

Feature Story /August 2003

## ***Ridding the World of Malnutrition*** **Interview with Michael Golden, Nutrition Expert**

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*Irish Professor Michael Golden, a renowned nutritionist, has dedicated his life to the study of malnutrition. This year to tackle the deteriorating nutritional crisis, UNICEF brought Professor Golden and his partner Dr. Yvonne Grellety to Ethiopia to assist in standardising nationally a protocol on the treatment of acute malnutrition. Their visits in February and June were instrumental in putting nutrition firmly on the public health agenda.*



*An expert in clinical nutrition, Professor Golden convinced many here in Ethiopia of the importance of better understanding the causes and complications of malnutrition. In a country, which despite a chronic nutrition problem - still does not have a school for nutrition, and yet to establish clinical nutritional research at the major Universities, Professor Golden's work is seeking to better link the science and the practise of treating malnutrition.*

### **Can you tell us how you became interested in nutrition?**

I started off in the 1960s and early 1970s in gastroenterology and I realised many of my patients were actually suffering from a nutritional problem. One particular patient, a young 32 year old lady, eventually died, so I resigned and went to work at the Department of Human Nutrition at the London School of Hygiene and Tropical Medicine. After a year there, I moved to the Tropical Metabolism research Unity in Jamaica, where I remained for 17 years treating and investigating most aspects of nutritional illness. I have since worked all over the world on better perfecting the treatment of acute malnutrition and adapting the treatment to local environments.

### **Can you outline the treatment of acute severe malnutrition?**

When the children first arrive at a feeding centre you give them some sugar water. They have been travelling for ages, they are hot, they are thirsty and they might be hyperglycemic. Then you weigh them according to their height and see if they are appropriate for admission. Then for the next 21 days you give them a very special diet, a therapeutic diet. We give this 6 to 8 times a day and that diet has the necessary medicines in it to repair the cells and the metabolic machinery so that they can absorb large amounts of food.

Once they get back their appetite, we feed them large amounts of another type of diet that has everything in it so they can gain weight rapidly. We also treat infections, we give Vitamin A and folic acid, and we make sure they are not anaemic and we treat malaria. All the other diseases they are likely to have because they are malnourished, we treat them.

The analogy would be making cars individually and putting them on a production line for a Henry Ford. What we are doing now has made it simple and more cost effective. Each person has their job to do, each person knows what to do, and they know how to do it extremely well, so large numbers of children can be treated very satisfactorily with these protocols in a sort of production line. If you are treating each individual and making up the diets for that child, then it requires very highly skilled staff and it takes a lot of staff to treat one child. It is almost like an industrial revolution for the malnourished child.

### **After the 21 day treatment outlined in the Protocol does the child recover completely?**

Yes the child walks away fully recovered. Absolutely normal, smiling absolutely lovely. They are happy; they are running around, clapping and singing. They come completely back to normal.

With the old style and thinking, there was 50 percent mortality in the therapeutic feeding centres. With modern refinements to the protocol we are getting 2-3 percent mortality and if it is higher than that I still get very upset because that is still three children who are dead out of a 100. I want it to be one percent and then 0.1 percent and then death from malnutrition to be a rare event rather than a common event.

### **Why do you think the protocol works so well?**

It is an amalgamation of all things. It is the product. It is a very simple protocol so much of the things we are saying is don't do what was done in the past. Don't put up drips. Don't give too much oral dehydration solution, don't misdiagnose these children as dehydrated when they are not, don't give blood transfusions when they don't need it. So a lot of advice we are giving is negative advice. Don't do what you were doing before but do these very simple things and that is effective and working.

### **How important is the protocol standardised and part of the health system?**

It is enormously important because we have had therapeutic anarchy up to now. Interestingly there is very little therapeutic imperialism because malnutrition is not a problem of Europe and North America. The rich countries haven't been imposing on us like they do with other illnesses. And this is a problem because they often set our health priorities. What we teach in medical schools, whether the exams the Ethiopians sit in medical school are internationally recognised, that's determined by the rich countries. If you look at most curriculum, you see they deal with the diseases of rich countries because that is where all the money is and that is where people want to go and work. However if everyone is treating malnutrition in the same way, we can strengthen our efforts. We can collect national data, we can follow trends, we can have movement of staff from one institution to another, and we can teach it in medical and nursing schools so that with the high turnover of staff you don't have to begin with in service training. Creating best practise is very important.

### **Malnutrition is a disease. What are the dangers of misdiagnosis on a child and how do you address that in the protocol?**

They start off starving but having had lack of food over a long time, they then have metabolic adaptations and can't resist diseases in the environment, so for example their intestines get overgrown with bacteria, their liver gets infected and you get all sorts of pathological affects. So by the time they are severely malnourished they are no longer just a hungry child, actually they have usually lost their appetite and are blown up with oedema and got acute pathologies which are as lethal or more lethal than meningitis or measles. Indeed malnutrition underlies the death of most children. For example, when I was a child I had measles, an illness with a few skin lesions, I was quite happy as I got time off school. If you have a similar child in Africa who gets measles they die, it is a lethal illness. What is the difference? If you are well nourished and get a minor illness you get better. If you malnourished and you get measles, you die. What do you die from? Do you die from measles or the underlying malnutrition? That is the key point. If you have HIV, and that causes lots of metabolic disease and you get measles and die, people will write down you die from HIV and not from the measles, whereas with malnutrition, they will write down you died from the measles. So it's a perception problem and when you examine it you see that more than half deaths are due to malnutrition, which people have effectively ignored.

### **What is the difference between chronic and acute malnutrition?**

Chronic malnutrition is when you have not grown in height and it takes a long time to develop. For example if you have a two-year-old, he will need to be malnourished for at least a year before you recognise him as being malnourished. During that year he has been developing slowly. Play, interaction, learning things, stimulation, talking, trying things out, fighting with brothers and sisters, beating drums and toys, are

incredibly important. Children learn by doing, by seeing and by interacting. If you are lying there malnourished, you don't have the energy to do anything, you don't learn. If you haven't been using your arms or legs, or your speech, or sight or your smell, then your brain is not set up to receive those stimuli. And you become mentally underdeveloped, and you never develop to your full potential. There is a window of time for the small child, if they miss that from chronic malnutrition, then they will never develop the brainpower they should.

### **How important is the science versus the practise in successfully treating malnutrition?**

It is enormously important to have the best mix of both. You have to have a scientific basis to what you do and you have to do it and evaluate it. For example, scientists, who are working on malnourished rats, don't know if their research has any relationship with reality. They might be looking at epi-phenomena, and filling scientific journals but it might not be addressing the key points that are causing death and trouble. Is the scientist looking at an epi-phenomenon or a really important finding? And if you apply it on mass to malnourished children does it work or not? On other hand the people in the field see children dying but don't necessarily know what to do about it, so the two has really got to back each other up.

The division between science and practise in the study of nutrition has been neglected. Partly because the scientists have been looking at other things, partly because we thought, quite wrongly, that we all knew what we needed to know about malnutrition, and all we had to do was apply what we know. To say that malnutrition is just the results of poverty, and all we need is political change is not enough. Of course all those have an important impact on malnutrition but that is not to say we shouldn't be studying the disease and trying to treat it better, just as prevention is important in HIV AIDS that does not stop us from treating patients that are sick.

### **Why do you think nutrition has been ignored when in Ethiopia it is such a serious problem?**

Partly it is a living subject. I am not teaching what I taught ten years ago. We know a lot more. The protocol is much better, the treatment is much better and successful. It is like everything else it advances, but malnutrition research has been advancing very slowly. The reason it is advancing slowly is that there are very few people working on it. If I held an international meeting on HIV, 25,000 scientists from around the world would bring abstracts because they are actively working on it and they've got the funds and recognition for what they are doing. If I held a meeting on malnutrition, I might get five abstracts. And that is the difference. Five people working on it don't progress the science as much as 25,000 people working on it.

### **Why are we seeing severe malnutrition in certain places and not so severe cases in other parts of the country?**

I don't have all the answers. This is a living science and it is something we don't understand well. I think it has a lot to do with all these different micronutrients, which are often ignored. And because they haven't been thought of as important, a lot of what we have done to prevent malnutrition hasn't worked. So if we take chronic malnutrition, in which 52 %of Ethiopians are stunted and their development has been retarded, we've had all sorts of services, but very little affect on the growth rates. We just give them wheat, and it doesn't make a difference. My advice is diet diversity. Sell part of your crop and then buy green leafy vegetables and tomatoes. And also for young children maximum rates of malnutrition occur between 6 to 36 months, mainly 18 months to two years. This is precisely when mothers are weaning, why do babies get malnourished. Mothers tend to give a traditional weaning food a thin gruel and very little else. We have to encourage them to give the diversity. There are many very simple things families can do to maximise their chances of getting the right nutritional inputs.

### **Malnutrition can often be passed from mother to child. How do we stop this cycle of malnutrition?**

We know there are plenty of malnourished women who don't have a good diet. They then have a poor pregnancy and give birth to a low birth weight baby. That child gets put onto a poor diet, many of them will die, while the survivors grow up to be malnourished, and have a malnourished child and then you get this

intergenerational cycle going on for years and year and years. It is almost as if you are born to poverty and you can't get out of it. The malnutrition leads to poverty because of the poor mental as well as physical development; you can't get a good job, so you don't experience social mobility.

I think the major effort should be in the adolescent girl, the pre-pregnant girl. The average age of pregnancy is 16 in Ethiopia and we know many girls even younger are getting pregnant. She has got to be in a good nutritional status before she gets pregnant, so that the whole duration of pregnancy, the foetus growing inside of her has a chance to become a normal child. So I believe the adolescent girl is where we should start, but that also is a neglected area of society. We pay attention to the young child and to the adult but not to the adolescent girl.

**What would you like to see in this country if you came back in a year or so?**

We have started a process and the process is going. We are learning about malnutrition, we are integrating the services into the health system and I myself have trained 350 health professionals not just in the protocol but also the pathologies and the concepts behind it. So what I would like to see next is a department of clinical nutrition in one of the main universities actively researching these problems. Maybe five departments one for each university, and academics and students are actively working on it. Ethiopians taking charge and actually studying their own problem because Europe and North America are not going to study, they are not going to make these advances. If Ethiopians want to look after their own children, then everyone has to be involved. There is no better an investment a country can make, as Winston Churchill said as put food into the mouths of babies. What food, how much food, and when are what researchers in Ethiopia should discover and find out. I would love to come back and be completely redundant and smile like an old white bearded man and see Ethiopia is managing all by themselves.