

“It really is an art form”

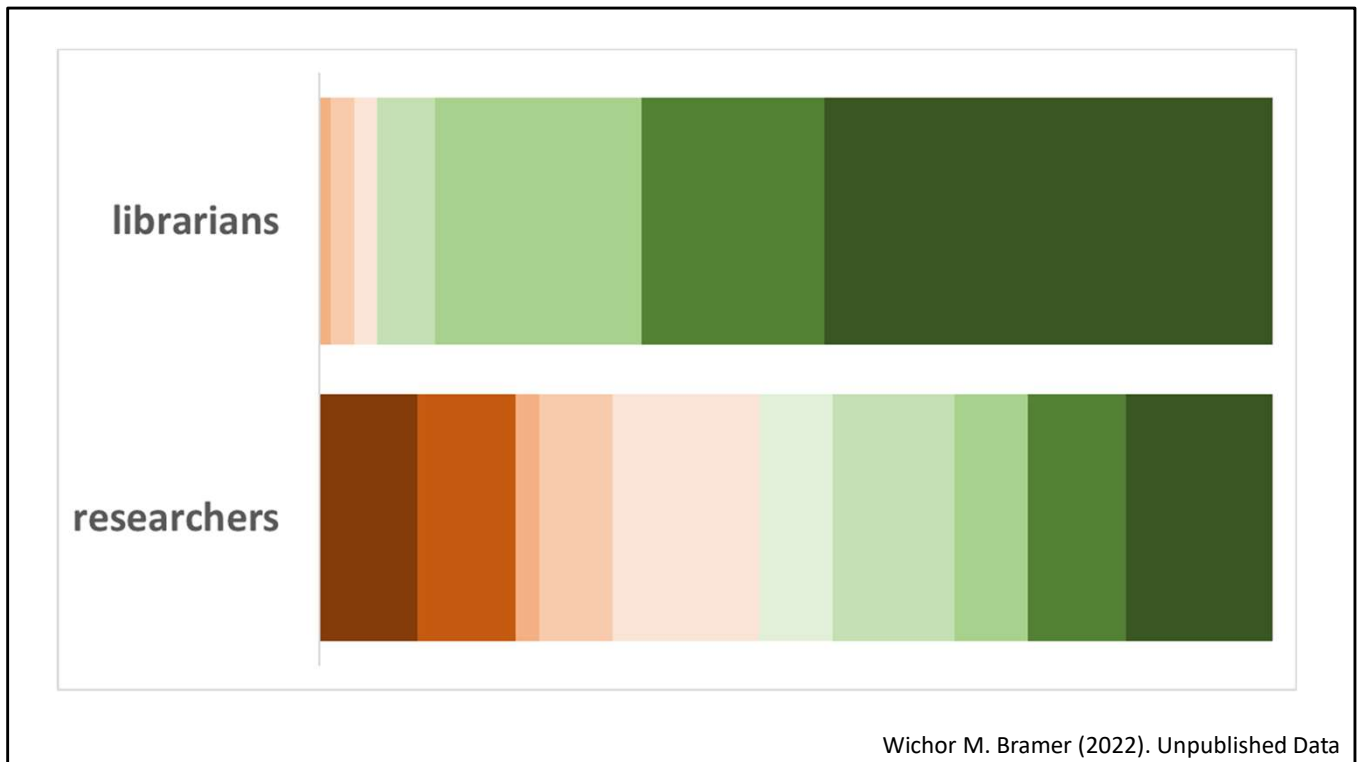
Librarian-mediated searches:  
increasing the effect of your efforts



My name is Wichor Bramer. I work for Erasmus MC in Rotterdam. In 2019 i defended my PhD thesis *Serving Evidence Synthesis*, and have since become quite a recognized prominent systematic review searcher. I've authored 15 methodological articles about how to search for SRs, and have co-authored 130 SRs.

As a result I get asked to do peer review of the searches of submitted SRs a lot. I vividly remember one specific article i reviewed this search was beyond bad. I recognized the university the authors were from and, knowing the excellent librarian that works there, I advised them to seek help from their librarian.

A few weeks later i got an email from their librarian. I still don't know how, but she was rightfully under the impression that i had done that peer review. She told me that the authors had actually asked her for her help prior to ding their review, but she had to decline, as she didn't have time.



In 2022 I performed a small survey for a talk in EAHIL 2022 (which I organized in Rotterdam) among ultimately 83 information specialists and 39 authors of systematic reviews.

When asked on a scale of 1 to 10 whether they find it important that all systematic reviews are assisted by an information specialist prior to publication there were discrepancies. 88% of librarians score at least an 8, 46% of researchers scored a 5 or lower.

Do you agree with me that it is vital for SRs to be assisted by information specialists, prior to publication? Let's see how we're doing?

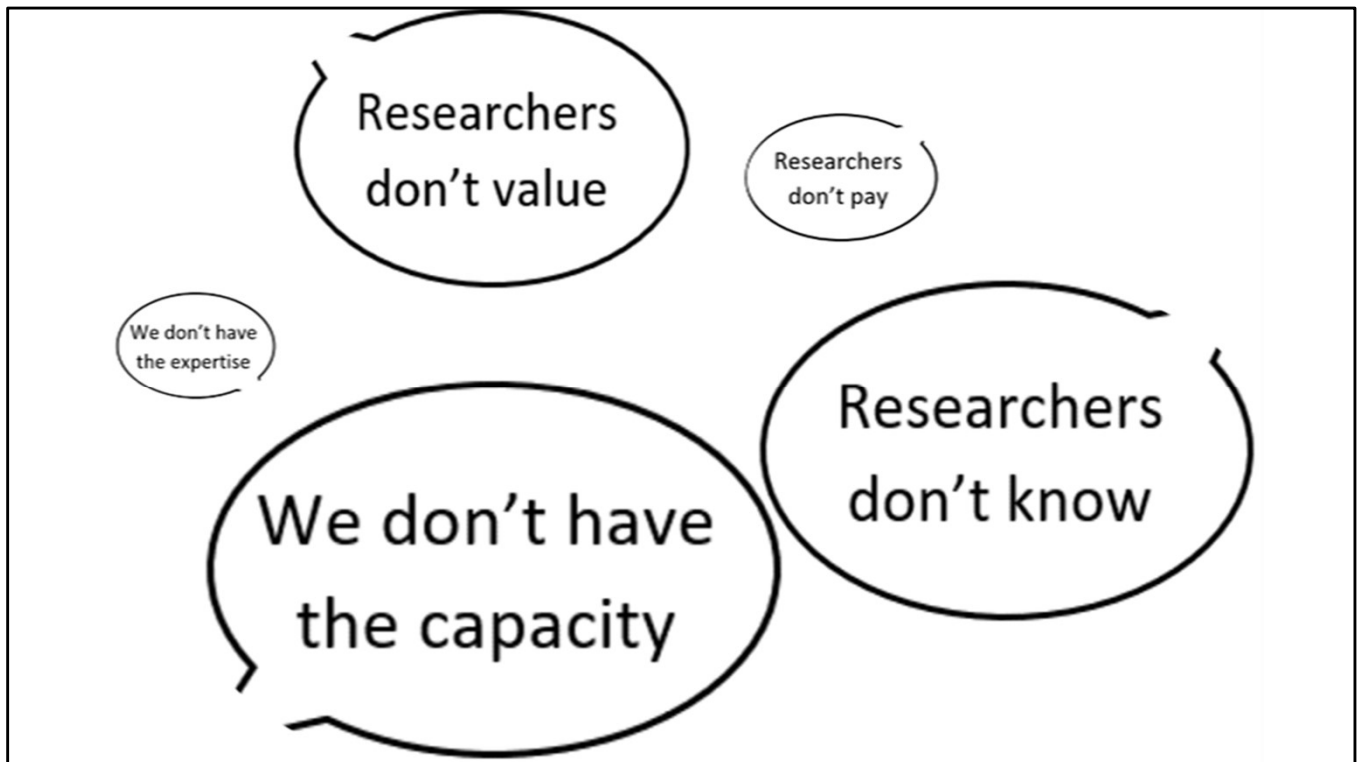


The information specialists described how in total almost 5000 systematic reviews have been published by their institute in the last year. Here you see those reviews sorted by assistance from the medical librarians. The left pile is 1400 reviews for which librarians have developed search strategies. The smallest middle pile is the 500 reviews for which librarians provided prepublication peer review of the search. The largest pile on the right is over 3000 reviews for which no assistance was provided by these librarians. Yet all these reviews have been published by institutes that have a librarian that offers SR services.



What happened to these 3000 review projects? If a librarian doesn't assist in the search the researchers will perform the search themselves.

They will write their review based on their own literature search, which has flaws. If their search has flaws hopefully peer reviewers will notice and their paper will be rejected, or they get a major revision, and at they have to redo the search and the review. But even worse, it could be accepted, without major improvements to the search. Enough low quality reviews are published already, there is no need to publish any more.



What are reasons that information specialists do not assist all reviews in their institute? it is not so much that librarians lack experience or that researchers refuse to pay for services.

Some librarians report that the researchers don't value or appreciate their services, but the most important reason for not assisten projects is that researcher are not aware of the service or that the library doesn't have the capacity to assist all requests.

But why do librarians not have the capacity? Does it take too long to perform searches? How long does it take to perform an SR search?

## It takes longer than you think: librarian time spent on systematic review tasks\*

Krystal Bullers, AHIP; Allison M. Howard, AHIP; Ardis Hanson; William D. Kearns; John J. Orriola; Randall L. Polo; Kristen A. Sakmar

*See end of article for authors' affiliations.*

**Introduction:** The authors examined the time that medical librarians spent on specific tasks for systematic reviews (SRs): interview process, search strategy development, search strategy translation, documentation, deliverables, search methodology writing, and instruction. We also investigated relationships among the time spent on SR tasks, years of experience, and years of education. **Bullers K, Howard AM, Hanson A, et al. It takes longer than you think: librarian time spent on systematic review tasks. J Med Libr Assoc. 2018;106(2):198-207.**

**Methods:** A confidential survey of members of the Association of Medical Librarians and Documentalists (AMLD) was conducted. The survey asked participants to report the time spent on SR tasks, years of experience, and years of education.

Extensive research by librarians from University of South Florida in Tampa sheds light on the time information specialist take to perform certain tasks in SRs.

They held a survey among information specialists that worked on SRs in the last 5 years. The number of SRs participants were involved in ranged from 1 to 500 (i think some of the outliers the authors found might be my data as i remember participated in the survey).

**Table 2**

SR task time spent in hours

<b>Task</b>	<b>Median duration</b>	<b>Average duration</b>	<b>Maximum duration</b>
<b>Core tasks</b>			
Initial and follow-up interviews	2.0	3.9	50.0
Search strategy	5.0	8.4	100.0
Translating search	3.0	5.4	75.0
Documenting	2.0	3.0	20.0
Delivering	2.0	4.3	40.0
Writing	1.0	1.8	26.0
<b>Related tasks</b>			
Instruction	2.0	3.8	33.0
Additional tasks	0.0	2.2	35.0

By the way: when i said the outliers could be mine, i m sure these outliers in maximum duration are definitely not mine.

Over the 143 respondents the average time spent per SR was 27 hours, with a median of 18.5.

As we can see (and just as expected) most time is spent on developing and translating the search strategies.

What the survey did not investigate was the reasons WHY people spend so much time performing search strategies.

We can only guess about that.

My take is that most information speicalists worry that they miss out on certain relevant references. They want to absolutely ensure that not a single relevant reference is missed. Meanwhile the researchers are often concerned that the number of results is too high. So there is a really high pressure on optimizing sensitivity and precision.

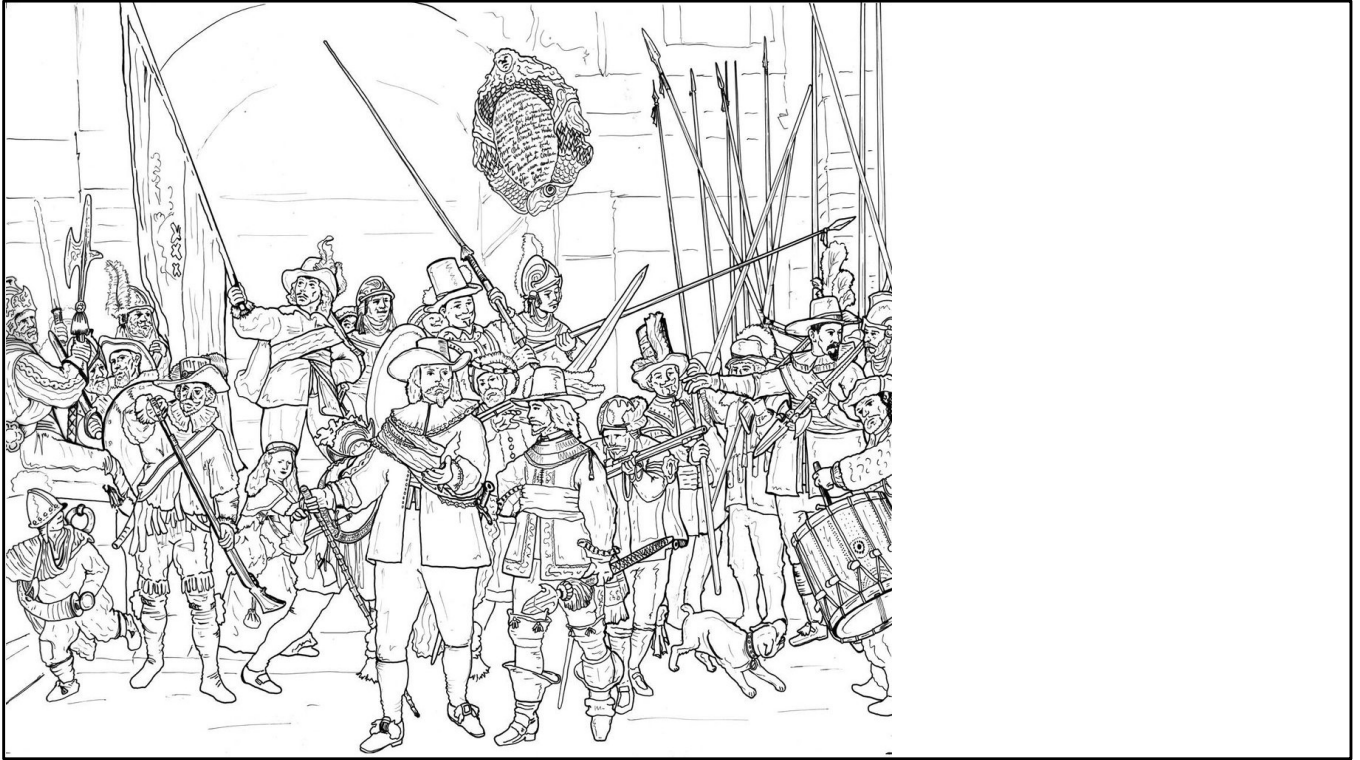




Many information specialists, when designing searches for systematic reviews believe that only the best of the best is good enough. They see complicated searches developed by colleagues, and think that SR searches can only be very complicated and long, and cannot miss any relevant reference or the information specialist has failed. You might feel like this Dutch scientist artist who managed to recreate the Nachtwacht by Rembrandt an enormous painting of 3.5 by 4.5 meters.



But what are the alternatives. If the researcher performs the search themselves, at best you would get something like this. Even when the researcher has attended workshops on searching, they have too little experience to create a good search. They try to fill in all the specifics but fail to get the structure correctly. But is this acceptable?



Doesn't it make much more sense to give the most important outline without filling in the exact details. Won't this be much better than what the researchers themselves can do. You could achieve this much faster than the fully filled in painting

Can you not compare searching to a coloring page? You first create the outline, and then later you fill in the colors

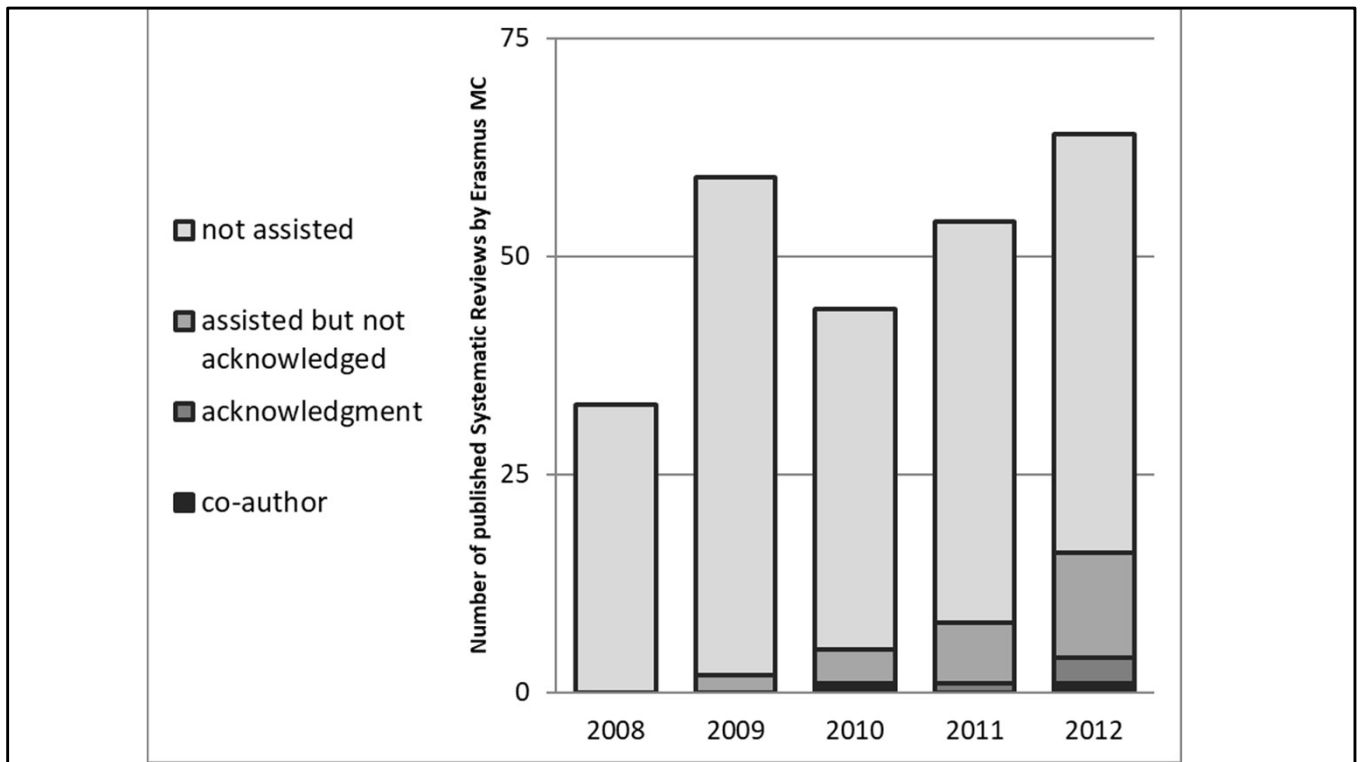
But do librarians agree with me on this? Do they think they spend too much time creating a search? Let's see what the responses were



When we asked what we as libraries should do to be able to assist a higher percentage of the reviews in their institute these were their responses

Major solutions mentioned were: Marketing should be increased, however many respondents objected against that, when they realized that increased marketing meant increased demand, which they would not be able to fulfill.

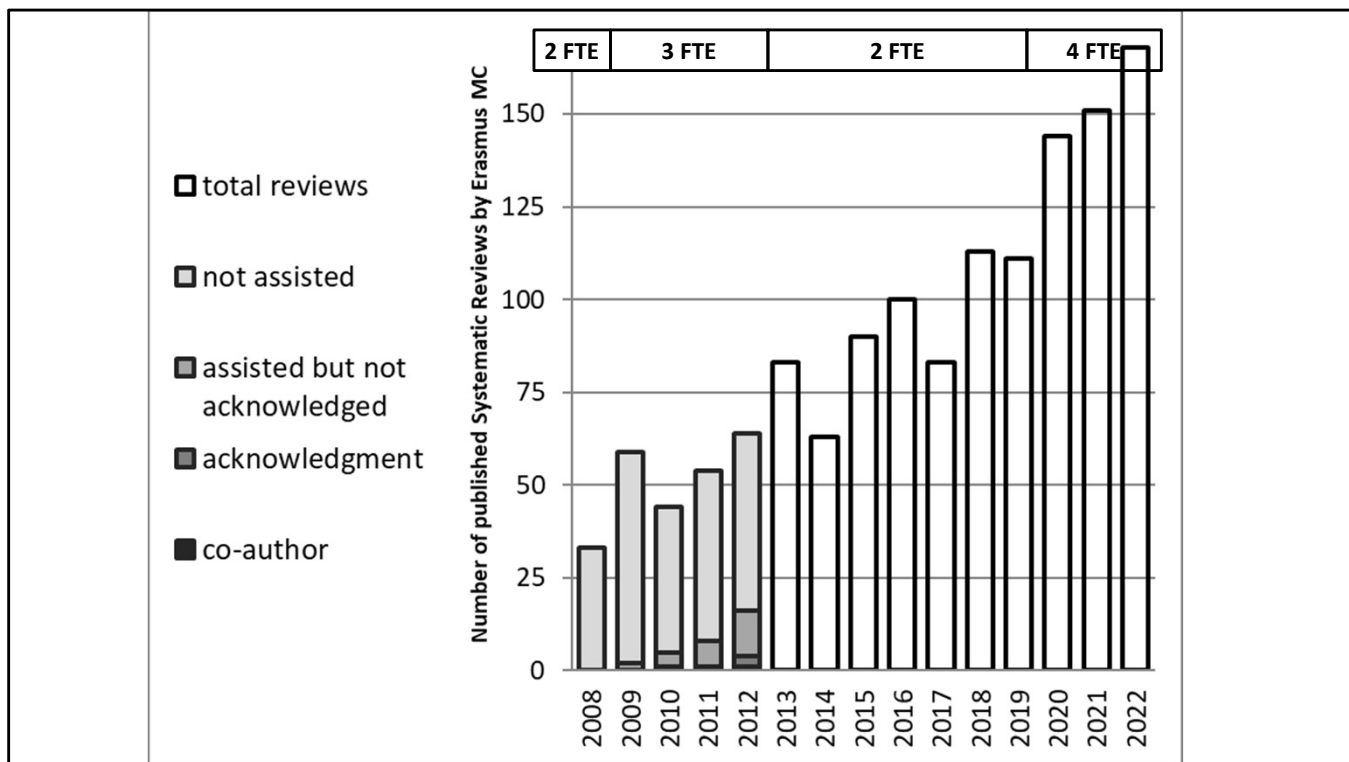
Hence the highest scoring response was that more staff should be hired.



At our institute a decade ago, we saw a similar increase in demand. I was hired in 2009 actually for technological innovation, not primarily for literature searches (i still remember in my interview it was questioned whether i had enough medical knowledge to perform searches, i asked how often i would have to do searches, it would only be once a week, and i argued that it would not be my most important task, and i could learn doing the job).

However, while on the job i noticed there were so many systematic reviews published that we did not yet assist. I started monitoring them. I set an alert for any SR published by Erasmus MC. And if the medical library had not been involved in the search i would e-mail the corresponding authors that we now have this free of charge service that they can use for their next reviews.

I am pausing the graph here at 2012. what happened that year? I was hired in 2009 as the third information specialist. In 2012 my most senior colleague (a 25 year career) retired. He was the one who had taught me and my then colleague how to perform searches. Still demand increased.

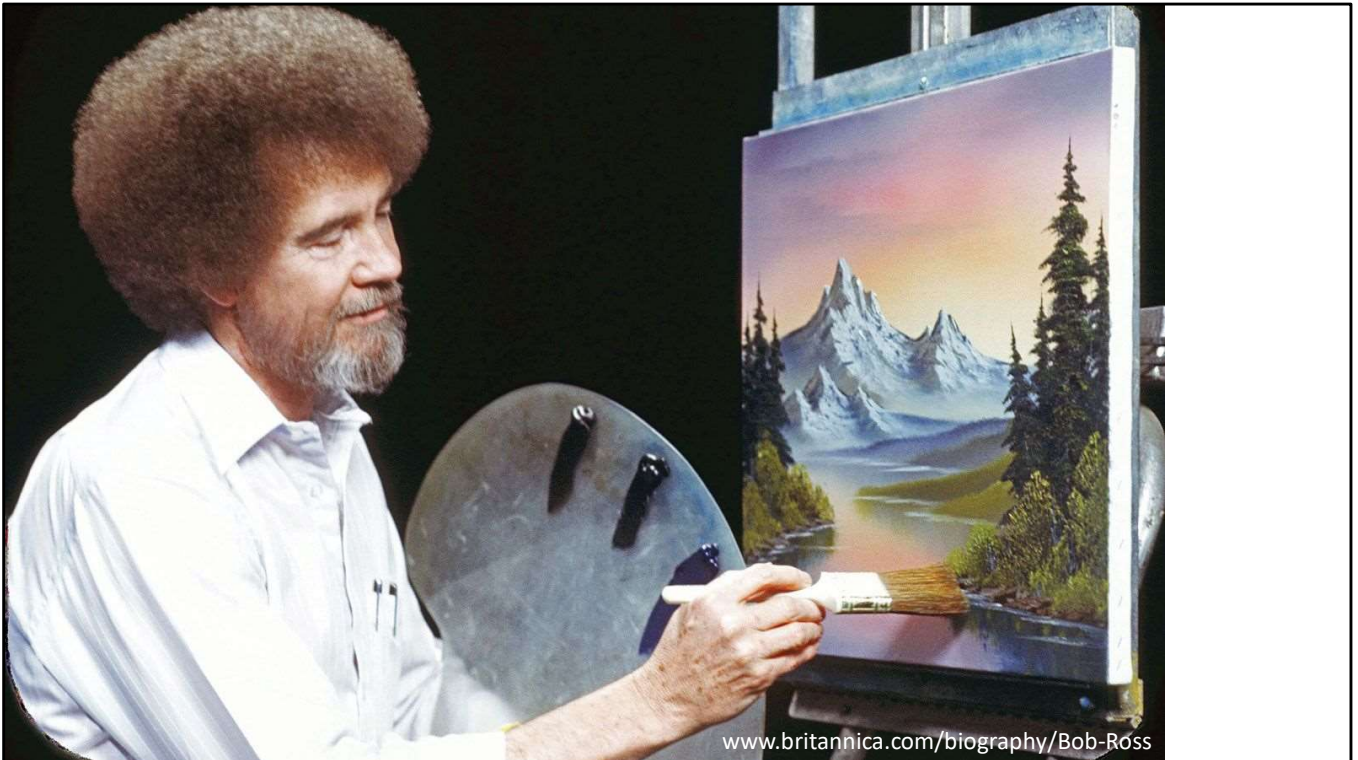


Here you see a preview of the increased demand. We didn't know back in 2012 of course that this was going to happen. But we felt we wanted to be able to manage increased demand. However, there was no money to hire an extra information specialist. This was only possible in 2019, when our hybrid library was transformed into a digital only library. Traditional librarians were fired and my manager hired 2 new information specialists (which also were assigned other tasks such as research data management and research intelligence etc)

But back to 2012, we, the two remaining information specialists, wanted to find a way to create searches in a better, more consistent way. Therefore we developed a method that would help us maintain high quality searches for all researchers asking for our help. This is the method that ultimately resulted in my PhD thesis.

We looked at and tried to improve every aspect of the way we created searches: the choice of databases, should we use other database and interface, in which database do we start, how do we translate between databases, how and do we do the reference interview, do we prepare for it etc. Do we ask the researchers to do a search themselves already. All things that affect your efficiency. Over the year 2013 our method developed, and at the end of 2013 our method had settled.

Did we have to become rembrandts to effectively assist our researchers?



Maybe you have seen the videos from Bob Ross. In his video series “the joy of painting” he paints with so much ease that everybody thinks they can do it too. However if you try it yourself it is always much more complicated than you think. Did he become a skilled artist out of the blue? He did so by doing what he liked and doing so developed his skills and immense speed.

The same can be said for searching medical databases.

So what is this magical Bob Ross method that we use to create SR searches?

## A systematic approach to searching: an efficient and complete method to develop literature searches

Wichor M. Bramer; Gerdien B. de Jonge; Melissa L. Rethlefsen, AHIP; Frans Mast; Jos Kleijnen

*See end of article for authors' affiliations.*

Creating search strategies for systematic reviews, finding the best balance between sensitivity and specificity, and translating search strategies between databases is challenging. Several methods describe standards for systematic search strategies, but a consistent approach for creating an exhaustive search strategy has not yet been fully described in enough detail to be fully replicable. The authors have established

a method that describes the systematic review process in a document by typing search terms and pasting search terms into a search engine. Bramer WM, de Jonge GB, Rethlefsen ML, Mast F, Kleijnen J. A systematic approach to searching: an efficient and complete method to develop literature searches. *J Med Libr Assoc.* 2018;106(4):531-541.

We described the method in this article from 2018 which is one of the chapters of my PhD thesis.

Let me explain something about the basics used in the method to maybe trigger you to think about the methods you use in your searches, and to read the article and try it



## Elements : bias

specific characteristics

→ **Duration of** breastfeeding and intelligence

judgement

→ **Poor** family functioning, **harsh** parenting and **bullying**  
behavior of children/adolescent

Important to do before you begin is to determine elements to use in your search. Many researchers (and also I see this with information specialists that attend my workshops) will use too many elements in a search.

If you include too specific characteristics in your search you will introduce bias. An article that found that longer breast feeding has a positive effect on intelligence will mention that in the abstract, but an article that just investigated breast feeding and intelligence might have in its full text a table with the duration of breast feeding. But if they didn't see a difference they will not mention that specific aspect in their title abstract. You have to read the full text for that.

Including judgements in your search can also lead to bias. An article that found that family functioning does not have an effect on child behavior at an adolescent age can answer your research question, but will not be found if you search for poor, harsh and bullying.

By leaving out specific elements from the search you will become more sensitive.

## Elements : duplication

**Pre-eclampsia AND pregnant AND women**

**Lichtenstein therapy AND inguinal hernias**

When people use a pico format to determine which elements would be used in the search they tend to always include a population, a disease and a therapy. However is that always necessary?

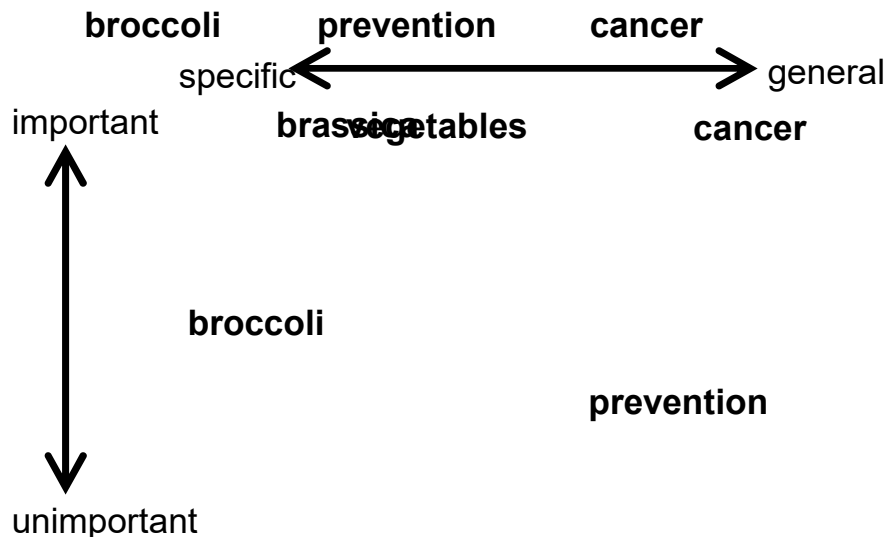
When searching for preeclampsia in pregnant women most people will realize that preeclampsia is a disease occurring in pregnant ... people, and most pregnant people are women, so you search for pre-eclampsia does not have to include search terms for pregnant women.

[click]

But it is not always that evident. A researcher wanted to do a review on Lichtenstein therapy for inguinal hernias, but they failed to tell me Lichtenstein therapy is a therapy specifically designed to treat... inguinal hernias.

There were some relevant references that did not include the term inguinal hernias.

## Does eating broccoli help in the prevention of cancer?



In stead of PICO we use this model .

Elements in your search can be specific of general. Specific elements are topics for which not many publications are present. And general ones are those where many articles have been published. It is not a clear scale but it is sort of a logarithmic scale, the specific elements will normally be around 10,000, in the middle it is 100,000 and the general ones will retrieve at least 1 million articles. That is independent of your research question

Depending on the research question an element becomes unimportant if you can think of articles that do not have that element in title abstract but can still answer the research question.

Rather theoretical but it will become more clear with this research questions:

It has 3 elements: broccoli prevention and cancer

I hop you all undersand that eating is a duplicate for broccoli. You can do a lot with it, rub it on your skin but mot people will eat it.

Think for a moment where you would put broccoli.

[pause]

Is it specific or general. It retrieves around 10,000 refernces so it is rather general

Can we think of an article that does not mention broccoli but still answer the question.

An article that compare different types of vegetables might mention in the full text

broccoli, but only when it as cancer preventive will mention it in title abstract. We could make it more important by broadening it to brassica (cruciferous vegetables such as cauliflower), or even to vegetables, but that might be a bit too broad.

Similarly we look at prevention: rather general and unimportant. any article that found a relation between broccoli and cancer can answer the research questions. Cancer is often the easiest one. General and important.

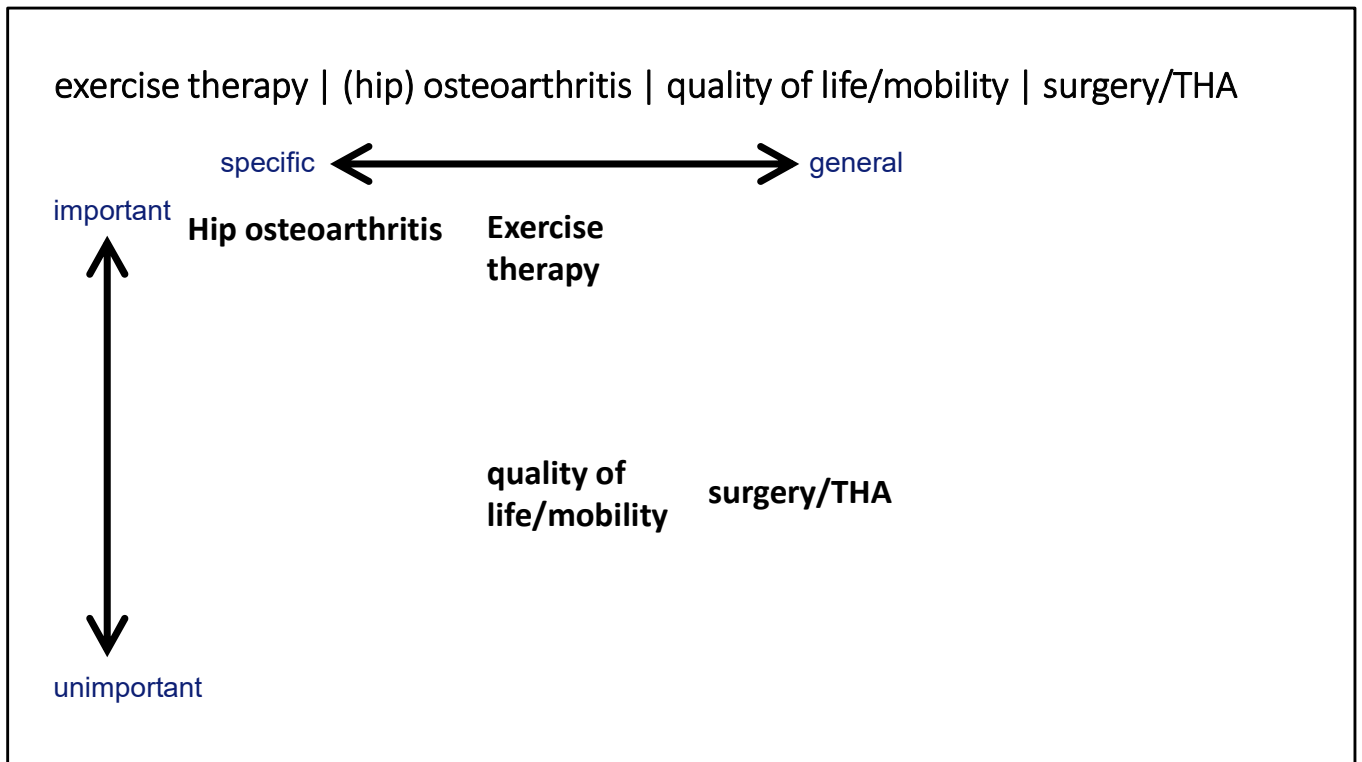
Now what does this do for the search? Which element would you start with? I'd start with brassica. If that retrieves only 500 references I'd stick with tha. You search a health related database for the effects of broccoli. But you get 10,000, that is too many, you add cancer. 1000 references is acceptable.

So you work with important elements only , and start with the most specific ones, gradually adding the general ones until you reach a number that is acceptable or you get to 4 elements, never use mote than 4 elements.

Does exercise therapy for hip osteoarthritis improve quality of life and mobility compared to surgery such as total hip arthroplasty

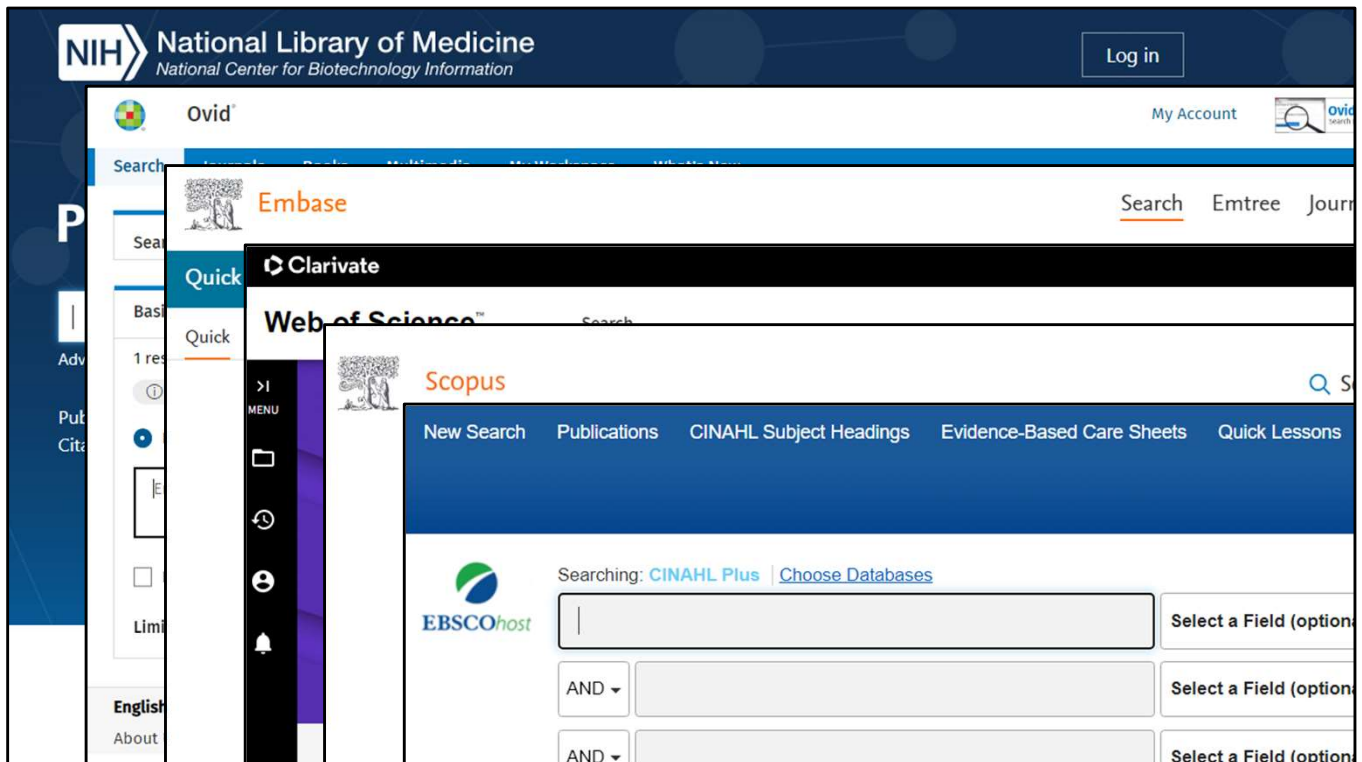
Let's take this research topic that i often use in the international workshops i present, this is much more challenging.

There are many more concepts here. You have to combine similar concepts. Very often if the research question says AND the researcher actually meant OR. They are interested in articles on quality of life OR on mobility, not necessary articles that have both terms.



So this is the analysis of this research question.

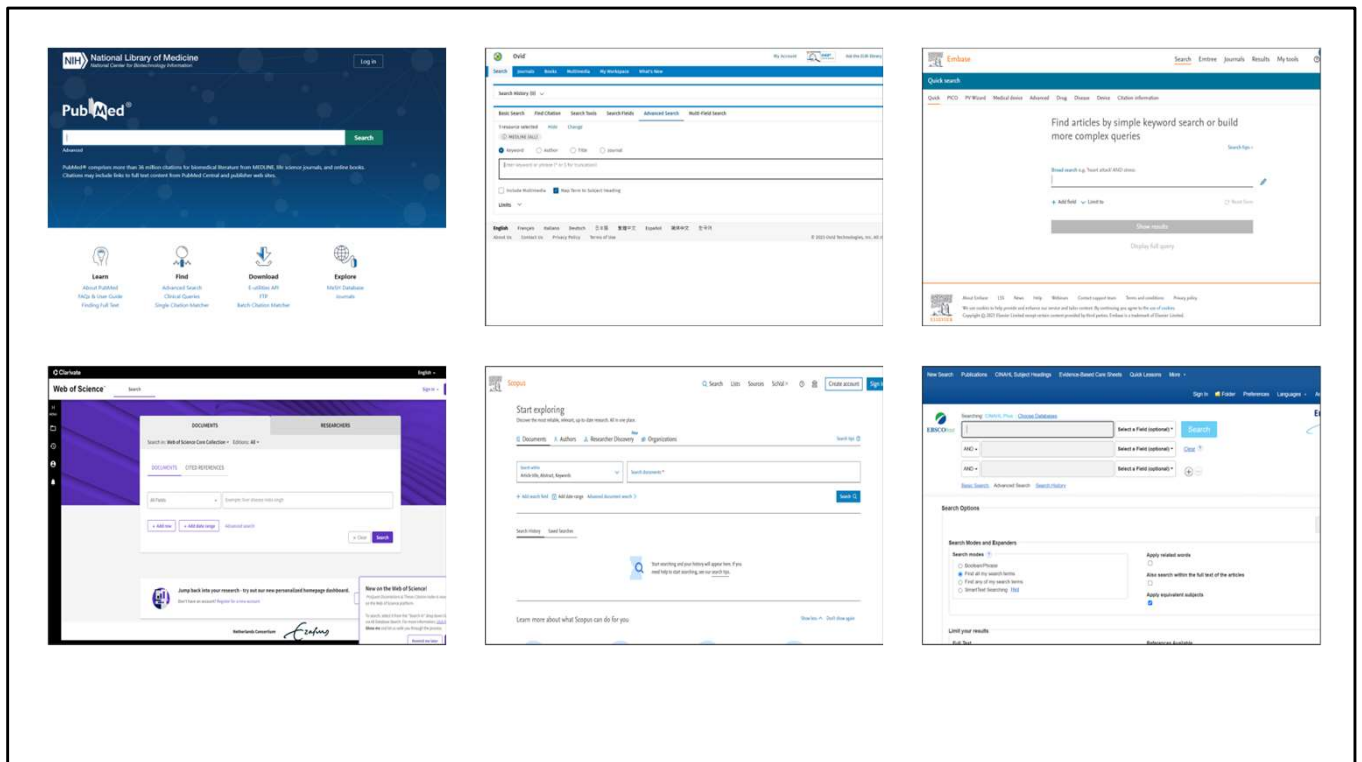
After we determined which elements should make up the search strategy you determine a database to start in. We recommend to always use a certain starting database to ease your workflow.



There are many different databases and interfaces. Do you start in PubMed, OR do you use Medline via another interface such as Ovid? Maybe your institute has embase via ovid, mine subscribes to embase.com, but there are other relevant databases such as web of science, scopus, or if you assist many nurses you can search in CINAHL.

Probably all of these databases can be relevant for your search, but where do you start?

We recommend that you use one database to always start your searches. But which of these do you choose?



An important factor that influences your choice of starting databases is completeness. That would mean specified database such as CINAHL or PsycINFO should not be your starting database, even when you are searching for nursing or psychiatry related topics [click]

Second factor is you need a strong thesaurus. Now that means Web of Science and Scopus should not be the start [click]

So we have Medline and Embase left, but which interface should you choose. Familiarity with an interface should not be the reason to choose an interface. Many information specialist will start a search in PubMed, even when they have more advanced databases available such as Ovid Medline (we used to be the same before 2012).

They will say “But my students and faculty (and the readers of my review) don’t know Medline Ovid.”

They don’t have to, as long as YOU know how to use it, and correctly report it.

Important factor is the availability of TRUE proximity searching. I know PubMed recently introduced proximity searches, but is it really true proximity? It is very limited in use. [click]



So if you have the choice you should use an interface that allows proximity, therefore Ovid or embase.com. If you don't have that available, you might check if you can get it for free (if you have PsycINFO via Ovid you can ask Medline for free, just like we did in 2012)

Embase

Search Emtree Journals Results

Quick search

Quick PICO PV Wizard Medical device Advanced Drug Disease Device Citation information

Find articles by simple keyword search or build more complex queries

[Search tips](#)

Broad search e.g. 'heart attack' AND stress

+ Add field Limit to [Reset form](#)

Show results


[Display full query](#)

Now do you start in embase or medline? If you plan to use embase (that is, if you want to be complete you should use embase) (Don't get me wrong, i don't say that you all should buy access to embase if you don't yet have it, though you can always try to submit a business case to your manager) If you want to use embase, you should start in embase There are many more emtree terms in embase than there are mesh terms in medline. If you translate all emtree terms one on one into mesh terms you will have found all mesh terms, but not vice versa.

At our institute we have embase.com, so i will use in the examples following the syntax for embase.com, as our method works best in that database, but it also works fine in other interfaces.

Let's look at an emtree term for our topic.

hip osteoarthritis 

Extend search using: [/exp](#) 

Show 14,868 results

 Take to Disease search



+ Add to query builder

 Synonyms (14)

 Copy

arthrosis, hip

arthrosis, hip joint

cox arthrosis

coxartherosis

coxarthroses

coxarthrosis

hip arthrosis

hip joint arthrosis

hip osteo-arthritis

hip osteo-arthrosis

hip osteoarthrosis

malum coxae senilis

osteoarthritis, hip

hip osteoarthritis

This is how a typical entree (and mesh term) looks like, you have an entree term and a list of synonyms, or in the case of MeSH terms these are called entry terms.

Now how do we create a search strategy with these terms?

<p>1 smoking/  2 exp cigarette smoking/  3 smoking.ti,ab.  4 ((smok* or tobacco or cigarette* or nicotine) adj3 (addict* or use* or usage or using or intake or consum*)).ti,ab.  5 ((smok* or tobacco or cigarette* or nicotine) adj3 (prevalence or behavio?r)).ti,ab.  6 or/1-5  7 exp Adolescent/ or exp Minors/ or exp Young Adult/</p>	<p>('prosthesis infection'/exp OR 'implant associated infection'/de OR 'implant infection'/de OR 'foreign body infection'/de OR 'surgical infection'/exp OR 'graft infection'/exp OR (('heart valve replacement'/exp OR 'heart valve prosthesis'/exp OR arthroplasty/exp OR orthopedics/exp OR 'orthopedic prostheses, orthoses and implants'/exp OR implant/de OR 'orthopedic surgery'/exp OR 'prosthesis complication'/exp OR 'foreign body'/de) AND (infection/exp OR 'infectious complication'/exp OR</p>
<p>Littlecott HJ, Moore GF, Evans RE, et al. Perceptions of friendship, peers and influence on adolescent smoking according to tobacco control context: a systematic review and meta-ethnography of qualitative research. BMC Public Health. 2023;23(1):424.</p>	<p>Yusuf E, Bramer W, Anas AA. Clinical Outcomes of Rifampicin Combination Therapy in Implant-Associated Infections due to Staphylococci and Streptococci: A Systematic Review and Meta-analyses. Int J Antimicrob Agents. 2023;107015.</p>

One of the major changes that we made was creating single line searches as one of my published searches you see on the right, compared to a search by colleague Mala Mann (with whom I subitted a proposal for a workshop on this topic for EAHIL 2024 in Riga Latvia.

Don't get me wrong, single line doesn't mean short per defenition. My longest search was 33 pages per database, still a single line search that you can copy and paste in a database

( | )

Now key is to write your search strategy in a word document. Always copy from the word document to the database, never vice versa. You will immediately create your search documentation

Best is to do this whole process together with the researcher. They know the topic and can answer your questions immediately.

The problem most people have with single line searches is the parentheses should match. The search can be constructed of many parentheses, especially if you use proximity. Now if you have to count the parentheses it is very complicated.

What we instead do is start by typing in the parentheses, and then put your cursor in the middle and start adding search terms. That way you never count parentheses and i must say i myself never make mistakes with parentheses.

Correct placement of the cursor is vital, use the arrow keys and control short cuts for that. Don't use the mouse too much.

('hip osteoarthritis'/exp)

You start adding the thesaurus terms with the appropriate syntax

The syntax for ovid here would be to put a slash behind the thesaurus term and if you want to explode the narrower terms you put exp before it.

('hip osteoarthritis'/exp OR ()):ab,ti,kw)

After you are done with that you want to start adding terms in title abstract  
In ovid and embase.com you can place the field codes outside the parentheses, which  
makes it much easier to control, and to change syntax between databases

If you have ovid you will use .ab,ti,kw. instead

arthrosis, hip  
arthrosis, hip joint  
cox arthrosis  
coxartherosis  
coxarthroses  
coxarthrosis  
hip arthrosis  
hip joint arthrosis  
hip osteo-arthritis  
hip osteo-arthrosis  
hip osteoarthrosis  
osteoarthritis, hip  
hip osteoarthritis

if there is a long list of synonyms it is often easy to copy the synonyms into your word document, you can easily screen them for usefulness.

With these synonyms, some you can easily drop such as the one with a comma in them.



~~arthrosis, hip~~  
~~arthrosis, hip joint~~  
cox arthrosis  
coxartherosis  
coxarthroses  
coxarthrosis  
hip arthrosis  
hip joint arthrosis  
hip osteo-arthritis  
hip osteo-arthrosis  
hip osteoarthrosis  
~~osteoarthritis, hip~~  
hip osteoarthritis

Nobody will use those in an abstract or title

cox arthrosis

**coxartherosis**

**coxarthroses**

**coxarthrosis**

hip arthrosis

hip joint arthrosis

hip osteo-arthritis

hip osteo-arthrosis

hip osteoarthrosis

hip osteoarthritis

Then you look for single word synonyms, these are the easiest to add to your search.

('hip osteoarthritis'/exp OR  
(coxarth\*):ab,ti,kw)

You use truncation to find them all

cox arthrosis

hip arthrosis

hip joint arthrosis

hip osteo-arthritis

hip osteo-arthrosis

hip osteoarthrosis

hip osteoarthritis

What you are left with is a set of phrases that are quite similar. We see a pattern where on one side it says hip or cox, and on the other side arthrosis or arthritis. This calls for proximity

(() NEAR/3 ())

('hip osteoarthritis'/exp OR  
(coxarth\*):ab,ti,kw)

Now proximity can be complicated if you are not use to it but the syntax (apart from PubMed syntax) basically comes down to a group of words between parentheses, a proximity operator (here in embase.com that is NEAR/, if you had used Ovid you'd use ADJ) followed by a number and then another groupd of words between parentheses

We recommend you prepare this proximity in your word document. That way you can easily reuse it if you need another proximity in this element or one of your other elements.

((() NEAR/3 ()))

('hip osteoarthritis'/exp OR (coxarth\*  
OR (() NEAR/3 ()))):ab,ti,kw)

You paste the proximity statement where you want to use it in the search, but always between the parentheses of your element

((() NEAR/3 ()))

('hip osteoarthritis'/exp OR (coxarth\*  
OR ((hip OR cox) NEAR/3 (arthrit\* OR  
arthros\* OR osteoarthrit\*))) :ab,ti,kw)

And you fill in the words.

Here i would already end this process for this element. This is the rough outline.

Now this all seems rather basic and not so new and different from what you might be used to, but if you follow these steps closely you will have a rough outline of your search that allows you to better work with it to optimize it

```
('hip osteoarthritis'/exp OR (coxarth*  
OR ((hip OR cox) NEAR/3 (arthrit* OR  
arthros* OR osteoarthrit*))) :ab,ti,kw)  
AND ('kinesiotherapy'/exp OR  
(kinesiotherap* OR kinesitherap* OR  
((exercise*) NEAR/3 (therap* OR  
treatment* OR technique*))) :ab,ti,kw)  
987 results
```

You then do the same for other elements of your research question

Now is this search worthy of a Systematic Review? Probably not. But it forms the outline, and you can discuss with the researchers whether the articles found are relevant (using the relevance ranking if your interface has one) and the number of articles expected. If the results are not what the research or you think is appropriate you can easily at this time still change the set up of your search.

If you are not satisfied with the number and relevance you try to be complete in your sensitivity. For that we developed a method of optimization.



```
('hip osteoarthritis'/exp OR (coxarth*  
OR ((hip OR cox) NEAR/3 (arthrit* OR  
arthros* OR osteoarthritis*))) :ab,ti,kw)  
AND ('kinesiotherapy'/exp/mj NOT  
(kinesiotherap* OR kinesitherap* OR  
((exercise*) NEAR/3 (therap* OR  
treatment* OR technique*))) :ab,ti,kw)
```

An interesting set of articles is those articles that have been assigned one of the emtree terms we are searching for (especially if they have it as major thesaurus term) but that do not have one of the terms in title abstract. You can read through these article to find additional terms

21 Effectiveness of land-based **physiotherapy** **exercise** following hospital discharge following **hip** arthroplasty for **osteoarthritis**: An updated systematic review  
 Minns Lowe C.J., Davies L., Sackley C.M., Barker K.L.  
*Physiotherapy (United Kingdom)* 2015 101:3 (252-265) Cited by: 37  
 Embase MEDLINE [v Abstract](#) [v Index Terms](#) [> View Full Text](#) [Similar records >](#)

22 Effects of adding aerobic **physical activity** to strengthening exercise on **hip osteoarthritis** symptoms: protocol for the PHOENIX randomised controlled trial  
 Hall M., Allison K., Hinman R.S., Bennell K.L., Spiers L., Knox G., Plinsinga M., Klyne D.M., McManus F., Lamb K.E., Da Costa R., Murphy N.J., Dobson F.L.  
*BMC Musculoskeletal Disorders* 2022 23:1 Article Number 361  
 Embase MEDLINE [v Abstract](#) [v Index Terms](#) [> View Full Text](#) [Similar records >](#)

23 Factors associated with clinically relevant pain reduction after a self-management program including education and exercise for people with knee and/or **hip osteoarthritis**: Data from the BOA register  
 Jönsson T., Eek F., Hansson E.E., Dahlberg L.E., Dell'Isola A.  
*PLoS ONE* 2023 18:2 February Article Number e0282169 Cited by: 1  
 Embase MEDLINE [v Abstract](#) [v Index Terms](#) [> View Full Text](#) [Similar records >](#)

24 Implementation of the Good Life with osteoArthritis in Denmark (GLA:D) Program across Canada for the Management of **Hip** and Knee **Osteoarthritis**  
 Zywił M., Ellis K., Veillette C.J.H., Skou S.T., McGlasson R.  
*Healthcare quarterly (Toronto, Ont.)* 2021 24:1 (54-59) Cited by: 6

You will find new terms that you can add to the search strategy, such those highlighted in red here

('hip osteoarthritis'/exp OR (coxarth\* OR ((hip OR cox) NEAR/3 (arthrit\* OR arthros\* OR osteoarthrit\*))) :ab,ti,kw) AND ('kinesiotherapy'/exp OR (kinesiotherap\* OR kinesitherap\* OR physiotherapy\* OR exercise\* OR physical-activit\* OR ((exercise\*) NEAR/3 (therap\* OR treatment\* OR technique\*))) :ab,ti,kw)  
*2373 results*

You can add them to the search and see what the difference in search results is. In this case the number is much higher than the 970 we found earlier, in that case you can ask the researcher still sitting next to you whether the extra results are relevant or just noise.

This is the process that takes most of the time. The initial meeting with the researcher ends when we have an embase.com search that we are all satisfied with. Then in our own time we will do the searches for the other databases.

## Too few results?

- Add extra terms
  - OR study type
  - OR broad filter
- Generalize specific elements
- Drop less important elements
- 2 elements → 1 element  
(A) AND (B) → (A OR B)

Much of the discussion with the researcher will be about what is an acceptable number of references. You would like you to decrease the number of references, however, still they don't want to miss any references. A solution would be to educate the researcher that they can handle more abstracts than they might think.

Your goal as information mostly is to assure that no relevant references are missed. Therefore on possibly there are too few results

## Too many results?

- Remove general synonyms
- Specify general elements
- Add an extra element
  - AND study type
  - AND narrow filter
- 1 element → 2 elements  
(A OR B) → (A) AND (B)
- Use [mesh:noexp]
- Combine subheadings with MeSH
- Add Filters for date or language?
- Use major and title  
(Use Ctrl+H to replace field codes)
- Remove noise by using (double)

NOT

If you find too few results there are a couple of methods that we advise to increase the number of references. I will not go by all examples that I give here, but a few I would like to mention a few special ones

Many people think of study types only as a way to reduce the number of references, however at references.

If you are for example looking for barriers and facilitators you might not find it in title abstract, the text, or for example evaluation studies. In the element of barriers and facilitators you could include study with an OR.

Now if you have too many references there are ways to relieve the burden for the researcher, but ones.

Many people see the major and title searches as only ways to reduce the number of references b

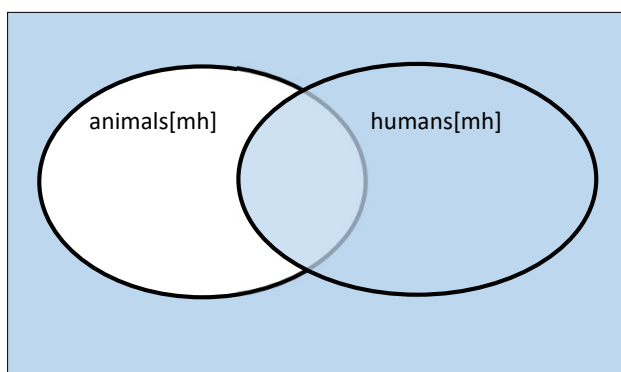
increase the number of references.

('hip osteoarthritis'/exp OR  
osteoarthritis/mj OR (coxarth\* OR ((hip OR  
cox) NEAR/3 (arthrit\* OR arthros\* OR  
osteoarthrit\*))) :ab,ti,kw OR  
(osteoarthritis):ti) AND  
(('kinesiotherapy'/exp OR (kinesiotherap\*  
OR kinesitherap\* OR physiotherapy\* OR  
exercise\* OR physical-activit\* OR  
((exercise\*) NEAR/3 (therap\* OR  
treatment\* OR technique\*))) :ab,ti,kw)

You can add broader terms to your search. In our example a article on osteoarthritis in general might include 30% patients with hip osteoarthritis. But if you search for all articles on osteoarthritis you might find too much noist. You could focus your osteoarthritis search in major mesh terms and terms in the title.

## Double NOT

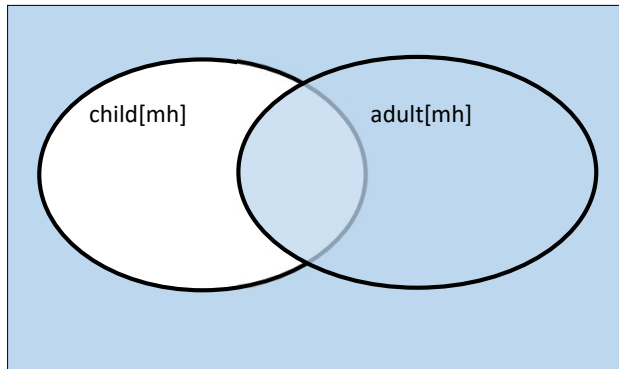
NOT (animals[mh] NOT humans[mh])



Many information specialists use a double not when searching for human studies. I think most of you will be familiar with this NOT animals NOT humans syntax

## Double NOT

NOT (child[mh] NOT adult[mh])

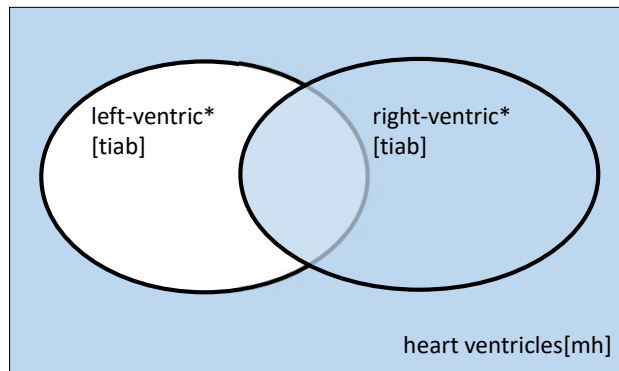


But why limit this to humans only. If you want to find adults you can use a similar approach.

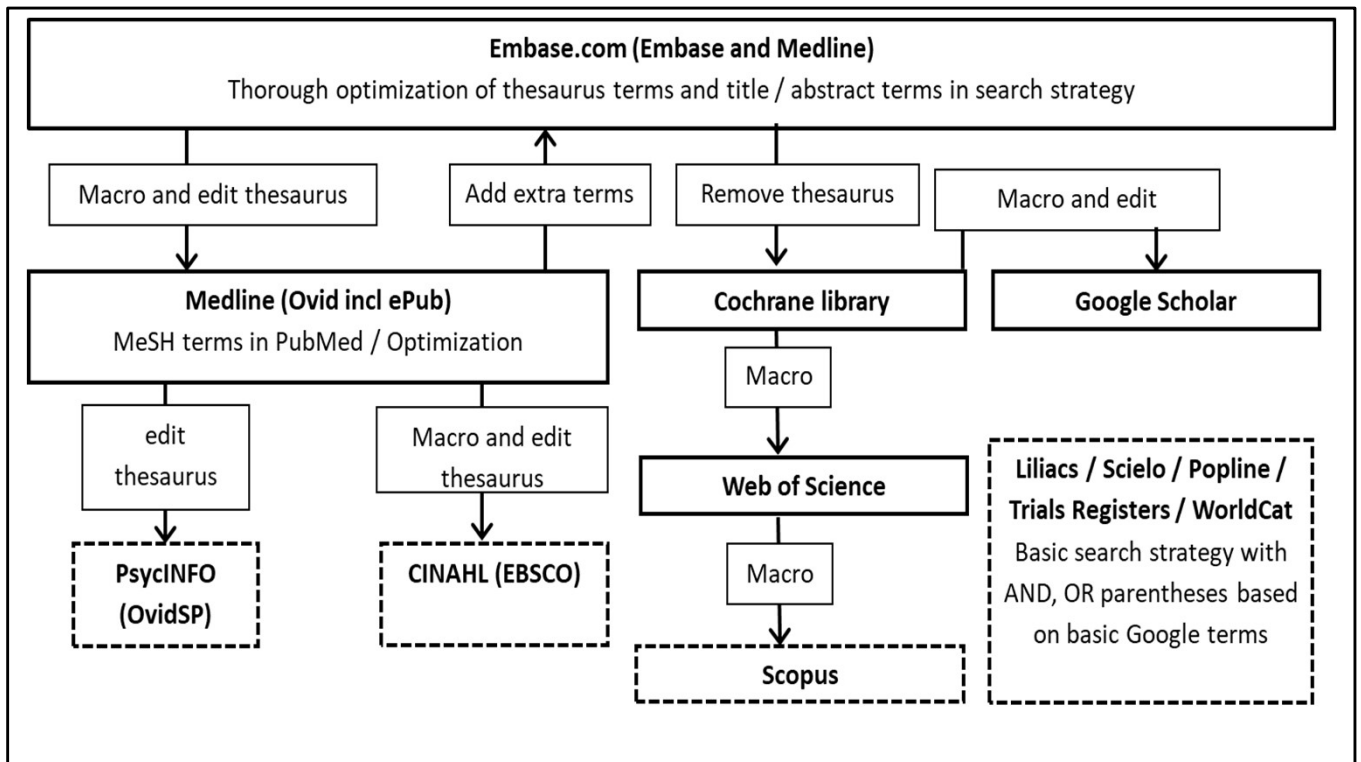


## Double NOT

AND (heart ventricles[mh] NOT (left-ventric\*[tiab] NOT right-ventric\*[tiab]))



And why limit this to thesaurus terms only? You can apply the same method to searches in title abstract



Now for the translation we don't need to repeat the whole process in the other databases but we use macros to translate searches between databases. Here is the flow chart that we use for our translations.

The macros will search for syntax from one interface and replace it with syntax for the other interface

Thesaurus terms have to be replaced manually.

At your institute you have different databases, you can create your own flowchart.

## Evaluation of a new method for librarian-mediated literature searches for systematic reviews

Wichor M. Bramer<sup>1</sup>  | Melissa L. Rethlefsen<sup>2</sup>  | Frans Mast<sup>1</sup> | Jos Kleijnen<sup>3,4</sup>

<sup>1</sup>Medical Library—Erasmus MC, Erasmus University Medical Centre Rotterdam, Rotterdam, the Netherlands

<sup>2</sup>Spencer S Eccles Health Sciences Library, University of Utah, Salt Lake City, UT, USA

<sup>3</sup>Department of Family Medicine, School for Public Health and Primary Care (CAPHRI), Maastricht University,

### Objective

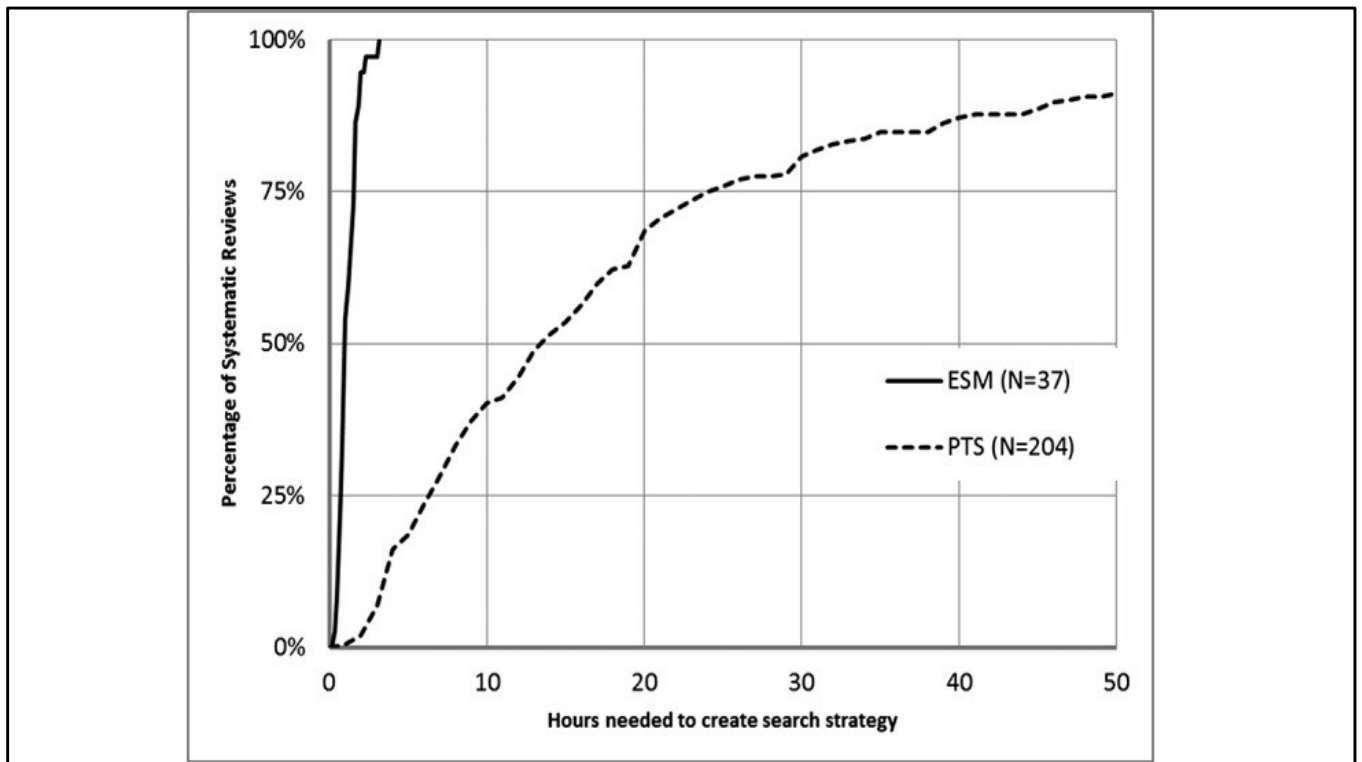
To evaluate and validate the time of completion and results of a new method of searching for systematic reviews, the exhaustive search method (ESM), using a practical search strategy.

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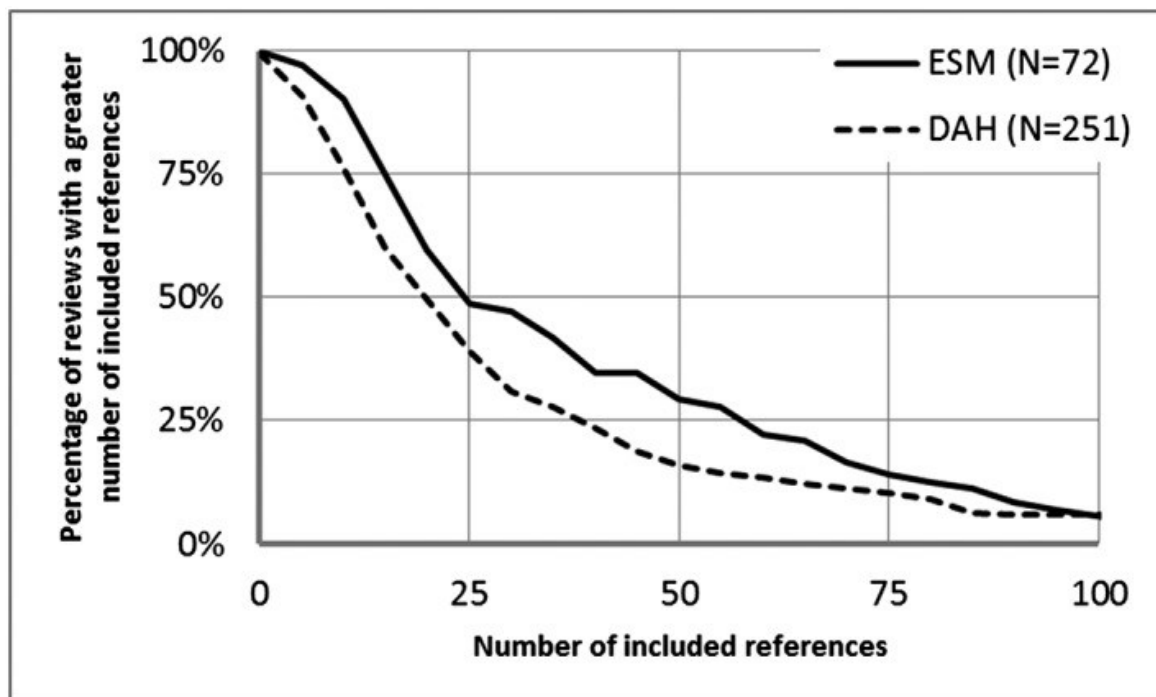
Bramer WM, Rethlefsen ML, Mast F, Kleijnen J. Evaluation of a new method for librarian-mediated literature searches for systematic reviews. *Res Synth Methods*. 2018;9(4):510-520.

Now does the method work? We investigated that in this article

How fast was it,  
how many included references did we find compared to other information specialists?

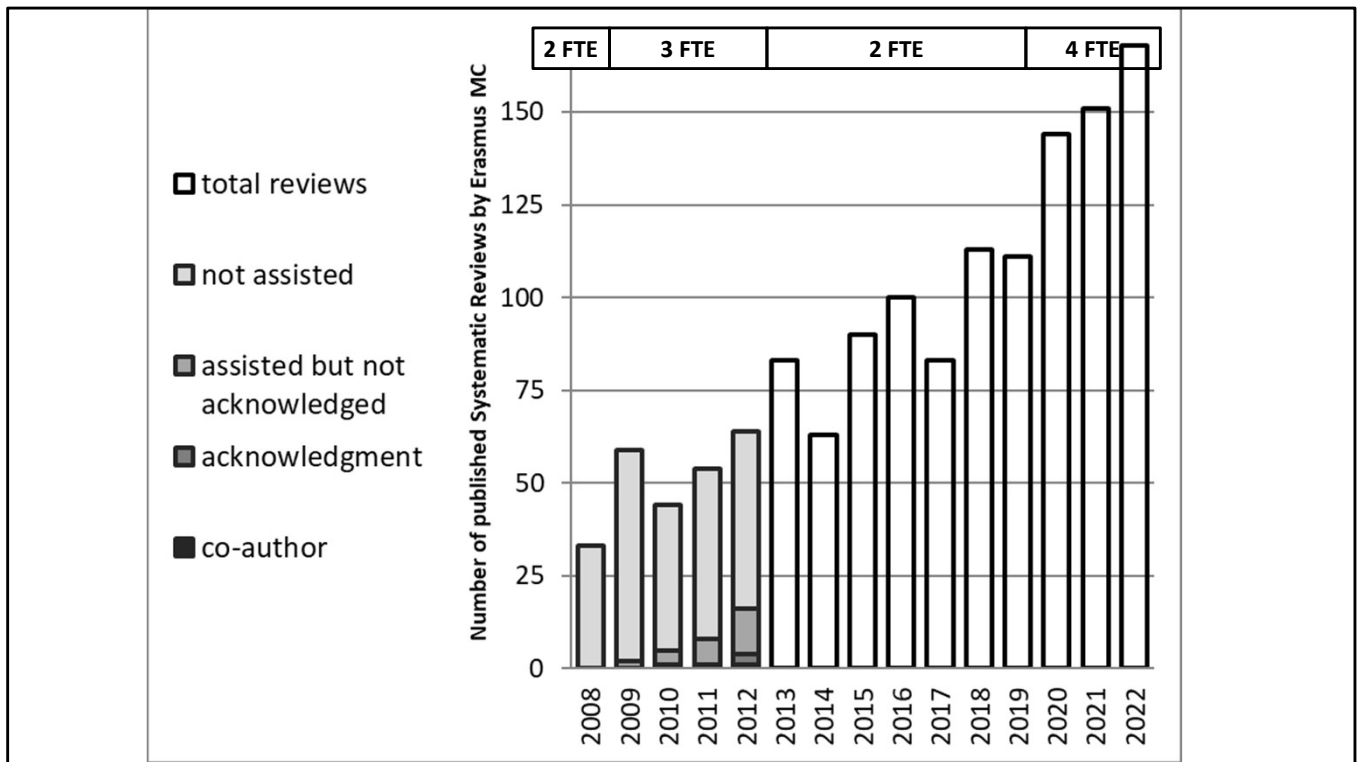


For 37 published systematic reviews where Erasmus MC Librarians performed the searches we had spent a median of 1,5 hours. For 204 SRs projects from other information specialists they reported spending 13 hours as a median. The Erasmus MC included time registration included the reference interview, search strategy development, translating to other databases and documentation.

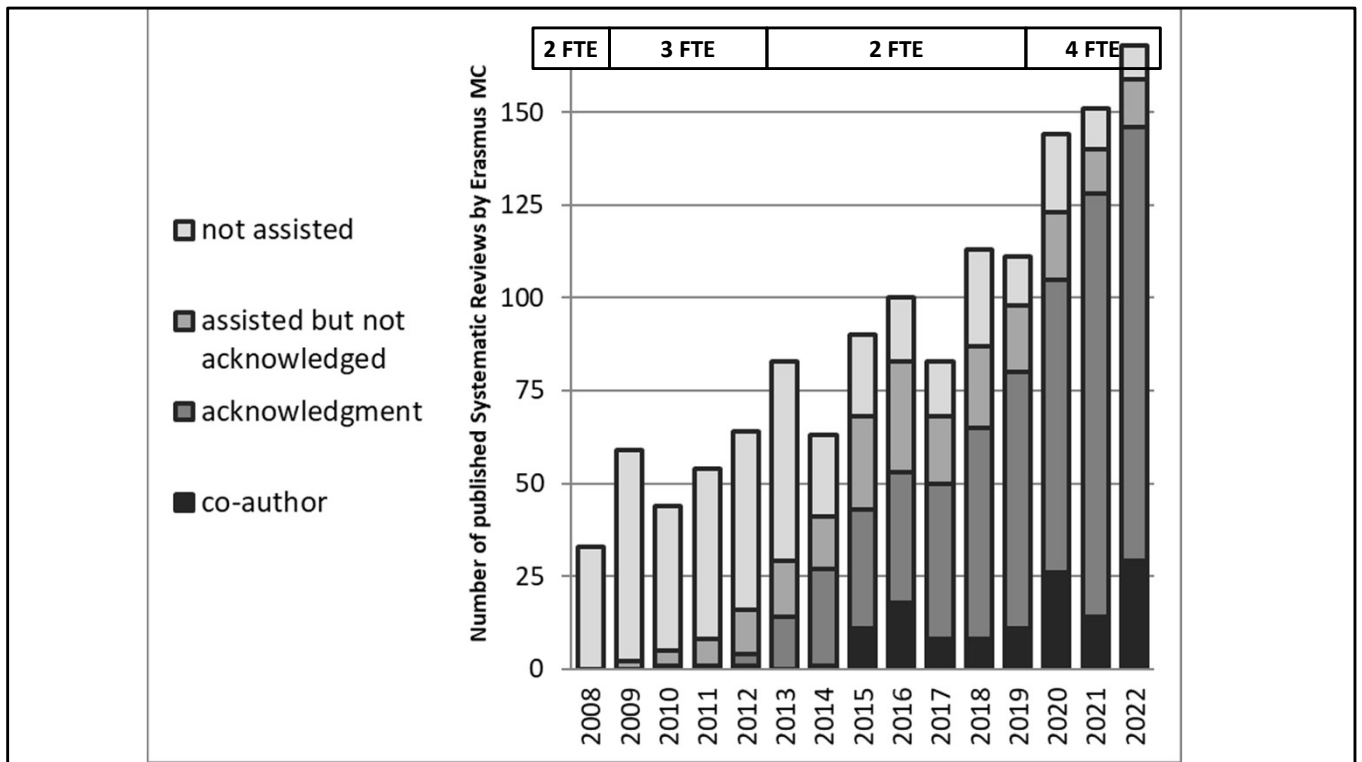


We found more included references than a comparison group of reviews by other Dutch Academic Hospitals.

Of course the topics were different. For an accurate comparison one would have to do a search on the same topic, but that is very difficult to organize.



So let's look at what this method meant for the systematic reviews published by our library  
Remember this is how many reviews have been published. How many of these could we have served



We managed assist over 90% of systematic reviews even during the period when we were with only 2 information specialists, despite the ever increasing number of reviews. Over the years we have co-authored 100s of SRs and have become well known and respected partners of every department in our institute.

Can you achieve the same, and are you willing to change?

## Advice:

- Spend less time per SR to assist more SRs
- Do searches for the researchers instead of repairing searches developed by researcher
- Do the searches together with the researcher and awe them
- Do searches faster (90-10 rule)
- Do not do peer review of your colleagues searches (other than for education)
- Limit the extra tasks on SRs

Do educate your researchers but don't make them believe after this brief education they can do the full searches themselves. At best you can reach conscious competence, you might never reach conscious competence phase. For that you need a lot of practice. Researchers can be competent in performing smaller non important searches where 100% sensitivity is not the goal.

At best researchers will publish maybe 5 SRs in their life time as primary investigators. That experience is not enough to become consciously competent.

The conclusion from your education should ALWAYS be for important searches come to the library!

You should spend less time per SR. If you have 20 hours that you can spend on SRs in a given period, and each SR takes you 10 hours, you can assist only 2 reviews, but if you make that 5 you can assist 4. make it 2 and you can assist 10. Do not turn away any request for help, and try to find those researchers in your institute that do not use your service yet (but should).

Sit together with your researchers and perform a large part of the search in front of them to make them aware of their incompetence. Flabbergast your clients when doing the searches for them. For that you have to at least ACT confident, you don't have to necessarily BE confident yet. When acting confident long enough you will indeed become confident. Have the researchers acknowledge that what we are doing is indeed



an artform that really needs a master.

Do searches faster. In 10% of your time you will probably find 90% of all relevant reference, is it worth spending an extra 90% to find the potentially missing 10% if that means you turn away researchers who then do the search themselves.

My pet peeve is always you should not peer review searches done by your colleagues. Because if you do two information specialists spend time on one review, which means that in that time they don't have time to assist other reviews. That is part of the 10-90 rule, you'd spend another 90% trying to find the 10% your colleague missed.

Limit the tasks you perform on SRs. Focus on doing the searches only, throw the results over the fence and have the researchers do the reviewing part. Only if you have reached the goal of doing all searches for all SRs in your institution, then you can start thinking about doing more for the reviews, but I doubt you will ever reach that state. Even we have not yet fully reached it.

Doing so will save your researchers time. Provide them with good searches BEFORE they start their research, so they don't have to correct time-consuming mistakes later in the process.

Want to know more?

Contact me: [w.bramer@erasmusmc.nl](mailto:w.bramer@erasmusmc.nl)

PhD thesis:

<https://pure.eur.nl/en/publications/better-evidence-syntheses-improving-literature-retrieval-in-syste>