

# Integrated management of childhood illness (IMCI) - traditional versus new approaches to clinical care

## What is the difference between integrated and traditional clinical care in paediatrics?

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He was just another baby in the queue with a cough. Baby Jabu, a 7-month-old infant, had arrived at the clinic with his mother, and he was in a good general state (pink, breastfeeding) despite the paroxysmal cough. Dr Jantjies, an intern who had recently completed her Integrated Management of Childhood Illness (IMCI) training, was receiving a routine post-training follow-up visit from her IMCI supervisor. Dr Jantjies carried out a thorough IMCI check-up and found that Jabu's respiratory rate was increased. She then checked to see if the baby had chest indrawing, which he had, although only slightly. She immediately referred Jabu to the hospital. Once the infant was gone, a shaken Dr Jantjies told the supervisor, 'It was only because you were here that I took his respiratory rate and that led to the complete exam. IMCI saved this baby from being sent home. Who knows what could have happened...?'

Less fortunate was Ntombi, a 2-year-old girl. When her mother visited the clinic, Ntombi was examined by a nurse using the IMCI approach and diagnosed with pneumonia. She received ambulatory treatment and clear instructions about when to return. When Ntombi didn't get better and started to have laboured breathing, her parents took her to a hospital where staff had not received IMCI training. The doctor there sent her home. She died 2 days later in the same hospital.

Throughout South Africa, medical students, nurses, family practitioners and experienced paediatricians alike are learning the virtues of IMCI as a protocol for paediatric consultations, one that significantly reduces the chances of missing something that may be wrong with a child. Launched in 1996 by the World Health Organization (WHO) and UNICEF, IMCI is currently being implemented in over 100 countries worldwide to promote healthy growth and development in children younger than 5 years and to reduce mortality and morbidity from the principal causes of childhood illness.<sup>1</sup> Its challenge was to move from the vertical disease-specific approach of traditional programmes to a more integrated and horizontal child approach, in line with the philosophy of primary health care. In South Africa, the strategy has been expanding its influence for the last 8 years, with over 8 000 health professionals trained in IMCI and it being used at clinics in all 52 districts in the country.

### What is a traditional approach and what is IMCI?

Children contribute substantially to the workload of any family practitioner or primary health care professional. Most children present with common, minor ailments. Individual doctors or nurses may differ considerably in their focus during a 'routine consultation'. Similarly, despite the availability of a variety of guidelines (including national standard treatment guidelines), practitioners' management strategies may vary widely. Fortunately, most childhood problems respond well to simple measures. However, the consequences of missing a critical sign during a traditional 3 - 5-minute consultation, resulting in failure to start appropriate treatment or to refer, can be life-threatening.

Because many children present with overlapping signs and symptoms of diseases, establishing a single diagnosis can be difficult and may not be feasible or appropriate, particularly in first-level health facilities where examinations involve few instruments, limited or no laboratory tests, and no radiographs. The IMCI clinical management adopts a syndromic approach, where a limited number of carefully selected symptoms and signs (with the highest sensitivity and specificity) are the entry point.

Patients are 'classified' into defined categories of severity based on the presence or absence of these key signs and symptoms. The main emphasis is on the resulting action: the purpose of the classifications is to enable the primary health care provider to select a management plan rather than make a precise diagnosis that would often be impossible at that level, based only on clinical grounds and the assessment of a few signs. Thus, a sick child is 'classified' into one of three main categories, highlighted with a colour code:

- red – indicating serious conditions that need urgent referral to an inpatient facility
- yellow – indicating situations that can be managed at the health centre, often with drugs (such as antimicrobials or oral rehydration therapy), but that require definite follow-up

- green – indicating mild conditions that require simple home care.

Field studies of IMCI guidelines have shown that 10 - 34% of assessed children need to be referred.<sup>2</sup>

At every consultation, irrespective of the reason for attendance, the health professional evaluates the child's feeding status and growth pattern, immunisation record and quality of care received at home. Finally, the practitioner classifies the main illnesses and ensures treatment of all detected health problems and – equally important – provides information to parents or caregivers about proper prevention strategies and child care at home. The latter may be the most innovative feature of the strategy.

### *How does IMCI differ from the traditional approach?*

Seemingly simple and even common-sensical, the IMCI strategy nevertheless requires a critical redirection of the role of both the health professional and caregiver compared with that adopted in a traditional consultation. It demands that parents or other primary caregivers participate more actively in consultations and are better observers of their children's health. It assigns doctors and nurses new roles as social communicators and educators, who must teach parents how to promote and monitor crucial aspects of their child's physical development. Critically, it insists that health professionals invest the extra time and effort necessary to make a thorough, holistic assessment of each child's health.

For many, if not most, doctors, learning to use IMCI involves reviewing fundamental aspects of their professional orientation and behaviour. The strategy's emphasis on a holistic approach and the need to involve mothers and the community in the care of children represents a change from what most doctors have been taught as medical students. Traditionally, doctors tend to focus almost exclusively on analysing and treating children's immediate symptoms. There may be a great deal of time spent on asking related questions and on examinations such as otoscopy or auscultation. Often, quickly homing in on a favoured diagnosis, based on intuition, may be the practitioner's preferred strategy. Alternatively, considerable time and effort may be expended on considering and excluding unusual (but interesting) differential diagnoses. Table I highlights key differences between traditional biomedical approaches and IMCI.

The possibility of HIV exposure or infection is frequently ignored in children presenting to primary health care settings

**Table I. Differences between the traditional and the IMCI approach**

#### **The traditional approach**

- Doctor or nurse consults with child and caregiver
- Focuses on main complaint
- Usually lasts 3 - 5 minutes
- Management strategy targets the presenting complaint

#### **Advantages of the traditional approach**

- Individual skills and experience of the practitioner can be brought to the consultation
- Emphasis on making a diagnosis

#### **Deficiencies of the traditional approach**

- Inadequate attention to related complaints, illnesses or diseases
- Inadequate attention to health surveillance (e.g. growth or development)
- Limited health promotion activities (e.g. feeding practices, immunisation, vitamin A supplementation)
- Compartmentalised care – doctor, nurse, pharmacist, dietician, etc. each have distinct roles
- Parents are often passive recipients of advice

#### **How does the delivery of IMCI differ from that of the traditional approach?**

- Focuses on patients and best practices rather than on diseases
- Standardised, fully integrated syndromic approach based on clinical guidelines that define when to do what
- Evidence-based and action-orientated management of patients
- Considers and integrates multiple illnesses
- Integrates sick care with health promotion
- Uses a limited number of essential drugs
- Parents are active participants in the treatment of the child
- Aims at creating a continuum of care between the health system services and the care provided in the family and community

in South Africa – for both well-baby care and sick visits (K Thandrayen 2007 – personal communication). Using IMCI guidelines does not guarantee that every HIV-infected child will be identified (the current South African IMCI criteria have a 23 - 73% sensitivity during infancy), but the guidelines' insistence that the possibility of HIV be considered in every child increases the chances of making the diagnosis, starting appropriate cotrimoxazole prophylaxis and commencing antiretroviral therapy earlier – all potentially life-saving measures.

### *IMCI is not just about clinical care for the individual child*

IMCI as a strategy has three components. It aims to:

- Improve health providers' skills. This mostly refers to clinical and

communication skills, and involves up to 11 days of additional training for junior staff.

- Improve health systems to deliver IMCI. This concerns policy, planning and management, financing, organisation of work and distribution of tasks at health facilities, human resources, availability of drugs and supplies, referral, monitoring and health information systems, supervision, evaluation and research.
- Improve family and community practices related to child health and development. This currently refers to 12 key family and community practices that, if properly promoted and adopted by the targeted communities, would potentially contribute to improving child survival, growth and development.

## The doctor there sent her home. She died 2 days later in the same hospital.

### Expansion of IMCI to be more relevant

IMCI originally focused on five main conditions responsible for more than 70% of child deaths globally, namely pneumonia, diarrhoea, measles, malaria and malnutrition. In South Africa, a module on the recognition and care of children with HIV/AIDS was incorporated without delay. The importance of malaria was downgraded because of its infrequent occurrence in most local settings. The addition of a neonatal module is imminent, while one on interactive care for healthy child development is also being developed by the WHO.

A frequent criticism of IMCI is its inattention to other common childhood problems such as eye, skin or surgical conditions and trauma. While this deficiency is acknowledged, the priority for IMCI is to identify and manage potentially lethal diseases, and nothing precludes an IMCI practitioner from attending, for instance, to a skin condition once other important symptoms have been excluded or dealt with.

### How good is IMCI in practice?

IMCI is now practised in over 100 countries, with almost identical care being offered to a child presenting at a health centre in Bolivia, Mali or Mongolia. While the experience and implementation of IMCI has inevitably differed in different settings, successes have been replicated in many areas. In summary, IMCI appears to promote a health care approach that is effective, feasible and affordable, while ensuring quality care. Tables II and III highlight some of the successes and weaknesses of the approach, described by various studies over the past decade.

In a recent study, 21 nurses in 21 Cape Town clinics were observed before and after the IMCI intervention.<sup>3</sup> There was a marked improvement in assessment of danger signs in sick children (72% identified after IMCI training versus 7% before training), assessment of co-morbidity, rational prescribing (84% versus 62%), and starting treatment in the clinic (70% versus 40%). However, there was no change in the treatment of anaemia or the prescribing of vitamin A or counselling of caregivers. Neither was there any change in the knowledge of caregivers regarding medication or when to return to the health

facility. Facilities were well stocked and there was regular supervision both before and after IMCI.

### Why is IMCI not used more widely?

There are a number of reasons why IMCI is not more widely utilised in South Africa. These include:

- health system limitations may be overwhelming, preventing the introduction of the strategy
- training courses are too long (5 days for trainers and 11 days for nurses)
- the strategy does not address neonates younger than 1 week and children older than 5 years
- common conditions such as skin disorders and minor trauma are excluded
- an average IMCI consultation takes 8 - 16 minutes, about 2 - 4 minutes longer than a traditional consultation

- more experienced practitioners believe that the approach is 'too simple', particularly since it does not require the use of instruments such as a stethoscope or an otoscope
- some approaches, such as the diagnosis of HIV, lack adequate sensitivity and specificity (since it omits looking for signs such as hepatosplenomegaly).

### Is IMCI relevant to doctors in the public sector?

Most doctors working in hospitals receive referrals from clinic-based IMCI nurse practitioners. Doctors need to be informed about what a particular IMCI classification means and recognise why a child has been referred. Doctors working in outpatient clinics, whether at a hospital or a clinic, can also benefit from using the approach. While the use of a stethoscope may, for instance, improve the evaluation of a child with a suspected pneumonia, it should be appreciated that tachypnoea alone is the best sign for identifying pneumonia (in terms of its positive likelihood ratio). Similarly, the IMCI management of diarrhoea represents the gold standard of care in any setting, including a tertiary

**Table II. Successes of the IMCI approach<sup>4,5</sup>**

#### Child

- Overall mortality decline of 25 - 30%
- 50% decrease in mortality from lower respiratory tract infections

#### Parents or caregivers

- Increased caretakers' satisfaction with services
- Increased utilisation of facility-based outpatient child health services
- Improved nutrition counselling
- Wide acceptance of key family practices promoted to improve household and community child health practices

#### Health professionals

- Better communication with caretakers
- Danger signs identified more consistently
- More appropriate antibiotic and other treatment prescription
- Assessment of co-morbidity improved

#### Health system

- Improved availability of essential drugs at first-level facilities
- Treatment started immediately (in clinic)
- Cost similar to or lower than non-IMCI case management
- Improved quality of outpatient child health services
- Rationalising of child health policies and updating of essential drugs list
- Better record keeping and health professional supervision

**Table III. Weaknesses identified in the delivery of IMCI<sup>4,5</sup>****Parent**

- Inadequate knowledge of caregivers regarding medication or when to return to the health facility

**Health professionals**

- Ignored some components, e.g. nutrition counselling
- Inconsistent prescribing of some medication, e.g. vitamin A

**Health system**

- Deficiencies in health facilities could not always be overcome, e.g. drug supply
- Unable to address impediments, e.g. staff rotation, policies on staff deployment and transfer
- Lack of defined budget, logistic guidelines and tools, mechanisms for outcome monitoring, and a communication strategy
- Current training approach is too time consuming, preventing quick rollout
- Staff supervision not sustainable
- Equitable coverage of interventions not achieved
- Perception that guidelines result in too many referrals
- Community-based activities patchy and largely ineffectual
- Few efforts to include non-public sector health professionals in strategy

institution. Doctors also can play a key role in the training and support of IMCI nurse practitioners.

### *Is IMCI relevant to doctors in the private sector?*

IMCI was primarily designed for settings with high under-5 mortality rates (> 40 per 1 000 live births). However, as discussed above, there is little reason to doubt the value of IMCI guidelines to private practitioners working in better-resourced

settings. Even if the clinical diagnostic approach is (fallaciously) believed to be too simplistic, practitioners can still benefit from the management protocols and the superb advice provided in the IMCI booklet about issues such as breastfeeding, child feeding practice or counselling of caregivers. A specific focus on growth, immunisation, feeding practice and appropriate caregiver counselling at every young child consultation as advocated by IMCI can only enhance the quality of care provided by any practitioner.

## *Conclusion*

Every doctor who manages sick children should consider upgrading his or her skills to include IMCI. The IMCI approach ensures that a comprehensive and accurate assessment is made of every sick child, using simple yet reliable clinical signs at the first contact level. All doctors, particularly those working in the public sector, need to understand the IMCI approach since it is the preferred strategy adopted by the South African health department for the delivery of child primary health care. At a minimum, this familiarity will enable hospital doctors to assess the appropriateness of clinic referrals better. Little Ntombi would still have been alive today.

**References**

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## *single suture* **Low-dose quadruple antihypertensive combination**

Increasingly combined antihypertensive agents are being used in practice to enhance control and improve compliance. Now, a capsule containing four different classes of antihypertensive drugs in doses that are one-quarter of the standard dose of each drug has proved better at maintaining low blood pressure than a standard single dose of any one drug. The drugs were atenolol, bendroflumethiazide, captopril, and amlodipine. A higher proportion of patients achieved a blood pressure of less than 140/90 mmHg with the combination (60%) than with any individual drug (15 - 45%).

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