

'Turning off the tap...' the Prevention of Childhood Obesity



Topics

- The scale of the problem
- What do we know?
- Does early nutrition matter in obesity?
- Which risk factors can paediatricians help modify and how?
- Barriers
- Can we prevent obesity?

Data

- UK ~20% Yr R and 33% Yr 6 OW/OB
- From current trends, 50% by 2020.
- x2 increase from most deprived to least
- Higher in urban areas than rural areas
- Born since 1980s ~3x OW/OB by 10
- 50% 7yr olds not meeting the CMO's target of at least an hour of physical activity daily

...data

- Adults
 - 1993 49% women and 58% men OW/OB
 - 2011 58% women and 65% men but
- Obesity
 - 1993 16% women and 13% men
 - 2011 26% women and 24%men
- 2013 women 36% 16-24, 50% 24-35
- 9% obese in Yr R, 20% in Yr6
- Nourish Study - 18% OW/OB age 2

XL SCHOOL UNIFORMS

Larger sizes available

Back to school!
1 in 5
children leave
primary school
overweight
or obese

childhood obesity

Expanding our XL stock
due to popular demand

Back to school!
This is
our future
unless the
Government
acts now

enlure.org/ChildhoodObesityStrategy



Costs to the NHS and...

- £6 billion/year on medical costs of conditions related to OW/OB
- Further £10 billion on diabetes
- >£16 billion to the total economy
- £50 billion/year by 2050
- <£0.638 billion on obesity prevention programmes....



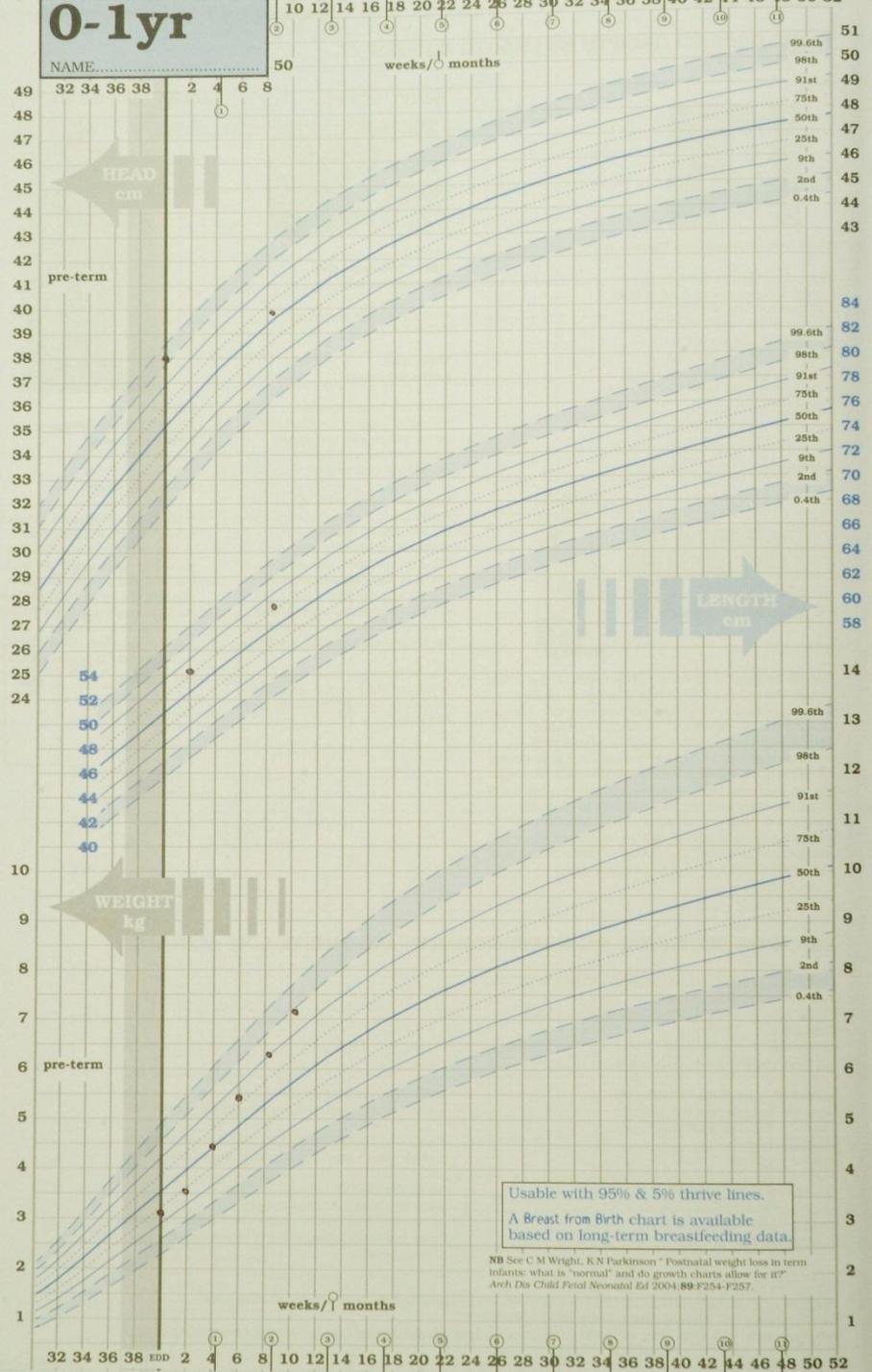
0-1yr

NAME.....

50 weeks / 1 months

CHARTS
2 LEFT
3 RIGHT

IF APPROPRIATE REMOVE/FILE THESE CHARTS WHEN COMPLETED. A PHOTOCOPY OF PAGE 1 DATA TO BE FILED WITH IT.



Usable with 95% & 5% thrive lines.
A Breast from 8yrh chart is available based on long-term breastfeeding data.

NB See C M Wright, K N Parkinson "Postnatal weight loss in term infants: what is "normal" and do growth charts allow for it?" Arch Dis Child Fetal Neonatal Ed 2004;89:F254-F257.

ACD December 2008 Leeds

- 80 health care professionals
- 30 paediatricians, 20 GPs, 30 paediatric nurses
- 33 children 10-18years - <25th ->98th, 20 OW or OB
- 6 categories
- Appalling results.... 70% OW 'slimmer', 48% OB 'slimmer'



? Normal

? UW

? OW

? OB

Age 8

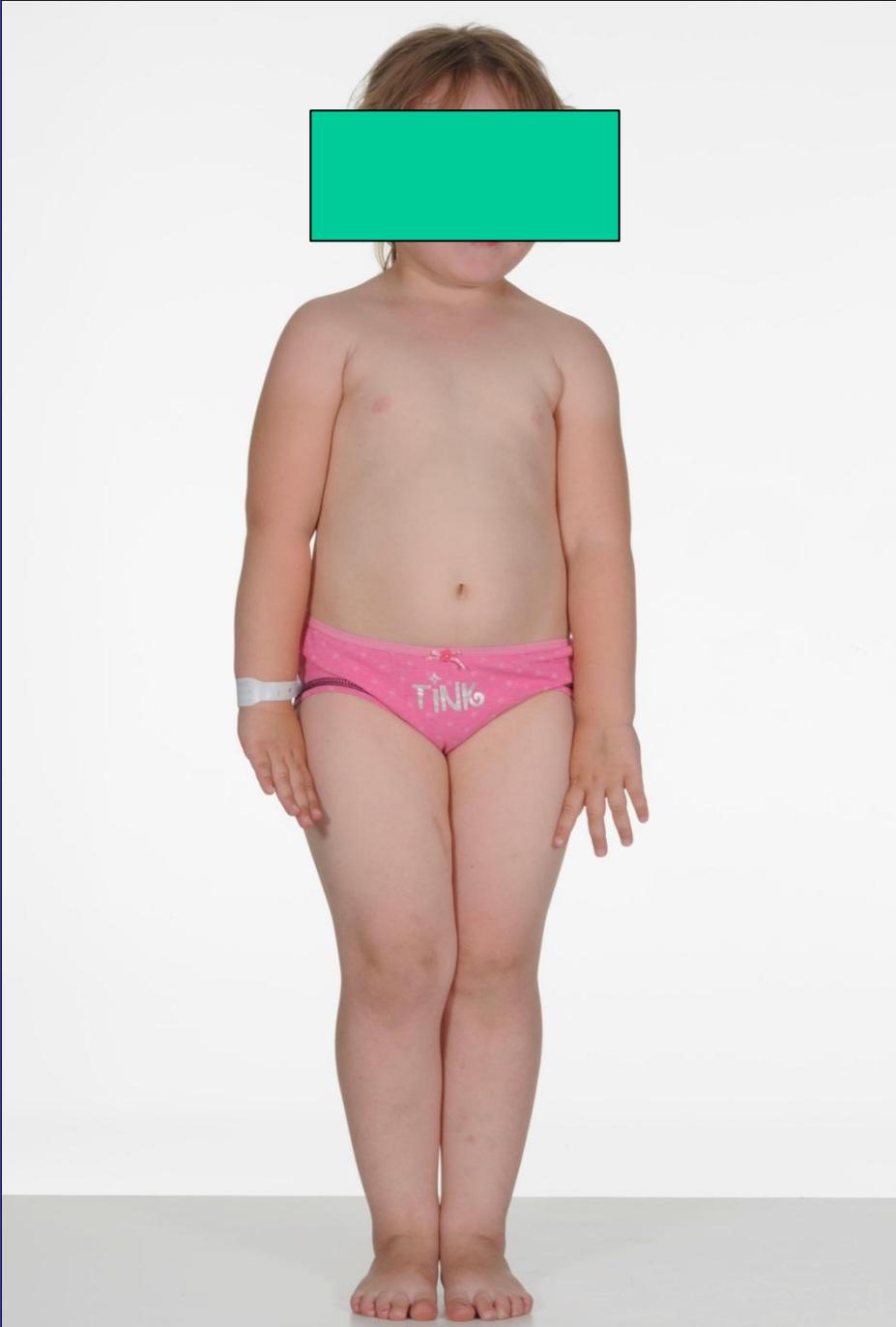
Weight 22.5kg

Height 122.5cm

BMI = 15

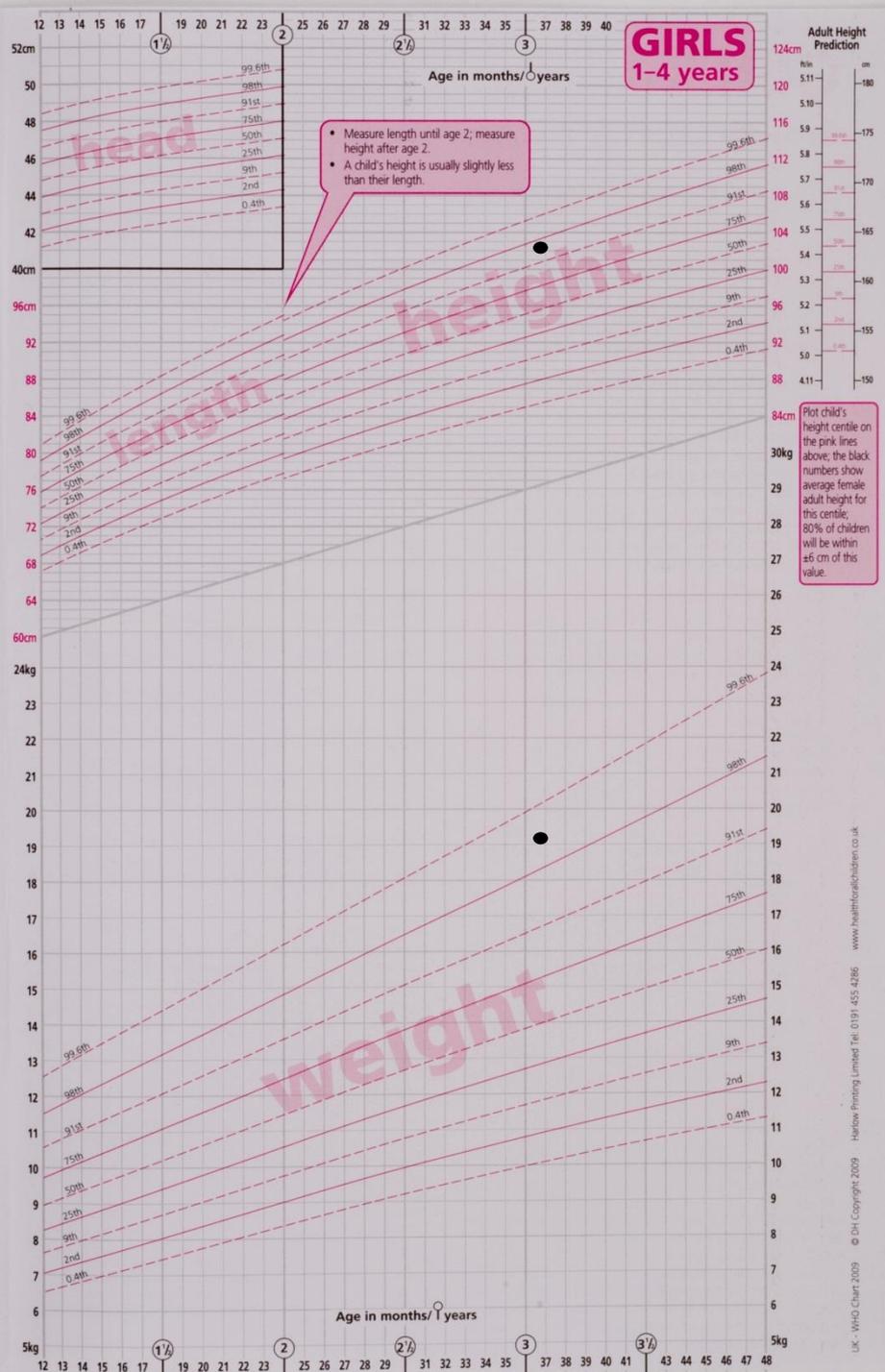
Normal

25-50th centiles



Age 4 and 1 month
Weight 18.6kg
Height 100.2cm
BMI 18.6

91st-98th centile
OW



Is this girl in proportion?

BMI = 17.9 OW

Early Bird Study (BMJ 1st Jan 2005)

- ~40% OW/OB parents 'about right'
- Only 25% recognised child as OW
- OB 33% M + 57% F 'about right'
- 'A little OW' 27% boys cf 54% girls
- Not affected by M's weight
- 10% worried that UW in normal
- Overweight largely 'unrecognised'
 - Denial
 - Reluctance to admit
 - Desensitisation
 - Crucial to resolve

Complications - no doubt

- Bullying, stigmatisation + social exclusion
- Poor self esteem + substance abuse
- Early puberty
- Adult obesity - Fat at 5, fat at 9, fat at 18
- All systems - arthritis
- Cancer risk
- Metabolic Syndrome
 - Type 2 Diabetes (even in White population)
 - Polycystic Ovaries
 - High Blood pressure
 - Dyslipidaemia esp Triglycerides
 - NASH

Risk factors

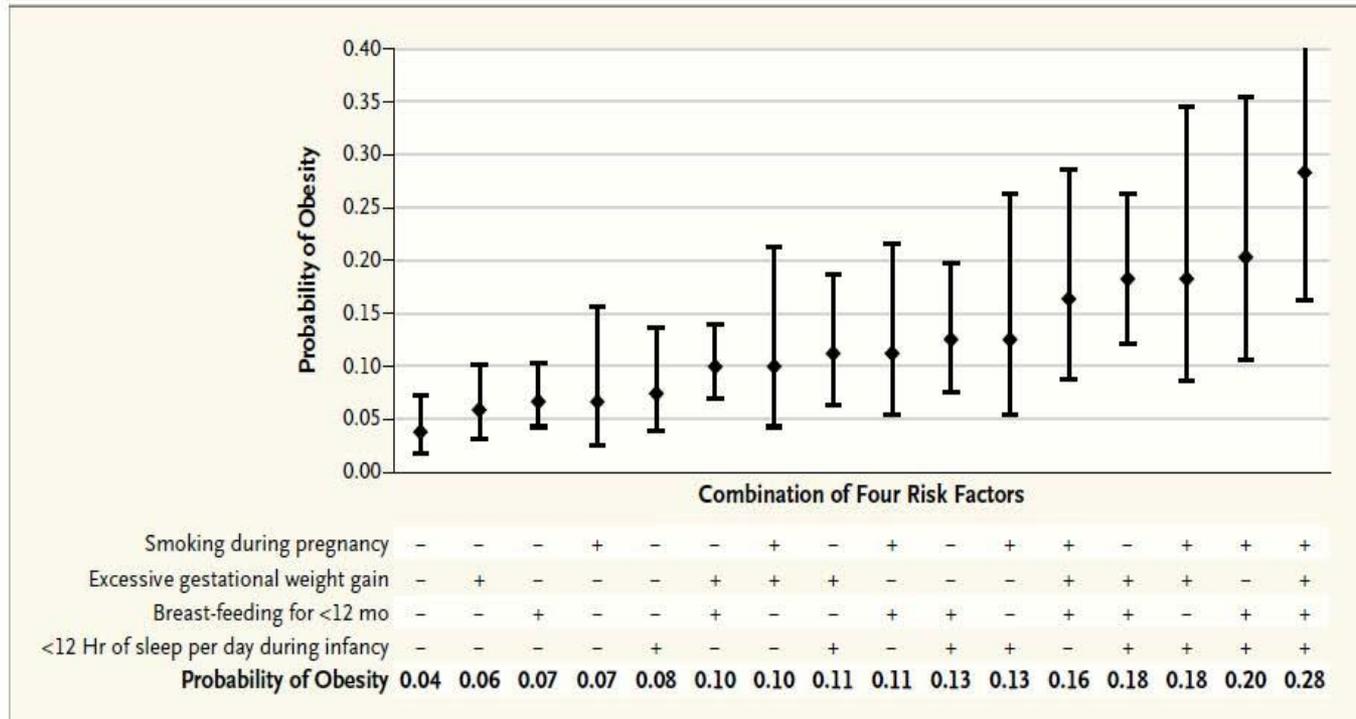
- Either parent overweight or obese
- Excess weight gain in pregnancy
- Poverty
- Maternal smoking
- Limited maternal education
- Asian or black parent
- Teenage pregnancy
- Maternal gestational diabetes

...risk factors

- Birth weight > 4kg
- Bottle feeding
- Early weaning
- Rapid early growth
- Poor sleep patterns

The most striking benefits
to population wellbeing have
come from public health,
not medical, interventions

Modifiable Risk Factors

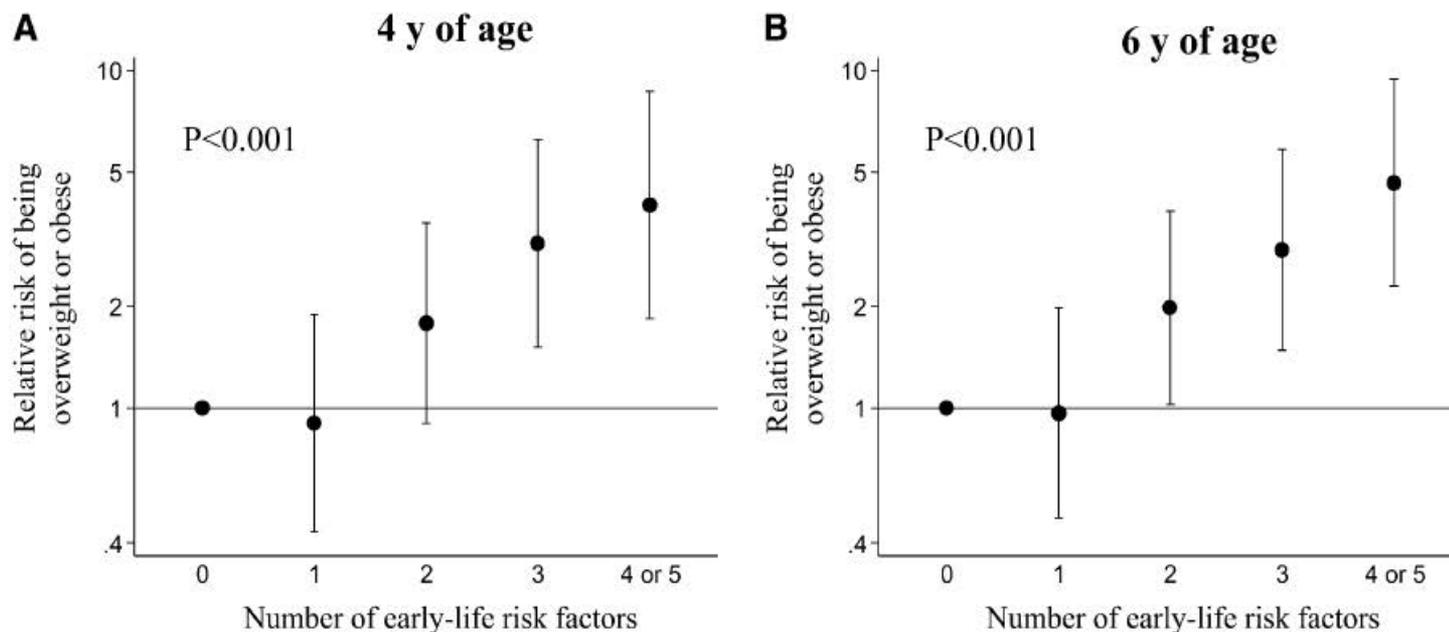


Predicted Probability of Obesity at 7 to 10 Years of Age for 16 Combinations of Four Modifiable Prenatal and Postnatal Risk Factors.

Gillman MW and Ludwig DS. Perspective: How Early Should Obesity Prevention Start? *NEJM* Nov 2013

Robinson SM et al. *American Journal of Clinical Nutrition* 101.2 (2015): 368-375.

EARLY-LIFE RISK FACTORS FOR CHILDHOOD OBESITY



Five risk factors:

- maternal obesity pre-pregnant body mass index (BMI; in kg/m²) >30]
- excess gestational weight gain (Institute of Medicine, 2009)
- smoking during pregnancy
- low maternal vitamin D status (<64 nmol/L)
- short duration of breastfeeding (none or <1 mo).

RCPCH Summit October 2015

- 20% sugar tax
- Expand school food standards
- PHSE statutory
- Advertising ban before 9pm
- Extend the NCMP programme
- Support research

XL SCHOOL UNIFORMS

Larger sizes available

Back to school!
1 in 5
children leave
primary school
overweight
or obese



childhood obesity

Expanding our XL stock
due to popular demand



[explore/ChildhoodObesityStrategy](https://www.nhs.uk/explore/ChildhoodObesityStrategy)

Back to school!
This is
our future
unless the
Government
acts now



Prevention

'the only solution'

Early

Intervention

RCPCH Summit 2015

Efforts to date have not been successful in halting the growing obesity epidemic and actions that address prevention in infancy and childhood are urgently required

Basic science through to prevention science (Viner)

- Identify potentially modifiable risk factors from very early life
 - particularly related to the way we feed infants
- Focus on critical periods for programming later obesity - infancy and adolescence
- Identify trajectories into obesity - who and how and when

What we know re early infancy

- Systematic reviews confirm early weeks wt and length accelⁿ assoc with later obesity
- Upward centile crossing programmes metabolic syndrome (includes GDM)
- First 2/52 later endothelial dysfunction. Similar effects to T1DM and adult smoking
- Rapid wt gain ?short-term ↑ survival but long-term risk of obesity
- Formula fed up-regulated appetite → obesity with Western diet

...

- Breast fed partially protective - early self-regulation
- Early wt loss and slower growth may protect - new WHO charts
- Relative undernutrition and slower growth may programme permanent lower appetite (lower leptin)

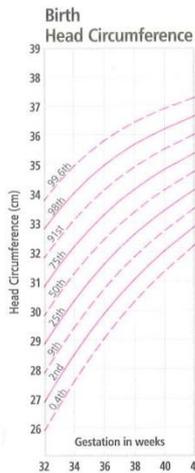
What we know re bottle feeding

- Negative emotions including guilt, anger and worry
- Little information from HCPs
- Mistakes with preparation
- Interpret 'demand feeding' as feeding in response to crying and increasing the volume if finishes the bottle
- Highlighted the lack of support perceived by mothers who formula-feed.

Determinants of weaning

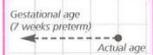
- 60 studies
- Strong evidence for
 - maternal age
 - socio-economic status
 - education
 - smoking
 - not breastfeeding
 - lack of information/advice from HCPs
- Paucity of studies on psychosocial determinants

Preterm

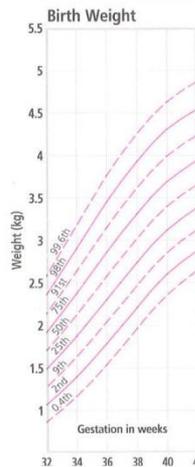


Plotting preterm infants
Use the **low birthweight chart** for infants less than 32 weeks gestation and any other infants requiring detailed assessment.

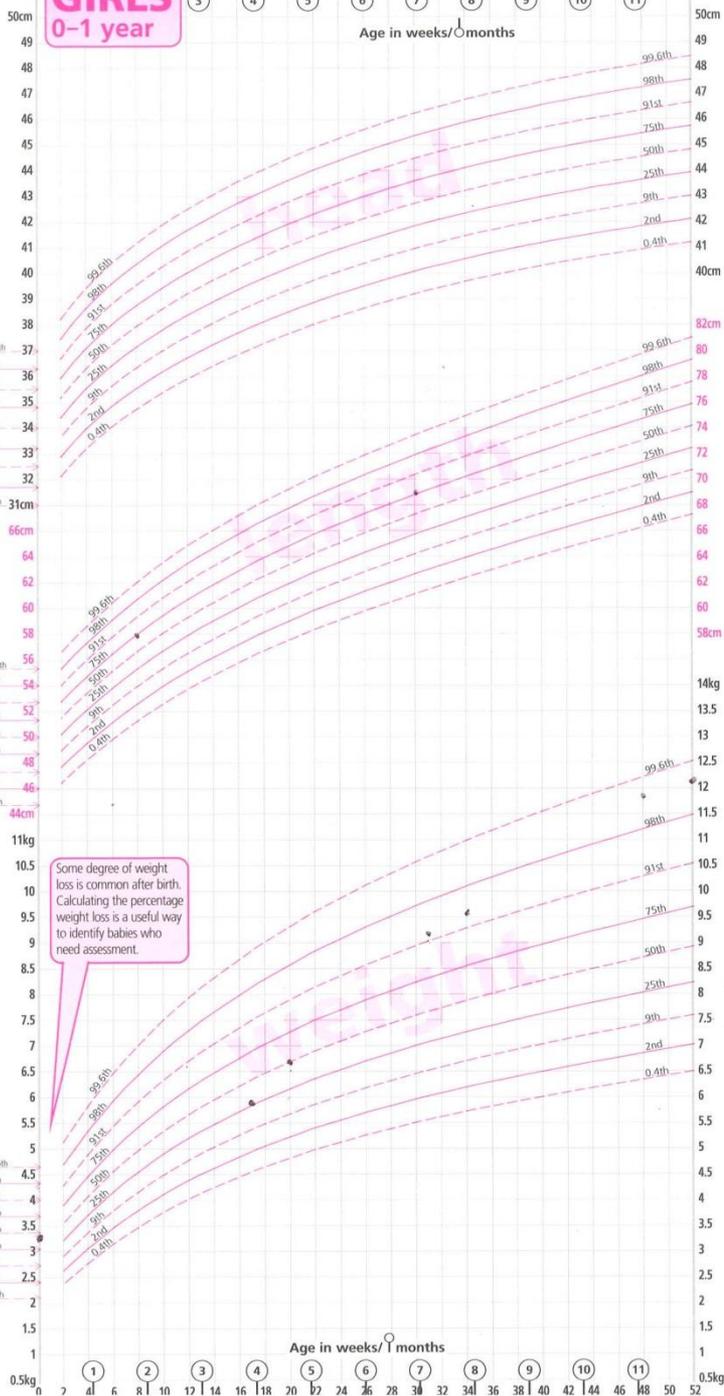
Use **this section** for infants of less than 37 weeks gestation. As with term infants there may be some weight loss in the early days. From 42 weeks, plot on the **0-1 year chart** with gestational correction.



Gestational correction
Plot actual age then draw a line back the number of weeks the infant was preterm and mark the spot with an arrow, this is the gestationally corrected centile.



GIRLS 0-1 year



RCPCH Summit 2015

- Parenting styles
- Behaviour change
- Review guidance in PCHR about responsive feeding to deal with early signs of concern about weight gain
- Update messages for parents
- Support for parents in postnatal wards about responsive feeding
- Develop messages about normal weight gain for babies



CS40649 healthy infant feedin...



1



2



3



What could you do?

- Ask what is happening in maternity
- Audit use of growth charts
- Displays in OPD
- Look at your infant feeding policies - are you supporting all mothers?
- Campaign for Healthy Hospitals
- MECC

MECC

- Brief, opportunistic healthy lifestyle discussions
- 2.5m outpatient + 2.2m inpatient visits
- 3 levels
 - Raising the issue and signposting (3-5')
 - Exploring motivation, options +plans (5-15')
 - Supporting change and maintenance (50')
- Evidence based!
- Coming to a hospital near you....

MECC opportunities?

- Encourage breast feeding
- Support with bottle feeding
 - Responsive feeding
 - Volumes
 - Attachment
 - Crying baby
- Discuss possibilities of prevention
- Explain the growth charts
- Show updated PCHR

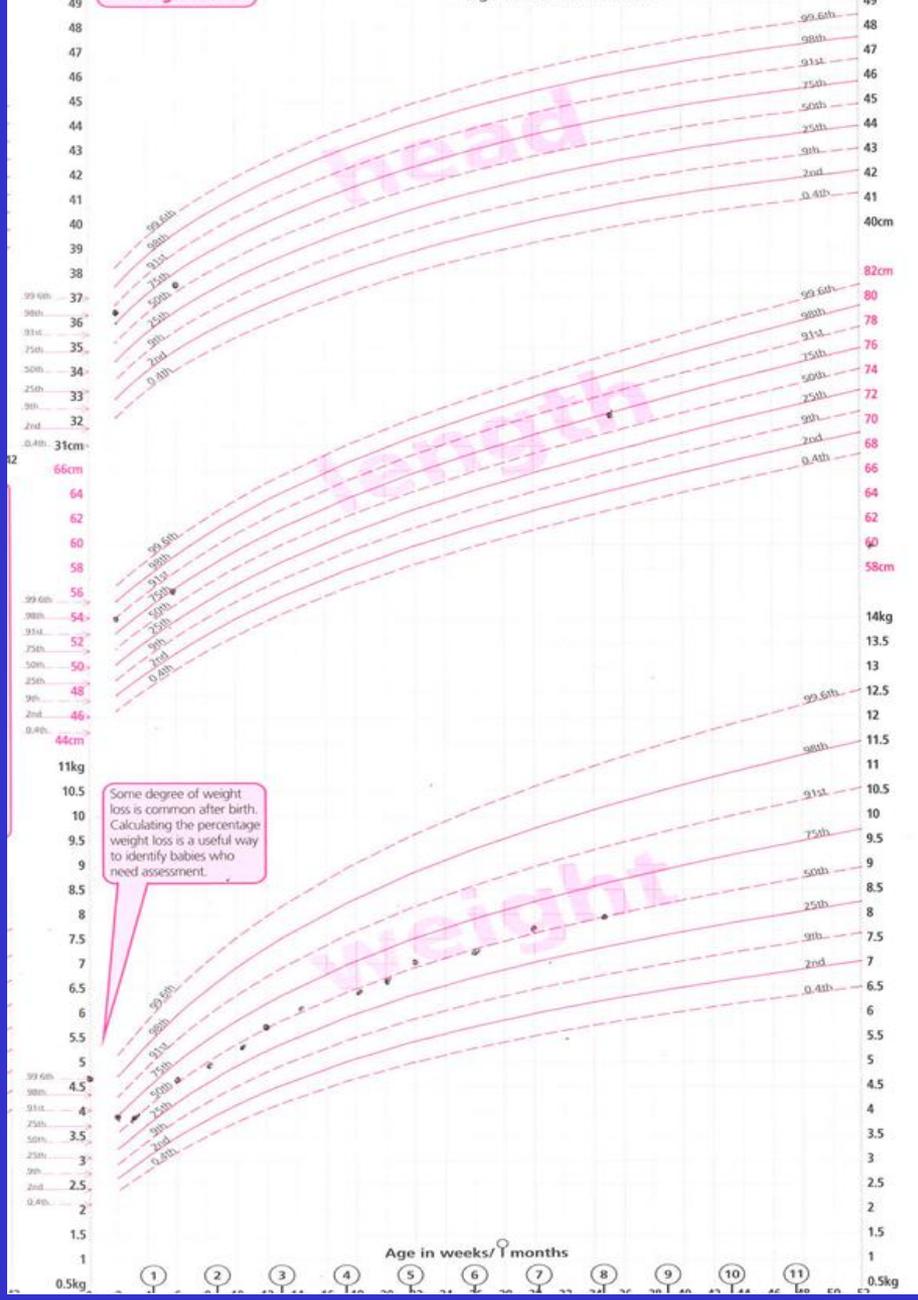
.....? MECC

- Why not to wean till 6 months
- Fist-sized portions
- Understanding *behaviour* change
- Signpost to HENRY
- Prevention possible
- Exercise
- Use BMI charts pictorially

BARRIERS?

GIRLS 0-1 year

Age in weeks/months



Some degree of weight loss is common after birth. Calculating the percentage weight loss is a useful way to identify babies who need assessment.

Barriers

- Failure to recognise
- HCP's main role.....?
- Failure to take ownership
- Reluctance to support mothers who bottle feed
- Reluctance/fear to tackle
- Poor staff training
- Too daunting
- Waiting for the evidence....

We should experiment with solutions and try them out rather than waiting for perfect proof of what works, especially in the many areas where interventions are low risk.

.....McKinsey 2014

'Tap-Turner-off' or a
'Floor-Mopper-Up'??