Slide 1

Networking and Health
Information Exchange

Unit 4b
Basic Health Data Standards

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Slide 2

Unit 4b Objectives

• Understand the use, purpose and interrelation among
  sets of controlled vocabularies in use today.
• Identify the more common controlled vocabularies in
  use today: ICD, CPT, DRG, NDC, RxNorm, and LOINC

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International Classification of Disease

• ICD-9 – CM [Clinical Modification]
    – US is the only major country still using this controlled
      terminology; estimates to change range from $5 b to
      $15 b.
• ICD – 10 (ICD-10-CM and ICD-10-PCS)
    – Used by most of the world
    – US committed to change; target date 1 January 2013.
• ICD-11
    – Dr. Chris Chute of Mayo Clinic is chief editor
    – Includes SNOMED, DRG
    – Target date for completion – 2015
• Sponsored by World Health Organization

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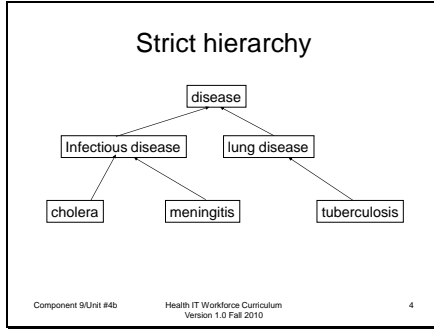   Version 1.0 Fall 2010

Slide 4

Strict hierarchy

disease

Infectious disease   lung disease

cholera   meningitis   tuberculosis

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Slide 5

Polyhierarchy

disease

Infectious disease   lung disease

cholera   meningitis   tuberculosis

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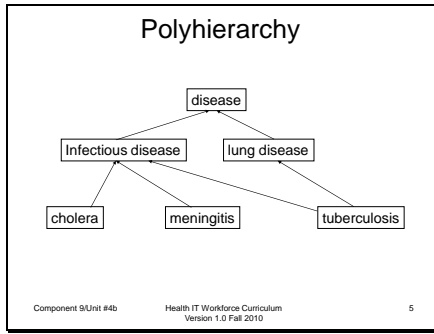
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ICD9-CM examples:
420 tuberculosis codes
(plus 69 hierarchical codes)

010.	PRIMARY TB INFECTION*	011.	PULMONARY TUBERCULOSIS*
010.0	PRIMARY TB COMPLEX*	012.	OTHER RESPIRATORY TB*
010.00	PRIM TB COMPLEX-UNSPEC	013.	CNS TUBERCULOSIS*
010.01	PRIM TB COMPLEX-NO EXAM	014.	INTESTINAL TB*
010.02	PRIM TB COMPLEX-EXM UNKN	015.	TB OF BONE AND JOINT*
010.03	PRIM TB COMPLEX-MICRO DX	016.	GENITOURINARY TB*
010.04	PRIM TB COMPLEX-CULT DX	017.	TUBERCULOSIS NEC*
010.05	PRIM TB COMPLEX-HISTO DX	018.	MILIARY TUBERCULOSIS*
010.06	PRIM TB COMPLEX-OTH TEST		
010.1	PRIMARY TB PLEURISY*		
010.8	PRIM PROGRESSIVE TB NEC*		
010.9	PRIMARY TB INFECTION NOS*		

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DSM IV

- Created to standardize diagnoses in psychiatry or mental health disorders
- Includes diagnostic definitional criteria
- Published by American Psychiatric Association
- Not free for use

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Slide 8

CPT

- Current Procedural Terminology
- Developed and owned by AMA
- Required for procedure reimbursement
- Required for physician visit reimbursement (E&M Coding)
- Licensing fee per application, per seat

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Slide 9

CPT examples

76090: Unilateral mammography

76091: Bilateral mammography

76092: Screening mammography, bilateral (two view film study of each breast)

76096: Mammographic guidance for needle placement, breast (e.g., for wire localization or for injection), each lesion, radiological supervision and interpretation

76645: Ultrasound, breast(s) (unilateral or bilateral), B-scan and/or real time with image documentation

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DRG

- Diagnosis Related Groups
- Diagnoses, procedures, age, complications and other factors expected to have similar hospital resource use.
- CMS codes for prospective payment

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DRG examples: pneumonia

75 Respiratory disease with major chest operating room procedure, no major complication or comorbidity
76 Respiratory disease with major chest operating room procedure, minor complication or comorbidity
77 Respiratory disease with other respiratory system operating procedure, no complication or comorbidity
79 Respiratory infection with minor complication, age greater than 17
80 Respiratory infection with no minor complication, age greater than 17
89 Simple Pneumonia with minor complication, age greater than 17
90 Simple Pneumonia with no minor complication, age greater than 17
475 Respiratory disease with ventilator support

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Slide 12

National Drug Codes (NDC)

- US Food and Drug Administration
- Identifiers for labeled, regulated products
- Labelers get 4- or 5-digit code
- Product code set by labeler: 3 or 4 digits
- Package code set by labeler: 2 digits

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RxNorm

- Food and Drug Administration
- Veterans Health Administration
- National Library of Medicine
- Drug knowledge base vendors

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RxNorm

C1249939: Diazepam Oral Capsule

Broader (tradename-of) — is-a

C1256450: Valium Oral Capsule

C0976327: Diazepam 5 MG Oral Capsule

is-a — Broader (tradename-of)

C0350474: Diazepam 5 MG Oral Capsule [Valium] Synonym: Valium 5 MG Oral Capsule

C0697435: Diazepam 5 MG Oral Capsule [Solis]

has-ingredient — consists-of — has-dose-form

C0699187: Valium

C0992254: Diazepam 5 MG

C0991533: Oral Capsule
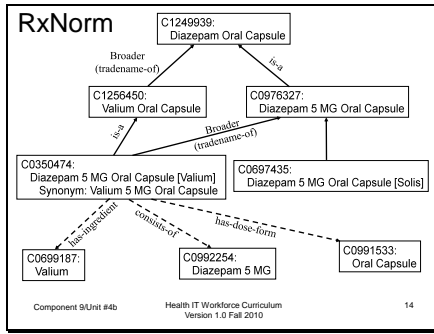
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VA NDF - RT

Entity	Information requested
Active Ingredient	Drug Class Kinetics Mechanism of Action Physiologic Effect Therapeutic Uses
Drug Component	
Clinical Drug	Dose Form Kinetics Therapeutic uses
Finished Dosage Form	
Drug Product	Label
Packaged (NDC) Drug	

Slide 16

Structured Product Labeling

- Defines the content of human prescription drug labeling in XML format.
- Displayed in web browser using SPL style sheet
- Contains labeling plus machine readable information
- It is an HL7 standard and has been submitted to ISO.

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The DailyMed

- Derived from Structured Product Labeling
- Medication information in computer readable form
  - Easily imported into information system
- Comprehensive
  - Includes all marketed products
- Reliable
  - Information directly from labeling
- Up-to-date
  - New information or changes added daily
- Free

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Logical Observation Identifiers Names and Codes (LOINC®)

- Laboratory portion
  - Standard test names and codes
  - Includes chemistry, hematology, serology, microbiology (including parasitology and virology), toxicology
  - Drugs and cell counts for blood smears and cerebrospinal fluids
  - Antibiotic susceptibilities
- Clinical portion
  - Vitals signs, hemodynamics, intake/output, ECG, obstetric ultrasound, cardio echo, urologic imaging, pulmonary ventilator management, survey instruments, other

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LOINC code

- Codes are unique and have no meaning
- Format is nnnnn-n where the last n is a mod 10 check digit
- Typical code: 4764-5
- Each LOINC record corresponds to a single test or panel
- Includes long names, short names and synonyms

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Definition axes

- Component name (analytic)
- Property measured
- Timing
- Type of sample
- Type of scale
- Method (where relevant)
  - **:** is used to separate axes

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Slide 21

EXAMPLES

- SODIUM:SCNC:PT:SER/PLAS:QN

- SODIUM:SRAT:24H:UR:QN

- GLUCOSE^3H POST 100 G GLUCOSE PO:SCNC:PT:SER/PLAS:QN

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LOINC today

- The current version of LOINC is v2.3.2 and was released in June 2010. The database contains 58,967 terms. It is free and may be downloaded from www.loinc.org.
- Mapping Assistant (RELMA) available for free

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- The Regenstrief Institute provides a Windows-based mapping utility called the Regenstrief LOINC Mapping Assistant (RELMA) to facilitate searches through the LOINC database and to assist efforts to map local codes to LOINC codes. Like the LOINC database, this program is also available for free use.

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Example of LOINC's use in data exchange

- HL7 Message:
  OBX|…|Observation|…|Result|…|
- Observation = Code^Name^Coding System
- Logical Objects, Identifiers, Names and Codes
- Self-defining names for lab tests

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Summary

- In this section, you have learned some of the more common controlled vocabularies. In many cases, a particular terminology is used for a specific purpose. In most cases, the doctor enters a textual term and a coder does the actual coding. You will be exposed to many of these vocabulary sets.

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