

# Automation technologies to improve searching and study identification

## HLA PD Day 2019, Melbourne

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INSTITUTE FOR  
Evidence-Based Healthcare

# Program

3.15 – 3.30 Overview SRA tools and history (Justin Clark)

3.30 – 4.00 Demo SRA tools (Maria-Inti Metzendorf)

Word Frequency Analyser

Search Refiner

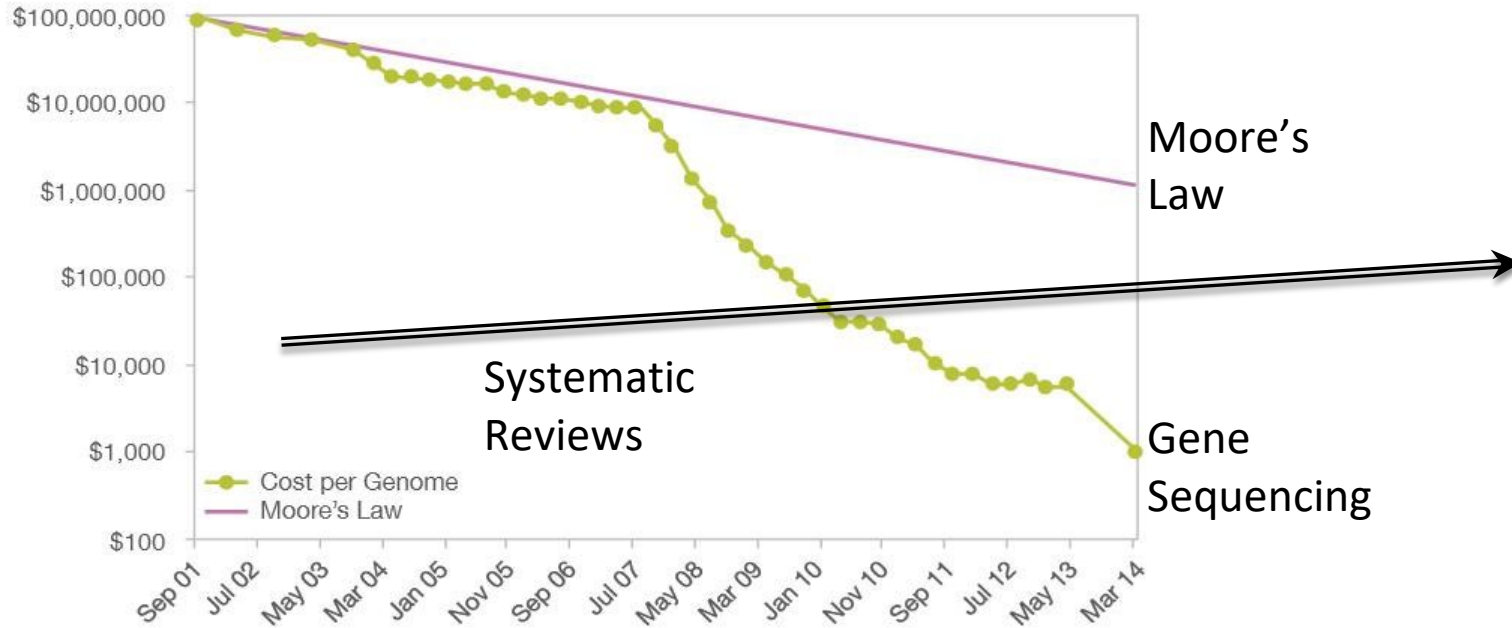
Polyglot Search Translator

Deduplicator

4.00 – 4.30 Try out tools and ask in-depth questions

# Can we do systematic reviews in 2 weeks?

Computer power: costs halve every 18 Months. Gene sequencing faster!  
*Why not systematic reviews?*



# The steps, tools, and timeline

No.	Task	Automation tool
1	Formulate review question	None
2	Find previous or upcoming SR	
3	Write the protocol	
4	Devise search strategy	SRA - Word Frequency Analyser; The Search Refiner
5	Design data extraction form & pilot	
6	Search	SRA - Polyglot Search Translator
7	De-duplicate	SRA - De-duplicator
8	Screen abstracts	SRA Helper; RobotSearch
9	Obtain full text	Endnote; SRA Helper; SARA (System for Automatically Requesting Articles)
10	Screen full text	SRA Helper
11	Citation analysis	
11.1	Screen citation analysis	
11.2	Screen trial registry results	
12	Extract data	
13	Risk of Bias	RobotReviewer
14	Synthesize data	RevMan
15	Recheck literature	
16	Meta-analyse	RevMan
17	Write up review	SRA – RevMan Replicant

# The Systematic Review Accelerator (SRA)

Systematic Review Accelerator

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CREBP

Login

Dashboard / Dashboard

Dashboard

Polyglot Search

EndNote-Helper

Help

Recommended Tools

Whats new

Contact Us

Login

CREBP SRA

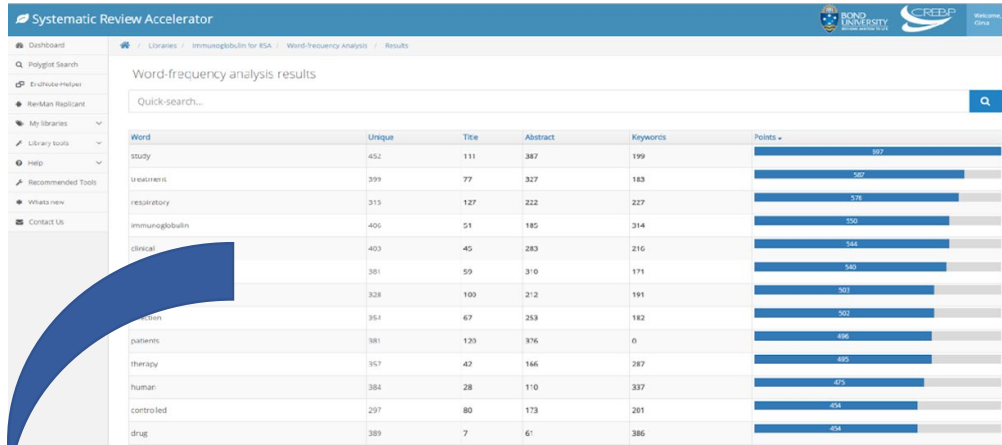
Welcome to the CREBP Systematic Review Accelerator

Create an account

Login

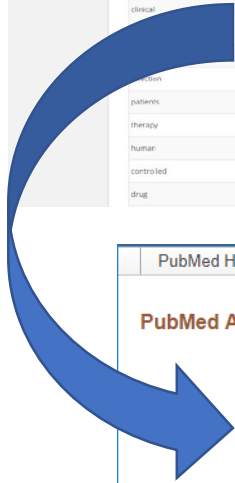
- Suite of tools available at CREBP to help with automation of systematic reviews: <http://sr-accelerator.com/>

# Word Frequency Analyser – help build searches



- Counts frequency of words in relevant articles – if a word appears a lot, use it in your search

Link to help video  
<https://tinyurl.com/sra-wfa>



PubMed Home More Resources Help

## PubMed Advanced Search Builder

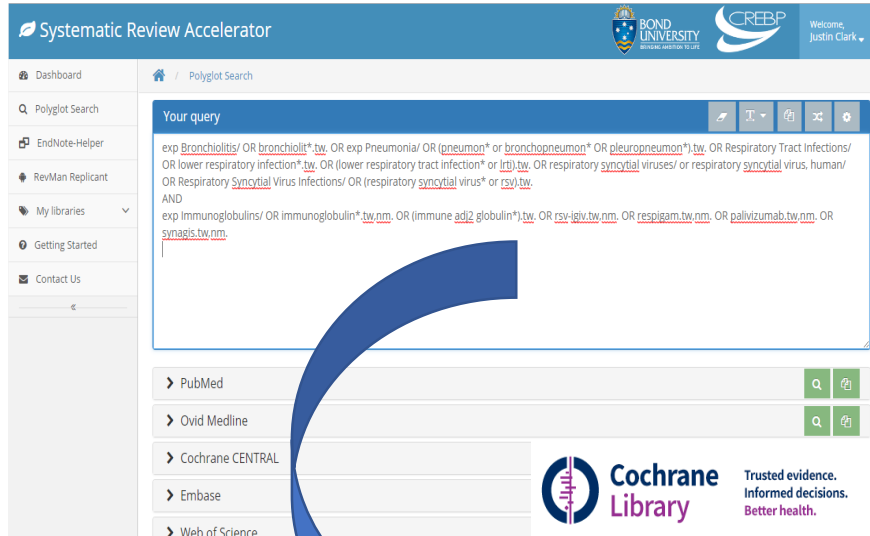
YouTube Tutorial

```
(("Antibiotic stewardship"[tiab] OR "Antimicrobial stewardship"[tiab] OR "Antibacterial stewardship"[tiab]) AND ("Primary Health Care"[Mesh] OR "General Practice"[Mesh] OR "Community-Acquired Infections"[Mesh] OR "Primary health"[tiab] OR "Primary care"[tiab] OR "General practice"[tiab] OR "General practices"[tiab] OR "General practitioners"[tiab] OR "General practitioner" OR Community[tiab] OR "Consultation rates"[tiab] OR "Re-consultation rates"[tiab] OR "Family practice"[tiab] OR "Family practitioners"[tiab] OR "Family practitioner"[tiab] OR "Family physician"[tiab] OR "Family physicians"[tiab]) AND ("Systematic review"[tiab]))
```

[Edit](#)

[Clear](#)

# Polyglot Search Translator – translates searches to be run in other databases



Systematic Review Accelerator

Dashboard / Polyglot Search

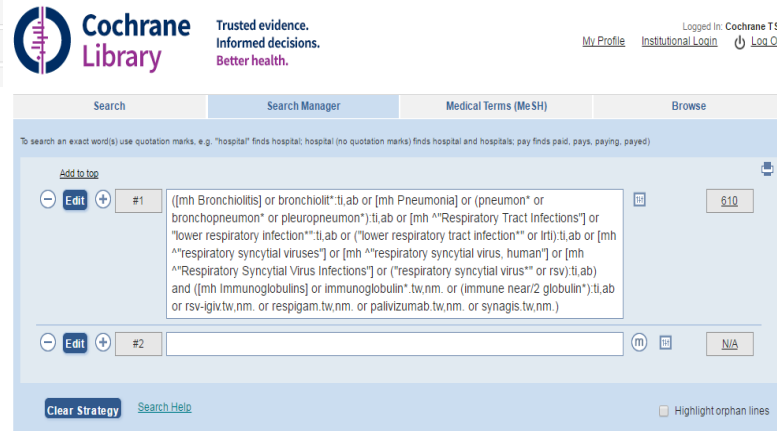
Your query

exp Bronchiolitis/ OR bronchiolit\* .tw. OR exp Pneumonia/ OR (pneumon\* or bronchopneumon\* OR pleuropneumon\*) .tw. OR Respiratory Tract Infections/ OR lower respiratory infection\* .tw. OR (lower respiratory tract infection\* or lrti) .tw. OR respiratory syncytial viruses/ or respiratory syncytial virus, human/ OR Respiratory Syncytial Virus Infections/ OR (respiratory syncytial virus\* or rsv) .tw.  
 AND  
 exp Immunoglobulins/ OR immunoglobulin\* .tw.nm. OR (immune adj2 globulin\*) .tw. OR rsv-igiv.tw.nm. OR respigam.tw.nm. OR palivizumab.tw.nm. OR synagis.tw.nm.

PubMed Ovid Medline Cochrane CENTRAL Embase Web of Science

- Paste PubMed (or Ovid MEDLINE) search in, copy Cochrane CENTRAL, Embase, CINAHL, PsycInfo, Web of Science or Scopus search out

Link to help video  
<https://tinyurl.com/sra-polyglot>

Cochrane Library Trusted evidence. Informed decisions. Better health.

Search Search Manager Medical Terms (MeSH) Browse

To search an exact word(s) use quotation marks, e.g. "hospital" finds hospital; hospital (no quotation marks) finds hospital and hospitals; pay finds paid, pays, paying, payed)

Add to top

#1 ([mh Bronchiolitis] or bronchiolit\*.ti.ab or [mh Pneumonia] or (pneumon\* or bronchopneumon\* or pleuropneumon\*).ti.ab or [mh "Respiratory Tract Infections"] or "lower respiratory infection".ti.ab or ("lower respiratory tract infection" or lrti).ti.ab or [mh "respiratory syncytial viruses"] or [mh "respiratory syncytial virus, human"] or [mh "Respiratory Syncytial Virus Infections"] or ("respiratory syncytial virus" or rsv).ti.ab) and ([mh Immunoglobulins] or immunoglobulin\*.tw.nm. or (immune near/2 globulin\*).ti.ab or rsv-igiv.tw.nm. or respigam.tw.nm. or palivizumab.tw.nm. or synagis.tw.nm.)

#2

Clear Strategy Search Help Highlight orphan lines

# Polyglot Search Translator – new version soon to be released

Your query

```
1 vaccine
2
3 safety
4
5 children
6
7 1 AND 3 AND 5
```

PubMed

```
vaccine
safety
children
(vaccine) AND (safety) AND (children)
```

## New Features


- Line reference expansion
- Brackets expansion
- Popup help boxes
- Syntax highlighting to improve readability

## Future features

- Popup warnings for when using syntax the Polyglot does understand
- More field terms supported
- Automatic search optimization; e.g. infant.ti. or baby.ti. -> (infant or baby).ti.



# De-Duplicator – removes duplicate results



Systematic Review Accelerator

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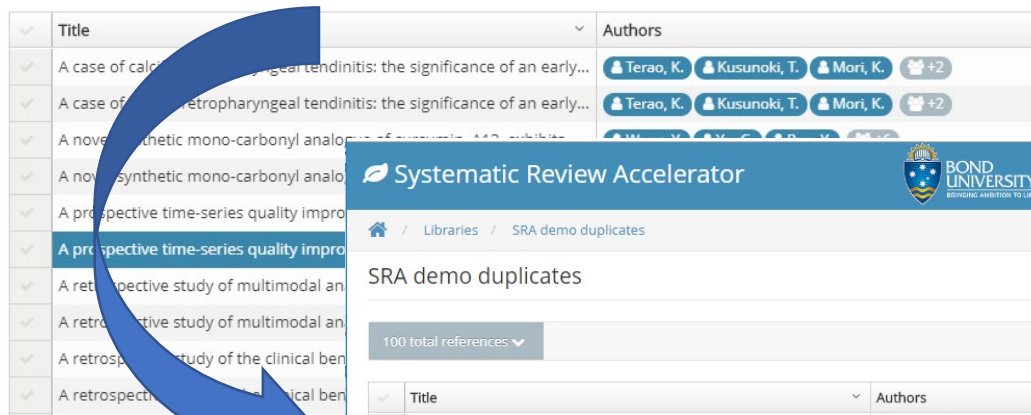
Welcome Justin C

Libraries / SRA demo duplicates

SRA demo duplicates

200 total references

Link to help video  
<https://tinyurl.com/sra-deduper>



Systematic Review Accelerator

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CREBP

Welcome Justin Clark

Libraries / SRA demo duplicates

SRA demo duplicates

100 total references

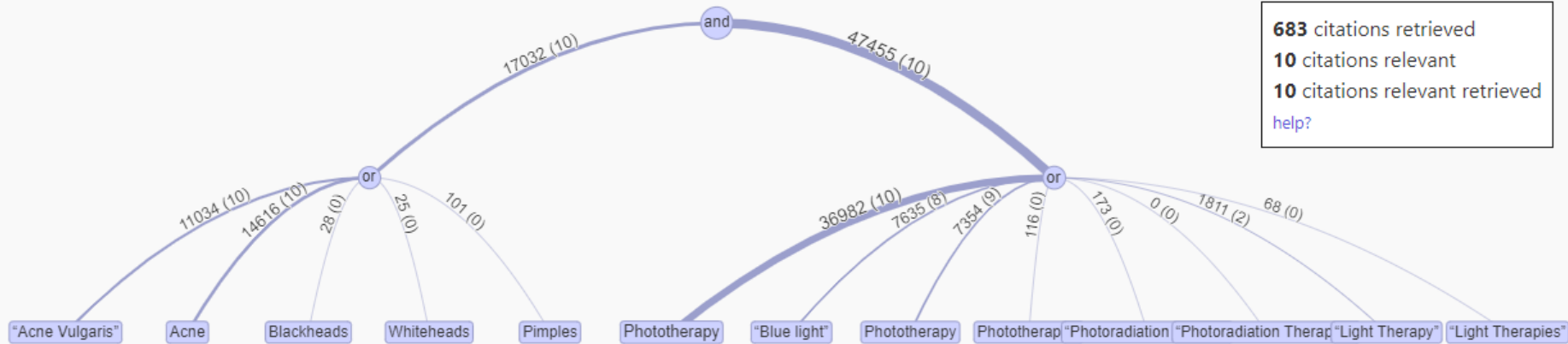
Title	Authors
A case of calcific retropharyngeal tendinitis: the significance of an early...	Terao, K., Kusunoki, T., Mori, K. +2
A case of calcific retropharyngeal tendinitis: the significance of an early...	Terao, K., Kusunoki, T., Mori, K. +2
A novel synthetic mono-carbonyl analogue of curcumin, A13, exhibits ...	Wang, Y., Yu, C., Pan, Y. +6
A prospective time-series quality improvement trial of a standardized ...	Titsworth, W. L., Abram, J., Guin, P. +6
A retrospective study of multimodal analgesic treatment after laparosc...	Liu, Y., Seipel, C., Lopez, M. E. +7
A retrospective study of the clinical benefit from acetylsalicylic acid des...	Ibrahim, C., Singh, K., Tsai, G. +5
Acetaminophen use during pregnancy, behavioral problems, and hype...	Liew, Z., Ritz, B., Rebordosa, C. +2
Adult-onset Still's disease in a Nigerian woman	Akitayo, B. O., Adelowo, O.

Upload a file with lots of duplicates, download a file with no duplicates

# Search Refiner – improves precision (in development)

From this – 683 to screen

((“Acne Vulgaris”[Mesh] OR Acne[tiab] OR Blackheads[tiab] OR Whiteheads[tiab] OR Pimples[tiab]) AND (“Phototherapy”[Mesh] OR “Blue light”[tiab] OR Phototherapy[tiab] OR Phototherapies[tiab] OR “Photoradiation therapy”[tiab] OR “Photoradiation Therapies”[tiab] OR “Light Therapy”[tiab] OR “Light Therapies”[tiab]))

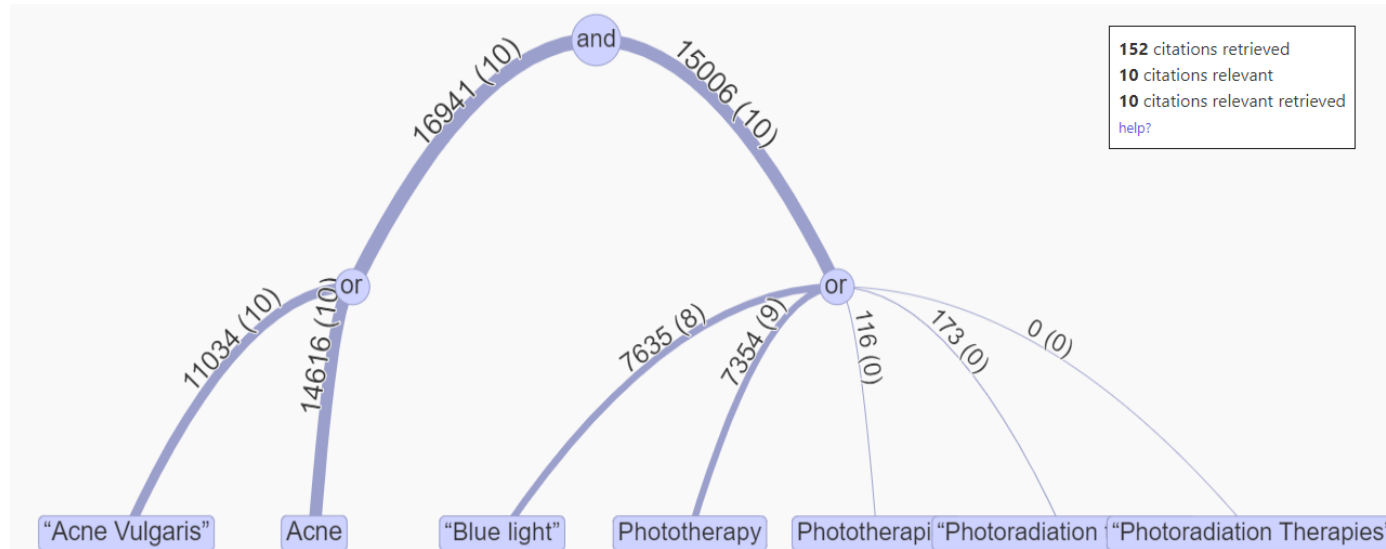


# Search Refiner – improves precision (in development)

To this – 152 to screen

((“Acne Vulgaris”[Mesh] OR Acne[tiab]) AND

(“Blue light”[tiab] OR Phototherapy[tiab] OR Phototherapies[tiab] OR “Photoradiation therapy”[tiab] OR “Photoradiation Therapies”[tiab]))))



# Accessing tools

[https://docs.google.com/document/d/1F6QJJQ-b49X\\_WnUSe3dBGWksS6WwE3kXsSN\\_mhSyXs/edit?usp=sharing](https://docs.google.com/document/d/1F6QJJQ-b49X_WnUSe3dBGWksS6WwE3kXsSN_mhSyXs/edit?usp=sharing)

<https://tinyurl.com/HLAPDDay2019>

## **SRA Tools**

<http://sr-accelerator.com/>

## **Polyglot Beta (no login)**

<https://crebp.github.io/sra-polyglot/>

## **Search Refiner**

<https://ielab-searchrefiner.uqcloud.net/>

15 accounts test accounts

username: srdemo[1-15]

password: srdemo2019

# Demo – blue light for acne

## PubMed IDs

27575854

25594129

20098847

22091799

23278295

24313686

29152718

10809858

18664153

15379878

## PubMed search

((“Acne Vulgaris”[Mesh] OR Acne[tiab] OR Blackheads[tiab] OR Whiteheads[tiab] OR Pimples[tiab] OR Vulgaris[tiab] OR Lesion[tiab]) AND (“Phototherapy”[Mesh] OR “Blue light”[tiab] OR Phototherapy[tiab] OR Phototherapies[tiab] OR “Photoradiation therapy”[tiab] OR “Photoradiation Therapies”[tiab] OR “Light Therapy”[tiab] OR “Light Therapies”[tiab] OR LED[tiab] OR Diode[tiab]))

# Participant search - Treat2target in lupus

## PubMed IDs (7)

## Search

29806142

29531772

27884822

27803306

27558987

26809011

26458737

((("Lupus Erythematosus, Systemic"[mh] OR "systemic lupus erythematosus") AND (LLDAS[tw] OR LDAS[tw] OR ("low disease activity"[tw] AND (reach\*[tw] OR attain\*[tw] OR achiev\*[tw] OR goal\*[tw] OR remission[tw] OR treat\*[tw]))) OR (target\*[tw] AND (treat\*[tw] OR reach\*[tw] OR attain\*[tw] OR achiev\*[tw] OR goal\*[tw] OR remission[tw]))) OR (goal\*[tw] AND (reach\*[tw] OR attain\*[tw] OR achiev\*[tw] OR remission[tw]))))

Thank you

Questions?