



Health & Social Care
Information Centre

An Introduction to SNOMED CT

Royal College of Surgeons workshop June 2016

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NHS Informatics Strategy (England)

National Information Board (NIB)

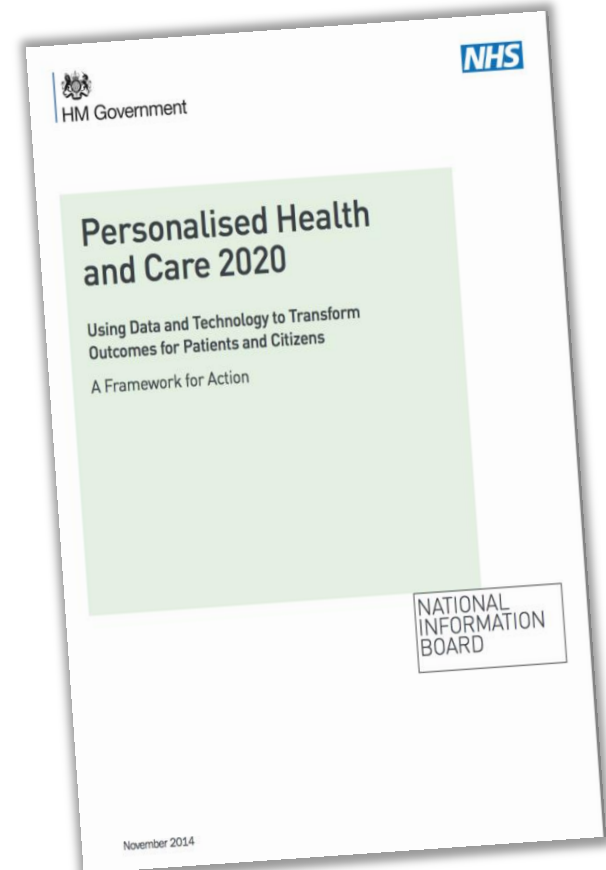
- Published **Personalised Health and Care 2020** - A Framework for Action

Endorses the move to adopt a single clinical terminology – **SNOMED CT** – to support direct management of care.

Actively collaborate to ensure that **all primary care** systems adopt SNOMED CT by **the end of December 2016**.

And the **entire health system** should adopt SNOMED CT by **April 2020**.

During this time, we must also work with local authorities to understand and address the implications of this for **social care**.



What is SNOMED CT?

Sitting Blood
pressure

Blood
pressure

Lung

von Recklinghausen's bone
disease

A national common vocabulary of 'Clinical
phrases' for electronic systems

duodenal
ulcer

headache

angina

cough

phlegm

myocardial
infarction

toe

finger

bacterial
pneumonia

The case for SNOMED CT

- A single terminology across the care system enables cross sector interoperability, reducing clinical safety risk due to potential data loss on mapping between different terminologies
- SNOMED CT facilitates the extraction, the comparison and the reuse of information for registries; quality measures; medical decisions support; public health reporting; national and international benchmarking; research etc.

SNOMED CT Content Hierarchies

- ▼ ● SNOMED CT Concept
 - ● 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)
 - ● Stages and scales (staging scale)
 - ● Substance (substance)



Clinical Finding

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Clinical finding

The result of a clinical observation, assessment or judgement and includes normal and abnormal clinical states.

Examples:

- | asthma |
- | headache |
- | normal breath sounds |

Used for:

- Reason for admission
- Diagnosis
- Signs and symptoms
- Laboratory test results
- Assessment results



Procedure

- ▼ SNOMED CT Concept
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Procedure

Activities performed in the provision of health care.

Examples:

- | appendectomy |
- | administration of anesthesia |
- | x-ray |, | ultrasound |
- | diabetic care education |
- | physiotherapy |
- | discharge |

Used for:

- *Procedures performed*
- *Planned procedures*
- *Requested procedures*

A Concept in SNOMED CT

Concept ID 22298006

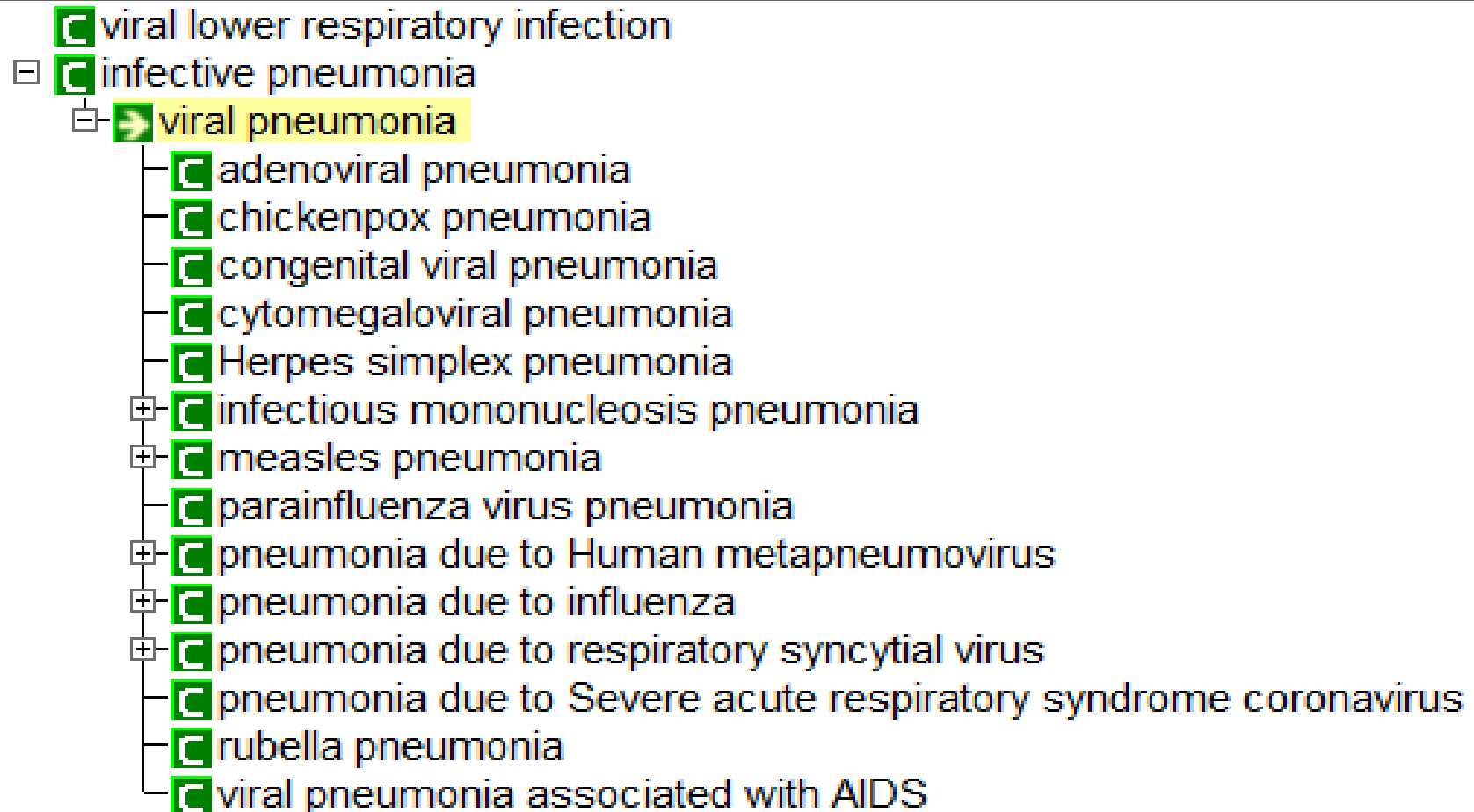
Descriptions (Terms)

| | | |
|-----|----------------------------------|------------|
| FSN | Myocardial Infarction (disorder) | 751689013 |
| PT | Myocardial Infarction | 37436014 |
| S | Heart Attack | 37443015 |
| S | Cardiac Infarction | 37442013 |
| S | Infarction of heart | 37441018 |
| S | MI – Myocardial Infarction | 1784872019 |
| S | Myocardial Infarct | 1784873012 |

A Concept in SNOMED CT

Hierarchy

Subtype hierarchy



Main coding functions in the NHS

- Clinical terminologies
- Classifications
- Dataset

Terminology (SNOMED CT, dm+d)

- For electronic health records
 - Coding is done without a pre-existing record, but rather to express statements about the patient, in order to create a coded record
- SNOMED CT
 - Coded representation of meanings used to describe health information
 - Structured according to logic based relationships of meanings
- dm+d
 - unique identifiers and associated textual descriptions for representing medicines and medical devices in information systems and electronic communications

Classifications (ICD-10, OPCS-4)

- The primary purposes of coding are reimbursement and epidemiology
- Coding is done from a pre-existing record
- It follows rules designed to help you choose the **one** right code (or code combination) according to conventions/rules that best expresses the main diagnosis, or the main procedure done
- Double counting for epidemiology or reimbursement is a ***bad*** thing

Datasets (NHS Data Dictionary)

- Designed to satisfy specific sets of needs
 - Commissioning
 - Audit
- Typically include clinical and administrative detail
- Many developed independently and not necessarily compatible with NHS standards (or even between each other)

Example dataset data items

(‘AIDS defining illness type’ from the HIV and AIDS Reporting (HARS) Data Set)

| Code | Description |
|------|---|
| – 08 | Cytomegalovirus retinitis (with loss of vision) |
| – 09 | Cytomegalovirus disease (other than liver, spleen, or nodes) in a PATIENT over one month of age |

SNOMED equivalents

- ☐ ➡ cytomegalovirus infection
 - ☐ ☒ congenital cytomegalovirus infection
 - ☒ chronic congenital cytomegalic inclusion disease
 - ☒ cytomegalic inclusion disease associated with AIDS
 - ☒ cytomegaloviral colitis
 - ☒ cytomegaloviral enteritis
 - ☒ cytomegaloviral gastritis
 - ☒ cytomegaloviral mononucleosis
 - ☒ cytomegaloviral pancreatitis
 - ☒ cytomegaloviral pneumonia
 - ☐ ☒ cytomegaloviral retinitis
 - ☒ Cytomegalovirus chorioretinitis
 - ☒ immune recovery uveitis
 - ☒ cytomegalovirus hepatitis
 - ☒ Cytomegalovirus infection of skin
 - ☐ ☒ cytomegalovirus infection of the central nervous system
 - ☒ cytomegalovirus encephalitis
 - ☒ cytomegalovirus-induced glomerulonephritis
 - ☒ disseminated cytomegalovirus infection
 - ☒ endocochlear cytomegalovirus infection
 - ☒ fetal cytomegalovirus syndrome
 - ☒ HIV disease resulting in cytomegaloviral disease

Classification equivalents

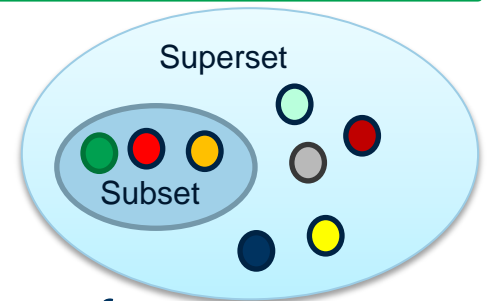
- B25 Cytomegaloviral disease
 - B25.0 Cytomegaloviral pneumonitis
 - B25.1 Cytomegaloviral hepatitis
 - B25.2 Cytomegaloviral pancreatitis
 - B25.8 Other cytomegaloviral diseases
 - B25.9 Cytomegaloviral disease, unspecified

Horses for courses

- Different coding schemes are designed to satisfy different requirements
 - Waiting list statistics may only need to be very generic and not need details of precise technique
 - Theatre scheduling systems may need more detail of the technique so the right time can be allocated in theatre and the right equipment can be made available
 - Patient clinical notes might need exact details so that care pathways can be followed and appropriate checks and interventions carried out

Subsets

- A subset is ‘smaller set of SNOMED CT’ that meets a particular requirement(s)
- A SNOMED CT subset can be a group of concepts, descriptions or relationships chosen for relevance under certain conditions or in certain contexts
- It is often desirable to constrain the SNOMED CT concepts available to a subset, for example, to support rapid data entry of performed procedures in a radiology department or orthopaedic theatres
- Over 300 nationally released subsets
- <https://dd4c.hscic.gov.uk/dd4c>
- http://diseasesdatabase.com/snomed/snomed_subsets.asp



Mapping tables

Only to/from National artefacts

- To ICD-10
- To OPCS-4
- From National Interim Clinical Imaging Procedure codes (NICIP)
- To Data Dictionary code sets
- Between terminologies (ie Read V2 to SNOMED)

The International Health Terminology Standards Development Organisation (IHTSDO)

- Maintains and delivers SNOMED CT
- Is an International not-for-profit association

- Owned by National Members
- Governed by General Assembly of its Members
- Funded by countries based on national wealth

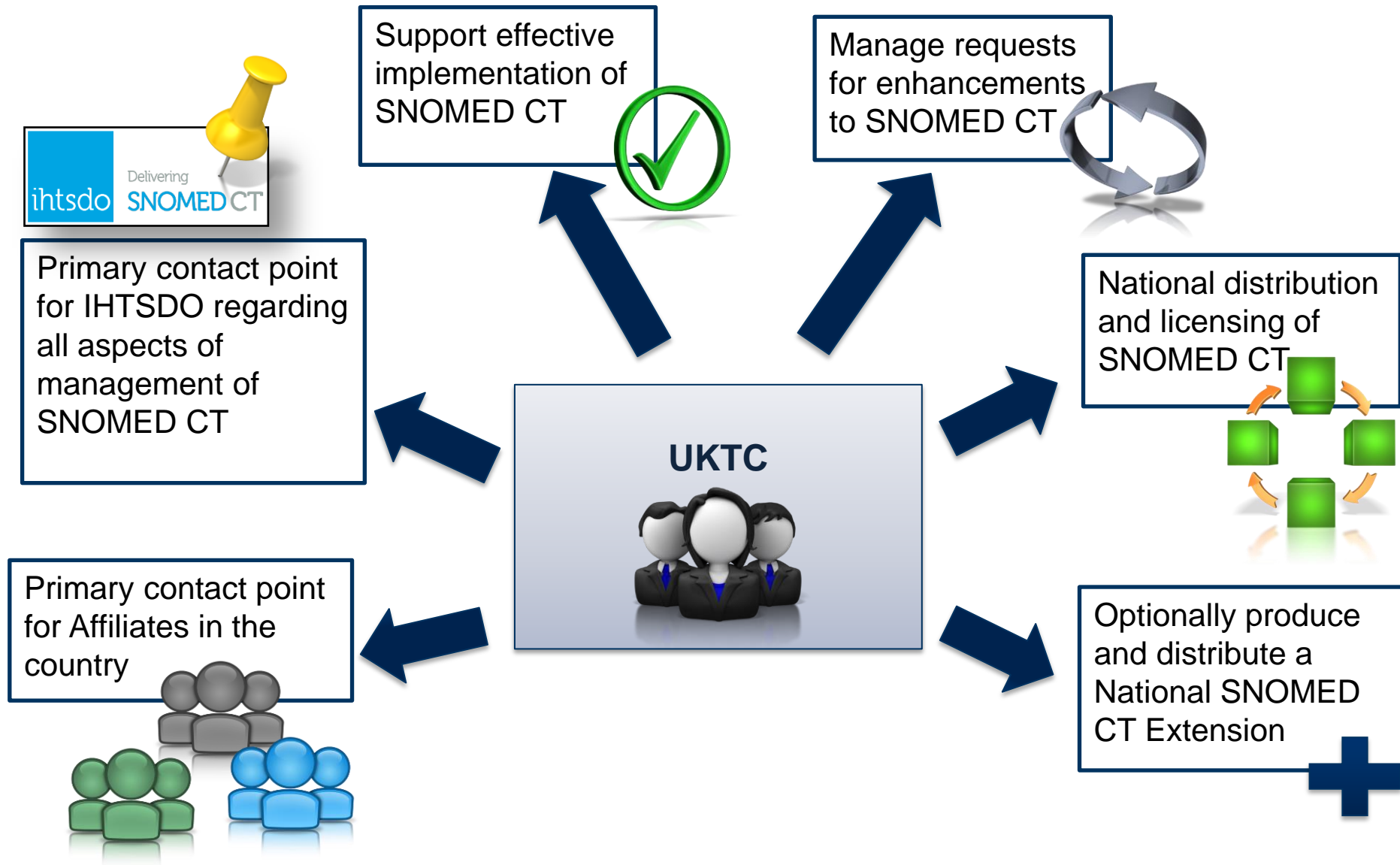
- Web site: www.ihtsdo.org
- Document Library: <http://snomed.org/doc>

- E-Learning Center: <http://snomed.org/elearning>
- SNOMED CT Browser: <http://browser.ihtsdotools.org>
- SNOMED in Action: <http://snomedinaction.org>

IHTSDO Current Members (January 2015)

| | | |
|--|---|---|
|  Australia |  Iceland |  Portugal |
|  Belgium |  India |  Singapore |
|  Brunei |  Israel |  Slovak Republic |
|  Canada |  Lithuania |  Slovenia |
|  Chile |  Malaysia |  Spain |
|  Czech Republic |  Malta |  Sweden |
|  Denmark |  The Netherlands |  United Kingdom |
|  Estonia |  New Zealand |  USA |
|  Hong Kong |  Poland |  Uruguay |

UKTC: a National Release Centre



‘Dynamic’

- Released every six months (October and April)
- Aligned with other UK products and derivatives (eg Read codes and classifications)
- UK specific as well as international
- Change request mechanism
 - <http://systems.digital.nhs.uk/data/uktc/snomed/change>
- Distribution mechanism
 - <https://isd.hscic.gov.uk/trud3>
- Editorial principles/governance
- Strategic and operational governance
- International governance

How do I look at SNOMED CT?

- Using a browser application
- <http://systems.digital.nhs.uk/data/uktc/snomed/browser>
- On-line:



- On your machine – need access to install



UKTC Training & Education Resources

SNOMED CT Webinars

[Introduction to SNOMED CT](#)

[Finding Content in SNOMED CT](#)

[Clinical Data Analytics Tool for analysis of SNOMED CT](#)



Case Studies

[Barts Health](#)

[Leeds Teaching Hospital](#)

[Moorfields Eye Hospital](#)

[Rotherham NHS Foundation Trust](#)

[University Hospitals of Morecambe Bay NHS Foundation Trust \(UHMB\)](#)

[Care Planning](#)

Documents and Guidance

SNOMED CT e-Learning

UKTC website: <http://systems.digital.nhs.uk/data/uktc/training>