

# Nursing Informatics & Electronic Health Records

Rebecca Qualey, RN, MA  
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## Discussion Topics

- Why do we need standardization?
- Current situation
- How are terminologies used in electronic medical records (EMR)?

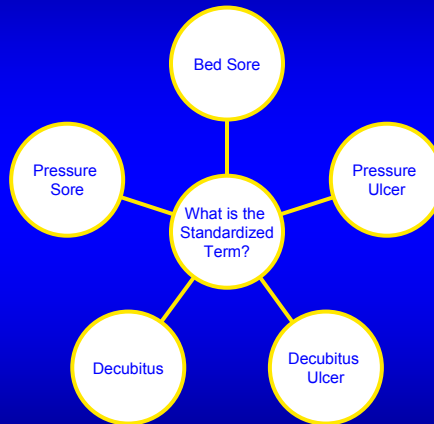
## Standardization:

*the use of a single, consistent term to define what is typically described using a variety of words or phrases*

## Why Do We Need Standardization?

- Improve communication
- Support evidenced-based practice
- Improve standardization of care
- Develop curriculum in nursing programs
- Enable data mining
- Enhance research efforts
- Enable decision support
- Reduce costs
- Improve billing accuracy

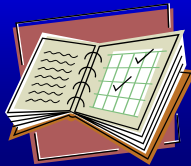
# Standardization Example



*“The problem is not a lack of information. Rather, it is our seeming inability to capture, analyze, and disseminate the right information at the right time to the right people”*

## Basic Standardized Terminology Ground Rules

- Clinically useful
- Systematic development methodology
- Concept based
- Concept performance
- Permanence



## Variations Between Terminologies

- Domain focus (nursing, lab, medicine, etc)
- Level of granularity
- Development standards
- Structure
- Relationships between concepts



## ANA Currently Recognized Nursing Terminologies

- North American Nursing Diagnosis Association (NANDA®)
- Nursing Intervention Classification System (NIC®)
- Nursing Outcomes Classification System (NOC®)
- Nursing Management Minimum Data Set (NMMDS®)
- Clinical Care Classification (CCC®) [formerly HHCC®]
- Omaha System®
- Patient Care Data Set (PCDS®)
- PeriOperative Nursing Dataset (PNDS®)
- Systematised Nomenclature of Medicine, Clinical Terms (SNOMED CT®)
- Nursing Minimum Data Set (NMDS®)
- International Classification for Nursing (ICNP®)
- ABCcodes
- Logical Observation Identifier Names & Codes (LOINC®)

*Existing nursing vocabularies are inadequate due to lack of content coverage at the desired level of granularity, lack of consistent meanings for concepts and their relationships, and lack of explicit, formal concept-representation principles*

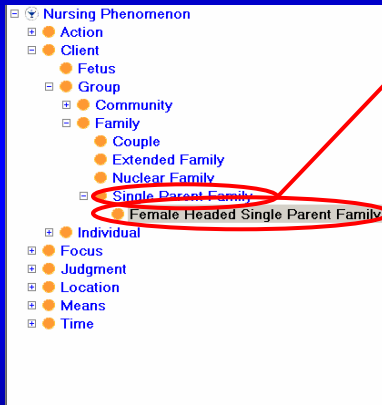
## SNOMED CT®

- Not a formal ontology- is a reference terminology representing a broad array of health care concepts supported by formal ontologic principles and based on description logic
- Multiple axes
- Over 366,170 concepts with unique meanings and formal logic-based definitions
- Over 7 million defined relationships
- Currently contains nursing content cross mappings from:
  - Nursing Interventions Classification (NIC)
  - Nursing Outcomes Classifications (NOC)
  - North American Nursing Diagnosis Association (NANDA)
  - Clinical Care Classification (CCC, formerly HHCC)
  - Omaha System

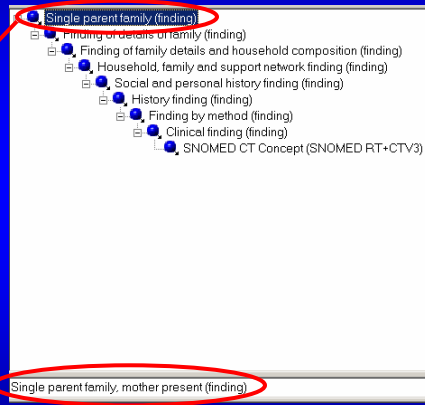
## Current Situation

- No one common language describing precisely what nurses do
- Federal government focusing on development/implementation of EHRs and RHIOs
- SNOMED® poised to be the terminology used in the EHR
- True extent of nursing content coverage in SNOMED® is not known

# Cross Mapping

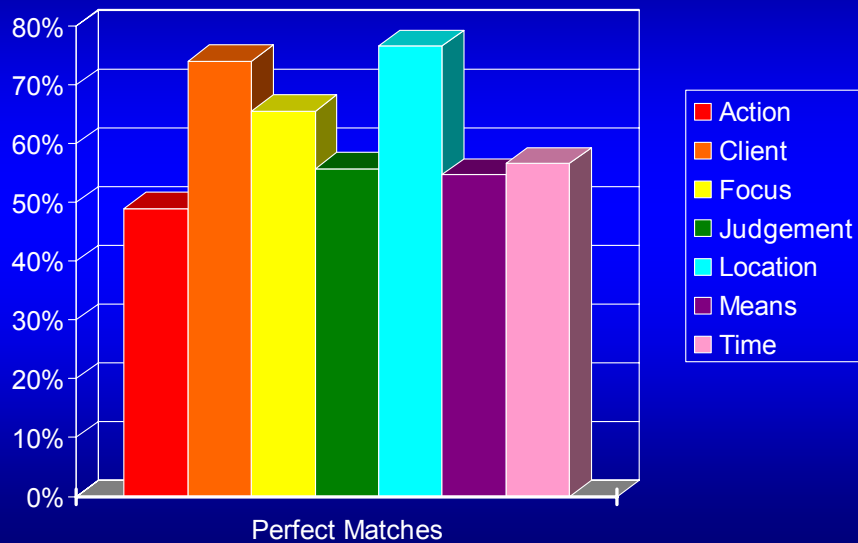


ICNP® browser of ICNP®



Mycroft® browser of SNOMED CT®

## ICNP® Representation in SNOMED®



## Problems with the Current Situation

- Inadequate nursing representation in SNOMED®
- Lack of control of current terminology
- Ownership / responsibility
- Cost

## Standardizing Terminology in the EHR

- improves documentation quality & integrity
- facilitates data retrieval
  - research
  - clinical use
- provides understandable documentation
- eliminates the need for manual searching of records
- eliminates documentation redundancy
- decreases processing errors
- can decrease documentation time
- improves billing
- lowers operating costs
- promotes perception of increased quality of care

APPLE EYE - Sunrise Clinical Manager

File Registration Edit View GoTo Actions Preferences Tools Help

Nuclear Medicine - APPLE, EVE

Female

Patient LI: Order: NM: Dosimetry-Full CPT = 79035 29970RZZ

Requested By: Attending, Becky

Messages:

Warning! The possibility of pregnancy has been considered. A decision has been made: there's significant medical need for the exam.

Approving Radiologist:

Primary Diagnosis: Thyroid Cancer ICD-9 = 193

Info Desired From Study: R/O recurrence

Pertinent Signs/Symptoms: nodal metastasis

Ordering MD Beeper:

Additional Information:

RNB Research Do Not Bill:

Location: MSK

Requested For: 02/23/2006

Time/Priority: Per Requested Date

Isolation Precautions:

Ancillary Date:

Non-MSK Requesting MD:

Radiology Exam Location:

Radiology Order #:

Repeat OK Cancel

Ready | Qualey, Rebecca (Analyst) | SCMMar - Master Active

## Standardization in the EHR

- Predefined terms can be combined to create 'structured notes'
- Can break down common language terms into standardized concepts for storage and retrieval
- System can extract terms/concepts from computerized text, analyze them and provide clinical decision support to user

## Why Haven't We Done It?

- Lack of industry standards regarding language (systems are not intra-operable)
- Standardized language adoption is required within professions and across regions and countries-who's in charge?
- Standardized and widespread education is needed
- Unique universal patient identifiers are required to access patient info
- Security/privacy/confidentiality

## Recommendations for Informaticists

- Ongoing training programs are needed for current & future classification systems
- Get involved in standards organizations
- Contribute to and take ownership for the creation and maintenance of a comprehensive language
- Assume responsibility for clinical vocabulary implementation & maintenance within health care organizations



