

Understanding

Electronic Medical Records

Quatris Healthco 

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Introduction

It's no secret, the role of technology in the healthcare industry has grown exponentially in recent years— and there is plenty of work for tech to do. The United States healthcare system wastes up to a reported \$1 trillion a year, both under-treating and over-treating patients. Effective use of electronic medical records can help correct these systemic defects, increase productivity, and improve patient care for all.

An electronic medical record (EMR), in its simplest form, is a digital version of the paper-based medical record kept for an individual patient at a medical practice. The use of EMRs also represent a shift in the healthcare industry to improve patient care through effective use of patient data.

These records systematically collect patient and population data including medical history, demographics, medication, allergies, immunization status, laboratory test results, radiology images, vital signs, personal statistics (like age and weight), and billing information.

EMRs are designed to collect and store data accurately, documenting the state of a patient's health across time. They eliminate the need for paper medical records, and assist in ensuring data is consistent, accurate, and legible. Maintaining one modifiable file eliminates the risk of duplicate or incomplete data. The digital information is searchable and comprehensive, enabling providers to quickly access important patient information, and extract medical data for the examination of possible trends and long term changes in a patient.

The Rise of EMRs

Today, EMR/EHRs are at the forefront of the rapid change the healthcare industry is undergoing. Technological advances and legislative actions have paved the way for the explosion of healthcare IT tools the industry is now learning to navigate and use.

How they differ from other similar kinds of records

Other widely used digital records include;

- **Personal health record (PHR):** A digital health record that is edited and maintained by the individual.
- **Electronic health record (EHR):** An official health record for an individual patient, designed to be shared among multiple care facilities.

EMRs contain much of the same data as PHRs and EHR, however, they function within the context of a specific medical practice, in order for that practice to provide optimal care to the patient.

Their context within the last 10 years

The healthcare industry has adopted technology much later than many other industries, however the past 10 years has witnessed a massive shift in the rise of EMR and EHR technology among hospitals and care providers. Federal regulations in 2009 incentivized the implementation of EMR/EHRs within individual practices, driving up the adoption rate of this technology significantly.

How they relate to paper records

Electronic medical records were designed as a digital replacement for paper chart. Paper charts and EMRs both originate from the SOAP (subjective, objective, assessment, plan) notes method of documenting a patient's subjective information, objective medical findings, assessment by the doctor, and the plan for moving forward.

The portability and accessibility of electronic medical records:

- Allow for order entry and lab results to be sent and received automatically
- Ensure that notes were legible and consistent
- Allow for records to be updated continuously
- Protect medical records from being damaged or lost

Additionally, an electronic system can use electronic medical records anonymously to supply statistical data for reporting in quality improvements, resource management, and public health records.

How they can help practices

Implementing an EMR system within a practice can benefit overall practice productivity, care quality, and the bottom line. The Veterans Affairs department found that EMR/EHR systems may improve efficiency by 6% each year.

The benefits of EMR to a clinical practice include:

- Improved patient safety and practice efficiency by eliminating illegible handwriting, facilitating simple accurate dosing, and secure patient identification
- Eliminate paper records; saving space, time, and ensuring reliable and consistent data organized in one place
- Optimized workflow, leading to increased number of patients served each day and a greater active-patient-to-provider ratio
- Reduced administrative workloads and operational costs
- Simplified communication and data-exchange with other healthcare providers and specialists
- Ability to identify patients in need of attention by gathering and analyzing patient data
- Streamlined and improved coding and documentation
- Insights into opportunities for clinical quality improvements
- Prevent adverse events to prescriptions with safeguard tools for effective prescribing
- Better communication between internal staff, other clinicians, hospitals, labs, and specialists.
- Sync data with public health systems

What is an EMR: History and Functionality

Today, EMRs are used in many medical practices across the country to record, track, and manage patient healthcare. EMRs have been around for a number of decades, but not until recently did they become a widely-used tool in the national healthcare ecosystem.

The earliest versions of electronic medical records were developed in the mid 1960's, in an effort to digitize the process of documenting patient health and to enable third party verification of diagnosis. These early systems were expensive, complicated to operate, and provided limited capabilities beyond the standard paper charting method, thus these systems were not widely adopted for many years. For decades EMR and EHR systems were used only by government hospitals and visionary institutions, including the United States Department of Veterans Affairs and the Mayo Clinic.

EMRs began to evolve quickly with the rise of the personal computer and expansion of access to the Internet, leading to more affordable, remotely-hosted EMR systems that allowed practitioners to access, record, and store information on remote systems.

Use of the EMR has grown significantly in recent years following the Health Information Technology for Economic and Clinical Health (HITECH) Act, as part of the American Recovery and Reinvestment Act (ARRA), which provided funding and financial incentives for healthcare professionals for adopting electronic medical systems by 2014.

History

1960's - 1970's

- In the mid 1960's one of the earliest data processing systems began to be put into use specifically for clinical data management. This technology, coupled with Larry Weed's method of Problem Oriented Medical Record keeping, originated the practice of recording and managing patient information electronically.
- The first electronic medical record system was developed in 1972 by the Regenstrief Institute. It was an expensive system that was initially only adopted by government hospitals and forward-thinking institutions.
- According to HIMSS, by 1965, 73 hospitals and clinical information projects and 28 projects for the storage and retrieval of medical documents and other clinical information were underway
- The Mayo Clinic, picking up the project in the early 1960s, was one of the first major systems to adopt an EHR.
- The federal government implemented an EHR in the Department of Veteran Affairs, and in the Department of Defense in the 1970s

1990's

- With the rise of the personal computer and the internet in the 1990's, access to healthcare information became faster and easier, laying the groundwork for the development of web-based EMR and EHR systems.

2000's

- EMR systems became more affordable and thus attractive to medical practices in the early 2000's with the development of remotely-hosted systems that enabled providers and clinics to access information remotely and without storing it in their physical office spaces.

2014 and beyond

- Adoption of electronic health records was further mandated by the Health Information Technology for Economic and Clinical Health (HITECH) Act as part of the American Recovery and Reinvestment Act (ARRA) which provided funding and incentives for healthcare practices that adopted electronic medical record systems by 2014.
- This legislation also introduced the concept and guidelines for "meaningful use" of electronic medical systems. As defined by HealthIT.gov, meaningful use would achieve the following¹:
 - Improve quality, safety, efficiency, and reduces health disparities
 - Engage patients and families
 - Improve care coordination and public health
 - Maintain privacy and security of patient health information
- In 2015 providers that had not implemented use of electronic medical records, and those who had not attested to meaningful use of their EMR systems began to receive growing penalties on their medicare reimbursements.
- By 2018 practices that had not integrated an EMR saw their medicare reimbursements reduced by 4%

¹ <https://www.healthit.gov/topic/federal-incentive-programs/meaningful-use>

What is an EMR for?

An EMR is a electronic record of patient data, an apparatus for collecting and managing clinical data, and a set of tools for care coordination and clinical effectiveness (billing, audits, etc.). The technical features and uses of EMR have grown exponentially over time, especially in light of the HITECH act, which mandated adoption of EMR/EHR systems.

Primary functionalities of EMRs include:

Care tracking: Recording and tracking prescriptions, procedures, and care plans.

Outcome tracking: Recording patient data such as vitals, symptoms, test results, labs, and procedure outcomes.

Automated warning triggers: Whenever a provider prescribes a new medication the EMR automatically checks for any issues or potential risks that can arise from the patient's other medications or health history.

Automated orders, reports, and results sending: Tests can be ordered, tracked, and results delivered in the EMR.

Revenue Workflows: EMRs track and automate billing and administrative processes, offering insight into operational problems and opportunities for practice efficiency.

Accessibility and portability: Information can be accessed and shared over secure network. No longer are records restricted to pen and paper, now data can be accessed on desktop computers, mobile devices and tablets.

Patient Engagement: EMRs can sync with PHRs (personal health records) for better information capture and organization. Patients portals are also becoming a widely used feature of EMRs.

What is an EMR System?

An EMR system acts as the hub for all clinical activity within a medical office. The EMR system can be used by staff and practitioners to:

- Add new patients and patient demographics
- Process payments and insurance claims
- Schedule patient visits
- Access and record patient information
- Aggregate clinical data
- Communicate with other staff members and practitioners
- Track regulatory adherence and meaningful use attestation

Primary Uses

Patient Care Delivery

Patient Care Management

Patient Care Support Processes

Financial and Other Administrative Processes

Patient Self-Management

Secondary Uses

Education

Regulation

Research

Public Health and Homeland Security

Policy Support

How Have EMRs Changed Through the Years?

The early versions of electronic medical records pioneered in the 1960's were very similar to their pen & paper predecessor and focused primarily on clinical data management, with the added feature of third party verification capabilities, in order to validate patient diagnoses with other practitioners. After the first electronic medical records system was developed in 1972, electronic medical records slowly built up their functions and capabilities, but adoption was very slow. More than three decades later, in 2008 less than 10% of non-federal acute care hospitals within the U.S. had adopted electronic health record systems¹. That number grew to over 55% by 2013², with the help of larger technological advances and legislative incentives.

What sorts of capabilities have EMRs added over the years?

EMR/EHR systems were originally designed to capture just a few details about a patient, detail of their hospital stay, and billing information. Gradually these systems added functions to enable order entry, lab result reporting, and note taking capabilities.

Since the introduction of meaningful use attestation, IT companies have been rolling out features and capabilities in order to increase the utility of these systems, and to meet the needs of the three stages of meaningful use compliance.

Meaningful Use Stages	
Stage 1 (2011-2012)	ePrescribing, lab results into EMR/EHRs, send clinical summary to providers and patients, public health reporting, quality reporting (2012)
Stage 2 (2013-2016)	Patient PHR access, ePrescribing refills, electronic summary record, receive health alerts, immunization information
Stage 3 (2015-2016)	Access comprehensive data, automated real-time surveillance

^{1,2} <https://www.healthit.gov/sites/default/files/oncdatabrief16.pdf>

When did EMR/EHR usage become widespread?

EMR and EHR implementation nearly doubled from 2007 to 2012, growing from 34.8 percent to more than 71 percent, according to the CDC. The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act, provided funding for the implementation of EHR and EMR systems into medical offices and hospitals. The objective of this legislative effort was to establish a standardized set of information with which quality, cost, and value metrics can be assessed and understood, in order to reimburse care based on value provided to the patient, not simply the amount of care delivered.

What can you expect out of an EMR today?

Billing: A good EMR system will help maximize your clinic's efficiency, productivity, and revenue cycle by streamlining charge capture, billing, and claims management.

Charting: EMR systems should encourage effective charting. Features like customizable forms, voice recognition, machine learning, customizable templates, vital signs tracking, and tablet usability help to encourage accurate real-time charting, while avoiding stress and staff burnout.

Workflow: Customization is key when it comes to successfully integrating an EMR system into your medical practice. Choosing a software that offers customizable workflows ensures that you will be able to meet the specific needs of your practice, and keep everything on track.

ePrescribing: EMR systems today have the ability to print or send out prescriptions electronically. These systems automatically notify a provider if there is a potential for an adverse reaction to a prescription, due to a drug allergy or interaction with another drug. These systems will also notify providers if there has been a drug recall.

Evaluation and Management Coding: EMR software systems help practices comply with evaluation and management documentation standards. Your EMR system may record some of the following data to help a practice track and measure compliance:

- Complete and legible medical records
- Reason for the encounter and relevant history
- Exam findings
- Diagnostic test results
- Assessment, clinical impression, or diagnosis
- Medical plan for care and follow-up
- Date and clinician identity
- Health risk factors
- Patient's progress
- Diagnosis and treatment codes

Lab Integration: The ability to electronically order, track, and manage tests and lab results is a feature of EMR systems that can streamline patient care.

Meaningful Use Certification: Certified EMR/EHR systems can attest meaningful use, and streamline the attestation process.

Patient Portal: Engaging patients through a patient portal gives them access to information about recent visits, discharge summaries, medications, immunizations, allergies, lab results, and other information important to their health. Patient portals can also empower patients to communicate with providers, request refills, schedule appointments, and manage billing and insurance coverage.

Cloud Hosting: Many EMR systems employ cloud hosting, allowing practices to access information from any connected device. Cloud hosted software is more affordable to implement, maintain and update.

What are signs that your EMR might be lagging behind the rest of the industry?

Unsuccessful integration with other providers: If your patient's data fails to integrate with data from other hospitals or clinics your EMR system may be the problem.

Your IT provider has illegally modified patient data: A demonstrated track record of upholding data security should be a primary deciding factor when choosing an IT provider.

Inadequate customer support: Customer support is difficult to access, hard to understand, insufficient, or impossible to attain.

Inefficient system updates: System updates create an undue burden on your practice, or never happen in a timely or efficient manner.

Lack of training resources: There are not enough training resources available to your staff, or the resources offered do not fully meet your needs.

System doesn't make value-based quality reporting simpler: Reporting on meaningful use is complicated, and your EMR does not have the reporting capabilities to address these difficulties.

System does not flag special abuse cases: Abusers of pain medications are not flagged for the patient's health and your clinic's protection.

System does not fit your needs: Your system isn't built for your medical specialty and too difficult to modify.

Workflows are not meeting your needs: EMR system does not have the ability to customized workflows to your clinic's needs.

The Difference Between EMR and EHR

The terms “EHR” and “EMR” have often been used interchangeably, although differences between the models are now being defined as the industry grows.

EMR	EHR
<p>EMR is digital version of a chart</p> <ul style="list-style-type: none">• Allows data analytics of patients• Allows automated routine scheduling• Allows quick doctor lookups of measured patient parameters (Blood pressure readings, Vaccinations, and Scheduled checks)• Overall quality of care improvements	<p>EHRs are more comprehensive</p> <ul style="list-style-type: none">• Total health of patient• More than just data measured during visits• Designed to be shared between multiple disparate clinics / separate healthcare organizations

Both are necessary on the continuum of successful patient care. The EMR is a complete and detailed record of care within a practice and the EHR makes that care accessible to a variety of healthcare providers and hospitals. What is an EMR System?

The Benefits of EMRs

Successfully implementing an EMR system in your practice will benefit your patients, your staff, and your clinic's financial success. Here's some of the ways the right EMR system can improve the quality of patient care, care coordination, and patient data management.

Quality of Care

Data and results tracking: Patient data and results are tracked over time, allowing greater visibility into a patient's health over time.

Improved diagnosis, treatment and overall quality of care: EMRs improve management of chronic illnesses, illness prevention, and attainment of screening targets. EMRs provide treatment goals and alerts providers to preventative measures and screenings are due.

Error reduction: Digital record keeping reduces human error and duplicate records, leading to improved patient care.

Evidence-based decision making assistance: EMR systems offer providers point of care information and resources on how best to proceed with patient care.

Improved usage of laboratory data: Streamlined communication with laboratories and access to lab results leads to fewer unnecessary or duplicate tests.

Resources and tools: Access to tools and resources such as safeguards to avoiding negative drug interactions, Framingham calculators, and BMI calculators. These can be accessed quickly to better equip and inform clinicians and their patients in creating care plans.

Integration with PHR: EMRs can sync with the patient's own records to view medications and keep up with lifestyle changes.

Patient perception: Patients' perceptions of these benefits and the improved quality of care that they receive are positively associated with the use of EMRs¹.

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4288109/>

How does it improve care coordination?

Quickly access important information: EMR allows for quick visibility into patient histories, lab results, demographics, alerts, and reminders for preventive care; ensuring providers are equipped with important information without needing to spend time digging for it in various locations.

Decision-support tools: EMRs can assist practitioners in caring for patients by using access to big data and predictive analytics to help make informed care decisions.

Automatically identify patients who are due for preventive visits and screenings: EMR systems will alert providers to patients who are due for visits. These reminders can be automatically sent out to patients.

Effective discharge and follow-up care: Printable follow-up information at the end of a visit such as instructions for self-care, reminders for other follow-up care, and links to other resources.

Quicker assessment and care from clinical staff: Efficient workflows and easily accessible records and patient information makes for better use of your team's time. This can also decrease patient wait time.

Improved communication: Enables better communication and relationships between colleagues, with other care providers, and with patients.

Consistent and legible documentation: Clear and legible chart summaries, medical notes, consultation letter templates, and prescriptions reduce medical errors.

Automated task-assignment: EMRs facilitate requests and automate task-assignment to various team members.

Scheduling: Schedules are easily accessible by staff and clinicians. Patients can often schedule their own visits using the patient portal.

Patient portals: Electronic medical records can also enable the use of patient portals and personal health records, which can effectively engage patients in understanding and managing their own care.

Improved patient data management: Enhanced privacy and security means that patient data is protected from loss or misuse, for a much longer span of time compared to paper records.

Positive return on investment: Studies find that primary care clinics can realize a positive return on investment (ROI) after implementing an EHR/EMR system. Studies have also shown there is an increase in the active-patients-to-clinician ratio.

What to Consider When Picking an EMR System

Choosing the right EMR for your needs and properly implementing it can make or break your successful adoption of this powerful technology. Perhaps, you are unsatisfied with your current system, and are considering whether or not to replace it? Whether you are considering an EMR for the first time or thinking of replacing your current software, it is important to take a look at the many important factors that weigh into this decision.

Important Considerations in Selecting an EMR System

Cost: The cost of an EMR system consists of the initial cost of purchase, and the total cost of ownership (TCO) which requires budgeting for any other cost that may come with installation and ongoing use of the system. This can include servers, software, training, template design, and technical support.

Interoperability: The ability for your EMR system to communicate and function seamlessly with other systems will make all the difference in the usability and success of your new EMR system.

Customization: EMR systems are not one-size fits all, luckily, EMR systems that are highly customizable allow for you develop views, workflows, and tools within the system that meet your specific needs and work well within the existing workflows at your practice.

Meaningful Use: Certified EMR systems have the required functionality to attest meaningful use in order to receive financial incentives and avoid penalties. If you are enrolled, or intend to enroll in an incentives program you will want to be sure to pick a certified EMR or EHR, with the capability to help make reporting and attesting meaningful use simple and straightforward.

The importance of implementation and training: Make sure you work with a EMR vendor that can design and tailor your implementation and training programs to the specific needs of your practice and your team. Without a successful roll-out of your new EMR your practice may never be able to receive the full benefits of working with this powerful tool.

Difficulties when switching EMRs

If you are unsatisfied with your current EMR system, you are not alone. Only 38% of office-based physicians report being “very satisfied” with their EMR systems¹. The Affordable Care Act, along with increasing penalty costs to late-adoption, has raised the stakes on making EMR work in practices across the country. Replacing an EMR system that does not meet expectations can be an overwhelming task.

Here are a number of crucial points to consider in ensuring your success with your next EMR system.

Assess Workflows: Developing and committing to a workflow that works for your practice is critical to the success of gathering and utilizing data in a new system. Knowing where the workflow broke down in the failed EMR allows for a practice to address that point in the workflow head on with the new EMR system. Assessing workflows within the failed EMR will help you choose an EMR that fits your needs.

Address Training and Implementation: An EMR system is only useful with successful implementation and training. A lack of adequate training can quickly lead to inconsistent, incorrect, and incomplete data. The vendor you choose to work with will determine the method, amount and quality of training you receive. Consider the training needs of your staff, and what kind of training a vendor provides.

Productivity: Plan for productivity gaps while you are making the switch and getting your team trained. Consider avoiding your peak seasons (flu season, back-to-school season, etc.). Going into the switch with this awareness will help you anticipate and mitigate any productivity issues that arise.

Vendor: As you commit to a new EMR vendor sustainability is of the utmost importance. It is imperative that you partner with a vendor that can not only weather the many complex changes within the healthcare market, but one who also has the resources to support your practice through these changes as well.

Meaningful use and timing: For 2018, eligible providers who want to attest for meaningful use incentives must demonstrate MU for any consecutive 90-day period². This provides practices an opportunity to switch from one system to the other within the span of the year, and only report using one system over a 90-day period.

Who you are partnered with?

EMR systems are not one-size-fits-all. Working with the right vendor for the implementation of your EMR system ensures that your system will be customized to your unique needs, practice requirements, staff preferences, and staff availability. Each implementation will require its own time line with a dedicated implementation specialist assigned to your practice and he or she will help guide you through the entirety of your project.

<https://www.healthcosystems.com>, ² <http://www.aappublications.org/news/2018/05/04/hito50418>

athenaPractice EMR™

If you are ready to implement your first EMR system, or looking to replace a failing system, athenaPractice is a highly customizable and user-friendly EMR solution for ambulatory clinics. athenaPractice works the way you do, so you can practice medicine your own way, and face industry changes head on. With the power of athenaPractice, and the exceptional service and resources from Quatris Healthco, your practice can implement the future of healthcare IT today. athenaPractice is a powerful solution for improving the care of your patients, your team, and your business.

Cloud-based EMR: athenaPractice is a cloud-based EMR solution that serves more than 70 specialties. athenaPractice empowers providers to access charting and patient information using whatever platform or device works best for your practice.

User-friendly, interoperable system: athenaPractice features an easy-to-navigate interface allowing staff to examine a patient's chart to learn more about a patient as well as specifics like the patient's health history and recent test results. Enter data by scanning, point-and-click, keyboard entry, voice recognition and quick-texts. Physicians can easily share patient information with outside organizations and physicians who may even be using different EMR software.

Streamlined ePrescription ordering and billing: The ePrescribe function streamlines prescription orders and refill requests while the financial tools streamline your practice's revenue workflow.

Patient portal: Patients can schedule appointments, access billing and securely communicate with you and your staff. Patients can also access resources for overall health education and to learn more about a diagnosis.

Certified EMR: The system is certified according to national regulations, so your patients' and practice's information stays secure and organized. athenaPractice is certified for meaningful use, HIPAA compliant, and offers full support for ICD-10 coding.

Why athenaPractice?

Customization: athenaPractice is designed to be flexible. Customization is key when it comes to finding an EMR solution to meet the unique needs of your practice. With athenaPractice's advanced customization capabilities you can create and modify encounter forms.

athenaPractice Clinical Content (CCC): To help reduce medical errors and improve efficiency in data collection and entry athenaPractice created CCC as an additional functionality that provides physicians decision-support tools.

- Made up of a set of core encounter forms that make entering standard clinical data more intuitive and efficient.
- Using the core forms as a starting point, physicians can choose the level of decision support they begin with, facilitating learning and progress at a comfortable pace.
- Customization is a simple and powerful option with CCC. With CCC editors, you can adjust content to work the way your practices works.

Incredible Centricity support and implementation: To get the most from your investment in athenaPractice you will receive hands-on help from the athenaPractice experts, so you will see tangible results right away.

Quatris Healthco partners with your practice to customize and implement your athenaPractice solution

As a reseller of the athenaPractice software, Quatris Healthco provides medical clinics with the hands-on support they need to get the most from athenaPractice EMR. Since 1998, we've helped thousands of practice administrators and providers eliminate of the headaches involved in managing EMR/PM software. By investing fully in your training and support we help you maximize both clinical and financial performance. Consider us your partner when it comes to your success with EMR; we are always just a phone call away.

For more information about Quatris Healthco, visit our website at www.quatrishealthco.com