

Coauthor networks: beyond citations

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Why healthcare?

- Global leaders in R&D spending
 - Fortune magazine, as of 17th Nov 2014:
 - 4 of top 10 companies in R&D spending are pharma companies
 - 3 of them beat Google in absolute figures :P
 - Also 3 of them beat Google in % of revenue spent on R&D
- R&D has found a solid market in healthcare
 - The more resources you have, the more you spend on healthcare (disproportionally)

Why scientometrics?

- It lacks quantitative research compared to other biomedical fields
- The available data is constantly expanding
 - In quantity („pressure to publish“)
 - In quality (validity – number of journals indexed by search engines)
- The delicious low hanging fruit – no particular need for too sophisticated analysis techniques

What is needed?

- Analytic capacity
 - Involving more human workforce is not an option
- Connecting research areas
 - With a transparent methodology, easy-to-understand for all
- Freshness and hype
 - The citation itself exists for technical reasons; it is not interesting per se
 - Researching the researchers – like complementing the mirror

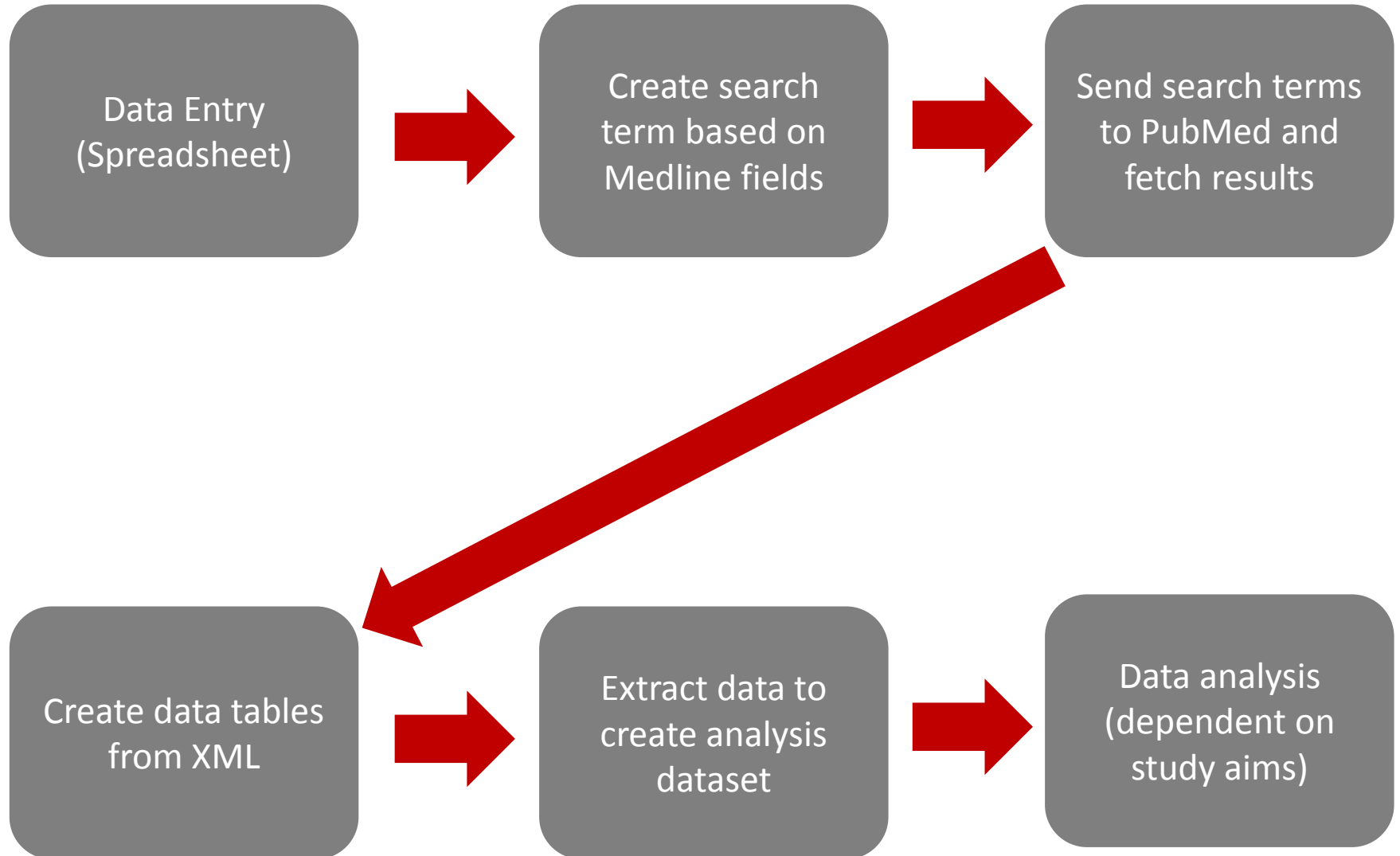
What is already there?

- PubMed database
 - Scientific citation (/literature) database
 - Citations in unified format
- R statistical software and packages
 - Flexible
 - Free
 - ...but coding can be intense (for the first time)
- Some resources which can help graphical presentation (i.e. Piktochart)

What should we try to do?

- Observing the changes in publication activity
 - Does nomination as a leader of the research community increase publication activity?
- Capture existing coauthor networks
 - Identify actors within networks

How does the script work?



Case studies

Fitting Poisson regression models to estimate changes in publication activity

Most likely to be the first author



22.91%

of papers published as the first author in this term



2.62

publications annually

In the term preceding to directorate

12.64% of coauthors here don't appear in preceding term

...compared to 5.41% in succeeding period versus directorate



3.97

publications annually

During directorate

IRR of directorate period vs preceding period:

1.59

...which is statistically significant

Highest number of coauthors (5.94) here!



4.32

publications annually

In the term succeeding to directorate

IRR of succeeding period vs directorate:

1.01

...which is statistically not significant

...but tells us that the "election" effect is constant over time

Existing coauthor networks #1



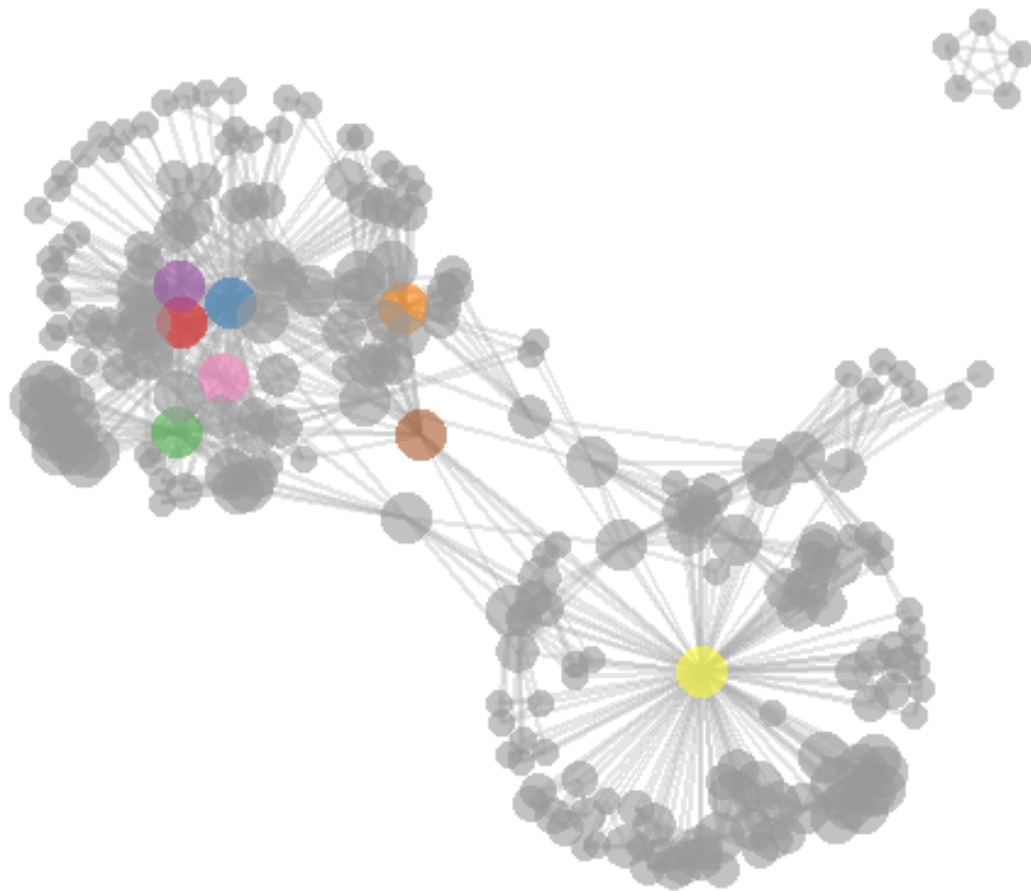
The **red** dots are the elected representatives of the Hungarian Health economic Association

What we can observe is the polarized nature of the coauthor networks within the health economist community

The complete network has two centres, but observe the difference between the NW-SE quadrant

But are the elected reps are the ones who contribute the most to publications?

Existing coauthor networks #2



The **coloured** dots are the top authors with the most outdegrees

There is a small overlap between elected representatives and top authors (but the community is small too)

Thank you for your attention

Always looking for cooperation

@GMeresz

Selected references

G Merész, Cs Földesi, Sz Nagyistók, ÁZ Vincziczki: Changes on the market of publications and a dynamising health economic researcher community. Egészségügyi Gazdasági Szemle 2014/2-3, p36-41.

G Merész, G Gyurcsán, B Salfer: Easy come, hardly go: epidemiological methods to evaluate the effect of ISPOR Board of Directors membership on publication activity. ISPOR 17th Annual European Congress, poster, Amsterdam, The Netherlands, November, 2014.

G Merész, Cs Földesi, Sz Nagyistók, ÁZ Vincziczki: The publication activity of the Hungarian Health Economics Association. IME-META VIII. National Health Economic Training and Conference, poster and presentation, Budapest, 18th and 19th of June, 2014.