example, as a good quality practice, sample storage and test performance should be carried out at same temperature throughout the year.

'Screening window', defined as the period between the development of the abnormal test result of NBS and development of symptoms in the infant, may vary from disorder to disorder. It will be most ideal to collect sample on fourth day of life. Samples can be collected from home by trained nurse/phlebotomist. There are many riders associated with interpretation of blood samples collected in the first few days of life; often a repeat testing may be warranted. This not only increases the costs but can also lead to false alarm and cause panic in parents and families. However, defining age-appropriate cut-offs – as in the study in this issue of *Indian Pediatrics* [6] – may circumvent the problem of loss to follow-up. It is important to define criteria for permanent and transient hypothyroidism and exclude cases of transient hypothyroidism [7]. Workshops and pilot studies are required for standardization of diagnostic criteria for congenital hypothyroidism.

Screening and surveillance should go hand in hand. Newborn screening model should comprise screening, follow-up, diagnosis, management, and education. Teaching guide for parents should be made available as public awareness of these disorders is very poor in India. Success of any newborn screening program depends on coordination of efforts of many stakeholders.

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Post-discharge Growth of Extremely Low Birth Weight Neonates

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Rapid advances in perinatal and neonatal care in the last two decades have led to a dramatic increase in the survival of extremely low birth weight (ELBW; birth weight <1000 g) neonates.

This assurance of survival has now shifted the main focus of concern from short term outcome to the adequacy of growth and development in later life. Extra-uterine growth failure is extremely common in this group of infants; weight at discharge of almost 90% is below 10th percentile of reference value, despite planned nutritional management, including total parenteral nutrition and trophic feedings in the first few days of life [1]. There is paucity of literature regarding the long-term growth trajectory of ELBW infants. The usual norms for the growth of infants with higher birth weight may not be applicable to this group. Moreover, growth in the small for gestational age (SGA) ELBW infants is characterized by great heterogeneity with remarkable variability [2].

Nutrition of the ELBW infants after hospital discharge is an area of growing interest. Though the goal of nutrition is to maintain the rate of growth and the body composition comparable to that of a normal fetus of the same postmenstrual age [3], both high and low nutrient intakes as well as fast and slow rates of growth have been shown to have some long-term adverse effects. On one hand, studies have shown that inadequate early nutrition at a vulnerable period of brain development may exert an adverse

influence on long-term neurodevelopment by causing a reduction in the number of brain cells leading to deficits in behavior, learning, and memory. Both quantity as well as the quality of enteral nutrition provided during the early days of life may influence ultimate neurodevelopment and intelligence quotients in childhood [4]. On the other hand, concerns have been expressed that aggressive nutritional support causing accelerated growth rates and adiposity in infancy and early childhood may be associated with obesity and metabolic syndrome, including increased risk for cardiovascular disease and diabetes in later life [5,6]. Till date, there are no consensus guidelines regarding the ideal dietary requirement for ELBW infants which will lead to optimum somatic growth without producing any metabolic stress.

In the current issue of *Indian Pediatrics*, Mukhopadhyay, *et al.* [7] described longitudinal growth and post-discharge mortality and morbidities in a cohort of 149 ELBW neonates at corrected age of 2 years from a tertiary care teaching hospital of India. In the study group, 51 (64.5%) infants were SGA indicating high rate of intrauterine growth restriction in Indian neonates, probably secondary to maternal malnutrition or placental insufficiency. A high mortality rate (47%) and high readmission rate (44%) during first year of life were other notable features. Only less than half of survivors could be followed up till the corrected age of 24 months showing difficulties associated with regular follow-up. At corrected age of 2 years, significant growth restriction was observed in all gestational age groups. However, no difference was observed between the catch-up growth patterns of SGA and their appropriate for gestational age (AGA) counterparts. Inclusion of the details of average daily calorie intake, feeding pattern and nutritional supplementation in the current study group would have been more informative. Inclusion of data on the mean weight and Z score at birth would have made the comparison with the later values easier.

The quality of neonatal care has improved in India but there is a wide variation in outcome across the country. However, there is a paucity of published information regarding this aspect; this article is thus timely. Earlier, Bhargava, *et al.* [8] and Bavdekar, *et al.* [9] reported long term growth of low birth weight infants. Recently, Modi, *et al.* [10] reported significantly lower growth at one year in a cohort of very low birth weight infants. Long term follow-up studies are usually lacking in India. Poor health tracking system and economic constraints of the parents are the major limiting factors for regular follow-up.

ELBW infants are a major group of neonates admitted in any neonatal intensive care unit (NICU) requiring advanced care, manpower and hospital resources. This study draws our attention not only towards the high mortality and morbidity but also towards poor long term growth in this vulnerable population. There is an urgent need of upgradation of our NICUs with a uniform management protocol all over the country. Along with provision of immediate postnatal nutrition, emphasis should also be given on regular pre- and post-discharge counseling, ensuring adequate intake of macro- and micronutrients, regular monitoring of growth and appropriate timely intervention to ensure better growth and long term outcome. There should be a better patient tracking system to ensure regular follow-up making the pre- and post-discharge nutritional management a continuum. Similar longitudinal studies from different places of India should be encouraged to optimize the neonatal care.

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