

SNOMED CT

International HL7 Interoperability
Conference 2006
Cologne, Germany

SNOMED:

- SNOMED[®] International:
 - The division of the College of American Pathologists responsible for maintenance and release of SNOMED CT
- SNOMED CT
 - Releases twice yearly (January & July) of the terminology commonly called SNOMED

Presentation

- What is SNOMED CT?
- What is SNOMED the *Standard*?
- How is it used?
- What is the SNOMED SDO (Standards Development Organisation)?
- Why the change/why join?
- What is the current situation?

SNOMED CT

The Systematized Nomenclature
of Medicine – Clinical Terms

SNOMED History

- SNOP – 1965 – basis for ICD-O
- **SNOMED** – 1974
- SNOMED II – 1979
- SNOMED Version 3.0 – 1993
- SNOMED Version 3.5 – 1998
- **SNOMED RT** – 2000 (Merge with UK NHS)
- **SNOMED CT** (SNOMED RT + CTV3) – 2002
- SNOMED CT Spanish Edition – April 2002
- SNOMED CT German Edition - April 2003
- Free in USA - Agreement with NLM – June 2003
- SNOMED SDO Proposal 2006

What is a Clinical Terminology?

Terminology

- Ordinarily:
 - A finite enumerated set of terms intended to convey information unambiguously
- SNOMED is more than this
 - Terms plus codes plus the ability to put them together in meaningful ways

What is SNOMED CT?

- A work of **clinical terminology** for coding, retrieving and analyzing data about health and health care
- Comprised of codes, terms and relationships, for use in precisely recording and representing clinical information across the scope of health care
- Concept-based: Each code represents a single meaning and can have multiple descriptions (terms)

What is not

- SNOMED is not the language police
 - Clinicians determine what words mean by how they use them. SNOMED reflects those meanings.
- SNOMED is not an independent source of scientific/professional practice standards
 - Scientists and professional groups define their standards. We try to follow those standards.
- SNOMED is not a comprehensive knowledge base for healthcare
 - This is out of scope. SNOMED's goal is *terminological knowledge*: that which is always necessarily true of a term.

Rich Clinical Content

- Clinical finding (Diseases)
- Procedure
- Body structure
- Organism
- Specimens
- Pharmaceuticals
- Substances
- Physical objects
- Observable entity
- Staging/scales
- Events
- Social/administrative concepts
- Environment/geographic locations



300,000 Current Concepts
750,000 Descriptions
(English & Spanish)
900,000 Links

SNOMED CT Structure

- Hierarchies
- Parent child relationships
 - Vertical structure
 - Concepts may have multiple parents
- Relationships between concepts
 - Using attributes, concepts may be linked to each other
 - Horizontal relationships

Concept Example

Gastric ulcer (SCTID397825006)

- **Terms:**
 - Gastric ulcer (disorder)
 - Gastric ulcer
 - Stomach ulcer
 - GU – Gastric ulcer
 - Gastric ulceration
- **Relationships:**
 - Is_a → Disease of stomach
 - Is_a → Gastrointestinal ulcer
 - Associated morphology → Ulcer
 - Finding site → Stomach

What is SNOMED CT?

- Domain specialty content integration/mappings e.g.
 - ANA recognized nursing classification systems
 - CCC (Clinical Care Classification System)
 - NANDA (NANDA International)
 - NIC (Nursing Interventions Classification)
 - NOC (Nursing Outcomes Classification)
 - The Omaha System
 - PNDS (PeriOperative Nursing Data Set)
- English, German and Spanish language editions
 - Danish in development
- Cross mappings (ICD-9 CM, ICD-10, CPT in progress)
- US Drug Extension

Uses of SNOMED CT

Countries with SNOMED CT Users

Australia	Hungary	New Zealand	Sweden
Austria	Iceland	Norway	Switzerland
Belgium	Iran	Oman	Taiwan
Canada	Ireland	Poland	Thailand
China	Israel	Portugal	Turkey
Denmark	Italy	South Korea	U.A.E.
Estonia	Japan	Saudi Arabia	United Kingdom
Finland	Malaysia	Singapore	United States
France	Namibia	South Africa	
Germany	Netherlands	Spain	

SNOMED CT Vendor Adoption

- Software vendors are actively developing SNOMED CT-enabled applications
 - Currently, more than 30 vendors have deployed SNOMED CT-enabled software systems to end-users
 - More than 50 others are actively working to implement SNOMED CT in new or legacy systems
 - At least 20 of those 50 are expected to deploy their systems to end users within the next 12 months
- Overall, 53% of vendors report that they are using SNOMED CT in their products (AHIMA 2004)

SNOMED CT Implementations

Cancer Registries	Laboratory Info Systems
Clinical Guidelines	Medical Research
Clinical Trials	Nursing Systems
Decision Support	Pharmaceutical Databases
Disease Surveillance	Publication Indices
Electronic Health Records	Radiology
Electronic Prescriptions	Tissue Annotation
Hospital Mgt Systems	Veterinary Medicine

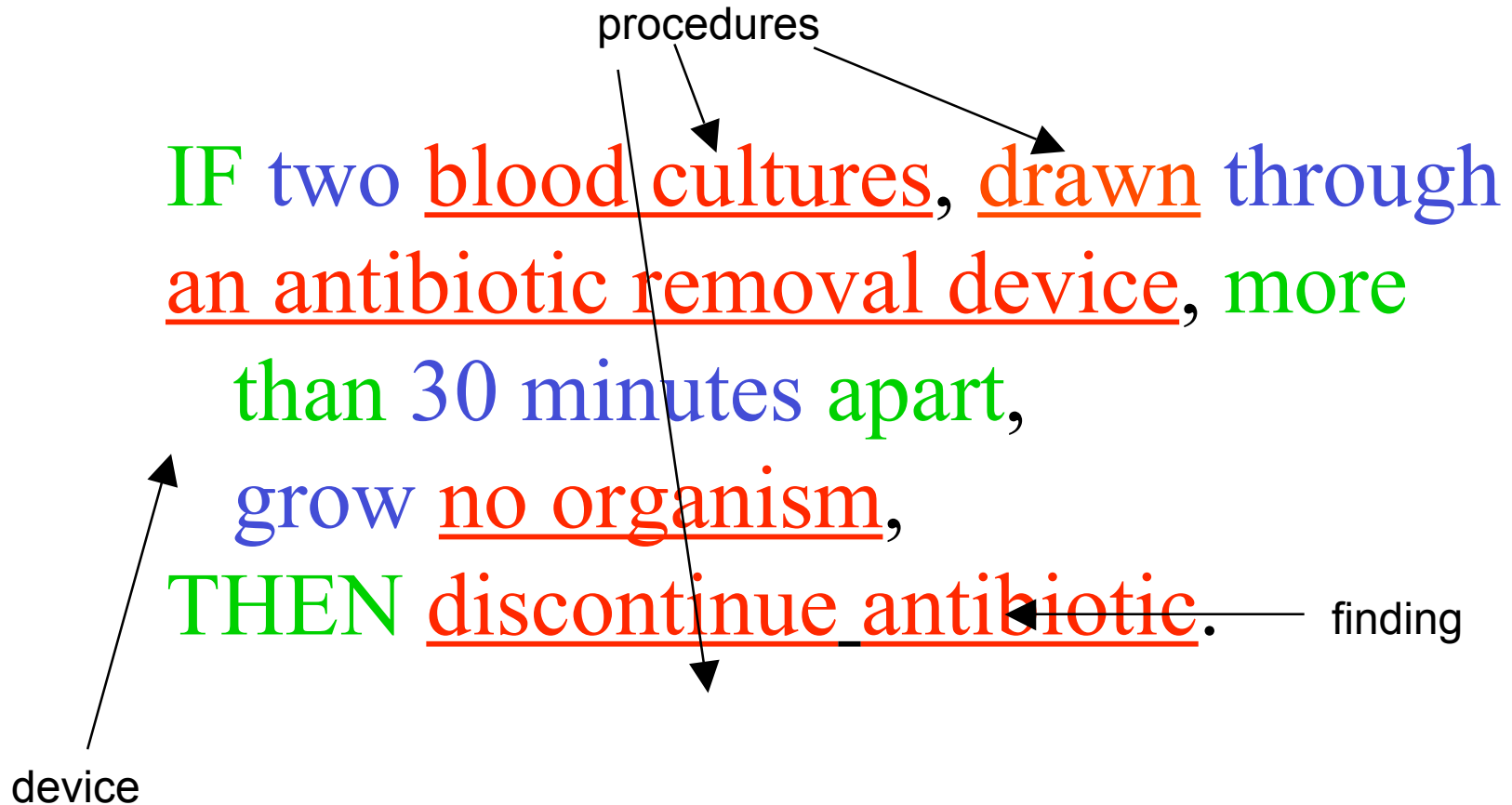
Current SNOMED CT Vendors

A-Life Medical	Genelogic	mTuitive
Allscripts	Health Language	Oracle Corporation
Apelon	HealthySoft	Picis
Atlas Development	In Practice Systems	Rxworks
Cerner	iSoft	Seetec
CSW Group	Language & Computing	Siemens Medical
Dictaphone	McKesson	Singapore Comp Systems
Egton Medical Systems	McKesson Info Solns UK	Soft Comp Consultants
Epic Systems	Medical Info Engineering	Theradoc
EvaWare	Microtest	Visual Read
GE Healthcare	Misys	Wellmed/WebMD

What about clinical decision support?

- IF two blood cultures, drawn through an antibiotic removal device, more than 30 minutes apart, grow no organism,
- THEN discontinue antibiotic.

Clinical Decision Support Example



Clinical Decision Support Model + Inference Rules

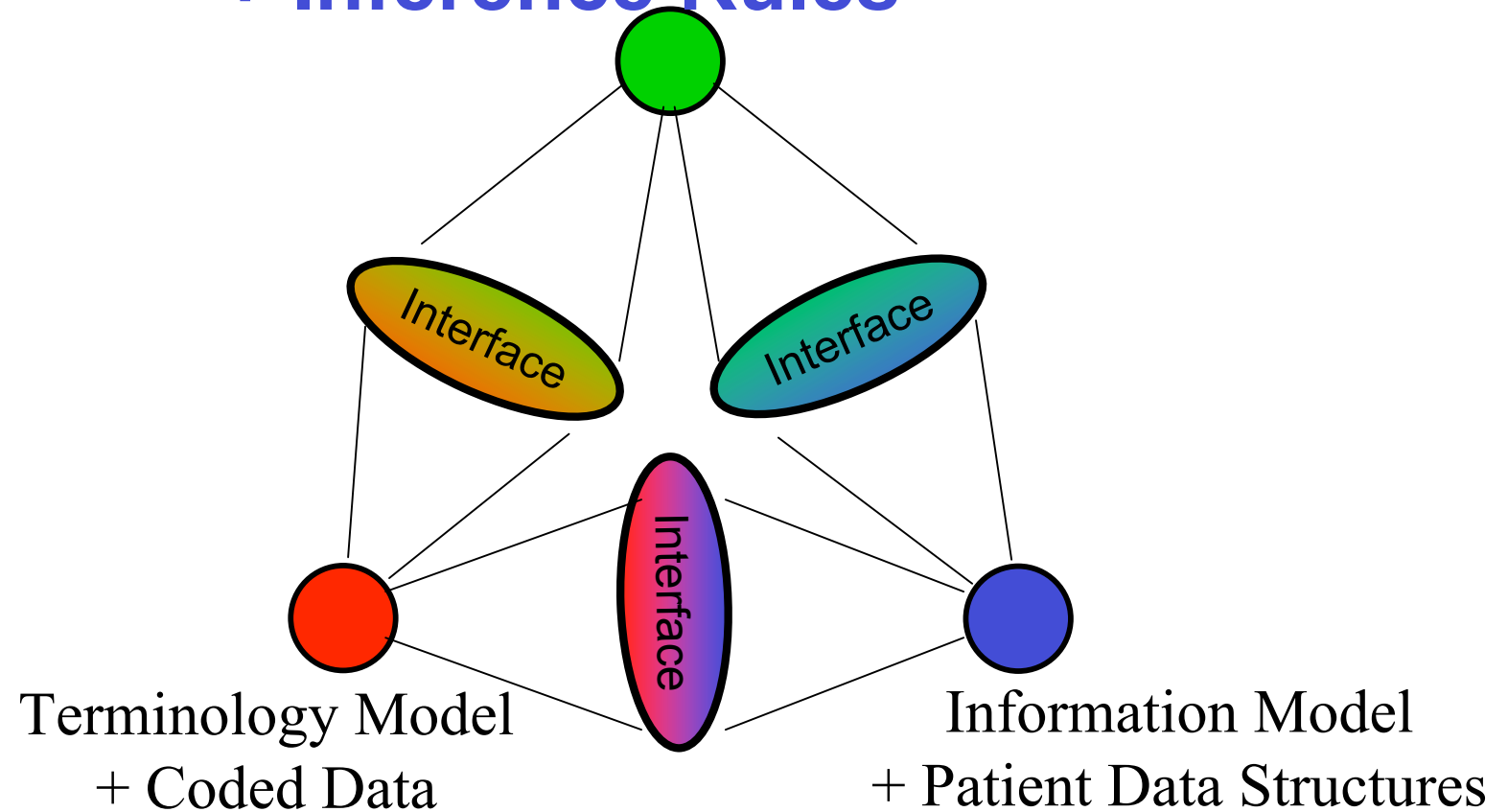


Diagram based on Figure 1 in Rector AL et al. "Interface of Inference Models with Concept and Medical Record Models" AIME 2001: 314-323

Clinical Decision Support Model + Inference Rules

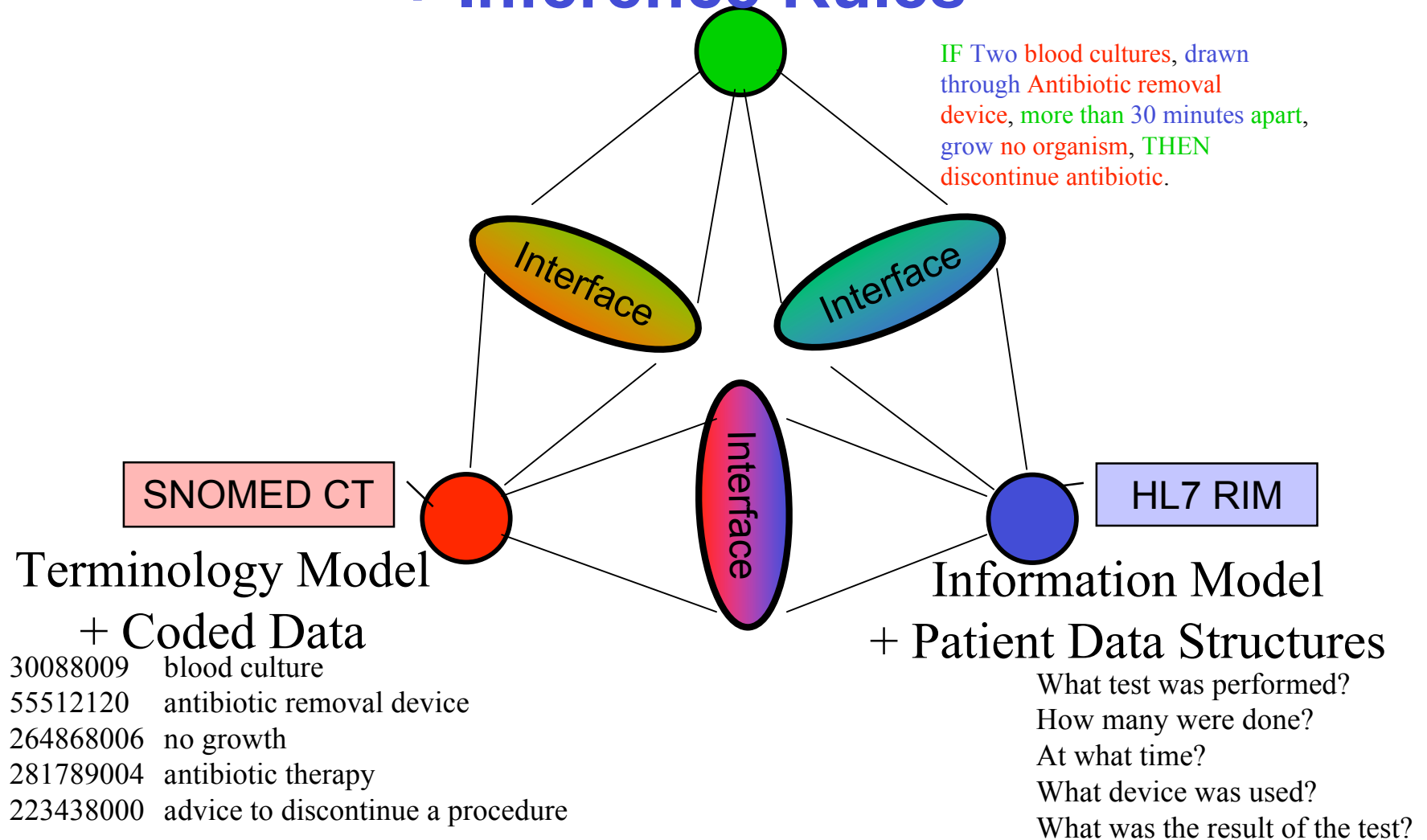


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HL7 Collaboration

- HL7 Vocabulary TC and HL7 TermInfo Project WP 2
- SNOMED-CT Concept Model Working Group
- HL7-NCPDP Task Force

The SNOMED SDO

The SNOMED SDO: What is this about?

- An international effort to produce and enhance a global clinical terminology standard
- An organization supporting that effort
- A set of products and services produced by that organization
- Set of principles that guide decision making

The SNOMED SDO: What is this about?

- FROM
 - Proprietary [CAP] owned
 - Single enterprise
 - USA placed
 - License based
 - Not for profit
 - Business Model
- TO
 - Publicly owned
 - Globally and locally responsive
 - Non-USA placed
 - ‘Fair share’ subscription based
 - Not for profit
 - Business Model

Why a Clinical Terminology?

Costs

- Terminology use benefits entire health system
 - Save as much as 5% of total healthcare costs*
 - up to \$100 Billion per year in US

* Source - Walker J et al., Market Watch 2005:19th January;10-18

Why the SNOMED Terminology?

- Validated Product
- Leading Global Terminology
- Ready for Local Implementation
- \$100 million already invested in SNOMED CT

SNOMED CT should become the
Global Clinical Terminology

SNOMED CT Principles

- *Purpose*
 - Support quality patient care and clinical practice internationally
- *Integrity*
 - Ensure both clinical and technical integrity
- *Funding*
 - Stable and secure governance structure

Why Countries are joining the SNOMED SDO?

- Costs are minimal compared to the millions to implement an Electronic Patient Record system
- Fees are affordable and costs are shared among members according to their ability to pay
- Fees will reduce as additional members join
- HIT investment risks are significantly reduced
- Protect Healthcare IT investment now

Full Member Fee Principles

- Member states share in equitable funding of expenses
- Fees based on World Bank metric: Gross National Income (GNI Atlas)
- Metric(s) updated with new World Bank figures every 3 years to enable effective budgeting
- Additional income may reduce Full Member fees e.g. Management Board may use Joining Fees from Ordinary Members to reduce Annual Fees

SSDO Full Member Exemplar Annual Fees

Nation	Population	Estimated Annual Fee
• UK	59m	\$913,000
• Canada	33m	\$409,424
• Korea Rep.	48m	\$305,000
• China	1,296m	\$760,000

...And Annual Fees will reduce as membership increases due to high proportion of fixed costs

Potential Charter Member (PCM) Countries for SDO

- Australia
- Canada
- Denmark
- Lithuania
- New Zealand
- United Kingdom
- United States

Potential Charter Member Agreement

- The formal governance structure for the new organization
- The next steps for the creation of the legal entity that will become the SNOMED SDO
- The SNOMED CT intellectual property rights that will be transferred from the CAP to the SNOMED SDO

Potential Charter Member Agreement

- The structure of the funding mechanism for the organization, although a funding gap remains to be resolved
- That the CAP will act as the initial Support Organization for the SNOMED SDO
- A process and timeline for moving forward to resolve the remaining questions, and to complete those tasks necessary for the formation of the SNOMED SDO

World Health Organization Update

- Paper on SNOMED SDO presented at May Executive Board Meeting
- 9 countries and the European Commission spoke on the topic
- Action was deferred until January 2007 meeting so that more information could be gathered on
 - WHO resource requirements
 - Technical Considerations

Current Position

- Potential Charter Membership of 8 countries with another 2 making decisions in Fall 2006
- Ongoing discussions with several other interested countries
- Ongoing discussions within European Community with next meeting in October 2006
- WHO Role continues to be evaluated
- Momentum for SDO continues to build

In conclusion....

- SNOMED CT will facilitate the sharing of electronic patient records to provide clinical support across all care settings
- SNOMED CT is part of the EHR solution, not part of the problem..... & not the total solution

The Systemized Nomenclature of Medicine
SNOMED Clinical Terms[®]
(SNOMED CT)[®]

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