Current Development of Medical Terminology

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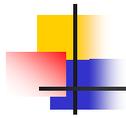

Why a Clinical Terminology?

Patient Care

- Essential for EHR
- Decision Support
- Reduction in Errors
- Less Administration

- Better Collaboration
- Disease Surveillance
- Performance Data
- Disaster Management

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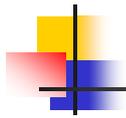
Why a Clinical Terminology?

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 Terminology Code ?

- Computer should recognize each clinical terms to support CDSS and Knowledge Management
- Existing system of terms may not be adequate for computing and long term reusability
- UMLS may be inadequate due to
  - lack of generality/ specificity
  - lack of unique concepts and relationship of terms
  - lack of principles of basic concept representation
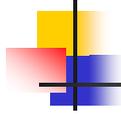
What Do We Need ?

- Computerized Clinical Information/Records should :
    - need adequately detailed records (not too detail or not too specific)
    - maintain the original meaning as time and locations
    - transmit the same meaning during communication among different systems
    - support all clinical needs and meet general level of requirements while clinical records are integrated
    - need computer readable terminology for CDSS and KM
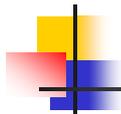
Adopting SNOMED-CT in US and UK (1)

- Possibility of expressing clinical content
- Compatibility of terminology coding systems used in the past
- Adaptability – applicable in all clinical specialty
                    - applicable in all healthcare areas
- Usability and effectiveness
    - users participating in development and maintenance
    - Possibility of interfacing other terminology systems
- Reliability and pre- and post- coordination
    - characteristics of effective reference terminology coding
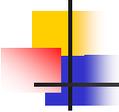
What is SNOMED Terminology? (1)

- Documents describing the SNOMED-CT standard(s) [specification(s)]
- The terminology database consisting of:
  - Concepts
  - Descriptions
  - Relationships
  - Attributes
- A set of specified technical tools for supporting development and request processing
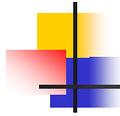
What is SNOMED Terminology? (2)

- A set of SNOMED allied standards, which enable SNOMED to effectively interoperate with and/or map to, other international information standards
- Includes implementation standards for the successful use of SNOMED including:
  - Translations
 - Reference implementation instructions

Why SNOMED Terminology?

- Validated Product

- Leading Global Terminology

- Ready for Local Implementation

- $100 million already invested in SNOMED- CT

More costly and delay progress if develop alternative

Avoid huge cost of data migration later

Avoid huge harm of no data migration later

We aim for SNOMED to be *the Global Clinical Terminology*
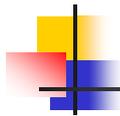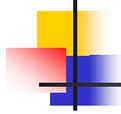

What is SNOMED-CT?

The Systematized Nomenclature of Medicine
Clinical Terms

- A Clinical Healthcare Terminology
  - Comprehensive, scientifically-validated content
  - Essential for electronic health records
  - Cross-maps to other international standards
  - Already used in more than forty countries

SNOMED-CT
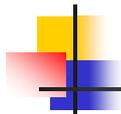
- 325,000 concepts
- 800,000 terms in English
    - 350,000 Spanish
    - 150,000 German (Increasing)
- 1,200,000 relationship

Hierarchy of SNOMED-CT

1. Clinical findings
2. Procedure
3. Observable entity   11. Events
4. Body structure   12. Environments and geographical locations
5. Organism   13. Social context
6. Substance   14. Context-dependent categories
7. Pharmaceutical/ biological product   15. Staging and scales
8. Specimen   16. Attribute
9. Physical object   17. Qualifier value
10. Physical force   18. Special concept

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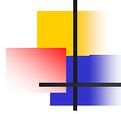
SNOMED CT and CAP

- The CAP is the Creator of SNOMED-CT
  - 41 years of terminology experience
  - More than $40 million invested by the CAP
  - NHS collaboration to incorporate READ codes

- CAP Commitment to Establish SNOMED

  ...as the global leader in healthcare terminology for the benefit of practitioners, patients and users of healthcare information
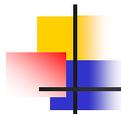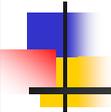
Issues for Adoption

- Licensing
- Localization – language, culture and healthcare delivery system related
  - Korean experience : 11% CT used in medical records do not have equivalent terms in SNOMED-CT (English)

SNOMED Global SDO

Denmark – HQs
Netherlands   Lithuania
Australia   Canada
UK   USA
* Current Charter Members

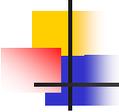# Vision Statement

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The SNOMED-CT® Standard

Necessary for international interoperability, conformance and decision support

- Managed by the SNOMED® SDO
- Encourages uptake and collaboration
- Allows local needs to be met

SNOMED SDO

- Willing to work with WHO

  - Eventually give it to WHO

WHO International Network for Health Terminology

Dr. Bedirhan Ustun
Classifications and Terminology,
World Health Organization
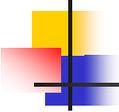
WHO - INHT

- Development of common work plan
  - mission statement and background document
  - identifying key tools : open source
  - practice of distributed development of key
    products
  - linkage of other terminologies/ontologies
    (WHO role in SNOMED SDO, etc)
  - shared health information and technological
    standards in collaboration with ISO, CEN, etc
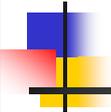 - quality assurance process

WHO INHT 2

- Key technical issues
  - clinical administrative, and public health
  - multi-lingual knowledge representation
    and underlying ontological models
  - digital development – bridge gaps
  - ICD 11
  - ICF, ICHI inclusion in standard clinical terms
- Resource sharing
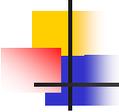
APAMI Position

Joint Work ?

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- Do we have any consensus to study whether APAMI member societies to support SSDO establishment or alternatives ?
  - SNOMED-CT is the best, but too expensive
  - We need to support unified interoperable global terminology standard
  - There is heterogenous language and culture within the region
  - A Task Force ?

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Questions ?

New SNOMED Enterprise Model

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National Release Centre

National Release Centre

SNOMED SDO

National Release Centre

Local/National Health Entities

National Release Centre

Shared technology environment enables collaboration
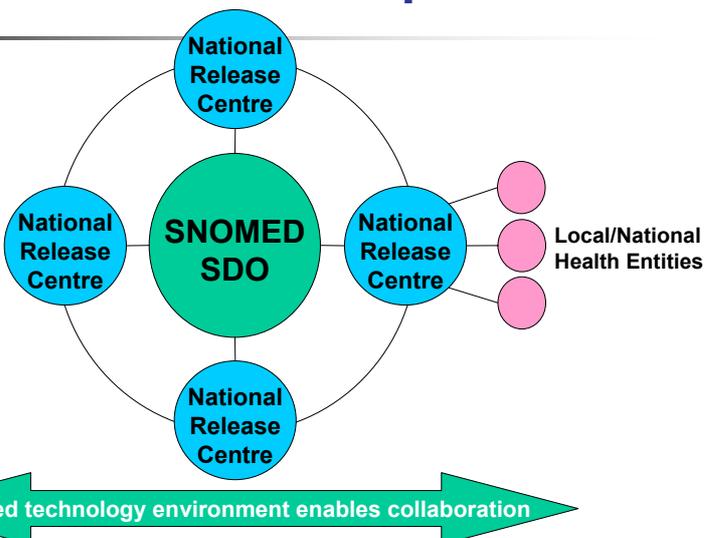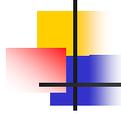
The SNOMED Enterprise

- The SNOMED-CT Terminology

- SNOMED-CT Specifications
  - Terminology content and structure

- Implementation Standards
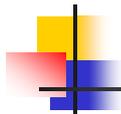 - Clinical accuracy and interoperability

The SNOMED Enterprise
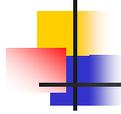
- SNOMED Allied Standards
  - Interoperability with other standards

- SNOMED-CT Derivative Works
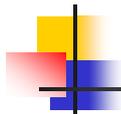 - More effective implementation

The SNOMED Enterprise

- SNOMED-CT Support Services
  - Ongoing maintenance of the terminology

- Technology Environment
  - Enabling product development and support
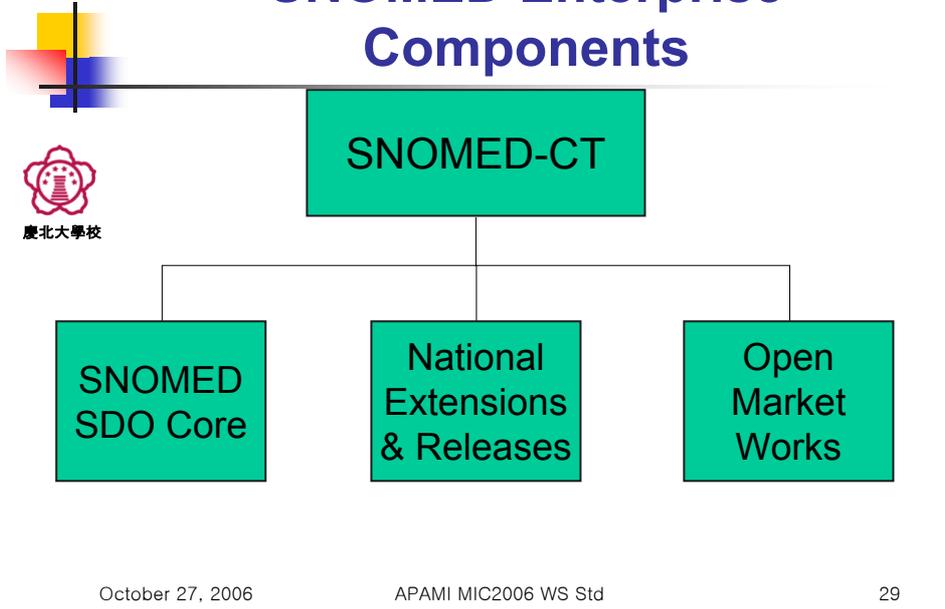
SNOMED SDO: Principles

- Purpose
  - Support clinical care of patients internationally

- Integrity
  - Ensure clinical and technical integrity

- Funding
  - Stable and secure governance structure

SNOMED Enterprise Components

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                    │ SNOMED-CT   │
                    └──────┬──────┘
          ┌────────────────┼────────────────┐
    ┌───────────┐   ┌─────────────┐   ┌───────────┐
    │ SNOMED    │   │ National    │   │ Open      │
    │ SDO Core  │   │ Extensions  │   │ Market    │
    │           │   │ & Releases  │   │ Works     │
    └───────────┘   └─────────────┘   └───────────┘
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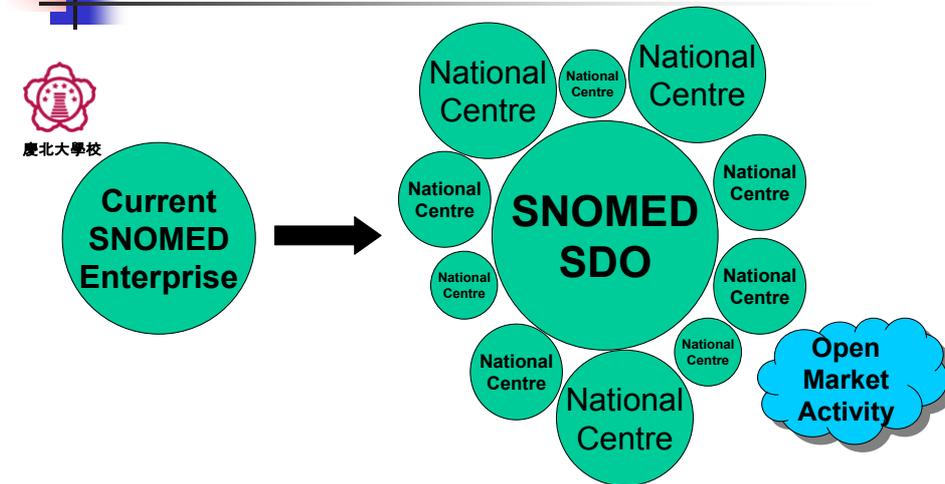

SNOMED SDO Decision Making

- Promotes Collaboration

- Acknowledges Local Needs

- Independent of National Health Systems

- Eliminates Barriers to Ownership

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SNOMED Enterprise: Old and New

Benefits of Charter Membership

- Create a Stable International Standard

- Address Healthcare Costs Now

- Determine SNOMED SDO Priorities

- Protect Healthcare IT Investment

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Governance and Structure

Paul Frosdick   Cheryl Gelfond
NHS CfH   *CAP*

SSDO Membership

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- Global Membership

- SSDO Full Members

- Other Membership Types

Global Membership
Global Outlook
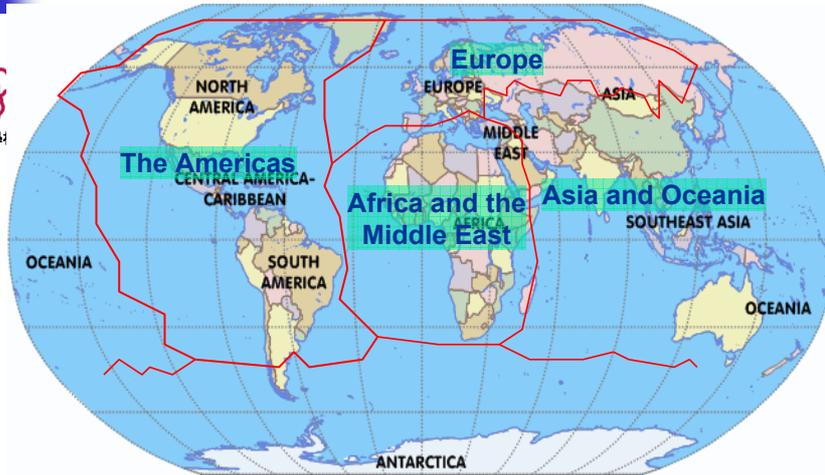
SNOMED SDO Structure

Harmonisation Boards	Management Board		Vendor Forum

Content Committee	Technical Committee	Research & Innovation Committee	Finance & Operations Committee

Support Organisation

Working Groups	Working Groups	Research Teams	Task & Finish Groups

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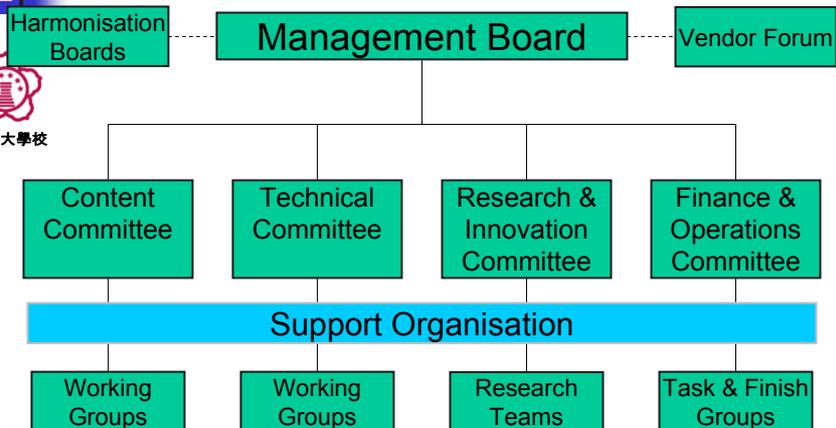
Harmonisation Board Structure

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| International Standards Organizations (e.g. WHO) | SNOMED SDO Management Board |

Approved and owned by both SDOs

Harmonization Board (e.g. WHO/SNOMED)

Joint Working Group
Produces Allied Standard
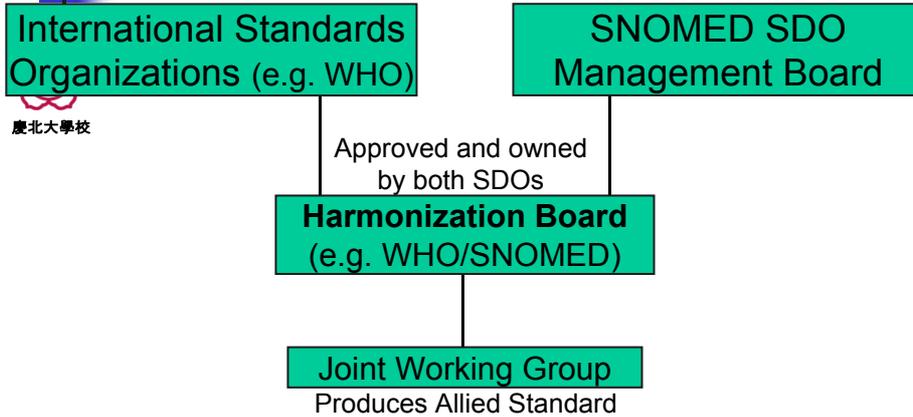
SSDO Financial Model

Richard England　　　Michael Entwistle
National Health Service Connecting for Health

SSDO Estimated Costs – Many Nation Model

Cost	Year	Estimate
▪ Set-Up SSDO	1	$1m
▪ Tech Infrastructure *1&2		$10m
▪ Operational Cost †	Annual	$10m

Notes:
* Year 1 $7.6m, Year 2 $2.4m – majority may be deferred
† Actual cost will be based on actual membership
† Includes $1m ongoing capital investment
† Will be subject to small annual indexation

SSDO Full Member Annual Fee Calculation

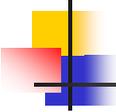- Based on USA exemplar
- $5,500,000 is current annual US CAP fee

$$\text{Estimate of Country Annual Fee} = \text{Country GNI} \times \frac{(\$5,500,000)}{\text{US GNI}}$$

Annual Fees available in one-to-one sessions

SSDO Full Member Exemplar Annual Fees – Myth Buster

Nation	Population	Estimated Annual Fee
UK	59m	$913,000
China	1,296m	$760,000
Korea Rep.	48m	$305,000

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

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Technology Environment

Steven Castanien　　　Paul Frosdick

CAP　　　*NHS CfH*

Code of Conduct and Responsibilities

Martin Severs   Kevin Donnelly
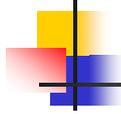*NHS CfH*   *CAP*
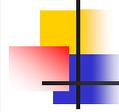
SNOMED SDO: Progressing

- SSDO formation is being delayed
  - Not enough members

- WHO agreed
  - Not enough resource

- Uneasiness of fee –a commercial product ?
  - User fee for a global standard ?

SNOMED-CT and Device

- International Standards for medical device interfacing have been developed by ISO/TC 215, WG7; CEN/TC251, WGIV; IEEE X73; and HL7 HCD SIG jointly.
    - Support use of SNOMED-CT with DICOM, renal dialysis machine, and anesthesia machine, etc
    - However, it is not recommended that licensed products be used for conformance of IS

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