Pediatric Clerkship EBM Worksheet

The objectives for this assignment:

- Construct a clinical question about a patient or population with a specific clinical problem, perform a literature search, read the appropriate article, and critically appraise the article.

- Receive feedback on search techniques individually through Canvas and through group participation during the literature review conference session

3 Main Steps

Download and complete the Pediatrics Clerkship Interactive EBM Worksheet located in the Pediatrics Clerkship Course Assignment on Canvas. **Canvas login is required.**

1. Ask a focused clinical question in the PICO format.
2. Search for clinical studies in PubMed@UCI.
3. Critically analyze the most relevant study from your PubMed search results.

Step 1: Ask a Focused Clinical Question

Is your clinical question answerable?

- *"What is the overall best approach to head trauma in children?"*
  - is so broad that a meaningful answer is difficult to find due to the large number of articles you may retrieve addressing many possible treatments, diagnostic tests, and clinical outcomes.

- *"In children with mild head injury, does the use of immediate CT Scan vs. admission for observation affect identification and diagnosis of intracranial hemorrhage?"*
  - is more focused and will lead to a doable search strategy and a meaningful search result.

Step 1: Ask a Focused Clinical Question

- Express your clinical question in the PICO format
  - P - Patient or Population AND Problem
  - I – Intervention: a *treatment*, *a diagnostic test*, *an exposure* to a known or presumed risk factor, etc.
  - C – Comparison: treatment, placebo, gold standard diagnostic test, absence of risk factor, etc.
  - O – Clinical outcome of interest

The PICO terms come from and should match your clinical question.

Step 2: Perform the Search in PubMed Clinical Queries

- PubMed Clinical Queries will filter your search results according to several pre-defined clinical study categories:
  - Therapy
  - Diagnosis
  - Etiology/Harm
  - Prognosis
  - Clinical Prediction Guides (not used for this exercise)
- Results can be further limited by scope:
  - Sensitive/Broad – More articles, less restricted to specific study type
  - Specific/Narrow – Fewer articles, more focused on exact study type
- This is merely a tool, and is not always the best approach

Example of a Therapy Question

*In **children** with **recurrent UTI**, is **cranberry juice** effective in reducing the number of **recurrences** and related **antibiotic** use?*

PICO -- Therapy	
Patient / **P**roblem	Children with recurrent Urinary Tract Infections
Intervention	Cranberry Juice
Comparison	Placebo / no treatment
Outcome	Reducing the number of UTI recurrences and related antibiotic use
Methodology	RCT > Cohort > Case Control > Case Series

PubMed Search: Identify Search Terms

*In **children** with **recurrent UTI**, is **cranberry juice** effective in reducing the number of **recurrences** and related **antibiotic** use?*

- Your search terms should be derived from your clinical question/PICO, for example:
  - Children with recurrent Urinary Tract Infections
  - (Vaccinium macrocarpon OR Cranberry)
  - Placebo (no treatment)
  - Recurrence (UTI OR Urinary Tract Infections)
- Correct use of resource specific features:
  - capitalize Boolean connectors in PubMed (AND, OR, NOT)
  - avoid prepositions, or other minor parts of speech as search terms
  - avoid acronyms, initialisms, and other abbreviations as search terms

PubMed Search Objectives

- Do your search *first* in **PubMed Clinical Queries**.
  - If you do not find any relevant results, then do your search in the PubMed regular search, but indicate this in your comments.
- Locate a clinical study that applies to the patient/population, clinical problem, and outcome(s) of interest.
- Provide the
  - exact search strategy from the PubMed Advanced Search page.
  - full citation & abstract of one relevant article.
- Evaluate the selected clinical study.

PubMed Clinical Queries: Two Search Examples

- (Therapy/Narrow[filter]) AND (vaccinium macrocarpon OR cranberry) AND (UTI OR urinary tract infections)

  Filters: English; Child: 0-18 years

Another search approach

- (Therapy/Narrow[filter]) AND (vaccinium macrocarpon OR cranberry) AND (UTI OR urinary tract infections) AND (child OR children OR infant OR adolescent)

  Filters: English

- Briefly discuss why your results are relevant.

PubMed Clinical Queries

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use PubMed directly.

(Vaccinium macrocarpon OR Cranberry) AND (UTI OR Urinary Tract Infections) Search

Clinical Study Categories

Category: Therapy

Scope: Narrow

Results: 5 of 29

Recurrent urinary tract infection and urinary Escherichia coli in women ingesting cranberry juice daily: a randomized controlled trial.

Stapleton AE, Dziura J, Hooton TM, Cox ME, Yarova-Yarovaya Y, Chen S, Gupta K.

Mayo Clin Proc. 2012 Feb; 87(2):143-50.

Cranberry juice for the prevention of recurrences of urinary tract infections in children: a randomized placebo-controlled trial.

Salo J, Uhari M, Helminen M, Korppi M, Nieminen T, Pokka T, Kontiokari T.

Clin Infect Dis. 2012 Feb 1; 54(3):340-6. Epub 2011 Nov 18.

Cranberries vs antibiotics to prevent urinary tract infections: a randomized double-blind noninferiority trial in premenopausal women.

Beerepoot MA, ter Riet G, Nys S, van der Wal WM, de Borgie CA, de Reijke TM, Prins JM, Koeijers J, Verbon A, Stobberingh E, et al.

Arch Intern Med. 2011 Jul 25; 171(14):1270-8.

Cranberry juice fails to prevent recurrent urinary tract infection: results from a randomized placebo-controlled trial.

Barbosa-Cesnik C, Brown MB, Buxton M, Zhang L, DeBusscher J, Foxman B.

Clin Infect Dis. 2011 Jan 1; 52(1):23-30.

Inhibitory activity of cranberry extract on the bacterial adhesiveness in the urine of women: an ex-vivo study.

Tempera G, Corsello S, Genovese C, Caruso FE, Nicolosi D.

Int J Immunopathol Pharmacol. 2010 Apr-Jun; 23(2):611-8.

See all (29)

Systematic Reviews

Results: 5 of 30

Recurrent urinary tract infection.

Epp A, Larochelle A, Lovatsis D, Walter JE, Easton W, Farrell SA, Girouard L, Gupta C, Harvey MA, Robert M, et al.

J Obstet Gynaecol Can. 2010 Nov; 32(11):1082-101.

[Clinical practice guidelines. Recurrent infection of the urinary tract in women. Colegio Mexicano de Especialistas en Ginecología y Obstetricia].

Del Pilar Velázquez M, Romero Nava LE, López de Avalos DR, Quiroz Garza G, Solano Sánchez R, Gorbea Chávez V, Iris de la Cruz S, Villagrana Zesatti R, Arredondo García JL, Figueroa Damián R, et al.

Ginecol Obstet Mex. 2010 May; 78(5):S437-59.

Urinary tract infections in healthy women: a revolution in management?

Del Mar C.

BMC Fam Pract. 2010 May 26; 11:42. Epub 2010 May 26.

Overview on cranberry and urinary tract infections in females.

Rossi R, Porta S, Canovi B.

J Clin Gastroenterol. 2010 Sep; 44 Suppl 1:S61-2.

Cranberry is not effective for the prevention or treatment of urinary tract infections in individuals with spinal cord injury.

Opperman EA.

Spinal Cord. 2010 Jun; 48(6):451-6. Epub 2009 Nov 24.

See all (30)

This column displays citations for systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus

Medical Genetics

Topic: All

Results: 5 of 7

Inhibition of adhesion of uropathogenic Escherichia coli bacteria to uroepithelial cells by extracts from cranberry.

Ermel G, Georgeault S, Inisan C, Besnard M.

J Med Food. 2012 Feb; 15(2):126-34. Epub 2011 Nov 14.

Inhibition of Escherichia coli CFT073 fliC expression and motility by cranberry materials.

Hidalgo G, Chan M, Tufenkji N.

Appl Environ Microbiol. 2011 Oct; 77(19):6852-7. Epub 2011 Aug 5.

Cranberry constituents affect fructosyltransferase expression in Streptococcus mutans.

Feldman M, Weiss E, Shemesh M, Ofek I, Bachrach G, Rozen R, Steinberg D.

Altern Ther Health Med. 2009 Mar-Apr; 15(2):32-8.

[Cranberry (Vaccinium macrocarpon) and urinary tract infections: study model and review of literature].

Lavigne JP, Bourg G, Botto H, Sotto A.

Pathol Biol (Paris). 2007 Nov; 55(8-9):460-4. Epub 2007 Oct 1.

Effects of cranberry juice on uropathogenic Escherichia coli in vitro biofilm formation.

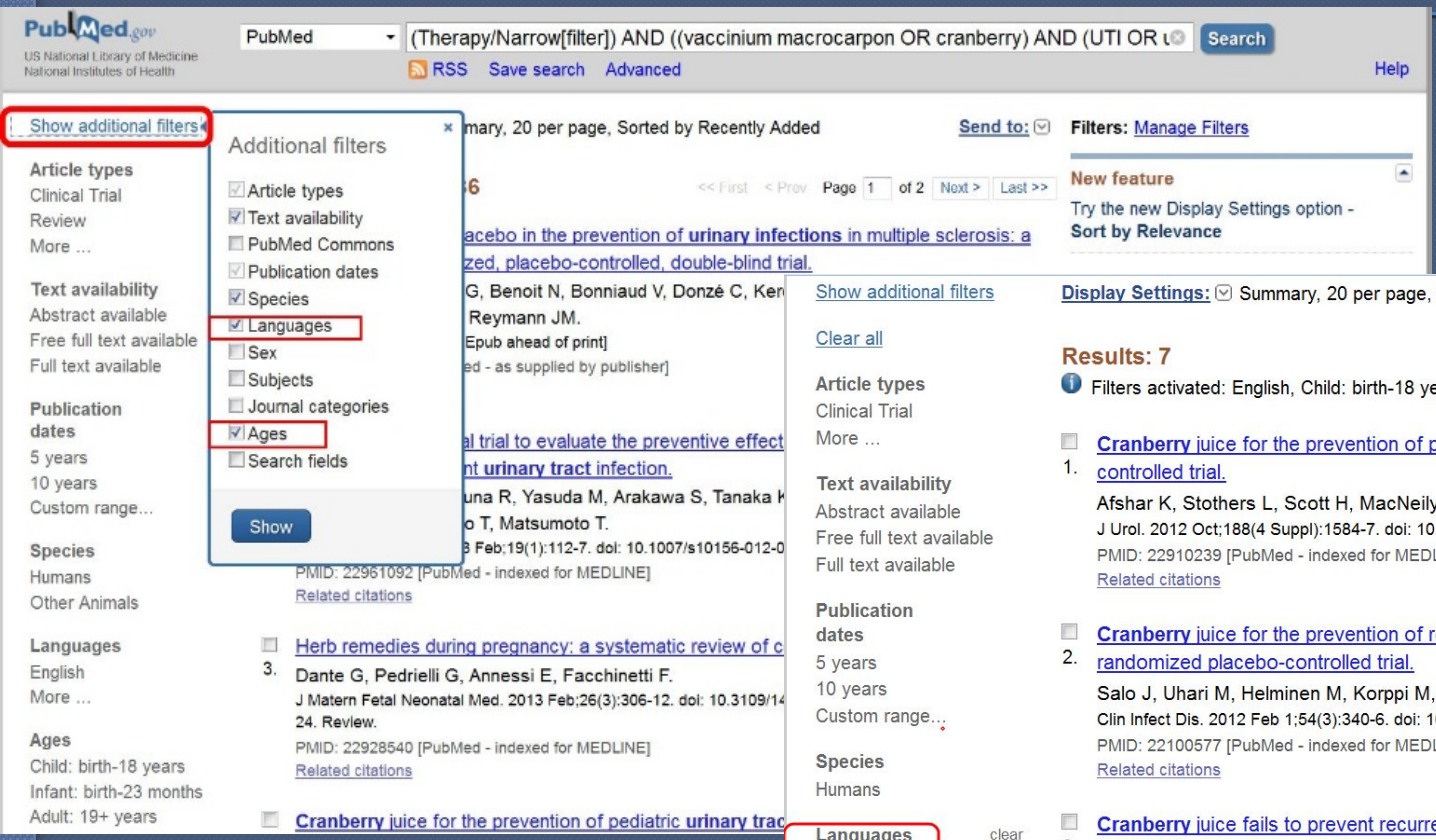
Di Martino P, Agniel R, Gaillard JL, Denys P.

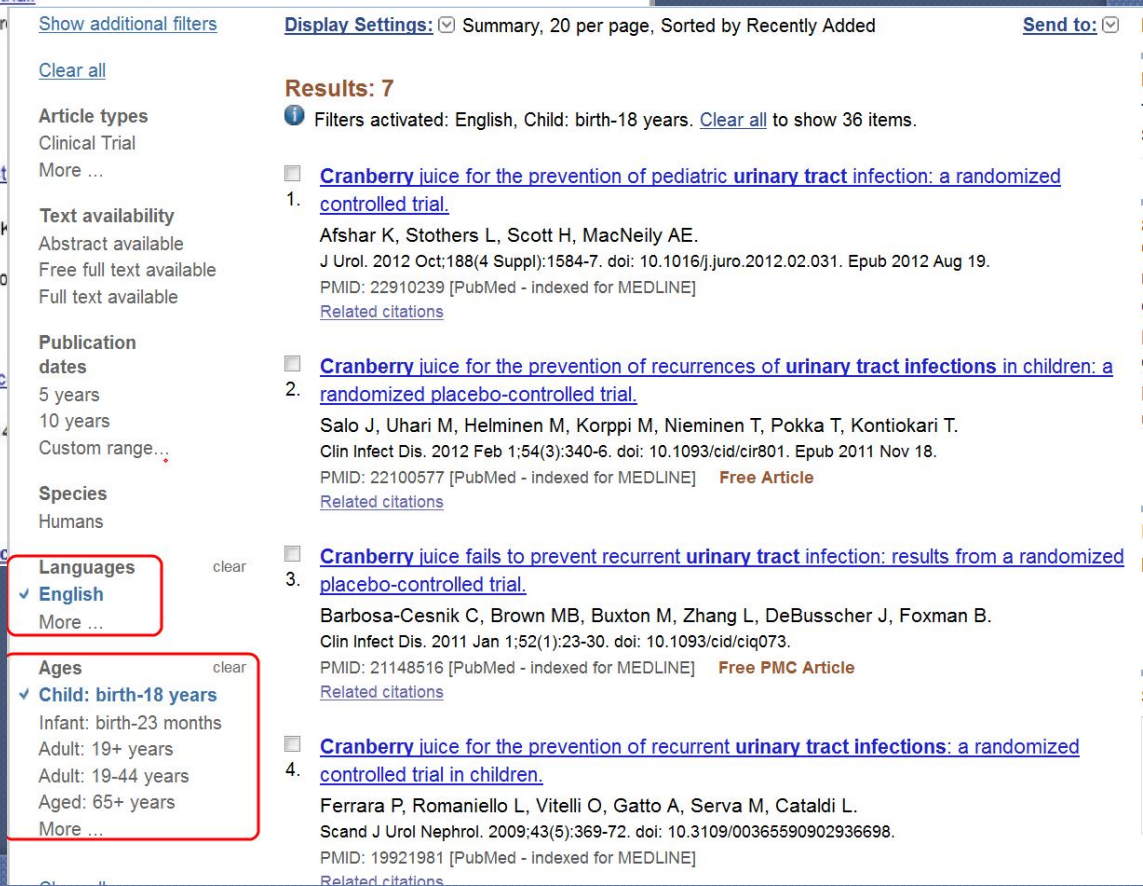
J Chemother. 2005 Oct; 17(5):563-5.

See all (7)

This column displays citations pertaining to topics in medical genetics. See more filter information.

PubMed Filters





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PubMed Advanced Search Builder

YouTube Tutorial

Filters activated: Humans, English, Child: 0-18 years Clear all

Use the builder below to create your search

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Builder

All Fields Show index list

AND All Fields Show index list

Search or Add to history

Search Strategy

History Clear history

Search	Add to builder	Query	Items found	Time
#14	Add	Search **(Therapy/Narrow[filter]) AND ((Vaccinium macrocarpon OR Cranberry) AND (UTI OR Urinary Tract Infections))** Filters: **Humans; English; Child: 0-18 years**	6	17:08:32

You are here: NCBI > Literature > PubMed

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Clin Infect Dis. 2012 Feb 1;54(3):340-6. Epub 2011 Nov 18.

Cranberry juice for the prevention of recurrences of urinary tract infections in children: a randomized placebo-controlled trial.

Salo J, Uhari M, Helminen M, Korppi M, Nieminen T, Pokka T, Kontiokari T.

Department of Paediatrics, Oulu University Hospital, University of Oulu, Finland. jarmo.salo@oulu.fi

Abstract

BACKGROUND: Cranberry juice prevents recurrences of urinary tract infections (UTIs) in adult women. The objective of this study was to evaluate whether cranberry juice is effective in preventing UTI recurrences in children.

METHODS: A double-blind randomized placebo-controlled trial was performed in 7 hospitals in Finland. A total of 263 children treated for UTI were randomized to receive either cranberry juice (n = 129) or placebo (n = 134) for 6 months. Eight children were omitted because of protocol violations, leaving 255 children for the final analyses. The children were monitored for 1 year, and their recurrent UTIs were recorded.

RESULTS: Twenty children (16%) in the cranberry group and 28 (22%) in the placebo group had at least 1 recurrent UTI (difference, -6%; 95% confidence interval [CI], -16 to 4%; P = .21). There were no differences in timing between these first recurrences (P = .32). Episodes of UTI totaled 27 and 47 in the cranberry and placebo groups, respectively, and the UTI incidence density per person-year at risk was 0.16 episodes lower in the cranberry group (95% CI, -.31 to -.01; P = .035). The children in the cranberry group had significantly fewer days on antimicrobials (-6 days per patient-year; 95% CI, -7 to -5; P < .001).

CONCLUSIONS: The intervention did not significantly reduce the number of children who experienced a recurrence of UTI, but it was effective in reducing the actual number of recurrences and related antimicrobial use.

PMID: 22100577 [PubMed - indexed for MEDLINE]

⊕ Publication Types, MeSH Terms

⊕ LinkOut - more resources

Copy and Paste

Example of a Diagnostic Question

- *In **infants** with possible **sepsis**, is **physical exam** **sensitive** and **specific** in diagnosing **pneumonia**, when compared to the gold standard of **chest x-ray**?*

PICO -- Diagnosis	
Patient / **P**roblem	Infants with possible sepsis
Intervention	Physical Exam
Comparison	Chest x-ray
Outcome	Diagnosing pneumonia
Methodology	Prospective, blind comparison to a gold standard

Evaluating and applying the results of diagnostic tests: ***validity of the study***, ***expression of the results***, and ***assessment of the generalizability of the results***. *Validity requires an independent, blind comparison with a reference standard*.

Example of a Prognosis Question

Among young ***children*** *with* ***Acute Otitis Media****, is living in a* ***passive smoking*** *environment an important factor in predicting frequency of disease compared to a* ***smoke-free environment****?*

PICO -- Prognosis	
Patient / **P**roblem	Young children with Otitis Media
Intervention	Passive smoking environment
Comparison	Smoke-free environment
Outcome	Predicting frequency of disease
Methodology	Cohort studies > Case Control > Case Series

Example of an Etiology/Harm Question

Do otherwise healthy young ***children*** *who attend* ***daycare,*** *compared to children who do not, have an increased* ***incidence*** *of* ***Otitis Media*** *in the first two years of life?"*

PICO – Etiology / Harm	
Patient / **P**roblem	Children
Intervention	Attend daycare
Comparison	Stay home
Outcome	Increased incidence of Otitis Media in the first two years of life?
Methodology	RCT > Cohort > Case Control > Case series

Step 3: Critical Analysis

- Complete sections IV: Critical Appraisal, answer questions 7-15 regarding the clinical study you have selected from your PubMed search results.
- Upload your completed worksheet to Canvas.

Ask Us!

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