

VITAMIN & MINERAL DEFICIENCY

Some nations are already acting to prevent large-scale losses of national health, brainpower, energy and productivity. Others are still thinking about it.

A damage assessment report for CHINA

LEADERSHIP BRIEFING

THE PROBLEM

Vitamin and mineral deficiency (VM deficiency) is now known to be a more important problem than anyone ever imagined.

For decades the lack of key vitamins and minerals, also known as micronutrients, has been known to cause the anaemia, cretinism, blindness, and goitre that afflict many millions of the world's people. But recent research has shown that this is only the tip of a very large iceberg.

It is now known that even moderate levels of deficiency, with no clinical symptoms, can have devastating consequences. It has also become clear that 'moderate' VM deficiency is so common, affecting perhaps a third of the world's people, that it threatens the energies, intellects, and productivity of nations.

Some examples of what has been learnt about VM deficiency in the last decade:-

- It is the world's leading cause of mental impairment, lowering the intellectual capacity of nations.
- It compromises immune systems, leading to the deaths of approximately one million young children a year - and poor health and growth for many millions more.
- It is responsible for the deaths of approximately 60,000 women a year in childbirth.
- It causes an estimated 250,000 serious birth defects every year.
- It is associated with a significant increase in deaths from heart disease and stroke.
- It lowers the productivity of workforces - with estimated losses of up to 2% of GDP.

"Vitamin and mineral deficiencies," says the World Bank "impose high economic costs on virtually every developing nation."

All this means that the challenge is no longer one of identifying and treating those with symptoms of vitamin and mineral deficiency. The task today is to reach out to protect whole populations.

THE SOLUTION

VM deficiency has been largely brought under control in the industrialised nations. It could now be controlled world-wide by means that are tried and tested, available and affordable:-

FORTIFYING staple foods like flour, sugar, and salt with vitamins and minerals. Fortified foods have long protected people in Europe and North America. It is now time that they did the same for the developing world.

SUPPLEMENTING diets with low-cost capsules, syrups, or tablets in order to get vitamins and minerals to women of child-bearing age and to the developing minds and bodies of young children.

EDUCATING communities about the changes in diet needed to increase vitamin and mineral intake.

All three approaches are necessary and need to be pursued together. The cost can be as little as a few cents per person per year. That is why the World Bank believes that "Probably no other technology available today offers as large an opportunity to improve lives and accelerate development at such low cost and in such a short time."

The countries that have controlled VM deficiency did so with less knowledge and technology than is available today. What is needed now is leadership to deploy known solutions on the same scale as the known problems. In particular, defeating VM deficiency depends on national alliances of government, food companies, universities and researchers, health and education professionals, and civil society leaders.

SOME MOVING RAPIDLY

Damage assessment reports are being issued for 80 individual nations. Some of those nations are now moving rapidly against VM deficiency:-

- 28 nations in the developing world have already passed the 70% mark for salt iodisation.
- 41 developing countries are also reaching 70% or more of their young children with vitamin A supplements.
- 49 nations, including the USA and Canada, now require the fortification of flour with iron.
- 38 nations, again including the USA and Canada, are fortifying flour with folic acid.

For once
we are
confronted
with a global
problem
for which
there are
available and
affordable
solutions

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for further information:
www.micronutrient.org

VM deficiency: a damage report for CHINA

Data on VM deficiency are imperfect and the seriousness of the problem demands better monitoring. Nonetheless, estimates of its overall impact are essential for national decision-making. Using best available data from a variety of sources,* impact calculations have been made for 87 nations.

The damage being inflicted by VM deficiency on the people and the nation of China has been estimated as follows:

- Approximately 40% to 60% of the nation's 6-to-24 month-old children at risk of disrupted brain development.
Cause: iron deficiency
- Almost 2 million Chinese babies born each year with intellectual impairment caused by iodine deficiency in pregnancy. In countries where the goitre rate is 10% or more, as in China, more moderate forms of iodine deficiency are estimated to be so widespread as to lower the average national IQ by as much as 10 to 15 percentage points.
- The deaths of over 20,000 children each year from increased susceptibility to infection. Cause: vitamin A deficiency
- Approximately 12% of China's children growing up with lowered immunity, leading to frequent ill health and poor growth.
Cause: vitamin A deficiency
- The deaths of up to 1,000 young Chinese women every year in pregnancy and childbirth. Cause: severe iron deficiency anaemia
- Approximately 100,000 Chinese infants a year at increased risk of death in the period immediately before or after birth.
Cause: severe anaemia in mothers
- Approximately 35,000 to 40,000 severe birth defects annually, including infantile paralysis. Cause: folate deficiency
- Suspected increase in deaths from heart disease and stroke.
Cause: folate deficiency
- Lowered productivity of adult work-force. Current loss to China is estimated at 0.7% of GDP, and future loss is as high as 3.8% of GDP¹.
Cause: iron and iodine deficiency
- Significant but unmeasured burden on health services, educational systems, and on families caring for children left disabled or mentally impaired.

VM DEFICIENCY PROTECTION AUDIT FOR CHINA

SALT IODISATION

More than 90% of China's new-borns are currently being protected to some degree against mental impairment by adding iodine to household salt. The total goitre rate has been lowered from over 50% to about 10% in the last decade, leading to economic gain of 0.2% of GDP

VITAMIN A SUPPLEMENTS

No data available for percentage of China's under-fives receiving at least one vitamin A capsule a year. Prevalence of vitamin A deficiency in children under 6 is estimated at 12%. Vitamin A programmes in China are estimated (1998) to be saving the lives of approximately 70,000 children a year and preventing a similar number of cases of permanent blindness.

IRON SUPPLEMENTS

Coverage with iron supplements unknown.

IRON FORTIFICATION

China is not among the 49 countries in the world that require flour to be fortified with iron. Nor is it among the 38 countries that require the fortification of wheat flour with folic acid (which could prevent an estimated 15,000 to 20,000 severe birth defects in China each year).

Trial fortification of wheat flour with iron, folic acid, zinc and B vitamins began in 2002. And, iron fortified soy sauce from 12 officially designated factories has been available in the market since 2002. An October 2003 grant from the Global Alliance for Improved Nutrition (GAIN) will help finance a programme to bring fortified wheat flour to almost 60 million people and fortified soy sauce to 129 million within 5 years.

¹ This is present value loss over the coming 10 years.

"It is no longer a question of treating severe deficiency in individuals. It is a question of reaching out to whole populations to protect them against the devastating consequences of even moderate forms of vitamin and mineral deficiency."

Carol Bellamy, Executive Director, UNICEF

"Fortifying foods with basic vitamins and minerals is both essential and affordable."

Bill Gates, co-founder, Bill and Melinda Gates Foundation

"For nearly 40 years, food fortification has protected the populations of the United States, Canada, and many other countries. It is long past the time when the same protection was available to the peoples of the developing world."

Nevin Scrimshaw, President, International Nutrition Foundation

"The case for the elimination of vitamin and mineral deficiency is compelling beyond description. The return on investment is without equal."

Rolf Carriere, Executive Director, Global Alliance for Improved Nutrition

"This is a vital economic and humanitarian cause and we in the food industry are uniquely positioned to help progress."

Brendan Stewart, Chairman, Australian Wheat Board

"The cost is minuscule. The benefit enormous. We have acted on this issue both because it is right - and because it presents our business in a positive light."

Philip Punarma, Chief Commercial Officer, Bogosari Flour Mills, Indonesia

"Vitamin and mineral deficiencies deprive 1 billion people world-wide of their intellect, strength and vitality."

The World Bank

"The road to regional health and life-long productivity cannot be passed without removing the obstacle of vitamin and mineral deficiency."

Joseph Hunt, Health and Nutrition Adviser, Asian Development Bank

"We now have the knowledge and the solutions that can protect the muscles, brains, and blood of whole populations at an extraordinarily low cost."

Venkatesh Mannar, President, Micronutrient Initiative

A MESSAGE TO LEADERSHIP

This damage assessment report is being presented to national political leaders, to major print and broadcast media, to food industry CEOs, and to leading figures in the worlds of health, education, and consumer affairs.

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VM DEFICIENCY - THE BREAKDOWN

Iodine deficiency	is the world's leading cause of preventable mental impairment. It significantly reduces mental capacity and work potential. In pregnancy, it causes babies to be born dead, physically disabled, or with severe brain damage.
Vitamin A deficiency	damages immune systems so that illness is more common and more severe, increasing under-five death rates by up to a third.
Iron deficiency	reduces activity levels and productivity in whole populations. In children 6 to 24 months, it disrupts the normal development of the brain. Effects on children include stunting, sickness, poor school attendance, and lower levels of concentration and memory. Severe anaemia also causes higher death rates in childbirth.
Folate deficiency	before and during early pregnancy is a major cause of serious birth defects. In adults it is associated with a higher rate of deaths from heart disease and stroke.
Zinc deficiency	can restrict physical growth, impair mental ability, damage immune systems, and boost diseases like malaria, diarrhoea, and respiratory infections. It affects probably a third of the world's population, in some degree, and is thought to be responsible for almost 1 million deaths a year world-wide.
A problem not only for the poor.	Iron deficiency still affects up to 10% of the population in developed nations. Iodine deficiency remains a matter of concern in countries like Germany and Spain. Folate deficiency is still causing birth defects in Europe, and in Australia and New Zealand, where flour is not fortified with folic acid. World-wide, VM deficiency is to be found not only in poor and remote rural areas but in the middle class suburbs of capital cities.

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¹ This is present value loss over the coming 10 years.