# SNOMED CT and Clinical Coding

**Information and technology
for better health and care**

**Presented by:**
**The Terminology and Classifications Delivery**
**Service, NHS Digital**

This presentation is designed to provide an overview of what a SNOMED CT generated discharge summary may look like and how SNOMED CT, ICD-10 and OPCS-4 can work together to fulfil different needs.

# Setting the context

## 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."

Reference https://www.gov.uk/government/publications/personalised-health-and-care-2020
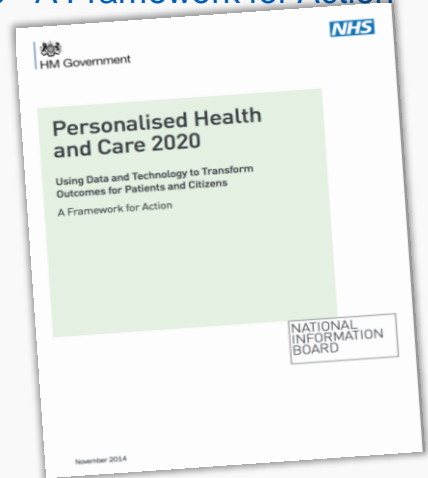
## SCCI0034 Amd 35/2016 and Addendum: SNOMED CT

**SNOMED CT was approved at the SCCI Board in October 2016**
**http://www.content.digital.nhs.uk/isce/publication/scci0034**

- Systems used by, or communicating coded clinical data to, General Practice service providers must use SNOMED CT as the clinical terminology within the system before 1 April 2018. SNOMED CT must be utilised in place of the Read codes before 1 April 2018

- Systems used by all other providers of health related services where the flow of information for the direct management of patient care comes into the NHS should use SNOMED CT

3

# 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
- A computable terminology with formal definitions
- Synonyms
- History Mechanism
- Extensible
- International
- Links with other international standards

# SNOMED CT in a nutshell

SNOMED CT is:

- Textual Descriptions - *The human readable bit*
- Codes – *The computer readable bit*
  Eg Crohn's disease    34000006
- Relationships (logical definitions) - *The computer processable bit*

SNOMED CT is not

- An EHR application
- Decision support system
- Direct replacement for current administrative/billing system

5

# A Concept in SNOMED CT

**Preferred Term**: Heart Disease
**Synonym**: Cardiopathy
**Synonym**: Disorder of heart
**Synonym**: Morbus cordis
**Synonym**: Cardiac disorder

## Heart disease (disorder) 56265001

### Relationships

- Is a Cardiac finding
- Is a Disorder of mediastinum
- Is a Disorder of cardiovascular system

Finding site
Heart structure

Severity
Episodicity
Courses

# SNOMED CT



SNOMED CT
The Global Language
of Healthcare

# Benefits

- enables representation of care information consistently, reliably and comprehensively as an integral part of EHR
- supports recording of information to enable decision support such as care pathway management and drug alerts
- supports effective detailed analysis of information to support care of individuals and of populations
  - data can be organised for the benefit of the individual's care, for example highlighting current health problems
  - data can be organised for the benefit of groups of individuals, for example identifying trends resulting from change in clinical practice
- information can be shared consistently within/across all care settings
- the risk of different interpretations of the record between different care settings can be reduced.

# How SNOMED CT, ICD-10 and OPCS-4 are used

- All three NHS Information Standards are a national requirement, serve different purposes and are complimentary:

  ➢ **SNOMED CT:** recording of consistent, reliable and comprehensive patient information as an integral part of an Electronic Patient Record facilitating a number of processes such as decision support, care pathway management and drug alerts

  ➢ **OPCS-4 & ICD-10:** reporting to support secondary uses of data for statistical purposes such as operational and strategic planning, epidemiology, public health analyses of population health and reimbursement.

9

# SNOMED CT

- SNOMED CT is the vocabulary for use by clinicians in an Electronic Patient Record (EPR)

  - recorded at the  point of care and is focussed on what a clinician wants to record about their patient

  - information can be shared consistently within and across all health and care settings

  - SNOMED CT is dynamic and is updated twice per year (in the UK) so that it can keep up with the latest developments in healthcare.

10

Benefit of SNOMED CT is that concepts can have multiple parents.

# ICD-10 and OPCS-4

- ICD-10 and OPCS-4 are statistical classifications that are used for to report/summarise an episode of care:
  - recorded <u>after the event</u>, applied in accordance with business rules and focusses on what we want to 'count' for statistical and epidemiological analyses
  - one of the benefits of the classifications is that entities have a single parent, are mutually exclusive which ensures items are counted only once
  - Another benefit is that the classifications are only updated every three years. This ensures stability for consistent and comparable analyses of population health across time.
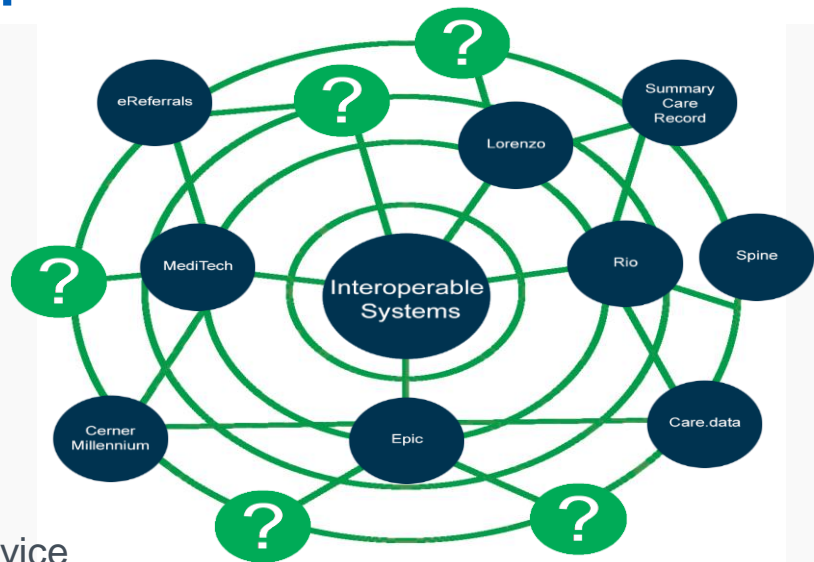
11

Benefit of ICD-10 and OPCS-4 is that their entities have a single parent, and are mutually exclusive to ensure items are counted only once.

# SNOMED CT adoption

Live in:

- Cerner Millennium
- Lorenzo
- Rio
- MediTech
- Allscripts
- EPIC
- Summary Care Record
- e-Referral
- Spine
- Electronic Prescription Service

SNOMED CT is already in use in a number of systems in UK, and it is already possible to exchange structured documents containing SNOMED CT content.

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The Transfer of Care programme is working nationally to enable all systems to be able to share electronic clinical documents in a structured way, without losing the ability to process the data held within that document electronically .

# Primary Care

- Electronic records exist, but use Read codes
- GPSoC contracts for primary care
  - 4 principal suppliers, regular communications
  - subsidiary suppliers, means for communicating
- Two terminologies in place, causes some text degrades when data exchanged
- Terminology service been in discussions with suppliers for many years

13

# Other developments

- National standards being designed to incorporate SNOMED
  - Tobacco/alcohol consumption
  - Commissioning and audit datasets/collections
- NHS Digital investigating potential for establishing SNOMED in secondary care programme
- Project to compare auto-encoding from free text to clinicians
- Eligibility checking for Blue Badge

14

# SNOMED CT in Mental Health

- SNOMED introduced into Mental Health Services Data Set (MHSDS) v0.2 for certain data items such as:
  - Assessment tools (SNOMED CT coding mandatory)
  - Procedure (as Care activity information)
  - Diagnosis
  - Assistive technology
  - Smoking status

15

# Primary diagnosis

- The primary diagnosis of the patient, from a specific classification or clinical terminology, for the main condition treated or investigated during the relevant episode of healthcare, and where there is no definitive diagnosis, the main symptom, abnormal findings or problem
- Permitted (alternative) code schemes in MHSDS:
  - ICD-10
  - SNOMED CT
  - Read codes

16

# Procedures

- Electro-convulsive Therapy (ECT)
  - Each separate instance of Electro-Convulsive Therapy (ECT) administered to a patient should be recorded as a Care Activity. The following SNOMED CT / Read CTV3 code can be used:
  - **Name: Electroconvulsive therapy (procedure) ● Concept ID: 23835007 ● Read Code: 7064.**
  - Either the Read Code or the Concept ID should be submitted for this data item in MHSDS. The SNOMED CT Concept ID should be used in preference to other schemas where this is an option. Clinical terminology may contain a greater granularity in options and providers can opt to submit what is naturally recorded if collected in more detail

17

# The ICD-10 and OPCS-4 Classifications

# Uses of ICD-10 and OPCS-4

- ICD-10 and OPCS-4 are the Information Standards used wherever there is a national (or international) requirement for the reporting and monitoring of morbidity health trends;

- they are mandated for use in the Admitted Patient Care Commissioning Data Set (CDS), providing a summary of a consultant episode of patient care for Hospital Episode Statistics (HES);

- they are used to support statistical and epidemiological analysis, planning of health and care services and for reimbursement in Acute NHS Trusts

19

The classifications are used by clinical coders to classify information derived from patient records, at the end of each Consultant Episode.

The information from CDS is used to understand the health needs of the population. It also helps hospitals to understand their activity. There are currently **over 19 million** inpatient Consultant Episodes per year that require

coding using the classifications.

# ICD-10 and OPCS-4 Statutory Reporting

- Hospital Episode Statistics (HES) in England

- Patient Episode Data for Wales (PEDW)

- Scottish Morbidity Records (SMR)

- Ongoing commitment to the World Health Organisation (WHO)

20

Classification coding allows the capture of consistent and comparable data over time.

It has never been the intention that classification data would be used for the direct management and care of patients.

Statutory national reporting will continue to use ICD-10 and OPCS-4 to derive information.

In England HES published data is available for every financial year from 1989 onwards. HES is continually used for analysis and comparison.

In addition to national requirements, the Department of Health on behalf of the UK government has a commitment to report UK diagnostic statistics to WHO using ICD-10. This allows analysis and study of the data on a global level.

## Admitted Patient Care General Episode Commissioning Data Set (CDS)

- Covers *all* NHS Admitted Patient Care

- Includes Mental Health NHS Trust inpatient data

- Diagnostic/procedural data flowed in CDS *must* be reported using ICD-10/OPCS-4

21

## Admitted Patient Care General Episode Commissioning Data Set (CDS)

- The mandatory ICD-10/OPCS-4 data collected in CDS (including MH data) *must* comply with:

  - classification rules and principles

  - national clinical coding standards

22

## Maps from SNOMED CT to the ICD-10 and OPCS-4 classifications

- Classification maps provide a link from clinical information recorded by the clinician in the Electronic Patient Record (EPR) using SNOMED CT to ICD-10 and OPCS-4 codes

- Designed to assist coders in the accurate and timely assignment of classification code(s) in the coded record, using structured clinical information from the EPR

- Produced in line with the classification rules, principles and national standards, however;

- utilising maps from SNOMED CT for classification coding is not a fully automated process, and will require expertise in the application of the classifications

23

The maps are incorporated into system software which presents the SNOMED CT concept provided by the clinician along with a map(s) to the corresponding classification code(s).

The maps are authored using the clinical meaning within SNOMED CT and apply classification rules, conventions and national coding standards,

Use of the maps will still require expert knowledge in the rules, principles and standards of the classification and also the application of the three dimensions of coding accuracy.

# Example



**EPR (Medical Record) free text:**

Mrs Smith, 31-year-old teacher, admitted to the general surgical ward the evening of 2nd November, complaining of right lower quadrant pain, fever and vomiting for last 2 days. Laparoscopy performed at 10pm the same evening confirmed acute appendicitis with peritonitis and proceeded to an open emergency appendicectomy. Mrs Smith's post-op period was uneventful and she was discharged home on 4th November with Co-Codamol for pain relief. The district nurse will remove her stitches in 10 days. No plans for follow-up in outpatient clinic unless any further problems arise.

| EPR (Medical Record) - structured entries | | APC (CDS) Record (ICD-10 and OPCS-4 codes) |
|---|---|---|
| **Symptoms** | | |
| 285388000 | Right sided abdominal pain | R10.4 Other and unspecified abdominal pain |
| 16932000 | Nausea and vomiting | R11.X Nausea and vomiting |
| 24184005 | Elevated blood pressure | R03.0 Elevated blood pressure reading, without diagnosis of hypertension |
| **Diagnosis** | | **Diagnosis** |
| | | |
| 413241009 | Suspicion of gastritis | |
| 28845006 | Acute appendicitis with generalised peritonitis | K35.2 Acute appendicitis with generalized peritonitis |
| | | |
| **Procedures/Investigations** | | **Procedures/Interventions** |
| 399208008 | Chest X-ray | U07.3 Plain x-ray of chest (plus relevant Y codes) |
| 45036003 | US scan of abdomen | U08.2 Ultrasound of abdomen (plus relevant Y codes) |
| 73632009 | Laparoscopy | T43.9 Diagnostic endoscopic examination of peritoneum |
| 174036004 | Emergency appendicectomy | H01.1 Emergency excision of abnormal appendix and drainage HFQ |
| **Results** | | |
| 88936002 | (Chest X-ray) – elevated diaphragm | |
| 74400008 | (Ultrasound) - appendicitis | |
| 48661000 | (Ultrasound) - peritonitis | |
| **Medication** | | |
| 322341003 | Co-Codamol 30mg/500mg Tablet | |
| etc. | | |
| **Action plan on discharge** | | |
| 308436005 | Referral to district nurse | |

Trust systems will vary, but this (simple) example demonstrates the types of information that could be found in the EPR (the EPR will include structured and unstructured information.)  There will be a number of data items in the EPR that may influence the coded record, e.g. electronic operation note, electronic discharge letter etc.

The coder will apply all of the rules, principles and standards of classifications along with the three dimensions of coding accuracy.  This will allow the coder to identify what should be included in the coded record and also apply any classification sequencing rules that wouldn't be collected in the EPR by the clinician.

**The classification codes that are shown in green are the only codes the coder has included in the coded record.**

The coder hasn't included the symptoms such as abdo pain, nausea and vomiting in the coded record, even the SNOMED concepts provide the corresponding maps to ICD-10. The trained coder is aware of the coding standard to *not* code symptoms of a disorder where there is a definitive diagnosis to explain the symptom (**DChS.XVIII.1**). Whilst the symptoms are clinically relevant and have been recorded in the EPR by the clinician using SNOMED concepts, they are not relevant to the coded record.

There are SNOMED concepts included in the EPR that are not in scope of ICD/OPCS – e.g. suspicion of gastritis, prescribing co-codamol, referral to a district nurse. Again these are all clinically relevant in the EPR, but not required for the reporting of Hospital Episode statistics.

## Secondary Use Assurance of ICD-10/OPCS-4 data

To fulfil Secondary Use Assurance within the Information Governance Toolkit (IGT), Acute NHS and Mental Health NHS Trusts must continue to comply with IGT Requirements for clinical coding audit and clinical coding training

(Acute Trust 505 and 510, MH Trust 514 and 516)

25

**Reference:** https://www.igt.hscic.gov.uk/

To meet IGT requirements Acute and Mental Health Trusts must ensure that their classification coded data is audited annually for compliance with national clinical coding standards. The audit(s) must undertaken by a Terminology and Classifications Service Approved Clinical Coding Auditor.

All staff responsible for entering ICD-10 and OPCS-4 codes collected in the inpatient coded record must be trained and maintain their knowledge of clinical coding standards.

To comply with IGT, anyone assigning ICD-10/OPCS-4 codes within the inpatient coded record must attend an Clinical Coding Standards Course delivered by an Approved Clinical Coding Trainer. They must also attend a Clinical Coding Standards Refresher course every 3 years.

These requirement also apply to NHS Trusts using ICD-10 and OPCS-4 maps derived from SNOMED CT, to code their inpatient episode data.

# Key messages

- **SNOMED CT and the classifications are designed for different purposes - It is not the intention for SNOMED CT to replace ICD and OPCS-4**

- **Clinical coding staff will still be needed once SNOMED CT has been implemented across the NHS.**

26

Each Trust will differ in the way that they adopt and use the Electronic Patient Record (EPR) and SNOMED CT.  It is likely that the role of the coder will evolve as EPRs become more common and as SNOMED CT and future classifications products (such as ICD-11) are implemented.

SNOMED CT and the Classifications can be used together with structured SNOMED information in the EPR supporting coders in the assignment of classification codes.

But SNOMED CT and ICD-10 and OPCS-4 fulfil different purposes.  And the coding process still requires experts in the use of the classifications to ensure that Commissioning Data Set/Hospital Episode Statistics data is fit for purpose.