PENS Position Statement on Linear Growth Measurement of Children

The Pediatric Endocrinology Nursing Society (PENS) is committed to advancing the art and science of pediatric endocrinology nursing. PENS members specialize in the nursing care of children with disorders of growth and hormone regulation. PENS believes that nurses are in a unique position to ensure accurate and reliable growth measurement, thereby promoting the timely recognition of abnormal patterns of growth.

Since healthy infants and children have predictable patterns of linear growth (length/height), normal growth is used as a standard for assessing child health and well-being. Children with growth pattern deviations (e.g., unexplained short or tall stature, growth failure, growth acceleration) should be evaluated to differentiate between normal growth variants and pathologic conditions. Growth is such a sensitive indicator of health that abnormal growth may be the earliest sign of pathology (Craig, Fayter, Stirk, & Crott, 2011; Haymond et al., 2013). Pathological growth may result from nutritional disease, a genetic disorder, an endocrine cause, psychosocial problems, intrauterine growth retardation, or systemic disease and/or disease progression or exacerbation (Haymond et al., 2013; Richmond & Rogol, 2014; Rogol & Hayden, 2014).

Measurement error can occur when inaccurate instruments are used to obtain length or height (Berkson et al., 2013; Gerner, McCallum, Sheehan, Harris, & Wake, 2006; Lipman et al., 2004) or if accurate instruments are not properly calibrated (Biehl et al., 2013). Incorrect
technique by the measurer is another source of measurement error (Lima, Oliveira, & Ferreira, 2010; Lipman et al., 2004). Therefore, it is critical that measurers are educated and trained in correct technique, with their competency validated. Studies have shown that regular training, supervision and standardization increases the precision of anthropometric measures (Becquay et al., 2013; Lipman et al., 2004) as well as limiting the number of examiners obtaining measurements (Geeta et al., 2009). Measurements obtained by registered nurses were more accurate than those obtained by other personnel (Hench et al., 2005). Growth measurement error can lead to misinterpretation of growth patterns, resulting in delayed diagnosis and treatment in some children and inappropriate referral of normally growing children.

An interdisciplinary team critically evaluated the evidence to develop a clinical practice guideline on linear growth measurement of children (Foote et al., 2009), that was reviewed by PENS experts and endorsed by the PENS organization. The purpose of the guideline is to assist health care personnel in using standardized instruments and techniques to accurately and reliably measure growth. Pilot testing of the guideline revealed its ease of use and high intraexaminer and interexaminer reliability (Foote et al., 2011).

PENS encourages nurses to examine and improve growth measurement practices in their primary care, acute care, specialty care, school, and other community health settings. Strategies to improve growth measurement practices have been published (Foote et al., 2014; Lipman et al., 2004). In addition, routine growth monitoring of children is a convenient and cost-effective method of assessing general health status (Fayter et al., 2008).
Position

As nursing experts on children’s growth and advocates for all children, PENS:

1. Supports the American Academy of Pediatrics recommendations for growth measurement during periodic health maintenance visits;

2. Encourages health care providers to measure linear growth during visits because of illness when health maintenance visits are missed, during chronic disease visits, and during hospitalizations to avoid missed opportunities to detect growth problems;

3. Supports programs to train measurers and ensure competency (Lipman et al., 2004);

4. Endorses the evidence-based clinical practice guideline on linear growth measurement (Foote et al., 2009);

5. Supports the use of standardized and calibrated length boards and stadiometers;

6. Opposes the use of tape measures (to measure the length of infants and other children who cannot stand alone) and height measurement instruments attached to weighing scales (with floppy-arm devices);

7. Supports measuring children at least twice at each encounter and recording the mean of the measurements;

8. Encourages institutions to adopt policies and procedures on growth measurement of children;

9. Supports the use of growth charts to identify patterns of growth and compare them with population-based normative data. PENS supports the CDC (2010) recommendation
for use of WHO growth charts for children from birth to 2 years and CDC growth charts for children age 2 and older for U.S. children; and

10. Advocates for the review of growth patterns after each measurement to determine if: 1) the child is growing adequately; 2) the child’s growth requires closer monitoring, further evaluation or referral; and, 3) the child needs to be re-measured due to possible measurement error.

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**Resources**

The clinical practice guideline and resources can be accessed through the PENS Web site at [http://pens.org/Pages/Linear-Growth-Measurement.aspx](http://pens.org/Pages/Linear-Growth-Measurement.aspx).

References


