# Table of Contents

- Introduction .................................................................................................................. 5
- About ................................................................................................................................. 6
  - Who We Are .................................................................................................................. 6
  - Where to Find Us ........................................................................................................... 6
  - What We Do .................................................................................................................... 6
- Mission Statement ............................................................................................................ 6
- Vision Statement ............................................................................................................... 7
- Value Statements ............................................................................................................. 7
- Further Information ......................................................................................................... 7
- Thanks ............................................................................................................................... 8
- Goals .................................................................................................................................. 9
  - Overview ......................................................................................................................... 9
  - Getting Started ............................................................................................................ 9
  - Define Your Goals ...................................................................................................... 9
  - Process Mapping ......................................................................................................... 9
- Pre-Implementation ......................................................................................................... 11
  - A Note About Preparation ............................................................................................ 11
  - Change Management ................................................................................................... 11
  - Vendor Selection ......................................................................................................... 12
  - Modules ......................................................................................................................... 12
  - Assembly of Staff ....................................................................................................... 12
    - Support of Board of Directors . .................................................................................. 12
    - Creation of “Super Users” ......................................................................................... 13
  - Pre-Training ................................................................................................................. 13
  - Readiness/Skill Assessment ......................................................................................... 13
  - Skills Enhancements ..................................................................................................... 13
  - Continuing Education ................................................................................................. 14
  - Implementation Timeline ............................................................................................. 14
- Approach .......................................................................................................................... 14
  - Incremental (Staged) ...................................................................................................... 15
  - Big Bang ......................................................................................................................... 15
  - The ESRHS Approach: Incremental (Staged) ............................................................... 16
    - Assessment ................................................................................................................ 18
- Kick-off Call ..................................................................................................................... 18
- Interfaces ........................................................................................................................... 19
  - Integrated Devices and Device Interfaces ................................................................. 19
  - Order/Result Interfaces ............................................................................................... 19
- Clearinghouse .................................................................................................................. 20
  - Selection ......................................................................................................................... 20
  - Electronic Remittance Advice ..................................................................................... 20
- Patient Statements ......................................................................................................... 21
- Electronic Prescriptions (ePrescribing) ......................................................................... 21
  - Qualifications ............................................................................................................... 21
  - Benefits and Challenges ............................................................................................ 21
  - Applications, Interfaces, Electronic Refills ............................................................... 22
  - Limitations for Controlled Substances ....................................................................... 23
Check-in ................................................................. 42
Medical Records ..................................................... 42
Miscellaneous Scanning ........................................ 42
Recommended Settings ........................................ 43

EMR: Workflow Analysis Example - Telephone Encounters/Triage ................................. 43
EMR: Patient Data Entry (History) Workflow .......................................................... 43
EMR: Patient “Workup” Workflow ........................................................................ 44

Integrating EMR Features .................................................................................... 44
  eCliniSense ...................................................................................................... 44
  Generic Alerts ................................................................................................. 45
  Flowsheets .................................................................................................... 45

Go-Live .............................................................................................................. 47
Assess EMR Go-Live Readiness ........................................................................ 47
  System Testing ............................................................................................... 47

EMR Go-Live Tasks and Considerations ............................................................... 48
  Patient Scheduling ......................................................................................... 48
  Resource Availability ................................................................................... 48
  Collaboration/Feedback .............................................................................. 49
  Notification ................................................................................................... 49
  Bring Food, Patience, and Sense of Humor .................................................. 49
  Continual Process/Workflow Assessment/Improvement .............................. 49
  Go-Live Contingency .................................................................................... 49

Patient Satisfaction and Community Relations .................................................... 50
Provider Satisfaction ......................................................................................... 52
  Survey ........................................................................................................... 52

Contingency Planning ......................................................................................... 53
  Prepare for Disaster ...................................................................................... 53
  Training .......................................................................................................... 53
  Policies and Procedures .............................................................................. 53

Interface Best Practices ....................................................................................... 55
  Implementation Approach ........................................................................... 55
  Data Import vs. Data Entry .......................................................................... 55
  Testing ........................................................................................................... 55
  Reconciliation ............................................................................................... 55

Conclusion .......................................................................................................... 56

Appendix ............................................................................................................. 57
  EMR Provider Satisfaction Survey .............................................................. 58
  EMR/PM System Downtime Policy .............................................................. 61
  Information Systems Contingency Plan ....................................................... 63
  IS Facility Access Controls Policy .............................................................. 67
  System Access Policy .................................................................................. 68
  Skills Assessment Guide ............................................................................. 72
  Community Relations: Letter to the Editor .................................................. 73
  Community/Patient Relations: Waiting Room Signs ..................................... 74
  Basic Computer Skills Training Presentation ............................................. 75
Introduction

The transition to a Practice Management (PM) and Electronic Medical Record (EMR) is a great challenge that takes great care to achieve with success. A colleague of mine once used the most fitting analogy: childbirth. He stated that just like childbirth, the process begins with prenatal care (pre-implementation). There is a great deal of time and effort spent getting everything in order for the birth. Then once labor begins, a majority of what you have planned changes, and you must react to every situation with a quick, yet thoughtful approach. During labor there will be a lot of rough times—times you would rather not remember, but when the child is born, you will look back and be proud of what you have accomplished. The end is surely greater than the means.

Why must we move to an EMR? The situation healthcare is facing today is one of increasing costs and decreasing reimbursement, which places the viability of any healthcare organization at risk. The goal of implementing an EMR is to streamline clinical and financial processes. Quality of care and patient safety must be improved, costs must be decreased, revenue and reimbursement must increase, and the quality of life must improve for both patients and providers. There are numerous benefits to implementing an electronic medical record system, from improved quality of patient care to improved patient safety. Features such as a unified medical record that spans across office boundaries, increased efficiencies through process improvement, improved communication with hospitals, providers and labs, improved medication management, health registries and alert reminders, and compliance with state and federal regulatory requirements make the benefits of EMR a necessity, not an option, to survive. EMR is a large investment, not only in capital requirements but also human resource requirements. Simply stated, healthcare organizations can not afford to operate without an EMR. Planning today will secure operations for tomorrow.

This document is a “best practices model” for the implementation of an EMR. Eastern Shore Rural Health System, Inc. (ESRHS) implemented eClinicalWorks (eCW) integrated PM and EMR system throughout the time period of July 2007 through September 2008. Although planning activities took place before July 2007 and implementation activities continued well past September 2008, this document is an accounting of process and techniques that can be used as a conceptual framework for successful implementation of any EMR system.

The concept of change is usually followed by feelings of negativity. This document will hopefully alleviate concerns by learning from the mistakes and successes of ESRHS so that your installation may be victorious in achieving your organization’s objectives.

Sincerely,

Michael A. Zodun
Chief Information Officer
Eastern Shore Rural Health System, Inc.
About

Who We Are

ESRHS is a federally qualified community health center organization. Formed in 1976 by a group of visionaries looking to improve healthcare on the Eastern Shore, we have grown over the past 31 years to become the medical provider of choice for over half the members in our community. We believe that it is every person's right to receive quality, affordable health care and we are driven by that unifying concept.

Where to Find Us

ESRHS has five medical centers strategically located along the Eastern Shore of Virginia from Chincoteague Island to Cape Charles. Our hours of operation include late night hours at each of our five centers and Saturday hours year-round at Onley Community Health Center and seasonally at Chincoteague Island Community Health Center. Dental services for all ages are offered at the Franktown Community Health Center and for children at Metompkin and Pungoteague Elementary Schools.

What We Do

ESRHS provides medical and dental care to residents of all ages. The 10th largest employer on the Shore, ESRHS has a staff of 25 medical providers, 3 dentists and 140 support staff. Our centers are equipped with emergency/urgent care treatment rooms, labs and 3 centers offer x-rays. ESRHS remains certified by the Joint Commission on Accreditation of Health Care Organizations (JCAHO).

ESRHS accepts most major medical and dental insurances. A sliding fee scale is available to patients without insurance coverage or who are underinsured.

In addition to providing primary medical and dental care, as "more than just a doctor's office", ESRHS offers pharmacy assistance, health education, and interpretation services at all our centers, at no cost to our patients. We continue to partner with Accomack County Public Schools to offer dental services on the campuses of two elementary schools. ESRHS was selected by the Chesapeake Bay Bridge & Tunnel (CBBT) Commission to administer a medical toll program, which allows low-income residents with medical referrals free travel to the Hampton Roads area.

Mission Statement

ESRHS is a Community Health Center committed to enhancing the quality of life for the people on the Eastern Shore. We seek to serve the needs of the rural community by providing accessible, comprehensive and affordable medical, dental and health services in a caring, professional and safe environment.
**Vision Statement**

ESRHS shall be the provider of choice for primary and preventive services offering comprehensive care of exceptional quality for all people on the Eastern Shore.

**Value Statements**

- Our work is characterized by quality, integrity, teamwork and communication.
- Our relationships with patients demonstrate respect, compassion and confidentiality.
- We strive for the empowerment of patients and colleagues as our partners in improving the quality of our community, our health and our lives.

**Further Information**

Website: [http://www.esrh.org/](http://www.esrh.org/)

Corporate Office Phone: (757) 414-0400
Corporate Office Fax: (757) 414-0569

Corporate Office Address:
PO Box 1039
9434 Hospital Ave
Nassawadox, VA 23413
Thanks
ESRHS would like to thank the following for their support, insight, understanding, and humor during the transition to an Electronic Medical Record:

RGK Foundation
The Providers and Staff of Eastern Shore Rural Health System, Inc.
The Patients and Community of the Eastern Shore of Virginia
The Community Care Network of Virginia
The Virginia Health Care Foundation (VHCF)
The Virginia Community Healthcare Association (VACHCA)
William Crumpton, Piedmont Access to Health Services, Inc. (PATHS)
Greg Wolverton, White River Rural Health Center, Inc.
Doctor’s Office Quality – Information Technology (DOQ-IT)
Goals

Overview
Before beginning your EMR project, it is important to clearly define goals in order to measure success. You obviously began your initiative to implement an EMR to achieve goals regarding quality of patient care and improved patient safety, decrease in administrative costs, increase revenue and reimbursement, increase provider satisfaction, etc. so you must be able to select a system and set of processes to attain and measure your success. You must first begin by assessing your needs, and then creating goals to achieve those needs. The final steps are monitoring and assessing the outcome of your project to determine if goals have been met and determining what action steps are required to further your organization’s success.

Getting Started
Start by identifying processes and inefficiencies that exist in your current system(s) of care and assign priorities based on criticality of needs. This document will become your “priorities work list.” Try and categorize each process or inefficiency into areas such as patient focused, staff focused, environmentally focused, financially focused, etc. Drill down into as many categories and subcategories as necessary. Depending on your results you may have a rather simple list of priorities or a complex array of processes.

Define Your Goals
From the “priorities work list,” set clear and measurable goals that can be accomplished. Do not set immeasurable or unobtainable goals, as these will lead to confusion by staff or create negative morale. Discuss the goals with your staff and patients, so there is a community understanding of why you are dedicating considerable time and resources on this project. For each goal, determine a basic action plan, keeping in mind that specifics may not be available until more is known about your specific EMR capabilities. Determine the baseline measurements and methods of each goal. The objective of defining your goals is to create the general roadmap, not the specifics of each detail.

Process Mapping
In the earliest stages of the planning process, it is advisable undertake process mapping. Process mapping, conducted in accordance with W. Edwards Deming’s philosophy of continuous improvement, should be applied. The basic principles of the “Deming Cycle” are:

- **Plan** – Identify opportunities for improvement and the methods to achieve it
- **Do** – Implement the changes needed to affect change
- **Check** – Verify and evaluate whether the changes result in the desired improvements
- **Act** – If the desired change is obtained, then apply the improvements as broadly as necessary. If the changes are negligible or negative in nature, then repeat the process to identify weaknesses, devise improvements, and put them into action.

By conducting process mapping before the EMR implementation, there are many opportunities to eliminate redundancy and waste in the day-to-day processes within the medical practice. It
also helps identify how best to allocate resources to leverage the innate efficiencies offered in the EMR/PM system implementation.

Common processes to be evaluated might include:

- Patient registration (demographics, insurances, guarantors, sliding fee applications, etc.)
- Appointment scheduling
- Patient check-in
- Data entry for medical history, social history, hospitalization, immunization history, and current medications
- Lab ordering, handling, results documentation and notification
- Ordering of diagnostic imaging
- Referrals
- Patient check-out
- Coordination with pharmacies to ensure accurate delivery of electronic prescriptions
- Billing, claims, issuing statements, accounting, collections
- Drafting of automated letter templates for no-shows, collections
- Reporting (grants, collaboratives, etc.)

Streamlining these processes prior to EMR implementation helps identify training requirements, identify who is to perform specific tasks, and modify process flows as needed to take advantage of the EMR system’s strengths.

For example, does staffing and workload permit front desk personnel to scan signed patient HIPAA consent forms or should this process be assigned to medical records personnel? Should medical records be responsible for processing and scanning lab results or referral consult notes into the electronic charts, or should these be handled by the lab and referral coordinators? Can scheduling for multiple locations be centralized at a single office or do circumstances make it more advantageous to maintain scheduling at each location?

Identifying the processes performed by each individual and each division permits the restructuring of tasks in the most efficient manner, easing the transition into the EMR environment. Every practice is different, based on the expectations of external and internal customers. Each practice implementing EMR will need to adjust workflows, schedules, staffing, and protocols for managing and allocating essential tasks based on its own unique needs, preferences, and the capabilities of the EMR system adopted.
Pre-Implementation

A Note About Preparation
The most famous and appropriate quote is “A failure to plan is a plan to fail.” Careful planning and preparation will be the success or failure of your EMR project. However; even the best laid plans will change, as the environment and situation within an EMR project is so dynamic that the defined plan must have contingencies and flexibility in order to achieve all objectives.

Change Management
Inspiring change in an organization is an achievable goal, and one that is critical to the success of your EMR project. If the organization is not ready for change, then the journey will be more difficult. Every individual within the organization must be supportive of the project in order for synergy to occur; that is, the achievement of many is greater than the sum of individuals. There are several individuals that must be identified in order to create a change management team that can lead the change revolution within your organization. There does not have to be a specific person assigned to each role, as many people may be necessary, and more than one role may be tasked to more than one person.

1. Sponsor – This person or person(s) should define the project scope and fund the activities. The CEO or top-down methodology would work best to drive the project and stress the urgency and seriousness of the project. The support of the board of directors is also recommended as they are a key stakeholder.

2. Champion – This person or person(s) act as the support and decision makers with regards to the variables of the project, resolution of major issues, and communicate progress with project stakeholders.

3. Project Manager – The project manager defines the day-to-day operations and ownership of the project. This person or person(s) review deliverables, timing, track and manage project resources, and act as the contact person for the project. This is recommended to be the Chief Information Officer or Information Systems Director in coordination with the “Super Users” team to ensure a fluid coordination of all necessary resources and organizational departments.

4. Change Agent – The primary objective of the change agent is relationship management and conflict resolution. This person must ensure that all aspects of the change cycle are covered to ensure a smooth transition for the staff and providers. Constant communication must exist to let the users know the status of the project as well as incorporate feedback into the process to ensure that all issues are reviewed.

5. Vendor Liaison – This person or person(s) will ensure that the functional specifications of the product are meeting the requirements of your organization. This person must work closely with the “Super Users” team as well as the users and the vendor to determine if deliverables are being achieved and coordinating support activities to assist timelines and resource accountability.

6. Training Lead – This lead will ensure that training is consistent, concise, and appropriate for all staff members and providers. This position should be aware of all issues, and work with the project manager, change agents, and vendor liaison to educate staff on new work duties, processes, responsibilities, and team processes.

7. Measurement Lead – This person or person(s) will ensure that the project is successful by creating measures and determining the efficacy of improvement actions.
monitoring, and reporting to the project manager as well as the project champion and sponsor will ensure that any corrective action steps are handled appropriately. Without measurement, there is no way to determine success.

*Source: (DOQ-IT) – Project Role and Responsibility Matrix*

**Vendor Selection**

The vendor you select for your EMR is the most critical step in your implementation process. You must select a vendor that will meet your objectives as well as be affordable. If you have collective/collaborative agencies that you work with, such as state or national associations, health center networks, etc. it is important to select a vendor that will meet your collective needs. This enables your group to collectively bargain for features as well as price.

The electronic health record system ESRHS selected was chosen through a statewide collaborative selection process through committees involving the Community Care Network of Virginia (CCNV) and the Virginia Association of Community Health Centers (VACHA), a process that began in 2005 (two years before purchase). Through a series of collaborative efforts, such as conferences, site-visits, standards development and system requirements, eCW was chosen as the Health IT system vendor of choice through a vigorous request for proposal and evaluation processes. This vendor was selected because of several performance requirements: full integration with practice management and a patient portal, user interface which allows customization to modify the system to conform with practice workflow requirements, a demonstrated willingness to work with end-users for quality improvement, and the vendor’s reputation. The presence of a rules based clinical decision support function was also an important factor in this decision.

**Modules**

Your EMR vendor may offer “modules” at additional cost, or include them with your purchase price. It is important to prioritize which modules you will be able to afford currently or in the future, as well as have the capability of implementing. Initially, you may forgo options that contain benefits that will not be fully realized until the EMR has been fully implemented across your health system. For example, eCW offers a Patient Portal application, an innovative tool for sharing information and communicating with patients, in which a patient can register themselves online and perform functions such as confirm appointments, pay bills, create a web encounter with a provider, request refills, download lab results, and more. ESRHS decided to not purchase/implement this module until there is significant data available and workflow issues are resolved to allow a smooth transition to adding the extra capabilities to the system. Additional reporting modules, such as eCW Business Optimization, a complex, drill-down reporting engine, is not as useful initially for the same reasons as the Patient Portal mentioned above.

**Assembly of Staff**

This section defines the appropriate assembly of staff and the required analysis that must be performed while implementing your EMR.

**Support of Board of Directors**

EMR is a significant investment for your organization to undertake. It is critical for your board of directors to understand the risk and rewards involved with the project through a formal presentation. The ESRHS board of directors named implementation of an EMR the number one
strategic goal of the organization and elected to fully fund and support the EMR initiatives through a resolution before the vendor contracts were signed. The board was kept abreast of project outcomes through monthly board reports and a bi-annual presentation at the monthly board meeting. Without the direction and support of the board of directors the project may cease to gain momentum or be delayed due to capital or resource constraints.

**Creation of “Super Users”**

To properly implement and gain all advantages supplied by an EMR, a team of “Super Users” must be formed. This team will consist of all areas of the organization, mainly staff, product champions, and subject matter experts from the areas of Information Systems (IS), senior or executive leadership, billing, finance, nursing, clinical directors, center managers, and center leadership. This will ensure that when questions arise about setup and workflow, all individuals are aware of the decisions being made and solutions are selected that will result in maximum efficiency and effectiveness.

**Pre-Training**

It is important for a trainer from your EMR vendor to visit onsite to train the IS staff, core billing team, health center managers, and the “Super User” team on “Your EMR 101.” The purpose of this training is to help expose the organization to the PM and EMR system. A major goal was to help ESRHS’ employees understand the utilization of the system from all functional aspects, beginning with front office, then mid office, and back end (billing) operations. This left ESRHS’ training participants with the knowledge to understand how workflow at ESRHS’ health centers will change and how ESRHS will have to incorporate specific case scenarios into ESRHS’ training and implementation processes. The insight, information, and experience gained at this training were a critical aspect of ESRHS’ success at go-live.

**Readiness/Skill Assessment**

You should assess your staff’s readiness by conducting a survey, in order to understand how comfortable the users are performing tasks with any existing technology. This will help your organization understand the basic skills your staff possesses, and you may wish to enhance these skills as part of your preparation for an EMR implementation. A Skills Assessment Guide example is in the Appendix of this document.

**Skills Enhancements**

ESRHS realized from the Readiness/Skill assessments that there was a large portion of the staff that needed basic computer skills training. The Chief Information Officer conducted an initial course titled “Basic Computer Skills Training” which focused on basic computer terminology and concepts, basic windows operating system navigation, and email basics. These courses were offered after hours at each health center and approximately 35% of the staff attended. Feedback gathered after the initial course yielded an interest in Microsoft Excel training. A second training session titled “ESRHS Excel Computer Skills” was offered after hours at each of the centers and yielded about 20% attendance of staff. Although Excel was not directly related to the EMR, the skills and knowledge helped the users understand and utilize common windows components that are present in many applications. The slides for the “Basic Computer Skills Training” are located in the Appendix of this document.
Although ESRHS made many efforts to educate the staff on basic computer skills, as well as system-specific skills regarding the eCW application, there is still a great learning curve to overcome. The more comprehensive the system, the more complex the system becomes and is therefore increasingly more difficult to understand. Although the staff is entering and retrieving the same information they have always entered, there are new processes to learn which can be overwhelming for staff members that are not particularly strong with computer skills.

In a complex system such as eCW, errors in one area of the application can create errors in subsequent areas of the application, so the importance of addressing errors when they are first discovered is essential to the success of the system. ESRHS has continued to work with these staff members on an individual level and have created additional, site-specific documentation to address the issues that have arisen. Processes are documented and distributed to staff as they are created or improved.

ESRHS has almost 70 supportive documents created specifically for ESRHS’ system and are increasing this number weekly. eCW Tips are sent as a weekly email to providers and nursing staff to promote continual learning. A monthly meeting between the center managers, clinical directors, and senior leadership team continues to be used as a forum for communication to discuss problems and best practices to dissemination information between the medical centers. Email communication is a constant and is used daily to communicate issues as they arise. The internal messaging utility within eCW is also used for communication between the staff for various processes and purposes.

**Continuing Education**

It is important for the product champion(s) and “Super User” team to learn as much as possible about this system to fully understand, implement, and support the system. This should include reading any available documentation, communicating with user groups, health center associations, online message board, email lists, attending seminars, as well as shadowing and observing your own health center operations. The more experience with the system that is ascertained will enable your organization to answer questions quickly, adapt, and utilize additional features to maximize your investment in the system. See the Training/Continuing Education section later in this document for more information.

**Implementation Timeline**

Your implementation timeline should be created in collaboration with your project champions and stakeholders, along with your EMR vendor. This timeline should not be too lengthy (as the project will lose focus) nor should the timeline be too short (the project will seem unmanageable and rushed). Your organization should also take into account environmental and scheduling factors, such as Uniform Data System (UDS) reporting time periods, financial fiscal year end, clinical timeframes (such as seasonal periods when school physicals occur) and other factors.

**Approach**

The approach appropriate for your organizational structure and culture must be selected before beginning implementation so you can properly plan. There are generally two approaches that can be used to implement any EMR or health information technology project: incremental and big bang. There are many considerations in choosing an approach. Some of these include:
• Patient expectations, satisfaction, and quality of care
• Organizational structure
• How many health center locations would be affected
• The number of providers, staff, and patients at each location to be trained
• The distance between the health centers
• Seasonal schedule peaks (school/sports physicals, flu shot clinics, end-of-year accounting, reporting requirements, etc.)
• Data migration from a previous practice management system
• Disposition of paper medical records (storage, scanning, shredding, etc.)

**Incremental (Staged)**

This approach works better for larger practices which generally have a more complex environment of physicians, staff, and organizational objectives. This approach also fares well in practices that have smaller support staff, such as information systems and technical personnel that are available to assist with the implementation.

**Positive:**
• Reduces transitional “shock” to staff and physicians
• Spreads out costs (implementation and reduced productivity)
• Manageability (staff, oversight, troubleshooting, learning experiences)
• Allows lessons learned at one facility to be applied to subsequent facilities
• Prevents a problem in one process from stopping the entire implementation process
• Allows time for practice-specific customizations to be developed and implemented
• Greater chance of success

**Negative:**
• Longer implementation time
• More complicated scheduling of the implementation
• Greater costs for training
• ROI not achieved as quickly
• Risk of getting stuck at different stages of the rollout
• Possibility of medical errors or omissions during the time paper charts are being used in conjunction with the EMR system.

**Big Bang**

This approach works best for smaller practices that are more easily managed due to size and reduced complexity. Strong leadership is needed and additional resources may be required but this approach will offer the fastest turnaround but with greatly increased risk.

**Positive:**
• Shortens parallel operation period where the staff and physicians may find themselves in a hybrid system with paper at one site and electronic at another.
• ROI achieved more rapidly
• Less likely to get stuck at different stages in the rollout
• Productivity losses absorbed over a longer transition period
Negative:
• High level of transition “shock” to the entire organization simultaneously
• Higher risk of total failure (rejection by physicians or staff, process/project catastrophes due to lack of understanding/lack of planning)
• Increased likelihood that one single component (i.e., billing, claims, lab interfaces) could disrupt the entire conversion and implementation.
• More resources required, such as information systems and technical personnel that are needed to assist with the implementation.
• Significant productivity decrease due to all centers going live at the same time

The ESRHS Approach: Incremental (Staged)
ESRHS selected the incremental approach after carefully examining the approaches above. The incremental approach was dictated by a number of concerns, including the widely dispersed geographical layout of the five health centers, the corporate office, the billing office, the relatively large number of users, and the limitations of a small information technology staff. ESRHS also utilized their health network and state association to receive feedback from other similar health centers that employed both approaches. ESRHS believes this communication and knowledge sharing beforehand provided exceptional insight into the pros and cons of each approach. ESRHS decided on the following timetable and approach:

• **Step 1**: Train and Implement PM system across all health centers. This step was not possible to stage due to the complexities of healthcare billing, scheduling, and other integrated management systems. The training was disbursed over a period of four weeks, and separate front office and billing trainers from eCW were on site. The PM system is the essential patient registration, scheduling, and billing framework required for the EMR module. The PM module is the essential framework for the patient record, and began recording assessment and coding information that will later be used in the alerts and health maintenance aspects of the patient registry.

The PM module was by far the hardest aspect of implementation, and had a large financial impact from the front desk to the billing specialists. In order for the EMR to function properly, the PM module has to be implemented properly and appropriately to ensure charges and reimbursements are correct. Some interim measures had to be adopted since the providers were still using paper charts and daybills (charge slips). This substantially increased the number of tasks but was a required measure until the EMR module was installed. Several measures had to be implemented to assure patient satisfaction was sustained (see Patient Satisfaction and Community Relations in this document for more information). Finally, many issues were addressed with patient scheduling that enabled providers to have more accurate representations of patient load and primary care physician panels to ensure ESRHS’ staff can meet the needs of the patient population.

The amount of time and effort required by the staff to support and implement the PM module alone was one of the most significant tasks ever undertaken by ESRHS. A big bang approach that would have accompanied PM with EMR would have surely failed and had tremendous negative financial, social, and emotional consequences to ESRHS.
• **Step 2:** Train and implement electronic prescriptions and telephone encounters one site at a time, approximately 1 month before going live with the full EMR (2 months preferred). This training was handled in house. This phase of implementation involved training providers and the clinical staff on some of the functions of eCW that mirrored processes already in-place. For example, ESRHS providers had been using OnCallData’s electronic prescription service for some time. It was a relatively smooth transition to teach them how to order medications and send them to the pharmacies from eCW. This also began eliminating much of the paper generated at the centers relating to telephone calls and triage.

Considerable effort was made to transfer in medications lists from the OnCallData system into eCW. This work was largely done by medical transcriptionists and the nursing staff. As each medical center’s physicians began to use the eCW electronic prescriptions, OnCallData was tasked to change their settings to allow historical queries of medications, but not to permit the ordering of medications through their system.

Shortly after the physicians were trained on using electronic prescriptions (in general, approximately two weeks), the IS staff trained providers, nurses, and the individuals who took phone calls on how to process telephone encounters. After the training, the IS staff was present at each center as they went “live” with taking phone calls, entering them into the system, assigning them to the physicians or triage nurse as applicable. ESRHS assisted the providers with answering and addressing the telephone encounters.

These steps were done one center at a time, which allowed the IS staff to devote its full resources to the providers, nurses, and staff at each facility during the transition. Having had experience with these critical steps made the overall transition to the EMR less painful. It allowed them to gain proficiency with parts of the system without overwhelming them during the full EMR go-live.

• **Step 3:** Train and Implement EMR one site at a time, with the first site receiving an additional week of go-live onsite training assistance. The training was provided on site by eCW. Each center go-live date would be spaced approximately 2 weeks from the subsequent center.

The first of ESRHS’ centers to go live on the EMR system was ESRHS’ smallest center, Bayview Community Health Center (BCHC). This occurred in early April 2008. Bayview has three providers on-site. The implementation went very smoothly because of the prior preparation mentioned above. The clinical staff received three days of intensive training with an eCW trainer on Monday, Tuesday, and Wednesday of the first week with the actual go-live scheduled for Thursday or Friday, depending on the need for additional attention from the eCW trainer. During the first weeks of the go-live, the providers were scheduled with a reduced patient load. The plan was to have them scheduled on a 30% load during the first two weeks, 60 percent, the second two weeks, scaling up to 80% to 100%.

During the BCHC implementation, ESRHS contracted out the scanning of the patient medical records. This process is outlined in the Document Scanning section of this document.
After the BCHC go-live, there was a planned 6-week evaluation period. The BCHC go-live was assessed and process improvements were documented for use at the next centers. During the end of this period, the Labcorp-eCW bi-directional interface was implemented.

Onley Community Health Center (OCHC) was ESRHS’ first large health center involved in the implementation. This center’s transition was more complicated, not only because of the number of providers and nurses to be trained, but it also required re-tasking medical records personnel resources to accommodate the need to scan in chart documents into the system with in-house resources. In house services, such as X-Ray were also available at this location. This was the second center to begin using the Labcorp bi-directional interface. The implementation of this site’s bi-directional interface was problematic, but the problems were eventually resolved and less complicated due to the experience of the first site.

Atlantic Community Health Center (ACHC) and Chincoteague Community Health Center (CICH) were combined for go-live in mid-July 2008 due to provider schedules and availability. The same process as the previous centers was followed. The go-live for both of these centers went very smoothly, and there were virtually no lab interface issues.

The final center to go live was Franktown Community Health Center (FCHC). This center serves a large number of pediatric patients and it was necessary to schedule the go-live after the busy weeks before the start of school in September. This center completed its go-live in mid-September.

**Assessment**

ESRHS believes this incremental approach worked well. At each phase, ESRHS was able to find, troubleshoot, and resolve problems that could impact later phases in the process. For example, problems calculating ESRHS’ sliding fee schedules or submissions of claims which were discovered could have been disastrous had ESRHS implemented the EMR portion at the same time as the practice management side. The staged approach answered well to the positive and negative aspects of the approaches described above.

Bringing ESRHS’ smallest site on-line first awarded the opportunity to tweak details for the larger sites. Phasing the go-lives in stages allowed training to occur with less impact on provider schedules and business operations. It permitted the IS staff to become much more familiar with the system, be present for each phase of go-live at the centers, and become more capable of assisting the eCW trainers during each subsequent site go-live.

**Kick-off Call**

The kick-off call is the first assembly of your staff and your vendor’s project team. Typically your project manager and key contact staff members will be introduced to your implementation manager and any key individuals that will be working closely with you (interface staff, specialists, etc.) during the pre-implementation and implementation (go-live) processes. During this call the vendor will typically cover the proper channels for addressing questions and issues during the pre-implementation and implementation (go-live) period. A series of questions are
asked by the vendor to gauge what other individuals may be needed by either party and to establish a rule set for your organization. The questions will attempt to answer vendor questions related to internal billing processes, policies, and workflow so that appropriate staff can be assigned and so the implementation timeline can be properly estimated. At this point the timeline is only an estimate and will be further investigated and decided upon as the pre-implementation progresses.

This is the most important time to develop accountability with your vendor team and organizational team. Ensure that all individuals are accountable for their part in the pre-implementation and implementation process. Ensure that everyone knows that failure of one area during the project could jeopardize multiple areas and possibly result in the failure of the project. The vendor will ensure that you are aware of ramifications of missed deadlines, but you must also hold the vendor accountable to the same standards. Your organization only has one project and it is the top priority, but your vendor team has multiple projects. You must make sure that you initiate contact and track progress just as the vendor does to uphold completion of all deliverables.

**Interfaces**

**Integrated Devices and Device Interfaces**

Your EMR vendor should have the capability to integrate with some, if not all, of your medical devices, such as EKG, Spirometry, Holter, and Vitals. There are also document scanners, radiology information systems, digital radiography systems, and automated patient appointment reminder systems, to name a few. It is important for you to check with your vendor early in the process to determine if your devices are compatible, or if you wish to purchase compatible devices. Each device typically carries a cost to the vendor (both the device manufacturer and the EMR vendor) for interface installation and configuration, and may be very costly. A thorough cost/benefit analysis should be performed to determine if integration will be necessary, and worthwhile to achieve your EMR goals. Some vendors may offer a discount for purchasing devices through them as a reseller and may decrease the cost of interface setup if this option is selected.

**Order/Result Interfaces**

Your EMR vendor should have the capability to interface with your order/result interfaces, such as lab and x-ray companies. Your EMR vendor has probably developed a relationship with the larger, national lab and x-ray companies or software vendors. This experience can significantly shorten the timeframe for interface testing and verification, a process that could take considerably time. Your EMR will not likely begin with an interface go-live on the same day as your EMR go-live, but you will want to begin the scheduling/pre-implementation process with your order/result companies as there may be restraints that require planning in advance.

There are two types of interfaces: uni-directional and bi-directional. A uni-directional lab interface can only receive results electronically, therefore orders must still be processed manually by the order recipient and may not reconcile as easily in your EMR application. A bi-directional interface is preferred, where orders are transmitted electronically and results are received electronically. This capability enables more detailed reconciliation processes and
reduces error rates due to no human interaction at the order entry as a uni-directional interface may experience.

Most vendors support an interface engine standard known as HL7 (Health-Level 7). This is a set of standards designed for the exchange, integration, sharing and retrieval of electronic health information. There are several types of applications supported by HL7, such as the exchange of demographics, orders, results, and billing data.

Depending on your relationship and volume with your lab organization, your organization may not be billed for interface installation and configuration fees. Typically your EMR vendor can bill your order/result company directly for the interface fees because the vendor sees value in having an electronic interface with your organization. However, there may be additional costs if your EMR vendor has not worked with the order/result company before and must do significant installation and setup.

The timeframe for order/result interfaces is typically 10-12 weeks in order to schedule appropriate vendor (EMR and order/result company) resources, install, configure, and test the interface. However, if your EMR vendor has not developed an interface with this order/result company in the past, the timeframe may be significantly more (6-12 months).

See the Interface Best Practices section of this document for additional information and guidance on interfaces.

**Clearinghouse**

You can save a great amount of time and expense by utilizing a clearinghouse. Within your PM or EMR system, claims can be generated and submitted electronically to a clearinghouse. The clearinghouse then processes, cleans, and sorts the claims and submits them to the appropriate payor. This enables your organization to maintain one standard format for electronic submission and the clearinghouse makes the appropriate formatting changes to have the transaction accepted at the payor level. Faster claim submission will result in faster notifications of rejections as well as faster receipt of reimbursement.

**Selection**

The clearinghouse selected may vary based upon a number of factors, such as your payor mix, geographic location, and EMR compatibility. Ask your EMR vendor for recommendations and a selection matrix to make your decision. With regards to cost, different clearinghouse vendors may charge on a number of factors, such as per provider, per claim, and separate fees per payor. Perform a cost analysis to determine which vendor is appropriate to select and include this in your selection matrix. This decision needs to be made early, as the processes involved in enrolling and transferring providers between clearinghouses is tedious and can result in decreased cash flow during the transition period.

**Electronic Remittance Advice**

Electronic Remittance Advice (ERA) is another capability factor to consider when selecting a clearinghouse and EMR vendor. An ERA is an electronic equivalent of a payment explanation, detailing how claims were paid and/or why they were denied. ERA’s enable direct import of this information into your EMR to eliminate manual processing by staff, saving time that can be
redirected to other tasks. The standard for ERA that should be supported by your clearinghouse and EMR vendor is the HIPAA X12N 835 standard.

**Patient Statements**

Your EMR should have the capability to print patient statements, as well as upload a standardized format to a patient billing service to reduce costs and decrease processing time by your staff such as printing, stuffing envelopes, and mailing. You should check with your EMR vendor to determine what patient billing service providers are compatible with your system and perform a cost matrix to determine which provider will give your organization the most benefit for the least amount of money.

**Electronic Prescriptions (ePrescribing)**

You will want to ensure that your EMR vendor has capabilities to perform electronic prescriptions. The report, *A Clinicians Guide to Electronic Prescribing* defines ePrescribing as “the computer-based electronic generation, transmission and filling of a prescription, taking the place of paper and faxed prescriptions. ePrescribing allows a physician, nurse practitioner, or physician assistant to electronically transmit a new prescription or renewal authorization to a community or mail-order pharmacy.”

**Qualifications**

Based on the 2009 Medicare requirements for a financial incentive regarding the use of electronic prescriptions, a qualifying ePrescribing system must be capable of the following functions:

- Generating a complete active medication list incorporating electronic data received from applicable pharmacy drug plan(s) if available
- Selecting medications, printing prescriptions, electronically transmitting prescriptions, and conducting all safety checks (safety checks include: automated prompts that offer information on the drug being prescribed, potential inappropriate dose or route of administration, drug-drug interactions, allergy concerns, or warnings or cautions)
- Providing information related to the availability of lower cost, therapeutically appropriate alternatives (if any)
- Providing information on formulary or tiered formulary medications, patient eligibility, and authorization requirements received electronically from the patient’s drug plan

**Benefits and Challenges**

The aforementioned *Clinician’s Guide* states benefits and challenges of ePrescribing. These include:

**Benefits:**

- Improving patient safety and quality of care by preventing illegibility, oral miscommunications, integrated warning and alert systems for allergies and drug interactions, and access to the patient’s medical and medication history.
- Reducing time spent on phone calls and call-backs to pharmacies
- Reducing time spent faxing prescriptions to pharmacies
- Automating the prescription renewal request and authorization process
Increasing patient convenience and medication compliance
Improving formulary adherence permits lower cost drug substitutions
Allowing greater prescriber mobility
Improving drug surveillance/recall ability

Challenges:
- Financial cost and return on investment (ROI)
- Change management
- Workflow
- Controlled substances
- State Regulatory restrictions
- Hardware/Software selection
- Limitations on the system due to remote/rural locations (i.e., limited broadband or DSL access.)
- Pharmacy payer/PBM and mail order connectivity (As of October 2008, approximately 3 percent of chain pharmacies and 73% of independent pharmacies are not connected for ePrescriptions.)
- Medication history and medication reconciliation
- Medical history information
- Prescribing from multiple office sites
- Patient acceptance/usage issues

Applications, Interfaces, Electronic Refills
There are different kinds of electronic prescription services. Some are stand-alone applications or web portals such as OnCallData. ESRHS used this service for electronic prescriptions as an interim measure pending the implementation of ESRHS’ EMR. Other systems are integrated into or interface with an EMR system, such as eCW, to which ESRHS migrated as part of ESRHS’ implementation.

ESRH chose the SureScripts/RxHub system to interface with ESRHS’ EMR. This system allows the determination of eligibility, formulary information in addition to permitting the electronic sending of prescriptions. The EMR application indicates whether the patients’ preferred pharmacy is capable of receiving electronic prescriptions and also allows the sending of faxes from the providers’ tablet PCs to those that don’t offer this capability.

Electronic refills are potentially one of the great time savers when SureScripts is integrated with an EMR such as eCW. The electronically generated refill requests come from the pharmacy directly to the physicians instead of being faxed to the medical records desk. During ESRHS’ transition, where a patient has either not had an office visit since the conversion to the EMR system, or in cases where paper charts are still being used until they can be scanned, additional steps are required in the workflow to request a patient’s paper chart for review before issuing the refill. The full advantage of the electronic refills cannot be fully enjoyed until the patients’ paper charts are completely scanned into the EMR system.

Medication management at ESRHS has been greatly increased through the unified electronic record. All medications from all centers are recorded in the EMR and are reconciled upon each visit. ESRHS used an electronic prescription software before the EMR implementation, but it
was not completely adopted by all centers and medication lists were not always complete and accurate. ESRHS dental staff is also using the medications management section of the EMR which ensures proper treatment across all services provided by ESRHS. The proper medication management techniques are in compliance with JCAHO standards of care, and each patient is given a complete, accurate list of their medications upon exit of any ESRHS facility. Patients are educated to always have their medication list with them if visiting another facility (specialist, emergency room, diagnostic imaging center or outpatient lab) to ensure they are accurately and appropriately treated. Medication interaction capabilities have also been greatly improved, as the previous electronic prescription system only checked drug-to-drug and drug-to-allergy interactions. eCW also includes drug-to-diagnosis interactions, checking against the patient’s active problem list, to ensure interactions are not missed by the provider. Drug information is available to the providers within eCW, and is printable in English and Spanish to provide to the patients. Since medication errors are one of the most common medical mistakes, ESRHS feels this is a great improvement and advantage to the EMR.

Limitations for Controlled Substances
In accordance with DEA regulations, Schedule II drugs can never be sent electronically. Hand-signed hard copies of prescriptions for Schedule III through V drugs can be sent using a manual fax. Neither computer-generated faxes containing electronic signatures nor totally electronic prescriptions for controlled substances can be sent to pharmacies at this time.

Sources

Fee Schedule
Your fee schedule must be created in your EMR application so you can bill for services. This is a decision point for your practice because you can import your current fee structure, update and import a custom fee structure, or import a fee structure provided by your EMR vendor (such as the Medicare Physician Fee Schedule).

Data Migration
Data migration involves extracting data from your current PM or EMR software and importing it into your new PM or EMR software. This can save your practice much time and effort by not having to manually enter this information. You should verify what information can be migrated and imported by your EMR vendor to ensure you are minimizing data input by your staff.

Data Format and Verification
Your EMR vendor should provide you with an input or data migration template. This will enable you to format the data in a consistent manner that will be compatible for import. Your vendor should also provide a data dictionary, providing insight into the purpose of each field. Failure to understand the purpose of each field could result in improper setup. Equally important, you should be sure to verify the data after import in your EMR. Take a sample of the data and verify that all fields have been properly imported, that numeric and date fields were
translated properly, and that no fields have been truncated. Failure to verify your data could result in data inconsistencies, corruption, and system malfunction.

Your EMR vendor may offer an additional service to extract information from your previous system if you are unfamiliar or do not have the capabilities to perform this in house. Check with your EMR vendor for availability and pricing. If the service is offered, ensure that you can modify the data after export to “clean” your data before importing into the new system.

The final note on data format is to think logically and systematically. Essentially each piece of information that is migrated serves many purposes, and may be linked or referenced multiple places within the application. Make sure you have thought about the implications about each setup variable to ensure maximum effectiveness within your new system.

Patient Demographics

Patient demographics include the patient’s name, address, date of birth, responsible party, insurance, and other information about the patient that you may want or be required to record. The decision to be made by your practice is to either import complete, import partial, or not import.

- **Import complete** – If you had clean and accurate data in your old system, this would be the best choice. This will save time upon go live because the front desk and telephone staff will not spend time creating “new” patients in your new system. However; the negative to this option is that your front desk will not be able to ensure accurate collection of information.

- **Import partial** – This option would be to import select information, or information “required” by your new system, to enable your practice to have a master patient index. This will require all patients to be created “new” upon go live and ensures accurate collection of information. This will also enable your staff to not overlook additional information that you may be requiring as an added capability of your new system. This approach saves time with telephone and virtual encounters because the “shell” of the patient can be used and the person receiving the call does not have to gather the “required” information to be able to create the encounter. This option is viable if you have an accurate master patient index, but want to ensure accurate collection of all information for the patient.

- **Not import** – This option make each patient “new” upon go live. This is the most time consuming option, but may be necessary to obtain accurate and complete information for every patient upon entry into the system. All telephone and virtual encounters are also delayed because the person receiving the call must gather the “required” information to be able to create the encounter. This was the option selected by ESRHS, as the information in the previous system was not clean and accurate, and the additional capabilities of information that is captured in the EMR was much greater than that of the previous system. This enabled ESRHS to obtain all “required” information by the system as well as the organization to properly report and reimburse with accurate information.

Guarantor Information

If you can import guarantor information along with patient demographics, this will save time because accounts will not have to be linked manually. If statements are set up in family mode where only one statement is sent, you can also save processing costs. However; guarantor
information can only be imported if you do a complete or partial import. Also check with your 
EMR vendor to determine how the databases of patients and guarantors are linked. For example, 
eCW can maintain a separate database for guarantors from patients or link patients to other 
patients as a responsible party. Using the separate database may result in data complications 
because a patient may be linked to a guarantor instead of another patient in the system, resulting 
in duplicate accounts for the same person. An update of either account does not mean the other 
account will automatically update. Linking to another patient as a responsible party ensures a 
congruency of information.

Facilities
Facilities where your organization performs services must be created or imported in the system. 
Make sure that all relevant information is entered, as well as information that may be linked to 
other sections of the program, such as NPI and Tax numbers for claim population, and addresses 
for patient statements and claim population. If you have few locations, you may not benefit by 
importing rather than keying the data into the new system manually.

Providers
All practicing providers must be imported into the system. The majority of the information will 
be used to populate claim data. The entry of the provider’s name must also be correct to map 
with NPI and DEA numbers as well as electronic prescriptions interfacing. See Insurances for 
provider number mapping relating to individual insurances.

Resources
Your providers will typically be your resources, however; your system may have the 
functionality in the scheduling module to support resources. Typical resources may be a lab, x-
ray, diagnostic equipment, nurse, referrals, outreach, or the individuals associated with 
performing the duties associated with the resource (a x-ray technician). You may also create 
resources so that tasks can be disbursed, thus creating “inboxes” for tasks to be assigned. This 
method is useful for situations where team nursing approaches are used and assigning individual 
tasks may be cumbersome. Using a common resource, tasks can be assigned and reassigned as 
needed to improve efficiencies and flow.

Staff Members
Each staff member that will use the system must have an individual login, according to HIPAA 
Security Standards. Depending on how your EMR system sorts staff members, you may be able 
to configure your staff members in ways that can accelerate finding users. Examples would be 
sorting users by facility, class (nurses, technicians, front desk), and name (username vs. last 
name, first name). Determine the best methodology to use and create your staff members 
accordingly or create appropriate fields in your import file to meet your preferences.

Pharmacies
Depending on the capabilities of your EMR system, you may need to import your pharmacies or 
a pharmacy database may already be integrated (for ePrescriptions). ESRHS created a list of the 
most used pharmacies and imported them into eCW. eCW also had the capabilities to “link” the 
pharmacies in ESRHS’ local database with the national database of electronic prescription-
enabled pharmacies. ESRHS had previously used an electronic prescription program prior to
implementing the EMR, so statistics were available to know which pharmacies were the most frequently used and which pharmacies would be needed in the new system.

**Referring Physicians**

A list of referring physicians is necessary for many reasons, such as referrals, communications (faxing), and a provider database (similar to a phonebook) that can be accessed by any staff member. At ESRHS, this was a difficult task to assemble, because with multiple offices geographically located in different regions, the list was rather large. Also, without a previous database of referring physicians, there was not a way of knowing before import that all referring physicians had been entered with relevant information (phone, fax, specialty, etc.). ESRHS quickly found that there was a constant addition process at go-live and the referring physicians list imported was inadequate. Most of the referring physicians have been manually entered as needed and after approximately 4 months of operation there are now minimal alterations to the referring physician database.

eCW also has an additional capability which is not importable but very useful, which links the referring physician to accepted insurances. This gives the referral coordinators an additional tool by knowing where to send the patient based upon insurance eligibility, saving phone calls to office and insurance companies before scheduling patients.

**Insurances**

You must import a list of all insurances that you accept. There are a lot of variables within the insurances import file that must be set properly to ensure that your claims will not be rejected. This list may be consolidated if possible by combining any insurance that are billed per a group (such as plans that are resold by local/regional/state affiliates, but billed to a national carrier). You should also examine the frequency of use of each insurance and avoid importing insurances that may have a very low volume. This is an additional decision point for your practice because policies can be implemented that do not allow adding insurance companies without proper channels such as verification and contract by your billing department.

With each insurance you must also specify the individual provider numbers and methodologies to allow proper claim submission. This will greatly improve your input time if this can be imported from a previous system, or manually entered into a spreadsheet before import. This information is critical to claim acceptance and reimbursement.

**Security**

Security of patient information is the responsibility of your organization. Just as you have locks on your facilities doors, you must have security settings configured to grant appropriate access and restrict inappropriate access. You should consult your federal and regulatory agencies to determine how your security settings must be configured to comply with regulations. ESRHS complies with the HIPAA Security Rule, Department of Health and Human Services (DHHS), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accreditation standards and other state and regulatory agencies as appropriate.

Each person who has access to your EMR should have appropriate permissions based upon their individually assigned job duties. For example, a provider would have access to print and send prescriptions, but a front desk user would not.
Depending on your EMR, there may be several ways to configure security permissions. The most common are user-based and role-based:

- **User-based**: Each individual user has appropriate permissions assigned to them. This method is very time consuming to set permissions, as well as update on a group level. Your EMR application, like eCW, may have options for templates that can be applied to a set of users to accelerate the setup process. User-based security enables very detailed security attribute assignment.

- **Role-based**: Groups are created based upon role, determined by your practice. Permissions are then assigned to that role, and users are placed in each role group. This enables users to quickly have permissions set, and just as easy to update. A user may be assigned to more than one role, enabling customization based upon fairly specific role requirements. However; you may need to create additional roles that may have very few users to satisfy permission requirements.

ESRHS recommends using role-based security, due to simplicity of setup, ease of maintenance, and logical application to job duties.

In an upcoming product release, eCW is also offering a new security feature known as “Rx Security.” This will offer an additional layer of security for prescription security, enabling individual users rights to send prescriptions by provider. This is a necessary feature to comply with board of pharmacy regulations and has legal implications. In the current version of eCW, the only security settings are to grant/deny the transmission of prescriptions, not to and from specific providers.

**System Access**

In addition to the security within your EMR application, your organization should have a System Access policy describing the means for delegating access to systems that contain patient health information. This policy should cover access authorization, access establishment, access modification, and access termination.

See the [System Access Policy](#) in the Appendix of this document for more information.

**Faxing**

Faxing is a very time consuming and wasteful process in paper medical record practices. Your EMR should have the capability to support faxing, either through a fax server or a digital paid service by your EMR vendor.

ESRHS implemented a local fax server using standard telephone line (SLT) ports from the corporate phone system. The fax server is not an actual server platform, but simply a Windows XP workstation that meets the minimum requirements determined by the EMR vendor. ESRHS selected to purchase a Four-port Digi 56K RAS modem concentrator that would enable ESRHS send and receive with four lines simultaneously.

The installation of the eCW fax server software allows the computer to interface with the EMR system and permits the sending and receiving of faxes from the EMR users’ workstations. Providers can fax prescriptions to pharmacies that are unable to receive e-prescriptions. Referral
coordinators can fax referral requests directly from eCW to the referring providers’ offices. Requests for progress notes, lab results, or other information can be provided to other physicians and hospitals, directly from a staff member’s computer without the need to find a chart, make copies and mail or fax the information manually, saving a considerable amount of time.

The system permits the assignment of security permissions to authorized fax users while denying permissions to those who do not need this capability. eCW creates ESRHS’ own telephone directory for frequently called locations. When faxing prescriptions, the patient’s default pharmacy (as determined by his or her expressed preference during registration) is automatically entered when sending a fax. The default may be manually overridden and another choice selected if necessary.

The fax server may be enabled to receive documents as well, but this is not a feature ESRHS is currently using. This would require a staff member to continuously monitor the fax inbox and assign incoming documents to the appropriate provider, a task that ESRHS’ current staffing model does not currently support, but ESRHS intends to implement this feature in the near future.

Your organization should do an analysis of the number of faxes sent each day from each location, as well as the type of documents being faxed. This will help you determine the number of lines you will need to ensure there is not congestion at the fax server with busy signals or lines in use. If you are using ePrescriptions, then your faxes will decrease, but not all pharmacies will accept electronic prescriptions so you may not be able to eliminate faxed prescriptions.

The ESRH fax server typically sends between 200-300 faxes each day using the four-port Digi modem concentrator. Outgoing faxes are queued by the server and sent as lines become available. You may either attach standard telephone lines to the system, or utilize a phone system with a PRI interface and SLT (analog, not digital) port configuration to minimize costs. The phone system also enables internal hunt group configuration that essentially distributes phone calls from one phone line to a group of phone lines.

A fax outbox log provides feedback if faxes fail to transmit and gives a reason why, such as the receiving fax being busy or offline. Fax senders receive notification of failed faxes in the eCW messaging system and can take action based upon the message received.

The fax server system is dedicated solely to eCW-generated faxes. Non-medical or administrative faxes are not transmitted on the system. For these items and for documents that must be transmitted immediately, standard fax machines also remain in use throughout ESRHS business offices. eCW does support faxing non-medical information through the fax server, but it is a time-consuming and awkward process that involves scanning the document and attaching it to a fake “patient” in the system, then tagging the file to be sent via the fax server.

**Hardware**

**Server: Internal or Hosted Model**

You must determine if you have the infrastructure and resources to house your own server(s) internally, or if you must outsource to a service provider (typically referred to as Application Service Provider, or ASP) that hosts your server and charges a service fee. You must decide with
a comparison matrix which option will provide your organization with the most benefit and required amount of control. Typical considerations when selecting are listed below.

- **Cost:** internal platforms would require a higher initial cost because all servers must be purchased and housed, incurring possible infrastructure costs. Hosted platforms do not require large initial costs but do require monthly fees that may exceed those of internal cost equivalents after a short period of time, at which point you are incurring a loss for every month hosted.
- **Management:** internal platforms require local staff to implement and manage the server(s), such as performing software and hardware maintenance, as well as backup and redundancy. Your local staff controls when the management takes place. Hosted platforms perform these services as part of the internal cost. The customer is at the mercy of the vendor for scheduled maintenance and must rely on other hosted customers’ needs if downtime is only required by your facility.
- **Power:** internal platforms enable your organization to utilize the full power of the server(s). In a hosted platform, typically multiple customers are stacked onto a single server, reducing the available processing power to each customer on a balanced approach.
- **Connectivity:** in a managed platform, your organization controls the speed and connectivity to your server(s), and one location will have direct connectivity to the server(s). In a hosted platform, all locations are remote, and connectivity means may be shared with other customers, reducing the speed available to your users.

ESRHS selected to host servers internally. The cost analysis yielded a negative return after 24 months of usage with an ASP provider over the costs of server and infrastructure improvements to local facilities. ESRHS also has staff that is capable of performing local maintenance and operations, as well as enjoys the full processing power of all hardware. Finally, connectivity was a large concern, as ESRHS is located in a rural geographic area in which broadband internet connections are not readily available or affordably priced. From past experience, ESRHS had participated in an ASP-based application and found many issues related to shared hardware resources and connectivity. Hosting internally was the best benefit to ESRHS and environmental factors relating to the EMR project and budget.

**Server: Selection**

Proper hardware selection and configuration is critical to the success of your EMR. Your EMR vendor should be able to provide you with minimum specifications for your server(s). You should consult with your Information Systems staff, hardware vendor, and/or consultant to determine the hardware specs required for your organization. Consult with your EMR vendor as well, because they may have optimal configurations that mirror your organization and load balance processes that may cause system performance issues, such as offloading reporting to a separate server or workspace.

Scalability is important when designing a hardware platform. Ensure that you are exceeding the minimum recommendations by the vendor because future upgrades and data will cause performance decreases in your infrastructure. Keep in mind hard drive arrays and multi-processor architecture to enable future expansion.

Also determine an infrastructure location within your facility that is suitable for server placement. You should have a document that outlines formal procedures to limit physical access.
to areas containing your electronic information systems and the facility or facilities in which they are housed, while ensuring that properly authorized access is allowed. See the Information Systems Facility Access Control Policy in the Appendix of this document. Your Information Systems department will safeguard the equipment therein from unauthorized physical access, tampering, and theft.

The location(s) housing your electronic information systems should meet the following criteria:

1. The perimeter is defined as the immediate area housing the information system(s).
2. The perimeter is physically sound (i.e. no gaps in which a break-in is relatively easy).
3. There is a means for protection from equipment theft or vandalism: door locks and/or keypad entry only.
4. There are controls to guard against fire damage: smoke detectors, fire alarms, and non-liquid extinguishing systems.
5. Controls are provided to ensure that air quality is maintained: air conditioning and heating.
6. Controls are provided to guard against power surges and outages: surge protectors and uninterruptible power supplies.

**Workstation: Tablet/Laptop PCs**

The migration to an EMR system makes medical records available to multiple simultaneous users. Tablet and laptop PCs facilitate this process for the providers and nurses who continually move around in the health centers. This mobility and the immediate access to patient records eliminates the time spent tracking down and re-filing charts. It also puts information at the physician’s fingertips almost instantaneously.

**Types and Options**

A tablet PC is a computer system that enables data entry and navigation with a stylus or electronic pen.

One variety of tablet PC known as a “slate” has no keyboard. In its mobile configuration, all data entry and navigation is done with the stylus. If the user wishes to use a keyboard, the unit must be connected to a desktop docking station which enables outboard devices such as a keyboard or mouse to be connected.

A convertible tablet PC has a keyboard like a standard laptop and a display that can be rotated and locked into a flat position for written data entry with the stylus. The convertible gains the keyboard while sacrificing weight. Slate-style tablets are generally much lighter.

Writing on a tablet PC requires a period of adjustment. Handwriting-to-text conversion can be challenging depending on the clarity of the user’s penmanship. The ability to write and draw on the tablet can be useful to illustrate the location of an injury on a drawing of a limb or other body part. Physicians can also check blanks in forms and quickly select items from drop-down menus and pick lists.

Laptop and tablet PCs operate on rechargeable batteries. The longest-lived batteries are advertised with a life of approximately six hours. However, the battery life can vary widely
depending on many variables including the constant use of the onboard wireless network transceiver, preferred degree of screen brightness, and the operational load on the processor, hard drive and other power-consuming components. Some manufacturers also make removable, hot-swappable batteries that can be inserted into an equipment bay on the laptop or attach to the back or bottom of the units. These additional batteries can add significant weight. The purchase of extra batteries and an outboard battery charger is advised so users can swap out an expended battery during the course of a shift.

Docking ports are also available with some models. The docking port allows the user, when working from a desk or office location, to connect to a device that will charge the battery and allow the connection to a wired Ethernet port, a mouse, keyboard, USB devices, Palms, etc. Some docking ports also have bays that can be used to charge additional batteries to keep as spares.

**Advantages**

In considerations at ESRHS, the following determinations were made. The use of laptops and tablets by ESRHS’ doctors and nurses was more cost-effective that purchasing a PC and installing necessary Ethernet ports and cabling into each examination room and office. Although the wireless tablets and laptops are more expensive, the savings in the physical network infrastructure guided the decision to go mobile. Fewer numbers of laptops were needed than would have been required than if ESRHS had installed desktop PCs in the individual exam rooms. There were also savings in the number of workstations requiring software licenses and less power consumption than a full-sized PC and monitor at each station.

The laptops and tablets allow the nurses and providers to move freely from room to room, keeping their computer with them to enter vitals, document the examination, prescribe medications, and print patient education information among other benefits. Another benefit was security. It was a concern that nurses would not log out of a workstation only to have to log in a few minutes later at another location. The minutes spent waiting for the login process, multiplied by dozens of times daily, added up to a loss of productive time. The possibility also existed that another staff member might perform actions under another individual’s login rather than log off properly and log in with his or her own account. Thus, having a computer that moves with the user throughout the facility saves time, keeps the information secure and protects the user’s account from unauthorized access.

The wireless network interfaces with ESRHS’ wired corporate network allows access to the Internet, other network resources, and printers which are located in each providers office, nurse station, labs, and throughout ESRHS’ facilities.

**Disadvantages**

Tablet PCs and notebooks can be significantly more expensive than desktop models. The expense of tablet PCs must be weighed against the addition of supporting network infrastructure for a wired network. The shorter battery life can be inconvenient unless planned for with extra batteries, chargers, and docking stations. The potential for accidental damage is greater, because the units might be dropped or struck against objects while moving around the health center hallways and examination rooms. Accidental damage warranties can be purchased with the units and are well worth the expense.
A laptop or tablet PC is also more subject to theft than a wired desktop workstation. With the eCW EMR, no patient data is stored on the laptop or tablet PC. If the workstation is lost or stolen, the practical likelihood of patient information being compromised is almost nonexistent.

Laptop and tablet PCs are also susceptible to occasional signal loss which can be inconvenient at times. Wireless networks can require some significant tweaking to optimize them and ensure full coverage of a facility. Each facility has its own challenges based on the building layout, materials present in the building, and other environmental factors.

**Training, Support, Cleaning, and Maintenance**

Tablet PCs require some additional training for most computer users. The use of the pen takes some getting used to and some of the ESRHS providers are still not comfortable with it. ESRHS provides training and orientation to each user who receives one and encourages the users to take advantage of the built-in tutorials that come with the Windows Tablet Edition.

Supporting tablet PCs requires keeping at least one spare unit on-hand to keep providers working without interruption when maintenance is necessary. The IS staff may also need time for orientation to a particular brand or model’s features so as to be able to train the end users on how to benefit from them. Spare batteries, battery chargers, and tablet pens, should also be kept available to ensure timely support.

Cleaning laptop and tablet PCs is a concern in clinical environments to control possible infections from spreading. The keyboards and screen can usually be cleaned with an alcohol wipe, but it is wise to check with the manufacturer first to prevent damage. There are also U/V disinfectant wands available to kill bacteria that can form on keyboards and screens.

Standardization is another important consideration. Having the providers use the same brand of tablet PC allows the use of drive images which permit cloning of the standard configuration. This also simplifies maintenance and training. Standardizing batteries and tablet pens allows for a relatively small pool of spare equipment to be maintained for replacement if damaged.

**Imaging Devices**

Refer to the [Document Scanning](#) section of this document.

**Network**

Your network must be able to support the data requirements of your EMR application. If your network capabilities are not sufficient then your application will be slow and the risk of user rejection increases, because the users will be unhappy with the performance of the system.

**Data Transmission Assessment**

You must anticipate the number of users that will be utilizing the network and plan accordingly. It is important to ask the software vendor the bandwidth requirements of the system, such as system throughput, packet size, number of network requests, etc. You must also assess the amount of traffic that will flow within the intranet and the extranet. For example, a majority of your network traffic will be to and from your servers, but there may be sub-applications within the system that make procedure calls external to your network, such as online medical
references, electronic prescription calls, and interface connections. The vendor should be able to supply bandwidth requirements or the information to contact the sub-application vendor to obtain this information.

There may be components of the system that bandwidth constraints can be critical, such as scanned documents at ESRHS. The paper charts that were scanned are rather large, and many charts were hundreds of pages. ESRHS determined that scanning the sections of the chart in large sections would take too much time for the providers and nurses to view without causing a bottleneck waiting for the data to transfer from the server to the client and be displayed. For this purpose, ESRHS determined the number of pages that equaled the “allowable” wait time for the provider over the existing connection. This increased the time for scanning the charts, because the larger sections were split into 25-35 page sections, but made the wait time for viewing much faster. The bandwidth for the rest of the EMR functionality was more than adequate, but scanned documents had an exception to function properly.

Your organization should also investigate whether or not they have the resources to accomplish network build-out internally or if a contract service should be used. The network is a critical piece of the infrastructure necessary to support the EMR. If you do not properly build this infrastructure, resulting failure can be devastating to an organization. You will also want to incorporate tools to monitor traffic on your network interface devices and examine the data transmission to ensure sufficient bandwidth is available. A properly functioning network with sufficient bandwidth will also enable your support staff to focus on other areas of network performance and eliminate troubleshooting options.

Your organization should examine options for network connectivity, ranging from wired to wireless broadband services such as DSL, T1, MPLS, Cable, Satellite, and Fiber connectivity between your medical centers and to internet upstream. You want to make sure that redundancy is built in through multiple carriers or connection methods.

**Network Funding Support**

Broadband in rural areas may be limited or very expensive. Organizations in rural areas that are qualifying 501c3 or Federally Qualified Health Centers (FQHC) may be eligible for funding support. Programs such as The Rural Health Care Program of the Universal Service Fund (USF) administered by the Universal Service Administrative Company (USAC), which is a support program authorized by Congress and designed by the Federal Communications Commission (FCC) provides reduced rates to rural health care providers (HCPs) for telecommunications services and Internet access charges related to the use of telemedicine & tele-health. This means that support is available for telecommunications services and monthly Internet access charges used for the provision of health care. Support is also available for limited long-distance charges for accessing the Internet. The level of support depends on the location and the type of services chosen and is calculated individually for each health care provider. A health care provider can save on services it already has, upgrade current services, or install new services. For more information on this program visit [http://www.universalservice.org/rhc/](http://www.universalservice.org/rhc/)

**Wireless Networking**

The ability to move about in a facility with a laptop/tablet requires the deployment of wireless access points (WAPs) throughout the building. This requires a careful survey, detailed planning,
and possibly integration into an existing corporate network. The location of WAPs will be affected by a wide variety of factors and environmental conditions.

Once a determination has been made as to how many access points will be needed, it must be determined how they will operate, as bridges to an existing infrastructure network, as repeaters to a single access point, or as a mesh network. The topology of the facility and the integration with any existing network may require additional cabling to support the addition of the WAP modules.

Many environmental factors can affect the range of the devices, such as fluorescent light fixtures, nearby microwave emitters, external interference from nearby electromagnetic sources, and other systems with wireless access. Wireless networks also require advanced planning for security purposes to ensure only authorized users gain access to it.

Remote Connectivity
A great benefit of an EMR is that the records are portable and have limitless boundaries. It is important that this benefit is realized in many ways, from the patient’s perspective to the staff and provider perspective. Gone are the days of providers being on call and being unable to give accurate treatment advice with the absence of clinical data, and the worries of the patient who may not be giving the provider enough accurate information to diagnose and treat their conditions. The provider can also complete many tasks without being in the office, asynchronously from the ongoing processes of their office. For example, in the past a provider had to work late in their physical office building to complete necessary chart paperwork and telephone calls. Now the provider, with remote access, can leave work early or on time, and work from home to finish their tasks. They are free from the physical constraint of the office to work when they want, wherever they want. This is a dramatic change of lifestyle and recruitment and retention opportunity for your organization to offer.

Remote access is accomplished through Virtual Private Network (VPN) technology, which uses public infrastructure such as the internet to security transmit data from a provider laptop to your corporate office. The analogy used is one of an armored truck traveling a public highway, nothing can get in or out of the truck unless the driver (your organization) desires. There are several vendors and software/hardware solutions that can be used to incorporate VPN technology with your organization such as Cisco Systems, Juniper Networks, and Open Source solutions such as OpenVPN. Some vendors offer discounts to non-profit organizations and sell software and equipment for a fraction of the cost. Examples are TechSoup (http://www.techsoup.org) or The Microsoft Open Charity Program (http://www.microsoft.com/LICENSING/programs/open/opencharity.mspx).

Server Installation (Software)
Your EMR vendor should perform the installation of your EMR software on your server(s) and optimize the software for your operating environment (server platform, number of users, processing load, etc.). Your IS staff should also provide other relevant information to your EMR vendor to ensure proper installation (server topology, hardware specifications, etc.). Once your EMR vendor has installed the software, you can begin your pre-implementation process and start customizing the software to your organization’s needs.
Support
Your organization needs to observe all avenues for support in order to maintain your software and receive assistance when needed.

Organizational
You should develop an internal support structure to determine who will handle support calls and the individuals responsible for providing support. For example, hardware and interface calls may be directed to your information systems helpdesk, whereas training calls may be directed to your corporate trainer or “Super User” administrator, and billing calls may be directed to a billing specialist group. Your structure may depend on your physical and human resources and should be flexible and communicative, as many issues may rely on more than one individual or group to support.

Vendor
Your EMR vendor will provide (for a fee) technical support and training services. It is critical that you purchase these services because there will be many technical support incidents that only the vendor can resolve. You should incorporate vendor support into your organizational support structure as calls should be placed to the vendor through the appropriate personnel. If there are too many people calling the vendor for technical support there may be overlap, or confusion, as tickets may not be tracked properly and rework may be done if results are not communicated through proper channels.

Associational
If you have an association, such as ESRHS has CCNV and the VACHCA, there is power in assembling a user group for which to share ideas, communicate issues, utilize a common knowledge base, and collaborate on a number of items relating to your EMR. You do not need to have the same EMR to incorporate a users group, but a common EMR will enable you to pool resources to achieve association-wide objectives.

Training
Training is a continual process, and does not end when your EMR vendor’s trainers depart your facility. Your organization should take every opportunity to learn from your vendor, colleagues, associations, and multiple other informational resources to constantly improve your knowledge and application of your EMR. Training is expensive, not only in costs associated with your vendor’s training fees, but with your human resources involved with training. Training is the most critical aspect of your EMR system, because if employees do not know how to use the system properly, they can not accomplish your organizations’ goals without this tool. You should require every individual within you organization to attend a minimum amount of training provided by your EMR vendor, and create a framework for continual education and process improvement to ensure stability and growth in EMR knowledge.

Groups
You should create functional groups of your employees based upon their job duties and job classifications. Typically, your EMR vendor will provide you with a framework for learning that will include core groups of duties associated with employees, such as front office, nursing, referrals, and providers. This will enable your groups to receive a focused training approach that
concentrates on their job duties and does not clutter their training with non-relative information. You should develop a training schedule to ensure that your employees can rotate through as many sessions are necessary to receive their appropriate training.

You should also have conducted pre-training activities such as those described in the Skills Enhancements section of this document to achieve better retention and understanding of the EMR and technology concepts.

**Expectations**

It is important to understand that training is a continual process. Your super users should try to understand the software from all aspects to be able to assist with process and workflow creation and optimization. The super users should be exposed to as much on-site training as possible, as well as thoroughly read product documentation and attend Webinar and remote training opportunities if available. The end users will only receive a structured set of information and training before going live with the system. The intent is to not overflow the users’ minds with a large amount of information, but to build the foundation of knowledge so the users understand the conceptual framework of the system and can begin expanding on that knowledge once these basics are mastered. There should be continual forms of training, such as peer to peer learning, structured classes by organizational trainers or super users, memos, emails, and tips disseminated by the super user staff. Just as a child began in kindergarten and progressed upward through grades, only continual education and nurturing can enable the staff and providers to build upon their foundation and achieve complete efficiencies and effectiveness in the system.

**Continuing Education**

The importance of continuing education cannot be underestimated. The complexity of an EMR system is such that many providers, nurses, and administrative staff members will not master all of the features and processes that will realize the efficiencies of the system at first. As they become more familiar with the system, continuing education will maximize their ability to use the system more efficiently, manipulate the time- and cost-saving features more readily, maximizing the return on the investment.

There are several avenues for continuing education. Vendor-hosted webinars and training documentation are generally available. Online forums and user groups are another useful avenue for exchanging information with other users of the same EMR product. Such online forums can be sponsored by the vendor of your EMR and there are independent forums, wikis, discussion groups, where users can exchange information and tips on using the system. The eCW online users’ forum is located at [http://www.ecwusers.com](http://www.ecwusers.com).

In the weeks and months following ESRHS’ implementation of the eCW EMR system, ESRHS’ IS department employed a number of strategies to provide training opportunities. These included:

- In-house visits for training on specific functions (i.e., referrals, checkout, scheduling, labs, data entry of immunizations, scanning, etc.)
- Weekly tips are sent out as an e-mail newsletter to providers
- Printed training aids with shortcuts, prompts, and workflows
• IS visits to “shadow” providers to assist them with building templates, physical exam defaults, use of eCliniSense and other features
• Use staff meeting “breakout sessions” to have an open forum with clinical and non-clinical staff to discuss issues and streamline processes
• Creation of an EMR users’ e-mail group where providers share ideas with each other and work together to answer each others’ questions with the IS team’s support

It was critically important for ESRHS to maintain a continual, physical IS presence in the centers for some two weeks after the go-live at each center to answer questions. After the first couple of weeks, the IS staff is available to respond by telephone and remote access to each workstation in case a problem or question arises.

In addition to training on the EMR-specific functions, it is also necessary to assess the experience level of the users with basic computer operations. Many of ESRHS’ users had never used a computer in the workplace at all. In the year leading up to the EMR implementation, the IS team worked to train users on Windows basic operations to ensure they understood how to use the mouse to left-click, right-click, open and save files; how to edit, cut, copy, paste; and how to use e-mail, minimize and maximize windows, select default printers and print documents etc. See the Pre-Training section earlier in this document for more information.

Great care must be exercised to be positive, encouraging, and supportive during the transition. The users fear making mistakes and being embarrassed in front of their co-workers, as well as fear of causing financial harm to the organization due to incorrect entry of data. It is important to foster a supportive environment so users will gain confidence as well as competence using the EMR system.
EMR Setup/Considerations

Aside from the PM implementation, there are several items that need to be addressed to ensure proper configuration and execution of the EMR.

Customization

Your EMR will contain various sections that can be customized, from lab, diagnostic imaging, immunizations, alerts, flow sheets, pick lists, and more. The more you can customize before training and implementation begins, the better, as this will allow your providers and staff to focus on using the product, not customizing and creating the product. However; you should limit the staff that has the ability to customize, such as clinical directors, managers, and “Super users” to limit the possibility of duplication of objects/items in more than one section, more than one pick list, etc. This should be limited through the security settings in the EMR as well as an organizational policy. In a sense, the more users that have the ability to customize, the more chance your EMR will have “clutter.” For example, one user may not be able to find a past medical history item of “Chest Pain”, and add the item, when the item may have been entered as “Pain, Chest.” Now you have two of the same element and exceptions may have to be made when reporting to account for both instances of the element.

Your EMR vendor should be able to supply a standard set of options, or a “clean” version of a similar practice with pre-built items such as categories and templates, History of Present Illness (HPI), Review of Systems (ROS), Examination or Physical Examination, Procedures, Labs, Diagnostic Images, etc. This will enable your practice to not have to create every item from scratch, but rather trim and add-in required areas to meet your practice’s needs.

Cost/Benefit Impact of Customization

With each customization there are variables that must be considered with regards to impact on individuals within the organization. How you choose to set up your system will directly affect your users, and you must determine how each change will affect your users and determine which selection will result in the least cost and highest benefit to your organization. For example, one process may relieve your provider a few minutes per patient if offloaded to the front office or other clerical staff, resulting in the time being spent by the ancillary staff and enabling the provider to see more patients per day, creating a higher revenue. Other changes might relieve duties on nursing staff but redirect those duties to providers, minimizing provider productivity. Each change or customization may have “trickle-down” effects that should be assessed before implementation.

Customizing Templates

Even with a small group of providers, there will likely be a difference of opinions in regards to care and documentation. For this reason, you should let your providers each create and manage their own templates, but try to keep nursing and administrative templates standardized whenever possible. Your physicians should come to a consensus on a health center or organizational level to create those templates that will be standardized. For example, nursing staff may use a template that is standardized for the problem, implementing standing orders such as ROS for specific problems or chief complaints, and lab orders, then the provider can merge that template with their specific template and the combined result is a manageable progress note. This ensures
the nurses are meeting the standards of the practice, as well as the standards of their assigned provider. Competencies can then be created to measure the ability of the staff.

**Labs**

Your labs list should reflect all of the tests that could possibly be ordered in your practice as well as any procedures that you may be sending out or ordering by referral. This will enable you to have a database on each patient relating to their tests and results within your medical record infrastructure. Your EMR should have capabilities to interface with multiple reference laboratories, therefore all tests that could be ordered through the reference lab should be included. Your EMR may also have capabilities to link CPT charge and diagnosis codes and/or apply rules to each lab to minimize workflow and coding processes. You should examine the capabilities of your EMR and evaluate each scenario for charge and diagnosis codes with your coding scheme to determine if this will be a useful feature: in some cases there may be more confusion caused by automatic CPT code entry and diagnosis code checking than relying on a human to determine the correct application.

**Diagnostic Imaging**

Your diagnostic imaging list should reflect all of the tests that could possibly be ordered in your practice as well as any procedures that you may be sending out or ordering by referral. This will enable you to have a database on each patient relating to their tests and results within your medical record infrastructure. Your EMR should have capabilities to interface with multiple reference imaging centers or radiology information systems, therefore all tests that could be ordered through those centers should be included. Your EMR may also have capabilities to link CPT charge and diagnosis codes and/or apply rules to each test to minimize workflow and coding processes. You should examine the capabilities of your EMR and evaluate each scenario for charge and diagnosis codes with your coding scheme to determine if this will be a useful feature: in some cases there may be more confusion caused by automatic CPT code entry and diagnosis code checking than relying on a human to determine the correct application.

**Immunizations/Injections**

Your immunizations must be set up so you can properly document, charge, code, and report. You should set up your immunizations and injections in such a way that optimizes workflow in all of these areas. If you participate with government funded programs, such as Vaccines For Children (VFC), you must determine the mechanism for recording the documentation associated with the vaccine and a method to report that information when audited.

**Document Scanning**

In most practices with paper charts, there is an enormous amount of non-revenue producing time spent on paper processes, such as pulling, searching, filing, copying and faxing paper charts. To eliminate these processes, a chart must become “electronic.” Despite the move to electronic health records, there is still an unavoidable need to process paper documents and import them into the EMR. Referrals, consult notes, lab results, letters, and other documents still arrive by mail or fax. The patient’s old paper chart has to be imported into the system so that it will be available for review by the provider. Registration documents such as HIPAA privacy forms, consent forms, etc. need to be signed and scanned into the EMR system as well.
One of the most controversial items of implementation is document scanning. You most likely have years of data on patients in the form of paper, and there are many decisions to be made regarding scanning charts. Scanning charts is definitively one of the most time consuming and resource intensive tasks associated with EMR implementation.

Scanning charts is actually a four part process: document preparation, scanning, reviewing, and backloading. Document preparation, or “prepping” is the process of disassembling the chart, removing staples, tape, increasing contrast, attaching notes and receipts, etc. so that the chart is ready to be scanned. Scanning charts refers to the process of electronically scanning documents into the EMR, whereas backloading refers to the manual input of historical information into sections of your EMR that can be easily catalogued and retrieved. Reviewing is a quality control measure that makes sure the information scanned is legible and a reproducible copy of the paper record.

Some ideas from the DOQ-IT article titled “Scanning and Backloading Tips” and other sources were used in the list below of questions that should be considered when determining your processes for scanning charts:

- Which paper charts will be scanned? All charts? Just patients seen in the past five years?
- Which parts of the charts will be scanned? Which parts will be manually backloaded into the EMR?
- If sections of the chart will be manually backloaded into the EMR, who will enter the information and when will they enter it?
- Who will scan the paper charts? Staff? Temps? A scanning service? What is the cost/benefit?
- In what order will the paper charts be scanned? (Newest to oldest? Based on appointment schedule?)
- How will scanned documents be indexed in the EMR? Will there be separate sections for referrals, office notes, and other documents?
- How will new documents that are received in the mail or by fax every day be handled?
- What type of scanner is needed? Is there enough physical space for a high volume scanner?
- Will scanned documents be searchable/reportable? Be sure to ask your EMR vendor.
- What will we do with the charts once they are scanned? Will we store them offsite? Shred them?
- If paper charts are scanned, you will need to develop a paper to electronic transition plan so your staff will know where to look for a patient’s chart.

ESRHS began evaluating the questions above and determined that all charts were to be scanned in entirety in order to minimize personnel associated with paper processes (searching, filing, copying, and faxing paper charts), along with the goal of reusing space containing paper charts for business purposes such as creating office space or additional exam rooms. According to state law, medical charts can not be destroyed until the patient has been “inactive”, that is, has not been seen, for more than X years if adult, or Y number of years after a pediatric patient has reached legal adult age. To minimize costs associated with scanning inactive records, ESRHS began by “purging” charts from each medical center for patients that were considered “inactive” according to state guidelines. Daily mail and faxes would be scanned by local staff and routed accordingly to staff members. Once documents were scanned, they could be shredded in bulk.
batches every few months, or in as little time as the following day once server backups had been verified.

ESRHS evaluated the time and resources associated with scanning in-house versus having a third party scan the records and decided that the resources were not available in house to scan the charts in a timely manner. A third party vendor was selected via an RFP process and details for scanning requirements were determined (i.e. file size restraints, section breakdowns, file transfer, payment schedule, etc.). The records were to be shipped to the vendor during the week of training, with the first few weeks of scheduled patients separated for immediate scanning, and files would automatically transferred to ESRHS via secure-FTP daily. When ESRHS went live at the first site, the vendor had trouble with the requirements and there was an initial delay for scanning charts. Eventually, the vendor was able to meet the requirements. However; the process still required a significant amount of time on ESRHS part because the multiple files generated for each patient had to be manually imported into the EMR application, organized, and named. This required a full time equivalent at ESRHS for the month and a half while charts being actively scanned. When the process was completed for the first site, ESRHS had underestimated the amount of pages that were to be scanned and determined that third party outsourcing was not going to be a viable option due to cost constraints.

ESRHS decided for subsequent sites that high volume scanners would be purchased and that in-house staff would be responsible for scanning. However; ESRHS learned that the time spent separating the chart and scanning individual sections (such as Labs, X-Ray, Letters, Referral Notes, etc.) was too detrimental to time scanning each chart that the sections were simplified into left side, right side, and progress notes. This enabled the staff to scan much faster, but the providers and nursing staff that accessed the scanned charts spent more time sifting through the charts because they were not able to access a section directly, there was some manual “searching” that needed to be done. This approach quickly became a problem for ESRHS and now charts are being scanned and separated by section, in order to satisfy the provider and nursing needs. The other issue related to in-house scanning was personnel. ESRHS, with recent economic downturn, was not able to acquire additional resource in house to dedicate to scanning. Therefore, a rotation of existing staff was used to scan the documents. Without a consistent scanner at each medical center, quality suffered and skills were not specialized which resulted in disorganized scanning methods that made access and retrieval difficult for providers and nurses. ESRHS has since realized the issues related to this approach and has retrained staff to ensure a more consistent approach. In order to scan in-house ESRHS had to scale back time expectations for documents to be eliminated from the centers.

Backloading is a process that ESRHS executes when the patient is seen for their first encounter in the EMR. Depending on the volume of the existing paper chart, a data entry person may be utilized to enter medication and problem list information, the nurse may enter from the chart or verbally ask the patient for their subjective information (past medical history, family history, social history, surgical history, allergies, etc.), or the provider may enter this information during or after the visit. The hope is that after the patient’s initial visit with the EMR, the paper chart would not have to be pulled for a subsequent encounter. The process of backloading is extremely intensive, but offers the ability to truly be “paperless” with the patient’s record, as the relevant information is electronically stored and accessible in the patient’s chart. Along with the scanned documents, all of the non-revenue producing services associated with the paper chart are eliminated.
Document Scanning Examples

Check-in

When a new patient checks in, there are several documents that require his or her signature which must be “attached” to the medical record. The EMR also provides the capability to take a picture of the patient or to scan in his photo and personal information from a driver’s license. This information can populate name and address information in the demographics section. For these purposes, ESRHS has two types of scanners available at the check-in windows at each medical center.

- Mediscan ScanShell 800: This is a small scanner that is used to scan drivers’ licenses and insurance cards. The ScanShell also has optical character recognition (OCR) software that can “read” the text on the license and import to various fields in the database such as name and address.
- Fujitsu FI-5120C/FI-6130C: This is a full (letter) size scanner for forms and documentation signed by the patient. These full page scanners are relatively fast (25 pages per minute), a 50 page automatic document feeder, and have a duplex (front-back scanned simultaneously) capability.

ESRHS has had some trouble with the eCW embedded driver for the Mediscan device. The eCW native driver that is linked to the “Mediscan” button within the program scans documents at a very low resolution. Insurance cards with a matte background are almost illegible. ESRHS have since found a workaround, but the convenience of the Mediscan button is no longer available as part of the alternate procedure. The scanning accuracy of driver’s license information into the demographics is less accurate than desired, and patients do not always keep their drivers license updated with accurate information. Thus far, check-in and registration staff have found it preferable to take the patient’s picture with a small webcam and enter the demographic information manually.

Medical Records

For the purpose of scanning bulk medical records, a heavy-duty (commercial grade) document scanner was required. ESRHS selected a Panasonic S7065C. This is a large scanner with a 200-page document feeder, 65 page-per-minute scan rate, a daily duty cycle of 10,000 pages, and a blank page removal feature. In some cases, ESRHS uses two scanners in medical records: a small Fujitsu FI-5120C/FI-6130C for incoming mail/faxes and the Panasonic bulk scanner for complete charts.

The Panasonic scanner handles large document loads and is fairly good at scanning paper that has been dog-eared or crumpled in a chart. The scanner resolves and scans text on papers of different colors (our old telephone encounter forms were on blue paper) very well. However; much staff user interaction is required to ensure that all pages are scanned accurately through prep and quality control features as mentioned previously.

Miscellaneous Scanning

Some staff members, such as patient account managers or center managers, occasionally have had the need to scan in Medicare or Medicaid forms or other documentation that is not necessarily processed at patient check-in. Some of ESRHS’ referral coordinators also found it
easier for them to scan in their own received mail rather than turn it over to medical records or scanning staff. In these instances, ESRHS was able to use inexpensive flatbed scanners or all-in-one printer/scanner/copiers because speed or duplex operations were not critical factors.

**Recommended Settings**

One of the considerations to be made is the resolution settings of the scanned documents. Most high-quality document scanners have the ability to scan in color at 600 dpi or higher. This degree of resolution results in very large file sizes. The scanned documents must be transferred from the scanning computer to the document/ftp server that supports eCW. When a physician needs to read from the scanned documents contained in the program’s “Patient Documents” section, if the file sizes are too large, a significant wait time occurs while the file downloads across the network (See the Data Transmission Assessment section for more information).

ESRHS found that two settings were critical to having high-quality scans of chart documents. The first was a black and white scanning resolution of 240 dpi. This provided excellent readability with efficient file size. The second setting was to limit the default number of pages to be scanned between 25 and 35. This limits the scanned .TIF files to about 1 MB in size, which transfers across the network in an allowable transmission timeframe as determined in the Data Transmission Assessment.

**EMR: Workflow Analysis Example - Telephone Encounters/Triage**

There are many issues that should be determined in relation to workflow of telephone encounters and triage. At ESRHS, telephone encounters were implemented incrementally before the complete implementation of the EMR. This enabled ESRHS to separately address workflow and transition the users at a manageable pace to determine optimal workflow. Workflow of telephone encounters must be arranged in the cost/benefit impact approach, understanding that the providers are the most costly resource, then nurses, then clerical/ancillary staff. In order to maximize workflow, the encounter should flow through channels to minimize handoff and transit time while minimizing the cost-heavy resources such as providers. Whenever possible, the lowest cost resource should be used to complete a telephone encounter.

**EMR: Patient Data Entry (History) Workflow**

As discussed in the Document Scanning section, backloading refers to the manual input of historical information into sections of your EMR that can be easily catalogued and retrieved.

There are several options for backloading patient information:

- Have a nurse, medical assistant, transcriptionist, or clerical staff member enter the information from the chart into the EMR.
- Have the provider enter the information from the chart into the EMR (most costly but highly accurate).
- Create a form that the patient can fill out through the mail, online, or while in the waiting room that can be entered into the system (this relies highly on the patient’s knowledge and understanding of their medical history, which may not be possible with less educated patients or patients with highly complex medical histories).
- Have a nurse, medical assistant, transcriptionist, or clerical staff member enter the information from a verbal interview into the EMR.
• Have the provider enter the information from a verbal interview into the EMR (most costly but highly accurate).
• A combination of the above.

ESRHS executes this process when the patient is seen for their first encounter in the EMR. Depending on the volume of the existing paper chart, a data entry person may be utilized to enter medication and problem list information, the nurse may enter from the chart or verbally ask the patient for their subjective information (past medical history, family history, social history, surgical history, allergies, etc.), or the provider may enter this information during or after the visit. The hope is that after the patient’s initial visit with the EMR, the paper chart would not have to be pulled for a subsequent encounter. The process of backloading is extremely intensive, but offers the ability to truly be “paperless” with the patient’s record, as the relevant information is electronically stored and accessible in the patient’s chart.

**EMR: Patient “Workup” Workflow**

The patient “workup” process may be an intense process, with vital information, backloading of information, and subjective workup (past medical history, family history, social history, surgical history, allergies, etc.).

There are several options for patient “workup”:
• Performed by nurse/medical assistant in the room with the patient.
• Performed in a dedicated “workup” area by the same nurse assigned to the patient or a different nurse dedicated only to “workup” patients.
• Performed by the provider in the room with the patient.
• A combination of the above.

ESRHS assessed different options and determined that the workup should be performed by the nurse/medical assistant in the room with the patient. This enabled the nurse to truly assess the patient and avoid bottlenecks in dedicated “workup” workflow settings. ESRHS does not have any interfaced vital machines, which results in the nurse manually entering all vital information manually into the EMR. In the future, the viability of interfaced vital machines will be investigated, and due to the large expense of the units a dedicated “workup” area may be designed into the patient visit.

**Integrating EMR Features**

Several features of eCW offer great time savings, patient convenience, and financial benefit worth mentioning. In some cases, these require establishing a protocol or at least a general consensus by the entire group of providers to implement them to advantage.

**eCliniSense**

The eClinisense feature is accessed by the provider during the treatment phase of the visit. The EMR system records all actions the provider does from the treatment window of the system, which includes prescribing medications, requesting labs or diagnostic imaging, and making outgoing referrals. The information is stored in the system database for each physician and is organized by the ICD-9 codes.
When a physician has assessed a patient with asthma or diabetes for example, the ICD-9 codes are attached to the assessment. Prescribed medicines are associated by the ICD-9 code as well as any lab orders, x-rays, etc. If another patient presents and is assessed to have asthma or diabetes for example, the physician can click the eCliniSense button in the treatment screen and see everything he has done in the past to treat that specific condition. He can then select with his mouse (or the tablet PC’s pen device) the medications to prescribe, labs or imaging to order, referrals to make, and other instructions that might apply. In four or five mouse clicks, the entire treatment can be applied from his own database to the patient.

In the case that a patient presents with a new problem for which the provider’s eCliniSense database has no information (such as a new provider in the practice or a mid-level provider), he or she can query the eCliniSense database of other providers to view what other physicians at ESRHS has done for treatments of the assessed conditions. If suitable, they can be applied to the current patient. The eCliniSense is a powerful timesaver to both the new provider as well as eliminating the need to interrupt the supervising provider.

**Generic Alerts**

Another feature of the EMR software is the ability to create alerts which notify staff when a predetermined set of criteria is met that requires their action. There are several types of alerts.

- Global
- Immunizations
- Labs
- X-ray
- Diagnosis-specific
- Prescription-specific

Global alerts can be made for either clinical or administrative staff members. For example, billing alerts can notify the front desk to verify address information or that proof of address information is needed for a sliding fee applicant. The clinical alerts can inform the provider that a non-English speaking patient will require a translator to be present for the visit or that a particular patient is on a narcotics contract. The alerts can be customized as needed.

Clinical alerts can be established to flag specific patient groups for various actions. ESRHS has set up lab alerts for diabetic patients and alerts for females age 20-70 to remind them of their PAPs and mammograms.

Because the alerts impact users and patients system-wide, it is essential to plan the implementation having a consensus of what alerts are to be created, when to make notifications, and how to advise the patients (e.g., by letter, in person during the visit, etc.) This requires some coordination and discussion among providers, billing staff, and the administrative staff that uses them. ESRHS is still in the planning and discussion stages of how to best use this feature.

**Flowsheets**

Flowsheets are spreadsheet-like documents that contain a set of patient information tracked over time. The eCW flowsheets feature permits one to:
• Include fields that populate data from a patient’s progress notes, labs, x-rays, immunizations, and vitals
• Create free-form fields that contain any text desired
• Export the contents to Excel

The convenience comes from the system populating the flowsheet from structured data in the patient’s electronic chart. A typical flowsheet might track a patient’s vitals, weight, height, blood pressure, labs, immunizations, and a myriad of other items of importance from the patient’s chart.

Again, pre-planning and coordination between the providers is essential to effectively use this feature. ESRHS is still in the discussion/planning phase for customization of this feature. As ESRHS’ providers gain confidence and expertise with the system, it is certain that they will begin to leverage the benefits of eCliniSense, alerts, and flowsheets.
Go-Live

Assess EMR Go-Live Readiness

Even though your implementation timeline has been pre-determined, you should assess your go-live readiness to determine if your organization has completed pre-implementation and will be successful if go-live is executed in the current environment. Implementing the product when not ready will be disastrous, as you could damage your relationships with your patients, your staff, suffer financial losses due to improper coding and reduced patient visits, or incur a medical mistake that could cause harm to a patient. There will never be complete readiness, but your organization should feel confident in its ability to go-live with high probability of success before proceeding.

System Testing

Prior to going live with an EMR system, it is essential to conduct testing to ensure that the installation is reliable, that it operates within the desired parameter, and to recognize the need for adjustments as needed to ensure proper function. At ESRHS, a test server was installed with a test database. Several PCs were installed with the EMR client software and pointed to the test database.

The most basic testing was incorporated into the rollout of the EMR client software. ESRHS developed an installation checklist that included all of the system-specific configurations and tested functionality. Every workstation was subjected to the same standardization testing.

Each system module was tested and evaluated. In so doing, ESRHS not only identified potential problems and were able to engineer solutions to prevent them; ESRHS also gained familiarity with each of the system’s modules. The integration of multiple modules was tested using ESRHS’ database of test patients. ESRHS could go through the entire process of registration, scheduling appointments, patient check-in, examinations, treatment, sending of prescriptions via the fax server, ordering labs, making referrals, scanning documents, etc. During the testing, ESRHS was able to identify and prepare the restructuring of some of ESRHS’ processes to more effectively prepare and train the staff for go-live.

System stress/load testing was another critical area. It is important to make sure that the network infrastructure and architecture is capable of handling the number of users processing data in real time. During testing, ESRHS ran many of the typical processes from ESRHS’ five medical centers simultaneously. Metrics on network bandwidth use were gathered to ensure that network resources were sufficiently available.

One of the things ESRHS discovered during the process was that the quality-of-service (QoS) on the telephone system at ESRHS’ corporate office and the Franktown Community Health Center slowed down many of the eCW functions. ESRHS was able to identify and reduce the amount of bandwidth the telephone system used in order to free up more for the EMR system. Further tweaking of this condition may be required. Had ESRHS not discovered it during the testing phase, it would have had serious ramifications during and after the go-live for these locations.
Another issue that arose was the discovery that the installation of the eCW client broke the Crystal Reports module on ESRHS’ payroll software suite. Thus, it was necessary for ESRHS’ payroll staff to connect to eCW via a terminal server session, not from a locally-installed client. The interaction between software is comparable to drug-to-drug interactions in the medical practice, and must be avoided for software to function properly.

ESRHS also tested running eCW in a degraded performance environment. For example, ESRHS simulated loss of ESRHS’ T1 lines and checked the performance of the system while operating on the backup DSL circuits. ESRHS tested the use of the battery-operated tablets PCs, and generator-supported WLAN access to simulate a temporary loss of power. The testing process gave ESRHS experience and allowed ESRHS to develop contingencies to meet many situations.

Finally, the eCW database and application servers were integrated into ESRHS’ backup and disaster recovery planning, which required additional testing and validation to ensure data integrity and functionality.

**EMR Go-Live Tasks and Considerations**

The list of tasks and considerations below will help your organization be successful during the go-live period.

**Patient Scheduling**

Your providers will be new to the EMR system and will therefore require additional time to document their encounters. You should begin by assessing the skill level of your providers and determining how much time each provider will need. You should begin by reducing patient load to 30% for the first day few days, then increasing to 50% the second week, 70% the third week, and then increasing forward as appropriate to your provider’s skill level. As you wean away towards full productivity, you should also consider a break or two in the morning and afternoon to allow the providers to wrap up any open EMR tasks. At any time if the load is too heavy you should increase the amount of time per patient visit to reduce the load on the provider. If you have additional providers available from other health centers not going live (if using an incremental approach), it is useful to have one on site to handle emergencies or walk-in appointments. Patient scheduling is important, because the first few weeks of go-live is the time when habits are formed, and if your providers concentrate on documenting correctly and using the system properly, this will enable them to be much more productive as they move forward in time. If your providers are overwhelmed and document improperly or shortcut tasks in the EMR, they will continue this pattern and waste other staff member’s time trying to correct the issues.

**Resource Availability**

Sufficient resources must be on site during the go-live period. Your EMR vendor trainer (or trainers), IS staff, “Super Users”, billing staff, and other users familiar with the EMR will be beneficial to those needing help and assistance. Make sure that the providers and staff know who is available and who to contact for assistance. Even if the staff do not ask for help, having resources available will soothe any anxiety they may have from going live. These resources also ensure that issues can be dealt with immediately and that solutions are created to subdue further problems.
**Collaboration/Feedback**
Allow time at the end of the day for debrief, feedback, and a forum for collaborative thoughts. There will be numerous issues from training, to system setup, to performance, that will need to be voiced in order to be corrected. Peer relations will enable your staff to resolve these issues as well as learn from others. This time period should be done the first few days and then on a continual basis (determined by need within your organization and your internal feedback/processes).

**Notification**
Inform third party vendors, community, labs, diagnostic imaging centers, etc. of your go-live period and implementation timeframe. This will enable these organizations to prepare and react accordingly to your progress. For example, if your pharmacies are not aware of your prescription software change, they may reject your orders or perhaps not receive your orders if firewalls are in place to protect against fraud. Other organizations may have data formatting and transmission errors that will need to be resolved as soon as possible after go live and may not be fully tested. These vendors need to have a contact person and be monitoring progress before extensive resources and expenses are incurred trying to remedy the problem.

**Bring Food, Patience, and Sense of Humor**
Go-live can be a very exciting and frustrating time. ESRHS provided food on go-live day at each center in the hope of lightening the mood and lessening the anxiety felt by the staff on go live day. This also provided a time for the staff to informally converse about the system and share common vision on the process as events of the day have unfolded. Most of all, celebrate the success of your organization to this point. Your organization has undergone a number of steps and commitments (both capital and human resources) of your organization and your staff is making the goals of the organization a reality.

**Continual Process/Workflow Assessment/Improvement**
From the first minute of go-live, there will be numerous opportunities for process assessments and process improvements. Keep the previous ideas and methodologies described throughout this document in mind and continuously evaluate and re-evaluate your healthcare “system” and all processes contained within.

**Go-Live Contingency**
You must plan for what to do if things really “go wrong.” You have spent countless hours preparing for the day you go live, but there is always a degree of uncertainty and unexpected conditions that can occur. You should pre-determine a threshold for when to stop your process of implementation and a contingency plan if that should occur. Obviously the choice to abort is not preferred, but your organization should not eliminate that as an option. There may be a point where continuing could be more detrimental than aborting. You should develop a policy and procedure to execute if the project is aborted, and steps to correct issues that have occurred and measure/correct the failed processes to attempt on the next go-live date. Staff should be aware of the issues surrounding the contingency so they can become a partner in correcting those issues.
Patient Satisfaction and Community Relations

With the transition to an EMR, it is easy to lose sight of the recipients of the new system of care, the patient and the community. You should involve your patients and community, instilling the faith that your organization is providing a more efficient and effective system of care that is patient centered.

The community has been very understanding of ESRHS’ purpose and reasoning behind the transition to an electronic health record. ESRHS posted flyers in waiting rooms as well as the exam rooms that ask the patients to be patient and understanding while staff may ask them for extra information during their next few visits. The flyers also briefly describe some of the many benefits the new system will provide. See the Community/Patient Relations: Waiting Room Signs in the Appendix of this document for an example. Each patient that calls is reminded that changes are occurring and that they may see longer wait times or longer periods before they can be scheduled for routine health maintenance. ESRHS also has a number of radio and newspaper advertisements thanking the patients for their time and understanding during this period of transition. The CEO of ESRHS also wrote a letter to the editor of the local newspapers expressing her thanks and describing some of the benefits that will result from the implementation of the new system. This Letter to the Editor is referenced in the Appendix of this document.

There have been a few patient concerns due to increased waiting time, because of extra time needed to process patients during registration as well as initial visits to medical centers for medical information data entry. ESRHS elected to not import data from the previous practice management system to ensure that the data being entered into the new system is clean and accurate. This has required each patient to essentially be a “new” patient, requiring the entire demographic information to be recorded at registration. However, the patients that raised concerns were easily comforted when the center managers and staff, including providers, explained the purpose behind the transition and helped the patients understand the benefits the new system will provide. Since ESRHS has been live with PM since February 1, 2008, nearly all of ESRHS’ “active” patients had been to a center for an appointment, therefore the number of “new” patients has decreased and resulting in decreased wait time for patients. Further concerns are being handled on a case by case basis.

The second “new” patient problem has been one of medical scope. When each patient presents for a new visit, subjective information from the chart must be entered into the EMR, such as medications, allergies, problem list, medical history, surgical history, family history, social history. This is time consuming and reduces flow from a patient perspective as well as the provider/nursing perspective. Careful detail is required to accurately transfer and collect this information from the patient to ensure proper treatment and assessment can occur. Like the demographic information, as each patient is seen at one ESRHS center, the visits are faster because this extra “workup” must not be completed.

Due to reduced provider productivity, many of the medical centers have not been able to see as many patients and therefore are unable to schedule patients as early as in the past. For example, a patient may have been able to schedule a routine physical exam within two weeks before implementation and now they must wait four weeks. The staff has done a tremendous job
explaining that this is a temporary setback and that it is not indicative of how ESRHS will be in the future. The empathetic approach that the staff has taken has smoothed the relationship with the public and is improving with time.

Additionally, outside sources in the community are beginning to hear that ESRHS has implemented an electronic medical record system and have begun requesting information regarding how they can access and collaborate between ESRHS’ new system and their existing systems to improve efficiencies and decrease clinical errors. The sources that have contacted ESRHS thus far are the local health districts, the local community hospital, and local nursing homes. There are projects arising at the state level of community health centers and across the country that will enable ESRHS to enter into Regional Health Information Organizations (RHIO’s) and share data at a broader scope, moving toward a single, unified, health record that can be transported to any medical center, anywhere in the country.
Provider Satisfaction

Survey

One of your measurement tools should be a periodic survey of your staff, particularly providers, to assess their knowledge and satisfaction with your EMR. You should analyze the data to determine what areas of the product you must train and optimize in order to increase usage and satisfaction with the product.

See the EMR Provider Satisfaction Survey in the Appendix of this document.

An EMR Provider Satisfaction Survey was conducted in October of 2008 at ESRHS. 91% of ESRHS’ medical providers responded to the survey. The “Functionality” section of the survey yielded positive results, with an average of 7 on a scale of 1-10 (10 being the highest) in all areas with a small standard deviation. Overall EMR satisfaction was 7.36 with a standard deviation of 1.62. The lowest scoring factor on the survey was “The EMR minimizes user data input” which registered a 5.33 with a standard deviation of 2.74. The “Self Skills Assessment” section yielded favorable results, and the IS staff is going to develop a training plan for low scoring areas for groups as well as low scoring areas for individuals.

The free-text questions, such as “What do you like best about the EMR” and “Do you feel we are providing a better system of care since implementation of the EMR?” yielded insightful yet contradictory results. There were consistent responses with regards to the providers favorable of the data in the system (accessibility with regards to the record being available across multiple centers, the data being legible, labs/reports being easy to view), but also consistent responses not favorable of the input required for documentation entry, incomplete history entered for the patient, and reduced productivity. The answers were contradictory in this manner. However; nearly all respondents agreed that ESRHS is or will soon be providing a better system of care since implementation of the EMR.

The most negative feedback received was about the scanned documents, more specifically the format and network speed. Due to network restraints each section must be broken into several sections and each section takes approximately 10-15 seconds to view. This process and format is currently being reviewed and with additional network bandwidth available in the future will hopefully improve.
Contingency Planning

Prepare for Disaster

Your organization should be committed to maintaining formal practices for responding to an emergency or other occurrence (for example, fire, vandalism, system failure, and natural disaster) that damages systems that contain electronic protected health information. A key part of planning is assessing likely threats that could impact the business operations and the delivery of care. In ESRHS’ geographical area, these range from loss of Internet services due to loss of connectivity caused by construction mishaps, automobile accidents, or weather conditions that can interrupt service all the way up to major disasters caused by hurricanes, tornadoes, flooding, or other severe weather. The purpose of a contingency plan is also to comply with the HIPAA security rule, Department of Health and Human Services (DHHS), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accreditation standards, or any other standards organization to which your organization is accountable. A separate policy (or set of policies) should be created to supplement your overall disaster plan. All IS employees, as well as your health center facility staff that will be responsible for executing the policy should be trained regarding this contingency plan.

The integration of the eCW EMR system necessitated its inclusion in the overall planning for contingency operations. Plans were devised to work around isolated or short-term system outages (i.e., power loss, loss of communications to a single health center, etc.) and longer-term outages and disaster recovery.

Training

One of the most challenging aspects of preparedness is ensuring that your staff knows what to do, what procedures to implement, under what conditions, and when to execute them. Each center manager’s office has a copy of ESRHS’ contingency plans on hand. Training is conducted for individuals as part of their position qualifications and portions of the plan are reviewed during designated staff meetings throughout the year.

Policies and Procedures

Policies and procedures with relation to contingency planning should be created to define the roles and responsibilities of individuals within your organization during the contingency period. Your organization should have a downtime policy document that details work-around procedures in case of short-term outages. The document should provide notification instructions and described alternate procedures for scheduling, check-in, documenting patient encounters, check-out, collection of co-pays, and other functions. It should also include instructions on the entry of manually collected data into the EMR system once the system is restored to service. You may also create a contingency plan specifically for your IS department.

A broader, overall contingency plan should be published that details the scaled requirements for:

- Data backups
- Offsite storage of backup tapes
- Notifications
- Relocation of equipment for continuity of operations
• Preservation of patient data, financial data, payroll/personnel data, and other critical information
• Recovery and reconstitution of information services
• Emergency contacts (service providers, vendors, etc.)

In addition, inventories of hardware and software, and software keys should be maintained. Periodic testing should be conducted to review and assess the effectiveness of contingency plans, revising them as necessary.

See the PM/EMR System Downtime Policy in the Appendix of this document. See the Information Systems Contingency Plan in the Appendix of this document.
Interface Best Practices

This section describes some best practices as recorded by ESRHS during a bi-directional lab interface.

Implementation Approach

As with the entire EMR project, there are two approaches commonly used: incremental (staged) or “big bang.” Due to the clinical implications of errors, ESRHS selected to choose the incremental approach, in that the single lab interface would be implemented once health center at a time. The initial health center would be used as the testing site, in that lessons learned from the first center could be employed at subsequent sites. However; your interface vendor may not be able to segregate your results by center and therefore this approach may not be available.

Data Import vs. Data Entry

Your lab vendor may be able to provide you with a compendium, that is, a file that provides your top X tests, along with the vendor specific test codes and attribute values associated with each test. There are some considerations when deciding to import this compendium or manually enter the values for each test.

- If you have been using the EMR for some time, there may already be tests in your system. If you import the compendium, you will have duplicate tests and be forced to remove the duplicate tests, or implement a naming or sorting convention to have your providers order separate tests for separate lab vendors (if you have more than one vendor). However; separate tests will break continuity of the tests and graphs or flow sheets may not accurately reflect the data.
- If you have been using the EMR for some time, you will also have a “history” behind each test, and removing the old test and replacing with the new test may break continuity of the tests and graphs or flow sheets may not accurately reflect the data.
- The process for importing a compendium is less labor intensive and more accurate then manually entering the information into your EMR. This should be considered when evaluating data import or data entry.
- With manual entry, you must acquire all lab test codes and attribute codes and enter them into your EMR directly. This is a very time consuming process and required extreme attention to detail and allows human error to occur.

Testing

Depending on your lab vendor’s familiarity with your EMR and the interface, they may or may not have an interface test plan that includes multiple scenarios for testing. You should try to perform your own testing and take into account any manual processes that are performed currently to ensure they work in conjunction with the interface (i.e. add-on tests, pathology procedures, tests with additional information such as Pap Smear and AFP). Follow the guidelines described in the System Testing section of this document for best practices.

Reconciliation

As with paper processes, there must be a process for reconciling labs to ensure orders are fulfilled, as well as results matching the correct patient and test. You should determine a process for both scenarios and assign staff members to appropriately manage each scenario.
Conclusion

Your EMR project, if successful, will change the way your organization provides patient care. Clinical outcomes will become more positive and patients will receive better, more accurate and comprehensive care due to the many advantages of the EMR. Implementation is only the beginning, as your EMR system is a tool that will be constantly refined to optimize workflow and enable higher quality, patient-centric care. ESRHS hopes the information in this document has or will help you be successful in your EMR endeavors.
Appendix
EMR Provider Satisfaction Survey

Name_________________________________________ Date __________________

Functionality
Please rate your satisfaction level with the way the EMR allows you to perform the following functions (1 being the least satisfied, 10 being the most satisfied):

Document and review chart information
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Documentation entry (HPI, ROS, Physical Exam)
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Order Entry (Labs, Diagnostic Imaging)
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Prescription Entry and Management
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Obtain and review lab results
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Obtain and review documents
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Telephone encounters
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
Overall functionality of the EMR
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

Ease of Use and Flexibility
Please rate the following (1 agreeing the least, 10 agreeing the most):

The system is logical and applicable to my practice
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
The EMR allows user-specific customization
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
The EMR minimizes user data input
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
The EMR is fast (minimal wait between screens, etc.)
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

Training
Please rate the following (1 agreeing the least, 10 agreeing the most):

I received an appropriate amount of training initially
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
I received appropriate support training during the go-live period
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
I receive an appropriate amount of continual training and assistance
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

Overall Satisfaction
Please rate your overall satisfaction with the EMR (1 being the least satisfied, 10 being the most satisfied)

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

**Computer and EMR Expertise**
Please rate yourself in the following areas (1 being the lowest, 10 being the highest)

Rate your “general” computer expertise
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

Rate your initial EMR ability at go-live
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

Rate your current EMR ability
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

**General Questions**
What do you like best about the EMR?

What do you like least about the EMR?

What are your biggest concern(s) with the EMR?

Do you feel we are providing a better system of care since implementation of the EMR? Please comment.
### Self Skills Assessment

Please rate your ability and comfort level in each of the following areas. 1 being less familiar/comfortable, 10 being most familiar/comfortable.

1. Telephone Encounters  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
2. Office Visits/Resource Scheduler  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
3. Progress Notes  
   a. HPI  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   b. ROS  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   c. Subjective (Medical, Family, Social History)  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   d. Physical Examination  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   e. Assessments  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   f. Plan (Prescriptions)  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   g. Plan (Procedures, Lab/X-Ray Orders)  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10  
   h. Billing (E&M, Procedure Codes)  
      1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
4. Document Workflow  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
5. Scanned Charts Quality/Navigation  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
6. Lab/Diagnostic Imaging Workflow  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
7. Referrals  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
8. Templates  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
9. eCliniSense  
   1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
10. Using your Tablet PC  
    1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10
EMR/PM System Downtime Policy

PURPOSE

The goal of this document is to outline a policy that governs how to properly manage and document a patient encounter when the Electronic Medical Record (EMR) and Practice Management (PM) system is unavailable. This policy is a specific component of the Information Systems Contingency Plan, defined in the HIPAA Security Standards Policies manual. This policy is continually reviewed and amended as appropriate.

POLICY/PROCEDURE

NOTIFICATION

✓ When the EMR system will not be available and advanced notice is given, or
✓ If the EMR system unexpectedly becomes unavailable, or
✓ When the system is operational and normal system operations can resume
✓ The Information Systems (IS) department will notify the center managers and ancillary offices as soon as possible or appropriate.

SCHEDULING

✓ When the EMR system is not operational or is unavailable, the schedule printed the previous day is retrieved. The center manager is tasked with maintaining a copy of this schedule or assigning the duty as appropriate.
  o If another center within ESRHS has connectivity, the center manager or assigned staff may request a more recent copy of the schedule to be faxed.
✓ If phones are operational, patient appointments may not be made. The operator should ask for pertinent contact information and record a message using the paper telephone encounter form.

PATIENT ENCOUNTERS

✓ Telephone encounters should be entered onto the paper telephone encounter form and transferred to a nurse for triage.
✓ Out folders should be used as temporary charts.
✓ Paper daybills should be used to record the patient encounter for billing/tracking purposes. The check-in staff should verify the name, DOB, telephone, address, and insurance information as available on the paper schedule and record changes on the daybill.
✓ If the patient is a walk-in or new patient and demographic information is not available, paper registration forms should be filled out by check-in and placed in the temporary chart.
✓ Overhead pages through the telephone system will be used to notify the nursing staff when a patient is ready to be taken back.
✓ Paper progress note templates should be used to record usual nurse intake.
✓ Out folder is placed on exam room door as before, using the flag system to notify provider that the patient is ready.
✓ Provider records note on paper progress note.
Provider orders are recorded on paper progress note, while recording the appropriate charges for orders on the paper daybill. The out folder is placed on the door and the flag system is used if nurse intervention is needed.

When the provider/nurse is finished with the patient, the provider will complete the encounter form (diagnosis, charges, and desired return appointment date/time) and have the patient return to check-out.

If co-pay information was available on the schedule, or if the patient has a co-pay amount listed on their insurance card, the check-out person should collect as appropriate.

Encounter forms and progress notes should be kept with for loading into the EMR once operational.

SYSTEM RESTORATION

Patient encounters during downtime should be entered into the system with the following procedure:

- The chief complaint should be appended with “- downtime progress note attached”
- The paper progress note should be attached to the electronic progress note by scanning directly onto the progress note.
- Billing/insurance information should be updated as necessary as the diagnosis and charges from the encounter form will be entered.
- Immunizations should be entered into the electronic progress note.

Scheduling telephone calls should be returned. A telephone encounter does not need to be entered into the EMR.

Telephone encounters for all other issues should be entered into the system and routed as appropriate.

OTHER FUNCTIONS

The center manager is responsible for maintaining adequate stock of paper forms in preparation of downtime.

Faxes will be evaluated by a nurse for urgency of review by provider.

Items that need to be reviewed by a provider will be placed in an out folder on the provider’s desk.

All other phone/fax information will be scanned into the patient’s record when the system is operational.
Information Systems Contingency Plan

PURPOSE

ESRHS is committed to maintaining formal practices for responding to an emergency or other occurrence (for example, fire, vandalism, system failure, and natural disaster) that damages systems that contain electronic protected health information. This policy is to comply with the HIPAA security rule, Department of Health and Human Services (DHHS), and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accreditation standards. This policy supplements ESRHS’s overall disaster plan. All Information Systems employees shall be trained regarding this contingency plan.

ASSUMPTIONS/PRIORITY

This contingency plan is based on the following assumptions:

- A disaster may occur at any time, not necessarily during work hours.
- ESRHS must remain operational with as little disruption of patient care as possible.
- Continuity of patient care requires uninterrupted access to patient information.
- In a dangerous emergency, evacuating personnel has priority over preserving information assets.
- Preservation of patient information has priority over all other information systems (for example, payroll and email). See Applications and Data Criticality Analysis below.

POLICY/PROCEDURE

DATA BACKUP PLAN

Data backup procedures ensure that an exact copy of critical information is retrievable.

✓ Refer to the Backup Policy for more information.

NOTIFICATION

✓ In the event of an emergency or other occurrence, the Chief Information Officer (CIO) and Chief Operating Officer (COO) are to be notified immediately. The Corporate Center Manager has all contact information on file.

✓ The CIO and COO will contact the necessary staff (Information Systems, Senior Leadership, and Center Administration) to enact the Disaster Recovery Plan and Emergency Operation Plan

DISASTER RECOVERY PLAN

Disaster recovery procedures refer to the necessary procedures to restore lost data.

✓ In the event of data loss, the authorized person or persons (see Backup Policy) will retrieve the latest copy of ESRHS’s backed up data from the secure location.

✓ In the order of pre-determined criticality (especially with regard to emergency mode operations), these person(s) will load the data to the appropriate systems and test to ensure the data restoration was successful.
If necessary, contractual personnel may be acquired during the contingency period to restore operations and/or fulfill the duties of specific roles. Contact information is contained in the Emergency Escalation Services Contacts section of this policy.

EMERGENCY OPERATION PLAN

Emergency operation processes ensure the continuation of critical business processes needed to protect the security of e-PHI while operating in emergency mode.

If there is advanced notification of a threat (i.e. hurricane warning with high probability of land devastation):

- The Chief Information Officer or designated personnel will
  - Power down or initiate procedures to properly shut down systems.
  - Remove, based on criticality, information systems or exact retrievable copies of information systems data to secure areas, such as inland facilities out of the foreseeable range of disaster.
  - Return when the threat of disaster has disseminated and continue to enact the emergency operation plan.

During the event of an emergency:

- Remain calm.
- If alarm has not been signaled, give the alarm (pull the fire alarm, call the fire code, and/or call 911).
- If a fire occurs that you believe you can fight, attempt to extinguish. Use the nearest fire extinguisher or activate fire extinguishing mechanisms.
- Obtain portable phone(s) to communicate.

If there is an immediate threat to your personal safety:

- Close all doors and leave the area immediately following all organizational safety policies and procedures.

If there is not an immediate threat to your personal safety:

- Power down or initiate procedures to properly shut down systems.
- If a fire or flood occurs, disconnect power if possible.
- If a flood occurs, try to prevent further damage from water by covering areas with plastic sheets with adequate drainage.
- Remove, based on criticality, information systems or exact retrievable copies of information systems data to secure areas.

Emergency mode operations:

- Determine the circumstances in which operations will be conducted in the event that the primary site is unavailable (for example, another area in the building, an offsite location, etc.).
- Determine how long it will be before service can be restored, and notify appropriate departments.
- Relocate operations to such a site as necessary.
The CIO will designate specific roles and responsibilities to initiate and maintain emergency mode operations, including information system, security, and vendor or contractual personnel.

Contractual personnel may be acquired during the contingency period to restore operations and/or fulfill the duties of specific roles mentioned above.

TESTING AND REVISION PROCEDURES

Testing and revision procedures allow for the periodic testing and revision of contingency plans.

- This plan should be tested annually or as-needed when new systems are activated.
- Revise the contingency plan to address any deficiencies discovered during the testing process.
- Revise the contingency plan as needed if there are important changes involving personnel, contact information, suppliers, legislation, or business risks, processes or strategies.
- Conduct testing and revision when there are significant changes to the environment.

APPLICATIONS AND DATA CRITICALITY ANALYSIS

- Preservation of patient information has priority over all other information systems (for example, payroll and email).
- The order in which information systems or exact copies of information systems are rescued and restored should be:
  - Systems containing electronic patient health information.
  - Systems containing financial data.
  - Systems containing payroll and/or personnel files.
  - Remaining systems affecting the largest number of users.

RECOVERY OF SPECIFIC SYSTEMS

**Software:**
- All copies of original software are stored at the Corporate Office in CD/DVD media or on the file server, and archived to tape (See Backup Policy).
- If software is destroyed, the software vendor should be contacted to obtain another copy of the software.
- All licensing information is stored on the CIO’s network folder with the exception of Microsoft licenses which are stored on the Microsoft eOpen Site.

**Data**
- Refer to the Backup Policy for more information.

**Hardware**
- Servers:
  - Servers are not redundant. Servers are readily available through computer vendors. Replacement servers can normally be ordered and put into service within three days of incident.
- Switches and Routers:
  - Replacement switches and routers are readily available through computer vendors. Replacement switches can normally be ordered and put into service within three days of incident.
Switch and router configurations are detailed in the IS Documentation folder on the file server.

- Telecommunications
  - Telecommunications rely heavily on the local telephone service provider: YourProvider.
  - Telephone Service:
    - In the case that an entire site is unavailable, telephone service can be transferred by the telephone service provider to another site.
    - If telecommunications service is restored but the telephone systems (Toshiba, Panasonic, or AT&T branded models) are non-functional, vendors should be contacted to repair the systems. Temporary emergency phones that do not require a telephone system should be enabled.
    - Portable phones can be used to communicate between sites if local telephone service is not available.
  - Data Service:
    - Most sites are connected via XXX lines.
    - Most sites have XXX service enabled for secondary data communication.
    - In the event that one mode of data service is unavailable, data communications will be redirected through the alternate means of connectivity.
    - If data connectivity is not anticipated for an extensive period of time, an alternate site should be utilized until service can be restored.

EMERGENCY ESCALATION SERVICES CONTACTS

- Use this section to list your vendor contacts in case of a disaster.
IS Facility Access Controls Policy

PURPOSE:
This document outlines formal procedures to limit physical access to ESRHS electronic information systems and the facility or facilities in which they are housed, while ensuring that properly authorized access is allowed. The Information Systems department will safeguard the equipment therein from unauthorized physical access, tampering, and theft.

POLICY/PROCEDURE:

Facility Security Plan (Corporate Office)

1. The perimeter is defined as the immediate area housing the information system(s).
2. The perimeter is physically sound (i.e. no gaps in which a break-in is relatively easy).
3. There is a means for protection from equipment theft or vandalism: door locks and/or key pad entry only.
4. There are controls to guard against fire damage: smoke detectors, fire alarms, and non-liquid extinguishing systems.
5. Controls are provided to ensure that air quality is maintained: air conditioning and heating.
6. Controls are provided to guard against power surges and outages: surge protectors and uninterruptible power supplies.

Access Control and Validation Procedures (All Facilities)

1. Procedures for validating workforce access to facilities:
   a. Access will be determined by the facility controller (i.e. Chief Information Officer, Security Official, etc.) based upon their role or function (including visitor control).
   b. The Chief Information Officer will update the facility access control settings to reflect workforce member changes.
2. Procedures for visitor control:
   a. Visitors must check in when entering a secure area.
   b. The visitor’s identity will be verified.
   c. An escort will be assigned if required.

Contingency Operations (All Facilities)

I. In the event of a disaster or emergency, access privileges will be granted to necessary employees and contracted vendors.
II. Documentation must be created to record pertinent information in relation to access granted during the event of a disaster or emergency.

Maintenance Records (All Facilities)

1. The Chief Information Officer must approve all security-relevant additions, modifications or repairs.
**System Access Policy**

**POLICY:**
This comprehensive access policy is comprised of four main sections:

 I. Access Authorization
 II. Access Establishment
 III. Access Modification
 IV. Access Termination

I. **ACCESS AUTHORIZATION**
Access authorization is the process of determining whether a prospective PHI user should be granted access to ESRHS data. Per the HIPAA Security Compliance Standards for ESRHS, a PHI user (a.k.a. user or data user) is a person who has been granted explicit authorization to access ESRHS data by ESRHS. Access must be granted in accordance with the Access Authorization section of this policy.

PHI users must comply with the following requirements:
1. Use the data only for purposes authorized by ESRHS.
2. Comply with all policies and procedures governing health information promulgated by ESRHS.
3. Not disclose data unless authorized to do so.
4. Department directors will determine which personnel get access to health information in accordance with this Policy. In making such determinations, department directors will follow these guidelines:
   a. Prospective PHI users will not get access unless they have a need for access.
   b. Prospective PHI users will get only the minimum access necessary to perform duties requiring such access.
   c. Health care providers, such as physicians and nurses, should have access only to data of patients that they have patient responsibility for, if possible, with an emergency override to access other patients' data to respond to emergencies.
   d. Access should be limited to necessary tasks, such as read-only, read and copy, read and edit or adding a new entry.

Access Authorization Procedure:
1. Department directors or Human Resources will submit names of personnel needing access with recommended levels of access to the Chief Information Officer (CIO) or designee. This request shall on the Information System Request Form.
2. In lieu of this form, requests for access may be submitted to the CIO or designee via internal email, provided the request contains equivalent information.
3. Department directors will ensure that all prospective PHI users receive required training as specified in ESRHS Personnel Security and Training Policies and annotate such training on the submission.
4. If access is needed before training can be completed, the department director will annotate such, the reason why, and the date such training will be completed. All
required training must be completed within 30 days of the receipt of access.  
5. The CIO will grant such requests in accordance with this System Access Policy.  
6. Access modifications and termination of access must be accomplished per the respective sections of this System Access policy.

II. ACCESS ESTABLISHMENT
Access establishment is the process of granting access to an authorized user, one who has been authorized access under the Access Authorization section of this policy.

Access Establishment Procedure:
1. Upon receipt of a request from a department director to provide access to a named individual, the CIO or designee will determine whether any reason exists to deny the request. Grounds for denial include, but are not limited to, the following:
   b. Security risk unknown to department director.
   c. Refusal of prospective data user to sign required documents.
   d. Inability of prospective data user to properly use applications and system assets after training.
2. The CIO or designee will work with the applicable department director to resolve cases in which the requested access has been initially denied. If the matter cannot be resolved, the CIO will report the matter to the senior leadership team for resolution.
3. Upon granting access, the CIO or designee will take the following steps:
   a. Require the user to sign the Information Systems Request Form, acknowledging the user will abide by applicable policies. Users that fail to observe the rules governing passwords may result in disciplinary action, up to and including termination, in accordance with the progressive discipline and/or sanction policy.
   b. Assign the user a unique system identification/s.
   c. Assign the user an initial password.
   d. Provide emergency override access for necessary personnel as determined by the senior leadership team.
   e. Modify access when notified to do so by a department director in accordance with the Access Modification section of this Policy.
   f. Terminate access when notified to do so by a department director or Human Resources in accordance with the Access Termination section of this policy.

III. ACCESS MODIFICATION
Access modification is the process of changing the level of access to ESRHS data and systems by a PHI user, that is, one who has been authorized access and had access established under this System Access Policy.

1. According to ESRHS policies, no person should have access that does not need access and no person should have more access than necessary.
2. Department directors may determine that an individual or a group of individuals need more, less, or otherwise changed access because of a change in duties or a change in status, such as full time to part-time, employee to outside contractor, completion of a project, and the like. Accordingly, from time to time, ESRHS
may have to change a person's or persons' access.

Access Modification Procedure:
1. When a department director makes the determination that an employee's level of access needs to be modified, he or she should request in writing that the CIO or designee change the current level of access to another level of access. This request will be in writing or via an email request to the CIO with equivalent information as contained on the hard copy.
2. Upon receipt of a request from a department director to change a named individual's access, the CIO or designee will determine whether any reason exists to deny the request. Grounds for denial include, but are not limited to, the following:
   b. Security risk unknown to department director.
   c. Refusal of prospective user to sign required documents.
   d. Inability of prospective user to properly use applications and system assets after training.
3. The CIO will work with the applicable department director to resolve cases in which the former initially denies the requested access level change. If the matter cannot be resolved, the CIO will report the matter to the senior leadership team for resolution.
4. If the modification involves the suspension of an employee, notification must be given to the IS department in writing. Suspension will result in revoked access to all information systems and will not be reinstated until written notification is received by the CIO.
5. Upon granting the request for the changed level of access, the CIO or designee will take the following steps:
   a. Take necessary measures to implement the change of access.
   b. Assign a new unique identifier, if necessary.
   c. Assign the user a new initial password, if necessary.
   d. Make necessary changes to the list of unique user identifications.
   e. Arrange for the training of personnel with changed access, as necessary, in aspects of system use appropriate to their changed access.
   f. Maintain records of the changed access.

IV. ACCESS TERMINATION
Access Termination is based on the following specific assumptions:
1. In any organization, people are the greatest asset in maintaining an effective level of security.
2. Conversely, people are the greatest threat to data security and confidentiality.
3. A terminated employee may pose a threat to data security and confidentiality, particularly if dissatisfied with his or her employment or termination.

HIPAA and the DHHS security and privacy regulations require termination procedures for all personnel with access to individually identifiable health information.

Access Termination Procedure:
1. Employees and others who are terminated will have their data access immediately terminated and will not receive any final pay due until the termination of access procedure is properly completed.

2. Department directors and Human Resources are responsible for notifying the CIO of employees and others, such as independent contractors, who will be leaving ESRHS employ (through termination, reassignment, extended absence, and so forth) and will no longer need access to health information so that their level of access can be terminated or adjusted (see Access Modification section of this policy).

3. Exit forms must be sent immediately to the CIO.

4. Upon termination of an employee or other person with access, the CIO or designee will immediately take the following actions:
   a. Revoke access privileges, such as user-IDs and passwords, to system and data resources and secure areas.
   b. Retrieve all hardware, software, data, and documentation issued to or otherwise in the possession of the user.
   c. Notify Human Resources of completion of the termination procedure.
   d. Keep records of the system access termination procedure for each such person, including the retrieval of Information Systems security-related items, such as access badges, passwords, and information system assets.

5. Upon termination of an employee or other person with access, the Director of Human Resources or designee and the terminated employee's Director/Manager will immediately take the following actions:
   a. Ensure the exit briefing covers the following points:
      i. Verify all items belonging to the organization have been retrieved
      ii. Remind the user of the continuing need to protect data security and patient confidentiality.
      iii. Retrieve sensitive materials, including non-information systems related access control items, such as departmental keys and employee identification badges.

6. When necessary, the CIO or Director of Human Resources will arrange for security escort of terminated personnel from the facility and for an immediate audit of their accounts to detect any security or confidentiality threats or breaches.

**COMPLIANCE AND ENFORCEMENT**

All supervisors are responsible for enforcing all sections of this policy. Employees who violate this policy are subject to discipline up to and including termination in accordance with ESRHS disciplinary Policy.
### Skills Assessment Guide

#### Skill Assessment

*Place a “1” in the cell to indicate your experience with the following:*

<table>
<thead>
<tr>
<th>Skill</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I can use:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax Machine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice Mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Pilot or other PDA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet on the computer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn the computer on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open a file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Save a file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete a file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move a file from one folder to another</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Save a file to another drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimize and/or enlarge a screen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open a program such as Word or Excel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User the task and tool bar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right click the mouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left click the mouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shut down the computer using the “Start” button</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reboot the computer using the “Start” button</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print a file I am working on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setup a page to print in landscape or portrait</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set a default printer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User print preview before printing a document</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User my health center e-mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can check e-mail, compose e-mail, and send e-mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Send e-mail with an attachment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward e-mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On our present computer system, I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look up a patient’s chart number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Register a patient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make an appointment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move or reschedule an appointment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell a patient his or her balance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read the account messages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put encounters into the system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I can:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enter laboratory requests into the labs system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain laboratory results from the labs system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print laboratory results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look up laboratory tests numbers on the computer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I know:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What PDSA stands for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to use a flowchart or process mapping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to use a fishbone diagram</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Community Relations: Letter to the Editor

I wanted to express my deepest thanks to the community and patients of Eastern Shore Rural Health System, Inc. (ESRHS) for their support and patience during our transition to an Electronic Medical Record system. The situation healthcare is facing today is one of increasing costs and decreasing reimbursement, leaving healthcare organizations struggling to survive. ESRHS is committed to the community, and invested a large amount of capital and human resources into this project knowing the benefit would far exceed the cost. There are numerous benefits to implementing an electronic medical record system, from improved quality of patient care to improved patient safety. Features such as a unified medical record that spans across office boundaries, increased efficiencies through process improvement, improved communication with hospitals, providers and labs, improved medication management, health registries, alert reminders, and compliance with state and federal regulatory requirements are a few of the ways that ESRHS has improved. This process has been long and tedious, but correct implementation is a key to the success of this project.

ESRHS values our patient’s time, and wants you to know that the inconveniences of the past few months will result in a healthier community, with a more efficient ESRHS practice that will continue to support its mission of providing “accessible, comprehensive and affordable medical, dental and health services in a caring, professional and safe environment” for years to come. Thank you for your support.

Sincerely,
Nancy J. Stern, CEO
Eastern Shore Rural Health System, Inc.
Community/Patient Relations: Waiting Room Signs
This is an example sign placed in waiting areas and rear of exam room doors during implementation.

Eastern Shore Rural Health System, Inc.
is working hard for you! We are changing to a new computer system including electronic health records.

**Please be patient with us**
as we may ask you for additional information during your visit today. We value you as a patient and we know your time is important.

How Electronic Health Records will help ESRHS serve you better...

- Your medical chart will be available to staff at all ESRHS centers, giving them accurate, up-to-date information about your health history
- Improve communication with other doctors, hospitals and lab
- Improve medication management (increased accuracy, drug interactions, reporting)
- Optimize health maintenance alerts & reminders
- Fulfill state and federal regulatory requirements (JCAHO, HIPAA, DHHS)

2 Main Benefits of Electronic Health Records
- Improved quality of patient care
- Improved patient safety
Basic Computer Skills Training Presentation
The following 10 pages are PowerPoint slides from this presentation.
Basic Computer Skills Training
1st Session

Mike Zodun
Chief Information Officer

Why Are We Here?
• Learn/refresh basic computer skills
• EMR readiness: new program, new interface

Computer Basics
• Hardware – CPU, Monitor, Keyboard, Mouse, Printer
• Input/Output Devices

Media Types
• Floppy, CD-ROM, DVD-ROM, Memory Stick

Computer Basics
• Turning On/Off
  – Monitor vs. CPU
  – Rebooting

Operating Systems
• Windows 95/98
• Windows 2000/XP
• Windows Server 2003
• Windows Vista
• Terminal Services / Remote Desktop / Citrix
Networking

- Concept – Client/Server Architecture
  - 1 to many relationship, shared resources

Networking (Cont.)

- Many types of network devices and resources
  - Examples:
    - Computer Workstations / Servers
    - Printers
    - Personal Digital Assistant (PDA)
    - File Shares
    - Web Sites
    - Applications (MegaWest, cClinicalWorks, Unime)

Networking (Cont.)

- The ESRHS Network
  - DS1 Connectivity to all sites, using public internet
  - Virtual Private Networking (VPN) used to securely transfer/transmit data between centers

Graphical User Interface (GUI)

- Interface is based on graphics instead of text
- The visual effects you see
  - MegaWest is text-based, cClinical is GUI Based

Logging In (Computer vs. Network)

- Computer only allows local resources
- Network allows access to network resources

Using Windows

- Start Menu
- Launching Programs
- Layering, Minimize, Maximize
- Basic Window Layout
  - File Menu
  - Toolbar
  - Status Bar
Basic Window Layout

Using The Mouse
- Left Click
- Right Click
- Single Click
- Double Click
- Wheel

Shut Down / Restart
- Use the Start Menu
- Start > Shut Down
  - Choose Shut Down or Restart

Tip: Restarting your computer generally fixes a large number of computer problems. Try this first before calling IS for help!

Logoff / Lock
- Logoff
  - Start > Logoff
  - CTRL-ALT-DEL > Log Off
- Lock
  - CTRL-ALT-DEL > Lock Computer
  - CTRL-ALT-DEL > ENTER

Logoff or Lock vs. Shut Down
- Logoff instead of shut down to end your session so that someone else can use the computer
  - When you go to lunch, end shift, leave for the day, or when the computer is not logged on as you
- Lock when you are coming back shortly
  - No one else except administrators can log you off
- HIPAA Security Regulations— We will soon have to enable automatic logoff or lock after a period of inactivity

Windows File System
- File Structure – Hierarchical
  - Uses directories to organize into a tree structure
  - Think of Upside Down Tree
  - Desktop: Building
  - Office: My Computer
  - File Cabinets: Drives
  - Folders: Drawers, Folders, Nested Folders
  - Files: Paper
Folder Navigation

- Double Click “My Computer” on Desktop
  - or: Start > My Computer
  - Depends on version of Windows and Interface Options
- Right Click on Start Menu > Explore

Folder Views

- Many ways to visually display the file system
- All accessed through the View menu (located on the file menu)
  - You can customize your look and feel of each window
- To make your view the same for all windows
  - Tools > Folder Options > View Tab > Apply to All Folders

Folder Management

- Organize your files in a hierarchy that will make sense to you
  - Tips: Folder to File ratio should be greater than 1
  - Tips: Make enough folders to be organized, but not too many to confuse you!

File Management

- Open (CTRL-O)
- Save (CTRL-S)
- Delete (CTRL-D)
- Copy (CTRL-C)
- Paste (CTRL-V)
- Drag/Drop files to move between folders

Usually multiple ways to accomplish the same task
- i.e. To delete a file, right click the file, choose delete. Left click the file, CTRL-D. Left click the file, press DEL.
Save or Move File to Another Drive

- From the program you created the file within, File->Save As...-> Save In:

Other Ways

- Save or Move file to another drive
  - Copy the file, open another window, paste the file where you want it to go
  - Select the file, Edit Menu > Copy to Folder
    - Or Edit Menu > Move to Folder
  - Open two windows, drag and drop the file from the source to the destination

Finding a File

- Start > Search > For Files or Folders

Printers and Printing

- Types of Printers
  - Dot Matrix / Impact
  - Inkjet
  - Laser

Selecting a Printer

- File > Print
  - Choose the correct printer
  - Different screen in each program
- CTRL-P
  - Typically a default hotkey for printing

Set a Default Printer

- Step 1: Open Printers and Faxes
  - Start > Settings > Printers and Faxes
  - or: Start > Printers and Faxes
    - Depends on version of Windows and Interface Options
Set a Default Printer (Cont.)
- Step 2: Set Default Printer
- Right Click Printer > Set as Default Printer
- or: Left Click Printer > File Menu > Set as Default Printer

Print Preview
- In most programs, you can Print Preview to see how the image will appear on the printer
  - File > Print Preview

Print Preferences
- You can change many options when printing, such as margin, page orientation, image quality, etc.
  - File > Page Setup
  - Also: File > Print > Print Properties
- Different for each program and printer

Print Orientation
- Landscape or Portrait
- Change from File > Page Setup

Office Basics
- Multiple programs in the Office Suite
  - Word – Word Processing
  - Excel – Spreadsheets
  - Powerpoint – Presentations
  - Access – Database
  - Outlook – Email

Launching Office Applications
- Program location varies depending on Microsoft Office version
  - Start > Programs > Microsoft Word
  - Start > Programs > Microsoft Office > Microsoft Word
- Create a shortcut on your desktop
  - When you locate the program, hold right mouse button and drag to the desktop. Select “Create Shortcut Here” or “Copy Here”
Opening a Document

- File > Open
  - Navigate to the folder and select the file you wish to open, then double click on it or select “Open”.

Saving a Document

- File > Save
  - Navigate to where you want to save the file, type a file name and click “Save”.

Basic Office Navigation

- Use the File menu
  - If options are few, hit the double down arrows to expand the menu.
- Use the Toolbar
  - Right Click on Toolbar, Select Additional Toolbars
  - Right Click on Toolbar, Choose “Customize”
    - Full control all toolbar features/options
    - Options Tab > “Always Show Full Menus”
- Use Right Click

Internet (Terminology)

- Hyper Text Transfer Protocol (HTTP)
  - Protocol that enables web browsing
    - http://www.esrh.org/
- Secure Sockets Layer (SSL)
  - Manages the security of HTTP traffic
  - 128-Bit Encryption; HIPAA Compliant
    - https://www.yourbank.com/

Launching a Site

- Open Internet Explorer
  - Start > Internet Explorer
- Start > Programs > Internet Explorer
  - Internet Explorer Icon on Desktop
- Type the web site in the address bar
  - i.e. http://www.esrh.org/
Navigating a Web Site

- Use Single Clicks
- Underlined items are links
  - Could link to a page on the same site
  - Could link to a page on another site
- Other items could be links
  - Pictures
  - Forms

Navigating a Web Site (Cont.)

- Tip: Right Click on Toolbar > “Customize”
  - Select Text Options > Show Text Labels
  - Buttons will now show the icon plus “Back”, “Forward”, “Stop”, “Refresh”, etc.

Recent Sites / Favorites

- Save you time for typing and remembering web site addresses
  - Recent Sites List: Click the drop down arrow on the right side of the address bar
  - Favorites: Select from the list or once on a site choose “Add to Favorites”

E-mail Basics

- ESRHS Email Addresses:
  - Firstname.Lastname@esrh.org
  - lastname@esrh.org
  - Example: Mike Zodun
    - mike.zodun@esrh.org
    - m.zodun@esrh.org
- Addresses are not case-sensitive
E-mail Programs
- Outlook Express
  - Email and Contacts
  - Most commonly used at ESRI
  - Used as demo program in upcoming slides
- Outlook
  - Email, Contacts, Calendar, Tasks, Journal
  - 2003 Version has built-in Spam filtering
- Web-Mail
  - Uses HTTP protocols to serve as a client

Checking Email
- Open your email program
- Click Send/Receive
- Click or double click to read the message

Sending Email
- Click Create Mail or New Message

Sending Email (Cont.)
- To:
  - Enter the addresses you wish to send the message
  - Separate by , or ;
- Cc:
  - Carbon Copy
- Subject:
- Message Body:
- Click “Send”

Replying
- Click the “Reply” button
- Type your response and click “Send”

Forwarding
- Click the “Forward” button
- Type the To:, Cc: and your message, then click “Send”
Attachments

- You can attach files to email
  - Click “Attach” button when composing a new message

Attachments (Cont.)

- Select the file you wish to attach from the “Insert Attachment” screen and click “Attach” or double click the file

Etiquette

- Subject Line
  - Should be meaningful
  - Avoid words like “Urgent” or “Important” as they quickly lose their effect
- Length
  - Be Brief
- Content
  - Focus on one subject per email
  - If recipient does not know you, include name, occupation, and employer

Etiquette (Cont.)

- Use absolute dates and times
  - March 20th at 1:00PM instead of “This afternoon”
- Sign your e-mail
  - Many virus and content scanners will consider your message SPAM without one
- Attachments
  - Only send when absolutely necessary
  - Send small attachments only

Etiquette (Cont.)

- DO NOT TYPE IN ALL CAPS
  - This is considered yelling
- Email is permanent
  - Do not send anything you would not want on permanent record
- Do not send Patient Healthcare Information (PHI) – HIPAA Violation!

EMR / Practice Management

- Demo if time allows
  - Windows-Based GUI