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**Networking and Health
Information Exchange**

Unit 4c
Basic Health Data Standards

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Unit 4c Objectives

- Understand the use, purpose and interrelation among sets of controlled vocabularies in use today.
- Identify the more common controlled vocabularies in use today: SNOMED, MEDCIN, MedDRA, Nursing terminologies, MeSH and UMLS

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Evolution of SNOMED

- Systematized Nomenclature of Diseases and Organisms (SNDO) - 1928 - NY Academy of Medicine
- Systematized Nomenclature of Pathology (SNOP) - 1965 -
- Systematized Nomenclature of Medicine (SNOMED) - 1979
- SNOMED-RT (Reference Terminology)(1999)
- SNOMED-CT (merger with Read)(2002)
- International Healthcare Terminology SDO

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SNOMED-CT

- Created by the merger, expansion and restructuring of SNOMED RT and Read Codes
- 344,000 concepts, 450,000 medical descriptions, 700,000 concept interrelations
- Cross maps to ICD9-CM, ICD10, LOINC

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SNOMED-CT components

- Concepts
- Descriptions
- Hierarchies
- Relationships
- Subsets

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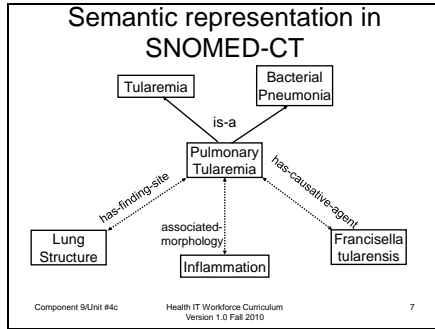
Example

284196006|Burn of skin|:
246112005|Severity|=24484000|severe
363698007|Finding Site|=
(113185004|Structure of skin between fourth and fifth toes|:
272741003|Laterality|=7771000|left)

Such expressions are said to be post coordinated as contrasted to pre coordinated terms.

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- SNOMED axes**
- Findings [F]
 - Procedures [P]
 - Body structures (anatomy) [T]
 - Morphology [M]
 - Organisms [L]
 - Substances [C]
 - Physical agents [A]
 - Occupations
 - Social context
 - General
 - Other
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- Terminology model**
- Ruptured ovarian cyst (D7-75111)
 - is a disease (D7-00000) and
 - has morphology rupture (M-14400) and
 - has morphology cyst (M-33400) and
 - has topography ovary (T-87000)
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MEDCIN

- System of standardized medical terminology developed by Medcomp Systems
- Includes over 250,000 clinical data elements encompassing symptoms, history, physical exam, tests, diagnoses and therapy

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International Classification for Primary Care (ICPC)

- Used by individual family practices and group practices
- Use is to record primary care patient encounter
 - Includes reason for encounter (chief complaint)
 - Focuses on patient perspective
 - Includes fear of disease
 - Request for preventive services
 - Request for treatment

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MedDRA

- International medical terminology used by regulatory authorities and regulated biopharmaceutical industry
- Terminology for coding all medical data obtained during all phases of development and marketing:
 - Symptoms
 - Signs
 - Disease
 - Diagnoses
 - Indications
 - Investigations/Procedures
 - Medical/Social History

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MedDRA codes

- Unique 8 digit number, starting with 10000001
- As terms added, codes assigned sequentially
- Example
 - Gastric hemorrhage (LLT) = 10017789
 - Gastric haemorrhage (LLT) = 100177188
 - Gastrointestinal disorders (SOC) = 10017947

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Nursing terminologies

- NANDA Taxonomy
- Clinical Care Classification
- Patient Care Data Set
- Omaha System
- AORN Perioperative Data Set
- International Classification of Nursing Practice
- Nursing Interventions Classification
- Nursing Outcomes Classification

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Coding nursing concepts

- Diagnoses/judgments
- Interventions
- Outcomes
- Goals

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Nursing terminologies

	Diagnoses	Interventions	Outcomes	Goals
NANDA	X			
NIC		X		
NOC			X	
CCC	X	X	X	
PCDS	X	X		X
Omaha	X	X	X	
AORN	X	X	X	
ICNP	X	X	X	X

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- ### MeSH
- Used to tag medical abstracts with concept-based information
 - Created to improve information retrieval
 - Introduces the notion of "context" for the same concept
 - Free for use in the US and in most countries
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- ### MeSH example
- D011014: Pneumonia
 - D018410: Pneumonia, Bacterial
 - D007877: Legionnaires' Disease
 - D011018: Pneumonia, Pneumococcal
 - D011019: Pneumonia, Mycoplasma
 - D009175: Mycoplasma Infections
 - D011002: Pleuropneumonia, Contagious
 - D011022: Pneumonia, Rickettsial
 - D011023: Pneumonia, Staphylococcal
 - D001996: Bronchopneumonia
 - D009956: Ornithosis
 - D011001: Pleuropneumonia
 - D011015: Pneumonia, Aspiration
 - D011017: Pneumonia, Lipid
 - D011020: Pneumonia, Pneumocystis carinii
 - D011024: Pneumonia, Viral
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Unified Medical Language System

The purpose of the [Unified Medical Language System] is to improve the ability of computer programs to “understand” the biomedical meaning in user inquiries and to use this understanding to retrieve and integrate relevant machine-readable information for users.

- Donald A.B. Lindberg, 1993

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UMLS structure

- 3 main components
 - Metathesaurus
 - Semantic Network
 - SPECIALIST Lexicon and tools

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Choice of terminologies

	HPI	PMH	Exam	Labs	Diag	Dx	Rx	Tx
ICD9					+	++		++
CPT9				+	+			+
DRG						+		
NDC								+++
RxNorm								+++
LOINC				+++	+			
Nursing								++
SNOMED	+++	+++	+++	++	++	+++	++	++
MeSH	+	+	+	+	++	++	++	++
UMLS	++	++	++	++	++	++	++	++

HPI: History of present illness PMH: Past medical history Exam-Physical exam Labs-Clinical lab
 Diag: Other tests Dx: Diagnoses Rx: Medications Tx: Other therapy

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Current situation

- SNOMED-CT is gaining momentum as the terminology of choice
- LOINC is used in the US for laboratory test names
- RxNorm is likely to be drug code of choice in US
- ICD x is required for reimbursement
- Adverse events – maybe MedDRA

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