CHAPTER 1: Electronic Health Records—An Overview

Chapter Overview

Chapter 1 of the student text provides a foundation for student learning, introducing concepts and topics that are explained in depth in subsequent chapters. The chapter begins with a definition of electronic health records (EHR) and a discussion of their importance. It also discusses the forces in our society and the federal laws that are driving their adoption. The chapter includes illustrated scenarios that compare the workflow of a medical office using paper charts versus one using electronic charts, and show the differences between inpatient and outpatient settings. Additional topics include how a medical practice is changed by adoption of an EHR and what constitutes meaningful use of an EHR. The chapter is illustrated with numerous photos of medical personnel using different types of computers to document at the point of care.

Learning Outcomes

1. Define electronic health records
2. Understand the core functions of an electronic health record as defined by the Institute of Medicine
3. Discuss social forces that are driving the adoption of electronic health records
4. Describe federal government strategies to promote electronic health record adoption
5. Explain why electronic health records are important
6. Describe the flow of medical information into the chart
7. Compare the workflow of an office using paper charts with an office using an electronic health record

8. Contrast inpatient and outpatient charts

9. Explain why patient visits should be documented at the point of care

10. Compare various types of electronic health record computers such as workstation, laptop, and Tablet PC

Resources

- Instructor Resource Guide
- Instructor Test Generator
- PowerPoint slides for Chapter 1
- Textbook
- Myhealthprofessionskit.com website

LEARNING OUTCOMES AND LESSON PLANS

Lesson 1

Learning Outcomes	**PPT Slides** for Lesson 1
1. Define electronic health records 2. Understand the core functions of an electronic health record as defined by the Institute of Medicine 3. Discuss social forces that are driving the adoption of electronic health records 4. Describe federal government strategies to	**Textbook pages**: **1–16** **Classroom Activities**: • Critical Thinking Exercise 1: EHR News *Homework* • Have students complete Critical Thinking Exercise 2: Compare ONC and HITECH

promote electronic health record adoption 5. Explain why electronic health records are important	• Have students read the Real-Life Story and complete Critical Thinking Exercise 3: When the Chart Is Lacking (see pages 15 and 16 of the student text). *Teaching Tips* • This chapter includes an online activity about speech recognition that requires Internet access. The exercises in Chapter 2 will also require online access. Plan ahead by having your students sign in and register for MyHealthProfessionsKit website access. See the inside cover of the student text for instructions on how to do this. *Did You Know?* • An estimated 44,000 to 98,000 people die each year in the United States from preventable medical errors. Instructor Notes

Lesson 2

Learning Outcomes	**PPT Slides** for Lesson 2
6. Describe the flow of medical information into the chart 7. Compare the workflow of an office using paper charts with an office using an electronic health record 8. Contrast inpatient and outpatient charts 9. Explain why patient visits should be documented at the point of care 10. Compare various types of electronic health record computers such as workstation, laptop, and Tablet PC	**Textbook pages**: **16–33** **Classroom Activities**: • Critical Thinking Exercise 4: Think About Workflow • Discuss the advantages and disadvantages of the different devices currently available to achieve a point-of-care EHR. *Homework* • If students have Internet access at home, you can assign *How Speech Recognition Software Works* as homework. • Have students answer the Testing Your Knowledge of Chapter 1 questions located on page 34 of the student text. • Have students complete any remaining questions from Critical Thinking Exercise 4.

	Teaching Tips • Some of your students may have personal computers and Internet access outside school. They may wish to download and install the Medcin Student Edition software when they sign in at MyHealthProfessionsKit. Note that, in most programs, the exercises in the student text are taught on school computers and are not assigned outside class. This means, aside for signing up for access to the website, students do not need to download and install anything to complete this course unless they are enrolled in a distance-learning program. • Set up a mock medical office in your classroom. Recruit student volunteers to be staff members, clinicians, and patients. Then walk through a paper and an electronic workflow. Use manila folders so that students can visualize

	situations where one participant needs a chart, but another participant still has the chart. Put one folder inside another, so that the students have to discover the "lost" chart. *Did You Know?* • Speech recognition systems improve as they are used. Each time the speaker makes a correction, the system learns a little more about the speaker's voice patterns. Recognition is also improved with the use of a special medical language model, which recognizes medical terms that might not be in a generic speech recognition product. Instructor Notes

LEARNING OUTCOME 1

Define electronic health records.

Concepts for Lecture:

I. Evolution of Electronic Health Records

A. The idea of computerizing medical records has been around for over 30 years but has only become a widely adopted practice over the past decade.

1. Prior to the EHR, a patient's medical records consisted of handwritten notes, typed reports, and test results stored in a paper file system.

2. Many medical facilities still use paper records, in spite of this widespread transition.

B. The push to transition to electronic health records (EHRs) came in response to studies and reports by the Institute of Medicine of the National Academies (IOM) in the early nineties. Results of these studies asserted that the human and monetary costs of preventable medical errors could be reduced through the adoption of EHRs.

C. Terminology

1. The IOM coined the term *electronic health records (EHR)*, but throughout the evolution of EHR, they have been called by the following names:

a. Computer-based patient records

b. Electronic medical records

c. Computerized medical records

d. Longitudinal patient records

e. Electronic charts

LEARNING OUTCOME 2

Understand the core functions of an electronic health record as defined by the Institute of Medicine.

Concepts for Lecture:

I. Institute of Medicine (IOM)

A. The IOM reports also set forth eight core functions of EHRs:

1. Health information and data: provision of health information and data to care providers on demand

2. Result management: management of computerized test results

3. Order management: management of orders related to patient care

4. Decision support for diagnoses, prescriptions, and prevention

5. Electronic communication and connectivity: provides connectivity between multiple care providers

6. Patient support for improved control of illnesses

7. Administrative processes and reporting: Electronic scheduling systems increase the efficiency of healthcare organizations and provide better, timelier service to patients.

8. Reporting and population health: statistical collection and reporting related to population health

Criteria for government incentive programs under the HITECH act and strategies for developing a national healthcare infrastructure are built on these eight core functions.

II. Computer-based Patient Record Institute (CPRI)

A. The CPRI also contributed to early thinking on EHRs and set forth three additional criteria for EHRs:

1. Capture of data at the point of care

2. Integration of data from multiple sources

3. Provision of decision support

III. Health Insurance Portability and Accountability Act (HIPAA)

The introduction of HIPAA helped to broaden the scope of EHRs by defining how and in what way EHR information should be protected.

IV. Based on the principles set forth by the IOM, the CPRI, and HIPAA, an ERH can be defined as the portions of a patient's medical records that are stored in a computer system *as well as the functional benefits derived from having an electronic health record*.

LEARNING OUTCOME 3

Discuss social forces that are driving the adoption of electronic health records.

Concepts for Lecture:

I. Social Forces Driving EHR Adoption

A. Public safety remains a driving force in the adoption of EHRs by healthcare facilities. This adoption is an effort to lessen the effects of a decentralized healthcare delivery system.

1. Prevention of medical errors

B. The increasing costs of health insurance also contribute to the push for EHRs.

1. Errors caused by illegible orders, drug reactions, and duplicate testing drive up insurance costs; these costs can be greatly reduced through the proper use of EHRs.

2. The government has taken additional strides to encourage the use of EHRs, offering incentives to doctors and hospitals that adopt electronic systems.

C. Changes in society have also made paper medical records outdated.

1. Increased mobility of patients.

2. Patients seeing multiple healthcare providers.

3. Technological changes, such as the widespread use of the Internet, has increased public interest in, acceptance of, and desire for EHRs.

D. Critical Thinking Exercise 1: EHR News

1. Work on this exercise together as a class.

LEARNING OUTCOME 4

Describe federal government strategies to promote electronic health record adoption

Concepts for Lecture:

I. Government Response

A. President Bill Clinton's administration issued an executive order instructing government agencies that conduct or oversee healthcare programs to implement proven techniques for reducing medical errors and creating a task force to find new strategies for reducing errors.

1. Congress appropriated $50 million for the Agency for Healthcare Research and Quality (AHRQ) to support a variety of efforts targeted at reducing medical errors.

B. President George W. Bush established the Office of the National Coordinator for Health Information Technology (ONC), under the U.S. Department of Health and Human Services (HHS).

C. President Barack Obama identified the EHR as a priority for his administration and signed into law the Health Information Technology for Economic and Clinical Health (HITECH) Act.

1. Promotes the widespread adoption of EHR and authorizes Medicare incentive payments to doctors and hospitals using a certified EHR; will eventually levy financial penalties for physicians and hospitals that do not

a. The HITECH Act is contained within the American Recovery and Reinvestment Act (ARRA).

II. Office of National Coordinator for Health Information Technology (ONC)

A. Outlined 4 goals and 12 strategies for national adoption of health information technology that included the following:

1. Goal 1: Inform Clinical Practice

a. Strategy 1. Incentivize EHR adoption.

b. Strategy 2. Reduce risk of EHR investment for clinicians who purchase EHR to reduce risk, failure, and partial use of EHR.

c. Strategy 3. Promote EHR diffusion in rural and underserved areas.

2. Goal 2: Interconnect Clinicians

a. Strategy 1. Foster regional collaborations.

b. Strategy 2. Develop a national health information network.

c. Strategy 3. Coordinate federal health information systems.

3. Goal 3: Personalize Care

a. Strategy 1. Encourage use of PHR.

b. Strategy 2. Enhance informed consumer choice to select clinicians and institutions based on what they value, including but not limited to the quality of care that providers deliver.

c. Strategy 3. Promote use of telehealth systems.

4. Goal 4: Improve Population Health

a. Strategy 1. Unify public health surveillance architectures.

b. Strategy 2. Streamline quality and health status monitoring.

c. Strategy 3. Accelerate research and dissemination of evidence.

III. ONC updated the plan in the Federal Health IT Strategic Plan 2008–2012

A. This plan has two goals with four objectives under each goal; they include:

1. Goal 1: Patient-focused Healthcare

a. Objective 1.1—Privacy and Security: Facilitate electronic exchange, access, and use of electronic health information while protecting the privacy and security of patients' health information.

b. Objective 1.2—Interoperability: Enable the movement of electronic health information to where and when it is needed to support individual health and care needs.

c. Objective 1.3—Adoption: Promote nationwide deployment of EHR and PHR that put information to use in support of health and care.

d. Objective 1.4—Collaborative Governance: Establish mechanisms for multistakeholder priority setting and decision making to guide development of the nation's health IT infrastructure.

2. Goal 2: Population Health

a. Objective 2.1—Privacy and Security: Advance privacy and security policies, principles, procedures, and protections for information access and use in population health.

b. Objective 2.2—Interoperability: Enable the mobility of health information to support population-oriented uses.

c. Objective 2.3—Adoption: Promote nationwide adoption of technologies and technical functions that will improve population and individual health.

d. Objective 2.4—Collaborative Governance: Establish coordinated organizational processes supporting information use for population health.

IV. The HITECH Act

A. Encourages the widespread adoption of EHR by authorizing Medicare to make incentive payments to doctors and hospitals that use a certified EHR.

1. Incentives intended to drive adoption of EHR in order to reach the goal of every American having a secure EHR.

2. Success requires three critical short-term prerequisites:

a. Clinicians and hospitals must acquire and implement certified EHR in a way that fully integrates these tools into the care delivery process.

b. Technical, legal, and financial supports are needed to enable information to flow securely to wherever it is needed to support healthcare and population health.

c. A skilled workforce is needed that can facilitate the implementation and support of EHR, exchange of health information among healthcare providers and public health authorities, and the redesign of workflows within the healthcare settings.

3. Providers that implement and have a meaningful use of a certified EHR prior to 2015 are eligible for incentives.

4. After 2015, Medicare will begin to administer financial penalties for physicians and hospitals that do not use an EHR.

V. ONC Strategic Plan Update 2011–2015

A. The HITECH Act requires the ONC, in consultation with other appropriate federal agencies, to update the 2008–2012 Strategic Plan; the update must include specific objectives, milestones, and metrics with respect to the following:

1. The electronic exchange and use of health information and the enterprise integration of such information.

2. The use of an EHR for each person in the United States by 2014.

3. The incorporation of privacy and security protections for electronic exchange of an individual's individually identifiable health information.

4. Establishing security methods to ensure appropriate authorization and electronic authentication of health information and specifying technologies or methodologies for rendering health information unusable, unreadable, or indecipherable.

5. Specifying a framework for coordination and flow of recommendations and policies under this subtitle among the Secretary, the National Coordinator, the HIT Policy Committee, the HIT Standards Committee, and other health information exchanges and other relevant entities.

6. Methods to foster the public understanding of health information technology.

7. Strategies to enhance the use of health information technology in improving the quality of healthcare, reducing medical errors, reducing health disparities, improving public health, increasing prevention and coordination with community resources, and improving the continuity of care among healthcare settings.

8. Specific plans for ensuring that populations with unique needs, such as children, are appropriately addressed in the technology design, as appropriate, which may include technology that automates enrollment and retention for eligible individuals.

B. The HITECH act specifies the following three components of Meaningful Use:

a. Use of certified EHR in a meaningful manner

b. Use of certified EHR technology for electronic exchange of health information to improve quality of healthcare

c. Use of certified EHR technology to submit clinical quality measures (CQM) and other such measures selected by the Secretary of Health and Human Services

VI. Meaningful Use of a Certified EHR

A. CMS officially published the Electronic Health Record Incentive Program Final Rule July 28, 2010.

1. Defines the criteria for determining “meaningful use.”

2. Implements incentive payments over three stages:

a. Stage 1, years 2011–2012

b. Stage 2, to begin year 2013

c. Stage 3, year 2015

B. Eligible Professionals (EPs) must meet 20 out of 25 meaningful use objectives to receive payment.

1. Fifteen objectives are core objectives that must be met; the other 5 may be chosen from a list (see pages 11–12 of the student text).

C. Eligible Hospitals

1. Must meet 14 core objectives and select 5 others from a list of 24 to receive payment (see page 12 of the student text).

VII. Certified EHR

A. Under the CMS EHR incentive programs, eligible healthcare providers must adopt and meaningfully use a “certified EHR” that has been certified by an ONC Authorized Testing and Certification Body (ONC-ATCB).

1. ONC certification criteria represent the minimum capabilities an EHR needs to include and have properly implemented in order to achieve certification.

2. Before the HITECH Act, the Certification Commission for Healthcare Information Technology (CCHIT®) was created to reduce the risk to providers who adopted an EHR.

a. CCHIT is an ONC-ATCB.

VII. Clinical Quality Measures (CQM)

A. CMS has specified a number of clinical quality measures for meaningful use.

1. EPs must report on 3 required core or alternate core CQM and 3 additional CQM selected from a list of 38.

2. Hospitals must report on 15 CQM.

3. ONC certification requires an EHR designed for an inpatient setting to be tested and certified according to all of the clinical quality measures specified by CMS.

LEARNING OUTCOME 5

Explain why electronic health records are important.

Concepts for Lecture:

I. Why Electronic Health Records Are Important

A. Drawbacks of paper records include:

1. Physical patient medical record contains a variety of documents, with separate file folders created at each location where the patient receives treatment.

2. Handwritten records often are abbreviated, cryptic, or illegible.

3. Documents require copying, faxing, or mailing to share among providers.

B. Benefits of an EHR include:

1. Improved legibility.

2. Ability to find, share, and search patient records

3. An EHR can also take the practice of medicine to levels that cannot be achieved with paper records; examples include:

a. Health maintenance

b. Trend analysis

c. Alerts

d. Decision support

4. EHR allows for electronic communication and connectivity among care partners as well as the ability to interconnect clinicians.

C. Real-Life Story: Where's My Chart?

1. If time permits, discuss the real-life story and Critical Thinking Exercise 3 in class; otherwise, assign it as homework.

LEARNING OUTCOME 6

Describe the flow of medical information into the chart.

Concepts for Lecture:

I. Flow of Clinical Information into the Chart

A. Whether a medical record is maintained on paper or electronically, exam notes are usually documented according to a defined structure of four components. These are typically known by the acronym SOAP, which stands for:

1. Subjective

2. Objective

3. Assessment

4. Plan

II. EHRs require more than just computers and software—they require changes in the gathering and documentation of information, and adjustments to workflow.

LEARNING OUTCOME 7

Compare the workflow of an office using paper charts with an office using an electronic health record.

Concepts for Lecture:

I. Workflow of an Office Using Paper Charts

A. The workflow of an office using paper charts has been broken down into 12 steps in Figure 1-2 on page 17 of the text. Review the figure with students.

1. An established patient schedules an appointment by phone.

2. The patient's charts are pulled from the filing system the night before the appointment.

3. The patient arrives and is asked to confirm insurance and demographic information and complete additional paperwork.

4. The patient is escorted to an exam room, vital signs are taken, and details about symptoms are gathered and entered in the chart by a healthcare professional.

5. The clinician enters the exam room and discusses symptoms with the patient subjectively and objectively, assesses condition, and develops a plan of treatment. Each element is recorded in the chart.

6. A handwritten prescription is given or called in to the pharmacy and is noted in the chart along with billing and diagnoses codes.

7. Samples are obtained if lab work is required.

8. The clinician creates exam notes from memory via dictation.

9. The patient returns to the waiting area and schedules follow-up appointments and any required off-site diagnostic tests.

10. Dictated notes are transcribed and reviewed by the doctor and placed in the chart.

11. Off-site diagnostic tests are reviewed as they are received and placed in the chart.

12. The chart is returned to the filing system once all outstanding information has been received and reviewed.

II. Workflow of an Office Fully Using an EHR

A. The workflow of an office that fully uses the electronic capabilities that are available in EHR systems today has been broken down into 12 steps in Figure 1-3 on page 19 of the text. Review the figure with students.

1. An established patient phones the doctor's office and schedules an appointment. Internet alternative—Patients are increasingly able to request an appointment and receive a confirmation via the Internet.

2. The night before the appointment, the medical office computer electronically verifies insurance eligibility for patients scheduled the next day.

3. On the day of the appointment, the patient arrives at the office and is asked to confirm that the demographic information on file is still correct.

4. A receptionist, nurse, or medical assistant asks the patient to complete a medical history and reason for today's visit using a computer in a private area of the waiting room. The patient completes a computer-guided questionnaire concerning his or her symptoms and medical

history. Internet alternative—Some medical practices allow patients to use the Internet to complete the history and symptom questionnaire before coming to the office. (In Chapter 11, students will have an opportunity do this in Exercise 64.)

5. When the patient has completed the questionnaire, the system alerts the nurse that the patient is ready to move to an exam room, where the nurse measures vital signs. These vital signs are recorded and wirelessly transferred into the EHR.

6. Subjective—The nurse and patient review the patient-entered symptoms and history. Where necessary, the nurse edits the record to add clarification or refinement. The physician enters the exam room and discusses the reason for the visit and reviews with the patient the information already in the chart.

7. Objective—The physician performs the physical exam. The clinician typically makes a mental provisional diagnosis.

a. This is used to select a list or template of findings to quickly record the physical exam in the EHR.

b. The EHR present a list of problems the patient reported in past visits that have not been resolved.

c. The physician reviews each, examining additional body systems as necessary, and marks the improvement, worsening, or resolution of each problem.

d. Assessment—Applying his or her training to the subjective and objective findings, the clinician arrives at a decision of one or more diagnoses, and decides if further tests might be warranted.

8. Plan of treatment—The clinician prescribes a treatment and/or medication; in addition, the clinician may order further tests using the EHR.

a. If medication is to be ordered, the physician writes the prescription electronically.

b. A built-in function of the EHR accurately calculates the correct evaluation and management code used for billing, which is confirmed by the physician and automatically transferred to the billing system.

c. When the visit is complete, so is the exam note. The physician signs the note electronically at the conclusion of the visit.

9. If lab work has been ordered, a medical assistant obtains the necessary specimen and the order is sent electronically to the lab.

10. Patient education—Because of the efficiency of the EHR system, the physician has more personal time with the patient for counseling or patient education.

11. The patient is escorted to the checkout area.

a. If x-rays or other diagnostic tests have been ordered at another facility, the office staff may call on behalf of the patient and schedule the tests.

12. If lab tests were ordered, the results are sent to the doctor electronically, reviewed on screen, and automatically merged into the EHR.

a. If radiology or other diagnostic reports are sent to the ordering physician electronically as text reports, they are imported into the EHR and can be reviewed by the physician on the computer.

B. Critical Thinking Exercise 4: Think About Workflow

A. Discuss, as a class, the questions in the critical thinking exercise that appears on pages 21–22 of the student text, or assign it for independent work.

LEARNING OUTCOME 8

Contrast inpatient and outpatient charts.

Concepts for Lecture:

I. Inpatient Charts versus Outpatient Charts

A. Review the steps involved in an inpatient admission and discharge.

1. See Figure 1-4 and pages 22–23 of the student text.

B. Discuss the differences between inpatient and outpatient charts.

1. Review Figure 1-5 on page 23 of the student text.

LEARNING OUTCOME 9

Explain why patient visits should be documented at the point of care.

Concepts for Lecture:

I. Documenting at the Point of Care

A. Point-of-care documentation improves the accuracy and completeness of the patient record. It requires the physician to complete the SOAP note before the patient leaves a medical office. Or, in an inpatient setting, it requires healthcare professionals to enter vital signs and notes about the patient at bedside, not at the end of the healthcare professionals' shift.

B. Benefits include:

- Saves time and the cost of dictation and transcription
- Allows the physician to sign note immediately

- Allows patient to leave with complete copy of medical record
- Ensures up-to-date information about the patient is available for other providers

C. Review Figure 1-8 (on page 27 of the textbook) with students. The figure lists the stages of change resulting from adoption of an EHR.

LEARNING OUTCOME 10

Compare various types of electronic health record computers such as workstation, laptop, and Tablet PC.

Concepts for Lecture:

I. The Physical Clinic and Clinician Mobility

A. The office environment and the choice of computers, devices, and technologies can affect the successful adoption of an EHR; considerations include:

1. How much space is available may determine the type of device to use.

2. Mobility of the clinicians.

3. What type of clinician–patient interaction the clinicians hope to achieve.

II. Advantages and disadvantages of different devices

A. EHR on Computer Workstations

1. Advantages: cheap, reliable, and dependable; easier for the IT department to manage; and can be upgraded when necessary.

2. Disadvantages: take up more space and may not fit in the exam rooms.

B. EHR on Laptop Computers

1. Advantages: laptop computers package everything in a unit about the size of a notebook and provide mobility for clinicians who want to take their work from room to room.

2. Disadvantages: require a wireless network to gain that mobility; laptops have limited battery life.

C. EHR on a Tablet PC

1. Advantages: the size and portability of a laptop computer; users can move and click the mouse by just touching the screen with a special stylus. Works well for EHR systems that primarily involve opening lists and clicking findings with a mouse.

2. Disadvantages: does not have a keyboard in tablet mode, so it is less desirable when there is a lot of keyboard input; requires a wireless network; and has limited battery life.

D. Speech Recognition

1. Advantages: can interpret the sound waves of speech and match them to vocabulary words, converting speech to text.

a. Direct students to *How Speech Recognition Software Works*, which is located on the Myhealthprofessionskit.com website (access details provided on the inside cover of the student text).

b. After reading *How Speech Recognition Software Works*, students can watch a short video demonstrating speech recognition in an EHR by clicking a link at the end of the article.

Answer Key to Testing Your Knowledge Questions

1. What does the acronym EHR stand for?

ANSWER: Electronic Health Records

2. What is the definition of an EHR?

ANSWER: The working definition for this textbook is as follows:

The portions of a patient's medical records that are stored in a computer system as well as the functional benefits derived from having an electronic health record.

3. Explain the benefits of EHR over paper charts.

ANSWER: Acceptable answers include:

Simultaneously accessible at multiple locations by multiple providers

Searchable by computer

Data are more likely to be standard medical terms

Capable of being transferred electronically to another system

Additional benefits realized from having codified EHR data:

Health maintenance

Trend analysis

Alerts

Decision support

4. Describe what points of the workflow are different between offices using a paper and an electronic chart.

ANSWER: Figures 1-2 and 1-3 compared the workflow of offices using paper and electronic charts in 12 steps. Students should identify most of the differences.

Any acceptable comparison of those figures should suffice. Here is a summary of key differences:

Both workflows started with the patient calling for an appointment.

Astute students may point out that an alternative for some EHR offices is to allow scheduling over the Web; extra points for those students.

Paper: The night before the visit paper charts are pulled.

EHR: Pulling charts is not necessary; however, some EHR systems can automatically verify the patient's insurance eligibility.

Paper: The patient updates his or her history on a paper form.

EHR: The patient completes his or her medical history and reason for today's visit using a computer in a private area of waiting room.

Paper: The patient describes symptoms and reason for the visit to the nurse; vital signs are recorded in the paper chart by the nurse. The doctor enters and the patient repeats description of symptoms and reason for the visit.

EHR: The nurse reviews patient-entered data with the patient and edits for clarification if necessary. Vital signs can be transferred electronically from instruments into chart.

The clinician performs the physical exam and makes a clinical assessment and a plan of treatment.

Paper: The clinician makes a few notes and retains the observations and physical exam in his or her memory.

EHR: The clinician records the findings at the time of the exam or shortly thereafter; has access to previous problems and reviews those; makes the clinical assessment and plan of treatment.

Paper: The clinician handwrites prescriptions and orders, makes a note of them in the paper chart, and marks billing codes and diagnoses codes on the paper encounter form. The clinician creates the exam note from memory, either handwriting in the chart or dictating.

EHR: The clinician enters the findings directly into the EHR while the patient is still present. Orders create tasks for lab personnel to obtain a specimen, which is subsequently transmitted directly to the lab.

Prescriptions are written as part of the chart and transmitted to the pharmacy.

Paper: Dictated notes must be transcribed and subsequently reviewed and signed by the clinician and then filed in the paper chart.

EHR: When the exam is finished, the note is finished. A copy of the completed note can be printed and given to the patient with other patient education materials.

Patient checks out.

Paper: Billing information is manually keyed into the computer from the encounter form. The codes circled by the clinician are only a best guess and may require a coding specialist to verify them.

EHR: The billing codes can be automatically calculated from the completed note and electronically transferred from the EHR into the billing system.

Paper: Results from tests are returned and the chart is pulled again.

The doctor must review and sign the results, staff must notify the patient, and the chart must be refiled.

EHR: Results received electronically are merged directly into the patient chart and immediately available for clinician review and patient notification.

5. Name at least three forces driving the change to EHR.

ANSWER: At least three of the following:

Medical specialization (patients no longer have just one doctor)

Increasingly mobile society (patients relocate and change doctors often)

Internet (patients are researching their conditions and demanding access to their own records)

New methods of diagnostic and preventative medicine require the ability to share exam records

Health safety (deaths as a result of medical errors that could have been prevented by electronic records)

Employers (The Leapfrog Group)

Government initiatives

6. What are the four goals of the Strategic Framework created by the Office of the National Coordinator for Health Information Technology?

ANSWER: Any four of the following:

Inform clinical practice

Interconnect clinicians

Personalize care

Improve population health

Patient-focused healthcare

7. Describe at least three differences between inpatient and outpatient EHR systems.

ANSWER

Outpatient: Most physician offices have a single chart for the patient. Notes for each visit, test results, and any other reports are added to the chart. Inpatient: Most hospitals start a new chart each time a patient is admitted. Information from previous stays in the hospital is linked to the patient ID, but the current chart contains only information related to the current stay.

Outpatient: The quantity of data in an outpatient chart is relatively low by comparison.

Inpatient: The quantity of data in an inpatient chart is likely to be much larger. Vital signs are taken and nurses' notes are added numerous times per day; dietitians, respiratory therapists, and other providers add to the chart; there are typically many more orders for labs, medications, etc.

Outpatient: The central element in the chart is the physician's exam note. Inpatient: Physician exams tend to be brief; the main focus of the chart is the physician orders and nurse's notes indicating the patient's response.

8. Explain why documenting at the point of care improves patient healthcare.

ANSWER:

Documenting a visit at the point of care ensures a more accurate record, provides the most benefits from the system, and allows the encounter note to be completed before the patient leaves the office.

The clinician can sign the note immediately. Dictation time is saved and the need for personal dictation aides is eliminated. Patient care is improved because the patient can leave with a complete copy of the medical record, a step that stimulates compliance. The delivery process is improved with point-of-care documentation because referrals can be accomplished with full information available at the time that the referral is needed.

9. What is the HITECH Act?

ANSWER:

The Health Information Technology for Economic and Clinical Health Act provides CMS incentives for providers to use a certified EHR.

10. What is the name of the organization that certifies EHR systems?

ANSWER:

Certification Commission for Healthcare Information Technology (CCHIT)

Alternate answer: an ONC Authorized Testing and Certification Body (ONC-ATCB)

11. List the three styles of the physician–patient relationships described by Wenner and Bachman.

ANSWER:

The doctor is paternalistic, telling the patient what to do.

The doctor gives the patient information, and the patient decides what to do.

Patients and doctors share information to determine the best plan for given conditions.

12. List the eight core functions that an EHR should be capable of performing.

ANSWER:

The IOM set forth the following eight core functions of the EHR:

Health information and data

Result management

Order management

Decision support

Electronic communication and connectivity

Patient support

Administrative processes and reporting

Reporting and population health

13. List the three criteria of an EHR defined by CPRI.

ANSWER:

Capture data at the point of care

Integrate data from multiple sources

Provide decision support

14. What are the four defined sections in a SOAP note?

ANSWER:

Subjective

Objective

Assessment

Plan

15. What three benefits of electronic results are identified by the IOM report?

ANSWER: Any three of the following:

Electronic results for better interpretation, and quicker recognition and treatment of medical problems; reduces redundant testing; and improves care coordination among multiple providers.