INTERNATIONAL HEALTH TERMINOLOGY STANDARDS DEVELOPMENT ORGANISATION

An international approach to the implementation of SNOMED CT and ICPC-2 in Family/General Practice

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THE UNIVERSITY OF SYDNEY

Wonca
World family doctors. Caring for people.

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Introduction - Nick Booth

- Primary Care Working Group from 2007
- Collaborative agreement between Wonca and IHTSDO 2009
  - Foundation of a new GP/FP Special interest group (SIG)
  - Project to map SNOMED-CT to ICPC2
  - Primary Care related content of SNOMED-CT
- Graeme – Background
- Julie – details of the project
- John – relationship to work going on in Australia
- Nick – closing remarks
- Then questions

Aim: Integration of terminology

- Complementary and integrated use of appropriate terminology with primary care classifications
- Recognizes the importance of public health data for population health promotion
- Adaptation to local language and clinical terminology
- Implementation models in EHRs which work in grass roots primary care

The scope of General/Family Practice

- A large proportion of the world's medical care is provided by General/Family Practice
- General/Family Practice is expanding rapidly, particularly in developing countries and in eastern Europe
- General Practitioners/Family Physicians (GPs/FPs) manage a very wide spectrum of patient problems: physical, psychological, social and functional
- Good primary medical care = good population health (Starfield)

World Organisation of Family Doctors (Wonca)

- An organization of organizations – National Colleges and Academies of Family Physicians/General Practitioners
- Started in 1972 with 18 foundation Colleges
- Now has 117 member Colleges in 95 countries
- Represents more than 250,000 primary care physicians

Wonca International Classification Committee (WICC)

- Established in 1972 at the formation of Wonca
- An expert committee of clinicians, researchers and epidemiologists
- Responsible for the development of primary care classifications and other clinical measurement systems.
- Custodian of the International Classification of Primary Care (ICPC)

The International Classification of Primary Care

- Compact – 1400 classes
- Comprehensive – covering multiple aspects of primary care
- Based on the epidemiology of primary care – classes are developed based on:
  - Frequency of occurrence in primary care
  - Public Health importance
  - Prognosis/outcome
  - Value of interventions
- ICPC-2 is a member of the WHO Family of International Classifications

Chapters

Components	A	B	D	F	H	K	L	N	P	R	S	T	U	V	W	X	Y	Z
1. Symptoms & complaints																		
2. Diagnostic, screening, prevention																		
3. Treatment, procedures, medication																		
4. Test results																		
5. Administrative																		
6. Other																		
7. Diagnoses, disease																		

A General
B Blood, blood forming
D Digestive
F Eye
H Ear
K Circulatory
L Musculoskeletal
N Neurological
P Psychological
R Respiratory
S Skin
T End/met/nut
U Urinary
W Pregnancy
X Female genital
Y Male genital
Z Social

Use of ICPC-2

- Languages (18):
  - Chinese
  - Croatian
  - Czech
  - Danish
  - Dutch
  - English (3)
  - Finnish
  - French
  - Greek
  - Italian
  - German
  - Japanese
  - Portuguese
  - Romanian
  - Russian
  - Spanish (2)
  - Azeri
  - Serbian
  - Finnish
  - Swedish
  - Turkish

Used extensively by clinicians in 21 countries, less frequently in many others

Wonca/IHTSDO Agreement

- Wonca to provide input into development of SNOMED CT for general/family practice including a RefSet
- Agreement to map SNOMED CT to ICPC-2
- IHTSDO established an International Family Physician/General Practitioner Special Interest Group and Project Group (Chair appointed by Wonca – Dr Nick Booth)

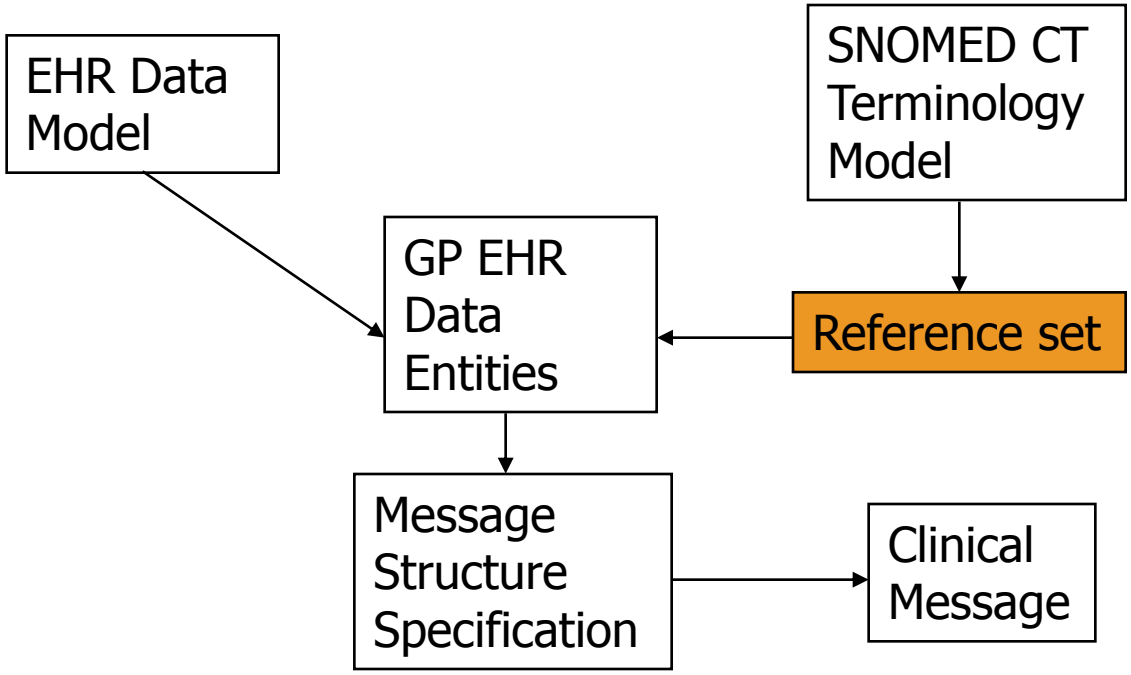
Wonca/IHTSDO Agreement

- GP/FP PG developed work program for mapping, RefSet development and implementation; standards and education (approved Oct 2009)
- The GP/FP SIG is also responsible for the GP/FP content of SNOMED CT at an international level

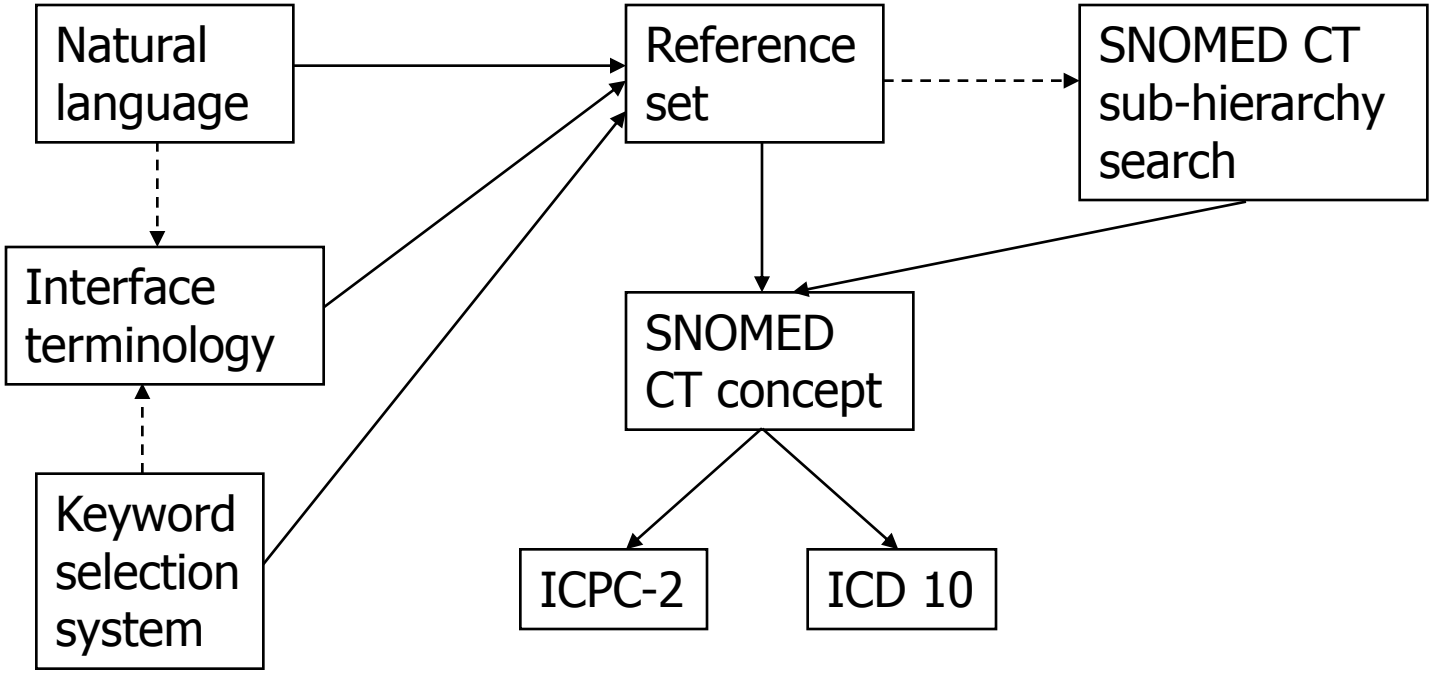
Project overview

- Aim:
  - To develop a reference set (RefSet) of SNOMED CT for use in general/family practice internationally
  - To create a map from the international GP/FP RefSet to ICPC-2

EHR data building blocks



Implementation of RefSets



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. Requirements gathering and method (9 months)
  2. Build phase (6 months)
  3. Testing and validation phase (6 months)

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

Scoping document

- Outlines the scope of the GP/FP RefSet and ICPC mapping project
- A preliminary scope statement was prepared by the Project Group
- International and national standards for applicable information models were researched
- National Colleges/Academies of General/Family Practice in IHTSDO member countries and SNOMED CT National Release Centres were consulted for feedback on the proposed project scope.

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 (e.g. medication prescribing)

Scope of the GP/FP 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 GP/FP 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 – GP/FP RefSet to ICPC-2

- The content of the GP/FP 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 Centers
- 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

Responses received to consultation

- Colleges/Academies of General/Family Practice
  - College of Family Physicians (Singapore)
  - Royal Australian College of General Practitioners (Australia)
  - The College of Family Physicians of Canada (Canada)
  - Spanish Society of Family and Community Medicine (Spain)
  - Dutch College of General Practitioners (the Netherlands)
- National Release Centers
  - National Board of Health (Denmark)
  - National e-Health Transition Authority (Australia)
  - UK Terminology Centre (UK)

Responses to consultation continued

- Overall there was broad support for the project
- Unanimous agreement that reason for encounter and health issue should be the highest initial priorities for the project
- Need for maps to and from other terminologies/classifications (e.g. Read Version 2 and ICD-10)
- Suggestions for future priority areas
  - Hospitalisations
  - Episode of care
  - Procedures
  - Care plans

Requirements document

- Gathering and reporting requirements in a formalized manner allows the Project Group to prepare the GP/FP RefSet and map to ICPC-2 against a defined set of objectives and expectations.
- The requirements were written in the style of the IHTSDO Quality Assurance Framework
  - This allows each requirement to be measured and assessed against a quality metric.

Clinical requirements

- The RefSet must be comprehensive, including terms commonly used by GPs/FPs internationally
- Concepts in the GP/FP RefSet must be able to be mapped to, and correctly mapped to ICPC-2
- Suggestions for new content in SNOMED CT identified during the development of the RefSet must be forwarded to the IHTSDO for their consideration
- The implementation of the GP/FP RefSet and map to ICPC-2 should have a positive impact on users' electronic medical records systems.
- GP/FP software vendors must be provided with education about the implementation of the GP/FP RefSet and map to ICPC-2 in the form of an implementation guide.

Technical requirements

- Values in the GP/FP RefSet must be linked to the following core clinical headings: reason for encounter and health issue.
- End users must be able to enter SNOMED CT clinical concepts that are not in the GP/FP RefSet into their electronic medical record if they are not able to find a suitable concept in the RefSet
- The GP/FP RefSet must be generated using existing termsets used in general/family practice from at least five IHTSDO member countries
- Both the GP/FP RefSet and map to ICPC-2 should be field tested prior to their inclusion in the SNOMED CT international release
- Content in the GP/FP RefSet must be kept up-to-date with updates to the SNOMED CT international core

Licensing requirements

- The GP/FP RefSet must only be released to those with a SNOMED CT affiliate licence
- The map from the GP/FP RefSet to ICPC-2 must only be provided to users with both a SNOMED CT affiliate licence and an ICPC-2 licence

Overview of Methods document

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

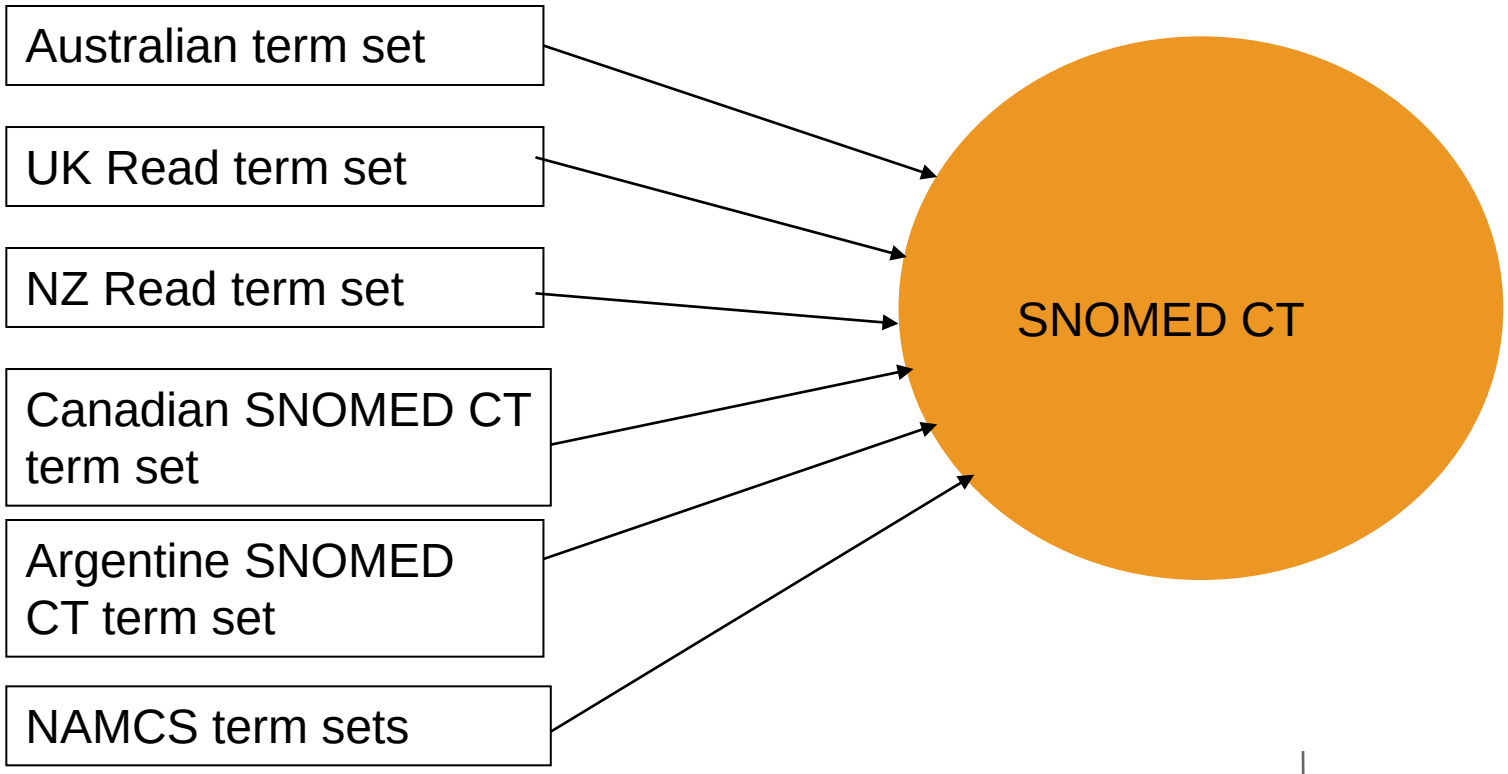
Creating the GP/FP RefSet

- Terminologies/codesets used in general/family practice will be used as the basis for the GP/FP RefSet
  1. Termsets will be obtained
  2. Termsets will be mapped to SNOMED CT using a specialised mapping tool
  3. Each source termset will be 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 will be included in the RefSet (demonstrating breadth of use internationally)
  5. Frequency of use will be used to determine an appropriate cut-off for the remainder of the RefSet, based on the relative frequency with which concepts have been used and the breadth of concepts overall

Details of source termsets

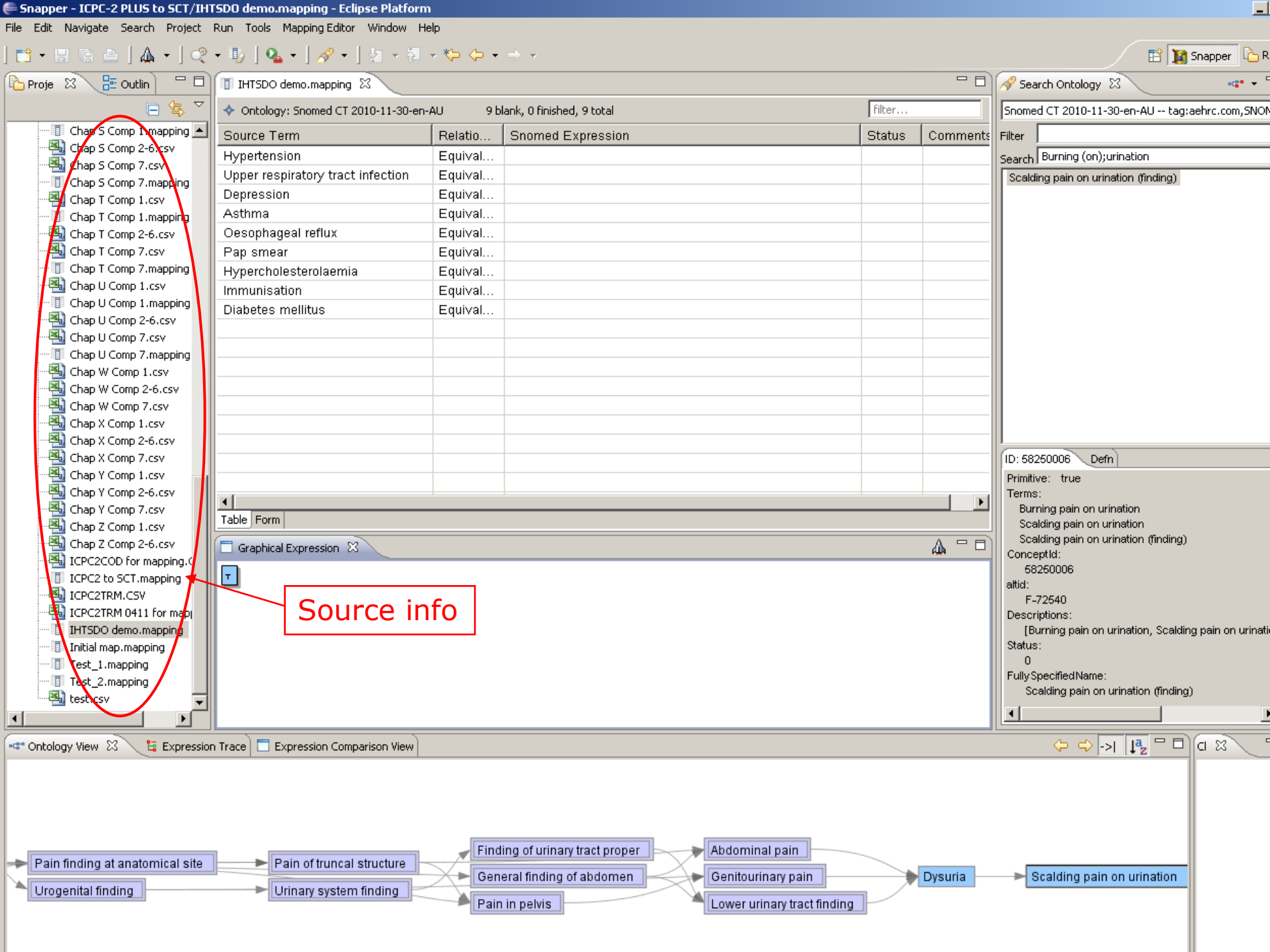
- Source termsets have been received from the following countries:
  - Argentina
  - Australia
  - Canada
  - the Netherlands
  - New Zealand (2)
  - Sweden
  - United Kingdom (2)
  - United States

Creating links from source terminologies to SNOMED CT



Tooling

- Use of the CSIRO Snapper mapping tool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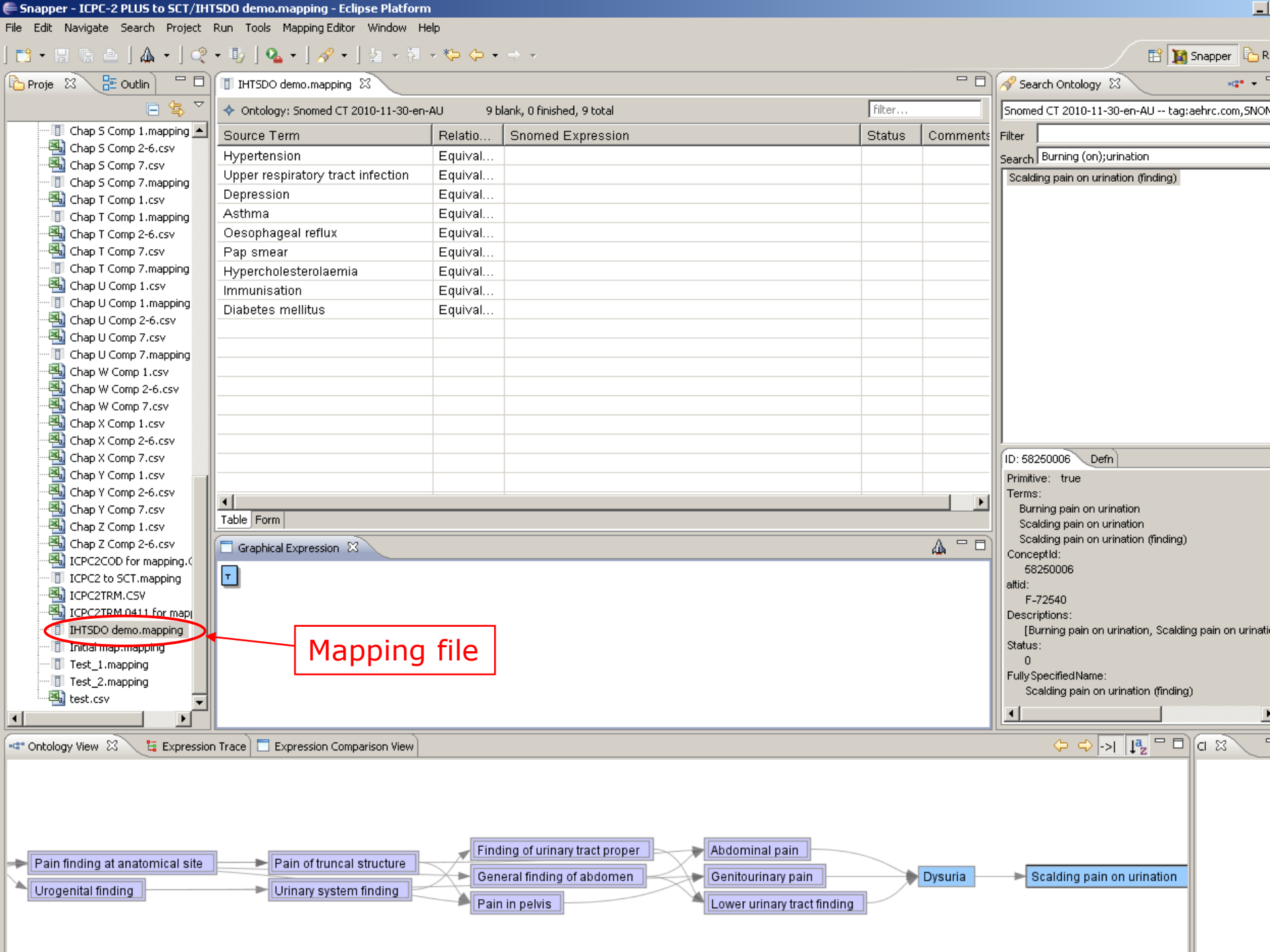
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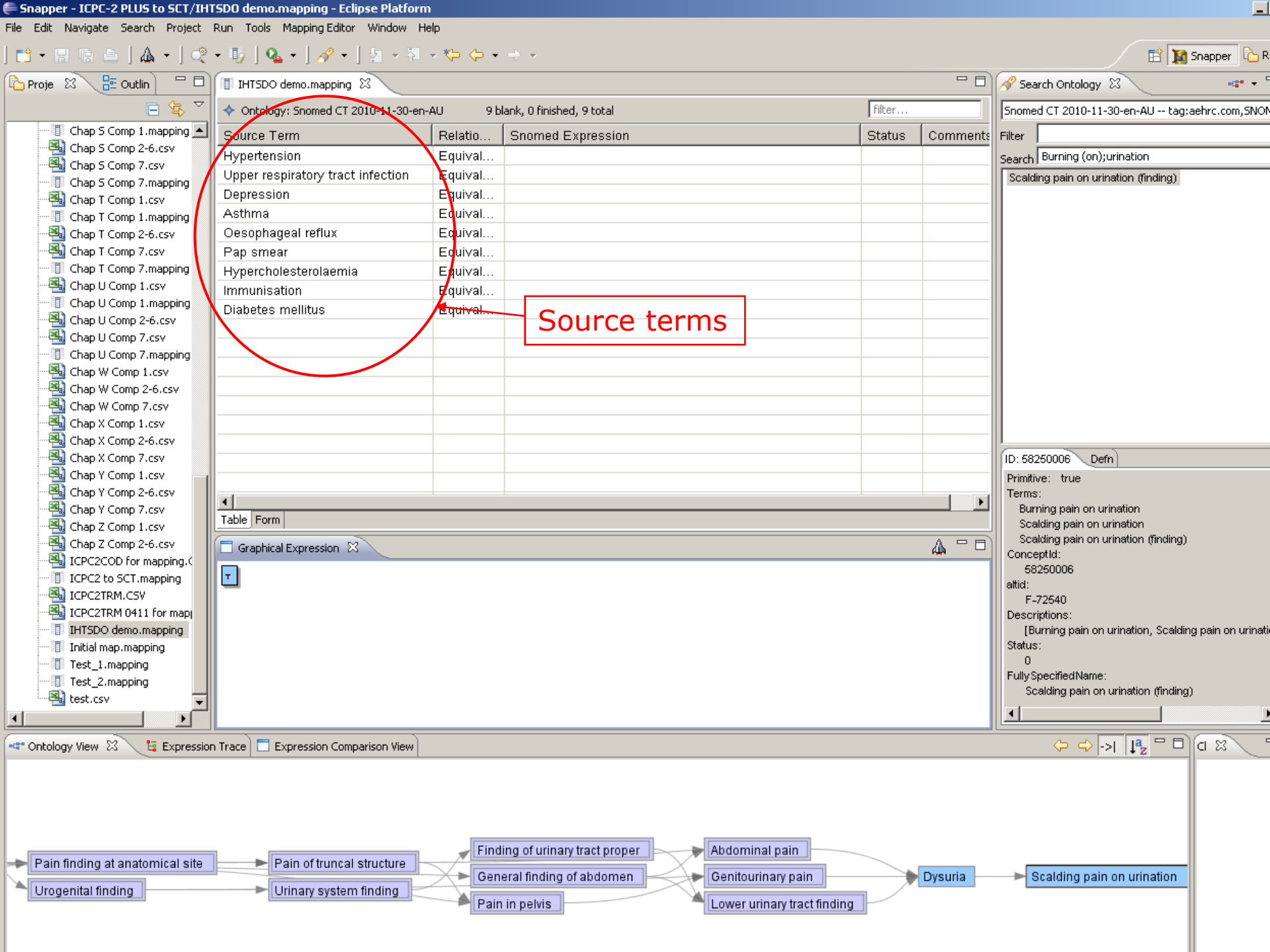
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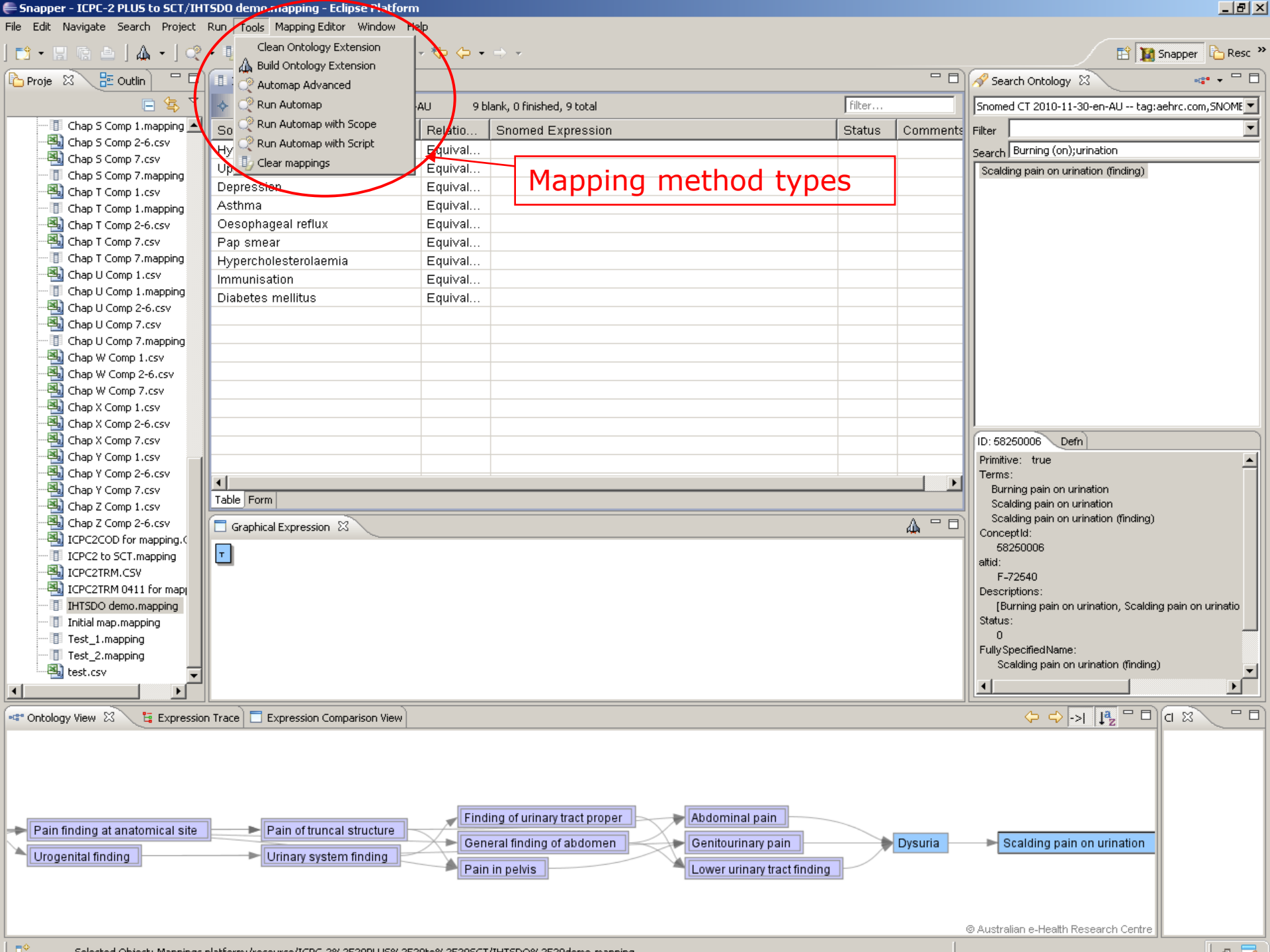
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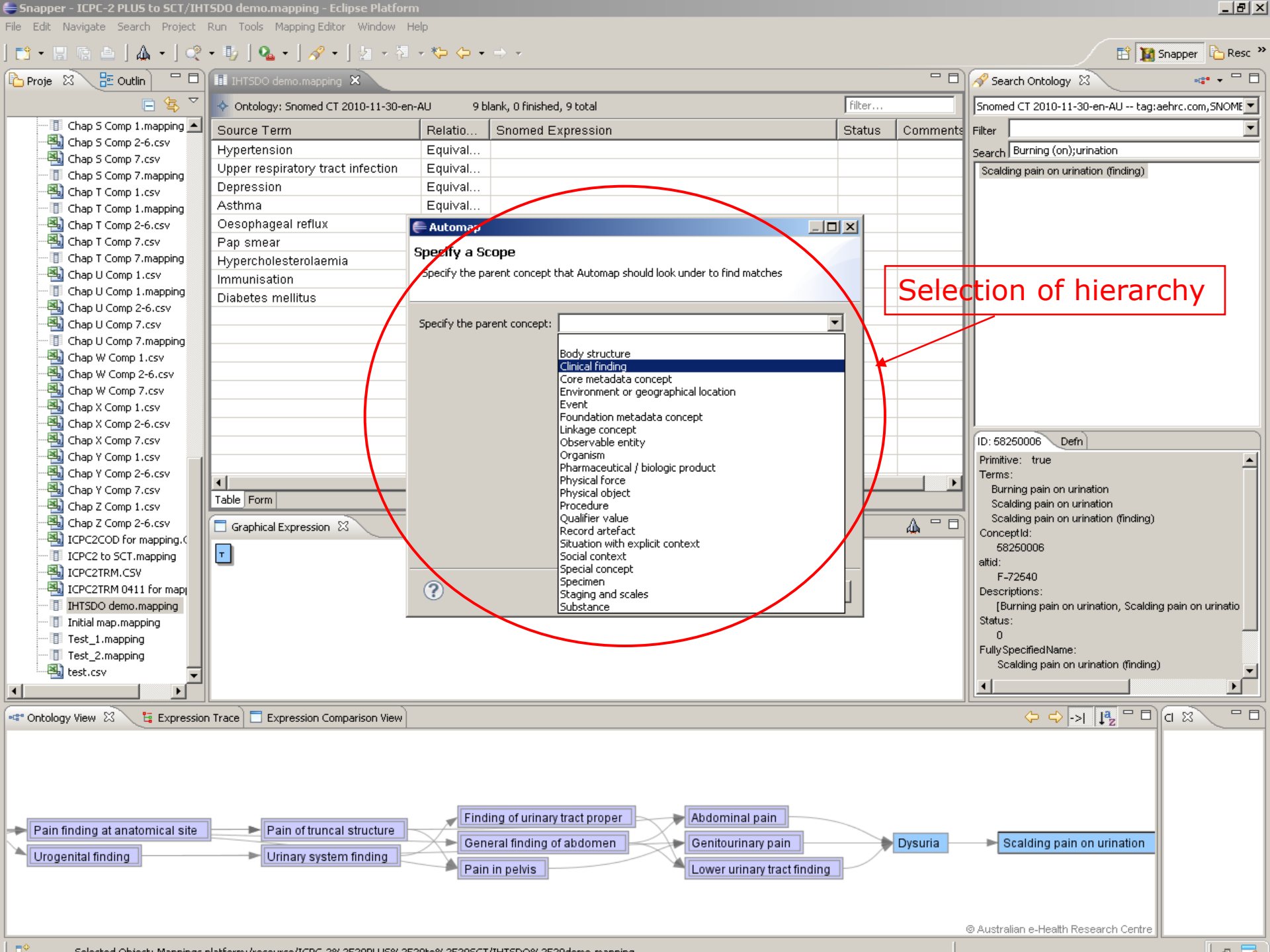
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Specify the parent concept that Automap should look under to find matches
Specify the parent concept:
Body structure
Clinical finding
Core metadata concept
Environment or geographical location
Event
Foundation metadata concept
Linkage concept
Observable entity
Organism
Pharmaceutical / biologic product
Physical force
Physical object
Procedure
Qualifier value
Record artefact
Situation with explicit context
Social context
Special concept
Specimen
Staging and scales
Substance
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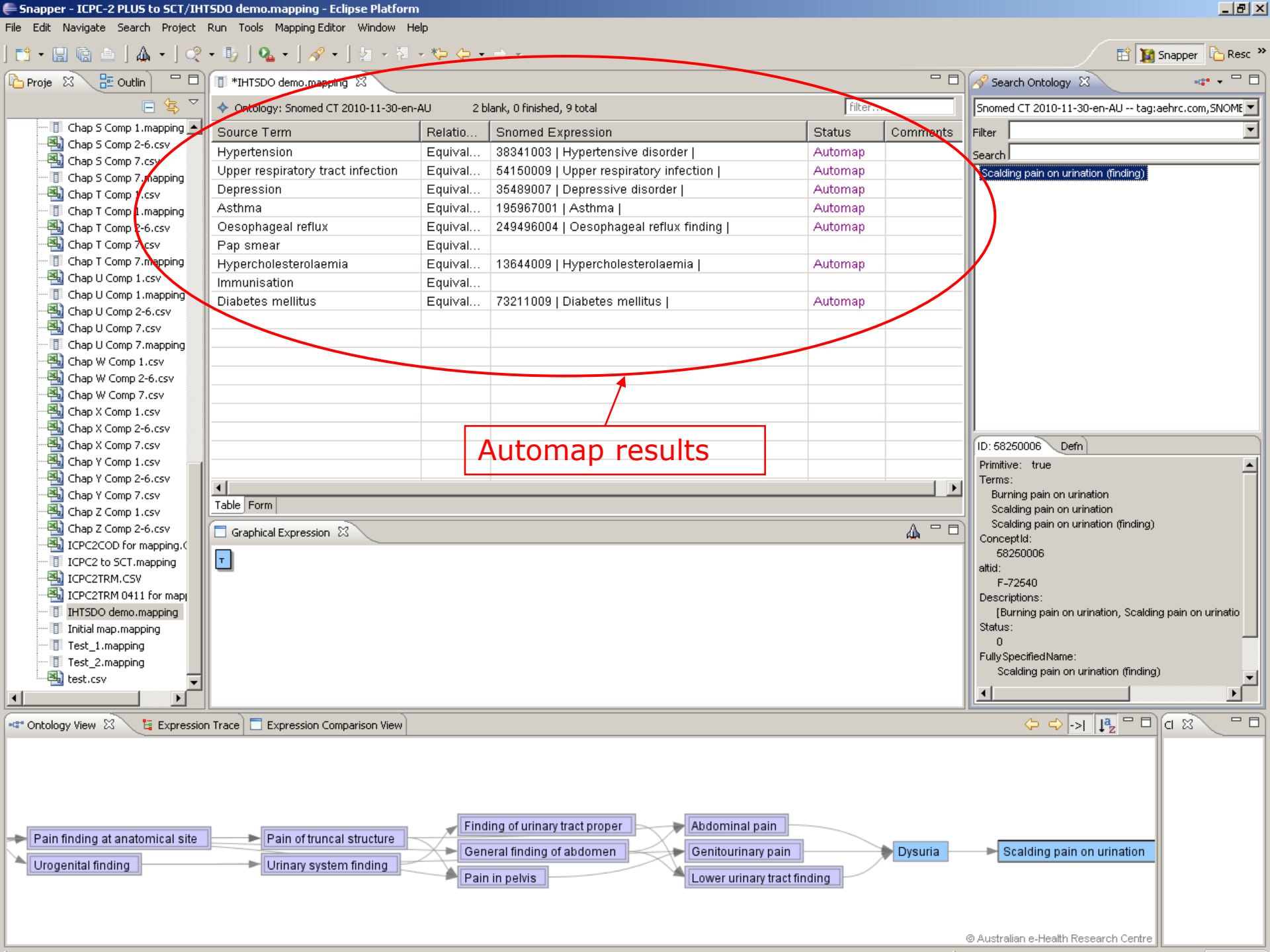
Lower urinary tract finding
Dysuria
Scalding pain on urination
© Australian e-Health Research Centre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Automap
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Equival...
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Filter
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Scalding pain on urination (finding)
ID: 58250006
Defn
Primitive: true
Terms:
Burning pain on urination
Scalding pain on urination
Scalding pain on urination (finding)
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58250006
altId:
F-72540
Descriptions:
[Burning pain on urination, Scalding pain on urinatio
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FullySpecifiedName:
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Ontology View
Expression Trace
Expression Comparison View
Pain finding at anatomical site
Urogenital finding
Pain of truncal structure
Urinary system finding
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Scalding pain on urination
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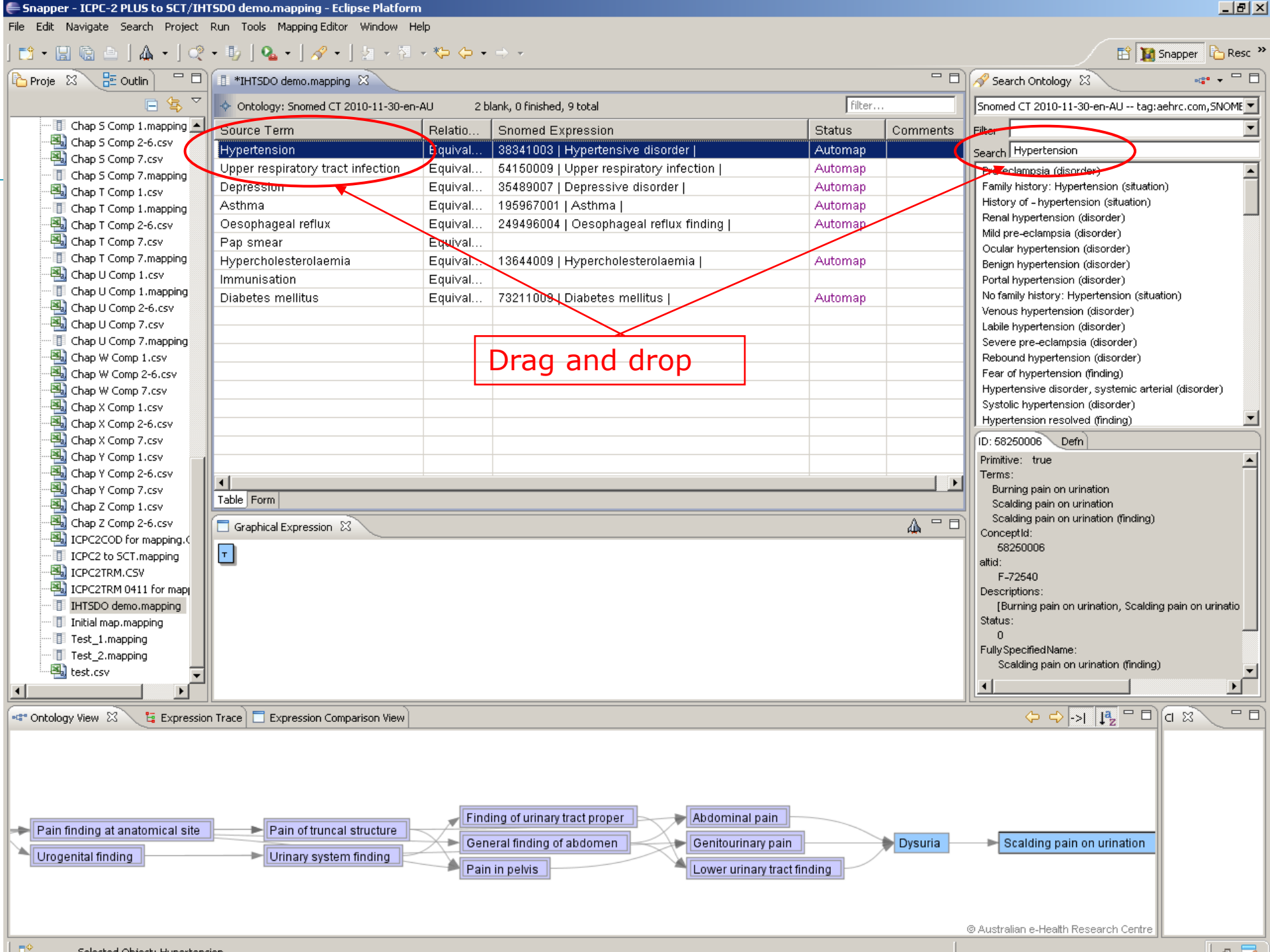
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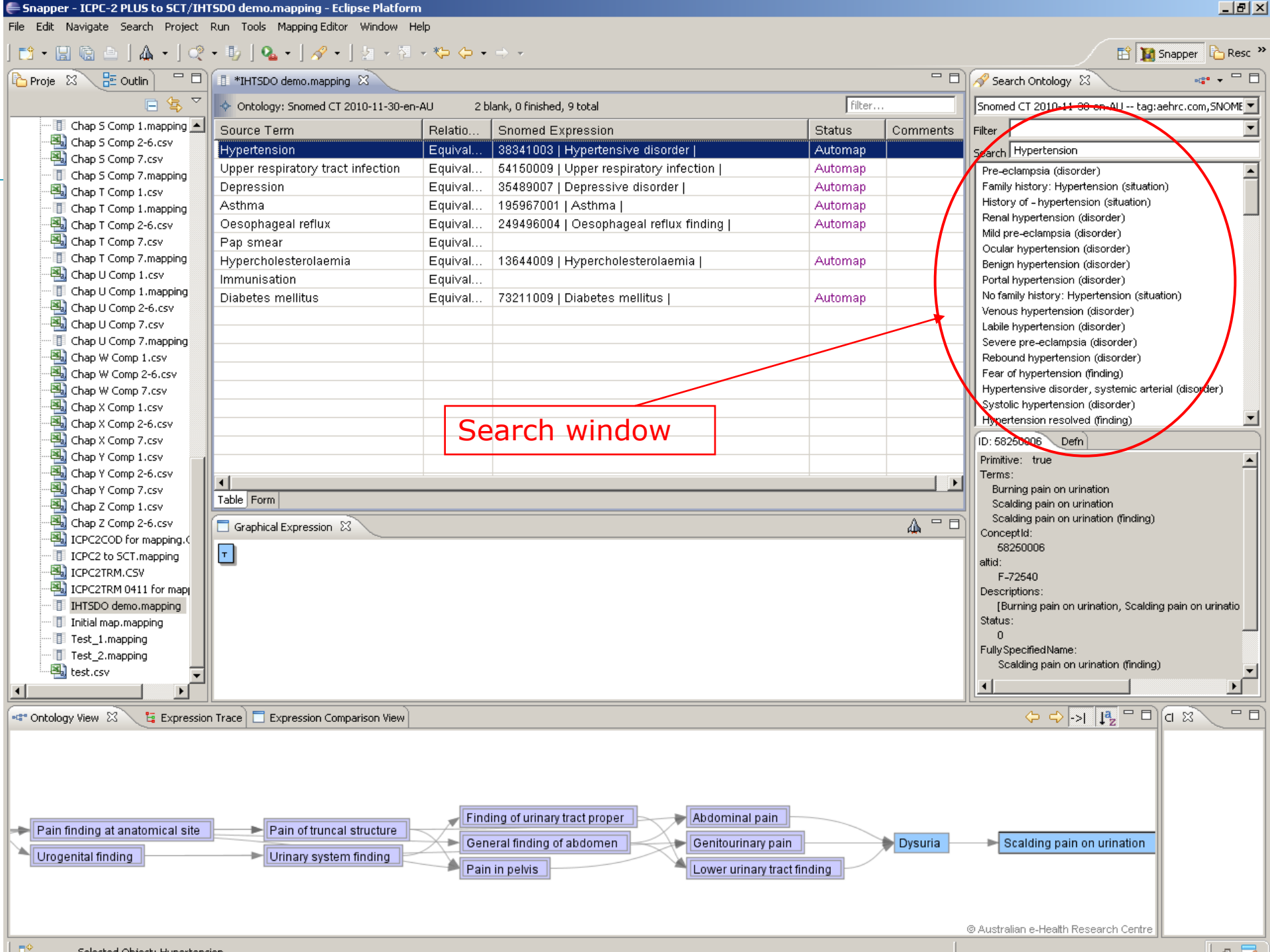
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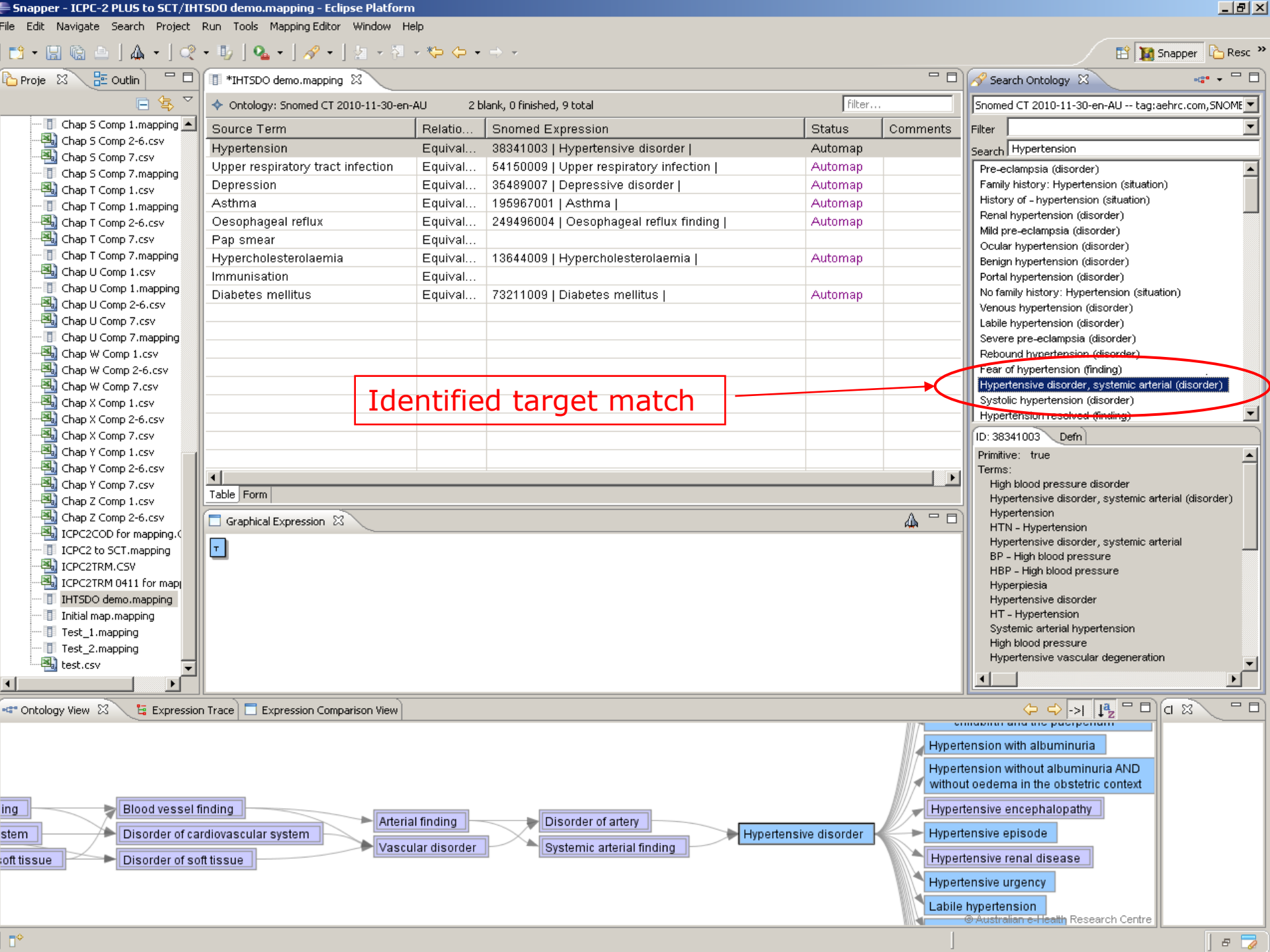
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Hypertensive disorder, systemic arterial
BP - High blood pressure
HBP - High blood pressure
Hyperpiesia
Hypertensive disorder
HT - Hypertension
Systemic arterial hypertension
High blood pressure
Hypertensive vascular degeneration
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Blood vessel finding
Disorder of cardiovascular system
Disorder of soft tissue
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Vascular disorder
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Hypertensive episode
Hypertensive renal disease
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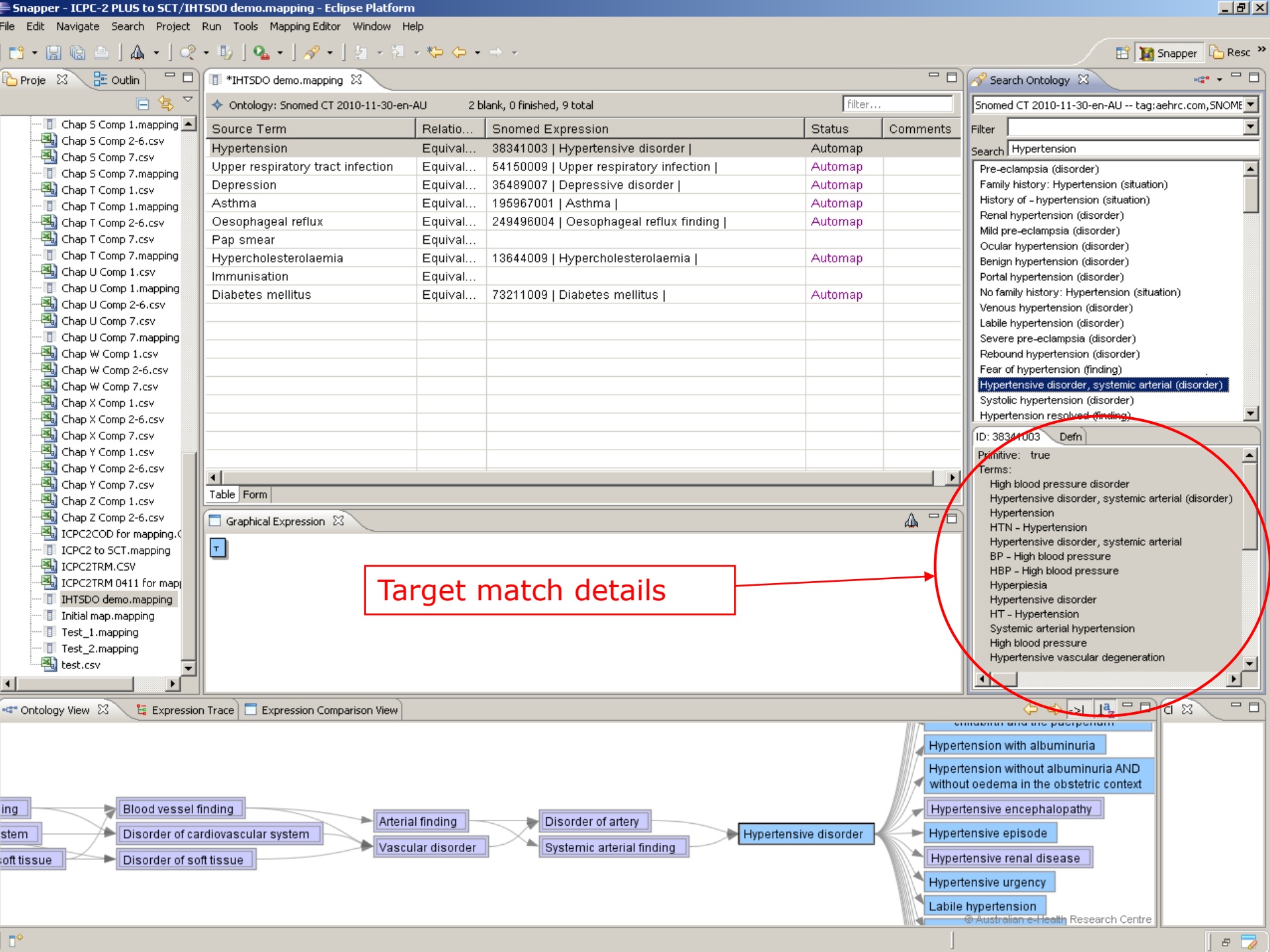
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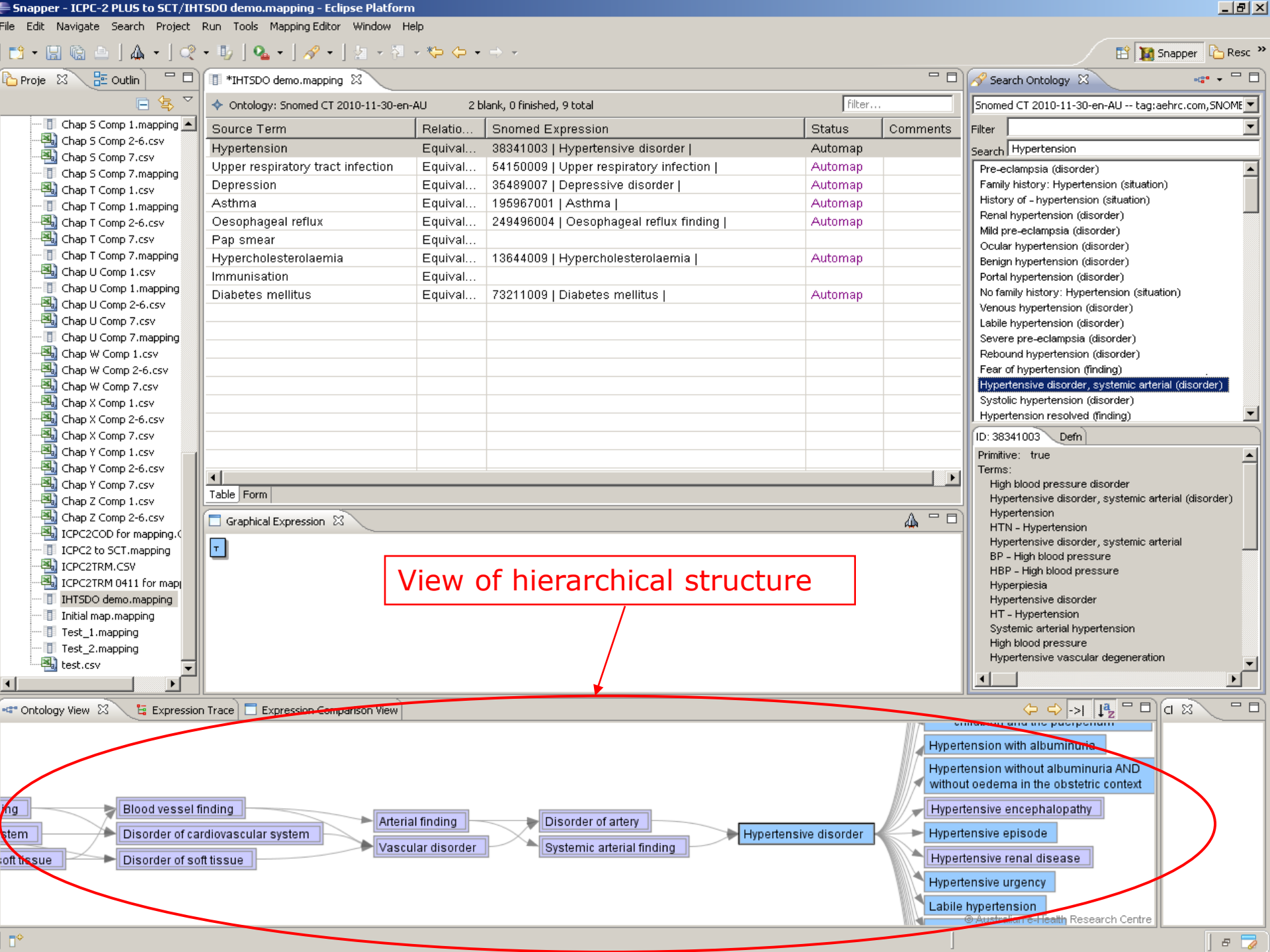
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Labile hypertension
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Creating the map from the GP/FP RefSet to ICPC-2

- The map will be from the SNOMED CT GP/FP RefSet to ICPC-2
- The most recent versions of SNOMED CT 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

Current status of project

- Between Phases 1 and 2 at present
- Phase 1 deliverables going though project governance processes
- Phase 2 to commence shortly

What happens next

- It is anticipated that Phase 2 (the production phase) will commence shortly
  - → First drafts of the GP/FP RefSet and map to ICPC-2 will be available around July/August
- Testing will then begin
  - Recruitment of testing sites
  - Testing of GP/FP RefSet +/- map to ICPC-2
  - Incorporation of comments resulting from testing

Australian Health Care

- Mix of public and private funding

- Health spending 8.7% of GDP in Australia 2008-09, average of 9.5% in OECD countries in 2009.

- Pharmaceutical Benefits Scheme (PBS) Estimate $10.6 Billion 2011-2

- Over 110 million GP services per year

- Problems with clinical communications

GP e-Health Summary

- High rates of computerisation by GPs
- Health Identifiers Bill's passage through Parliament
- GPs logical source for a Health Summary for most Australians
- Health Summary work is a logical progression from the development of the 4th Edition of RACGP Standards for General Practices.
- The RACGP supports the development of the GP Ref Set
- There are benefits for GP EHRs

RACGP / NEHTA Collaboration

- **The GP Health Summary where appropriate will include:**

- Allergies & Adverse Reactions to Medicines
- Current Medicines List
- Current Health Problems & Relevant past health history
- Immunisations

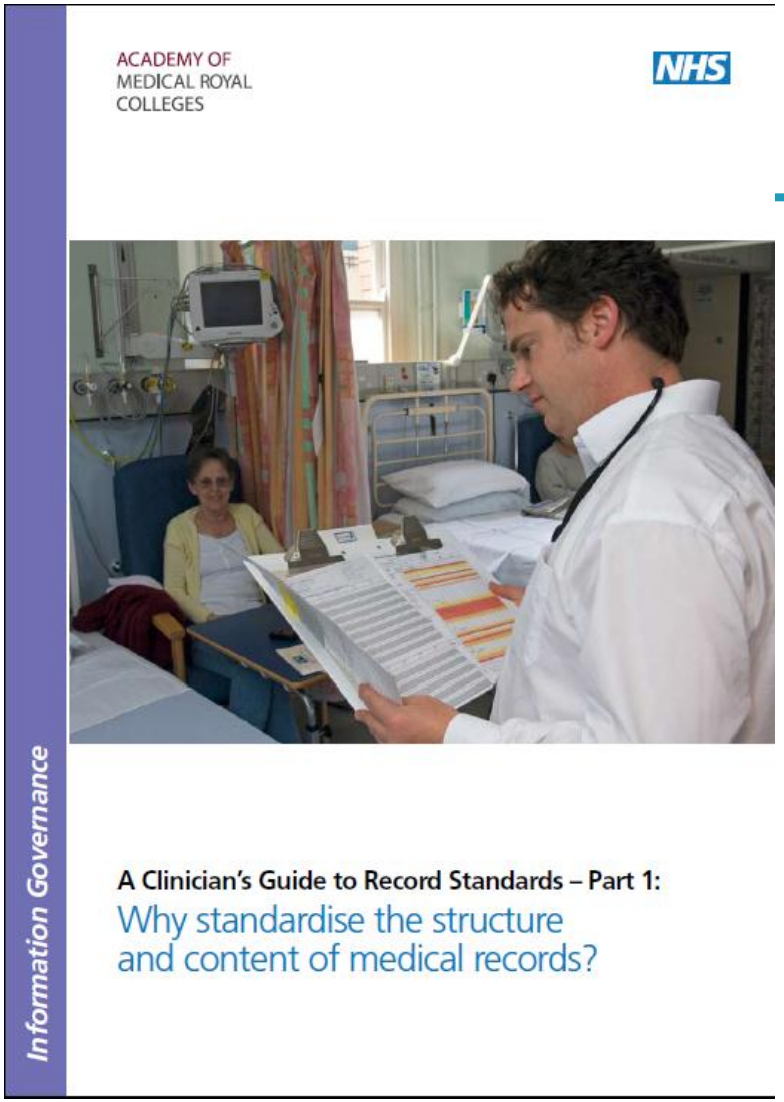
- Health risk factors (eg SNAP)
- Relevant family history
- Relevant social history

PCEHR: Access to information

- Shared Health Summary
- Event Summaries
- Discharge Summaries
- Pathology Result Reports
- Referrals
- Prescribing and Dispensing Records
- Medicare Information (Organ Donor, MBS, PBS and ACIR)
- Consumer Entered Information (allergies, medicines, emergency contact, advance care directive location)

Terminology is not enough

- Clinical record standards
- EHR configuration library
- Professional governance


ACADEMY OF
MEDICAL ROYAL
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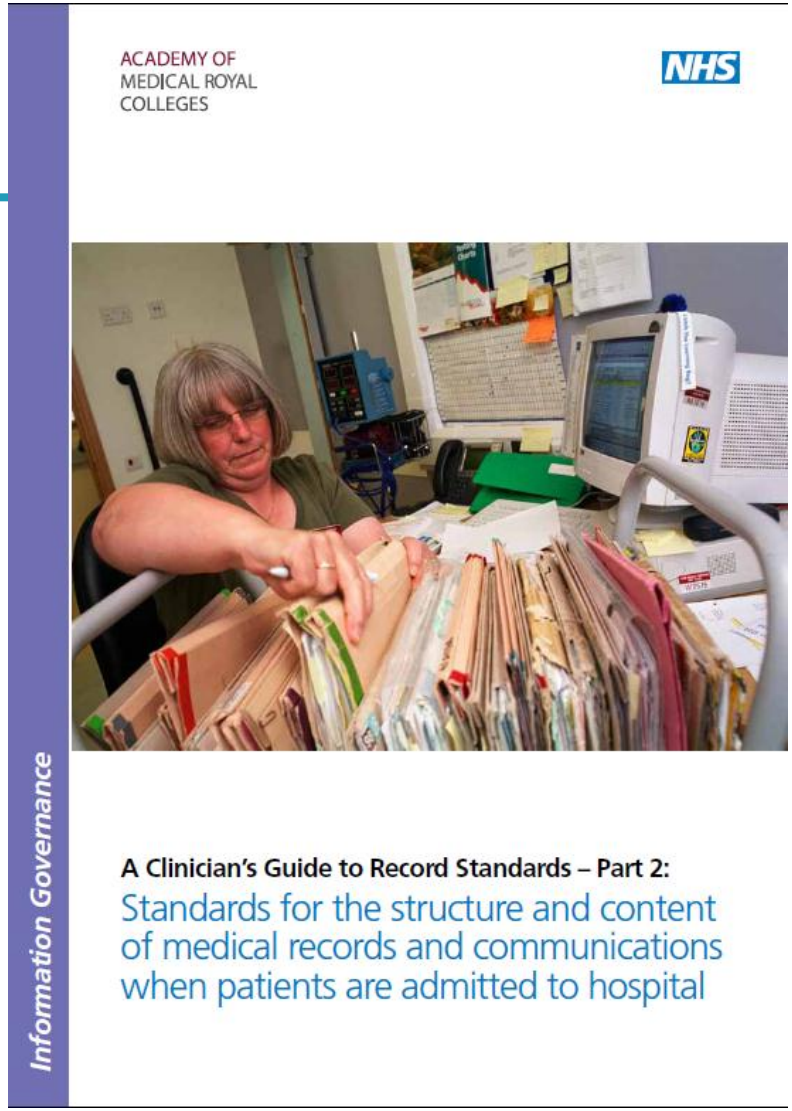
NHS
Information Governance
A Clinician's Guide to Record Standards – Part 1:
Why standardise the structure
and content of medical records?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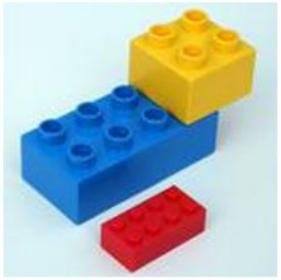
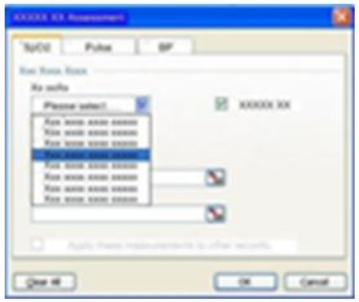
Information Governance
A Clinician's Guide to Record Standards – Part 2:
Standards for the structure and content
of medical records and communications
when patients are admitted to hospital

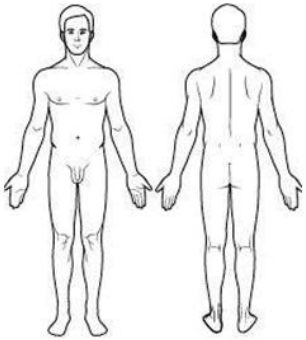
Clinical Content Library



Patient care elements



Forms/scales/assessments



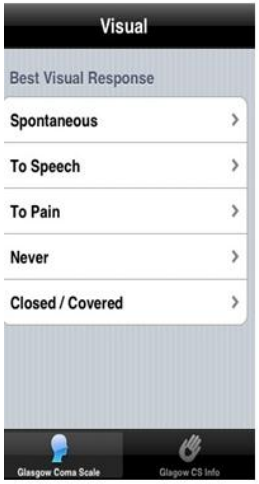
Anatomical drawings

Active Problems	Resolved Problems
Congestive Heart Failure Chronic Obstructive Airways disease Diverticular Disease	Lobar Pneumonia Restless Legs syndrome Plantar fasciitis
Current Medication	**Past medication**
Tiotropium Bumetanide and amiloride	Gaviscon
Allergies	**Investigations requested**
Penicillin	Chest X-ray

Structure records with headings

Catalogues

APIs/Apps (ITK)



Document Metadata

SNOMED-CT

Terminology maps and Refsets

CUI

Computer User Interface

RULES and EMBEDDED KNOWLEDGE

For Decision Support and Care Pathway Management

Discussion

- nb@nhs.net