

CS581 Electronic Health Records Term Project

Fariborz Norouzi
Spring1 - 2018

EHR Contents



- Define Goals
- Create Selection Team
- Review and Redesign Workflow
- Define Requirements
- EHR Technical Infrastructure
- EHR Interoperability
- Vendor Selection
- Project Management
- Budget for Implementing an EHR
- EHR Project risks

Project goals



- Improved patient care quality
- Increased patient volume
- Reduced redundancy in paper handling
- Reduce the number of FTEs per provider
- Improved patients, staff and physicians satisfaction
- Enhanced revenue cycle management
- Increase the quality of patient education materials given to the patient
- Improve Population Health

Why implement an EHR for VWC?



- Federal Government Incentives
- Transformation to Alternative Payment Models
- Practice Efficiencies and Cost Saving
- Reduction in unnecessary and duplicative procedures
- Improved Patient Care
- Improved Care Coordination
- Increase Patient Participation
- Improved Diagnostics and Patient Outcomes

Team members

- EHR Team Lead
- EHR Implementation Manager
- Physician Champion
- Nurse Lead
- Medical Assistant Lead
- Registration Staff Lead
- Lab staff Lead
- Billing Lead
- Information Technology Lead
- EHR Builder
- Meaningful Use Lead
- Workflow Redesign Lead
- Super-User Lead



Reengineering clinical workflow



- Reengineering led to integrated redesign of the workflows
- Adoption of patient-centered workflows has been increasing, and standardization in all types of settings would be beneficial for patients.
- Integrated, cross-functional, and patient-centered workflows focus on patient care
- Patient-care experts helped incorporate ways to capture the participation of the patients

Referral Process for VWC

Workflow Item	Visit primary care physician	Evaluate patient concern	Need Specialist?	Verify Insurance	Referral Information	Engage Patient Scheduling	Enter into EHS	Inform Patient by Referral letter
Data needed	_Possible Clinic	_Clinic	_Clinic	_Insurance Provider	_VWC Availability	_Date and Time Appointment	_Referral Info	_Patient Info
	_Clinic Acknowledgment	_Diagnosis	_Diagnosis	_Health ID Number	_Insurance Info	_Address	_Diagnosis	_ Appointment Info
	_Health ID Number	_Clinic Acknowledgment	_Clinic Acknowledgment	_Patient Info	_Specialist Info	_Specialist Info	_Patient Info	_Referral Info
Who is Involved?	_Physician	_Physician	_Physician	_Clinical Staff	_Clinical Staff	_Clinical Staff	_Admin Staff	_Clinical Staff
	_Nurse	_Nurse				_Patient		_Patient
	_Clinical Staff							
EHR Functionality	_Clinic System Interface	_Clinic System Interface	_Referral Information	_Referral Information	_Referral Information	_Clinical Decision Support	_Clinic System Interface	_Patient Communication
	_Patient Support	_Patient Support	_Result Management	_Patient Support	_Patient Support	_Patient Support	_Health Information	_Health Information
	_Order Management	_Health Information	_Health Information	_Electronic Communication	_Electronic Communication	_Electronic Communication	_Result Management	_Result Management
	_Order Entry	_Referral Information	_Physician Decision Support	_Clinical Decision Support	_Clinical Decision Support	_Patient Communication	_Administrative Process	
Benefits	_Faster	_Faster	_Faster	_Faster	_Faster	_Faster	_Faster	_Faster
	_Improve Documentation	_More Accurate	_Avoid misdiagnosis	_Less Error prone	_Less Error prone	_Less Error prone	_Less Error prone	_Patient Centeredness
	_Improve Patient Engagement	_Improve Patient Engagement	_Less Error prone	_Greater Availability	_Greater Availability	_Greater Availability	_Greater Availability	_Greater Availability
	_Improve Healthcare Services	_Improve Diagnosis	_More Efficient	_Improve Visibility	_Improve Visibility	_Improve Visibility	_Reduce Paperwork	_Improve Communication

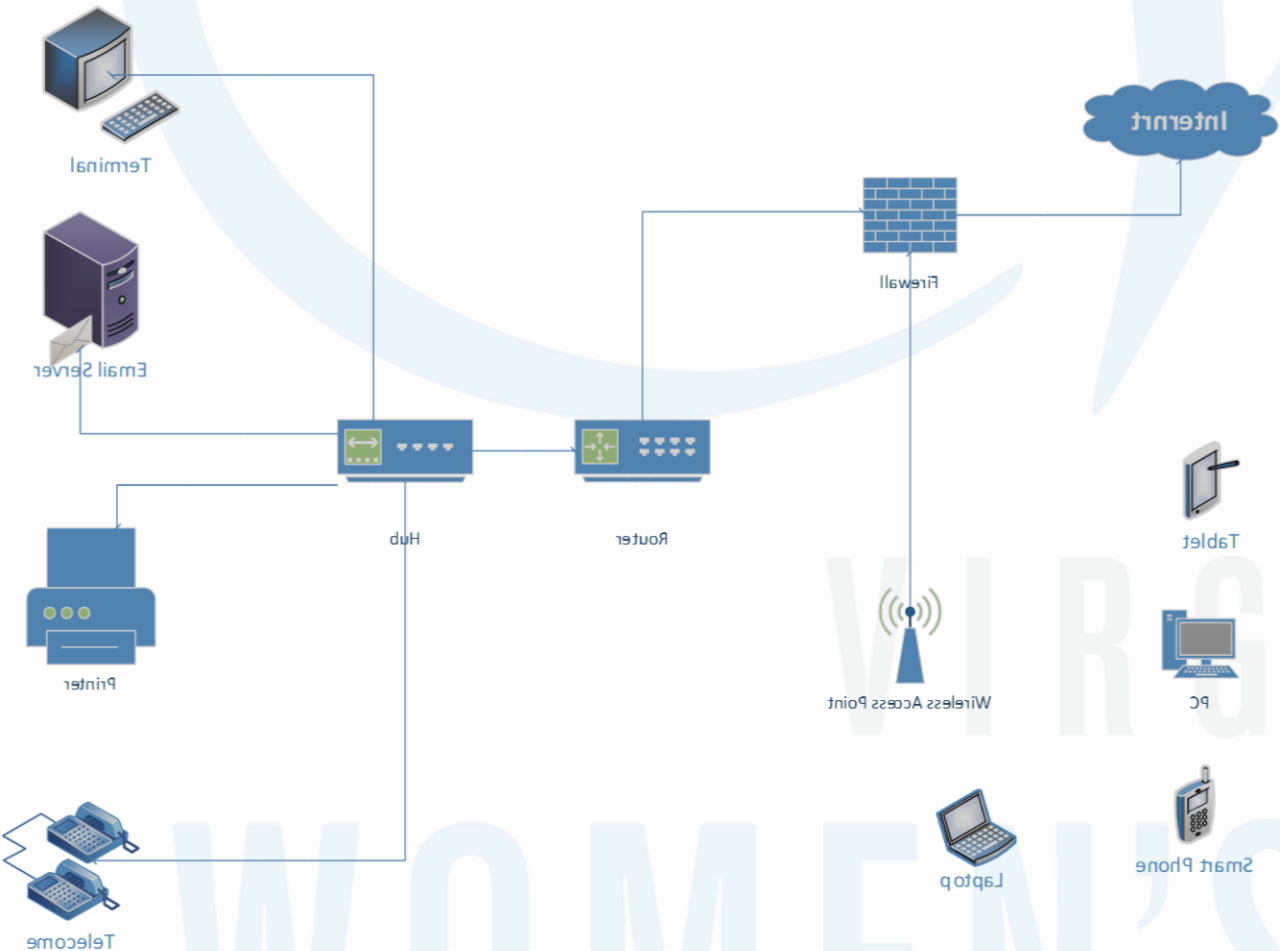
EHR Core Functional Requirements



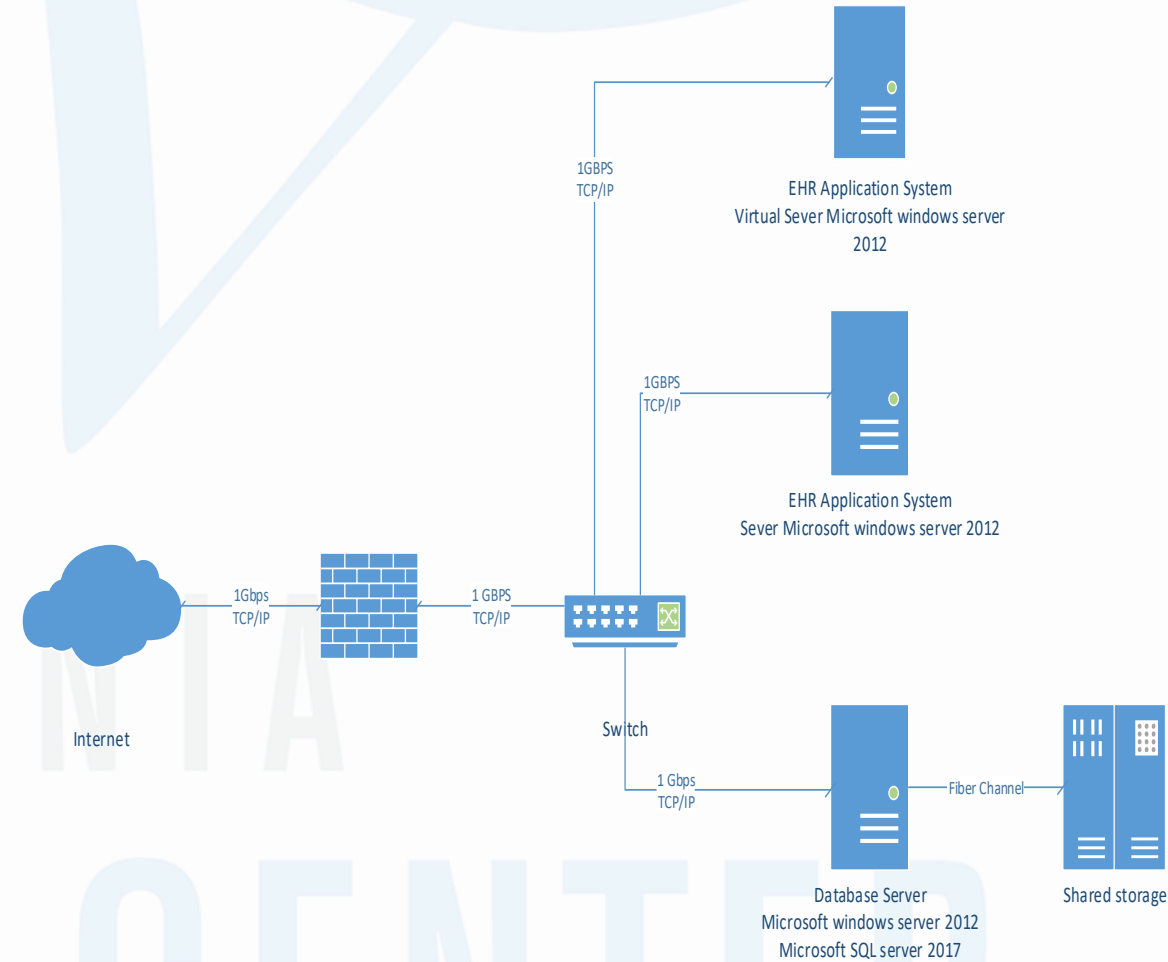
Function	Importance	Notes
Order Entry	3	Automate the creation of clinical orders, helping clinicians do them accurately and quickly
Secure authentication and patient privacy	4	ACI Requirements - Protect Patient Health Information
E-prescribing with full interaction checks and alerts	3	ACI Requirements - clinicians must use an EHR for e-prescribing and submit measures of that use
Patient Support	4	ACI Requirements - Tools that give patients access to their health records, provide interactive patient education, and help them carry out home-monitoring and self-testing can improve control of chronic conditions
Clinical Decision Support	3	Using reminders, prompts, and alerts, computerized decision-support systems would help improve compliance with best clinical practices
Administrative Process	4	computerized administrative tools, such as scheduling systems, to improve hospitals' and clinics' efficiency and provide more timely services to patients.
Patient Communication	4	ACI Requirements - Coordination of Care through Patient Engagement (Patient education and email/phone/letter communication abilities)
Health Information	4	patients' diagnoses, allergies, lab test results, and medications etc.
Health Information Exchange	4	ACI Requirements - Integration with hospitals and other affiliate systems for sending a summary of care, confirmation of health insurance, Referral Information etc.
Order management	4	The ability to enter and store orders for prescriptions, tests, and other services in order to enhance legibility, reduce duplication, and improve the speed with which orders are executed.
Result Management	4	The ability for all providers participating in the care of a patient in different settings to quickly access new and past test results.
Patient population service analys	3	ACI Requirements - Public Health and Clinical Data Registry Reporting

EHR Technical Infrastructure

Client Side

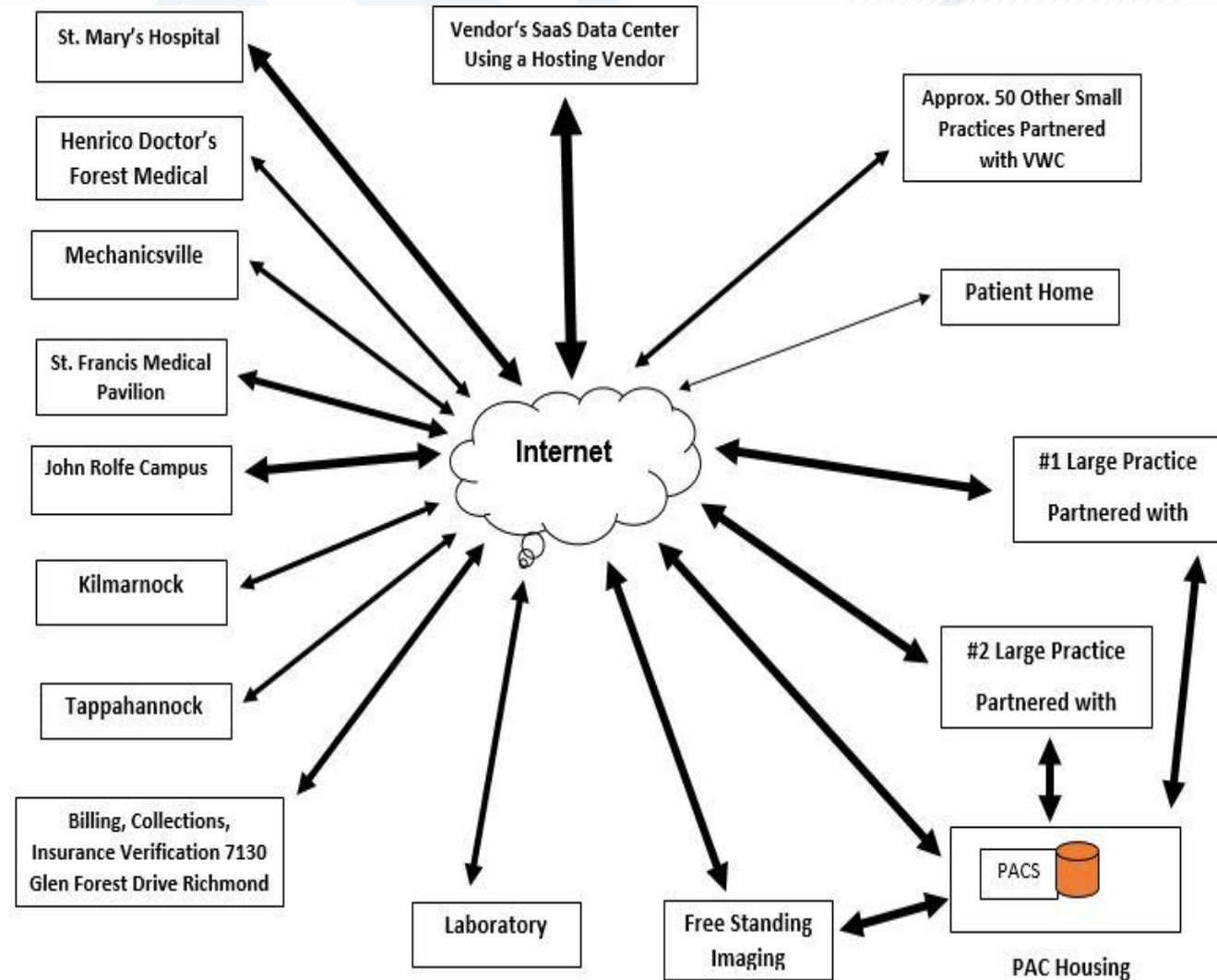


Server Side

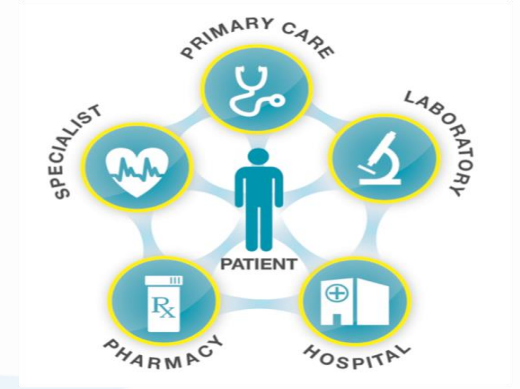


EHR technical infrastructure

- Network
- Bandwidth
- Vendor 's SaaS Data Center Processing
- EHR backup plan
- Storage
- Database Management Systems
- Security



EHR Interoperability



- **Key interoperability requirements:**
- Standardization for successful, reliable, and secure documents and data exchange
- Protect privacy and security in all aspects
- Create a Master Patient Index
- Create National Patient Identifier System.
- Avoiding inconsistent use of medical terminology
- Making harmonize several systems of healthcare exchange

EHR Selection

In order to pick the best EHR choice, we need to consider vendor's criteria inclusive:

- Software design
- Customization
- Integration
- Interoperability
- Customer support
- Document & Training
- General information
- Track Record
- Vendor Pricing
- Financial Resources



EHR Deployment Project Plan – Typical Tasks

EHR Initiation Phase

Educate VWC organization on EHR and the project

State current VWC system

Identify skills that are needed but not available on project team

Initial Risk Assessment

Finish Initiation phase

EHR Planning Phase

Budget and Communication Plans

develop plan to install EHR System

Process Team/Roles and Responsibilities

Select Vendor and approve start date

Re_engineering workflow and financial process

Order Hardware/Software for Test/Development and Production Sites

Finish Planning Phase

EHR Implementation Phase

Patient Information Management

Admission, Discharge and Transfer

Patient Registration

Enterprise Master Patient Index

Patient Scheduling

Clinical Information System

Clinical Alerts and Reminders

Clinical Rules Engine

Consults Tracking

Order Management

Results Reporting

Clinical Documentation

Computrize Provider Order Entry

Intake/Output

Patient Education

Laboratory

Anatomic Pathology

Microbiology

Chemistry

Pharmacy

Adverse Reaction Tracking

Electronic Medication Administration Record

Bar Code Medication Administration

Inpatient/Outpatient Pharmacy

Radiology

General Radiology

Nuclear Medicine

Imaging

Clinical Image Viewer

Document Imaging

Nutrition and Food Service

Clinical Nutrition

Food Service Management

Finish implementation phase

EHR Control Phase

Performance Reporting

Cost Control

Control Risk Monitoring

Finish Control Phase

EHR Closing Phase

Document licensing and warrantee

Sign off of customer acceptance

Celebrate!



Budget for Implementing an EHR



- Estimate the build costs of the EHR
- Contractors and consultants
- Server and infrastructure hardware
- Hardware such as desktops, laptops, smartphones and other devices
- Sufficient bandwidth
- Security and HIPAA requirements for hospital network's projection
- Prepare for downtime capabilities include hardware and software options.
- Have a contingency plan in place



EHR Project risks

- Planning Failures
 - Improper launch that prevents a smooth transition
 - Poorly designed systems that don't serve the practice or patients
- Privacy and Security Breach
- Financial Exposure and Delayed ROI
- Stakeholder Hesitation
 - Lack of training and education



Thank you!

VIRGINIA

WOMEN'S CENTER