was performed, and its results if performed, is of great interest to organizations considering an investment in EHR. In discussing ROI, it is important to include both the costs incurred as well as the gains achieved.

- a. Using the framework of the business case (how the organization framed its expectations that justified the investment), describe the evidence that expectations have been met. Include specific milestones and metrics, as relevant, and as much quantitative (cost savings or other measures of success) evidence as possible. Formal research is ideal but not required, as it is not within the reach of many organizations. However, the organization must have made a concerted effort to validate what it set out to accomplish with its EHR system. A good test of whether there is sufficient evidence to present a compelling case is whether the available evidence has convinced the organization's own management and board to not only make the one time investment for the initial implementation but also the ongoing costs for the appropriate level of support after the initial go-live.

The actual outline for this section will vary depending upon the value proposition or business case and other benefits identified in the Management section. If applicable provide a bibliography as an **Appendix** and provide copies of any abstracts, book chapters, or publications based on the organization's EHR project. However, make certain to include within the application the basic information necessary to respond to all the questions.



3. Success in Achieving Desired Change in Targeted Processes

Another measure of success of the EHR project is in bringing about desired change in targeted processes. Organizations take on predicted system costs with anticipated qualitative and occasionally quantitative benefits in key processes and outcomes. An emerging approach is to specify improvements in key performance indicators (“rates of compliance with guideline-based preventive and health screening services for our patients will improve from the current 30-60 percent to 80 percent within two years” or “specialist physician satisfaction with access to information concerning referred patients will increase by 30 percent within one year and by 60 percent within two years.”) Through both system design and change management during implementation, successful organizations accomplish improvements in key processes. This section provides another perspective on success by providing an opportunity to highlight those accomplishments.

- a. Using the information presented previously in Functionality as the framework, discuss the evidence that targeted processes have changed in the desired direction following introduction of EHR-enabled process and workflow. It is important to utilize quantitative evidence (e.g., adverse event rates, mean length of hospital stay, STAT turnaround time) of improvement wherever possible, but some qualitative evidence (e.g., testimonials of key participants, feedback from physicians or patients) is also acceptable in this section.
- b. Where indicators may be influenced by other non-EHR concurrent processes, describe the contribution of the EHR and the non-EHR process to the improvement in that metric (e.g., length of stay).
- c. Include new processes made possible by the EHR (e.g., real-time ability to study practice variation, ability to perform outreach to patients enrolled in a population management program, ability to contact patients on a medication recalled by the manufacturer).
- d. Additional areas to be considered in this evaluation include:
 - Improvement in important patient safety metrics.
 - Enhanced effectiveness of care delivery.
 - Reduced admission or re-admission rates.
 - Reduced infection rates.
 - Greater efficiencies in patient care or with clinicians.
 - Improved compliance with “standard protocols.”
 - Improved documentation compliance.
 - Improved compliance with regulatory agencies.
 - Enhanced customer satisfaction.
 - Improved access to the care within the organization.
 - New services that can be offered to patients, possible only with the installation of an EHR.
 - Improvements in equitable care delivery.



- Important additional gains may include streamlining information access and reducing time spent searching for missing information, improving continuity of care across providers and settings, improving timeliness and reliability in communicating test results to patients and/or improving the effectiveness of teams by facilitating communication and organized work flow.

5. User Satisfaction

Method of assessing the overall success of the implemented EHR in supporting essential users of the system and care delivery processes of the organization as perceived by the users.

Show evidence (user survey results) that the targeted community of users is satisfied with the EHR system, changes to their workflow processes and satisfaction with the ability of the system to meet their needs.

a. User Satisfaction Survey

Describe the formal survey process used. Include a copy of any instruments/survey forms used to assess user satisfaction as an **Appendix**. Include which types of users were assessed, any specific activities or processes assessed, and how the results influenced subsequent actions such as changes to the EHR.

Provide quantitative survey results organized by types of users with different needs.

These may be primary care physicians, specialist physicians, attending physicians, house staff, mental health professionals, nurses, ancillary staff, etc.

- ### b. Include informal assessment of user satisfaction including user groups forums and feedback opportunities.

6. Success in Meeting Other Corporate Objectives

Organizations often have other important objectives not explicitly included in the business case and not likely to be addressed in Section 2 above. This section provides an opportunity to present evidence relating to these.

- a. Using the previous information in Functionality (Other Operational and Strategic Activities) as the organizing framework, discuss evidence that the EHR has brought value.
- b. Include any unanticipated or negative impacts that occurred.
- c. Additional specific areas which may have benefited from the EHR project should be considered including research, community health, public health and education.

Appendices:

Satisfaction Surveys

Bibliography or Reference List (if applicable)



Acknowledgments

Version/Year	Contributors
1.0/1993	Co-Chairs Paul Tang and Elaine Steen, followed by co-chairs, Ned Simpson and Charlene Underwood. Blackford Middleton, Susan Miller, Ned Simpson, Charlene Underwood, and Joe Weber. Jane Metzger, Alan Perkins, Carl Thor, Rick Abrams, Don Berwick, Patricia Brennan, William Braithwaite, Joel Buchanan, Morris Collen, Don Connelly, Ted Cooper, Daniel Davis, Gary Dickinson, Michael Fitzmaurice, John Glaser, Barbara Heller, Thomas Lincoln, Roger Longenerfer, Dan Masys, Leo Mercer, Edwin organ, Ron Ribitzky, William Reed, Hack Schoolman, Robert Seale, Kathy Shibata, Dean Sittig, Claudia Tessier, and William Tierney.
2.0/1995	Kathy Shibata, Ted Cooper, Homer Chin, Yan Chow, Jim Greendale, Dam Meenan, George Peredy, Joe Yanov, Rosalba Carillo-Vassel, Toby Dunn, Chris Grant, Jansin Lee, Dan Meehan, Elaine Sill, Stephanie Sales, Silvia Sorell, and Gerry Gaintner, John Dewey, Paul Clayton, Erica Drazen, W. Ed Hammond, Robin Stoupa, Paul Tang, Jane Metzger.
3.0/1998	Davies Organizing Committee
4.0/2000	Tommy Bozeman, Gail Mills, Tom Trabin, Keith MacDonald, Jane Metzger
5.0/2002	Tom Payne and Jane Metzger, and the members of the 2002 Davies Committee.
6.0/2003	Minor revisions by the Davies Committee
7.0/2004	Minor revisions by the Davies Committee
8.0/2006	Minor revisions by the Davies Committee
9.0/2007	Joan Duke, Brian Jacobs, Denni McColm, Frank Stevens, Tom Smith, Mark Zirkelbach, Tom Trabin
10.0/2008	Michael Blackman, MD, Brian Jacobs, Susan Heichert, Frank Stevens, Suzanne Carter
11.0/2009	Joan Duke, Tom Smith, Eric Hartz, Michael Blackman, Dave Krusch