

Fighting Malnutrition

by Louise Potterton

Alan Jackson explains how nuclear technologies are helping scientists to understand, treat and prevent malnutrition wherever this scourge might be afflicting children.

Question: What is the impact of malnutrition on the world's young population?

Alan Jackson: According to the latest estimates, something like 10 million children under the age of five years die every year. That is one every three or four seconds. Most of them seem to die of either infectious diseases, such as malaria, HIV or respiratory diseases. But what is less clearly understood is that more than half of those children also have malnutrition, often severe malnutrition, when they die.

A great deal of attention is given to how to treat the infections afflicting these children, much less attention is paid to how to treat their poor nutrition. Obviously, if you don't treat their poor nutrition in the first place they are more likely to get infections. In the second place, once they get an infection it is much harder for standard medications to work and make them better if malnutrition is also a factor.

If the increased attention to managing HIV, tuberculosis and malaria, is really to have an impact, there has to be more attention given to making sure that the children are better nourished, so that they also have the resistance to not get the same problems over again.

Q: What exactly is malnutrition? Is it the case of not getting enough food or getting the wrong type of food or perhaps even getting too much food?

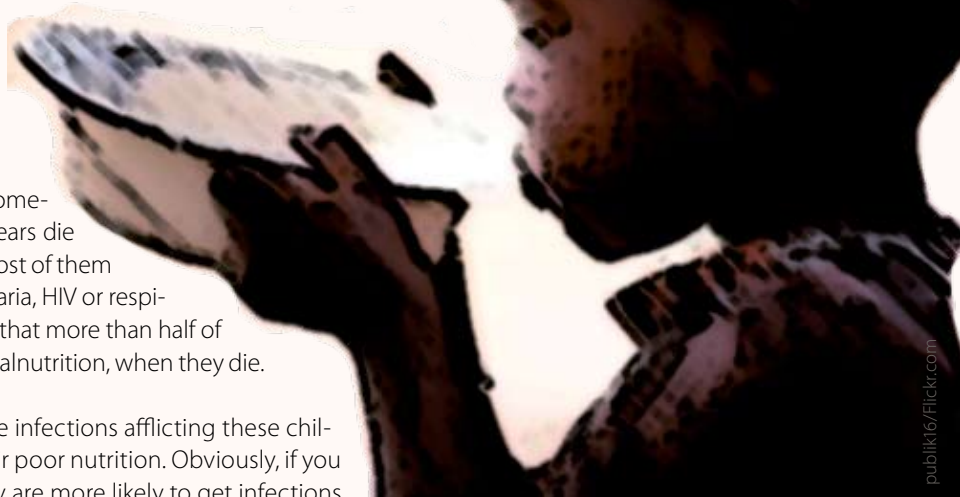
AL: Well, there used to be a lot of confusion around what one called malnutrition and clearly people have malnutrition in different ways. A particular area that we are interested in is children who are underweight because they either haven't had enough food or they haven't had sufficient food of the right quality — in other words, they have had poor quality food.

The more obvious form of malnutrition in many parts of the developed world is being overweight or obese. But again, there is a sense that much is also due to poor quality food, maybe too much poor quality food. So whether the issue is children being overweight or underweight, the question of food quality is of importance.

Q: Where in the world is malnutrition most prevalent and do you know why?

AL: There is good news regarding malnutrition and undernourished children. The good news is that in many parts of the world over the last 15 years or so, there have been significant improvements and there are fewer children who are undernourished. In fact there is concern about the children becoming over nourished.

But there are parts of the world where we still have great concern, particularly sub Saharan Africa, where the proportion of children under five who are undernourished is not going down — in some areas it is actually going up. In other parts of the world, such as Southeast Asia, the proportion of children who are undernourished may not be as high, but because the population is so large, the numbers of malnourished children are really quite considerable. So the two areas where we have to focus most strongly are in sub Saharan Africa and those parts



Nearly 10 million children under the age of five years die every year...more than half of those children have malnutrition, often severe malnutrition, when they die.

International Malnutrition Task Force

The International Malnutrition Task Force (IMTF) is an inter-agency advisory and advocacy group on malnutrition that has a two fold purpose:

❶ To raise the profile of malnutrition: Malnutrition contributes to 60% of deaths of children under 5, so reducing malnutrition is vital in child survival strategies. Although there are as many deaths from the effects of malnutrition as from AIDS, tuberculosis and malaria, malnutrition currently fails to receive the attention

it warrants in health policies and resource allocation.

❷ To build capacity to prevent and treat malnutrition: In hospitals in developing countries, severely malnourished children comprise a significant proportion of paediatric deaths. Most deaths can be prevented by following treatment guidelines. Community-based treatment can reduce the burden of care on hospitals, shorten in-patient treatment and benefit children with moderate malnutrition.

An integrated system of prevention, timely referral, correct inpatient treatment and effective community-based care will improve child survival and development and build health worker capacity and strengthen health systems.

IMTF was launched at the International Union of Nutritional Sciences (IUNS) 18th International Congress of Nutrition held in Durban in September 2005 by the IUNS President Professor Ricardo Uauy.

For more information, visit www.imtf.org

of Southeast Asia where the problem is common.

Q: The IAEA is involved in the International Malnutrition Task Force (IMTF). What role does nuclear science play in the aims of your organization?

AL: One can look at this historically. We know what to do in terms of treating malnourished children because 40 or 50 years ago research was done to help us to understand the problems that were taking place and what was happening. Some important parts of that research were carried out using nuclear science.

One of the challenges that we have, is to have a better understanding of how children in the different parts of the world respond to different diets. How their bodies respond, how well they grow and how they might grow better if they were given different diets.

The IAEA is contributing directly to a better understanding of the "quality of growth" during early life by providing technical expertise in the use of nuclear techniques, in particular stable (non radioactive) isotope technique, to assess changes in body composition i.e., body fat versus muscle mass, as a

response to different diets. These techniques thus add value to conventional methods by providing more specific information.

Q: A lot of work lies ahead, especially at the moment as we are going through a global food crisis. What will the future role of nuclear science be in your field?

AL: I think the first point to make clear is that when we talk about nuclear science some might have horrible visions of nasty things happening. The nuclear science that we use in nutrition is perfectly safe, harmless and doesn't introduce any risk to anybody. So it is a very safe way of managing our business.

The second thing is that it is possible to use nuclear science to follow exactly what happens to the food in the body: how the body uses it, and how the body uses food to grow. In terms of children growing and developing, it is possible to trace this process, and understand it better without doing anything particularly invasive, only by being ingenious about how to collect that information.


One of the simple things that we wanted to do for a long time is to know how much water there is in the body.

Most of the body is made out of water and you can measure it by using the appropriate isotopic tools. For a long time those measurements required quite sophisticated technology, but the IAEA has been involved in introducing simpler technology to different parts of Africa, Latin America and Southeast Asia. They have been able to get us good information relatively simply. What we found from that information was that although all people are fundamentally the same, there are important differences from place to place, which need to be taken into account when looking for solutions to problems. ☼

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