



### How can this be extended to other cancers? How can changes in guidelines be incorporated?

- Describe, or model, the cancer guidelines using an existing terminology
  - Will ensure consistency across the guidelines
  - Enables changes to be incorporated into the guidelines and hence staging engines easily
- Can we use SNOMED CT?
  - SNOMED CT is not complete
    - How do we cover the gaps in SNOMED CT?
      - Create new content
      - Map from an existing knowledge base or terminology
  - SNOMED CT provides definitions
    - However, guidelines represent a knowledge base, rather than just definitions

### Adding content to SNOMED CT

- Local content – based on an existing terminology
- Local content – to fill the gaps
- New content for submission to CAP/IHTSDO

### The Snapper Mapping Tool

### Problem 1: Lack of Completeness

- SNOMED CT has a concept for Lung TNM finding
  - 9 Children (M1, N1, N2, N3, T1, T2, T3, T4, TX)
  - No link to lung as a finding site

### Problem 2: Modelling knowledge not definitions

- Use of post coordinated expressions to model the knowledge
- Example: pT3
  - 3 additional factors need to be added to the "pT3" concept
    - Tumour invades specific site
    - Tumour in main bronchus < 2cm distal to carina
    - Atelectasis or obstructive pneumonitis of whole lung
  - Tumour invades specific site needs 4 "factors"
    - Tumour invades chest wall
    - Tumour invades diaphragm
    - etc


### Extra Factors for lung cancer staging

- 16 factors were added to fully model the staging guidelines
- Can be used to create fully defined expressions representing the stages in the clinical guideline

## Advantages

- Computer algorithms can be used to provide consistent staging from data in
  - Electronic Health Records
  - Free text Reports
  - Synoptic or structured reports
- Changes to the guidelines can be reflected easily by changing the expressions
  - Can be used to retrospectively gather past stages according to current guidelines


CSIRO, Modelling Cancer Stage Guidelines in an existing Terminology



## Conclusion

- Is it possible to model staging guidelines using SNOMED CT?
  - Yes
- This has the potential to provide consistency across electronic health records and clinical guidelines

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## Thank you

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