

Invited Review Article

Integrated Management of Childhood Illness (IMCI) Training in Sudan: Experience with In-service Training and the JUSTIFICATION, need and impact of IMCI Pre-service Training

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Introduction:

This article highlights the training component of the Integrated Management of Childhood Illness (I.M.C.I.) strategy, its rationale, process, advantages and expected impact on health workers competencies.

It documents the I.M.C.I. in-service training in Sudan and discusses its success and limitations.

The article addresses the rationale and supports the introduction of I.M.C.I. in preservice training to ensure sustainability & augment its impact on the health services.

It argues that I.M.C.I. training in preservice training in medical & health training institution will improve training through its holistic integrated approach innovative training activities, it also discuss its feasibility and constraints.

I.M.C.I. Strategy:

The integrated management of childhood illness (I.M.C.I) strategy

Over the last decade childhood mortality decreased by about 15%, however the reduction was not-universal with poorer countries having static or even increasing childhood deaths. Still over 50 countries are having childhood mortality rates over 100 per 1000 live birth⁽¹⁾.

Of the estimated 11 million deaths of children under 5 years in the developing countries the majority die during their first year of life. Seven out of 10 deaths are due to preventable or easily treatable conditions namely: pneumonia, diarrhoea, malaria, measles singly or in combination usually on a background of malnutrition. Projection based on the 1996, global burden of disease indicates that these conditions will still be major contributors to child deaths up to the year 2020 unless efforts to control them are accelerated⁽²⁾.

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Lessons learned from disease specific W.H.O. child survival programmes in the past 15 years confirmed that children present with more than one illness & that malnutrition is a major background contributor whereas the health worker training is often disease specific & lacks the holistic approach to identify other concurrent problems or assess background nutritional factors & rarely does the health worker offer preventive care or primitive health advice⁽³⁾.

In response to these issues WHO and UNICEF developed the Integrated Management of Childhood Illness (IMCI) in 1995/96. The strategy is based on three main components: improvement of case management skills, improvement of the health system & improvement of family & community practices^(4,5,6 & 7)

I.M.C.I. Training:

A holistic approach to assessment of children is the core of I.M.C.I. strategy implemented through its clinical guidelines that promote an evidence-based syndromic approach to case management that supports the rational, effective and affordable use of diagnostic tools and drugs. The technical basis of such approach were thoroughly justified by research & practice^(8,9).

In addition the training addresses an identified weaknesses from previous experiences namely: checking for immunization & nutritional states, advising parents on how to give treatment at home, assessing the child feeding, counseling on breast feeding & feeding problems, advice of parents about home care and when to return to the health facility⁽¹⁰⁾.

The child health interventions included in I.M.C.I. comprise case management & preventive interventions: Case management interventions for: severe illness, pneumonia, acute & persistent diarrhoea, dysentery, meningitis, sepsis, malaria, measles, malnutrition and anaemia. Preventive interventions addressed by I.M.C.I. include: vaccination, Vt. A supplementation, nutrition counseling and breast feeding support⁽⁹⁾.

The I.M.C.I. assessment is based on detection of cases based on common symptoms using simple clinical signs without laboratory tests and offering empirical treatment. However the signs used are less & more valid^(9,10).

The health worker is directed through the process using guidelines for assessment and classification (The I.M.C.I. algorithm). The main features of the algorithm include:

The health worker assess & classify for danger signs, main symptoms & makes a decision either to: Refer urgently, offer treatment & advice or simple advice & home management.

He identifies & gives treatment instructions & practical demonstration, check vaccination & vitamin A supplementation & if needed vaccinate & offer Vt. A.

In every child nutrition is assessed & mothers are counseled on breast feeding & nutrition. Follow up instructions are offered using the mother card⁽¹⁰⁾.

The guidelines were tested in the initial phases by research & field testing in Africa & Asia where their validity & reliability were confirmed⁽¹¹⁻¹⁶⁾.

Performance of health workers was also studied & published work documented an improvement in performance of health workers using the I.M.C.I. algorithm⁽¹⁷⁻²³⁾.

Before introducing I.M.C.I. strategy in any country a process of adaptation of the generic guidelines to the country needs and health policies is required, that process insures relevance, responsiveness to the priority health problems & assures feasibility. Adaptation process will necessitate changes in the training material. A guideline to the process is available⁽²⁴⁾.

I.M.C.I. Standard Case Management Course:

The main training for health workers is conducted through the 11 day, standard case management course which consist of 80 hours of training designed to offer a mix of classroom teaching, and (30%) "hands on" training as clinical outpatient & inpatient sessions.

The class work consists of small group teaching using active learning strategies including: individual reading, exercises, drills, interactive video sessions, role play and demonstration. It is supported through active facilitation by trained facilitators in clinical sessions each participant assesses, a classifies about 10 children; the inpatient session and over 24 cases in the outpatient sessions. In each session a demonstration by a facilitator or clinical instructor is conducted at the beginning.

The course is supported by excellent training material including 6 training manuals, a chart booklet recording forms, wall charts, video tapes, photograph booklet & demonstration material. In addition there are facilitator guides & clinical instruction guidelines for inpatient & outpatient sessions⁽²⁵⁾.

There are a number of indicators for assessment of the participants and the course and a feedback session.

This training was quite successful in achieving its main objective of improving case management skills through an integrated approach addressing priority health problems with curative, preventive and

promotive components included:

A number of studies documented the effectiveness of this training strategy & results of follow up after training in different countries were encouraging^(14,15,16 & 21-23)

Milestones of I.M.C.I. in Sudan:

The first orientation workshop on I.M.C.I. was held in Sudan in November 1996 and the strategy was adopted by the Ministry of Health & an adaptation and implementation group were formulated. By May 1997 consensus on adaptation was reached & the early implementing districts were chosen in Khartoum & Gezira provinces.

The first national training course was conducted in December 1997.

Arabic translation of the adapted training modules was completed in 1998 & the first training course for medical assistants was conducted.

In December 1999 the review of early implementation was conducted & based on its encouraging indicators a decision to go into the expansion phase was taken by the Ministry of Health. To date 14 states were enrolled either in the consolidation phase or early implementation phase^(26,27).

I.M.C.I. In-service Training in Sudan:

As mentioned earlier adaptation of the training material was completed 5 month after the consensus workshop on adaptation.

Sudan was the first country in EMRO to translate the training modules & materials to Arabic language for training of medical assistants. To date 9 national courses were conducted with regional contribution of trainers and trainees in 5 courses, 184 doctors were trained in SCM. Of those 90 had facilitators training in 8 courses. Initial training course targeted senior paediatricians and university staff and senior M.O.H. involved in childhealth & primary care administration.

At states level 43 training courses were conducted involving 360 doctors, 520 medical assistants and 25 other health cadres involved in child care at primary level (sisters, nurses, nutritionists etc...).

From those 104 had facilitator training conducted in 13 facilitators training courses.

Two standard case management courses were arranged for 48 university staff from departments of paediatrics and community medicine in preparation for introduction of I.M.C.I. training in pre-service training.

Eight courses were conducted on supervisory skills.

Thus a total of 83 courses were conducted and 1393 health staff were trained, 19 were trained from different countries in EMRO region.

Furthermore 3 Nationals were trained in I.M.C.I. planning & adaptation in Geneva, W/HQ.

Two National senior trainers contributed to standard case management & facilitators courses in the region AS course directors & clinical instructors & while two were involved as regional consultants for adaptation.

Thus the country had a large human resource of senior trainers both at central & state levels with full involvement of university staff and senior paediatricians, community physicians and M.O.H. administrators⁽²⁷⁾.

- **Limitations of in-service training:**

Although the training was successful & follow up results were v. good however the major limitations identified during these years were:

- The long duration of the course
- The cost of training
- Difficulty in changing practice & attitudes of health worker with long years of experience.
- Rapid turn over of doctors in the health centres.
- High drop out rate through immigration to the Gulf an Europe.

Those factors makes training difficult to sustain, specially when I.M.C.I. is incorporated in the regular budget of the P.H.C.

I.M.C.I. pre-service training is an alternative strategy that is affordable and can ensure sustainability and overcome some of these limitations.

- **Rationale for incorporating I.M.C.I. in pre-service training:**

I.M.C.I. training in pre-service training will ensure a better investment for both the health system and the training institutions:

The benefits to the health system include better care to children, better trained health workers with life long experiences, reduced cost of training more sustainable programs and will mitigate the effect of high turn over and drop out of health staff.

For health workers training institutions I.M.C.I. pre-service training will:

- Enhance relevance of training by addressing priority health problems.
- Improve quality of training through its effective teaching

strategies and tools.

- Help in better utilization of curriculum time & human resources.
- Consolidate partnership between M.O.H. & training institutions.
- Provide a forum for integration of primary health care training with emphasis on a holistic approach to the ill child.
- Train H. workers in outpatient setting and thus ensure a training environment that is more realistic for future practice.
- Rectify the felt weaknesses in H. workers training namely counseling skills on Breast feeding, nutrition, vaccination and follow up & rationale drug use.

These benefits will address areas of weakness in training institutes identified in different workshops & studies^(28,29).

The training methodology of the I.M.C.I. will upgrade the quality of teaching through inclusion and emphasis on effective & innovative learning methods including: small group teaching, integration, outpatient & community based practices, relevance of training to health needs, cost benefit oriented clinical decision making and acquiring essential clinical skills to deal with emergency situations & refer in outpatient settings⁽³⁰⁻³⁵⁾.

• **Enabling factors⁽³⁵⁾:**

- I.M.C.I. strategy addresses priority health problems targeted for training in the educational objectives of most training institutes, it adds relevance to training.
- I.M.C.I. adaptation process was implemented with involvement of most senior staff in universities.
- Availability of I.M.C.I. trained staff in almost all medical schools, though their involvement as senior trainers or participation in targeted courses for teachers for both full-time & part-time staff.
- Almost all schools have curriculum time for training of I.M.C.I. targeted problems based on W.H.O. programmes guidelines using the algorithmic approach based on classifications.
- Most schools have training activities at health centre level, however activities & tasks need modification, guidance & supervision.
- Medical & health schools are eager to introduce innovative teaching & evaluation methods in their curriculum & teaching.
- Availability of teaching & reference resource material (see annex-1).

- Partnership between medical schools and M.O.H. is already in existence, I.M.C.I. implementation strengthened this partnership. The experience of adaptation & the National Task Force for introduction of I.M.C.I. in pre-service training is an example of that partnership⁽³⁷⁾
- Exchange of experiences in the region facilitated by W.H.O., EMRO^(37,38)
- **Identified constraints⁽³⁶⁾:**
 - Different types of curriculae, some of the schools have traditional, discipline based curriculae which are difficult to reform or manipulate.
 - Integration & change of strategies of teaching to utilize already available training time in paediatric and community health curriculae needs mutual understanding & flexibility.
 - Lack of teaching in outpatient settings both at hospital & health centre level is a major challenge.
 - None availability of teaching space & training requirements in outpatients & health centres.
 - Lack of orientation of decision makers from other disciplines.
 - High turn over of teaching staff through immigration.

Conclusion:

The introduction of I.M.C.I. training will improve care for children in Sudan, sustain the service and have a positive impact on training of health worker by emphasizing relevance of the curriculae & improving quality of training through introduction of innovative, objective teaching and assessment tools.

References

1. World Health report 1999: making a difference. World Health Organization, 1999.
2. Murray CJL and Lopez AD. The global burden of disease; a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Geneva, World Health Organization, 1996
3. Report of the Division of Child Health and Development 1996-1997. Geneva, World Health Organization, 1998.
4. World Health Organization, Division of Diarrhoeal and Acute Respiratory Disease Control. Integrated management of the sick child. Bulletin of the World Health Organization, 1995.
5. Wolfheim C. From disease control to child health and development. World Health Forum 1998; 19(2): 174-81.
6. Integrated management of childhood illness in resource poor countries: an initiative from the World Health Organization. Trans Roy Soc of Trop Med & Hyg 2000; 94(1): 9-11.
7. Integrated approach to childhealth in the developing countries. Lancet 1999; 354 suppl 2: S1116-20.
8. Paxton LA et al. an evaluation of clinical indicators for severe paediatric illness. Bulletin of the World Health Organization, 1996. 74:613-18.
9. S.Gove, for the WHO working group on guidelines for integrated management of the sick child. Integrated management of childhood illness by outpatient health workers: technical basis and overview. Bulletin of the World Health Organization 1997;75(Supp 1): 7-24
10. I.M.C.I.)Integrated Management of Childhood Illness) handbook. WHO publication. WHO/FCH/CAH/00.12.April 2000.
11. Weber MW et al. Evaluation of an algorithm for the integrated management of childhood illness in an area with seasonal malaria in the Gambia. Bulletin of the World Health Organization, 1997. 75(Supp1. 1): 25-32.
12. Perkins BA et al. Evaluation of an algorithm for integrated management of childhood illness in an area of Kenya with high malaria transmission. Bulletin of the World Health Organization, 1997,75(Supp1. 1):33-42.
13. Shah D, Sachdev HP. Evaluation of the WHO/UNICEF algorithm for integrated management of childhood illness between the age of 2 months to five years. Indian Paediatrics 1999;36(8): 767-77.
14. Lambrechts T, Bryce J, Orinda V. Integrated management of childhood illness: a summary of first experiences. Bulletin of the World Health Organization 1999; 77(7): 582-94.

15. Gupta R, Schadev HP, Shah D. Evaluation of the WHO/UNICED algorithm for integrated management of childhood illness between the ages 1 week to 2 month. *Indian Paediatrics* 2000,37(4):383-90.
16. Oluwole D. Management of childhood illness in Africa. *Br Med J* 2000;320(4): 564-5.
17. Kalter HD et al. Identifying sick children requiring referral to hospital in Bangladesh. *Bulletin of the World Health Organization*, 1997. 75(Suppl. 1):65-75.
18. Sucker JP et al. Clinical signs for the recognition of children with moderate or severe anaemia in western Kenya. *Bulletin of the World Health Organization* 1997. 75(Suppl. 1):97-102.
19. Kaltefleiter HD et al. Evaluation of clinical signs to diagnose anaemia in Uganda and Bangladesh, in areas with and without malaria. *Bulletin of the World Health Organization*, 1997-75(Suppl.1):103-11.
20. Bern C et al. Assessment of potential indicators for protein-energy malnutrition in the algorithm for integrated management of childhood illness. *Bulletin of the World Health Organization*, 1997,75(Suppl.1):87-96.
21. Simoes EAF et al Performance of Health workers after training in integrated management of childhood illness in Gondar, Ethiopia. *Bulletin of the World Health Organization*, 1997,75(Suppl.1):43-53.
22. WHO Division of Child Health and Development & WHO Regional Office for Africa. Integrated management of childhood illness: field test of the WHO/UNICEF training course in Arusha, United Republic of Tanzania, *Bulletin of the World Health Organization*, 1997,75(Suppl.1):55-64.
23. Klostad PR et al. The integrated management of childhood illness in western Uganda. *Bulletin of the World Health Organization*, 1997, 75(Suppl.1): 77-85.
24. Adaptation of the IMCI technical guidelines and training materials WHO/CHS/CAH/98. ID REV. 1 1999.
25. IMCI training course for first-level health workers: Linking integrated care and prevention. WHO/CHS/CAH/98. IE REV. 1 1999.
26. IMCI in Sudan. Early implementation review report. MOH/WHO 1999.
27. IMCI. Implementation: update report 2002. PHC/MOH; Sudan
28. Report of Task Force on curriculae of medical schools in Sudan – WHO/Sudan submitted to EMRO November 1998
29. Report of Task Force on development of National Policy for HRH training WHO/Sudan

submitted to EMRO June 1998.

30. Verma M and Singh T. Undergraduate paediatric education in India: Current concepts. *Indian Pediatrics*, 1995, 32: 9-12.
31. Lachman P and Zwarenstein M. Child health and health care utilization. A community-based survey in Mitchell's Plain. CP. *South Africa Medical Journal*, 1990, 77(9): 467-70.
32. Sahler O.J. Pediatric Medical Student Education: New and déjà vu. *Archives of Pediatrics and Adolescent Medicine*, 1999, 153:223-25.
33. Carl E et al. Trends in clinical education of medical students: implications for pediatrics. *Archives of Pediatric and Adolescent Medicine*, 1999, 153:279-302.
34. Forsyte K and Rotem A. Meeting the needs of medical students training in paediatrics and child health. *Journal of Paediatric Child Health*, 1999, 35:11-13.
35. Baum JD. Core knowledge, skills and attitudes for undergraduates: Kindling curiosity. *Archives of Disease in Childhood*, 1995, 73(3): 268-9.
36. Country Report on introduction of IMCI in pre-service training in Sudan – intercountry meeting, EMRO, Cairo Sept 2002.
37. Report of Task Force on Partnership between medical schools and MOH in Sudan. WHO/Sudan submitted to EMRO June 2002.
38. Informal consultation meeting for IMCI in pre-service training, WHO/HQ, Geneva 28-30 January 1998.
39. WHO Regional meeting on IMCI pre-service training in EMRO – Cairo 2-5 September 2002.