Uses and Validity of Primary Care Database studies

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Outline

1. Use of text-mining to explore the scientific literature

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   - Changes in topics of investigation over time
3. Validity of Clinical coding
4. ClinicalCodes.org : A new repository for clinical code lists

Text mining

What is it?

- The process of extracting high-quality structured information from unstructured text (e.g. Scientific literature).
- Uses a variety of computational and statistical methods to find patterns and trends in text

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   - Identifying relationships in extracted data

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- TM can reduce processing time for systematic reviews by 80% (NCTM)

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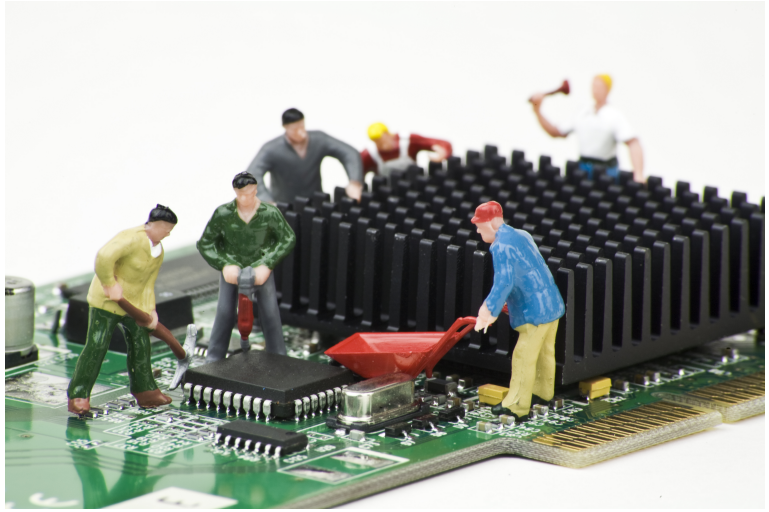
  - Grey literature is often inaccessable
- Still need plenty of human input!
- TM algorithms can be very complex
- Breadth at the expense of depth



Text mining the PCD literature

UK Primary Care Databases

GPRD / CPRD

The General Practice Research Database / The Clinical Practice Research Datalink

- ~ 900 papers

THIN

The Health Improvement Network

- ~ 360 papers

QResearch

- ~ 75 papers

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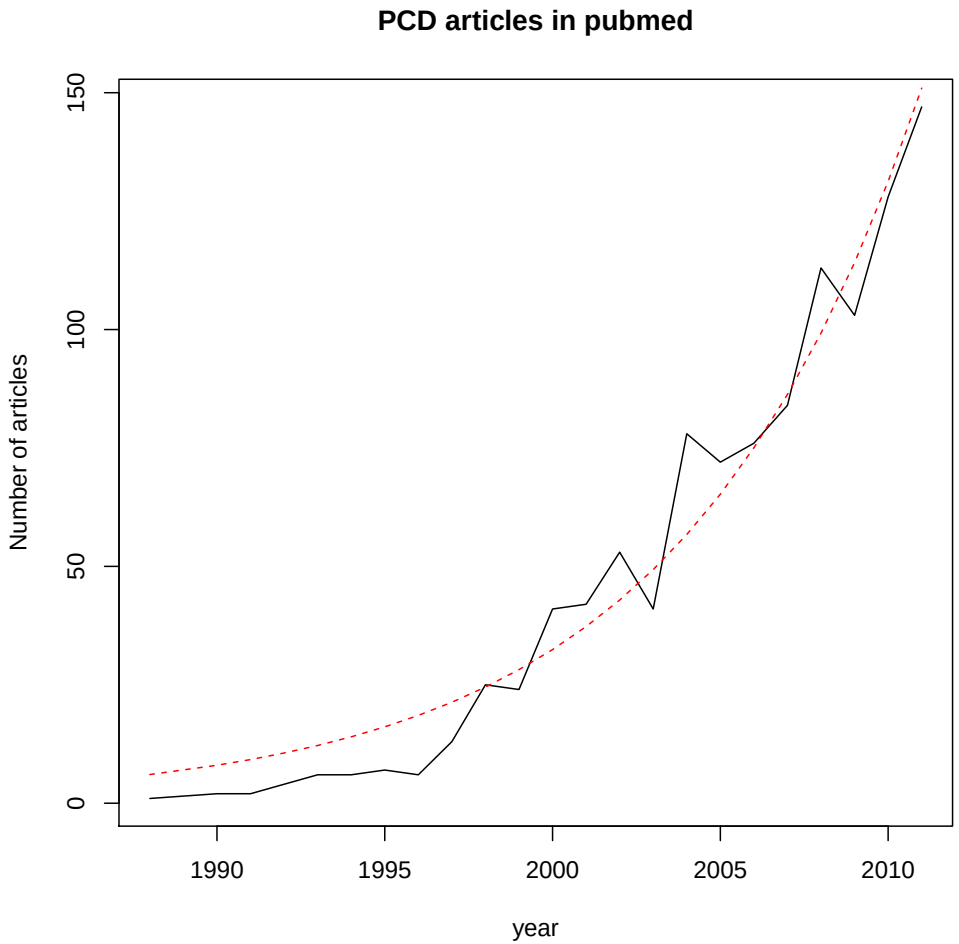
How are PCD's being used by researchers?

PCD studies are a growth area!

Number of publications is rapidly increasing. . .



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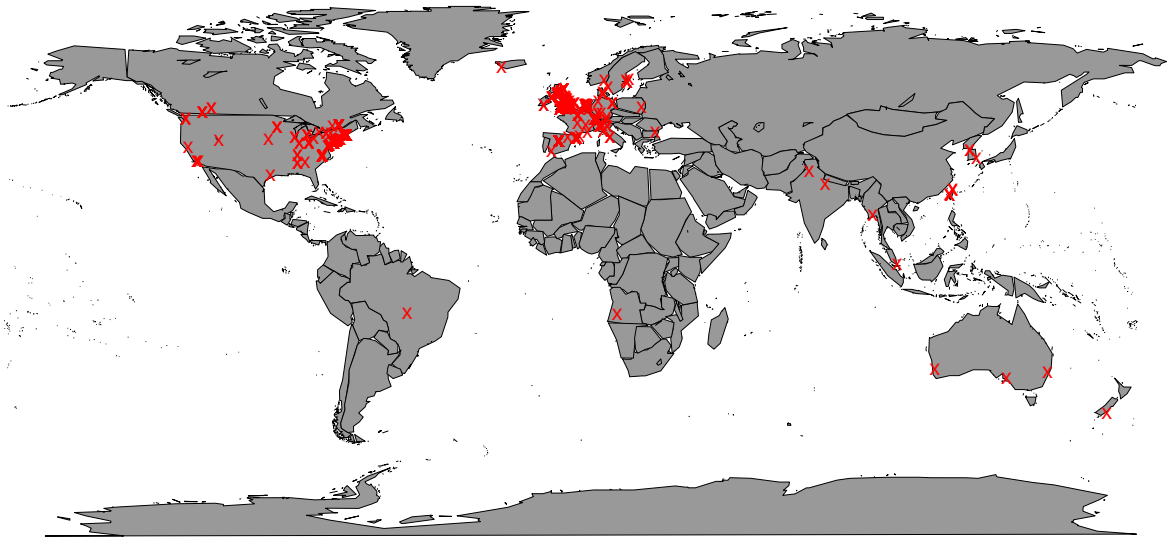
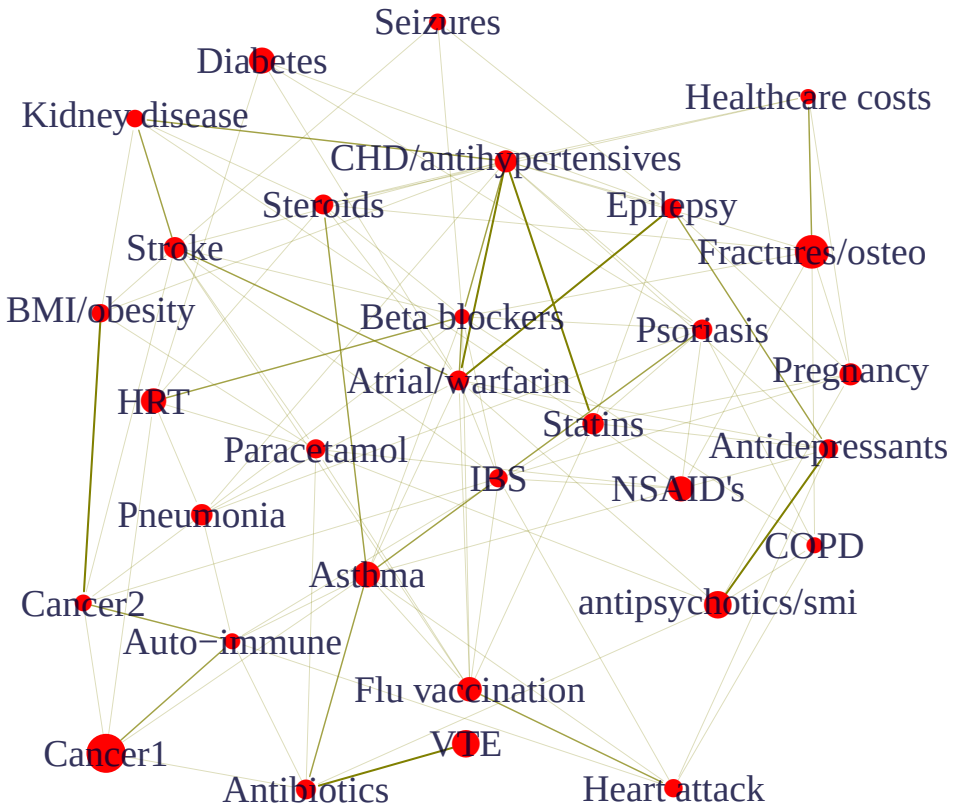
. . . and there is global interest in UK PCD research

Institutions affiliated with UK PCD publications

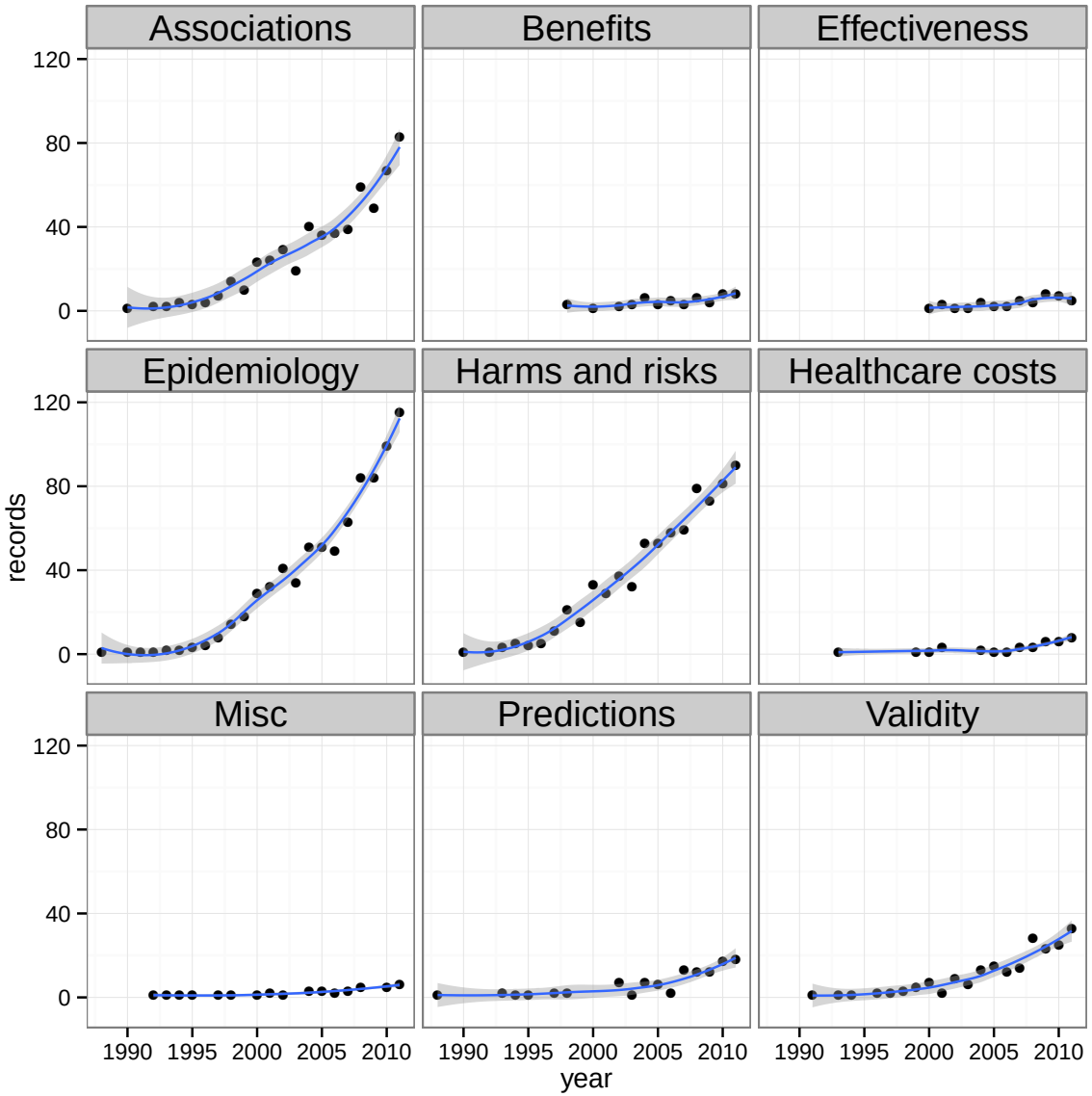


Broad scope of topics in PCD studies

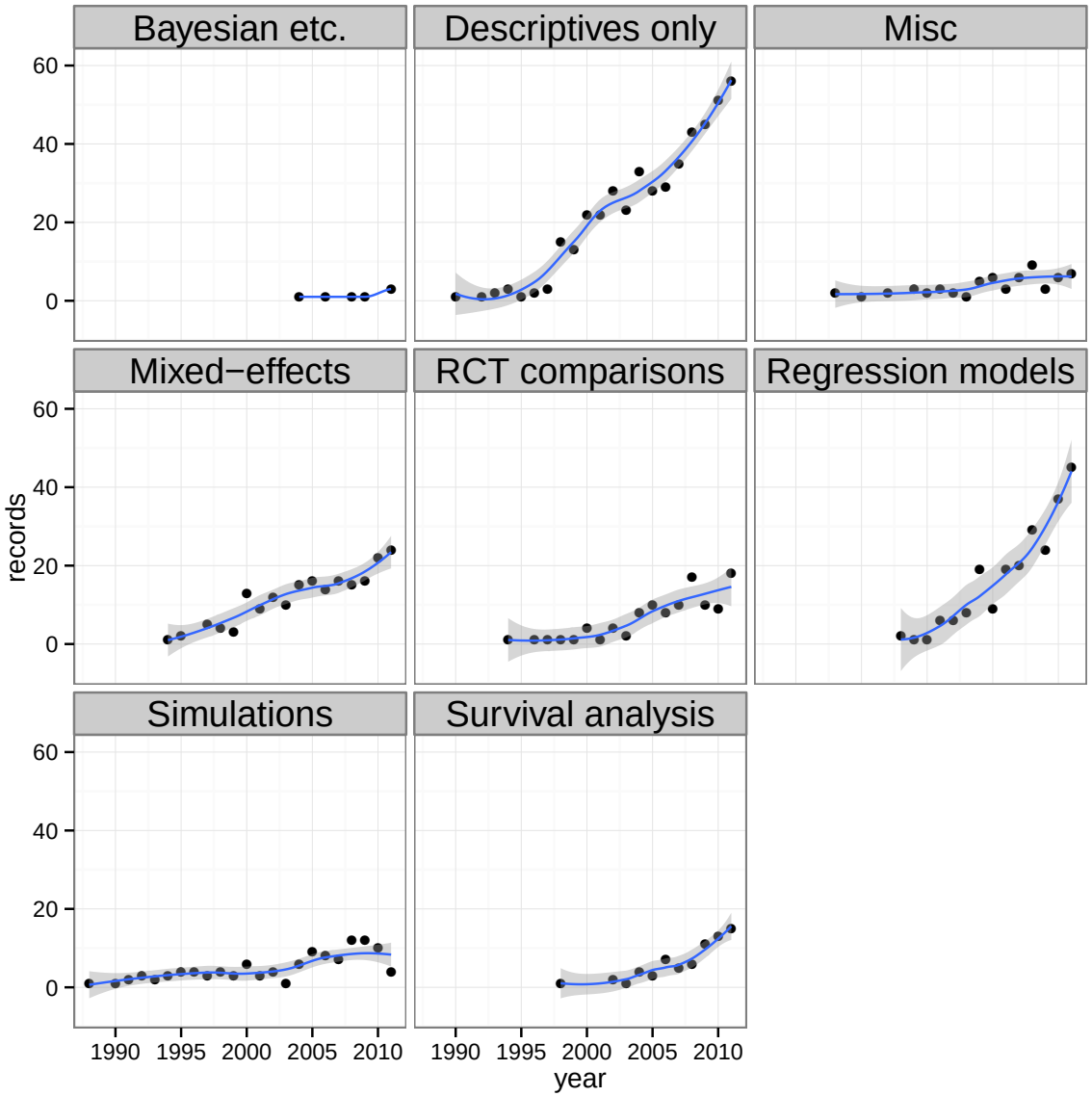
A network graph of PCD topics of investigation



Study types are changing. . .



. . . as are analysis methods



PCD validity

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e.g.

- H331.00 - Asthma diagnosis
- H33z011 - Severe asthma attack
- 33G1 - Spirometry testing

Clinical codes in PCD studies

Diagnoses are made by reference to a set of clinical codes

Workflow

1. Researchers decide on a rough set of codes for a condition
   - By searching lookup tables for matching terms
   - By reference to an external source (e.g. QOF)
2. Clinicians go through this draft list by hand and select the relevant codes
3. The database is searched for events matching the finalised code list
4. The correct combination of events in the timeframe of interest gives a diagnosis
   - e.g. For Asthma: Need at least 1+ clinical event 1+ drug event in the last year to qualify

Code list? What code list?

- Currently no obligation to publish code lists
- No centralised repository for clinical codes
- The vast majority of PCD studies do not publish their codes
- No way of knowing if a condition diagnosis is valid
- No way to replicate the research

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- Only 1 provided full set of code lists

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Clinical codes should be held to scrutiny and peer-review (either pre- or post-publication)

This would allow for:

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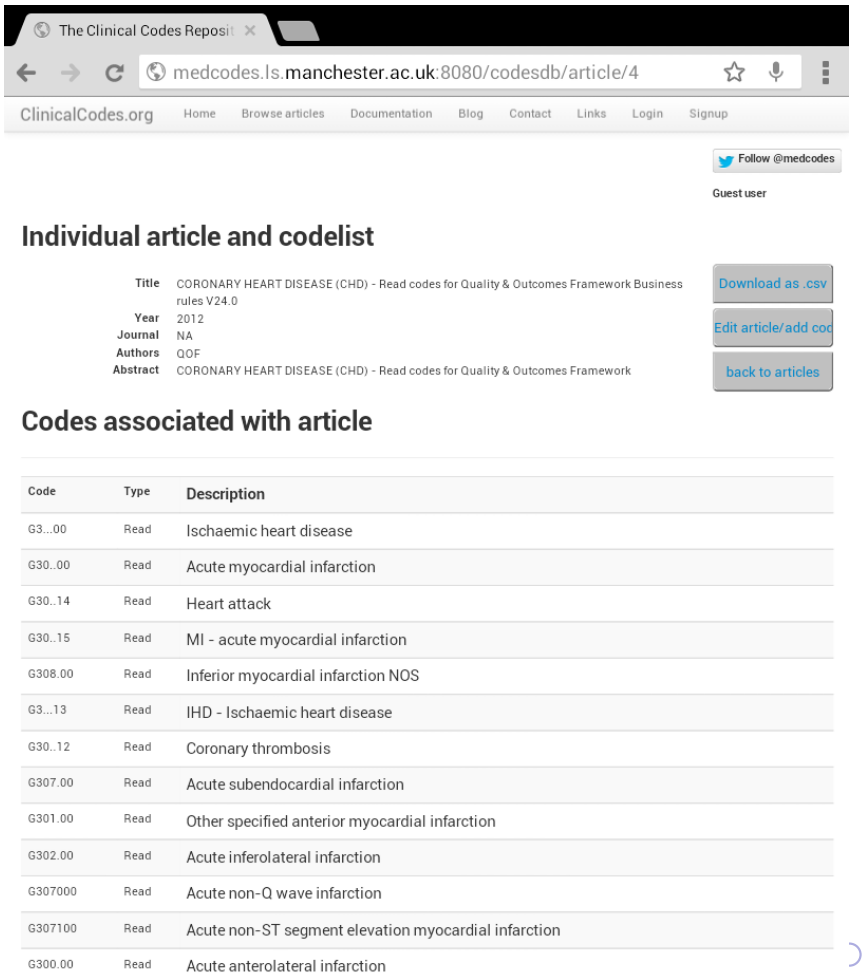
- replication of studies
- validation of diagnoses
- incremental improvements to clinical definitions

ClinicalCodes.org

. . . Is an online repository for PCD researchers to upload their codes upon publication.

- Deposit code-lists for published studies
- Download historical code-lists
- Archive for all Quality and Outcomes Framework business rules (2004 - current)
- Database-specific information (e.g. consultation types)



ClinicalCodes.org

- Allows for validation / replication of PCD studies
- Tracking of disease definitions through time
- Comparitive studies of clinical codes

Don't reinvent the wheel!

Currently in development on campus:

medcodes.ls.manchester.ac.uk:8080/codesdb

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