

## What is the need for semantic interoperability?

- Automation of systems that deal with health information requires clinical data that:
  - is **recorded** at the appropriate level of detail
    - not forced to be either too general or too specific
  - is **consistent** over time and across boundaries
  - can be **transmitted** without loss of meaning
  - can be **aggregated** at more general levels, and along multiple different perspectives
  - can be **interpreted** by automated systems
- Natural language does not meet these requirements

# Semantic Interoperability : Developing a Research Agenda

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## Expected benefits of semantic interoperability

- Reduction of errors
  - Elimination of errors of omission via reminders
  - Elimination of errors of commission via alerts
- Management of costs
  - Elimination of redundant testing and investigation
- Monitoring and responding to trends & problems in the health of populations
- Expanding knowledge of diseases, treatments and outcomes

# A Few Assumptions

- There will be no single research study that will convince policy makers
  - Skeptics will be able to resist for the foreseeable future
  - Research is usually used post-hoc to justify a course of action that is being taken for other reasons
- Some things are going to happen anyway
  - NPfIT
  - KP
- Just do it. Build it, test it, revise it, continue.
  - If you aren't criticized both by the researchers as being too applied, and by the application developers as being too theoretical, you're in the wrong space.

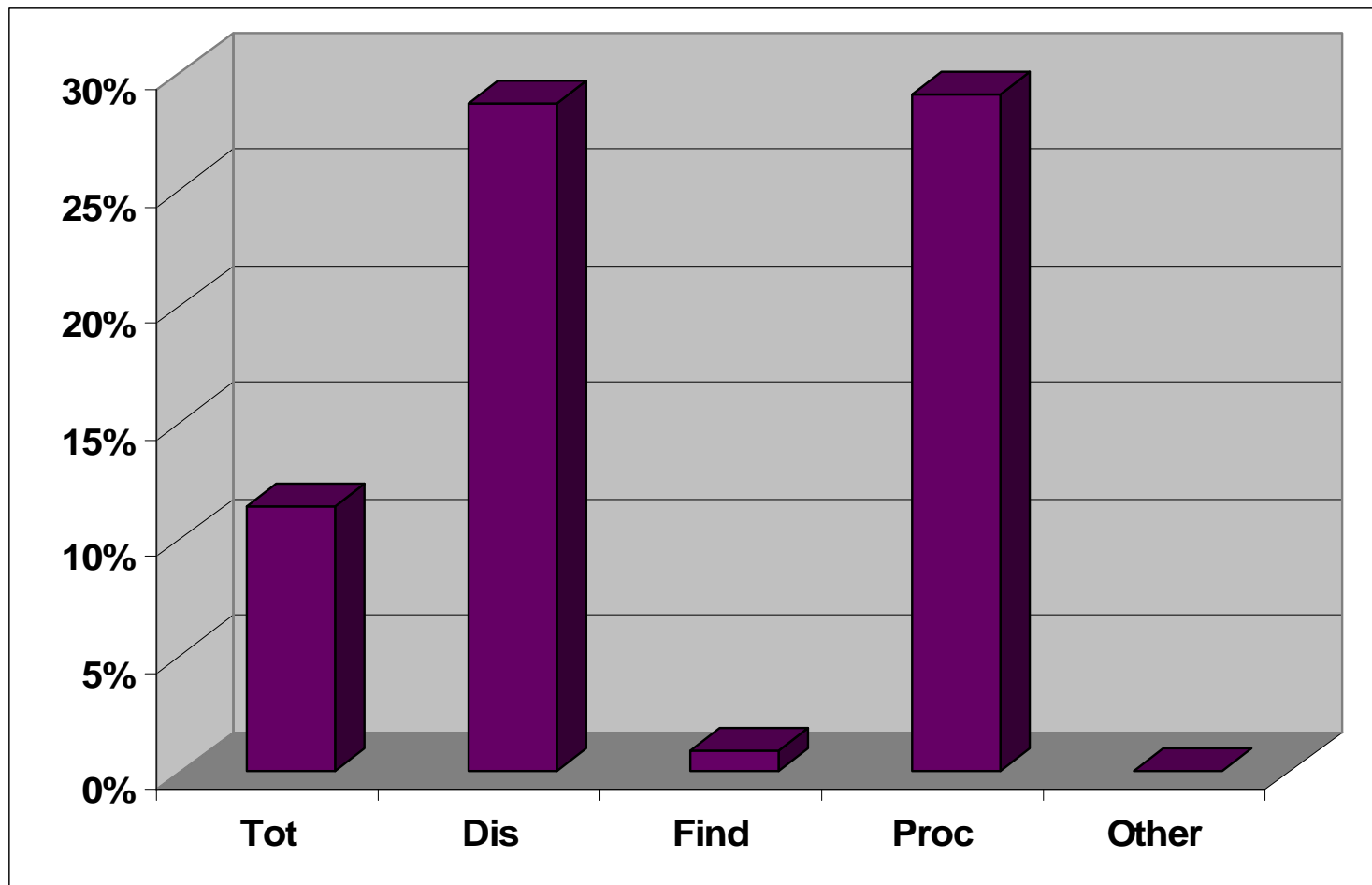
## High Priority Research Issues:

- Interface between concept model & information model
  - Specifically interface between SNOMED & HL7 v3
  - Proposed work item with HL7 vocab
- Context
- Negation
- Practical Composition (“post-coordination”)

# High Priority Research Issues

- The interface between “data elements” and ontological expressions
- I.e. how can we formalize relationships between
  - Single entity representation (typified by SNOMED)
    - “malignant pleural fluid mesothelial cells”
  - Question-answer (data field – value) representation (typified by LOINC question plus a coded value)
    - Location of malignant mesothelial cells = pleural fluid
    - Type of cells in pleural fluid = malignant mesothelial
    - Pleural fluid finding = malignant mesothelial cells
    - Pleural fluid mesothelial cells status = malignant
    - Etc.

## Percentage of SNOMED CT concept codes that are “fully defined”



Eventually should reach ~70% or more of disorders, findings & procedures

