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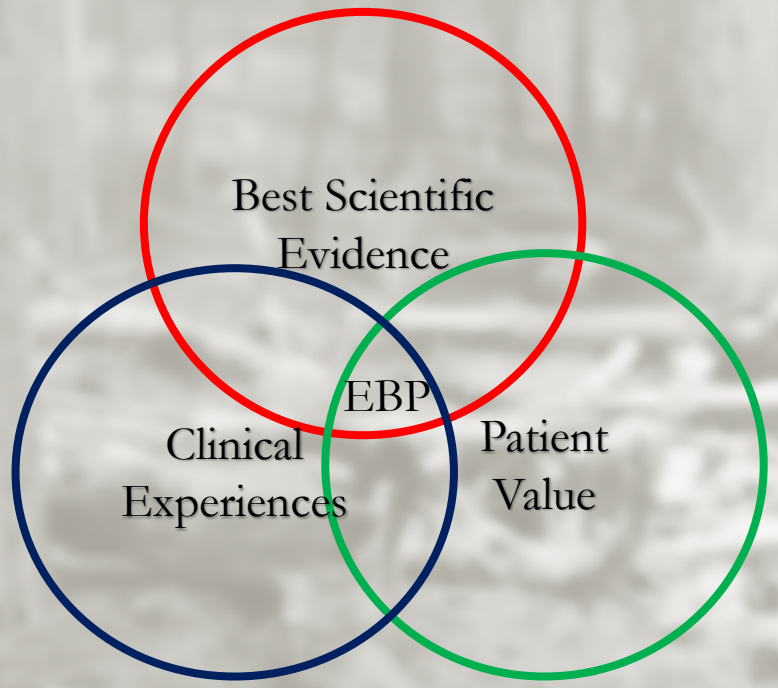
Evidence-based medical resources



Presented by Wong Suei Nee

Date: 8th Aug 2022, 5pm-6pm

Overview

What is EBM?

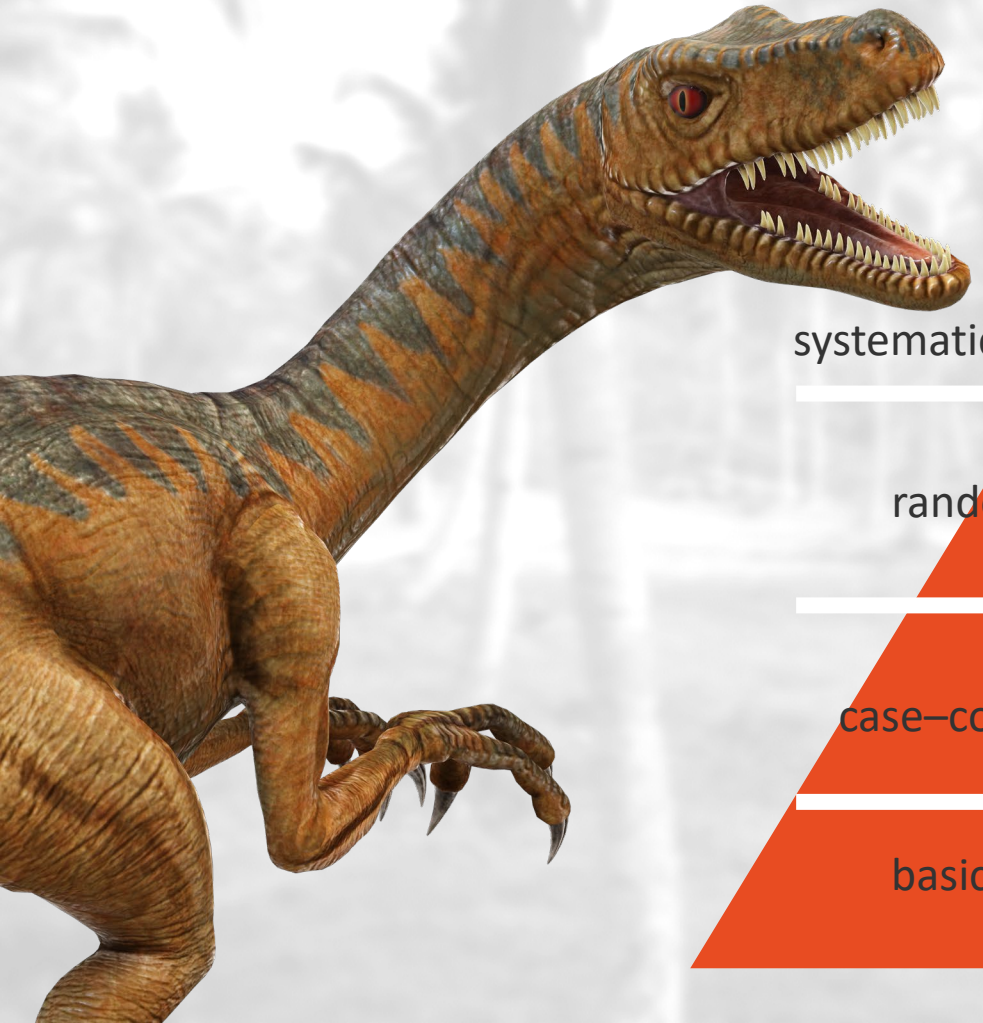
A **systematic approach** to **medicine** in which doctors and other health care professionals use the **best available scientific evidence** from clinical research to help **make decisions** about the care of individual patients.

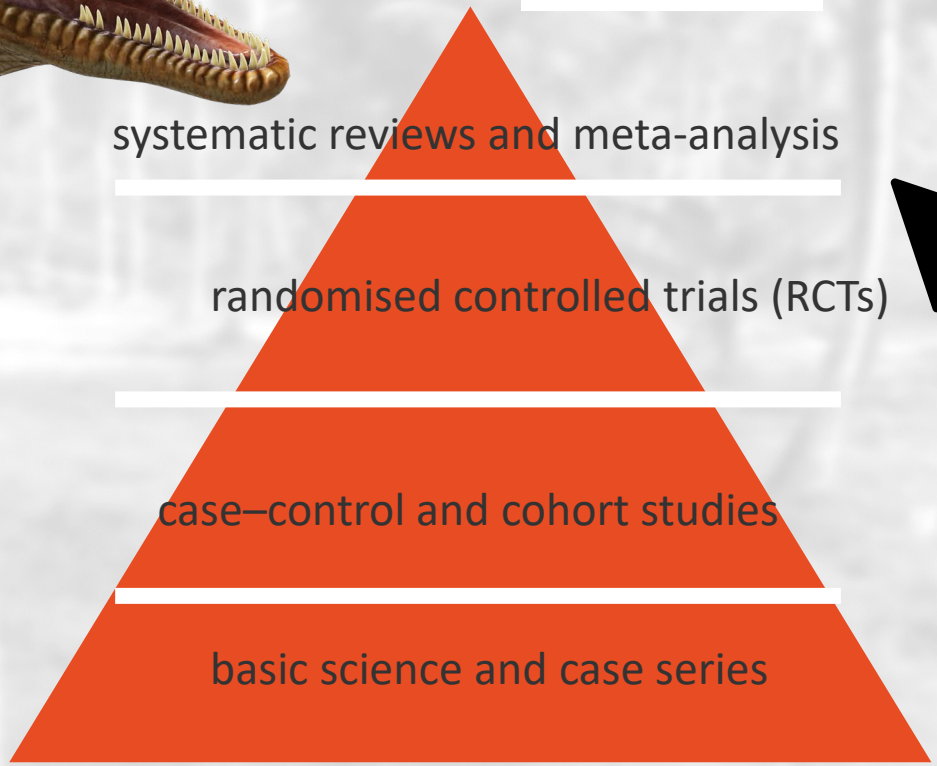
A **physician's clinical experience** and the **patient's values and preferences** are also important in the process of using the evidence to make decisions.

The use of evidence-based medicine may help **plan the best treatment and improve quality of care and patient outcomes**. Also called EBM.

https://www.cancer.gov/publications/dictionaries/cancer-terms/def/evidence-based-medicine

Evidence Pyramid





Not all evidence is the same!

Murad MH, Asi N, Alsawas M, *et al*

New evidence pyramid

BMJ Evidence-Based Medicine 2016;**21**:125-127.

https://ebm.bmj.com/content/21/4/125

- Filtered
- Critically-appraised
- Gone through an evaluation process

Types of Studies

Ivy leaf (*Hedera helix*) for acute upper respiratory tract infections: an updated systematic review

Elizabeth Sierocinski, Felix Holzinger & Jean-François Chenot

European Journal of Clinical Pharmacology **77**, 1113–1122 (2021) | Cite this article

https://link.springer.com/article/10.1007/s00228-021-03090-4#MOESM1

Safety of English ivy (*Hedera helix*) leaf extract during pregnancy: retrospective cohort study

Abdullah Alkattan, Raad Alameer, Eman Alsalameen, Maram Almaary, Mansour Alkhairat, Ahmed Alkhalifah, Fatimah Alghanim & Nashwa Radwan

DARU Journal of Pharmaceutical Sciences **29**, 493–499 (2021) | Cite this article

https://link-springer-com.libproxy1.nus.edu.sg/article/10.1007/s40199-021-00415-7

Research article

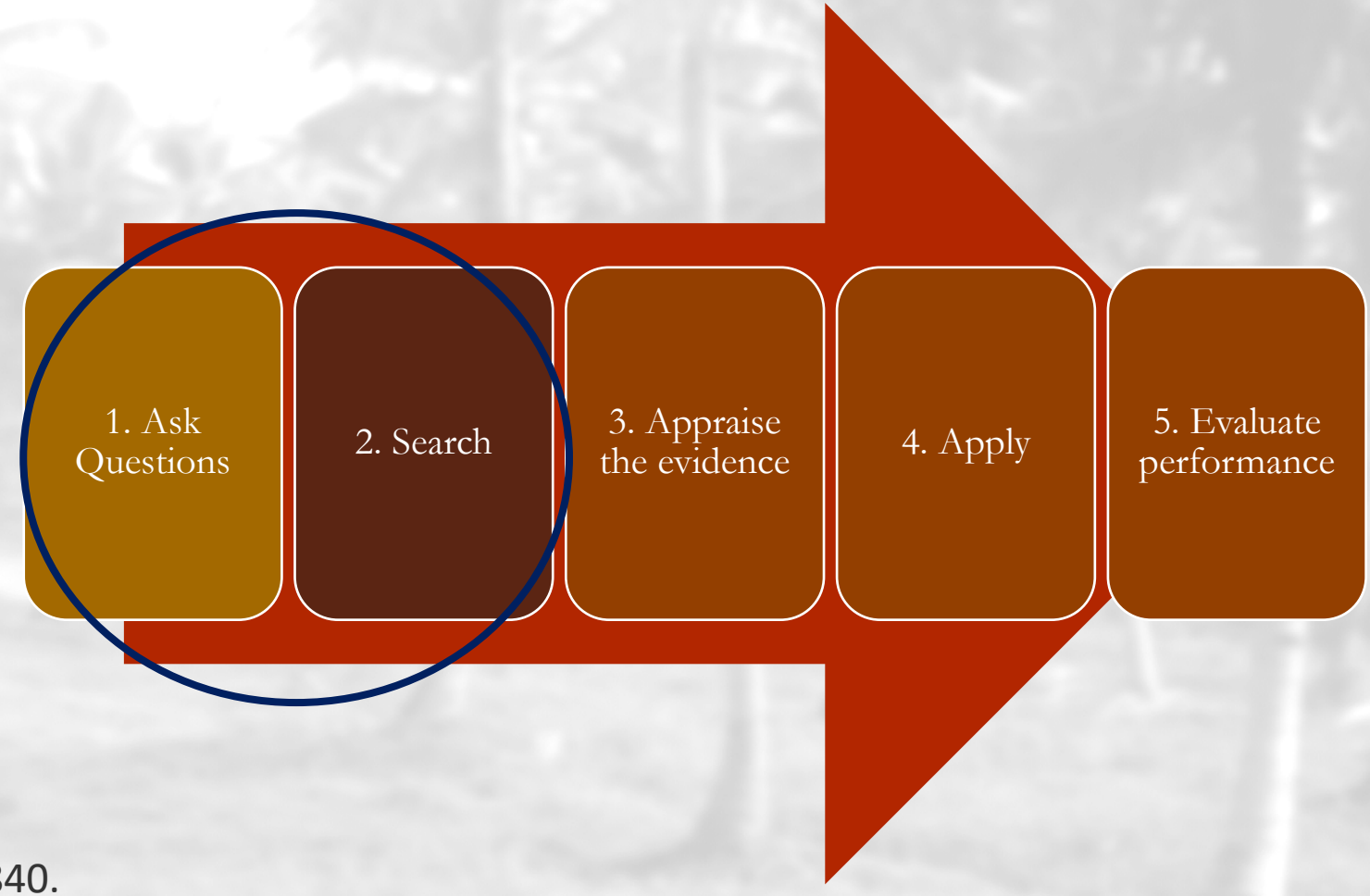
Bioactive phenolics fraction of *Hedera helix* L. (Common Ivy Leaf) standardized extract ameliorates LPS-induced acute lung injury in the mouse model through the inhibition of proinflammatory cytokines and oxidative stress

Aya A. Shokry [a], Riham A. El-Shiekh [b], Gehan Kamel [a], Alaa F. Bakr [c], Amer Ramadan [a]

https://www-sciencedirect-com.libproxy1.nus.edu.sg/science/article/pii/S2405844022007654?via%3Dihub

5 steps of Evidence Based Practice

The practice of EBM involves five essential steps as discussed in the paper:



Akobeng AK
Principles of evidence based medicine
Archives of Disease in Childhood 2005;**90:**837-840.
https://adc.bmj.com/content/90/8/837

1. Ask Questions

Scenario:

You have a four-month-old baby admitted to your ward with viral bronchiolitis. The child's symptoms get progressively worse, and you wonder whether giving **corticosteroids** might help the child improve and reduce the length of stay in hospital. You decide to use "clinical score" as a measure of improvement.

P:

I:

C:

O:

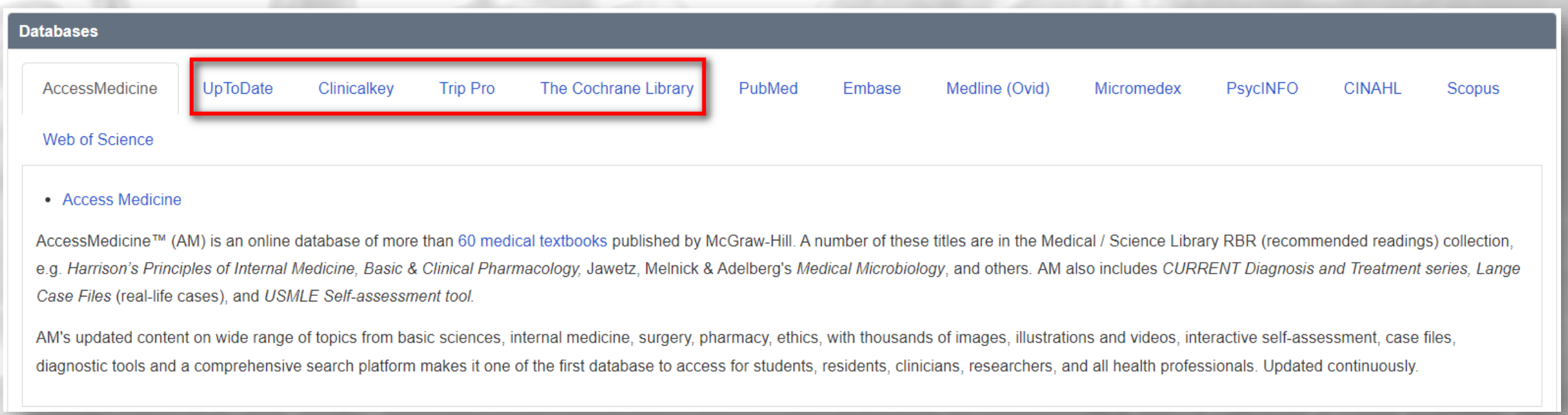
Refer to the resource guide for more examples:
https://libguides.nus.edu.sg/c.php?g=145717&p=2948890

From : Akobeng AK
Principles of evidence based medicine
Archives of Disease in Childhood 2005;**90:**837-840.
https://adc.bmj.com/content/90/8/837

Databases to start with…

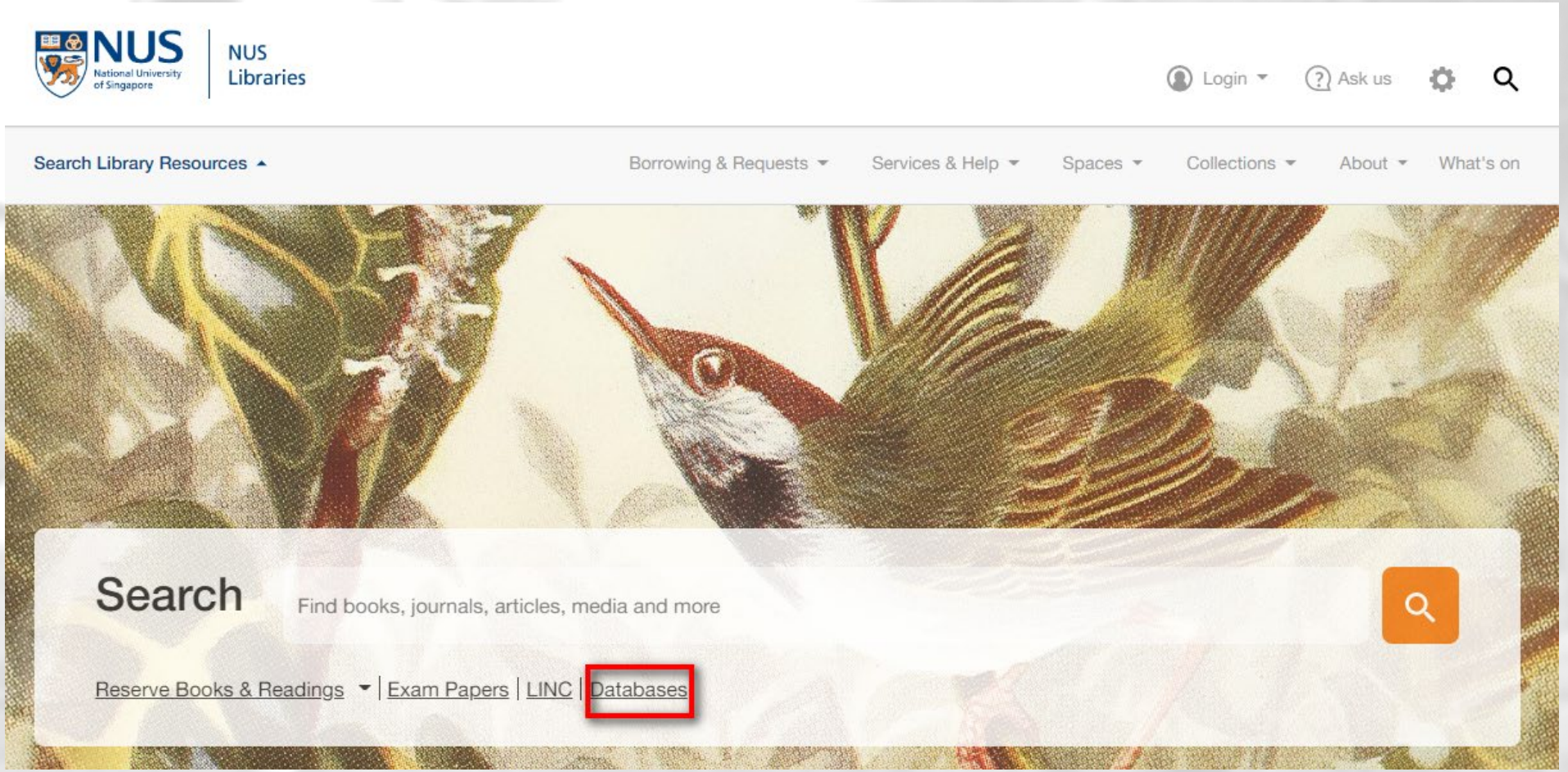
Databases	Strengths	Source
The Cochrane Library	Includes Cochrane **Systematic Reviews** as well as **randomized controlled trials** from ClinicalTrials.gov, PubMed, Embase, CINAHL and WHO's International Clinical Trials Registry Platform.	https://www.cochranelibrary.com/central/about-central
PubMed Clinical Queries	This tool uses **predefined filters** to help you quickly refine PubMed searches on clinical or disease-specific topics	https://pubmed.ncbi.nlm.nih.gov/clinical/?term=respiratory%20muscle%20strength%20covid
TRIP (Turning Research into Practice) Pro	One of the nice features of the TRIP database is that results are displayed in categories based on Haynes' work on the **4S approach to current best evidence of studies, syntheses, synopses, and systems** https://ebm.bmj.com/content/6/2/36	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1852635/#i1536-5050-095-02-0215-b2
UpToDate	**Graded recommendations** allow you to make decisions even when evidence is not clear. Regular training is provided to their physician editors about evidence-based medicine and grading.	https://www.wolterskluwer.com/en/solutions/uptodate/about/evidence-based-medicine
Clinicalkey	You can support healthcare professionals and students with the latest evidence across specialties in a variety of formats, including full-text **reference books and journals**, **synoptic content**, **drug information**, **videos**, **practice guidelines**, **customized patient education handouts, clinical calculators,** and more.	https://www.elsevier.com/solutions/clinicalkey

Medicine Subject Guide

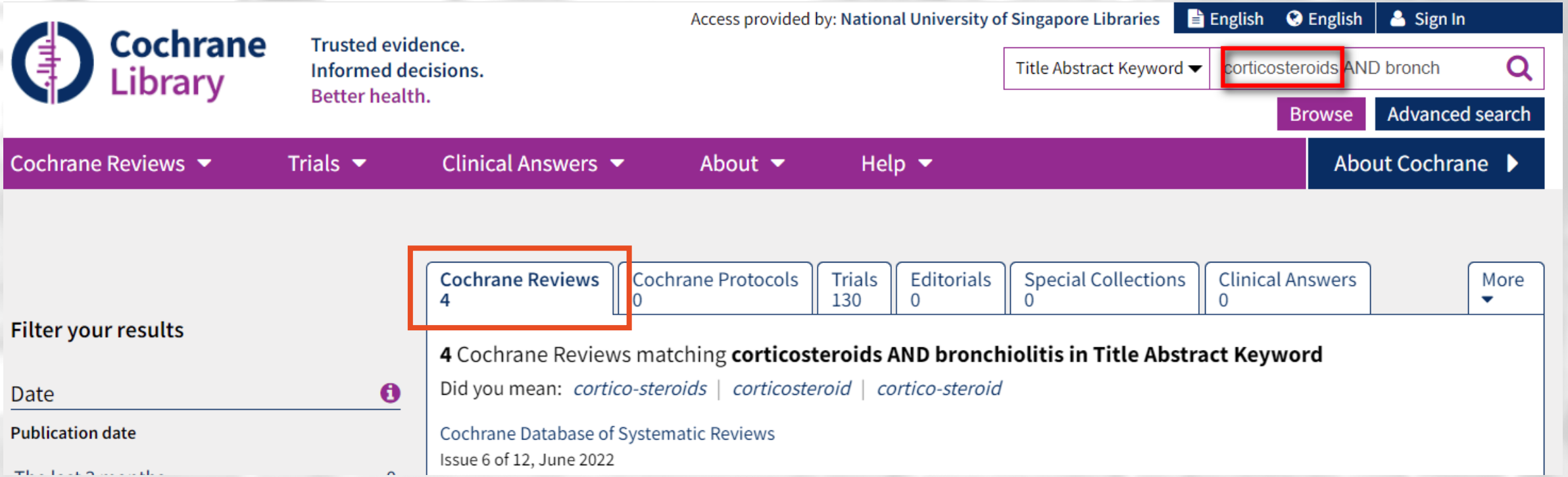


Main - Medicine - LibGuides at National University of Singapore (nus.edu.sg)

How to access databases from the library portal:



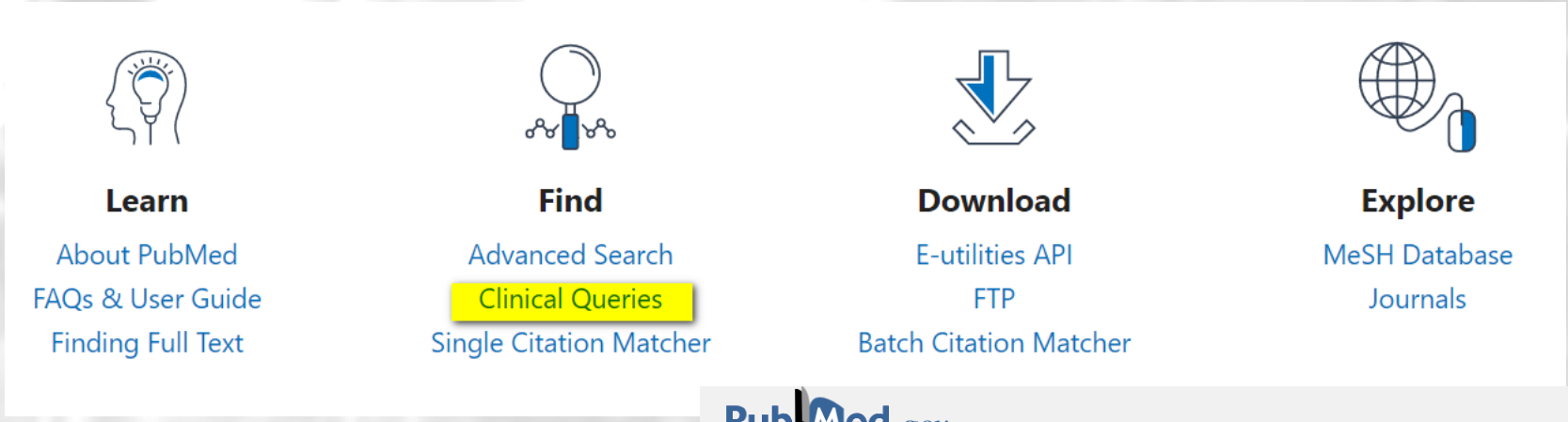
How to search in The Cochrane Library



Tips:

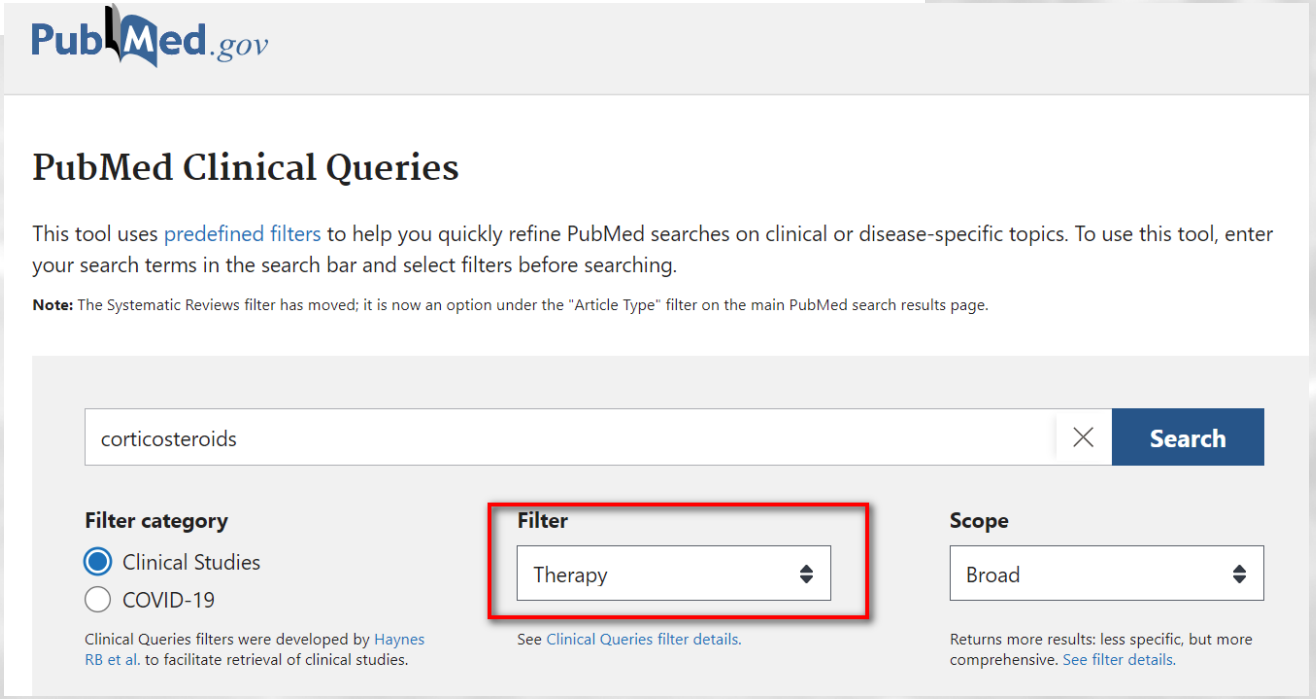
1. Search ONE concept if combining more than one concepts gives no result
2. Find out more about the intervention by reading “Cochrane Reviews” as well as “Clinical Answers”.
3. Look at the “Trials” tab when more information needed

How to search in PubMed Clinical Queries



Tips:

1. Combine more than ONE concepts if too many results
2. Filter by “Therapy” as filter will help to narrow the search.
3. Apply more filters in the result page for less result



PubMed Clinical Queries

Safety of corticosteroids in young children with viral bronchiolitis

TEXT AVAILABILITY

- [ ] Abstract
- [ ] Free full text
- [ ] Full text

ARTICLE ATTRIBUTE

- [ ] Associated data

Article Type

- [ ] Books and Documents
- [ ] Clinical Trial
- [ ] Meta-Analysis
- [ ] Randomized Controlled Trial
- [ ] Review
- [ ] **Systematic Review**

2 Cite Share

Respiratory Syncytial Virus **Bronchiolitis** in Children.

Smith DK, Seales S, Budzik C.

Am Fam Physician. 2017 Jan 15;95(2):94-99.

PMID: 28084708 **Free article.** Review.

In 2014, the American Academy of Pediatrics updated its **clinical** practice guideline for diagnosis and management of RSV **bronchiolitis** to minimize unnecessary diagnostic testing and interventions. **Bronchiolitis** remains a **clinical** diagnosis, and diagnost ...

3 Cite Share

Acute **bronchiolitis**: assessment and management in the emergency department.

Joseph MM, Edwards A.

Pediatr Emerg Med Pract. 2019 Oct;16(10):1-24. Epub 2019 Oct 2.

PMID: 31557431 Review.

Acute **bronchiolitis** is the most common lower respiratory tract infection in young children that leads to emergency department visits and hospitalizations. **Bronchiolitis** is a **clinical** diagnosis, and diagnostic laboratory and radiographic tests play a limited r ...

4 Cite

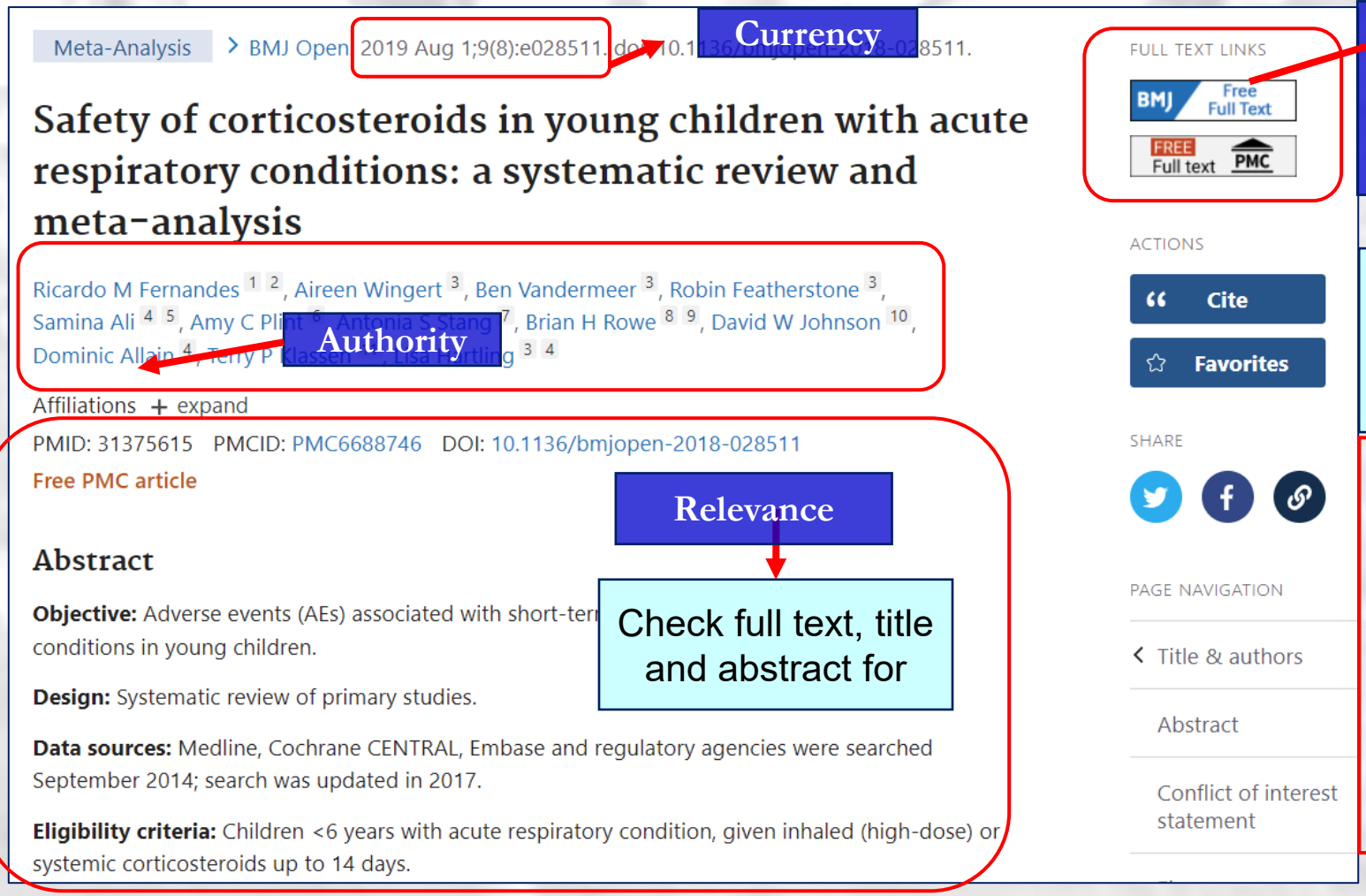
Bronchiolitis: an update on management and prophylaxis.

Karampatsas K, Kong J, Cohen J.

Br J Hosp Med (Lond). 2019 May 2;80(5):278-284. doi: 10.12968/hmed.2019.80.5.278.

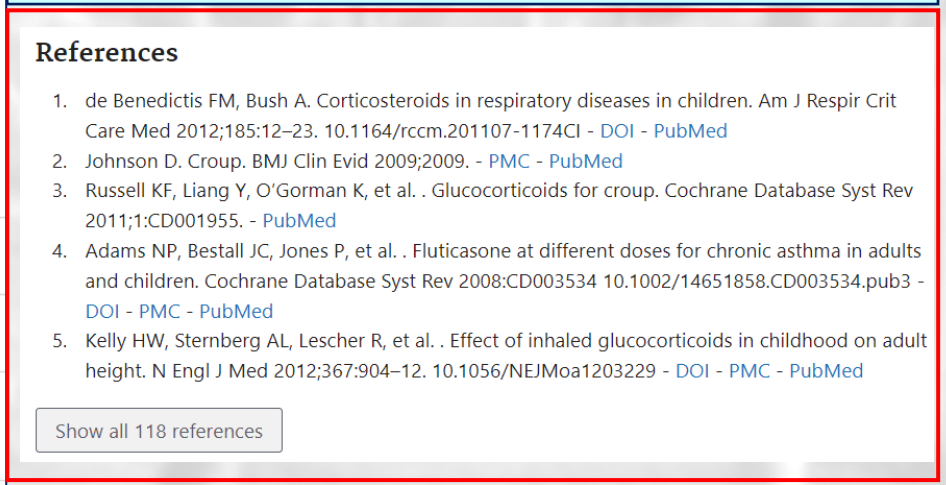
PMID: 31059347 Review.

Evaluate the Document



Read full text for
Purpose
Accuracy

Validate Accuracy by cross-checking with these source references for the cited information



References

1. de Benedictis FM, Bush A. Corticosteroids in respiratory diseases in children. Am J Respir Crit Care Med 2012;185:12–23. 10.1164/rccm.201107-1174CI - DOI - PubMed
2. Johnson D. Croup. BMJ Clin Evid 2009;2009. - PMC - PubMed
3. Russell KF, Liang Y, O'Gorman K, et al. . Glucocorticoids for croup. Cochrane Database Syst Rev 2011;1:CD001955. - PubMed
4. Adams NP, Bestall JC, Jones P, et al. . Fluticasone at different doses for chronic asthma in adults and children. Cochrane Database Syst Rev 2008:CD003534 10.1002/14651858.CD003534.pub3 - DOI - PMC - PubMed
5. Kelly HW, Sternberg AL, Lescher R, et al. . Effect of inhaled glucocorticoids in childhood on adult height. N Engl J Med 2012;367:904–12. 10.1056/NEJMoa1203229 - DOI - PMC - PubMed

Show all 118 references

Finding More Search Terms

Meta-Analysis › BMJ Open. 2019 Aug 1;9(8):e028511. doi: 10.1136/bmjopen-2018-028511.

Safety of corticosteroids in young children with acute respiratory conditions: a systematic review and meta-analysis

Ricardo M Fernandes [1 2], Aireen Wingert [3], Ben Vandermeer [3], Robin Featherstone [3], Samina Ali [4 5], Amy C Plint [6], Antonia S Stang [7], Brian H Rowe [8 9], David W Johnson [10], Dominic Allain [4], Terry P Klassen [11], Lisa Hartling [3 4]

Affiliations + expand

PMID: 31375615 PMCID: PMC6688746 DOI: 10.1136/bmjopen-2018-028511

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ACTIONS

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Eligibility criteria: Children <6 years with acute respiratory condition, given inhaled (high-dose) or systemic corticosteroids up to 14 days.

Data extraction and synthesis: One reviewer extracted with another reviewer verifying data. Study selection and methodological quality (McHarm scale) involved duplicate independent reviews. We extracted AEs reported by study authors and used a categorisation model by organ systems. Meta-analyses used Peto ORs (pORs) and DerSimonian Laird inverse variance method utilising Mantel-Haenszel Q statistic, with 95% CI. Subgroup analyses were conducted for respiratory condition and dose.

Results: Eighty-five studies (11 505 children) were included; 68 were randomised trials. Methodological quality was poor overall due to lack of assessment and inadequate reporting of AEs. Meta-analysis (six studies; n=1373) found fewer cases of vomiting comparing oral dexamethasone with prednisone (pOR 0.29, 95% CI 0.17 to 0.48; I^2=0%). The mean difference in change-from-baseline height after one year between inhaled corticosteroid and placebo was 0.10 cm (two studies, n=268; 95% CI -0.47 to 0.67). Results from five studies with heterogeneous interventions, comparators and measurements were not pooled; one study found a smaller mean change in height z-score with recurrent high-dose inhaled fluticasone over one year. No significant differences were found comparing systemic or inhaled corticosteroid with placebo, or between corticosteroids, for other AEs; CIs around estimates were often wide, due to small samples and few events.

Conclusions: Evidence suggests that short-term high-dose inhaled or systemic corticosteroids use is not associated with an increase in AEs across organ systems. Uncertainties remain, particularly for recurrent use and growth outcomes, due to low study quality, poor reporting and imprecision.

Keywords: asthma; bronchiolitis; corticosteroids; croup; paediatrics; safety.

Tips to find articles on your topic

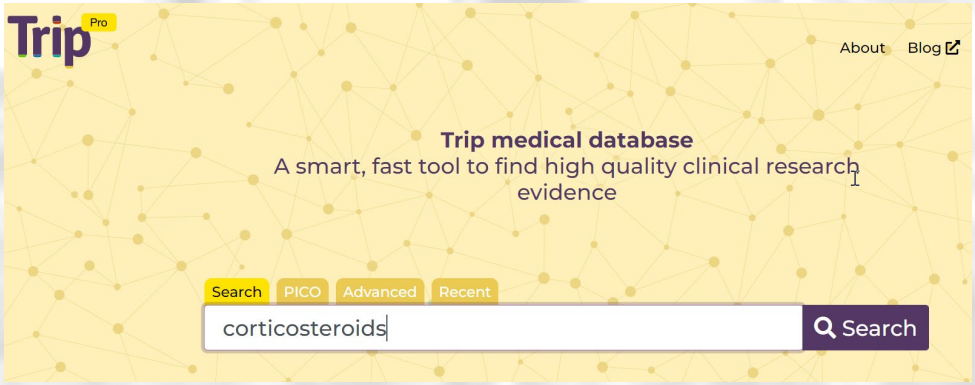
Based on a good article found, you can

- find out other keywords used by the author by reading the abstracts
- find out what are the MeSH terms (Subject headings) used to index this topic

MeSH terms

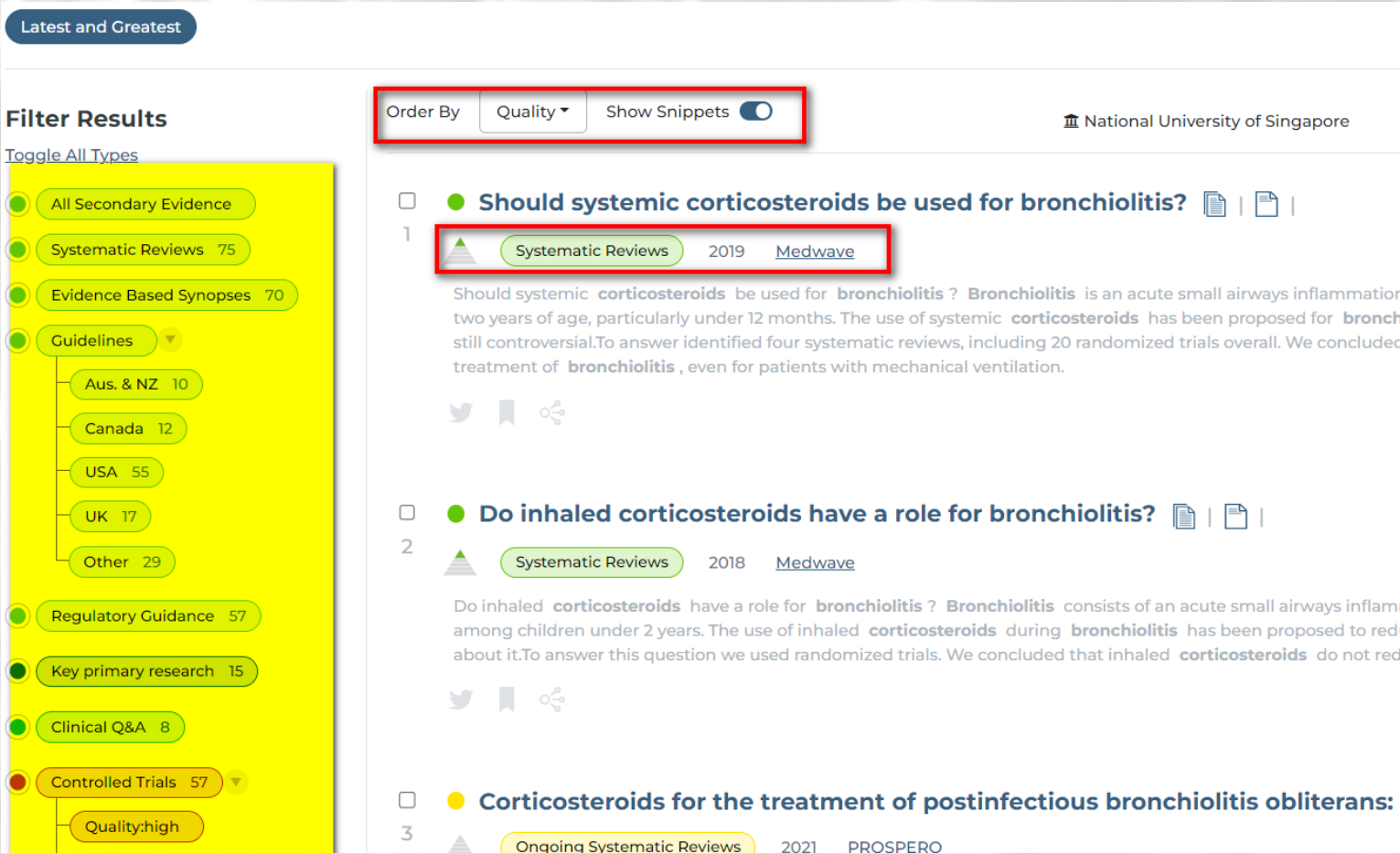
- Acute Disease
- Administration, Inhalation
- Administration, Intravenous
- Administration, Oral
- Adrenal Cortex Hormones / administration & dosage
- Adrenal Cortex Hormones / adverse effects
- Asthma / drug therapy
- Bronchiolitis, Viral / drug therapy
- Child, Preschool
- Croup / drug therapy
- Dexamethasone / administration & dosage
- Dexamethasone / adverse effects
- Fluticasone / administration & dosage
- Fluticasone / adverse effects
- Glucocorticoids / administration & dosage
- Glucocorticoids / adverse effects*
- Growth Disorders / chemically induced
- Headache / chemically induced
- Humans
- Infant
- Injections, Intramuscular
- Pneumonia / drug therapy
- Prednisone / administration & dosage
- Prednisone / adverse effects
- Respiratory Sounds
- Respiratory Tract Diseases / drug therapy*

TRIP Pro (Turning Research into Practice)



Tips:

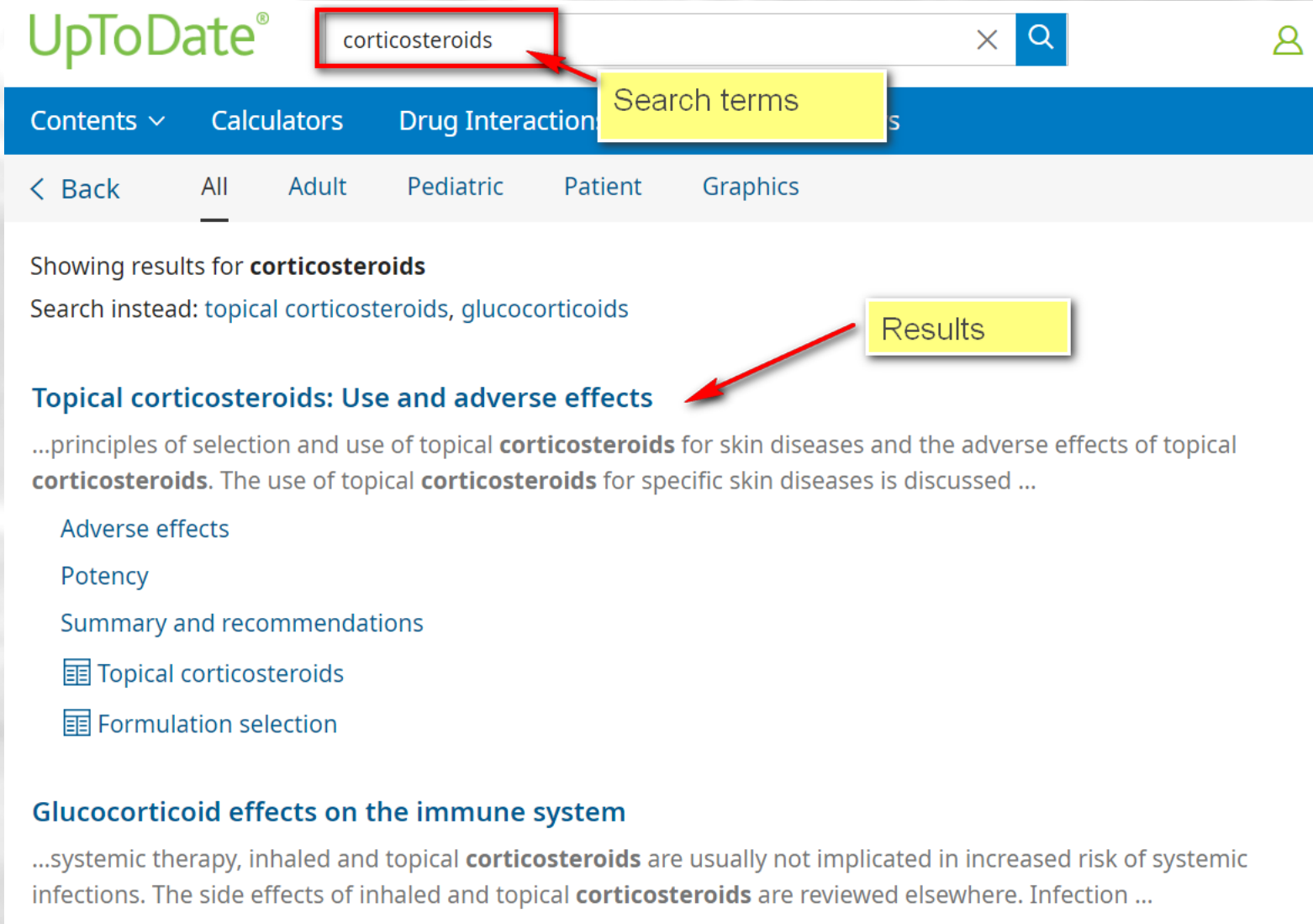
1. Combine more than ONE concepts if too many results
2. Order by “quality”.
3. Apply filters to find the high level of evidence



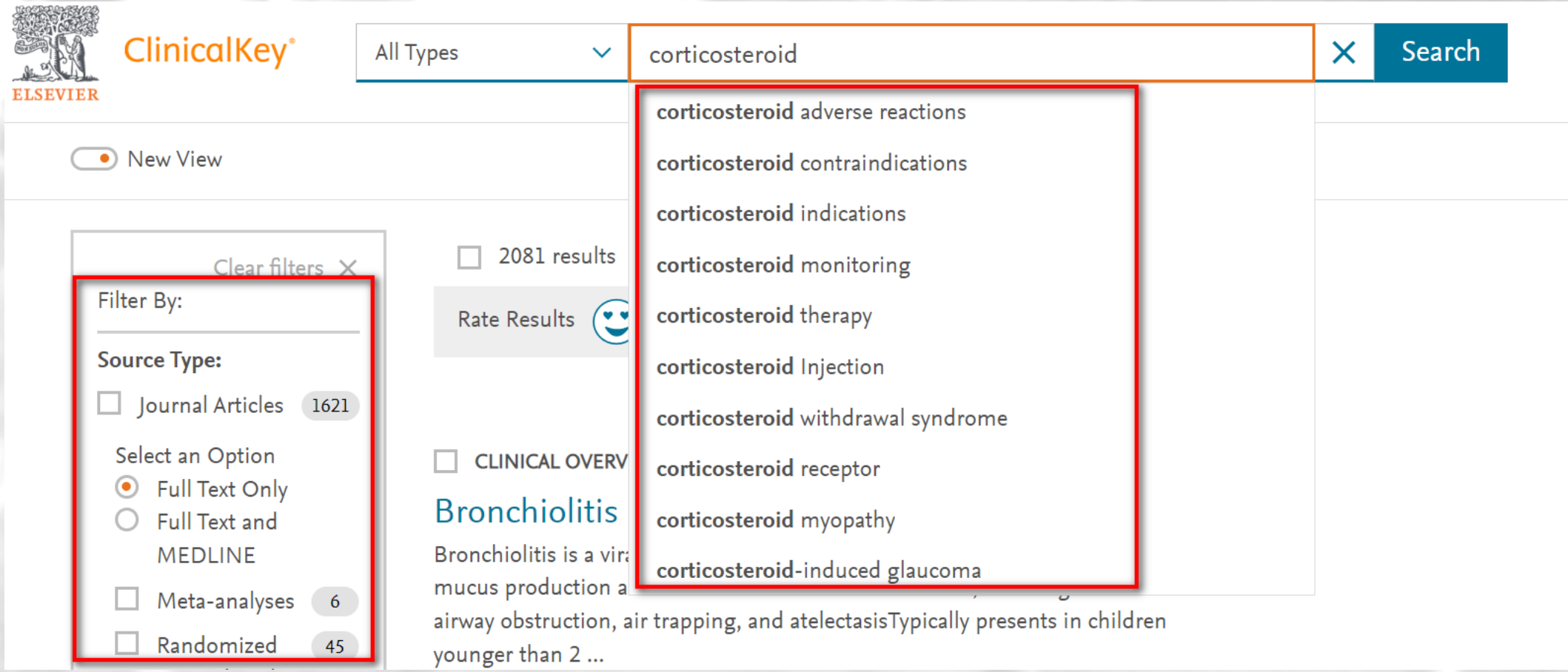
UpToDate

Tips:

1. Search ONE concept if combining more than one concepts gives irrelevant result
2. Ask yourself, what is your focus: drug/treatment/disease?



ClinicalKey



Tips:

1. Search ONE concept if combining more than one concepts gives irrelevant result
2. Auto suggest terms helps to retrieve relevant results.
3. Filter by source type to narrow the search.

2. Search

Refer to the resource guide for more information : https://libguides.nus.edu.sg/c.php?g=145717&p=2859910

Findings from different sources

Authors' conclusions

This review does not demonstrate an effect of inhaled corticosteroids given during the acute phase of bronchiolitis in the prevention of post-bronchiolitic w
outcomes precludes us from maki

From Cochrane: Blom DJM, Ermers M, Bont L, van Woensel JBM, Van Aalderen WMC. Inhaled corticosteroids during acute bronchiolitis in the prevention of post-bronchiolitic wheezing. Cochrane Database of Systematic Reviews 2007, Issue 1. Art. No.: CD004881. DOI: 10.1002/14651858.CD004881.pub2. Accessed 29 June 2022.

Results for Clinical Studies: Therapy/Broad

PubMed

5 of 837 results sorted by: Most Recent

See all results in PubMed (837)

Efficacy of Nebulized Hypertonic Saline (3%) Versus Normal Saline and Salbutamol in Treating Acute Bronchiolitis in A Tertiary Hospital: A Randomized Controlled Trial.
Pandit P, et al. Mymensingh Med J. 2022. PMID: 35383741 Clinical Trial.

Effect of glucocorticoid therapy on long-term growth and development of children with bronchiolitis.
Aili ZY, et al. Zhongguo Dang Dai Er Ke Za Zhi. 2022. PMID: 35351255 **Free PMC article.** Chinese, English.

Severe diffuse proliferative bronchiolitis complicating culture-proven disseminated BCG infection after intravesical instillation for bladder cancer.
Notghi AAA, et al. BMJ Case Rep. 2022. PMID: 35321917

Cryptogenic Organizing Pneumonia.
King TE Jr, et al. N Engl J Med. 2022. PMID: 35294814 Review. No abstract available.

Childhood Respiratory Conditions: Lower Respiratory Tract Infection.
Lowe MC. FP Essent. 2022. PMID: 35143151

See all results in PubMed (837)

- **Management of nonsevere bronchiolitis** – Infants and children with nonsevere bronchiolitis usually can be managed in the outpatient setting unless there are concerns about the caregivers' ability to care for them at home.

UptoDate

Supportive care (maintenance of adequate hydration, relief of nasal congestion/obstruction, monitoring disease progression) and anticipatory guidance are the mainstays of management. We generally do not use pharmacologic interventions (eg, bronchodilators, glucocorticoids) or nebulized hypertonic saline in the management of children with nonsevere bronchiolitis. (See 'Severity assessment' above and 'Nonsevere bronchiolitis' above.)

- **Management of severe bronchiolitis** – Infants and children with severe bronchiolitis require assessment in the emergency department and usually require supportive care in the inpatient setting.

Supportive care (maintenance of adequate hydration, provision of oxygen and respiratory support as necessary, monitoring disease progression) and anticipatory guidance are the mainstays of management of severe bronchiolitis. (See 'Severity assessment' above and 'Severe bronchiolitis' above and 'Fluid management' above and 'Supplemental oxygen' above and 'Monitoring clinical status'

Pharmacologic agents have largely proven *ineffective* in the management of bronchiolitis. Cochrane reviews have failed to demonstrate any impact on clinical outcomes with use of albuterol or corticosteroids in bronchiolitis; neither are currently recommended for management. Response to bronchodilators is unlikely and unpredictable in children younger than 1 yr, and there is no validated method of assessing response in the clinical setting. The use of inhaled or oral steroids in very young children with wheezing has not been shown to prevent the progression of childhood wheezing or development of asthma. There is debate over the use

From ClinicalKey: Kliegman, R., Stanton, B., St. Geme, Joseph W., III, Schor, N. F., Behrman, R. E., & Nelson, W. E. (2020). Nelson textbook of pediatrics (21.th ed.). Elsevier Inc.

Ribavirin, the only currently available antiviral medication targeting RSV, is also *not* currently recommended, because of minimal impact on disease outcomes, and because it is costly, difficulty to administer, and associated with important toxicities.

Summary

We have come to the end….

Introduced to EBM

Introduced to EBM Resources

Works Cited

- Murad MH, Asi N, Alsawas M, et al. New evidence pyramid. *BMJ Evidence-Based Medicine* 2016;21:125-127.
- Akobeng AK. Principles of evidence based medicine. *Archives of Disease in Childhood* 2005;90:837-840.

Thank you!