

# IMCI

## information

INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI)

DEPARTMENT  
OF CHILD AND  
ADOLESCENT  
HEALTH AND  
DEVELOPMENT  
(CAH)

HEALTH SYSTEMS  
AND COMMUNITY  
HEALTH (CHS)

## IMCI research priorities: Investigating methods to prevent and manage childhood illness

### Introduction

The WHO Department of Child and Adolescent Health and Development (CAH) supports research with a focus on the development and evaluation of new or improved methods for preventing and managing childhood illness.

Research priorities fall into four areas:

1. Global IMCI issues
2. Improving health worker skills
3. Improving health systems to support IMCI
4. Improving family and community practices

Three criteria were taken into account in selecting priority research questions:

- Does the question address an issue of direct relevance to reducing child mortality?
- Will an answer to the question lead to specific actions that will improve the implementation of the Integrated Management of Childhood Illness (IMCI) strategy?
- Does the question address an issue already documented or considered likely to be a problem in IMCI implementation?

### 1. Global IMCI issues

#### Effectiveness and cost studies

Planning and implementing IMCI will be strengthened and supported by evidence of its effectiveness and clear information about costs. The impact of IMCI on child morbidity and mortality and the costs of IMCI are, therefore, key research priorities for CAH. Key research questions are summarized in Box 1.



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## BOX 1

**Examples of important research questions on the effectiveness and cost of IMCI**

- Does the implementation of IMCI result in reductions in child mortality and morbidity?
- What are the cost components of IMCI service delivery?
- What are the costs of providing IMCI at a first-level facility for a given population group?
- What are the economic consequences of selecting various IMCI interventions, alone or in combination?

## BOX 2

**Examples of important research questions for improved case management of major childhood illnesses**

- Is oral amoxicillin superior to injectable penicillin for the treatment of severe pneumonia? Can shorter courses of amoxicillin be used to treat outpatient pneumonia?
- Which children with wheeze should receive antibiotics?
- What is the most appropriate fluid regimen for children with severe pneumonia or severe meningitis?
- What patient characteristics can help select the severely malnourished children who can be treated from the beginning with the F100 (100kcal/100ml) diet?

**2. Improving health worker skills****Case management guidelines and standards**

Current research priorities include developing clinical tools and guidelines to improve case management of acute respiratory infections (ARI), diarrhoea, dysentery, meningitis, malaria, and malnutrition as well as of sick young infants. Key research topics for each of these are highlighted below, and examples of specific research questions are included in Box 2.

***Acute respiratory infections***

Research is required to improve the specificity of the diagnosis of non-severe pneumonia in order to limit unnecessary antibiotic use, to identify alternative antibiotic regimens for the management of severe pneumonia, to assess the appropriateness of fluid restriction in severe pneumonia, to determine antimicrobial resistance among organisms responsible for pneumonia, and to improve the management of wheeze and of otitis media.

***Diarrhoea***

Severely malnourished children commonly have electrolyte imbalances, with low total body potassium and high total body sodium, and standard WHO oral rehydration solution (ORS) may not be appropriate for managing diarrhoea in these children. Investigating the efficacy and safety of an alternative WHO ORS formula, developed specifically for severely malnourished children, is a research priority.

***Dysentery***

Research is urgently required to examine alternative antibiotic treatments for managing shigellosis because of the increasing resistance of *Shigella* strains of various serotypes to commonly used antibiotics.

***Malaria***

Current research priorities include the reliability of clinical signs to predict malaria in low-risk areas, approaches to the management of cerebral malaria, and to the management of malaria-associated anaemia, and the effectiveness of various treatment options for malaria.

## BOX 3

**Examples of important research questions on IMCI implementation**

- How do the IMCI guidelines for first-level facilities perform when used by health workers in different developing country settings?
- Can the standard IMCI course of 11 days be shortened without reducing the effectiveness of the training? Are there alternative approaches to training (e.g., distance learning, on-the-job training) that would allow greater coverage without reducing its effectiveness?
- What difficulties do health workers face after IMCI training? How do training follow-up and IMCI job aids affect their performance?
- How do health workers manage severely ill children where referral is not possible? What is the potential for improved care of severely ill children at first-level facilities or at home?

***Severe malnutrition***

While experts tend to agree that severely malnourished children should receive broad spectrum antimicrobial treatment, there is still no clear scientific evidence to demonstrate the benefits of this. Severely malnourished children also require special feeding regimens, because they are not able to tolerate the usual amounts of dietary protein, fat and sodium. Research is needed to assess the impact and benefits of metronidazole treatment, and to examine the efficacy and safety of the two recommended feeding formulas (F75 and F100) in severely malnourished children.

***Case management of sick young infants***

It is not clear yet whether using simple signs to identify sick young infants can improve neonatal survival in developing countries. Investigating the impact on neonatal survival of simple guidelines used by first-level health workers is, therefore, a research priority.

**IMCI implementation at first-level facilities**

Implementation of the IMCI strategy began in 1996 and 40 countries had introduced IMCI by the end of 1997. Research to identify and address problems with IMCI implementation is a priority, and Box 3 lists some of the principal research questions.

**3. Improving health systems to support IMCI****IMCI drugs**

One barrier to correct case management in health facilities is that the drugs needed are often not available. Countries implementing IMCI have succeeded in modifying the Essential Drug List in ensuring that drugs are available temporarily in health facilities where health workers have been trained in IMCI. More needs to be learned, however, about possible mechanisms to improve the availability of drugs in these facilities, including procurement, distribution, and store and stock management of drugs.

**Organization of work at the health facility**

A number of health facility factors can potentially help, hinder or even prevent appropriate case management. These include how patients move through the service delivery sequence, including triage (the process of giving priority to patients who need urgent treatment); the duration of consul-

## BOX 4

**Examples of important research questions on improving health systems to support IMCI**

- What mechanisms are effective in improving the availability of drugs in first-level health facilities?
- How can caretaker satisfaction be measured? What characteristics of services in first-level facilities are associated with caretaker satisfaction?
- What aspects of facility organization and service delivery (e.g. reception, queuing, and cost) are associated with improved rates of return for follow-up?

## BOX 5

**Examples of important questions for research on family and community practices.**

- What interventions are effective in overcoming constraints to careseeking and promoting timely and appropriate family action?
- After counselling from IMCI-trained health workers, do mothers understand what they have been advised to do? Do they follow this advice? What factors are associated with adherence?
- What proportion of referred children arrive at referral-level facilities? What are the determinants of successful referral?
- What is the relative efficacy and safety of a simplified home treatment for severe malnutrition when compared with the standard hospital treatment?
- Which community-based interventions for the promotion of improved feeding practices can achieve effective and sustainable results?
- Does zinc supplementation decrease the incidence or severity of pneumonia? If so, what are the effects of supplementation in infants?
- Does a reduction in indoor air pollution lead to reduced pneumonia morbidity?

tations with specific providers; the number and type of providers involved in the delivery of IMCI; and the way in which drugs are administered and caretakers are educated in how they should be given at home. Examples of research questions are listed in Box 4.

**Health services utilization**

The IMCI approach can only contribute to lower child mortality and morbidity if sick children are taken to health workers trained to provide appropriate case management. Many of the unanswered questions about mechanisms to promote appropriate utilization of health facilities are discussed in the next section on improving family and community practices. In addition, research will be needed to investigate how the introduction of IMCI affects utilization patterns for various types of providers at different levels of the health system, to identify the characteristics of health facilities and health systems that are associated with appropriate utilization, and to determine how these positive characteristics can be promoted.

**4. Improving family and community practices**

The focus of research on family and community practices is to develop interventions related to prevention and to improved management of childhood illness in the home. Priorities are interventions to improve family responses to illness, infant and child feeding, micronutrient status and reducing indoor air pollution. Box 5 describes some specific research questions related to family and community practices.

**Family responses to illness*****Careseeking***

Common reasons for not seeking care for sick children include late recognition of health problems which require care outside of the home, and obstacles/barriers to use of health care services once a need has been recognized. Research priorities include identifying signs and symp-

toms of illness that can be recognized by caretakers, and investigating methods to improve caretaker recognition of signs of serious illness and to promote timely and appropriate family action.

### ***Caretaker adherence to advice***

Counselling mothers is an integral part of IMCI case management. Studies are needed to assess mothers' adherence to treatment advice and follow-up and referral recommendations provided by first-level health workers. The results of this research will be used to improve counselling and to develop interventions promoting behaviour change at household level.

## **Preventive and promotive child health interventions**

### ***Improving feeding practices***

Malnutrition is associated with over 50% of childhood deaths. In many settings inadequate feeding practices have been identified as a major contributor to malnutrition. Given that most severely malnourished children are not hospitalized, developing approaches to prevent and manage severe malnutrition at home is a priority for research. This should include investigating ways in which health facility and community interventions can promote feasible and sustainable improvements in feeding practices.

### ***Micronutrient supplementation***

Zinc supplementation has been identified as a potential intervention for reducing childhood morbidity and mortality in areas where diets are deficient in this micronutrient. However, information on the effectiveness of this intervention in infants and young children is limited and research priorities include examining the effects of zinc supplementation on the incidence and severity of pneumonia in infants, and on the severity of diarrhoea episodes.

### ***Reducing indoor air pollution***

High levels of indoor air pollution have been associated with increased risk of respiratory morbidity and mortality. It has been suggested that decreased levels of indoor air pollution could reduce childhood deaths from pneumonia by more than 10%, but studies are needed to confirm such potential benefits. ■

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