

# ELECTRONIC HEALTH RECORDS – THE SOURCE OF LITTLE DATA FOR BIG DATA

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# EHRs OBJECTIVES

- Reusability
  - Research -Knowledge acquisition & distribution
  - Service
  - Public health
- Direct patient care
  - Accurate record of meaning
  - Automated retrieval
    - Clinical decision support etc



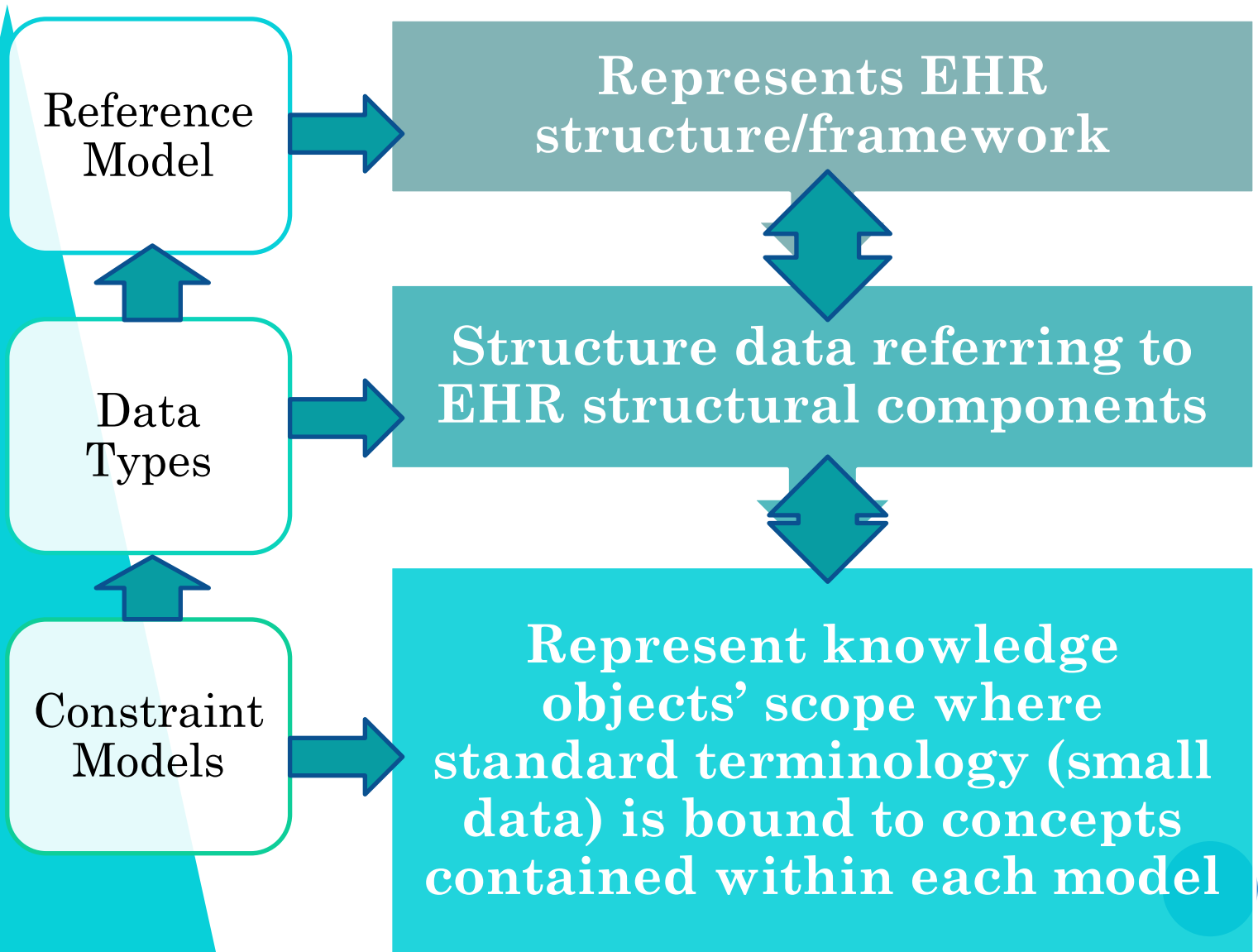
## TO ACHIEVE THIS WE NEED:

- Persistent queryable record structure
  - A standard approach
  - A common language
  - Ability to link data from different software applications
  - Data sharing and comparing
  - Ability to capture knowledge
  - Semantic interoperability



Small	Big
Data represents meaning	Aggregated for a purpose
Individual system	Multiple small data
Singular	Applies rules
Specific	From multiple systems
	Linked with other data
	Uses mathematical modelling
	Accuracy is dependent on small data

# ELECTRONIC HEALTH RECORD



## RECORD STRUCTURE – EXAMPLE (ISO 13606)

- Compositions (prescription, signed, dated....)
  - Elements (eg individual drug orders)
    - Individual data elements about the order



# CONSTRAINT MODELS – ISO 13606

- Maximal set of data elements for a concept (knowledge object)
  - Eg: allergy
    - Risk assessment
    - Adverse event record
      - Date
      - Reaction
      - Reporter.....etc.....
- The specification of data types, terminology, definitions, rules (constraints on content) ....
- Selection of knowledge objects for use in implementation
  - GP may choose some of the maximal set while immunologist wants it all



## WHAT DO YOU GET?

- Semantic interoperability!
  - Consistent representation of every piece of small data
  - In every setting
  - Any application
  - Any healthcare domain
  - Enables accurate mathematical modelling
  - Retain meaning over time
  - Ability to integrate new knowledge without destroying the past





# FUTURE DIRECTIONS

- More rebels
- Challenge for you:—
  - Map or implement shared model
  - Implement shared concept representation
  - Collaborate
    - – go to Clinical Knowledge Manager



# REFERENCES

- OpenEHR - <http://www.openehr.org/>
- An open domain-driven platform for developing flexible e-health systems
- The [openEHR Clinical Knowledge Manager \(CKM\)](#) is an international, online clinical knowledge resource

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