Delivering benefits with SNOMED CT

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Agenda

- SNOMED CT
- Benefits
- Implementation Approaches
- Key Determinants of Success
- Summary
SNOMED CT

- Most comprehensive multilingual clinical terminology
- Supports high quality clinical content in health records
- Owned and maintained by IHTSDO
SNOMED CT

- Clinical finding
  - Diagnosis
  - Signs / Symptoms
- Procedure
- Observable
- Body structure
- Organism
- Substance
- Pharmaceutical products
- Physical object
- Physical force
- Specimen
SNOMED CT Features

Content Components

- **Concepts**: Uniquely identified clinical meanings
SNOMED CT Features

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- **Descriptions**: Human readable terms
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Content Components

- **Concepts**: Uniquely identified clinical meanings
- **Descriptions**: Human readable terms
- **Relationships**: Link concepts and provide logic definitions

Diagram:
- Concept: 74281007 (myocardial structure)
- Description: 22298006 (myocardial infarction)
- Relationship: 55641003 (associated morphology)
SNOMED CT Features

Content Components

- **Concepts**: Uniquely identified clinical meanings
- **Descriptions**: Human readable terms
- **Relationships**: Link concepts and provide logic definitions

Diagram:
- clinical finding
- finding by site
- cardiovascular finding
- cardiac finding
- heart disease
- myocardial disease
- myocardial infarction
- acute myocardial infarction
- acute myocardial infarction of anterior wall
SNOMED CT Features

**Content Components**

- **Concepts**: Uniquely identified clinical meanings
- **Descriptions**: Human readable terms
- **Relationships**: Link concepts and provide logic definitions

**Localisation mechanisms**

- **Reference sets**: Subsets, mappings, language preferences
- **Extensions**: Additional components for local use
SNOMED CT Features

Content Components
- **Concepts**: Uniquely identified clinical meanings
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Localisation mechanisms
- **Reference sets**: Subsets, mappings, language preferences
- **Extensions**: Additional components for local use

Additional features
- **Concept Model**: Rules for how relationships can be defined
- **Languages**: Expressions, Queries, Constraints, Templates
Benefits of SNOMED CT in EHRs

- Enhancing the care of individuals
  - Display appropriate information
  - Guideline & decision support integration
  - Sharing relevant information
  - Retrospective searches for patterns

- Enhancing the care of populations
  - Epidemiology monitoring & reporting
  - Research: cause & management of diseases

- Supporting cost-effective delivery of care
  - Minimize risk of costly errors
  - Reducing duplication of investigations
  - Auditing & planning clinical service delivery
Different Starting Points for Implementation

- A green field site
  - Addressing a new requirement with SNOMED CT
  - Developed as part of the new foundations

- A relic of an earlier generation
  - Replacing a legacy system that partially addressed these requirements without using SNOMED CT

- An evolving system
  - Updating a system that is able to evolve to address new requirements by accommodating SNOMED CT
Implementation Approaches

SNOMED CT can be used as:

1. A reference terminology
2. An indexing system
3. A code system
4. An interface terminology
5. A dictionary for analytics
6. A foundation for building new clinical meanings

Greater Benefit

Some Benefit

Few Features

More Features

Greater Benefit

Some Benefit
SNOMED CT as a Reference Terminology

No changes required to core clinical system
Health records mapped to SNOMED CT for exchange

Features
- SNOMED CT Concept identifiers
- Reference Sets (Mappings)

Benefits
- Supports communication using shared meaning
- Enables recipient to perform research and analysis
SNOMED CT as an Indexing System

Records stored as text and/or other code system  
Records indexed using SNOMED CT

Features
- SNOMED CT Concepts & Relationships
- Reference Sets (Mappings)

Benefits
- Supports communication using shared meaning
- Supports research and analysis
SNOMED CT as a Code System

SNOMED CT used natively within application
SNOMED CT used as simple code lists

Features
- SNOMED CT Concepts
- Reference sets (Subsets)

Benefits
- Supports communication using shared meaning
- No need to map local codes to SNOMED CT
- Can utilise internationally developed mappings
- Supports run time benefits (e.g. decision support)
SNOMED CT as an Interface Terminology

SNOMED CT used natively within application
SNOMED CT used as lists of codes with descriptions

Features
- SNOMED CT Concepts & Descriptions
- Reference sets (Subsets)

Benefits
- Benefits of using SNOMED CT as code system PLUS
- Enables standardised descriptions in user interface
- Supports data entry, search and display
SNOMED CT as a Dictionary for Analytics

Uses SNOMED CT’s hierarchies & logic-based definitions
Supports querying and inferencing over health records

Features
- SNOMED CT Concepts, Descriptions & Relationships
- Reference sets (Subsets)
- SNOMED CT Languages (Query)

Benefits
- Benefits of previous approaches - PLUS
- More advanced data entry, search & display
  - Aggregation, navigation hierarchies and data filtering
- Supports research and analysis
A Foundation for New Clinical Meanings

SNOMED CT with postcoordinated expressions

Features

- SNOMED CT Concepts, Descriptions & Relationships
- SNOMED CT Concept Model
- SNOMED CT Languages (eg Compositional Grammar)
- DL Reasoner or Expression Repository

Benefits

- Benefits of previous approaches - PLUS
- Increases scope of supported clinical meanings
Key Determinants of Success

- Careful planning and understanding key objectives
- Ease and effectiveness of data entry and display
  - Speed, search, navigate, scope, aggregate, highlight
- Consistent representation of stored clinical information
- Methods and approach to effective communication
- Optimisation of retrieval, analysis and reuse
Extending Benefits by Widespread Use

- Using SNOMED CT in one place is useful - *but* …
- Additional benefits arise from widespread use
- Regional, National and International initiatives realize the real advantages of SNOMED CT as a common foundation for meaningful clinical information
SNOMED CT … it is not all or nothing
Summary

SNOMED CT has many features and capabilities

However …

- Different implementation approaches are possible
- All SNOMED CT enabled systems benefit from sharing
  - A common coding system
  - A common pathway towards meaningful records
Additional Information

SNOMED CT E-Learning Centre

- snomed.elearningserver.com

Information Sheets (www.ihtsdo.org)

- Adding Value to the EHR
- Supporting Meaningful Use

Other Documentation (www.snomed.org/docs)

- SNOMED CT Starter Guide
- SNOMED CT Technical Implementation Guide

Exploring SNOMED CT

- IHTSDO Browser (browser.ihtsdotools.org)
- Other Browsers (www.snomed.org/browsers)