Integrated Management of Childhood Illness (IMCI) follow-up of basic health workers

Article *in* The Indian Journal of Pediatrics · October 2005

DOI: 10.1007/BF02734143 · Source: PubMed

3 authors, including:

Nidhi Chaudhary
Independent Researcher
2 PUBLICATIONS **30** CITATIONS

SEE PROFILE

Original Article

Integrated Management of Childhood Illness (IMCI) Follow-up of Basic Health Workers

Nidhi Chaudhary, P. N. Mohanty and Minakshi Sharma

Society for Women and Children's Health (SWACH), Panchkula (Haryana), India

Abstract. ***Objective:*** To assess the practice of skills learnt by basic health workers for 4 – 8 weeks and one year after IMCI training, and to identify the gaps in practices due to various constraints. ***Methods*** **:** The *anganwadi* workers (AWWS) and the supervisory staff were given 5 days IMCI training using WHO package. The supervisors gave follow up visits to AWWs using standardized follow up forms adapted from WHO material. The supervisors gave follow up visit to the 1st batch of AWWs 1 year after training in IMCI and a second visit was given 4-8 weeks after the 1st visit. The 2nd batch of AWWs was followed up 4-8 weeks after training in IMCI. ***Results :*** The performance on correct treatment of cases by AWWs weeks were trained 4 - 6 weeks prior to follow up was better than group followed up one year after the completion of training (81.8% and 47.9% respectively). At the same time, the performance on correct treatment showed significant improvement during the second follow up (47.9% and 83.8% respectively). Performance on counseling improved from 15.6% during 1st follow up to 52.1% during 2nd follow up visit. The average number of cases seen by AWWs increased from 6.6 in 1st follow up to 9.3 during second follow up of the same AWWs. ***Conclusion :*** The basic health workers (AWWs) are capable of correct case management of sick children using the IMCI guidelines. The first follow up visit should not be delayed as delay leads to loss of skills. The health workers benefit from frequent and regular follow up by supervisors. Provision of requisite supplies is essential for practice of skills after training in IMCI by basic health worker. **[Indian J Pediatr 2005; 72(9) : 735-739]** *E-mail : nidhimohan92@yahoo.com*

Key words : *IMCI; Follow-up; BHW*

Every year more than 10 million children die, almost all in low-income countries or poor areas of middle-income countries.[1] After the neonatal period, the main causes of death are pneumonia, diarrhea, malaria, measles and malnutrition, accounting for about 70% of childhood deaths. These are preventable or treatable through effective case management. World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) have developed an 'Integrated Management of Childhood Illness' (IMCI) approach[2] to reduce under-five mortality in developing countries and to improve the performance of health workers in managing childhood illnesses. IMCI is an effective low cost strategy for improving child health and is highly appropriate to developing countries.[3,4] It addresses co-existent morbidities that are quite common.[5] IMCI also focuses on nutrition and immunization besides diagnosis and treatment of specific disease conditions. The integrated approach reduces wastage of resources and avoids duplication of an effort.

The national population policy in India targets reduction of infant mortality rate to 30 / 1000 livebirths by 2010.[6] India is also committed to the achievement of Millennium Development Goals which envisages a two-third reduction of under-five mortality compared to 1990 levels by the year 2015. The access to health facilities in the rural and urban slum areas in India is poor. In addition, the traditional practices and enormous social and economic constraints influence the care-seeking behaviour of the community.

Applying the IMCI approach in the community presents many challenges. The work environment of health workers is often very different from the setting in which the training is organized. Therefore, support is required to enable basic health workers to apply their new skills into practice. The field test of IMCI training course with community health workers (medical assistants, rural medical aides and Maternal and Child Health aides) in Tanzania has shown that the participants needed extra facilitation to learn the requisite skills.[7] Experience from community-based trials on reducing pneumonia mortality in under-five children has shown that peripheral health workers can reduce pneumonia-specific mortality as well as infant mortality rate.[8] The implementation of IMCI in the community requires trained basic health workers, sustained supplies of essential drugs and equipment, improved family and community participation with increase in service utilization.[9,10]

Follow up of the basic health workers after training is an essential component of IMCI training process to reinforce skills acquired during training and to solve problems encountered during implementation of IMCI.[11]

Correspondence and Reprint requests : Dr. Nidhi Chaudhary, Project Manager, Society for Women and Children's Health (SWACH), Near Sanatan Dharam Mandir, Sector 16, Panchkula, Haryana.

The performance of health workers in Ethiopia has shown promising results with improvement in skills over a 3 week follow up.[12] However, the experience on follow up in Basic Health Workers is not available. The present study was therefore undertaken to assess the practice of skills learnt by basic health workers 4-8 weeks and 1 year after IMCI training and identify the gaps in practices due to various constraints.

MATERIALS AND METHODS

Study Area

The study was carried out in the Panchkula district of Haryana, India from January 2003 to May 2003. The literacy rate in the district is 45% and the under five mortality rate in Haryana is 76.8/1000 livebirths.[13] The health services provided by Government are through primary health center, that is responsible for approximately 30,000 population. The center has a male and a female doctor and 6 beds for in-patient care. For about 150,000 population there is a community health center which has 30 beds and 5 doctors (one of them is responsible for health care of women and children). In addition, there are hospitals at district level with specializations including pediatrics. Under the Integrated Child Development Services (ICDS) scheme, the Women and Child Development Department has an Anganwadi Worker (AWW), at the community level, who is assigned a population of 1000. The ICDS caters to nutrition, immunization and health needs of under-six children and pregnant and lactating mothers. Supervisory staff at the community development block in ICDS scheme comprises a child development programme officer and 4-5 supervisors. One supervisor is responsible for supervision of 20-25 AWWs.

IMCI Training of AWWs

The AWWs were chosen since they are present in every village and are expected to provide basic health care to under six children. While they are accepted by the community in providing nutrition and preventive child care, their expected role in curative services is limited. The AWWs were trained by using the adapted 5 day training WHO-SEARO package on IMCI for basic health workers. This training course helped the AWWs to acquire skills by 'hands on' practice for four days (3-4 hrs each day) and incremental learning under the guidance of facilitators who provided feed back throughout training.

Follow-up after Training

The supervisors of AWWs were given basic training on IMCI using the 5 days package for the basic health workers. For the follow up visits, the supervisors were trained using the 3 days follow up after training as per WHO guidelines. The training enabled the supervisors to carry out a systematic and supportive follow-up to observe case management, to reinforce skills and solve problems encountered during the implementation of IMCI by AWWS. For the follow-up after training, assessment was made with the help of the following 5 forms.

1. Record review form of the AW center.
2. Case Observation form to be filled by the supervisors. The supervisor examined the child and filled his/her observation in the form. She/he also observed the AWW manage the sick child and recorded any mistakes. Feedback was given to AWW on mistakes made and reinforcement of skills was done using drills and case studies.
3. Facility support review which included physical verification of supplies and equipment.
4. A summary of the supervisory visit with recommendation was left with AWW.
5. Summary of 10 follow up visits consolidated by the supervisors.

During the follow-up visit, supervisors were accompanied by SWACH staff who made independent observations. There was 92% level of agreement between the observations of supervisors and the SWACH staff. The follow up was done in three groups of AWWs.

- The batch of 33 AWWs trained in January 2002 was followed up after 1 yr in January 2003. This long gap in follow up visit occurred because the protocol for follow up of Basic Health Workers had not been developed. Since it was thought that Basic Health Workers may have forgotten their skills, a one day refresher training course was given 4-6 weeks before the proposed follow up visit after training. They were also provided cotrimoxazole and motivated to practice IMCI.
- The same batch was given a 2nd follow up after 4-6 weeks of the 1st visit.
- A second batch of 21 AWWs trained in February 2003 were followed up 4-8 weeks after the 5 day training course in IMCI.

RESULTS

A total of 77 follow-up visits were undertaken. There were 122 illnesses reported in 77 children who were brought to *anganwadi* centers. Two or more co-existent morbidities as the IMCI schedule were found in 46.7% (35/77) of the sick children. The mean number of morbidities in sick children examined during 1st follow up after 1 yr, 2nd follow up and 1st follow up after 4-6 weeks were 1.5, 1.4 and 1.6 respectively.

In the case management observation (Table 1), there was a significant improvement ($p<0.05$) in correct treatment of sick children during the second follow up and when first follow up was done 4-8 weeks after training as compared to follow up after 1 yr of training. Although there was improvement in correct assessment and classification, it was not significant. The assessment of feeding problems and provision of feeding advice

(Table 2) by the AWW were poor during the 1st follow up. It improved during the second follow-up and when the first follow-up was done 4-8 weeks after training, the change was not significant. There is considerable scope for improvement in provision of feeding advice. Advice on when to return immediately improved significantly during the second follow-up visit.

The performance of AWW who were trained 4-6 weeks prior to follow-up was better than the group followed-up one year after the completion of training. It was comparable to the second follow-up in the group trained one year earlier.

Review of Records at *Anganwadi* Center

In the records review (Table 3), the average number of sick children seen by each AWW increased from 6.6 during 1st follow up to 9.3 during the second follow up. Improvement in number of cases seen during the second follow up is related to reinforcement of skills, replenishment of supplies and motivation of basic health workers. Danger signs were found in a small proportion of cases seen by AWWs. Maximum number of cases presenting to the health facility had cough as the main symptom. (69-79%) in all three groups. The next frequently observed sign was fever. Diarrhea cases were not frequent since the study was done in winter. Undernutrition was checked in only 71% of total children.

Facility Support Review

The facility support review (Table 4) showed that IMCI register and laminated IMCI charts were available with most AWWs (95.2%-100%) during all the follow up visits. Since watch with seconds was available with only 24% of AWWs during 1st follow up after 1 yr, one minute sound

TABLE 1. Health Worker Performance on Case Management Task.

	1st Follow up after 1 year (AWW-33)	2nd Follow up after 1 month from 1st follow up (AWW-23)	1st Follow up after 4-8 weeks (AWW-21)
Correct Assessment	36/48 (75%)	27/31 (87.1%)	29/33 (87.9%)
Correct Classification	34/48 (70.8%)	27/31 (87.1%)	29/33 (87.9%)
Correct Treatment	23/48 (47.9%)	*26/31 (83.8%)	*27/33 (81.8%)

**p value < 0.05 in comparison to 1st follow up after 1 year.*

TABLE 2. Health Workers Performance on Counseling

	1st Follow up after 1 year	2nd Follow up after 1 month from 1st follow up	1st Follow up after 4-8 weeks
Cases for which feeding assessment done	6/31 (19.3%)	10/21 (48.0%)	6/17 (35.2%)
Cases for which feeding advice given	4/27 (14.8%)	7/19 (36.8%)	6/16 (37.5%)
Cases in which when to return immediately told	5/32 (15.6 %)	*12/23 (52.1%)	4/16 (25.0%)

** p value ≤ 0.05 in comparison to 1st follow up after 1 year*

TABLE 3. Review of IMCI Records

Symptoms	1st Follow up after 1 year	2nd Follow up after 1 month from 1st follow up	1st Follow up after 4-8 weeks	Total
Total no. of cases seen in 6 weeks	217	213	116	546
Average no. of cases seen per health worker	6.6	9.3	5.5	7.1
No. of cases with common danger signs	2 (0.9%)	5 (2.3%)	0	7
No. of cases with ARI Symptoms	156 (71.9%)	169 (79.3%)	81 (69.8%)	406 (74.3%)
- Severe Pneumonia	15 (6.9%)	7 (3.3%)	3 (2.6%)	25 (4.5%)
- Pneumonia	63 (29%)	40 (18.8%)	15 (12.9%)	118 (21.6%)
- Cough and Cold	78 (35.9%)	122 (57.2%)	63 (54.3%)	263 (48.2%)
No. of cases with Diarrhea	35 (16.1%)	22 (10.3%)	26 (22.4%)	83 (15.2%)
- Severe dehydration	0	0	0	0
- Some dehydration	9 (4.1%)	10 (4.7%)	8 (6.9%)	27 (4.9%)
- No dehydration	22 (10.1%)	10 (4.7%)	13 (11.2%)	45 (8.2%)
- Persistent diarrhea	2 (0.9%)	0	5 (4.3%)	7 (1.3%)
- Dysentery	2 (0.9%)	2 (0.9%)	0	4 (0.7%)
No. of cases with Fever	39 (17.9%)	63 (29.6%)	18 (15.5%)	120 (21.9%)
No. of cases checked for undernutrition	138 (63.5%)	146 (68.5%)	106 (91.3%)	390 (71.4%)
- Severe nutrition and anemia	1 (0.4%)	0	0	1 (0.2%)
- Anemia and under nutrition	14 (6.4 %)	11 (5.2%)	20 (17.2%)	45 (8.2%)
- No undernutrition and anemia	123 (56.7%)	135 (63.4%)	86 (74.1%)	344 (63%)

TABLE 4. Facility Support Review

	1st Follow up after 1 year n=33	2nd Follow up after 1 month of 1st follow up n=23	1st follow up after 4-8 weeks n=21
IMCI Register	33 (100%)	23 (100%)	20 (95.2%)
Laminated Charts	33 (100%)	23 (100%)	21 (100%)
Referral Cards	18 (54.5%)	14 (60.8%)	5 (23.8%)
Weighing Scale	33 (100%)	22 (95.6%)	20 (95.2%)
Wrist Watch	8 (24.2%)	11 (47.8%)	9 (42.8%)
Timer	0 (0.0%)	21 (91.3%)	19 (90.4%)
Thermometer	0 (0.0%)	0 (0.0%)	0 (0.0%)
1 Liter Measurement Jar	7 (21.2%)	6 (26.1%)	5 (23.8%)
Safe drinking water	19 (57.5%)	19 (82.6%)	16 (76.1%)
Cotrimoxazole (50 pediatric tablets)	25 (75.7%)	23 (100%)	13 (61.9%)
ORS Packets (10 packets)	6 (18.1%)	9 (39.1%)	2 (9.5%)
IFA Tablets (200 tablets)	19 (57.5%)	10 (43.5%)	7 (33.3%)
Paracetamol (10 tablets)	27 (81.8)%	5 (21.7%)	5 (23.8%)
Vitamin A bottle	11 (33.3%)	6 (26.1%)	4 (19.0%)

timers were made available to them and the second batch of AWWS. This improved possession of timer considerably. Since as a policy AWWs are not given antibiotics for distribution, cotrimoxazole was made available to them after training by SWACH Foundation. It was available in the recommended quantities in more than 75% of health facilities. The supplies of ORS, IFA and paracetamol which are routinely supplied through the auxiliary nurse midwife (ANM) or the community development programme officer (CDPO), were not found in sufficient quantities in the health facilities.

DISCUSSION

For the successful implementation of IMCI strategy in the community, there are three basic requirements: (1) Improvement in case management by training and follow- up (2) Strengthening of health system by logistics of supplies and (3) Improvement in community and family practices. The present community-based study on AWWs emphasises their importance. Case management observations showed that assessment and classification were correct during the follow-up visits after training. However, correct treatment was poor when there was a long gap (one year) between the training and the follow up. This improved significantly when an additional follow-up visit was made after 4-6 weeks of the first follow up visit. Similar results were obtained when the first follow up was done 4-8 weeks after the training. The results of the follow-up study from Ethiopia have shown that following training there is a loss of skills and this is exaggerated when follow up was done after 6 months of training.[12] From these studies, there is no doubt that sustaining the skills of AWWs would require follow up visits that should be suitably timed after the training. It is not possible to recommend the optimal timing for the follow up visit, although from the evidence available it is appropriate to conclude that the interval should not to be too long i.e. 6-12 months after the training. Multiple follow up visits with all the details included in the protocol used in the present study may be difficult to sustain in a programme setting. Therefore, the programme in India should explore the possibility of building in the second and subsequent follow up visits within the supervision as a part of the programme. The current supervisory visits should be reinforced by using the experience from the present study.

The improvements in feeding assessment and feeding advice were less prominent in comparison to the assessment, classification and treatment of illnesses. This is despite the fact that assessment of feeding and feeding advice is an expected job description of these workers and it was emphasized during the training. The focus of work of AWWs seems to be on assessment of weight and classification on the basis of weight for age. They are not conducting feeding assessment and feeding advice adequately because of lack of motivation and insufficient training. The importance of interaction between nutrition and infection should be recognized and adequate emphasis given to feeding assessment and advice during the future training of AWWs, in follow up after training and in supervisory visits.

The audit of records maintained during all the follow-ups after training visits showed that the number of sick children seen was low. This is possibly related to the poor care-seeking behaviour of the community, lack of awareness that AWWs can treat many illnesses and partly to lack of supplies for treatment of illnesses. While the programme needs to support the AWWs through a system of improved logistics, the credibility of AWWs can be improved through provision of good quality treatment and advice achieved through training and follow up after training visits. Community should be made aware that AWWs can provide treatment of common illnesses in children. If a larger proportion of sick children are treated by AWWs, early treatment might help in preventing development of serious disease and save lives. Through provision of treatment of illnesses in the community, the

burden on health facilities and hospitals to treat large number of children can be reduced so that these centres can focus their attention on treatment of sick children who are referred and save them from dying.

The facility support observation in the study revealed that IMCI registers and laminated charts were available in all the facilities. However, lack of equipment like thermometers and one minute sound timer or watch with seconds indicator compromised the satisfactory assessment of children sick with cough or fever. The system of supplies to be provided by the government was unsatisfactory (ORS packets, IFA, paracetamol and vitamin A). This could be related to cost constraints or poor logistics management. Niger's experience on cost recovery may be an option to be considered if costs are a constraint.[13] On the basis of available evidence, the government should consider the possibility of supplying cotrimoxazole in the treatment of pneumonia. In Nepal, cotrimoxazole was provided to female community health volunteers, many of whom were illiterate.[14] They contributed sustainability to the treatment of pneumonia and that experience has lead the country to permit these health functionaries to use the medicine under close supervision of health workers. The system of logistics for supplies should be strengthened and an indicator is recommended to monitor the stock supplies.

CONCLUSION

The IMCI strategy is based on the rationale that sick children often have more than one illness that may be life threatening. This is borne out by the presence of more than one symptom in 47% of sick children in the present study. Shah and Sachdeva found coexistent morbidities in children, 2 months to 5 yrs of age.[5] In addition to dealing with coexistent morbidities, IMCI strategy incorporates assessment of feeding, updating immunization status and provision of vitamin A prophylaxis. This provides an effective approach to reduce morbidity and mortality in young children and promote child health and development. These are the tenets of ICDS scheme in India and therefore, adoption of IMCI strategy with built in follow up after training for implementation in the community should be a priority in future.

REFERENCES

1. Black RE, Morris SS, Bayer J. Where and why are 10 million children dying every year ? *Lancet* 2003; 361 : 2226-2234.
2. World Health Organisation. Integrated Management of the sick child. *Bull WHO* 1995; 735-740.
3. Gove S. Integrated Management of Childhood Illness : Conclusions. *Bull WHO* 1997; 75(1): 119-128.
4. Costello A. Is India Ready for Integrated Management of Childhood Illness Strategy? *Indian Pediatr* 1999; 36: 759-762.
5. Shah D, Sachdev H.P.S. Evaluation of the WHO / UNICEF algorithm for integrated management of childhood illness between the age of two months to five years. *Indian Pediatr* 1999; 36 : 767-777.
6. National Population Policy (2000) Government of India
7. Gove S, Whitesell P, Mason K, Egwaga S, Perry H, Simoes E. Integrated Management of Childhood Illness : Field test of WHO / UNICEF training course in Arusha, United Republic of Tanzania. *Bull WHO* 1997; 75 (1) : 55-64.
8. Bang AT, Bang RA, Tale O, Sontalke P, Solanki J, Wargantiwar R, Kelzarkar P. Reduction in pneumonia mortality and total childhood mortality by means of community based intervention trial in Gadchiroli, India. *Lancet* 1990; 336: 201-206.
9. Lambrechts T, Bryce J, Orinda V. Integrated Management of Childhood Illness: a summary of first experiences. *Bull WHO* 1999; 77 (7) : 582-594.
10. Patwari AK, Raina N. Integrated Management of Childhood Illness (IMCI): a robust strategy. *Indian J Pediatr* 2002; 69(1) : 41-48.
11. Integrated Management of Childhood Illness (IMCI), Information Pack 1999 Follow up in Uganda : The implementation of IMCI in health facilities. World Health Organization Child and Adolescent Health Development Division, Geneva, 1999 available from URL:http / / who.int / chd accessed July 20, 2003.
12. Simoes EAF, Desta T, Tessema T, Cebresellasie T, Dagrew M, Gove S. Performance of health workers after training in integrated management of childhood illness in Gondar, Ethiopia. *Bull WHO* 1997; 75 (1) : 43-53.
13. Tawfik YM, Legros S, Geslin C. Evaluating Niger's experience in strengthening supervision, improving availability of child survival drugs through cost recovery and initiating training for Integrated Management of Childhood Illness (IMCI). *BMC Int-Health and Hum Rights* 2001; 1(1) : 1.
14. Pandey MR, Daulaine NM, Starbuck ES, Houston RM, Mc Pherson K. Reduction in total under-five mortality in western Nepal through community-based antimicrobial treatment of pneumonia. *Lancet* 1991; 338(8773) : 993-997.

Department of Genetic Medicine,
Sir Ganga Ram Hospital

Rajinder Nagar, New Delhi 110060

Telephone Nos : Direct 011-25861767; EPABX 25861463/25735205 ext. 1382.

Fax No. 011-25861767 or 26589434. E-mail : dr_icverma@yahoo.com

Genetic Tests For Pediatricians

Biochemical Tests :

1.Galactosemia–GALT enzyme plus Beutler spot test (Heparin blood)

2. Succinylacetone + Fumaryl acetoacetate for Tyrosinemia (Heparin blood)

3. Organic acids (urine) + Mass Tandem spectroscopy Blood (Filter paper specimens

4. Aminoacid chromatography, quantitative (Urine / Plasma) New

5. Metabolic screening-urine (Aminoacid chromatography + chemical tests)

6. Cystic fibrosis – Immunoreactive trypsin (less than 3 months age)

7. Enzyme assays for Metachromatic leukodystrophy, Gm1 gangliosidosis, Tay Sachs disease, Pompie's Gaucher's disease, Krabbe's Niemann Pick's. MPS VII. Hurler's Hunter syndrome Price per enzyme variable

DNA Diagnostics

- **Beta Thalassemia,** Mutation analysis (family) / XMN polymorphism / Prenatal dx
- **Duchenne Muscular Dystrophy,** Deletions / Prenatal diagnosis / Carrier screening
- **Cystic fibrosis, 25 mutations** including Δ508 / Δ508 only
- **Spinal muscular atrophy**–Diagnosis / Prenatal diagnosis
- **Hemophilia A and B,** Carrier screening / Prenatal diagnosis
- **Mitochondrial disorders (MELAS, MERRF, Leighs, NARP)** .... Variable
- **Many other disorders**

For Prenatal Diagnosis Enquire for Requirements & Cost

Chromosomal Studies

Blood/dysmorphic child/Bone Marrow for leukemias

Amniotic cell cultures/Chorionic villus samples

Fragile X/Ataxia telengiectasia/Prader Willi syndrome

F.I.S.H. studies for Micro-deletion syndromes/Quick Prenatal diagnosis

Muscle Biopsy staining with → Dystrophin (3 regions), Sarcoglycan antibodies (β, α, δ, γ,) Merosin, Dysferlin and Dystroglycan antibodies (Contact before sending)

Send samples by Courier to Reach within 48 hours. No Refrigeration required. Molecular diagnosis 5 ml EDTA blood; Biochemical Enzyme assays 8 ml EDTA blood; Chromosomal studies 3 ml Heparin blood; Aminoacids / Organic acids 15 ml of morning specimen of urine

For further information Contact Staff of **Dept. of Genetic Medicine in Hospital,** 9.30 a.m. to 5 p.m. Telephone Nos. EPABX 25861463 / 25735205-ext. 1382 (Dr. Verma), 2115 (Molecular), 2112 (Biochemical), 2111 (Cytogenetics).