CHILD AND ADOLESCENT HEALTH AND DEVELOPMENT

PROGRESS REPORT
2000–2001

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Annex 1. New papers arising out of research supported by CAH in 2000 and 2001

In the intervening time between the end of the reporting period for this report, and the date of publication, two very important activities have come to pass that will be crucial in moving forward work on child and adolescent health and development. The first of these was the Global Consultation on Child and Adolescent Health and Development. This Consultation, called A Healthy Start in Life, hosted by the Swedish Government, and at the invitation of WHO and UNICEF, took place in Stockholm on 12–13 March, 2002 and brought together government leaders, health experts, NGOs, and children’s advocates to define strategies and move child and adolescent issues higher up the political agenda. It also served as a forum to forge stronger alliances with existing partners and mobilise a broad range of new coalitions from both the private and public sectors, NGOs and development partners to support a larger-scale and more sustainable effort.

Secondly, the Department has made great strides as the secretariat for the WHO-wide Strategy on Child and Adolescent Health and Development, which will be submitted to the Executive Board in January 2003. The strategy, based on both a life course and a public health approach, describes WHO’s commitment in defining and helping implement the most effective interventions for children and adolescents. It also provides a roadmap on how the Organization will work toward achieving WHO’s Strategic Goals and the Millennium Development Goals on issues related to child and adolescent health and development.

In this period ongoing activities in the cycle of research, development, implementation and evaluation continued on their regular course and new ones were initiated. Among these are the development and examination of IMCI guidelines that include the first week of life, progress in supporting countries to plan and implement interventions to improve family and community practices for child health, and the adaptation of a Programming and Measurement Framework for adolescent behaviour that identifies both risk and protective factors and how to measure these. These activities and numerous others coupled with the hard work that defines the character of the Department at headquarters and in regional and country offices, make us confident that this shared vision and effort will bring us closer to our goals of supporting the growth, health and development of children from the neonatal period to their entry into adulthood.

“The way ahead is a shared vision: to mobilise our resources to improve the health of children and adolescents, expand coverage of effective health interventions to reach every child and adolescent, and empower families and communities to care for and foster the health and development of their younger members.

Through these efforts we address poverty and inequity, conditions which lay the greatest burden of ill health on the poor and weaken our collective efforts to advance humanitarian aims and global peace.”

Global Consultation on Child and Adolescent Health and Development
Stockholm, Sweden, 12–13 March 2002
CHAPTER ONE

Global priorities in child and adolescent health and development

HIGHLIGHTS OF 2000–2001

■ CAH embraced a life course approach to child and adolescent health and development, on the basis that health is cumulative and intergenerational, and that gains (and losses) in any one part of the life course have effects later in life or on the next generation.

■ The WHO-wide Strategy on Child and Adolescent Health and Development is being prepared for submission to the 111th session of the Executive Board in January 2003.

■ CAH developed a training course for WHO staff and partners on the health programming and the Convention on the Rights of the Child. Following initial tests, child-rights capacity-building workshops were organized in AFRO, EMRO, EURO and SEARO.

■ CAH conducts at least one technical briefing each year in Geneva for national health authorities, academics and technical partners, NGOs and WHO regional staff. The briefings present the Department’s primary strategies, research and development work, and overview of approaches for planning and managing country health programmes.

The Department of Child and Adolescent Health and Development (CAH) continues to strengthen its leadership position as the technical expert in child and adolescent health and development issues. The Department encourages efforts to reduce illness and death and promote growth among newborns, infants, children and adolescents, and furthermore supports children and adolescents to develop to their full potential and to participate meaningfully in society.

To address the multitude of child and adolescent concerns the Department is subdivided into four teams: Neonatal and Infant Health and Development (HNI), Child Health and Development (CHD), Adolescent Health and Development (ADH), and Technical Support (TST). This report is structured according to activities for each of the age groupings.

Whether to reduce deaths among newborns or respond to adolescent development problems, the work of CAH is guided by a well-defined cycle of research; development tools, standards and guidelines adapted to local country needs; support to the introduction of tools
in different countries, followed by monitoring and evaluation of the impact of interventions. This approach ensures that countries are assisted in their efforts to implement the strategies identified by prior research, and that implementation experiences stimulate and define research and development priorities. The Department’s work is also anchored in a public health perspective, a life course approach and guided by principles related to equity and child rights.

One of the Department’s major goals is to build regional and country capacity for implementing effective interventions. The Department backs joint technical work with Regional and Country Offices and supports WHO staff working as medical officers, associate professional officers and national officers. CAH also works closely with country authorities and a wide range of partners to provide broader support and technical expertise.

**WHO Strategy on Child and Adolescent Health and Development**

In the course of the last biennium, CAH led a consensus-building effort aimed at formulating a WHO wide strategy for child and adolescent health and development. The strategy is WHO’s response to the formidable challenges and great opportunities identified in the Goals of the Millennium Declaration and the United Nations Special Session on Children.

An initial step in the formulation of the strategy was the FutureThink meeting, held in December 2000. This meeting brought together fifteen child and adolescent health experts from ten countries to identify main issues and discuss future directions to protect, support and promote the health of 0–19 year olds. This meeting was followed by a consultative process with staff in relevant departments in Headquarters and in the regional offices.

The strategy, which is described in the draft document Strategic Directions for Improving the Health and Development of Children and Adolescents, outlines the major areas that need to be addressed to make a lasting impact. They include maternal and newborn health, nutrition, communicable diseases, injuries, physical environment, adolescent health and psychosocial development and mental health. A clear statement of priorities will help those working with WHO reach a common objective in a harmonious and constructive manner, and help WHO member states and partners build coordinated and complementary public health programmes.

The strategy builds upon three guiding principles. In embracing the principles of the Convention of the Rights of The Child, the strategy seeks to address health inequities, including those caused by poverty and gender inequities. It assumes a life course approach recognising that support provided to children will affect their immediate well being as well as have an impact on their health and development in later years. The strategy is also based on a public health approach, focusing on major public health issues challenging populations as a whole, and applying a systematic development model to ensure that public health programmes are relevant and effective in addressing major health issues. Overall, the strategy adopts a broad and long-term perspective, moving beyond child survival, to addressing the continuous and intricate links between physical and psychosocial development.

A final draft version of the strategy will be presented to the 111th Executive Board in 2003. To this end, WHO is seeking wider consultation on the current draft with representatives from Member States, and partner organizations. When adopted with broad consensus, the

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**BOX**

**The burden of child and adolescent deaths**

- Almost 11 million children under age five died in 2000 of preventable and treatable illnesses, mostly in the developing world.
- Of these eight million were infants, half of whom were newborns in their first month of life.
- Most deaths are caused by a small number of diseases: pneumonia, diarrhoea, malaria, measles, and HIV/AIDS. Malnutrition contributes to 60% of these deaths.
- Children surviving malnutrition are subject to more frequent bouts of illness, impaired development, and poor school performance.
- Every year close to 1.5 million adolescents die from substance abuse, suicide, injuries, violence, disease and other preventable causes.
- Over 50% of all new HIV infections are among young people.

**BOX**

**Vision of the WHO Strategy on Child and Adolescent Health and Development**

Our vision is a world in which children and adolescents enjoy the highest attainable standard of health and development, a world that meets their needs, and respects, protects and fulfils their rights, enabling them to live to their full potential.
strategy can truly serve as a road map for future actions and help to focus investments to where they matter most.

**Reducing inequity and poverty**

The Department’s work in this area revolved around establishing a link between child health and poverty reduction. In its broader area of work, CAH promotes access to health and social services, and provides technical assistance to resource-poor countries and their poorest communities. The Department is reviewing ways to expand interventions to reach more children and communities in need. It also provides support to governments to initiate and pursue pro-child policy reforms and mobilises community participation in managing the delivery of health and social services for the protection of vulnerable children and adolescents.

**WHO/World Bank Working Group on Child Health and Poverty (CHP)**

A WHO/World Bank Working Group on Child Health and Poverty (CHP) was formed in November 2001 to analyse and consolidate evidence on child health and poverty. Half of the members of this working group came from the World Bank’s Health, Nutrition and Poverty (HNP) group, and the other half was composed of professionals from WHO’s CAH, the Protection of the Human Environment (PHE), and Health and Development (HDE).

The formation of CHP is a milestone event for WHO as it represents an explicit expression of concern and interest on issues related to child health and poverty. CAH partners, both within and outside the Organization, have welcomed the WHO and World Bank initiative, particularly the CHP’s potential to provide technical leadership in improving child survival, health and development en route to achievement of the Millennium Development Goals.

The CHP has been able to make significant progress in a number of areas, notably in:

- Preparing an advocacy publication highlighting the key issues and needs related to child health and poverty for wide dissemination and distribution at the Global Consultation in Stockholm in March 2002, and the United Nations General Assembly Special Session on Children in New York in May 2002.
- Planning a substantive working group session on equity issues at the Global Consultation on Child and Adolescent Health and Development in Stockholm, March 2002.
- Planning a two-day, WHO-wide staff development workshop on child health and poverty designed to build knowledge and competence in equity issues and analyses in June 2002.

CAH is currently increasing the breadth and depth of its expertise in issues related to child health and poverty by:

- Developing the competence of current technical staff in the areas of poverty and equity analyses, with special reference to child health issues.
- Identifying and recruiting the best available expertise in child health and poverty issues to act as consultants and advisors. CAH is exploring this in collaboration with the London School of Hygiene and Tropical Medicine and the United Kingdom’s Department for International Development (DFID).
- Bringing together relevant expertise across the various clusters and Departments within the Organization, and by continuing to work in active partnership with World Bank technical units.

**Disparities between poor and rich children**

Children living in poverty are at a greater risk of death, illness, malnutrition and delayed psychological development. Underpinning the Department’s work in this area are data showing that children in poor families are more likely to die in their first month or first year
of life, and even before they reach the age of five, than children from wealthier families. Poorer children are less well nourished than wealthier children, and are more likely to lag behind in growth and school performance. A child living in poverty today has a greater chance of dying in childbirth 15 or 20 years from now, and of giving birth to a baby who is premature, malnourished, or who becomes sick and dies in infancy. The effects of poverty begin even before birth, when negative influences on the foetus can increase the risk of diseases such as diabetes and heart disease in adulthood.

Children living in poor countries are much more likely to die young than children in less poor countries.

In 1999, over one in five deaths among children under five happened during the first week of life. Most of these deaths were due to malnutrition in the mother and foetus, leading to low birth weights.

CAH and the Convention on the Rights of the Child

Establishing synergies between health and the rights of the child is vital if we wish to improve the health of children and adolescents and enhance their social and economic opportunities.

During the biennium, the Department maintained its commitment to using the Convention on the Rights of the Child (CRC) as a basis for the development of interventions to improve child and adolescent health and development. The Department focused on increasing awareness and understanding of the CRC among WHO staff and partners of regional and country levels, and on providing sound technical input to the work of CRC’s monitoring body, the United Nations Committee on the Rights of the Child.

Capacity building and the CRC reporting process constituted the bulk of the 2000–2001 child rights activities in CAH. However, the continuing drive to fully integrate a child rights perspective in the work of CAH and WHO at large is reflected in sustained efforts aimed at ensuring that the CRC figures prominently as a key theme in the new WHO Strategy for Child and Adolescent Health and Development.

Regional and country capacity building activities

The CRC can be used as a practical tool for planning, programming and managing child and adolescent health activities within WHO and member states. Effective application of the principles contained in the CRC need to be based on an adequate understanding and knowledge of its contents and applicability among relevant government partners, including ministries of health, intergovernmental and bilateral agencies, and civil society.

In the course of the past biennium, the Department developed a CRC training course in order to facilitate the integration of rights-based thinking to all aspects of child and adolescent health and development. Although primarily designed for WHO staff, early test runs of the course in Headquarters revealed the course’s value and usefulness to a wider range of actors active in the field of child and adolescent health, e.g. government officials, other UN agencies, and civil society partners. Following these initial tests, child-rights capacity-building workshops were subsequently organised for regional and country offices.

A series of workshops on the concept of child rights and the potential

### BOX

Children in the poorest groups are more likely than less poor children to be malnourished.

Findings of a 1999 community-based survey among children in rural Tanzania:
- Among the poorest, one third have low weight-for-age and two-thirds are stunted.
- Malnutrition is roughly twice as common among the poorest as among the least poor.

Source: Schellenberg et al., *Inequities among the very poor: Health care for children in rural southern Tanzania*
role of the CRC in providing a holistic, normative and legal framework for addressing child and adolescent health and development issues in countries were held in a number of WHO Regional Offices, notably Africa (AFRO), the Eastern Mediterranean (EMRO), Europe (EURO) and South-East Asia (SEARO). The workshops were intended to broaden the understanding of regional staff of these concepts, and were attended by WHO national officers, UNICEF representatives and NGO partners. They also provided a stepping stone to more workshops on child rights programming in countries. All the Regional Offices that conducted child rights training subsequently initiated follow-up activities. For example, AFRO, in collaboration with CAH, drafted a follow-up plan of action with a focus on assisting selected countries in the implementation of health-related recommendations by the Committee on the Rights of the Child by convening national CRC workshops. AFRO also stepped up its technical input to the CRC reporting process, and the first orientation events on the CRC were conducted at regional and country levels in four countries.

Meanwhile, EMRO committed itself to supporting the convening of national CRC training workshops, initially in Lebanon and Morocco, and began providing input to the CRC reporting process. In addition, a capacity building course on child rights was conducted at the Regional Office in August 2001.

Similarly, EURO adopted a CRC-perspective in its activities related to child abuse and neglect, provided detailed health commentaries on all relevant CRC country reports, and participated in regional discussions organised by the Committee on the Rights of the Child on state violence against children.

In a bid to enhance its advocacy activities in favour of the implementation of the CRC in the region, SEARO issued a publication: Towards a Better Tomorrow: Child Rights and Health; it also provided technical assistance to the Government of India in the preparation of its periodic State Party report to the Committee on the Rights of the Child. In 2001, SEARO participated in a series of regional conferences to influence research, policies and practice on adolescent rights and health, including two UNICEF regional consultations in Bangladesh and Thailand; the Second World Congress on the Commercial Sexual Exploitation of Children; and the Conference on Ethics and Rights-Based Approach to Reproductive Health for Adolescents and Women.

National workshops are aimed at building capacity in the actual application or integration of the CRC framework in specific child and/or adolescent health activities. Initial selection of a country is based on the CRC reporting process, as this process provides a useful entry point for further national rights-based activities. Wherever possible, the country reports, WHO's analysis of these reports, and the health-related observations and recommendations issued by the Committee are used as a basis for both the national workshops and follow-up activities.

CAH collaborated with AFRO and SEARO in the organisation of national workshops in the Gambia and India, respectively. The training workshop for India was co-organised with the National Institute for Public Cooperation and Child Development (NIPCCD). The Gambia workshop provided an opportunity to conduct

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**BOX**

**Some key issues from the Convention on the Rights of the Child (CRC)**

- The CRC recognizes that the healthy growth and development of children and adolescents are human rights, and that all children and adolescents have the right to access health services.
- Effective fulfilment of these rights depends on the realisation of other rights, such as the rights to education, welfare, to a supportive environment, and to protection from violence.
- The principles of the CRC – to treat children without discrimination, to take account of their views and to work for their best interests – address the health of all children and adolescents.
- Particular attention to the needs of vulnerable children is given in the CRC: e.g. those who are disabled, and those who are exploited, either sexually and through work.
- The issue of drug abuse is also covered in the CRC.
- The CRC reflects universal consensus on the rights of children and adolescents, freely accepted and shared by the great majority of countries in the world. It also provides a valuable legal framework for developing and implementing actions to ensure the health and development of children and adolescents.

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**BOX**

**CAH contributes to human rights-based approaches**

CAH provided input on human rights-based approaches to development at a technical meeting held in Princeton, USA in March 2001, and at the annual session of the United Nations Human Rights Commission in Geneva. Furthermore, lectures on child and adolescent health and child rights were delivered at the annual inter-disciplinary child rights course at the University of Ghent, Belgium and at the General Assembly of the International Federation of Medical Students Association.
a CRC-based analysis of the Integrated Management of Childhood Illness (IMCI) introduction process in the country.

The CRC reporting process
CAH continued to provide technical input to the CRC reporting process of the Committee on the Rights of the Child. Health information from a number of countries was shared with the Committee in order to facilitate a better dialogue between the Committee and Government delegations on various child and adolescent health issues as reflected in the formal Government reports on CRC implementation. AFRO, EURO and SEARO also provided strong input to the process by submitting relevant data. A manual for WHO staff on the CRC reporting process was finalised and submitted for printing in early 2002.

In response to a request by the Committee, preparatory work started on the development of a General Comment on Adolescent Health and Development. CAH will coordinate this work in collaboration with the Office of the High Commissioner for Human Rights, the Committee and the Karolinska Institute in Sweden.

Responding to social threats affecting children
Reducing violence against children, child sexual abuse and neglect, particularly for the girl-child and the adolescent, figure prominently at the heart of CAH’s activities related to CRC.

Participants from 28 African countries were trained in two inter-country workshops on the Prevention and Management of Child Sexual Abuse (PMCSA). All of these countries subsequently went on to develop PMCSA action plans. The importance of close collaboration between health, judiciary/police and social welfare sectors is a key strategic approach to the issue. Community participation in Niger and Zimbabwe was viewed as essential to PMCSA and several countries have taken action in public campaigns against child sexual abuse and neglect.

In collaboration with other programmes and with George Mason University in the USA, similar efforts were undertaken in AMRO. These resulted in the development of a module and charts to include guidelines for assessing and identifying child abuse, accidents and violence. The module and charts will be ready for a pilot test during the first quarter of 2002. AMRO has also accelerated efforts to stem youth violence by collaborating with partners implementing adolescent programmes on violence and sexual reproductive health. The partners include GTZ, the W.K. Kellogg Foundation, Sida, UNFPA, UNICEF and USAID.

The adoption of a public health approach to child abuse and neglect was proposed by EURO, and training materials were developed that view child abuse, neglect, and child protection within the broad context of child health and welfare, families and communities. The training materials, consisting of 11 modules, are targeted at social workers and health professionals (10 modules), and policy makers (1 module). A first round of pilot trials was held in the Russian Federation. The materials will be introduced and evaluated at a regional level and training events will take place at a country level in the course of 2002–2003. In 2001, a joint workshop between WHO and the International Society for the Prevention of Child Abuse and Neglect (ISPCAN) on the role of the health sector in this area was held in connection with the VIII ISPCAN European Conference on Child Abuse and Neglect, Istanbul, Turkey.

CAH, in collaboration with WHO’s Department of Violence and Injury Prevention, will work closely with EURO to evaluate the relevance and need for possible adaptation of the training package on child abuse for implementation in other regions and countries.

Addressing the HIV/AIDS pandemic
The Department is playing a key role in WHO’s response to AIDS. Health gains for children and adolescents in Sub-Saharan Africa are being eroded or reversed because of the HIV/AIDS pandemic and many countries in Asia, the Caribbean, and Eastern Europe are now facing serious threats.
Since the HIV/AIDS pandemic began, millions of children under the age of 15 have been infected with HIV. The great majority of them are infants – born to HIV-positive mothers – who became infected before or during birth, or through breastfeeding. Mother-To-Child Transmission (MTC) is the most significant source of HIV infection in children under the age of ten. In 2001, an estimated 800,000 children, mainly in developing countries, were newly infected with HIV, and there are now 2.7 million children living with the disease. Approximately 50% of all new HIV infections are in young people aged 10–24, comprising about 6,000 cases every day.

The biennium saw the development of several projects aimed at preventing HIV/AIDS among adolescents, and the production of materials to train health providers on HIV/AIDS, sexually transmitted infections (STI) and infant feeding counselling for HIV-positive mothers. The Department also made considerable progress in the development of clinical guidelines for the assessment and management of children with HIV/AIDS, spearheaded by the African Region. A description of the progress achieved in the biennium can be found in chapters two and three.

**CAH: Integrating diverse activities**

The Department follows a model of programme development that links research, development, implementation and evaluation in a sequential and cyclical manner.

CAH supports research and uses the results to develop standards and practical guidelines. These are adapted to local needs to assist countries in implementing safe, sustainable health practices for children and adolescents. Training health professionals and community workers is an essential component of the process; experience has shown that it can contribute toward improved health services and community-level action. Ongoing documentation and evaluation systems represent the networks underpinning effective implementation, and can be used to guide policy- and decision-making. These systems are critical to measure progress, and adapt or improve interventions.

**Planning and management with WHO regional offices and global partners**

To ensure coordination of its many and diverse activities, the Department collaborates with WHO programmes at Headquarters, in regional and country offices, and with global partners.

In 2000–2001, CAH continued to refine and improve mechanisms for effective coordination. Mechanisms for collaboration with Regional Offices include five essential elements:

- Joint preparation of work plans by regional and HQ staff during annual visits to Regional Offices. In most regions the visits are conducted as a joint exercise with the participation of staff responsible for child and adolescent-related work, and in some regions, with staff responsible for nutrition and infant feeding.
- Coordination of work with the regions by CAH regional focal points based at WHO headquarters who have major responsibility for follow-up and advising on regional and country activities.
- An annual meeting of CAH Regional Advisors bringing together global WHO staff working in both child and adolescent health. These meetings are structured to allow plenary discussions on topics relevant to the entire programme area, as well as parallel tracks on issues pertaining to children or adolescents. These annual meetings have resulted in important recommendations for all staff and have proved to be an effective managerial tool.
BOX

Working in partnership with the World Bank to improve child health outcomes

In January 2000, the Africa Child Health Team of the World Bank convened a meeting with CAH staff, the AFRO IMCI team and UNICEF to discuss acceleration of efforts to improve child health outcomes in Africa. Presented evidence showed that child health indicators in many countries in the region were not improving, and were actually deteriorating in some countries. Investing in child health remains a top priority for the World Bank, and many governments have identified Integrated Management of Childhood Illness as an appropriate strategy along with other interventions to improve child health (such as immunisation, early childhood development, and nutrition). Opportunities for joint work in the preparation and supervision of projects were identified. In the African region alone, over 15 projects in different countries could benefit from CAH’s technical input in the foreseeable future.

CAH and the World Bank conducted a review of lessons learned through past collaboration. A key finding was the constraint associated with different modes of planning and operations, making it difficult for WHO staff and consultants to effectively contribute to the preparation of projects supported by the World Bank. A joint workshop, Building Capacity for Technical Support in Child Health: A Training Seminar, was organised in September 2000 to increase the pool of resource persons able to act as effective interfaces between CAH and the World Bank. There were 18 participants, including CAH staff from headquarters and Regional Offices. The workshop aimed to provide participants with a sound understanding of the World Bank’s priorities, strategies and project cycle and to familiarise them with the tasks involved in project preparation and supervision. The workshop was the first of its kind in the cooperation between WHO and the World Bank and was replicated for other principal intervention areas such as maternal and reproductive health.

A CAH staff member has been seconded to the World Bank’s Health, Nutrition and Population (HNP) anchor since 1995 to identify opportunities for cooperation and contribute to policy dialogue. At present, more than 30 countries have included the IMCI strategy in projects supported by the World Bank. The Department, including regional and country teams has allocated specific resources in the work plan to ensure that technical support can be provided to ministries of health in the preparation and management of these and future projects.

In November 2001 a joint World Bank/WHO workshop identified the key determinants and indicators to monitor progress towards the Millennium Development Goal of child mortality reduction.

• Semi-annual reports by Regional Offices on progress made, and an adjustment of the work plans if necessary.

• Ongoing informal monitoring of key joint activities by electronic means such as email.

The Department, in close collaboration with WHO regional staff, has a well-defined approach for joint programme implementation, maximising the use of available resources and ensuring consistent support to countries. Staff in Regional Offices are key to supporting programme implementation and the role of partners is crucial to ensure coherent and consistent support for child health activities in countries.

Each year, CAH conducts at least one technical briefing in Geneva for national health authorities, academics and technical partners, NGOs and WHO regional staff. The briefings are intended to give participants an introduction to the Department’s research and development work, and an overview of approaches for planning and managing health programmes in countries. In addition, they serve to introduce participants to WHO staff and identify areas of mutual interest for possible collaborative activities.

CAH works closely with partners including other WHO departments, UN agencies, bilateral agencies, academic institutions, NGOs and foundations to develop joint strategies and strategic approaches to planning, identification of research agendas, and support to regions and countries. Examples of joint implementation of child and adolescent health strategies with partners include:

• Work with the World Bank to improve global child health outcomes, and achieve the Millennium Development Goals (see Box).

• Joint work on the development of a Global Strategy on Infant and Young Child Feeding at consultations, meetings and seminars organised by UN agencies and NGOs in AMRO, EURO, and SEARO (see Chapter 2).

• Efforts through an Integration Task Force formed to accelerate the process of collaborating and integrating support from the various programmes to implement activities at country level in AFRO.

• Work on developing and implementing regional and country strategies for adolescent health and development (see Chapter 4).

Joint global and regional activities with partners led to accelerated implementation of effective interventions at regional and country levels. For example, the Department strengthened its partnership with the Roll Back Malaria (RBM) task force (see Box), and produced a framework for RBM/IMCI collaboration in the African Region. The framework was used to develop joint plans of action

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including standard indicators for monitoring and evaluation. Joint meetings of the RBM and IMCI task forces are conducted annually.

**Plans for scaling up successful child health interventions**

The burden of disease in children could be further drastically reduced through the expanded geographical implementation of IMCI, building upon existing infrastructure and local expertise, and including community health, nutrition, and immunisations.

**Reviewing implementation of Integrated Management of Childhood Illness (IMCI)**

CAH and partners involved in child health programming document and evaluate experience with IMCI implementation. Information has been gathered from district, country, and regional levels through presentations, reports, and operational research. The first country evaluations of the Multi-country Evaluation (MCE) were completed this biennium. Through MCE studies, the Department and Regional Offices have reviewed countries in each region to identify those with greatest potential for scaling up IMCI. In 2002, two additional activities will be pursued:

- A systematic review of the feasibility and effectiveness of the clinical guidelines developed for IMCI in first-level health facilities. The first step was made in 2001 by a participatory review of the current recommendations included in the clinical guidelines for the management of children with febrile illness. CAH plans to carry out a systematic review of the performance of the IMCI clinical guidelines in collaboration with other WHO Departments during 2002–2003.

- An analytic review of the strategy as a whole to support countries in scaling up IMCI. The analytic review will look critically at assumptions made when conceptualising the strategy in 1996. It will also examine:
  - Possible benefits of the strategy in high and low mortality settings
  - Management, organization and policy issues
  - Components and content of the strategy
  - Possible linkages with other child health related programmes and strategies
  - The implementation process.

The review process will include document reviews, key informant interviews, and a set of field visits to countries that are in the expansion phase. A broad consultative process is necessary to ensure that the full range of experience and evidence related to IMCI is taken into account and to build consensus around any revision of the strategy. The Department is putting forward ambitious proposals that underscore the importance of the analytic review.

**BOX**

**Collaboration with Roll Back Malaria (RBM)**

The first joint meeting of the RBM/IMCI taskforce was held in Harare, Zimbabwe in September 2000. The meeting brought together national RBM and IMCI programme managers, officials from ministries of health, experts and partners including DFID, GTZ, BASICS and SARA projects, UNICEF, USAID, and the World Bank.

This meeting was an important step forward in the collaboration between RBM and IMCI. An important challenge identified by participants was to ensure that collaboration leads to accelerated scaling-up of activities at the national, district and more importantly, community level.

In a meeting organised by AFRO in November 2000, representatives from DFID, the USAID BASICS project, UNICEF, the World Bank and WHO, contributed to the development of a strategy for scaling-up RBM/IMCI implementation in the region.

Participants agreed that the guiding principle for scaling-up is a focus on interventions with the greatest impact on morbidity and mortality. In addition, participants concluded that scaling-up of RBM/IMCI implementation should draw on the synergies that can be created among countries and along with other initiatives.
Focusing on neonatal and infant health and development

**HIGHLIGHTS OF 2000–2001**

- Guidelines for childhood illness that include the first week of life have been made available. These guidelines will be examined in a multi-site study that will determine signs and factors that predict neonatal illness severe enough to require referral.

- Progress has been made on defining interventions to improve care-seeking for the newborn. The global state of newborn health was reviewed by partners and technical experts in a workshop in Nepal and a set of interventions was agreed.

- Collaboration with international partners on advocacy, resource mobilisation, tool development, and research facilitation has helped promote newborn health.

- The recommendation on the optimal duration of exclusive breastfeeding was revised and agreed among partners. The new recommendation calls for exclusive breastfeeding for six months, with the introduction of complementary foods and continued breastfeeding thereafter.

- Nearly seventy countries offer training in breastfeeding counselling: 31 are in the early introduction phase; 26 countries have repeated the training several times; and 11 countries widely employ it.

- CAH contributed to technical discussions leading to the Maternity Protection Convention 2000 adopted by the 88th International Labour Conference.

- Guidelines and instruments have been issued on infant feeding in relation to mother-to-child transmission of HIV/AIDS to assist health workers and improve their performance.

- New research results show that zinc supplementation reduces diarrhoea morbidity in children and that high levels of mothers’ compliance with supplementation can be achieved.

- Field tests of the *Care for Development* materials were conducted in South Africa and Syria, to examine participants’ performance during and after training, and to identify constraints to course implementation and benefits in a programmatic context.
The Neonatal and Infant Health Development (HNI) team focuses on the nutrition, growth and development of infants and children. In the course of the biennium, the Team worked closely with partners to promote breastfeeding; developed and tested interventions to improve infant and young child feeding; conducted research on micronutrient intake through supplementation, and produced materials for the promotion of child development.

The HNI Team also invested significant effort in the area of effective newborn care. To achieve progress, the Department focused on research tools and policy development. It supported studies to develop and test interventions that improve community newborn care, developed technical guidelines, explored simplified drug regimens for treating sepsis, expanded Integrated Management of Childhood Illness (IMCI) to include the first week of life, and promoted quality improvements in newborn care at the health facility level.

Improving infant and young child feeding
Feeding is a critical aspect of caring for infants and young children. Optimal feeding practices stimulate a child’s psychosocial development and help to forge bonding with the caregiver. These practices also lead to improved nutrition and physical growth, as well as reduced susceptibility and better resistance to common childhood infections.

The Department made significant investments in the promotion and improvement of infant and young child feeding. Activities included research and the design of training materials, the development of feeding recommendations, as well as the production of technical documents.

Recommending the optimal duration of exclusive breastfeeding
To resolve a long-standing issue of concern, a systematic review of the published literature on the optimal duration of exclusive breastfeeding was commissioned by CAH and NHD. Following its completion, an Expert Consultation discussed its findings in March 2001 and recommended "exclusive breastfeeding for six months, with the introduction of complementary foods and continued breastfeeding thereafter". The Expert Consultation recognized that some mothers may choose not, or may be unable, to follow these recommendations, but that they should be encouraged and supported to follow them in order to improve their infant’s nutrition. The findings of the Expert Consultation were submitted to the World Health Assembly (WHA) in May 2001 and endorsed in resolution WHA 54.2. The review and the report of the consultation are available as WHO documents (see Annex 1).

This new recommendation on exclusive breastfeeding for six months will be incorporated in all relevant WHO documents and training materials. As the outcome of the Expert Consultation has direct implications for the age-at-use provisions of the cereal-based food-standards in the Codex Alimentarius, the Department participated in the 23rd session of the Codex Committee on Nutrition and Foods for Special Dietary Uses in November 2001. Draft-revised standards are currently being prepared by the Codex Committee for presentation to the Commission in 2003.

Recommending improved complementary feeding practices
After the global consensus was reached on the optimal duration of exclusive breastfeeding, CAH began to explore avenues on how to better promote complementary feeding practices in developing countries. Epidemiological data show that many infants are particularly...
vulnerable to malnutrition when complementary feeding starts. A Global Consultation on Complementary Feeding, convened between 11–14 December 2001 by CAH in conjunction with NHD, considered new information on the nutritional and developmental needs of children, reviewed and made recommendations on optimal feeding practices, and drew lessons from research and country experiences in support of programme implementation.

The consultation brought together over 60 scientists, programme implementers, and representatives of UNICEF, FAO and the World Bank. The participants concluded that while the evidence for recommended actions required further strengthening, enough is now known to move forward with programmes. The following specific outputs were generated:

- A set of ‘Guiding Principles’ for messages and counselling on complementary feeding;
- A tentative ‘Action Checklist’ for implementers; and
- A list of key elements of successful behaviour change programmes.

Participants examined the development of a new initiative specifically for complementary feeding practices. They concluded that it would be more feasible, sustainable and effective to integrate a package of essential nutrition actions – principally aimed at improving nutrition in the 6–24 month age group – that is already being implemented through existing initiatives and programmes. Existing strategies and initiatives, such as IMCI, Early Child Development, Immunisation, Poverty Reduction, and the Expanded Baby-Friendly Hospital Initiative could make significant contributions in this respect. Tools such as the ‘Guiding Principles’, ‘Action Checklists’, a common policy agenda, and mechanisms for coordination at the country level were discussed as ways of achieving focus and coordination across programmes, agencies and countries at global and local levels. WHO was requested to lead and coordinate future efforts, in particular as they relate to the development of indicators, a set of intervention tools to support the Global Strategy on Infant and Young Child Feeding, and research to address approaches for meeting the nutritional requirements of infants in difficult circumstances such as those born to HIV positive mothers and low-birth-weight infants.

Research on interventions for promoting improved infant and young child feeding

During the biennium, the Department promoted and supported research for the development of interventions to improve breastfeeding and complementary feeding practices, including:

- **IMCI feeding counselling:** A study on the evaluation of IMCI feeding counselling in Brazil confirmed that nutrition counselling reduces growth faltering among Brazilian children. Data collected in a similar study in Pakistan, where the duration of breastfeeding is longer than in Brazil and the introduction of complementary foods occurs later, are now in the process of being analysed. Final results are expected to be available by the end of 2002, however preliminary results already confirm the positive findings from Brazil and show a reduction in stunting.

- **Community interventions to promote breastfeeding:** A review is under way to examine the experience with community interventions for the promotion of breastfeeding, as well as the process of intervention delivery and evidence related to their impact. The review, which is to be completed by mid 2002, will also examine questions related to the cost and potential for expansion of community interventions.

- **Community interventions on infant and young child feeding:** The process and
impact of large-scale, community-based interventions to improve infant and young child feeding have been examined in a pair of studies being conducted in India and Peru, in collaboration with the Johns Hopkins University. Results show a marked improvement in feeding practices associated with improved growth in Peru. Preliminary analysis of the data in India show increased rates of exclusive breastfeeding, and reduced diarrhoea morbidity in the first six months of life. Further information on this study is presented in the special report at the end of this section.

Development of interventions for the promotion of improved infant and young child feeding

The experience in the design and implementation of the interventions in the two settings described above were carefully documented to guide the development of generic guidelines. These would be used for planning community-based interventions for infant and young child feeding promotion and support. The experience from studies and recent programmes makes it clear that there is a common denominator of steps and principles that should be completed to make an intervention successful and sustainable (see Box).

Guidelines for breastfeeding peer counselling

Skilled support for optimal infant feeding should be available not only in the health system, but also in the community. Evidence suggests that peer or lay counsellors can be adequately trained to support mothers and other caregivers in establishing and maintaining optimal feeding practices. A tool is being developed to assist those countries and districts where the promotion of breastfeeding is likely to be of major importance in the community component of IMCI. This will complement community support components of the Baby-Friendly Hospital Initiative.

Training courses

Health workers need specific knowledge and skills to effectively support caregivers in improving infant feeding practices. CAH has been working in collaboration with Regional Offices to promote the introduction and implementation of existing interventions at national level. It has also worked on developing the required training materials with partners both within and outside of WHO.

In addition, the introduction of training courses and materials on infant and young child feeding practices into the curricula of pre-service training institutions holds the promise of high sustainability and coverage of health workers. For example, faculty members and material-developers in Viet Nam were trained to adapt and translate pre-service training materials in breastfeeding counselling. Using a revised curriculum based on *Breastfeeding Counselling: A Training Course*, they also received training on strengthening teaching on breastfeeding counselling in midwifery schools. Preliminary discussions have begun in Cambodia to embark on a similar process.

Development of new training material:

1. **Complementary Feeding Counselling: A Training Course** was developed in collaboration with NHD during the biennium. The course provides health workers with the knowledge and skills required for counselling mothers on food quality and complementary feeding. The course was field-tested in Jamaica and South Africa in 2001 and will be finalised and introduced to countries during 2002.

2. **Infant Feeding for Humanitarian Aid Workers:** Two training modules were developed during the biennium by WHO (CAH, NHD, Emergency and Humanitarian Aid), UNICEF, UNHCR,
World Food Programme, and international NGOs. A working draft of Module 1, intended for all emergency relief staff was field-tested and presented to the Infant Feeding in Emergencies Working Group at the meeting of the United Nations System Standing Committee on Nutrition (SCN) in April 2001. Plans are currently under way to finalize the Module incorporating feedback from early users. Module 2 is intended for health and nutrition humanitarian workers who look after mothers and infants. A working draft of this module is now available.

**A Global Strategy to improve infant and young child feeding**

During the biennium, CAH worked within WHO’s Inter-Departmental Working Group on Infant and Young Child Feeding to develop the Global Strategy on Infant and Young Child Feeding (see Box). A technical consultation convened with UNICEF in March 2000 to review progress in improving infant and young child feeding over the past decade, developed a platform for the initial draft of the strategy. Seven country and five regional consultations engaging more than 100 countries and partners from UNICEF, FAO, ILO, the International Lactation Consultant Association, International Baby Food Action Network, and the World Alliance for Breastfeeding Action were convened to review and revise the draft strategy. Based on these inputs the draft Global Strategy on Infant and Young Child Feeding was finalised and presented to the 109th WHO Executive Board in January 2002.

An inter-country workshop convened by SEARO brought together staff from seven countries who were responsible for implementing IMCI and BFHI interventions. Held to discuss the improvement of coordination in partnerships on infant and young child feeding interventions, the workshop demonstrated the role that WHO can play in facilitating linkages between child health and feeding programmes at the country level. In the new biennium, particular emphasis will be placed to building multi-sectoral partnerships and capacity for implementation. CAH also participated in discussions with the ILO leading to the Maternity Protection Convention (2000).

**Promoting safer feeding practices in settings of high HIV prevalence**

Mother-To-Child Transmission (MTCT) is the most significant source of HIV infection in children. However, in spite what is known about the need for reducing unwanted pregnancies among HIV-positive women, many children are still born to HIV-infected mothers. Many women do not know their HIV status, and may not have access to services to help prevent MTCT.

There is continued concern that up to 20% of infants born to HIV-infected mothers may acquire HIV through early users. Module 2 is intended for health and nutrition humanitarian workers who look after mothers and infants. A working draft of this module is now available.

**Global Strategy on Infant and Young Child Feeding**

Infant and young child feeding is a cornerstone of care for child development. Worldwide about 30% of children under five are stunted due to poor feeding and repeated infections. While the availability of food can be a limiting factor in some households, inadequate feeding practices frequently lead to insufficient intakes of energy and nutrients.

The Global Strategy on Infant and Young Child Feeding aims to revitalise efforts to promote, protect and support optimal infant and young child feeding. It builds upon past initiatives, in particular the Innocenti Declaration and the Baby-Friendly Hospital Initiative. It furthermore addresses the needs of all children including those living in difficult circumstances, such as infants whose mothers are HIV positive, low-birth-weight infants, and children and infants in emergency situations. The strategy calls for action in the following areas:

- Government policies on infant and young child feeding;
- Access to skilled support to initiate and sustain exclusive breastfeeding and ensure adequate and safe complementary feeding;
- Empowerment of health workers to provide effective feeding counselling, and expansion of their services in the community by trained peer counsellors;
- Government review of implementation of the International Code of Marketing of Breast Milk Substitutes, and consideration of new legislation to protect families from adverse commercial influences; and
- Government legislation on the breastfeeding rights of working women.

The strategy points to the responsibilities of governments, international organizations and civil society. It engages all relevant stakeholders and provides a framework for accelerated action, linking relevant intervention areas and using resources available in a variety of sectors.


CAH and WHO’s Department of Reproductive Health and Research (RHR) contributed information on aspects related to health benefits in the discussions leading to the adoption of the Maternity Protection Convention (2000), and its accompanying Recommendation at the 88th International Labour Conference. The new Convention contains significant improvements to the original Convention (1952) as it includes a new provision on protection from hazardous agents, an increase in the minimum length of maternity leave from 12 to 14 weeks, and a reinforcement of the entitlement to paid breaks for breastfeeding. The Global Strategy on infant and young child feeding recommends that a comprehensive national policy should adopt and monitor the application of a policy of maternity entitlements consistent with such international labour standards, in order to facilitate breastfeeding by women in paid employment, including those in atypical forms of dependent work.
breastfeeding. Replacement feeding is the only way to completely avoid post-natal HIV transmission; however, this may not be feasible in parts of the developing world. Despite the risk of HIV transmission, breastfeeding provides appropriate nutrition, protects against respiratory and gastrointestinal pathogens, and is more economical than milk substitutes.

Since WHO first issued guidelines on the risks of HIV transmission through breastmilk and recommendations on HIV and infant feeding, new information on MTCT-prevention has emerged. A Technical Consultation to review new data on MTCT-prevention and discuss their policy implications was convened in October 2000 by CAH and RHR, in collaboration with the HIV/STI initiative (see Box).

Guidance was also developed on how to support the implementation of the infant feeding recommendations:

- All HIV-infected mothers should receive counselling on various infant feeding options, and be given specific guidance in selecting the most suitable option.
- Assessments should be conducted locally to identify feeding options that are acceptable, feasible, affordable, sustainable and safe in a particular context.
- Information and education on MTCT of HIV should be directed to the general public.
- Adequate numbers of people who can counsel HIV-infected women on infant feeding should be trained, deployed, supervised and supported.

The recommendations above and research priorities identified at the consultation have guided the work of CAH in this area during the biennium. The work carried out is summarised below.

**Tools to enhance the skills and knowledge of health workers**

1. In collaboration with UNICEF and UNAIDS, CAH has developed a three-day course on *HIV and Infant Feeding Counselling: A Training Course (HIVC)*, which is intended to be used after the course *Breastfeeding Counselling: A Training Course (BFC)*. The course provides health workers with the knowledge and skills required for counselling mothers on infant feeding in settings of high HIV prevalence. Introduced in the year 2000, the course has already been implemented in ten countries.

2. In collaboration with the Academy for Educational Development, CAH is preparing a *Guide for Formative Research on HIV and Infant Feeding* which is expected to be completed in June 2002. The Guide will support the work of counsellors who will need help in dealing with both the nutritional and behavioural aspects of replacement feeding. Their work can be further assisted by providing specific guidance on locally appropriate ways to respond to main problems encountered in counselling mothers. For example, the Guide will address the identification of safe, nutritional, and affordable local foods, and will explore ways of promoting and supporting replacement feeding, and dealing with the most frequent problems in this area. The tools presented in the Guide will include generic replacement feeding recommendations covering issues such as foods and resolving feeding problems, along with guidelines on how to adapt them to the local context.

3. CAH is also working with the Academy for Educational Development on developing a set of job aids to assist health workers when counselling HIV positive mothers on infant feeding. The counselling cards that health workers will use will help them provide advice on:
   - Describing feeding alternatives, risks and benefits;

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**Recommendations on infant feeding for HIV-positive mothers**

1. When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life.
2. To minimise HIV transmission risk, breastfeeding should be discontinued as soon as feasible, taking into account local circumstances, the individual woman’s situation and the risks of replacement feeding (including malnutrition and infections other than HIV).
3. When HIV-infected mothers choose not to breastfeed from birth or stop breastfeeding later, they should be provided with specific guidance and support for at least the first two years of the child’s life to ensure adequate replacement feeding.
4. Programmes should strive to improve conditions that will make replacement feeding safer for HIV-infected mothers and families.
• Helping mothers decide between breastfeeding and replacement feeding;
• Helping mothers who decide to breastfeed to do so exclusively;
• Helping mothers who decide to offer replacement feeding to do so exclusively;
• Helping mothers who breastfeed to stop breastfeeding early; and
• Helping mothers to use replacement feed safely after six months.

Health workers will be provided information on how to use the cards, how to integrate the cards with other WHO educational materials, tips on counselling skills and guidance on how to obtain additional information on HIV/AIDS and infant feeding. Completion of these materials is expected by July 2002.

Research on the prevention of MTCT of HIV

1. Protective effect of breastfeeding on infant morbidity and mortality
   CAH has continued to explore the levels of protection against infant morbidity and mortality associated with exclusive and partial breastfeeding when compared with non-breastfeeding. Analysis of a large dataset with information from Ghana, India and Peru is under way, and results will be available in May 2002.

2. Infant feeding and risk of HIV transmission
   CAH is collaborating with the Africa Centre for Population Studies and Reproductive Health (KwaZulu Natal, South Africa) to study the risk of postnatal transmission of HIV in exclusively breastfed infants. A recent study from Durban, South Africa compared MTCT rates in three feeding groups: exclusive breastfeeding, mixed feeding, and formula feeding. The results showed that at three months MTCT in exclusively breastfed infants was similar to that in infants given only formula feeds, and significantly lower than in those receiving mixed feeding. This suggested that exclusive breastfeeding may carry no additional risk of MTCT of HIV, over formula feeding. The proposed CAH-supported study will attempt to verify these findings.

   The risk of HIV transmission through breastmilk associated with sub-clinical mastitis and its relationship with maternal HIV disease status, is currently being examined in a collaborative study with the University Teaching Hospital in Lusaka, Zambia and the Institute of Child Health in London.

3. Operational research on HIV and infant feeding counselling
   The process and quality of infant feeding counselling offered to mothers in settings of high HIV prevalence is being examined in a pair of studies in Brazil and South Africa. The collaborative studies with the Instituto de Saude, Sao Paulo, Brazil, the University of the Western Cape, South Africa and the London School of Hygiene and Tropical Medicine, UK will start in the first semester of 2002.

4. Research instruments
   In collaboration with RHR, CAH developed a new tool to increase the quality of acquired data on infant feeding patterns. The tool is specifically designed to provide guidance to researchers trying to establish the association and levels of risk of HIV transmission through infant feeding. By drawing on numerous existing indicators, including those found in demographic and health studies, and involving many investigators in the design of this detailed data collection tool, it is hoped that appropriate data may be more consistently collected from study to study, allowing improved comparison across sites and meta-analyses and/or joint analyses of datasets.

Improving micronutrient intake

Given the limited availability of vitamin A, zinc and iron in the diet of most infants and children in developing countries, and the limited access of families to foods rich in these nutrients, supplementation appears an effective strategy to improve their intake. CAH
supported research in 2000–2001 that examined modes of delivery of vitamin A supplements and the health effects of improving zinc intakes through daily zinc supplementation. The research also explored key factors that will affect the impact of such interventions, such as caretakers’ adherence to supplementation regimes, and how to improve iron intake.

**Vitamin A**

The Department is supporting, in collaboration with WHO’s Nutrition Health and Development (NHD) and Vaccines and Biologicals (VAB), two randomised, placebo-controlled trials in Ghana and Tanzania, to examine the benefits and safety of delivering large doses of vitamin A supplements together with immunisation contacts in the first six months of life. An early multi-centre trial showed that although safe, the schedule studied was insufficient to increase liver stores to protect against vitamin A deficiency in the second semester of life. The newly proposed supplementation schedule, recommended by a group of experts, doubles the doses of vitamin A to be delivered.

**Zinc**

1. **Prevention of malaria**

   The impact of daily zinc supplementation to prevent malaria in children was studied in Burkina Faso. Results showed no difference in falciparum malaria incidence, mean temperature and mean parasite densities during malaria episodes, nor in malaria parasite rates, mean parasite densities and mean haematocrit during cross-sectional surveys between zinc and placebo groups. On the other hand, zinc supplementation was significantly associated with reduced prevalence of diarrhoea.

2. **Prevention of pneumonia**

   The effects of zinc supplementation on risks of pneumonia and diarrhoea were studied in a large randomised trial in India, jointly supported by CAH and the European Union. Specific attention was paid to measuring caretakers’ adherence to recommendations to give daily zinc supplements to young children and the factors supporting or constraining the adherence to treatment. Results indicate a high level of adherence, and perceptions of significant health benefits associated with supplement use. Zinc supplementation resulted in a 27% reduction in the incidence of pneumonia.

3. **Prevention and management of diarrhoea**

   A recent meta-analysis of several trials evaluated the therapeutic effect of zinc supplementation on acute diarrhoea in Bangladesh, India, and Indonesia. Zinc-supplemented children had a 16% faster recovery and reduced severity of diarrhoea; there was also a 20% reduction in the odds of acute episodes lasting for over seven days. The analyses concluded that zinc supplementation given along with appropriate fluids and foods during acute diarrhoea reduces the duration of illness and its severity.

   Since the publication of the trials incorporated in the above-mentioned pooled analysis, a number of additional studies evaluating the therapeutic effect of zinc supplementation on the clinical course of acute diarrhoea have been completed. These additional studies were divided in three groups: hospital-based studies, community-based studies, and studies in which zinc was mixed with oral rehydration salts (ORS) (see Box). A meeting convened in New Delhi, India, in May 2001 reviewed the research findings of all the studies investigating the effect of zinc supplementation on the clinical course of acute diarrhoea and drew conclusions concerning its efficacy.
4. Child survival
Effects of zinc supplementation on child survival are being explored in two studies under way in New Delhi, India and Pemba Island, Zanzibar. These large-scale studies investigate the impact of daily zinc supplementation on mortality and severe illness in children below two years of age. Results are expected in late 2003. One early achievement of these studies was the development of a daily supplement of zinc and iron that is easy to produce, affordable and acceptable for young children, and that could eventually be used in a large scale intervention after the study is completed, if found to be efficacious. The development of the supplement is described in the Box (right).

Iron
The Department commissioned a review of effective interventions to improve iron status in children and adolescents in the 0–19 age range. The project was designed in close coordination with NHD, and with inputs from various units in the WHO Communicable Diseases cluster. The review will identify the most cost-effective interventions to respond to various epidemiological scenarios and will identify areas requiring further research or development. The outcome will be a set of programmatic recommendations on the action countries can take to reduce anaemia with a particular focus on strategies to improve iron intake.

Child development
There is a good deal of evidence to suggest that, regardless of difference in lifestyles and culture, infants are similar across a wide range of dimensions. These similarities include the timing of sensorimotor milestones, language development, infant gestures, gaze and vocalisation patterns, and the infant’s perceptual and emotional sensitivity to the human voice, language, gestures, face and affective states. Many of these universal attributes have the potential to foster adult perceptions and behaviours to support the development of finely tuned emotional contact and communication between adults, children and very young infants. They also have the potential to elicit a range of supportive and stimulating behaviours in adult-infant interactions. For example, within the first few days of life, infants are able to recognise their mother’s breast milk and such heightened sensory and response systems play an important role in the early establishment of emotional ties.

Emotional ties constitute the building blocks of human cognitive capacity, the acquisition of language, and empathic identification with other human beings. Work amongst very deprived children living in institutions, refugee camps, and in conditions of extreme poverty in Africa, Eastern Europe and South America points to the strong negative effect of emotional deprivation on the growth and survival of young children. Current developmental theory indicates that emotional contact and communication are necessary for the organisation and coordination of all aspects of a child’s development, including his or her physiological, social and intellectual states.

A review of the experience of interventions to promote growth and development carried out by the Department entitled *A Critical Link: Interventions for Physical Growth and Psychological Development* provides the empirical basis for CAH to proceed with the implementation and testing of combined programmes for nutrition and psychological development. On the basis
of this review, the Department developed a module to incorporate Care for Development into IMCI with directives for demonstration and discussion with caregivers in the areas of feeding, play and communication. The focus of the intervention is the parents of children from birth to two years and of any malnourished child under five years of age.

**Key features of Care for Development**

Care for Development materials were based on the model of IMCI nutrition counselling. The intervention aims to improve the knowledge and skills of mothers and others who care for children through:

- Strengthening active and responsive feeding to improve nutrition and growth;
- Introducing activities to improve interaction with children to stimulate growth and learning, and to promote responsive care for the child’s health;
- Recommending specific play and communication activities to assist children’s psychological development; and
- Helping families solve problems in providing care.

A counselling approach focuses on what caregivers can do to improve communication and stimulation with children. In those places where specialised services are available, children who have difficulty learning can be referred for appropriate assessment and expert assistance.

The choice to promote a counselling approach in IMCI was a practical one: the counselling of mothers and caregivers, as recommended in IMCI, was proven effective in improving feeding practices and growth and could also be effective in improving child development. Building on the IMCI counselling process and the delivery system for implementing IMCI, was an efficient way for implementing Care for Development for the children who need it most – the most poorly nourished and frequently ill.

### Evaluation of Care for Development training in South Africa

**Delivery:** Can be introduced during an 11-day IMCI course

- However, 12 days would be optimal to allow more clinical practice on counselling on feeding and care.

**Content and training materials: Appropriateness and effectiveness**

Content appropriate for children coming to clinic:

- Ninety-one children classified with ‘anaemia or low-weight-for-age’ were seen in eight clinic sessions during the course.

Methods appropriate for health workers targeted for IMCI training.

- 70% of participants reported all methods useful.
  - Most useful: learning and discussing the rationale and recommendations for feeding and care, demonstrations, video and outpatient practice.

**Facilitator and participant reactions to counselling on Care for Development**

- Very important for mothers in their area and their children.
- New, difficult, but possible to learn with more practice.
- More time is required for the course, especially in clinical practice.
- Feasible to add care to management of children in their clinics.

Field tests were held to identify constraints to course implementation and benefits in a programmatic context. The documentation of the process revealed local concerns, including:

- Making the new course compatible with training materials on child development already in use;
Reconciling the demands of the course for additional time with the need to avoid taking trainees away from their workplaces for long periods; and

- Defining how health workers would learn to identify and respond to major developmental delays.

The field test included examining whether the inclusion of a simplified set of milestones would be practical and of value to the management of children. The course implementation in June 2001 revealed difficulties with assessment of milestones, indicating that health workers would require additional training to acquire specific skills. In addition, the milestones provided no benefit in identifying children with disabilities. However, the materials did prove feasible for use both in outpatient and in-patient clinical practice sessions. All trainees displayed adequate skills by the end of the training period. It was noteworthy that the benefits of including the new materials went beyond the subject matter itself – trainees and facilitators found that the activities initiated in the consultation resulted in improved communication with caretakers. In addition, they were able to observe immediate improvements in the caretakers’ interaction with the child. Syria has now moved forward with the integration of Care for Development as part of its national IMCI training.

Care for Development training has been repeated in Syria and included in a modified IMCI training course in Tunisia. The Department plans to support a number of activities in the coming year to further develop the capacity for implementation of this intervention. The first two Care for Development training courses for consultants will be conducted in Cairo, Egypt in early 2002 with participation from all WHO regions.

**New activities on the psychosocial development of children**

In July 2001 CAH convened a consultation of experts and partners to review progress in the design and testing of tools, and share experiences with the implementation of interventions. In this consultation, key priorities were identified for intervention-related research, and for the development of tools, guidelines and implementation strategies. The two key recommendations that were formulated were related to the inclusion of Care for Development in IMCI case management training, and the development of materials and processes to support the promotion of Care for Development in the community. A strategy for the promotion of Care for Development will be developed that includes a diverse set of materials and delivery channels to maximise coverage and effectiveness.

Studies have shown the effectiveness of interventions that promote child growth and development, however there are few examples of large-scale implementation of such interventions. Care for Development has the potential to reach large populations of children in poor countries. In the next biennium, CAH will invest in identifying universal and sensitive indicators for child development. Building shared ownership with key partners is critical in ensuring that indicators respond to recognised needs and are widely adopted. The engagement of the scientific community is also an important priority.
Development of background papers
CAH is collaborating with international experts in the preparation of papers that will summarise technical information that underlies the adoption of Care for Development as an effective approach for the promotion of early child development. The first paper, in collaboration with the University of Maryland, USA will provide information on the association between nutrition and psychological development, the value of counselling and recommendations for specific play and communication activities. The paper will be available in May 2002.

Newborn care
Deaths in the first 28 days of life account for over 50% of all infant deaths in developing countries. As the majority of infants in these countries are born at home, improvements in facility-based health services will address only part of the problem and must be complemented by interventions at the home and community levels. In 2001, CAH created the Neonatal and Infant Health Team to expand its neonatal health activities. To ensure the complementarity of the activities with those conducted by WHO’s Department of Reproductive Health and Research (RHR), a staff member was shared by both departments during most of 2001. The increased collaboration of these departments in planning for activities and in the implementation of development and research projects has proven highly beneficial.

Case management guidelines for the newborn
In collaboration with RHR, CAH has extended the IMCI guidelines to include the first week of life and is now examining their performance in a multi-site study. The study will designate signs and historical factors that can be collected by a health worker at a first-level health facility that could predict illnesses severe enough to require management at a referral facility. This study will also document organisms causing neonatal sepsis, including pneumonia and meningitis, and their antimicrobial sensitivity profile. The study protocol and microbiological methods were finalised with the research teams in 2001.

A review of the strategies for managing neonatal bacterial infections in developing countries – the single most important cause of neonatal deaths – will explore the application of simplified antimicrobial regimens. The standard treatment of these infections consists of a combination of an aminoglycoside and a penicillin – often gentamicin plus ampicillin – given by injection two to four times a day. In settings where referral is not viable, it is often impossible to practise this regimen in the community or even at the first level facilities, and simplified antimicrobial regimens may be useful.

The objectives of the review of the strategies for managing of neonatal bacterial infections in developing countries are to: (a) evaluate – scientifically and systematically – existing therapeutic strategies for the management of severe bacterial infections – pneumonia, sepsis, and meningitis – among newborn infants in developing countries; and (b) evaluate safety data, pharmacokinetics and known adverse events profile of the antibiotics or combinations thereof in order to assess their safety profile. The outcomes evaluated will be success or failure rates of therapy, ease-of-use of regimen, cost-effectiveness, and methodological issues. Another part of this review being carried out by Johns Hopkins University, USA is a meta-analysis of all available data on the effectiveness of oral and parenteral therapy in the treatment of serious neonatal infections in community settings. This review will be completed by July 2002.

Improving family and community practices for the newborn
The Department is collaborating with the Saving Newborn Lives initiative of the Save the Children Federation, in the preparation of a review to examine the process and evidence for impact of community-based interventions to improve neonatal survival. Results are expected in June 2002.

Secondary analysis of data collected in 1998 through a randomised, placebo-controlled
trial on the effectiveness of vitamin A supplementation found that neonatal deaths accounted for half of all infant deaths in the study. Two-thirds of the babies who died were born at home. Care-seeking was seen as a major problem: Health care was not sought outside the home for 42% of the newborns who died. When care was sought private providers were preferred (71%). Half of the health care providers from whom care was sought did not have a formal medical education. Furthermore, the need for hospitalisation was often not recognised by health providers. But, even when advice for hospitalisation was provided, caretakers often did not follow it – only four out of ten newborns and 18 of 33 older infants were taken to hospital following the recommendations of health care providers. The findings suggest that interventions to improve care-seeking and adherence to treatment recommendations are essential. At the same time, significant investments will be required to improve the quality of the available health services if important reductions in mortality are to be achieved.

**Neonatal survival interventions research workshop**

Many interventions that save neonatal lives are well known. The challenge is to reach the newborn infants with these interventions in an affordable and sustainable manner. However, no materials are currently available on community-based effectiveness trials of promising models of delivery of life saving preventive and curative newborn care. Indeed, lack of operational research in this area has become a handicap for policy makers keen on implementing newborn survival programmes in many countries.

In recent years, efforts have increased to bridge this gap. Several groups are initiating community-based research on neonatal survival interventions; almost all of these are at the stage of formulating research plans for controlled field trials. To bring together research teams at this early stage and help maximise the gains from their research effort in the end, a workshop co-sponsored by CAH, the Saving Newborn Lives initiative and USAID was held in Kathmandu, Nepal in April–May 2001. Attended by leading researchers, newborn health experts, epidemiologists, and representatives of bilateral agencies and international projects from 11 countries, the aim of the workshop was to provide an opportunity to review the global state of newborn health, share results of recent research, identify priority interventions and gaps in knowledge, and agree on how to coordinate research efforts to most effectively advance perinatal and neonatal care in developing countries.

A desirable set of interventions that should be tested for effectiveness in the community setting is shown in the Box. Other key points on which consensus evolved at the workshop included the following:

- In settings where the majority of births and newborn deaths occur outside health facilities, survival interventions for the newborn must include home-based care and take into account local sociocultural and behavioural determinants of newborn health and disease.
- Formative research is needed to better understand local beliefs and practices, and the potential motivation for change, so that effective behaviour change strategies can be developed and evaluated. Understanding of care-seeking behaviours for newborns is particularly critical for developing interventions.
- To be acceptable and sustainable, health interventions for the newborn must be researched and implemented within a broader context of improving maternal and child health, and be integrated with existing safe motherhood and child survival programmes.

### BOX

**Components of community-based interventions to improve perinatal and neonatal outcomes**

1. **Antenatal**: Birth preparedness, promotion of antenatal care, counselling on breastfeeding, improved nutrition, recognition of danger signs and seeking emergency care; iron-folate and iodine (in deficiency areas) supplementation; treatment of malaria in endemic areas, treatment of syphilis, and measures to prevent MTCT of HIV.
2. **Intrapartum and immediate post-partum care**: Training of birth attendants and families to recognise birth complications, clean delivery, drying and wrapping of baby, placing baby on mother’s abdomen or breast, clean cord cutting, basic resuscitation, avoidance of inappropriate oxytocin use and immediate breastfeeding.
3. **Postnatal care**: Keeping baby warm, early and exclusive breastfeeding, cup-spoon feeding of low birth weight infants who cannot suck directly from breast, hygiene and eye/skin care, education of families and caregivers in recognition of sickness/sepsis, early care-seeking from appropriate providers, treatment and referral, if necessary.
To translate research into implementation, it is essential that the intervention tested be effective, affordable, acceptable and sustainable.

For research to ultimately impact newborn health and survival in the community, researchers must collaborate from the outset with governmental officials, stakeholders, and programme managers responsible for prioritising scarce resources and translating research findings into effective health care programmes.

Community mobilisation is a fundamental prerequisite for the success of community-based health interventions. Researchers must collaborate with and mobilise communities to participate in research and programmes as they are developed.

Communication between groups involved in community newborn health research must be facilitated to optimise opportunities to compare and, if possible, combine research results. A global interagency group could facilitate dialogue among researchers to help standardise research methodology, address key gaps in knowledge and avoid unnecessary duplication of effort.

Framework to assist policy makers in developing national strategies for improving neonatal survival

Almost 99% of newborn deaths occur in developing countries. However, many of these countries have only a meagre component of neonatal interventions in their child health programmes. Countries may not realise the importance of neonatal health. On the other hand, they may consider promotion of unaffordable institution-based newborn care as the only way to reduce mortality in the neonatal period. As an urgent need exists to assist countries in developing their neonatal health programmes, one of the priorities pursued by CAH is to develop a framework for policy makers at a national level.

The aim of the framework will be to motivate, mobilise and assist policy makers to develop national strategies for improving neonatal survival in developing countries with high neonatal mortality rates. The potential target audience will be policy and health profession leaders, NGOs, donors and others.

Advocacy and action planning will be the two principal elements of the framework. Using compelling rationale and local data, the first tasks will be to assist policy makers to recognise that the issue of neonatal survival is an important health priority for their countries, to motivate them to address it urgently and to mobilise them to initiate steps to develop appropriate programmes. Policy makers will then be presented evidence on available interventions to improve neonatal survival and will be assisted to select options and formulate effective, affordable and sustainable strategies suitable for their country.

In collaboration with DFID, the demand for such a tool was assessed in five countries. The results confirm that there is a need for such an instrument. The process of planning and tool development is now under way and will involve a broad partnership of groups interested in the promotion of improved newborn care.

Community studies on perinatal and newborn care

The Department’s work in this area focuses on how to improve neonatal health within the family and community and facilitate the linkage between families and health care facilities.

The MIRA Makwanpur study in Nepal

In collaboration with a Nepalese NGO, Mother and Infant Research Activities (MIRA), and the Institute of Child Health London, the Department is conducting a study to examine the potential of community action cycles to bring about improved neonatal health in Makwanpur District in Nepal. Twenty-nine thousand married women of reproductive age have been randomised into one of 24 intervention or control groups. Each intervention group had a female facilitator who supported mothers’ groups in identifying and prioritising maternal
and neonatal health problems, and assisted in identifying possible solutions to the problems. The mothers’ groups planned, implemented and monitored the progress of the intervention. The intervention strengthened the health system by developing learning materials and training health personnel, and by conducting perinatal audits to determine the outcome of each pregnancy and birth referred to the health centre. The findings will provide programme-relevant insights for planning neonatal survival programmes in rural communities in developing countries.

The Hala study in Pakistan
Pakistan has one of the highest perinatal and neonatal mortality rates in the world. CAH is supporting the design of a cluster randomised controlled trial to examine the impact of perinatal-neonatal interventions on neonatal mortality to be conducted in Hala district, Sindh Province. The study will evaluate the effectiveness of a package of obstetric and neonatal care practices, including management of neonatal sepsis by first-line health workers. The population to be covered by the intervention will be approximately 700,000 people living in 900 villages, enough to document a 20% decline in neonatal mortality rate. The interventions will be delivered through the existing health system and community channels, and will focus both on improvements of family newborn care practices as well as on improving care at health facilities. The study will document the cost of the intervention and its effectiveness, in addition to documenting the implementation process. The formative phase of the study is now nearing completion.

Advocating for neonatal health
An effective advocacy campaign is needed to promote the neonatal health agenda as it is a relatively new priority in child health. CAH has seized opportunities to promote neonatal health at major fora to sensitise opinion makers to its importance. CAH made presentations on newborn health at the preparative committee meeting for the UN General Assembly Special Session on Children in New York, a meeting of the Healthy Newborn Partnership, in Washington, DC and the Meeting of Interested Parties in Geneva. CAH also contributed to the Report on The State of World’s Newborn prepared by Saving Newborn Lives initiative.
The impact of community interventions:
Improving infant feeding in rural Haryana, India

A large-scale study conducted in Haryana, India to examine the process and impact of community-based interventions to improve infant and young child feeding demonstrated marked improvements in feeding practices. Much of the success was attributed to identifying and promoting locally appropriate feeding messages and channels for intervention delivery in the communities. The channels of intervention are shown in the picture.

The randomised, controlled trial is being completed in eight rural communities (four with interventions, and four as controls), covering a population of approximately 40 000 people. The intervention evolved through formative research and the active involvement of the local government, NGOs and community members.

Preliminary analysis of the data from the first year show that the intervention led to a significant increase in the prevalence of exclusive breastfeeding among infants younger than six months in the intervention group (see Figure 4). This was associated with a significant decrease in the risk of diarrhoea (see Table 2). Although food intake is reported to have increased in the intervention group, this was not reflected in improved growth, which warrants further examination of what is required to meet the nutritional needs of children who are fed on vegetarian diets. Pre-intervention stunting rates as well as maternal nutrition and birth-weight may be factors that influence the response of length or weight gain.

TABLE 2. IMPACT ON ILLNESS HISTORY AND TREATMENT SEEKING (HARYANA, INDIA, 2001)

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Intervention/Control (n=505) / (n=427)</th>
<th>Risk (95% CI)</th>
</tr>
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<tbody>
<tr>
<td>At age three months:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% with diarrhoea in previous seven days</td>
<td>19.8/26.7</td>
<td>0.74 (0.59 to 0.94)</td>
</tr>
<tr>
<td>% seeking treatment for diarrhoea in last three months</td>
<td>34.3/42.6</td>
<td>0.80 (0.68 to 0.95)</td>
</tr>
<tr>
<td>At age six months:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% seeking treatment for diarrhoea in last three months</td>
<td>42.8/52.3</td>
<td>0.82 (0.71 to 0.94)</td>
</tr>
</tbody>
</table>
During the biennium, CAH staff at Headquarters continued to work closely with Regional Offices to strengthen activities in infant and young child feeding, neonatal health and child development.

**Infant and young child feeding**

The Department supported initiatives to strengthen regional planning and implementation. For example, work between CAH and EURO’s Nutrition Department resulted in the development of a *Food and Nutrition Action Plan*, emphasising the promotion of breastfeeding and complementary feeding, a set of *Guidelines on Feeding and Nutrition of Infants and Young Children* for central and eastern European countries; and the setting-up of a nutrition training course based on the EURO publication *Feeding and Nutrition of Infants and Young Children*.

CAH supported and encouraged countries in activities designed to improve the breastfeeding counselling skills of health professionals. As of December 2001, more than 8,000 health care providers from 70 countries were trained in *Breastfeeding Counselling*, and training materials had been translated into numerous local languages. Among the 70 countries implementing training with *Breastfeeding Counselling: A Training Course*, 31 were still in the early introduction phase, and had introduced BFC as part of the Baby-Friendly Hospital Initiative or with IMCI. Twenty-six countries repeated the training several times, and in another 11 countries – Armenia, Brazil, China, Ecuador, Iran, Macedonia, Philippines, Sri Lanka, Turkey, Viet Nam, and Zimbabwe – training was expanded. In several countries, IMCI and BFC were linked and benefited from coordinated planning and shared trainers.

**Infant and young child feeding in relation to mother-to-child transmission of HIV/AIDS**

The Department made considerable progress supporting regional activities in the counselling of HIV-positive mothers on infant feeding to prevent MTCT. The *HIV and Infant Feeding Counselling (HIVC)* and *Breastfeeding Counselling (BFC)* courses were introduced in nine African countries and the AFRO IMCI team concurrently organised several inter-country meetings. Participants from Botswana, Democratic Republic of Congo, Ghana, Kenya, Mozambique,

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**BOX**

**Infant and young child feeding**

In collaboration with UNICEF and CAH, AFRO organised three national advocacy meetings on the theme of Infant and Young Child Feeding in countries with HIV prevalence, namely Kenya, South Africa and Tanzania. The ministries of health in these countries along with local IMCI teams provided technical support in the organisation of these meetings. A broad range of participants attended including: senior staff from ministries of health and finance, WHO, UNICEF, UNAIDS, NGOs, universities, research groups, and professional associations.

Information on key themes on infant and young child feeding was shared among participants, and a common understanding was reached on the concepts and practical principles of the Global Strategy for Infant and Young Child Feeding in the context of HIV. At the end, participants committed themselves to specific plans; depending on the national situation, these plans included the following components:

- Developing policies and guidelines: infant feeding in the context of HIV, maternity legislation, and child rights.
- Strengthening health workers’ skills: training on BFC and HIVC, building on Lactation Management training, training in Prevention of Mother-to-Child Transmission of HIV (PMTCT) sites and IMCI districts.
- Strengthening health systems: promoting BFHI, and referral care for counselling.
- Endorsing key infant feeding practices in the community: development of advocacy materials, lay/peer counsellor training, and mother-to-mother support groups.
Namibia, Nigeria, South Africa, Tanzania, Uganda, Zambia and Zimbabwe were trained and plans were made for implementing national activities on infant feeding for HIV-positive mothers (see Box).

BFC training courses were also been conducted in collaboration with partners in Anguilla, Argentina, Bolivia, Colombia, El Salvador, and Trinidad and Tobago. A Spanish translation of the course is now available.

Newborn health
An assessment to evaluate health-facility care and management of the newborn was conducted in 18 health facilities in Burundi, Ethiopia, Mauritania, Namibia, Nigeria, Swaziland and Uganda using a tool developed by AFRO in 2001. The assessment, which involved a combination of interviews, record reviews and observations, showed that serious deficiencies exist in the quality of perinatal care with unacceptably high maternal and perinatal mortality.

In addition, a regional training workshop on institutional capacity building to improve quality of care for the newborn was organised in 2001. Countries that had participated during the assessment exercise received technical and financial support from AFRO to train health personnel, hire consultants, and to provide training materials, basic equipment and supplies.

Similarly, AMRO developed a neonatal training course and guidelines to complement the generic integrated approach for maternal and child health care. In October 2000, a regional workshop on the perinatal component of the IMCI strategy was held to review information on the magnitude, trend, and characteristics of the problems associated with pregnancy, childbirth, and early neonatal period. Training modules were developed for health workers to support the reduction of neonatal morbidity and mortality rates, and were validated in July 2001. It is expected that during 2002, several countries will adapt these materials and implement the guidelines as part of the clinical IMCI training course.

Neonatal health in the European Region gained prominence as a result of the Second International Conference on Perinatology which was attended by representatives from Armenia, Kyrgyzstan and Tajikistan, among others. Gynaecologists and obstetricians from the Russian Federation participated in a study tour of maternity wards in the UK. Meanwhile, in Kosovo, a complete analytic review of a year’s implementation of Essential Neonatal Care was held and recommendations were provided to the health authorities.

The Department worked with EURO to introduce the strategy for Promoting Effective Perinatal Care (PEPC) with IMCI implementation activities. A number of meetings and workshops organised in 2001, addressed modifications in the PEPC training package to include key sessions of the Global Initiative on Making Pregnancy Safer. In 2002 the joint PEPC/MPS training package will be tested and distributed within the European region.

An important initiative to adapt and incorporate the Management of the Sick Young Infant Age One Day up to Two Months as part of the IMCI training package was undertaken in Bangladesh by SEARO which provided technical and financial assistance to the Ministry of Health and Family Planning. In WPRO, Mongolia supported a series of national TV broadcasts that included the promotion of newborn care.

Care for Development
The Department continued to support the preparation of guidelines for assessing Care for Development as part of IMCI. For example, coordination with the Universidade Federal do Pará in Brazil resulted in guidelines and a pilot test in 2001, and a planned field test in 2002. The final materials included charts, training modules, and tools to evaluate child development at local level. Other examples of recent work on Care for Development were in Syria and Tunisia where training was included in the adaptation of the IMCI training course.
The Department plans to support activities in the coming year to further develop capacity for implementing this intervention. The first two training courses on Care for Development for consultants will be conducted in 2002.

Collaboration with Partners

CAH is actively collaborating with other WHO departments, Regional Offices, and partners on tool development, research, resource mobilisation, and advocacy in order to promote infant and child feeding practices, newborn health, and child development. The Department has built networks, for example, with DFID, USAID, UNICEF, Saving Newborn Lives initiative and the Academy for Educational Development.

Examples of successful collaborative work include an annual four-week course Breastfeeding: Practice and Policy at the Institute of Child Health London in collaboration with UNICEF, and regional consultations to discuss the draft Global Strategy on Infant and Young Child Feeding. The consultations were organised in collaboration with five regions – AFRO, AMRO, EURO, SEARO and WPRO – and WHO’s Departments of Nutrition for Health and Development and Reproductive Health and Research. These meetings provided the opportunity to assess and analyse the regional situation of infant and young child feeding, share country experiences and identify priorities for action.

For the last three years, CAH has acted on behalf of WHO as Secretary of the Working Group on Breastfeeding and Complementary Feeding of the United Nations System Standing Committee on Nutrition. CAH worked with the ILO to improve working conditions of breastfeeding mothers.

CAH also collaborated with LINKAGES, UNICEF, NGOs and partners involved in humanitarian aid work, the Emergency Nutrition Network, and IBFAN, to plan and develop modules on Infant Feeding in Emergencies for use at country level in acute situations, and in emergency preparedness activities.

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**BOX**

Collaboration on infant and young child feeding in Asia and the Pacific.

A Regional Consultation on Infant and Young Child Feeding in Asia and the Pacific took place to review and comment on the draft Global Strategy on IYCF, and to discuss issues concerning implementation of the global and national strategies. The consultation was organised in Kuala Lumpur, Malaysia, in October 2001, with representatives from 19 countries including academics and partner agencies (FAO and the World Bank), and key NGOs (ILCA, IBFAN, WABA, in addition to Malaysian NGOs). It was jointly organised by WPRO and the UNICEF Regional Office for East Asia and the Pacific, in collaboration with NHD and CAH, with funding from WHO Headquarters.

Based on the analysis of successes and constraints in IYCF and the conclusions and recommendations of the regional consultation, an IYCF action plan was developed for the WPRO Region spanning the years 2002–2003 which called for support to selected countries in the development and implementation of integrated national plans.
CHAPTER THREE

Improving child health and development

HIGHLIGHTS OF 2000–2001

■ A new ORS formulation of reduced osmolarity led to improved clinical response and has been endorsed by WHO and UNICEF.

■ A capacity-building workshop on IMCI pre-service training was conducted with the participation of health professionals from WHO regions and countries.

■ A regional Technical Advisory Group to support IMCI implementation and to strengthen the involvement of academic institutions has been set up in the American Region.

■ Further progress has been made in supporting countries to plan and implement interventions that improve family practices for child health.

■ In 2001, the Child Health Epidemiology Reference Group (CHERG) was established to study cause-specific estimates, and to address methodological issues that affect the generation, reporting and use of epidemiologic data for child health.

■ Epidemiological reviews were completed for ARI and diarrhoea, and will be used to support improved estimates of child morbidity and mortality from these causes.

■ Lists of household- and facility-based indicators for IMCI have been identified, tested, and agreed with partners.

■ A health facility survey (HFS) has been developed with partners to measure facility-based, outcome indicators.

■ The Multi-Country Evaluation (MCE) of IMCI effectiveness, cost and impact is taking place in four countries – Bangladesh, Tanzania, Uganda and Brazil.

During the biennium, the Child Health and Development (CHD) Team pursued research and development leading to evidence-based and technically sound epidemiological assessments, interventions, methods and tools for use by national authorities and partners in public health programming. During the biennium, efforts were intensified to enhance the three components of IMCI, namely improving family and community practices; strengthening health system supports for IMCI; and improving health workers skills (see Figure 5).

Working with a wide range of partners both within and outside the UN System, the
Department has defined key areas for targeted measures, and has promoted research, reviewed and revised clinical management guidelines, developed methods and tools for improving quality of child care in communities and through the health system, designed materials, and monitored and evaluated key interventions.

Likewise, the Department has achieved significant progress in expanding regional and country capacity, and has invested in adapting, testing and implementing preventive and curative interventions.

Improving family and community practices

Many determinants of child health and development are rooted in families, home environments and communities and therefore lie outside the direct control of the health system. For this reason, health workers need to work closely with families to ensure that parents or caregivers have the knowledge, skills and motivation to respond appropriately to childhood illnesses when they occur, and to provide children with adequate protection, care and support.

During the biennium, the CHD Team supported work on the set of family practices that make the most significant contributions to child survival, nutrition, growth and development.

Tools for building capacity to plan and implement the community component of IMCI

Implementing key family practices calls for close planning and collaboration with partners at the global, regional, and country levels. The Interagency Working Group (IAWG) on Household and Community IMCI provides a global forum that assists in defining needs and developing tools that are subsequently owned by participating organisations and agencies, sharing of tools across agencies, and updating information on country experiences that will eventually lead to the improvement of family and community practices in countries.

WHO, in conjunction with other IAWG members, has produced a Briefing Package to enable strategy development for community child health intervention planning at the national and district level and materials for training facilitators of this planning process. These training materials, which were field-tested in two countries, describe a clear process whereby facilitators can guide and assist

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**FIGURE 5. THE THREE COMPONENTS OF IMCI**

<table>
<thead>
<tr>
<th>1. Improving family and community practices</th>
<th>2. Strengthening health systems</th>
<th>3. Improving health worker skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appropriate care seeking</td>
<td>• District planning and management</td>
<td>• Case management guidelines &amp; standards</td>
</tr>
<tr>
<td>• Nutrition *</td>
<td>• Availability of IMCI drugs</td>
<td>• Training of facility-based public health care providers</td>
</tr>
<tr>
<td>• Home case management &amp; adherence to recommended treatment</td>
<td>• Quality improvement and supervision at health facilities</td>
<td>• IMCI roles for private providers</td>
</tr>
<tr>
<td>• Community involvement in health services planning &amp; monitoring</td>
<td>• Referral pathways and services</td>
<td>• Maintenance of competence among trained health workers</td>
</tr>
</tbody>
</table>

* Work on nutrition is described in Chapter Two of this report

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**BOX**

**Community child health interventions at national and district levels**

The main stages in the planning process for strategy development for community child health interventions at national and district levels are:

**A. District level operational strategies**

1. Set the stage for community interventions:
   — Review status of community level interventions by addressing key practices.

2. Understand the context and build consensus:
   — Conduct situation analysis at district and community levels by gathering existing information, interviewing key informants, and making site visits.

3. Develop an operational strategy and plan at district level.

4. Develop action plans at community level:
   — Prioritise key behaviours to address, choose approaches and activities, and obtain participation and involvement of communities and their partners.

**B. National level**

1. Determine where to start:
   — Review current community-based child health activities and situation in the country; determine where to start; if it doesn’t already exist, establish a sub-group of partners at the national level.

2. Understand the general context and build consensus:
   — Conduct situation analysis at the national level by gathering existing information, interviewing key informants, and making site visits; and share situation analysis with stakeholders;

3. Develop a national strategy and plan

NB. District and community situation analyses can take place concurrently in order to provide input into the overall national plan.
national or district working groups in developing strategies and plans, and in finding resources and technical assistance when needed (see Box). Developed in French, the Briefing Package will be translated into English in the first half of 2002.

Review of the evidence for the key family practices

In collaboration with the London School of Hygiene and Tropical Medicine, the Department carried out a review of the scientific evidence supporting the 12 key family practices promoted by IMCI. Targeted at a wide audience of health professionals, researchers and policy advisors, the review will serve as a background document to inform policy discussions. The three specific objectives of the review are: (a) to summarise the evidence of the potential impact of each practice on child survival, growth and development, and provide the evidence concerning the feasibility of interventions; (b) to identify gaps in knowledge that either hamper impact assessment, or those gaps that need to be filled to develop effective interventions; and lastly (c) to make recommendations concerning any further steps and to set priorities for both programme action and research.

Interventions to promote the key family practices

Research has begun to identify the most effective interventions to promote selected key family practices. In the coming biennium, currently implemented interventions and the tools used to design and implement these interventions will be reviewed. The review will focus on care-seeking, adherence to treatment, and home care for children. This review will complement ongoing work on infant and young child feeding.

The success of IMCI in reducing child mortality largely depends on how well a family carries out the treatment recommendations of the health care provider. A study currently under way in India is investigating the impact of IMCI counselling on care-seeking behaviours of mothers. In this study, physicians in the intervention group were trained in clinical and counselling skills using the IMCI approach. A mother’s card was developed with culturally appropriate drawings showing the danger signs, and when to seek care. Mother-child pairs are being prospectively registered at the Primary Health Centres (PHCs) and being followed up at home. PHCs are also the setting for observations of provider-patient interactions. Results are expected towards the end of 2002.

In Sudan, a study looked at how families respond to health workers’ recommendations for referral and follow-up care. The study considered the rates of change in the knowledge and practice of caregivers, as well as the quality of the advice given to them. Results show that of children referred, 43% attended the hospital on the day of referral, while 62% attended the hospital on the same day as referral, or the next day. As far as follow-up, 23% of children returned to the health facility on, or before, the due date. One of the factors associated with follow-up compliance was whether the child received the first treatment dose at the first visit to the health facility. The study results confirm the need for regular supervision and support of health workers.

WHO and its partners are also developing a common set of indicators to measure impact and monitor progress of interventions to improve family and community practices. A sub-group of the IAWG has been set up to accelerate this process.

| BOX |
| Key family practices to improve child health and development |
| - Breastfeed babies exclusively for six months (HIV positive mothers need special counselling on infant feeding to understand and practise the safest options). |
| - From seven months, give children good quality complementary foods while continuing to breastfeed for two years or longer. |
| - Ensure that children receive enough micronutrients – such as vitamin A and iron – in their diet or through supplements. |
| - Dispose of all faeces safely, wash hands after defecation, and before preparing meals and feeding children. |
| - Take children to complete a full course of immunization before their first birthday. |
| - Protect children in malaria-endemic areas by making sure they sleep under insecticide-treated nets. |
| - Promote mental and social development by responding to a child’s needs for care and by playing, talking and providing a stimulating environment. |
| - Continue to feed and to offer more fluids, including breastmilk to children when they are sick. |
| - Give sick children appropriate home treatments for infections. |
| - Recognise when sick children need treatment outside the home and take them to appropriate providers for care. |
| - Follow the advice of health workers on treatment, follow-up and referral. |
| - Ensure that every pregnant woman has adequate antenatal care, and seeks care at the time of delivery and afterwards. |

Further important practices that protect vulnerable children:
- Provide appropriate care for HIV/AIDS affected people, especially orphans, and take action to prevent further HIV infections.
- Protect children from injury and accident, and provide treatment when necessary.
- Prevent child abuse and neglect, and take action when it does occur.
- Involve fathers in the care of their children and issues related to reproductive health.
Reducing the health impact of indoor air pollution

WHO estimates that indoor air pollution (IAP) in developing countries is responsible for 60% of the 2.2 million deaths a year in children under five caused by acute respiratory infections, and almost 4% of the global burden of disease. CAH is currently developing a programme of collaborative work within WHO to strengthen research on the health effects of IAP and identify effective interventions. As part of this programme CAH is contributing to a large study in Guatemala to determine the impact of reducing IAP on acute lower respiratory infections incidence in young children.

CAH is supporting three activities on various interventions in Guatemala and in Kenya. The first study in western Guatemala, also supported by Emory University, USA showed that the plancha chimney stoves achieved consistently lower levels of kitchen pollution than open fires or liquefied petrol gas/open fire. This study is important, as it is one of the first medium-term studies of household energy interventions in everyday use. The second Guatemalan study was carried out to determine IAP levels and child exposure in a rural community that had benefited from a range of government, NGO and external donor interventions, as well as private purchase of stoves by better-off families. The study found that the lowest levels of IAP and child exposure were associated with the plancha stove.

CAH is collaborating with the UK-based NGO Intermediate Technology on the implementation and evaluation of interventions to reduce IAP in poor rural communities in Kenya. Local women are working with artisans and a local technology institute to install combinations of improved stoves, hoods with flues, and larger windows and eaves. The interventions brought about significant reductions in particulate (up to 75%) and carbon monoxide (up to 35%), and considerably improved quality of life in the house.

CAH has also completed a feasibility assessment for a study on the effects of electrification on household fuel use, pollution exposure and acute lower respiratory infections in South Africa. Comparisons of two communities, one with access to the grid network for several years, and the other still relying mainly on wood and kerosene, showed that the electrified site had significantly lower 24-hour mean kitchen levels of respirable particulates and carbon monoxide.

### BOX

**Mechanisms for promoting key family practices in the community: Community Health Workers**

Community Health Workers (CHW) play an important role in promoting home-care and timely care-seeking, and in building links with the health system. A recently completed study in Brazil assessed the potential role of CHWs in extending the reach of IMCI from the health service to the community. The study identified the barriers to expanding IMCI in the community as consisting of: inadequate training of CHWs; poor support and supervision; low salaries without fringe benefits or job security; and lack of recognition in the community of CHWs as legitimate care-providers. Preliminary analysis of data suggests that CHWs have great potential in expanding IMCI to the communities. However, to achieve their full potential, CHWs needed to be better trained and their knowledge improved, likewise their tasks had to be reduced, and they needed to have better supervision and supplies. It also found that the local media and regular community meetings could be valuable in helping make the link between the health facility, CHWs and mothers.

### BOX

**Indoor air pollution, household energy and health**

WHO collaborated with USAID’s Environmental Health Project and the World Bank to organise a consultation on Health Impact of Indoor Air Pollution and Household Energy in Developing Countries: Setting and Agenda for Action in Washington DC, USA in May 2000. The Consultation brought together a broad representation of technical and development experience from developing countries and from organisations involved in research and policy in the fields of health, environment, energy and development assistance. The meeting reviewed the latest evidence on health risks, burden of disease, interventions and economic assessments to examine how to reduce the health impact of IAP. The report of this consultation will be available in 2002.

### TABLE 3. HEALTH RISKS OF INDOOR AIR POLLUTION

<table>
<thead>
<tr>
<th>10–20+ studies Evidence fairly consistent</th>
<th>Very few studies (1–3) Evidence fairly consistent</th>
<th>Few studies Evidence not very consistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acute lower respiratory infection</td>
<td>• Otitis media</td>
<td>• Asthma</td>
</tr>
<tr>
<td>• Chronic obstructive pulmonary disease</td>
<td>• Low birth weight</td>
<td></td>
</tr>
<tr>
<td>• Lung cancer (coal only)</td>
<td>• Perinatal mortality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tuberculosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cataract</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cancer of nasopharynx and larynx</td>
<td></td>
</tr>
</tbody>
</table>
Strengthening health system support

Health services have a critical role in preventing and treating diseases. In many countries, health sector reforms have been associated with efforts to achieve child health and development (see Technical Support section of this chapter). CAH actions have also been linked to critical components of the health system, such as the availability of essential drugs and equipment, referral and emergency care services for children, and links with the private health care sector. During the biennium, the Department also promoted research, conducted expert meetings and designed tools to strengthen health service delivery systems.

Availability and management of essential drugs for IMCI

In response to the review *IMCI Drug Treatment Recommendations, National Essential Drug Lists, and Standard Therapeutic Guidelines: A Comparison in Six Countries*, the Department is developing a structured process and an accompanying set of tools for country-level action to improve the availability and management of essential drugs.

CAH has undertaken efforts to develop and disseminate methods and tools to build the capacity of health workers in this area. Initial planning was begun to develop pilot projects to improve the availability of drugs at the health facility level through joint problem identification and problem-solving approaches by personnel involved in drug management and child health.

The resulting project reviews have drawn attention to the erratic availability, or even non-availability of drugs for the management of childhood illnesses at the health-facility level. In response to this, the IMCI Drug Management Course was developed and became available in early 2000. SEARO organised an inter-country workshop to introduce the tool to representatives from seven regional countries. The feedback from participants was positive as they felt that it would contribute strongly to strengthening drug management.

Improving referral and emergency care for children

If IMCI is to reduce mortality, the strategy must address the quality and availability of referral and emergency care. During the biennium, the Department published the *Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First Referral Level in Developing Countries* in English, French, Russian, and Spanish. In collaboration with regional and country staff, CAH organised several consultations to discuss the introduction of these guidelines in small hospitals without specialised staff, and examine how to document the results in improved patient care.

A survey carried out by the Department on paediatric care in small hospitals in seven developing countries was published in *The Lancet* in 2001. Several Regional Offices are carrying out similar surveys as a basis for introducing Country Guidelines.

Inpatient care in small hospitals was examined in a consultation organised in Geneva by the Department in June 2000. The occasion made it possible to present positive experiences and bring forward issues such as quality assurance in paediatric care to be added to the Department’s agenda. A second consultation in South Africa in November 2001 led to the creation of an international discussion group for the improvement of paediatric hospital care that includes the International Paediatric Association, the Child Friendly Hospital Initiative, which supports initiatives in Afghanistan, Kosovo and Uganda, and the International Union against Tuberculosis and Lung Disease.

The Department is reviewing quality improvement projects in South Africa and Vietnam. Together with results from similar projects, Departmental findings will lead to the identification of the essential components of quality improvement in health care, and their sustainability in resource-poor countries.

Other reviews on the management of asthma and severe malnutrition were commissioned to assess the feasibility of diagnosing the disease at a district-level health facility. The assessment will examine how health care providers at lower-level facilities can receive guidance from district levels about how to manage the condition, and when to seek help again.
Improving the Quality of Paediatric Hospital Care

A meeting on Improving Quality of Paediatric Hospital Care was the subject of a Department-supported meeting held near Pretoria, South Africa, in November 2001. The meeting brought together health professionals from Africa, Asia and South America, as well as representatives from NGOs, the International Paediatric Association, and the International Union against Tuberculosis and Lung Disease. Useful tools for activities related to quality improvement, for example assessing the situation in hospitals, or performing a hospital audit, were compiled on a CD and distributed to interested parties worldwide.

Utilising the potential of private practitioners in child survival

Virtually all the world's countries have private practitioners providing health services to children for the treatment of diarrhoea, pneumonia, malaria and other childhood diseases. Private practitioners are often perceived by the community to be more accessible, more sensitive to client needs, and more willing to spend time with their clients than their counterparts in the public health care sector.

A paper recently completed by CAH and the SARA project analysed interventions to improve the case management skills of private practitioners. The paper offers guidance for designing effective strategies to improve the ability of private practitioners to provide effective treatment, counselling and referral of sick children. It asserts that authorities are more likely to succeed in mobilising best practice among this group of health care providers if they promote a limited number of priority health care practices to private practitioners, consider the multiple factors influencing private practitioners' behaviours, and treat these practitioners as fledged health partners. The paper also offers recommendations on approaches that should be addressed in national health policies, child health programmes, and in preparing and implementing interventions that utilise the potential of private practitioners.

Linking health services and the private sector

In many countries the private health care sector complements, or provides care in parallel with public health services for children, indeed in some countries private physicians service a significant proportion of the population. Recognising the importance of this sector, the Department has worked with the World Bank to establish an informal Interagency Working Group on Child Health and the Private Sector. CAH has entered into an agreement with one of the members of the working group – the USAID supported SARA (Support for Analysis and Research in Africa) project, and will co-finance and provide technical support to address child survival activities in Uganda. This initiative will be introduced in three districts, and will be expanded in the same phased manner as the IMCI strategy. Similar initiatives are to be undertaken in at least two other sites. The experiences gained will feed into the development of guidelines and tools for other countries to apply to tap into this enormous, and largely neglected, resource.

Improving case management guidelines and health workers skills

Involving competent and skilled health workers with the knowledge and tools to administer effective treatment and care is one of the key determinants in preventing and treating childhood diseases. During the biennium, the Department organised research, developed generic standards and interventions, and designed materials for training. Emphasis was given to developing tools for in-service training of health workers, pre-service training of health professionals, and maintenance of performance among trained health workers.

Case management guidelines and standards for clinical practice

The Department's work in this area included supporting appropriate adaptation of the IMCI case management guidelines at country level, addressing antimicrobial resistance in the case management of pneumonia and meningitis, and improving guidelines for diarrhoea and HIV/AIDS.

Case management guidelines for diarrhoea and dysentery

The Department supported studies to improve the case management of diarrhoea and dehydration. Highlights of the research programme include:

- A meta-analysis of randomised, controlled trials comparing reduced osmolarity Oral Rehydration Salts (ORS) solutions with standard WHO ORS solution for children with acute diarrhoea, was performed in collaboration with the Cochrane Infectious Disease Group. Results showed that reduced osmolarity ORS solution is associated with fewer unscheduled infusions, compared to standard WHO ORS solution. In trials reporting stool output and vomiting, data suggests less stool output and vomiting in children who received reduced osmolarity ORS solution.

Following publication of the meta-analysis results, WHO and UNICEF organised a meeting in New York in July 2001 to review all the studies conducted on low osmolarity ORS solution, and to provide technical recommendations on the safety and efficacy of these solutions in adults and children with cholera, and in children with...
CHAPTER 3. IMPROVING CHILD HEALTH AND DEVELOPMENT

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Box Developing new algorithms for case management guidelines

The Department and EMRO are developing new additional clinical guidelines for managing burns and common poisoning. Most of the countries of the Eastern Mediterranean region have also developed guidelines for the management of asthma. These new protocols are in the draft stage and will be shared with technical experts prior to being tested in 2002.

Box Reviewing IMCI case management guidelines

A review of current IMCI case management guidelines has begun with a participatory assessment of the management of children with febrile illness, particularly severe and uncomplicated malaria, measles, Dengue haemorrhagic fever, bacterial infections, fever associated with HIV/AIDS and malaria-associated anaemia. Future work will revise and update the generic IMCI guidelines, incorporating research findings, as well as new knowledge and new diseases. The Department plans to produce an updated version of the generic guidelines following a review of published articles and reports from IMCI-implementing countries, incorporating research findings and validating the HIV/AIDS algorithm. CAH is also planning to develop guidelines for care in emergency settings.

Box Antimicrobial resistance and the management of pneumonia and meningitis

The Department supported research and development activities to improve the clinical management of pneumonia and meningitis, and to address the global challenges of antimicrobial resistance.

Results of a pilot study supported by the International Clinical Epidemiology Network (INCLEN), Johns Hopkins University, USA and WHO to distinguish between sore throats caused by viral infections from those needing antibiotic treatment were analysed during a workshop in Bangkok in October 2000. Following this a multi-centre study with diagnostic and therapeutic components was developed. The study has been initiated in four countries – Brazil, Croatia, Egypt, and Latvia – and aims to develop clinical guidelines for the use of antibiotics in streptococcal pharyngitis (diagnostic component), and to compare the efficacy of intramuscular benzathine penicillin G with that of a single dose of amoxycillin (therapeutic component).

The Department, in collaboration with the Global Forum for Health Research (GFHR)

Acute non-cholera diarrhoea. The meeting concluded that the reduced osmolarity ORS solution is more effective in treating acute non-cholera diarrhoea in children than the standard solution, and as effective as standard ORS in treating children and adults with cholera – although there is an increased risk of transient, asymptomatic hyponatraemia.

- The management of dehydration in severely malnourished children was investigated in a randomised clinical trial in Bangladesh. Results showed that a similar efficacy exists between a specially designed ORS solution for severely malnourished children (ReSoMal) and the standard WHO ORS solution.

- The efficacy of a short-course treatment of dysentery due to S. dysenteriae type 1 with ciprofloxacin was evaluated in a multi-centre clinical trial. Data collected from three sites, Bangladesh, South Africa and Zimbabwe were analysed and presented during a workshop in Zimbabwe in February 2001. In this trial, six doses of ciprofloxacin over three days were equivalent to ten doses of ciprofloxacin over five days for curing children with S. dysenteriae type 1. Results from the trial also demonstrate that there is no cartilage toxicity associated with short-course treatment, addressing concerns that quinolones cause arthropathy.

- Secondary analyses of data collected in a multi-centre study on persistent diarrhoea published in 1995 were completed. One analysis confirmed that stool frequency can be used as a marker of stool output in children with persistent diarrhoea. Another analysis confirmed that systemic infection was common in hospitalised children with persistent diarrhoea, and that anorexia associated with systemic infection can be overcome by insistent and continued feeding.

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The Department, in collaboration with the Global Forum for Health Research (GFHR)

The composition of the new ORS formula

WHO and UNICEF now recommend that countries manufacture and use the following formulation instead of the previously recommended ORS solution with a total osmolarity of 311 mOsm/l.

<table>
<thead>
<tr>
<th>Reduced osmolarity</th>
<th>grams/litre</th>
<th>Reduced osmolarity</th>
<th>mmol/litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium chloride</td>
<td>2.6</td>
<td>Sodium</td>
<td>75</td>
</tr>
<tr>
<td>Glucose, anhydrous</td>
<td>13.5</td>
<td>Chloride</td>
<td>65</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>1.5</td>
<td>Glucose, anhydrous</td>
<td>75</td>
</tr>
<tr>
<td>Trisodium citrate, dihydrate</td>
<td>2.9</td>
<td>Potassium</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Citrate</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Osmolarity</td>
<td>245</td>
</tr>
</tbody>
</table>
supported the University of East Anglia, UK to: (1) review current knowledge concerning the cost and/or effectiveness of interventions aimed at reducing the emergence and transmission of antimicrobial resistance; and (2) explore the feasibility of and issues involved in the development of an economic model to assess the cost-effectiveness of interventions to address antimicrobial resistance.

The report *Interventions Against Antimicrobial Resistance: A Review of the Literature and Exploration of Modelling Cost-Effectiveness* was published in September 2001. The report reveals that much of the existing literature focuses heavily on the closed hospital system, and concentrates on the effects of policies aimed at reducing transmission rather than the emergence of resistance. The report also considers four criteria, namely feasibility, flexibility, sensitivity and relevance, for modelling cost-effectiveness and identifies two broad options for model development: the ‘macro-model’ approach and the ‘suite’ of micro submodels. The next phase of the project under way in Cambodia includes the development of a theoretical model using available data and pilot-testing the model under real conditions. Results are expected in 2003.

**Case management of pneumonia**

Data from most studies presented below to improve the clinical management of pneumonia were presented at the 2001 annual conference of the International Union Against Tuberculosis and Lung Disease (IUATLD). Highlights of these studies include:

- A tool was developed to monitor the clinical efficacy of treatment for the management of non-severe pneumonia using WHO guidelines. It includes data collection at baseline and follow-up visits, instructions for health workers, and advice for parents regarding management of children with non-severe pneumonia. The study, involving 14 health facilities in Pakistan looked at treatment failure, including change of antibiotic therapy, loss to follow-up, and death. The results showed that 13% of the children enrolled failed therapy on cotrimoxazole and 10% children were followed up at home. The monitoring tool has proven useful for health workers to document and monitor clinical outcome of pneumonia patients.

- A multi-centre, randomised clinical trial to compare the proportion of clinical cure with three-days versus five-days of oral amoxycillin therapy for the treatment of non-severe pneumonia was recently completed in Pakistan. Therapy failure with three-days’ duration of treatment was 20.9% which was equivalent to 20.5% with five-days’ duration. Therapy failure was more likely in non-adherent children, in infants whose illness lasted three days or more, and in children with vomiting. The study highlights the need for health workers to emphasize the importance of adherence to therapy at the time of the initial assessment, and the importance of patient follow up.

- The clinical efficacy of oral cotrimoxazole versus oral amoxycillin for the twice-daily treatment of childhood pneumonia was also evaluated in a multi-centre, double blind clinical trial in Pakistan. Children with non-severe pneumonia recruited from seven hospitals and one community health centre, were randomised into the two treatment groups. Ninety eight percent of children enrolled were followed up for one week after starting the treatment. The clinical treatment failure rate in the amoxycillin group was 16% compared to 19% in the cotrimoxazole group. This indicates that both antibiotics provide equally effective therapy for non-severe pneumonia. Irrespective of antibiotic use, good follow-up of children is essential to prevent worsening of illness.

- The case management of non-severe pneumonia was investigated in South Africa and Viet Nam. Analysis of collected data showed that treatment failure rate among children with non-severe pneumonia is less than expected. Among preliminary findings was the indication that a large proportion of children with non-severe pneumonia have radiological evidence of pneumonia (~75% in South Africa and 48% in Viet Nam), implying that a bacterial process is the underlying cause of many of these pneumonia
cases. This finding posed a significant problem in considering a follow-on placebo-controlled trial planned on the assumption that most cases of non-severe pneumonias are of viral origin. As this was not the case the trial as originally conceived was cancelled.

- The multi-centre clinical trial to compare the efficacy of injectable penicillin with that of oral amoxycillin for the treatment of severe pneumonia in children progressed at all of the original sites (Colombia, Ghana, India, Mexico, Pakistan, South Africa, and Viet Nam) except in Zambia, where patient enrolment dropped. Patient recruitment in this study, jointly supported by CAH and the ARCH Project, Harvard University, will continue until April 2002. Results will be available by 2002.

- There was continued progress in research to increase the specificity of treatment guidelines for children with wheezing diagnosed as WHO-defined non-severe pneumonia. A multi-centre study was initiated in five countries – Colombia, Egypt, Ghana, Pakistan and Thailand – in collaboration with the ARCH Project. The objectives of this study are to: (1) describe the clinical course of the disease in children presenting in outpatient departments with wheeze, cough and difficult breathing; (2) collect data on children with wheeze; and (3) determine how many children treated for wheeze relapse within seven days.

- The efficacy of short-course treatment with oral cotrimoxazole for non-severe pneumonia and its relationship with antimicrobial resistance is under evaluation in a multi-centre study conducted in Bangladesh and in Indonesia. The study seeks to determine the clinical efficacy of a three-day course of oral cotrimoxazole and to monitor the emergence of resistant strains of \textit{S. pneumoniae} and \textit{H. influenzae}. Data collection will be completed by December 2003.

- A multi-centre clinical trial to compare the efficacy of chloramphenicol with that of ampicillin plus gentamicin for the management of very severe pneumonia was initiated in six countries, namely Bangladesh, India, Mexico, Pakistan, Yemen, and Zambia. This research is being carried out in collaboration with the ARCH Project and the Johns Hopkins University, and the data collection is expected to be completed in mid-2003.

**Case management of meningitis**

A recently completed study conducted in Malawi examined the adjunctive use of dexamethasone plus antibiotics for the treatment of bacterial meningitis. The overall mortality of 31% was the same in the group of children receiving dexamethasone as in the placebo group. The rate of sequelae was 19% in dexamethasone group as compared with 16% in the placebo group. The most common bacteria isolated (total 520 patients) were \textit{S. pneumoniae} (40%), \textit{H. influenzae} type b (28%), \textit{N. meningitidis} (11%) and \textit{Salmonella} species (5%). There was no significant improvement in outcomes with dexamethasone by bacterial sub-groups.

Another study evaluated fluid therapy guidelines in patients with bacterial meningitis. Data collected suggest that there is a significant increase in total body and extra-cellular water in children suffering from acute meningitis and pneumonia. The study showed that children who died from meningitis had received significantly lower volume of intravenous fluids during the first 48 hours than those who survived, whereas children who died of severe pneumonia had lower body water, plasma volume and higher plasma osmolarity than those who survived. Further research is needed before preparing new fluid therapy guidelines for these serious conditions.

A multi-centre, randomised clinical trial is also under way to investigate the clinical efficacy and safety of a short course treatment with injectable ceftriaxone – five days versus ten days – in the management of patients with bacterial meningitis. The trial was initiated in eight centres in four countries – Malawi, Pakistan, South Africa and Viet Nam. It is expected that data collection will last up to three years.
Case management guidelines for HIV/AIDS

The Department, in close collaboration with AFRO continued to guide the development of IMCI guidelines in countries with high HIV prevalence. Highlights of activities include:

- A Regional Consultation was held in South Africa in August 2000 to consider four critical issues: the disease burden from HIV/AIDS in African countries; the experience of countries for assessing children with HIV/AIDS; the development of interim guidelines for the introduction of the HIV component with IMCI guidelines in countries with high HIV prevalence; and the research and development needed to improve the management of children with HIV. Paediatricians and public health professionals from Botswana, Ethiopia, Mozambique, Namibia, Kenya, South Africa, Zambia, and Zimbabwe, as well as international experts and WHO staff participated in the meeting. Participants agreed on the content of a set of interim draft IMCI guidelines that would include paediatric AIDS. The signs thought to be effective in identifying children with symptomatic HIV infection are presented in the box.

- In 2001, a workshop was organised in Zimbabwe to discuss the results of a validation study in South Africa on the HIV/AIDS component of IMCI. The workshop identified key issues for the adaptation of IMCI training materials and agreed that it was necessary to validate the HIV/AIDS guidelines in different epidemiological settings, particularly those where levels of malaria and malnutrition are high and prevalence of HIV low.

- A research project was finalised in South Africa to evaluate the HIV/AIDS component of IMCI in response to the recommendations of the Regional Consultation. Results became available in April 2001.

Improving the performance of health care providers

The Department focused on improving and maintaining the performance of two groups of health care providers: those currently responsible for the case management of children under five, and students of medical, nursing and other health care professional schools.

In-service training

To date, thousands of health care providers around the world have received training on the standard IMCI case management course using nationally adapted clinical guidelines and training materials. In order to implement these training courses, a country must prepare a critical mass of course facilitators and clinical instructors to both conduct courses and carry out follow-up visits to trained health care providers at their facilities after training. Follow-up visits are considered an integral part of IMCI training. Some countries have begun working toward maintaining the performance of health care providers after training by incorporating the principles and tools of follow-up visits into routine supervision.

As IMCI is adapted for use among various types of health workers, a number of Alternative Approaches to IMCI Training have been developed. During the biennium, several alternatives to the standard case management training course were developed in regions and countries. Countries have modified the methods and materials used to conduct the standard course in order to:

- Be relevant to different audiences, e.g. different categories of health staff with different levels of previous knowledge and skills;
• Reach all those in need of training;
• Increase the cost-effectiveness of training; and
• Make training options practical and convenient.

Typical alternatives to the standard course that have been tried out in countries are distance learning, on-the-job training, computer-based learning, and mentoring. CAH has also provided support to regions and countries to identify and develop alternative training approaches appropriate to the situation within a country. During 2000–2001 the Department made considerable progress in identifying, evaluating and refining various alternative approaches to IMCI training designed to achieve the same learning objectives as the standard IMCI training course.

In June 2000, the Department convened an Informal Consultation on Maintaining the Performance of Health Care Providers trained in IMCI. The consultation involved WHO staff at all levels and technical experts from both governmental and non-governmental agencies. The objectives of the consultation were to review approaches to maintaining the improved performance of health care providers after IMCI training, and identify research priorities for the development of new interventions and tools. The consultation resulted in two primary recommendations to CAH:

1. Conduct an inventory of guidelines and approaches developed or promoted by WHO for the supervision of health care providers; and
2. Identify and field-test a quality improvement model within an integrated primary health care system in order to improve the quality of care for sick children at first-level health facilities.

Following the consultation, CAH undertook an inventory of approaches to supervision. In 2001, work began to identify an operational framework and tools needed to produce sustainable improvements in the quality of first-level care provided to children in low- and middle-income countries.

Pre-service training

The Department developed guidelines and materials to assist countries in strengthening the teaching of child health in undergraduate academic programmes for doctors, nurses and other health professionals.

IMCI courses were given at five collaborating medical schools during the biennium. Four out of the five schools assessed their student’s IMCI knowledge and skills. Further work in this area includes the provision of technical assistance in response to regional and country requests; a description can be found in the Technical Support section of this chapter.

The Department achieved considerable progress with efforts to incorporate IMCI into major textbooks used in the

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**Preparation of a comprehensive set of materials to support the introduction of IMCI into pre-service training**

1. **Model Handbook on IMCI:** The Handbook, which can be adapted in each country, presents the IMCI clinical guidelines in a condensed fashion that is suitable for use by academic staff and students. In 2000–2001, the handbook was printed in English, French and Russian and distributed to all Regions.

2. **Management of the Child with a Serious Infection or Severe Malnutrition:** This publication provides the guidelines for childcare at the first-referral level in developing countries. The guidelines were developed to help teaching institutions incorporate IMCI into academic programmes. Discussions are under way with Regional Offices on the best manner to introduce the guidelines and support their use.

3. **IMCI Reference Library of Selected Materials:** The reference library can be used by students to gain a better understanding of the rationale and technical basis of the IMCI strategy and clinical guidelines.

4. **IMCI Technical Seminars:** A set of speakers’ notes and overhead transparencies that present technical justifications for the IMCI clinical guidelines. The seminars cover topics ranging from acute respiratory infections, diarrhoea, malaria, and other causes of fever, to malnutrition and the sick young infant. All seminars are available on hard copy and on CD-ROM. Teaching staff can adapt or revise the seminars to include local or regional data and/or information about national adaptations made to the IMCI clinical guidelines.

5. **IMCI: Guidelines for the Assessment of Students (Draft):** The guidelines offer suggestions on which competencies to assess and possible methods for assessment, including the advantages, disadvantages and use of each method in relation to IMCI. Annexes contain sample tools for formative and summative assessment of student knowledge and skills. The guidelines were developed for IMCI, but the concepts and methods can apply to other topics.

6. **IMCI (Draft): Planning, implementing and evaluating pre-service training:** This guide is designed to assist WHO staff and consultants, MOH staff and teachers to plan, implement, review and evaluate the strengthening of pre-service training. The guide suggests activities at both national level and at teaching institutions to orient key decision makers, plan and conduct the first round of new teaching, review and re-plan teaching, and evaluate the effect of new teaching. A working draft of the guide was translated into French in preparation for a capacity building workshop scheduled for early 2002 in Francophone Africa.

7. In collaboration with the JHPIEGO, an affiliate of Johns Hopkins University, CAH began to develop a reference manual and training materials to strengthen the skills of teachers to teach maternal and child health. The reference manual will cover issues such as how to plan a course, develop interactive presentations, conduct group learning activities, plan and conduct clinical practice sessions, and assess student knowledge and skills.

8. The identification of core competencies and the development of materials for strengthening the teaching of infant and young child feeding and neonatal care are also ongoing.
pre-service training of health professionals. For example, CAH contributed to the revision of *Principles of Medicine in Africa*, a textbook produced by Cambridge University Press, and is contributing to the revision of *Primary Child Care* by Dr Maurice King. Additional work in this area includes the publication of *A Model Chapter on IMCI* printed in 2001 to allow editors to incorporate IMCI information into local and international textbooks, also translated into French and Russian; revision of textbooks by two collaborating universities in Egypt and Nepal to incorporate IMCI; and submission of comments to the editors the Nelson Textbook of Paediatrics for the incorporation of IMCI into the 17th edition of the book.

**Monitoring and evaluation**

Monitoring and evaluation systems are the intelligence network that underpins effective disease management. These systems essential to measure progress toward previously established targets, judge the value of interventions, and strengthen public health programming. During this biennium, the Department worked toward expanding the epidemiological base, monitoring and evaluating at country level, and strengthening the evidence-base for strategies and interventions.

**Expanding the epidemiological base for child health**

The Department began work in the area of Child Health Epidemiology in May 2001 to address an increasing demand for evidence-based priority setting and impact evaluation from member states and partners. The work focuses on three areas for improving epidemiological information. These are:

- Cause-specific estimates among children under five;
- Multiple causes of death; and
- Epidemiology of children aged between five to nine years.

To begin work on improving cause-specific estimates among children under five, the Department convened an Informal Consultation on Epidemiologic Estimates for Child Health. The issues examined in this Consultation included: cause-specific morbidity and mortality estimates for ARI and diarrhoeal diseases; current mortality estimates for HIV/AIDS and measles; use of verbal autopsy to assess direct causes of death; the availability and preliminary analysis of co-morbidity data and methods to address co-morbidity; and WHO/Evidence and Information for Policy (EIP) estimates of cause-specific proportional mortality for 2000.

The Child Health Epidemiology Reference Group (CHERG), composed of WHO professionals and international experts, was established in the wake of the consultation to support activities in child health epidemiology. The first CHERG meeting took place in Geneva in December 2001 to discuss the epidemiologic estimates for each of the major causes of child mortality, namely pneumonia, diarrhoea, malaria, measles and HIV/AIDS. Participants proposed a work plan to review and improve epidemiological estimates for child mortality, including neonatal deaths and all major indirect causes of child death such as malnutrition.

The Department also recognised the need for broad epidemiological review of the issues that affect child health and development for older children between the ages of five and nine years. The Centre for International Child Health, Institute of Child Health in London, UK will prepare the review.

**ARI and diarrhoea estimates**

Following the Informal Consultation on Epidemiologic Estimates for Child Health, the Department made considerable progress in producing estimates for ARI, diarrhoea, and nutrition. A database containing studies of ARI morbidity, mortality and incidence was developed in collaboration with advisors from Edinburgh University and other WHO Departments. Based on reviewed papers, mortality estimates of ARI were calculated for the six WHO Regions and a relevant paper was published in *The Lancet – Infectious Diseases*. 
Another paper resulting from examining ARI incidence studies will be submitted to the WHO Bulletin. As for diarrhoea, aetiologic-specific estimates were calculated by the Instituto de Investigación Nutricional in Peru.

**Addressing multiple causes of death**

Concurrent with the cause-specific activities, the CHERG is addressing methodological issues that affect the generation, reporting, and use of epidemiologic estimates for child health. One of the most important issues is co-morbidity, defined as the presence of two or more diseases at one time, or sequentially. The work on co-morbidity is complex and is currently in an initial phase.

**Monitoring and evaluation at country level**

The Department is committed to using routine monitoring, programme evaluation, and impact studies on child health interventions to strengthen public health programming. The Department recognizes the need to broaden the scope of activities to encompass major health interventions for young infants and children, to expand capacity in monitoring and evaluation, expand access to information, and to support child health programming with data.

CAH has made significant progress on the refinement and use of indicators and evaluation tools. Lists of household- and facility-based indicators for IMCI have been identified, tested, and agreed with partners. The list of indicators is regularly updated to take into account new interventions. Indicator lists are not exhaustive and additional measures may need to be developed in some countries.

A set of facility-based indices was designed to monitor changes in the quality of care and to assess health facility readiness to handle rare events. These indices were developed in collaboration with the US Centres for Disease Control and Prevention in Atlanta, USA and are being further tested.

Efforts have also been made to reconcile syndromic classifications used in IMCI clinical guidelines, with disease classifications found in Health Information Systems (HIS). An increasing number of countries have begun setting up high coverage HIS that can meet the requirements of child health programmes.

Measuring changes in child morbidity and mortality is time consuming, and often requires large-scale studies to compensate for limitations of vital statistics. The periodic measurement of outcome indicators is therefore a practical way to track progress over time towards programme goals. To measure facility-based, outcome indicators, CAH and its partners have developed a Health Facility Survey (HFS) to track progress.

Health Facility Surveys support measurement of all priority and supplemental IMCI indicators at the facility level and are designed to assess: (1) the quality of care delivered to sick children in outpatient facilities; (2) caretaker satisfaction and understanding of key messages after visiting these facilities; (3) health system support at...
Health Facility Surveys collect information for:
- Baseline evaluation before programme implementation begins;
- Periodic evaluation of programme progress after two or three years of IMCI implementation; and
- Comparative evaluation to compare quality of care in areas with integrated child health programming to areas without integrated child health programming.

Results of HFS can be used as a basis for reinforcing good performance or to identify areas for improvement. At regional and global levels, the results can be used for improving IMCI tools and guidelines.

Comparisons of HFS data across countries show positive trends in favour of geographic areas where IMCI is implemented. These comparisons suggest that sick children brought to health facilities in IMCI areas were more likely to undergo a systematic assessment than children brought to health facilities in non-IMCI areas. Similarly, sick children at IMCI facilities or settings were more likely to have their vaccination status checked and there was less antibiotic misuse. In general, IMCI seems to have some effect on health system support. However, supervision with observation of case management practices and appropriate feedback, although critical for sustaining quality care, remains rare. In addition, the availability of essential drugs in first-level facilities is unchanged with IMCI implementation.

The Department has worked closely with partners to ensure that the data needed for the measurement of household indicators are included in country survey tools, such as the Multiple Indicator Cluster Survey (MICS) developed by UNICEF; the Knowledge, Practices and Coverage Survey (KPC2000+) developed by the USAID-sponsored Child Survival Technical Support Project and CORE Monitoring and Evaluation Working Group; and the Demographic and Health Survey developed by MEASURE DHS+ Project.
• Impact of IMCI on child health, including child mortality and nutrition;
• Impact of IMCI on the provision, use, and coverage of child health interventions; and
• Cost-effectiveness of the strategy.

Progress of the MCE

A historical timeline of major MCE activities is presented in Figure 9. Four countries – Bangladesh, Brazil, Tanzania, and Uganda – are currently in the process of conducting studies that will provide evidence of the impact of IMCI. A feasibility study was conducted in Niger in January 2002. MCE data are collected in each of the study sites at various levels, including household, community, first level facility, referral facility, district, province/region, and central/national levels. Table 4 presents an overview of the progress.

MCE progress highlights

• Baseline data on mortality, morbidity, household behaviours, quality of care at health facilities, and costs have been collected with preliminary analyses completed in Bangladesh, Tanzania, and Uganda. Continued monitoring is under way in Bangladesh and Uganda.
• Preliminary results of a nationwide survey of districts in Peru are now available.

<table>
<thead>
<tr>
<th>Sites</th>
<th>Evaluation Activities</th>
<th>IMCI Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mortality</td>
<td>Household Survey</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Baseline done and analysed</td>
<td>Baseline done and analysed</td>
</tr>
<tr>
<td>Brazil</td>
<td>Study proposal developed</td>
<td>Yes</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Feasibility visit conducted and planning started</td>
<td>Recently initiated</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Study proposal developed</td>
<td>Yes</td>
</tr>
<tr>
<td>Peru</td>
<td>Secondary data</td>
<td>Secondary data</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Surveillance ongoing</td>
<td>Baseline done and analysed</td>
</tr>
<tr>
<td>Uganda</td>
<td>Baseline done</td>
<td>Baseline done</td>
</tr>
</tbody>
</table>

TABLE 4. OVERVIEW OF PROGRESS IN MCE SITES
• MCE protocols are being developed in Cambodia and Kazakhstan, and a proposal for an impact evaluation in Northeast Brazil is nearing completion.

Important lessons are being learned about IMCI implementation:
• Data from Tanzania provides evidence that IMCI is associated with improved performance by health workers and improved quality of care.
• Preliminary findings and results of feasibility studies in several countries indicate that utilisation of public health services was low. This will need to be addressed urgently if IMCI is to have its expected impact.
• The implementation of IMCI is closely linked to health sector reforms and health system constraints. Monitoring and documenting health system barriers to the scaling-up of child health programmes are urgent priorities for both MCE sites and, more broadly, countries and partners working on achieving and maintaining high coverage with effective interventions, including IMCI.
• Most sites already have community interventions that are consistent with IMCI, even if they are not called IMCI. A clear definition of the community component of IMCI is needed.
• The implementation of IMCI has been slower than initially expected, and it is important to work with ministries of health and partners to speed up the process where possible, while staying within the boundaries of what can be feasibly implemented by them.
• The high proportion of neonatal deaths in some MCE countries highlights the need to strengthen the young child care module within IMCI.

Using MCE data to address a range of high priority questions
• MCE data are being used to investigate inequalities in the access to, and utilisation of, health services, quality of care, and health and nutrition outcomes in Bangladesh and Tanzania.
• Variables addressing contextual factors must be included in MCE household surveys to provide the best measure of coverage/exposure levels for non-IMCI interventions.
• Proposals for cross-site analyses are being prepared and will contribute to a greater understanding of the determinants of child health and survival, and the effectiveness of various service delivery strategies.

Examples of IMCI implementation
1. Tanzania
Two districts in Tanzania that are implementing IMCI are being compared with two districts that are not. The two IMCI districts, Rufiji and Morogoro, began in 1996 with support from the MoH, WHO, and the Tanzania Essential Health Interventions Project. Figure 10 shows the difference in the quality of care at health facilities between IMCI and non-IMCI districts.

2. Bangladesh
In Bangladesh a randomised design was adopted for the evaluation of the efficacy of IMCI. Ten pairs of health facilities and their catchment areas in Matlab district were matched according to selected characteristics, and one facility in each pair was randomly selected for implementation of IMCI. IMCI was implemented in these ten facilities through training of health workers, supporting health systems, and providing

![Image of Figure 10: Progress on a Health Facility Survey in Tanzania](source: Schellenberg JA. IMCI MCE Tanzania Progress Report, December 2001.)
community level activities. Figure 11 shows the baseline childhood mortality by age in the selected Matlab Thana area (MCE study area).

3. Peru

Phase I of the MCE in Peru included a national evaluation of IMCI implementation through district-level questionnaires and a review of information collected centrally. Data collected from 34 health districts will make it possible to carry out an ecological analysis of the impact of IMCI.

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**FIGURE 11. CUMULATIVE BASELINE MORTALITY RATES PER 1000 LIVE BIRTHS, BANGLADESH**

![Chart showing cumulative baseline mortality rates](image)


**FIGURE 12. COMMUNITY IMCI TRAINING: TIME-TREND, PERU**

- Community IMCI training started in 1998
- Increasing trend over time
- Main partners: MoH, UNICEF, NGOs, Plan International, San Vincente de Paul, Audeca, Caritas
- Districts included: all 34

![Chart showing community IMCI training time-trend](image)

Progress in implementing the IMCI strategy during the biennium

What is IMCI

Integrated Management of Childhood Illness (IMCI) is a broad, locally adapted strategy developed by WHO and UNICEF to improve child health and reduce child mortality which includes both preventive and curative elements, and is implemented at family and community levels as well as by the health system. WHO sees the IMCI strategy as the main primary health care intervention tool to reduce mortality and morbidity from infectious diseases, and to improve the growth and development of children under five.

How is IMCI Implemented

IMCI is implemented in three distinct phases: introduction, early implementation, and expansion. In the introductory phase, countries conduct orientation meetings, train key decision makers in case management, identify a management structure for preparing for IMCI and for planning early implementation, and work for government commitment to move forward with the IMCI strategy. In the early implementation phase, countries gain experience while implementing IMCI in a limited geographic area. They develop their national strategy and plan, adapt the IMCI guidelines to their national context, build management and training capacity in a limited number of districts, start implementing and monitoring IMCI, and review their experience before planning for expansion. In the expansion phase, countries increase the range of IMCI interventions, and increase their coverage. An important challenge during the expansion phase is maintaining quality while expanding coverage.

How many countries are implementing IMCI

Since its introduction in a few early-use countries, IMCI has expanded rapidly. By end of 1996, five countries started the adaptation of the generic clinical guidelines to their local epidemiology and first training of health workers. By the end of 2001, more than 100 countries had adopted IMCI, including 48 countries in the early implementation phase and more than 30 countries expanding their national IMCI coverage. The Department is monitoring global progress in the implementation of
FIGURE 14. NUMBER OF COUNTRIES CURRENTLY IMPLEMENTING IMCI, BY PHASE, AT THE END OF 2001

Discussions started in at least six other countries

FIGURE 15. WORLDWIDE COVERAGE OF IMCI BASED ON INFORMATION REPORTED BY 46 COUNTRIES IN JANUARY 2002
key IMCI activities at country level through the use of milestones and indicators. Milestones are country achievements related to stages of IMCI implementation.

As shown in Figures 13, 14 and 15, important progress has been made in creating a more favourable environment for IMCI. By end of the biennium, the number of countries that included IMCI in their national health policy and had national policies in place to support appropriate use of IMCI drugs had doubled. Significant advances were also registered in the importance given in countries to community aspects of IMCI.

CAH tracked coverage in countries reporting to have expanded IMCI interventions beyond a few pilot districts. Table 5 shows the estimated coverage of the first two components of the strategy for the 46 countries that reported coverage by end of 2001. Coverage data should be interpreted with caution given the high turnover of health staff in many developing countries.

### How do we know that IMCI works

Major progress was made in the evaluation of IMCI and several countries conducted programme outcome evaluations in health facilities. Results were encouraging in geographic areas with IMCI implementation. In addition, many partners have completed household and community assessments, including Multiple Indicator Cluster Surveys conducted by UNICEF to measure outcomes at the household level. Selected results are available on UNICEF’s website. The following studies provide rich examples of how IMCI is working in countries.

- Results of studies from South Africa, Tanzania, Uganda, and Zambia comparing areas with and without IMCI implementation showed that children seeking care in health facilities in IMCI districts were more thoroughly assessed and received better quality care than children seeking care in districts where IMCI had not yet been implemented. For example, the index of integrated assessment shows that on average, 65% of children visiting IMCI health facilities were checked for general danger signs in Tanzania, and 64% in South Africa. This index, overall, ranges from 60 to 90% in South Africa, Tanzania and Zambia. These values were significantly lower in areas without IMCI. This was achieved despite the existence of weak health systems to support implementation, and was reflected in the difficulties experienced with regular supervision in almost all districts.

- In November 2001, AMRO held the intermediate evaluation of the **Healthy Children: Goal 2002** initiative launched to reduce by 100,000 number of deaths in children under five years of age during the period 1999–2002. Over 100 representatives from countries, international agencies, NGOs, and other organisations participated. During this evaluation, an important reduction in the number of deaths during childhood was reported. Deaths in children under five dropped by more than 33,000 during the first year of the initiative. Most of this reduction was due to diseases targeted by IMCI. These advances were considered to be an important success, taking into account that the expected rate of reduction was 4.8% and the observed rate of 6.4% was one third higher. Standing at more than more than 15%, the rate of reduction among diseases targeted by IMCI was even higher.

### TABLE 5. ESTIMATED COVERAGE OF THE FIRST TWO IMCI COMPONENTS IN SELECTED COUNTRIES*

<table>
<thead>
<tr>
<th>More than 10% of districts</th>
<th>More than 25% of districts</th>
<th>More than 50% of districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>Botswana</td>
<td>Honduras</td>
</tr>
<tr>
<td>Brazil</td>
<td>Colombia</td>
<td>Paraguay</td>
</tr>
<tr>
<td>China</td>
<td>Ecuador</td>
<td>Peru</td>
</tr>
<tr>
<td>Egypt</td>
<td>Eritrea</td>
<td>South Africa</td>
</tr>
<tr>
<td>El Salvador</td>
<td>Ethiopia</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Kosovo</td>
<td>Guatemala</td>
<td>Zambia</td>
</tr>
<tr>
<td>Niger</td>
<td>Haiti</td>
<td></td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>Indonesia</td>
<td>More than 75% of districts</td>
</tr>
<tr>
<td></td>
<td>Kazakhstan</td>
<td>Bolivia</td>
</tr>
<tr>
<td></td>
<td>Malawi</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td></td>
<td>Mongolia</td>
<td>Republic</td>
</tr>
<tr>
<td></td>
<td>Morocco</td>
<td>Uganda</td>
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<td></td>
<td>Philippines</td>
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<tr>
<td></td>
<td>Zimbabwe</td>
<td></td>
</tr>
</tbody>
</table>

* By December 2001, 46 countries provided some coverage data (does not imply full coverage in each district)
In Brazil IMCI was introduced as a strategy to improve child health in 1997. Priority was given to states in the north-eastern part of the country. During 2000, the Ministry of Health started to measure progress in IMCI implementation in three States: Ceará, Pará, and Pernambuco. Three surveys, one in each state, were conducted simultaneously in September 2000 in collaboration with AMRO. Overall, 663 sick children were observed.

Survey findings showed encouraging results after two or three years of IMCI implementation. In Ceará for example, two thirds of the 30 health facilities visited had at least 60% of their staff managing children received training in IMCI. Children were systematically assessed for an average of 6.8 clinical signs regardless of why they were brought to the facility, demonstrating that many health care providers performed integrated assessment (see Figure 16). Fourteen cases of pneumonia were encountered and 11 of them were correctly identified and treated (in 1996, only 6 out of 18 cases of pneumonia were correctly identified and treated in a survey covering the same three states and three additional states).

Misuse of antibiotics was limited to 14% of the children observed. Figure 17 shows the understanding of mothers of home case management for their sick child after their encounter with the health care provider.

The Ministry of Health has organised feedback workshops at all levels of the health system in the three States involved in order to identify feasible ways to strengthen implementation of the IMCI strategy. The evaluation also helped reinforce national capacity in survey methodology and new surveys organised in additional states.

FIGURE 16. ASSESSMENT TASKS PERFORMED, CEARÁ, BRAZIL, SEPTEMBER 2000

FIGURE 17. MOTHERS UNDERSTANDING OF HOME-CARE FOR THEIR SICK CHILD, BRAZIL 2000
During the biennium, the Department, in close collaboration with Regional Offices helped countries plan, review and assess experiences with IMCI. In most countries, IMCI implementation was based on consultations among national authorities and international, bilateral and non-governmental organisations. Smooth and efficient collaboration among various partners and regional and country-level initiatives is crucial if efforts to harmonise approaches to IMCI are to succeed.

By the end of 2001, 40 out of 46 countries in the African Region had adopted the IMCI strategy. In six of these countries, IMCI was in the process of being introduced, in 22 countries it was in the early implementation phase, and in 12 countries in the expansion phase; in five countries more than 50% of districts had implemented IMCI. In the Americas, IMCI was introduced in 17 countries by the end of 2001 and 16 countries had adopted IMCI as a national strategy. All countries had prepared national and local plans of action, and held training workshops.

**Box**

**Evaluation of IMCI in the AFRO Region**

A DFID/USAID review of IMCI took place in 2001 to assess the progress that had been achieved over the last three years in the development and implementation of IMCI in Africa, with particular reference to household and community child health. Progress was reviewed at the global, regional and country level. The review also carried out a ‘forward-looking’ analysis of WHO/AFRO and UNICEF’s household and community child health activities, both supported by USAID and DFID, and examined existing partnerships and the role of NGOs. The status of IMCI activities in some countries was examined and conclusions were drawn on IMCI’s impact, as well as the possibilities for scaling up. It was concluded that scaling up will demand increased efficiency of implementation, intensified investments, and a stronger involvement of implementing partners including NGOs, faith-based organisations and the private sector.

Similarly, 15 out of 23 countries in the Eastern Mediterranean Region had implemented IMCI. By the end of 2001 six countries were in the introductory phase, another six in early implementation and three countries were in the expansion phase. A special feature of IMCI in this region was the shift in focus from the integrated management of the sick child to the integrated management of the healthy child. This has required new efforts in promoting the re-organisation of child health services to deliver the whole scope of IMCI, including the development of the community component.

In collaboration with the Regional Office, the Department introduced IMCI in four additional countries, bringing the total number to 13. Of these countries, eight were in the early implementation phase and one country had moved into the expansion phase. In SEARO, two countries were in the expansion phase and four were in the early implementation phase. Three additional countries – the Democratic People’s Republic of Korea, Maldives, and Thailand – expressed their interest in adopting the strategy.

Considerable progress was made in expanding IMCI in the Western Pacific Region. By the end of 2001, IMCI was introduced in 12 countries. Four of these countries have further expanded the strategy to include a broader scope of activities and new geographical areas, another four moved into the early implementation phase, while three countries were in the introduction phase.

**Improving family and community practices**

During the biennium, the Department continued to give high priority to the IMCI component *Improving Family and Community Practices*, and strengthened collaboration with UNICEF and...
NGOs to extend IMCI interventions into the community. Activities were sustained in all regions and experiences documented and used to refine the planning process.

The introduction, planning and implementation of community interventions continue to be one of the most complex areas of IMCI. Countries implementing the community component of IMCI are shown in Table 6.

As part of continuing support to regions and countries, a series of workshops bringing together ministries of health and NGOs took place in several WHO regions in the course of the biennium. These workshops provided the means of identifying, establishing and maintaining linkages for the implementation of community activities and enabled strategy building at country level.

Planning for improving family and community practices

During the biennium, efforts were stepped up to ensure that experiences in planning and implementing community IMCI were documented so that countries and global partners had access to up-to-date information on the range of community actions. These efforts were undertaken in conjunction with partners in the Interagency Group on Household and Community IMCI. A series of short Country Briefs to accompany the documentation of experiences were also planned in partnership with IAWG members. These short descriptions will provide country examples and highlight key activities and will be used to share experiences with interventions to promote the key family practices.

**BOX**

**EMRO framework for the community component of IMCI**

EMRO developed a Framework for the Community Component of IMCI based on recommendations made by countries and international agencies during the Regional IMCI Consultation in Egypt in November 2000, and an inter-country meeting in Syria in October 2001. The Framework was widely publicised throughout the region as a major instrument to facilitate the implementation of community IMCI. The Framework presents five specific elements of a community care strategy: selecting priority communities; building on existing interventions; linking the health system with the community; promoting key family practices; and improving access to quality child care. It also promotes IMCI as a key approach to addressing child health compared to more traditional community interventions.

At least five EMRO countries have started to plan the early components of the Framework and another three are planning and implementing the IMCI community component.
Several Regional Offices also developed frameworks that will facilitate the implementation of the IMCI community component. Results from field tests will demonstrate the value of the framework to the country of application and beyond.

Family and community child health activities in regions and countries

Community Health Workers (CHWs) play an important role in promoting adequate homecare and timely care-seeking, and in building and maintaining links between the community and the health facility. During the biennium, training materials and courses were developed and promoted by Regional Offices to improve the skills of thousands of primary and community health workers in recognising illnesses and advising caretakers on appropriate home treatment.

For example, AFRO developed training materials and organised training courses in ten countries. Similarly, AMRO completed three community-level training courses. The IMCI Organization Course at the District Level was field-tested in October 2000. Based on this experience, several training modules are in the process of being revised. A second version of the Community Health Worker and Talking with Mothers training courses were completed in the last quarter of 2000, and courses were held in several countries during the 2000–2001 period.

In January 2000, a new partnership between the American Red Cross (ARC) and AMRO was launched in support of the Healthy Children: Goal 2002 initiative to support IMCI activities in communities. The project is in the process of being implemented in Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Peru and Venezuela.

In the South-East Asia Region, Basic Health Workers (BHW) training material was developed by SEARO in partnership with CARE-India and the Government of India. The materials have been adapted in Indonesia, Myanmar and Nepal; Bangladesh and Bhutan are also considering its adaptation and use. The training package is being revised to include the management of malaria; and the revision is to be field-tested in India.

Supervising Community Health Workers in Viet Nam

In Viet Nam, efforts were made to improve supervision of CHWs by district health staff, and to install supportive supervision in order to maintain CHW performance after training. In October 2000, the 16 provinces of the World Bank-supported National Health Support Project assigned health staff to participate in IMCI follow-up after training courses. Viet Nam has a national team of 18 master supervisors who are able to teach district supervisors to conduct supportive supervision to CHWs. In 2001, the Swedish government supported the pilot-testing of an integrated supportive supervision model in IMCI project provinces.

Six countries in the African Region made significant progress in implementing the community component of IMCI by conducting baseline studies and developing communications strategies and materials.

A review was also commissioned by WPRO to examine the current situation of child health community activities, collect information on governments’ plans to develop community IMCI, and prepare an inventory of NGO activities in child health at country level (see Box 38). Key NGOs were contacted for potential collaboration. These activities were part of preparations to conduct a regional NGO-specific technical consultation with NGOs on community IMCI in January 2002.

Improving health systems support

Effective implementation of IMCI requires the firm support of the health system of the country or countries where it is being applied. CAH worked to improve the availability of essential
Selected activities on community IMCI in the WPRO region

In Cambodia, the IMCI Adaptation Subgroup on Nutrition and Caretaker Counselling, and the Implementation Subgroup on Improving Family and Community Practices worked together to develop a strong community component for IMCI. In October 2001, the process was reviewed and a plan developed for advancing community IMCI.

In Mongolia, the Participatory Hygiene and Sanitation Transformation Initiative (PHAST) was instrumental in reinforcing and developing the IMCI community component. With the support of WHO, 27 participants followed the PHAST course in October 2000. These trainers subsequently trained 97 health workers in four courses in two aimags (districts) implementing IMCI. By the end of 2001, these same health workers had initiated projects to improve family and community practices in these two districts. Mongolia continued to train caretakers in a one-day education session on child home care and feeding, and organised a 45-day summer camp for malnourished children. A number of TV broadcasts on ORS were aired, and short articles on ARI and diarrhoea were published in Mongolian newspapers and journals.

In the Philippines, the Enhanced Child Growth strategy was initiated to make families fully aware and responsible for the psychosocial stimulation, protection, health and nutrition of their children. The strategy builds on existing community-based programmes, experiences, and infrastructure. In collaboration with the Department of Health, Helen Keller International has supported a community survey in order to strengthen community IMCI.

In Papua New Guinea, a community survey tool developed by UNICEF was adapted to the country situation in January 2001, field-tested in June, and a survey is underway in the provinces of Madang and the Eastern Highlands.

The community health team of Children’s Hospital No. 1 in Ho Chi Minh City in Vietnam, as part of an IMCI-DANIDA project, has conducted health education for mothers’ groups in four provinces. The team used the IMCI treatment chart on counselling mothers as a tool for developing health education material. UNICEF developed village health worker training materials, thereby continuing its collaboration with the IMCI technical group to improve key family practices in the two IMCI pilot districts. In 2001, UNICEF and WHO supported efforts to design and conduct a community survey on the 12 key family practices.

Improving the availability of essential drugs

The Department and Regional Offices continued efforts to support the availability and rational use of drugs needed for the management of childhood illness. Impressive efforts include those carried out in four African countries – South Africa, Tanzania, Uganda and Zambia – resulting in, at any given time, 80% of first-level health facilities in IMCI districts having 80% of vital IMCI drugs.

Systematic actions to improve the quality of health services and national essential drug lists can also be seen in the Americas. In November 2001 together with USAID, BASICS and the Rational Pharmaceutical Management Project (RPM-Plus), AMRO translated the IMCI Essential Drug Survey into Spanish. National Essential Drugs lists, especially in relation to the drugs required for IMCI were reviewed in most countries of the Eastern Mediterranean Region. In addition, SEARO ensured that antimalarial drugs included in the IMCI guidelines were in agreement with national policies in user countries.

Integrating IMCI in national health policies

If IMCI is to reduce child mortality and promote health and development, the strategy must be incorporated into national policies and strategies for strengthening child health programmes. During the biennium, the Department and Regional Offices focused on...
integrating IMCI into national strategies. By the end of 2001, national plans of action for IMCI in AFRO were implemented in at least 80% of the 40 countries using IMCI, and the strategy was being integrated into national health management information systems in Namibia, South Africa and Uganda.

Similarly, in WPRO, efforts were pursued to link IMCI with health sector reforms. In Cambodia, plans were under way to implement IMCI as part of extensive health sector reforms in selected operational districts. In China, plans were made for IMCI to become part of World Bank-supported projects; and in Laos, IMCI was being introduced within the context of primary health care. In Mongolia, the Health Sector Development Programme is closely involved with planning and implementing IMCI at district level, where family doctors were targeted for IMCI training, and IMCI was included in the postgraduate training of family doctors. In Papua New Guinea, IMCI was fully integrated in the health sector development plans.

The IMCI strategy has been a component of the national health policy in Viet Nam since 1999, and was included in the Strategy for People’s Health Care and Protection for the Years 2001-2010, which is the primary policy document for health sector development. Similarly in the Philippines, the IMCI strategy was recently included in the two main policy documents of the Department of Health. Mongolia has included IMCI in strategic national documents, and China is implementing IMCI to reach the goals stated in the National Plan of Action for Child Development for the Years 2001–2010.

Supporting the management, planning and financing of health services

During the biennium, the Department, in collaboration with Regional Offices has made considerable progress in documenting the challenges and administrative issues associated with IMCI implementation and health service delivery. The outcomes of these efforts will help improve country capacity for the management of childhood illness and persuade authorities that IMCI implementation could indeed strengthen overall health service delivery.

The Department has now documented the IMCI planning process in countries, and has developed tools to support planning of the strategy at district level. Strengthening district planning took place at regional and country levels; in AMRO for example, an IMCI organisation course at the district level was developed and field-tested in October 2000. District planning guidelines were also adopted in several countries including Indonesia, Uganda, and Viet Nam.

As more countries move into the expansion phase of IMCI, the challenges associated with reaching rapid and sustainable coverage have become more apparent. Countries initiated efforts to analyse key aspects of IMCI implementation, these include team building among staff in

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**BOX**

The IMCI costing tool

**What is it:** A tool to estimate the costs involved in the implementation of IMCI in a country or district.

**Aim:** To contribute to planning and budgeting for the introduction, implementation and expansion of IMCI.

**Structure:**

1. The start-up model provides an estimate of the cost of introducing IMCI.
2. The recurrent model estimates the annual recurrent cost of providing child healthcare according to IMCI guidelines.
3. The expansion model estimates how much it would cost to expand IMCI to any number of additional sites.
4. The community model estimates the costs related to the introduction, recurrent costs and expansion of IMCI’s community component.

**Intended users:** Trained health programme managers, planners and consultants at any level.
health centres; upgrading of health facilities to reflect minimum standards; planning and promoting IMCI interventions in partnership with village health committees; and mobilising communities to seek care from trained providers.

A costing instrument for IMCI was developed by BASICS, WHO and the World Bank. The costing instrument consists of four models that analyse the costs related to early implementation, expansion, recurring costs and community costs of IMCI related activities. The models have been field-tested in Bolivia, Nepal, and Nigeria. Following the field test in Nepal, the Department convened a workshop in Geneva to introduce the new instrument to selected staff from Headquarters and Regional Offices. Participants concluded that the tool helps health planners to project costs associated with IMCI implementation and can be successfully applied in a variety of settings.

**Improving health workers skills**

During the biennium, Regional Offices continued to support the strengthening of case management skills of first-level health staff.

**Adaptation of the IMCI Case Management Guidelines**

WHO and UNICEF developed the original IMCI Adaptation Guide to assist national authorities in adapting the generic IMCI clinical guidelines and training course materials to country-specific epidemiology, resources and policies. During the biennium, revisions were made to the Guide, which is expected to be finalised and printed in 2002. Future modifications will be prepared and distributed as separate Technical Updates.

A database containing information on country adaptations was initiated to review the differences between the generic guidelines and the options of the IMCI adaptation guide. These adaptations respond to changes in epidemiology or experiences in implementation. The adaptations and modifications occurring in countries implementing IMCI will be classified either as experiences in implementation or changes in epidemiology.

Training activities are essential to effective IMCI implementation. The standard case management training combines classroom work with hands-on clinical practice to teach health workers the effective outpatient management of sick children. Each country must have a critical mass of facilitators skilled in IMCI orientation, planning, adaptation of training guidelines, training-of-trainers for clinical courses, follow-up after training, monitoring and evaluation. In addition to case management, the course emphasizes the prevention of disease and communication with caretakers. Training includes at least one follow-up visit to each trained health worker at their facility to help them apply what they learned to their own work situation.

Also important are consultant training workshops and on-the-job training to increase the pool of staff and consultants qualified to assist and guide national counterparts. The increasing reliance on national consultants is an important indicator of the success of the Department’s efforts in building capacity. For example, IMCI teams in AFRO and AMRO can now call on more than 100 local consultants, specialising in different aspects of the IMCI strategy. EMRO trained ten consultants on facilitation and directorships skills. Similarly, WPRO trained a sufficient pool of regional resource persons for course directorship, facilitators and clinical instructors for IMCI training, and SEARO’s dependence on consultants from outside the region has dramatically declined.

**In-service training**

More than a dozen IMCI inter-country clinical courses were organised to develop technical expertise to assist with IMCI implementation within regions during the biennium. Participants included representatives from countries as well as from national, regional and international partner organisations. Follow-up visits to reinforce new skills acquired during training and to solve problems are essential elements of IMCI training.
The WHO Guidelines on Follow-Up After IMCI Training were adapted and used in all WHO regions to prepare for and conduct IMCI follow-up visits. Many countries conducted at least one follow-up visit to each health care provider after training. In addition, some countries began incorporating the principles and tools of follow-up visits into routine supervision. For example, in Egypt, Morocco and Pakistan, 90% of trained health workers received at least one follow-up visit in their respective health facilities. The visits were also used for skill-reinforcement and problem solving in the implementation of IMCI.

Many countries sustained high coverage levels with at least one visit after training. Some countries began to strengthen routine supervision by incorporating the principles and tools of follow-up visits. Meanwhile 15 national and international consultants were trained in Follow-up after IMCI Training workshops in Malawi and Niger.

Thousands of health workers from approximately 80 countries have so far been trained in standard case management. In AFRO, 34 countries conducted training of first-level health workers, and by the end of 2001, more than 50% of the districts in four countries were implementing IMCI, and more than 50% of health workers in first-level health facilities were trained in IMCI within these districts. The number of trained health workers reported in November 2001 totalled 146 in Eritrea, 79 in Ghana; 2345 in Tanzania; 1284 in Zambia; 129 in Botswana; and 2145 in South Africa. In Uganda, more than 7,000 health workers have been trained. Overall 70% and (100% in some districts) of the trained health workers have received follow-up visits.

Similarly, in AMRO, over 300 national and operational IMCI clinical training courses have been held since 1996, and this has helped to create a critical mass of IMCI training facilitators to replicate clinical training courses at the district and local level. Altogether over 30,000 health workers have been trained in IMCI clinical training in the region between 1996 and 2001. The WHO publication Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First-Referral Level was translated into Spanish and launched at the intermediate evaluation of the Healthy Children: Goal 2002 initiative along with the results from the assessment of care at referral hospitals carried out in five countries – Argentina, Brazil, Ecuador, Peru and Uruguay – with the support of CAH. The AMRO IMCI unit provided support for nine IMCI training courses and workshops in 2001. In addition, four regional and sub-regional planning and evaluation workshops were held.

In EMRO, seven countries, namely Egypt, Iraq, Morocco, Pakistan, Sudan, Syria and Tunisia, had conducted training in IMCI case management skills by the end of 2001. The courses included 17 national courses, 84 district courses and 33 facilitators' courses. In Iran and Oman, courses followed different training approaches reflecting local conditions. Overall, by the end of 2001 a total of 242 IMCI facilitators had been trained in Egypt, Morocco, Pakistan, Sudan, and Syria.

In EURO, nine countries organised more than 100 IMCI case management training courses for almost 1,700 health professionals working in first-level health facilities. SEARO organised nine inter-country and national capacity building events in six countries in 2001. Programme managers, staff from WHO collaborating centres, national institutes of excellence, NGOs and national training centres were also trained in case management. Skills have also
been developed for follow-up after training, planning and strengthening of health systems. In Indonesia, where IMCI is being implemented in 120 districts covering 15 provinces, the strategy of consensus building and implementation has been adopted by partners, including the Asian Development Bank, AusAID, UNICEF and the World Bank.

In WPRO, in-service training of first-level health workers continued in Cambodia, China, Malaysia, Mongolia, the Philippines and Viet Nam. Although data from the follow-up visits indicated that the quality of training was generally good, coverage of these countries was still low. The first IMCI model /demonstration courses conducted in Cambodia, Fiji and Vanuatu were among the most important capacity building events in the region. In addition, more than ten national resource people and regional consultants were trained in various technical areas of IMCI in national (Philippines), regional and inter-regional (South Africa, Indonesia, and Headquarters) training courses and capacity building workshops.

**Joint WHO/UNICEF orientation meeting on IMCI in the Pacific**

The first joint WHO/UNICEF orientation meeting on IMCI in the Pacific was organised in Suva, Fiji, from 31 January to 2 February 2001, to share information on the IMCI strategy, discuss its implications to the health systems in the Pacific countries and strengthen partnerships in child health. Participants were national decision-makers and technical staff from Fiji, Kiribati, Solomon Islands and Vanuatu with responsibilities in child health, including staff from schools of medicine and/or nursing. In addition to technical sessions on IMCI, countries had prepared background presentations on their particular situations. Participating countries then proposed national orientation and training of key personnel prior to planning and adaptation of the strategy.

**Alternative approaches to training**

A variety of alternative approaches to training, such as distance learning, on-the-job-training, computer-based learning and mentoring were tried out in countries in support of IMCI. The Department assisted Regional Offices and national authorities to identify and develop the most appropriate training approaches for any given situation. Efforts to evaluate the quality, effectiveness and cost of alternative IMCI training courses have been critical to implementation.

For example, CAH and AFRO developed a six-day IMCI case management course pre-tested in Tanzania, and a five-day course for doctors in South Africa. Uganda identified the need for alternative approaches to training supervisors and private sector health workers, nutritionists and dispensers. In AMRO, Argentina, Bolivia, Peru, Ecuador, Guatemala, Honduras, Nicaragua, Haiti and Uruguay also experimented with courses that were reduced to seven or even five days. AMRO started to develop training materials on areas such as asthma, violence, oral health, growth and development, and prenatal health to complement the generic IMCI clinical guidelines. These new materials will be field-tested in 2002.

In SEARO, the Indira Gandhi National Open University began developing a package to include IMCI into its distance learning programme for medical practitioners. In Indonesia, a distance learning training course on IMCI was field-tested in Palembang province.

An on-the-job-training (OJT) approach to the 11-day training course received prominence in the Philippines. The duration of the OJT is 12 days, composed of nine days of module work and outpatient sessions in the health centre and three days of in-patient sessions in the regional IMCI training site. This project was piloted in Sarangani province in May 2000 and reviewed in February 2001. WHO and UNICEF supported the Vietnamese government in a joint project to provide suitable training materials and treatment guidelines to village health workers. The training materials, designed for use by village volunteers in the poorest areas, are based on a simplified version of the IMCI clinical guidelines.

**Pre-service training**

During the biennium, activities were carried out in all WHO Regions to investigate ways to strengthen the teaching of child health in undergraduate education for doctors, nurses and...
other health professionals. The Department played an important role in the exchange of information among Regions and collaborated with selected teaching institutions in several different countries. In March 2001, the Department conducted a workshop for IMCI pre-service training for WHO staff and consultants from WHO Regions.

To increase the sustainability of implementing IMCI, AFRO supported the introduction of the strategy and clinical guidelines into the teaching agendas of seven countries: Madagascar, Malawi, Mozambique, Namibia, Niger, Nigeria and Zimbabwe. In addition, IMCI teaching continued in more than 20 medical, nursing and other health professionals schools in Ethiopia, South Africa, Tanzania and Uganda.

Work in this area also continued in AMRO with a focus on developing an IMCI medical education course based on information gathered from the WHO Informal Consultation on IMCI Pre-Service Training, and the WHO Inter-Country Workshop on IMCI Pre-Service Training held in the previous biennium. Additional data on Latin America was provided by a survey conducted by AMRO consultants and the Latin American Paediatrics Association. In addition, several countries in the region augmented their use of IMCI training materials for students and graduates, and faculties of medicine from Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Peru, and Uruguay incorporated IMCI into undergraduate and postgraduate courses.

Orientation and planning workshops were held in a number of countries in EMRO to strengthen IMCI teaching in medical and pharmaceutical faculties. To date, 12 medical schools in Egypt, Morocco and Sudan have developed a plan of action. Five of these medical schools have already adapted and begun to use IMCI guidelines for student courses. These experiences will be evaluated in 2002.

In November 2001 the Department assisted EURO to conduct a capacity building workshop in pre-service training for IMCI and Promoting Effective Perinatal Care (PECP) in Copenhagen. Participants, including medical academics and physicians from nine countries confirmed the importance of medical school participation in the national adaptation of IMCI and PEPC clinical guidelines and pre-service training materials.

Pre-service activities are also under way in SEARO where IMCI and clinical guidelines have been introduced in 15 medical schools in Indonesia and one in Nepal. In the latter country there are plans to extend the introduction of IMCI teaching to other medical and

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### BOX

**Introduction of IMCI pre-service training into the nursing and midwifery curricula in the Philippines**

The Philippines was one of the first countries to implement the IMCI strategy in the Western Pacific Region. During the early implementation phase (1997-1999), priority was given to in-service training of frontline health workers. A review of early implementation in May 1999 concluded that, while in-service training had generally been of high quality, sustaining the competency of health workers could be improved with the integration of IMCI into the pre-service training of health professionals.

There are 192 nursing colleges and 185 midwifery schools in the Philippines, graduating an average of 8,000 health professionals every year. Facilitated by a WHO consultant, dialogues between government agencies, academics and professional groups were held to explore the possibilities for nursing and midwifery schools to introduce IMCI pre-service training. This was followed by a series of consultation, planning and coordination meetings, establishment of a national task force for IMCI pre-service training for nursing and midwifery, and development of national and institutional plans for introducing IMCI into the nursing and midwifery curricula.

The IMCI strategy is consistent with the educational impetus of both nursing and midwifery education, which is characterised as competence-based and community-oriented. The Philippines’ experience showed that success in adopting IMCI pre-service training into the teaching curricula of health professions rested essentially on achieving broad-based commitment of all concerned stakeholders and assembling the indispensable human and financial resources.
nursing schools. In India, the All India Institute of Medical Sciences is working on materials to introduce the IMCI guidelines into the pre-service training of five medical schools, where it will be monitored closely before expanding it to other medical schools. Similarly, the National Institute of Public Cooperation and Child Development has incorporated IMCI into the pre-service training of Basic Health Workers in three Indian states. In 2001, SEARO supported the introduction of IMCI into medical institutes in Myanmar.

IMCI and breastfeeding counselling pre-service training have also been introduced in a number of medical and nursing schools in the WPRO Region. For example, since January 2000, the Department of Paediatrics of the University of Medicine and Pharmacy in Ho Chi Minh City has taught IMCI for fourth and sixth year medical students within the general practitioner programme with about 360 physician graduates each year. These experiences were reported in two workshop held in Hanoi in October 2001 to introduce IMCI pre-service training into other medical and nursing schools in Viet Nam. In Fiji, Mongolia and the Philippines initial steps have been taken to introduce IMCI pre-service training into the academic programmes of medical and nursing schools.

**Capacity building of WHO staff and partners**

The Department’s work in this area focused on supporting regional staff and building capacity with partners regarding IMCI concepts and application. Significant efforts to strengthen regional capacity for operational research were also undertaken during the biennium. For example, an operational research guide was developed in AMRO, to equip health staff with the basic methodological tools for low-cost, short-term research studies related to IMCI implementation.

**BOX**

**A technical advisory group supports IMCI implementation in AMRO**

The Director of AMRO appointed a Technical Advisory Group on IMCI (Grupo Asesor Técnico AIEPI, or GATA) to support the IMCI implementation process, and strengthen the involvement of academic and scientific institutions. Eight members from seven countries – Argentina, Bolivia, Brazil, Costa Rica, Mexico, Trinidad and Tobago, and the United States – were selected from a long list of senior specialists, researchers and professors, with experience in public health, maternal and child health and control of infectious diseases. The first group meeting in September 2001 took place at the Miami Children’s Hospital, an IMCI institutional partner, and recommended promoting and expanding IMCI implementation.

The GATA was appointed to support the regional technical unit to:

- Provide recommendations to sustain and expand the IMCI strategy;
- Identify priority areas for research and for coordination with AMRO programmes and divisions, and with international, bilateral and non-governmental organisations and institutions to strengthen support for IMCI;
- Analyse indicators on progress, advances, results and impact of IMCI at regional and country levels; and
- Mobilise resources at regional and national levels.

GATA encouraged the introduction of IMCI into pre-service and postgraduate courses with a focus on senior students who will be trained before their ‘rural’ or ‘social’ year during which they work at health facilities covering the most vulnerable groups of population. They also recommended a stronger emphasis on the community component as well as dissemination of key family practices.

Finally, it was recommended that GATA promote epidemiological and operational research, and accelerate the design and implementation of guidelines for addressing additional diseases and problems affecting children’s health. Emphasis needed to be given to neonatal/perinatal, asthma and other obstructive respiratory diseases, oral health, accidents, violence and child abuse, and early detection of developmental problems and promotion of development.
Other regional activities for improving IMCI implementation during the biennium include:

- Evaluating follow-up after training and integrated supervision for IMCI at an AFRO regional meeting.
- Conducting four regional and subregional planning and evaluation workshops with 166 participants in AMRO.
- Sharing experiences and major challenges of IMCI implementation at an EMRO regional consultation in Egypt, during which participants visited health facilities implementing IMCI, and the University of Alexandria where IMCI had been incorporated into basic medical training.
- Discussing child and adolescent health and development perspectives during a consultation convened by SEARO.
- Convening a Capacity Building Workshop for IMCI Pre-Service Training in Geneva in 2001. WHO staff and consultants from all WHO regions participated in the workshop to discuss new tools and tools under development, and to share country experiences and lessons learned with pre-service training experiences from medical, nursing and other health professional schools.

The Department supported the introduction of new tools in countries. The introduction process was carefully documented in order to develop feasible and effective implementation strategies. As soon as these early experiences were analysed, activities were planned for rapid capacity building at all levels. An example of a tool developed in the biennium was the first draft of a briefing package developed for facilitators working with countries and partners on community IMCI. This material will be tested in early 2002 and English and French language versions will be distributed in the middle of the same year.

During the biennium, the Department examined how alternative approaches to training and pre-service training could be used as a means for introducing new tools and materials related to child health and development. The Department explored different ways for introducing and using the WHO guidelines for the Management of the Child with a Serious Infection or Severe Malnutrition in countries.

The role of partners is also crucial to ensure coherent and consistent support for child health activities in countries. The Department has invested in building capacity of interested partners in the concepts underlying the IMCI strategy and in the application of IMCI tools:

- **World Bank**: The collaboration with the World Bank showed that there was increasing recognition of CAH’s role in providing technical assistance in project preparation and supervision. Table 7 lists the countries that have received support from the World Bank to implement IMCI and child health services. During 2000, a review of lessons learned in the partnership to date was undertaken as well as a Training Seminar on Building Capacity for Technical Support in Child Health. The seminar resulted in an increased pool of staff and consultants able to strengthen the collaboration and to provide inputs into project design and implementation. During 2001 several countries, including China, Eritrea, Madagascar, Nigeria, Russia, Senegal and Uzbekistan, benefited from this partnership.

- **Memisa Medicus Mundi**: IMCI was introduced in the Board and Annual Review Meetings of Memisa Medicus Mundi, an NGO with a wide European constituency, which concentrates on strengthening health services delivery in developing countries.

- **American Red Cross**: A five-day orientation workshop was held in Washington for 20 participants from the American Red Cross, mostly country project managers. The interactive workshop was designed to discuss practical applications of the IMCI strategy in the various types of Red Cross projects. Facilitators included IMCI staff from three regions (AFRO, AMRO, EURO) and HQ.
<table>
<thead>
<tr>
<th>County</th>
<th>Project</th>
<th>Status</th>
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<tbody>
<tr>
<td>Argentina</td>
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<td>Bolivia</td>
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<td></td>
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<td>Health IX</td>
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<td>Health VIII</td>
<td>Supervision</td>
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<tr>
<td>Dominican Republic</td>
<td>Health Sector Reform</td>
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<td>Ecuador</td>
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<td>Appraisal</td>
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<td>Mauritania</td>
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<td>Health Reform Support</td>
<td>Supervision</td>
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The Department continued to respond to requests from training institutes and national paediatric associations to conduct presentations and educational sessions on IMCI. Other activities held with partners during the biennium included:

- A joint monitoring system for child health in Uganda was developed by the Department in collaboration with Roll Back Malaria. The Department also helped strengthen monitoring systems for child mortality in public health facilities in China and an IMCI regional monitoring system in Namibia. Plans for 2002 include developing simple guidance to monitor IMCI and child health programmes in collaboration with partners.

- An integration task force was organised to accelerate the collaboration and integration of support from various health programmes in the implementation of control activities in African countries. Malaria, immunization, and IMCI will be the focus at district level in five proposed countries.

- As recommended by the Global Task Force on Child Environmental Health (CEH), SEARO formed a Regional Task Force on CEH. In 2001, technical assistance was provided to a collaborative project: A Pilot Intervention for Reduction of Diarrhoeal Diseases in Urban Slums of New Delhi, India, organised by various departments of the Regional Office, WHO India, NGOs and the Government of New Delhi and Delhi Municipal Corporation.

- CAH worked with the World Bank to establish an informal interagency working group on child health and the private sector.

- AMRO has forged strong partnerships with the American Red Cross to support the Healthy Children: Goal 2002 initiative. The partnership will enhance the capability of AMRO to conduct IMCI activities in communities.

### BOX

**Children’s Environmental Health**

During the biennium, some regions continued working on the introduction of initiatives to broaden IMCI and improve other aspects of child health and development. As recommended by the Global Task Force on Child Environmental Health (CEH), SEARO, in a collaborative effort between different departments, formed a Regional Task Force on CEH to support a technical consultation to review the training package on the protection of children’s environmental health, in collaboration with HQ and the American Academy of Paediatrics. The consultation was held in Delhi (May 2001), in preparation for the International Conference on Environmental Threats to the Health of Children: Hazards and Vulnerability, which will take place in Bangkok, Thailand in March 2002.
CHAPTER THREE

Improving child health and development

HIGHLIGHTS OF 2000–2001

- A new ORS formulation of reduced osmolarity led to improved clinical response and has been endorsed by WHO and UNICEF.
- A capacity-building workshop on IMCI pre-service training was conducted with the participation of health professionals from WHO regions and countries.
- A regional Technical Advisory Group to support IMCI implementation and to strengthen the involvement of academic institutions has been set up in the American Region.
- Further progress has been made in supporting countries to plan and implement interventions that improve family practices for child health.
- In 2001, the Child Health Epidemiology Reference Group (CHERG) was established to study cause-specific estimates, and to address methodological issues that affect the generation, reporting and use of epidemiologic data for child health.
- Epidemiological reviews were completed for ARI and diarrhoea, and will be used to support improved estimates of child morbidity and mortality from these causes.
- Lists of household- and facility-based indicators for IMCI have been identified, tested, and agreed with partners.
- A health facility survey (HFS) has been developed with partners to measure facility-based, outcome indicators.
- The Multi-Country Evaluation (MCE) of IMCI effectiveness, cost and impact is taking place in four countries – Bangladesh, Tanzania, Uganda and Brazil.

During the biennium, the Child Health and Development (CHD) Team pursued research and development leading to evidence-based and technically sound epidemiological assessments, interventions, methods and tools for use by national authorities and partners in public health programming. During the biennium, efforts were intensified to enhance the three components of IMCI, namely improving family and community practices; strengthening health system supports for IMCI; and improving health workers skills (see Figure 5).

Working with a wide range of partners both within and outside the UN System, the
Department has defined key areas for targeted measures, and has promoted research, reviewed and revised clinical management guidelines, developed methods and tools for improving quality of child care in communities and through the health system, designed materials, and monitored and evaluated key interventions.

Likewise, the Department has achieved significant progress in expanding regional and country capacity, and has invested in adapting, testing and implementing preventive and curative interventions.

Improving family and community practices

Many determinants of child health and development are rooted in families, home environments and communities and therefore lie outside the direct control of the health system. For this reason, health workers need to work closely with families to ensure that parents or caregivers have the knowledge, skills and motivation to respond appropriately to childhood illnesses when they occur, and to provide children with adequate protection, care and support.

During the biennium, the CHD Team supported work on the set of family practices that make the most significant contributions to child survival, nutrition, growth and development.

FIGURE 5. THE THREE COMPONENTS OF IMCI

1. Improving family and community practices
   - Appropriate care seeking
   - Nutrition *
   - Home case management & adherence to recommended treatment
   - Community involvement in health services planning & monitoring

2. Strengthening health systems
   - District planning and management
   - Availability of IMCI drugs
   - Quality improvement and supervision at health facilities
   - Referral pathways and services
   - Health information systems

3. Improving health worker skills
   - Case management guidelines & standards
   - Training of facility-based public health care providers
   - IMCI roles for private providers
   - Maintenance of competence among trained health workers

* Work on nutrition is described in Chapter Two of this report

BOX

Community child health interventions at national and district levels

The main stages in the planning process for strategy development for community child health interventions at national and district levels are:

A. District level operational strategies
   1. Set the stage for community interventions:
      — Review status of community level interventions by addressing key practices.
   2. Understand the context and build consensus:
      — Conduct situation analysis at district and community levels by gathering existing information, interviewing key informants, and making site visits.
   3. Develop an operational strategy and plan at district level.
   4. Develop action plans at community level:
      — Prioritise key behaviours to address, choose approaches and activities, and obtain participation and involvement of communities and their partners.

B. National level
   1. Determine where to start:
      — Review current community-based child health activities and situation in the country; determine where to start; if it doesn’t already exist, establish a sub-group of partners at the national level.
   2. Understand the general context and build consensus:
      — Conduct situation analysis at the national level by gathering existing information, interviewing key informants, and making site visits; and share situation analysis with stakeholders;
   3. Develop a national strategy and plan

NB. District and community situation analyses can take place concurrently in order to provide input into the overall national plan.

Tools for building capacity to plan and implement the community component of IMCI

Implementing key family practices calls for close planning and collaboration with partners at the global, regional, and country levels. The Interagency Working Group (IAWG) on Household and Community IMCI provides a global forum that assists in defining needs and developing tools that are subsequently owned by participating organisations and agencies, sharing of tools across agencies, and updating information on country experiences that will eventually lead to the improvement of family and community practices in countries.

WHO, in conjunction with other IAWG members, has produced a Briefing Package to enable strategy development for community child health intervention planning at the national and district level and materials for training facilitators of this planning process. These training materials, which were field-tested in two countries, describe a clear process whereby facilitators can guide and assist...
Review of the evidence for the key family practices

In collaboration with the London School of Hygiene and Tropical Medicine, the Department carried out a review of the scientific evidence supporting the 12 key family practices promoted by IMCI. Targeted at a wide audience of health professionals, researchers and policy advisors, the review will serve as a background document to inform policy discussions. The three specific objectives of the review are: (a) to summarise the evidence of the potential impact of each practice on child survival, growth and development, and provide the evidence concerning the feasibility of interventions; (b) to identify gaps in knowledge that either hamper impact assessment, or those gaps that need to be filled to develop effective interventions; and lastly (c) to make recommendations concerning any further steps and to set priorities for both programme action and research.

Interventions to promote the key family practices

Research has begun to identify the most effective interventions to promote selected key family practices. In the coming biennium, currently implemented interventions and the tools used to design and implement these interventions will be reviewed. The review will focus on care-seeking, adherence to treatment, and home care for children. This review will complement ongoing work on infant and young child feeding.

The success of IMCI in reducing child mortality largely depends on how well a family carries out the treatment recommendations of the health care provider. A study currently under way in India is investigating the impact of IMCI counselling on care-seeking behaviours of mothers. In this study, physicians in the intervention group were trained in clinical and counselling skills using the IMCI approach. A mother’s card was developed with culturally appropriate drawings showing the danger signs, and when to seek care. Mother-child pairs are being prospectively registered at the Primary Health Centres (PHCs) and being followed up at home. PHCs are also the setting for observations of provider-patient interactions. Results are expected towards the end of 2002.

In Sudan, a study looked at how families respond to health workers’ recommendations for referral and follow-up care. The study considered the rates of change in the knowledge and practice of caregivers, as well as the quality of the advice given to them. Results show that of children referred, 43% attended the hospital on the day of referral, while 62% attended the hospital on the same day as referral, or the next day. As far as follow-up, 23% of children returned to the health facility on, or before, the due date. One of the factors associated with follow-up compliance was whether the child received the first treatment dose at the first visit to the health facility. The study results confirm the need for regular supervision and support of health workers.

WHO and its partners are also developing a common set of indicators to measure impact and monitor progress of interventions to improve family and community practices. A sub-group of the IAWG has been set up to accelerate this process.

Box

Key family practices to improve child health and development

- Breastfeed babies exclusively for six months (HIV positive mothers need special counselling on infant feeding to understand and practise the safest options).
- From seven months, give children good quality complementary foods while continuing to breastfeed for two years or longer.
- Ensure that children receive enough micronutrients – such as vitamin A and iron – in their diet or through supplements.
- Dispose of all faeces safely, wash hands after defecation, and before preparing meals and feeding children.
- Take children to complete a full course of immunization before their first birthday.
- Protect children in malaria-endemic areas by making sure they sleep under insecticide-treated nets.
- Promote mental and social development by responding to a child’s needs for care and by playing, talking and providing a stimulating environment.
- Continue to feed and to offer more fluids, including breastmilk to children when they are sick.
- Give sick children appropriate home treatments for infections.
- Recognize when sick children need treatment outside the home and take them to appropriate providers for care.
- Follow the advice of health workers on treatment, follow-up and referral.
- Ensure that every pregnant woman has adequate antenatal care, and seeks care at the time of delivery and afterwards.

Further important practices that protect vulnerable children:

- Provide appropriate care for HIV/AIDS affected people, especially orphans, and take action to prevent further HIV infections.
- Protect children from injury and accident, and provide treatment when necessary.
- Prevent child abuse and neglect, and take action when it does occur.
- Involve fathers in the care of their children and issues related to reproductive health.
Reducing the health impact of indoor air pollution

WHO estimates that indoor air pollution (IAP) in developing countries is responsible for 60% of the 2.2 million deaths a year in children under five caused by acute respiratory infections, and almost 4% of the global burden of disease. CAH is currently developing a programme of collaborative work within WHO to strengthen research on the health effects of IAP and identify effective interventions. As part of this programme CAH is contributing to a large study in Guatemala to determine the impact of reducing IAP on acute lower respiratory infections incidence in young children.

CAH is supporting three activities on various interventions in Guatemala and in Kenya. The first study in western Guatemala, also supported by Emory University, USA showed that the plancha chimney stoves achieved consistently lower levels of kitchen pollution than open fires or liquefied petrol gas/open fire. This study is important, as it is one of the first medium-term studies of household energy interventions in everyday use. The second Guatemalan study was carried out to determine IAP levels and child exposure in a rural community that had benefited from a range of government, NGO and external donor interventions, as well as private purchase of stoves by better-off families. The study found that the lowest levels of IAP and child exposure were associated with the plancha stove.

CAH is collaborating with the UK-based NGO Intermediate Technology on the implementation and evaluation of interventions to reduce IAP in poor rural communities in Kenya. Local women are working with artisans and a local technology institute to install combinations of improved stoves, hoods with flues, and larger windows and eaves. The interventions brought about significant reductions in particulate (up to 75%) and carbon monoxide (up to 35%), and considerably improved quality of life in the house.

CAH has also completed a feasibility assessment for a study on the effects of electrification on household fuel use, pollution exposure and acute lower respiratory infections in South Africa. Comparisons of two communities, one with access to the grid network for several years, and the other still relying mainly on wood and kerosene, showed that the electrified site had significantly lower 24-hour mean kitchen levels of respirable particulates and carbon monoxide.

### Box: Mechanisms for promoting key family practices in the community: Community Health Workers

Community Health Workers (CHW) play an important role in promoting home-care and timely care-seeking, and in building links with the health system. A recently completed study in Brazil assessed the potential role of CHWs in extending the reach of IMCI from the health service to the community. The study identified the barriers to expanding IMCI in the community as consisting of: inadequate training of CHWs; poor support and supervision; low salaries without fringe benefits or job security; and lack of recognition in the community of CHWs as legitimate care-providers. Preliminary analysis of data suggests that CHWs have great potential in expanding IMCI to the communities. However, to achieve their full potential, CHWs needed to be better trained and their knowledge improved, likewise their tasks had to be reduced, and they needed to have better supervision and supplies. It also found that the local media and regular community meetings could be valuable in helping make the link between the health facility, CHWs and mothers.

### Box: Indoor air pollution, household energy and health

WHO collaborated with USAID’s Environmental Health Project and the World Bank to organise a consultation on Health Impact of Indoor Air Pollution and Household Energy in Developing Countries: Setting and Agenda for Action in Washington DC, USA in May 2000. The Consultation brought together a broad representation of technical and development experience from developing countries and from organisations involved in research and policy in the fields of health, environment, energy and development assistance. The meeting reviewed the latest evidence on health risks, burden of disease, interventions and economic assessments to examine how to reduce the health impact of IAP. The report of this consultation will be available in 2002.
Strengthening health system support

Health services have a critical role in preventing and treating diseases. In many countries, health sector reforms have been associated with efforts to achieve child health and development (see Technical Support section of this chapter). CAH actions have also been linked to critical components of the health system, such as the availability of essential drugs and equipment, referral and emergency care services for children, and links with the private health care sector. During the biennium, the Department also promoted research, conducted expert meetings and designed tools to strengthen health service delivery systems.

Availability and management of essential drugs for IMCI

In response to the review IMCI Drug Treatment Recommendations, National Essential Drug Lists, and Standard Therapeutic Guidelines: A Comparison in Six Countries, the Department is developing a structured process and an accompanying set of tools for country-level action to improve the availability and management of essential drugs.

CAH has undertaken efforts to develop and disseminate methods and tools to build the capacity of health workers in this area. Initial planning was begun to develop pilot projects to improve the availability of drugs at the health facility level through joint problem identification and problem-solving approaches by personnel involved in drug management and child health.

The resulting project reviews have drawn attention to the erratic availability, or even non-availability of drugs for the management of childhood illnesses at the health-facility level. In response to this, the IMCI Drug Management Course was developed and became available in early 2000. SEARO organised an inter-country workshop to introduce the tool to representatives from seven regional countries. The feedback from participants was positive as they felt that it would contribute strongly to strengthening drug management.

Improving referral and emergency care for children

If IMCI is to reduce mortality, the strategy must address the quality and availability of referral and emergency care. During the biennium, the Department published the Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First Referral Level in Developing Countries in English, French, Russian, and Spanish. In collaboration with regional and country staff, CAH organised several consultations to discuss the introduction of these guidelines in small hospitals without specialised staff, and examine how to document the results in improved patient care.

A survey carried out by the Department on paediatric care in small hospitals in seven developing countries was published in The Lancet in 2001. Several Regional Offices are carrying out similar surveys as a basis for introducing Country Guidelines.

Inpatient care in small hospitals was examined in a consultation organised in Geneva by the Department in June 2000. The occasion made it possible to present positive experiences and bring forward issues such as quality assurance in paediatric care to be added to the Department’s agenda. A second consultation in South Africa in November 2001 led to the creation of an international discussion group for the improvement of paediatric hospital care that includes the International Paediatric Association, the Child Friendly Hospital Initiative, which supports initiatives in Afghanistan, Kosovo and Uganda, and the International Union against Tuberculosis and Lung Disease.

The Department is reviewing quality improvement projects in South Africa and Vietnam. Together with results from similar projects, Departmental findings will lead to the identification of the essential components of quality improvement in health care, and their sustainability in resource-poor countries.

Other reviews on the management of asthma and severe malnutrition were commissioned to assess the feasibility of diagnosing the disease at a district-level health facility. The assessment will examine how health care providers at lower-level facilities can receive guidance from district levels about how to manage the condition, and when to seek help again.
Improving the Quality of Paediatric Hospital Care

A meeting on Improving Quality of Paediatric Hospital Care

Improving the Quality of Paediatric Hospital Care was the subject of a Department-supported meeting held near Pretoria, South Africa, in November 2001. The meeting brought together health professionals from Africa, Asia and South America, as well as representatives from NGOs, the International Paediatric Association, and the International Union against Tuberculosis and Lung Disease. Useful tools for activities related to quality improvement, for example assessing the situation in hospitals, or performing a hospital audit, were compiled on a CD and distributed to interested parties worldwide.

Utilising the potential of private practitioners in child survival

A meeting on Improving Quality of Paediatric Hospital Care

Utilising the potential of private practitioners in child survival

In many countries the private health care sector complements, or provides care in parallel with public health services for children, indeed in some countries private physicians service a significant proportion of the population. Recognising the importance of this sector, the Department has worked with the World Bank to establish an informal Interagency Working Group on Child Health and the Private Sector. CAH has entered into an agreement with one of the members of the working group – the USAID supported SARA (Support for Analysis and Research in Africa) project, and will co-finance and provide technical support to address child survival activities in Uganda. This initiative will be introduced in three districts, and will be expanded in the same phased manner as the IMCI strategy. Similar initiatives are to be undertaken in at least two other sites. The experiences gained will feed into the development of guidelines and tools for other countries to apply to tap into this enormous, and largely neglected, resource.

Improving case management guidelines and health workers skills

Involving competent and skilled health workers with the knowledge and tools to administer effective treatment and care is one of the key determinants in preventing and treating childhood diseases. During the biennium, the Department organised research, developed generic standards and interventions, and designed materials for training. Emphasis was given to developing tools for in-service training of health workers, pre-service training of health professionals, and maintenance of performance among trained health workers.

Case management guidelines and standards for clinical practice

The Department’s work in this area included supporting appropriate adaptation of the IMCI case management guidelines at country level, addressing antimicrobial resistance in the case management of pneumonia and meningitis, and improving guidelines for diarrhoea and HIV/AIDS.

Case management guidelines for diarrhoea and dysentery

The Department supported studies to improve the case management of diarrhoea and dehydration. Highlights of the research programme include:

- A meta-analysis of randomised, controlled trials comparing reduced osmolarity Oral Rehydration Salts (ORS) solutions with standard WHO ORS solution for children with acute diarrhoea, was performed in collaboration with the Cochrane Infectious Disease Group. Results showed that reduced osmolarity ORS solution is associated with fewer unscheduled infusions, compared to standard WHO ORS solution. In trials reporting stool output and vomiting, data suggests less stool output and vomiting in children who received reduced osmolarity ORS solution.

Following publication of the meta-analysis results, WHO and UNICEF organised a meeting in New York in July 2001 to review all the studies conducted on low osmolarity ORS solution, and to provide technical recommendations on the safety and efficacy of these solutions in adults and children with cholera, and in children with...
Developing new algorithms for case management guidelines

The Department and EMRO are developing new additional clinical guidelines for managing burns and common poisoning. Most of the countries of the Eastern Mediterranean region have also developed guidelines for the management of asthma. These new protocols are in the draft stage and will be shared with technical experts prior to being tested in 2002.

Antimicrobial resistance and the management of pneumonia and meningitis

The Department supported research and development activities to improve the clinical management of pneumonia and meningitis, and to address the global challenges of antimicrobial resistance.

Results of a pilot study supported by the International Clinical Epidemiology Network (INCLEN), Johns Hopkins University, USA and WHO to distinguish between sore throats caused by viral infections from those needing antibiotic treatment were analysed during a workshop in Bangkok in October 2000. Following this analysis a multi-centre study with diagnostic and therapeutic components was developed. The study has been initiated in four countries – Brazil, Croatia, Egypt, and Latvia – and aims to develop clinical guidelines for the use of antibiotics in streptococcal pharyngitis (diagnostic component), and to compare the efficacy of intramuscular benzathine penicillin G with that of a single dose of amoxicillin (therapeutic component).

The Department, in collaboration with the Global Forum for Health Research (GFHR)
supported the University of East Anglia, UK to: (1) review current knowledge concerning the
cost and/or effectiveness of interventions aimed at reducing the emergence and transmission
of antimicrobial resistance; and (2) explore the feasibility of and issues involved in the
development of an economic model to assess the cost-effectiveness of interventions to address
antimicrobial resistance.

The report *Interventions Against Antimicrobial Resistance: A Review of the Literature and
Exploration of Modelling Cost-Effectiveness* was published in September 2001. The report reveals
that much of the existing literature focuses heavily on the closed hospital system, and
concentrates on the effects of policies aimed at reducing transmission rather than the
emergence of resistance. The report also considers four criteria, namely feasibility, flexibility,
sensitivity and relevance, for modelling cost-effectiveness and identifies two broad options
for model development: the ‘macro-model’ approach and the ‘suite’ of micro submodels. The
next phase of the project under way in Cambodia includes the development of a theoretical
model using available data and pilot-testing the model under real conditions. Results are
expected in 2003.

**Case management of pneumonia**

Data from most studies presented below to improve the clinical management of pneumonia
were presented at the 2001 annual conference of the International Union Against Tuberculosis
and Lung Disease (IUATLD). Highlights of these studies include:

- A tool was developed to monitor the clinical efficacy of treatment for the management
  of non-severe pneumonia using WHO guidelines. It includes data collection at baseline
  and follow-up visits, instructions for health workers, and advice for parents regarding
  management of children with non-severe pneumonia. The study, involving 14 health
  facilities in Pakistan looked at treatment failure, including change of antibiotic therapy,
  loss to follow-up, and death. The results showed that 13% of the children enrolled
  failed therapy on cotrimoxazole and 10% children were followed up at home. The
  monitoring tool has proven useful for health workers to document and monitor clinical
  outcome of pneumonia patients.

- A multi-centre, randomised clinical trial to compare the proportion of clinical cure with
  three-days versus five-days of oral amoxycillin therapy for the treatment of non-severe
  pneumonia was recently completed in Pakistan. Therapy failure with three-days’ duration
  of treatment was 20.9% which was equivalent to 20.5% with five-days’ duration. Therapy
  failure was more likely in non-adherent children, in infants whose illness lasted three
days or more, and in children with vomiting. The study highlights the need for health
  workers to emphasize the importance of adherence to therapy at the time of the initial
  assessment, and the importance of patient follow up.

- The clinical efficacy of oral cotrimoxazole versus oral amoxycillin for the twice-daily
  treatment of childhood pneumonia was also evaluated in a multi-centre, double blind
  clinical trial in Pakistan. Children with non-severe pneumonia recruited from seven
  hospitals and one community health centre, were randomised into the two treatment
  groups. Ninety eight percent of children enrolled were followed up for one week after
  starting the treatment. The clinical treatment failure rate in the amoxycillin group was
  16% compared to 19% in the cotrimoxazole group. This indicates that both antibiotics
  provide equally effective therapy for non-severe pneumonia. Irrespective of antibiotic
  use, good follow-up of children is essential to prevent worsening of illness.

- The case management of non-severe pneumonia was investigated in South Africa and
  Viet Nam. Analysis of collected data showed that treatment failure rate among children
  with non-severe pneumonia is less than expected. Among preliminary findings was the
  indication that a large proportion of children with non-severe pneumonia have
  radiological evidence of pneumonia (~75% in South Africa and 48% in Viet Nam),
  implying that a bacterial process is the underlying cause of many of these pneumonia
cases. This finding posed a significant problem in considering a follow-on placebo-controlled trial planned on the assumption that most cases of non-severe pneumonias are of viral origin. As this was not the case the trial as originally conceived was cancelled.

• The multi-centre clinical trial to compare the efficacy of injectable penicillin with that of oral amoxycillin for the treatment of severe pneumonia in children progressed at all of the original sites (Colombia, Ghana, India, Mexico, Pakistan, South Africa, and Viet Nam) except in Zambia, where patient enrolment dropped. Patient recruitment in this study, jointly supported by CAH and the ARCH Project, Harvard University, will continue until April 2002. Results will be available by 2002.

• There was continued progress in research to increase the specificity of treatment guidelines for children with wheezing diagnosed as WHO-defined non-severe pneumonia. A multi-centre study was initiated in five countries – Colombia, Egypt, Ghana, Pakistan and Thailand – in collaboration with the ARCH Project. The objectives of this study are to: (1) describe the clinical course of the disease in children presenting in outpatient departments with wheeze, cough and difficult breathing; (2) collect data on children with wheeze; and (3) determine how many children treated for wheeze relapse within seven days.

• The efficacy of short-course treatment with oral cotrimoxazole for non-severe pneumonia and its relationship with antimicrobial resistance is under evaluation in a multi-centre study conducted in Bangladesh and in Indonesia. The study seeks to determine the clinical efficacy of a three-day course of oral cotrimoxazole and to monitor the emergence of resistant strains of \textit{S. pneumoniae} and \textit{H. influenzae}. Data collection will be completed by December 2003.

• A multi-centre clinical trial to compare the efficacy of chloramphenicol with that of ampicillin plus gentamicin for the management of very severe pneumonia was initiated in six countries, namely Bangladesh, India, Mexico, Pakistan, Yemen, and Zambia. This research is being carried out in collaboration with the ARCH Project and the Johns Hopkins University, and the data collection is expected to be completed in mid-2003.

Case management of meningitis

A recently completed study conducted in Malawi examined the adjunctive use of dexamethasone plus antibiotics for the treatment of bacterial meningitis. The overall mortality of 31% was the same in the group of children receiving dexamethasone as in the placebo group. The rate of sequelae was 19% in dexamethasone group as compared with 16% in the placebo group. The most common bacteria isolated (total 520 patients) were \textit{S. pneumoniae} (40%), \textit{H. influenzae} type b (28%), \textit{N. meningitidis} (11%) and \textit{Salmonella} species (5%). There was no significant improvement in outcomes with dexamethasone by bacterial sub-groups.

Another study evaluated fluid therapy guidelines in patients with bacterial meningitis. Data collected suggest that there is a significant increase in total body and extra-cellular water in children suffering from acute meningitis and pneumonia. The study showed that children who died from meningitis had received significantly lower volume of intravenous fluids during the first 48 hours than those who survived, whereas children who died of severe pneumonia had lower body water, plasma volume and higher plasma osmolarity than those who survived. Further research is needed before preparing new fluid therapy guidelines for these serious conditions.

A multi-centre, randomised clinical trial is also under way to investigate the clinical efficacy and safety of a short course treatment with injectable ceftriaxone – five days versus ten days – in the management of patients with bacterial meningitis. The trial was initiated in eight centres in four countries – Malawi, Pakistan, South Africa and Viet Nam. It is expected that data collection will last up to three years.
Case management guidelines for HIV/AIDS

The Department, in close collaboration with AFRO continued to guide the development of IMCI guidelines in countries with high HIV prevalence. Highlights of activities include:

- A Regional Consultation was held in South Africa in August 2000 to consider four critical issues: the disease burden from HIV/AIDS in African countries; the experience of countries for assessing children with HIV/AIDS; the development of interim guidelines for the introduction of the HIV component with IMCI guidelines in countries with high HIV prevalence; and the research and development needed to improve the management of children with HIV. Paediatricians and public health professionals from Botswana, Ethiopia, Mozambique, Namibia, Kenya, South Africa, Zambia, and Zimbabwe, as well as international experts and WHO staff participated in the meeting. Participants agreed on the content of a set of interim draft IMCI guidelines that would include paediatric AIDS. The signs thought to be effective in identifying children with symptomatic HIV infection are presented in the box.

- In 2001, a workshop was organised in Zimbabwe to discuss the results of a validation study in South Africa on the HIV/AIDS component of IMCI. The workshop identified key issues for the adaptation of IMCI training materials and agreed that it was necessary to validate the HIV/AIDS guidelines in different epidemiological settings, particularly those where levels of malaria and malnutrition are high and prevalence of HIV low.

- A research project was finalised in South Africa to evaluate the HIV/AIDS component of IMCI in response to the recommendations of the Regional Consultation. Results became available in April 2001.

Improving the performance of health care providers

The Department focused on improving and maintaining the performance of two groups of health care providers: those currently responsible for the case management of children under five, and students of medical, nursing and other health care professional schools.

In-service training

To date, thousands of health care providers around the world have received training on the standard IMCI case management course using nationally adapted clinical guidelines and training materials. In order to implement these training courses, a country must prepare a critical mass of course facilitators and clinical instructors to both conduct courses and carry out follow-up visits to trained health care providers at their facilities after training. Follow-up visits are considered an integral part of IMCI training. Some countries have begun working toward maintaining the performance of health care providers after training by incorporating the principles and tools of follow-up visits into routine supervision.

As IMCI is adapted for use among various types of health workers, a number of Alternative Approaches to IMCI Training have been developed. During the biennium, several alternatives to the standard case management training course were developed in regions and countries. Countries have modified the methods and materials used to conduct the standard course in order to:

- Be relevant to different audiences, e.g. different categories of health staff with different levels of previous knowledge and skills;

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**Box**

**Clinical signs for HIV/AIDS for assessment and classification**

- Two or more episodes of acute respiratory infection requiring antibiotics (in the last two months).
- Persistent diarrhoea now or two or more episodes of acute diarrhoea (in the past three months).
- Episodes of ear discharge (now or at any time in the past).
- Very low weight.
- Growth faltering or a history of weight loss.
- Oral candidiasis.
- Enlarged lymph nodes in two or more of sites: the neck, groin and axillae.
- Parotid swelling.
- Weight below the ‘low-weight-for-age’ line.

A combination of any three signs would provide high specificity and should be recommended in situations where testing was not readily available. Two signs would probably be adequate where testing was easily available.

**Box**

**IMCI in-service training course**

The standard WHO/UNICEF case management course requires 11 consecutive days of full-time training. The course takes health care providers away from their health facilities in order to undergo classroom work and hands-on clinical practice following a strict agenda and standard quality criteria concerning such things as the number of hours of clinical practice, and the ratio of facilitators to participants. The course emphasizes the prevention of disease, and communication with caretakers. Health workers learn about the need for routine immunization of sick children, micronutrient supplementation, promotion of breastfeeding, and counselling to solve feeding problems.
• Reach all those in need of training;
• Increase the cost-effectiveness of training; and
• Make training options practical and convenient.

Typical alternatives to the standard course that have been tried out in countries are distance learning, on-the-job training, computer-based learning, and mentoring. CAH has also provided support to regions and countries to identify and develop alternative training approaches appropriate to the situation within a country. During 2000–2001 the Department made considerable progress in identifying, evaluating and refining various alternative approaches to IMCI training designed to achieve the same learning objectives as the standard IMCI training course.

In June 2000, the Department convened an Informal Consultation on Maintaining the Performance of Health Care Providers trained in IMCI. The consultation involved WHO staff at all levels and technical experts from both governmental and non-governmental agencies. The objectives of the consultation were to review approaches to maintaining the improved performance of health care providers after IMCI training, and identify research priorities for the development of new interventions and tools. The consultation resulted in two primary recommendations to CAH:

1. Conduct an inventory of guidelines and approaches developed or promoted by WHO for the supervision of health care providers; and
2. Identify and field-test a quality improvement model within an integrated primary health care system in order to improve the quality of care for sick children at first-level health facilities.

Following the consultation, CAH undertook an inventory of approaches to supervision. In 2001, work began to identify an operational framework and tools needed to produce sustainable improvements in the quality of first-level care provided to children in low- and middle-income countries.

Pre-service training

The Department developed guidelines and materials to assist countries in strengthening the teaching of child health in undergraduate academic programmes for doctors, nurses and other health professionals.

IMCI courses were given at five collaborating medical schools during the biennium. Four out of the five schools assessed their student’s IMCI knowledge and skills. Further work in this area includes the provision of technical assistance in response to regional and country requests; a description can be found in the Technical Support section of this chapter.

The Department achieved considerable progress with efforts to incorporate IMCI into major textbooks used in the

**Box**

Preparation of a comprehensive set of materials to support the introduction of IMCI into pre-service training

1. Model Handbook on IMCI: The handbook, which can be adapted in each country, presents the IMCI clinical guidelines in a condensed fashion that is suitable for use by academic staff and students. In 2000–2001, the handbook was printed in English, French and Russian and distributed to all Regions.

2. Management of the Child with a Serious Infection or Severe Malnutrition: This publication provides the guidelines for childcare at the first-referral level in developing countries. The guidelines were developed to help teaching institutions incorporate IMCI into academic programmes. Discussions are under way with Regional Offices on the best manner to introduce the guidelines and support their use.

3. IMCI Reference Library of Selected Materials: The reference library can be used by students to gain a better understanding of the rationale and technical basis of the IMCI strategy and clinical guidelines.

4. IMCI Technical Seminars: A set of speakers’ notes and overhead transparencies that present technical justifications for the IMCI clinical guidelines. The seminars cover topics ranging from acute respiratory infections, diarrhoea, malaria, and other causes of fever, to malnutrition and the sick young infant. All seminars are available on hard copy and on CD-ROM. Teaching staff can adapt or revise the seminars to include local or regional data and/or information about national adaptations made to the IMCI clinical guidelines.

5. IMCI: Guidelines for the Assessment of Students (Draft): The guidelines offer suggestions on which competencies to assess and possible methods for assessment, including the advantages, disadvantages and use of each method in relation to IMCI. Annexes contain sample tools for formative and summative assessment of student knowledge and skills. The guidelines were developed for IMCI, but the concepts and methods can apply to other topics.

6. IMCI (Draft): Planning, implementing and evaluating pre-service training: This guide is designed to assist WHO staff and consultants, MOH staff and teachers to plan, implement, review and evaluate the strengthening of pre-service training. The guide suggests activities at both national level and at teaching institutions to orient key decision makers, plan and conduct the first round of new teaching, review and re-plan teaching, and evaluate the effect of new teaching. A working draft of the guide was translated into French in preparation for a capacity building workshop scheduled for early 2002 in Francophone Africa.

7. In collaboration with the JHPEGO, an affiliate of Johns Hopkins University, CAH began to develop a reference manual and training materials to strengthen the skills of teachers to teach maternal and child health. The reference manual will cover issues such as how to plan a course, develop interactive presentations, conduct group learning activities, plan and conduct clinical practice sessions, and assess student knowledge and skills.

8. The identification of core competencies and the development of materials for strengthening the teaching of infant and young child feeding and neonatal care are also ongoing.
pre-service training of health professionals. For example, CAH contributed to the revision of *Principles of Medicine in Africa*, a textbook produced by Cambridge University Press, and is contributing to the revision of *Primary Child Care* by Dr Maurice King. Additional work in this area includes the publication of *A Model Chapter on IMCI* printed in 2001 to allow editors to incorporate IMCI information into local and international textbooks, also translated into French and Russian; revision of textbooks by two collaborating universities in Egypt and Nepal to incorporate IMCI; and submission of comments to the editors the Nelson Textbook of Paediatrics for the incorporation of IMCI into the 17th edition of the book.

**Monitoring and evaluation**

Monitoring and evaluation systems are the intelligence network that underpins effective disease management. These systems essential to measure progress toward previously established targets, judge the value of interventions, and strengthen public health programming. During this biennium, the Department worked toward expanding the epidemiological base, monitoring and evaluating at country level, and strengthening the evidence-base for strategies and interventions.

**Expanding the epidemiological base for child health**

The Department began work in the area of Child Health Epidemiology in May 2001 to address an increasing demand for evidence-based priority setting and impact evaluation from member states and partners. The work focuses on three areas for improving epidemiological information. These are:

- Cause-specific estimates among children under five;
- Multiple causes of death; and
- Epidemiology of children aged between five to nine years.

To begin work on improving cause-specific estimates among children under five, the Department convened an Informal Consultation on Epidemiologic Estimates for Child Health. The issues examined in this Consultation included: cause-specific morbidity and mortality estimates for ARI and diarrhoeal diseases; current mortality estimates for HIV/AIDS and measles; use of verbal autopsy to assess direct causes of death; the availability and preliminary analysis of co-morbidity data and methods to address co-morbidity; and WHO/Evidence and Information for Policy (EIP) estimates of cause-specific proportional mortality for 2000.

The Child Health Epidemiology Reference Group (CHERG), composed of WHO professionals and international experts, was established in the wake of the consultation to support activities in child health epidemiology. The first CHERG meeting took place in Geneva in December 2001 to discuss the epidemiologic estimates for each of the major causes of child mortality, namely pneumonia, diarrhoea, malaria, measles and HIV/AIDS. Participants proposed a work plan to review and improve epidemiological estimates for child mortality, including neonatal deaths and all major indirect causes of child death such as malnutrition.

The Department also recognised the need for broad epidemiological review of the issues that affect child health and development for older children between the ages of five and nine years. The Centre for International Child Health, Institute of Child Health in London, UK will prepare the review.

**ARI and diarrhoea estimates**

Following the Informal Consultation on Epidemiologic Estimates for Child Health, the Department made considerable progress in producing estimates for ARI, diarrhoea, and nutrition. A database containing studies of ARI morbidity, mortality and incidence was developed in collaboration with advisors from Edinburgh University and other WHO Departments. Based on reviewed papers, mortality estimates of ARI were calculated for the six WHO Regions and a relevant paper was published in *The Lancet – Infectious Diseases*. 
Another paper resulting from examining ARI incidence studies will be submitted to the *WHO Bulletin*. As for diarrhoea, aetiological-specific estimates were calculated by the Instituto de Investigación Nutricional in Peru.

**Addressing multiple causes of death**

Concurrent with the cause-specific activities, the CHERG is addressing methodological issues that affect the generation, reporting, and use of epidemiologic estimates for child health. One of the most important issues is co-morbidity, defined as the presence of two or more diseases at one time, or sequentially. The work on co-morbidity is complex and is currently in an initial phase.

**Monitoring and evaluation at country level**

The Department is committed to using routine monitoring, programme evaluation, and impact studies on child health interventions to strengthen public health programming. The Department recognises the need to broaden the scope of activities to encompass major health interventions for young infants and children, to expand capacity in monitoring and evaluation, expand access to information, and to support child health programming with data.

CAH has made significant progress on the refinement and use of indicators and evaluation tools. Lists of household- and facility-based indicators for IMCI have been identified, tested, and agreed with partners. The list of indicators is regularly updated to take into account new interventions. Indicator lists are not exhaustive and additional measures may need to be developed in some countries.

A set of facility-based indices was designed to monitor changes in the quality of care and to assess health facility readiness to handle rare events. These indices were developed in collaboration with the US Centres for Disease Control and Prevention in Atlanta, USA and are being further tested.

Efforts have also been made to reconcile syndromic classifications used in IMCI clinical guidelines, with disease classifications found in Health Information Systems (HIS). An increasing number of countries have begun setting up high coverage HIS that can meet the requirements of child health programmes.

Measuring changes in child morbidity and mortality is time consuming, and often requires large-scale studies to compensate for limitations of vital statistics. The periodic measurement of outcome indicators is therefore a practical way to track progress over time towards programme goals. To measure facility-based, outcome indicators, CAH and its partners have developed a Health Facility Survey (HFS) to track progress.

Health Facility Surveys support measurement of all priority and supplemental IMCI indicators at the facility level and are designed to assess: (1) the quality of care delivered to sick children in outpatient facilities; (2) caretaker satisfaction and understanding of key messages after visiting these facilities; (3) health system support at
the facility level; and (4) facility utilisation by sick children.

Health Facility Surveys collect information for:
- Baseline evaluation before programme implementation begins;
- Periodic evaluation of programme progress after two or three years of IMCI implementation; and
- Comparative evaluation to compare quality of care in areas with integrated child health programming to areas without integrated child health programming.

Results of HFS can be used as a basis for reinforcing good performance or to identify areas for improvement. At regional and global levels, the results can be used for improving IMCI tools and guidelines.

Comparisons of HFS data across countries show positive trends in favour of geographic areas where IMCI is implemented. These comparisons suggest that sick children brought to health facilities in IMCI areas were more likely to undergo a systematic assessment than children brought to health facilities in non-IMCI areas. Similarly, sick children at IMCI facilities or settings were more likely to have their vaccination status checked and there was less antibiotic misuse. In general, IMCI seems to have some effect on health system support. However, supervision with observation of case management practices and appropriate feedback, although critical for sustaining quality care, remains rare. In addition, the availability of essential drugs in first-level facilities is unchanged with IMCI implementation.

The Department has worked closely with partners to ensure that the data needed for the measurement of household indicators are included in country survey tools, such as the Multiple Indicator Cluster Survey (MICS) developed by UNICEF; the Knowledge, Practices and Coverage Survey (KPC2000+) developed by the USAID-sponsored Child Survival Technical Support Project and CORE Monitoring and Evaluation Working Group; and the Demographic and Health Survey developed by MEASURE DHS+ Project.

Progress has been made with WHO’s Communicable Diseases cluster and UNICEF to develop low-cost and easy-to-use software for a computer programme called HealthMapper. CAH is working to make the software compatible to child health programmes and testing its capabilities in selected countries involved in the Multi-Country Evaluation. The possibility to map public health resources, particular diseases, and specific health indicators creates a potentially powerful tool for programme monitoring and management.

The multi-country evaluation of IMCI effectiveness, cost and impact

The Department, in collaboration with country teams and technical assistance partners, is working with ministries of health in seven countries on a global evaluation of IMCI. The Multi-Country Evaluation (MCE) is a set of studies that uses complementary designs to evaluate the:

---

**FIGURE 8. SELECTED INDICATORS OF QUALITY OF CARE DELIVERED TO SICK CHILDREN ATTENDING OUTPATIENT HEALTH FACILITIES IN 2000–2001**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Median Value</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sick children received integrated assessment</td>
<td>22</td>
<td>0–37</td>
</tr>
<tr>
<td>All sick children have their vaccination status checked</td>
<td>19</td>
<td>1–52</td>
</tr>
<tr>
<td>Rational use of antibiotics</td>
<td>57</td>
<td>18–69</td>
</tr>
</tbody>
</table>


---

**BOX**

Integrated information and mapping system for public health

HealthMapper is an interactive information and mapping system to support public health activities and decision-making at the macro- and micro-levels. It simplifies the collection, storage, retrieval, management and analysis of public health data at local through to global levels. The system furthermore simplifies the use of geographic information systems and mapping and provides a user-friendly interface to spatial and statistical analyses of public health data. The system offers an easy-to-use graphical interface and is designed for public health managers and decision makers who need easy access to databases, graphs, tables and maps.
• Impact of IMCI on child health, including child mortality and nutrition;
• Impact of IMCI on the provision, use, and coverage of child health interventions; and
• Cost-effectiveness of the strategy.

**Progress of the MCE**

A historical timeline of major MCE activities is presented in Figure 9. Four countries – Bangladesh, Brazil, Tanzania, and Uganda – are currently in the process of conducting studies that will provide evidence of the impact of IMCI. A feasibility study was conducted in Niger in January 2002. MCE data are collected in each of the study sites at various levels, including household, community, first level facility, referral facility, district, province/region, and central/national levels. Table 4 presents an overview of the progress.

**MCE progress highlights**

- Baseline data on mortality, morbidity, household behaviours, quality of care at health facilities, and costs have been collected with preliminary analyses completed in Bangladesh, Tanzania, and Uganda. Continued monitoring is under way in Bangladesh and Uganda.
- Preliminary results of a nationwide survey of districts in Peru are now available.

**TABLE 4. OVERVIEW OF PROGRESS IN MCE SITES**

<table>
<thead>
<tr>
<th>Sites</th>
<th>Evaluation Activities</th>
<th>IMCI Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mortality</td>
<td>Household Survey</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Baseline done and analysed</td>
<td>Baseline done and analysed</td>
</tr>
<tr>
<td>Brazil</td>
<td>Study proposal developed</td>
<td>Yes</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Feasibility visit conducted and planning started</td>
<td>Recently initiated</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Study proposal developed</td>
<td>Yes</td>
</tr>
<tr>
<td>Peru</td>
<td>Secondary data</td>
<td>Secondary data</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Surveillance ongoing</td>
<td>Baseline done and analysed</td>
</tr>
<tr>
<td>Uganda</td>
<td>Baseline done</td>
<td>Baseline done</td>
</tr>
</tbody>
</table>
MCE protocols are being developed in Cambodia and Kazakhstan, and a proposal for an impact evaluation in Northeast Brazil is nearing completion.

**Important lessons are being learned about IMCI implementation:**

- Data from Tanzania provides evidence that IMCI is associated with improved performance by health workers and improved quality of care.
- Preliminary findings and results of feasibility studies in several countries indicate that utilisation of public health services was low. This will need to be addressed urgently if IMCI is to have its expected impact.
- The implementation of IMCI is closely linked to health sector reforms and health system constraints. Monitoring and documenting health system barriers to the scaling-up of child health programmes are urgent priorities for both MCE sites and, more broadly, countries and partners working on achieving and maintaining high coverage with effective interventions, including IMCI.
- Most sites already have community interventions that are consistent with IMCI, even if they are not called IMCI. A clear definition of the community component of IMCI is needed.
- The implementation of IMCI has been slower than initially expected, and it is important to work with ministries of health and partners to speed up the process where possible, while staying within the boundaries of what can be feasibly implemented by them.
- The high proportion of neonatal deaths in some MCE countries highlights the need to strengthen the young child care module within IMCI.

**Using MCE data to address a range of high priority questions**

- MCE data are being used to investigate inequalities in the access to, and utilisation of, health services, quality of care, and health and nutrition outcomes in Bangladesh and Tanzania.
- Variables addressing contextual factors must be included in MCE household surveys to provide the best measure of coverage/exposure levels for non-IMCI interventions.
- Proposals for cross-site analyses are being prepared and will contribute to a greater understanding of the determinants of child health and survival, and the effectiveness of various service delivery strategies.

**Examples of IMCI implementation**

1. **Tanzania**

Two districts in Tanzania that are implementing IMCI are being compared with two districts that are not. The two IMCI districts, Rufiji and Morogoro, began in 1996 with support from the MoH, WHO, and the Tanzania Essential Health Interventions Project. Figure 10 shows the difference in the quality of care at health facilities between IMCI and non-IMCI districts.

2. **Bangladesh**

In Bangladesh a randomised design was adopted for the evaluation of the efficacy of IMCI. Ten pairs of health facilities and their catchment areas in Matlab district were matched according to selected characteristics, and one facility in each pair was randomly selected for implementation of IMCI. IMCI was implemented in these ten facilities through training of health workers, supporting health systems, and providing
community level activities. Figure 11 shows the baseline childhood mortality by age in the selected Matlab Thana area (MCE study area).

3. Peru
Phase I of the MCE in Peru included a national evaluation of IMCI implementation through district-level questionnaires and a review of information collected centrally. Data collected from 34 health districts will make it possible to carry out an ecological analysis of the impact of IMCI.
SPECIAL REPORT

Progress in implementing the IMCI strategy during the biennium

What is IMCI

Integrated Management of Childhood Illness (IMCI) is a broad, locally adapted strategy developed by WHO and UNICEF to improve child health and reduce child mortality which includes both preventive and curative elements, and is implemented at family and community levels as well as by the health system. WHO sees the IMCI strategy as the main primary health care intervention tool to reduce mortality and morbidity from infectious diseases, and to improve the growth and development of children under five.

How is IMCI Implemented

IMCI is implemented in three distinct phases: introduction, early implementation, and expansion. In the introductory phase, countries conduct orientation meetings, train key decision makers in case management, identify a management structure for preparing for IMCI and for planning early implementation, and work for government commitment to move forward with the IMCI strategy. In the early implementation phase, countries gain experience while implementing IMCI in a limited geographic area. They develop their national strategy and plan, adapt the IMCI guidelines to their national context, build management and training capacity in a limited number of districts, start implementing and monitoring IMCI, and review their experience before planning for expansion. In the expansion phase, countries increase the range of IMCI interventions, and increase their coverage. An important challenge during the expansion phase is maintaining quality while expanding coverage.

How many countries are implementing IMCI

Since its introduction in a few early-use countries, IMCI has expanded rapidly. By end of 1996, five countries started the adaptation of the generic clinical guidelines to their local epidemiology and first training of health workers. By the end of 2001, more than 100 countries had adopted IMCI, including 48 countries in the early implementation phase and more than 30 countries expanding their national IMCI coverage. The Department is monitoring global progress in the implementation of
FIGURE 14. NUMBER OF COUNTRIES CURRENTLY IMPLEMENTING IMCI, BY PHASE, AT THE END OF 2001

Discussions started in at least six other countries

FIGURE 15. WORLDWIDE COVERAGE OF IMCI BASED ON INFORMATION REPORTED BY 46 COUNTRIES IN JANUARY 2002

% districts/provinces implementing IMCI
- 1 to 10%
- 11 to 25%
- 26 to 50%
- 51 to 75%
- over 75%
- other countries
key IMCI activities at country level through the use of milestones and indicators. Milestones are country achievements related to stages of IMCI implementation.

As shown in Figures 13, 14 and 15, important progress has been made in creating a more favourable environment for IMCI. By end of the biennium, the number of countries that included IMCI in their national health policy and had national policies in place to support appropriate use of IMCI drugs had doubled. Significant advances were also registered in the importance given in countries to community aspects of IMCI.

CAH tracked coverage in countries reporting to have expanded IMCI interventions beyond a few pilot districts. Table 5 shows the estimated coverage of the first two components of the strategy for the 46 countries that reported coverage by end of 2001. Coverage data should be interpreted with caution given the high turnover of health staff in many developing countries.

### How do we know that IMCI works

Major progress was made in the evaluation of IMCI and several countries conducted programme outcome evaluations in health facilities. Results were encouraging in geographic areas with IMCI implementation. In addition, many partners have completed household and community assessments, including Multiple Indicator Cluster Surveys conducted by UNICEF to measure outcomes at the household level. Selected results are available on UNICEF’s website. The following studies provide rich examples of how IMCI is working in countries.

- Results of studies from South Africa, Tanzania, Uganda, and Zambia comparing areas with and without IMCI implementation showed that children seeking care in health facilities in IMCI districts were more thoroughly assessed and received better quality care than children seeking care in districts where IMCI had not yet been implemented. For example, the index of integrated assessment shows that on average, 65% of children visiting IMCI health facilities were checked for general danger signs in Tanzania, and 64% in South Africa. This index, overall, ranges from 60 to 90% in South Africa, Tanzania and Zambia. These values were significantly lower in areas without IMCI. This was achieved despite the existence of weak health systems to support implementation, and was reflected in the difficulties experienced with regular supervision in almost all districts.

- In November 2001, AMRO held the intermediate evaluation of the Healthy Children: Goal 2002 initiative launched to reduce by 100 000 number of deaths in children under five years of age during the period 1999–2002. Over 100 representatives from countries, international agencies, NGOs, and other organisations participated. During this evaluation, an important reduction in the number of deaths during childhood was reported. Deaths in children under five dropped by more than 33,000 during the first year of the initiative. Most of this reduction was due to diseases targeted by IMCI. These advances were considered to be an important success, taking into account that the expected rate of reduction was 4.8% and the observed rate of 6.4% was one third higher. Standing at more than more than 15%, the rate of reduction among diseases targeted by IMCI was even higher.

### Table 5. Estimated Coverage of the First Two IMCI Components in Selected Countries*

<table>
<thead>
<tr>
<th>More than 10% of districts</th>
<th>More than 25% of districts</th>
<th>More than 50% of districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>Botswana</td>
<td>Honduras</td>
</tr>
<tr>
<td>Brazil</td>
<td>Colombia</td>
<td>Paraguay</td>
</tr>
<tr>
<td>China</td>
<td>Ecuador</td>
<td>Peru</td>
</tr>
<tr>
<td>Egypt</td>
<td>Eritrea</td>
<td>South Africa</td>
</tr>
<tr>
<td>El Salvador</td>
<td>Ethiopia</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Kosovo</td>
<td>Guatemala</td>
<td>Zambia</td>
</tr>
<tr>
<td>Niger</td>
<td>Haiti</td>
<td></td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>Indonesia</td>
<td>More than 75% of districts</td>
</tr>
<tr>
<td></td>
<td>Kazakhstan</td>
<td>Bolivia</td>
</tr>
<tr>
<td></td>
<td>Malawi</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td></td>
<td>Mongolia</td>
<td>Republic</td>
</tr>
<tr>
<td></td>
<td>Morocco</td>
<td>Uganda</td>
</tr>
<tr>
<td></td>
<td>Philippines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zimbabwe</td>
<td></td>
</tr>
</tbody>
</table>

* By December 2001, 46 countries provided some coverage data (does not imply full coverage in each district)
In Brazil IMCI was introduced as a strategy to improve child health in 1997. Priority was given to states in the north-eastern part of the country. During 2000, the Ministry of Health started to measure progress in IMCI implementation in three States: Ceará, Pará, and Pernambuco. Three surveys, one in each state, were conducted simultaneously in September 2000 in collaboration with AMRO. Overall, 663 sick children were observed.

Survey findings showed encouraging results after two or three years of IMCI implementation. In Ceará for example, two thirds of the 30 health facilities visited had at least 60% of their staff managing children received training in IMCI. Children were systematically assessed for an average of 6.8 clinical signs regardless of why they were brought to the facility, demonstrating that many health care providers performed integrated assessment (see Figure 16). Fourteen cases of pneumonia were encountered and 11 of them were correctly identified and treated (in 1996, only 6 out of 18 cases of pneumonia were correctly identified and treated in a survey covering the same three states and three additional states).

Misuse of antibiotics was limited to 14% of the children observed. Figure 17 shows the understanding of mothers of home case management for their sick child after their encounter with the health care provider.

The Ministry of Health has organised feedback workshops at all levels of the health system in the three States involved in order to identify feasible ways to strengthen implementation of the IMCI strategy. The evaluation also helped reinforce national capacity in survey methodology and new surveys organised in additional states.

**FIGURE 16. ASSESSMENT TASKS PERFORMED, CEARÁ, BRAZIL, SEPTEMBER 2000**

<table>
<thead>
<tr>
<th>Task</th>
<th>Number of Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccination checked</td>
<td></td>
</tr>
<tr>
<td>Weight checked</td>
<td></td>
</tr>
<tr>
<td>Pallor</td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td></td>
</tr>
<tr>
<td>Diarrhoea</td>
<td></td>
</tr>
<tr>
<td>Cough</td>
<td></td>
</tr>
<tr>
<td>Convulsions</td>
<td></td>
</tr>
<tr>
<td>Vomits</td>
<td></td>
</tr>
<tr>
<td>Able to drink</td>
<td></td>
</tr>
</tbody>
</table>

Source: MoH Brazil, Health facility surveys carried out in Ceará, Pará and Pernambuco, 2000

**FIGURE 17. MOTHERS UNDERSTANDING OF HOME-CARE FOR THEIR SICK CHILD, BRAZIL 2000**

- How to give oral medicines (antibiotics and/or ORS)
- At least 2 danger signs indicating when to seek care

Source: MoH Brazil, Health facility surveys carried out in Ceará, Pará and Pernambuco, 2000
During the biennium, the Department, in close collaboration with Regional Offices helped countries plan, review and assess experiences with IMCI. In most countries, IMCI implementation was based on consultations among national authorities and international, bilateral and non-governmental organisations. Smooth and efficient collaboration among various partners and regional and country-level initiatives is crucial if efforts to harmonise approaches to IMCI are to succeed.

By the end of 2001, 40 out of 46 countries in the African Region had adopted the IMCI strategy. In six of these countries, IMCI was in the process of being introduced, in 22 countries it was in the early implementation phase, and in 12 countries in the expansion phase; in five countries more than 50% of districts had implemented IMCI. In the Americas, IMCI was introduced in 17 countries by the end of 2001 and 16 countries had adapted IMCI as a national strategy. All countries had prepared national and local plans of action, and held training workshops.

**Box**

Evaluation of IMCI in the AFRO Region

A DFID/USAID review of IMCI took place in 2001 to assess the progress that had been achieved over the last three years in the development and implementation of IMCI in Africa, with particular reference to household and community child health. Progress was reviewed at the global, regional and country level. The review also carried out a ‘forward-looking’ analysis of WHO/AFRO and UNICEF’s household and community child health activities, both supported by USAID and DFID, and examined existing partnerships and the role of NGOs. The status of IMCI activities in some countries was examined and conclusions were drawn on IMCI’s impact, as well as the possibilities for scaling up. It was concluded that scaling up will demand increased efficiency of implementation, intensified investments, and a stronger involvement of implementing partners including NGOs, faith-based organisations and the private sector.

Similarly, 15 out of 23 countries in the Eastern Mediterranean Region had implemented IMCI. By the end of 2001 six countries were in the introductory phase, another six in early implementation and three countries were in the expansion phase. A special feature of IMCI in this region was the shift in focus from the integrated management of the sick child to the integrated management of the healthy child. This has required new efforts in promoting the re-organisation of child health services to deliver the whole scope of IMCI, including the development of the community component.

In collaboration with the Regional Office, the Department introduced IMCI in four additional countries, bringing the total number to 13. Of these countries, eight were in the early implementation phase and one country had moved into the expansion phase. In SEARO, two countries were in the expansion phase and four were in the early implementation phase. Three additional countries – the Democratic People’s Republic of Korea, Maldives, and Thailand – expressed their interest in adopting the strategy.

Considerable progress was made in expanding IMCI in the Western Pacific Region. By the end of 2001, IMCI was introduced in 12 countries. Four of these countries have further expanded the strategy to include a broader scope of activities and new geographical areas, another four moved into the early implementation phase, while three countries were in the introduction phase.

**Improving family and community practices**

During the biennium, the Department continued to give high priority to the IMCI component of **Improving Family and Community Practices**, and strengthened collaboration with UNICEF and...
TABLE 6. COUNTRIES WITH ONGOING IMCI COMMUNITY ACTIVITIES, BY WHO REGION

<table>
<thead>
<tr>
<th>AFRO</th>
<th>AMRO</th>
<th>EMRO</th>
<th>EURO</th>
<th>SEARO</th>
<th>WPRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>Bolivia</td>
<td>Egypt</td>
<td>Kazakhstan</td>
<td>Bhutan</td>
<td>Cambodia</td>
</tr>
<tr>
<td>Benin</td>
<td>Brazil</td>
<td>Morocco</td>
<td>Kosovo</td>
<td>Indonesia</td>
<td>Mongolia</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>Dom. Rep.</td>
<td>Pakistan</td>
<td>Morocco</td>
<td>India</td>
<td>Nepal</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Ecuador</td>
<td>Saudi Arabia</td>
<td>Moldova</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ghana</td>
<td>El Salvador</td>
<td>Sudan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guinea Conakry</td>
<td>Guatemala</td>
<td>Syria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madagascar</td>
<td>Haiti</td>
<td>Tunisia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>Honduras</td>
<td>West Bank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mali</td>
<td>Nicaragua</td>
<td>and Gaza</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Niger</td>
<td>Paraguay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>Peru</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Senegal</td>
<td>Venezuela</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td></td>
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<tr>
<td>Tanzania</td>
<td>Uganda</td>
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<td>Zambia</td>
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<tr>
<td>Zimbabwe</td>
<td></td>
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</tbody>
</table>

NGOs to extend IMCI interventions into the community. Activities were sustained in all regions and experiences documented and used to refine the planning process.

The introduction, planning and implementation of community interventions continue to be one of the most complex areas of IMCI. Countries implementing the community component of IMCI are shown in Table 6.

As part of continuing support to regions and countries, a series of workshops bringing together ministries of health and NGOs took place in several WHO regions in the course of the biennium. These workshops provided the means of identifying, establishing and maintaining linkages for the implementation of community activities and enabled strategy building at country level.

Planning for improving family and community practices

During the biennium, efforts were stepped up to ensure that experiences in planning and implementing community IMCI were documented so that countries and global partners had access to up-to-date information on the range of community actions. These efforts were undertaken in conjunction with partners in the Interagency Group on Household and Community IMCI. A series of short Country Briefs to accompany the documentation of experiences were also planned in partnership with IAWG members. These short descriptions will provide country examples and highlight key activities and will be used to share experiences with interventions to promote the key family practices.

**BOX**

**EMRO framework for the community component of IMCI**

EMRO developed a Framework for the Community Component of IMCI based on recommendations made by countries and international agencies during the Regional IMCI Consultation in Egypt in November 2000, and an inter-country meeting in Syria in October 2001. The Framework was widely publicised throughout the region as a major instrument to facilitate the implementation of community IMCI. The Framework presents five specific elements of a community care strategy: selecting priority communities; building on existing interventions; linking the health system with the community; promoting key family practices; and improving access to quality child care. It also promotes IMCI as a key approach to addressing child health compared to more traditional community interventions.

At least five EMRO countries have started to plan the early components of the Framework and another three are planning and implementing the IMCI community component.
Several Regional Offices also developed frameworks that will facilitate the implementation of the IMCI community component. Results from field tests will demonstrate the value of the framework to the country of application and beyond.

Family and community child health activities in regions and countries

Community Health Workers (CHWs) play an important role in promoting adequate homecare and timely care-seeking, and in building and maintaining links between the community and the health facility. During the biennium, training materials and courses were developed and promoted by Regional Offices to improve the skills of thousands of primary and community health workers in recognising illnesses and advising caretakers on appropriate home treatment.

For example, AFRO developed training materials and organised training courses in ten countries. Similarly, AMRO completed three community-level training courses. The IMCI Organization Course at the District Level was field-tested in October 2000. Based on this experience, several training modules are in the process of being revised. A second version of the Community Health Worker and Talking with Mothers training courses were completed in the last quarter of 2000, and courses were held in several countries during the 2000–2001 period.

In January 2000, a new partnership between the American Red Cross (ARC) and AMRO was launched in support of the Healthy Children: Goal 2002 initiative to support IMCI activities in communities. The project is in the process of being implemented in Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Peru and Venezuela.

In the South-East Asia Region, Basic Health Workers (BHW) training material was developed by SEARO in partnership with CARE-India and the Government of India. The materials have been adapted in Indonesia, Myanmar and Nepal; Bangladesh and Bhutan are also considering its adaptation and use. The training package is being revised to include the management of malaria; and the revision is to be field-tested in India.

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**Box**

**Supervising Community Health Workers in Viet Nam**

In Viet Nam, efforts were made to improve supervision of CHWs by district health staff, and to install supportive supervision in order to maintain CHW performance after training. In October 2000, the 16 provinces of the World Bank-supported National Health Support Project assigned health staff to participate in IMCI follow-up after training courses. Viet Nam has a national team of 18 master supervisors who are able to teach district supervisors to conduct supportive supervision to CHWs. In 2001, the Swedish government supported the pilot-testing of an integrated supportive supervision model in IMCI project provinces.

Six countries in the African Region made significant progress in implementing the community component of IMCI by conducting baseline studies and developing communications strategies and materials.

A review was also commissioned by WPRO to examine the current situation of child health community activities, collect information on governments' plans to develop community IMCI, and prepare an inventory of NGO activities in child health at country level (see Box 38). Key NGOs were contacted for potential collaboration. These activities were part of preparations to conduct a regional NGO-specific technical consultation with NGOs on community IMCI in January 2002.

**Improving health systems support**

Effective implementation of IMCI requires the firm support of the health system of the country or countries where it is being applied. CAH worked to improve the availability of essential...
Selected activities on community IMCI in the WPRO region

In Cambodia, the IMCI Adaptation Subgroup on Nutrition and Caretaker Counselling, and the Implementation Subgroup on Improving Family and Community Practices worked together to develop a strong community component for IMCI. In October 2001, the process was reviewed and a plan developed for advancing community IMCI.

In Mongolia, the Participatory Hygiene and Sanitation Transformation Initiative (PHAST) was instrumental in reinforcing and developing the IMCI community component. With the support of WHO, 27 participants followed the PHAST course in October 2000. These trainers subsequently trained 97 health workers in four courses in two aimags (districts) implementing IMCI. By the end of 2001, these same health workers had initiated projects to improve family and community practices in these two districts. Mongolia continued to train caretakers in a one-day education session on child home care and feeding, and organised a 45-day summer camp for malnourished children. A number of TV broadcasts on ORS were aired, and short articles on ARI and diarrhoea were published in Mongolian newspapers and journals.

In the Philippines, the Enhanced Child Growth strategy was initiated to make families fully aware and responsible for the psychosocial stimulation, protection, health and nutrition of their children. The strategy builds on existing community-based programmes, experiences, and infrastructure. In collaboration with the Department of Health, Helen Keller International has supported a community survey in order to strengthen community IMCI.

In Papua New Guinea, a community survey tool developed by UNICEF was adapted to the country situation in January 2001, field-tested in June, and a survey is under way in the provinces of Madang and the Eastern Highlands.

The community health team of Children’s Hospital No. 1 in Ho Chi Minh City in Viet Nam, as part of an IMCI-DANIDA project, has conducted health education for mothers’ groups in four provinces. The team used the IMCI treatment chart on counselling mothers as a tool for developing health education material. UNICEF developed village health worker training materials, thereby continuing its collaboration with the IMCI technical group to improve key family practices in the two IMCI pilot districts. In 2001, UNICEF and WHO supported efforts to design and conduct a community survey on the 12 key family practices.

Improving the availability of essential drugs

The Department and Regional Offices continued efforts to support the availability and rational use of drugs needed for the management of childhood illness. Impressive efforts include those carried out in four African countries – South Africa, Tanzania, Uganda and Zambia – resulting in, at any given time, 80% of first-level health facilities in IMCI districts having 80% of vital IMCI drugs.

Systematic actions to improve the quality of health services and national essential drug lists can also be seen in the Americas. In November 2001 together with USAID, BASICS and the Rational Pharmaceutical Management Project (RPM-Plus), AMRO translated the IMCI Essential Drug Survey into Spanish. National Essential Drugs lists, especially in relation to the drugs required for IMCI were reviewed in most countries of the Eastern Mediterranean Region. In addition, SEARO ensured that antimalarial drugs included in the IMCI guidelines were in agreement with national policies in user countries.

Integrating IMCI in national health policies

If IMCI is to reduce child mortality and promote health and development, the strategy must be incorporated into national policies and strategies for strengthening child health programmes. During the biennium, the Department and Regional Offices focused on drugs and equipment, integrate IMCI in national health policies and strategies, and supporting the management, planning and financing of child services.
integrating IMCI into national strategies. By the end of 2001, national plans of action for IMCI in AFRO were implemented in at least 80% of the 40 countries using IMCI, and the strategy was being integrated into national health management information systems in Namibia, South Africa and Uganda.

Similarly, in WPRO, efforts were pursued to link IMCI with health sector reforms. In Cambodia, plans were under way to implement IMCI as part of extensive health sector reforms in selected operational districts. In China, plans were made for IMCI to become part of World Bank-supported projects; and in Laos, IMCI was being introduced within the context of primary health care. In Mongolia, the Health Sector Development Programme is closely involved with planning and implementing IMCI at district level, where family doctors were targeted for IMCI training, and IMCI was included in the postgraduate training of family doctors. In Papua New Guinea, IMCI was fully integrated in the health sector development plans.

The IMCI strategy has been a component of the national health policy in Viet Nam since 1999, and was included in the Strategy for People’s Health Care and Protection for the Years 2001–2010, which is the primary policy document for health sector development. Similarly in the Philippines, the IMCI strategy was recently included in the two main policy documents of the Department of Health. Mongolia has included IMCI in strategic national documents, and China is implementing IMCI to reach the goals stated in the National Plan of Action for Child Development for the Years 2001–2010.

Supporting the management, planning and financing of health services

During the biennium, the Department, in collaboration with Regional Offices has made considerable progress in documenting the challenges and administrative issues associated with IMCI implementation and health service delivery. The outcomes of these efforts will help improve country capacity for the management of childhood illness and persuade authorities that IMCI implementation could indeed strengthen overall health service delivery.

The Department has now documented the IMCI planning process in countries, and has developed tools to support planning of the strategy at district level. Strengthening district planning took place at regional and country levels; in AMRO for example, an IMCI organisation course at the district level was developed and field-tested in October 2000. District planning guidelines were also adopted in several countries including Indonesia, Uganda, and Viet Nam.

As more countries move into the expansion phase of IMCI, the challenges associated with reaching rapid and sustainable coverage have become more apparent. Countries initiated efforts to analyse key aspects of IMCI implementation, these include team building among staff in

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<td>Intended users:</td>
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health centres; upgrading of health facilities to reflect minimum standards; planning and promoting IMCI interventions in partnership with village health committees; and mobilising communities to seek care from trained providers.

A costing instrument for IMCI was developed by BASICS, WHO and the World Bank. The costing instrument consists of four models that analyse the costs related to early implementation, expansion, recurring costs and community costs of IMCI related activities. The models have been field-tested in Bolivia, Nepal, and Nigeria. Following the field test in Nepal, the Department convened a workshop in Geneva to introduce the new instrument to selected staff from Headquarters and Regional Offices. Participants concluded that the tool helps health planners to project costs associated with IMCI implementation and can be successfully applied in a variety of settings.

**Improving health workers skills**

During the biennium, Regional Offices continued to support the strengthening of case management skills of first-level health staff.

**Adaptation of the IMCI Case Management Guidelines**

WHO and UNICEF developed the original IMCI Adaptation Guide to assist national authorities in adapting the generic IMCI clinical guidelines and training course materials to country-specific epidemiology, resources and policies. During the biennium, revisions were made to the Guide, which is expected to be finalised and printed in 2002. Future modifications will be prepared and distributed as separate Technical Updates.

A database containing information on country adaptations was initiated to review the differences between the generic guidelines and the options of the IMCI adaptation guide. These adaptations respond to changes in epidemiology or experiences in implementation. The adaptations and modifications occurring in countries implementing IMCI will be classified either as experiences in implementation or changes in epidemiology.

Training activities are essential to effective IMCI implementation. The standard case management training combines classroom work with hands-on clinical practice to teach health workers the effective outpatient management of sick children. Each country must have a critical mass of facilitators skilled in IMCI orientation, planning, adaptation of training guidelines, training-of-trainers for clinical courses, follow-up after training, monitoring and evaluation. In addition to case management, the course emphasizes the prevention of disease and communication with caretakers. Training includes at least one follow-up visit to each trained health worker at their facility to help them apply what they learned to their own work situation.

Also important are consultant training workshops and on-the-job training to increase the pool of staff and consultants qualified to assist and guide national counterparts. The increasing reliance on national consultants is an important indicator of the success of the Department’s efforts in building capacity. For example, IMCI teams in AFRO and AMRO can now call on more than 100 local consultants, specialising in different aspects of the IMCI strategy. EMRO trained ten consultants on facilitation and directorships skills. Similarly, WPRO trained a sufficient pool of regional resource persons for course directorship, facilitators and clinical instructors for IMCI training, and SEARO’s dependence on consultants from outside the region has dramatically declined.

**In-service training**

More than a dozen IMCI inter-country clinical courses were organised to develop technical expertise to assist with IMCI implementation within regions during the biennium. Participants included representatives from countries as well as from national, regional and international partner organisations. Follow-up visits to reinforce new skills acquired during training and to solve problems are essential elements of IMCI training.
The *WHO Guidelines on Follow-Up After IMCI Training* were adapted and used in all WHO regions to prepare for and conduct IMCI follow-up visits. Many countries conducted at least one follow-up visit to each health care provider after training. In addition, some countries began incorporating the principles and tools of follow-up visits into routine supervision. For example, in Egypt, Morocco and Pakistan, 90% of trained health workers received at least one follow-up visit in their respective health facilities. The visits were also used for skill-reinforcement and problem solving in the implementation of IMCI.

Many countries sustained high coverage levels with at least one visit after training. Some countries began to strengthen routine supervision by incorporating the principles and tools of follow-up visits. Meanwhile 15 national and international consultants were trained in *Follow-up after IMCI Training* workshops in Malawi and Niger.

Thousands of health workers from approximately 80 countries have so far been trained in standard case management. In AFRO, 34 countries conducted training of first-level health workers, and by the end of 2001, more than 50% of the districts in four countries were implementing IMCI, and more than 50% of health workers in first-level health facilities were trained in IMCI within these districts. The number of trained health workers reported in November 2001 totalled 146 in Eritrea, 79 in Ghana; 2345 in Tanzania; 1284 in Zambia; 129 in Botswana; and 2145 in South Africa. In Uganda, more than 7,000 health workers have been trained. Overall 70% and (100% in some districts) of the trained health workers have received follow-up visits.

Similarly, in AMRO, over 300 national and operational IMCI clinical training courses have been held since 1996, and this has helped to create a critical mass of IMCI training facilitators to replicate clinical training courses at the district and local level. Altogether over 30,000 health workers have been trained in IMCI clinical training in the region between 1996 and 2001. The WHO publication *Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First-Referral Level* was translated into Spanish and launched at the intermediate evaluation of the Healthy Children: Goal 2002 initiative along with the results from the assessment of care at referral hospitals carried out in five countries – Argentina, Brazil, Ecuador, Peru and Uruguay – with the support of CAH. The AMRO IMCI unit provided support for nine IMCI training courses and workshops in 2001. In addition, four regional and sub-regional planning and evaluation workshops were held.

In EMRO, seven countries, namely Egypt, Iraq, Morocco, Pakistan, Sudan, Syria and Tunisia, had conducted training in IMCI case management skills by the end of 2001. The courses included 17 national courses, 84 district courses and 33 facilitators’ courses. In Iran and Oman, courses followed different training approaches reflecting local conditions. Overall, by the end of 2001 a total of 242 IMCI facilitators had been trained in Egypt, Morocco, Pakistan, Sudan, and Syria.

In EURO, nine countries organised more than 100 IMCI case management training courses for almost 1,700 health professionals working in first-level health facilities. SEARO organised nine inter-country and national capacity building events in six countries in 2001. Programme managers, staff from WHO collaborating centres, national institutes of excellence, NGOs and national training centres were also trained in case management. Skills have also
been developed for follow-up after training, planning and strengthening of health systems. In Indonesia, where IMCI is being implemented in 120 districts covering 15 provinces, the strategy of consensus building and implementation has been adopted by partners, including the Asian Development Bank, AusAID, UNICEF and the World Bank.

In WPRO, in-service training of first-level health workers continued in Cambodia, China, Malaysia, Mongolia, the Philippines and Viet Nam. Although data from the follow-up visits indicated that the quality of training was generally good, coverage of these countries was still low. The first IMCI model /demonstration courses conducted in Cambodia, Fiji and Vanuatu were among the most important capacity building events in the region. In addition, more than ten national resource people and regional consultants were trained in various technical areas of IMCI in national (Philippines), regional and inter-regional (South Africa, Indonesia, and Headquarters) training courses and capacity building workshops.

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**BOX**

**Joint WHO/UNICEF orientation meeting on IMCI in the Pacific**

The first joint WHO/UNICEF orientation meeting on IMCI in the Pacific was organised in Suva, Fiji, from 31 January to 2 February 2001, to share information on the IMCI strategy, discuss its implications to the health systems in the Pacific countries and strengthen partnerships in child health. Participants were national decision-makers and technical staff from Fiji, Kiribati, Solomon Islands and Vanuatu with responsibilities in child health, including staff from schools of medicine and/or nursing. In addition to technical sessions on IMCI, countries had prepared background presentations on their particular situations. Participating countries then proposed national orientation and training of key personnel prior to planning and adaptation of the strategy.

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**Alternative approaches to training**

A variety of alternative approaches to training, such as distance learning, on-the-job-training, computer-based learning and mentoring were tried out in countries in support of IMCI. The Department assisted Regional Offices and national authorities to identify and develop the most appropriate training approaches for any given situation. Efforts to evaluate the quality, effectiveness and cost of alternative IMCI training courses have been critical to implementation.

For example, CAH and AFRO developed a six-day IMCI case management course pre-tested in Tanzania, and a five-day course for doctors in South Africa. Uganda identified the need for alternative approaches to training supervisors and private sector health workers, nutritionists and dispensers. In AMRO, Argentina, Bolivia, Peru, Ecuador, Guatemala, Honduras, Nicaragua, Haiti and Uruguay also experimented with courses that were reduced to seven or even five days. AMRO started to develop training materials on areas such as asthma, violence, oral health, growth and development, and prenatal health to complement the generic IMCI clinical guidelines. These new materials will be field-tested in 2002.

In SEARO, the Indira Gandhi National Open University began developing a package to include IMCI into its distance learning programme for medical practitioners. In Indonesia, a distance learning training course on IMCI was field-tested in Palembang province.

An on-the-job-training (OJT) approach to the 11-day training course received prominence in the Philippines. The duration of the OJT is 12 days, composed of nine days of module work and outpatient sessions in the health centre and three days of in-patient sessions in the regional IMCI training site. This project was piloted in Sarangani province in May 2000 and reviewed in February 2001. WHO and UNICEF supported the Vietnamese government in a joint project to provide suitable training materials and treatment guidelines to village health workers. The training materials, designed for use by village volunteers in the poorest areas, are based on a simplified version of the IMCI clinical guidelines.

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**Pre-service training**

During the biennium, activities were carried out in all WHO Regions to investigate ways to strengthen the teaching of child health in undergraduate education for doctors, nurses and
other health professionals. The Department played an important role in the exchange of information among Regions and collaborated with selected teaching institutions in several different countries. In March 2001, the Department conducted a workshop for IMCI pre-service training for WHO staff and consultants from WHO Regions.

To increase the sustainability of implementing IMCI, AFRO supported the introduction of the strategy and clinical guidelines into the teaching agendas of seven countries: Madagascar, Malawi, Mozambique, Namibia, Niger, Nigeria and Zimbabwe. In addition, IMCI teaching continued in more than 20 medical, nursing and other health professionals schools in Ethiopia, South Africa, Tanzania and Uganda.

Work in this area also continued in AMRO with a focus on developing an IMCI medical education course based on information gathered from the WHO Informal Consultation on IMCI Pre-Service Training, and the WHO Inter-Country Workshop on IMCI Pre-Service Training held in the previous biennium. Additional data on Latin America was provided by a survey conducted by AMRO consultants and the Latin American Paediatrics Association. In addition, several countries in the region augmented their use of IMCI training materials for students and graduates, and faculties of medicine from Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Peru, and Uruguay incorporated IMCI into undergraduate and postgraduate courses.

Orientation and planning workshops were held in a number of countries in EMRO to strengthen IMCI teaching in medical and pharmaceutical faculties. To date, 12 medical schools in Egypt, Morocco and Sudan have developed a plan of action. Five of these medical schools have already adapted and begun to use IMCI guidelines for student courses. These experiences will be evaluated in 2002.

In November 2001 the Department assisted EURO to conduct a capacity building workshop in pre-service training for IMCI and Promoting Effective Perinatal Care (PEPC) in Copenhagen. Participants, including medical academics and physicians from nine countries confirmed the importance of medical school participation in the national adaptation of IMCI and PEPC clinical guidelines and pre-service training materials.

Pre-service activities are also under way in SEARO where IMCI and clinical guidelines have been introduced in 15 medical schools in Indonesia and one in Nepal. In the latter country there are plans to extend the introduction of IMCI teaching to other medical and

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**Box**

**Introduction of IMCI pre-service training into the nursing and midwifery curricula in the Philippines**

The Philippines was one of the first countries to implement the IMCI strategy in the Western Pacific Region. During the early implementation phase (1997-1999), priority was given to in-service training of frontline health workers. A review of early implementation in May 1999 concluded that, while in-service training had generally been of high quality, sustaining the competency of health workers could be improved with the integration of IMCI into the pre-service training of health professionals.

There are 192 nursing colleges and 185 midwifery schools in the Philippines, graduating an average of 8,000 health professionals every year. Facilitated by a WHO consultant, dialogues between government agencies, academics and professional groups were held to explore the possibilities for nursing and midwifery schools to introduce IMCI pre-service training. This was followed by a series of consultation, planning and coordination meetings, establishment of a national task force for IMCI pre-service training for nursing and midwifery, and development of national and institutional plans for introducing IMCI into the nursing and midwifery curriculum.

The IMCI strategy is consistent with the educational impetus of both nursing and midwifery education, which is characterised as competence-based and community-oriented. The Philippines’ experience showed that success in adopting IMCI pre-service training into the teaching curricula of health professions rested essentially on achieving broad-based commitment of all concerned stakeholders and assembling the indispensable human and financial resources.
nursing schools. In India, the All India Institute of Medical Sciences is working on materials to introduce the IMCI guidelines into the pre-service training of five medical schools, where it will be monitored closely before expanding it to other medical schools. Similarly, the National Institute of Public Cooperation and Child Development has incorporated IMCI into the pre-service training of Basic Health Workers in three Indian states. In 2001, SEARO supported the introduction of IMCI into medical institutes in Myanmar.

IMCI and breastfeeding counselling pre-service training have also been introduced in a number of medical and nursing schools in the WPRO Region. For example, since January 2000, the Department of Paediatrics of the University of Medicine and Pharmacy in Ho Chi Minh City has taught IMCI for fourth and sixth year medical students within the general practitioner programme with about 360 physician graduates each year. These experiences were reported in two workshop held in Hanoi in October 2001 to introduce IMCI pre-service training into other medical and nursing schools in Viet Nam. In Fiji, Mongolia and the Philippines initial steps have been taken to introduce IMCI pre-service training into the academic programmes of medical and nursing schools.

Capacity building of WHO staff and partners

The Department’s work in this area focused on supporting regional staff and building capacity with partners regarding IMCI concepts and application. Significant efforts to strengthen regional capacity for operational research were also undertaken during the biennium. For example, an operational research guide was developed in AMRO, to equip health staff with the basic methodological tools for low-cost, short-term research studies related to IMCI implementation.

**BOX**

A technical advisory group supports IMCI implementation in AMRO

The Director of AMRO appointed a Technical Advisory Group on IMCI (Grupo Asesor Técnico AIEPI, or GATA) to support the IMCI implementation process and strengthen the involvement of academic and scientific institutions. Eight members from seven countries – Argentina, Bolivia, Brazil, Costa Rica, Mexico, Trinidad and Tobago, and the United States – were selected from a long list of senior specialists, researchers and professors, with experience in public health, maternal and child health and control of infectious diseases. The first group meeting in September 2001 took place at the Miami Children’s Hospital, an IMCI institutional partner, and recommended promoting and expanding IMCI implementation.

The GATA was appointed to support the regional technical unit to:

- Provide recommendations to sustain and expand the IMCI strategy;
- Identify priority areas for research and for coordination with AMRO programmes and divisions, and with international, bilateral and non-governmental organisations and institutions to strengthen support for IMCI;
- Analyse indicators on progress, advances, results and impact of IMCI at regional and country levels; and
- Mobilise resources at regional and national levels.

GATA encouraged the introduction of IMCI into pre-service and postgraduate courses with a focus on senior students who will be trained before their ‘rural’ or ‘social’ year during which they work at health facilities covering the most vulnerable groups of population. They also recommended a stronger emphasis on the community component as well as dissemination of key family practices.

Finally, it was recommended that GATA promote epidemiological and operational research, and accelerate the design and implementation of guidelines for addressing additional diseases and problems affecting children’s health. Emphasis needed to be given to neonatal/perinatal, asthma and other obstructive respiratory diseases, oral health, accidents, violence and child abuse, and early detection of developmental problems and promotion of development.
Other regional activities for improving IMCI implementation during the biennium include:

- Evaluating follow-up after training and integrated supervision for IMCI at an AFRO regional meeting.
- Conducting four regional and subregional planning and evaluation workshops with 166 participants in AMRO.
- Sharing experiences and major challenges of IMCI implementation at an EMRO regional consultation in Egypt, during which participants visited health facilities implementing IMCI, and the University of Alexandria where IMCI had been incorporated into basic medical training.
- Discussing child and adolescent health and development perspectives during a consultation convened by SEARO.
- Convening a Capacity Building Workshop for IMCI Pre-Service Training in Geneva in 2001. WHO staff and consultants from all WHO regions participated in the workshop to discuss new tools and tools under development, and to share country experiences and lessons learned with pre-service training experiences from medical, nursing and other health professional schools.

The Department supported the introduction of new tools in countries. The introduction process was carefully documented in order to develop feasible and effective implementation strategies. As soon as these early experiences were analysed, activities were planned for rapid capacity building at all levels. An example of a tool developed in the biennium was the first draft of a briefing package developed for facilitators working with countries and partners on community IMCI. This material will be tested in early 2002 and English and French language versions will be distributed in the middle of the same year.

During the biennium, the Department examined how alternative approaches to training and pre-service training could be used as a means for introducing new tools and materials related to child health and development. The Department explored different ways for introducing and using the WHO guidelines for the Management of the Child with a Serious Infection or Severe Malnutrition in countries.

The role of partners is also crucial to ensure coherent and consistent support for child health activities in countries. The Department has invested in building capacity of interested partners in the concepts underlying the IMCI strategy and in the application of IMCI tools:

- **World Bank**: The collaboration with the World Bank showed that there was increasing recognition of CAH’s role in providing technical assistance in project preparation and supervision. Table 7 lists the countries that have received support from the World Bank to implement IMCI and child health services. During 2000, a review of lessons learned in the partnership to date was undertaken as well as a Training Seminar on Building Capacity for Technical Support in Child Health. The seminar resulted in an increased pool of staff and consultants able to strengthen the collaboration and to provide inputs into project design and implementation. During 2001 several countries, including China, Eritrea, Madagascar, Nigeria, Russia, Senegal and Uzbekistan, benefited from this partnership.

- **Memisa Medicus Mundi**: IMCI was introduced in the Board and Annual Review Meetings of Memisa Medicus Mundi, an NGO with a wide European constituency, which concentrates on strengthening health services delivery in developing countries.

- **American Red Cross**: A five-day orientation workshop was held in Washington for 20 participants from the American Red Cross, mostly country project managers. The interactive workshop was designed to discuss practical applications of the IMCI strategy in the various types of Red Cross projects. Facilitators included IMCI staff from three regions (AFRO, AMRO, EURO) and HQ.
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<th>County</th>
<th>Project</th>
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<td>Uganda</td>
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<td>Supervision</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>Health</td>
<td>Supervision</td>
</tr>
<tr>
<td>Venezuela</td>
<td>Health Sector Reform</td>
<td>Supervision</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>National Health Support</td>
<td>Supervision</td>
</tr>
<tr>
<td>Yemen</td>
<td>Early Child Development</td>
<td>Supervision</td>
</tr>
<tr>
<td>Yemen</td>
<td>Health Reform Support</td>
<td>Supervision</td>
</tr>
</tbody>
</table>
The Department continued to respond to requests from training institutes and national paediatric associations to conduct presentations and educational sessions on IMCI. Other activities held with partners during the biennium included:

- A joint monitoring system for child health in Uganda was developed by the Department in collaboration with Roll Back Malaria. The Department also helped strengthen monitoring systems for child mortality in public health facilities in China and an IMCI regional monitoring system in Namibia. Plans for 2002 include developing simple guidance to monitor IMCI and child health programmes in collaboration with partners.

- An integration task force was organised to accelerate the collaboration and integration of support from various health programmes in the implementation of control activities in African countries. Malaria, immunization, and IMCI will be the focus at district level in five proposed countries.

- As recommended by the Global Task Force on Child Environmental Health (CEH), SEARO formed a Regional Task Force on CEH. In 2001, technical assistance was provided to a collaborative project: A Pilot Intervention for Reduction of Diarrhoeal Diseases in Urban Slums of New Delhi, India, organised by various departments of the Regional Office, WHO India, NGOs and the Government of New Delhi and Delhi Municipal Corporation.

- CAH worked with the World Bank to establish an informal interagency working group on child health and the private sector.

- AMRO has forged strong partnerships with the American Red Cross to support the Healthy Children: Goal 2002 initiative. The partnership will enhance the capability of AMRO to conduct IMCI activities in communities.

**Box**

**Children’s Environmental Health**

During the biennium, some regions continued working on the introduction of initiatives to broaden IMCI and improve other aspects of child health and development. As recommended by the Global Task Force on Child Environmental Health (CEH), SEARO, in a collaborative effort between different departments, formed a Regional Task Force on CEH to support a technical consultation to review the training package on the protection of children’s environmental health, in collaboration with HQ and the American Academy of Paediatrics. The consultation was held in Delhi (May 2001), in preparation for the International Conference on Environmental Threats to the Health of Children: Hazards and Vulnerability, which will take place in Bangkok, Thailand in March 2002.
CHAPTER FOUR

Improving adolescent health and development

HIGHLIGHTS OF 2000–2001

- A review of 75 studies revealed a limited number of risk and protective factors that influence adolescent behaviours; these factors are common across cultures.
- CAH is supporting the development of WHO’s short-term strategy on confronting HIV/AIDS. The strategy will focus on providing services and supplies, surveillance and monitoring and will help create supportive environments for relevant policies and programmes.
- A training package on child abuse, neglect, and child protection was produced by EURO and field-tested in the Russian Federation.
- The Global Consultation on adolescent-friendly health services helped reach consensus on the various aspects of adolescent health and the provision of health services.
- The Programming and Measurement Framework for adolescent behaviour has identified risk and protective factors and how they can be measured. It is now being adapted to country settings.

During the biennium, the Adolescent Health and Development Team (ADH) continued with its agenda of work in close collaboration with major partners such as UNICEF and UNFPA. The key objectives of ADH are to support work on the healthy development of adolescents, and to prevent and respond to adolescent health problems with appropriate interventions. To achieve this, the Department has promoted research, developed strategies, designed materials and expanded regional and country capacity. Progress was made during the biennium in consolidating evidence on protective and risk factors that influence health behaviours of adolescents, reinforcing activities and increasing the profile of adolescent sexual and reproductive health, including a specific focus on young people and HIV/AIDS, and achieving a global consensus on key areas for standards related to adolescent-friendly health services.

Adolescent development

The Department continued to acquire and analyse existing data on risk and protective factors that mediate the health behaviours of adolescents. It also developed materials designed to increase awareness of the health and development issues facing adolescent boys.
Improving understanding of the determinants of adolescent behaviour

Cross-sectional data from 26 countries were analysed to demonstrate the influence of risk and protective factors on adolescent behaviours and conditions in various settings for example the home, school and the community. Risk behaviours included unsafe sex, smoking, alcohol and drug use. Depression was included as a mental health condition that has serious consequences for adolescent health and development.

The analysis illustrated the commonality of several protective and risk factors to this cluster of behaviours and conditions (see Figure 19), and showed that across cultures and settings there are common factors that protect adolescents. In particular, adolescents who have meaningful relationships with parents, other caring adults, and peers; adolescents who are provided with structure and boundaries around behaviours; who have a supportive school environment; and who are encouraged in their self-expression, are less likely to initiate sexual activity, use substances such as tobacco and alcohol, and to experience depression.

Risk and protective factors were surveyed through individual questionnaires with adolescents as respondents. Questions were asked about self-reported risk behaviours as well as about perceptions of risk or protective factors in their family, peer group, school and community. Nearly all questionnaires measured the connection that adolescents had with their family and school. A few questionnaires measured their connection to the community they lived in, and examined community characteristics such as prevalence of drug use and violence. Most surveys were implemented among school-going adolescents with ten surveys including both in- and out-of-school adolescents.

In addition to these cross-sectional studies, literature with data from longitudinal studies considering selected protective and risk factors which existed before the formation of risk behaviours, were identified and will be examined. Seventy-five international longitudinal studies were identified from a literature search and 21 birth cohort studies from a search of websites. The reviews of these studies will be used for the preparation of a screening tool to analyse the causal contribution of risk and protective factors to adolescent behaviours. The Department will validate this tool in several research sites during the next biennium to provide confirmation of the cross-sectional evidence so far collected.

Improving the development and health of adolescent boys

During the biennium, the Department continued to draw attention to adolescent boys in health programming. Six documents describing the state of knowledge and programming for adolescent boys were produced in English and Spanish. The documents were widely distributed and included in the mailing for the UNAIDS World AIDS Campaign: *Men can make a difference.* The six documents were:
• **What about boys**, a literature review describing the state of adolescent boys’ health and development.
• **Boys in the picture**, an advocacy document serving as a reminder of the need to consider adolescent boys in programming.
• **Working with adolescent boys**, an overview of experiences and lessons learned about working with boys from four major regions of the world.
• **Working with adolescent boys**, a workshop report summarising information on programmatic issues following meetings held among representatives of UN agencies and NGOs.
• **Boys in the picture**, a gender-based programming document for adolescent health and development in Europe presenting data from a regional programme survey and secondary data analysis.
• **The health and development of African males, adolescents, and young men**, a report describing research and programme experiences from Sub-Saharan Africa.

Among the projects initiated by the Department to support intervention development for adolescent boys were:

• A review of specific approaches to communicating with adolescent boys. The project, which will be finalised in 2002, examines available evidence on effective approaches for communicating health-related information to boys.
• A secondary analysis of data from two multi-country surveys, one in Europe and one in Asia. Covering some 40 countries, this analysis was undertaken to identify protective and risk factors for boys in order to support the development of gender-specific interventions.
• An initial literature review examining ways for improving health service delivery to adolescent boys. This review indicated that adolescent boys used health services less than girls did. A project in Brazil aimed at developing and testing an intervention for increasing health service utilisation by adolescent boys is to be implemented in the coming biennium.

**Anthropometry in adolescents**

The Department’s work in this area focused on reviewing the published literature to identify studies in the area of anthropometry in adolescents, including those studies that were ongoing or planned.

Discussions with the WHO/NHD confirmed that there was a great need for evidence-based anthropometric guidance in adolescents, however neither department could take on this enormous undertaking given current levels of resources. A paper charting out the available evidence, the rationale for work needed in this area, and the challenges that it would involve is to be completed in the first semester of 2002.

**Improving help-seeking for adolescents**

During the biennium, CAH worked to define strategies for influencing adolescent help-seeking. To understand the various dimensions of help-seeking, a literature review was completed with input from WHO Regional Offices, the United Nations and other partners. The review identified factors associated with help-seeking and recommended strengthening

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**Box**

**Regional activities on adolescent boys**

The American Region carried out activities to support work on adolescent boys. A collaborative effort among AMRO, a consortium of NGOs in Latin America, and the Department resulted in the development of a set of manuals for health educators working directly with adolescent boys. The manuals cover sexual and reproductive health, fatherhood, mental health, substance use and violence. Another manual focusing on HIV/AIDS and adolescent boys was prepared and has been field-tested in the Caribbean. The Department will support testing and adaptation of the set of manuals outside Latin America and the Caribbean in the course of the next biennium. Also in collaboration with AMRO, CAH initiated work to produce training materials for soccer coaches—an untapped human resource with great potential for reaching and influencing adolescent males. This work will be fully developed during the next biennium.

Three WHO Regional Offices carried out activities on adolescent boys with support from the Department. EURO conducted a survey of programme experiences with adolescent boys and published the results in a document that advocates for more attention to this group.

AMRO embarked on a nine-country qualitative study on sexual and reproductive health of adolescent males with an emphasis on the role of masculinity. Building on the AMRO work, Costa Rica introduced adolescent boy issues in national programmes and are to train health workers using manuals developed by AMRO.

In collaboration with UNAIDS, AFRO and RHR, the Department co-organised a meeting on the health and development of adolescent boys and young men in South Africa in 2000.
Addressing the challenge of adolescent sexual development and health

The Department seeks to ensure that adolescents are physically healthy, have achieved optimal levels of psychological and social development, have adopted healthy behaviours, and that, in time, they will be able to assume adult responsibilities. Within this broad aim, CAH has a key role to play in WHO’s response to adolescent sexual and reproductive health and the HIV/AIDS epidemic.

Focusing on adolescent sexual and reproductive health and development

Adolescent Sexual and Reproductive Health and Development (ASRHD) has been an important theme of WHO work for the past three decades, and the Family and Community Health Cluster identified it as an intra-cluster priority. The Department is responsible for coordinating cluster-wide actions and developing activities that increase the profile and value of WHO’s contributions in this field. The Technical Steering Committee (TSC) of CAH and the Scientific and Technical Advisory Group (STAG) of RHR have highlighted the need for a WHO-wide framework for action in ASRHD to provide coherence and direction.

Through a series of internal and external consultations, the Department identified two main challenges in ASRHD: the belief that adolescent sexuality is a taboo subject for many policy makers and programme managers, and the meagre evidence that exists to support sustainability and scaling up of interventions. To overcome these difficulties, the Department developed plans for future action in this challenging area of work. These include:

- Strengthening advocacy for ASRHD;
- Promoting issues of adolescent sexuality and sexual development in the public health arena;
- Building the evidence base for action on ASRHD including a review of relevant determinants and effectiveness of interventions;
- Reviewing implementation experiences of ASRHD programmes, and generating new social supports. Preliminary recommendations include the development of guidelines for a rapid assessment tool of available and potential social support for adolescents (see Table 8).

Addressing especially vulnerable young people

To examine the risk factors influencing vulnerable adolescents, the Department in collaboration with UNICEF developed a draft document, *Rapid assessment and response guide on especially vulnerable young people*. The guide has been used in four countries – Bulgaria, Estonia, Latvia, Lithuania and Poland. Each site assessed substance use and sexual behaviour among vulnerable young people, including street youth and ethnic minority populations and laid the basis for preventive and curative interventions.

### TABLE 8. FACTORS ASSOCIATED WITH HELP-SEEKING

<table>
<thead>
<tr>
<th>Individual factors</th>
<th>Exogenous factors</th>
<th>Examples of existing programmes and initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Personal beliefs about what constitutes the need for help</td>
<td>• Cultural and community norms related to help-seeking</td>
<td>• Relocating existing services</td>
</tr>
<tr>
<td>• Internalised gender norms</td>
<td>• Local values about adult-adolescent interaction and relationships</td>
<td>• Re-organising existing services</td>
</tr>
<tr>
<td>• Perceptions of others and institutions as helpful</td>
<td>• Distance to sources of help</td>
<td>• Offering new services</td>
</tr>
<tr>
<td>• Personal coping skills</td>
<td>• Availability and quality of services</td>
<td>• Use of peer promoters</td>
</tr>
<tr>
<td>• Previous experiences with seeking help</td>
<td>• Staff receptivity and competence to work with adolescents</td>
<td>• Outreach workers</td>
</tr>
<tr>
<td>• Self-efficacy and agency</td>
<td>• Legal and policy context</td>
<td>• Information campaigns and hotlines</td>
</tr>
<tr>
<td>• Identity and other characteristics of the individual</td>
<td>• Relocating existing services</td>
<td>• Service integration</td>
</tr>
<tr>
<td>• Perceived stigma associated with the need for help</td>
<td>• Local values about adult-adolescent interaction and relationships</td>
<td>• Parent and community education programmes</td>
</tr>
</tbody>
</table>

**Main objectives for promoting healthy adolescent sexuality and development**

A cluster-wide working group identified three main following objectives needed to promote healthy sexuality and development in adolescents:

- Preventing early initiation of sex;
- Promoting safe sex when sexual activity starts; and
- Reducing the morbidity and mortality associated with sexual and reproductive activity among adolescents.
knowledge on ASRHD implementation issues;

- Strengthening the capacity for accelerated action on ASRHD in selected countries with a focus on adolescent pregnancy and reaching out to very young adolescents;
- Documenting and elaborating on gender approaches to health and development, especially on gender and power relationships among adolescents; and
- Focusing on selected neglected issues in ASRHD such as married adolescents and the very young.

CAH is working with other departments in the FCH cluster to pursue these objectives, and has prepared a draft report on married adolescents and gender, including issues of power relations among adolescents. Briefing notes on selected subjects pertinent to adolescent sexual behaviour have also been developed.

Addressing the HIV/AIDS epidemic among adolescents

Young people are concerned by the HIV/AIDS epidemic because of the risk of HIV transmission, the impact of HIV/AIDS on young families and communities, and the potential for changing the attitudes and behaviours that can lead them to contract HIV. Globally, over 50% of new HIV infections occur among young people and among a large proportion of vulnerable groups such as injecting drug users and commercial sex workers under the age of 25 years.

In response to the global goals on young people that focus on decreasing prevalence and increasing access to key interventions (information, life skills and services) outlined in the 2001 UN General Assembly Special Session on AIDS, the Department is supporting the development of WHO’s short-term strategy through an Interdepartmental Action Team on Young People and HIV/AIDS, along with the involvement of Regional Offices. The strategy will focus on providing services and supplies, surveillance and monitoring, and creating a supportive environment for policies and programmes.

- The services and supplies component of the short-term strategy will focus on increasing young people’s access to information and priority services through trained service providers, and with the involvement of young people and communities.

### BOX

#### Some facts about married adolescents

- Under the United Nations Convention on the Rights of Children the age of 18 is the age that children become young adults. However, a significant proportion of girls in many countries marry below the legal age of marriage that is in vigour in their own countries, and/or before the age of 18, often at their parents’ request. For example, in Bangladesh, 79% of girls aged 25–29 were married before they were 18, in Mali this figure is 72%, and in Guatemala, 39%.
- The majority of sexually active adolescent girls in developing countries are married. In 37 out of 45 countries implementing DHS surveys, over 60% of the sexually active adolescent females were married.
- The younger a girl’s age at marriage, the more significant the age gap with a spouse tends to be thereby intensifying the disadvantages girls face in bargaining with partners. In Egypt, for example, 65% of adolescent brides marry men that are more than five years older than they are, and nearly one quarter marry men 10 or more years older.
- Studies suggest that married adolescent girls have more limited knowledge on contraception than unmarried adolescents, and less access to information than both unmarried adolescents and married adult women. A study in Indonesia found that, among 15–19 year old girls, only 31% of unmarried and 13% of married girls knew what a condom was. Also, 86% of unmarried girls and 59% of married girls had heard of HIV/AIDS.

#### BOX

#### What is known about gender relations in interventions for adolescents

- Gender equality is thought to be possible by some adolescent boys and girls and not possible by others.
- More boys than girls see nothing wrong with casual sex and fewer boys than girls uphold the virtue of commitment in sexual relationships.
- Sexual harassment of girls by boys is socially viewed as part of normal adolescent development. While both boys and girls report experiencing sexual harassment, girls are more likely to report being negatively affected by it.
- Adolescent girls are aware of the inequities and double standards in love and sexuality, but find the stereotypes difficult to resist because of peer pressure and male violence.
- Girls use ‘alliance building’ and ‘resistance’ to increase their power over boys, whereas boys use mastering techniques to maintain their dominance over girls.

Programmes which successfully document positive outcomes in transforming gender relations

- Contain multiple programme components.
- Conduct localised research into how constructions of gender differences are formed and enacted.
- Focus at the individual level as well as the community level.
- Make use of the concept of functional literacy to reach adolescents and the communities where they live.
Surveillance and monitoring will aim to increase the capacity of governments to collect and analyse the data needed for advocacy campaigns and for developing and reviewing policies and programmes. These efforts will focus on HIV/AIDS and a set of indicators that would include aspects of adolescent sexual and reproductive health, alcohol and drugs, violence, and protective and contextual factors.

The supportive environment component of the strategy will ensure that ministries of health and health sector professionals will promote good practices, and take strong evidence-based decisions on sensitive issues, such as condoms and harm-reduction programmes.

The strategy will be primarily directed toward strengthening the health sector’s contribution to achieving the 2005 global goals, and will be supported by the Department through a number of project areas during the coming biennium, including: ASRHD; the Measurement Project; adolescent boys and protective factors; and adolescent-friendly health services, particularly the orientation modules. To ensure sustainability, WHO will also be developing its longer-term strategy for young people and HIV/AIDS.

The Department is closely collaborating with the UNAIDS Secretariat and Interagency Task Team on Young People to promote a comprehensive approach to preventing HIV/AIDS that includes information and the acquisition of life skills, access to education, health and counselling services, and the development of safe and supportive environments for young people. This comprehensive approach reflects the recognition that contextual factors are as important as individual factors in the transmission and impact of HIV/AIDS. In addition to linkages to the other UNAIDS co-sponsors, WHO will use its short-term strategic focus to mobilise a range of operational and technical partners around the prevention and care of young people and HIV/AIDS.

Enhanced attention to adolescents in the health sector

Advancements in adolescent health and development also require improvements in several aspects of the health sector. During the biennium, the Department worked to enhance the attention being given to adolescents in the health sector by developing clinical management guidelines to meet the special needs of adolescents; building health professionals’ skills on adolescent health and development, and lastly improving accessibility and acceptability of health services.

Development of clinical management guidelines to meet the special needs of adolescents

CAH continued to develop expert review and discussion papers on clinical management practices related to key adolescent health problems. These papers will be used to improve health workers’ knowledge of adolescent health issues and will form the basis for adolescent-specific job aids being developed by the Department.

Reviews on contraception, unsafe abortion, pregnancy care...
and sexually transmitted infections (STI) among adolescents were published in the *International Journal of Gynaecology and Obstetrics*. The Department also prepared papers for submission to peer review journals and abbreviated versions of papers on immunization, nutrition and lung health. A review paper on *Malaria in Adolescents* is in the process of being finalised, and another on *Sexuality and Sexual Development in Adolescents* is undergoing external review. Papers on HIV/AIDS care, mental health and chronic diseases are also in preparation.

<table>
<thead>
<tr>
<th>Health Problem</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsafe abortion</td>
<td>Completed</td>
</tr>
<tr>
<td>Contraception</td>
<td>Completed</td>
</tr>
<tr>
<td>Pregnancy care</td>
<td>Completed</td>
</tr>
<tr>
<td>Sexually transmitted infections</td>
<td>Completed</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Completed</td>
</tr>
<tr>
<td>Immunisation</td>
<td>Completed</td>
</tr>
<tr>
<td>Lung Health</td>
<td>Final Draft</td>
</tr>
<tr>
<td>Malaria</td>
<td>Final Draft</td>
</tr>
<tr>
<td>Sexuality and Sexual Development in Adolescents</td>
<td>Undergoing peer review</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>In preparation</td>
</tr>
<tr>
<td>Chronic Diseases</td>
<td>In preparation</td>
</tr>
<tr>
<td>Mental Health</td>
<td>In preparation</td>
</tr>
</tbody>
</table>

Some of these papers have already been used in the development and revision of WHO clinical management guidelines and tools prepared by the various departments. These guidelines are:

- *The essential care practice guides: Integrated management of pregnancy and childbirth* and *The guide to decision making for contraception*;
- *Medical eligibility criteria for contraception*;
- *Guidelines for the management of sexually transmitted infections*;
- *Technical and policy guidelines on safe abortion*;
- *Practical Approach to Lung Health (PAL)*; and
- *Integrated Management of Adolescent and Adult Illness (IMAAI)*.

**Building the skills of health professionals in adolescent health and development**

Health professionals need special skills to work effectively with adolescents. The Department is working to define these skills and to develop appropriate teaching and learning materials. In the course of the biennium these activities included:

Orientation programme on adolescent health for health care providers: Significant progress was achieved on ten programme modules and materials, including methods and tools to evaluate the programme. These materials offer an overview of the special characteristics of adolescents and the health problems that affect them, as well as the ways to improve health providers’ interactions with adolescents. Advanced drafts of the modules were provided to AMRO, SEARO, and WPRO in 2001. The final field-test workshop was conducted in Egypt and technical revisions to the modules and layout and printing of the complete set of modules will be concluded in 2002.

Abbreviated versions of the orientation programme were incorporated into a reproductive health course at the Liverpool School of Tropical Medicine in the UK, and an agreement was reached between the Department and LSTM to develop a five-day stand-alone course in 2002.

Pre-service training: Efforts in this area were especially oriented toward:
Malaria and adolescents

1. The burden of disease
Malaria causes significant morbidity and mortality in areas of both stable and unstable transmission. The disease is the second most common cause of death in adolescents (10–19 years) with the highest burden among young female adolescents. With 72.3% of reported malaria disability in adolescents, the African Region was by far the worst affected.

2. Risk factors and health seeking behaviour
While far greater information on malaria risk factors is needed, most of the identified risks are occupational. In South-East Asia, the high incidence in young males over the age of 15 appears to be related to their occupational activities. More studies are required to address issues related to adolescents’ knowledge of malaria, or of what they can do when they become sick.

3. Consequences of malaria in adolescents
Malaria may contribute to anaemia in adolescence and to loss of schooling due to ill-health. The extent of this problem can vary according to where the adolescents live.

4. The pregnant adolescent
Pregnant adolescents are at particular risk of malaria and may be at higher risk than older mothers. Effective intermittent prevention saves lives and should be a high priority within antenatal services. The use of insecticide-treated bed nets can benefit maternal and infant health by preventing malaria. These measures will lead to a decreased prevalence of pre-term deliveries, foetal loss, low-birth weight infants, and small for gestational age infants.

5. Prevention
There is evidence that insecticide-treated bed nets reduce the incidence of mild malaria in adolescents in stable and unstable transmission areas. Neither chemoprophylaxis, nor currently available vaccines, are recommended for adolescents.

Basic core competencies needed by nurses and midwives to effectively meet the health and development needs of adolescents

- Facilitate the participation of adolescents and other stakeholders in the planning, implementation and evaluation of health care centres.
- Practice on Primary Health Care principles and/or other appropriate theoretical frameworks that support adolescent health and development.
- Assess and promote adolescents’ psychosocial development in the context of their families and communities, recognising socio-economic, spiritual and cultural influences.
- Assess and manage minor and common conditions, integrating the principles of adolescent growth and development and self-care.
- Facilitate the adoption of a healthy life style by adolescents in the context of individual, family, and community health practices.
- Promote healthy gender development, reproductive health and positive parenting in adolescence.
- Integrating adolescent health and development into nursing and midwifery pre-service curricula.
- Based on international expert review carried out in collaboration with the WHO’s Department of Health Service Provision (OSD), developing a tool to assess the extent to which adolescent health and development has been integrated into these curricula and determine institutional preparedness.
- Identifying the core competencies needed by nurses and midwives caring for adolescent needs. A list of basic core competencies was drawn up and used to generate consensus on core competencies by a consortium of nursing and midwifery schools spanning all WHO Regions.
- Reviewing and documenting the experiences of several nursing and midwifery schools intending to integrate ADH recommendations into their curricula.

Making health services adolescent-friendly

The Department’s work during the biennium aimed at developing the technical basis for improving the quality of health service delivery to adolescents:

- Adolescent-Friendly Health Services (AFHS) were the focus of two Regional Consultations in Latin America and Sub-Saharan Africa. The meetings provided valuable opportunities to learn what works and does not work in countries in order to make services more responsive and sensitive to adolescent needs. Following the two consultations, CAH participated in a number of international meetings in South-East Asia and Central and Eastern Europe to learn from noteworthy initiatives in these regions. During the same period, analytical case studies of longstanding services in developed countries (Australia, Canada, Sweden and USA) were commissioned.

- The regional consultations and analytical case studies set the stage for the Global Consultation on Adolescent-Friendly Health Services. The consultation helped identify priorities for research and action both at the global and regional levels, and contributed towards establishing a shared understanding of the various aspects of adolescent health and development, and on how health service provision could be improved.

The Global Consultation on AFHS represented the culmination of work carried out by the Department between 1995 and 2000. In line with the consultation’s conclusions and recommendations, CAH initiated three lines of research and development work:

- Development of the rationale for directing efforts –
and resources – to adolescent friendly health services which is presented in the “WHY TO” package of materials;

• Development of a tool kit to support country level action; and
• Development of a strategy to improve knowledge and understanding in this area through operations research.

Improving access to health services for adolescents in the community

The Department supported the improvement of health services to adolescents in specific settings by providing financial and technical support to six countries – Bulgaria, Costa Rica, Malawi, Malaysia, Sri Lanka and Tunisia – in the process of implementing projects for school-going adolescents. The experiences gained were considered during the Global Consultation on Adolescent-Friendly Health Services. Several papers analysing the methodology and synthesising the findings of the assessment and response phase of the projects were developed. A substantive paper on the experiences gained from project implementation will be submitted to a peer-review journal.

The Department also provided support to three NGOs helping adolescents living on the street – Casa Alianza in the Honduras, Families and Children for Empowerment and Development in the Philippines, and the Youth Development Link in Uganda. These NGOs are actively seeking to improve health service access for these particularly underserved adolescents. The experiences gained from these three projects were presented at the Global Consultation on AFHS. They are also described in a synthesis document and an abbreviated version is being prepared for submission to a peer-review journal.

CAH continued working with internally displaced adolescents or refugees during the biennium. Technical assistance was provided to an Interagency Working Group on Refugee Health convened by UNHCR. This assistance took the form of a draft WHO assessment tool and related strategies to ensure that the health and development needs of adolescents were considered by those supporting refugee issues. The Department supported a research project in Karaogo camp in the United Republic of Tanzania, in which the draft components of an intervention package for adolescents were field-tested (see Table 10). There are now plans to field-test this package in an Angolan refugee camp in Namibia. Results will form the basis of an intervention package with guidelines for refugee adolescents. CAH also provided on-going support to UNFPA’s International Training Course on Reproductive Health in Crisis Situations.

Monitoring and evaluation of adolescent programmes

What should we measure and how?

The first two-year phase of the Measurement Project to improve monitoring and evaluation of programmes for adolescent health and development was completed during the biennium. The project, Programming for Adolescent Health and Development: What should we measure...

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**BOX**

**Consensus statements from the WHO Global Consultation on Adolescent-Friendly Health Services**

1. Adolescent health and development requires a shared vision with complementary actions from different players.
2. Adolescents should be able to access promotive, preventive and curative health services relevant to their maturity and life circumstances.
3. For a variety of reasons, adolescents in many places are unable to obtain the health services they need.
4. Adolescents have many ideas about how to make health services user-friendly. Generally, they stress the ethos rather than the technical quality of the services.
5. User-friendliness does not necessarily ensure service utilisation by adolescents.
6. There are a number of approaches for increasing service utilisation in places where a friendly health service exists.
7. To complement and extend coverage of government-run health facilities for adolescents, other channels could be made available.
8. It would be helpful to define the elements of a core package and how it could be developed and implemented by individual governments.
9. Health-care providers require the technical competence appropriate to deal with adolescent health.
10. Quality assurance methods are available and should be applied to adolescent health services.

**BOX**

**Adolescent-Friendly Health Services**

A strong AFHS network was established in AFRO in collaboration with UNICEF, GTZ, AMREF, Pathfinder, and Population Council researchers and adolescent health managers from 14 countries. This network reviewed experiences and research from several countries in a regional consultation in Ghana. As a follow-up, support was provided to Botswana and Lesotho to develop AFHS, including country-level consultative meetings, training of health workers and research.
and how? was initiated by WHO and UNICEF to identify measures and approaches for managers. The project drew on the experience of programme managers and researchers from seven countries – Bangladesh, Brazil, Egypt, Malaysia, Sri Lanka, Thailand and Uganda, and was able to call on International resource persons with expertise in intervention design and evaluation of community and national programmes for adolescents.

The first phase involved the identification of interventions and began application of a Programming and Measurement Framework, defined a core set of risk and protective factors in relation to health behaviours, and expanded capacity among a network of participating sites.

As a follow-up to the project, the Department focused on four areas of work in the second half of the biennium and achieved the following:

1. Further development of global evidence tables on protective and risk factors.
2. Further development and testing of the framework as a tool for designing, monitoring and evaluating programmes.
3. Development, testing, and dissemination of tools and methods for indicators identified through the application of this framework.
4. Training country staff on the use the framework and associated indicators and tools.

Adaptation of the Programming and Measurement Framework

The aim of the framework is to provide a basis for tracking the effects of interventions on protective factors, which in turn influence behavioural and health outcomes over a longer period. It also allows the identification and measurement of strategic indicators.

A manual, including case studies, was developed to guide the adaptation of the framework. A field test of the draft manual was conducted in Bangladesh with participants from BRAC (the Bangladesh Rural Action Committee). The final draft is expected to be ready for wider field testing by the third quarter of 2002.

Developing, testing and disseminating tools

Phase I of the Measurement Project improved the monitoring and evaluation of country programmes. The Department supported the following activities:

### TABLE 10. DRAFT COMPONENTS AND OPERATIONAL IMPLICATIONS OF INTERVENTIONS TO MEET THE HEALTH AND DEVELOPMENT NEEDS OF ADOLESCENTS IN REFUGEE SITUATIONS

<table>
<thead>
<tr>
<th>Package content</th>
<th>Operational implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities directed towards:</strong></td>
<td></td>
</tr>
<tr>
<td>• Providing information on sexuality, sexual development and availability of services.</td>
<td>Identify a lead organization and a focal point to coordinate and involve other sectors, parents, health care providers, legislators, policy makers, and other leaders.</td>
</tr>
<tr>
<td>• Provision of services</td>
<td>Improve sustainability by involving more volunteers, including adolescents.</td>
</tr>
<tr>
<td>• Adaptation of existing services</td>
<td>Closer integration/coordination with local MoH to obtain joint supervision; joint planning and implementation of activities; joint training; development of materials monitoring and evaluation of programmes.</td>
</tr>
<tr>
<td>• Counselling, especially for emotional trauma and gender based and sexual violence.</td>
<td>Advise local MoH and other health providers in their work with adolescents.</td>
</tr>
<tr>
<td>• Attention to other associated factors e.g. substance use/abuse, gender and sexual violence.</td>
<td>Assess existing health service protocols for their validity, gaps and, if necessary, develop new protocols.</td>
</tr>
<tr>
<td>• Basic schooling and vocational needs (including education on safety in the school curricula).</td>
<td>Ensure consistent supplies for reproductive health.</td>
</tr>
<tr>
<td>• Provision of shelter, recreation and productive use of time.</td>
<td>Design/modify health information system to be sensitive to adolescent health issues.</td>
</tr>
<tr>
<td>• Advocacy for adolescent health in camps.</td>
<td>Ensure that marginalised target groups are not excluded: adolescent heads of households, victims of various forms of abuses, female adolescents, married adolescents.</td>
</tr>
</tbody>
</table>

### BOX

Selected achievements of Phase I of the Measurement Project

- Development of the Programming and Measurement Framework (PMF), which tracks the effect of interventions on determinants (risk and protective factors) influencing behavioural and health outcomes for adolescents.
- Identification, consensus and measurement of selected protective and risk factors, as common determinants leading to behaviours with undesirable health outcomes.
- Compilation and analysis of datasets from 30 developing countries to identify the determinants (i.e. protective and risk factors) that mediate risk behaviours such as unsafe sex, violence and substance abuse.
- Development of a network of individuals and institutions contributing to and benefiting from the project.
• Development of tools for measuring two protective factors, ‘connection’ and ‘regulation’ which are the intermediate outcomes in the Programming and Measurement Framework. For ‘connection’, tool development has considerably progressed. Work involved a composite compilation of a measure from at least three different instruments already used in surveys. The development of a tool for ‘regulation’ requires the appropriate measure, to be discussed during a technical review committee meeting to be held in the first semester of 2002.

• Training of programme managers and statisticians from Bangladesh, Malaysia, Sri Lanka, and Thailand on cross-sectional analysis to be used to analyse the contribution of protective and risk factors on adolescent health.

![FIGURE 20. PROGRAMMING AND MEASUREMENT FRAMEWORK](image)

**Programming & Measurement Framework**

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Protective Factors</th>
<th>Behavioural Outcomes</th>
<th>Health Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Improve health services to be “friendly”</td>
<td>● Access to friendly health services</td>
<td>Clusters of risk behaviours</td>
<td></td>
</tr>
<tr>
<td>● Teacher training</td>
<td>● Life skills developed</td>
<td>Reduced:</td>
<td></td>
</tr>
<tr>
<td>● Parent/family Education</td>
<td>● Relationships to adults, peers</td>
<td>Reduced:</td>
<td></td>
</tr>
<tr>
<td>● Community mobilization</td>
<td>● Policy, media, gender roles</td>
<td>Risky sexual behaviour</td>
<td></td>
</tr>
<tr>
<td>● Improving opportunities for adolescents</td>
<td>● Adolescent participation</td>
<td>Unwanted pregnancies/ Abortions</td>
<td></td>
</tr>
</tbody>
</table>

**Surveillance in WPRO**

WPRO in collaboration with CAH is reviewing existing surveys, and preparing a standard surveillance instrument for use in WPRO countries. This instrument can be used in other regional surveys for the development of indicators to measure the impact of interventions and to strengthen the evidence base of adolescent needs and competencies.

**BOX**

**Behavioural surveillance of adolescents**

The Department has forged close partnerships with WHO’s department of Non-Communicable Disease Prevention and Health Promotion (NPH), UNICEF, and technical and operational partners to develop consensus and tools for behavioural surveillance of young people. Questions were developed on a set of related behaviours such as alcohol and drug use, violence, sexual behaviours and selected protective factors. In collaboration with UNICEF, technical reviews were carried out to identify subject domains to be measured and techniques for collecting data. These activities will be an important step in the development of a survey instrument for use in countries. Over the next biennium, the Department will assist countries with surveillance by promoting a tool for data collection and by building capacity for systematic surveillance.
The Department works closely with Regional Offices, the United Nations and bilateral agencies, NGOs to develop joint strategic approaches to planning, research and implementation of projects in countries. During the biennium CAH continued to work with Regional Offices to build capacity, supported pro-adolescent policy development in countries, and supported partners in implementation of adolescent strategies and projects.

Capacity building to support adolescent health and development

Implementation of adolescent health and development activities in countries is achieved through the Regional Offices. CAH participates in joint regional planning, and encourages the introduction of new tools with technical support from CAH staff or consultants. The process of introduction is carefully documented in order to develop feasible and effective implementation strategies. Capacity building activities usually include training and inter-country workshops. Highlights of work during 2000–2001 included:

- **Training and workshops:** The Department supported efforts to implement courses using the WHO orientation programme for health workers. For example, in AFRO, courses were implemented to strengthen human resources for adolescent-friendly health services, with participants from Guinea, Mali and Senegal. In AMRO training of health workers using the orientation modules developed by CAH was tried out in Spanish in Nicaragua and will be used in the Central American countries.

  In WPRO, in-service training was developed based on the orientation programme. Materials have been adapted for the Philippines and will be used to develop health workers’ knowledge and skills, as well as strengthen their competencies in working with adolescents. There are plans to support similar activities in Mongolia and Viet Nam in the next biennium.

- **Pre-service training:** The Department initiated work to develop a set of core competencies on adolescent health and development for pre-service curricula. To this end it participated in an international meeting on development of material on core competencies in the pre-service curricula for midwives and nurses in Egypt. In WPRO, 16 countries reviewed similar material and a Curricular Integration Process Toolkit is in the process of being developed to support the incorporation of adolescent issues, strategies and evaluation tools into the curricula of health workers. Several other regions were also supporting activities in this area of activity.

- **Alternative approaches to training:** The Department continued to support an educational and training network devoted to adolescent health in the American Region in collaboration with the W. K. Kellogg Foundation. The network is part of a broader collaborative initiative, the Project for Adolescent Development, which focuses on advocacy and building capacity in 12 countries of the Region.

  During the biennium, the initiative continued expanding the ADOLEC web site and Virtual Health Library which provides free internet access to up-to-date information on adolescent health, as well as databases, publications, courses, bulletins and a variety of educational materials. Brazil, Costa Rica, Colombia, El Salvador, Guatemala, Honduras, Mexico and Nicaragua have also provided virtual libraries at the national level.

  AMRO embarked on an innovative approach to capacity building by supporting the development of distance learning models in association with three universities in Brazil, Chile, and Mexico. Distance education appears to be an effective strategy for capacity building of human resources. This strategy will complement more traditional forms of capacity building such as the training of health workers using the orientation programme.
Technical assistance: The Department provided technical assistance to countries and partners for strengthening adolescent health and development activities. In SEARO, CAH offered technical input on matters related to adolescent health and development to a number of NGOs and medical associations, including the Indian Academy of Paediatrics, the Interagency working group on Population in India, and the Nepali Society of Obstetrics and Gynaecology (NESOG).

Policy development and planning

To facilitate the implementation and ensure the sustainability of adolescent health programmes, the Department played a key role in supporting regions to formulate public health policies for adolescents. Regions have adopted similar approaches to pursuing pro-adolescent policy development. These approaches have invariably involved an assessment of country implementation of adolescent health and development programmes, followed by proposals and guidelines related to national activities and planning.

In order to learn more about pro-adolescent policy development, the Department reviewed the policy development process in Haiti, the Philippines, Sri Lanka, and Tanzania. Lessons learned will be used to develop guidelines to support countries to develop appropriate policy measures. These guidelines will be part of broader set of programming guidelines of interventions.

AMRO continued its efforts to develop national pro-adolescent policies and plans in most countries of the region. Countries in that Region are at varying stages of developing and implementing their own adolescent health policies, plans, programmes and services: around 60% of countries have developed national adolescent health policies and 95% of ministries have focal points pursuing this theme. One example is the Dominican Republic that enacted a National Youth Law assigning one percent of the national budget and four percent of municipal budgets for adolescent health. AMRO helped publish a document that examined three case studies based in three country case studies – Colombia, the Dominican Republic, and Nicaragua – developing adolescent policy. The Department continued to advocate for comprehensive adolescent health policies throughout the Region and encouraged the examination of past experiences to serve as examples.

Success in policy-development in Haiti

During the biennium, WHO provided continuous support for policy-development in Haiti. A specially appointed inter-sectoral committee analysed the health and development of Haiti’s adolescents and mapped the main existing interventions; these actions provided input for the draft youth health policy that followed. Adolescents were actively involved in this process through a national youth forum that gave its recommendations to the inter-sectoral committee. While the policy is still in a draft form, it has already played an important role in securing international funds from banks and donors.
Similarly, the Regional Committee for Africa backed a Regional Strategy on Adolescent Health and Development that was adopted by ministers of health in September 2001. Clearly, the recognition of the importance of adolescent health and development for public health is growing, and national level policy development has started in Burundi, Ghana, Lesotho, Tanzania, Zambia and Zimbabwe.

Based on WHO strategic action areas and priorities, EURO placed more emphasis on developing a coordinated strategy for the health of adolescents to provide a coherent overall framework for inter-agency cooperation and planning. This strategy will first be field-tested in Ukraine.

SEARO too recognised the growing need to address adolescent health and development issues and has 1) identified policies for adolescent health as one of the priority areas for the coming biennium and 2) developed a Regional strategy on this area. An Adolescent Health National Strategy was developed in Nepal, and SEARO is supporting the development of pro-adolescent policies and strategies in other countries of the region. In addition, the Regional Office has developed Skills Based Education materials for out of school adolescents, and Life Skills Education materials for school-going students.

WPRO produced an adolescent health and development policy kit that includes examples of several country case studies. The kit will be used as an advocacy tool to raise awareness and mobilise action. Support for policy development efforts in the region include: technical support to the Department of Health in the Philippines for producing a strategic framework and plan of action for the Adolescent and Youth Health and Development Programme; assistance to a multi-sectoral working group in Viet Nam, to coordinate existing and future adolescent-related activities on policy and strategy; and AFHS-support to Mongolia.

**Working with partners in implementation**

The role of partners is crucial to ensure coherent, consistent and sustainable support for adolescent health and development activities in countries. The Department therefore invests in building capacity of interested partners in the concepts underlying adolescent health and development. Some examples of activities through strategic alliances include:

- Work on promoting the importance of adolescent health policy involved a broad-based partnership in AMRO linking UNFPA, UNICEF, USAID, Sida, GTZ, and the W.K. Kellogg Foundation. The Department has been advocating for stronger cooperation among partners to tackle issues of adolescent reproductive health, HIV/AIDS and youth violence.

- The Department supported efforts by AMRO advocating for pro-adolescent programmes in Central American countries to improve human resources in this area of work, and strengthen capacity for youth participation in regional meetings.

- The Department and EMRO offered technical support to an alliance of agencies and NGOs in the Region including UNFPA, UNICEF, UNESCO, UNHCR, IPPF, the International Red Cross and Red Crescent and DANIDA.

**Box**

**Mobilising youth at risk**

EMRO used a participatory approach through its partners led by the Arab Regional Office of the World Organization of the Scout Movement, to promote youth-to-youth health activities in twelve countries. This strategic alliance for youth health promotion has been included as a key intervention in NGO- and government-led projects in favour of adolescent health and development.
Work on developing a Regional Strategy for Adolescent Health and Development in Europe has been supported by an Interagency Working Group of UNAIDS, UNDP, UNDCP, UNFPA, UNICEF and WHO. The strategy will help guide implementation of adolescent programmes in European countries. EURO has also developed a joint work plan with working group members focusing on three areas of work: building life skills, using peer approaches and developing Adolescent-Friendly Health Services.

Continuous technical assistance on adolescent health and development issues resulted in strong links between the Department and a series of NGOs, medical associations and hospitals in SEARO Region, and with Regional Offices of UN agencies and international organisations focusing on adolescents.
New papers arising out of research supported by CAH in 2000 and 2001

Aggleton P, Ball A and Mane P. (Guest Editors) Special Issue: Young people, sexuality and relationships. *Sex and Marital Therapy*, 2000, Vol.15, No 3.


ANNEX 2

New documents arising out of the work of CAH in 2000 and 2001

Documents concerning child health and development

Management of the child with a serious infection or severe malnutrition. Guidelines for care at the first-referral level in developing countries. WHO/FCH/CAH/00.1

HIV and infant feeding counselling: A training course

- Director’s guide. WHO/FCH/CAH/00.2
- Trainer’s guide. WHO/FCH/CAH/00.3
- Participant’s manual. WHO/FCH/CAH/00.4
- Overhead figures. WHO/FCH/CAH/00.5

Complementary feeding: family foods for breastfed children. WHO/NHD/00.1 and WHO/FCH/CAH/00.6

The optimal duration of exclusive breastfeeding. A systematic review. WHO/NHD/01.08A WHO/FCH/CAH/01.23


IMCI Model Chapter for textbook. WHO/FCH/CAH/01.01 (E, F, R)
IMCI Reference Library. WHO/FCH/CAH/01.8
IMCI Planning Guide. WHO/FCH/CAH/01.09
IMCI Technical Seminars. WHO/FCH/CAH/01.10
IMCI Assessment of Students. WHO/FCH/CAH/01.11

Cough and cold remedies for the treatment of acute respiratory infections in young children. WHO/FCH/CAH/01.02


Mastitis: Causes and management. WHO/FCH/CAH/00.13 (E, S)

The optimal duration of exclusive breastfeeding – a systematic review. WHO/FCH/CAH/01.23
Report of the expert consultation on the optimal duration of exclusive breastfeeding. WHO/FCH/CAH/01.24

The composition of human milk (Draft)

Child rights capacity building. Training course: Thematic groupings of CRC articles. WHO/FCH/CAH/01.06A

Better health for poor children: A special report. FCH/CAH/02.05


Report of an informal consultation on maintaining the performance of health workers trained in IMCI (Geneva, 22–23 June 2000), WHO/FCH/CAH/01.18

Report of a capacity building workshop for IMCI pre-service training (Geneva, Chateau de Penthes, 27–30 March 2001), (no number)


Documents concerning the Multi-country Evaluation (MCE) of IMCI


The multi-country evaluation of IMCI effectiveness, cost and impact. Report of the 3rd annual meeting of MCE Principal Investigators and Technical Advisers (Jinja, Uganda, December 2001). FCH/CAH/02.02

Informal Consultation to Determine Indicators and Procedures for the ‘Start the Clock’ Review in Sites for the Multi-Country Evaluation of IMCI (Talloires, France, 13–15 June 2001). Note for the Record. FCH/CAH/01/05

Health facility survey manual, FCH/CAH/01.02

Documents concerning adolescent health and development

Boys in the picture. WHO/FCH/CAH.00.8 (E, F, S, P)

Programming for adolescent health and development: What should we measure and how:

- Report of second meeting (Chiang Mai, Thailand, 26–30 April 1999). WHO/FCH/CAH/00.17
- Report of the third meeting (Washington, DC, 12–16 June 2000), WHO/FCH/CAH/01.01 (E)
- Report of a meeting, (Washington DC, 16 June 2000), WHO/FCH/CAH/01.03 (E)

What about boys? WHO/FCH/CAH/00.7 (E, F, S)

Working with boys. Workshop report. WHO/FCH/CAH/00.9

Working with boys. Programme experiences. WHO/FCH/CAH/00.10

Broadening the horizon: Balancing protection and risk for adolescents. WHO/FCH/CAH/01.20 (Revised)

The health and development of African male adolescents and young men, WHO/FCH/CAH/01.04; AFR/ADH/01.1 (E)

Strengthening the provision of adolescent-friendly health services to meet the health and development needs of adolescents in Africa – A consensus statement, WHO/FCH/CAH/01.16; AFR/ADH/01.3 (E/F/P)

Strengthening the provision of adolescent-friendly health services to meet the health and development needs of adolescents in Africa, Part I – A synthesis document, WHO/FCH/CAH/01.17; AFR/ADH/01.4 (E)

Strengthening the provision of adolescent-friendly health services to meet the health and development needs of adolescents in Africa, Part II – Summarised presentations, WHO/FCH/CAH/01.17/Suppl.01; AFR/ADH/01.4/Suppl.01 (E)

Growing in confidence, WHO/FCH/CAH/02.13 (E)

Programme Reports


Report of the second meeting of the CAH Technical Steering Committee (29 May–2 June 2000). WHO/FCH/CAH/00.21

Note: Arabic (A); English (E); French (F); Spanish (S); Portuguese (P). All documents are in English, unless otherwise stated.