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Knowledge, Research, Innovation ... eHealth

JUNTA DE ANDALUCIA
CONSEJERÍA DE SALUD

Biblioteca Virtual
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The Added Value of Multiple Databases in Searching for Exhaustiveness

A Prospective Study

Wichor M. Bramer, Jos Kleijnen
Erasmus MC, Rotterdam, the Netherlands
w.bramer@erasmusmc.nl | @wichor

Research Question

In searches for exhaustiveness (i.e. systematic reviews):

Which databases provide unique articles?

What is the relative recall of database combinations?

Methods

(Start: May 2013)

Registration of systematic review searches

Monitoring Erasmus MC output for published reviews

Matching included references with original database downloads

For various database combinations relative recall was calculated

Results

(May 1, 2013 - May 1, 2016)

Registered searches:	678 (incl. updates)
Finished reviews:	150
Reviews included:	58
Included references:	2860
Search terms:	57
Number of databases:	7
Number of hits retrieved:	2231
Number of includes:	27
Precision:	1.6%

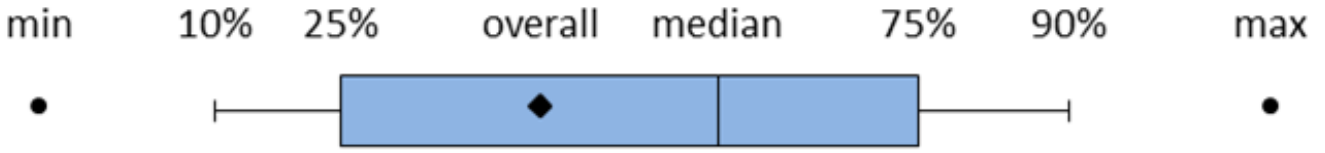
Number of unique included references by database

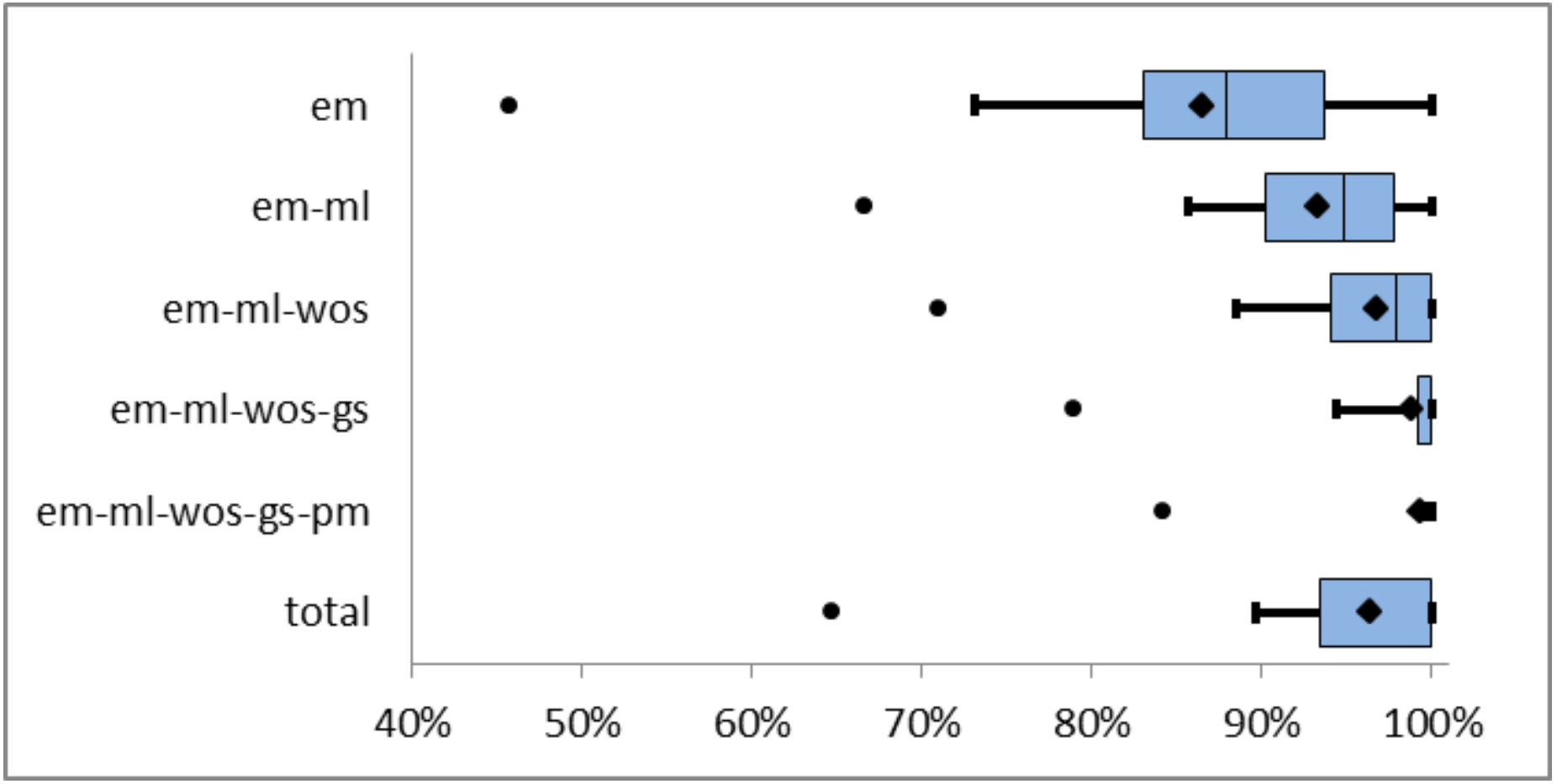
	Unique included references	Percentage of total
Total	446	*(16%)*
Embase	187	42%
Medline	92	21%
Web of science	78	17%
Google Scholar	50	11%
PubMed publisher	14	3%
Cinahl	9	2%
Scopus	5	1%
PsycINFO	2	1%
Sportdiscus	2	1%
Cochrane central	0	0%

Performance of different database combinations

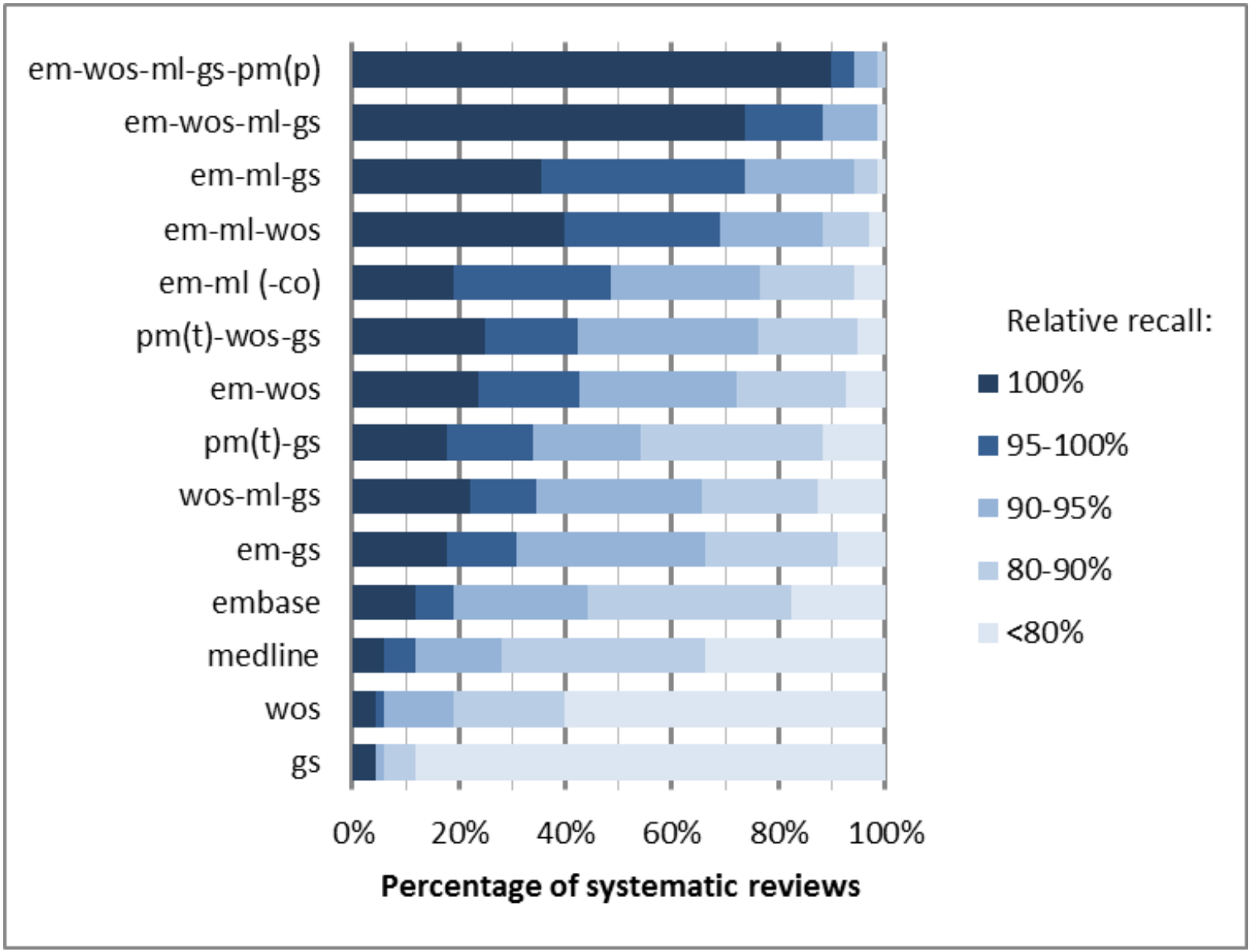
	Includes retrieved	overall sensitivity	minimum sensitivity
Embase	2386	86.5%	46%
Medline	2230	80.8%	50%
Web of Science	1890	68.5%	24%
Google Scholar	854	31.0%	5%

Improvement of recall by adding extra databases





Recall for various database combinations



Frequency of database combinations

Random sample (N=197)		
em-ml-co	28	14%
em-ml-+	24	12%
em-ml-co-+	23	12%
em-ml	13	7%
em-ml-wos-co-+	7	4%
ml-pm-+	5	3%
ml-+	5	3%
ml	5	3%
11 combinations 2%	37	19%
43 combinations 1%	50	25%
62 different combinations		

Our study (N=586)		
em-ml-wos-co-pm-gs	181	31%
em-ml-wos-co-pm-gs-+	116	20%
em-ml-wos-co-pm-gs-scop-+	109	19%
em-ml-wos-co-pm-gs-scop	77	13%
em-ml-wos-pm-gs	11	2%
em-ml-wos-pm-gs-scop	10	2%
em-ml-wos-co-pm	9	2%
21 combinations 0%-1%	73	11%
28 different combinations		

Found in medline but not in Embase

Not covered	37	26%
Better indexed in medline	34	24%
Missing study type	14	10%
Now retrieved	26	18%
Search missed terms	12	8%
Unknown	11	8%
Limits	9	6%
Difference between mesh and emtree	8	6%
Too broad alternative	7	5%
Narrower term missed	1	1%
No abstract in embase	5	4%
Total	**142**	

Found in Google Scholar not in traditional databases

Topic only mentioned in full text	13
The search strategy missed terms	10
The article was not correctly indexed	6
No abstract in database	4
The journal was not indexed	3

Conclusions

- Only 41% of random systematic reviews in PubMed searched enough databases for acceptable recall (>95%)
- Medline – Embase – Cochrane Central is insufficient
- Cochrane Central did not add unique included references
- Medline finds unique references not found in Embase (even when searching Embase including Medline unique records)
- Google Scholar adds relevant articles not found elsewhere
- Recommended: Embase, Medline *(incl epub!)*, Web-of-Science, Google Scholar

Contact details

E-mail:	w.bramer@erasmusmc.nl
Twitter:	@wichor
LinkedIn:	nl.linkedin.com/in/wichor
Slideshare:	www.slideshare.net/wichor