Introducing new UK-WHO growth charts for Ireland

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Will cover

- What is new
- Why –background
- Charts
- The implications for growth patterns
- The training materials
- National standards –referral criteria
- Key points for practice- supporting parents
- Pointers for further info
Growth monitoring

- Growth is the **most sensitive indicator of health**
- Standard component of child health
- Best Health for Children 1999, 2005
- National level early identification, investigation treatment of problems
- Under/over nutrition
What and when

- Dept of Health Oct 2010
- Adopted the WHO(2006) growth standard
- Specified UK-WHO growth charts
- Full-terms: 0-4 yrs boys/girls
- Pre-terms: Neonatal Infant and Close Monitoring [NICM] charts
- From 1.1.2013
Why did the World Health Organisation think new growth charts were needed?

- Differences in weight gain seen between breast fed and formula fed infants
- Healthy breast fed infants show very similar growth patterns around the world
- Decided to produce charts that set breast feeding as the norm for infant feeding
WHO charts development

- 15 year programme of planning, data collection and analysis
- MGRS
- Healthy breastfed term infants (n=8,500)
  - 4 months exclusive BF
  - weaned solids at 6 months
  - Mothers non-smokers
  - Healthy well-supported environments
- 6 countries
  - Similar patterns across countries
  - no ethnic racial differences
- Age-based charts for height, weight and body mass index (BMI)
- Growth standard
Mean length from birth to 24 months for the six MGRS sites

Growth in length the same in all centres → one chart valid for all children worldwide
UK-WHO Charts - development

- SACN (Scientific Advisory Committee on Nutrition) recommended:
  - Adoption of WHO charts in UK from age 2 weeks to 4 years
  - Continue to use UK birth and preterm data as no WHO preterm data

- Royal College of Paediatrics and Child Health [RCPCH] commissioned to design charts and produce educational materials

- An Irish child health review group has adapted the training materials for application in the Irish health care setting- with kind permission from RCPCH.
Growth chart information

- Length-for-age
- Weight-for-age
- Weight-for-length
- Head circumference-for-age
What do the Centiles Show?

- Optimum range of weight and heights

- Describes the percentage expected to be below that line
  - 50% below 50th
  - 91% below 91st
  - 1 in 250 below 0.4th

- Half of all children should be between 25-75th centile
New chart features

Preterm births plotted on preterm section

Term birth measurements plotted at age 0

No lines between birth and 2 weeks
No lines between birth and 2 weeks?

- New charts use UK 1990 data at birth, then WHO data from 2 weeks
- Birth weight charts do not naturally join infancy chart
  - Weight at 2 weeks of age not = birth weight at 42 weeks gestation
- Between birth and 2 weeks most infants lose and regain weight and charts cannot allow for this
- Gap emphasises importance of looking at weight gain relative to birth weight in first days, not centile position
Age labelling

- Age errors are the most common source of plotting mistakes
- Charts marked in both weeks and calendar months
De-empathised 50\textsuperscript{th} centile

- Avoids confusing messages to parents about perceived ‘need’ for all children to be on 50\textsuperscript{th} centile
  - Centile labels at both ends of each curve
  - 50\textsuperscript{th} centile identifiable from location of curve label
Body Mass Index (BMI) lookup

- Read off the weight and height centiles from the growth chart.
- Plot the weight centile (left axis) against the height centile (bottom axis).
- Read off the corresponding BMI centile from the slanting lines.
- Record centile with date in the data box.
- Accurate to ¼ centile space.
Chart instructions

- Draws on available research evidence
- Clear guidance on:
  - method of measuring and plotting
  - role of length and height measurements
  - measurement frequency
- Defines range of normality and need for further assessment, but not what action to be taken
- PHR information for parents
UK-WHO growth charts summary

- Launched in January 2013 for all new births
- New UK-WHO Charts are a description of *optimal* rather than average observed growth
- New separate preterm birth weight for use from 32 weeks
- All infants from 37 weeks gestation should be plotted at term (age 0)
- De-emphasised 50th centile, but identifiable from location of curve label
- A4 charts include detailed user instructions
- PHR has information aimed at parents
Effect on patterns of growth caused by the change to the WHO standard

Weight

- Charts now allow for neonatal weight loss
  - Average children no longer drop down chart between birth and 4 weeks

- After first 6 months
  - Drop in % below lower centiles and % weight faltering
  - Rise in % above upper centiles for weight

Height

- Very similar growth in height/length at all ages
Lengths plotted on both UK 1990 and WHO charts will give very similar centiles.

This means that the ‘dip’ in weight we are used to seeing between 2-4 weeks will no longer be a normal feature.

There will be twice as many children above the 98th centile and only 1/200 children will be below 2nd centile for weight.
Growing Up in Ireland Study

• The median length and weight of children at birth in Ireland are very close to the guideline lengths and weights’ provided for the UK population by the World Health Organisation (WHO).

• The median length remains close to the WHO guideline up to three years for both boys and girls – at slightly higher than 100%.

• The median weight of both boys and girls increases to 12% above the WHO guideline weight at nine months, before falling marginally to 10% above for boys and 8% above for girls.

• Head Circ: 47cms (boys) 45.8cms (girls)

Growing Up in Ireland (2012): Key findings, Infant Cohort at 3 years Report 4 Infant’s Physical Growth form Birth to age 3
Head circumference

- Changes in HC pattern with move to WHO standard for UK
- Many more are identified above the 98\textsuperscript{th} centile
  - 6-16\% UK-WHO, 1-4\% UK 1990
- Rapid head growth in 6 -9\textsuperscript{th} month
  - 14.6-15.3\% UK-WHO, 4.8-5.1\% UK 1990
- More unusual to find infants HC below 2\textsuperscript{nd} centile – investigate further

UK children have relatively large heads compared to the WHO standard, particularly after the age of 6 months. After the age of 6 weeks a head circumference below the 2nd centile will be seen in only 1 in 250 children. A head circumference above the 99.6th centile, or crossing upwards through 2 centile spaces, should only cause concern if there is a continued rise after 6 months, or other signs or symptoms.

Implications for referral guidelines?
Training Programme
for Public Health Nurses and Doctors
in Child Health Screening, Surveillance and Health Promotion

Unit 6
Growth Monitoring
October 2012

Training materials

• Charts
• Manual & Appendix
• Training lesson plan
• Presentation x 9
• Videos x 5
• Practice activities x 6

www.hse.ie/growthmonitoring
Summary: Plotting and Centiles

- Record measurement and date in ink
- Plot one single dot in pencil-[no ‘fried eggs’, or joining up]
- Age errors are commonest source of plotting mistakes
- Centiles describes the percentage expected to be below that line
- A child is
  - on a centile if within ¼ space of line
  - between the two centiles if not on (or within ¼ space of) a centile
- A centile space is the distance between two centile lines
Summary

- After first 2 weeks, if well, weights required only at time of routine reviews
- Measure length or height and head whenever concerned about weight gain, growth or development
- Any child with measurement consistently <0.4<sup>th</sup> centile should be assessed in more detail
- Adult height can be predicted from age two using recent height centile using height predictor*
- If weight is above 99.6<sup>th</sup> centile, BMI should be calculated using BMI lookup from 2 years
National Standards for Growth Monitoring - Equipment

- Electronic self zeroing scales
- Supine length measure (infantometer or baby mat)
- Thin non stretchable tape measure
- Leicester height measure (self calibrating)
- UK-WHO (Ireland) Growth Charts

Growth Monitoring Training Manual 2012 p30 and Appendix A p34
National Standards for Growth Monitoring

- Reduced number of mandatory growth monitoring assessments
  - birth
  - 6 to 8 week check
  - school entry
  - but children should be weighed at opportunistic times including birth, at immunisations and during child health surveillance checks

- Focus on accuracy of measurement, documentation and interpretation of findings.

Growth Monitoring Training Manual 2012 p30 and Appendix A p34
Referral Criteria- for further assessment:

- Below 0.4th centile for **weight**, **length** and **height**

- Below 0.4th centile or above 99.6th centile for **head circumference***, or a drop or rise through 2 or more centile spaces after first few weeks of life

- Above 99th centile for **height** plus other concerns

- Below 2nd centile or above 91st centile for **BMI** (over 2 years of age)

- Parental or professional concern
Referral Criteria …continued

- Severe obesity with short stature or development delay
- Ill health associated with weight gain or obesity
- Consider any child with measurements outside projected centiles
- Two or more readings of concern
  - Appropriate timing
  - 2 weeks apart under 3 months, 4 weeks apart over 3 months, 3 months apart over 1 year
Referral pathway

- Pending the development of nationally agreed referral guidelines
- Community Medical Officer or GP
- Local paediatric service
  - if no clear cause for the problem is identified

- Direct referral of children to a local primary care service for obesity when those services are available
Key messages for supporting optimal growth.

- Support **exclusive breastfeeding** for first 6 months and its continuation with weaning till age 2yrs and beyond.

- **Commend good practice** related to children growing well.

- **Explain child’s growth rate**

- For babies and young children **assess and support optimal feeding practices**

- For older children assess and support optimal feeding and weaning practices
  - *Food and Nutrition Manual Best Practice for Infant Feeding infant in Ireland*
  - *Best Practice for Infant Feeding in Ireland 2012*

- **Communicate the physical activity guidelines**
Where growth is slow/faltering

Note: slow weight gain is weakly associated with social or medical ills, but most commonly occurs in isolation.

- Explain growth rates sensitively and provide support around management of feeding
- Take a detailed infant feeding history* and assess growth pattern (use empathy, open questions and reflective feedback)
- Assess the adequacy of feeding
Overweight and Obesity
working with parents and caregivers

- Explain the child’s growth rates sensitively
- Parents may be surprised / upset
- Focus on the child's overall health
- "growth pattern is changing...."
  - ‘Weight is getting ahead of height’
- Support children to ‘grow into their weight’
- Encourage good role modelling
Down syndrome

- DS Medical Interest Group
- 0-18yr charts in 3 sections
  - 0-6months, 6months-4yrs, 4-18yrs
- New design DSMIG/RCPCH/Child Health
- Data on 1,500 healthy children UK and Ire
- See http://www.dsmig.org.uk/
Growth Monitoring Resources

New growth charts are being introduced for babies born in Ireland in January 1st, 2013. The new charts have been adopted as policy by the Department of Health and have been adapted for Ireland from materials originally developed by the WHO and Royal College of Paediatrics and Child Health in the UK.

The new charts include a suite of new 9-centile growth charts for children in Ireland to be used for all newborns from 1st January 2013. Existing growth charts will continue to be used for children born before January 1st 2013. New charts for children 4 years and older will be introduced at a later date.

The WHO charts for the first time describe optimal rather than average growth and set breastfeeding as the norm. The new charts were constructed using data on healthy breastfed children from around the world who had no known health or environmental constraints to growth. They should be used for all infants however they are fed.

All health professionals who use growth charts should receive some training. The National Growth Chart Implementation Group recommends 3 hours training for users.

Education and training materials on this page have been prepared by a multi-disciplinary training sub-group. If you are interested in self-directed learning or in delivering training to practitioners please follow the training and lesson plan for growth chart training. Some of the training materials have been developed locally and some adapted from RCPCH materials. They consist of the Growth Monitoring Training Manual revised Oct 2012, presentations, practice activities and video-clips and the growth charts.

Choose from the options below to learn more and access our range of resources:

- New UK - V-HO - Ireland Growth Charts
- Training and Lesson Plan, Evaluation Forms
- Training Manual and Appendices
- Practice Activity and Answer Sheets
- Powerpoint Presentations
- Video Demonstrations

www.hse.ie/growthmonitoring