

## Integrated Management of Childhood Illness (IMCI)

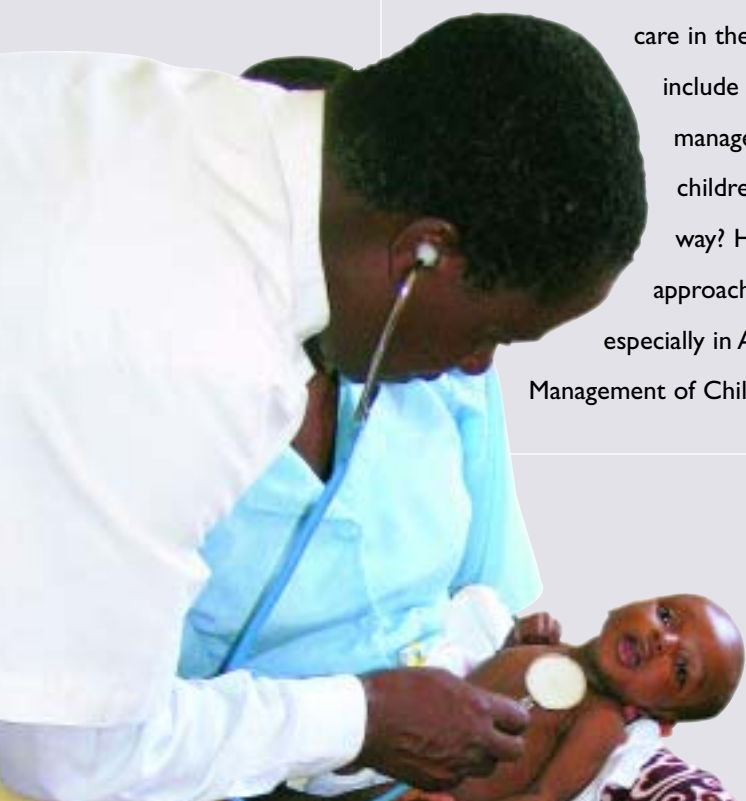
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**Every year, nearly 11 million children die before reaching their fifth birthday.**

In response to this challenge, WHO and UNICEF in the early 1990s developed Integrated Management of Childhood Illness (IMCI), a strategy designed to reduce child mortality and morbidity in developing countries. The approach focuses on the major causes of deaths in children through improving case management skills of health workers, strengthening the health system, and addressing family and community practices. However, the original IMCI modules did not include care of the sick newborn during the first week of life, the time when one in three child deaths occur, and it did not emphasise home-based newborn care.

IMCI has become a main child survival strategy in almost all countries in the African region, creating a unique opportunity to scale up newborn health interventions using IMCI as a vehicle. Incorporating newborn algorithms in IMCI and strengthening the components of the strategy related to the health system and community will directly impact newborn health. Some of this work has already begun as generic IMCI guidelines and training materials have been revised to include the first week of life. Many countries in Africa are planning to adapt IMCI to include the missing aspects of newborn care. Questions about adapting IMCI in

Africa remain, however. For example, should routine home visits for postnatal care in the first week of life be included in the IMCI strategy? Should IMCI include care at the time of birth? Should IMCI training start with management of young infants (0-2 months) rather than older infants and children? What are the challenges in implementing IMCI in an effective way? How can complementary facility-based and community-based approaches be combined? Many lessons can be gained from countries, especially in Asia, where IMCI has already been adapted to Integrated Management of Childhood and Neonatal Illness (IMNCI).



## The problem

The health of children is closely linked to the health and care of their mothers. As the newborn grows into a child, healthy home behaviours and care of illnesses are crucial to save lives. Lack of care, or poor quality care, has effects for newborns and children:

**Effects on newborns:** Every year 1.16 million African babies die in the first month of life and the leading cause is infections. The majority of the estimated 325,000 babies who die from neonatal sepsis and pneumonia could be saved with simple preventive practices such as clean skin and cord care, breastfeeding and warmth, and better management of those who are sick, especially using antibiotics.<sup>1</sup> Most newborn deaths are among low birthweight (LBW) babies, or babies weighing less than 2500 grams at birth. Simple care of all small babies and early treatment of complications would save many newborn lives. However, neither home care practices nor care of small babies, or even treatment of newborn infections have been systematically addressed by child health programmes at scale, including Integrated Management of Childhood Illness (IMCI).

**Effects on children:** Lack of health promotion and services for babies has an impact on older children too. Severe illness during the first month of life can result in long term disability and poor school performance but there is little concrete data available on these serious newborn illnesses and their long-term effects on health. The first weeks of life are crucial for establishing healthy behaviours, such as breastfeeding – in Africa only one third of babies under 6 months of age are exclusively breastfed.<sup>2</sup>

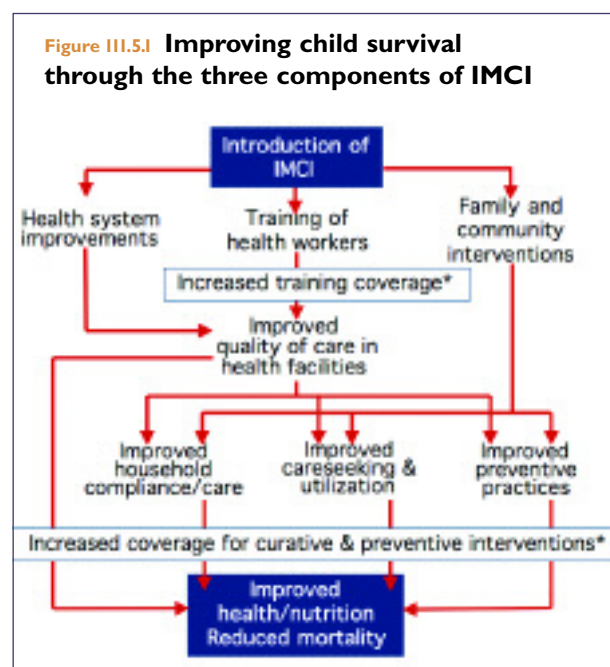
## The IMCI package

The Integrated Management of Childhood Illness (IMCI) strategy is central to the achievement of child survival and development, a key principle of the Convention on the Rights of the Child. The strategy is based on human rights that guarantee health care to all children, no matter where they live, and is implemented by addressing the gaps in knowledge, skill, and community practices regarding children's health, recognition of illness, home management of the sick child, and appropriate careseeking behaviour. The IMCI strategy includes three important components:

1. Integrated management of ill children in facilities and health centres
2. Health system strengthening, particularly drugs and logistics support
3. Community IMCI, or promotion of key family and community practices

The three components of the IMCI strategy are most effective when they are implemented simultaneously. For example, IMCI training to improve the skills of health workers for better case management in health facilities, accompanied by health systems strengthening efforts, such as improving the supply of essential drugs, resulted in a 13 percent reduction in under-five mortality in two years in Tanzania.<sup>3</sup> In Bangladesh, home care for illness

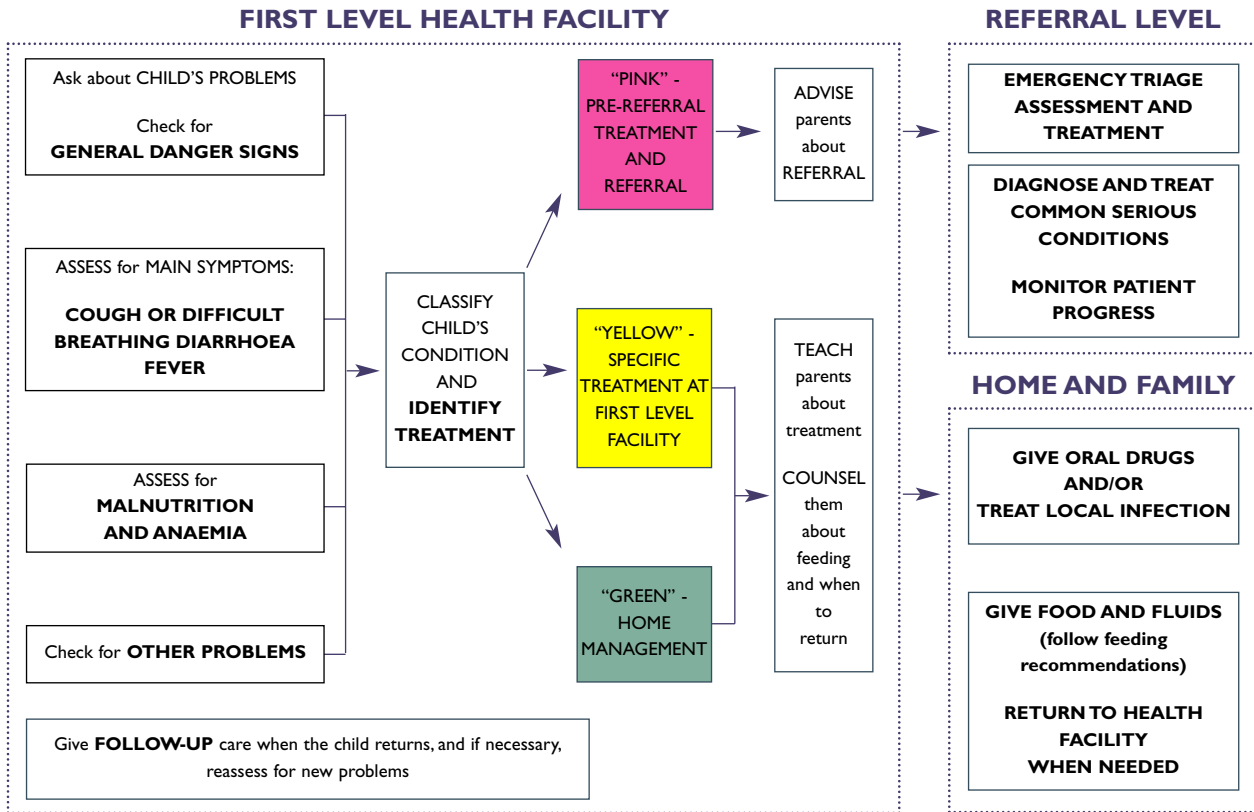
and timely careseeking improved through community IMCI (C-IMCI), while IMCI training increased quality of care at the health facilities. This combination of community and health facility approaches resulted in substantial increases in the use of services.<sup>4</sup> Figure III.5.1 illustrates the effect on survival of interventions in the three IMCI components.<sup>5</sup>



Source: References<sup>3,4</sup> Reproduced with permission of WHO



Figure III.5.2 IMCI case management at first level health facility, referral level, and home



Source: Adapted from references 56

IMCI functions best when families and communities are linked to the first level facility which in turn links well to the referral level. (Figure III.5.2) This is the same principle that is set out in Section II regarding the importance of a seamless continuum of care across health service delivery levels.

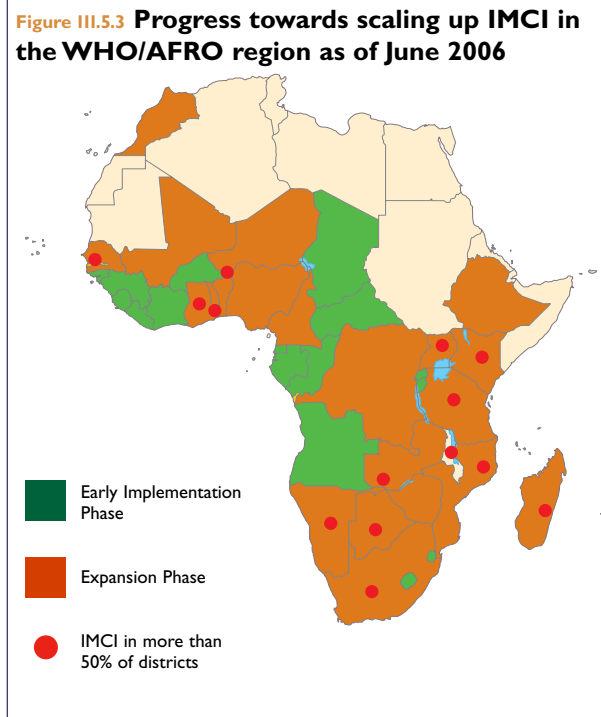
IMCI combines prevention and care, focusing on the child and not only on the individual diseases. The types of interventions currently in the IMCI strategy are shown in Table III.5.1.

Table III.5.1 Types of interventions currently included in the IMCI strategy

| LEVEL              | TYPES OF INTERVENTION   |  |
|--------------------|---|--|
|                    | Illness prevention and growth promotion   | Response to illness (curative care)  |
| Home and community | <ul style="list-style-type: none"> <li>Community/home-based promotion of appropriate infant feeding practices; peer counselling for breastfeeding and complementary feeding</li> <li>Use of insecticide treated bednets</li> <li>Appropriate infection control practices</li> </ul> | <ul style="list-style-type: none"> <li>Early recognition and home management of illness</li> <li>Appropriate care seeking</li> <li>Adherence to treatment recommendations</li> </ul>   |
| Health Services    | <ul style="list-style-type: none"> <li>Vaccinations</li> <li>Micronutrient supplementation</li> <li>Health worker counselling for breastfeeding and appropriate complementary feeding</li> </ul>  | <ul style="list-style-type: none"> <li>Case management of acute respiratory infection diarrhoea, measles, malaria, malnutrition, and other serious infections</li> <li>Counselling on feeding problems</li> <li>Iron for treatment of anaemia</li> <li>Anthelmintic treatment</li> </ul> |

## Current coverage of IMCI

IMCI is currently being implemented in more than 100 countries throughout the world. As of June 2006, 44 of 46 sub-Saharan African countries in sub-Saharan Africa are in various phases of IMCI implementation, with 27 expanding beyond a few initial implementation districts. Fourteen of these 27 countries are carrying out the strategy in more than 50 percent of their districts (Figure III.5.3).



IMCI implementation has been evaluated through two large efforts: the Analytic Review of IMCI<sup>7</sup> and the Multi-Country Evaluation.<sup>5,6</sup> These reports have found that IMCI training substantially improves the quality of care in health facilities.<sup>3,8-10</sup> Still, while some countries have reached high coverage, most countries have progressed much more slowly than initially expected.<sup>6</sup> The focus of IMCI strategy in many countries has been more on health worker training than the balance of all three components. Where more than one of the three IMCI components were advanced together, however, as in Tanzania and Bangladesh, faster progress was made in improving child survival.<sup>4,11</sup>

## Opportunities to strengthen newborn care within IMCI

While prioritising the main causes of child mortality, the original generic IMCI guidelines missed two major causes of neonatal deaths during the first week of life – asphyxia and preterm birth. The young infant IMCI algorithms only addressed prevention and management of infections after the first week of life because information on the performance of simple clinical signs of illness in this

period has only recently become available.<sup>12,13</sup> When the algorithms were originally developed, it was considered that care around the time of birth and the first week were to be mainly addressed through maternal care programmes, although in reality newborn care falls in the gap between maternal and child care programmes.<sup>14</sup>

Further, in IMCI implementation the emphasis has been on delivering interventions through the formal health care system. However, many of the simplest first steps to save newborn lives require delivery approaches that are community based. The key family and community practices originally identified in the IMCI strategy did not focus on newborn care practices such as early initiation of breastfeeding and thermal care.

Strengthening the newborn interventions in each component of IMCI would contribute to saving many newborn lives, and would also benefit IMCI itself through further integration of the three components of the IMCI strategy. In this way, IMCI programmes can strengthen the continuum of care by promoting activities that enhance newborn care practices within the family and providing support to vulnerable newborns. In particular this applies to providing care for LBW babies, identifying newborns with signs of severe illness and facilitating timely referral, and improving the quality of care for newborn illness at primary and referral care facilities. Follow-up of babies with problems identified because of a maternal condition, such as syphilis or HIV infection, would also become a priority of child health workers as a result of improved hand-over between maternal and child health services.

## Case management of illness in first level health facilities – opportunities to include newborn interventions

The first and most effectively implemented component of IMCI has been the integrated management of ill children in facilities. The core principle is to improve the ability of health workers to categorise sick children using simplified algorithms to identify very severe disease requiring referral and other more simple conditions which can be treated at primary care level. The original generic version of IMCI included algorithms and case management of young infants from one week to two months of age. The training focused on identification and management of serious and local infections, diarrhoea, LBW, and feeding problems in young infants.

The generic IMCI case management guidelines have been recently revised and should form the basis of country adaptations in the future. (See programme resources on page 148) The revised guidelines include the following additions to the original version:

- An evidence based algorithm for identification and management of illness in the first week of life (very severe disease including asphyxia, complications of



preterm birth and serious infections, local infections, and jaundice)<sup>12,13</sup>

- Additional guidance on thermal care of LBW infants, including skin-to-skin care
- Additional guidance on feeding of LBW infants, including expressed breastmilk feeding using an alternative feeding method, such as a cup
- Improved guidance on home care during the entire neonatal period, including early and exclusive breastfeeding, keeping the infant warm, hygienic cord and skin care, and timely and appropriate care seeking for illness
- In settings with high HIV prevalence, prevention of mother-to-child transmission (PMTCT) of HIV

The revised IMCI training materials also provide guidance on what health workers can do when a young infant needs referral but referral is not possible. It should be noted that the revised IMCI case management guidelines do not include care of the newborn at the time of birth or neonatal resuscitation. There are, however, available guidelines and training modules that can be adapted for this purpose, and health workers who attend births should consult these to develop or improve their skills. (For more information, see Section III.3)

### **Community IMCI – opportunities to bring newborn care closer to families**

The improvement of family and community practices through C-IMCI was officially acknowledged as an essential component of the IMCI strategy at the first IMCI Global Review and Consultation Meeting in 1997. At this meeting, participants acknowledged that improved quality of care at health facilities alone would not achieve the required reduction of childhood morbidity and mortality because many caregivers do not bring their sick children to health facilities for care.

Reducing child mortality requires a partnership between health workers and families, with support from communities. Health workers need to connect with families and communities to ensure that families can provide adequate home care to support the healthy growth and development of their children. Families should be able to respond appropriately when their children are sick, recognising the problems or signs of illness in its early stages, seeking appropriate and timely assistance when children need additional care, and giving recommended treatments.

C-IMCI aims to reach families and communities where they live and is one way of impacting marginalised and hard-to-reach children. It promotes and enables the participation of parents, caregivers, and communities in

**Table III.5.2 Key family and community practices**

|   |   |
|---|---|
| <p><b>Growth Promotion and Development</b></p> <ul style="list-style-type: none"> <li>• Exclusively breastfeed for 6 months</li> <li>• Introduce appropriate complementary feeding from 6 months while continuing breastfeeding up to 24 months</li> <li>• Provide adequate micronutrients through diet or supplementation</li> <li>• Promote mental and psychosocial development</li> </ul>  | <p><b>Home Management</b></p> <ul style="list-style-type: none"> <li>• Continue to feed and offer more food and fluids when child sick</li> <li>• Give child appropriate home treatment for illness</li> <li>• Take appropriate actions to prevent and manage child injuries and accidents</li> </ul>   |
| <p><b>Care Seeking and Compliance</b></p> <ul style="list-style-type: none"> <li>• Take child to complete full course of immunisation before first birthday</li> <li>• Recognise when child needs treatment outside the home and take to health worker</li> <li>• Follow health worker’s advice about treatment, follow-up and referral</li> <li>• Ensure that all pregnant women have adequate antenatal care and tetanus toxoid vaccination during pregnancy</li> <li>• Encourage active participation of men in child care and reproductive health activities</li> </ul> | <p><b>Disease Prevention</b></p> <ul style="list-style-type: none"> <li>• Carry out proper disposal of faeces, washing hands after defecation, before preparing meals, and before feeding the child</li> <li>• Ensure that children sleep under insecticide treated bednets</li> <li>• Ensure prevention and care of persons infected and affected with HIV/AIDS</li> <li>• Prevent child abuse/neglect and take appropriate action when it occurs</li> </ul> |

their own development and in actions that will make a difference in the survival and development of their children. There are 16 key family and community practices for child care identified for the African region, as shown in Table III.5.2. As part of country adaptation, birth registration has been added in a number of countries.

Of the existing key community practices to promote the wellbeing of the older child, a number also address newborn health including the following:

- Exclusive breastfeeding up to six months (taking into account WHO/UNICEF/UNAIDS policy and recommendations on HIV and infant feeding)<sup>15,16</sup>
- Early recognition of danger signs and prompt careseeking for treatment of illnesses
- Following the health worker's advice about treatment, follow up, and referral
- Ensuring that infants, children under the age of five, and pregnant woman in malaria-endemic countries sleep under insecticide treated bednets
- Promoting the active participation of men in child care
- Ensuring that every pregnant woman receives the recommended four antenatal visits, at least two doses of tetanus toxoid vaccination, and intermittent preventive treatment for malaria during pregnancy.

However, more practices that improve newborn health and survival should be incorporated. Adding the following key practices to C-IMCI would increase the programme's effect on newborn health:

- Early initiation of breastfeeding, within one hour of birth
- Keeping newborns warm, including skin to skin care (See Box III.5.1)
- Hygienic cord and skin care

Expanding the coverage of C-IMCI while promoting key newborn care practices will be challenging, but it can be done.<sup>17</sup> C-IMCI has been implemented using a variety of delivery approaches at the community level, and several successful practices have emerged. For example, social mobilisation through women's groups to improve care for pregnant women and newborns in Nepal led to substantial reduction in neonatal mortality, according to one study.<sup>18</sup> Routine home visits to improve postnatal care (PNC) have also been successfully replicated in several research<sup>19</sup> and programme settings (e.g. IMNCI in India, and Lady Health Workers in Pakistan).

Community or home-based management of illness is an especially effective method of reducing neonatal mortality in settings where access to health facilities is very low and referral is difficult. A meta-analysis of studies has shown that community management of pneumonia in newborns

was effective in reducing all-cause neonatal mortality by 27 percent (18 - 36 percent).<sup>20</sup> The studies also identified barriers to operationalising the strategy. For example, community health workers (CHW) had difficulty differentiating pneumonia from sepsis and meningitis in newborns. In another study in Gadchiroli, India, home management of sepsis by CHW using oral cotrimoxazole and intramuscular gentamicin was effective in reducing sepsis-specific and overall mortality.<sup>21</sup> However, it should be noted that this one study using injection antibiotics took place in a setting with almost no access to health care; where intensive training and regular follow-up of CHWs was possible. Therefore, careful consideration is required before implementation at scale. Currently, WHO does not recommend management of serious newborn infections by CHW.

### **Management of illness in hospitals – opportunities to improve care and save lives**

Guidelines for hospital care of children and babies in settings with limited resources have been recently published, such as the *Pocket Book of Hospital Care for Children*. (See programme resources on page 148) The chapter on problems of the neonate outlines care at the time of birth, including neonatal resuscitation as well as management of newborns with asphyxia, severe infections, and LBW. The guidelines also list skills for giving intramuscular injections, intravenous catheterization, umbilical vein catheterization, and nasogastric feeding. The guidelines can be used as standards for improving quality of care in hospitals.

Although guidelines exist, there are few concerted programmatic efforts to improve the quality of care for children in district and teaching hospitals in Africa, and even less attention to improving hospital care of ill newborns. In countries where at least half of all births take place in hospitals, improving the quality of care for ill babies at the facility is one of the most cost effective ways to reduce neonatal deaths.<sup>1,22,23</sup> Effective hospital care of sick newborns requires adapting existing guidelines and improving skills of health providers, and improving infection prevention practices and logistics for essential equipment and drugs.

Successful management sick children in hospital requires incorporating essential interventions such as neonatal resuscitation, management of infections, and better care of feeding of LBW and especially preterm babies.<sup>24</sup> All infants benefit from skin to skin care, especially in a cold climate or cold time of year. LBW infants who are not ill and weigh between 1000 and 2000 grams will especially benefit from Kangaroo Mother Care (KMC) particularly in the first few days of life. (Box III.5.1)

### **Health system strengthening**

Building human resources capacity, including improving health worker skills, needs to be complemented by basic infrastructure, regular availability of drugs, supplies, and

### Box III.5.1 Kangaroo mother care

Kangaroo mother care (KMC) is an effective way to care for a small baby weighing between 1,000 and 2,000 grams who has no major illness. KMC enables warmth, breastfeeding, protection from infection, stimulation, and love.

The baby is undressed except for cap, nappy, and socks and is placed upright between the mother's breasts, with head turned to one side. The baby is then tied to the mother's chest with a cloth and covered with the mother's clothes. If the mother is not available, the father or any adult can provide skin-to-skin care. This care is continued until the infant no longer accepts it, usually when the weight exceeds 2,000 grams. KMC is safe to continue at home.

Research has shown that for preterm babies, KMC is at least as effective as incubator care.<sup>25</sup> Small babies receiving KMC experience a shorter average stay in hospital compared to conventional care, have fewer infections, and gain weight more quickly, saving the hospital money and time and saving the family additional suffering.



equipment, as well as supportive supervision and monitoring. Efforts to draw the attention of policy makers to the importance of the under-five disease burden and of adequate levels of investment resulted in IMCI and newborn health being placed higher on local and international agendas.<sup>26,27</sup> This enabling environment and the underpinning management skills are necessary for effective intervention delivery at all levels – community, first-level health facility, and hospitals.

Adding drugs and supplies for managing common newborn conditions to IMCI essential drug and supply lists is a critical step in ensuring the availability of such items.

Proper monitoring can lead to improved care for young infants and children. Programmes can use checklists to assess the quality of newborn care, which can help gauge case management of ill babies and development of health worker skills. Monitoring indicators should track the number of sick babies at health facilities who are referred for severe illness as well as young infants who had routine postnatal contacts with trained health workers. Local information on burden of disease and investment levels for newborns and children should be made available to help policy makers in decision making and prioritisation of intervention and programme implementation.

#### **Adapting IMCI to save newborn lives – putting the “N” in IMNCI**

Adapting IMCI to strengthen newborn care requires organising or revitalising a national committee of technical experts and stakeholders to discuss the specifics of the new IMCI package. The committee should take into account the current status of neonatal health as well

as the status of maternal and child health programmes.

The following are key questions to ask when adapting IMCI case management guidelines to strengthen newborn care for use at first level health facilities:

*Content of training?* It is strongly recommended that IMCI include management of neonates during the first week of life. In other words, the young infant section of IMCI should outline management of babies after birth and up to 2 months old. In all settings, IMCI material should address severe disease in babies (serious infections, asphyxia, and complications of preterm birth), diarrhoea, feeding problems, and care of LBW infants. For example, gonococcal eye infection can be added in settings where local epidemiology suggests that gonococcal eye infections are a problem. Inclusion of jaundice should be considered, bearing in mind that jaundice, though an important cause of disability, is not a major cause of death. Unfortunately, clinical signs are not a reliable way to detect jaundice which requires treatment.<sup>12,13</sup>

The generic, revised IMCI does not include care at the time of birth, because health professionals present at the time of birth should also have skills to care for the mother during childbirth and this is usually not the same person who is providing IMCI services to children. A complementary training module for newborn care at the time of birth, including resuscitation, might be used either for the skilled attendant or for specific settings where the worker being trained in IMCI would also be present at birth. The WHO Making Pregnancy Safer Essential Newborn Care course can be adapted for this purpose.

*Order of training?* In the generic version of IMCI, training starts with management of a child of 2 months to 5 years, followed by the young infant. Some countries (e.g. India and Ethiopia) have reversed the training sequence in order to increase the emphasis on newborn health. There are several implications of this decision. The common parts of training (such as the concept of colour-coded classification, clinical signs such as fast breathing and chest indrawing, etc.) will need to be taught at the beginning, using the young infant (0 to 2 months) section. This requires all the training materials to be rewritten and increases the proportion of time devoted to the young infant section of the course. There is no evidence to date that reversing the sequence of training leads to a greater improvement in health worker skills. The current recommendation is that reversing the sequence is not necessary if enough time is dedicated to the training of the management of young infants, including newborns.

*How long to train for?* Perhaps the greatest strength of IMCI training is the emphasis on skills development through hands-on practice. The revised IMCI case management guidelines call for at least three clinical practice sessions in the young infant training, covering assessment and management of severe disease, feeding problems, and LBW, with all three including components of home care. This implies that at least 2.5 to 3 days are needed for teaching the young infant section. If the full

11-day IMCI training is being implemented, it is recommended that at least one third of the total training time should be allotted for the management of young infants – a minimum of three days. If a short training course is being used (for example six days) then at least 40 percent of the time should be on young infant care – a minimum of 2.5 days. When this length of time is not feasible in a country, alternative strategies for strengthening skills, such as on-the-job supervised clinical practice during follow up after training, should be implemented.

*Where to train?* Outpatient facilities are generally not the appropriate place to teach clinical practice on young infants. Clinical practice sessions should be organised in inpatient wards, emergency rooms, and postnatal wards in hospitals. The strategy for clinical practice for young infants differs slightly from that of the older child, which mostly takes place in an outpatient setting.

One of the strategies for providing PNC to mothers and newborns is through home visits by facility or community based health workers. Adding this component to IMCI would require additional practice in conducting home visits and at least one extra day of training.

#### **Country examples of the adaptation process**

The adaptation process may differ in each country, and the final package may not be the same, but it is important to weigh the pros and cons of each choice.

**Table III.5.2 Adaption of IMCI to IMNCI in India – key decisions and their rationale**

| <b>Issue</b>                           | <b>Decision made by Indian adaptation committee</b>   | <b>Rationale</b>   |
|--|---|--|
| First week of life                     | Include management of infection, jaundice, hypothermia, feeding problems, and LBW   | A large proportion of neonatal deaths in India occur during the first week of life   |
| Care at the time of birth              | Not included  | Not all of the target audience attends births. Complementary materials exist to improve skills of workers who do attend births   |
| Training sequence                      | Young infant before older child   | Almost half of under-five deaths in India occur in the neonatal period. There is a need for increasing the focus on newborn  |
| Training time                          | 50 percent of total training duration   | Change of sequence implies that common sections (e.g. classification approach) are taught with management of illness in the young infant; 3 clinical practice sessions and 1 practice session for home visits are needed |
| Clinical practice                      | 3 clinical practice sessions – (i) severe disease: in emergency room and inpatient ward (ii) breastfeeding problems: postnatal wards, (iii) LBW: inpatient and postnatal wards<br>1 home visit practice session – community | Sick young infants are not usually taken to outpatient department. They are taken to the emergency room, admitted in inpatient wards, or remain at home  |
| Routine home visits for postnatal care | 3 routine home visits by community-based workers, supported by facility staff, in the first week of life – days 1, 3 and 7 – for all neonates. Three additional weekly visits for LBW infants – week 2, 3 and 4.            | Coverage of PNC is low, particularly in the first week, and existing community based workers can be used to provide PNC at home  |



The table below summarises the adaptation decisions taken in India. Some of these decisions may be specifically applicable to the Indian context

A number of African countries have also adapted IMCI to include newborn care:

In **Tanzania**, care of illness in the first week of life was added to IMCI algorithms and the standard 11-day IMCI training course.

In **Ethiopia**, due to cost constraints and the length of the time the health worker has to be away from the workplace for training, the Ministry of Health requested a shortened IMCI training course. In response, IMCI training was reduced from 11 days to 6 days, and substantial newborn care components were added, including home visits for all babies, an algorithm for care of the ill baby, and extra care of LBW babies, including home based KMC.

In **Malawi** the addition of newborn care and HIV/AIDS care were undertaken simultaneously in order to avoid repeated, separate revisions to the IMCI training programme. In addition, as human resources are a major constraint in Malawi, a decision was made to reduce the training time to 6 days at least for the pilot stage, along with an assessment of the level of skills.

## Challenges

IMCI creates a major opportunity for scaling up newborn care, but there are challenges to rolling out IMCI effectively and for strengthening newborn interventions and care within IMCI.

### Supply of services

*Adaptation of materials and training/retraining of health workers:* Adaptation of materials is an intensive process requiring time, resources, and coordination as well as involving all the various stakeholders at country level. Retraining IMCI-trained health workers according to newly adapted materials has resource implications in terms of direct costs and also opportunity costs for workers taking time away from service provision.

*Inadequate human and financial resources:* One of the challenges to scaling up IMCI in countries has been reaching a large number of health workers through use of a time-intensive and costly course. To accelerate scaling up, some countries have adopted short IMCI courses that reach many health workers. There is a need to evaluate these efforts and the quality of care. Even if the course is shortened, at least 2.5 to 3 days are needed for the young infant section. There may also be challenges in finding adequate numbers of newborns, especially sick newborns, for demonstration in some health facilities, which limits the choice of training sites. The very nature of illness in such babies may also prevent close observation and handling. Hence additional creative methods, such as videos, may need to be employed.

*Inadequate quality of care at community level:* There may be legal hurdles involved, whereby government policies and professional bodies do not allow CHW to be responsible for the treatment of sick babies, even where access to care at facilities is low. A strategy to overcome this policy constraint is urgently needed to provide life-saving care to newborns and children who are not receiving it at the community level. Tools for building capacity for home visits and community activities by CHW and other community health care providers are under development.

### Demand for care

Families generally have insufficient knowledge about seeking care for sick children. This is further complicated by traditional practices that keep mothers and babies secluded in their homes for varying periods of time. In addition, they often stay in dark or poorly lit rooms which make it difficult to detect any problems, especially in the baby. There is a need to increase awareness and improve care-seeking behaviour for sick newborns among the community.

### Linking community care and health facility care

Connections between communities and health facilities are often weak. There is neither adequate supportive supervision from facilities to communities, nor an effective referral system from the CHW to the first level health facility. Given that severely ill newborns identified at the community or first level health facility have a high risk of death within hours, it is extremely important to develop and strengthen connections between the community and the facility. Health facilities and communities must work together to improve the quality of health services and increase their use. Selected community members can take part in the non-technical components of supervision.

Although there are often a number of different organisations working at the community level, they usually work in a fragmented manner. For maximum impact, all efforts towards reducing newborn and child deaths should be coordinated and approaches harmonised. There should be an open line of communication between the various players in the community and other levels. Governments should also coordinate community-based interventions undertaken by the various partners.

## Practical steps to strengthen newborn health within IMCI

- *Revitalise a national group linked to the IMCI task force:* Invite technical experts and stakeholders to discuss the new IMCI package.
- *Adapt the revised IMCI guidelines:* The IMCI training guidelines should be adapted to include management of illness in the first week of life, including home care and additional care of LBW infants. Drafts of the revised

generic chart booklet, training materials, and adaptation guide are already available to serve as a basis for this process.

- *Implement the revised guidelines*
  - **Train/retrain health workers:** Health workers already trained in IMCI should be given a refresher course to acquaint them with the adapted materials. Health workers not already trained in IMCI should undergo a full revised course with both young infant and older child components. A minimum of 2.5 to 3 days should be dedicated for training in the young infant part of the course.
  - **Include drugs for newborn care into essential drugs list:** Ministries of Health should be encouraged and supported to include key drugs and supplies for newborn care in their essential drugs list.
  - **Include key family practices for newborn care and strategies for increasing coverage:** The list of key family practices adopted by countries should be revised to include additional practices that positively impact newborn survival. Efforts to promote these practices through counselling at health facilities, counselling by CHW and peers, and discussions in women's groups should be accelerated.
  - **Improve quality of care in hospitals and strengthen referral systems**
- *Provide health care in communities where access to health facilities is very poor:* Routine home visits by CHW to provide PNC, additional home care for LBW infants, and community-based management of local infections and referral for severe illness should be considered to increase coverage of interventions in remote areas.
- *Document and share experiences:* Countries should document and share their experience of efforts for improving newborn health through IMCI. South-to-south exchange of information should be encouraged. Research to evaluate the skills of health workers after IMCI training, testing the algorithm for detection of newborns with problems at routine home visits, and comparison of the effectiveness of different delivery approaches for community based interventions are high priority.

## Conclusion

IMCI, already in place in almost all countries in sub-Saharan Africa, provides a unique opportunity to rapidly scale up newborn health interventions, especially care of serious infections. Strengthening the newborn component of IMCI implemented at the community, first level

health facility, and referral levels is likely to contribute to improved newborn survival in Africa. Adaptation of the revised IMCI algorithms, including the missing newborn care practices in C-IMCI, and strengthening hospital care for newborns are key steps in this process. The adoption of a joint WHO/UNICEF/World Bank child survival strategy developed in collaboration with the African Union will provide a policy framework for more integration of newborn health interventions within child survival programme implementation.

There are several challenges in implementing IMCI in an effective way to improve newborn survival. In most situations, IMCI has been implemented to include infants and children in health facilities, but is not proactive in reaching children in the community, which is especially detrimental to newborn health. Complementary strategies such as home visits by facility-based or community-based health workers to provide routine PNC may be necessary. Furthermore, the IMCI algorithm includes referral of young infants with severe problems to a higher level facility. However, considerable effort is needed to achieve timely referral and ensuring that referral centres can care for ill newborns.

## Priority actions for strengthening IMCI to address newborn health

- Finalise global algorithms and adaptation guide for IMCI
- Revitalise a national group linked to IMCI task force
- Adapt the revised IMCI guidelines for young infants, including the first week of life
- Implement the revised guidelines
  - *Train/retrain health workers*
  - *Include drugs for newborn care into essential drugs list*
  - *Include key family practices for newborn care and strategies for increasing their coverage*
  - *Improve quality of care in hospitals and strengthen referral systems*
- Provide health care in community settings in areas with very poor access to health facilities
- Document and share experiences