

# WHO-Facts Sheet

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Kuwait Medical Journal 2005, 37 (1):71-75

## 1. ELIMINATING IODINE DEFICIENCY WORLDWIDE IS WITHIN REACH

The number of countries where iodine deficiency is a public health problem has halved over the past decade, says the World Health Organization (WHO) in a new global report on iodine status. Iodine deficiency is a significant cause of mental developmental problems in children. The main strategy - universal salt iodization - has been successful. However, 54 countries are still iodine-deficient and sustained efforts are required to strengthen salt iodization programs, according to the report, Iodine status worldwide.

"Iodine deficiency is a major threat to the health and development of people worldwide, particularly preschool children and pregnant women," said Dr LEE Jong-wook, WHO Director-General. "This report shows that the goal of eliminating iodine deficiency around the world is within reach."

Deficiency results when the soil is poor in iodine, causing a low concentration in food products and insufficient iodine intake in the population. When iodine requirements are not met, the thyroid may no longer be able to synthesize sufficient amounts of thyroid hormone. The resulting low-level of thyroid hormones in the blood is the principal factor responsible for the series of functional and developmental abnormalities, collectively referred to as iodine deficiency disorders.

Cretinism is the most extreme manifestation of iodine deficiency, but the primary motivation behind the current worldwide drive to eliminate iodine deficiency is the more subtle degree of mental and neurological impairment leading to poor school performance, reduced intellectual

ability and impaired work capacity.

WHO recommends universal salt iodization, namely the use of iodized salt for human and animal consumption, to prevent and control iodine deficiency. This strategy has been implemented in most countries where iodine deficiency is a public health problem under the leadership of UNICEF and WHO. Globally, UNICEF estimates that 66% of households now have access to iodized salt.

The new WHO report estimates the iodine status of the population worldwide and the progress made by each country over the last decade towards achieving the goal of eliminating iodine deficiency. It is based on the WHO Global Database on Iodine Deficiency, which compiles data on urinary iodine concentration and the prevalence of goitre (enlarged thyroid gland) and monitors the magnitude, severity and distribution of iodine deficiency worldwide. The database is maintained thanks to the financial support of UNICEF.

The number of countries where iodine deficiency is a public health problem was reduced to 54 in 2003, from 110 in 1993, showing the effectiveness of the universal salt iodization strategy, says WHO. Of the 126 countries for which data was available in 2003, iodine intake is now adequate in 43. Of the 54 iodine-deficient countries, 40 are mildly iodine deficient and 14 moderately or even severely iodine deficient. Salt-iodization programmes need to be further strengthened in these countries. In 29 countries, iodine intake was slightly too high or even excessive.

Daily iodine intake above a safe level may result in iodine-induced thyroid dysfunction in susceptible groups. This highlights the important need to reinforce the monitoring of iodized salt quality so that the level is adequate to ensure optimal iodine nutrition but not too high. WHO also emphasizes that promoting iodized salt should

not lead to the over-consumption of salt, which can contribute to hypertension: salt iodization can be carried out with a level of salt consumption compatible with WHO's recommendations of up to 5 g/day.

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## **2. INCREASED BENEFITS FOUND FROM WIDER USE OF ANTI-PARASITE DRUGS**

Encouraging new data from the wider distribution of anti-parasite drugs in pregnant women and very young children demonstrates that medicines commonly used to treat parasitic infections have much wider benefits than was previously thought. The data was presented during a two-day meeting from 29-30 November in Geneva of the Partnership for Parasite Control, hosted by the World Health Organization (WHO).

Anti-parasite drugs have long been used to treat school-age children in campaigns worldwide to improve health and educational outcomes. Intestinal worms can cause malnutrition, fatigue, organ damage, and in severe cases, cancer of the bladder. Anti-parasite drugs kill worms in the human body, as well as helping to prevent anemia, and to maximize cognitive and physical development.

Due to safety concerns, the drugs were not widely recommended for young children or for pregnant women until 2002, when a WHO Expert Committee recommended that pregnant women and children from 12 months to five years old be included in all worm control strategies.

During the meeting, Nepal reported a significant improvement in maternal health, as well as a 41% drop in infant mortality at six months, in pregnant women who were given two treatments for parasites. This major study followed an investigation in Sierra Leone, where pregnant women given deworming medicine and iron supplements were found to have decreased anemia incidence as well as improved iron status.

In a study in Sri Lanka, researchers found no variation in the birth defect rate among women who were taking anti-parasite treatment and those who were not, thus verifying the medicine's safety. Among young children, a recent study in Zanzibar demonstrated that in children under five years of age, anti-parasite treatment can reduce malnutrition by 62%, as well as reducing moderate anemia by 59%.

"We are overwhelmed by this evidence," says Dr Lorenzo Savioli, Coordinator of WHO's Parasite Control Programme. "We knew that there would be benefits from expanding deworming treatment, but we never imagined the impact would exceed even our most optimistic expectations."

With the new evidence illustrating that anti-parasite drugs have a range of positive impacts on young children and pregnant women, WHO recommends that treatment programmes worldwide should reach the many people who need them. "This is an opportunity to improve public health on a global level that must not be missed," says Dr Hiroyoshi Endo, Director of Control, Prevention and Eradication of Communicable Diseases.

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## **3. VISION 2020: THE RIGHT TO SIGHT, THE GLOBAL INITIATIVE FOR THE ELIMINATION OF AVOIDABLE BLINDNESS**

### **Magnitude and causes of visual impairment**

Since the estimates of the 1990s, new data based on the 2002 global population show a reduction in the number of people who are blind or visually impaired, and those who are blind from the effects of infectious diseases, but an increase in the number of people who are blind from conditions related to longer life spans. This new information underscores the need to modify the health care agenda to include the management of the diseases that are now becoming prevalent.

### **Magnitude of visual impairment**

- Globally in 2002, more than 161 million people were visually impaired, of whom 124 million people had low vision and 37 million were blind. However, refractive error as a cause of visual impairment was not included, which implies that the actual global magnitude of visual impairment is greater.

- Worldwide for each blind person, an average of 3.4 people have low vision, with country and regional variation ranging from 2.4 to 5.5.

- These figures - the first global estimates since the early 1990s, are the best achievable scientific estimates of the global burden of visual impairment and are the result of new studies carried out in nearly all WHO regions, which have substantially updated the epidemiological data.

### **Distribution of visual impairment**

**By age:** Visual impairment is unequally

distributed across age groups. More than 82% of all people who are blind are 50 years of age and older, although they represent only 19% of the world's population. Due to the expected number of years lived in blindness (blind years), childhood blindness remains a significant problem, with an estimated 1.4 million blind children below age 15.

**By gender:** Available studies consistently indicate that in every region of the world, and at all ages, females have a significantly higher risk of being visually impaired than males.

**Geographically:** Visual impairment is not distributed uniformly throughout the world. More than 90% of the world's visually impaired live in developing countries.

#### Global estimate of visual impairment, by WHO region (millions), 2002

	Afr	Amr	Emr	Eur	Sear	Wpr	Total
Population	672.2	852.6	502.8	877.9	1,590.8	1,717.5	6,213.9
No. of Blind People	6.8	2.4	4.0	2.7	11.6	9.3	36.9
Percentage of total blind	18	7	11	7	32	25	100
No. of people with low vision	20.0	13.1	12.4	12.8	33.5	32.5	124.3
No. of people with visual impairment	26.8	15.5	16.5	15.5	45.1	41.8	161.2

(Afr, WHO African Region; Amr, WHO Region of the Americas; Emr, WHO Eastern Mediterranean Region; Eur, WHO European Region; Sear, WHO South-East Asia Region; Wpr, WHO Western Pacific Region)

#### Global estimate of visual impairment by WHO region: Causes of visual impairment

Except for the most developed countries, cataract remains the leading cause of blindness in all regions of the world. Associated with ageing, it is even more significant as a cause of low vision.

Glaucoma is the second leading cause of blindness globally as well as in most regions, with age-related macular degeneration (AMD) ranking third on the global scale. However, in developed countries, AMD is the leading cause of blindness, due to the growing number of people over 70 years of age.

Other major causes are trachoma, other corneal opacities, diabetic retinopathy, and eye conditions in children (e.g., cataract, retinopathy of prematurity and vitamin A deficiency).

#### Global causes of blindness as a proportion of total blindness in 2002: The magnitude of avoidable (preventable and treatable) blindness

Cataract, glaucoma, corneal opacity, diabetic retinopathy, onchocerciasis, childhood blindness, trachoma, and some other causes of blindness can potentially all be prevented and/or treated. WHO

estimates that, globally, up to 75% of all blindness is avoidable. However, the proportion of the specific causes of blindness varies considerably from region to region, depending on local circumstance. Only about half the cases of childhood blindness are avoidable.

#### Global trends in the magnitude of visual impairment and VISION 2020

• The first global estimate on the magnitude and causes of visual impairment was based on the 1990 world population data (38 million blind). This estimate was later extrapolated to the 1996 world population (45 million blind), and to the projected 2020 world population (76 million), indicating a twofold increase in the magnitude of visual impairment in the world by 2020. It provided the basis for the 1999 launch of VISION 2020, the Global Initiative for the Elimination of Avoidable Blindness.

• The extent of the global burden of visual impairment in 2002 is not strictly comparable to the previous estimates of 1990, which indicated there were 148 million visually impaired, of which 38 million were blind. While the 2002 world population has increased by 18.5% as compared to 1990, the population 50 years of age and older has increased by nearly 30%. The population increase is more prominent in developing countries. Taking into account the changes in world population over the past 12 years, the extent of blindness and visual impairment in 2002 appears to be lower than was projected - 37 million instead of the projected 52 million.

• It is likely that the change is due to two major factors:

1. More data from population based studies on visual impairment carried out over the last decade are available allowing for more accurate estimates to be made.

2. Significant achievements have been made in the prevention and management of avoidable blindness along the lines of the "VISION 2020: The Right to Sight" priorities. These include:

• Increased public awareness and utilization of eye health care services

1. Increased availability and affordability of eye health care services

2. Increased global political commitment to prevention of visual impairment

3. Increased professional commitment to prevention of visual impairment

4. Commitment and support of non-governmental organizations

5. Involvement and partnership with the corporate sector

6. More effective primary eye care activities as an integral part of the primary health care system

which have contributed to the decline in vision loss from trachoma, onchocerciasis, vitamin A deficiency and even from cataract through better services including outreach case finding and eye health education.

7. Impressive successes with elimination of blindness efforts in the Gambia, India, Morocco, Nepal, Sri Lanka, Thailand, and other countries.

Notwithstanding the recent achievements in the prevention and control of avoidable blindness, several global challenges require further attention:

- An ever-increasing number of people are at risk of visual impairment as populations grow and demographic shifts move towards the predominance of older age groups.

1. Potentially blinding eye conditions such as age-related macular degeneration (AMD), diabetic retinopathy and glaucoma are increasing as the number of people affected grows. These are non-communicable chronic eye diseases to which the principles of long-term care including issues of cost of treatment and compliance (adherence) apply. Additionally, more programmes for those with low vision will need to be made available.

2. The global disparity and inequity in the availability of eye health care services still fails to prevent and control an overwhelmingly increasing magnitude of avoidable blindness in the highly populated poorest parts of the world.

Poverty underlies not only the causes, but also the perpetuation of ill health, including eye health. Blindness remains a key barrier to development. Health is the centerpiece of development and poverty alleviation; continuing to eliminate avoidable blindness among the poorest of the poor is a moral imperative.

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#### **4. FIRST INTERNATIONAL STANDARD FOR COMMON GENETIC TEST APPROVED BY WHO**

The first international standard for a human genetic test was approved by the World Health Organization (WHO) on 17 November, 2004. Use of the standard will help to improve the accuracy and quality of laboratory results worldwide from a frequently used genetic test. This test identifies a genetic predisposition to thrombosis — a potentially life-threatening blood condition — and could therefore enable people to take preventive measures.

“Establishment of the first international standard for a genetic test is an important

milestone. Genetic testing procedures are playing a vital and growing part in clinical medicine. This new standard will help to ensure that the tests are giving accurate results worldwide,” said Dr David Wood, Coordinator of Quality Assurance and Safety of Biologicals at WHO.

The newly established standard, formally called an International Reference Panel, relates to the testing of patients for a particular genetic mutation known as Factor V Leiden. Discovered in 1994, this mutation is one of the most common genetic risk factors for venous thrombosis (blood clot), and is involved in 20-40% of all cases. Factor V Leiden induces a defect in the natural anti-coagulation system.

The test for Factor V Leiden is one of the most frequent genetic tests carried out in clinical laboratories. It determines the presence or absence of the mutation, which has been shown to result in a seven-fold to 80-fold higher risk of thrombosis depending on whether the individual carries one or two copies of the gene respectively.

The new standard was agreed at the 55th session of one of WHO's longest-standing committees, the WHO Expert Committee on Biological Standardization (WHO ECBS) which is meeting from 15 to 18 November in Geneva. It is composed of ten global experts from academia, industry and national regulatory authorities, as well as 25 advisors.

One of WHO's key functions, specified in its Constitution, is to develop, establish and promote international standards with respect to biological and other products. WHO is the world authority on biological standards, and has established more than 300 standards covering vaccines; blood products; therapeutic biological products, such as insulin; and diagnostic tests, such as those that detect HIV in a blood product.

Researchers are currently investigating whether or not there is a link between air travel and deep vein thrombosis. This is one example of a condition which may be more likely as a result of the Factor V Leiden mutation. Having information about their genetic make-up could allow travelers at risk to take additional precautions.

The standard for Factor V Leiden was developed by WHO partner and the leading international laboratory for biological standards, the National Institute for Biological Standards and Control (NIBSC) in the United Kingdom, in collaboration with colleagues from the clinical National Quality Assessment schemes for Blood Coagulation and the Royal Hallamshire Hospital in Sheffield, UK.

“This is an important step in genetic medicine. I am delighted that the NIBSC has taken the

international lead in developing the first WHO standard for a genetic test. This will provide information on susceptibility to venous thrombosis, and ultimately will deliver clinical benefits for people at increased risk of developing thrombosis," said Professor Gordon Duff, Chairman of the NIBSC Board. NIBSC is currently developing several other new reference standards to support testing for a range of other clinically important genetic characteristics.

DNA-based genetic testing offers enormous promise for improved disease management by giving doctors better information about patients on which to base diagnosis and decisions about treatment or counseling. It also offers the potential for better targeting of therapies and drugs to those patients most likely to benefit. Hundreds of different genetic tests are currently available.

A recent study estimated that in the European Union alone more than 700 000 genetic tests were performed in 2002; and found that at least 700 laboratories and 900 clinical centers in Europe were carrying out genetic tests. (1) Though the exact number is unknown, it is likely that millions of genetic tests are being carried out worldwide each year.

Setting standards is particularly critical as genetic testing has expanded to more and more laboratories throughout the world. Genetic testing must be done consistently in all laboratories around the world and to high quality standards in order to give confidence in the results.

A standard for a biological product is essentially a yardstick (either on paper or in an ampoule, in which there is a specially prepared reference material) which enables laboratories around the

world to compare results. The work of the WHO Expert Committee on Biological Standardization contributes to global public health in a fundamental way since the written guidance and reference preparations established on its recommendations define international technical specifications for the quality and safety of biological medicines and in vitro diagnostic procedures.

Once a WHO collaborating laboratory physically creates a standard, it is typically evaluated by 15 other top laboratories. The WHO ECBS reviews all the laboratory data and decides to approve or not the proposed standard for international use. The rigorous assessment of the standard for the Factor V Leiden genetic test was carried out by an international panel of investigators in conjunction with the International Society on Thrombosis and Hemostasis (ISTH).

The announcement of the first international standard for the genetic diagnosis of the Factor V Leiden mutation is a significant step forward in the assurance of high quality genetic testing. In the future, the WHO ECBS will likely approve standards for other genetic tests, the increasing use of which will enable prevention and early treatment of genetic disorders, improving quality of life.

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