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Iron supplements for childhood anaemia in malaria endemic areas

Health reporter, 13 August 2009

Feature: Iron supplements for childhood anaemia in malaria endemic areas

Recommended readings:

- [Insecticide-treated bed nets and curtains for preventing malaria](#)
- [Iron deficiency anaemia assessment, prevention and control: a guide for programme managers](#)
- [Conclusions and recommendations of the WHO consultation on prevention and control of iron deficiency in infants and young children in malaria-endemic areas](#)
- [Iron supplementation in early childhood: health benefits and risks](#)
- [Effects of routine prophylactic supplementation with iron and folic acid on admission to hospital and mortality in preschool children in a high malaria transmission setting: community-based, randomised, placebo-controlled trial](#)

Latest additions:

- [Indigenous health part 1: determinants and disease patterns](#)
- [Indigenous health part 2: the underlying causes of the health gap](#)
- [Guidelines for occupational safety and health, including HIV in the health services sector](#)
- [A basic package of health services for Afghanistan, 2005/1384](#)
- [Mainstreaming gender into Water, Sanitation and Hygiene \(WASH\) programmes: a training manual for water professionals](#)

Announcements

Feature: Iron supplements for childhood anaemia in malaria endemic areas

A new Cochrane Review states that iron supplements do not increase the likelihood of contracting malaria and should not be withheld from children at risk of the disease,

despite World Health Organisation (WHO) guidelines to the contrary.

The review highlights that children should not be denied iron supplements, even if they are living in areas where malaria is prevalent. Iron is important for growth and development, and maintaining a healthy immune system.

Until 2007, WHO guidelines recommended that all children should be given iron supplements to help prevent iron deficiency and anaemia, which are significant public health problems in developing countries. It is estimated that iron deficiency is the cause of 726,000 childhood deaths each year. However, a recent large trial in Zanzibar prompted the WHO to change its guidelines, which now recommend that routine iron supplements are withheld from children under two years in areas where they are at high risk of contracting malaria. The argument against giving iron is that it could help promote the growth of malarial parasites circulating in the blood. Iron supplementation is recommended only for children with proven iron deficiency. If a screening system to detect iron deficiency is not available, supplementation is recommended only for children with clinical symptoms of severe anaemia.

In response to this, Cochrane researchers reviewed data from 68 different trials involving 42,981 children. They concluded that iron did not increase the risk of malaria, as long as regular malaria surveillance and treatment services were available. Iron supplementation did not increase the risk for malaria or death whether given to children with or without anaemia before supplementation. Thus there should not be any need to screen for anaemia before giving supplements. The review states that WHO guidelines rely too heavily on a single recent trial, whereas this current research drew its conclusions after giving appropriate weight to a wide range of studies.

Although the benefits of giving iron are greater for children with anaemia, any decision to withhold iron supplements should be carefully considered. Any potential negative effects of giving iron have to be weighed against the quite serious implications of not giving it: namely anaemia and its contribution to childhood infection and death, especially in sub-Saharan Africa.

This feature is based on 'Oral iron supplementation for preventing or treating anaemia among children in malaria-endemic area', Cochrane Database of Systematic Reviews 2009, Issue 3, by Ojukwu JU, Okebe JU, Yahav D, Paul M
mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD006589/pdf_fs.html

More information:

- Iron supplementation of young children in regions where malaria transmission is intense and infectious disease highly prevalent, WHO/UNICEF joint statement, 2006 (PDF)
- http://www.who.int/nutrition/publications/WHOStatement_%20iron%20suppl.pdf
- 'Hitting malaria where it hurts: household and community responses in Africa', id21 insights health #9, August 2006

- www.id21.org/insights/insights-h09/index.html
 - Malaria strategies, programmes and initiatives, Eldis Health Resource Guide
www.eldis.org/go/topics/resource-guides/health/malaria/strategies-programmes-and-initiatives
 - Maternal and newborn health, Eldis Health Resource Guide
www.eldis.org/go/topics/resource-guides/health/maternal-and-newborn-health
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Recommended readings

1. Insecticide-treated bed nets and curtains for preventing malaria

Author: C. Lengeler

Publisher: Cochrane Library, 2006

Malaria is an important cause of illness and death in many parts of the world, especially in sub-Saharan Africa. Recently there has been a renewed emphasis on preventive measures at community and individual levels. Insecticide-treated nets (ITNs) are the most prominent malaria preventive measure for large-scale deployment in highly endemic areas. This document from the Cochrane Database of Systematic Reviews assess the impact of insecticide-treated bed nets or curtains on mortality, malarial illness (life-threatening and mild), malaria parasitaemia, anaemia, and spleen rates. The report documents a literature review of all relevant research which included individual and cluster randomized controlled trials of insecticide-treated bed nets or curtains compared to nets without insecticide or no nets.

The author concludes that ITNs are highly effective in reducing childhood mortality and morbidity from malaria. Widespread access to ITNs is currently being advocated, but universal deployment will require major financial, technical, and operational inputs. Five randomised controlled trials have provided strong evidence within the literature examined that the widespread use of ITNs can reduce overall mortality by about a fifth in Africa. For every 1,000 children protected, on average about 5.5 lives can be saved in children aged 1 to 59 months every year. In Africa, full ITN coverage could prevent 370,000 child deaths per year. Given the consistency of the impact results for different outcomes and different areas of the world, it is unlikely that many more trial data are required however the author highlights further areas which still need additional research. These include the impact of ITNs under large-scale programme conditions and further investigation of how impact varies with ITN coverage rate, and how effectiveness depends on a mass eradication of the mosquito population.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44288&type=Document>

2. Iron deficiency anaemia assessment, prevention and control: a guide for

programme managers

Publisher: World Health Organization, 2001

This document from the World Health Organisation deals primarily with indicators for monitoring interventions to combat iron deficiency, including iron deficiency anaemia (IDA), but it also reviews the current methods of assessing and preventing iron deficiency in the light of recent significant scientific advances. Criteria for defining IDA, and the public severity of anaemia based on prevalence estimates, are provided. Approaches to obtaining dietary information, and guidance in designing national iron deficiency prevention programmes, are also presented.

Strategies for preventing iron deficiency through food-based approaches, i.e. dietary improvement or modification and fortification, and a schedule for using iron supplements to control iron deficiency and to treat mild-to-moderate iron deficiency anaemia, are discussed. For each strategy, desirable actions are outlined and criteria are suggested for assessment of the intervention. Attention is given to micronutrient complementarities in programme implementation, e.g., the particularly close link between the improvement of iron status and that of vitamin A. Finally, recommendations are made for action-oriented research on the control of iron deficiency, and for undertaking feasibility studies on iron fortification in countries. Increased advocacy, exchange of information, development of human resources, and action-oriented research are recommended for accelerating the achievement of the goals for reducing iron deficiency.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44286&type=Document>

3. Conclusions and recommendations of the WHO consultation on prevention and control of iron deficiency in infants and young children in malaria-endemic areas

Publisher: World Health Organization, 2006

Iron deficiency and iron-deficiency anemia are common in young children, and there is substantial evidence that iron deficiency has adverse effects on child health and development. This report from the World Health Organisation argues that provision of additional iron to infants and young children who are iron deficient should be a public health priority. The document details a consultation convened to examine two large trials conducted in Zanzibar, Tanzania and Nepal which evaluated the impact of zinc and/or iron-folic acid supplementation on the mortality and severe morbidity of preschool children. The objectives of the consultation, which focused on infants and young children in malaria-endemic areas, were to review the scientific evidence on the safety and efficacy of different ways of administering iron to control iron deficiency and iron-deficiency anemia.

The consultation also provides guidance on the safest, most feasible, and most effective ways of delivering additional iron to control iron deficiency and anemia in such areas.

The report concludes that strategies to control iron deficiency should be carried out in the context of comprehensive and effective health care, including the provision of insecticide-treated nets and vector control for the prevention of malaria, and prompt recognition and treatment of malaria and its complications with effective antimalarial and antibiotic drug therapy. The authors also considers mechanisms of adverse effects of iron administration, evidence of benefits of interventions to improve iron status in infants and young children and ways to deliver additional iron to infants and young children in malaria-endemic regions.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health/malaria&id=44285&type=Document>

4. Iron supplementation in early childhood: health benefits and risks

Authors: L.L. Iannotti; J. M. Tielsch; M. M. Black

Publisher: American Journal of Clinical Nutrition, 2009

The prevalence of iron deficiency among infants and young children living in developing countries is high. This article in the American Journal of Clinical Nutrition reviewed 26 randomised controlled trials of preventive, oral iron supplementation in young children (aged 0–59 mo) living in developing countries to ascertain the associated health benefits and risks. The outcomes investigated were anaemia, development, growth, morbidity, and mortality. Initial hemoglobin concentrations and iron status were considered as effect modifiers, although few studies included such subgroup analyses.

The authors find that among iron-deficient or anaemic children, hemoglobin concentrations were improved with iron supplementation. Reductions in cognitive and motor development deficits were observed in iron-deficient or anaemic children, particularly with longer-duration, lower-dose regimens. With iron supplementation, weight gains were adversely affected in iron deficient children; the effects on height were inconclusive. Most studies found no effect on morbidity, although few had sample sizes or study designs that were adequate for drawing conclusions. In a malaria-endemic population of Zanzibar, significant increases in serious adverse events were associated with iron supplementation, whereas, in Nepal, no effects on mortality in young children were found. The authors conclude that more research is needed in populations affected by HIV and tuberculosis. Iron supplementation in preventive programmes may need to be targeted through identification of iron-deficient children.

[adapted from the authors]

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44289&type=Document>

5. Effects of routine prophylactic supplementation with iron and folic acid on admission to hospital and mortality in preschool children in a high malaria transmission setting: community-based, randomised, placebo-controlled trial

Authors: S. Sazawal; R.E. Black; M. Ramsan

Publisher: The Lancet, 2006

Anaemia caused by iron deficiency is common in children younger than 5 years of age in eastern Africa. However, there is concern that the universal coverage of iron and folic acid supplements for children in areas of high malaria transmission might be harmful. This article in The Lancet describes a randomised placebo controlled trial of children living in Zanzibar which gave children a daily supplementation of iron, folic acid or a placebo. The trial found that routine supplementation with iron and folic acid in preschool children in a population with high rates of malaria can result in an increased risk of severe illness and death.

The authors recommend that in the presence of an active programme to detect and treat malaria and other infections, iron-deficient and anaemic children can benefit from supplementation. However, supplementation of those who are not iron deficient might be harmful. As such, current guidelines for universal supplementation with iron and folic acid should be revised. The document also recommends that a risk-benefit analysis needs to be undertaken to ascertain whether the current guidelines of universal supplementation with iron and folic acid to all children in such populations are appropriate. The possible benefit noted in a sub-study suggests that the recommendations for prevention of anaemia in children who live in areas with high malaria transmission should stress the need for a combination of iron supplementation and improved management of malaria. However these approaches need to be assessed to ensure that the supplementation is not causing harm to a segment of the population.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44284&type=Document>

Latest additions from the Health resource guide

1. Indigenous health part 1: determinants and disease patterns

Authors: M. Gracey; M. King

Publisher: The Lancet, 2009

This article, published by The Lancet, notes that almost 400 million of the world's indigenous people have low standards of health. This poor health is associated with poverty, malnutrition, overcrowding, poor hygiene, environmental contamination, and prevalent infections. The authors argue that this precarious situation is aggravated by inadequate clinical care and health promotion, and poor disease prevention services.

In this article, the authors note that as indigenous groups move from traditional to transitional and modern lifestyles, they are rapidly acquiring lifestyle diseases, such as obesity, cardiovascular disease, and type 2 diabetes, and physical, social, and mental disorders linked to misuse of alcohol and of other drugs.

To correct these inequities, the authors recommend increased awareness, political commitment, and recognition rather than governmental denial and neglect of these serious and complex problems. Additionally, the authors recommend that indigenous people should be encouraged, trained, and enabled to become increasingly involved in overcoming these challenges.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44139&type=Document>

2. Indigenous health part 2: the underlying causes of the health gap

Authors: M. King; A. Smith; M. Gracey

Publisher: The Lancet, 2009

This article, the second in The Lancet series on the health of indigenous people, delves into the underlying causes of health disparities between indigenous and non-indigenous people, providing an indigenous perspective to understanding these inequalities.

The authors present a snapshot of the many research publications about indigenous health, with the aim to provide clinicians with a framework to better understand such matters. By applying this lens, placed in context for each patient, the authors argue that more culturally appropriate ways to interact with, to assess, and to treat indigenous peoples shall be promoted.

The topics covered in this article include indigenous notions of health and identity; mental health and addictions; urbanisation and environmental stresses; whole health and healing; and reconciliation.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44140&type=Document>

3. Guidelines for occupational safety and health, including HIV in the health services sector

Authors: The Republic of Uganda, Ministry of Health

Publisher: US Agency for International Development, 2008

These guidelines, published by the Ministry of Health of Uganda, recognise that all types

of work are hazardous and persons at work are exposed to situations that may result into injury, disease or even death. In Uganda, the authors argue that the health sector is loaded with a wide variety of situations where health and safety issues are crucial. Additionally, the authors assert that while the economic cost of occupational risks is high, public awareness of safety and health tends to be quite low. The authors argue that the Ugandan health sector requires a standardised framework for workplace safety and health, including responding specifically to HIV as a workplace hazard.

This document is broadly divided into five chapters: the first comprises of background information that includes the magnitude of workplace accidents and incidents as well as the justification for these guidelines. The second chapter addresses the basic principles and interventions that are considered essential for the sector's workplace safety and health. The third chapter deals with management of HIV and AIDS as a specific workplace hazard while the fourth chapter covers management of the other common hazards that exist at the health workplace. The final chapter deals with implementation of a workplace safety and health programme, including aspects of monitoring.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44180&type=Document>

4. A basic package of health services for Afghanistan, 2005/1384

Author: Islamic Republic of Afghanistan Ministry of Public Health

Publisher: Management Sciences for Health, 2005

Since the creation of the Basic Package of Health Services (BPHS) in Afghanistan in 2003 the country has seen many positive changes in its health care system. This document from the Ministry of Public Health defines the key elements of the health system being built in the country. The service was to rebuild the national health system and identify health services which were so important to addressing the greatest health problems that they should be available to all Afghans, even those in remote areas. This document illustrates where these basic primary care and hospital services are provided and details the hospital referral system necessary to support the BPHS.

The document outlines the basic package of health services available in Afghanistan, its development, accomplishments and challenges. The authors discuss the future of the BPHS strategy and the types of health care used by it. Specific areas examined include: maternal and newborn health, child health, communicable diseases, mental health and supplies of essential drugs. The report then looks at the staffing for BPHS and health posts and district hospitals in addition to the equipment needed and diagnostic services. A summary of the services is then provided and a comprehensive list of tables with specific details on services including family planning, public nutrition, control of malaria, HIV and AIDS and blood transfusion services.

Available online at: <http://www.eldis.org/go/topics/resource->

[guides/health&id=44189&type=Document](http://www.eldis.org/go/topics/resource-guides/health&id=44189&type=Document)

5. Mainstreaming gender into Water, Sanitation and Hygiene (WASH)

programmes: a training manual for water professionals

Authors: SNV Rwanda; PROTOS; Ministry of Gender and Family Promotion, Rwanda

Publisher: Gender and Water Alliance, 2009

The training manual on mainstreaming gender into Water, Sanitation and Hygiene (WASH) programmes is an integrated approach to both gender and WASH issues. It aims to provide participatory gender-sensitive training to water professionals at the policy, project and administrative levels through building their capacity for mainstreaming gender into WASH programmes. The authors hope this manual will be useful to other public, private and civil society training institutions and agencies, both in Rwanda (where this manual was written) and in other countries around the world.

The manual aims to provide participatory gender sensitive training to water professionals at the policy, project and administrative levels and promote an understanding of and commitment to the importance of participation of both women and men in sustainability of these programmes

It is divided into 3 modules which cover:

- trends of WASH programmes in Rwanda, global concepts and management of WASH programmes
- theoretical concepts of gender including social and gender analysis, gender roles and relationships and gender needs
- gender mainstreaming and providing gender analysis frameworks and gender planning tools.

Gender sensitive indicators and a log-frame for WASH programmes are also included.

Available online at: <http://www.eldis.org/go/topics/resource-guides/health&id=44244&type=Document>

Announcements

1. Training: ICICI seeks Senior Reseach Associates and Senior Program Associates, India

Closing date: 30 August 2009

The ICICI Centre for Child Health and Nutrition (ICCHN) is a non-profit, grant making and research group focused on improving the health and nutrition status of poor women and children in India. ICCHN operates from Pune, has supported action research projects across the country and works principally in collaboration with NGOs, state and local

governments to facilitate systematic change in public health systems.

Current vacancies include:

- Senior Program Associates
- Senior Research Associates

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More details available online at: <http://www.eldis.org/go/topics/resource-guides/health/health-events-and-announcements&id=44311&type=Item>

2. Conference: Healthcare & Trade, 10-11 December 2009

Dates: 10-11 December 2009

Location: Erasmus Expo and Conference Centre, Woudestein Campus, Erasmus University Rotterdam, The Netherlands

The International Conference on Healthcare and Trade, organised by the Erasmus Observatory on Health Law, will focus on the influence of the law of both the European Union and the World Trade Organization on trade in health services, health insurance services and health goods (pharmaceuticals).

The application of the EC Treaty, the GATS and the TRIPS to national regulation of health services, health insurance services and pharmaceuticals raises questions of applicability of, compatibility with and possible exceptions to the provisions of these instruments. In these areas, these questions have not yet been answered conclusively and further research and discussion in this area is ongoing. The conference aims to contribute to the discussion, attempting to formulate both legal and economic answers to these questions.

Registration

Prepaid Advanced Registration must be electronically submitted, faxed or mailed no later than 1 December 2009.

Fees

The conference fee is 250 Euros (concessions are available for students)

For more information on the conference programme, and to download a registration form, please use the full details link to be redirected.

More details available online at: <http://www.eldis.org/go/topics/resource->

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- Health Resource Guide - <http://www.eldis.org/health/index.htm>
- Health Systems Resource Guide - <http://www.eldis.org/healthsystems/index.htm>
- HIV and AIDS Resource Guide - <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids>

The HRC provides access to technical assistance and information for the Department for International Development (DFID UK), and its partners, in support of pro-poor health policies as well as health systems, service delivery and public health topics and programmes.

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The views expressed in this newsletter and on the Eldis website are the opinion of the authors and do not necessarily reflect the view of Eldis, IDS or its funders.

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Contact details:

IDS Health Development Information Team
Institute of Development Studies, Sussex
Brighton BN1 9RE, UK

Email: hdi@ids.ac.uk

Tel: 44 1273 915781

Fax: 44 1273 877335