



NSHA IM/IT presenting
SNOMED CT ©
a standard clinical terminology





SNOMED Introduction

Mary Eileen MacPhail



SNOMED CT 101

- History
- IHTSDO
- SNOMED CT
- Resources



SNOMED CT History

Emerged over the decades from two primary roots

- College of American Pathologists (CAP)
- UK National Health Service

The two merged; first version of SNOMED CT was released in 2002

Systematized **N**omenclature **o**f **M**edicine **C**linical **T**erms



IHTSDO

International **H**ealth **T**erminology **S**tandards **D**evelopment
Organization

- Established in 2007 to take over ownership and responsibility of SNOMED CT
- It is a not-for-profit association that is run by its members
- Members are countries. 28 countries. Switzerland joined Jan 2016.
- Canada is a member of IHTSDO and under its guidance has developed; Canada: SCT CA, National Extension including English and French components
- Other member countries have created and continue to maintain a number of National Extensions and translations



Why do we need SNOMED CT?

Paper charts hold many pieces of data relating to a patient.
Retrieving information is cumbersome.



Why do we need SNOMED CT?

Paper charts hold many pieces of data relating to a patient.
Retrieving information is cumbersome.

Automating the paper chart is a step forward. It improves access to the information.



eHistory and Physical DRAFT

History

- Chief complaint
- History of Presenting Illness
- Past Medical History
- Past Surgical History
- Social History
- Family History
- Functional Inquiry

Physical

- General Appearance
- Skin
- Head & Neck
- Eyes, Ears, Nose & Throat
- Respiratory System
- Cardiovascular System
- Abdomen
- Genitourinary
- Extremities
- Central Nervous System
- Psychological

Other

- Investigations
- Impression / Plan
- Medications / Allergies
- See BPMH

Edit Discharge Summary

Print View Short Form

2600603 1975-01-01 F 41Y
FIREFIGHTER, SALLY HI 4.1
004008427 NS EXP:
13 SMOKEY STREET
HALIFAX NOVA SCOTIA 45000515
902-556-9874 DH 2015-04-29
AP: RICHARDSON, C GLEN ORTHOPEDICS
FP: SWINAMER, DEANNA L

Attending Physician RICHARDSON, C GLEN (11457)
Created 2015/10/22 12:01

Patient Details

Encounter 45000515

Discharge Date & Time (24hr) 2015/10/22 00:00

Patient expired

Dictated Report To Follow

Service Details

Discharge Facility MVMH - (902) 384-2220

Hospital Service ORTHOPEDICS **Location**

Office/Clinic (902)473-1641 **Fax** (902)429-2547

Discharge Details

Discharge Destination Home

Admission Diagnosis test

Diagnosis Responsible for the Greater Part of Patient's Length of Stay test

Discharge Diagnoses test

Allergies No known allergies test

Past Medical/Surgical History, Co-morbid illnesses and Risk Factors test

Brief Summary of Course in Hospital

Completed Tests and Investigations NotApplicable

Operations and Procedures NotApplicable

Complications NotApplicable **Outcome of Care and Condition Upon Discharge or Transfer** test





Why do we need SNOMED CT?

Paper charts hold many pieces of data relating to a patient. Retrieving information is cumbersome.

Automating the paper chart was a step forward. It improved access to the information.

SNOMED CT provides a standardized way to represent clinical information. By storing the clinical information in a standardized way it allows meaning-based retrieval.

The IHTSDO SNOMED CT Browser

The IHTSDO SNOMED CT Browser has just got better! This is version 2.0. Please go to the [release notes](#) to see what's changed!

The IHTSDO SNOMED CT Browser provides ways to browse and search SNOMED CT. The browser has been implemented as part of development within the IHTSDO Open Tooling Framework, by the IHTSDO and its development partners

The Browser is provided by the IHTSDO to anyone for reference purposes. The interface and REST APIs are **not** to be used as part of production systems in health care settings.

Please provide any feedback on the browser by clicking on the feedback button at the top of the page. Your feedback is essential to the evolution and improvement of this service. Please visit [SIRS](#) to provide content feedback.

International Editions

[Go browsing...](#)
International edition
January 2016

[Ir al Navegador...](#)
Edición en español

Local Extensions

[Go browsing...](#)
Australian edition

[Go browsing...](#)
Canadian edition

[Gå til browser-siden](#)
Danish edition

[Go browsing...](#)
Netherlands edition

[Börja söka...](#)
Swedish edition

[Go browsing...](#)
United Kingdom edition

[Go browsing...](#)
United States edition

[Go browsing...](#)
Uruguay edition

OR [take the Tour...](#)

Many thanks to the IHTSDO Member countries who have provided their extensions in this browser. If you would like to enquire further about any of the Member country extensions in this browser, please contact the relevant National Release Center via the URLs below:

- [National E-Health Transition Authority \(NEHTA\), Australia](#)
- [Canada Health Infoway, Canada](#)
- [The National eHealth Authority, Denmark](#)
- [Nictiz, Netherlands](#)
- [The National Board of Health and Welfare, Sweden](#)
- [The Health and Social Care Information Centre \(HSCIC\), United Kingdom](#)
- [National Library of Medicine \(NLM\), United States](#)
- [Salud.uy, Uruguay](#)

If you would like to get involved in the development, this code is available under an Apache v2 open source license. You can also find more information on the current backlog of feedback that is up for possible development here - [IHTSDO](#)

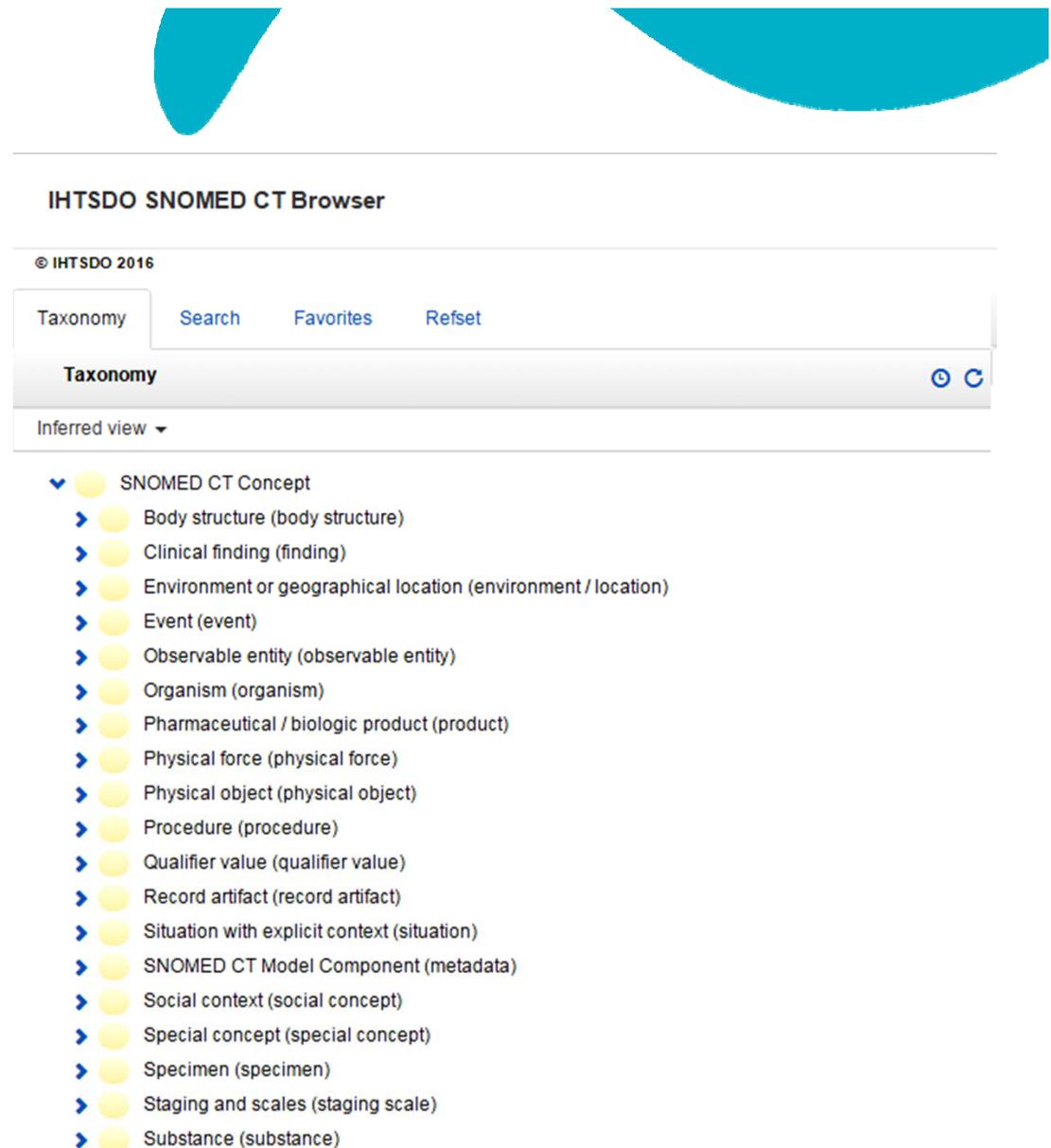
browser.ihtsdotools.org/e

SNOMED CT covers a wide range of clinical specialties, disciplines and requirements.

Having one common clinical terminology enables improved communication. The structured clinical information can be shared and reused.

> 300,000 concepts defined

Each concept could have a relationship with other concepts



The screenshot displays the IHTSDO SNOMED CT Browser interface. At the top, it says "IHTSDO SNOMED CT Browser" and "© IHTSDO 2016". Below this is a navigation bar with "Taxonomy" selected, and buttons for "Search", "Favorites", and "Reset". A "Taxonomy" header is visible with refresh and home icons. Underneath, there is a dropdown menu for "Inferred view". The main content area shows a tree structure of SNOMED CT concepts, starting with "SNOMED CT Concept" (expanded) and listing various categories such as "Body structure (body structure)", "Clinical finding (finding)", "Environment or geographical location (environment / location)", "Event (event)", "Observable entity (observable entity)", "Organism (organism)", "Pharmaceutical / biologic product (product)", "Physical force (physical force)", "Physical object (physical object)", "Procedure (procedure)", "Qualifier value (qualifier value)", "Record artifact (record artifact)", "Situation with explicit context (situation)", "SNOMED CT Model Component (metadata)", "Social context (social concept)", "Special concept (special concept)", "Specimen (specimen)", "Staging and scales (staging scale)", and "Substance (substance)".

© IHTSDO 2016

Taxonomy Search Favorites Refset

Search

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english 4

Filter results by Semantic Tag

finding 2

record artifact 2

Filter results by Module

SNOMED CT core module (core metadata concept) 4

Filter results by Refset

SNOMED RT Identifier simple map (foundation metadata concept) 4

CTD simple map 2

Type at least 3 characters Example: shou fra

chief complaint

4 matches found in 0.1 seconds.

Chief complaint	Chief complaint (finding)
Chief complaint section	Chief complaint section (record artifact)
Chief complaint (finding)	Chief complaint (finding)
Chief complaint section (record artifact)	Chief complaint section (record artifact)

All 4 results are displayed

Concept Details

Summary Details Diagram Expression Refsets Members References

Stated Inferred

Parents

Complaint (finding)

Chief complaint (finding) ☆

SCTID: 33962009

33962009 | Chief complaint (finding) |

Presenting complaint

Chief complaint

Chief complaint (finding)

No attributes

Children (0)

No children

© IHTSDO 2016

Taxonomy Search Favorites Refset

Search

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english 41

Filter results by Semantic Tag

finding 24

observable entity 17

Filter results by Module

SNOMED CT core module (core metadata concept) 41

Filter results by Refset

SNOMED RT identifier simple map (foundation metadata concept) 41

Type at least 3 characters Example: shou fra

general appearance

41 matches found in 0.118 seconds.

General ECG appearance	General electrocardiogram appearance (observable entity)
General appearance of eye	General appearance of eye (observable entity)
Generally clean appearance	Generally clean appearance (finding)
General appearance of retina	General appearance of retina (observable entity)
General appearance of patient	General appearance of patient (observable entity)
General appearance of patient	General appearance of patient (finding)
General appearance of specimen	Finding of general appearance of specimen (finding)
General observation of appearance	Finding of general observation of appearance (finding)
General appearance of eye - finding	Finding of general appearance of eye (finding)
General electrocardiogram appearance	General electrocardiogram appearance (observable entity)
Finding of general appearance of eye	Finding of general appearance of eye (finding)

Concept Details

Summary Details Diagram Expression Refsets Members References

Parents

General characteristic of appearance (observable entity)

General appearance of patient (observable entity)
SCTID: 363791007
363791007 | General appearance of patient (observable entity) |
General appearance of patient (observable entity)

No attributes

Children (4)

- Appearance relating to age (observable entity)
- Degree of personal cleanliness (observable entity)
- Quality of personal care shown by appearance (observable entity)
- State of dress (observable entity)

Stated Inferred

© IHTSDO 2016

Taxonomy Search Favorites Refset

Search

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english 23

Filter results by Semantic Tag

procedure 21

finding 2

Filter results by Module

SNOMED CT core module (core metadata concept) 23

Filter results by Refset

CTV3 simple map reference set (foundation metadata concept) 23

Type at least 3 characters Example: shou fra

investigations

23 matches found in 0.097 seconds.

Investigations	Evaluation procedure (procedure)
Investigations for impotence	Investigations for impotence (procedure)
Special investigations on ear	Special investigations on ear (procedure)
Investigations for male fertility	Investigations for male infertility (procedure)
Investigations for female fertility	Investigations for female infertility (procedure)
Investigations for male infertility	Investigations for male infertility (procedure)
Specific plain X-ray investigations	Specific plain X-ray investigations (procedure)
Investigations for female infertility	Investigations for female infertility (procedure)
Investigations for impotence (procedure)	Investigations for impotence (procedure)
Special investigations on ear (procedure)	Special investigations on ear (procedure)
Special investigations on	Special investigations on nose

Concept Details

Summary Details Diagram Expression Refsets Members References

Parents

Procedure by method (procedure)

Evaluation procedure (procedure)

SCTID: 386053000

386053000 | Evaluation procedure (procedure) |

- Patient evaluation procedure
- Clinical investigation
- Investigations
- Evaluation procedure (procedure)
- Evaluation procedure
- Assessment
- Clinical evaluation
- Determination of a value, conclusion, or inference by evaluating evidence

Method -> Evaluation - action

- C14 para-amino benzoic acid test (procedure)
- Cardiovascular investigation (procedure)
- Care Program Approach assessment (procedure)
- Care regimes assessment (procedure)
- Chemical OR drug identification procedure (procedure)
- Clinical assessment of the central compartment of neck (procedure)
- Cohort screening (procedure)
- Compartment pressure studies (procedure)
- Congenital hypothyroidism screening test (procedure)
- Continuous passive motion device monitoring (regime/therapy)
- Corneal esthesiometry (procedure)
- Doxorubicin acid analysis (procedure)

Stated Inferred



Resources

<http://www.ihtsdo.org/>

[SNOMED CT Starter guide](#)

[IHTSDO Online SNOMED CT Certification](#)

[InfoCentral, Canada Health Infoway](#)



3 Questions. 3 Experts. 3 Perspectives.



Dr. Margie Kennedy



What SNOMED implementation best practices exist?

Success



GEVITY

SNOMED Implementation Best Practices

NSHA Presentation – Feb 4, 2016

Margie Kennedy, PhD, RN, CPHIMS-CA, PMP, P2P, ITILF
CNIO & Managing Partner
Clinical Informatics

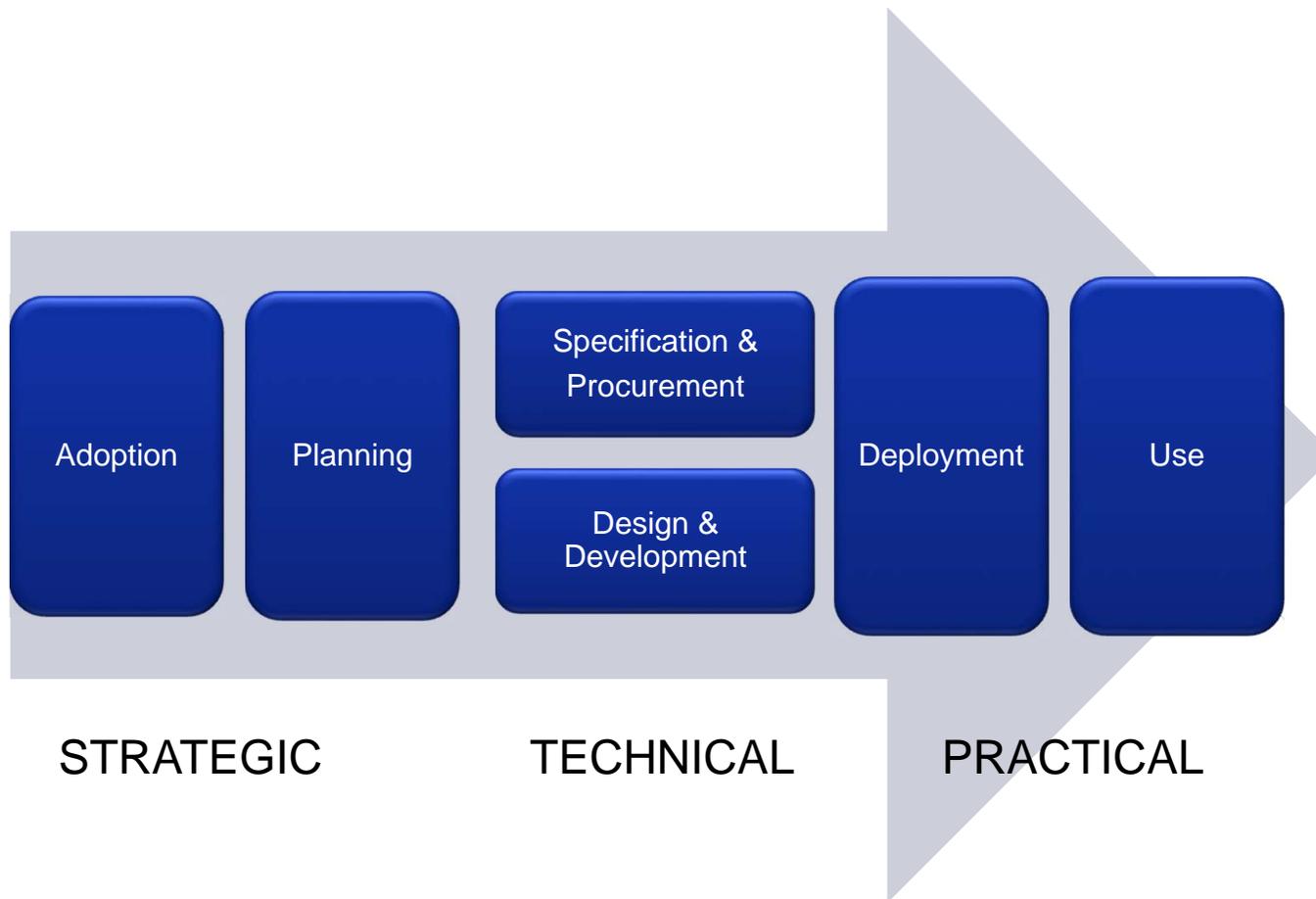
Informatics for a healthier world

Focus



- Elaborate on whether an institution should implement SNOMED without an EHR currently in place,
 - where to start (i.e. which systems or clinical areas),
 - common reasons for SNOMED implementation failure or success and lessons learned (or pitfalls) from practical experience or case studies.

SNOMED CT Implementation¹



Implementation Contributors²



- Health care professionals
 - Physicians, nurses, allied health professionals
- EHR Developers
- Terminology Service Developers
 - Terminology experts
 - Guideline developers
- Knowledge publisher
- Health Service Managers
- EHR Purchaser/Procurement
- Clinical Researcher

Implementing SNOMED CT



- 3 typical implementation pathways
 - Replacing outdated legacy systems
 - Evolving system
 - Greenfield
 - No EHR/CIS currently in place
- NSHA has indicated that no EHR is in place so greenfield is recommended as the Implementation path

Advantages of Greenfield Implementation

- Less constrained by the past
 - fewer existing systems = fewer dependencies, less complexity, less cost
 - fewer existing users = less resistance to change
- Opportunity to be strategic
 - What is your vision for care delivery?
 - How does (can) patient health information support the vision?
 - Care Delivery
 - Planning
 - Policy Making
 - Evaluation
 - How can data standardization / SNOMED support the vision?
 - Interoperability
 - Data aggregation, analysis and reporting
 - What are the implications to other aspects of the EHR roadmap?



Greenfield Caveat



- Legacy systems (Lab, PACS, ADT, etc.) likely exist:
 - Historical data coded using legacy dictionaries
 - Users with knowledge and opinions
- Opportunity to leverage and learn from the past:
 - Legacy dictionaries point to what data is needed to support the business
 - Legacy users can provide historical context
 - Interested and influential stakeholders can help contribute and guide an initiative

Implementation Approach



- Master Data Management
 - Master data design
 - Mapping ancillary systems to master data
 - Mapping other coding systems to master data
- Implementation
 - Engaging stakeholders
 - Establishing governance process
 - Establishing development and maintenance processes

Master Data Management

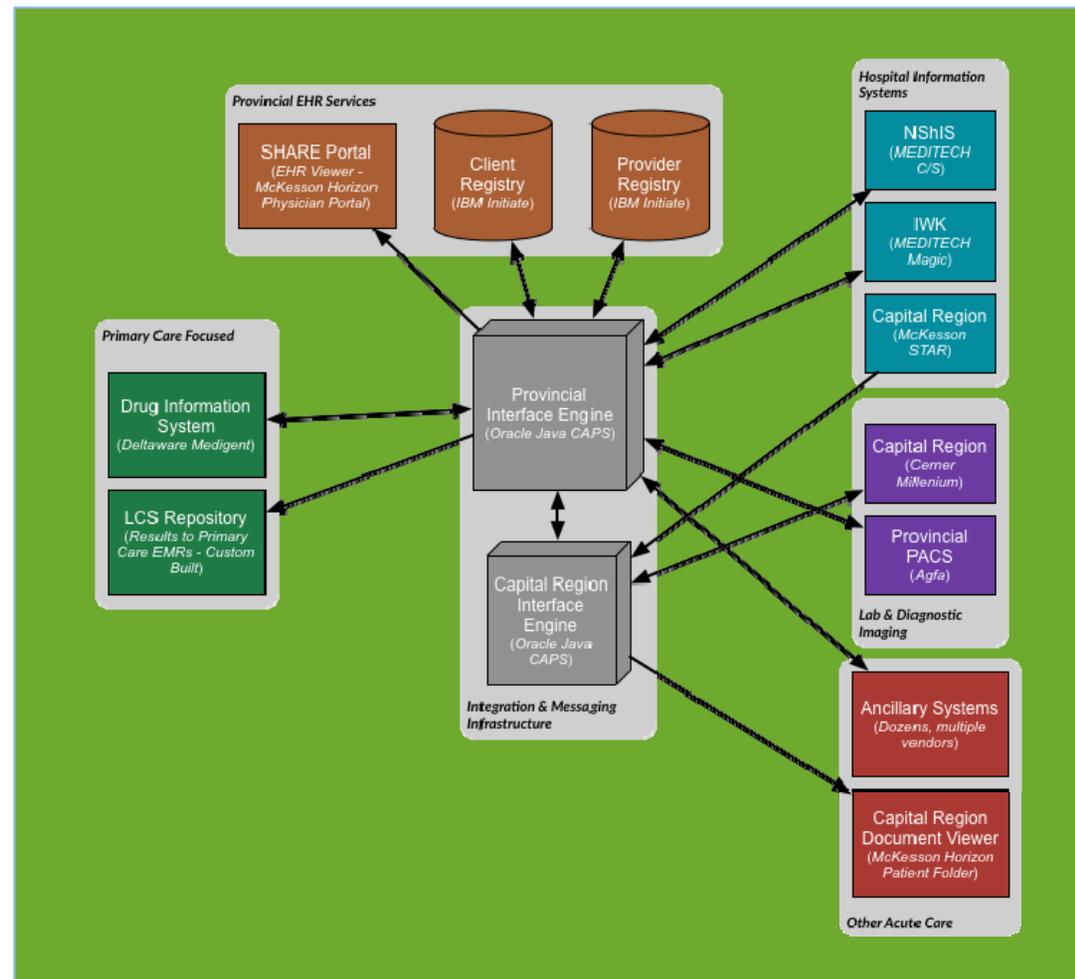


- A comprehensive method of linking data in all systems to a common point of reference:
 - Patients
 - Providers
 - Diagnosis Concepts
 - Procedures
 - Results
 - Etc
- Terminology standards like SNOMED can provide a comprehensive source of reference data for master files.
- Dictionaries from legacy systems provide useful information about the required scope of terms required.
- Mapping legacy dictionaries to standards provides a means to use legacy data within solutions or for retrospective analysis and reporting.
- ***This discussion/decision is an essential component of your strategic planning and early steps***

Full SNOMED CT Adoption



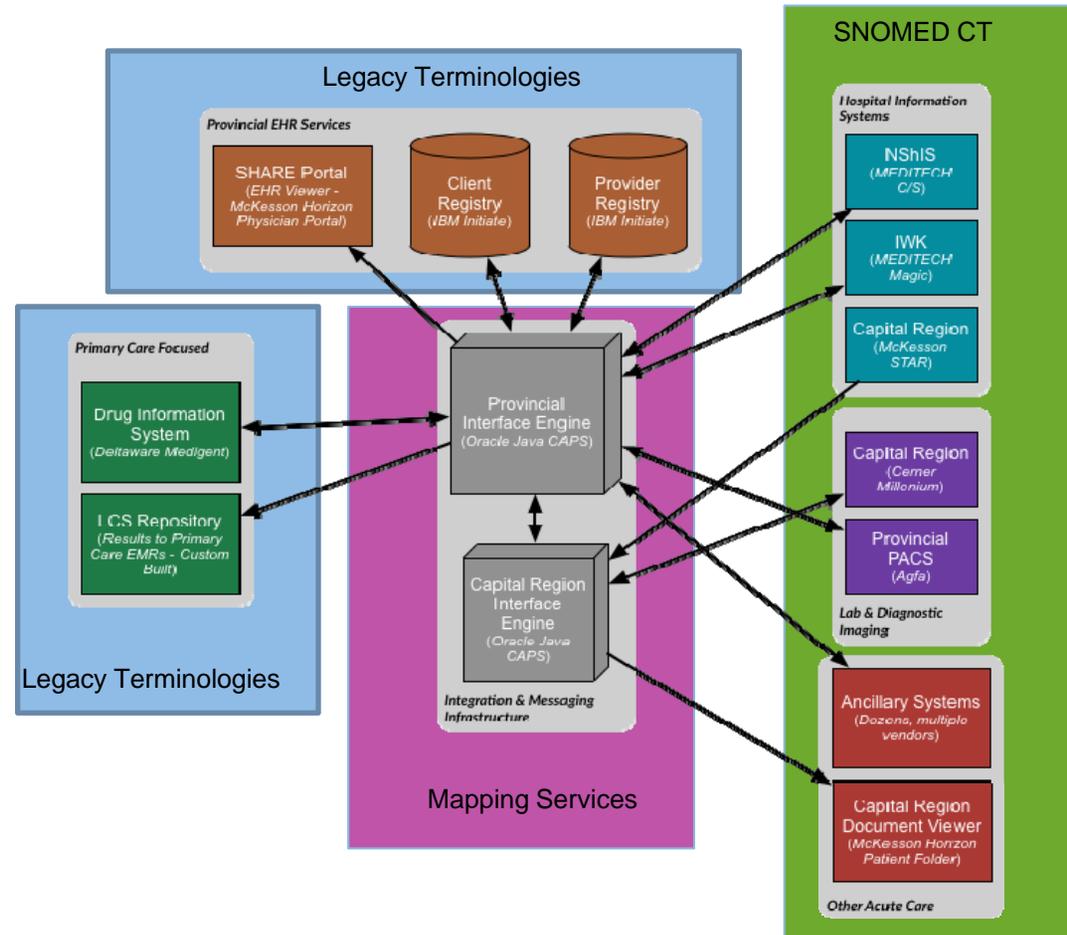
- SNOMED CT functions as:
 - Reference terminology
 - Interface terminology
- Legacy Systems migrate to new content



SNOMED CT with Legacy Data



- SNOMED CT functions as Reference Terminology for integration
- Legacy Terminologies (eg. DIS, PACS, etc.) persist in legacy systems
- Mapping from reference terminologies to support translation of data in interface engine
- SNOMED CT or Legacy descriptions may be used in new systems.



Implementation Priorities



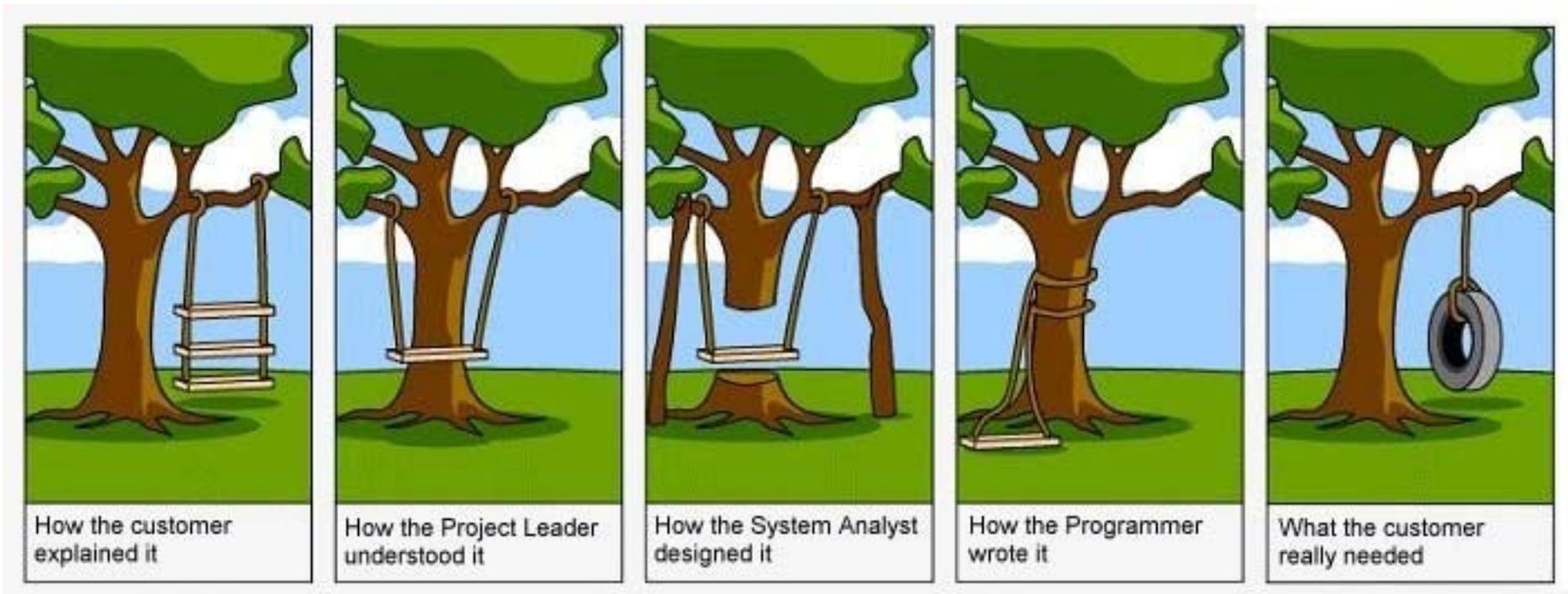
- Engagement
 - CLINICIANS ARE KEY
 - Physicians, nurses, allied health
 - Specialty and interprofessional groups are necessary
- Governance
 - Clear, consistent, and transparent project governance
 - Well developed accountabilities, decision making, and lines of escalation
 - Broad representation from key partners and stakeholders
 - Deliberate attention and resourcing to establishing consensus on terminology process, terms, mapping, etc.
 - Dedicated resourcing for change management
 - Training plans & skill development/resource development fundamental

Critical Success Factors



- Strategic planning & engagement
- Consensus process on terminology decisions
- Ease of use/data entry
- Communication and change management
- Effective use
 - Retrieval
 - Analytics
 - Reuse

Effective Communication in Implementations



Example – Kaiser Permanente



- Founded in 1945, Kaiser Permanente is one of the United States' largest not-for-profit health plans, serving 10.1 million members, with headquarters in Oakland, California.
- It comprises:
 - Kaiser Foundation Hospitals and their subsidiaries
 - Kaiser Foundation Health Plan, Inc.
 - The Permanente Medical Groups.
- The Permanente Medical Groups, which provide care for Kaiser Permanente members, continuously develop and refine medical practices to help ensure that care is delivered in the most efficient and effective manner possible.
- Kaiser Permanente is consistently recognized for clinical excellence.

See more at: <http://share.kaiserpermanente.org/article/fast-facts-about-kaiser-permanente/#sthash.MMfSfHNC.dpuf>

Kaiser Permanente HealthConnect ®



- KP HealthConnect is one of the largest private electronic health systems in the world. It securely connects:
 - more than 611 medical offices to 37 hospitals,
 - members (patients) to their personal health information and health team, and
 - clinicians to the latest medical knowledge and treatments.
- KP HealthConnect was designed to improve member safety and quality of care by providing a single, comprehensive source of patient health information integrated with decision support, measurement and analysis tools.
- Kaiser Permanente attributes KP HealthConnect with enabling significant improvements in patient satisfaction and patient health outcomes.

See more at:

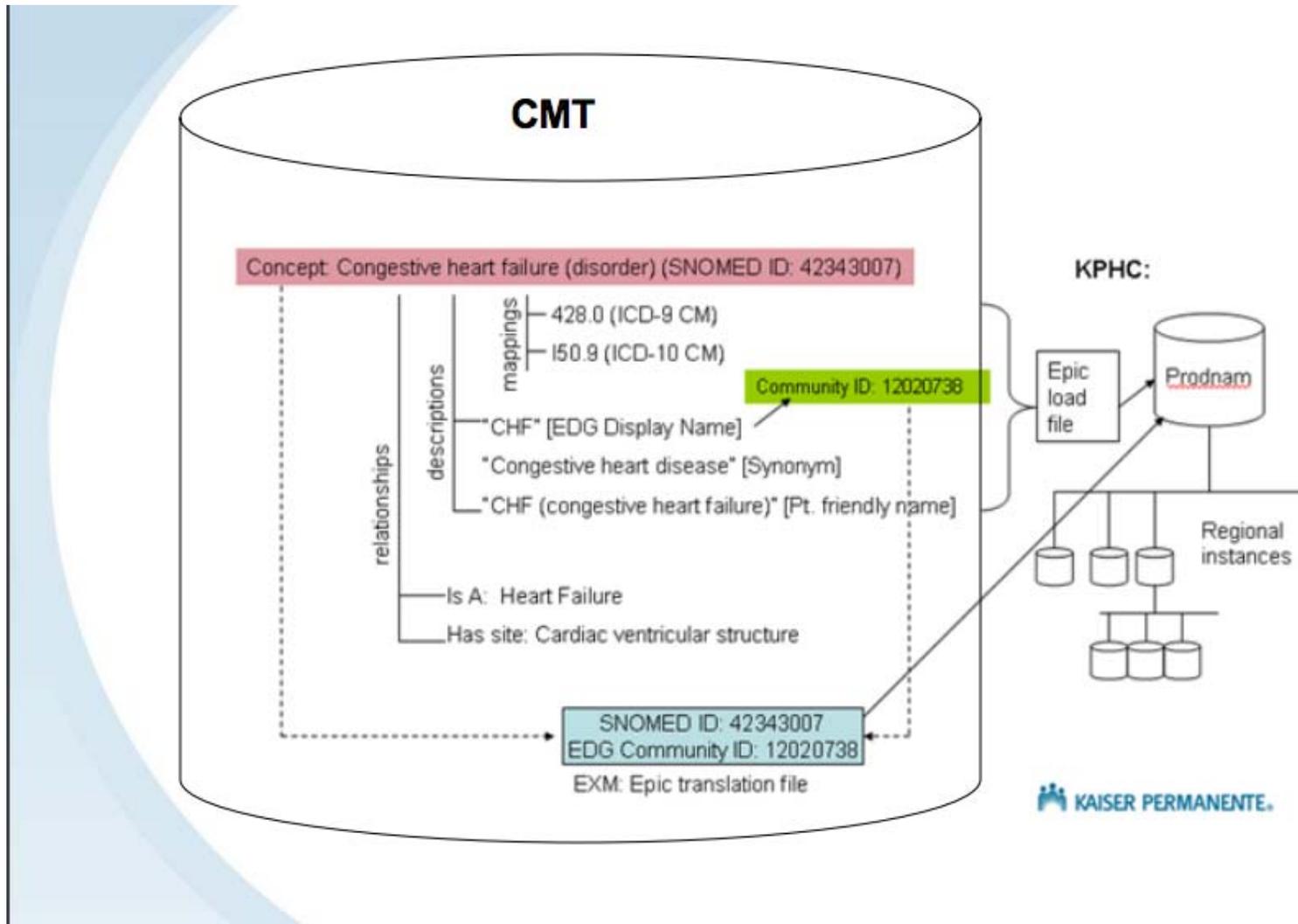
<http://share.kaiserpermanente.org/totalhealth/connectivity/#sthash.cQjFI1jl.dpuf>

Kaiser Permanente

Convergent Medical Terminology

- CMT is a series of SNOMED CT based master files that are foundational to KP HealthConnect.
- The master files provide lists of clinician friendly terminology mapped to SNOMED CT, ICD-9, ICD-10, LOINC and other coding systems to support:
 - clinical documentation,
 - interoperability with ancillary systems,
 - data collection & analysis,
 - clinical decision support,
 - external reporting, and
 - charge capture.

CMT is a SNOMED based Master Data Management approach GEVITY



Results



IS HEALTH INFORMATION TECHNOLOGY *really* WORTH IT?

Four facts you should know

Kaiser Permanente HealthConnect®
Electronic Health Record



My Health Manager on kp.org
Personal Health Record



1

Parents who use My Health Manager are more likely to attend six or more of the nationally recommended well-child care visits by **15 months of age**.



3

Patients with access to My Health Manager are **2.6 times more likely** than nonusers to remain Kaiser Permanente members.



2

Diabetes patients visited the emergency room **29 fewer times** per 1,000 patients and were hospitalized **13 fewer times** per 1,000 patients annually after KP HealthConnect was implemented.



4

Secure patient-physician email is associated with improvements in Healthcare Effectiveness Data and Information Set (HEDIS) care measurements. This includes **2 percent to 6.5 percent improvements** in glycemic, cholesterol, and blood pressure screening and control.



Canadian Successes



- Canadian Thoracic Society (Canadian Respiratory Guidelines Committee (CRCG) – in progress
 - PRESTINE: Pan-Canadian REspiratory STandards for the Electronic Health Record
- Canadian Partnership Against Cancer – ongoing
 - Synoptic Surgical Reporting
 - Electronic Synoptic Pathology Reporting Initiative

Key Factors that Contribute to Failure



- Lack of clarity on project goals and decision making
 - Project/Governance
 - Lack of consensus on Terminology & clinical terms
- Lack of effective clinician and stakeholder engagement

NSHA SNOMED CT Implementation

- Substantive initiative
- Potential value for NSHA is enormous
 - Clinical value & health information exchange
 - Enhanced data quality & analytics
 - Cost effectiveness
- NSHA is at a pivotal moment to adopt and capitalize on SNOMED CT value and benefits
 - Strategic planning & deliberate engagement will provide a solid foundation on which to build your preferred future.



Thank you

Margie Kennedy

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M. 902-402-5682

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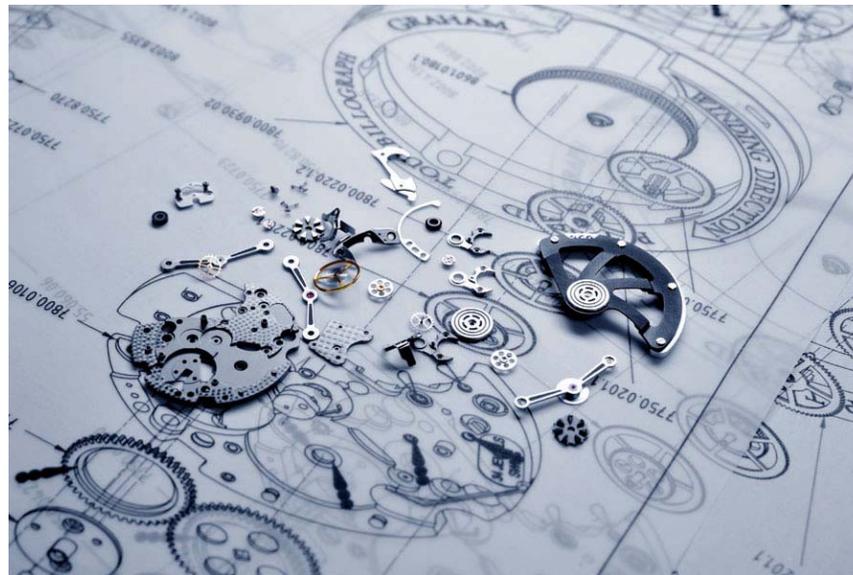
Vancouver BC V6B 5C6

Canada



Dr. Raza Abidi

How can SNOMED CT be technically implemented in a large healthcare organization such as NSHA?



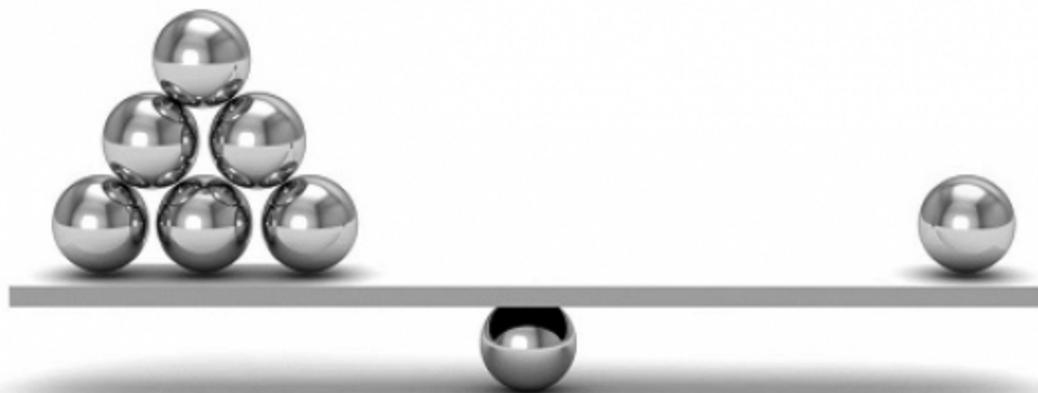


**Dr. Abidi did not use slides.
He spoke to audience for 10 min instead.
Captured on recording of Lync session.**



Don Sweete

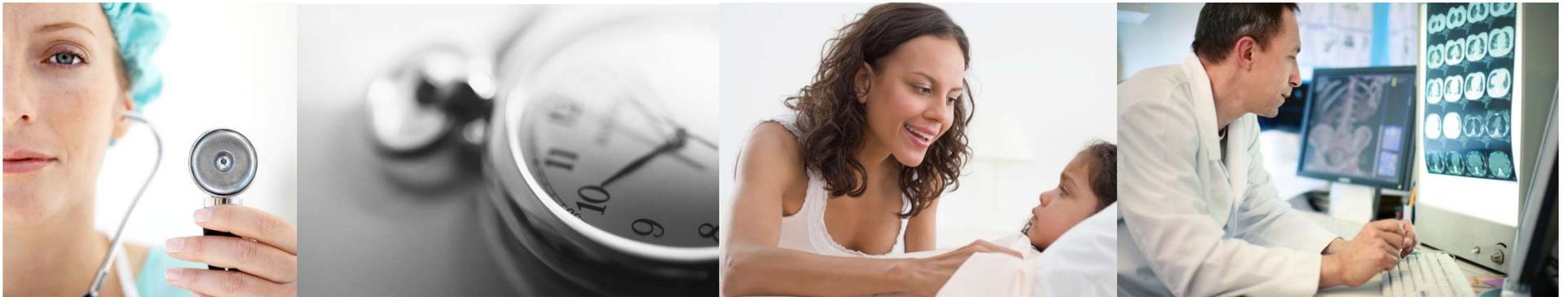
What is the value of SNOMED?





Leading healthcare
terminology, worldwide

What is SNOMED CT? And Why do we need it?



SNOMED CT
The global
language of
healthcare

What is SNOMED CT?



SNOMED CT is
the most
Comprehensive
multilingual
terminology in
the world.

How is SNOMED CT Managed?



SNOMED CT
is managed
○ and delivered
through
IHTSDO

IHTSDO delivering SNOMED CT

OUR MISSION

IHTSDO produces and enhances the vocabulary that enables the clear exchange of health information for all.

SNOMED CT is the most comprehensive and precise clinical healthcare terminology in the world; every day helping healthcare professionals to save time, money and lives with its universal, codified, clinical terminology system.

SNOMED CT also supports healthcare professionals to shortcut innovation in research and development through to learning and development by producing and enhancing the vocabulary that enables the clear exchange of health information within and between nations for the benefit of our customers.

First released in 2002, SNOMED CT has grown in maturity and since 2007 has been owned and maintained by the International Health Terminology Standards Development Organisation (IHTSDO). IHTSDO is a not for profit association that owns and maintains SNOMED CT as a product and provides services to support 27 Member countries.



OUR VISION

BY 2020 CLINICAL TERMINOLOGIES WILL BE USED GLOBALLY, WHICH WILL RESULT IN BETTER HEALTH, SUPPORTED BY ONE LANGUAGE OF HEALTH.

OUR CORE PRINCIPLES

1 EXPERTS IN HEALTH TERMINOLOGY



2 SUCCESS THROUGH COLLABORATION



3 RIGOROUS FOCUS ON QUALITY



4 CLOSEST TO CUSTOMERS



5 OPEN AND ACCOUNTABLE



QUALITY FOCUSED CONTENT DEVELOPMENT WITH ADHERENCE TO STRICT EDITORIAL RULES.



INCLUSIVE INVOLVEMENT OF DIVERSE CLINICAL GROUPS AND MEDICAL INFORMATICS EXPERTS.

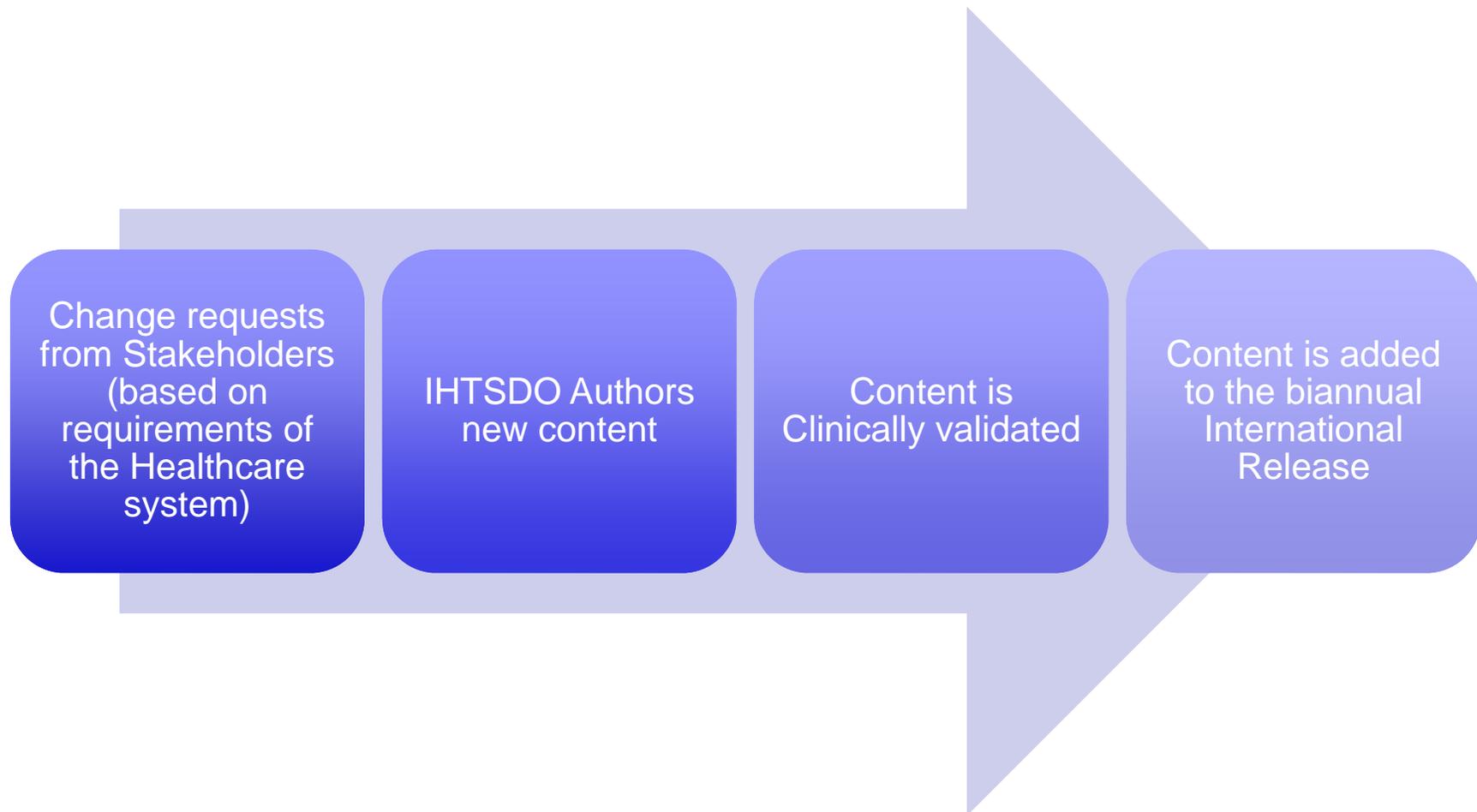


A QUALITY IMPROVEMENT PROCESS THAT IS OPEN TO PUBLIC SCRUTINY AND VENDOR INPUT.



MINIMAL BARRIERS TO ADOPTION AND USE.

HOW DOES SNOMED CT EVOLVE WITH THE CHANGES IN MEDICINE?



OUR PRODUCT BENEFITS

VENDORS

- SNOMED CT provides the potential for vendors to enable robust clinical decision support functionality, leading to market differentiation.
- The standard can be implemented once and marketed on a global scale.
- Vendors can access the most up to date version that is continuously maintained.

PATIENTS

- SNOMED CT decreases the need to repeat health history.
- It plays an important part in medication reconciliation.
- Patients can be more proactive in managing their own health.



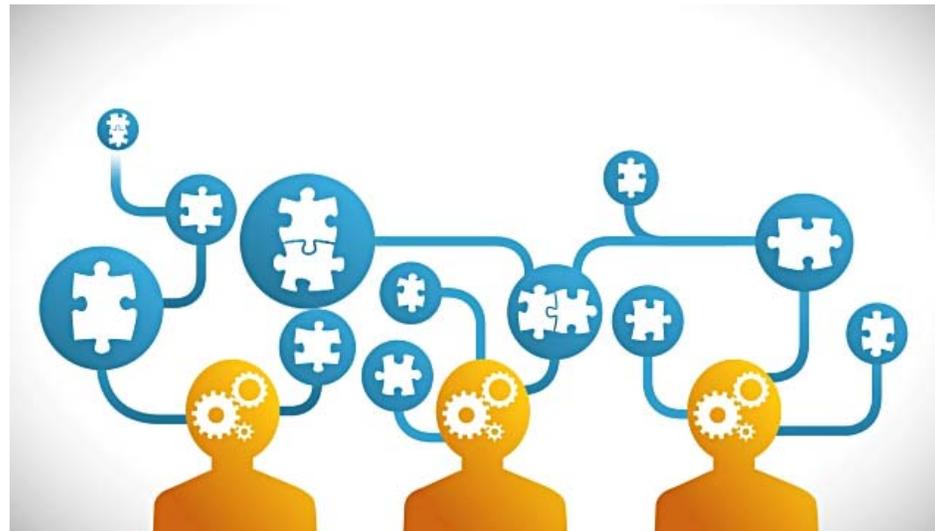
PROVIDERS

- SNOMED CT makes it easier for data to be portable from one system to another.
- Designed by clinicians for clinicians. Enables a unique partnership with technologists.
- Clinicians have the flexibility to record information in a language and in a level of detail they prefer.

MEMBER COUNTRIES

- SNOMED CT enables broad uses of information, including health system management, clinical program management, public health, and research.
- Richness of the information allows for proactive management of resources in the delivery of health care.
- Terminology use benefits the entire health system – savings of approximately 5% of total health care costs.

PANEL DISCUSSION: Q & A



Remote attendees: Type question in Lync
or email to jim.maclean@nshealth.ca