

## US \$1 million donation to boost IAEA efforts on child nutrition



(Photo: IAEA)

The IAEA has received a grant of over US\$ 1 million from the Bill and Melinda Gates Foundation to support its work on combating malnutrition in children. The funding, announced in late September 2016, will cover the cost of research using stable isotope and related techniques to collect data on healthy growth and body composition in infants, mainly in low and middle income countries. The results will contribute to Member States' fight against both childhood obesity and undernutrition.

The funding is the first major donation from a non-State donor to the IAEA in recent years. The IAEA is enhancing its efforts to promote partnerships and attract funding from private donors.

“Fighting malnutrition is a great example of the use of nuclear techniques in support of development objectives,” said IAEA Deputy Director General and Head of the Department of Nuclear Sciences and Applications Aldo Malavasi. “The funding provided by the Gates Foundation will enable the IAEA and its partners to accelerate research in this area.”

The grant is intended to contribute to the IAEA coordinated research project (CRP) ‘Longitudinal Measures of Body Composition of Healthy

Infants and Young Children up to Two Years of Age Using Stable Isotope Techniques’. This project will generate reference data on body composition changes in healthy children in order to better understand the effects of low birth weight, wasting and stunting on body composition.

The above-mentioned CRP is following infants from birth to 12 months of age and is collecting data on body composition, assessed using the deuterium dilution technique. The deuterium dilution technique involves measuring a person’s saliva and/or urine just before they consume a dose of deuterium labelled water and repeating the process three to five hours later. The increased level of deuterium shows in the person’s saliva and urine samples. Scientists can calculate the percentage of body fat-free mass based on the extent of the dilution of the deuterium in the body. The person’s pre-dose samples of urine or saliva are compared with the post-dose samples to calculate fat-free mass and ultimately the amount of fat in the body.

These data complement information on weight, length, skinfold thickness and mid-upper arm circumference, as well as on infant feeding practices and health, when the children are three, six, nine and 12 months old.

The grant from the Bill and Melinda Gates Foundation will allow for follow-up of infants in Brazil, South Africa and Sri Lanka at 18 and 24 months of age. In addition, it will support the study of changes in body composition in infants from birth to six months in Australia, India and South Africa. The overall aim is to collect information on children from various ethnic groups around the world. The Foundation is supporting dozens of projects that intersect with and complement IAEA efforts to target and better understand the causes of malnutrition.

Appropriate nutrition in the first 1000 days — from conception to an infant’s second birthday — is essential for optimum growth and brain development; inappropriate nutrition can increase the risk of ill health in later life, said Christine Slater, a nutrition specialist at the IAEA.

Only recording the height and weight of infants, as traditionally done, does not capture the quality of body growth. Equally important is monitoring body composition, which includes assessing the relative amounts of fat and lean, or fat-free, tissue. “Two individuals can have the same weight and height but differ markedly in the proportions of fat and lean tissue and hence risk of developing non-communicable diseases in later life,” Slater added. Higher percentage of fat tissue carries an increased risk of disease.

The data records collated will be used to construct charts on changes in body composition as children grow. These can be used as reference data for the evaluation of nutritional interventions, such as education campaigns for mothers on appropriate complementary feeding practices or nutrition supplementation for the prevention and treatment of malnutrition in young children.

— *By Aabha Dixit*