



CTUG



Australian  
Clinical Terminology  
User Group

**SNOMED CT  
IMPLEMENTER'S  
WORKSHOP**

# About the Au-CTUG

- ▶ Community of interest
- ▶ Contribute to development
- ▶ No cost

## Benefits

Network with friendly experts

Access to a developing knowledgebase

- Collaboration Portal 
- <https://industry.ehealthcollaborate.com.au/group/australian-clinical-terminology-user-group-shared/>

# SNOMED CT Implementer's Workshop

- ▶ Information and guidance to those who are involved with or considering implementations of SNOMED CT-AU.
- ▶ Practical information, delivered by experts in the field.
- ▶ **Agenda**
  - ▶ **Case Studies**
    - ▶ Implementing SNOMED in ED
    - ▶ Clinical information Systems and SCT implementation
  - ▶ **Workshops**
    - SNOMED Reference Sets
      - Developing Ref Sets: Simple, Mapping, Localisation
      - Managing implementation of Reference Sets
    - Interrogating SNOMED CT
      - How to use tools to approach analysis of SNOMED CT data
    - Styles of user interface
      - What styles can be employed and how do they influence implementation of SNOMED CT
  - ▶ **Discussion Forum**



# NSW Health FirstNet + SNOMED CT

Graham Pegler



# Setting the scene

- ▶ National ED Termset for Presenting Problem and Diagnosis
- ▶ NEHTA announces SNOMED CT for the Electronic Health Record
- ▶ FirstNet module for the NSW EMR
  - Rapid development / implementation
    - Intensive workshops and quick turnarounds

# Initial position

## Recording a diagnosis

ED across NSW Health were reporting ICD10/ICD9 and local values  
No “coders” available in ED

## SNOMED CT – an opportunity

No knowledge of coding needed at the point of capture  
Was provided as part of the Cerner EMR package  
Component for implementation of Electronic Discharge Summaries

## SNOMED CT – adopted for capturing patient diagnosis in an ED

No review of SNOMED CT, no real knowledge of SNOMED CT in the development team, short timeframes

THIS IS A STORY OF A JOURNEY



# Initially

**Diagnosis Search**

\*Search:  Contains  Within:

Terminology:  Terminology Axis:

Term	Code	Terminology	Terminology...
Acknowledging anxiety	338442012	SNOMED CT	Procedure
Adjustment disorder with anxious mood	78975018	SNOMED CT	Finding
Adjustment reaction with anxious mood	1230451012	SNOMED CT	Finding
Alcohol-induced anxiety disorder	58300018	SNOMED CT	Finding
Alleviating anxiety	339505012	SNOMED CT	Procedure
Amphetamine-induced anxiety disorder	136578011	SNOMED CT	Finding
AMT - Anxiety management training	342664015	SNOMED CT	Procedure
Anticipatory anxiety	59111011	SNOMED CT	Finding
Anticipatory anxiety, mild	19825011	SNOMED CT	Finding
Anticipatory anxiety, moderate	61145016	SNOMED CT	Finding
Anticipatory anxiety, severe	10782014	SNOMED CT	Finding
Anxiety	81133019	SNOMED CT	Finding
Anxiety about altered body image	339069013	SNOMED CT	Finding
Anxiety about appearing ridiculous	414556012	SNOMED CT	Finding
Anxiety about becoming fat	414548014	SNOMED CT	Finding
Anxiety about behaviour or performance	370017015	SNOMED CT	Finding
Anxiety about blushing	508408011	SNOMED CT	Finding
Anxiety about body function or health	369994015	SNOMED CT	Finding
Anxiety about choking	414537019	SNOMED CT	Finding



# FirstNet + SNOMED CT

## Starting position observations:

- Clinicians access to SNOMED CT unrestricted
  - any term in SNOMED CT:
    - Terms: ~1,000,000; Concepts: ~ 300,000 +
    - including non-human, including organisms, path tests, ....
- Steps taken:
  - Configuration of the user interface
  - Default search operation “Begins with”
  - Supports a “favourites” list that can be tailored to site/ clinician
  - Favourites can only be set up and maintained by manual entry
  - Requires <enter> to commence search
- Training of users
  - in SNOMED CT
  - Search function and usability
  - Setting favourites

# Getting to grips

## FirstNet live

Issues raised – a call for help / advice on SNOMED CT

Diagnosis data is rubbish! Inability to analyse it

## Analysis of the situation

Understanding the constraints of the system

- meeting with implementers/ developers

Looking at the data

- through the HIE data warehouse

Meeting with clinicians, users



# Short and longer term

## Analysis

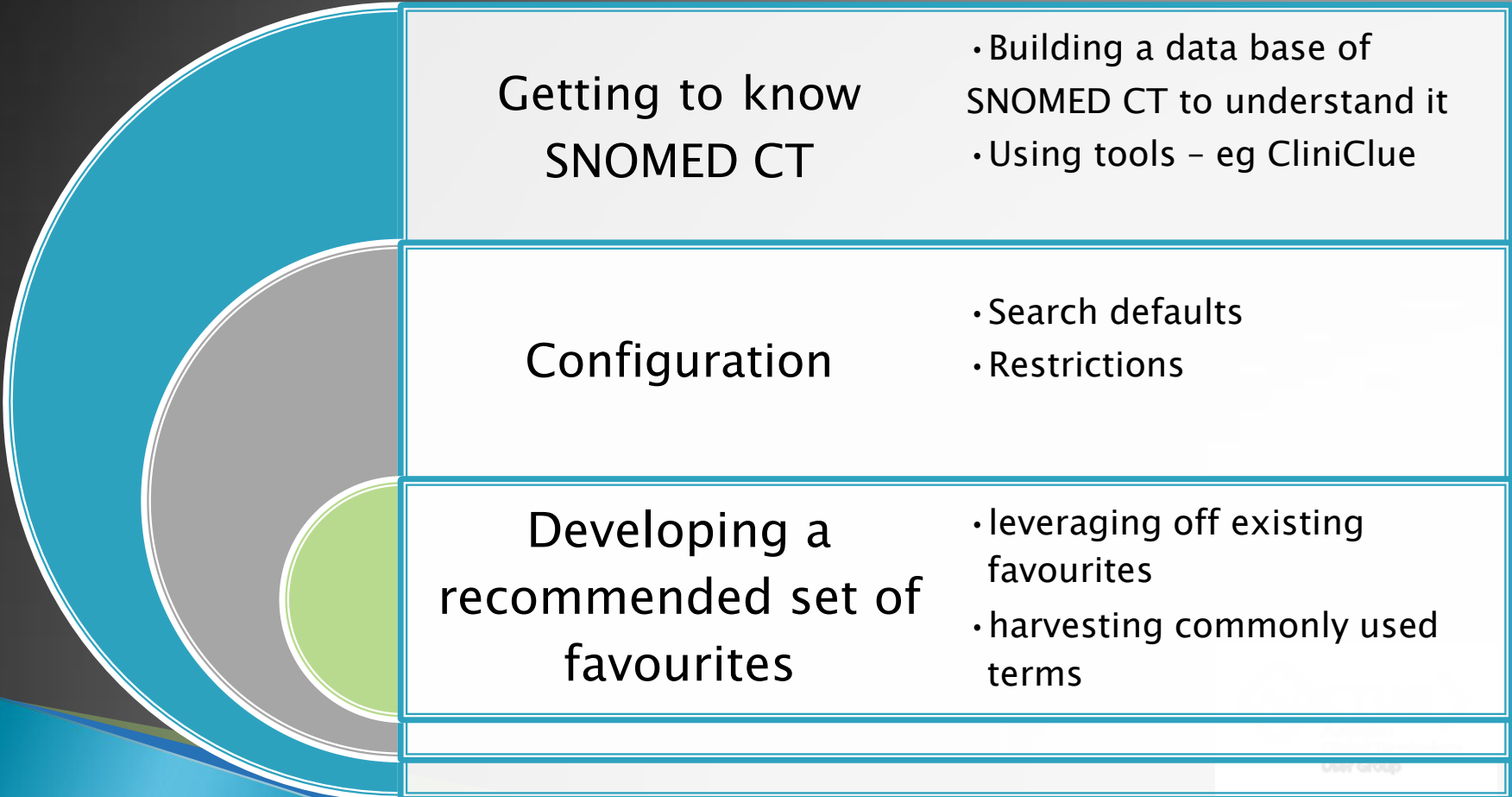
### Short term goals

- How to work within the existing capabilities to improve outcomes

### Long term goals

- Depending on success of above, what further change can be introduced to improve acceptance

# The approach



## Getting to know SNOMED CT

- Building a data base of SNOMED CT to understand it
- Using tools – eg CliniClue

## Configuration

- Search defaults
- Restrictions

## Developing a recommended set of favourites

- leveraging off existing favourites
- harvesting commonly used terms

# Short term: Current Configuration

**Diagnosis Search** [X]

\*Search:  Contains [v] Within:  [v]

Terminology:  [...] Terminology Axis:  [...]

Term ▲	Code	Terminology	Terminology...	▲
Adjustment disorder with anxious mood	78975018	SNOMED CT	Finding	
Adjustment reaction with anxious mood	1230451012	SNOMED CT	Finding	
Alcohol-induced anxiety disorder	58300018	SNOMED CT	Finding	
Amphetamine-induced anxiety disorder	136578011	SNOMED CT	Finding	
Anticipatory anxiety	59111011	SNOMED CT	Finding	
Anticipatory anxiety, mild	19825011	SNOMED CT	Finding	
Anticipatory anxiety, moderate	61145016	SNOMED CT	Finding	
Anticipatory anxiety, severe	10782014	SNOMED CT	Finding	
Anxiety	81133019	SNOMED CT	Finding	
Anxiety about altered body image	339069013	SNOMED CT	Finding	
Anxiety about appearing ridiculous	414556012	SNOMED CT	Finding	
Anxiety about becoming fat	414548014	SNOMED CT	Finding	
Anxiety about behaviour or performance	370017015	SNOMED CT	Finding	
Anxiety about blushing	508408011	SNOMED CT	Finding	
Anxiety about body function or health	369994015	SNOMED CT	Finding	
Anxiety about choking	414537019	SNOMED CT	Finding	
Anxiety about collapsing	414539016	SNOMED CT	Finding	
Anxiety about dying	414542010	SNOMED CT	Finding	
Anxiety about fainting	414551019	SNOMED CT	Finding	

# Short term: Current Configuration

**Diagnosis Search** [X]

\*Search:  Contains [v] Within: Terminology [v]

Search by Name  Search by Code

Terminology: SNOMED CT [...] Terminology Axis: Finding [...]

View Synonym

Term ▲		Termin...
Adjustment c		T Finding
Adjustment r		T Finding
Alcohol-indu		T Finding
Amphetamin		T Finding
Anticipatory .		T Finding
Anticipatory .		T Finding
Anticipatory .		T Finding
<input checked="" type="checkbox"/> Anxiety		T Finding
- Anxious		T Finding
- Feeling		T Finding
- Anxiety		T Finding
Anxiety abou		T Finding
Anxiety abou		T Finding
Anxiety about becoming fat	414548014	SNOMED CT Finding
Anxiety about behaviour or performance	370017015	SNOMED CT Finding
Anxiety about blushing	508408011	SNOMED CT Finding
Anxiety about body function or health	369994015	SNOMED CT Finding
Anxiety about choking	414537019	SNOMED CT Finding

**Terminology Axis** [X]

- <All terminology axes>
- Attribute
- Body structure
- Context-dependent cal
- Disease
- Environments and geo
- Events
- Finding
- Observable entity
- Organism
- Pharmaceutical / biologic product
- Physical force
- Physical object
- Procedure
- Qualifier value
- Social context
- Special concept
- Specimen
- Staging and scales
- Substance

OK Cancel

Add to Favorites [OK] Cancel

# Search: capability & training

**Diagnosis Search** [X]

\*Search:  Contains  Within:

Terminology:  ... Terminology Axis:  ...

View Synonym  Concept Family  Multi Axial  Cross Mapping

Term ▲	Code	Terminology	Terminology Axis
Chronic anxiety	294960010	SNOMED CT	Finding

# Search: Capability & training

**Diagnosis Search**

\*Search:  Contains  Within:

Terminology:  ... Terminology Axis:  ...

Term <input type="checkbox"/>	Code	Terminology	Termin...
Adjustment disorder with anxious mood	78975018	SNOMED CT	Finding
Adjustment reaction with anxious mood	1230451012	SNOMED CT	Finding
Alcohol-induced anxiety disorder	58300018	SNOMED CT	Finding
Amphetamine-induced anxiety disorder	136578011	SNOMED CT	Finding
Anticipatory anxiety	59111011	SNOMED CT	Finding
Anticipatory anxiety, mild	19825011	SNOMED CT	Finding
Anticipatory anxiety, moderate	61145016	SNOMED CT	Finding
Anticipatory anxiety, severe	10782014	SNOMED CT	Finding
<input checked="" type="checkbox"/> Anxiety	81133019	SNOMED CT	Finding
— Anxiousness	2536376012	SNOMED CT	Finding
— Feeling anxious	2536377015	SNOMED CT	Finding
— Anxiety reaction	2536378013	SNOMED CT	Finding
Anxiety about altered body image	339069013	SNOMED CT	Finding
Anxiety about appearing ridiculous	414556012	SNOMED CT	Finding
Anxiety about becoming fat	414548014	SNOMED CT	Finding
Anxiety about behaviour or performance	370017015	SNOMED CT	Finding
Anxiety about blushing	508408011	SNOMED CT	Finding
Anxiety about body function or health	369994015	SNOMED CT	Finding
Anxiety about choking	414537019	SNOMED CT	Finding



# Current Configuration: Favourites

Diagnosis (Problem) being Addressed this Visit

Clinical Dx	Date
Acute abdomen	10/06/2011

Diagnosis (Problem) being Addressed this Visit

Clinical Dx	Date	Dx Type	Code
Acute abdomen	10/06/2011	Discharge	16183017

**\*Diagnosis**  
Abrasion, chest wall

Display As  
Abrasion, chest wall

**\*Type** **\*Confirm.**  
Discharge Confirmed

[Show Additional Details](#)

**\*Diagnosis**  
Abrasion, chest wall  Free Text

Responsible Provider: Sultana, Anthony

Comments

Display As  
Abrasion, chest wall

**\*Clinical Service** **\*Date**  
Non-Specified 04/07/2011

**\*Type** **\*Confirmation** **\*Classification** **Ranking**  
Discharge Confirmed Emergency Department

[Show Additional Details](#)

OK OK & Add New Add Problem & Diagnosis Cancel

- Up Home Favorites
- Abrasions**
- Bites and Stings / Toxicology
- Blood & blood forming
- Breast
- Burns
- Cardiovascular
- Contusion and other soft tissue injury
- Crushing injury
- Dental
- Dislocation
- Endocrine
- ENT
- Foreign body
- Fracture
- Gastroenterology

Up Home Favorites **Folders** Previous Diagnosis Folder: Folders\Emergency Dept Diagnoses\Abrasions

Term	Code	Terminology	Terminology
Corneal abrasion	142314019	SNOMED CT	Finding
Abrasion of face	322074013	SNOMED CT	Finding
Abrasion of scalp	322079015	SNOMED CT	Finding
<b>Abrasion, chest wall</b>	<b>322146018</b>	<b>SNOMED CT</b>	<b>Finding</b>
Abrasion, breast	322147010	SNOMED CT	Finding
Abrasion, abdominal wall	322148017	SNOMED CT	Finding
Abrasion, back	322149013	SNOMED CT	Finding
Abrasion, buttock	322150013	SNOMED CT	Finding

# NSW ED Termset Development

Development of a more limited set

- Developed from an initial list from one ED Director
- harvesting of appropriate commonly selected items from all EDs
- seeking to incorporate items in the NSW Set not (yet) in the National ED Termset
- adding items to SNOMED CT–Au



# Follow up

## Feedback processes

Compliance

Profiles

Issuing a NSW ED Termset for favourites – but no compliance enforcement mechanism

## Further issues

Management of FirstNet implementations and control of set up  
(Does not reset back to defaults)

Packaging of SNOMED CT releases  
– International vs Australian



# Feedback

Frequency of specific diagnosis by a hospital (A202) by month – July

21522001 Abdominal pain (finding)	78
29857009 Chest pain (finding)	60
34014006 Viral disease (disorder)	43
233604007 Pneumonia (disorder)	39
25374005 Gastroenteritis (disorder)	38
161891005 Backache (finding)	35
195967001 Asthma (disorder)	34
68566005 Urinary tract infectious disease (disorder)	33
422400008 Vomiting (disorder)	27
71186008 Croup (disorder)	26
4120002 Bronchiolitis (disorder)	25
267036007 Dyspnea (finding)	24
69776003 Acute gastroenteritis (disorder)	23
125605004 Fracture of bone (disorder)	23
13645005 Chronic obstructive lung disease (disorder)	22

934 different diagnosis codes reported in one month  
2534 cases assigned a diagnosis  
– very specific diagnoses (rich data), some “bad” data

# Feedback

## PROFILES Analysis

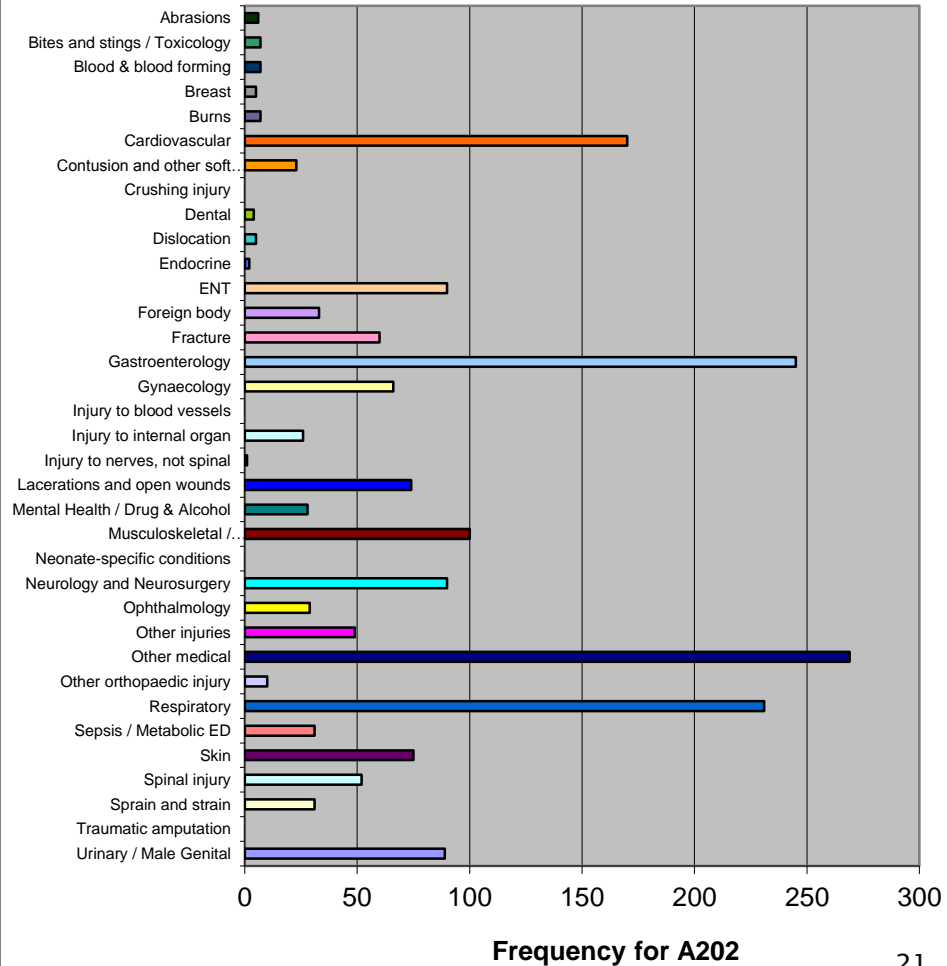
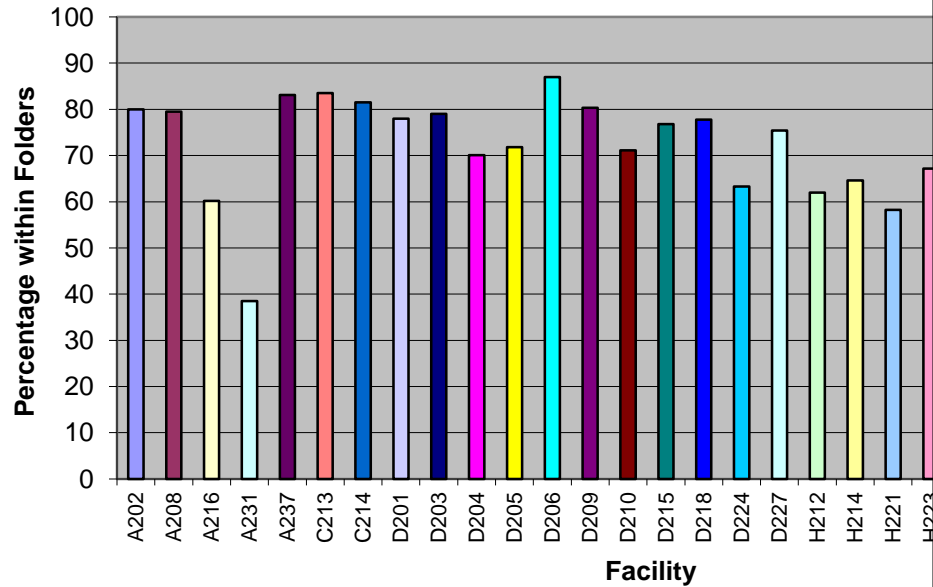


## Favourites Folder frequencies

## COMPLIANCE



Percentage of SNOMED CT terms chosen that are in Favourites



# Next Steps

FirstNet review

SNOMED CT Ref Set – trial of the EDRS

ED Activity –based funding based on URG

– issues for data analysts

# Lessons

Success or failure?

Survival

- Based on goodwill/professionalism of clinicians, notwithstanding resistance
- the promise of ... discharge summaries, PC EHR

Training & Support – not just at the user interface

User interface design

Informatics is not just IT

