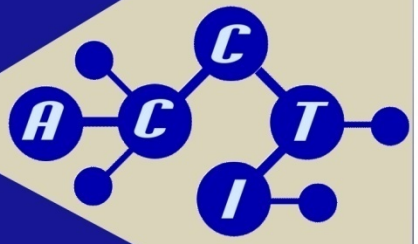
Using SNOMED CT® - enabled data collections in a national clinical research program



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Background

National Institute of Clinical Studies **(NICS)** research

Objectives:	review pain management, care guidelines
Participants:	Australian EDs, opt-in
Duration:	3 years
Sampling:	60 patients each 3 months, over-sampling
Cohort:	abdominal pain and traumatic injuries
Method:	medical record review by clinicians

The problem, the context

ICD used as a proxy terminology

Original study design & sampling strategy was based on ICD

Some hospitals using SNOMED CT

Changed circumstances needed new approach

Encoded data use

Codes used only as a ‘hook’

ICD codes specified by HIM - best match to the study protocol

Pragmatic: use what we’ve got, code selections based on skilled advice which **aligned research protocol with ICD**

NOT a review of a data collection, **NOT** a coding audit

But a **review by clinicians of the original medical record**

Mapping?

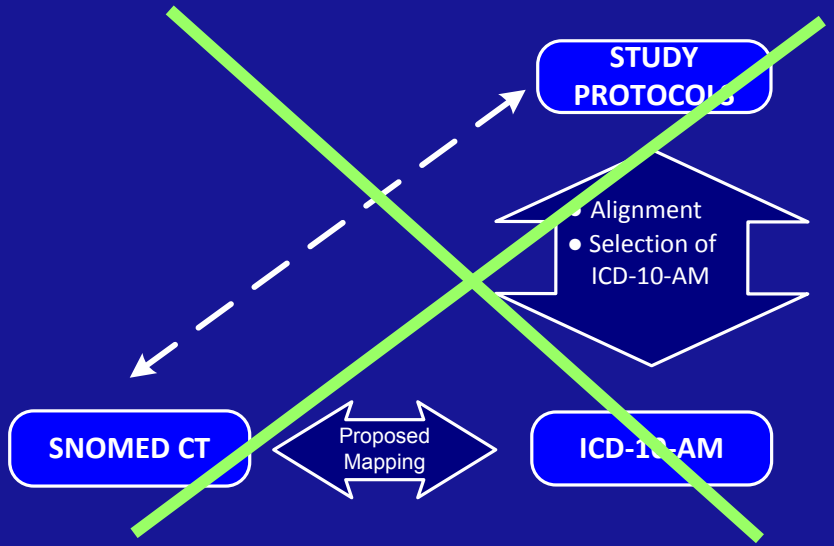
- NICS tried to map and found it wasn't useful
  - High cost, low value
  - Degraded meaning, many gaps
  - Needed a different approach

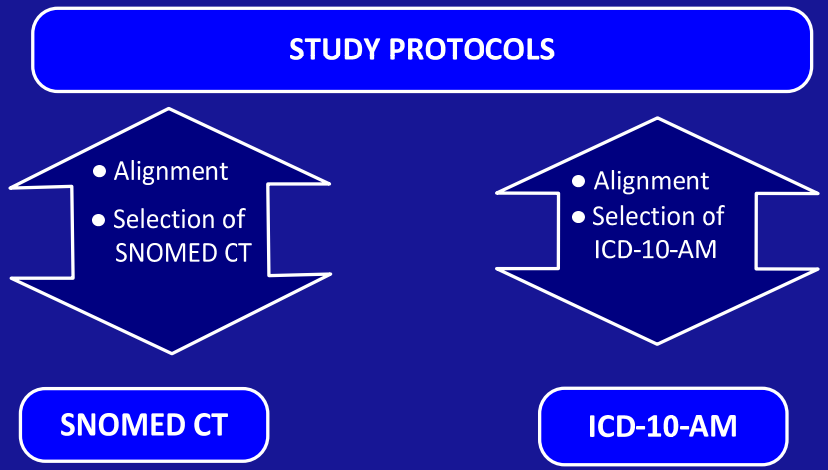
Instead

- Use SNOMED CT concepts identifiers to retrieve relevant cases

Design (1)

Don’t triangulate, but directly align, de-couple

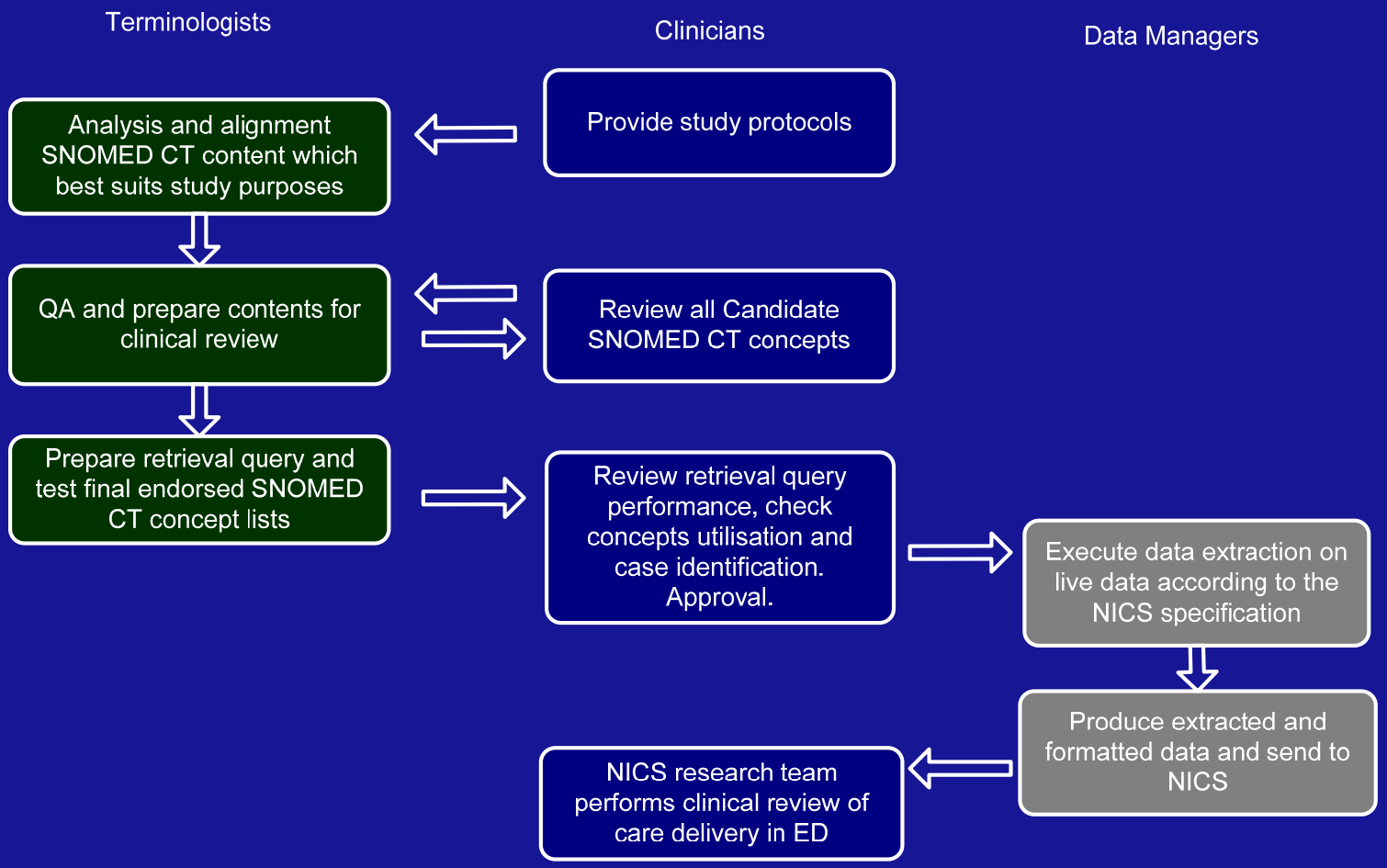




Switching option

Design (2)

Collaborative approach



Methods and results (1)

Terminologists and analysts

Identify candidate SNOMED CT concepts

n = 227 concepts relevant to abdominal pain
n = 10 006 concepts relevant to traumatic injuries
N = 10 233

Some detailed review by clinicians and researchers
foreign bodies? obstetric pain?

Methods and results (2)

Clinicians, Researchers

Clinical review:

- Selected concepts which are clinically relevant
- Mindful of existing patient cohort
- Mindful to prevent any sort of systematic bias

From 10 233 candidate SNOMED CT concepts

Removed 107 (not required)

Excluded candidate concepts relevant to obstetrics

Methods and results (3)

Testing (data custodians and managers)

Retrieval query written and tested against trial data

Review for any systematic bias

Concept Utilisation *n* = 867 (or ~ 9% of endorsed concepts)
Case Identification *n* = 5 324 (or ~ 20% of patient cases)

Query performance: worked properly and quickly

Workflow: understandable, reproducible, useful

Outcomes

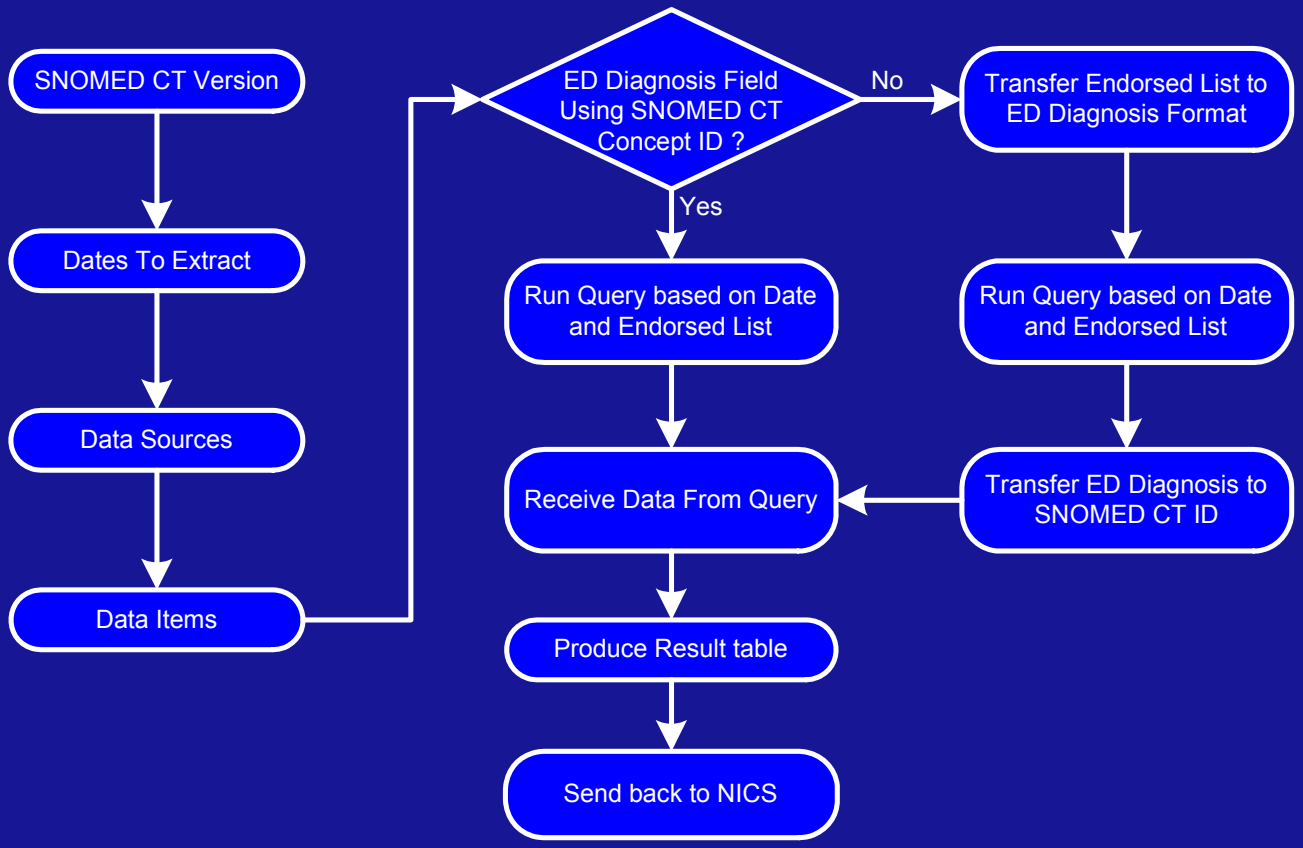
- Generic retrieval query
- SNOMED CT RefSet table(s)
  - concepts and descriptions, versions
- Retrieval Workflow

→ **Retrieval RefSet**

NICS Research program continues
SNOMED CT users are participating

Approach is enabling and non-disruptive

Retrieval workflow (simplified)



Issues

Inputs will influence outputs

NICS-ACCTI had no control over inputs (out of scope)

Maximum approach – large Retrieval RefSet because:

Clinical domain was broad scope

Non-standard implementations of SNOMED CT variously

- all of SNOMED CT
- constrained SNOMED CT
- local hand-crafted subsets
- concepts displayed in interface
- descriptions for interface & concepts in the database
- different versions of SNOMED CT

Implications (1)

SNOMED CT input RefSets must serve the clinical users

If we know what SNOMED CT content is available to enter, then Retrieval RefSets can mimic that content

But:

There will be a persistent requirement for Retrieval RefSets for:

- Local use and ad hoc interests
- Research, clinical care reviews
- Care delivery and service monitoring
- Aggregation and reporting

Implications (2)

Early adopters encountered first hurdles

Preference for mapping because '*everyone understands ICD*'

SNOMED CT merely unfamiliar at this time

Non-standard SNOMED CT implementations will have predictable knock on effects

Recommendations (1)

Clinical use case

→ use a clinical terminology – SNOMED CT

Statistical reporting use case

→ use a statistical classification – ICD

Occam's Razor:
"...don't invent entities beyond necessity..."

Recommendations (2)

Necessarily collaborative development work
- terminologists, clinicians and data users.

Education, training and support for users and implementers

Further alignment between specifications will be required for:
- particular and various input RefSets
- particular and various retrieval RefSets

Ongoing maintenance and support mechanisms needed

Thank you

Questions?

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