International family/general practice RefSet and ICPC mapping project: current status and next steps
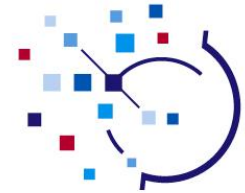
Nick Booth[1,2,4], Graeme Miller[1,2,3], Julie O'Halloran[1,2,3]

[1]IHTSDO IFP/GP RefSet and ICPC Mapping Project Group

[2]Wonca International Classification Committee

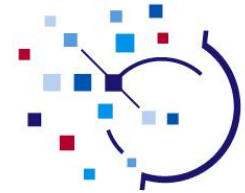[3]Family Medicine Research Centre, The University of Sydney

[4] NHS Informatics, England

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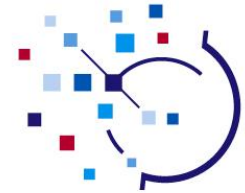
The Wonca – IHTSDO agreement

- Agreement signed in December 2009 to promote co-operation and collaboration between Wonca and the IHTSDO.

- The agreement led to the formation of the International Family Physician/General Practitioner Special Interest Group (chaired by Nick Booth)

- Contains a commitment to developing a mapping program, classifying relevant content in SNOMED CT to ICPC-2.

- As part of this mapping program, a reference set (RefSet) of SNOMED CT containing general/family practice content will be created, and the content of the RefSet will be mapped to ICPC-2
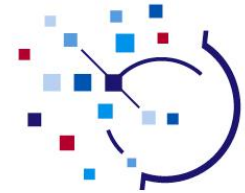
Overview of the GP/FP RefSet and ICPC mapping project

- Aims
  - To create a set of SNOMED CT concepts commonly used in general/family practice (the SNOMED CT international general/family practice reference set (RefSet))
  - To map the SNOMED CT general/family practice RefSet to ICPC-2

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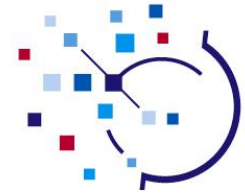World family doctors. Caring for people.

Use cases for the GP/FP RefSet and map to ICPC-2

- Data entry
- Electronic transfer of care – referrals
- Patient recall
- Management of legacy data
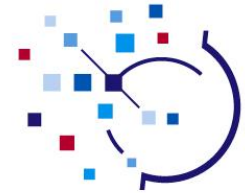- Translations
- Research

Project schedule

- The GP/FP RefSet and ICPC mapping project was divided into three distinct phases:
    1. Development of project framework
    2. Construction of the IFP/GP RefSet and map from the IFP/GP RefSet to ICPC-2
    3. Testing and validation of the IFP/GP RefSet and map from the IFP/GP RefSet to ICPC-2

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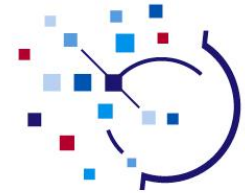
What has happened to date

- Phase 1 – Development of project framework
    - Scoping document
    - Requirements document (written in line with the IHTSDO quality assurance framework)
    - Methods document
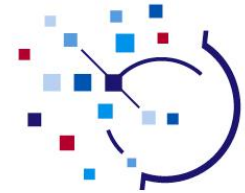   - Project plan for Phases 2 and 3

Project scope

- The Project Group decided early in the project that it was unreasonable to develop RefSets for all possible data fields in general/family practice electronic health records internationally
  - Diversity of information models used in general/family practice EHRs
  - Time and resources
  - Overlap between this project and other IHTSDO projects (e.g. pathology and laboratory medicine)
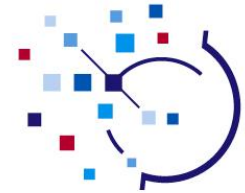 - Areas of SNOMED CT that are inappropriate for general/family practice

Scope of the IFP/GP RefSet and map to ICPC-2

- Reason for encounter
  - Uses the definition from the Wonca Dictionary of General/Family Practice.
    - "An agreed statement of the reason(s) why a person enters the health care system, representing the demand for care by that person".
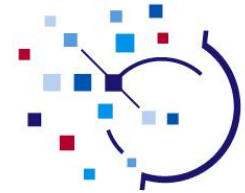
Scope of the IFP/GP RefSet and map to ICPC-2

- Health issue
  - Uses the definition from the European standard CEN 13940-1: Health informatics – system of concepts to support continuity of care – Part 1: basic concepts
    - "issue related to the health of a subject of care, as identified or stated by a specific health care party".
    - This is further defined in the notes: "according to this definition, a health issue can correspond to a health problem, a disease, an illness"
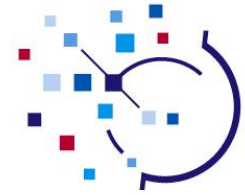
Scope of the map – IFP/GP RefSet to ICPC-2

- The content of the IFP/GP RefSet will form the basis of the scope for the map from the RefSet to ICPC-2

- Target areas in ICPC-2

  - Component 1 (symptoms and signs) – high priority

  - Component 7 (diagnoses and diseases) – high priority

  - The process compoments in ICPC-2 (Components 2 to 6) will be mapped to with varying levels of detail depending on RefSet content

- The project group will also investigate the extent to which SNOMED CT hierarchies can be used to expand the map
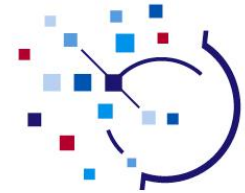
Consultation

- During the scoping phase consultation was undertaken with:
  - National Colleges/Academies of General/Family Practice in IHTSDO member countries
  - National Release Centres
- Seen as a high priority for the project
- Helps to ensure that the products resulting from the project are acceptable to major stakeholders
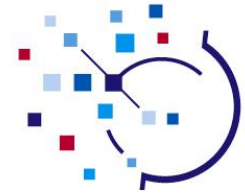 - Aim to aid future implementation

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Methods

1. Create the GP/FP RefSet
2. Create the map from the GP/FP RefSet to ICPC-2
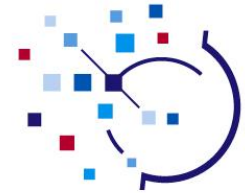
Creating the GP/FP RefSet

- Terminologies/codesets used in general/family practice were used as the basis for the GP/FP RefSet
    1. Termsets were obtained
    2. Termsets were mapped to SNOMED CT using a specialised mapping tool (Snapper from the CSIRO)
    3. Each source termset was rationalised, amalgamating all instances of multiple source terms mapped to a single SNOMED CT concept
    4. Any listed (and relevant) SNOMED CT concept present in three or more source termsets were included in the RefSet (demonstrating breadth of use internationally)
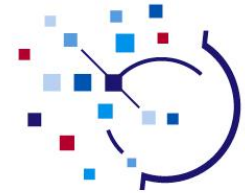
Details of source termsets

- Source termsets were received from the following countries:
  - Argentina
  - Australia
  - Canada
  - New Zealand (2)
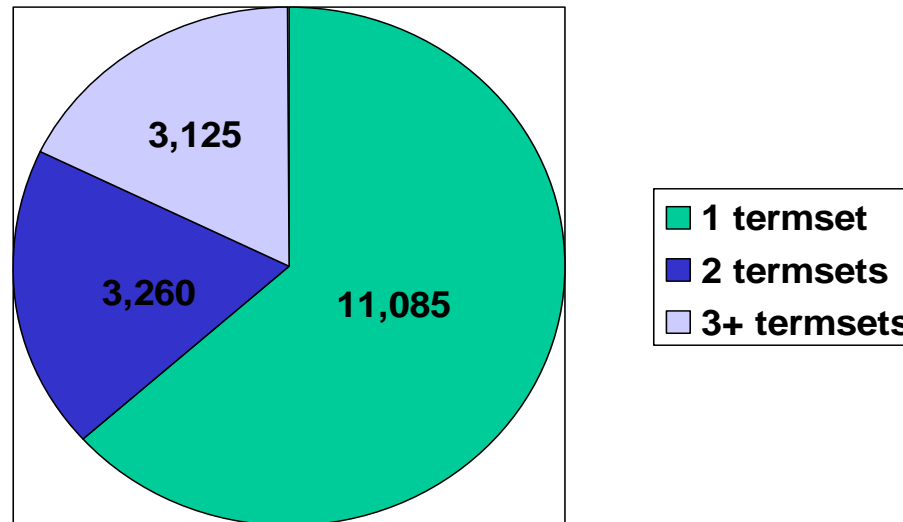 - Sweden
  - United Kingdom (2)
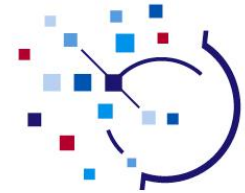
Details of source termsets

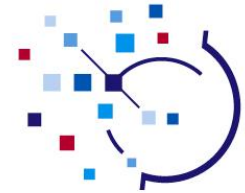| Country	Number of terms in source termset	Origin of termset
Argentina	5,060	Local
Australia	4,551	National
Canada	1,340	Local
New Zealand 1	2,450	National
New Zealand 2	8,261	Local
Sweden	1,035	Mapping project
UK 1	3,830	National
UK 2	9,919	National

GP/FP RefSet – drafts 1 and 2

- After terms from source termsets were mapped to SNOMED CT and amalgamated, there were 17,471 unique SNOMED CT concepts included in <u>at least one</u> of the source termsets.

Legend:
- 1 termset
- 2 termsets
- 3+ termsets

Values: 3,125 | 3,260 | 11,085
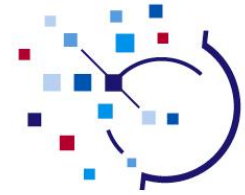
Development of GP/FP RefSet principles

- The Project Group decided on a series of principles to guide future development of the GP/FP RefSet
  - Principles covered 4 aspects of the RefSet:
    - Precoordinated concepts
    - Social context/risk factors
    - Demographic information
    - Semantic tags (SNOMED CT hierarchies)
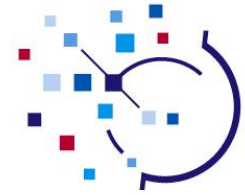
Principles for precoordination

- Duration (chronicity) – allowed
- Child examinations including age element – removed (e.g. Child <u>18 month</u> examination (procedure))
- Laterality – only if the inclusion of laterality is clinically important (e.g. left ventricular failure)
- 'On examination' – removed and replaced by kernel concept (e.g. 'On examination – dry skin' will be replaced by 'Dry skin')
- 'Complaining of' – removed and replaced by kernel concept (e.g. 'Complaining of insomnia' will be replaced by 'Insomnia')
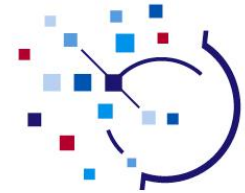
Social context/risk factors

- Risk factors, such as smoking status and alcohol intake, will be included in the RefSet. However, the quantity of drinking or smoking that is acceptable/unacceptable is not standardised between countries and concepts containing quantitative values will not explicitly be included. Quantity levels are an attribute and can be postcoordinated as a value in conjunction with a SNOMED CT concept.
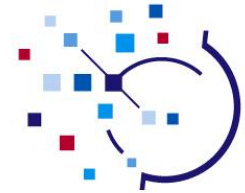
Semantic tags/hierarchies

- Concepts from the following hierarchies will not be included in the GP/FP RefSet
    - Morphologic abnormality
    - Assessment
    - Navigation
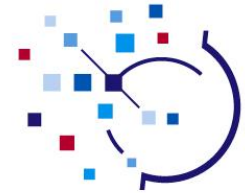   - Observation
    - Occupation

Procedures

- Procedure concepts that will be excluded from the RefSet:

  - Administrative procedures

  - Specimen collection

  - Measurements (pathology/lab results)

  - Imaging

  - Patient seen (e.g. patient seen by nurse)

  - Any concepts that include a number (e.g. Second pertussis vaccination).

  - Any child of the concept Evaluation procedure (procedure) (386053000) will be reviewed and removed if appropriate.
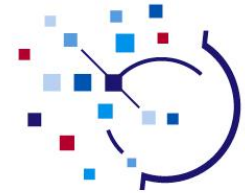
Other principles

- All demographic information, including marital status, will be excluded from the RefSet

- Concepts describing abnormal test results will be included in the RefSet, concepts describing normal results will not be included

- Precoordinated concepts containing the phraseology 'Personal history of [condition]' will not be included in the RefSet, and replaced by inclusion of the condition itself. This information can be alternately captured in an information model.
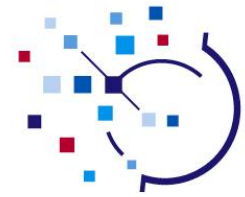
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GP/FP RefSet Draft 3

- Application of all principles as outlined in previous slides:
  - → 2,703 concepts
- These concepts:
  - Meet breadth criterion (3+ source termsets)
  - AND meet all principles

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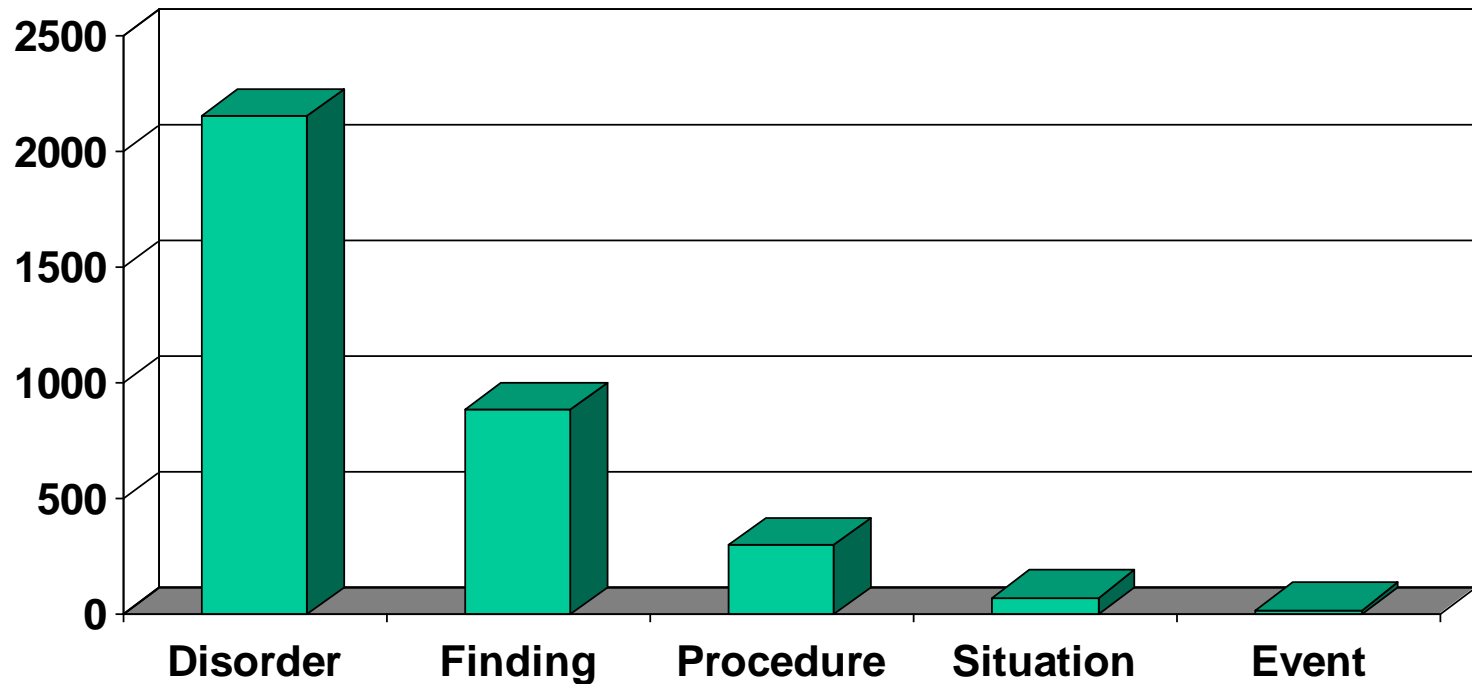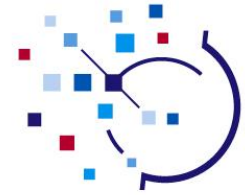World family doctors. Caring for people.

GP/FP RefSet Draft 4

- All ICPC-2 rubric labels and inclusion criteria will be included in the RefSet, unless the concept violates any of the other principles.
  - All ICPC-2 rubric labels and inclusion criteria were mapped to SNOMED CT
  - → additional 805 concepts that need to be considered for inclusion in the GP/FP RefSet (total 3,508 concepts)
  - → GP/FP RefSet Project Group is currently considering this version of the RefSet

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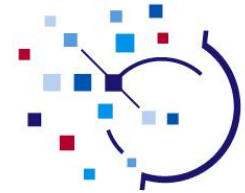World family doctors. Caring for people.

What does the current draft of the GP/FP RefSet look like?
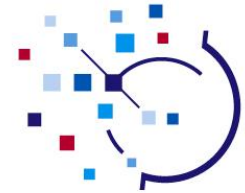
Next steps in GP/FP RefSet development

- Project Group to review the ICPC-2 rubric labels/inclusions
- A frequency cut-off/formula will be applied to add concepts included in only one or two source termsets, unless the concept violates any of the other principles
- Divide the RefSet into two separate RefSets
    - Reason for encounter
    - Health issue

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Creating the map from the GP/FP RefSet to ICPC-2

- The map will be <u>from</u> the SNOMED CT GP/FP RefSet <u>to</u> ICPC-2
- The most recent versions of SNOMED CT (July 2012) and ICPC-2 available at the start of the mapping process will be used in the mapping
- Tooling
  - Use of the ICD-10 prototype tool
    - modified to include ICPC-2
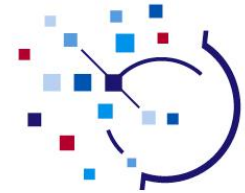   - modified to include the 3rd draft of the GP/FP RefSet

What happens next

- Final drafts of the GP/FP RefSet will be available around January 2013

- Recommendations regarding alterations to SNOMED CT suggested by the development work will be forwarded to the IHTSDO incrementally as the project continues

- It is anticipated that mapping from the RefSet to ICPC-2 will commence shortly

- Testing will begin in the first half of 2013

  - Recruitment of testing sites
  - Testing of GP/FP RefSet +/- map to ICPC-2
  - Incorporation of comments resulting from testing

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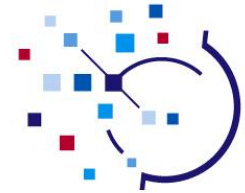World family doctors. Caring for people.
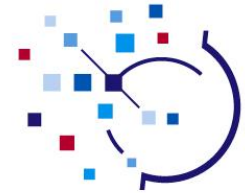
Issues identified

- Missing concepts in SNOMED CT

- Commonly used general/family practice concepts poorly represented in SNOMED CT (e.g. representation of synonyms in SNOMED CT)

- Representation of synonyms in SNOMED CT

  → All issues identified will be forwarded to the IHTSDO

Lessons learned so far

- Mapping source termsets to SNOMED CT takes time
- SNOMED CT is complex – requires detailed understanding of technical documentation
- Clinical input is vital (with a big thanks to our Project Group)
- Must document your use case clearly, and update it as appropriate

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International family/general practice RefSet and ICPC mapping project: current status and next steps

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