Evidence-Based Neonatal Medicine

Presented by: Linda Suk-Ling Murphy, MLIS Research Librarian for the Health Sciences University of California, Irvine Libraries March 1, 2017

Learning Objectives:



- Help participants develop self-directed life-long learning skills, motivating them to seek further learning when there are questions.
- Search and identify relevant evidence-based, point-of care resources in neonatal-perinatal medicine.
- Introduce the concept of Evidence-Based Medicine (EBM), demonstrating simple methods to find and use the best evidence to answer clinical questions.
- Search medical databases (PubMed and Cochrane Library) effectively and efficiently to track down the best evidence.
- Evaluate the evidence for relevance and validity.
- Take the skills you learn and apply it to your medical education, clinical research, and patient management.

Part I Agenda: Search Techniques (1st hour)

1. Review UCI Libraries' Resources and services

- Grunigen Medical Library (GML) Core Resources page
- ANTPAC for resources on Neonatal Medicine
- Evidenced-Based, Point-of-Care Resources in Neonatal Medicine
- 2. Perform searches of medical databases (PubMed and the Cochrane Library)
- Download and configure the VPN software (http://www.oit.uci.edu/vpn/) for Remote Access to the UCI Libraries restricted online resources

UCI Libraries' Resources & Services --GML Core Resources on Neonatology

- ANTPAC Catalog (the UCI Libraries online catalog)
- Access Surgery Books
- jove (articles with videos)
- Micromedex
- VisualDx
- Literature searches
- PubMed@UCI
- Cochrane Library
- Google Scholar

EB Point-of-Care Resources:

- BMJ Best Practice
- JAMA Evidence
- NEJM Journal Watch
- Evidence-Based Neonatal Medicine <u>http://grunigen.lib.uci.edu/evid</u> <u>ence-based-instruction/evidencebased-neonatal-medicine</u>

Evidence-Based Neonatology Resources





Endotracheal intubation AND (neonates OR newborns OR infants)

Search Endotracheal intubation AND (neonates OR newborns OR infants) across all McGraw-Hill Medical sites >

Books	(44)	•
Quick Reference	(2)	•
🖢 Images	(3)	
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Narrow by Book Title

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Operative Pediatric Surgery (4)

Adult Chest Surgery, 2e (1)

Schwartz's Principles of Surgery, 10e (1)

Principles of Critical Care, 4e (1)

Johns Hopkins Textbook of Cardiothoracic Surgery (1)

Narrow By Topic

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HALL SCHWIDT, AND WOOD'S PRINCIPLES OF CRITICAL CARE CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR	Airway Management > INTUBATING WITH A LARYNGEAL MASK AIRWAY Principles of Critical Care, 4e , and 5, and is designed to facilitate tracheal intubation with endotracheal tubes up to 8-mm inside diameter Intubation can be performed blindly or in case of difficulty with the help of flexible bronchoscopy. Like the classic LMA, the Fastrach [™] establishes ventilation when face mask ventilation
Schwartz's PRINCIPLES OF BURGERES CURRERES CURRERES	Congenital Heart Disease > Treatment Schwartz's Principles of Surgery, 10e Figure 20-3. Treatment algorithm for neonates and infants with critical left ventricular outflow tract obstruction Patients can be initially triaged to either a single or a biventricular approach depending on presenting morphologic, demographic, and institutional factors. VSD

Abdominal Wall Defects: Omphalocele and Gastroschisis > Silo Placement with Staged

OPERATIVE Closure PEDIATRIC Operative

Operative Pediatric Surgery



... the top down, taking care not to exert high pressure (Fig. 34-8). The silo placement and reduction is usually

performed in the **neonatal** intensive care unit (NICU) under sedation, thus **intubation** is not required. When the contents are completely reduced, the silo is removed and the fascial defect closed...

ANTPAC - UCI Libraries Online Catalog

- Use Antpac to locate all the Books, journals, videos and other reports that are in print and online: <u>http://antpac.lib.uci.edu/</u>
- □ <u>Search exa</u>mples:
 - necrotizing enterocolitis (include all collection)
 - neonatology management
 - (Online/Internet Resources)
 - Neonat* Case* (Online/Internet)



JAMA Evidence

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before 28 weeks' gestation. You select it and click on the related link for Clinical Queries. Under Clinical Study Categories, you choose the search filter "Prognosis" and limit the scope to "Narrow." This retrieves 31 clinical studies and 5 potential reviews. You first look for a systematic review but do not find one that is relevant for evaluating outcomes across multiple subservative present us infant achaste t lawsups the second primary study in the

Appraising Evidence About

Prognosis: Adrienne Randolph, MD, MSc, discusses prognosis 12 mins, 40 secs

NEJM Journal Watch



Whole-Body Hypothermia for Neonatal Hypoxic-**Ischemic Encephalopathy**

Howard Bauchner, MD reviewing Shankaran S et al. N Engl J Med 2005 Oct 13. Papile L-A, N Engl J Med 2005 Oct 13.

Hypoxic-ischemic encephalopathy (HIE) may cause neurodevelopmental deficits and death in infants. The rate of HIE in the U.S. (2 per 1000 live births) has not changed in the past 20 years. Researchers assessed whole-body cooling in a multisite, randomized trial that involved 208 newborns (gestational age, ≥36 weeks) with HIE (defined as either severe acidosis or perinatal complications and resuscitation at birth). Within 6 hours of birth, infants received either usual care (overhead radiant warmers) or whole-body cooling (with water blankets regulated to achieve an esophageal temperature of 33.5°C) for 72 hours.

Compared with infants who received usual care, those who underwent cooling were significantly less likely to have died or have moderate or severe disability (collective rates of IQ, motor function, blindness, and hearing impairment) at age 18 to 22 months (44% vs. 62%). Adjustment for severity of encephalopathy at randomization did not change the results. Individual rates of cerebral palsy, blindness, and hearing impairment among survivors did not differ significantly between the two groups. The incidence of serious adverse events (e.g., hypotension, cardiac arrhythmia, or oliguria) was similar in the two groups.

COMMENT

Howard Bauchner, MD

These encouraging results suggest that whole-body cooling may be an effective therapy for hypoxicischemic encephalopathy in term and asphyxiated infants. In a previous randomized study of brain cooling for HIE, no differences in rates of death and disability were found. As noted by an editorialist, one explanation for the different results is that systemic whole-body hypothermia resulted in more rapid cooling than brain cooling alone. Unfortunately, many neonates with HIE are born in community hospitals, where quickly instituting such an intensive intervention as whole-body cooling may be difficult to accomplish. In addition, these results do not pertain to premature infants.

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INFORMING PRACTICE

Journal Watch

January 20, 2015

(NEJM

Therapeutic Hypothermia in Perinatal Encephalopathy: Do Depth and Duration of **Cooling Matter?**

Robin Steinhorn, MD reviewing Shankaran S et al. JAMA 2014 Dec 24/31.

Cooling infants for 120 versus 72 hours, at 32.0°C versus 33.5°C, or both did not improve outcomes.

Results of several trials have established that 72 hours of therapeutic hypothermia at 33°C to 34°C reduces neurodevelopmental disability for term and near-term infants with moderate or severe encephalopathy. However, half of children who are cooled still die or survive with impairments, which has led to interest in optimizing the method of cooling.

In the current study, investigators enrolled 364 infants who met standard criteria for cooling (perinatal acidosis and clinical findings of encephalopathy). Using a 2×2 factorial design, infants were randomized to a cooling temperature of 33.5°C or 32.0°C and to a cooling duration of 72 hours or 120 hours. The study ended after enrollment of 364 neonates at the recommendation of the data and safety monitoring committee.

In-hospital mortality rates were 7% in the group cooled at a standard 33.5°C for 72 hours (7 of 95 neonates), 14% in those cooled at 32.0°C for 72 hours (13 of 90 neonates), 16% in those cooled at 33.5°C for 120 hours (15 of 96 neonates), and 17% in those cooled at 32.0°C for 120 hours (14 of 83 neonates). Rates of nitric oxide use and extracorporeal membrane oxygenation (ECMO) use were significantly higher in infants cooled at 32.0°C, indicating a higher rate of pulmonary hypertension in this group. Long-term outcomes remain under investigation.

COMMENT

Term and near-term neonates with moderate or severe hypoxic ischemic encephalopathy do not benefit from deeper cooling or longer duration of cooling compared with hypothermia at 33.5°C for 72 hours. The higher rates of nitric oxide and ECMO in infants cooled to 32.0°C indicate that a tight therapeutic range of temperature is important to cardiopulmonary stability. Future studies will likely focus on adjunctive therapies to augment the effects of therapeutic hypothermia.

Dr. Steinhorn is Professor and Chair of Pediatrics, University of California Davis Medical Center, Sacramento.

CITATION(S):

Shankaran S et al. Effect of depth and duration of cooling on deaths in the NICU among neonates with hypoxic ischemic encephalopathy: A randomized clinical trial. JAMA 2014 Dec 24/31; 312:2629. (http://dx.doi.org/10.1001/jama.2014.16058)

PubMed abstract (Free)



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JoVE (Journal of Visualized Experiments)



¹Department of Otolaryngology - Head and Neck Surgery, University of Missouri, ¹Department of Communication Science and Disorders, University of Missouri, ²Department of Medicine, University of Missouri

JoVE 52319

purpose of this article is to describe the NNNS, provide video examples of the NNNS procedures and discuss the

VisualDx: A Differential Diagnostic Tool

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Neonatal Candidiasis - Skin

Print: Images (25)
 Contributors: Ansa Ahmed MD, Art Papler MD, Craig N. Burkhart MD, Dean Morrell MD, Lawell A. Goldsmith
 MD, MPH, Nancy Esterly MD

Synopsis

Neonatal candidiasis can develop perinatally or postnatally: it can be acquired by passage through an infected birth canal, develop postnatally from invasive procedures or infected catheters, or be related to breaks in the skin of the neonate, it is seen after the first week of life, in contrast to congenital candidiasis, which is present at birth.

Affected infants may present with a varying clinical picture.

Localized disease

Localized disease is limited to the development of mucocutaneous lesions and usually presents as thrush or diaper dermatitis, but other intertriginous areas may be involved.

Systemic Infection

A more widespread systemic infection occurs mostly in low birth weight infants. Cutaneous findings include diffuse erythema, vesicles, or pustules. The infant is lethargic, refuses to feed, is apnelc, or is in respiratory distress. There is temperature instability and hyperglycemia. Meningitis, urinary tract infection, or candidal septicemia may occur. More severe cases may result in multi-organ failure.

Widespread cutaneous infection

The development of a widespread cutaneous candidal infection that resembles an erosive dermatilis may also be seen in extremely low birth weight infants. Risk factors for the development of this type of neonatal candidlasis include prematurity, abdominal surgery, intravenous catheterization, and broad-spectrum antibiotic use as well as steroid administration and hyperglycemia. Infants with widespread cutaneous involvement (an present with macular, papular, vesicular, or pustular lesions. Erosive and ulcerative lesions develop with crust formation.

Codes

https://www.visualdx.com/visualdx/diagnosis/neonatal-candidiasis?moduleId=23&diagnosisId=53819

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Display: All (7) | Drug (6) | Toxicology (1)

Page 1: Results for: 1-7

1. SALICYLATES

Toxicology: Detailed evidence-based information (POISINDEX® Managements) ...complicated by thick meconium and neonatal bradycardia. Findings after resuscitation included tachypnea, respiratory distress, hypotonia, and metabolic... Document section:

- CLINICAL EFFECTS >

2. BISMUTH

Drug: Detailed evidence-based information (*DRUGDEX*®)

...complicated by thick meconium and **neonatal bradycardia**. Findings after resuscitation included tachypnea, respiratory distress, hypotonia, and metabolic... **Document section:**

Teratogenicity/Effects in Pregnancy/Breastfeeding •

3. Antacids

Drug: Detailed evidence-based information (DRUGDEX®)

...complicated by thick meconium and **neonatal bradycardia**. Findings after resuscitation included tachypnea, respiratory distress, hypotonia, and metabolic... **Document section:**

Teratogenicity/Effects in Pregnancy/Breastfeeding

4. PINDOLOL

Drug: Detailed evidence-based information (DRUGDEX®)

meconium aspiration [362] [363] [364] Neonetal bradycerdia, respiratory depression, hypedycernia and low Anger scores have also been

Remote Access to UCI Libraries Online Restricted Resources: <u>http://www.oit.uci.edu/vpn/</u>

Virtual Private Network (VPN)

Summary: If you need to connect to UCInet from off campus, Virtual Private Network (VPN) may be the solution for you. VPN allows you to connect to on campus-only resources like the Library and encrypts the information you are sending over the network, protecting your data.

Peer-to-peer file sharing services and other high-bandwidth applications should not be used while using the VPN service. You may be automatically blocked from using the VPN if your bandwidth exceeds the maximum bandwidth limit.

3 Ways to Access the VPN

1. WebVPN 2. VPN Software 3. iOS, Android OS, Chrome OS VPN

3 Ways to Access the VPN VPN Software Versions

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Android 4.x

Chrome OS – ChromeBook

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Finding the Best Available Evidence

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- Provides direct access to full-text articles via UC-eLinks.
 - Go to the Grunigen Medical Library (<u>http://grunigen.lib.uci.edu/</u>)
 - 2. Select PubMed@UCI located under Core Resources.
- Must go through VPN (requires software download and configuration) and login with your UCInetID and password when access remotely (<u>http://www.oit.uci.edu/vpn</u>).
- Brief online tutorials are available at: <u>https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.b</u>

PubMed Search Tips

- You MUST access PubMed through the UCI Library website.
- 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.
- Avoid imprecise search terms, e.g., increased, better, greater, less, worse, vs., etc.

Review the PubMed Quiz (<u>https://eee.uci.edu/quiz/PubMed</u>)

The Basics of PubMed

(https://eee.uci.edu/quiz/PubMed)

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#5

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Which feature in PubMed allows you to view, combine, expand, or copy and paste your previous search strategies? (Mark one)

[For answer to this question, view a 10-second tutorial (Links to an external site.]

Type: Multiple Choice View Students	Points: 10
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15/15

Asking a Structured and Focused Clinical Question

Is Paracetamol as effective as indomethacin in closure of PDA in preterm neonates?

<u>PICO</u>:

- **P** = preterm neonates
- I = paracetamol
- C = indomethacin / ibuprofen
- O = closure of PDA

Submitted search strategy:

Paracetamol vs. ibuprofen for PDA treatment Results: 2

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(pda OR Patent Ductus Arteriosus) AND (paracetamol OR Acetaminophen) AND (indomethacin OR ibuprofen OR Anti-Inflammatory Agents, Non-Steroidal OR NSAIDs) AND (Neonatal Prematurity OR premature infants OR infant, premature OR preterm infants)

Results: 31

Filters: Randomized Controlled Trial; EnglishResults: 4 RCTs

PubMed Clinical Queries search

(Therapy/Narrow[filter]) AND ((pda OR Patent Ductus Arteriosus) AND (paracetamol OR Acetaminophen) AND (indomethacin OR ibuprofen OR Anti-Inflammatory Agents, Non-Steroidal OR NSAIDs) AND (Neonatal Prematurity OR premature infants OR infant, premature OR preterm infants)) Filters: English Results: 5 RCTs.

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<u>#8</u>	Add	Search #1 AND #2 AND #3 AND #7	31	17:16:43
<u>#7</u>	Add	Search Neonatal Prematurity OR premature infants OR infant, premature OR preterm infants	91864	17:15:45
<u>#3</u>	Add	Search indomethacin OR ibuprofen OR Anti-Inflammatory Agents, Non-Steroidal OR NSAIDs	225794	17:14:19
#2	Add	Search paracetamol OR Acetaminophen	23771	17:14:03
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Publication dates 5 years 10 years	PMID: 27698754 Free PMC Article. Similar articles	((pda[All Fields] OR ("ductus arteriosus, patent"[MeSH Terms] OR ("ductus"[All Fields] AND "arteriosus"[All Fields] AND
Custom range	Efficacy and safety of intravenous paracetamol in comparison to ibuprofen for the	"patent"[AII FIElds]) OR
Species Humans Other Animals	2 treatment of patent ductus arteriosus in preterm infants: study protocol for a randomized control trial. Dani C. Poogi C. Mosca F. Schena F. Lista G. Ramendhi L. Romagnoli C. Salvatori F.	Search See more
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	Oncel MY, Yurttutan S, Erdeve O, Uras N, Altug N, Oguz SS, Canpolat FE, Dilmen U. J Pediatr. 2014 Mar;164(3):510-4.e1. doi: 10.1016/j.jpeds.2013.11.008. PMID: 24359938 Similar articles	See more
	Comparison of oral paracetamol versus ibuprofen in premature infants with patent	
	 ductus arteriosUS: a randomized controlled trial. Dang D, Wang D, Zhang C, Zhou W, Zhou O, Wu H 	

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가슴 날 수가 있는 것 같아요? 가슴 것이 가슴 것이 가슴 것이 가슴	
$(ang B^1, Gao X^1, Ren Y^1, Wang Y^1, Zhang Q^1)$	

Author information

Abstract

The aim of the present study was to analyze the changes of plasma and urinary prostaglandin E2 (PGE2) levels in preterm infants with symptomatic patent ductus arteriosus (sPDA) treated with oral ibuprofen and acetaminophen. A total of 87 preterm infants with sPDA admitted to the Neonatal Ward of the Affiliated Xuzhou Hospital of Medical College of Southeast University from October, 2012 to June, 2015 were selected and randomly divided into the ibuprofen group (n=43, 10 mg/kg ibuprofen administered orally as initial dose, followed by 5 mg/kg during the first 24 and 48 h later) and acetaminophen group (n=44, 15 mg/kg acetaminophen administered orally once every 6 h for three days). The levels of plasma and urinary PGE2 in the two groups were estimated before and after treatment. The treatment of sPDA infants with ibuprofen (ibuprofen aroup) or acetaminophen (acetaminophen group) caused a significant decrease in the plasma and urinary PGE2 levels in comparison with plasma and urinary PGE2 levels before treatment (P<0.05). Furthermore, plasma and urinary PGE2 levels in the acetaminophen group (45.0±36.9 ng/l) were significantly lower than those in the ibuprofen group (73.5±44.8 ng/l, P=0.002). The arterial duct closure rate was similar between the acetaminophen [31 (70.5%)] and ibuprofen groups [33 (76.7%), P=0.506]. The incidence of oliguria was less among sPDA infants of the acetaminophen group [1 (2.3%)] than observed among the sPDA infants of the ibuprofen group [6 (14.0%)]; however, this difference was not statistically significant (P=0.108). Additionally, the incidences of fecal occult blood positive rate, intraventricular hemorrhage, neonatal necrotizing enterocolitis and bronchopulmonary dysplasia were distributed similarly in the ibuprofen and acetaminophen groups (P>0.05). The levels of platelet, serum creatinine and alanine transaminase showed no significant changes between the ibuprofen and acetaminophen groups (P>0.05). Following treatment with ibuprofen or acetaminophen, the extent of decrease of plasma and urinary PGE2 was significantly higher among sPDA infants with oliguria (135.0±38.0 ng/l) than that observed in sPDA infants without oliguria (52.5±37.0 ng/l) (P=0.01). The study also found a significant correlation between plasma and urinary PGE₂ levels (r=0.648, P=0.01) and the coefficient of variation of urinary PGE₂ (0.427) was less than that of plasma PGE₂ (0.539). The clinical efficacy of oral ibuprofen and acetaminophen in the treatment of preterm infants with sPDA was similar with low adverse events. whereas acetaminophen-induced PGE2 levels were less than the levels observed in the ibuprofen-treated group. The incidence of oliguria was also lower in the acetaminophen group compared to the ibuprofen group. In addition, monitoring urinary PGE2 levels was more suitable because of its non-invasiveness in the clinical setting than monitoring of plasma PGE2 in preterm infants with sPDA.

KEYWORDS: acetaminophen; ibuprofen; infant; patent ductus arteriosus; preterm; prostaglandin E2

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Comparison of oral paracetamol versus ibuprofen in premature ir [PLoS One. 2013]

Review Paracetamol (acetaminophen) for paten [Cochrane Database Syst Rev. 2015]

Review Ibuprofen for the treatment of paten [Cochrane Database Syst Rev. 2008]

Comparison of Oral Acetaminophen Versus Ibuprofen in Pi [Iran J Pediatr. 2016]

Oral paracetamol versus oral ibuprofen in the management of patent [J Pediatr. 2014]

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Asking a Structured and Focused Clinical Question

In very low birthweight infants, does using non-invasive ventilation at the time of delivery decrease the probability of chronic lung disease compared to similar patients who are intubated in the delivery and given surfactant?

<u>PICO</u>:

- **P** = very low birthweight infants
- I = Non-Invasive ventilation in the delivery room
- **C** = Intubation and surfactant in the delivery room
- **O** = Chronic lung disease

Submitted search strategy:

very low birth weight premature infants AND non invasive Results: 57

PubMed vs. PubMed Clinical Queries

Regular PubMed Search (noninvasive ventilation OR non invasive ventilation) AND (respiratory distress syndrome OR long disease OR respiratory diseases) AND (low birth weight OR very low birth weight OR extremely low birth weight OR preterm infants OR preterm infant OR infant prematurity) Results: 229 Filters: Randomized Controlled Trial; published in the last 5 years; English

Results: 21

PubMed Clinical Queries

(Therapy/Narrow[filter]) AND (noninvasive ventilation OR non invasive ventilation OR noninvasive ventilation) AND (respiratory distress syndrome OR long disease OR respiratory diseases) AND (low birth weight OR very low birth weight OR extremely low birth weight OR preterm infants OR preterm infant OR infant prematurity) Filters: published in the last 5 years; English

Results: 23 RCTs

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Search	Search Manager	Medical Terms (MeSH)	Browse
Title, Abstract, Keywords	(Very Low Birth Weight OR Extr	emely Low Birth Weight OR preterm inf	Go Save
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Il Results (53)	Cochrane Database of Systematic Re	views : Issue 2 of 12, February 2017	
Cochrane Reviews (7) All Review Protocol Other Reviews (0) Trials (46) Methods Studies (0) Technology Assessments (0) Economic Evaluations (0) Cochrane Groups (0) All Current Issue Methodology Diagnostic	Issue updated daily throughout month There are 7 results from 9750 records f preterm infants OR preterm infant) A distress syndrome OR long disease Select all Export all Export select Image: High flow nasal cannula for result Dominic Wilkinson , Chad Ander Online Publication Date: February Jacqueline J Ho , Prema Subration Online Publication Date: July 20	terd biratory support in preterm infants rsen , Colm PF O'Donnell , Antonio G De Paoli ary 2016 e for respiratory distress in preterm infants maniam and Peter G Davis 015	R Extremely Low Birth Weight OR sive ventilation) AND (respiratory, Keywords in Cochrane Reviews' Sort by Relevance: high to low 🔹 and Brett J Manley Ns Cc Review
Overview Pg Prognosis Qualitative	Positioning for acute respirator Donna Gillies , Deborah Wells Online Publication Date: July 20	/ distress in hospitalised infants and children and Abhishta P Bhandari 012	Ns Review
New search Major change	Intra-amniotic surfactant for work Mohamed E Abdel-Latif, David Online Publication Date: Januar	nen at risk of preterm birth for preventing respi A Osborn and Daniel Challis ry 2010	ratory distress in newborns
Wd Withdrawn	Early nasal intermittent positive	pressure ventilation (NIPPV) versus early nasa	I continuous positive airway pressure

Asking a Structured and Focused Clinical Question

Are preterm infants with PDA treated with paracetamol have better outcomes (rate of closure and morbidities) compared to preterm infants treated with indomethacin?

<u>PICO</u>:

- **P** = premature infant with PDA
- I = paracetamol
- **C** = indomethacin
- **O** = PDA closure rate and morbidity

Submitted search strategy:

Paracetamol vs. ibuprofen for PDA treatment

Results: 3

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(pda OR Patent Ductus Arteriosus) AND (paracetamol OR Acetaminophen) AND (indomethacin OR ibuprofen OR Anti-Inflammatory Agents, Non-Steroidal OR NSAIDs)

Results: 50

Filters: Randomized Controlled Trial; English

Results: 4

PubMed Clinical Queries (Therapy/Narrow[filter]) AND (pda OR Patent Ductus Arteriosus) AND (paracetamol OR Acetaminophen) AND (indomethacin OR ibuprofen OR Anti-Inflammatory Agents, Non-Steroidal OR NSAIDs) Filters: English

Results: 5 RCT

Asking a Structured and Focused Clinical Question

In full-term infants, what is the efficacy of hypothermia for improving neurodevelopmental outcome after hypoxic ischemic encephalopathy? <u>PICO</u>:

- **P** = Term infants with hypoxic ischemic encephalopathy
- I = Hypothermia
- **C** = No cooling
- **O** = Better Neurodevelopmental outcome

Submitted search strategies:

- Neurodevelopment in infant with hypothermia treatment -- Results: 22
- Role of hypothermia in neonatal asphyxia AND neurodevelopment outcome results: 3
- What is the efficacy of hypothermia for improving neurodevelopment outcome after hypoxic ischemic encephalopathy? Randomized control trial - Results: 0

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(Therapeutic hypothermia OR targeted temperature management OR Hypothermia/therapeutic use OR hypothermia/induced) AND (hypoxic ischemic encephalopathy OR Hypoxia-Ischemia, Brain OR Brain Hypoxia Ischemia OR HIE OR Asphyxia neonatorum) AND (term birth OR full-term birth OR full-term infants OR fullterm newborns OR newborn infant) AND (neurodevelopmental OR neurodevelopment OR developmental disabilities OR disability evaluation OR neurological outcomes)

Filters: published in the last 5 years; English

Results: 105

PubMed Clinical Queries

(Therapy/Narrow[filter]) AND (Therapeutic hypothermia OR targeted temperature management OR Hypothermia/therapeutic use OR hypothermia/induced) AND (hypoxic ischemic encephalopathy OR Hypoxia-Ischemia, Brain OR Brain Hypoxia Ischemia OR HIE OR Asphyxia neonatorum) AND (term birth OR full-term birth OR full-term infants OR full-term newborns OR newborn infant) AND (neurodevelopmental OR neurodevelopment OR developmental disabilities OR disability evaluation OR neurological outcomes) Filters: published in the last 5 years; English Results: 22 RCTs



Asking a Structured and Focused Clinical Question

Does probiotic administration in Very Low Birth Weight (VLBW) infants reduce the incidence of Necrotizing Enterocolitis (NEC) when compared to placebo?

<u>PICO</u>:

- **P** = VLBW Infants
- = Probiotic
- C = Placebo
- **O** = Incidence of NEC

Submitted search strategies:

((very low birth weight infants) AND probiotic) AND incidence of Necrotizing enterocolitis

• Results: 72

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(Very Low Birth Weight OR Extremely Low Birth Weight OR preterm infants OR preterm infant OR infant prematurity) AND (Necrotizing Enterocolitis OR NEC) AND (Probiotics OR Probiotic)

Results: 282

PubMed Clinical Queries

Search (Therapy/Narrow[filter]) AND ((Very Low Birth Weight OR Extremely Low Birth Weight OR preterm infants OR preterm infant OR infant prematurity) AND (Necrotizing Enterocolitis OR NEC) AND (Probiotics OR Probiotic)) Filters: published in the last 5 years; English

• Results: 34

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Search	Search Manager	Medical Terms (MeSH)	Browse
Title, Abstract, Keywords	((Very Low Birth Weight OR Extremely	y Low Birth Weight) AND (Necrotizing	Go Sav
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Asking a Structured and Focused Clinical Question

What is the effect of early low-dose hydrocortisone on survival without BPD in extremely preterm infants?

<u>PICO</u>:

- **P**= Extremely preterm infants
- I = Early low dose hydrocortisone
- C= Placebo
- **O**= Survival without bronchopulmonary dysplasia

Submitted search strategies:

Early low dose hydrocortisone AND bronchopulmonary dysplasia Results: 15

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(bronchopulmonary dysplasia AND hydrocortisone AND (Infant, Extremely Premature OR extremely premature infants OR Extremely preterm infant OR Child OR Children))

Results: 34

PubMed Clinical Queries

(Therapy/Narrow[filter]) AND (bronchopulmonary dysplasia AND hydrocortisone AND (Infant, Extremely Premature OR extremely premature infants OR Extremely preterm infant OR Child OR Children)) Filters: English Results: 10 RCTs

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Asking a Structured and Focused Clinical Question

What is the efficacy of prophylactic indomethacin used for prevention of IVH in extremely low birth weight infants?

<u>PICO</u>:

P= Extremely low birth weight infants

I = prophylactic indomethacin
 C= no prophylactic treatment
 O= prevention of IVH

Submitted search strategies:

IVH AND Indomethacin AND Prophylaxis AND Randomized controlled trial Filters: Publication date from 1990/01/01 to 2017/12/31

Results: 17

PubMed vs. PubMed Clinical Queries

Regular PubMed search

(intraventricular hemorrhage OR Cerebral Hemorrhage OR IVH) AND (prophylactic OR prophylaxis) AND (Indomethacin OR Indometacin) AND (Infant, Extremely Low Birth Weight OR Extremely very Birth Weight Infants) Results: 28

PubMed Clinical Queries

(Therapy/Narrow[filter]) AND (intraventricular hemorrhage OR Cerebral Hemorrhage OR IVH) AND (prophylactic OR prophylaxis) AND (Indomethacin OR Indometacin) AND (Infant, Extremely Low Birth Weight OR Extremely very Birth Weight Infants) Filters: English Results: 5 RCTs

(Therapy/Narrow[filter]) AND (intraventricular hemorrhage OR Cerebral Hemorrhage OR IVH) AND (prophylactic OR prophylaxis) AND (Indomethacin OR Indometacin) Filters: published in the last 10 years; English Results: 10 RCTs



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	Acupuncture for	hypoxic ischemic encephalo	pathy in neonates				
	Adjuvant cortico	steroids for reducing death i	n neonatal bacteria	l meningitis			
	Adrenaline for pr	revention of morbidity and n	nortality in preterm	infants with cardiovase	ular compromise		
	Aerosolized diur	etics for preterm infants with	n (or developing) ch	ronic lung disease			
	Air versus oxyge	n for resuscitation of infants	at birth				
	Albumin infusion	n for low serum albumin in p	reterm newborn inf	ants			
	Allopurinol for p	reventing mortality and mo	rbidity in newborn i	nfants with hypoxic-isch	aemic encephalopathy		
	Alpha-1 proteina	ase inhibitor (a1Pl) for preve	nting chronic lung d	isease in preterm infan	ts		
	Alternative lipid	emulsions versus pure soy o	il based lipid emuls	ions for parenterally fe	l preterm infants		
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Part II Agenda: Finding the Evidence and Critical Appraisal (2nd hour)

- Each fellow presents his/her submitted EBM search topic and appraises the evidence from the selected RCT.
- Class discussion and faculty feedback.



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