Childhood nutritional status: ongoing surveillance is necessary

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On June 25, 2004, ministers and representatives of member states of the European region of the World Health Organization (WHO) responsible for health and the environment, together with the WHO Regional Director for Europe, launched the “Children’s Environment and Health Action Plan for Europe” [1]. This document notes that while “safe and balanced nutrition is still an unmet need for too many children”, the prevalence of obesity and the risk of morbidity as a consequence of inactivity and an unhealthy diet are on the increase. The report recognises that research knowledge gaps, concerning e.g. prevalence of overweight, causal links and effective intervention strategies, will hamper efforts to address the problems. Further, it recognises the interrelationship of numerous factors affecting child health (e.g., poverty, lack of safe places to play, lack of clean and available water, unclean air and hazardous toxins), all of which may contribute to imbalance in child nutrition. Ministries are called upon to develop and implement child-specific action to address priority goals at the national, subnational and local levels.

Sweeping goals, such as those proposed for the children in the 52 countries of the European region, call for the deployment of major effort and resources if they are to be achieved. It is imperative that the programmes and policies implemented be accompanied by solid assessment of their effectiveness. To evaluate success in the realm of child nutrition will require nutritional surveillance through continuous monitoring of populations’ nutritional status. Surveillance can be based on repeated surveys or on data from child health or growth-monitoring programmes [2]. Identification of populations and geographic areas at increased nutritional risk may help to formulate policy and promote local programmes designed to improve overall health. Regional and national evaluations, such as those published in the following pages regarding children in Turkey [3] and Switzerland [4], will provide important benchmarks against which to judge success.

To facilitate comparisons among populations, evaluations of nutritional status must use a common language. The paper of Zimmerman et al. [4] well demonstrates the variations in prevalence rates when different standards are applied in interpreting data. Fewer children fall into the overweight and obese categories when International Obesity Task Force (IOTF) definitions are applied than when applying reference values from the US Centers for Disease Control and Prevention. Programme evaluations must take this fact into account and apply locally relevant measurements. Öner et al. [3] chart the variability in 95\textsuperscript{th} percentile body mass index (BMI) for Iran, Sweden, Turkey, US adolescents and the IOTF standard. While all the curves demonstrate increased BMI in the group aged 12–17 years, at any single age the span between the highest and lowest of the 95\textsuperscript{th} percentile curves is approximately 8 kg/m\textsuperscript{2} for girls and 6 kg/m\textsuperscript{2} for boys. This is a wide difference. The curves do not define a “healthy” weight. Have we established the right cut-off points to define overweight and obesity? At what BMI do the health risks become important? Other indicators of child health, along with anthropometric measurements, need to be evaluated if these questions are to be answered.

Öner et al. [3] used an elegant sampling schema to obtain a representative sample of adolescents in Edirne, Turkey, a city with a population of 120,000. A high prevalence of underweight (11–14\%), as defined by the US reference, was noted. This is reportedly similar to the prevalence of underweight in samples of children from Brazil, Russia and China. There is a marked difference between the prevalence of overweight in Edirne (approximately 2\%) and that reported for Istanbul (approximately 10\%) [5], with a population of approximately 12 million. Zimmerman et al. [4] provide representative data for Switzerland and report prevalence by regional and population clusters. Variations exist across all levels of analysis.

These findings highlight the need to gather and analyze representative data at national and local levels in order to develop programmes di-
rected at the nutritional needs of individual areas. Further, programmes targeted at reducing underweight must be capable of addressing overweight as well. A balance needs to be struck between alleviation of overweight and underweight, without pushing the weight pendulum too far in either direction. Care must be taken to avoid increasing the likelihood of overweight in areas where underweight is prevalent. Public health policies must improve the food supply (in food-insecure households) and provide health education which also addresses the promotion of healthy behaviour such as increased intake of fruit and vegetables and the incorporation of physical activity as part of a healthy lifestyle. US food supplement programmes established to fight under-nutrition may have contributed to the US obesity epidemic through their inability to provide healthy dietary choices (particularly fresh fruit and vegetables) and nutritional education [6]. It may also be helpful to examine differences in causal factors related to nutritional status in individual areas. Solutions will vary according to the needs found.

There is a need to examine nutritional status in younger children. What age of childhood is the most important focus for programmes directed at the prevention of underweight and obesity? Zimmerman et al. [4] and Öner et al. [3] have sampled children beginning at ages 6 and 12 respectively. In both studies worrying rates of underweight, overweight and obesity were reported even among the youngest children sampled. Patterns of nutritional status may already be firmly established by these ages. Factors such as age and timing of the second adiposity rebound have been shown to be strong predictors of future overweight and obesity [7, 8].

Because BMI tables are only used for children aged 2 years and over, the use of anthropometry for epidemiological assessment of the nutritional status of children under 2 may require different methods. Distributions of height-for-age and weight-for-height percentiles are most appropriate when describing the nutritional status of relatively well-nourished children, whereas in relatively undernourished populations comparison of height-for-age against weight-for-height is recommended [9]. In clinical settings the percent of ideal body weight for height-age is commonly used to classify nutritional status for very young children [10, 11]. These useful measures can be applied in performing the very important act of monitoring the nutritional status of children under 2. Health habits are learned early in childhood and interventions aimed at modifying health habits are more likely to succeed when implemented at an early age [12, 13]. Information on the nutritional status of preschool children can be used to develop programmes aimed at improving food availability and dietary and physical activity habits starting at young ages.

It has been reported that the use of various height-weight indices to assess body fat may result in discrepancies in the classification of nutritional status [14]. There is controversy as to whether increases in children's BMI reflect an increase in body fat rather than a large frame size or well-developed muscle mass [15–17]. Several reports support the use of BMI as a measure of adiposity in children and adolescents [17, 18]. By measuring body fat using skin fold thickness, Zimmerman et al. confirmed a highly significant relationship between BMI and percentage body fat [4]. However, in clinical settings it is important to obtain the BMI and also apply other measurements which may help to identify major contributors to increased BMI, such as large frame size or developed muscle mass leading to a larger than expected “healthy” BMI.

Ensuring that children grow up in safe and healthy environments is a worthy goal. Building on evaluations of child nutritional status in developing periodic national nutritional surveillance programmes will contribute substantially to the planning and evaluation processes required by such endeavours. We wish you well.

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