Library Resources for Systematic Reviews

Susan Fowler, MLIS
fowler@wustl.edu
### Educational Resources

#### Articles


- **Hershey, T., Dingwall, O., & Sampson, M. (2011).** *Checking reference lists to find additional studies for systematic reviews.* *Cochrane database of systematic reviews (Online).*

- **McChesney, J., & Loecey, F. (2005).** *How to do (or not to do) a critical literature review.* *Pharmacy Education,* 8(2), 139-148.


#### Books

- **Systematic Reviews in Health Care: A Meta-analysis In Context** - Matthias Egger (Editor); George Davey Smith (Editor); Douglas G. Altman (Editor); Ian Chalmers (Contribution by); Gerd Antes (Contribution by); Michael Broadbent (Contribution by); Mike Clarke (Contribution by)
  - ISBN: 072791488X
  - Publication Date: 2001-03-13

- **Comprehensive Systematic Review for Advanced Nursing Practice** - Cheryl Holy, Susan Warner Salmond, Marie H. Samбер特
  - ISBN: 9780851667786
  - Publication Date: 2011-08-01

- **Introduction to Meta-Analysis** - Michael Borenstein; Larry V. Hedges; Julian P. T. Higgins; Hannah R. Rothstein
  - ISBN: 0470057245
  - Publication Date: 2009-04-21

- **Systematic reviews: CRD’s guidance for undertaking reviews in health care**
  - ISBN: 190040473
  - Publication Date: 2009

#### Classes and Consultations

- **Susan Fowler, MLIS**
  - Medical Librarian
  - Ph: 314-362-3032
  - favier@wustl.edu

#### Tutorials and Worksheets

- **Accessing Full-text Articles**
- **PICO(7) Worksheet**
- **Cochrane Collaboration: open learning material for reviewers**
- **PubMed Tutorial**
- **Embase**
- **Scopus**
- **Web of Science**

#### Tutorials Online

- **Centre for Reviews and Dissemination: identifying the evidence for systematic reviews: an introduction for information professionals**
  - Contact Jackie Richmond for upcoming sessions.
  - University of Pittsburgh: Systematic Review
Citation Management

• EndNote: http://sl.wustl.edu/
• Zotero: http://libguides.wustl.edu/zotero
Library Services

• 6 Becker Librarians are trained to support systematic reviews
  – PICOTT Refinement
  – Search Strategy
  – Databases and Grey Lit Resource recommendations
  – EndNote Libraries
  – Excel workbook preloaded with citations
  – Publication recommendations
  – Inter-library loan
What we think searching is like – 2 minute scene
What searching is really like – 18 hours
Search Strategies

Quality of Life

“Quality of Life"[Mesh] OR “Quality of Life" OR “Life Qualities” OR “Life Quality” OR “HRQL” OR “health related quality of life”
Standardized Index Terms
Standardized Index Terms

• Preterm Pregnancy
  – “Preterm Pregnancy” = 27 hits
  – "Obstetric Labor, Premature”[Mesh] = 16,252 hits
Combine Standardized Terms with Natural Language

• Preterm Labor
  – “Preterm Pregnancy” = 72 hits
  – "Obstetric Labor, Premature"[Mesh] = 16,252 hits
  – "Obstetric Labor, Premature"[Mesh] OR "preterm pregnancy“ = 16,286
Search Strategy with Harvested Terms

• Preterm Labor
  – "Obstetric Labor, Premature"[Mesh] OR "preterm pregnancy" OR “Premature Labor” OR “Preterm Labor” OR “Premature Obstetric Labor” OR “premature delivery” OR “premature labour” OR “preterm birth” OR “preterm delivery”

25,605
Term Harvesting

- Natural language terms can be harvested from...
  - Synonyms in standard index entries
  - Titles and abstracts of key articles
Synonyms in Indexes

**Infant, Premature**
A human infant born before 37 weeks of GESTATION.

PubMed search builder options

Subheadings:
- abnormalities
- anatomy and histology
- blood
- cerebrospinal fluid
- classification
- drug effects
- etiology
- growth and development
- history
- immunology
- metabolism
- microbiology
- mortality
- nursing
- pathology
- pharmacology
- physiology
- prevention and control
- psychology
- radiation effects
- radiography
- statistics and numerical data
- surgery
- therapy
- urine

- Restrict to MeSH Major Topic.
- Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): M01.004.703.520.520

Entry Terms:
- Infants, Premature
- Premature Infant
- Preterm Infants
- Infant, Preterm
- Infants, Preterm
- Preterm Infant
- Premature Infants
- Neonatal Prematurity
- Prematurity, Neonatal
Neurologic and developmental disability after extremely preterm birth. EPICure Study Group.

Wood NS, Marlow N, Costeloe K, Gibson AT, Wilkinson AR.
School of Human Development, University of Nottingham, United Kingdom.

Comment in:

Abstract
BACKGROUND AND METHODS: Small studies show that many children born as extremely preterm infants have neurologic and developmental disabilities. We evaluated all children who were born at 25 or fewer completed weeks of gestation in the United Kingdom and Ireland from March through December 1995 at the time when they reached a median age of 30 months. Each child underwent a formal assessment by an independent examiner. Development was evaluated with use of the Bayley Scales of Infant Development, and neurologic function was assessed by a standardized examination. Disability and severe disability were defined by predetermined criteria.

RESULTS: At a median age of 30 months, corrected for gestational age, 283 (92 percent) of the 308 surviving children were formally assessed. The mean (+/-SD) scores on the Bayley Mental and Psychomotor Developmental Indexes, referenced to a population mean of 100, were 84+/−12 and 87+/−13, respectively. Fifty-three children (19 percent) had severely delayed development (with scores more than 3 SD below the mean), and a further 32 children (11 percent) had scores from 2 SD to 3 SD below the mean. Twenty-eight children (10 percent) had severe neuromotor disability, 7 (2 percent) were blind or perceived light only, and 8 (3 percent) had hearing loss that was uncorrectable or required aids. Overall, 138 children had disability (49 percent; 95 percent confidence interval, 43 to 55 percent), including 64 who met the criteria for severe disability (23 percent; 95 percent confidence interval, 18 to 28 percent). When data from 17 assessments by local pediatricians were included, 155 of the 314 infants discharged (49 percent) had no disability.

CONCLUSIONS: Severe disability is common among children born as extremely preterm infants.


Publication Types, MeSH Terms

Publication Types:
Research Support, Non-U.S. Gov't

MeSH Terms:
Cohort Studies
Developmental Disabilities/classification
Developmental Disabilities/epidemiology
Gestational Age
Great Britain/epidemiology
Humans
Infant Mortality
Infant, Newborn
Infant, Premature
Ireland/epidemiology
Nervous System Diseases/epidemiology
Neuropsychological Tests
Psychomotor Disorders/epidemiology
Severity of Illness Index
Survivors/statistics & numerical data
Outcomes in young adulthood for very-low-birth-weight infants.

Hack M, Flannery DJ, Schluchter M, Cartar L, Borawski E, Klein N.
Department of Pediatrics, Case Western Reserve University, Cleveland, USA. mxh7@po.cwru.edu

Abstract

BACKGROUND: Very-low-birth-weight infants (those weighing less than 1500 g) born during the initial years of neonatal intensive care have now reached young adulthood.

METHODS: We compared a cohort of 242 survivors among very-low-birth-weight infants born between 1977 and 1979 (mean birth weight, 1179 g; mean gestational age at birth, 29.7 weeks) with 233 controls from the same population in Cleveland who had normal birth weights. We assessed the level of education, cognitive and academic achievement, and rates of chronic illness and risk-taking behavior at 20 years of age. Outcomes were adjusted for sex and sociodemographic status.

RESULTS: Fewer very-low-birth-weight young adults than normal-birth-weight young adults had graduated from high school (74 percent vs. 83 percent, P=0.04). Very-low-birth-weight men, but not women, were significantly less likely than normal-birth-weight controls to be enrolled in postsecondary study (30 percent vs. 53 percent, P=0.002). Very-low-birth-weight participants had a lower mean IQ (87 vs. 92) and lower academic achievement scores (P<0.001 for both comparisons). They had higher rates of neurosensory impairments (10 percent vs. <1 percent, P<0.001) and subnormal height (10 percent vs. 5 percent, P=0.04). The very-low-birth-weight group reported less alcohol and drug use and had lower rates of pregnancy than normal-birth-weight controls; these differences persisted when comparisons were restricted to the participants without neurosensory impairment.

CONCLUSIONS: Educational disadvantage associated with very low birth weight persists into early adulthood.


Publication Types, MeSH Terms, Grant Support

Publication Types:

Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, P.H.S.

MeSH Terms:

Adult
Analysis of Variance
Body Height
Case-Control Studies
Chronic Disease/epidemiology*
Crime/statistics & numerical data
Educational Status*
Female
Humans
Infant, Newborn
Infant, Premature
Infant, Very Low Birth Weight*
Intelligence*
Longitudinal Studies
Comparison of management strategies for extreme prematurity in New Jersey and the Netherlands: outcomes and resource expenditure.

Lorenz JM, Paneth N, Jetton JR, den Ouden L, Tyson JE.
Department of Pediatrics, Columbia University, New York, New York, USA. jl1084@columbia.edu

Abstract

OBJECTIVE: To quantify differences in resource expenditure in the perinatal period and long-term outcome of extremely premature infants who received systematically different approaches to neonatal intensive care.

METHODS: Perinatal management, mortality, prevalence of disabling cerebral palsy (DCP), and resource expenditure of two population-based inception cohorts of extremely premature infants born in the mid-1980s were compared. Electronic fetal monitoring, tocolysis, cesarean section delivery, and assisted ventilation were used to characterize management approaches. Participants included all live births at 23 to 26 weeks' gestation in a 3-county area of central New Jersey (NJ) from 1984 to 1987 (N = 146) and throughout the Netherlands (NETH) in 1983 (N = 142). Mortality and the prevalence of DCP were the primary outcomes. Numbers of hospital days with and without assisted ventilation were the measures of resource expenditure.

RESULTS: Electronic fetal monitoring (100% vs 38%), cesarean section (28% vs 6%), and assisted ventilation (95% vs 64%) were all more commonly used in NJ than in NETH. Ten percent of NJ deaths occurred without assisted ventilation, compared with 45% of Dutch deaths. A total of 1820 ventilator days were expended per 100 live births in NJ, compared with 448 in NETH. The increase in the number of nonventilator days (3174 vs 2265 days per 100 live births) did not reach statistical significance. Survival to age 2 (46 vs 22%) and the prevalence of DCP among survivors (17.2 vs 3.4%) were significantly greater in NJ at age 2 than in NETH at age 5.

CONCLUSIONS: Near universal initiation of intensive care in NJ, compared with selective initiation of intensive care in NETH, was associated with 24.1 additional survivors per 100 live births, 7.2 additional cases of DCP per 100 live births, and a cost of 1372 additional ventilator days per 100 live births.

PMID: 11731647 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Grant Support

Publication Types:
Comparative Study
Research Support, U.S. Gov't, P.H.S.

MeSH Terms:
Analysis of Variance
Cerebral Palsy/epidemiology
Child
Cohort Studies
Developmental Disabilities/epidemiology
Female
Health Expenditures
Humans
Infant Mortality
Infant, Newborn
Infant, Premature*
Intensive Care, Neonatal*/economics
Intensive Care, Neonatal*/methods
Linear Models
Male
Netherlands/epidemiology
Neurologic and developmental disability at six years of age after extremely preterm birth.

Marlow N, Wolke D, Bracewell MA, Samara M; EPICure Study Group.
School of Human Development, University of Nottingham, Nottingham, United Kingdom. neil.marlow@nottingham.ac.uk

Abstract

BACKGROUND: Birth before 26 weeks of gestation is associated with a high prevalence of neurologic and developmental disabilities in the infant during the first two years of life.

METHODS: We studied at the time of early school age children who had been born at 25 or fewer completed weeks of gestation in the United Kingdom and Ireland in 1995. Each child had been evaluated at 30 months of age. The children underwent standardized cognitive and neurologic assessments at six years of age. Disability was defined as severe (indicating dependence on caregivers), moderate, or mild according to predetermined criteria.

RESULTS: Of 308 surviving children, 241 (78 percent) were assessed at a median age of six years and four months; 160 classmates delivered at full term served as a comparison group. Although the use of test reference norms showed that cognitive impairment (defined as results more than 2 SD below the mean) was present in 21 percent of the children born extremely preterm (as compared with 1 percent in the standardized data), this value rose to 41 percent when the results were compared with those for their classmates. The rates of severe, moderate, and mild disability were 22 percent, 24 percent, and 34 percent, respectively; disabling cerebral palsy was present in 30 children (12 percent). Among children with severe disability at 30 months of age, 86 percent still had moderate-to-severe disability at 6 years of age. In contrast, other disabilities at the age of 30 months were poorly predictive of developmental problems at 6 years of age.

CONCLUSIONS: Among extremely preterm children, cognitive and neurologic impairment is common at school age. A comparison with their classroom peers indicates a level of impairment that is greater than is recognized with the use of standardized norms.

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Improved survival rates with increased neurodevelopmental disability for extremely low birth weight infants in the 1990s.

Wilson-Costello D, Friedman H, Minich N, Fanaroff AA, Hack M.
Department of Pediatrics, Case Western Reserve University, Cleveland, Ohio, USA. drfjcmd@aol.com

Abstract

BACKGROUND: Advances in perinatal care have resulted in increased survival rates for extremely low birth weight children. We sought to examine the relative changes in rates of survival and neurodevelopmental impairment at 20 months of corrected age among 500- to 999-g birth weight infants born at our perinatal center during 2 periods, before and after the introduction of surfactant therapy in 1990.

METHODS: Four hundred ninety-six infants with birth weights of 500 to 999 g were born at our perinatal center during period I (1982-1989) (mean body weight: 762 g; mean gestational age: 25.8 weeks) and 682 during period II (1990-1998) (mean body weight: 756 g; mean gestational age: 25.5 weeks). Rates of death and survival with and without neurodevelopmental impairment at 20 months of corrected age for the 2 periods were compared with logistic regression analyses, with adjustment for gestational age.

RESULTS: Survival rates increased from 49% during period I to 67% during period II. Neonatal morbidity rates also increased during period II, including rates of sepsis (from 37% to 51%), periventricular leukomalacia (from 2% to 7%), and chronic lung disease, defined as oxygen dependence at 36 weeks of corrected age (from 32% to 43%). Rates of severe cranial ultrasound abnormalities were similar (22% vs 22%). Among children monitored, the rate of neurologic abnormalities, including cerebral palsy, increased from 16% during period I to 25% during period II and the rate of deafness increased from 3% to 7%. The overall rate of neurodevelopmental impairment (major neurosensory abnormality and/or Bayley Mental Developmental Index score of <70) increased from 26% to 36%. Compared with period I, in period II there were decreased rates of death (odds ratio [OR]: 0.3; 95% confidence interval [CI]: 0.2-0.4) and increased rates of survival with impairment (OR: 2.3; 95% CI: 1.7-3.3) but also increased rates of survival without impairment (OR: 1.7; 95% CI: 1.3-2.2). Compared with period I, for every 100 infants with birth weights of 500 to 999 g born in period II, 18 additional infants survived, of whom 7 were unimpaired and 11 were impaired.

CONCLUSIONS: The improved survival rates in the 1990s occurred with an increased risk of significant neurodevelopmental impairment. Prospective parents of extremely low birth weight infants should be advised of this substantial risk, to facilitate decision-making in the delivery room.


Publication Types, MeSH Terms, Grant Support

Publication Types:
- Research Support, N.I.H., Extramural
- Research Support, U.S. Gov't, P.H.S.

MeSH Terms:
- Blindness/epidemiology
- Cause of Death/trends
- Cerebral Palsy/epidemiology
- Deafness/epidemiology
- Developmental Disabilities/epidemiology*
- Female
- Gestational Age
- Humans
- Infant, Newborn
- Infant, Premature
- Infant, Very Low Birth Weight*
- Logistic Models
- Male
Extremely premature infants

textword/phrase Harvest

- Extremely preterm
- Extremely preterm birth
- Extremely preterm infants
- Extremely preterm children
- Extremely premature
- Extremely premature newborns
- Extremely premature neonates
- Extremely immature
- Extremely low birth weight
- Extremely low-birth-weight
- Extremely low birthweight
- ELBW
- EI infants
- EI survivors
- Extremely small
- ES infants
- ES survivors
- Extreme prematurity

- Very-low-birth-weight
  - Very low birth weight
  - Very low birth weight young adults
  - Very low birth weight men
- 401 – 1000 g birth weight
- Birth weight >400 g
- 501- to 600 –g birth weight
- 901 – 1000 g birth weight
- 501 to 1000g
- 500 to 999 g
- 500 to 999-g birth weight
- Birth weight 500 – 999 g
- Birth weight <1000g
- Birthweight <1000g
- Birth weight less than 1001g
- Birth weight 401 to 500 grams
- Birth weight 401 to 500g
- 401 to 500g
Extremely premature infants

- <750 g
- 800 g or less
- <or=2000g
- <1000 g
- 1000g
- <or=2000 g
- Weighing less than 1500 g
- Mean birth weight, 1179 g
- Mean birth weight 811 g
- Mean body weight: 756 g
- Low birth weight premature infants
  - Very preterm
    - Very preterm survivors
    - Very preterm infants
- Lighter low birth weight
- LLBW
- Smallest infants
- EPI Cure Study
- Prognostic value of birth weight
- Less than 25 weeks’ gestational age
- <25 weeks estimated gestational age
- <25 weeks EGA

- 25 or fewer completed weeks of gestation
- 25 weeks of gestational age or less
- <or=25 weeks 6 days gestations
- <or=25 weeks gestation
- 23 to 25 weeks gestation
- 25 or fewer completed weeks of gestation
- Before 26 weeks of gestation
- Less than 30 weeks’ gestation
- <30 weeks’ gestation
- 23 to 29 weeks gestation
- Mean gestational age 25.5 weeks
- <32 weeks’ gestation
- Low gestation (22-26 weeks)
- Higher gestation (27-32 weeks)
- Low gestational age
- 24-26 weeks of gestation
- 23-27 weeks gestational age
- 23-27 weeks
- Before 26 weeks gestation
- <28 weeks
- Born preterm
- Preterm
- Preterm-born
Why search >1 database?
Betran et al (2005) evaluated the effectiveness of each source used in a systematic review. That identified >64,000 citations and included 2093. Of these:

– MEDLINE identified 62%
– EMBASE 44%
– BIOSIS 17%
– POPLINE 12%

– Unique items
  – MEDLINE ~20%
  – EMBASE 7.4%
  – LILACS 5.6%
Beyond PubMed

**PubMed = 25,605**

"Obstetric Labor, Premature"[Mesh] OR "preterm pregnancy" OR “Premature Labor” OR “Preterm Labor” OR “Premature Obstetric Labor” OR “premature delivery” OR “premature labour” OR “preterm birth” OR “preterm delivery”

**Embase = 96,943**

'premature labor'/exp OR ‘preterm pregnancy’ OR ‘Premature Labor’ OR ‘Preterm Labor’ OR ‘Premature Obstetric Labor’ OR ‘premature delivery’ OR ‘premature labour’ OR ‘preterm birth’ OR ‘preterm delivery’
Figure 2. Overlap of active titles (source type “Journal” only) between the citation databases and the medical databases

(Gavel, 2008)
What about Google Scholar?


Is the coverage of google scholar enough to be used alone for systematic reviews.

Jean-François G, Laetitia R, Stefan D.

Institute of Occupational Health, Rouen University Hospital and University of Rouen, 1 rue de Germont, 76000, Rouen, France. Jean-Francois.gehanno@chu-rouen.fr.

Abstract

ABSTRACT:

BACKGROUND: In searches for clinical trials and systematic reviews, it is said that Google Scholar (GS) should never be used in isolation, but in addition to PubMed, Cochrane, and other trusted sources. We therefore performed a study to assess the coverage of GS specifically for the studies included in systematic reviews and evaluate if GS was sensitive enough to be used alone for systematic reviews.

METHODS: All the original studies included in 29 systematic reviews published in the Cochrane Database Syst Rev or in the JAMA in 2009 were gathered in a gold standard database. GS was
Embase = 96,943
'premature labor'/exp OR
‘preterm pregnancy’ OR
‘Premature Labor’ OR ‘Preterm Labor’ OR ‘Premature Obstetric Labor’ OR
‘premature delivery’ OR
‘premature labour’ OR
‘preterm birth’ OR ‘preterm delivery’

Google Scholar = 20,200
“premature labor” OR
“preterm pregnancy” OR
“Premature Labor” OR
“Preterm Labor” OR
“Premature Obstetric Labor” OR
“premature delivery” OR
“premature labour” OR
“preterm birth” OR “preterm delivery”
Grey Literature

• “...literature that is not formally published in sources such as books or journal articles.”
  http://handbook.cochrane.org/chapter_6/6_2_1_8_grey_literature_databases.htm

• "That which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers."

The Fourth International Conference on Grey Literature (GL '99) in Washington, DC, in October 1999
### ClinicalTrials.gov Results for "premature labor" OR "preterm pregnancy" OR "Premature Labor" OR "Preterm Labor" OR "Premature Obstetric Labor" OR "premature delivery" OR "premature labour" OR "preterm birth" OR "preterm delivery" |

<table>
<thead>
<tr>
<th>Rank</th>
<th>Status</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Completed Has Results</td>
<td><strong>A Randomized Trial Comparing the Impact of One Versus Two Courses of Antenatal Steroids (ACS) on Neonatal Outcome</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Condition:</strong> Preterm Delivery</td>
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<tr>
<td></td>
<td></td>
<td><strong>Interventions:</strong> Drug: Betamethasone or Dexamethasone (2nd course of ACS); Drug: Placebo</td>
</tr>
<tr>
<td>2</td>
<td>Completed Has Results</td>
<td><strong>17OHP for Reduction of Neonatal Morbidity Due to Preterm Birth (PTB) in Twin and Triplet Pregnancies</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>Condition:</strong> Preterm Birth</td>
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<tr>
<td></td>
<td></td>
<td><strong>Interventions:</strong> Drug: 17-alpha-hydroxyprogesterone caproate injectable; Drug: Placebo</td>
</tr>
<tr>
<td>3</td>
<td>Completed</td>
<td><strong>PREGNANT Short Cervix Trial</strong></td>
</tr>
</tbody>
</table>
Hand Searching

- “Handsearching involves a manual page-by-page examination of the entire contents of a journal issue or conference proceedings to identify all eligible reports of trials.”
- **Authors are not routinely expected to handsearch journals** for their reviews but they should discuss with their Trials Search Co-ordinator whether in their particular case handsearching of any journals or conference proceedings might be beneficial.

http://handbook.cochrane.org/chapter_6/6_2_2_1_handsearching.htm