



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)

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## National Information Board (NIB)

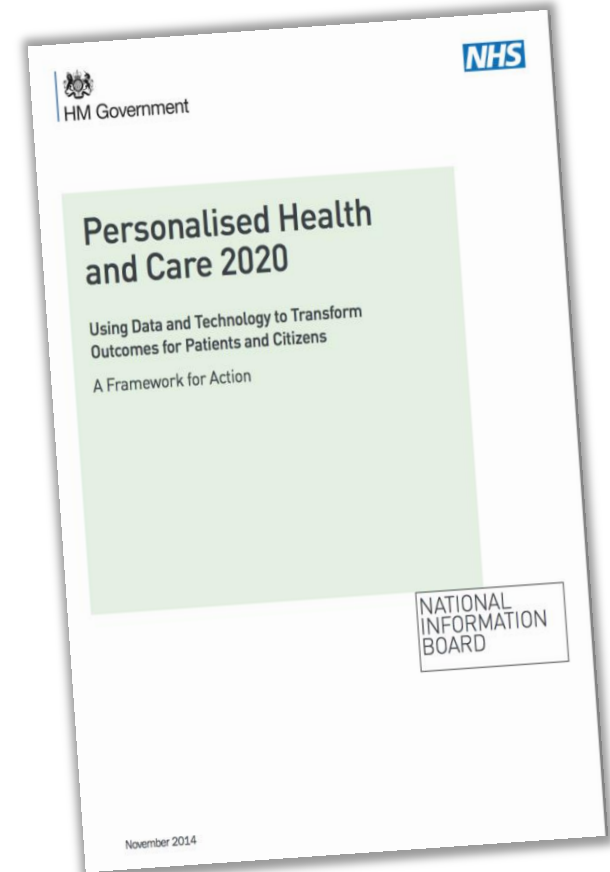
- Published **Personalised Health and Care 2020** - A Framework for Action

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?

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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

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- 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

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- ▼ ● 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

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Concept ID 22298006

## Descriptions (Terms)

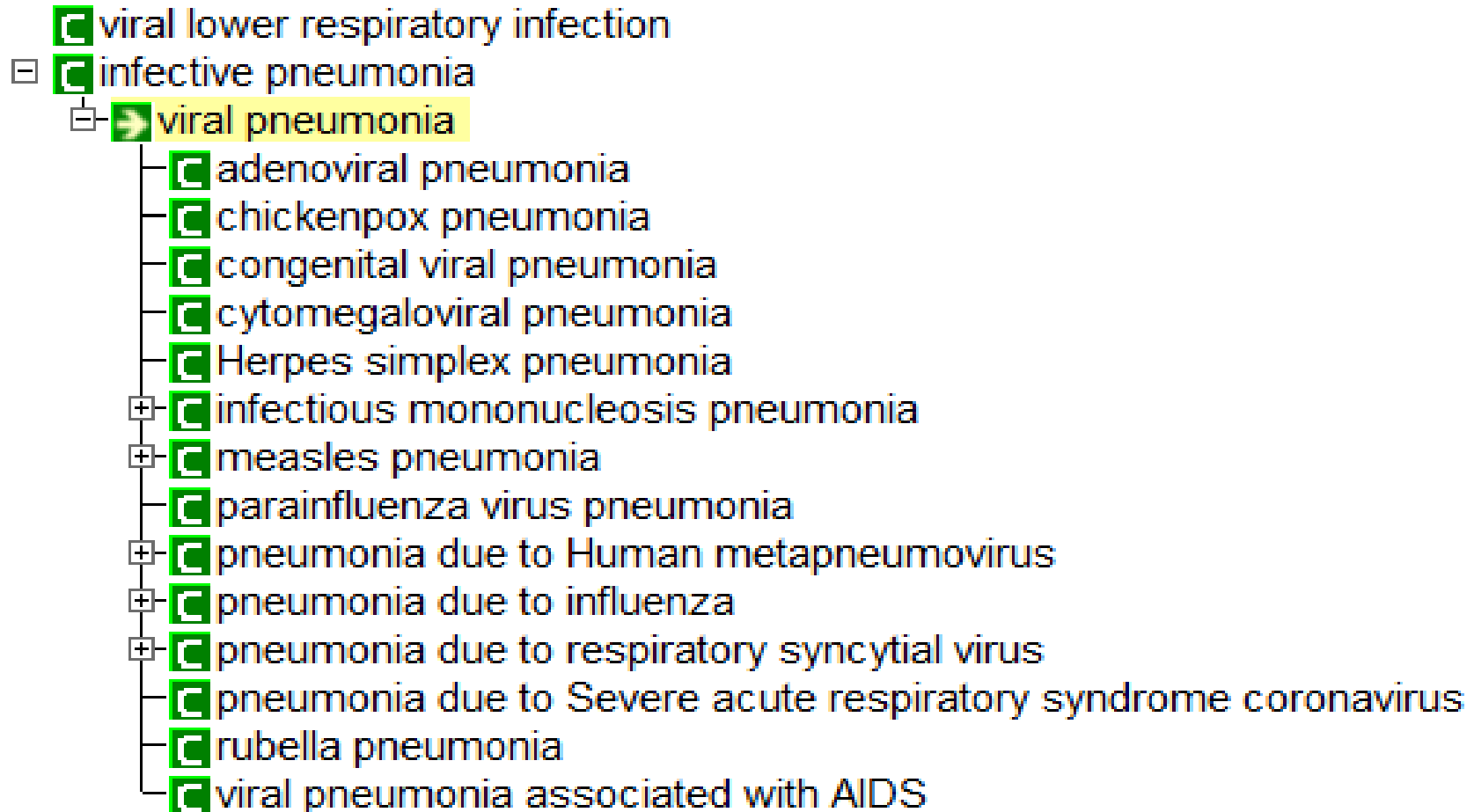
FSN	Myocardial Infarction (disorder)	751689013
PT	Myocardial Infarction	37436014
S	Heart Attack	37443015
S	Cardiac Infarction	37442013
S	Infarction of heart	37441018
S	MI – Myocardial Infarction	1784872019
S	Myocardial Infarct	1784873012



# A Concept in SNOMED CT

Hierarchy

Subtype hierarchy



# Main coding functions in the NHS

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- Clinical terminologies
- Classifications
- Dataset

# Terminology (SNOMED CT, dm+d)

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- 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)

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- 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)

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- 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

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

<b>Code</b>	<b>Description</b>
– 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

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- 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

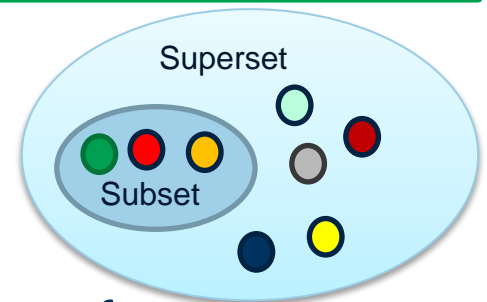
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- Different coding schemes are designed to satisfy different requirements
  - Waiting list statistics may only need to be very generic and not need details of precise technique
  - Theatre scheduling systems may need more detail of the technique so 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

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- 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](http://diseasesdatabase.com/snomed/snomed_subsets.asp)





# Mapping tables

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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

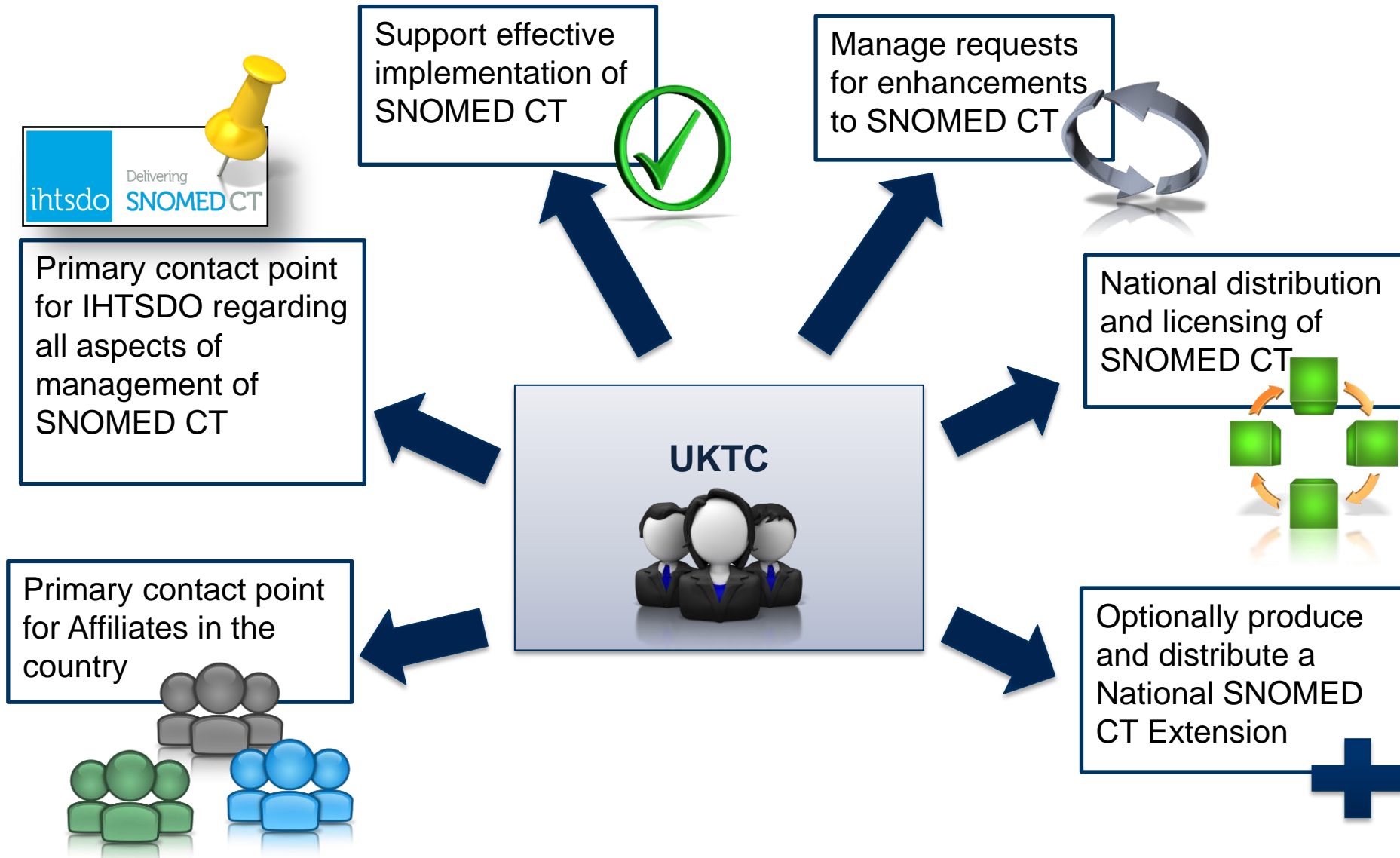
- Web site: [www.ihtsdo.org](http://www.ihtsdo.org)
- Document Library: <http://snomed.org/doc>

- 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'

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- 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

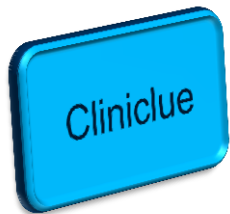
# How do I look at SNOMED CT?

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- 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

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## 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>