

Standardized Terminologies and Classification Systems

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MHA621
Healthcare Informatics

Lecture 8



Intended Objectives

1. Explain the importance of standardized terminologies and classification systems in healthcare.
2. Differentiate between ICD, CPT, and NANDA classification systems.
3. Describe the structure and coding approach of ICD, CPT, and NANDA.
4. Identify the role of each system in healthcare documentation, billing, and patient care.
5. Recognize the challenges and benefits of implementing these classification systems.

Overview

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➤ Importance of Terminologies Standardization & Classification Systems:

1. **Standardized terminologies** ensure consistent communication across healthcare systems.
2. **Classification systems** like ICD, CPT, and NANDA improve data accuracy, patient care, and operational efficiency.
3. **They support** billing, research, and global health data comparison.

Overview

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- **Importance of Terminologies Standardization & Classification Systems:**
4. **ICD:** Standardizes disease classification for accurate diagnosis and global health statistics.
 5. **CPT:** Streamlines medical billing and ensures accurate reimbursement for services.
 6. **NANDA:** Enhances nursing care through standardized nursing diagnoses and care plans.

1. ICD System Overview



➤ What is the ICD System?

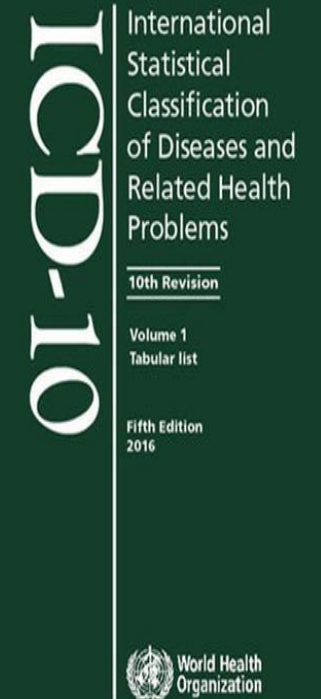
- **ICD (International Classification of Diseases):** A global standard for diagnosing and classifying diseases.
- Used for morbidity and mortality statistics, reimbursement, and clinical research.
- Managed by the **World Health Organization (WHO)**.

➤ Why is the ICD System Important?

- Ensures **consistent** and **accurate diagnosis coding** across healthcare providers.
- Facilitates **global health data comparison** and **research**.
- Supports **insurance claims** and **reimbursement processes**.

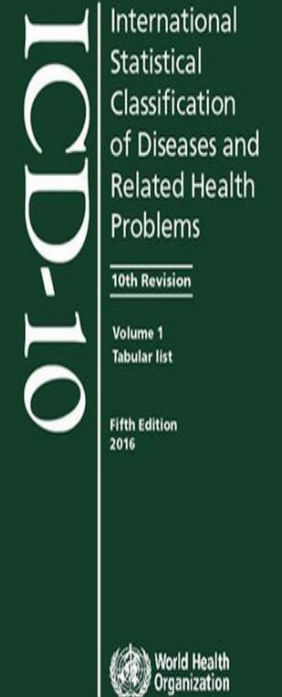
➤ ICD-10 Methodology:

- **Alphanumeric Structure:** Codes consist of **3-7** characters.
- **First Character:** Always a letter (e.g., A00-Z99).
- **Second to Seventh Characters:** Numbers or letters for greater specificity.



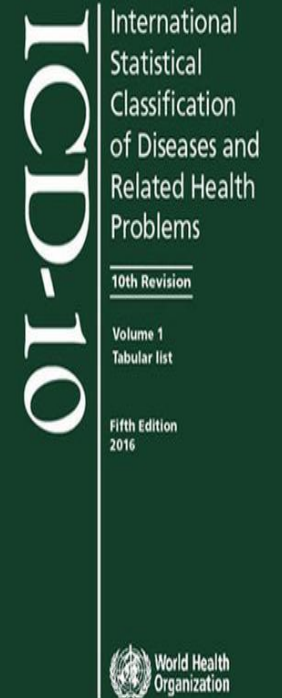
➤ ICD-10 Practical Example:

- **Condition:** Type 2 Diabetes Mellitus with Diabetic Retinopathy.
- **ICD-10 Code:** **E11.319** (Type 2 Diabetes Mellitus with unspecified diabetic retinopathy without macular edema).



ICD System

- **ICD & Diagnosis-Related Groups (DRGs):**
 - **DRGs (Diagnosis-Related Groups)** categorize hospital cases into groups with similar clinical characteristics and resource usage.



ICD System

➤ How ICD Generates DRGs?

- ICD codes (diagnoses & procedures) are assigned to patient records.
- These codes determine the primary diagnosis, complications, and procedures.
- Based on coding rules, the case is grouped into a DRG, influencing hospital reimbursement.

ICD System

➤ ICD & Case Mix Index (CMI):

- **Case Mix** represents the diversity and complexity of patients treated in a hospital.
- **Case Mix Index (CMI):** A weighted average of DRGs, reflecting resource intensity.

ICD System

➤ How ICD Contributes?

- **ICD codes** define patient conditions and treatments.
- **DRGs** are assigned based on ICD coding.
- **CMI is calculated** by averaging DRG relative weights.

ICD System

➤ ICD Contribution Example:

- A patient is admitted to the hospital with **pneumonia** and **sepsis**.
- **ICD Coding:**
 - The doctor diagnoses the patient with **bacterial pneumonia (ICD-10: J15.9)** and **sepsis (ICD-10: A41.9)**.
 - These codes **define the patient's condition** and **justify the treatment provided**.

ICD System

- **DRG Assignment:**

- Based on the ICD codes, the patient is assigned **DRG 871 (Septicemia or Severe Sepsis without Mechanical Ventilation (MV) >96 Hours with Major Complication/Comorbidity)**.
- This DRG determines **hospital reimbursement** under **insurance** or **Medicare**.

ICD System

- **Case Mix Index (CMI) Calculation:**
 - Each DRG has a **relative weight** (e.g., **DRG 871 = 1.92**).
 - If the hospital treats multiple cases with different DRGs, the **CMI is calculated as the average of all DRG weights**.
 - A higher **CMI** means the hospital is treating more complex cases, affecting reimbursement and resource allocation.

ICD System

➤ Challenges in ICD Implementation:

- Complexity of ICD-10 codes.
- Requires extensive training for accurate coding.
- Potential for coding errors leading to claim denials.



ICD System

➤ Overcoming ICD Challenges:

- Provide comprehensive training for coding staff.
- Use coding software to reduce errors.
- Regularly audit coding practices for accuracy.



2. CPT System Overview



CPT System

➤ What is the CPT System?

- **CPT (Current Procedural Terminology):** A coding system for medical procedures and services.
- Developed by the **American Medical Association (AMA)**.
- Used for **billing and reimbursement** in the U.S. healthcare system.

➤ Why is the CPT System Important?

- **Standardizes medical procedure coding** for accurate billing.
- Ensures healthcare providers are **reimbursed correctly** for services rendered.
- **Facilitates communication** between healthcare providers and insurers.

➤ CPT Methodology:

- **CPT codes** are **five-digit** codes that can be **numeric or alphanumeric** based on the category.
- **Standardized descriptors** ensure a common understanding across healthcare.

➤ Types of CPT codes:

- **Category I:** Numeric codes (00100–99499) for procedures/services, organized by type and anatomy.
- **Category II:** Alphanumeric tracking codes for **performance measurement** (optional use).
- **Category III:** Temporary alphanumeric codes for **new/emerging technology, procedures, and services** used for **data collection and assessment**.

➤ CPT Coding Example:

- **Procedure:** Routine office visit for an established patient.
- **CPT Code:** **99213** (Office or other outpatient visit for the evaluation and management of an established patient).

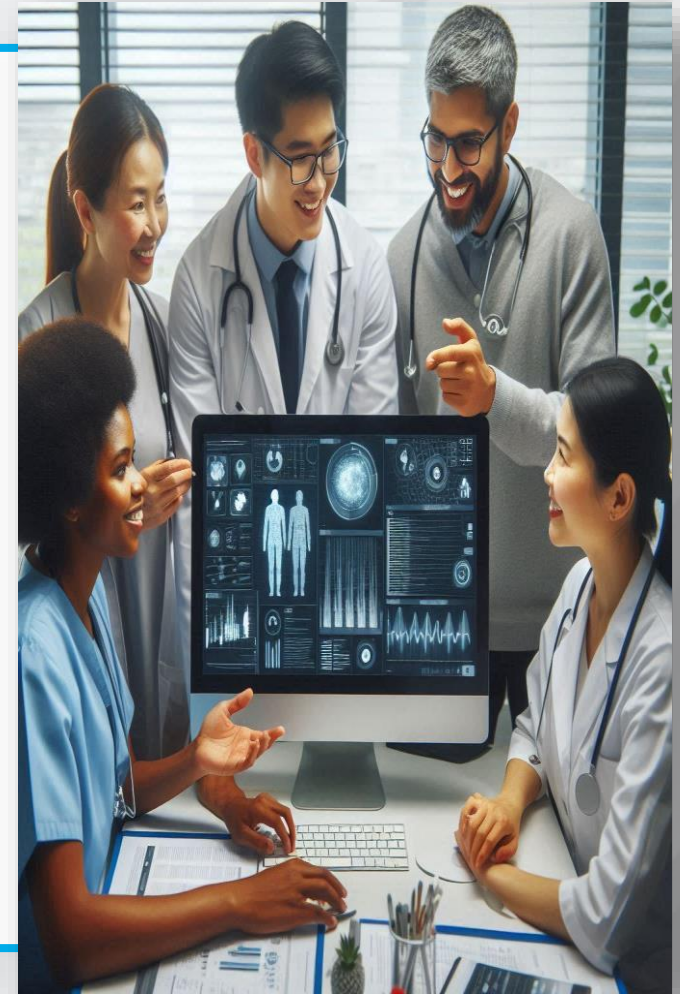
➤ Challenges in CPT Implementation:

- **Frequent Updates:** Frequent code changes need ongoing learning.
- **Error Risks:** Mistakes lead to denials, audits, and compliance issues.
- **Manual Inefficiency:** Errors and delays may slow reimbursements.
- **Payer Variability:** Different insurer rules cause claim rejections.

➤ Overcoming CPT Challenges:

- Stay updated with annual CPT code changes.
- Implement regular coding audits.
- Use electronic health records (EHR) to automate coding.

3. NANDA System Overview



➤ What is NANDA?

- **NANDA (North American Nursing Diagnosis Association): A standardized nursing language for diagnosing patient conditions.**
- **Used to develop nursing care plans and improve patient outcomes.**
- **Focuses on identifying patient problems and planning interventions.**

➤ Why is NANDA Important?

- Standardizes nursing diagnoses for consistent patient care.
- Enhances communication among healthcare providers.
- Supports evidence-based nursing practice.

➤ NANDA Methodology:

- **Structure:** Nursing diagnoses are written in a standardized format.
- **Components:**
 - **Diagnosis:** A clinical judgment about a patient's response to health conditions.
 - **Related Factors:** Factors contributing to the diagnosis.
 - **Defining Characteristics:** Signs and symptoms supporting the diagnosis.

➤ **Example:** *“Acute Pain related to surgical incision as evidenced by patient reporting pain level of 8/10.”*

- **Diagnosis: Acute Pain** – This is a clinical judgment indicating that the patient is experiencing pain of sudden onset due to a specific cause.
- **Related Factors: Surgical incision** – This is the underlying factor contributing to the patient's pain. It explains why the patient is experiencing acute pain.
- **Defining Characteristics: Patient reporting a pain level of 8/10** – A subjective measure indicating the severity of pain.

➤ Challenges in NANDA Implementation:

- **Requires nursing staff to be trained in NANDA terminology.**
- **Time-consuming** to develop individualized care plans.
- **Potential for misdiagnosis** if not used correctly.

➤ Overcoming NANDA Challenges

- Train nursing staff in NANDA terminology.
- Use standardized care plan templates.
- Encourage collaboration among nursing teams.

Comparison of ICD, CPT, and NANDA

Aspect	ICD (International Classification of Diseases)	CPT (Current Procedural Terminology)	NANDA (North American Nursing Diagnosis Association)
Purpose	Disease classification	Procedure billing	Nursing diagnosis
Structure	Alphanumeric (3-7 characters)	Numeric (5 digits)	Standardized nursing language
Managed By	World Health Organization (WHO)	American Medical Association (AMA)	NANDA International
Coding Approach	Hierarchical classification based on diseases and conditions	Procedure-specific coding based on medical interventions	Standardized terminology for nursing diagnoses based on patient assessment
Implementation Challenges	Complexity, training needs	Frequent updates, coding errors	Training, time-consuming care plans

Patient Case

- A 65-year-old male patient is admitted with **chest pain** and is diagnosed with **acute myocardial infarction (heart attack)**. He undergoes **percutaneous coronary intervention (PCI)** with **stent placement** and requires **nursing care for pain management and cardiac monitoring**.



Patient Case

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- **ICD (I21.4)** → Identifies the medical condition (**Acute Myocardial Infarction**).
- **CPT (92928)** → Identifies the procedure (**Percutaneous Coronary Intervention with stent**).
- **NANDA** → Identifies the nursing diagnosis (**Acute Pain**).

Wrap Up

1. Standardized terminologies improve communication and accuracy in healthcare documentation.
2. **ICD** is used for disease classification, supporting diagnosis coding and epidemiological tracking.
3. **CPT** standardizes medical procedure coding, ensuring accurate billing and reimbursement.
4. **NANDA** provides a structured nursing diagnosis framework to enhance patient care planning.

Wrap Up

5. These systems work together to streamline healthcare operations, from diagnosis to treatment.
6. Challenges include complexity, frequent updates, and training requirements for proper use.
7. Healthcare professionals must stay updated on coding practices to ensure compliance and accuracy.
8. Effective implementation of these classification systems enhances patient outcomes and operational efficiency.



Thank You