Slide 1

Networking and Health Information Exchange

Unit 9a
Privacy, Confidentiality, and Security
Issues and Standards

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Slide 2

Unit 9 Objectives

- Explain the concepts of privacy and confidentiality requirements and policies and learn how to implement the requirements
- Define access control methods

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Slide 3

Unit 9 Objectives Continued

- Describe how to secure data storage and transmission using data encryption, signatures, validation, non-repudiation, and integrity (PKI, certificates, and security protocols)
- Analyze access restrictions to data storage and retrieval (physical and software)

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Slide 4

Security Defined

- The quality or state of being secure
- Freedom from danger
- Freedom from fear or anxiety
- Measures taken to guard against espionage or sabotage, crime, attack, or escape

*as defined by Merriam-Webster Dictionary

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Slide 5

Information Security

Protecting information and information systems (including computers, computing devices and networks) from

- Unauthorized access
- Unauthorized use
- Unauthorized alterations
- Unauthorized interruptions
- Devastation

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Slide 6

Key Security Concepts

- Confidentiality
- Integrity
- Availability
- Accountability
- Nonrepudiation

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Slide 7

Confidentiality

•Confidentiality is making sure that only authorized individuals have access to information.

•It is also making sure that individuals with that access keep the information private and do not share with others.

•There are Federal and State laws in place to protect patient confidentiality, and punish those who abuse confidentiality.

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Slide 8

The Health Insurance Portability and Accountability Act (HIPPA)

• Protects health insurance coverage for workers and their families when they change or lose their jobs.

• Requires the establishment of national standards for electronic health care transactions and national identifiers for providers, health insurance plans, and employers.

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Slide 9

HIPPA Continued

• Address the security and privacy of health data.

• Encourages the widespread use of electronic data interchange (EDI) in the U.S. health care system.

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Slide 10

Integrity

Integrity means that the data in a system is the same as the data from the original source.

The data has not been altered or destroyed, intentionally or unintentionally.

The data is consistent.

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Slide 11

Encryption

Plaintext + Cipher = Ciphertext

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Slide 12

Example

- Cipher = Shift characters x amount to the y
- Plaintext = HOSPITAL

- X= 3, y = Right
- Ciphertext = KRVSLWDO

- X=4, y=left
- Ciphertext = DKOLEPWH

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Slide 13

Types of Encryption

- Symmetric
  - Same key used to encrypt and decrypt
  - Shared key

- Asymmetric
  - One key used to encrypt and another key used to decrypt
  - Public key encryption

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Slide 14

Hashes

- A number that is generated based on the data.
- If the data has been altered in any way then the hash will be different.
- Also called a message digest or simply a digest.

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Slide 15

Availability

- Means that the system/data is available when it is needed
- Fault-tolerance
- Denial of service (DoS)

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Slide 16

Accountability

Accountability is the process of holding a person/entity responsible for their actions.

System must
- Identify users
- Maintain audit trail of actions

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Slide 17

Nonrepudiation

- Provides Proof
  - Origin
    - Digital signatures
    - Private keys (asymmetric encryption)
  - Delivery
    - Return receipts

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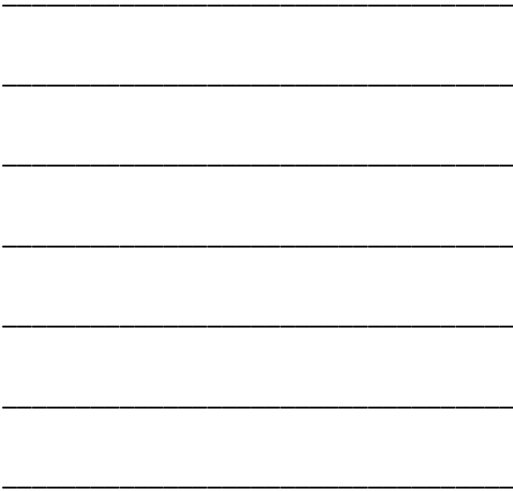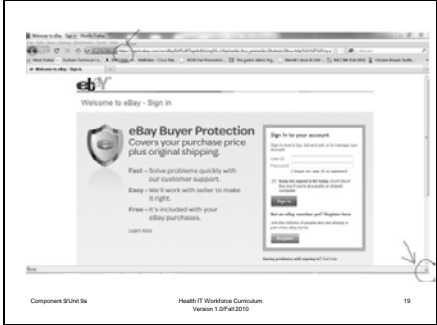
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Slide 18

Public Key Infrastructure (PKI)

- Certificates
  - Also called digital or identity certificates
  - Public keys
- Certificate Authority (CA)
- Registration Authority (RA)
- Revocation
  - Certificate Revocation List (CRL)

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Slide 19

Slide 20