

**Report on the**

# **SECOND REGIONAL CONSULTATION ON Integrated Management of Child Health (IMCI) pre-service training**

Cairo, Egypt  
27–31 August 2006



**World Health  
Organization**

Regional Office for the Eastern Mediterranean

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## 1

## Introduction

The World Health Organization (WHO) Regional Office for the Eastern Mediterranean held a second consultation on the Integrated Management of Child Health (IMCI) pre-service training in Cairo, Egypt, from 27 to 31 August 2006. The consultation was divided into two parts. The first part of the consultation, from 27 to 29 August 2006, was attended by all participants and had the following objectives:

- to discuss the progress in introducing the IMCI guidelines into the teaching programmes of medical and allied health sciences schools in 11 countries in the Region; and
- to share success stories in IMCI teaching.

The second part of the consultation, from 30 to 31 August 2006, was attended by a smaller number of participants. The objective of this part of the consultation was to review the IMCI pre-service training evaluation guide developed by the regional technical committee on IMCI pre-service training evaluation, which was tested in two institutions in two different countries. This report focuses on the first part of the consultation.

## 2

## The Consultation

The first part of the consultation was attended by 66 representatives from 29 teaching institutions and ministries of health of 11 countries in the Region, one UNICEF country office and WHO headquarters, Regional Office and country offices, and a team from the WHO Regional Office for Africa (AFRO). The teaching institutions participating in the consultation had been selected from among those which had already taken steps to introduce IMCI into their

teaching programmes or who had expressed a strong interest in doing so in the near future. The following countries were represented: Afghanistan, Egypt, Islamic Republic of Iran, Jordan, Morocco, Oman, Pakistan, Sudan, Syrian Arab Republic, Tunisia and Yemen. The second part of the consultation was attended by members of the regional technical committee on IMCI pre-service training evaluation. The committee had been expanded on this occasion to include a wider representation of schools and countries, and included 24 participants from seven medical schools, representatives from the ministries of health of five countries and representatives from WHO. The programme and list of participants are included as Annex 1 and 2, respectively.

The consultation was organized around the following main themes:

- the regional strategy on IMCI pre-service training;
- ensuring the sustainability of IMCI pre-service training; and
- IMCI pre-service training evaluation.

Much use was made of the working group sessions to explore specific topics and to hold group discussions as a way to stimulate as much interaction as possible between the participants on the three themes to try and ensure a concrete output.

The consultation was opened by Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean, Dr M. H. Khayat, Senior Policy Adviser to the Regional Director, and Dr Elizabeth Mason, Director of the WHO Child and Adolescent Health and Development (CAH) Department, who all emphasized the key role that pre-service education plays in preparing the future cadres of health professionals, and thus ultimately, in ensuring the provision of quality health care.



## 3

**Medical ethics and health**

As an introduction to the consultation, Dr M. H. Khayat emphasized the importance of religious values as being at the root of “human quality” and thus, guiding medical practice. Health, according to the same values, is the right of all human beings without distinction, and which the State and individuals should help to assure. In this context, medicine, as a profession, assumes a central place. The role of medicine is to ensure and maintain good health and to deliver benefits to people. Medicine is guided by ethical norms. Thus, the fundamental religious values of Islam apply also to health and to the field of medicine. Patients have the right to information (*freedom* or *horreya*), privacy and adequate care. The principles of justice (*adl*) underline the need for equity in meeting needs, delivering care and ensuring equitable access to primary health care and, more broadly, to the full range of preventive, curative and rehabilitative services. Also the value of quality and tenderness (*ihsan*) is embodied in the religion. Applied to the area of health, this value means ensuring the provision of the best quality of services and providing a gentle and compassionate touch in caring for a fellow suffering human being, a value which is unfortunately disappearing in today's practice of medicine. The dignity (*karama*) of each individual should be respected and medicine should re-appropriate itself of its human dimension (*humanization of medicine*). Teaching institutions have a moral duty to pass on these values to their students.



## 4

## IMCI Pre-service training: Progress in the Eastern Mediterranean Region

### 4.1 The need for IMCI pre-service training

Since IMCI was introduced in the Eastern Mediterranean Region in 1996, it has become increasingly evident that its implementation has required the concerted and sustained efforts of partners, including teaching institutions. The sustainability of IMCI interventions was a concern recognized by the Regional Office early in the process, and accordingly effective approaches to addressing this issue were examined. While qualified and skilled human resources represent the backbone of any health system, traditional approaches, such as in-service training pursued by ministries of health in countries, suffer from many limitations, including the necessary major investment of the health system and partners which is unlikely to be sustainable over time, the high turnover of staff and the limited coverage of the private sector. Pre-service education constitutes the first step in human resource development, thus, teaching institutions play a key role in preparing tomorrow's health professionals, many of whom will be working in primary health care facilities. Current paediatric teaching for undergraduates has limitations, such as: 1) it tends to focus mainly on inpatient (hospital) care with little flexibility for outpatient or home care; 2) it emphasizes the use of sophisticated and intellectual knowledge and tools that may be inapplicable to future working environments and that focus on rare diseases. Undergraduates' knowledge and understanding of the most common diseases may be compromised as a result of this approach, and their related knowledge and skills, including the communication skills necessary for everyday practice, may be inadequate; the approach weakens the link between the world of knowledge and the realities which students will be confronted by following graduation; and 3) the teaching methodology relies mainly on lectures to address large groups of students. The methodology provides little opportunity for interactive learning and supervised clinical practice. There was, therefore, a need to introduce IMCI

into pre-service education, both in terms of content and an effective outpatient teaching approach.

#### 4.2 The purpose of introducing IMCI into pre-service teaching programmes

The introduction of IMCI into teaching programmes of medical and allied health professional schools as a public health approach is aimed at:

- strengthening the teaching of the outpatient and home child care components, particularly in paediatrics and family and community medicine, producing a sustainable competent cadre of health providers who are capable of delivering quality primary health care services in the real-life situation of their working environment;
- easing the in-service training burden placed on ministries of health and health systems, which is long and resource-intensive, and impacting on the consequences of the chronic problem of high staff turnover.

The ultimate goal is to improve the quality of child care in the public and private sector at both health facility and community level.

#### 4.3. IMCI pre-service training in the Eastern Mediterranean Region

The first medical school in the Region to introduce IMCI into its pre-service paediatric teaching programme was Alexandria University in 1998. Since then, the number of schools introducing IMCI into pre-service training has increased to include 26 medical schools and 200 allied health professional schools in seven different countries (Table 1). They mostly follow the approach recommended by the Regional Office which is outlined in Section 7, IMCI pre-service training: regional strategy.

Table 1. Number and type of teaching institutions introducing IMCI into their pre-service teaching programmes in the Region

Country	Number of teaching institutions	
	Medical schools	Allied health professional schools
Egypt	8	190 Ministry of Health nursing schools <sup>1</sup>
Morocco	4	5 nursing schools
Sudan	7	National Health Academy and 4 state medical assistant schools <sup>1</sup>
Afghanistan	1	—
Iran (Islamic Republic of)	2	—
Pakistan	3	—
Syrian Arab Republic	1	—
Total (7 countries)	26	200

<sup>1</sup> Curriculum decided at central level for all schools.

This approach and countries' subsequent experience of it were reviewed during the first regional consultation on IMCI pre-service training in September 2002 (see Annex 3). This consultation resulted in consensus on the outline and key elements of the regional strategy on IMCI pre-service training. In addition to providing technical support to countries, schools and the consultation, the Regional Office's work in this area has focused on the preparation of the following:

- a facilitator's guide for in-depth IMCI pre-service training orientation workshops (under finalization);
- a prototype IMCI lecture (under review);
- student e-learning materials (under development);
- an IMCI pre-service training evaluation guide (field-tested and to be revised and finalized);
- a section fully dedicated to IMCI pre-service training on the CAH/EMRO website<sup>1</sup>.

<sup>1</sup> The section can be accessed through the website home page at <http://www.emro.who.int/cah/>

Despite these efforts, there is an obvious need to invest more in IMCI pre-service training, as a complementary approach to in-service training. Although this requires addressing issues related to sustainability (see Section 8, IMCI pre-service training: Sustainability), capacity building, regular evaluations, documentation and information sharing.

5

### IMCI Pre-service training: Global update

Much of the work to strengthen pre-service training has relied on important lessons learnt from earlier initiatives on enhancing the teaching of diarrhoeal diseases in medical and basic education. These include the realization that: 1) conducting one workshop with few representatives from a school was insufficient to bring about and sustain changes; 2) early involvement of the academic community in the process of the introduction of a public health strategy and technical guidelines (e.g. IMCI) was essential; 3) some adaptations of the WHO standard teaching materials would usually be introduced by schools; and 4) collaboration between ministries of health and teaching institutions was critical. CAH/HQ has developed a number of resources for teachers and students to support countries in strengthening pre-service education<sup>2</sup>. More recently, CAH/HQ has been working to develop a new computerized IMCI tool, called ICATT (IMCI computerized adaptation and training tool) to be used in countries to adapt the IMCI chart booklet, which contains the IMCI guidelines, and to train in IMCI, using computers, different categories of health staff and undergraduate students. The following challenges have been identified in IMCI pre-service training globally:

<sup>2</sup> The documents can be accessed and downloaded from the CAH/HQ website's section on resources, under IMCI pre-service training, at <http://www.who.int/child-adolescent-health/publications/pubIMCI.htm#GUIDELINES%20AND%20TRAINING>

- expanding to new schools (scaling up) and sustaining efforts in those institutions in which IMCI has already been introduced;
- negotiating to distribute adequate time to IMCI in the curriculum, including both theoretical and practical/clinical sessions;
- ensuring adequate facilities for outpatient teaching;
- giving priority to interactive and skill-orientated teaching;
- coordinating teaching between different academic programmes and units;
- sustaining interest and commitment;
- institutionalizing the process.

## 6

## IMCI Pre-service training: Experience in the African Region

All countries with the exception of two (44 out of 46) have adopted the IMCI strategy in the African Region, and over 40 000 health care providers have been trained to date. To sustain these efforts, IMCI pre-service training was introduced in the African Region in 1999. Since then, 12 countries have conducted orientation and planning activities and 13 more have already introduced IMCI in their teaching programmes. To date, over 5000 students are estimated to have been exposed to it. In order to learn from the experience, two rounds of evaluations were carried out, one round of evaluation was conducted in four countries in 2002, and the second round was conducted in five countries in 2005–2006.

The evaluations specifically aimed to: 1) assess methods and materials used for IMCI teaching, learning, monitoring and follow-up and to determine whether the learning objectives were covered; 2) determine the teachers' and students' ability to use the IMCI methodology, including materials and their perceptions of the material; 3) assess student IMCI-related knowledge and skills; 4) describe support facilities and IMCI teaching cost implications; and 5)

identify actions and resources required to strengthen and sustain IMCI teaching. Available information from the latest evaluation carried out in 19 institutions in five countries showed the following results:

- *Teaching approaches and methodology:* Of the three possible approaches, namely, IMCI taught in a block, staggered over the programme or a combination of the two (mixed), the last two approaches have been more widely adopted. Adapted versions of the IMCI handbook and the standard, in-service 11-day IMCI case management course were used. The IMCI teaching methodology and teaching and educational materials were found to be clear and easy to use by teachers and students, although the former expressed the need for a specific facilitator's guide for IMCI pre-service training. The major constraints identified in teaching methodology and approaches were the inadequate number of tutors trained in IMCI as a result of high staff turnover rates and the large number of students which make it difficult to hold clinical practice sessions.
- *Teacher and student attitudes:* In general, there was a positive attitude towards IMCI. In one country (Namibia) students expressed the wish that other subjects were taught in the same way as IMCI.
- *Support facilities:* In all countries except one (South Africa), teaching materials, equipment and supplies had been provided to most schools by WHO and this raises the issue of sustainability over any period of time.
- *Cost implications:* Costs related to the introduction and teaching of IMCI were unfortunately not documented in any of the schools; most of the expenses appeared to have been borne by WHO.

Finally, it was recognized that there was a need to continue to advocate for IMCI with more stakeholders. The plenary discussion which followed this presentation highlighted how most of these findings were common to the experience of the Eastern Mediterranean Region. Participants stressed the importance of sharing experiences between regions and of developing strategies to address key issues in implementation.

## 7

**IMCI Pre-service training: Regional strategy****7.1 The document**

The initial efforts of medical schools in the Region in introducing IMCI into their teaching programmes, and the experience acquired in this endeavour, led the WHO Regional Office to develop a strategy on IMCI pre-service training. This strategy could help to standardize the process and to ensure its sustainability. An outline of the strategy was reviewed during the first regional consultation on IMCI pre-service training in 2002, and served as a basis to draft the strategy document presented in this consultation. The document has:

- a) *An introductory section* which describes the role of teaching institutions in preparing tomorrow's cadres of health professionals and the limitations of current pre-service teaching and in-service training.
- b) *A section describing the rationale and the objectives* of IMCI pre-service training which aims at strengthening the teaching of outpatient and home child care (particularly in paediatrics and family and community medicine), and improving future health professionals' competencies. The ultimate goal is then to improve the quality of primary child health services, while ensuring IMCI sustainability and contributing to expanding IMCI coverage, potentially at a lower cost than is currently incurred through in-service training only.
- c) *A section on lessons learnt* from previous regional experiences in introducing other public health programmes into pre-service training as the basis to develop the strategy and to address the main gaps identified, particularly in relation to management, coordination and sustainability.

- d) *A proposed step-by-step approach* of the strategy, which has already been followed in many schools in the Region and further refined over the years to incorporate the lessons learnt.

The draft strategy document was reviewed by participants, who were divided into two groups for the purpose. It was, in general, considered a good and useful document that provided guidance to countries on how to introduce and implement IMCI pre-service training. The group work resulted in a number of specific comments that will be taken into consideration before it is finalized.

## 7.2 The step-by-step approach

The approach that has been proposed in introducing IMCI into pre-service training in a country and its teaching institutions requires actions on two levels, namely national and institutional level. For each of the two levels, four phases have been identified:

- preparation and orientation;
- planning;
- implementation and monitoring;
- review and re-planning.

At national level, the preparatory and orientation phase has the objective of creating a supportive environment for IMCI pre-service training. When the IMCI strategy is introduced in a country, early and regular participation of academic staff in the steps and activities of the IMCI process helps to create a supportive environment and ownership for the later introduction of IMCI into teaching institution programmes, and contributes to the establishment of good collaborative links between the ministry of health and the academic community. Partners should be identified as early as possible, awareness activities should be conducted and decision-makers' commitment to support pre-service training should be sought, including the establishment of a national coordination and management structure on IMCI pre-service training. The planning phase should lead to the preparation of a national plan in which, in addition to clearly stated objectives, activities, responsibilities and time frame, indicators and targets



should be described and funding resources should be indicated. During the implementation phase, the responsibility at national level would be to facilitate the process, to sustain interest, to assist in identifying gaps and to promptly address issues through follow-up visits and other mechanisms. The experience would need to be periodically reviewed in order to strengthen the approach and to provide evidence for advocacy.

At the level of the teaching institution, the objectives of the preparatory and orientation phase are similar to those at national level, i.e. providing orientation to the strategy and IMCI training for key teaching staff and the establishment of an IMCI working group at the institution. Planning relates to decisions on the placement of IMCI-related elements in the teaching programmes of relevant departments, developing learning objectives and a teaching plan, including monitoring and review, determining indicators and setting targets, identifying funds and the endorsement of the plan by the department or institution. Training of teaching staff, production of teaching and reference materials and preparation of training sites also characterize the implementation phase, in addition to the actual teaching with student assessment and documentation of the experience. As with the national level, the teaching experience at the institution will also need to be reviewed on an annual basis to measure both process and outcome of teaching and teachers' and students' satisfaction with the new approach, in order to redirect the teaching plan for the next year.

## 8

### IMCI Pre-service training: Sustainability

#### 8.1 Egypt experience

##### 8.1.1 Strengths

Since the early implementation of IMCI in the country, efforts have been made to initiate its introduction into teaching programmes of medical schools. To date, eight medical schools and the school of nursing have been taking

steps in this direction. The previous experience of the Ministry of Health and Population in introducing other public health approaches into teaching institution programmes (particularly in the control of diarrhoeal disease programme), the strong partnership established between the Ministry of Health and Population, academia and partners and evidence of successful implementation of IMCI in the field, have all contributed to create a supportive environment at national level. Furthermore, university staff have been involved in the IMCI strategy since its early stages (i.e. since adaptation of technical guidelines) and have continued to participate actively in various aspects of implementation, (i.e. acting as resource persons in technical committees, facilitating training courses and following trained staff in the field and conducting evaluation (health facility survey) and review. This close partnership with the Ministry of Health and Population created a strong sense of ownership and a favourable environment for the introduction of IMCI in teaching institutions, with a high level of commitment from senior staff. The pioneering contribution of academic staff, such as Professor Ahmed Madkour of Alexandria University, to IMCI pre-service training, not only in his institution and the country but also regionally and globally, was another source of stimulus, in addition to representing an extraordinary example of commitment. The Supreme Council of Universities incorporated IMCI in the core curriculum of paediatrics and community medicine. A standardized approach was followed for this purpose guided by the WHO Regional Office. The initiative was first formally endorsed by each institution involved. The capacity of teaching staff for technical and facilitation skills was strengthened. IMCI was incorporated into the teaching curriculum and due attention was paid to ensuring consistency between IMCI and other contents of the curriculum and linkages with "classic paediatrics teaching". An IMCI chapter was included in textbooks of some departments and student notes were developed. Finally, IMCI was included in the end-of-rotation and student final written and clinical examinations.

### 8.1.2 Constraints

The main constraints identified at national level included the lack of an IMCI pre-service training management structure, scarce documentation of related activities and inadequate dissemination of information and updates on IMCI to schools. A diverse range of problematic issues was described at the level of some teaching institutions.

- *Institutionalization*: lack of a functional task force within the institution, viewing IMCI teaching as a project (thus time-limited), and inadequately documenting the experience;
- *Teaching and curriculum*: seeing IMCI as a separate paediatric "subject", rather than an approach to outpatient child management, assigning less importance and value to outpatient than inpatient paediatrics, and viewing IMCI as too basic in contrast with the academic quest for "high-tech" teaching; allocating insufficient time to IMCI;
- *Capacity building*: lack of a realistic and effective strategy to train teaching staff in IMCI and constraints associated with the long course; rapid turn-over of IMCI-trained staff and, in some cases, lack of IMCI-trained staff at IMCI teaching sites;
- *Logistics support*: inadequate availability of teaching materials (e.g. IMCI chart booklet) and supplies;
- *Evaluation and advocacy*: lack of in-depth evaluations until 2006 and minimal advocacy efforts.

### 8.1.3 Recommendations

Based on the experience to date, the Egyptian team recommended a number of actions in key areas to ensure the sustainability over time of IMCI pre-service training. These included:

- *A supportive environment*: maintaining a high level of commitment to IMCI and pre-service training, advocating for IMCI, setting up a national IMCI pre-service training task force, conducting annual meetings on IMCI pre-service training and providing updates on IMCI and continuing to involve university staff in national IMCI activities;

- *Financial resources:* securing adequate funding to support activities through sustainable mechanisms (e.g. cost-recovery at teaching institutions), including reproduction of materials;
- *Teaching:* strengthening interdepartmental coordination, for instance, between paediatrics and community medicine departments to ensure that the whole scope of IMCI pre-service training is adequately covered;
- *Capacity building in IMCI:* having plans to ensure that an adequate pool of teaching staff is trained in IMCI and that this is maintained over time, while keeping outpatient department teaching sites staffed with IMCI-trained teaching staff and adequately equipped and supplied;
- *Monitoring, evaluation and research:* conducting regular monitoring and periodic evaluation of IMCI pre-service training, both internal and external, sharing results and using them to strengthen teaching.

## 8.2 Sudan experience

### 8.2.1 Strengths

The review of the IMCI early implementation phase in Sudan in 1999 identified the need to introduce IMCI into pre-service training. Unlike Egypt, where efforts were mostly led by individual schools with support from the Ministry of Health and Population, the initiative in Sudan was from the beginning characterized by the organization and standardization of the process at national level with the establishment of a national task force on IMCI pre-service training. The task force, composed of representatives of paediatrics and community medicine departments, the Federal Ministry of Health and WHO, set the objectives of identifying the steps for the process and the student learning objectives. They also set the criteria for the selection of schools and for documenting the experience. This approach led to the following:

- *Planning:* the preparation of a national plan for IMCI pre-service training, the conducting of a national planning workshop, the selection of a first batch of six medical schools and the submission and endorsement of their individual plans. The schools selected were schools using a traditional curriculum, those

using a community-orientated approach and those using a combination of the two. Their plans for IMCI pre-service training were formally endorsed by the concerned departments, which also had the responsibility of coordinating all efforts.

- *Learning resources:* development of a national student manual and provision of technical support to implementing schools.
- *Capacity building:* conducting of IMCI training courses for teaching staff and their assistants.
- *Advocacy:* promotion of the initiative through a national workshop and activities of the Sudanese Paediatric Association.

The existence of a national task force had the advantage of monitoring the process and responding to newly identified needs during implementation through the schools' progress reports, such as the development of a policy and tools for student assessment and a package on the IMCI community component.

As noted from the Egyptian experience, early involvement of academia in the introduction, adaptation and implementation of the IMCI strategy in the country was key to facilitating cooperation between universities and the Ministry of Health and Population and in creating ownership among all parties involved, contributing to teaching staff's positive attitude towards IMCI and to their full understanding of IMCI, and creating a pool of valuable resources for capacity building. The institutionalization process in each school emphasized the need for integration of IMCI elements within paediatric and community medicine teaching curricula, avoiding the establishment of a "new subject". While the approach followed was standardized, it did provide sufficient flexibility to adapt to different curricula and teaching plans in different teaching institutions.

### 8.2.2 Constraints and recommendations

A number of the constraints identified in the Egyptian experience were also identified in the Sudanese experience, these included:

- *Planning and monitoring:* the terms of reference for the task force on IMCI pre-service were not reviewed to adapt to the evolving needs, namely those

related to implementation, monitoring and evaluation, and the task force itself met irregularly. The integration of IMCI in paediatric and community medicine teaching was inadequate. There is a need:

- to revise the terms of reference for the task force;
  - to ensure that IMCI is well integrated in the paediatric and community medicine teaching curricula.
- *Human resources:* the turnover of teaching staff was high and their availability and commitment was a constraint. There is a need:
  - to train and involve more teaching staff in IMCI;
  - to train teaching assistants and registrars in IMCI who supervise student assignments to the outpatients department.
- *Logistic support:* limited space available and the challenge of conducting teaching sessions at primary health care centres characterized by the high turnover of trained staff and the lack of supervision in some cases; sustaining provision of learning resources to students; lack of a community training package. There is a need:
  - to provide students with adequate exposure to outpatients, e.g. teaching in wards but making arrangements to receive sick children from the outpatients department for this purpose;
  - to use mechanisms, such as cost-recovery, to ensure availability of sufficient copies of learning resources for students.

### 8.3 Views from other participating schools

The participants were divided into two groups. They discussed some of the key issues related to the sustainability of IMCI pre-service training and how to address these issues according to their own experience. The issues reviewed concerned management, advocacy and training (learning resources, training sites and capacity building).

- *Management*: the establishment of a national task force on IMCI pre-service training was expected to guide, facilitate, standardize and support the process. Issues related to its "functionality" could be addressed by careful selection of its members (with decision-making authority which is committed, influential and well exposed to IMCI), clear description of its terms of reference and distribution of tasks among its members based on a sound plan with a time frame. The task force should be kept updated of any developments in IMCI to motivate its members.
- *Advocacy*: issues related to sustainability, such as the support and availability of financial resources could be addressed through improved advocacy, creating interest in, and a demand for, IMCI pre-service training at different levels, using evidence in support of IMCI pre-service training and sharing information. Partners should be identified for the pre-service training initiative and duly involved. WHO was expected to play a leading role in advocating for IMCI pre-service training, not only with the international community, but also with ministries of health and of higher education. Websites on IMCI pre-service training (such as the section fully dedicated to it developed by CAH/EMRO on its website) and the establishment of an e-discussion group on IMCI pre-service training were examples of initiatives to keep the interest in IMCI pre-service training high and people informed.
- *Learning resources*: identifying mechanisms to ensure that learning resources are available in the long term has been a key issue from the beginning. It was clear from the discussions that the solution would rely on adopting a number of approaches at the same time. These included:
  - incorporating the IMCI guidelines into local textbooks of paediatrics and other teaching materials;
  - making an adequate number of copies in the school library;
  - making electronic copies of the national IMCI guidelines and relevant materials available at the teaching institution skill laboratory and library and to students at low cost, establishing a revolving fund for this purpose;

- photocopying the IMCI chart booklet (black and white) rather than printing it in colour, and/or printing only the few coloured pages and photocopying the rest.
- *Training sites:* the issue of making opportunities available to expose students to outpatients could be addressed in various ways, including by reorganizing the outpatient department settings run by the university and using Ministry of Health health centres with proper coordination and arrangements, cost-sharing and the provision of necessary supplies and equipment.
- *Capacity building:* the issue of building the capacity of teaching staff for IMCI-related topics could be addressed in different ways. While continuing to involve teaching staff in in-service training activities as facilitators, teaching institutions should take responsibility for building the capacity of their own staff and maintaining an adequate core of trained staff over time:
  - through an IMCI pre-service training package to be developed by WHO, meant for teaching institutions and staff, including guidelines for in-depth orientation on IMCI, teaching skills, assessment of students, etc.;
  - making use of education development centre activities—where such centres exist—and available mechanisms within the teaching institution to train staff in IMCI.

## 9

**IMCI Student e-learning material**

The WHO Regional Office has recently undertaken another initiative in the form of the development of a CD-ROM as an e-learning tool for students to support teaching institutions in enhancing the teaching of child health within the context of IMCI pre-service training. "E-learning" refers to education carried out by electronic means, such as through the use of CD-ROMs, the Internet, video-conferencing and e-mail, whether from a distance or in face-to-face classroom



settings (e.g. computer-assisted learning). E-learning has many advantages, it has a relatively low cost, can be interactive with immediate feedback and can include evaluation which generates fast results. It can be used independently or in addition to other learning methods, thus preparing the student for classroom sessions. Samples of sections of the IMCI CD-ROM were presented to participants of the consultation to obtain their comments and suggestions. The CD-ROM was welcomed with much enthusiasm and the Regional Office was encouraged to accelerate its efforts to complete it. Participants felt that such an initiative was needed and was of a high practical value. Many suggestions were provided to improve the design and structure of the CD-ROM. These will serve as a guide for the continuation of the development process.

## 10

**IMCI Pre-service training evaluation guide****10.1 Guide development process and content**

The IMCI pre-service training evaluation guide was developed by WHO Regional Office as a response to the need to evaluate the experience of the initiative, since its introduction in the Region in 1998, in order to identify strengths and gaps and to provide the evidence base for further expansion and to strengthen existing efforts.

- *The technical committee.* A technical committee on IMCI pre-service training evaluation was established by the Regional Office in July 2005. The committee is composed of WHO regional and country staff working in child health and senior professionals from teaching institutions and ministries of health from countries in which IMCI pre-service training had been fully supported. Many schools have introduced IMCI and major IMCI evaluation activities on the quality of outpatient child care at primary health care facilities have taken place in close collaboration with the Regional Office. Work was organized through a series of meetings, telephone conferences and an e-discussion

group. The evaluation instrument was then field-tested in Egypt and Sudan in July and August 2006, respectively.

- *Main topic areas.* The evaluation guide is based on the standardized approach recommended for IMCI pre-service training in the Region. The guide consists of the following main topic areas:
  - background and objectives of the evaluation;
  - what to evaluate at national and institutional level in terms of both process and outcomes;
  - planning for and conducting the evaluation;
  - evaluation questions; and
  - evaluation tools.
- *Process evaluation.* In evaluating the process, the guide assists in assessing whether a supportive environment has been established, with formal commitment and a management and coordinating structure, and in the planning process at national level. The focus on the process at institutional level is on the formal endorsement of introducing IMCI into identified teaching programmes, the establishment of a management and coordinating structure, capacity building for teaching staff, planning, implementation and sustainability. Emphasis is given to reviewing the quality of activities.
- *Outcome evaluation.* The guide also deals with the evaluation of outcomes, in addition to process, at the following levels: 1) national level (mostly related to costs), 2) teaching institution level (quality of teaching and student competencies), and 3) health care delivery level (health care provider competencies). The field tests of the instruments conducted to date have focused on measuring student outcomes at the institution (see 10.2.2). More work is needed to complete the guidelines on cost analysis.
- *Planning and evaluation.* A section on planning for the evaluation and a section on its conduct provide detailed information on all the planning tasks, the time frame and the evaluation itself. These two sections have been found to be very useful by the participants in this consultation. They were developed after the first field test in Egypt and revised after the field test in Sudan.

- *Evaluation questions and forms.* A specific list of evaluation questions is then presented to be addressed by the evaluation tools. These cover both process and outcome at national and institutional level and consist of a set of 16 forms (Annex 4).
- *Analysis.* A new section on indicators of student outcome (knowledge and skills) has been drafted for review, to guide data analysis based on the experience from the two field tests. It will be added to the existing sections of the guide once it is finalized.

## 10.2 Field test of the evaluation tools

### 10.2.1 Methodology

The objective of the field tests was to test the evaluation instruments in two different settings and revise it according to the findings.

- *Areas covered.* The evaluation in the field tests covered the following areas:
  - a) supportive environment and coordinating mechanisms at various levels;
  - b) planning process at national and institutional level;
  - c) quality of IMCI-related teaching, including teaching aids and sustainability;
  - d) teaching staff and student attitudes towards IMCI teaching; and
  - e) student IMCI-related competencies.
- *Field test sites.* The field test was conducted in Egypt at the University of Alexandria medical school and Sudan at the University of Khartoum medical school. These countries were selected based on their long experience with the IMCI strategy, evaluations conducted, such as the IMCI health facility survey, and strong WHO country support. The two medical schools were chosen based on their long experience with IMCI pre-service training, their strong interest in evaluating their IMCI-related teaching and membership in the regional technical committee on IMCI pre-service training evaluation.

- *Evaluation team.* Most of the members of the evaluation team were members of the technical committee and so they were very familiar with the evaluation instruments developed by the committee to be tested. The members represented a good mix of teaching, clinical and public health expertise.
- *Evaluation methods.* The four-day evaluation made use of rapid appraisal methods at national and institutional level and covered both process and outcomes (see 10.2.2). These methods included a review of key documents, interviews with key informants, observation of teaching sessions, focus group discussions with teaching staff and students, visits to the outpatient teaching sites and library, multiple-choice questions—including simple questions and more complex scenarios, observation of case management performed by students and daily meetings of the evaluation team. Additional information on the methodology followed to assess student knowledge and skills is summarized in Annex 5.
- *Schedule.* After a preparatory meeting, the first day was spent for interviews at national level and the following three days were used for testing the evaluation instruments at the medical schools. Feedback was provided to staff of the concerned departments at the end of the data collection process. Activities were carried out both sequentially (one activity after another one) and in parallel (activities conducted simultaneously by different team members) to maximize the time available.
- *Capacity building.* The field tests were also used to expose most team members to the various methods used on a rotation basis and to build their capacity in IMCI pre-service training evaluation.

An interesting evolution of the evaluation of IMCI pre-service training concerned the assessment of student competencies. This assessment had originally been designed to make key conclusions within the broader context of the evaluation itself. However, given the eagerness and demands of teaching staff to receive a much more detailed feedback in this area in order to further enhance teaching, the assessment instruments and data analysis were revised

to reflect this need. Finally, it was emphasized that the evaluation context had to be always kept in mind, using the results for that specific institution rather than to compare institutions with each other, particularly in the area of assessment of student competencies.

### 10.2.2 Preliminary observations and findings

The guide, including its assessment instruments, overall performed well according to the expectations. The first field test, in Alexandria, led to some important changes in the guide and to the development of a new section on planning for the evaluation, which participants in the consultation found very useful and of high practical value. The organization of a number of tasks in the second field test, in Khartoum, benefited from the previous field test and led to further standardization of the methodology. Below are some of the preliminary findings and recommendations resulting from the two field tests.

## Supportive environment

- *Partnership.* A strong partnership was formed between the Ministry of Health and teaching institutions in both countries, with WHO fully involved and playing a key role in the process. On the other hand, the need was felt to involve other influential partners, such as professional associations, the Ministry of Higher Education, etc. It was also suggested that greater effort should be made by Ministries of Health to share new information and technical updates with partners, also through the joint organization of national IMCI pre-service training events.
  
- *Management.* The establishment of a national task force on IMCI pre-service training in Sudan was considered a good model as a management and coordinating structure, which was missing in Egypt. It was emphasized that, when establishing the task force, countries should clearly define its terms of reference and update them to reflect evolving needs. The task force would have the responsibility for developing clear plans, with indicators and targets,

for follow-up and review during implementation; these were not developed in both countries during the early phase. At institutional level, the introduction of IMCI into the teaching curriculum (of the paediatric department) had formally been endorsed by the respective deans in both schools. Orientation workshops for teaching staff had been conducted, with a new, in-depth approach introduced in Egypt. It was noted that the activities conducted were rarely documented and much of the available documentation had been carried out mostly by WHO when involved.

## Teaching

- *Teaching.* The overall impression of IMCI teaching was positive. The methodology used included lectures, practical and clinical sessions and favoured interactions with students. For general paediatric teaching, it was found that supervised outpatient clinical practice, conducted once weekly, was not given the same level of attention as inpatient sessions. In Sudan, due to logistical problems, outpatient sessions were carried out in the ward. IMCI was placed in the teaching programme staggered over the programme with a block synthesis. Significantly, no inconsistencies were found between the content of the IMCI guidelines taught and the whole paediatric teaching programme. What was weak was the link of IMCI with the teaching of other subjects in the paediatric programme. In addition to strengthening this link, the need was felt also for a guide to standardize the conduct of clinical sessions, stating objectives and expected outcomes and the content and methodology to be used.
- *Teaching materials.* The IMCI student notes had been included in the paediatric textbook available in Alexandria University, thus making them available to students also in this way. The IMCI chart booklet, containing the technical guidelines, was distributed free-of-charge to students, with one personal copy given to each student in Alexandria University—thanks to the support of the Ministry of Health and Population—and one copy lent to each student—to be returned at the end of the rotation—in Khartoum University. Ensuring

availability of these materials to students in the long term was identified as a major issue and several approaches were proposed to overcome it (see also Section 8, IMCI pre-service training: sustainability).

- *Teaching staff attitudes.* Teaching staff involved in IMCI teaching were very positive about the IMCI action-orientated approach to outpatient teaching. On the other hand, they tended to see it as a "subject" rather than an approach to case management. Some parts of the IMCI algorithm were left out by some staff in their teaching if they were not fully convinced by it. It was therefore recommended that a refreshment orientation should be conducted to clarify the rationale of IMCI teaching, its technical basis and how to link it to the rest of the paediatric teaching programme. Also, internal meetings could be held to discuss any issues raised by the staff and to share information and updates. Teaching staff who were not involved in IMCI had a rather different attitude towards it and thought of it as a simplistic approach but showed willingness to learn more. There was an obvious need to also orientate those staff to IMCI and to provide them with the evidence base for IMCI and to create a supportive environment within the department. As teaching staff involved in IMCI had received their IMCI training in standard courses run by the Ministry of Health and there was a certain turnover of them, the need in both countries was widely recognized to implement at the institution level other alternatives to Ministry of Health training in order that more staff could be trained.
- *Student attitudes.* In both schools, students were enthusiastic about IMCI. They felt confident about it and wished that other paediatric subjects used a similar action-orientated approach. They enjoyed the variability of the teaching methods employed in the IMCI-related sessions, the approach moving from theory to clinical practice and the materials available. On the other hand, they felt that IMCI was being taught as an isolated, independent, separate subject, this reflecting the same mistaken notion of teaching staff. They also lacked knowledge of the technical basis for IMCI, as this was not currently taught. Finally, they felt that more time should be allocated to IMCI

in the teaching programme to master all tasks. Based on these findings, the recommendations were straightforward, they included: to integrate IMCI more into the teaching programme as an approach to outpatient case management rather than a separate subject and to provide background information to both teachers and students on its scientific basis.

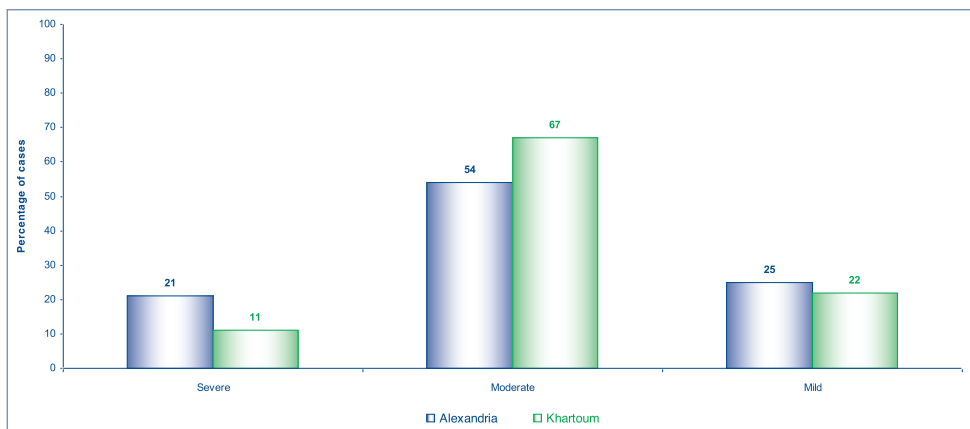
## Student knowledge and skills

- *Assessment of knowledge.* In both universities, there was a good correct response rate to multiple-choice questionnaires. Students encountered greater difficulty in applying knowledge when confronted with case scenarios. It was suggested that case scenarios could therefore be used in teaching to reinforce student knowledge and its application to case studies.
- Another important lesson learnt was that unless topics are taught, even when they are assumed to be described clearly in the reference materials, students may have difficulty in mastering them. An example is given by selecting treatment decisions. These are clearly included in the IMCI chart booklet, which describes the key management actions based on the clinical classification of the child. Another example is feeding counselling, the key points of which are also included in the chart. Despite this, these were areas where students performed less well than average. In fact, multiple-choice questionnaires on selection of treatment and counselling were included in the evaluation in Alexandria University, despite the fact that they were not formally taught there, to test whether students would orientate themselves well when referring to the IMCI chart booklet that they were allowed to consult during the test. As mentioned, students had difficulty answering related questions.
- A key finding in the exercise was that the full scope of IMCI was not delivered in the teaching programme, mainly as a result of time constraints, leaving out such areas as communication that has notoriously been found to be weak among health care providers in the field during health facility surveys.

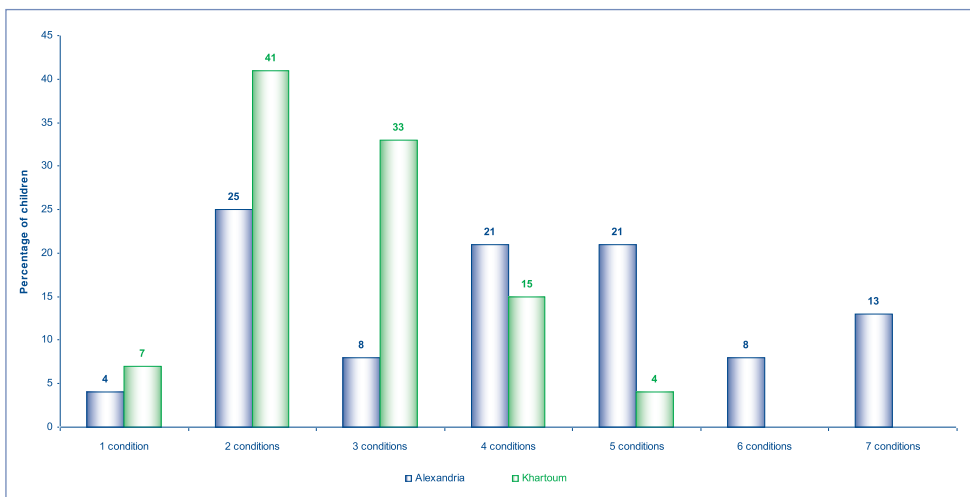


## ■ Assessment of skills

- *Sample characteristics.* Good case selection, based on pre-set criteria, ensured the presence in the sample of cases classified as "severe" (i.e. having some key signs/symptoms indicating severity and requiring referral to hospital), "moderate" (corresponding to the "yellow row" of the IMCI chart, i.e. conditions having some key signs/symptoms and requiring treatment at home and follow-up), and/or with more than one condition present at the same time (see Figures 1 and 2). This approach enabled the assessment of student case management skills for many different key tasks. Skills are, in fact, better assessed when a condition is present rather than when it is not.
- *Assessment of skills.* Overall, students assessed children for the main signs and symptoms (general danger signs, cough or difficulty in breathing, diarrhoea, fever and other problems) using a correct methodology. They also systematically checked the child immunization and vitamin A supplementation status. An area likely to require greater emphasis in teaching was a proper assessment of nutritional status. Overall, children were correctly classified according to IMCI guidelines in most cases. What was very interesting was the fact that students followed a logical approach to the classification, relying on their findings to make a conclusion. While this may sound obvious, surveys conducted in the field have shown that health care providers would often tend to classify a child without relying on the findings of their clinical examination. The findings on feeding assessment in Sudan showed that while students were diligently and correctly checking on feeding practices, they had difficulty in identifying feeding problems, i.e. making use of the identified child feeding pattern for counselling purposes. This may partly be due to the fact that feeding counselling was not taught in the programme and this area caused some problems also in the multiple-choice questionnaire tests for knowledge. Annex 6 shows the findings of the assessment at Khartoum University. This has been chosen as an example as the evaluation tools and methodology were revised based on the field test in Alexandria.



**Figure 1.** Severity of conditions in the children managed (Alexandria and Khartoum Universities)



**Figure 2.** Number of conditions in the same child (Alexandria and Khartoum Universities)

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## Conclusions

- There was wide consensus that the IMCI strategy safeguards the rights of children and is an effective and suitable strategy to address child health care in an integrated way in countries in the Region.
- The introduction of IMCI into teaching programmes of medical and paramedical teaching institutions is a key approach in ensuring IMCI sustainability in the long term.
- The early involvement of partners in IMCI pre-service training has played a critical role in creating ownership as a pre-requisite for long-term support.
- In response to country demands to introduce IMCI into the teaching curriculum, the WHO Regional Office has been a driving force for supporting IMCI pre-service training.
- Tools and guidelines developed by WHO have been appreciated and have greatly facilitated the process of introduction and implementation of IMCI pre-service training.
- The experience in different countries of the Region, and in other regions, shows that factors adversely affecting IMCI pre-service training sustainability are similar. These include inadequate availability of teaching and learning resources, the high turnover of teaching staff trained in IMCI, the lack of sustained commitment and dependency on resources outside the institutions to build and maintain staff capacity in IMCI.
- There is a consensus that the regional strategy on IMCI pre-service training provides good guidance to countries on IMCI pre-service training implementation.
- The self e-learning material, which is being developed by the Regional Office, is an additional valuable student learning resource.

- Evaluation of IMCI pre-service training is necessary to provide evidence to mobilize resources and can highlight strengths and gaps to be addressed for further improvement of the quality of teaching.
- The regional IMCI pre-service training evaluation methodology was appreciated by the consultation as a good step towards a standardized approach to evaluation.

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## Recommendations

### *To countries and teaching institutions*

1. Establish a national IMCI pre-service training structure with clear terms of reference, a plan and distribution of responsibilities.
2. Make any effort to institutionalize IMCI pre-service training through the involvement of influential partners, accreditation, licensing and other regulatory mechanisms.
3. Sustain the strong partnership between the Ministry of Health and teaching institutions.
4. Be proactive in providing information to the WHO Regional Office on experiences in IMCI pre-service training.
5. Include IMCI pre-service training evaluation in their plans.
6. Conduct regular internal assessments of their teaching as part of their education process.
7. Apply different approaches to address the issue of staff capacity building in IMCI skills and the sustained provision of learning materials.

*To WHO*

8. Continue to promote the IMCI strategy at all levels.
9. Use any opportunity to strongly advocate for IMCI pre-service training and broaden partnership to elicit long-term support.
10. Provide technical support to the introduction, implementation and evaluation of IMCI pre-service training.
11. Support operational research in the area of IMCI pre-service training.
12. Revise and finalize the draft regional strategy document to reflect the suggestions of the consultation.
13. Complete the self e-learning material and test it.
14. Develop an integrated package for capacity building in IMCI pre-service training that combines in-depth orientation, teaching skills, IMCI technical basis, monitoring and evaluation.
15. Establish an electronic network on IMCI pre-service training and other mechanisms to share information and experiences.



## Annexes

## Annex 1

## Programme

Sunday, 27 August 2006

Main theme: *Regional strategy on IMCI pre-service training*

08:00–09:00 Registration

09:00–11:30 Opening session:

- ▀ Address by Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean
- ▀ Opening remarks by Dr Elizabeth Mason, Director, Child and Adolescent Health and Development (CAH) Department, WHO/HQ
- ▀ Introduction of participants and adoption of agenda
- ▀ Medical ethics and health (Dr M. H. Khayat, Senior Policy Adviser to the Regional Director, WHO/EMRO)
- ▀ Overview of regional progress of IMCI pre-service training (Dr S. Farhoud, Regional Adviser, CAH/EMRO)

11:30–12:00 Discussion on the regional progress of IMCI pre-service training

12:00–12:30 Global update on IMCI pre-service training (Dr S. Aboubaker, Medical Officer, CAH/HQ)

Discussion

12:30–13:00 AFRO experience in IMCI pre-service training (Dr A. L. Mbewe, Regional Adviser, Child and Adolescent Health and Development, Regional Office for Africa)

Discussion

13:00–13:15 Regional strategy on introduction of IMCI into teaching programmes (Dr S. Farhoud, Regional Adviser, CAH/EMRO)

13:15–16:30 Group work 1: Discussion on the regional strategy

16:30–17:00 Plenary session: groups' presentations

18:00–19:30 Meetings with country teams

## Monday, 28 August 2006

Main theme: *How can we make sustainable an approach for sustainability?*

- 09:00–10:00 Issues on “IMCI pre-service training” sustainability: country experiences
- Presentation by Sudan
  - Presentation by Egypt
- 10:00–11:00 Discussion
- 11:00–15:00 Group work 2: How to ensure sustainability of IMCI pre-service training
- 15:00–16:00 Plenary session: groups’ presentations
- 16:00–17:00 Group work 3: Review and comments on EMRO IMCI student e-learning material
- 18:00–19:30 Meetings with country teams

## Tuesday, 29 August 2006

Main theme: *IMCI pre-service training evaluation*

- 09:00–09:30 Regional IMCI pre-service training evaluation tool: development and content (Dr S. Farhoud, Regional Adviser, CAH/EMRO)
- Discussion
- 09:30–10:00 Field testing of the Regional IMCI pre-service training evaluation tool: methodology (Dr S. Pièche, Medical Officer, CAH/EMRO)
- Discussion
- 10:00–11:00 Field testing results:
- Process evaluation (Dr S. Farhoud, Regional Adviser, CAH EMRO)
  - Outcome evaluation (Dr S. Pièche, Medical Officer, CAH/EMRO)
- Discussion
- 11:00–15:00 Group work 4: Use of the tool by countries
- 15:00–16:00 Conclusions and recommendations
- Closing
- 18:00–19:30 Meetings with country teams

## Review of the regional IMCI preservice training evaluation guide

Wednesday, 30 August 2006

09:00–12:00 Review of the introduction and planning chapter  
12:00–17:00 Discussion

Thursday, 31 August 2006

09:00–16:30 Group work:

- ▀ Group A: Review of the forms on interviews at national and institutional level, outpatient and practical teaching sessions, visit to training sites and library, and focused group discussions (teachers and students).
- ▀ Group B: Review of forms on assessment of student knowledge (multiple choice questions, including case scenarios) and skills (observation of case management).

Evaluation indicators and recommendations

16:30–17:00 Closing ceremony





## Annex 2

### List of temporary advisers

First consultation: 27 to 29 August 2006

#### AFGHANISTAN

Dr Baba Jan Azizi  
Head, Department of Paediatrics  
Balkh Medical Institute  
Ministry of Higher Education  
Mazar -i- Sharif

Dr M. Ishaq Masher  
Lecturer of Paediatrics  
Kabul Medical Institute  
Ministry of Higher Education  
Kabul

#### EGYPT

Dr Mohammed Abdel Moneim  
National IMCI training focal point  
Ministry of Health and Population  
Cairo

Professor Magdy Omar Abdou  
Head, Department of Paediatrics  
Faculty of Medicine  
Alexandria University  
Alexandria

Professor Ahmed Al Ayadi  
Professor of Paediatrics  
Cairo University  
Cairo

Professor Mohamed Reda Bassiouny  
Professor, Department of Paediatrics  
Director, University Children's Hospital  
Mansourah University  
Mansourah

Professor Hind Mamdouh Hanafy  
Professor of Paediatrics  
Vice Dean for Postgraduate Affairs and Research  
Director, Medical Education Center  
Faculty of Medicine  
Alexandria University  
Alexandria

Professor Hesham Fathey El-Sayed  
Head, Department of Paediatrics  
Suez Canal University  
Ismalia

Professor Ikram Helmy  
Professor of Paediatrics  
El Shatby University-Children Hospital  
Alexandria University  
Alexandria

Professor Shahinaz Hussein  
Head, Department of Paediatrics  
Al Azhar University  
Cairo

Professor Ahmed Madkour  
Professor of Paediatrics  
Alexandria University  
Alexandria

Professor Mohey El Din Maged  
Professor of Paediatrics  
Faculty of Medicine  
Al Azhar University  
Cairo

Professor Mohamed Naguib Massoud  
Professor of Paediatrics  
Faculty of Medicine  
Alexandria University  
Alexandria

Dr Mona Ali Rakha  
Director-General  
General Administration of Childhood Illness Programme  
National IMCI Coordinator  
Ministry of Health and Population  
Cairo

Professor Iman Seoud  
Professor of Paediatrics  
Head, Department of Neonatology  
Faculty of Medicine  
Cairo University  
Cairo

### **ISLAMIC REPUBLIC OF IRAN**

Professor Behzad Shamsi Morkkani  
Head, Department of Paediatrics  
Al Zahra Medical Center  
Isfahan University of Medical Sciences  
Isfahan

Dr Hormoz Mozafari  
IMCI Preservice Focal Point  
Ministry of Health and Medical Education  
Teheran

Professor Elham Talachian  
Associate Professor of Paediatrics  
Ali Hospital Azghar  
Iran University  
Teheran

## **JORDAN**

Dr Abdallah Al Shorman  
Chairman of Pediatric Department  
Princess Rahma Hospital  
Irbid

Dr Nadia Abou Sabrah  
National IMCI focal point  
Directorate of Chest Diseases and Foreigners Health  
Ministry of Health  
Amman

Professor Anwar Batieha  
Professor of Community Medicine  
Jordan University of Science and Technology  
Irbid

Professor Najwa Afif Salim Khuri-Bulos  
Head, Department of Paediatrics  
Faculty of Medicine  
University of Jordan  
Amman

## MOROCCO

Professor Abdelmounaim Aboussad  
Professor of Paediatrics  
Marrakech Faculty of Medicine  
Marrakech

Professor Fatima Dehbi  
Professor of Paediatrics  
Casablanca University  
Casablanca

Dr Aziza Lyaghfour  
National IMCI Focal Point  
Department of Population  
Ministry of Public Health  
Rabat

Professor Nezha Mouane  
Professor of Paediatrics  
Rabat University  
Rabat

Professor Hida Mustafa  
Professor of Paediatrics  
Faculte de Medecine et de Pharmacie de Fes  
Route Sidi Harazem  
Fes

Dr Abdelwahab Zerrari  
Head, Maternal and Child Health unit  
National IMCI Coordinator  
Department of Population  
Ministry of Public Health  
Rabat

## OMAN

Dr Ahmed Al Khonji  
Director-General, Health Services  
Muscat Region  
Ministry of Health  
Muscat

Dr Fannah Salem Al-Araimi  
National IMCI Coordinator  
Ministry of Health  
Muscat

Dr Mohammed Al Azri  
Sr. Registrar, Family Medicine and Public Health (FAMCO)  
College of Medicine and Health Sciences  
Sultan Qabus University  
Muscat

Dr Muna Al Sadoon  
Assistant Professor, Child Health Department  
College of Medicine and Health Sciences  
Sultan Qabus University  
Muscat

Dr Yassir Ahmed Wali  
Head of Child Health Department  
Sultan Qabus University  
Muscat

## PAKISTAN

Dr Tabish Hazir  
Associate Professor of Paediatrics  
Children's Hospital  
Islamabad

Professor Imran Iqbal  
Nishtar Medical College  
Multan University  
Multan

Professor Iqtidar Khan  
Professor of Paediatrics  
Agha Khan University  
Karachi

Professor Iqbal A. Memoun  
Head, Department of Paediatrics  
Dow Medical College/Civil Hospital  
Karachi

Dr Zaref Uddin Khan  
Ministry of Health  
Islamabad

## **SUDAN**

Dr Abdelmageed Osman Musa  
Associate Professor of Community Medicine  
Africa International University  
Khartoum

Dr Ali Mohamed ElHag Arabi  
Assistant Professor of Paediatrics  
Khartoum University  
Khartoum

Dr Hanan Mukhtar El Haj Abdo  
National manager of IMCI Programme  
Federal Ministry of Health  
Khartoum

Dr Huda Mohamed Haroun Adam  
Head, Department of Paediatrics  
Gezira University  
Gezira

Dr Tajelsir Ahmed Abdallah Ali  
Assistant Professor of Paediatrics  
Africa International University  
Khartoum

Dr Samira Hamid Abdelrahman Elamin  
Head, Department of Community Medicine  
Faculty of Medicine  
Gezira University  
Gezira

Dr Widad El Shaikh Mustafa El Shaikh  
Associate Professor of Paediatrics  
Juba University  
Khartoum

Professor Salah Ibrahim  
Professor of Paediatrics  
Chairperson of the Sudanese Association of Paediatricians  
Khartoum University  
Khartoum

Professor Zein El Abdin Abdel Rahim Karrar  
Professor of Paediatrics  
Dean, Faculty for Postgraduate Studies  
Khartoum University  
Khartoum



## **SYRIAN ARAB REPUBLIC**

Dr Essam Anjaq  
Head, Department of Paediatrics  
Damascus University  
Damascus

Dr Hind El Sayed  
National IMCI Programme Manager  
Damascus

Professor Ahmed Shreita  
Professor of Paediatrics  
Latakia University  
Latakia

## **TUNISIA**

Professor Saida ben Becher  
Professor of Paediatrics  
Tunis University  
Tunis

Dr Mounira Garbouj  
Director, Primary Health Care  
National IMCI Coordinator  
Ministry of Public Health  
Tunis

## **YEMEN**

Professor Nafissa El Jaifi  
Secretary General  
Higher Council of Motherhood and Childhood  
Professor of Paediatrics, Department of Paediatrics  
Sana'a University  
Sana'a

Professor Khaled Ghilan  
Professor of Community Medicine  
Faculty of Medicine  
Sana'a University  
Sana'a

Professor Ali Fadl Al Iriany  
Professor of Paediatrics  
Faculty of Medicine  
Sana'a University  
Sana'a

Dr Arwa Baidar  
National IMCI Coordinator  
Ministry of Public Health and Population  
Sana'a

## Other organizations

### UNITED NATIONS CHILDREN'S FUND (UNICEF)

Ms Nashia Nasib  
Project Officer  
Muscat

## WHO Secretariat

Dr Hussein A. Gezairy, Regional Director, WHO/EMRO  
Dr Mohamed H. Khayat, Senior Policy Adviser, WHO/EMRO  
Dr Elizabeth Mason, Director, Child and Adolescent Health and Development (CAH) Department, WHO/HQ  
Dr Hussein Abouzeid, Acting Director, Health Protection and Promotion, WHO/EMRO  
Dr Suzanne Farhoud, Regional Adviser, Child and Adolescent Health and Development (CAH) WHO/EMRO

Dr Samira Aboubaker, Medical Officer, Child and Adolescent Health and Development (CAH) Department, WHO/HQ

Dr Andrew L Mbewe, Regional Adviser, Planning and Implementation, Child and Adolescent Health and Development (CAH), WHO/AFRO

Dr Youssouf Gamatié, Medical Officer, Child and Adolescent Health and Development (CAH), WHO/AFRO

Dr Sergio Pièche, Medical Officer, Child and Adolescent Health and Development (CAH), WHO/EMRO

Dr Ahmed Shadoul, Medical Officer, Child and Adolescent Health and Development (CAH), WHO/Pakistan

Dr Sumaia Al Fadil, National Professional Officer, WHO/Sudan

Dr Adela Mubasher, MCH National Officer, WHO/Afghanistan

Dr Ahmed Nagaty Abdel Moneim, IMCI Officer in Cairo, SSA/IMCI, WHO/Egypt

Mr Ahmed El Arousy, Technical Officer for Desktop and User Support, WHO/EMRO

Mr Adam Aboubakr, Audio/Video Administrative, WHO/EMRO

Mr Tarek Abdel Rahman, Technical Assistant, WHO/EMRO

Ms Suzan El Raey, Senior Administrative Clerk, WHO/EMRO

### Second consultation: 30 to 31 August 2006

#### EGYPT

Dr Mohammed Abdel Moneim  
National IMCI training focal point  
Ministry of Health and Population  
Cairo

Professor Magdy Omar Abdou  
Head, Department of Paediatrics  
Faculty of Medicine  
Alexandria University  
Alexandria

Professor Mohamed Reda Bassiouny  
Professor, Department of Paediatrics  
Director, University Children's Hospital  
Mansourah University  
Mansourah

Professor Ikram Helmy  
Professor of Paediatrics  
El Shatby University Children Hospital  
Alexandria University  
Alexandria

Professor Ahmed Madkour  
Professor of Paediatrics  
Alexandria University  
Alexandria

Professor Mohey El Din Maged  
Professor of Paediatrics  
Faculty of Medicine  
Al Azhar University  
Cairo

Professor Mohamed Naguib Massoud  
Professor of Paediatrics  
Faculty of Medicine  
Alexandria University  
Alexandria

Dr Mona Ali Rakha  
Director-General  
General Administration of Childhood Illness Programme  
National IMCI Coordinator  
Ministry of Health and Population  
Cairo

Professor Iman Seoud  
Professor of Paediatrics  
Head, Department of Neonatology  
Faculty of Medicine  
Cairo University  
Cairo

### **IRAN (ISLAMIC REPUBLIC OF)**

Dr Hormoz Mozafari  
IMCI Preservice Focal Point  
Ministry of Health and Medical Education  
Teheran

### **MOROCCO**

Dr Aziza Lyaghfour  
National IMCI Focal Point  
Department of Population  
Ministry of Public Health  
Rabat

Dr Abdelwahab Zerrari  
Head, Maternal and Child Health unit  
National IMCI Coordinator  
Department of Population  
Ministry of Public Health  
Rabat

Dr Zaref Uddin Khan  
Ministry of Health  
Islamabad

## **PAKISTAN**

Professor Iqbal A. Memoun  
Head, Department of Paediatrics  
Dow Medical College/Civil Hospital  
Karachi

## **SUDAN**

Dr Samira Hamid Abdelrahman Elamin  
Head, Department of Community Medicine  
Faculty of Medicine  
Gezira University  
Gezira

Professor Salah Ibrahim  
Professor of Paediatrics  
Chairperson of the Sudanese Association of Paediatricians  
Khartoum University  
Khartoum

Professor Zein El Abdin Abdel Rahim Karrar  
Professor of Paediatrics  
Dean, Faculty for Postgraduate Studies  
Khartoum University  
Khartoum

## **TUNISIA**

Dr Mounira Garbouj  
Director, Primary Health Care  
National IMCI Coordinator  
Ministry of Public Health  
Tunis

## WHO Secretariat

Dr Suzanne Farhoud, Regional Adviser, Child and Adolescent Health and Development (CAH), WHO/EMRO

Dr Andrew L Mbewe, Regional Adviser, Planning and Implementation, Child and Adolescent Health and Development (CAH), WHO/AFRO

Dr Youssouf Gamatié, Medical Officer, Child and Adolescent Health and Development (CAH), WHO/AFRO

Dr Sergio Pièche, Medical Officer, Child and Adolescent Health and Development (CAH), WHO/EMRO

Dr Sumaia Al Fadil, National Professional Officer, WHO/Sudan

Dr Ahmed Nagaty Abdel Moneim, IMCI Officer in Cairo, SSA/IMCI, WHO/Egypt

Mr Ahmed El Arousy, Technical Officer for Desktop and User Support, WHO/EMRO

Ms Suzan El Raey, Senior Administrative Clerk, WHO/EMRO



## Annex 3

### 2002 Regional IMCI Pre-service training consultation: Conclusions and recommendations

#### Conclusions

- The early involvement of academia in IMCI planning and implementation through close partnership successfully established by the Ministry of Health has provided a strong foundation for the inclusion of the IMCI approach into pre-service education of health professionals.
- The coordinating role of the Ministry of Health in a country is crucial to ensuring an effective introduction of IMCI into the teaching curricula. This coordinating role has been well appreciated and highly valued by all participating teaching institutions.
- WHO's Regional Office for the Eastern Mediterranean has played a leading role in facilitating introduction of the IMCI approach in the teaching agenda in the Region.
- The steps and phases proposed by WHO to introduce the IMCI approach into pre-service education of health professionals have proved to be an effective guide to the intervention. A similar process can be used for strengthening other aspects of medical teaching.
- The national, adapted IMCI clinical guidelines have served as the basis for the development of teaching and learning materials for medical education in teaching institutions, following experience gained during the early implementation phase.
- The IMCI approach, together with the active partnership with academia promoted by WHO and the ministries of health in countries, has succeeded in stimulating the interest of academia in adopting and emphasizing public health priorities in child health-related teaching.
- As IMCI focuses on the major child health priorities in a country, it is a dynamic process and flexible approach, able to adapt and take up newly emerging child health priorities in any setting.



- The initial introduction of the IMCI approach into teaching has involved substantial efforts to develop appropriate teaching materials, train teaching staff and prepare the clinical sites, all of which have required the presence of a strong team effort and the ensuring of a wide consensus within the teaching institutions.

## Recommendations

As part of the regional strategy, the following recommendations were made in relation to partnership between the Ministry of Health, academia and other partners and the institutionalization of the IMCI approach in the teaching institutions.

### *1. Partnership*

1. In countries where the IMCI approach has been introduced into health professional education, a national steering committee on IMCI pre-service education should be established with representatives from the Ministry of Health, academia and other partners.
2. The Steering Committee should seek and use all suitable opportunities to promote the IMCI strategy among academia and facilitate sharing experiences, e.g. through the annual conferences of paediatric and family and community medicine associations and similar events or related intercountry meetings.
3. The Ministry of Health should ensure that the IMCI strategy is implemented and in place also in health facilities situated in those areas where the teaching institutions introducing the IMCI approach are located; this will provide the necessary supporting environment for future graduates.
4. The Ministry of Health should continue to support teaching institutions that have adopted the IMCI approach, especially by maintaining IMCI training sites for faculty and students at teaching hospital and primary health care facilities.

5. The Ministry of Health and academia should collaborate to assess competencies of graduates who have been taught the IMCI approach when they are about to enter medical practice, in order to design a curriculum for a refresher course aiming at reinforcing areas needing more practice.
6. The Ministry of Health and other members of the steering committee should participate in the monitoring, review, re-planning and evaluation of the experience.
7. The Ministry of Health and academia should share information on child health, such as new policies, epidemiological data, research and survey findings, and jointly identify child health research priority areas and carry out research in these areas.

## *2. Institutionalization*

8. The IMCI strategy should be an essential component of the national policy of the Ministry of Health.
9. Formal, written policies at the level of the concerned ministry, university (e.g. faculty council) and department (e.g. paediatrics, public health, family and community medicine) should be developed to make the IMCI approach an integral part of the teaching curriculum on outpatient childcare.
10. Teaching institutions that have introduced the IMCI approach into their teaching should carefully document their experience to provide the evidence base for improvement of paediatric, family and community medicine teaching, for policy decisions and sharing of information with other schools.
11. The formative and summative assessment of student's competence should be standardized, include the IMCI approach to outpatient childcare and be carried out by teaching staff familiar with this approach.

12. Teaching institutions should ensure the availability of teaching and learning materials to students at affordable cost by various means (e.g. including IMCI in currently used local textbooks, printing at low cost, revolving fund, copies of materials and CD-ROMs in the library, etc.).

*Other*

13. Individual country experiences should be reviewed and analysed during annual national meetings of all involved teaching institutions, the Ministry of Health and other partners.

14. WHO should continue its leading role in strengthening paediatric and family and community medicine teaching in the Region through work with individual countries as well as organization of biennial intercountry events to facilitate experience exchange.



## Annex 4

### IMCI Pre-service training evaluation forms

#### I. Process

##### a. National level

Form 1: Interview with the national IMCI committee or working group

Form 2: Interview with partners

##### b. Institutional level

Form 3: General information about the department

Form 4: Introductory phase

Form 5: Planning phase

Form 6: Implementation phase

Form 7: Teaching process

Form 8: Student assessment

Form 9: Observation of practical teaching session

Form 10: Observation of outpatients department teaching session

#### II. Outcome

Form 11: Focus group discussion with teachers

Form 12: Focus group discussion with students

Form 13: Cost analysis

Form 14: Multiple-choice questionnaires

Form 15: Case scenarios

Form 16: Observation of case management



## Annex 5

### Assessment of student knowledge and skills: Methodology

#### Forms and analysis

##### Knowledge

- 25 multiple-choice questions to assess knowledge and five case scenarios to assess application of knowledge to given clinical situations, administered to all students as one group and requiring about 90 minutes.

##### Skills

- Observation of the management of a sick child (several students observed at the same time by several observers, respectively), requiring 30–40 minutes per student.

##### Analysis

- Data review and entry: requiring about 15 minutes per case management record.
- Preliminary data analysis and report tables: based on a standard table format and a set of indicators on assessment, classification, identification of treatment and feeding assessment, requiring 4–6 hours.

#### Sample size and selection of students

##### Alexandria University

Random selection of 24 students from three teaching units of the same batch of the same year, assessed for both knowledge and case management.

##### Khartoum University

Selection of 30 students for knowledge assessment and 27 (of these 30) for the case management assessment from those with a high attendance record to IMCI sessions.

### Standardization and adaptation of tests

- Observation of case management standardized through rules, definitions, orientation and selection of cases (see below).
- Tests adapted to national IMCI guidelines and what is taught in the teaching programme of the institution.
- The same students followed through the knowledge and case management tests and focus group discussions on attitudes towards IMCI.

### Selection and standardization of cases

Sick children selected by a clinical coordinator at the institution each day based on the following selection criteria:

- age (between 2 and 59 months);
- only new cases (no repeat visits);
- no general danger signs<sup>3</sup>;
- entry symptom: cough or difficult breathing, diarrhoea or fever (preferably cases classified in the "yellow row" of the IMCI chart);
- preferably, more than one symptom/condition per child.

### Scoring system

- The scoring system used in the analysis is based on the aim of pre-service teaching, i.e. to assess not only whether individual tasks are performed, but also the clinical process followed by the student.
- Scores with different weight assigned based on student performance in different tasks and conclusions according to:
  - importance of the answer (multiple-choice questionnaires and case scenarios) or of the case management task;
  - whether an assessment task is carried out, performed correctly and student conclusion agrees with observer's (gold standard);

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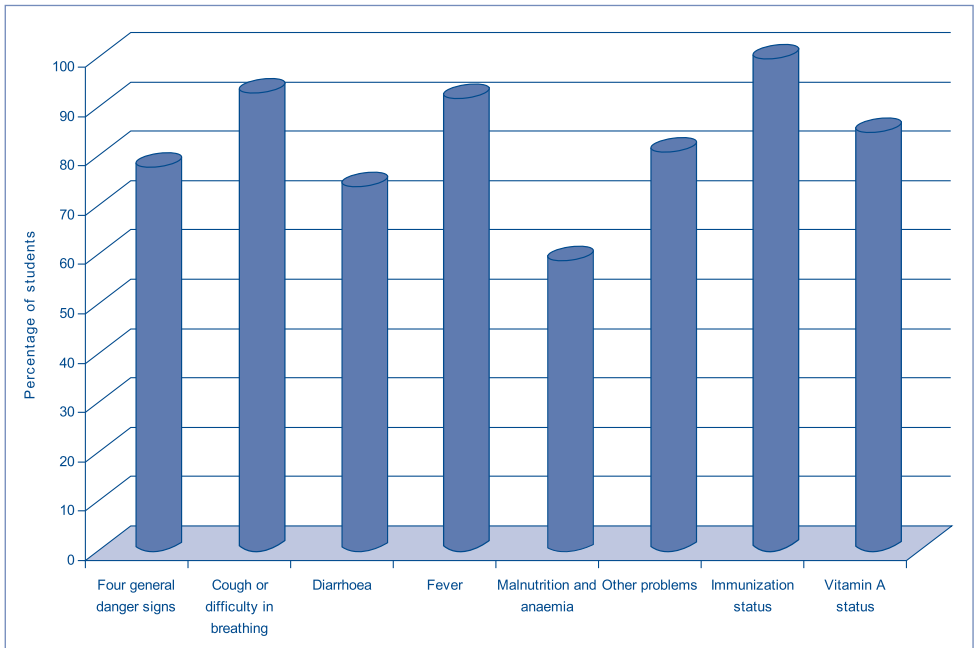
<sup>3</sup> These children were excluded for ethical reasons in order to avoid any delay in care. In fact, students can not treat patients, who are instead managed by clinical staff at the institution. This is a different situation from surveys conducted at health facilities, in which the health provider observed managing a sick child is the same person responsible for making clinical decisions on that child and thus no delay in care occurs.

- logical approach to classification followed based on findings.
- Percentage scores used to take into account the variability of cases presenting with a different number and type of conditions which require a different number and type of tasks.



## Annex 6

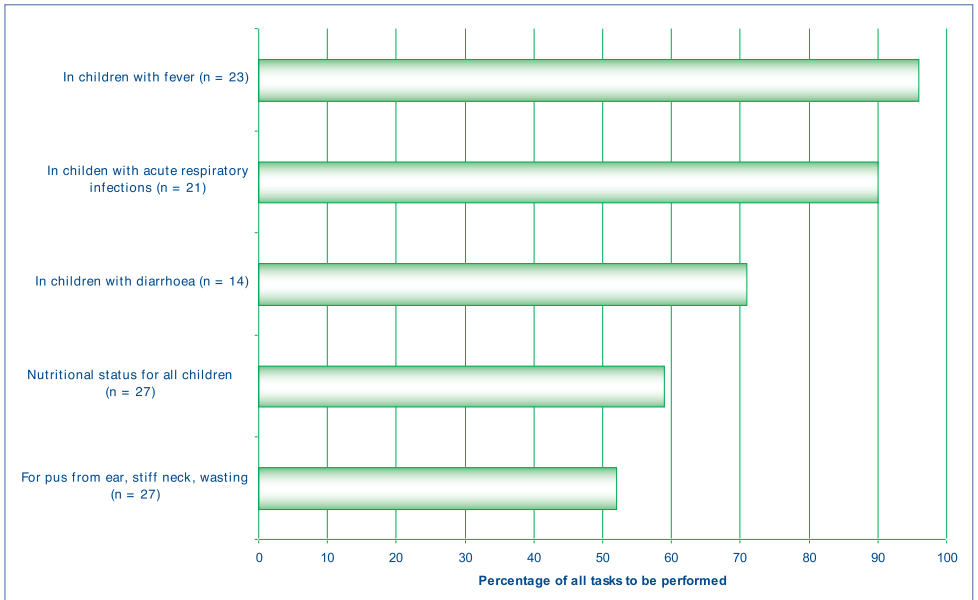
### Example of findings on student skills obtained by the IMCI preservice training evaluation instrument University of Khartoum<sup>4</sup>



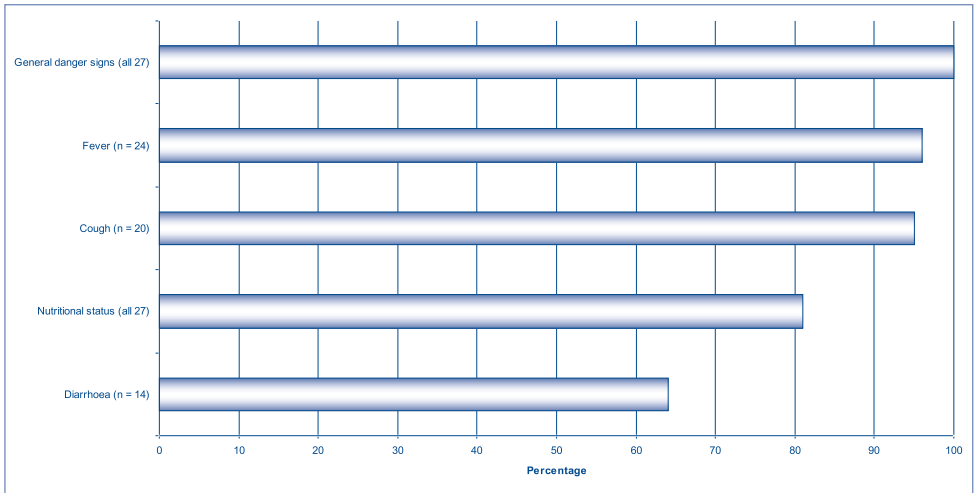
**Figure 1.** Checking for presence/absence of symptoms, immunization and vitamin A status (University of Khartoum, Sudan)

<sup>4</sup> These are preliminary findings, subject to changes.

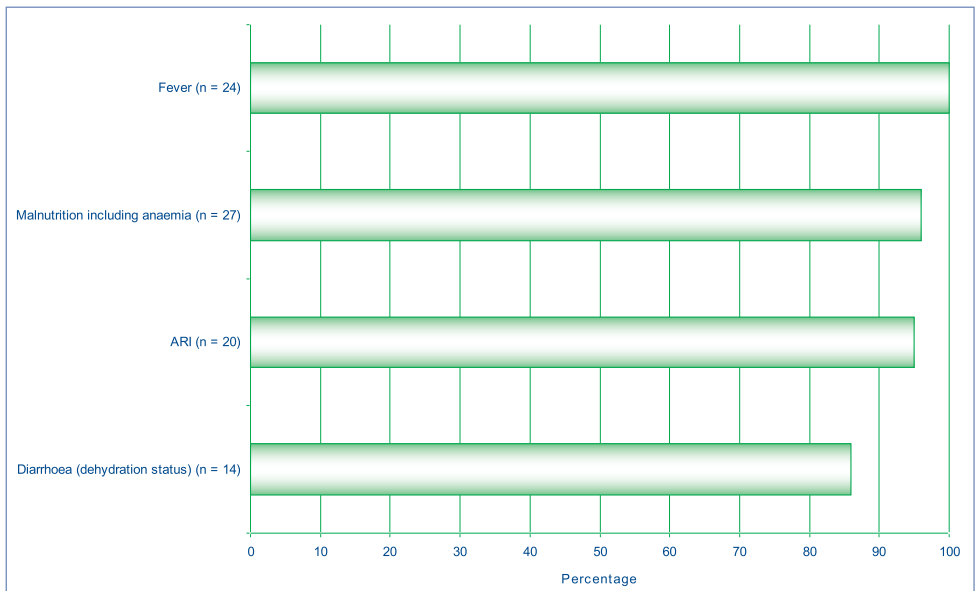




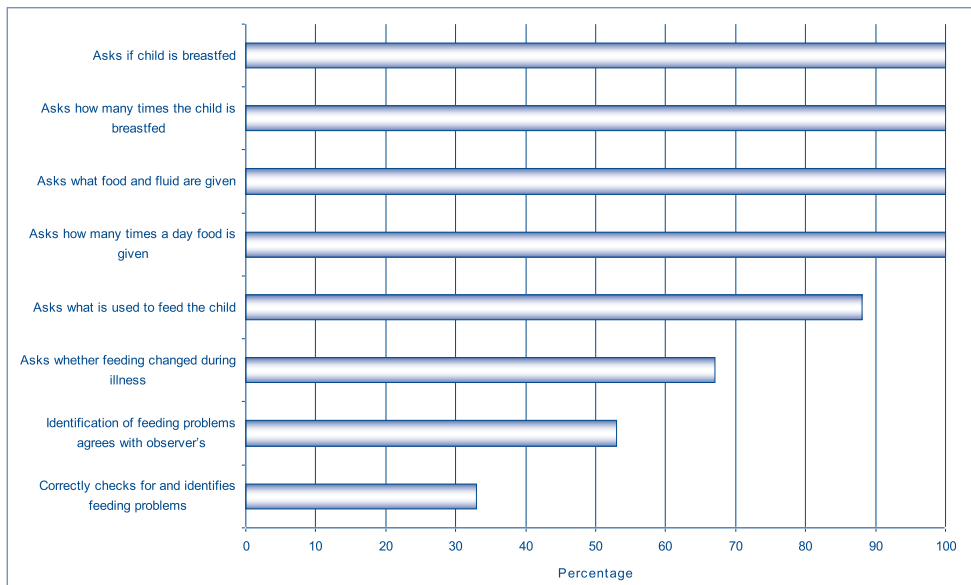
**Figure 2.** Clinical assessment tasks performed correctly—with correct conclusion (University of Khartoum, Sudan)



**Figure 3.** Agreement of student classification with observer's (University of Khartoum, Sudan)



**Figure 4.** Student logical conclusion on classifications based on own findings (University of Khartoum, Sudan)



**Figure 5.** Assessment and identification of feeding problems (University of Khartoum, Sudan)

