REPORT

Priorities in the Assessment of Vitamin A and Iron Status in Populations

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Introduction

At the forty-fifth World Health Assembly, held in 1992, in resolution WHA45.33 Member States were urged "to establish, as part of the health and nutrition monitoring system, a micronutrient monitoring and evaluation system capable of assessing the magnitude and distribution of vitamin A and iron deficiency disorders, and monitor the implementation and impact of control programmes" (*1*). Additionally, in 2010, the sixty-third World Health Assembly approved the first organization-wide strategy on research. The strategy – *Research for health* – defines a common framework for how research is approached in the World Health Organization (WHO) and the role WHO is taking in global health research (*2*). Research for health has been defined to cover five areas of activity, two of which include the measurement of the magnitude and distribution of a health problem and the evaluation of the impact of solutions or interventions on the level and distribution of a health problem. WHO guidance on the use of indicators for assessing a population's vitamin and mineral status and the application of indicators for monitoring and evaluating intervention programmes aims to assist Member States and their partners in establishing a micronutrient monitoring and evaluation system.

WHO has also recognized the need to use more rigorous processes to ensure that health-care recommendations are informed by the best available research evidence. The WHO Guidelines Review Committee was established in 2007 with the purpose of developing and implementing procedures to ensure that WHO guidelines are developed in ways consistent with best practice, emphasizing the appropriate use of evidence.

In 2009, the Department of Nutrition for Health and Development, in partnership with the Department of Research Policy and Cooperation and other internal partners, established the WHO Nutrition Guidance Expert Advisory Group. Their work involved advising WHO in the development of evidence-informed guidelines for measuring the magnitude and distribution of malnutrition and evaluating the impact of solutions recommended through policies and programmes, while also understanding the level and distribution of the problem.

A Monitoring and Evaluation subgroup was established for the biennium 2010–2011 to advise WHO on the scope of the guidelines, the choice of important outcomes for decision-making and the interpretation of the evidence for developing recommendations in nutrition surveillance. Membership of this subgroup included experts from various WHO expert advisory panels and those identified through open calls for specialists, taking into consideration a balanced gender mix, multiple disciplinary areas of expertise and representation from all WHO regions.

On 15–17 September 2010, WHO convened a meeting in Panama City, Panama, to discuss and initiate the work of updating WHO guidelines on indicators for the assessment of vitamin A and iron status. In preparation for this meeting, four background papers were commissioned on historical and practical uses of assessing night blindness as an indicator for vitamin A deficiency, biomarkers of vitamin A status, the rationale for selecting and standardizing iron status indicators, and the influence of infection and inflammation on biomarkers of nutritional status, with an emphasis on vitamin A and iron. The background papers, in addition to the scoping document prepared by technical staff at the Department of Nutrition for Health and Development, were presented and discussed during the consultation. This report summarizes the discussions and presents the background papers (see **Annex 2**).

MANAGEMENT OF CONFLICTS OF INTEREST

According to the rules in the WHO *Basic documents* (*3*), all experts participating in WHO meetings must declare any interest relevant to the meeting prior to their participation. The conflicts of interest statements of all the participants were reviewed by the responsible technical officer and the relevant departments before the meeting. The procedures for management of conflicts of interest strictly followed the WHO *Guidelines for declaration of interests (WHO experts)* (*4*). The potential conflicts of interest declared by the participants attending the meeting are summarized below.

- Dr Jonathan Gorstein declared being a senior adviser to the Global Alliance for Improved Nutrition (GAIN) in regard to the biological impact of interventions. He is also a consultant to the Program for Appropriate Technology in Health (PATH) to help identify tools for the assessment of vitamin and mineral deficiencies in low-resource settings. Although the nature of the work at PATH is related to the topic of interest (tools for the assessment of status), it is an international non-profit organization and it was agreed that this should be reported in the proceedings and Dr Gorstein would participate fully in the meeting and discussions.
- Dr Ronald Kupka declared receiving a research grant from Harvard University in the amount of US$15 000 to examine indicators of iron status in a cohort of children in Tanzania. It was agreed that this should be reported in the proceedings and that Dr Kupka would participate fully in the meeting and discussions.

All other participants declared no conflicts of interest. External resource persons were invited to the meeting as observers and to provide technical input, but they did not participate in the decision-making processes.

SUMMARY OF MEETING PRESENTATIONS

WHO guideline development process

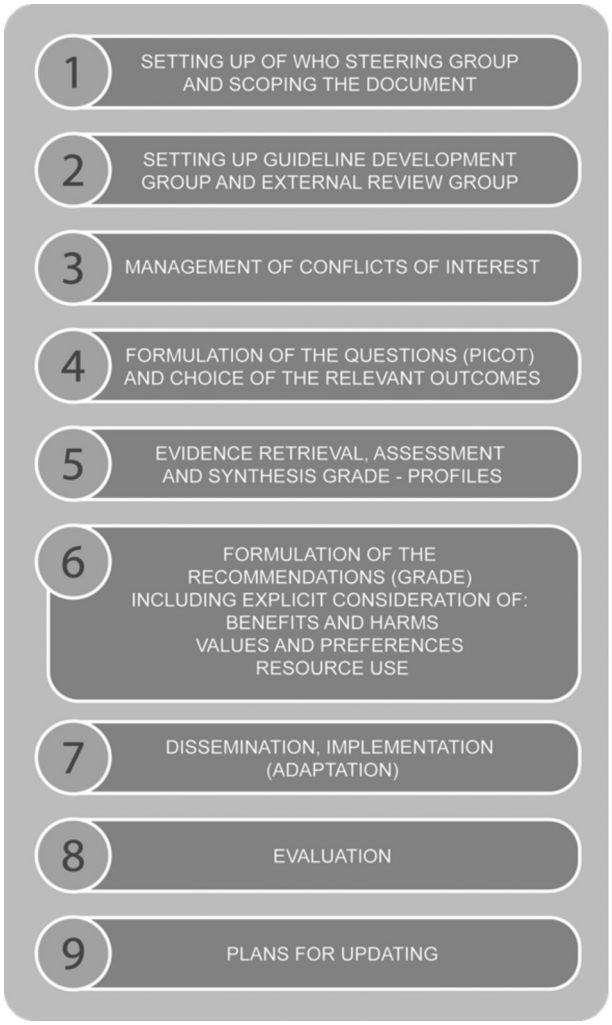
(Presented by Cynthia Souza)

In 2007, it was reported that WHO guidelines were not transparent or evidence-based (*5*). Systematic reviews were rarely used for developing recommendations and there was little transparency about judgements made. Instead, processes usually relied on expert opinion, and global guidelines were not being adapted to the needs of the end users. In response to these concerns, and following up on recommendations of the Advisory Committee on Health Research (ACHR) and resolution EB120.R15 of the 120th Session of the Executive Board, the Guidelines Review Committee was established. The purpose of this committee is to develop and implement standards and procedures for guideline development that ensure that WHO guidelines are consistent with internationally accepted best practice, including appropriate use of evidence. The Guidelines Review Committee members are appointed by the Director-General and include members of staff from WHO headquarters and the regional offices as well as external experts.

The overall guideline development process is described in the *WHO handbook for guideline development* and summarized in Figure 1 (*6*). WHO guidelines are developed following requests from Member States and generally aim to meet global needs. They should have a public health perspective and should not duplicate existing resources. The key target audience of the guideline is identified early on as well as a systematic search for existing scientific evidence that can guide the recommendations. WHO does not accept funds for guideline development from commercial bodies or from professional organizations sponsored by commercial bodies.

The scope (content, questions and likely recommendations) of the guideline is defined by a small group of WHO staff, including representatives of all relevant departments (the WHO steering group). Priority topics for the guideline are listed, focusing on the interventions or policies where a change in practice is desired and areas where there is controversy, as well as the feasibility of implementing potential recommendations. Key questions to be answered in the guideline are then developed in the population, intervention, control, outcomes (PICO) format. The complete scope is circulated to an external review group for feedback. Then a reality check is done to

Figure 1
WHO guideline development process



Adapted from reference (*3*).

ensure that the processes in the scope are feasible and can be carried out within the timeframe and budget available.

A specially convened, multidisciplinary guideline development group is then set up, which includes content experts from the specialties involved, methodologists (experts in assessing evidence and developing guidelines, health economists, statisticians as appropriate), representatives of potential stakeholders (e.g. managers and other health professionals involved in the health-care process), and patients and consumers. Representation of all regions likely to use the guideline and a balanced gender mix are considered in the selection of group members. The group advises on: the priority questions and scope of the guideline; the choice of important outcomes for decision-making; and the interpretation of the evidence for informing the guideline, with explicit consideration of the overall balance of risks and benefits. It also assists in formulating recommendations, taking into account diverse values and preferences.

All experts participating in WHO meetings must declare any interest relevant to the meeting prior to their participation by completing a Declaration of Interests form, which includes personal and non-personal (family) financial interests, academic interests, and public statements and other activities that may be relevant to the subject of the meeting or guideline. Examples of interests that are clearly a conflict, and that should preclude participation in developing recommendations are: owning shares in a company that manufactures a product or technology that may be recommended for use in the guideline; holding a patent on a product or technology that may be recommended for use in the guideline; a family member working for a company that manufactures a product or technology that may be recommended for use in the guideline; current or past involvement in a major academic programme of work that concerns a product or technology likely to be considered in a recommendation, including conducting trials or systematic reviews that recommend a particular product or technology; receiving funding from, being or having recently been employed by, consulting for, or acting as an adviser, paid speaker or opinion leader for a company or organization with an interest in a specific product related to the guideline (e.g. receiving any support for travel, professional training or similar).

The conflicts of interest statements are initially reviewed by the relevant WHO department, and, if necessary, the WHO's Legal Counsel. Legal Counsel may advise that (1) the conflict of interest is such that the individual must be excluded from participation; (2) the conflict of interest is significant but related to only some areas of the guideline development group's work – in this case the participant cannot participate when the group considers these areas and will not have access to the relevant documents, therefore having only partial participation; or (3) the conflict of interest is considered insignificant and the individual can have full participation.

Guidance is available from the Guidelines Review Committee Secretariat throughout the guideline development process and the Guidelines Review Committee has also produced the