Standards Development Organizations Collaborating on Global Effort on the IPS

Session #111, March 16, 2022

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Welcome

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Conflict of Interest

John D'Amore – Has no real or apparent conflicts of interest to report.

Suzy Roy - Has no real or apparent conflicts of interest to report.

Agenda

- **International Patient Summary (IPS)**
- **HL7 International**
  - About HL7 International
  - HL7 FHIR IPS Standards
- **SNOMED International**
  - About SNOMED International
  - About SNOMED CT
  - SNOMED IPS resources
- **Collaboration for IPS**
  - HL7 FHIR and SNOMED CT
  - Use case examples
- **Discussion with audience**

Learning Objectives

- Discuss the roles of HL7 International in providing data structure standards and SNOMED International in providing terminology standards, and how both contribute to development and implementation of the IPS standard specifications

- Recognize how the value sets defined in the IPS templates and profiles and the SNOMED CT GPS and IPS reference set can be used in IPS adoption and implementation

- Identify ways in which HL7 International and SNOMED International can continue to improve resources such as the IPS FHIR IG and SNOMED CT and IPS reference set to enhance implementation efforts and facilitate more effective IPS implementations
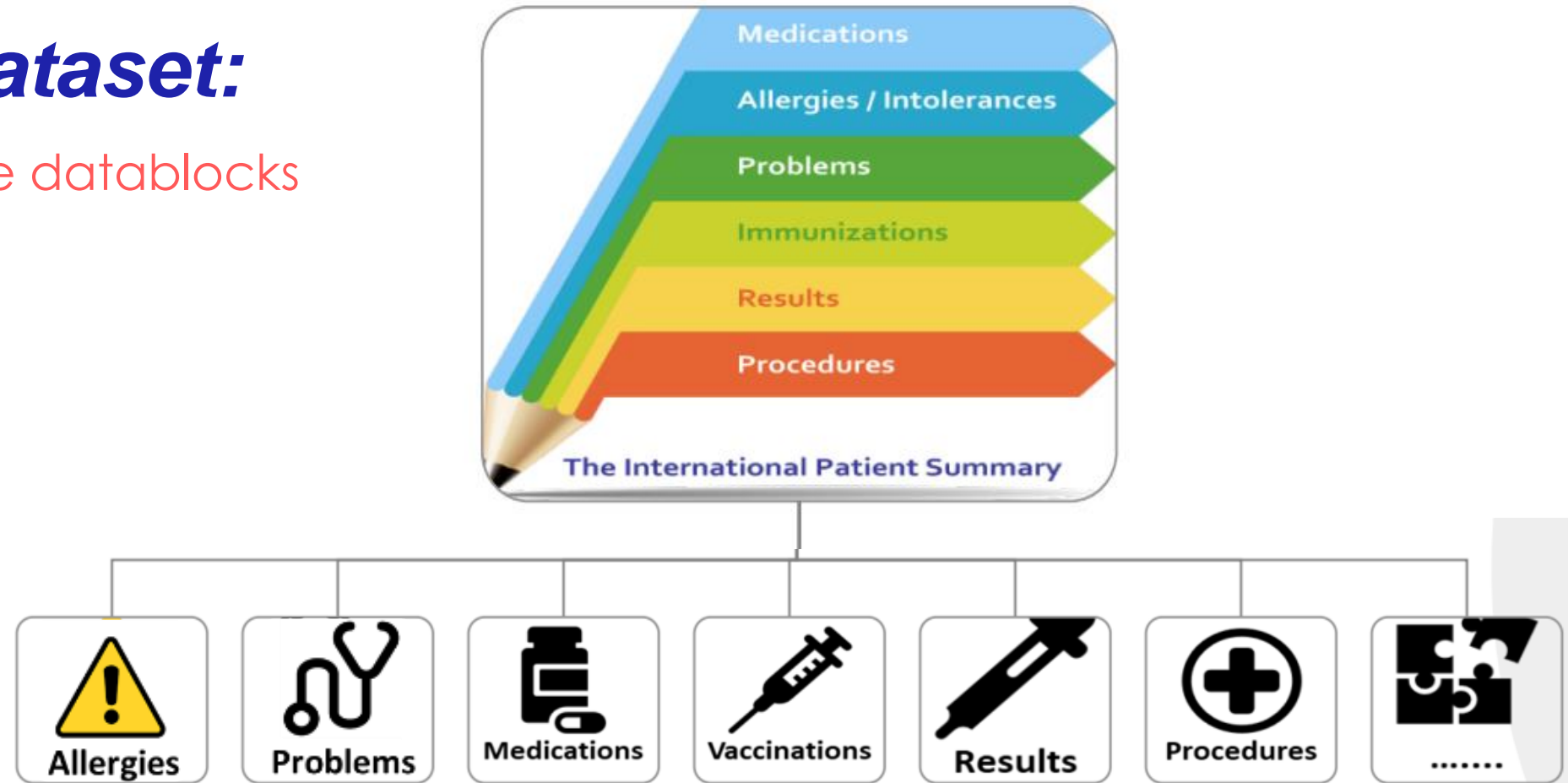
International Patient Summary

About

- A standardized set of basic clinical data
- Includes most important health and care related facts
- A summarized version of a patient's clinical data provides health professionals the essential information needed for care

Medications
Allergies / Intolerances
Problems
Immunizations
Results
Procedures

The International Patient Summary

The International Patient Summary is a minimal and non-exhaustive set of basic clinical data of a patient, specialty-agnostic, condition-independent, but readily usable by all clinicians for the unscheduled (cross-border) patient care.

The IPS Dataset:

A set of reusable datablocks

A 'document' with 'sections'....

The IPS

An extensible reference data model

- New Data Requirements
  - The IPS should cover all ages
  - Implicit, existing IPS workflows need to be made explicit
  - Alerts & risks; Patient story; Family Hx
- New Workflows
  - Summary production
  - Summary consumption
- New Cases
  - Rare diseases, chronic conditions, pandemics…
- Safe-guarding Summary users
  - Reducing clinical burden through effective governance, consistency and coherence
  - Promote trust and relevance assessment
  - Design in usability

IPS Global Standards and Specifications

eHN EU PS Guideline

refine

CEN Health Informatics TC251

CEN EN 17269

provide guidance for EU

CEN TS 17288

align

supersede

ISO 27269

implement

implement

SNOMED CT IPS Reference Set

use

use

HL7 IPS CDA IG

HL7 IPS FHIR IG

refer

refer

IHE IPS Profile

refer

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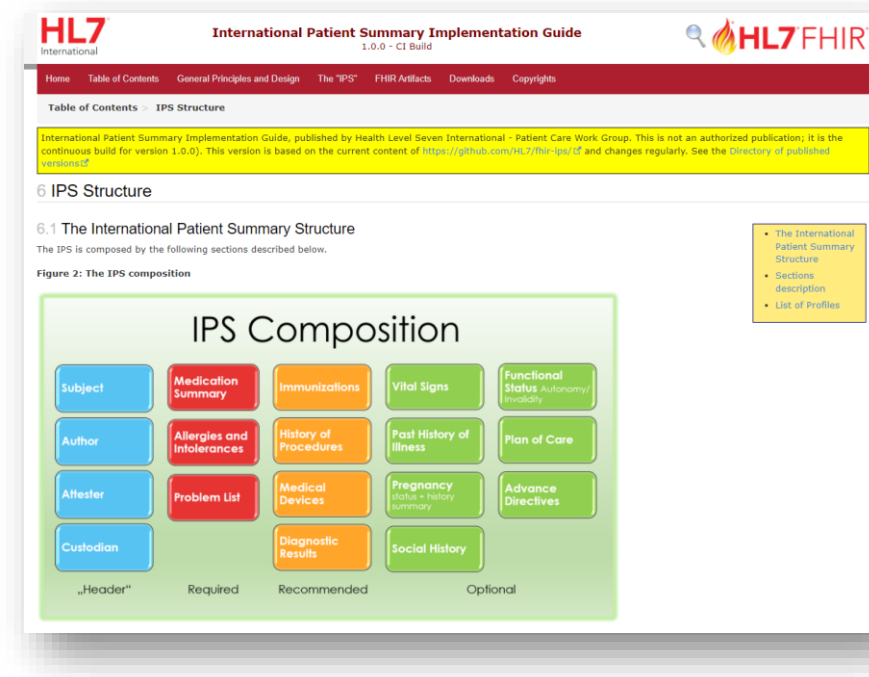
HL7 International

About

Founded in 1987, Health Level Seven International (HL7) is a not-for-profit, ANSI-accredited standards developing organization dedicated to providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services. HL7 is supported by more than 1,600 members from over 50 countries, including 500+ corporate members representing healthcare providers, government stakeholders, payers, pharmaceutical companies, vendors/suppliers, and consulting firms.

The IPS in ⬛HL7®FHIR®

A care summary using the Composition Resource

Published: https://hl7.org/fhir/uv/ips/

Current: http://build.fhir.org/ig/HL7/fhir-ips/

Bundle
- **Composition (1)**
- Patient (1)
- Practitioner (*)
- Organization (*)
- AllergyIntolerance (*)
- MedicationRequest(*)
- MedicationStatement(*)
- Condition (*)
- Immunization (*)
- Observation (*)
- Other Resources (*)

Composition

Elements that describe the document (id, language, text, etc.)

Subject of the IPS

Author of the IPS

Clinical Services of IPS

Sections of the IPS
- Narrative Text
- Resource References

A Global Need for Terminology

Structured, coded data are more usable, translatable and easy to integrate

SNOMED
736031006

"Oyster"

Allergies and Intolerancies

allergy - medication - Criticality: undefined
Quinolones (-)

allergy - food - Criticality: undefined
生蠔 (-)

SNOMED International

Our Mission

SNOMED International sustainably produces a global clinical vocabulary and other services that enables the clear exchange and analysis of health information for all
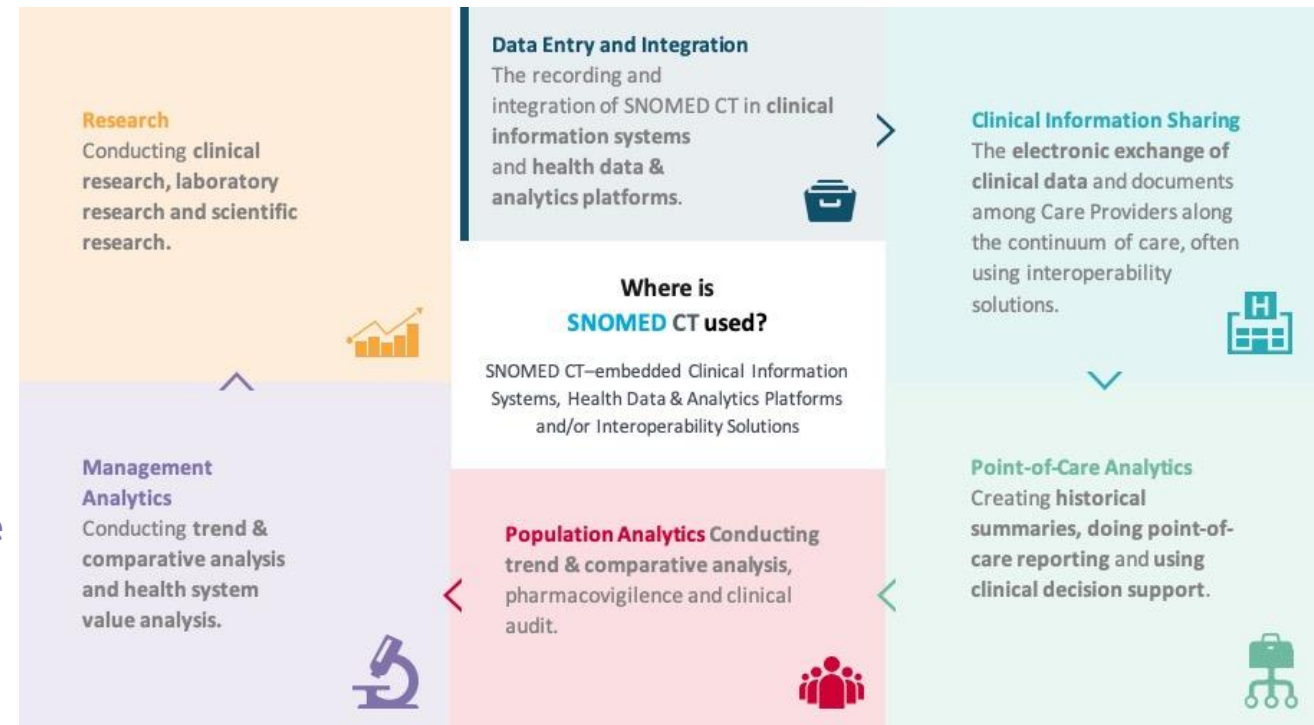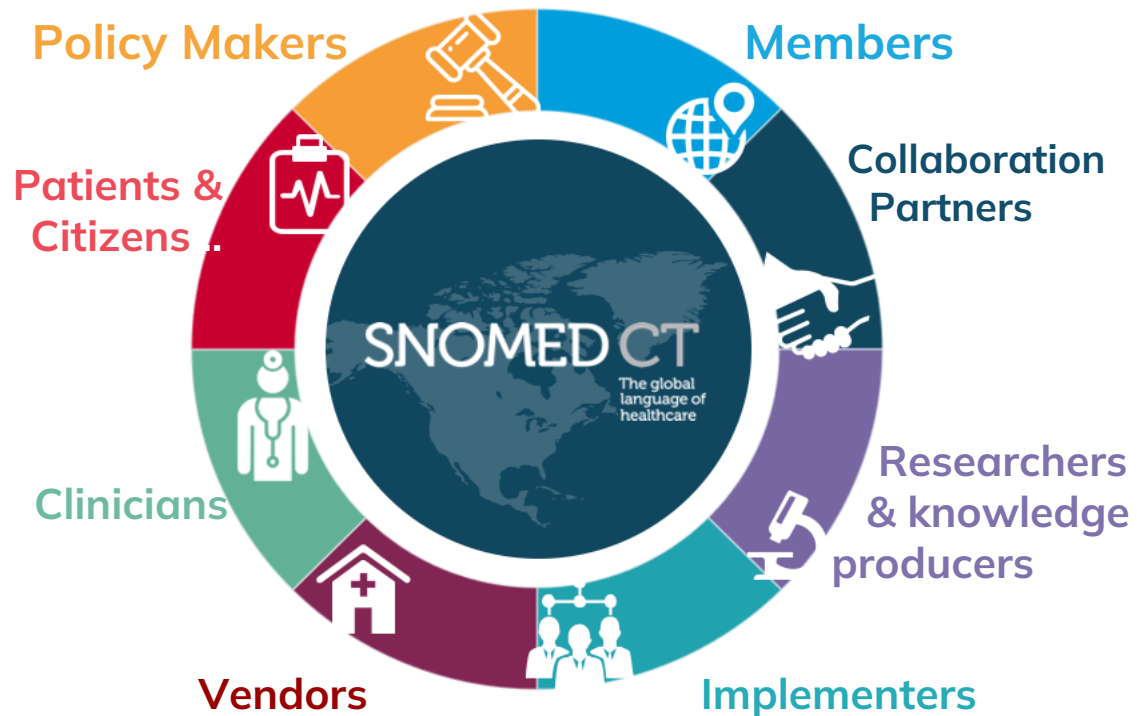
Our Vision

By 2025, Clinical Terminologies will be used globally, which will result in better health and improved patient outcomes, supported by one language of health.

SNOMED CT

Who uses SNOMED CT and how

> Encoding health information with standards such as SNOMED CT is critical for frontline service delivery, pandemic surveillance, and retrospective data analysis.

Policy Makers • Members • Collaboration Partners • Researchers & knowledge producers • Implementers • Vendors • Clinicians • Patients & Citizens ..

Research
Conducting **clinical research, laboratory research and scientific research.**

Data Entry and Integration
The recording and integration of SNOMED CT in **clinical information systems** and **health data & analytics platforms.**

Clinical Information Sharing
The **electronic exchange of clinical data** and documents among Care Providers along the continuum of care, often using interoperability solutions.

Where is SNOMED CT used?
SNOMED CT–embedded Clinical Information Systems, Health Data & Analytics Platforms and/or Interoperability Solutions

Management Analytics
Conducting **trend & comparative analysis and health system value analysis.**

Population Analytics Conducting **trend & comparative analysis, pharmacovigilence and clinical audit.**

Point-of-Care Analytics
Creating **historical summaries, doing point-of-care reporting** and using **clinical decision support.**
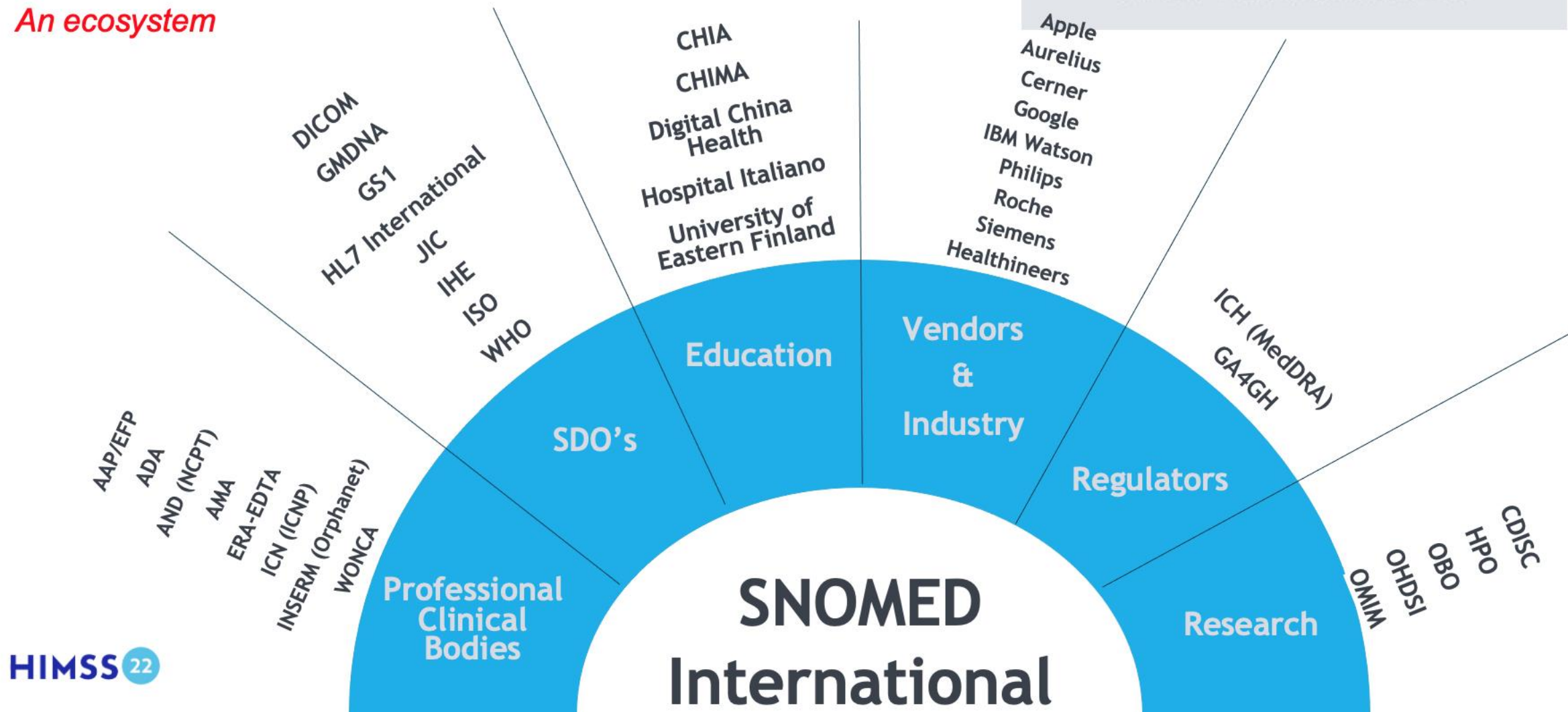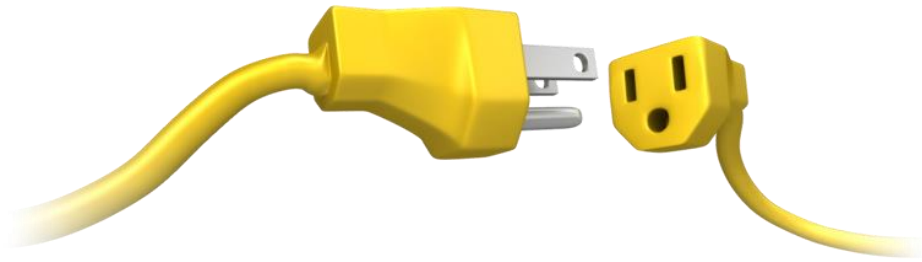
International Collaboration

An ecosystem

SNOMED International has an active program of partnerships with international standards development organizations, professional clinical bodies and commercial organizations.

DICOM
GMDNA
GS1
HL7 International
JIC
IHE
ISO
WHO

CHIA
CHIMA
Digital China Health
Hospital Italiano
University of Eastern Finland

Apple
Aurelius
Cerner
Google
IBM Watson
Philips
Roche
Siemens
Healthineers

ICH (MedDRA)
GA4GH

AAP/EFP
ADA
AND (NCPT)
AMA
ERA-EDTA
ICN (ICNP)
INSERM (Orphanet)
WONCA

OMIM
OHDSI
OBO
HPO
CDISC

Education

Vendors & Industry

SDO's

Regulators

Professional Clinical Bodies

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Research

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Electronic Health Records

Making health records electronic...

- Is a significant step forward
- Improves communication
- Increases availability of relevant information

… but this is only a partial solution; the real challenge is …

Making health records meaningful

- Identifying significant facts in oceans of data
- Enabling effective meaning-based retrieval
- Linking the EHR to authoritative clinical knowledge

SNOMED CT represents clinical meanings and contributes to meaningful health records

SNOMED CT for IPS

Freely available resources

SNOMED CT IPS Reference Set a freely available set of SNOMED CT terms that are harmonized with and supports the contents of the HL7 International Patient Summary and artifacts and CEN's European Standard for the Patient Summary value sets
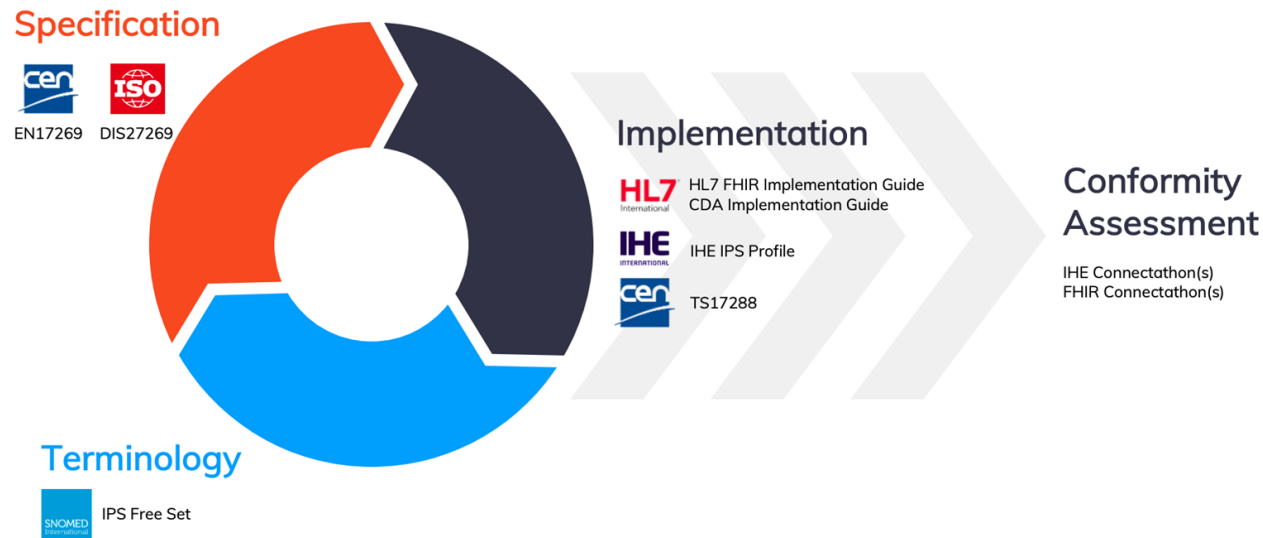
SNOMED Global Patient Set (GPS) a managed list of existing SNOMED CT unique concept identifiers and their associated descriptions available to all users at no cost via the Creative Commons Attribution 4.0 International Public License. Includes all IPS terminology content

COMING SOON IPS Terminology newly announced SNOMED CT resource to provide implementers with an open product that can be used in healthcare solutions using the power of SNOMED CT through its query language and hierarchies. The IPS sub-ontology will allow for more effective use of clinical data analytics and decision support, and for Artificial Intelligence applications to extend beyond IPS data capture and sharing

Why standards are important

Reference terminology for semantic interoperability

- Clinical ideas comprise everything we think we know about health, illness, prevention, investigation and treatment
  - Clinical ideas are the building blocks of personal health records
- Having a standard terminology allows for the set of concepts (clinical ideas) to be based on a common reference point
  - Allows for exchange, comparisons and aggregation of data

Specification

cen ISO
EN17269 DIS27269

Implementation

HL7 International — HL7 FHIR Implementation Guide / CDA Implementation Guide

IHE INTERNATIONAL — IHE IPS Profile

cen — TS17288

Conformity Assessment

IHE Connectathon(s)
FHIR Connectathon(s)

Terminology

SNOMED International — IPS Free Set

HL7 & SNOMED CT for IPS

A flexible and extensible process

- New IPS content added to SNOMED CT
  - Managed via SNOMED International - HL7 International collaboration
  - HL7 International collaborates with CEN and IPS needs
    - submits new content requests to SNOMED International
  - SNOMED International adds new content to SNOMED CT and creates SNOMED CT artifacts for IPS adoption and implementation
    - HL7 IPS SNOMED CT Freeset is produced annually
    - Packaged and released as GPS annually (September)
    - New SNOMED IPS sub-ontology based on IPS SNOMED CT Freeset

HL7 FHIR Profile: Procedure

This profile represents the constraints applied to the Procedure resource by the IPS project, which specifies an entry of the History of Procedure for the international patient summary based on the FHIR standard R4.

The Procedures-IPS value set is defined using a logical definition, consisting of the following inclusion and exclusion clauses:

- Include codes from `http://snomed.info/sct` where concept descends from 71388002 (Procedure)
- Exclude codes from `http://snomed.info/sct` where concept is-a 14734007 (Administrative procedure)
- Exclude codes from `http://snomed.info/sct` where concept is-a 59524001 (Blood bank procedure)
- Exclude codes from `http://snomed.info/sct` where concept is-a 389067005 (Community health procedure (procedure))
- Exclude codes from `http://snomed.info/sct` where concept is-a 442006003 (Determination of information related to transfusion)
- Exclude codes from `http://snomed.info/sct` where concept is-a 225288009 (Environmental care procedure)
- Exclude codes from `http://snomed.info/sct` where concept is-a 308335008 (Patient encounter procedure)
- Exclude codes from `http://snomed.info/sct` where concept is-a 710135002 (Promotion (procedure))
- Exclude codes from `http://snomed.info/sct` where concept is-a 389084004 (Staff related procedure (procedure))

http://hl7.org/fhir/uv/ips/StructureDefinition/Procedure-uv-ips

SNOMED CT Expression Constraint (ECL) query

SNOMED CT International Edition Release or IPS Terminology

```
< 71388002 |Procedure|
  MINUS (< 14734007 |Administrative procedure|
    OR < 59524001 |Blood bank procedure|
    OR < 389067005 |Community health procedure|
    OR < 442006003 |Determination of information related to transfusion|
    OR < 225288009 |Environmental care procedure|
    OR < 308335008 |Patient encounter procedure|
    OR < 710135002 |Promotion|
    OR < 389084004 |Staff related procedure| )
```
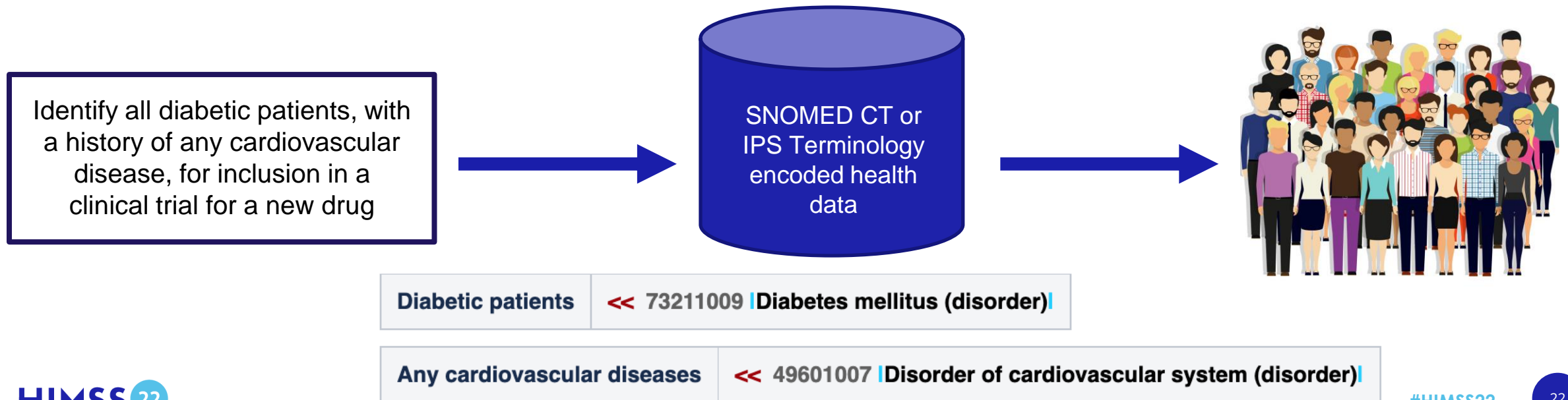
ECL expression can be submitted to a terminology server via a standard HL7 FHIR Terminology Services API, to extract the SNOMED CT concepts that may be used in the HL7 Procedures-IPS value set

http://hl7.org/fhir/uv/ips/StructureDefinition/Procedure-uv-ips

Use Case Examples

Sharing and analyzing IPS data

- Receiving Data
- Sending Data
- Using IPS Terminology data for analytics

| Identify all diabetic patients, with a history of any cardiovascular disease, for inclusion in a clinical trial for a new drug | → | SNOMED CT or IPS Terminology encoded health data | → | |

| Diabetic patients | << 73211009 |Diabetes mellitus (disorder)| |
| Any cardiovascular diseases | << 49601007 |Disorder of cardiovascular system (disorder)| |

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Questions & Discussion

Learn more about IPS at:

https://international-patient-summary.net/

Thank you!

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