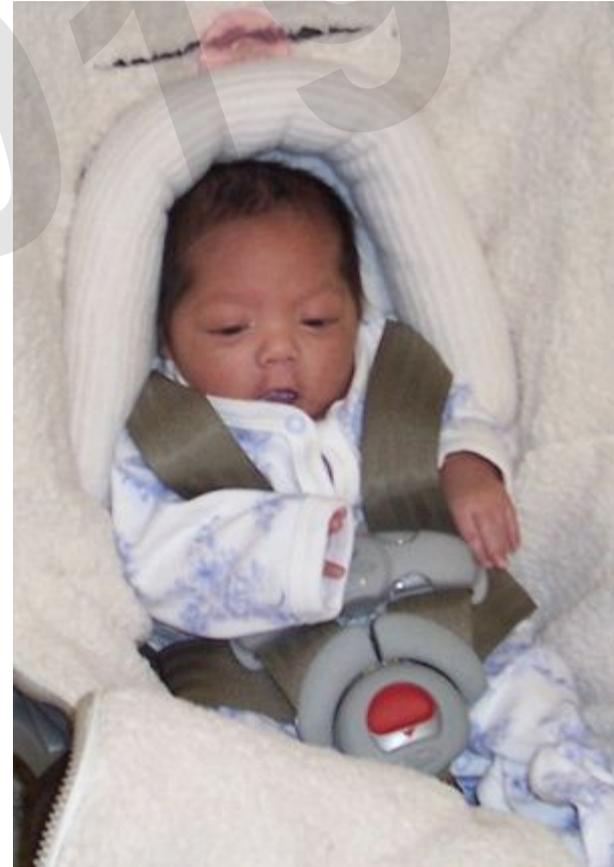


# Care of the very preterm baby after discharge home

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Imperial College London

- When do babies go home?
- What issues concern parents?
- What to assess at follow-up visits?
- What risks to be aware of?



## Neonatal unit responsibilities

- Thermoregulation
- Respiratory stability
- Feeding skills
- Immunisations
- Parental readiness



## When do babies go home?

### Estimating neonatal length of stay for babies born very preterm

Arch Dis Child Fetal Neonatal Ed 2018 Mar 27

Sarah E Seaton,<sup>1</sup> Lisa Barker,<sup>2</sup> Elizabeth S Draper,<sup>1</sup> Keith R Abrams,<sup>1</sup> Neena Modi,<sup>3</sup>  
Bradley N Manktelow,<sup>1</sup> on behalf of the UK Neonatal Collaborative

Gestational age (completed weeks)	Median (interquartile range) for length of stay of survivors (days)	Median (interquartile range) for corrected gestational age at discharge (weeks)
24	123 (104, 139)	41.6 (38.9, 43.9)
25	107 (88, 125)	40.3 (37.6, 42.9)
26	92 (74, 109)	39.1 (36.6, 41.6)
27	79 (63, 96)	38.3 (36, 40.7)
28	66 (52, 82)	37.4 (35.4, 39.7)
29	53 (43, 66)	36.6 (35.1, 38.4)
30	42 (34, 52)	36.0 (34.9, 37.4)
31	34 (28, 41)	35.9 (35, 36.9)

## What to check at follow-up visits

- A summary of the baby's hospital stay
- A plan for specialist assessments
- General health, growth and development; blood pressure
- Immunisations
- Family functioning



## Common questions and concerns

- Bathing and washing
- Skin care
- Constipation
- Gastro-oesophageal reflux
- Colic
- Going out and about
- Growth
- Supplements
- Correcting for gestational age



## Reducing the risk of cot death

- Lie your baby on his/her back to sleep
- Use lightweight covers
- Make sure no one smokes in the house
- Keep your baby in your room for the first six months
- Never fall asleep with your baby on the sofa or in your bed, especially if you're very tired
- Make sure your baby rests well away from radiators or heaters and out of direct sunlight
- Keep the room at around 18°C (64°F)

## Guide to vaccines for children under two years of age who were born prematurely

Most vaccines are given as an injection in the thigh or upper arm. Rotavirus vaccine is given as drops to be swallowed.

When	Diseases protected against	Vaccine given
Eight weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, <i>Haemophilus influenzae</i> type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccination (PCV)
	Meningococcal group B (MenB)	MenB
	Rotavirus gastroenteritis	Rotavirus
Twelve weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Rotavirus	Rotavirus
Sixteen weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Pneumococcal (13 serotypes)	PCV
	MenB	MenB
One year old *on or after the child's first birthday	Hib and MenC	Hib/MenC
	Pneumococcal	PCV
	Measles, mumps and rubella (German measles)	MMR <sup>1</sup>
	MenB	MenB booster

<sup>1</sup> Contains porcine gelatine.

## Further information

A guide to immunisations up to one year of age contains more detailed information about the routine childhood immunisation programme. Ask your health visitor for a copy if you were not given one soon after the birth of your baby.

From two years onwards, children born prematurely should continue to follow the normal schedule see the leaflets *Pre-school immunisations – a guide to vaccinations at three and four months of age* and *Immunisations at secondary school – your questions answered*.

You can also visit:

[www.nhs.uk/vaccinations](http://www.nhs.uk/vaccinations)



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31995799B 1p 30K June 2017 (APS)

First published August 2006  
Updated June 2017

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A quick guide to  
**childhood immunisations**  
for the parents of

# premature babies

features the immunisation  
schedule for babies born on  
or after 1 August 2017



**i**mmunisation

the safest way to protect your child

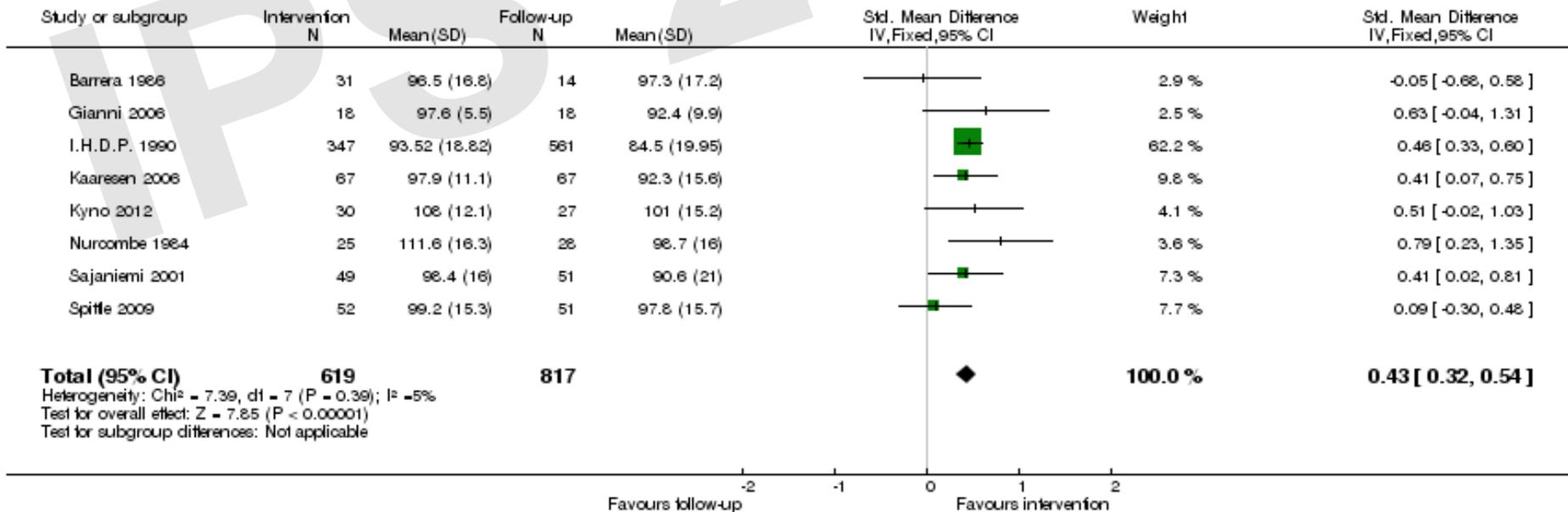
Cochrane Database of Systematic Reviews

# Early developmental intervention programmes provided post hospital discharge to prevent motor and cognitive impairment in preterm infants

✉ Alicia Spittle | Jane Orton | Peter J Anderson | Roslyn Boyd | Lex W Doyle

Cochrane Systematic Review - Intervention | Version published: 24 November 2015

Review: Early developmental intervention programmes provided post hospital discharge to prevent motor and cognitive impairment in preterm infants  
Comparison: 1 Early developmental intervention versus standard follow-up (all studies)  
Outcome: 2 Cognitive outcome at preschool age - IQ (Stanford-Binet, McCarthy, Bayley)



Early intervention programmes for preterm infants have a positive influence on cognitive outcomes with benefits persisting into preschool age

## Exclusive breast-feeding

- Requires strong, proactive health professional support
- Breast-feeding, not feeding expressed breast-milk
- Feeding expressed breast-milk reduces ability of infant to self-regulate intake
- No evidence to support fortification of breast-milk, or nutrient-enriched formula

Cochrane Database of Systematic Reviews

### **Multinutrient fortification of human breast milk for preterm infants following hospital discharge**

Cochrane Systematic Review - Intervention | Version published: 28 February 2013

Lauren Young | Nicholas D Embleton | Felicia M McCormick |  William McGuire

No evidence that feeding preterm infants with multi-nutrient fortified breast milk following hospital discharge is beneficial

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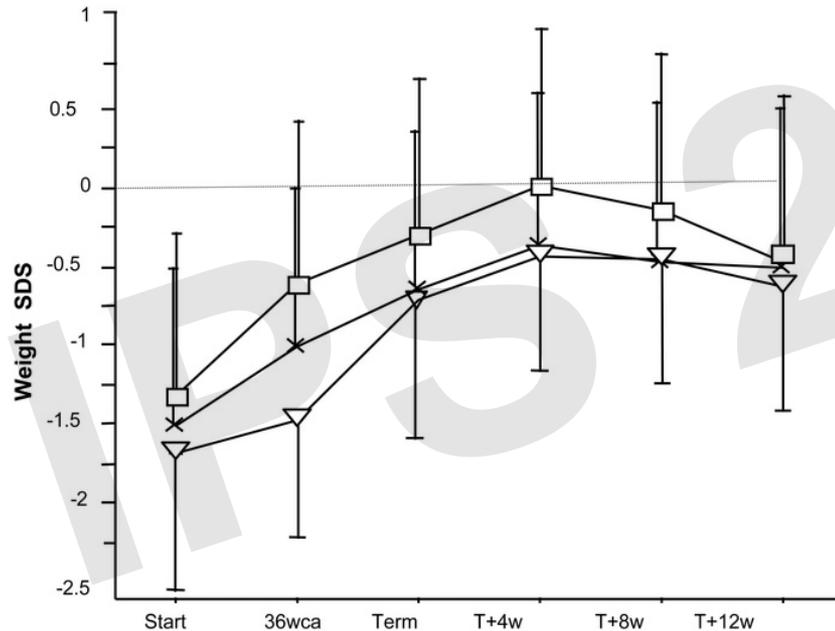
### **Nutrient-enriched formula versus standard formula for preterm infants following hospital discharge**

Lauren Young | Nicholas D Embleton |  William McGuire

Cochrane Systematic Review - Intervention | Version published: 13 December 2016

Recommendations to prescribe 'post discharge formula' for preterm infants after hospital discharge not supported by available evidence.

## Preterm babies self-regulate their intake



*Preterm infants fed isocaloric diets delivering 3 protein intakes (A=3.3g, B=3.0g, C=2.7 g/100 kcal) from 150 ml/kg/d until Term plus 12 w; no differences in body composition at Term + 12 weeks (Embleton and Cooke 2005)*

**Encourage suckling, not pumping**



## How should expressed breast milk be stored?

- Domestic fridge (4°C)  
4 days
- Compartment freezer (-15°C)  
2 weeks
- Stand-alone freezer (-20°C)  
6-12 months



# No evidence to recommend hydrolysed, nutrient enriched, or LCPUFA supplemented formulas

Cochrane Database of Systematic Reviews

## Protein hydrolysate versus standard formula for preterm infants

Cochrane Systematic Review - Intervention | Version published: 02 October 2017

Derek Hang Cheong Ng | Joel Klassen | Nicholas D Embleton | ✉ William McGuire

No strong or consistent evidence that feeding preterm infants with hydrolysed rather than standard formula has benefits or reduces harms

Cochrane Database of Systematic Reviews

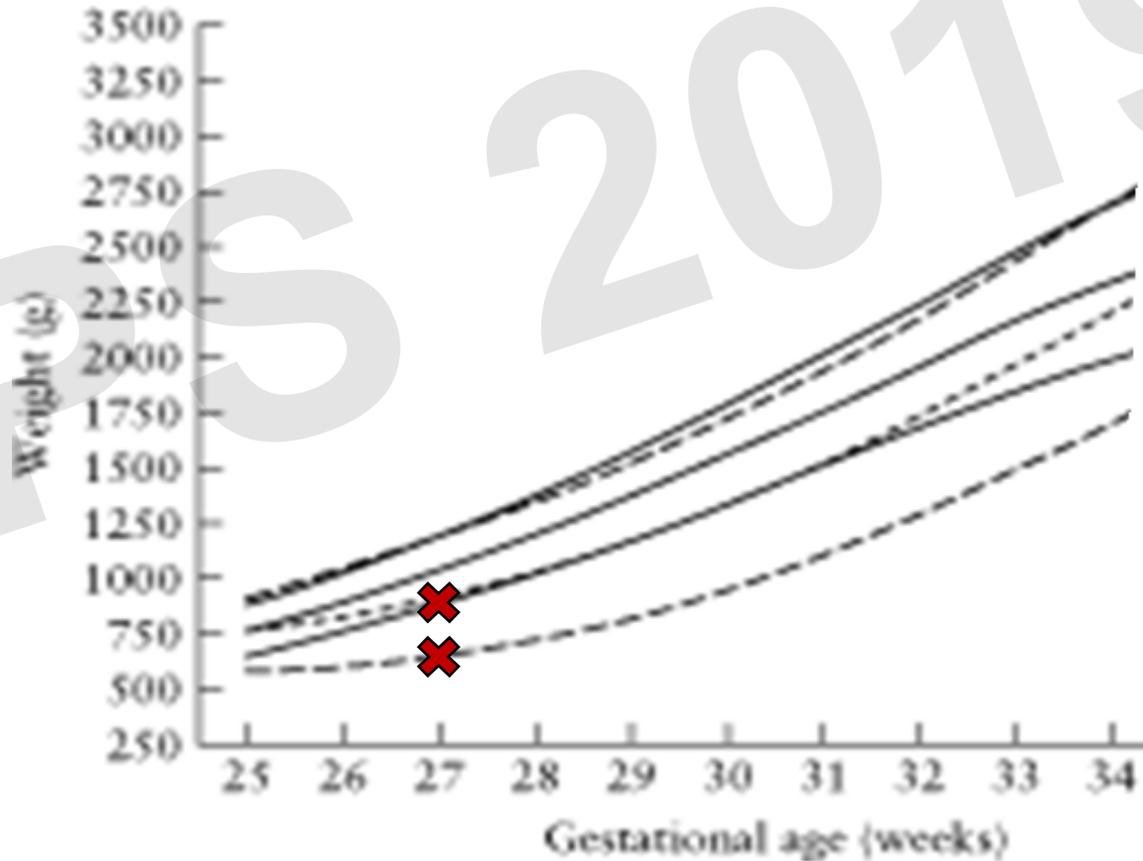
## Longchain polyunsaturated fatty acid supplementation in preterm infants

Kwi Moon | Shripada C Rao | Sven M Schulzke | Sanjay K Patole | ✉ Karen Simmer

Cochrane Systematic Review - Intervention | Version published: 20 December 2016

No clear long-term benefits or harms for preterm infants receiving LCPUFA-supplemented formula

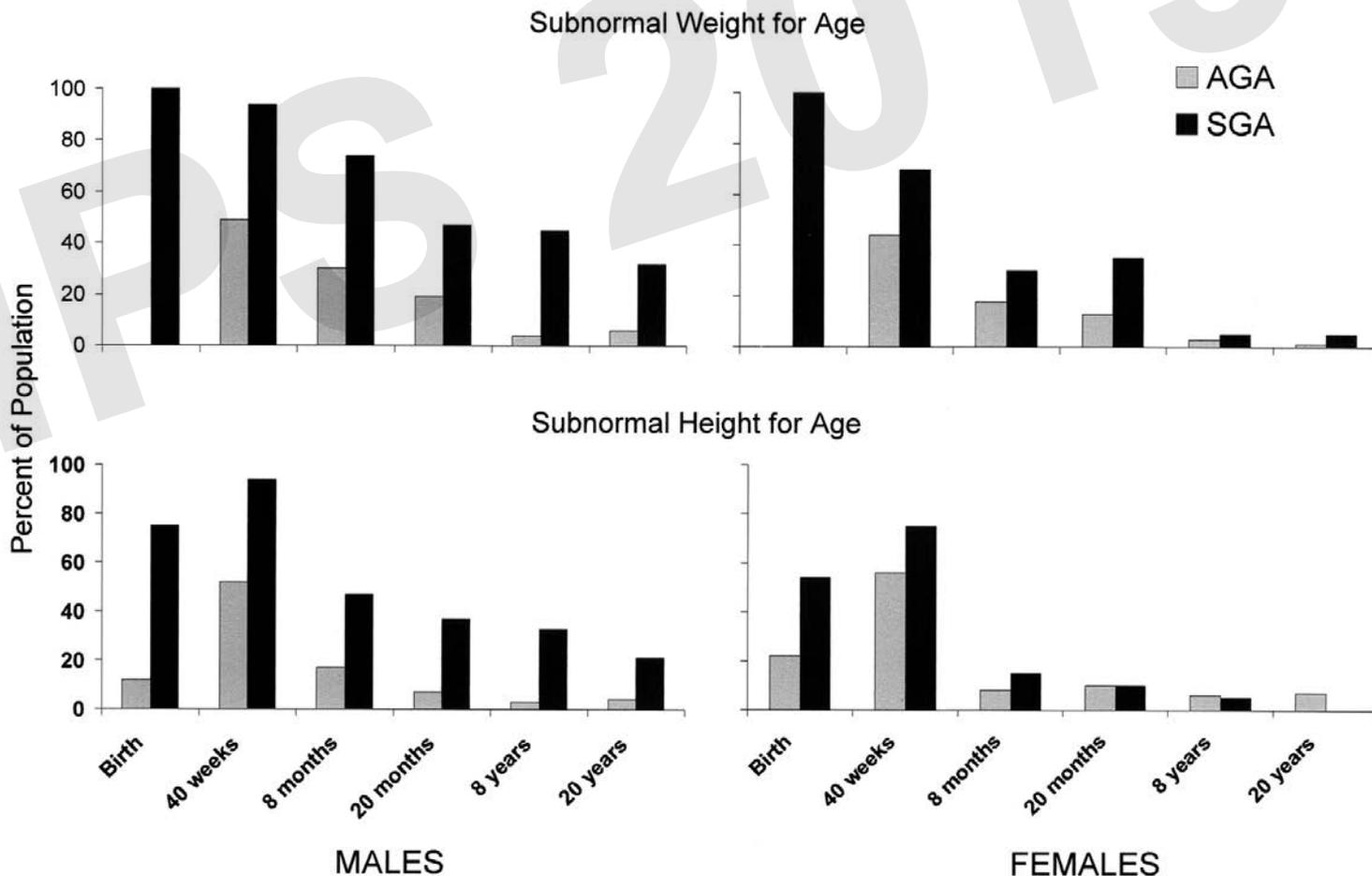
## Growth monitoring



Estimated fetal weight (solid lines) and actual birth-weight reference range (dashed lines)

# Majority of preterm infants reach population norm for height and weight Hack et al Pediatrics 2003

Percentage of AGA or SGA (less than -2 SD) very low birth weight infants with subnormal weight or height for age at birth, 40 weeks, 8 months, 20 months, 8 years and 20 years



## Growth

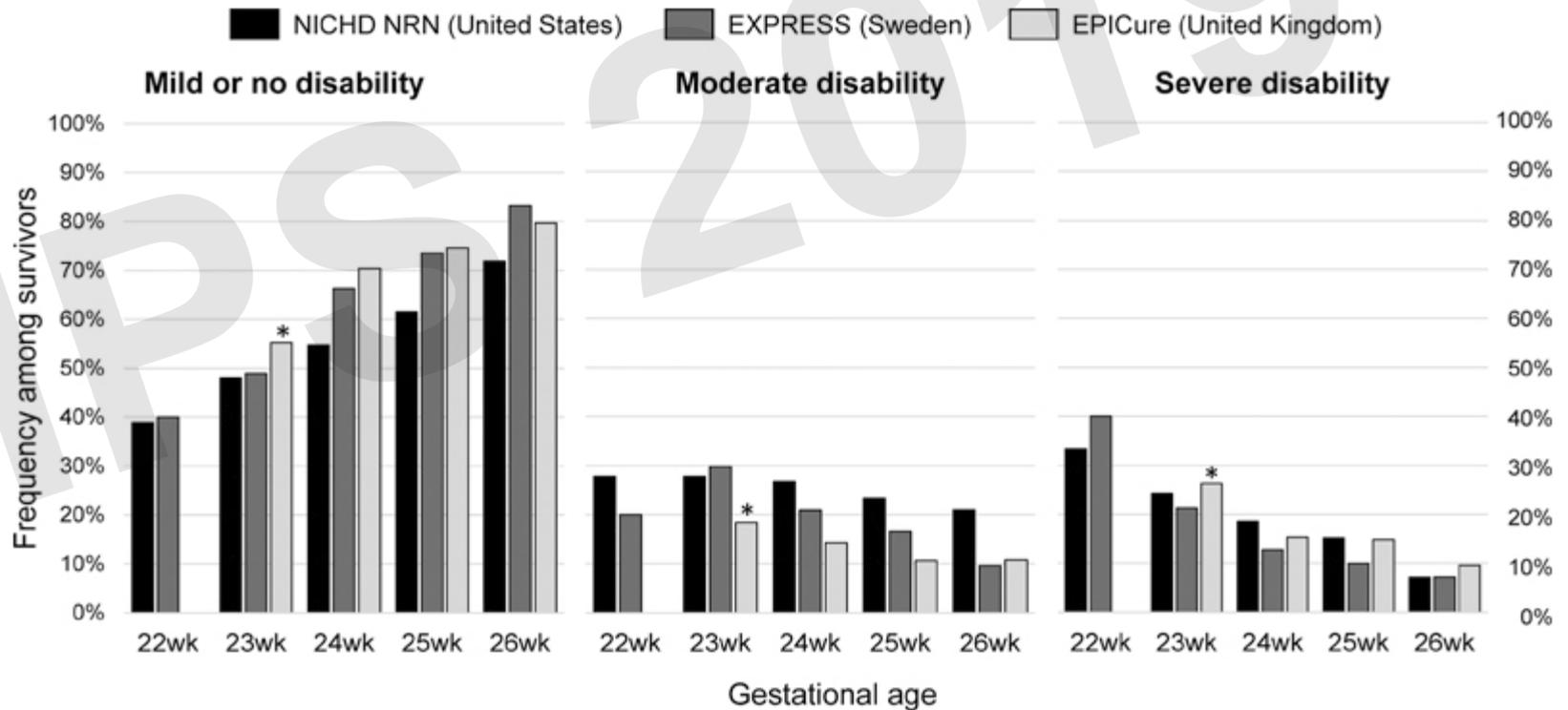
- Most very preterm babies will reach population norms by young adult life
- Preterm babies at greater risk of all features of the metabolic syndrome in adult life
- Overweight will amplify these risks
- If growth velocity is stable, and the child is well, do not worry about small size
- Sustained parent reassurance is important



## Respiratory morbidity

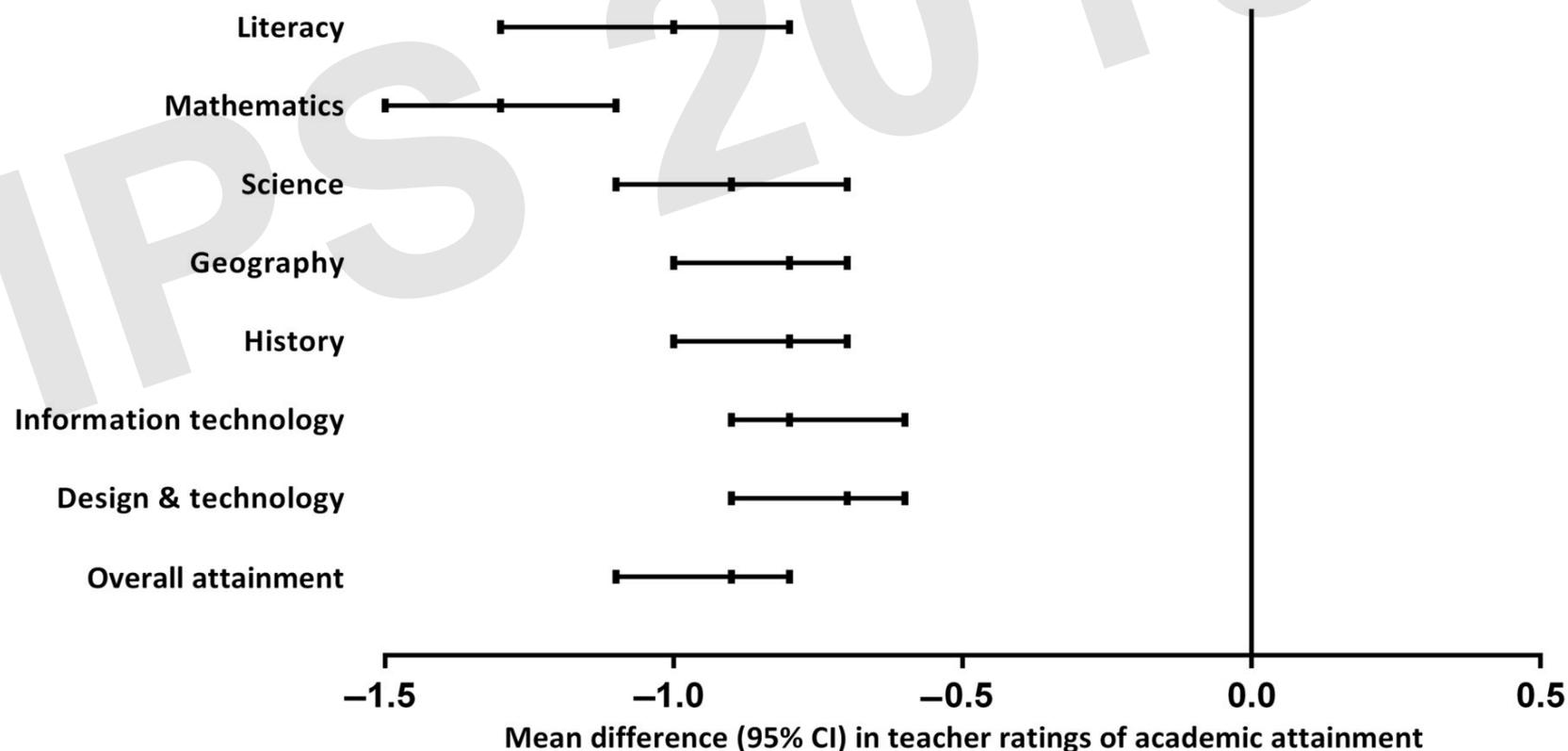
- Around 30% of infants born (<32 weeks gestation) are hospitalised with respiratory problems (mainly infections) in their first 2 years
- Increase in respiratory problem even in infants without bronchopulmonary dysplasia
- Risk of childhood wheezing is 3 times higher
- Respiratory signs often treated as asthma though pathophysiological patterns are different
- Respiratory symptoms, impairment in lung function and radiological abnormalities persist through childhood into adult life
- Vaccine hesitancy, air pollution and smoking are major concerns
- Future research should focus on characterising respiratory functional abnormalities and targeting treatment accordingly

# Disability in extremely preterm survivors: international cohorts

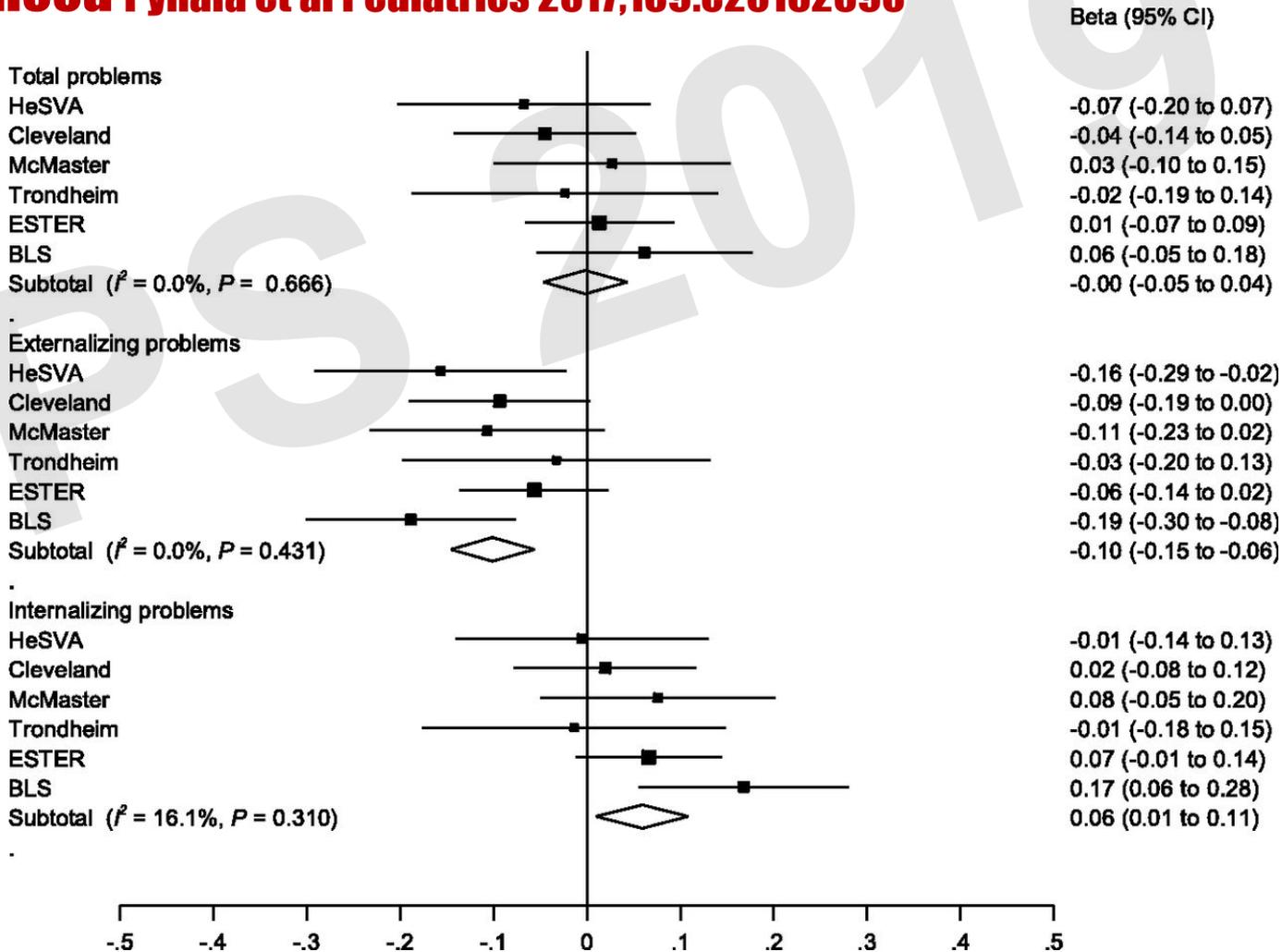


The spectrum of disability among surviving extremely preterm infants. Characteristics of the data sources are shown in [table].  
\*Estimates reported for infants ≤ 23-week gestational age.]

## Teacher ratings of academic attainment in extremely preterm children (<26 weeks gestation) compared with term-born controls at age 11 years Johnson and Marlow 2017

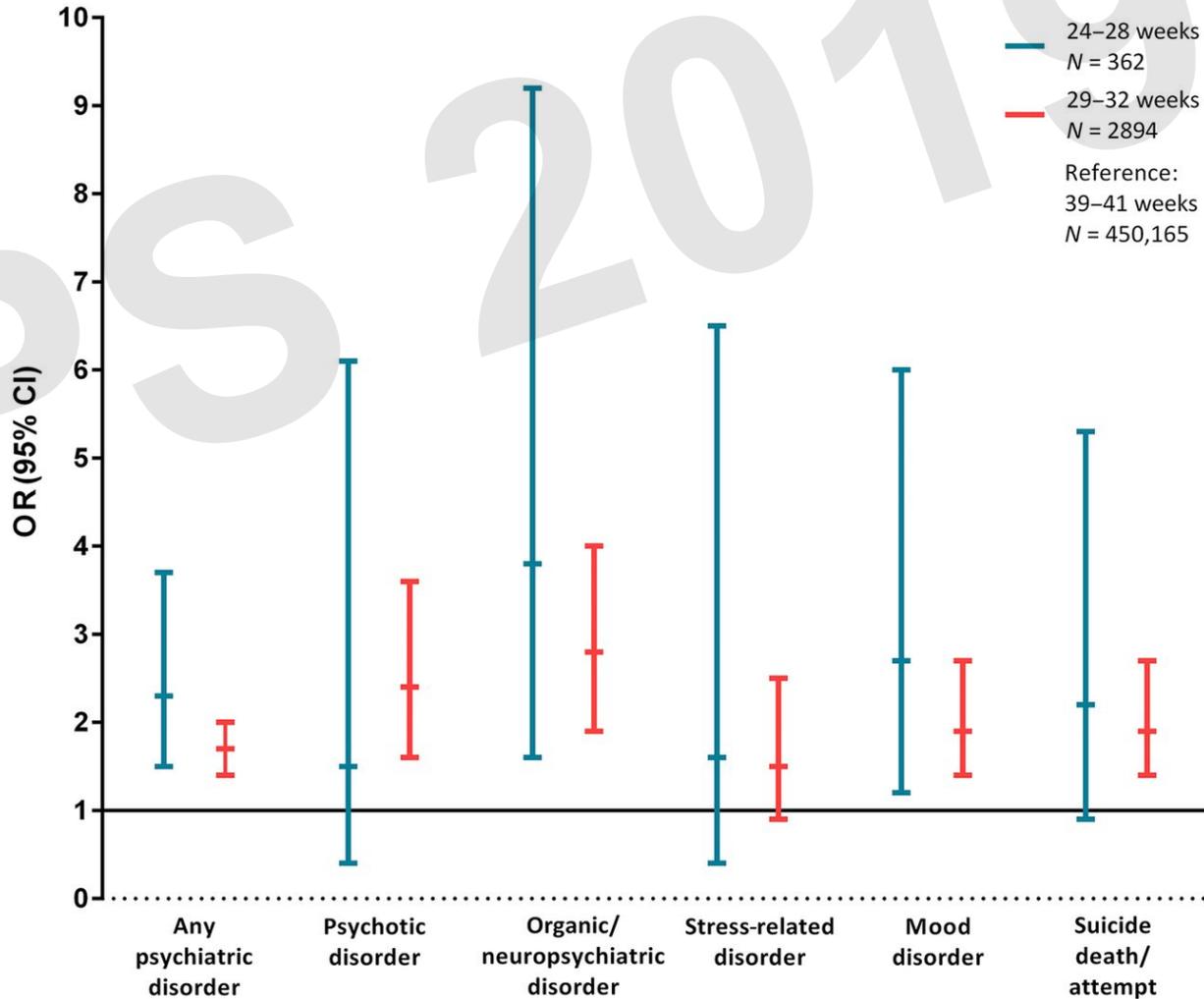


# Preterm birth and total, externalizing and internalizing problems in adulthood Pyhälä et al Pediatrics 2017;139:e20162690



# Psychiatric morbidity in adolescents and young adults born very preterm

Johnson and Marlow 2017



## Summary

- Increasing number of preterm survivors are entering the general population pool
- The majority will live long and healthy lives
- However challenges related to post-discharge health risks are emerging
- Close collaboration between neonatologists, paediatricians and adult specialists is increasingly warranted





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*"the science of newborn care"*



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