



## **Position statement of the Canadian Pediatric Endocrine Group (CPEG) on the WHO growth curves**

CPEG applauds the World Health Organization (WHO) for undertaking the tremendous effort necessary to generate up to date growth curves based upon optimally growing children.

CPEG agrees that the longitudinal growth data of the multiethnic population of breastfed infants that led to the development of the WHO weight and length/height growth curves reflect optimal growth and supports the use of the WHO growth curves for children aged less than 24 months. However, one must remember that these new standard curves stand in contrast to the Centres for Disease Control (CDC) growth charts, which are based on a sample in which only 10% of infants were even partially breast fed to 4 months. Appropriate training of Canadian health professionals dealing with young children will be necessary to ensure proper interpretation of growth data of breastfed and formula fed infants.

Endorsement of the curves for children over 24 months in their current format is less enthusiastic. In contrast to the new data generated from a multiethnic population from birth to 5 years, the data describing children and adolescents older than 5 years are derived from the 1977 National Center for Health Statistics data. Concerns raised by CPEG include:

1. The need to track height and weight simultaneously for children aged 2 to 19 years so that the pattern of linear growth and weight gain can both be assessed. This is the most substantial concern and could be addressed by extending the weight growth curves through age 19 years and including height and weight on the same curve.
2. CPEG is concerned that the version of the WHO charts adopted for use in Canada highlight different percentiles than other growth charts, most notably the CDC growth charts, arguably the most widely used in North America. This is mainly true for the 2-19 years charts:
  - Additional percentiles (0.1 and 99.9) have been added. Less than 1 in 1000 patients will plot below or above these percentiles, respectively. However, inclusion of an additional layer of shading for these percentiles suggests that these individuals may be part of a normal curve and may be falsely reassuring. In addition, this change led to the Y axis being extended by several kg (weight/height curve) or  $\text{kg/m}^2$  (BMI curve), with the result that the plotting area is more condensed, which decreases the accuracy of the plotting.
  - Conversely, several percentiles between the 3<sup>rd</sup> and 97<sup>th</sup> have been removed. A greater degree of change in height or weight is now required before crossing percentiles on the WHO curves, which could result in children with disorders of growth being identified less quickly.These issues could be addressed by producing standard charts for Canada that include the same percentiles as presently available on the CDC growth charts (3<sup>rd</sup>, 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, 85<sup>th</sup>, 97<sup>th</sup>).
3. CPEG is concerned that the charts are difficult to read with their current shading. This is even more significant when copies of growth charts are faxed between clinicians. This concern could be addressed by changing the colour shading to make the curves more legible.
4. CPEG also has concern over the designations that are made based upon some of growth patterns. For example, labeling as stunted 3% of children who are otherwise growing normally in an affluent country such as Canada could be considered inappropriate.

5. Finally, CPEG would like to highlight what may be regarded as a missed opportunity. Similar to previous growth charts, the definition of obesity in a 19 year-old boy/girl is different from the definition of obesity in an adult (29 vs 30 kg/m<sup>2</sup>, respectively). The design of new growth curves could be an appropriate time to correct this shortcoming.

In summary, CPEG supports the dissemination of growth curves based on the new WHO **data** and the revised 1977 National Center for Health Statistics but gives a limited endorsement of the current Canadian adaptation of the WHO **growth curves** and believes that they would be more clinically useful and more widely adopted if the concerns mentioned were addressed in revised growth curves. In addition, CPEG suggests that emphasis be put on practice/training to ensure that the differences between the new WHO curves and the existing CDC curves (not only for length/height, weight, BMI but also for head circumference) are well understood by health professionals in Canada so that normal and abnormal growth patterns are well recognized.

*Approved as of July, 2011*