

Collection, integration and analysis of patient clinical data

SYDNEY MEDICAL SCHOOL



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- › GP clinical data
 - GP EHR data – 10 different systems
 - GP survey data – BEACH – standardised data
- › Hospital clinical data
 - ‘Live’ data – held in a variety of systems within and between hospital
 - Statistical data – held at State and commonwealth level – standardised data
- › Disease specific data
 - Held in a variety of disease registers – various data standards
- › Mortality data
 - Held at State and National level (can be linked to patient data)
- › Private sub-specialist and allied health data – mostly inaccessible

- › Consistent data element labels and data definitions
 - Each system uses vendor designed data labels, frequently without any definition of content
- › Linkage of data elements within EHR systems (a defined data model)
 - Current EHRs frequently do not allow linkage of management action to specific patient problems (standards established by Dr Larry Weed in the 1960s)
- › Use of standardised terminology sets for each data element in the record
 - Currently many vendors make up their own data sets which are not compatible between systems
- › Standardised mapping of terminologies to clinical classifications for data analysis.
 - Most clinical terminologies in EHRs are not suitable for data analysis because of duplication of concepts

Semantic interoperability:

the capture, transfer and use of information in a manner in which the meaning of the information is retained between different parties in the health care system

(Semantic interoperability for Better Health and Safer Healthcare: deployment and research roadmap for Europe)

- Consistent mapping of data elements in EHRs to a standard minimum data set/data model for extraction
- Using standard terminologies or validated mapping from vendor terminologies to standard terminologies
- grouping terminologies with clinical classifications for decision support and analysis
- (patient record access requires terminologies understandable to patients)

› Three kinds of terminology

› Interface terminology:

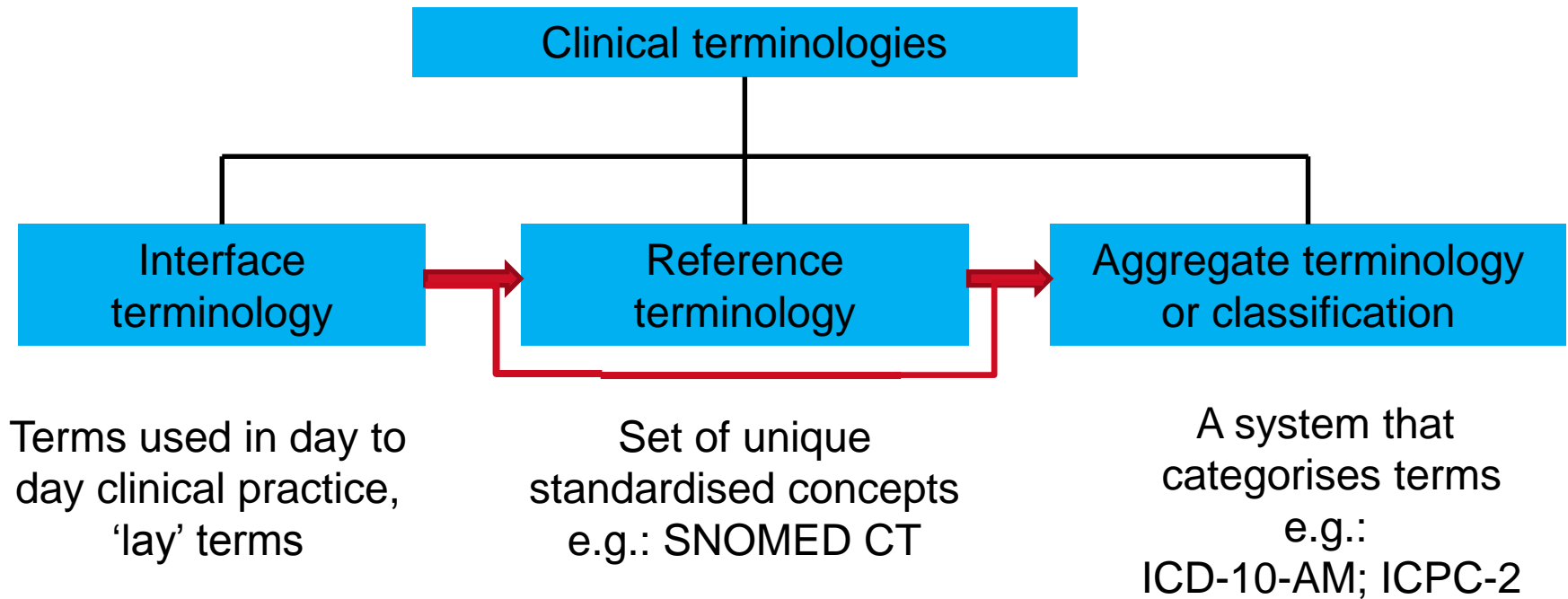
- a systematic collection of health care–related phrases (terms) that supports clinicians' entry of patient-related information into computer programs, such as clinical “note capture” and decision support tools. (Rosenbloom)

› Reference terminology:

- a terminology designed to uniquely represent concepts, by listing the concepts, and specifying their structure, relationships and, if present, their systematic and formal definitions.

› Classification:

- The categorisation of relevant natural language or terminologies for the purposes of systematic analysis
- A type of aggregating terminology, a logical system for the arrangement of knowledge



Starting the data integration process

- › Some data is now being coded in SNOMED CT which is the government endorsed reference terminology standard
- › Virtually all coded hospital and mortality data is classified in ICD10AM
- › GP standardised data is classified in ICPC-2
- › THEREFORE:
- › As a starting point we need to be able to map GP clinical terminology to SNOMED CT, ICD10AM and ICPC-2
- › ICPC-2 Plus (used in 8 of 10 GP systems) is already mapped to ICD10AM and ICPC-2 and mapping to SNOMED CT is 70% complete
- › We need to map the two most used terminologies MD terms (Docle) and the BP (Pyfinch) terms.

