

Best Practice and the ELBW Infant: What fits Where?


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Summer in Winnipeg




Agenda

- What are the outcome data for the ELBW infant?
 - What are the major morbidities for these infants?
 - What can we do about it?
 - How do we take the evidence and make a difference?
- 


Then....

- Survival rate of babies 500-999 grams: 34.5% (145/420) in 1977 through 1984 (Keith & Doyle Pediatrics 1995)
- Severe ROP was seen in 25.5 % of these infants

A little later

- In 1985-1992 ELBW survival rates rose to 53.7% (312/581)
 - Severe ROP rates dropped to 17.7%
 - Developmental care was not yet a consideration
 - We saw misshapen heads, necks and disfigured chests!
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What has changed since the mid-90's

- Improvements in prenatal care
 - Synchronized ventilation
 - Pressure and volume support
 - Early extubation
 - Aggressive nutritional strategies
 - What else?
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Softer but Significant!

- Developmental Care
- Earlier weaning to cribs/cots
- Kangaroo Care
- Enteral Feeding Practices
- Humidification systems
- Pain Management

Outcomes for 4,165 infants in the Sample (1998-2003)

Gestation al Age (In Complete d Weeks)	Death Before NICU Discharge	Outcomes at 18 to 22 Months Corrected Age*		
		Death	Death/ Profound Neurodevelopmental Impairment	Death/Moderate to Severe Neuro- developmental Impairment
22 Weeks	95%	95%	98%	99%
23 Weeks	74%	74%	84%	91%
24 Weeks	44%	44%	57%	72%
25 Weeks	24%	25%	38%	54%

http://www.nichd.nih.gov/about/org/cdbpm/pp/prog_epbo/

But

- Despite changes in mortality:
 - Short-term morbidity has changed little
- What is the reason?
 - Partly, it is much harder to track due to changes in diagnostic criteria
 - ie: Cerebral palsy rates between 1977 – 1994 did NOT change
 - Another unit in the 1990's reported an INCREASE in neurodevelopmental impairment in infants 26% - 36% in infants 500 - 999

Table 2. Survival and Selected Complications in Very-Low-Birth-Weight Infants Born in NICHD Neonatal Research Network Sites, 1995–1996 vs. 1997–2002.*

Outcome	1995–1996 (N = 4438)	1997–2002 (N = 18,153)
	<i>percent of infants</i>	
Survival	84	85
Survival without complications	70	70
Bronchopulmonary dysplasia	23	22
Need for supplemental oxygen at home	15	11
Necrotizing enterocolitis	7	7
Severe intraventricular hemorrhage	12	12
Periventricular white-matter injury	5	3
Late-onset sepsis	24	22

* Very low birth weight was defined as a weight of 500 to 1500 g. Data for 1995–1996 are from Lemons et al.³ Data for 1997–2002 are from Fanaroff et al.² NICHD denotes National Institute of Child Health and Human Development.

Outcomes other than survival...

- Meta analysis of school age outcomes (Bhutta, 2002):
 - Preterm birth is associated with:
 - ↓ cognitive scores
 - ↑ risk of ADHD
 - ↑ risk of abnormal behaviours
 - However, demographic and environmental factors can have significant impact on these figures

More on Outcomes ...

- Davis (2002)
 - High pp'n ELBW infants display a wide range of subtle motor and behavior problems despite NIQ
- Buck (2000)
 - 47% infants < 28 weeks require school-based rehabilitation
 - Compared to 18% in controls
- Taylor (2000)
 - 63% infants < 750g had at least one functional impairment

So how do we move forward

- In order to further decrease the long-term morbidity for ELBW infants we need to move forward with Evidence-Based Practice





What is EBP?



- A problem solving approach to clinical practice that combines the use of best evidence and a clinician's experience as well as pt (or family) preference to make decisions about the type of care that is provided.
- The availability of resources is also considered (Bernadette Melnyk 2009)

Acting on the evidence

- Strength and quality of the evidence gives us the confidence to act!



The problem

- On average it takes 17 years to translate research findings into practice
- In the United States only 10-15% of clinicians are consistently implementing EBP
- In order to keep up journals in our practice we need to review 19 articles a day, 365 days a year

Don't go this alone

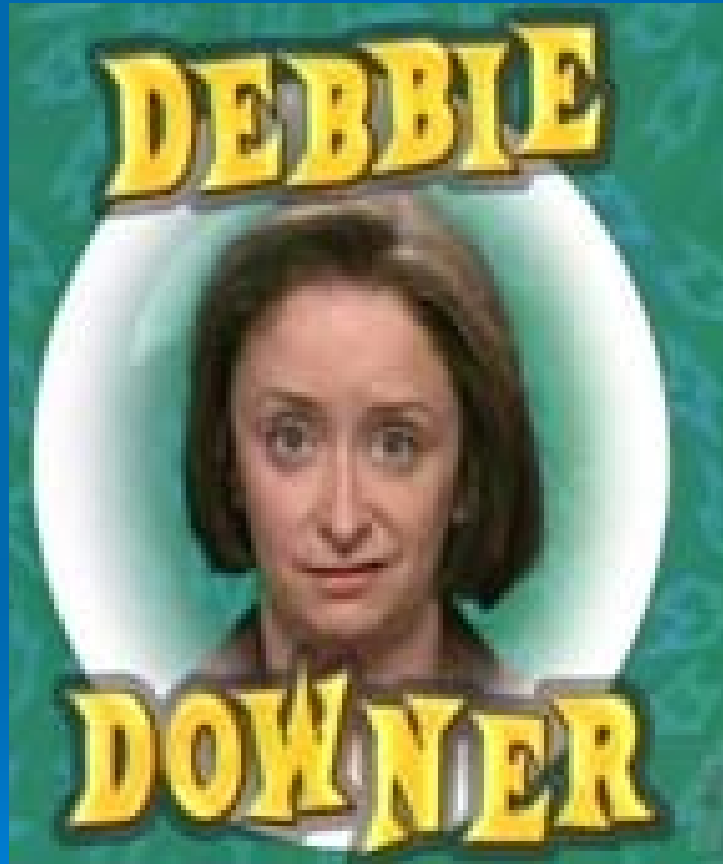
- Find a team, preferably one that represents all of the relevant disciplines!



Putting the evidence into practice

- Gather a group to discuss the process of change
- Include stakeholder, official and unofficial leaders
- Set the ground rules
 - Agree that consensus rules
 - Agree that discussions are based on data not opinion
 - Agree that disagreements are not personal

Watch for the nay-sayers



Find the champions!

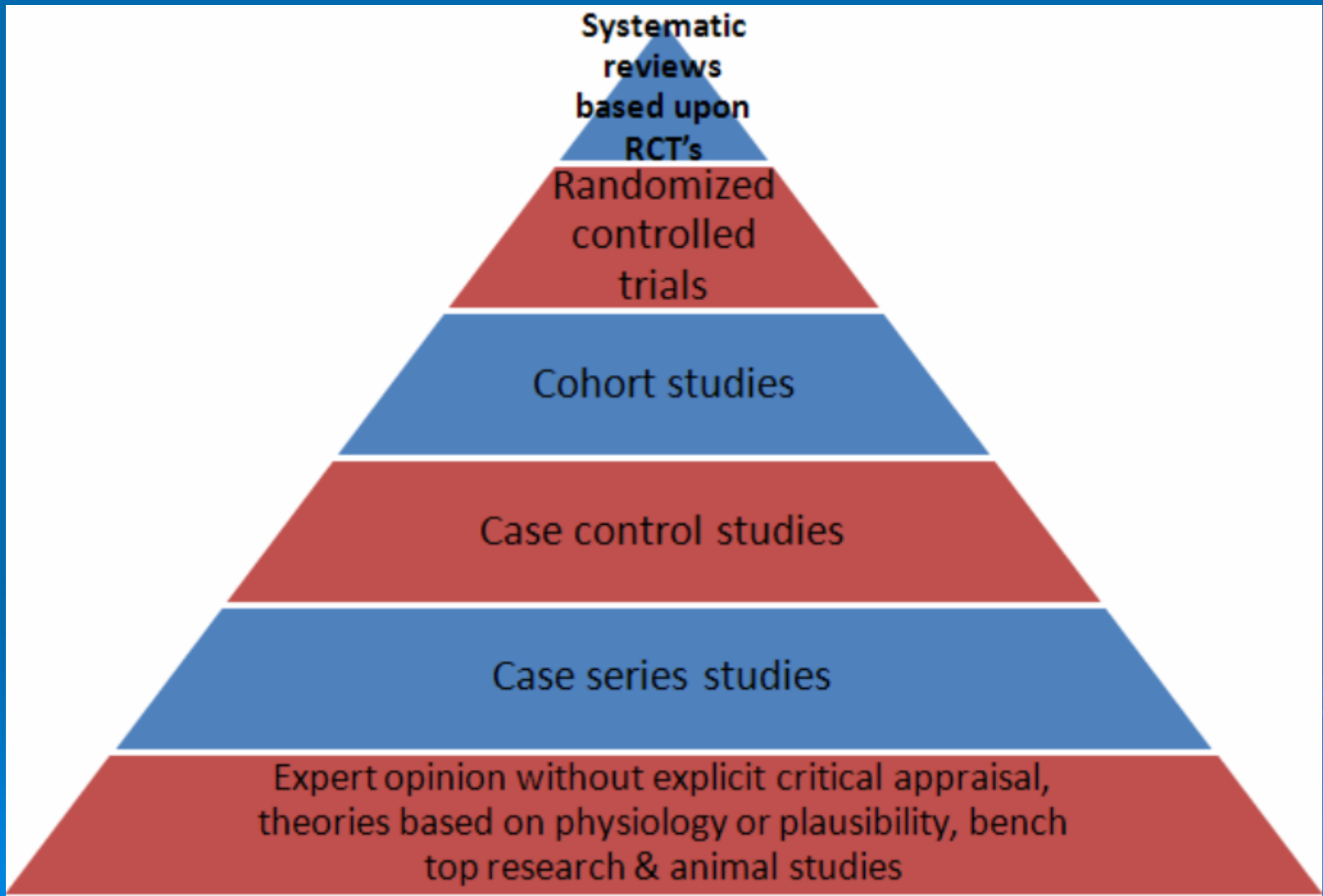


Ask the Question

- Form an answerable question
 - PICO
- The question must be specific and well-defined
- The question must be searchable
- For **LBW infants** are **continuous feedings** better **tolerated** than **intermittent feedings**?

Finding the evidence

- Benchmarking-seeing where you stand
- Look to national and international guidelines
- Be aware of systematic reviews
 - Cochrane database
 - Vermont-Oxford collaboration
- Learn techniques to critically appraise the literature



The Cochrane collaboration

➤ www.nichd.nih.gov/cochrane



Systematic reviews

- Because so many neonatal studies have small numbers or are done in single institutions, it is difficult to generalize the findings
- Systematic reviews combine a number of studies to increase the strength of the findings and to limit bias

Plan the change

➤ Plan

- Details of who will do what

➤ Do

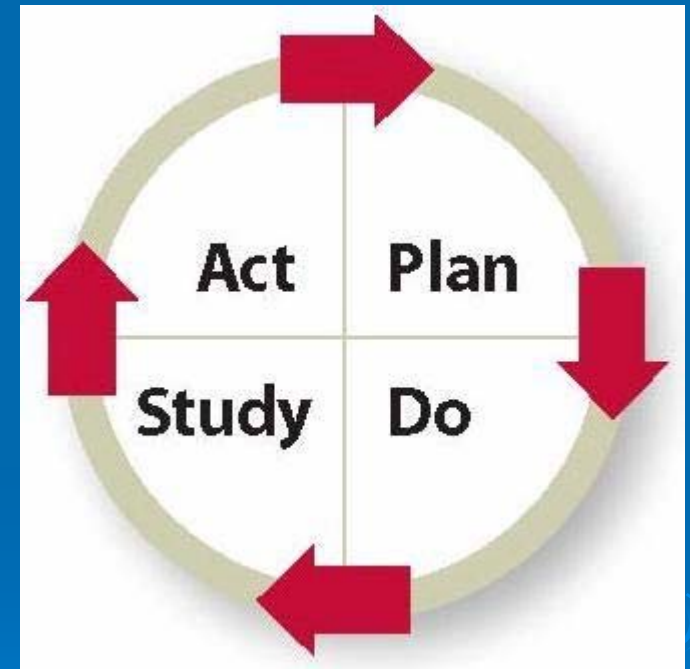
- Implement the change

➤ Study

- Measure the outcomes

➤ Act

- Conclusions about maintaining or abandoning the change



6 critical steps

- Form an answerable question
- Search for the best evidence
- Critically appraise the evidence
- Apply the evidence to your practice
- Evaluate, re-configure then
- Reinforce

Be prepared!

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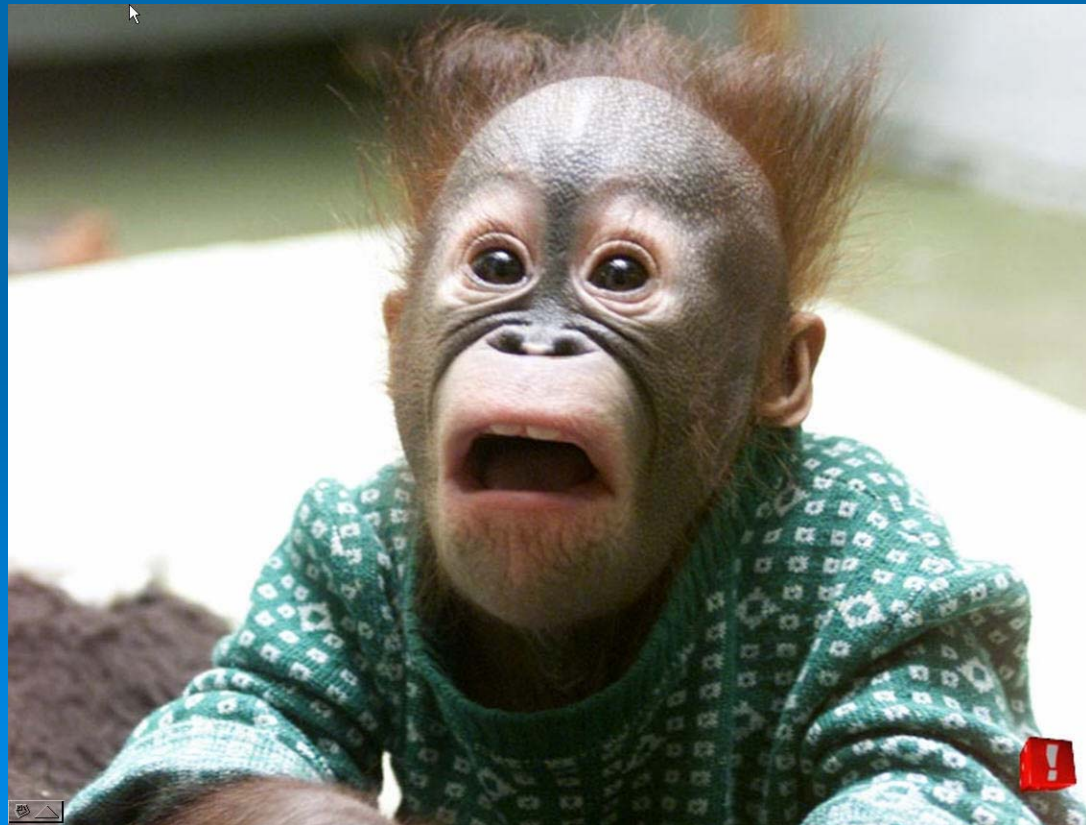


BE PREPARED

YOU HAVE NO IDEA WHEN THE SHIT STORM WILL ENSUE

Shock

- You are asking me to do this on top of everything else I have to do??



Stress!



Change fatigue



Summary

- Team work
- Asking the right question
- Acting on the evidence
- Meticulous attention to details
- Aggressive change cycles

Gracias

