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Curriculum Development
Centers Program
Awardee of The Office of the National Coordinator for
Health Information Technology

Component 9 – Networking and Health Information Exchange

Unit 9-1
Privacy, Confidentiality, and
Security Issues and Standards

This material was developed by Duke University, funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number 5U49CE000294.

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Unit 9-1 Objectives

- Explain the concepts of privacy and confidentiality requirements and policies and learn how to implement the requirements
- Describe how to secure data storage and transmission using data encryption, signatures, validation, non-repudiation, and integrity (PKI, certificates, and security protocols)

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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

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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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Key Security Concepts

- Confidentiality
- Integrity
- Availability
- Accountability
- Nonrepudiation

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Confidentiality

- Confidentiality is making sure that only authorized individuals have access to information.
- It is also making sure that individuals with 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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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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HIPPA Continued

- Addresses 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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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.

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Encryption

Plaintext + Cipher = Ciphertext

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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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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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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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Availability

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



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Accountability

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

System must


- Identify users
- Maintain audit trail of actions

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Nonrepudiation

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



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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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