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# **Improving useability and search functionality on the frontline**

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# NEHTA

A corporate entity owned by the Australian Federal, state and territory governments, to identify and jointly develop the necessary foundations and services for a national eHealth capability

- Identifiers
- Authentication
- Terminology
- Secure Messaging
- Clinical Documents
- Supply Chain

Improving useability and search functionality  
on the frontline

Or

Improving SNOMED CT as an interface  
terminology

# Identifying and Addressing issues

- Feedback from vendors and users
- Partnerships with “friendlies”

## Feedback from users

- Confusion as to which term to select
- Unable to find the terms
- Frustration with inconsistencies

## Synonyms are not Unique

Too many synonyms has “overchoice” risk

Search for “raised blood pressure”:

24184005 |Raised blood pressure|

38341003 |Raised blood pressure|

Search for “hypertension”:

Hypertension

HTN – Hypertension

Systemic arterial

hypertension

HT – Hypertension

BP+ - Hypertension

## Make sure searches are restricted to correct content

Preferred terms may not be unique across terminology

Particularly between

- Clinical Findings and Morphologic Abnormalities
- Substances and Products

Possibly even

- Procedures and Substances
- Findings and Organisms

Depending on local editorial choices...

## Synonyms and Language refset

Concepts may have more than one active description

One description is tagged as preferred

Leveraging synonyms improves search effectiveness



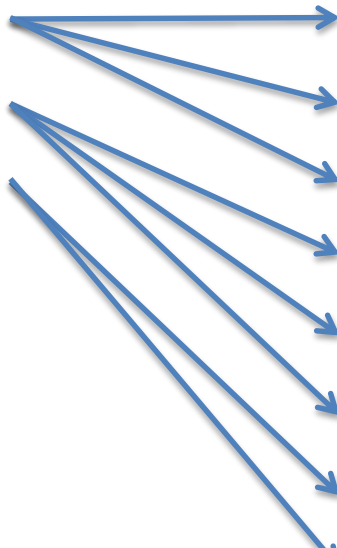
## Searching on synonyms and the ADRS

CM refset*	Descriptions	ADRS
54200006	Tonic-clonic seizure	Preferred
267064002	Tonic-clonic convulsion	Acceptable
	Tonic-clonic seizures	Acceptable
	Not passing urine	Acceptable
	Retention of urine	Acceptable
	Unable to pass urine	Acceptable
	Urinary retention	Preferred
	Cannot pass urine - retention	Acceptable
	Unable to empty bladder	Acceptable

\* Clinical manifestation refset

## Searching on synonyms and the ADRS

ARA refset*	Descriptions	ADRS
67296003	Pork insulin	Preferred
387581008	Porcine insulin	Acceptable
418700002	Insulin porcine	Acceptable
	Etidronate disodium	Preferred
	Sodium etidronate	Acceptable
	Disodium etidronate	Acceptable
	Docusate	Preferred
	Diocetyl sulphosuccinate	Acceptable



\* Adverse reaction agent refset

## Additional Considerations

### Limit to Preferred Terms

- Allow search queries to access all synonyms
- Limit result set to the Preferred Terms

### Search for “raised blood pressure”:

#### Before

24184005 |Raised blood pressure|  
38341003 |Raised blood pressure|

#### After

24184005 |*Finding of increased blood pressure*|  
38341003 |*Hypertension*|

## Renal lesion

-> Kidney lesion (finding)

## Pelvic pain

-> Pain in pelvis (finding)

## Testicular cancer

-> Malignant tumor of testis (disorder)

Concepts exist, but the synonyms don't.  
Therefore users can't find the content.

## End stage COPD

- > End stage chronic obstructive airways disease (disorder)

## Partial thickness burn of neck

- > Second degree burn of neck (disorder)

Cosmetic inconsistency

Search success inconsistency

## A search for “First degree burn”

### En-GB Refset & En-US Refset

Burn erythema of wrist

First degree burn of face

Superficial burn of finger

Epidermal burn of multiple sites of wrist

### En-AU Refset

Superficial burn of wrist

Superficial burn of face

Superficial burn of finger

Superficial burn of multiple sites of wrist

# Search success inconsistency

Search Term	SCT	SCTAU
“Burn erythema”	59	59
“First degree burn”	75	75
“Superficial burn”	54	88
“Epidermal burn”	8	8

n = 88



## A (FullText) search for “severe COPD” – Top 5

International Release	Australian Release
Acute exacerbation of COPD	Severe COPD
COPD - Chronic obstructive pulmonary disease	COPD
<i>Acute severe exacerbation of severe persistent asthma</i>	End stage COPD
<i>Panic disorder with agoraphobia, severe agoraphobic avoidance AND severe panic attacks</i>	Mild COPD
<i>Better eye: severe visual impairment, Lesser eye: severe visual impairment</i>	Moderate COPD

- Feedback from vendors and users
- Partnerships with “friendlies”
- Systematic analysis

Potential for “combinatorial explosion” of synonyms

Ongoing maintenance for international updates

# Contact

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