

Health Facility Survey on Quality of Outpatient Child Health Services

**IMCI Health facility Survey
Sudan
March–April 2003**



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**Federal Ministry of Health
Sudan**



**World Health Organization
Regional Office for the Eastern Mediterranean**

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EXECUTIVE SUMMARY

Background

Integrated management of childhood illness (IMCI) was introduced in Sudan in 1996 as a strategy to address the most important causes of under-five mortality and morbidity using an integrated approach in line with the primary health care policy. It has since expanded to cover about 500 health facilities in 71 (30%) out of 240 districts located in 10 States. This survey was planned to measure outcome indicators on quality of care at IMCI health facilities.

Methods

The management was observed of 364 sick children aged 2 months up to 5 years old seen at 66 health facilities ('clusters'), randomly selected from 136 'IMCI facilities' (dressing stations, dispensaries, health centres and outpatient departments of hospitals) reporting a daily caseload of at least two children under 5 years and located in rural and urban areas of 7 states. 350 interviews with child caretakers were also conducted, and facilities, services and supplies were assessed in the 66 facilities visited.

Results

More than half (54%) of children were under 2 years old: 10 of the 14 severe cases fell in this vulnerable age group. The proportion of female children was slightly lower than male children (47% vs 53%). The majority of caretakers (83%) were mothers of the sick children; 42% of caretakers had no education, the proportion reaching 65% at dispensary level, and this having implications for health communication activities. More than three-quarters of children were managed by medical assistants; 77% were managed by IMCI-trained providers (100% at dispensaries), 74% by providers who had received IMCI follow-up visits, but only 22% by providers who had been followed up within 2 months of training. The average visit length was 20 minutes for children examined by IMCI-trained providers vs 8 minutes by untrained ones.

Patterns of illness: About 4% of children had a severe condition requiring urgent referral, mostly severe pneumonia. 63% of children had an acute respiratory infection; 57% were febrile or had a history of fever, but only one child had a validated laboratory diagnosis of malaria; 30% had diarrhoea, 8% an ear problem, 17% anaemia based on clinical pallor, and 6% were very low weight-for-age. Noteworthy is that 11% of children had an eye infection. The proportion of children having a severe condition, or requiring drug treatment or specific nutrition advice was very high (73%) at dispensary level, confirming the importance of this level of the health system in delivering child care. Caretaker report of a breathing problem had a low sensitivity for any severity of pneumonia (19%). Among the local terms used, *deeg nafass* and *eltibab* had slightly better sensitivity, specificity and positive predictive value. Only 32% of caretakers who had spontaneously reported a breathing problem in their child had taken the child to this facility within a day of their recognizing the breathing problem.

Case management by provider's IMCI training status: Key case management and advising tasks were much more likely to be performed—and performed correctly—in children managed by providers trained in IMCI than by those untrained, with the difference reaching high statistical significance in many cases (§ 5.3.3.2). Performance by providers not trained in IMCI was often rather poor, raising the issue about pre-service training and in-service supervision: for example, 74% of children were prescribed antibiotics unnecessarily, none of the caretakers of diarrhoea cases given ORS was advised on its preparation and administration, and often no advice on home care was given by providers not trained in IMCI. The findings described below refer to the whole sample, thus including children seen by both trained and untrained providers.

Assessment: Problems in taking the history accurately led to misclassification of some of the cases. An average of 5.9 tasks were performed in a child out of the 10 main assessment tasks to be performed. 24% of children below 2 years old and of those with very low weight-for-age and/or anaemia was assessed for feeding practices. Most children (82%) were weighed, and the weight was taken correctly and checked against the growth chart in about half of the cases. The temperature was taken in 47% of children, but taken correctly only in 14%; the vaccination status was checked in 60% of cases. Signs assessed (correctly) less frequently included assessment of palmar pallor (45% of cases) to detect clinical anaemia, and oedema of both feet (32%) and visible severe wasting (24%) to detect clinical severe malnutrition. The child road-to-health card was checked only in 9% of children, indicating that it was not a standard procedure for sick children. The respiratory rate was taken in three-quarters (76%) of the children with cough or breathing problems but the count was considered reliable in 41% of them. Duration of the diarrhoea episode to distinguish acute from persistent diarrhoea was asked about in 76% of cases and presence of blood to identify dysentery was asked about in 57% of cases. Unfortunately, this information was often not used by providers to classify the child's condition. Among the tasks to assess the hydration status, while 69% of children with diarrhoea had their skin pinched to check skin turgor and 50% were offered something to drink to check thirst, the skin was pinched correctly only in a third of them. A history of measles was checked in 42% of children with fever or history of fever. Caretakers of about half (48%) of the children were asked about the presence of any other problems than those listed in the IMCI algorithm, to complete the assessment of the child.

Classification: There was agreement between provider and surveyor classification in about a third (32%) of all children having conditions requiring urgent referral, treatment, or specific nutrition advice. 95% of the conditions incorrectly classified by the provider were under-classified as milder cases. Reasons for case mis- and under-classification included inaccurate history, incomplete or incorrect assessment, not taking assessment findings into account, or giving no classification at all. The very low rate of agreement (21%) in cases with clinically detected anaemia was mostly due to provider's omitting to check for palmar pallor. Malaria laboratory diagnostic reliability in the field was very low, with a sensitivity of 0%, a specificity of 74%, a positive predictive value of 0%, and an accuracy of 73%.

Treatment and advice: Six of the 14 severe cases requiring urgent referral or admission to hospital were correctly identified and a referral note was prepared in half of referred cases. However, no case received pre-referral treatment and thus no case was eventually managed correctly. Overall use of injectable drugs was contained, with benzylpenicillin unnecessarily prescribed in 5% of non-severe cases. Most children were unlikely to receive proper antibiotic and/or antimalarial treatment: while of the cases needing these drugs 72% were prescribed an antibiotic and 74% were prescribed a recommended antimalarial, less than a third was eventually correctly prescribed the antibiotics (32%) and antimalarials (27%). The weak area in providers' instructions was the dose, followed by the duration of treatment. Furthermore, only one caretaker in five was asked questions to check for her understanding of the instructions received for antibiotics (19%) and antimalarials (20%), and only 15% and 4% of children needing these drugs were given the first dose of the drug at the facility, respectively. As a result, about one in five of the caretakers prescribed drugs was able to describe correctly how to administer the antibiotic (22%) and antimalarial (20%). 6% of children with fever or history of fever were reported receiving chloroquine before being taken to this health facility. A substantial overuse of antibiotics was noticed, with 37% of children not needing antibiotics prescribed the drugs unnecessarily, mostly because of misclassification of their conditions. In this scenario, only a small proportion of children with infections or malaria would be likely to be managed properly at home. Only 2 of the 9 cases with diarrhoea and dehydration were treated at the facility, while about half (49%) of those with no dehydration were given ORS to take home. When given ORS, less than a third (31%) of caretakers was correctly advised and

one in four (24%) was able to describe correctly how to administer ORS at home, not knowing especially when and how much ORS to give to the child. Pre-existing, correct knowledge among caretakers about ORS preparation was noticed, despite the lack of correct instructions by the provider. As noted for drugs, the chances of a child with diarrhoea receiving ORS correctly at home would be rather low. Concerning other main treatments, one child in four (24%) with anaemia was prescribed iron, 24% of children with an eye infection was given tetracycline ointment, 17% of children needing vitamin A and 49% of children needing vaccination were given them or advised to come back on another day to receive them. Cough medicines and antidiarrhoeals were used rarely, while metronidazole for children with diarrhoea seemed to enjoy some popularity. Advice on definite follow-up would have been required in as many as 62% of all children seen based on the guidelines, raising some issues about the feasibility of such a recommendation. The caretakers of only one child in ten (12%) were advised on home care (feeding, fluids and when to seek care): only 2% of them were clear before leaving the facility about all the three key home care rules, showing substantial lack of knowledge especially about the danger signs that should prompt them to seek immediate care. Encouraging was the finding that 79% of caretakers mentioned they would continue feeding their child during illness. Feeding advice, however, was largely inadequate: only 24% of target children received age-appropriate advice on feeding, including breastfeeding, and 20% of children 6 to 11 months old were given proper advice on the frequency of complementary feeding. Effective communication techniques were used rarely by providers: the IMCI home care card was used in 34% of cases as a counselling tool, utilising effective communication techniques in only 5% of cases. About half (52%) of caretakers reported having a mosquito bednet at home (21% having a bednet impregnated with insecticide), and 20% of children were reported as having slept under a bednet (10% under a treated bednet) the night before. Only two mother caretakers received some advice on their health.

Health systems: The large majority of caretakers (88%) said they were satisfied with the health services provided, valuing the treatment given, and provider's examination of the child. Except for taking the child weight (which was done by the nutrition educator in 40% of cases) and some involvement in assessing and advising on feeding and ORS (especially by IMCI-trained nurses at dispensaries), all the other tasks tended to be carried out by the same person examining the child. Almost two-thirds (62%) of non-hospital primary care facilities had at least 60% of providers trained in IMCI (82% in Gezira vs 33% in Khartoum), with 100% training coverage at dispensary level. An average of 5 out of the 6 essential oral drugs was found available at the time of the visit for at least one treatment course for pneumonia, dysentery, diarrhoea, fever and anaemia, 8.6 out of 12 key non-injectable drugs for IMCI conditions, and at least one dose of 2.6 out of the 4 parenteral drugs recommended for pre-referral treatment. Salbutamol was available in one in ten (12%) facilities. 62% of facilities had essential supply and equipment for malaria microscopy laboratory. The reliability of the diagnosis of these laboratories was however very low (see above). Most (80%) of the facilities reported providing immunisation services, with 36% of them having cold chain equipment and supplies for vaccination at the time of the visit and 70% reporting providing all antigens within weekly sessions. About a third (32%) of facilities had basic supplies and materials for IMCI. Transportation for referred cases was reported to be accessible to 85% of the population living in the health facility catchment areas, with usually an average time of 15 minutes to reach the referral facility, given the fact that 69% of the cases seen lived at walking distance from the facility. Yet, referral-related problems (including among others family inability to afford referral and hospitalization-related costs) were reported by 32% of facilities. For those who needed transportation, the average cost was SDD 106 (with average costs twice as much in rural as in urban areas), with a maximum of SDD 800. For those who needed to pay for care at the facility (laboratory and consultation fees, drug costs), the average cost was SDD 503, with a maximum of SDD 1750. Drug expenses represented 73% of the total health-related expenses at the facility. These estimates are conservative, considering also

that 16% of children seen in the survey were covered by health insurance and thus charged only 25% of the drug cost. About a quarter (26%) of facilities had a supervisory book, and records of visits' findings and recommendations were found in 15% of cases. Case management practices were observed in 21% of the most recent supervisory visits. Facility outpatient records were often unreliable or incomplete and did not enable the collection of useful information. Record review suggested under-reporting of under-five visits in facilities implementing the insurance system.

Conclusions

The survey enabled the collection of health facility data on child health service indicators, useful to monitor progress towards the achievement of the Millennium Development Goals. The results on case management clearly show a better performance for tasks carried out by providers trained in IMCI than those untrained, evidence that IMCI training can improve quality of care. The overall level of performance however remains sub-optimal. These findings also underline the challenges of institutionalizing changes in quality of care, so that standards remain at the same level when trained providers leave. The poor performance of many tasks for cases seen by providers not trained in IMCI raises the issue about the quality of pre-service training and in-service supervision. Weak health system elements add to the challenges. Aspects of the current national IMCI guidelines needing review include possible inclusion of eye infections, given their high prevalence and weak management, feeding recommendations and indications for follow-up. The recommendations should serve as the basis to develop a strategic plan for IMCI implementation. Case management areas needing improvement are described in detail in Annex 1.

Recommendations

To provide equitable access to care to the most vulnerable group:

1. Consideration should be given to protecting children below 2 years old, especially in poor families, by issuing a policy and establishing mechanisms (e.g. funds) to provide affordable (free or at reduced cost) drugs to them;
2. When planning to train staff from health facilities in IMCI, States should commit to making key drugs regularly available through effective schemes to the health facilities where those staff work, to make the most of the substantial financial investment placed in IMCI training;
3. States should promote the implementation of the 'open vial' policy to increase immunization coverage and reduce vaccine wastage.

To reinforce skills, by strengthening follow-up visits after IMCI training:

4. The Federal level and States concerned should jointly plan to develop and commit adequate human resources to follow up visits after IMCI training, and to conduct them on timely basis and according to the standard methodology.

To improve health providers' basic skills:

5. Consideration should be given to strengthening the curriculum of pre-service training of medical assistants and introducing the IMCI outpatient care approach as a way to develop basic skills.

To strengthen malaria laboratory diagnostic capacity:

6. Close supervision by Federal and State levels with quality control of malaria microscopic diagnosis should be carried out regularly to improve the quality of malaria laboratory diagnosis.

To build capacity and re-distribute selected tasks at health facilities:

7. States should consider setting and promoting the policy that all child caretakers take the road-to-health card to the facility not only for immunization but also for sick child visits.
8. Federal and State in-service training curriculum for vaccinators and nutrition educators should be revised to include taking temperature and weight, checking immunization status

by the health card, counselling on feeding and similar basic skills, as part of their routine responsibilities.

To improve supervision and reporting:

9. A training package on supervision of child health services should be developed; supervisors responsible for routine supervision should be trained and involved in IMCI follow-up visits and trained in child health supervisory skills on a trial basis once the materials are developed.

To improve care-seeking practices:

10. High priority should be given to targeting the community through health communication activities to improve family knowledge about the early signs that should prompt care-seeking for sick children (e.g. breathing problem in a child with cough).

1. OBJECTIVES

The Federal Ministry of Health (FMOH) of the Republic of the Sudan, in collaboration with the Eastern Mediterranean Regional Office (EMRO) of the World Health Organization (WHO) conducted a survey from 12 March to 22 April 2003 on the quality of outpatient child health services at facilities in which the Integrated Management of Childhood Illness (IMCI) strategy had been implemented. The writer collaborated in all phases of the survey, from planning to surveyor training, observation of data collection and analysis of the results.

More specifically, the ‘IMCI health facility survey’ had the following objectives:

- (1) To assess the *quality of outpatient care*, including both clinical and counselling care, provided to sick children aged 2 months up to 5 years old¹ at health facilities implementing the IMCI strategy;
- (2) To describe *organizational and other ‘health systems support’* elements influencing the quality of care and identify major constraints to it;
- (3) To measure *key indicators* of quality care to monitor progress of the IMCI strategy at health facilities; and
- (4) To recommend *further approaches* to improving the quality of outpatient child health services.

2. BACKGROUND

This section summarizes information that was reviewed to discuss survey objectives, adapt the survey questionnaires, and develop country-specific survey rules. It served also as part of the background for the interpretation of the results of the survey.

2.1 SETTING

The population of Sudan, comprising some 19 major ethnic groups, was estimated at over 31 million in 2001, with 63% living in rural areas². The majority of the population is concentrated in six States of the Central Region and 60% live around the River Nile. The population is unevenly distributed: the population density in Khartoum and Gezira is five times as high as in the rest of the country³. Children below 5 years of age are estimated to be 16.4% of the total population. Delivery of care has been based on the primary health care (PHC) approach, with over 6000 PHC facilities delivering outpatient services usually through a three-tier system: a) the *PHC unit*, usually staffed by a community health worker, providing essential PHC services and serving a population of 1000–3000 people; b) the *dressing station*, commonly staffed by a nurse, providing curative care for common diseases and having the same catchment area as the PHC unit; and c) the *dispensary*, for the management of more serious cases, and the *health centre*. The latter may be equipped with laboratory, X-ray and patient lay-in observation facilities. Dispensaries serve a population of 5000–10 000 and health centres 10 000–15 000 people⁴. While dispensaries are staffed with medical assistants,

¹ The expression ‘*up to 5 years old*’ in this report refers to children less than 5 years old, therefore excluding the day of their 5th birthday. This expression, although not fully correct, is used here as it appears to be more easily understood by readers without epidemiological background.

² World Bank, World Development Indicators Database, April 2002.

³ Safe Motherhood Survey, 1999.

⁴ World Health Organization, Regional Office for the Eastern Mediterranean: Country Programme Statements – Sudan: Country situation and national health development objectives, WHO Programme Budget 2000–2001

health centres in urban areas are usually staffed also with doctors, in addition to other staff. Rural hospitals represent the first referral level. *Accessibility* to services varies considerably between areas and States. The health system in Sudan is decentralized and consists of 26 State Ministries of Health.

WHO estimates of national health accounts suggest that the percentage of the gross domestic product (GDP) for expenditure on health has been increasing over the past 5 years up to an estimated 4.7% in 2000⁵ (about US\$ 48 PPP per head⁶): almost 80% of the total health expenditure is private and the percentage coming from the government has been decreasing over time⁵.

2.2 CHILD HEALTH INDICATORS

Infant (IMR) and under-five (U5MR) mortality rates have remained at high levels in Sudan over the past 15 years. The IMR and U5MR were reported at levels of 68 and 105 deaths per 1000 live births, respectively, for the 5-year period preceding 1999 according to the ‘Safe Motherhood Survey’ conducted in Northern Sudan in 1999 (Fig. 1)⁷. Out of all childhood⁸ deaths, two-thirds (65%) occurred in the first year of life and 29% occurred in the neonatal period.

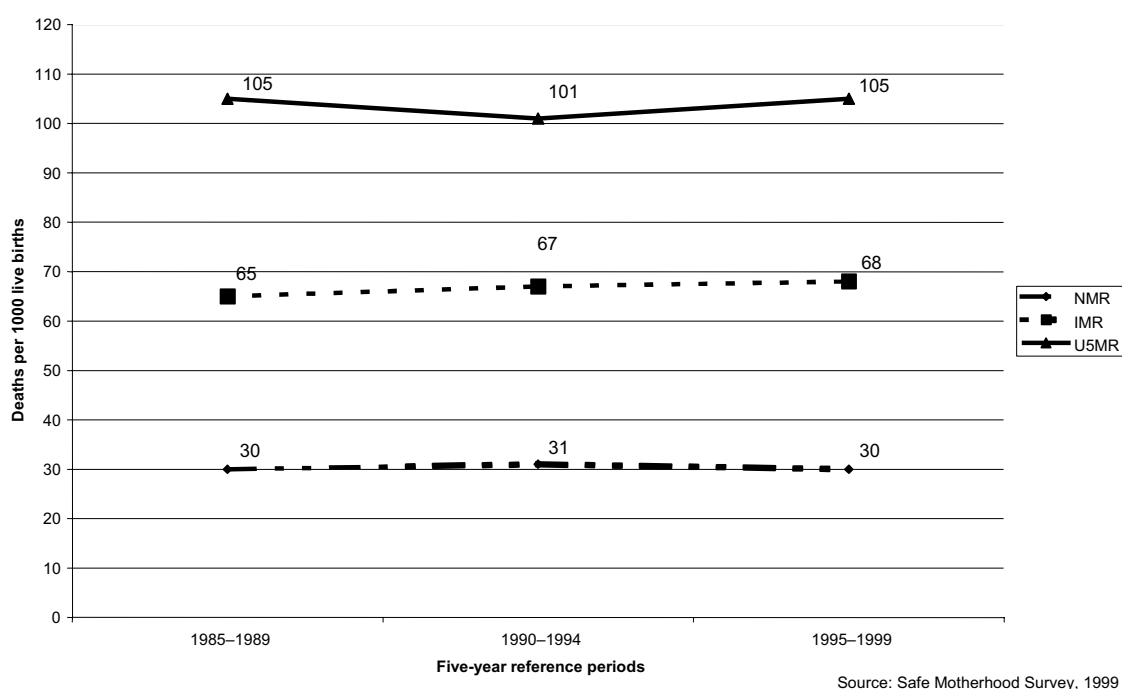


Figure 1. Neonatal, infant and under-five mortality in Sudan⁷

⁵ World Health Organization, *The World Health Report 2002*, Statistical Annex, National Health Accounts, Geneva, WHO, 2002.

⁶ At purchasing power parity (PPP) exchange rates, estimate for 1990–98, World Bank 2002. This is almost half of the average of US\$89 health expenditure per capita estimated by the World Bank for sub-Saharan Africa.

⁷ Estimates based on other data sources suggest a reduction in under-5 mortality by 12% from 1990 to 2000.

⁸ Childhood in this report refers to children below 5 years old.

Interestingly, no major differences were found in the IMR between urban and rural areas (67 vs 68). However, remarkable differentials in IMR and U5MR were observed by mother's education level: IMR was almost twice as high and U5MR two and a half times as high in children of illiterate mothers as in children whose mothers had completed junior secondary or higher education. Both IMR and U5MR were higher in boys than girls (73 and 108 in boys vs 62 and 99 in girls, respectively). Notable differences were found between States, with IMR about 50% higher in Red Sea (116), Kassala (101), Blue Nile (101) and Southern Kordofan (95) than the country average. This is important when prioritizing public health interventions designed to have impact on child mortality.

Diarrhoeal diseases (30%), acute respiratory infections (20%), malaria (16%), malnutrition (10%) and childhood preventable diseases, especially measles, were estimated to account together for more than three-quarters of the outpatient consultations for children under 5 years at health facilities in 1997⁹. The same conditions represented also 86% of hospital admissions in children under 5 years and were responsible for more than three-quarters of hospital deaths in under-5s in 1997. Seven per cent (7%) of children under 5 years were found to be severely wasted (<-3 SD for weight-for-height) at household level in 2000¹⁰.

2.3 THE RESPONSE: AN INTEGRATED CHILD CARE STRATEGY (IMCI)

The strategy on Integrated Management of Childhood Illness (IMCI) was formally introduced in Sudan in 1996 as a strategy appropriate for the situation in the country, as it addressed the most important causes of under-5 mortality and morbidity and represented an integrated approach that well suited the primary health care policy promoted in the country¹¹. The main steps of the IMCI process in Sudan from introduction through the early implementation phase are shown in Annex 2. An IMCI Task Force was set up in 1996 to prepare the introduction of IMCI in the country, followed by the establishment of an IMCI Working Group to coordinate activities. A high level IMCI Steering Committee was also formally established by ministerial decree (3/1997) in 1997, chaired by the State Minister of Social Planning, to set policies, revise and endorse the plan of action, monitor and supervise activities, and mobilize resources for IMCI. Since about 2000, the strategy has been expanding to cover about 500 health facilities in 71 (30%) out of 240 districts located in 10 States (Annex 3). Furthermore, four new States have introduced the strategy. Taking into consideration the marked differentials in IMR between States, the strategy has been expanding also to the States with the highest IMR (Red Sea and, more recently, also Kassala and Southern Kordofan). The main target for training has been the category of medical assistants, but doctors, nurses and other supportive staff such as nutritionists have also been trained in selected health facilities. Among the main adaptations to the generic WHO/UNICEF clinical guidelines, which were further revised in Sudan in 2001, are: the inclusion of wheezing, the requirement of laboratory confirmation for the diagnosis of malaria in facilities where laboratory services are available in low malaria risk areas, the separation of the management of anaemia and malnutrition, and the extension of the recommendation for exclusive breastfeeding to the first 6 months of life.

The main focus of the strategy has initially been on the health system.

⁹ Federal Ministry of Health, Primary Health Care: *Report on the Integrated Management of Childhood Illness Early Implementation in Sudan*, November 1999.

¹⁰ Federal Ministry of Health, Central Bureau of Statistics and UNICEF: *Multiple Indicator Cluster Survey*, Sudan, 2000

¹¹ See footnote (9)

- ❖ *Improving health providers' skills:* A total of 83 clinical training courses on IMCI has been conducted for almost 1400 people from PHC facilities and hospital outpatient departments, including over 200 facilitators, as of August 2002 (Annex 3). Nine training centres have been set up to decentralize IMCI training at State level. A large number of trained staff has been followed up after the training course ('IMCI follow-up visits'). PHC staff report that one important issue has been the high attrition rate of trained staff, which has made the training efforts more demanding. Finally, a well-coordinated initiative has been initiated to introduce the IMCI outpatient approach in the teaching of seven medical schools, four of which were selected for the pilot phase, to address the issue of long-term sustainability.
- ❖ *Improving the health system:* The essential drug list (EDL) has been reviewed: basically, all drugs needed for IMCI are included in the national list. However, injectable antibiotics and antimalarials (quinine), oral 2nd line antimalarial (sulfadoxine-pyrimethamine), diazepam, oral tetracycline, 2nd line antibiotic for dysentery (nalidixic acid) and salbutamol inhaler are not included in the EDL for outpatient facilities. Supplies (e.g. thermometers, weighing scales, nebulizers) have been provided to facilities implementing IMCI. IMCI recording form and supervisory checklist have been designed and are either being tested or distributed.
- ❖ *Improving family and community practices:* A multidisciplinary group was created within the IMCI Task Force in 2000 to review the level of key family practices in the community and existing community-based interventions related to child care, and to develop a comprehensive communication strategy. This followed the recommendation of a review of the IMCI early implementation phase that activities in this area should be stepped up. A plan of action was drafted at the intercountry workshop on the IMCI community component in Cairo in July 2002. The plan for Sudan focuses on conducting baseline and needs assessment surveys in selected communities, fostering partnership with medical schools, and strengthening the linkages between the health system and the community through community health workers and health facility support staff. Linkages have already been established with other initiatives, such as the basic development needs initiative (BDN).

3. SURVEY METHODOLOGY

The survey consisted of the following main phases (Annex 4): planning (1 week), conducted about 4 months earlier; training of surveyors and supervisors (1 week); data collection and data entry (2 weeks), data cleaning (3 days), data analysis (1 week), and presentation and discussion of the findings and recommendations. Box 1 summarizes the main features of this survey. This section highlights the main methodological aspects of the survey¹².

¹² For detailed survey plans, methodology and rationale, see Pieche S. *Planning for an IMCI health facility in Sudan*, Report of a mission, 25–31 October 2002, Cairo, WHO Regional Office for the Eastern Mediterranean, 2002.

3.1 PLANNING

Plans for the survey were developed from 26 to 31 October 2002 (Annex 5) by a planning team consisting of FMOH, academic institutions and WHO staff. The team included: the national IMCI coordinator and other members of the IMCI team and PHC department at central level; faculties of community medicine departments of three medical schools; and a two-member WHO team from the country and regional levels (Annex 6). UNICEF staff from the country office also attended some of the sessions.

The planning team carried out the following tasks: discussed the survey objectives; reviewed the survey methodology; selected districts where the 'IMCI health facilities' were located and planned for the selection of health facilities to survey; discussed plans for surveyor training, data entry, data analysis and the national feedback meeting.

Box 1. Survey at a glance

Objective To assess the quality of outpatient child health services at 'IMCI health facilities', whether delivered by IMCI-trained or untrained providers

When March–April 2003

Where In 7 States implementing IMCI

Survey type Cluster survey

Facilities Outpatient departments of district hospitals, health centres, dispensaries and dressing stations with a minimum caseload of 2 children below 5 years old per day

Sample 364 children 2 months up to 5 years old enrolled in 66 IMCI health facilities

Sampling frame All districts and facilities implementing IMCI in 8 States

Sampling Multi-stage sampling: first selection of 29 districts by PPS method, then 66 facilities by systematic random sampling

No. of surveyors 6 teams, each team consisting of two surveyors and one supervisor

No. of facilities per team 1 facility per day, for an average of 11 facilities per team

National feedback Khartoum, 22 April 2003

3.2 GEOGRAPHIC SCOPE OF THE SURVEY AND SELECTION OF HEALTH FACILITIES TO SURVEY

This survey was a cluster survey, with children taken to a health facility on the day of the survey forming a cluster. The survey was conducted in 66 health facilities (66 clusters) implementing the IMCI strategy (IMCI health facilities), including dressing stations, dispensaries, health centres and outpatient departments of hospitals; thus, it covered mostly medical assistants, the primary target group of IMCI training in Sudan. The criteria used to decide which geographical areas and facilities to cover in the survey are described in Annex 7. Southern States were excluded from this survey, as the classical IMCI strategy had not yet been implemented there¹³.

Sampling was carried out in two stages. First, 29 districts were selected from the list of the 60 districts in 8 States in which the IMCI facilities were located, using the probability proportionate to size (PPS) method, which gives higher chances of selection to areas having a larger population (Annex 8). This was done for logistical reasons, in order to concentrate the survey geographically in fewer districts, and to avoid spreading the sample over the very large area of Sudan, where health facilities might be

Box 2. States included in the survey

1. Khartoum
2. Gezira
3. River Nile
4. Al Gadarif
5. Red Sea
6. White Nile
7. Sennar

¹³ This survey therefore did not evaluate the essential community child health care approach in the South.

Table 1. **Final distribution of health facilities by geographical location and type: sampling frame and survey sample** (facilities with an estimated minimum daily caseload of two children below 5 years old)

	Location	Distribution	Type of facility			
			No.	Hospital	HC	D/DS
Rural	<i>Sampling frame</i>	53/136 (39%)	53	6 (11.3%)	22 (41.5%)	25 (47.2%)
	<i>Survey sample</i>	25/66 (38%)	25	3 (12.0%)	10 (40.0%)	12 (48.0%)
Urban	<i>Sampling frame</i>	83/136 (61%)	83	4 (4.8%)	67 (80.7%)	12 (14.5%)
	<i>Survey sample</i>	41/66 (62%)	41	2 (4.9%)	33 (80.5%)	6 (14.6%)
Total	<i>Sampling frame</i>	136/136 (100%)	136	10 (7.4 %)	89 (65.4%)	37 (27.2%)
	<i>Survey sample</i>	66/66 (100%)	66	5 (7.6%)	43 (65.2%)	18 (27.2%)

HC: Health Centres

D/DS: Dispensaries and dressing stations

rather distant from each other in some cases, something that would have required substantial, additional travel time and cost. Next, 66 health facilities were selected by systematic random sampling from the list of 136 IMCI health facilities located in the selected 29 districts and having an estimated minimum daily caseload of two cases below 5 years old (Annex 9). The caseload threshold and the number of facilities selected aimed at ensuring the recruitment of a sufficient number of children under 5 years old in the survey, i.e. an adequate sample size, and limits of precision of the results not greater than ± 10 for the whole sample. The sample was weighted during the selection, to ensure the same distribution of facilities in the sample as in the sampling frame, according to their geographical location (rural vs urban areas) and type. Facilities were grouped into three types: 1. hospitals, 2. health centres, and 3. dispensary and dressing stations. Because of the replacement of a rural facility with an urban one during data collection, the distribution by location slightly changed. Another facility had to be replaced with one of the same type, based on a list of alternative facilities prepared in advance. The reason for replacement was that the facilities were either closed or not functional at the time of the visit (Annex 9). The final list of States included in the survey is shown in Box 2 and the final distribution of the facilities in the sampling frame and sample is shown in Table 1.

3.3 TARGET AGE GROUP AND TIMING OF THE SURVEY

Children aged 2 years up to 5 years old with a non-surgical complaint and seen for the first time for that episode of illness were eligible to be enrolled. In fact, health providers trained in IMCI in Sudan are expected to follow the IMCI approach in the assessment of all sick children. Children below 2 months old were excluded from this survey as they are managed differently from older children and it would have been necessary to select a separate and adequate sample just for this age group. Furthermore, the number of infants under 2 months old seen at health facilities is usually very low, especially at dispensaries and dressing stations. To make meaningful conclusions on their management, a substantial increase in the number of facilities surveyed and a much longer duration of the survey would have been required: this would not have been feasible. A total of seven cases could not be enrolled in the survey as their caretakers did not consent; an additional 11 cases had to be excluded as their caretakers left the facility before their children completed the visit and were re-examined by the surveyor. The pattern of these cases is shown in Table 2.

Table 2. **Complaints reported by caretakers for 18 eligible children not enrolled in the survey**

Cough	Fever	Diarrhoea	Urine problem	Eye problem	Skin problem	Ear problem	Other problem
11	7	6	2	2	1	1	1

A child may have one or more complaints. 9 out of 18 (50%) children were boys; 3 children were less than 1 year old.

The population served by the 60 IMCI districts in the sampling frame was over 9 500 000 people, including over 1 500 000 children below 5 years old; about 75% of them lived in the districts selected for the survey.

The survey was conducted in March and April 2003 (Annex 4). Although these months were not ‘peak months’ in terms of facility caseload, the choice was based on a number of practical considerations, including accessibility to health facilities and time required to prepare for the survey (see Annex 10).

3.4 SURVEY INSTRUMENTS, TEAMS AND PROCEDURES FOR DATA COLLECTION

The methodology used in this survey was based on the methodology described in the draft manual on the IMCI health facility survey prepared by WHO (*Health facility survey for integrated child health services*, Geneva, WHO, 2002) and revised by EMRO according to previous survey experience. Some of the main adaptations are presented in Annex 11, while survey procedures are described in detail in section 3.4.4.

3.4.1 Forms

Two types of information were collected: *quantitative* and *qualitative*.

Quantitative data were collected by an enrolment card and four forms (see Appendix). These forms had been carefully reviewed, adapted to the country situation and programme needs, and tested during the survey-planning phase. The forms used included:

- EC : Enrolment card;
- Form 1: Observation of health facility provider’s management of a sick child;
- Form 2: Exit interview with the caretaker of the sick child;
- Form 3: Re-examination of the sick child by a surveyor; and
- Form 4: Assessment of facilities, services and supplies.

Qualitative information (surveyors’ observations) was recorded on a separate, semi-structured form for each facility and used as an additional resource in data analysis to assist in the interpretation of the quantitative data. Observations focused on issues related to the organization of work at health facilities, drugs (procurement, uninterrupted supply, etc.), referral, utilization of services, routine reporting, constraints to implementing IMCI, and also left room for any additional observations and comments by the survey team.

3.4.2 Survey teams

The following persons participated in the survey (Annex 12): 13 surveyors (including one recruited as additional support for contingencies), 7 supervisors (one for contingencies), the national IMCI coordinator as survey manager, the national IMCI focal point as survey coordinator, the data entry coordinator and WHO staff. UNICEF staff joined surveyor training and field visits. Based on selection criteria, all supervisors and surveyors were very familiar with the national IMCI guidelines and had good clinical skills and field experience, with substantial exposure to and involvement in IMCI. They were in fact selected among staff at national and State level who had received training in the standard IMCI clinical course, in facilitation skills, in conducting skill reinforcement and follow-up visits after IMCI training, and had been involved in IMCI follow-up visits.

3.4.3 Surveyor training

Survey staff participated in a 40-hour surveyor training course at Omdurman paediatric hospital (a facility not included in the survey sample) in Khartoum State, from 15 to 20 March 2003. The training schedule is shown in Annex 13. The survey rules to complete the forms and on procedures, adapted to reflect the adaptations in the forms, served as the guide to training to standardize the survey methodology and surveyors' fieldwork. The training consisted of: a) presentation and explanation of all forms, with classroom practice by extensive use of examples, reinforced by role-plays and followed by active discussions; b) two special sessions on equipment and supplies for EPI and malaria laboratory, respectively; and c) practice with real cases in small groups, using the forms in four practical sessions at the outpatient department of the hospital. Practice included all the tasks as in the actual survey and was followed by a thorough review of each session with each team individually. A major constraint to training was represented by the hospital staff's common practice of referring cases to the laboratory. This practice substantially prolonged the time required by the survey trainees to complete the observation of case management, caretaker interview and re-examination for each case referred to the laboratory. Nonetheless, a reliability check conducted during one of the last practical sessions to assess inter-surveyor agreement, yielded good rates of 92%, 96% and 94% for forms 1, 2 and 3, respectively. Drills were used in a session on the last day to review all procedures and instructions with the surveyors, focusing on those items that had caused more difficulties during practice. Finally, participants' evaluation of training was overall positive (Annex 14).

3.4.4 Data collection

Data were collected in seven States in two weeks from 22 March to 3 April 2003. The survey itinerary is shown in Annex 15. The 12 surveyors (with support from the spare one) formed six two-member teams, with each team directly supervised by a supervisor. Each team visited one facility per day. Additional time was allocated to account for internal travel to facilities located far apart from each other in different districts. The procedures on data collection at each facility are illustrated in Annex 16.

At each facility visited, the supervisor identified and (after obtaining caretaker's informed consent) enrolled children aged 2 months to 5 years old taken to the facility on that day¹⁴. In order to standardize procedures in all facilities and enable a feedback meeting before the end of the staff morning shift, only children seen by the local health provider by 1.00 p.m. were enrolled in the survey, this time largely covering peak clinic hours at the facilities. One of the two surveyors in the team observed the management of these children performed by facility staff (Form 1). Soon after each child had been managed, the second surveyor interviewed the child caretaker in a separate place (exit interview, Form 2), to assess her level of satisfaction with the care provided and her understanding of the advice just received on antibiotic, antimalarial use and/or home care. The same surveyor then examined the same children independently, to set a 'gold standard' (surveyor's findings) against which to compare health providers' findings on each case (Form 3). The supervisor supervised the surveyors and collected information on facility services, facility staff's IMCI training status, quality of supervision, case-load, availability of antibiotics, availability of antimalarials and other drugs needed for IMCI, and other supply and basic equipment and materials (Form 4). At the end of the visit, the team provided feedback and discussed the findings with the staff of each

¹⁴ For ethical reasons, it was agreed that any child found by the supervisor to be 'unconscious' or in 'coma' would not be enrolled in the survey and would urgently be referred. If a child had any other confirmed severe condition requiring urgent referral, the exit interview with the caretaker would be skipped, to avoid delays in care.

facility, and summarized additional observations on a separate open-ended form (Observation sheet).

3.5 DATA ENTRY, CLEANING AND ANALYSIS

All forms were checked in the field by each supervisor during data collection. Forms were then cross-checked at FMOH in Khartoum by the data entry manager, independently. Next, data were entered into a computer programme using EpiInfo Version 6.04d¹⁵ by two two-member data entry teams at the FMOH under the supervision of the data manager. A data entry validation programme facilitated the data entry process and helped detect and correct inconsistent data. Thanks to arrangements to collect the forms from the field during fieldwork, it was possible to start entering data already on the fourth day of data collection. The data were further checked after they had been entered and during the preparation of data summary tables. Thus, quality control was ensured at different levels and before, during and after data entry. The data were then organised in tables and graphs and analysed by a small team at central level, including also university and field staff.

3.6 DIFFERENCES BETWEEN IMCI FOLLOW-UP VISITS AND THIS SURVEY

There are a number of important differences between the follow-up visits carried out after IMCI training and this survey. These differences are summarized below to help understand how to interpret the results obtained from the two types of activities. Both activities are of high value for programme management and planning.

- ❖ *Purpose:* The IMCI follow-up visits have been designed with the objective of strengthening health providers' clinical and counselling skills and following up on improvements in health systems in order to support their work after training. As such, the follow-up visits are an essential part of training and focus on the performance of providers trained in IMCI. The survey however is an evaluation that aims at assessing the quality of care, whether given by trained or untrained staff, received by children taken to IMCI facilities¹⁶. In the follow-up visits the focus is on the provider, while in the survey the focus is on the child, although information on provider's performance can indirectly be inferred from the data collected in the survey. Both activities help strengthen the supervisory skills of those involved and, through the feedback to facility staff, are valuable instruments to address key management questions. On the one hand, follow-up visits collect useful, practical semi-quantitative information on outcome indicators at a fixed time, e.g. 1 or 6 months, after IMCI training which managers can immediately use for action locally. On the other hand, surveys provide a cross-sectional picture about the overall situation at one point in time irrespective of the time of training and furnish data on key outcome indicators that can be used for longer-term planning and future comparison.
- ❖ *Training of supervisors and surveyors:* The supervisors involved in IMCI follow-up visits receive a short, standard training course to enable them to conduct the visits and meet the objectives described above. Surveyors receive a very intensive training course, lasting a full week and following rigid standards and many practical sessions, aiming at

¹⁵Epi Info, Version 6.04c (updated to 6.04d): *A word processing, database and statistics program for epidemiology on microcomputers*, Centers for Disease Control and Prevention, Atlanta, Georgia, U.S.A. in collaboration with the Global Programme on AIDS, World Health Organization (WHO), Geneva, Switzerland, October 1997.

¹⁶ A facility implementing IMCI may have one or more staff providing care to children; not all of them may have been trained in IMCI.

reducing surveyor intra- and inter-variability, i.e. to ensure that all surveyors behave in the same way when collecting data.

- ❖ *Methodology and applicability of data:* Because of the different nature of the two activities, there are differences in the methodology followed. In the survey, the clinical findings of the provider recorded by a surveyor are compared with the findings of the clinical examination performed independently by another surveyor; in the follow-up visits the same person observes and judges the findings. Sample size and limits of precision of the results also differ. In the survey, all children taken to a health facility are enrolled based on selected criteria and the number of children observed per provider may vary, according to the natural flow at the facility. Given the different purpose, follow-up visits collect information on the management of a few cases (usually one case per provider), while surveys enrol hundreds of children in order to draw statistically valid conclusions with narrow limits of precision that are applicable to all facilities from which the sample has been taken. It should be emphasized that follow-up visits are useful as an initial and practical monitoring tool; however, as they are limited in time and size and because of the different methodology, caution is needed in generalizing the results.
- ❖ *Data analysis and use of results:* Data analysis in surveys is conducted much more in depth and on more indicators than follow-up visits. The results of follow-up visits are usually summarized and not entered in a database program that would enable relational analysis (i.e., relating variables with each other). Thus, on the one hand, follow-up visits remain a very practical instrument to reinforce provider skills, rapidly assess health system support and call for prompt local action. On the other hand, by collecting 'hard data' surveys generate strong 'evidence' on IMCI and can also serve as advocacy and policy tools to draw interest, mobilize resources and back up supportive policy decisions.

4. FEEDBACK MEETINGS

4.1 DEBRIEFING WITH THE FEDERAL MINISTER OF HEALTH AND UNDERSECRETARY OF HEALTH

Two meetings were held, namely with H.E. the Federal Minister of Health and the Undersecretary of Health, respectively, on 21 April 2003, to present and briefly discuss the main conclusions and recommendations of the survey. The meetings were attended by national staff, including the Primary Health Care director (national IMCI coordinator) and the national IMCI focal point, and a WHO team, consisting of the regional adviser in child health, the regional and country medical officers who had collaborated in the survey, and the officer-in-charge of the WHO country office. The Federal Minister of Health expressed his support for the implementation of the IMCI strategy in the country and for policies that would increase access to child health services and improve their quality. Key issues were briefly discussed, such as free provision of one dose of pre-referral treatment as emergency care for severely sick children under 5 years and implementation of approaches to improve drug availability at facilities implementing IMCI; in principle, the Minister agreed with the need to provide free pre-referral emergency treatment to the under 5s. During the debriefing with the Undersecretary of Health, the importance of health system support as an integral component of the IMCI strategy, in addition to training, was emphasized.

4.2 NATIONAL FEEDBACK MEETING

Major survey findings, conclusions and recommendations and their implications for future planning in the area of child health were presented and discussed at a national meeting in Khartoum at the end of the survey, on 22 April 2003 (Annex 17). The event was included as a key activity in the programme of the Child Health Week that was launched on the same day. As many as 94 people attended the meeting, as part of the large audience attending the launching of the Child Health Week. Participants included decision-makers (ministers of health and director-generals) from the federal and state levels, programme managers and IMCI coordinators from the FMOH and State level; staff from other ministries (Social Welfare, Education, Communication, Agriculture and Forest), academic institutions, non-governmental organizations, health professionals and other partners supporting or interested in child health care initiatives in Sudan; WHO and UNICEF.

5. FINDINGS

This section of the reports presents the most significant findings of the survey. A summary of results related to the generic list of WHO priority indicators and supplemental measures, with their definitions, is given in Annex 19. Detailed and additional findings are presented in tables and graphs in Annex 20.

5.1 SAMPLE CHARACTERISTICS

5.1.1 *Characteristics of cases observed and of their caretakers*

Sixty-six (66) health facilities were visited, namely 5 hospitals, 43 health centres and 18 dispensaries (including a dressing station), located in 10 states implementing the IMCI strategy. The management of 364 children aged 2 months up to 5 years was observed; most of them (72%) were seen at health centres. A total of 350 exit interviews with their caretakers was carried out, and all 66 facilities were checked for health system support. Details of sample characteristics by type of facility are shown in Tables 3, 4 and 5.

<i>Age</i>	More than half (54%) of the cases enrolled and managed were under 2 years old. These children represent a more vulnerable group: 10 of the 14 cases classified as having a severe condition needing urgent referral or admission to hospital fell into this age group.
<i>Gender</i>	The proportion of female children seen was slightly lower (47%) than male children, especially at hospitals, although the difference is not statistically significant.
<i>Caretakers</i>	The large majority of caretakers of sick children (89%) was female and mothers of the children (83%). As many as 42% of the caretakers had no education, i.e. they were unable to read and write. The proportion was much higher among caretakers of children seen at dispensaries (65%) than health centres or hospitals. This finding has practical implications when designing health education materials and communication interventions on childcare in Sudan, as these need to be in the form of illustrations rather than text. Furthermore, as mentioned in § 2.2, under-5 children of illiterate mothers carry a much higher risk of dying than children of mothers of junior secondary or higher education.

Table 3. **Sample characteristics by facility type** (sample not stratified; results in the ‘total’ column unweighted)

Characteristics	Hospitals (OPD) ¹	Health centres	Dispensaries ²	Total
Health facilities surveyed	5 (8%)	43 (65%)	18 (27%)	66
Cases observed[#]	40 (11.0%)	261 (71.7%)	63 (17.3%)	364
> <i>Sex</i>				
Girls	18 (45.0%)	121 (46.4%)	31 (49.2%)	170 (46.7%)
Boys	22 (55.0%)	140 (53.6%)	32 (50.8%)	194 (53.3%)
> <i>Age</i> (both sexes)	n = 40	n = 261	n = 63	n = 364
- < 1 year (2 - 11 months)	10 (25.0%)	92 (35.3%)	23 (36.5%)	125 (34.3%)
- 1 year (12 - 23 months)	10 (25.0%)	51 (19.6%)	12 (19.1%)	73 (20.0%)
- 2 years (24 - 35 months)	8 (20.0%)	52 (19.9%)	16 (25.4%)	76 (20.9%)
- 3 years (36 - 47 months)	6 (15.0%)	45 (17.2%)	6 (9.5%)	57 (15.7%)
- 4 years (48 - 59 months)	6 (15.0%)	21 (8.0%)	6 (9.5%)	33 (9.1%)
Cases managed by	n = 40	n = 261	n = 63	n = 364
- Doctors	13 (32.5%)	58 (22.2%)	0 (0.0%)	71 (19.5%)
- Medical assistants	27 (67.5%)	203 (77.8%)	51 (81.0%)	281 (77.2%)
- Nurses	0 (0.0%)	0 (0.0%)	12 (19.0%)	12 (3.3%)
Caretakers (interviewed)³	n = 40³	n = 250³	n = 60³	n = 350³
> <i>Sex</i>				
- Female	31 (77.5%)	230 (92.0%)	50 (83.3%)	311 (88.9%)
- Male	9 (22.5%)	20 (8.0%)	10 (16.7%)	39 (11.1%)
> <i>Relationship</i>				
- Mother	29 (72.5%)	215 (86.0%)	45 (75.0%)	289 (82.6%)
- Father	7 (17.5%)	14 (5.6%)	6 (10.0%)	27 (7.7%)
- Other	4 (10.0%)	21 (8.4%)	9 (15.0%)	34 (9.7%)
> <i>Education level</i>				
- None	17 (42.5%)	91 (36.4%)	39 (65.0%)	147 (42.0%)
- Primary	11 (27.5%)	75 (30.0%)	14 (23.3%)	100 (28.6%)
- Secondary	9 (22.5%)	57 (22.8%)	6 (10.0%)	72 (20.6%)
- Higher	3 (7.5%)	23 (9.2%)	0 (0.0%)	26 (7.4%)
- Missing information	0 (0.0%)	4 (1.6%)	1 (1.7%)	5 (1.4%)

¹ Outpatient departments

² Include also 1 dressing station

³ Interviews conducted only with caretakers of cases not needing urgent referral

[#] Average time of examination per case observed: range 2–53 minutes with a median of ~18 min. (n = 362, as information not available for 2 cases): By trained providers (cases no.: 278): mode 20 min (median 20 min)*
By untrained providers (cases no.: 84): mode 5 min (median 8 min)* } * P < 0.001

Providers More than three-quarters of children enrolled were managed by medical assistants and one in five (20%) by doctors. *The case management practices described in this survey therefore relate mostly to medical assistants.*

Training More than three-quarters (77%) of children enrolled in the survey were managed by health providers who had received training in IMCI (Table 4). Notably, the proportion was 100% for cases seen at dispensaries, going down substantially (57%) for those seen at hospitals. This may partially be explained by the fact that dispensaries often have only one provider managing sick children and staff turnover at this level is lower than at higher level facilities. A similar proportion of children (74%) was managed by providers who had received follow-up visits after they had been trained in IMCI, the rate being higher for dispensaries than health centres and hospitals. Follow-up visits are carried out as an integral part of IMCI training and have the objective of reinforcing trainees’ skills in their working environment and strengthening those elements of the health system necessary to deliver quality care. To be effective, however, these follow-up visits should be carried out no later than 4–6 weeks after training. Despite the high

rate of training and follow-up described above, only about one child in five (22%) was seen by a provider who had received a follow-up visit within 2 months of IMCI training. It is possible that by then, in the absence of support, practices might tend to revert to the way they were before training.

Visit length The average time of examination per case observed was 18 minutes, ranging from 2 to 53 minutes. The examination of children by IMCI-trained providers took 20 minutes on average as compared to the 8 minutes of untrained providers. In some settings, visit length has recently been proposed as a quality indicator in primary care, although the complexity of the case, facility caseload, provider's experience and organization of work at the facility are some of the factors which influence it^{17,18}.

5.1.2 Patterns of illness

Table 5 shows the pattern of illness of cases enrolled in the survey, according to surveyor's examination, by type of facility. A child had on average 2.5 'IMCI conditions'; many children (59%) had 3 or more 'IMCI classifications'. Almost two-thirds of cases (63%) had an *acute respiratory* condition (ARI), more than half (57%) were febrile or had a history of *fever*, 30% reported *diarrhoea*, despite this not being a diarrhoea peak season, and 8% had an *ear problem*, mostly acute (Fig. 2). More than a quarter (28%) of the children with ARI had pneumonia or severe *pneumonia*, while about one in a hundred had *wheezing*. One child in ten of those with diarrhoea had *dehydration*, 9% had *persistent diarrhoea* and 7% *bloody stools*. Although 17% of all children enrolled – 30% of those with fever – were classified as *malaria* cases, subsequent validation of malaria laboratory findings by the National Malaria Administration in Khartoum found only one case to have malaria (§ 5.3.4). An important finding was that more than one child in ten (11%) was found to have an *eye infection*, defined as the presence of pus draining from the eye. This was expected, as eye problems are reportedly common in Sudanese children. Although the IMCI protocol includes guidelines for the management of eye infections in children with measles who present with eye complications, eye infections are not specifically listed among those IMCI conditions to be routinely checked in each child. Six percent (6%) of all children were *very low weight-for-age* (< 3 SD) and 17% had *anaemia*.

About 4% of all children enrolled had a *severe* condition requiring referral. This rate is similar to the one (3%) found in a study in Gezira¹⁹. Most of these severe cases had 'severe pneumonia'.

Noteworthy is the fact that, when looking at the overall pattern of illness of each child rather than by each condition individually, more than half (52%) of all children enrolled with one or more 'IMCI conditions' had a classification needing referral, drug treatment, or specific nutrition advice, that is, a condition that required action by a qualified health provider. The proportion was much higher in children seen at dispensaries (73%) than other facilities, thus *confirming the importance of this level of the health system in delivering child care*. Outpatient departments of hospitals would then appear to function as any health centre rather than a referral facility. This may suggest that caretakers might simply take their children to the nearest health facility irrespective of the level of the facility and the condition of the child, or be unable to recognize the severity of the child's condition, or both (see also § 5.1.3

¹⁷ Druss, B, Mechanic D, Should visit length be used as a quality indicator in primary care?, *The Lancet* 2003, 361:1148.

¹⁸ Wilson A, Childs S., The relationship between consultation length, process and outcomes in general practice: a systematic review, *British Journal of General Practice* 2002, 52:1012-20

¹⁹ *Evaluation of family responses to recommendations of referral and follow-up under the strategy IMCI*, Masalamia District, Gezira State, 2000, Preliminary report by Simon Cousens to WHO headquarters, Geneva.

Table 4. Sample characteristics: cases seen, by provider's training status and facility type

Characteristics	Hospitals (OPD) ¹	Health centres	Dispensaries ¹	Total
Cases managed by:	n = 40	n = 261	n = 63	n = 364
IMCI-trained providers	23 (57.5%)	194 (74.3%)	63 (100%)	280 (76.9%)
IMCI-untrained providers	17 (42.5%)	67 (25.7%)	0	84 (23.1%)
IMCI-trained providers followed up after training	22 (55.0%)	185 (70.9%)	63 (100%)	270 (74.2%)
IMCI-trained providers followed up within 2 months of training	8 (20.0%)	67 (25.7%)	7 (11.1%)	82 (22.5%)

¹OPD: outpatient departments of hospitals; the column for dispensaries includes also 1 dressing station

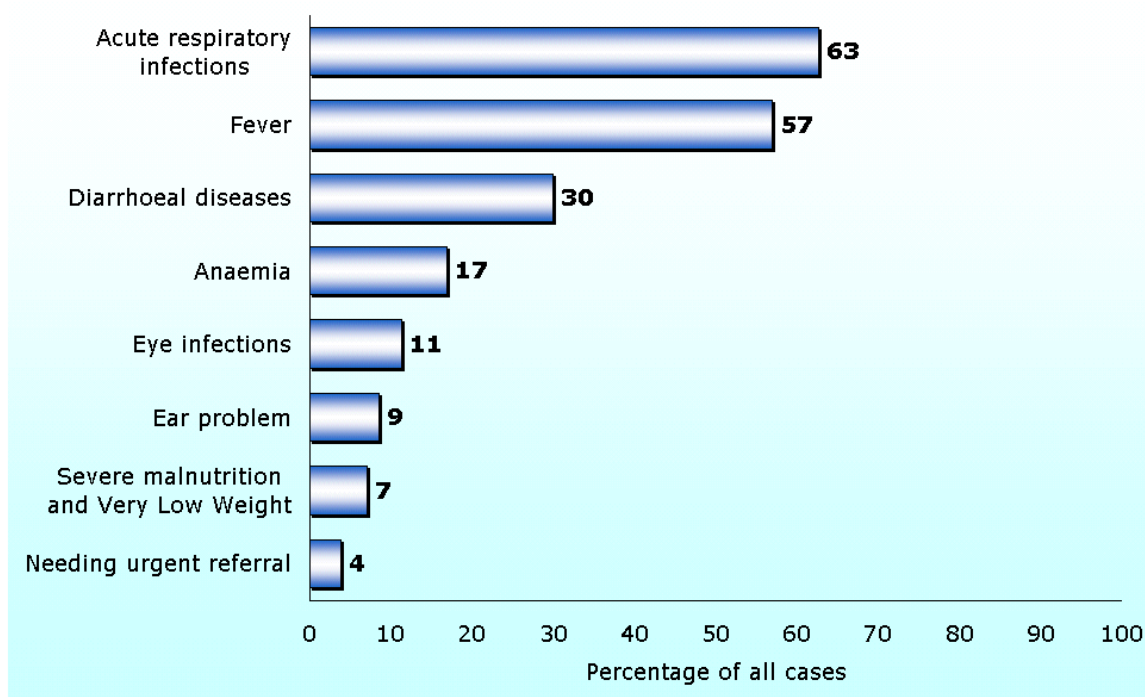


Fig. 2. Distribution of main conditions in the sample (n=364)

Table 5. **Sample characteristics by facility type: classification of cases enrolled according to surveyor’s re-examination findings** (*sample not stratified; results in the “total” column unweighted*)

Classifications [#]	Hospitals (OPD) ¹ n = 40	Health centres n = 261	Dispensaries ¹ n = 63	Total n = 364
Acute respiratory infection	24 (60.0%)	165 (63.2%)	39 (61.9%)	228 (62.6%)
<i>Severe pneumonia/ very severe disease</i>	0	7 (2.7%)	3 (4.8%)	10 (2.7%)
<i>Pneumonia</i>	10 (25.0%)	33 (12.6%)	11 (17.5%)	54 (14.8%)
<i>No pneumonia (cough or cold)</i>	14 (35.0%)	125 (47.9%)	25 (39.7%)	164 (45.1%)
[Wheezing] ³	1 (2.5%)	1 (0.4%)	1 (1.6%)	3 (0.8%)
Diarrhoeal diseases	6 (15.0%)	82 (31.4%)	21 (33.3%)	109 (29.9%)
<i>Diarrhoea with severe dehydration</i>	0	2 (0.8%)	0	2 (0.5%)
<i>Diarrhoea with some dehydration</i>	3 (7.5%)	6 (2.3%)	0	9 (2.5%)
<i>Diarrhoea with no dehydration</i>	3 (7.5%)	74 (28.4%)	21 (33.3%)	98 (26.9%)
<i>Severe persistent diarrhoea</i>	0	0	0	0
<i>Persistent diarrhoea</i>	1 (2.5%)	8 (3.1%)	1 (1.6%)	10 (2.7%)
<i>Dysentery</i>	2 (5.0%)	6 (2.3%)	0	8 (2.2%)
Fever	23 (57.5%)	148 (56.7%)	36 (57.1%)	207 (56.9%)
<i>Very severe febrile disease</i>	0	3 (1.1%)	0	3 (0.8%)
<i>Malaria</i>	5 (12.5%)	37 (14.2%)	20 (31.7%)	62 (17.0%)
<i>Fever – malaria unlikely</i>	18 (45.0%)	108 (41.4%)	16 (25.4%)	142 (39.0%)
<i>Severe complicated measles</i>	0	0	0	0
<i>Measles with eye/ mouth complications</i>	0	1 (0.4%)	0	1 (0.3%)
<i>Measles</i>	1 (2.5%)	2 (0.8%)	0	3 (0.8%)
Ear problem	2 (5.0%)	18 (6.9%)	11 (17.5%)	31 (8.5%)
<i>Mastoiditis</i>	0	0	0	0
<i>Acute ear infection</i>	1 (2.5%)	13 (5.0%)	9 (14.3%)	23 (6.3%)
<i>Chronic ear infection</i>	0	3 (1.1%)	1 (1.6%)	4 (1.1%)
<i>No ear infection</i>	1 (2.5%)	2 (0.8%)	1 (1.6%)	4 (1.1%)
<i>Severe malnutrition</i>	0	3 (1.2%)	0	3 (0.8%)
<i>Very low weight</i>	3 (7.5%)	11 (4.2%)	9 (14.3%)	23 (6.3%)
<i>No very low weight</i>	37 (92.5%)	247 (94.6%)	54 (85.7%)	338 (92.9%)
<i>Severe anaemia</i>	0	1 (0.4%)	0	1 (0.3%)
<i>Anaemia</i>	10 (25.0%)	32 (12.3%)	18 (28.6%)	60 (16.5%)
<i>No anaemia</i>	30 (75.0%)	228 (87.3%)	45 (71.4%)	303 (83.2%)
<i>Feeding problems</i>	17 (42.5%)	113 (43.3%)	37 (58.7%)	167 (45.9%)
Eye infection	3 (7.5%)	28 (10.7%)	10 (15.9%)	41 (11.3%)
<i>Children with IMCI conditions requiring treatment or urgent referral (“yellow” and “red” row classifications of the IMCI chart)</i>	23 (57.5%)	120 (46.0%)	46 (73.0%)	189 (51.9%)

[#] A child may have more than one classification

¹ OPD: outpatient departments of hospitals; the column for dispensaries includes also 1 dressing station

² According to surveyor classification (“gold standard”). The distribution of classifications refers to the month in which the survey was conducted, which is usually a low season for such conditions as diarrhoeal diseases, malaria etc.

³ Children with recurrent wheezing are first given a rapid-acting bronchodilator and then re-assessed 30 minutes later, before being classified

10 (71%) of the 14 cases requiring urgent referral were children less than 2 years old

and 5.3.9). A higher proportion of these children with conditions requiring specific actions and better management skills was distributed in the group of cases seen by IMCI-trained providers (55% of all cases managed by them) than untrained ones (42%), and in rural (68%) than urban (54%) facilities.

5.1.3 Relationship of caretakers' report of fast or difficult breathing with pneumonia and care-seeking

Difficult breathing, fast breathing or 'pneumonia' (referred to in this paragraph as 'breathing problems' all together) were reported by caretakers in 37 (16%) of the 228 children with an acute respiratory condition. Although the survey was not an ethnographic study designed to identify the local terminology used by caretakers to refer to 'breathing problems', the relationship of caretakers' report of breathing problems with pneumonia or severe pneumonia was briefly reviewed (Annex 20, Tables A1 and A2²⁰). In fact, one of the key home care messages for families, promoted first by the ARI²¹ control programme and then by IMCI, is to seek care promptly if their sick children develop a breathing problem. In this survey, caretakers reported a breathing problem only in 12 (19%) of the 64 children found by the surveyors to have pneumonia or severe pneumonia (very low *sensitivity*), although all of them had by definition an increased respiratory rate and/or chest in-drawing on examination (Table A1)²². The *specificity* was somewhat higher (85%): if caretakers did not report breathing problems, their children were then less likely to have pneumonia. Examining whether caretaker's report of breathing problems had a good predictive value for pneumonia or severe pneumonia, it was found that about a third (32%) of the children with reported breathing problems actually had pneumonia or severe pneumonia (Table A2)²³. Children with a breathing problem spontaneously reported by caretakers were only 1.2 times more likely to have pneumonia or severe pneumonia than those in whom it had not been reported. Since the predictive value also depends on the prevalence of the disease in the population under study (children taken to health facilities in this case), 'breathing problems' might have an even lower predictive value for pneumonia in the community. This is because a higher prevalence of the illness is to be found in a population of children who are ill (i.e. those seen at health facilities, more so if at hospitals) than in the community. Thus, in this particular sample of children taken to a health facility and found to have pneumonia or severe pneumonia, most caretakers had either missed the breathing problem or simply not given particular importance to it alone. Among the local terms used by caretakers which had a better sensitivity (although still very low), specificity and positive predictive values were *deeg nafas* (ضيق نفس) and *eltibab*²⁴ (التهاب). *Eltibab* was a sign also mentioned often by caretakers interviewed in a household survey conducted in Gezira, Khartoum and Kassala states in 1995 as a common reason for seeking care in children with ARI²⁵. The Arabic version of the Sudan home care card uses the terms *suraa fialtanafas* (سرعة في التنفس) and *soaba fialtanafas* (صعوبة في التنفس). In this survey, information was collected from 25 of the 37 caretakers who had spontaneously complained of a breathing problem in their child concerning how long they had waited before seeking care from this facility since the time they had realized the child had difficult breathing or a chest problem. About a third (32%) of them answered that they had taken the child within a day,

²⁰ Tables starting with the letter A (e.g. A1) are available in Annex 20 of this report.

²¹ ARI: acute respiratory infections

²² It should be noted that this sample consisted of children taken to a health facility, rather than children at home. The classification of cases as 'pneumonia' or 'severe pneumonia' was based on clinical signs such as general danger signs, chest indrawing and fast breathing.

²³ 32.4% was the *positive predictive value* for pneumonia or more severe illness of caretakers' report of fast or difficult breathing or pneumonia in this sample; the *negative predictive value* for absence of pneumonia or more severe illness of caretakers' not reporting breathing problems was 72.6%.

²⁴ Another term, *nafaso sari* (نفسه سريع), was used more rarely, only in three instances.

²⁵ Mangiaterra V, *An ARI, CDD and Breastfeeding household survey*, Report on a mission, Sudan, 1996, Alexandria, WHO, Regional Office for the Eastern Mediterranean.

while the rest had waited for 2–7 days; the median time was 2 days. Although caretakers might have consulted other sources of care first or may have delayed seeking advice because of reasons other than lack of knowledge, *the findings suggest that much work needs to be done to improve family care-seeking practices for children with ARI in Sudan.*

5.2 QUALITY OF CLINICAL CARE

A summary of results on selected indicators on the quality of clinical care is shown in Table 6. The next sections present the findings on the key components of case management in detail, namely assessment, classification, treatment and counselling, to describe the quality of integrated care that children received at health facilities. It should be emphasized that the survey looked at the quality of care that each child received rather than provider's performance, although information on the latter could often be inferred from the former. *Therefore, the results apply to care delivered by both IMCI-trained and untrained providers.*

- ❖ *Reliability of caretakers:* An interesting finding in this survey, noted also in a previous IMCI health facility survey in Egypt, was caretakers' inconstant reliability in giving information on signs and symptoms, first to the survey team supervisor on enrolment of the child, next to the local health provider, and finally to the surveyor re-examining the child. For example, in 12 cases in whom the caretakers reported the presence of cough or difficult breathing to the surveyor, they had previously told the local provider that the child had no cough or difficult breathing; two of these children had pneumonia which was then missed by the provider. And vice versa, in 28 cases in whom caretakers told the surveyor that the child had no cough or difficult breathing, they had told the local provider that the child did have cough or difficult breathing. Similarly, in 7 cases in whom the caretakers reported the presence of diarrhoea to the surveyor, they had previously told the local provider that the child had no diarrhoea; one child with some dehydration among them was then missed by the provider. In 21 cases in which caretakers told the surveyor that the child had no diarrhoea, they had told the local provider that the child did have diarrhoea. One chronic and two acute cases of ear infection were missed for the same reasons. This was one of the reasons why certain assessment tasks were not carried out by the local providers in some children: the negative history resulted in the provider's misclassification and incorrect treatment of the child when compared with the surveyor findings used as a reference standard. It should also be noted that where there were discrepancies between health provider's and surveyor's history findings, the analysis of data suggested that surveyor's findings were more reliable. *More careful history-taking by the provider would then have been likely to improve his/ her performance.*

5.2.1 Assessment

The guidelines on integrated child health care (IMCI) require that a number of key assessment tasks should be performed in any sick child, irrespective of the specific complaint. This helps identify conditions that are not reported by the caretaker. To measure how complete the assessment that each child received was, an *index of integrated assessment* was used in the analysis. The index consists of many key tasks and gives equal weight to each task done (score per task done = 1): it is expressed as the mean of the number of tasks performed in each child (out of those that should have been performed). This index is preferred to compound indicators as these result just in 'yes' answers if all and only all component tasks of which they consist are done: even if only one task is missed out of many, the compound indicator would result in a 'no' answer. This prevents documentation of changes in some of the compound indicators' component tasks in future. The index of integrated assessment,

Table 6. Summary table with selected survey results on the quality of clinical care

Quality of clinical care: tasks	Findings
❖ Assessment	
• Children in whom all the 10 main assessment tasks were carried out	1.9%
• Children below 2 years old and those with very low weight and/or anaemia assessed for feeding practices	24.0%
❖ Classification	
• Agreement between provider's and surveyor's classifications of conditions requiring urgent referral, treatment or specific counselling	46.4%
• Cases underclassified among those incorrectly classified by the provider	94.6%
❖ Treatment and advice	
• Severe cases correctly managed	0 out of 14
• Children needing an oral antibiotic prescribed correctly	32.5%
• Children not needing antibiotics leaving the facility without antibiotics	62.6%
• Children needing vaccinations who leave the facility with all needed vaccinations or advice on when to come back for scheduled vaccination	48.6%
• Children prescribed oral antibiotic, ORS or antimalarials whose caretakers knew how to give the treatment before leaving the facility:	
– Antibiotic	22.2%
– Antimalarial	19.6%
– ORS	24.1%
• Children whose caretakers were advised on all the three home care rules	11.7%
• Children whose caretakers knew all the three home care rules before leaving the facility	1.7%
• Proportion of children less than 2 years old and those with low weight-for-age and/or anaemia whose caretakers were given age-appropriate feeding advice	23.7%

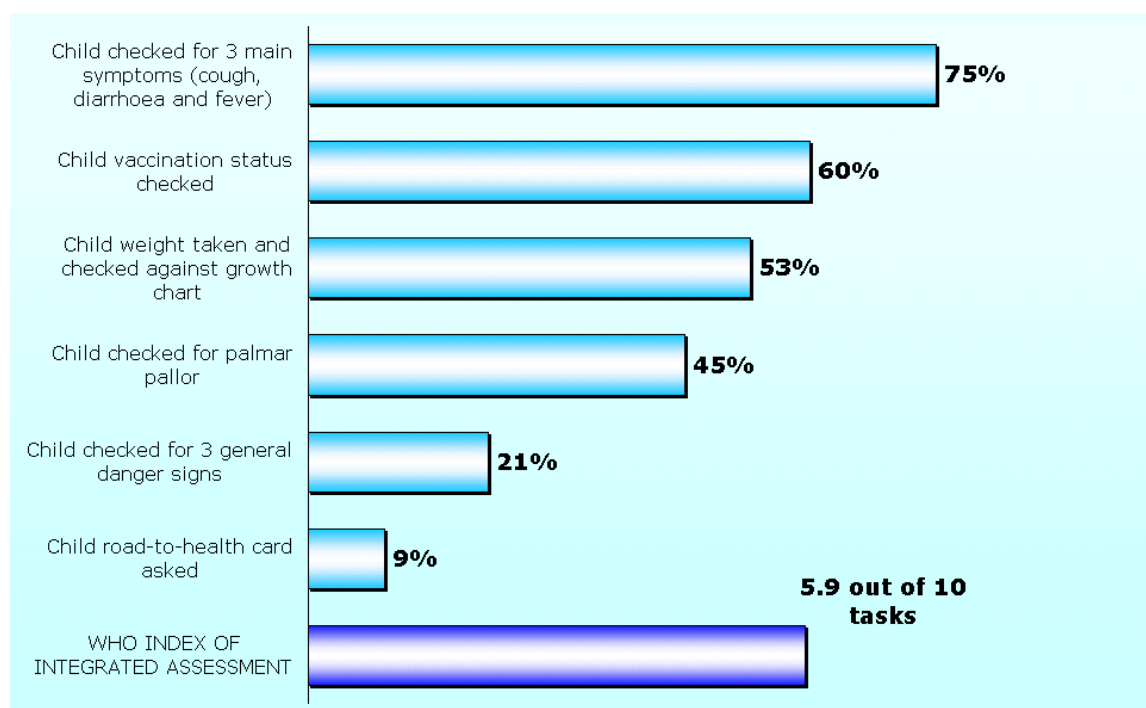


Fig. 3. Integrated assessment: Main tasks and WHO index

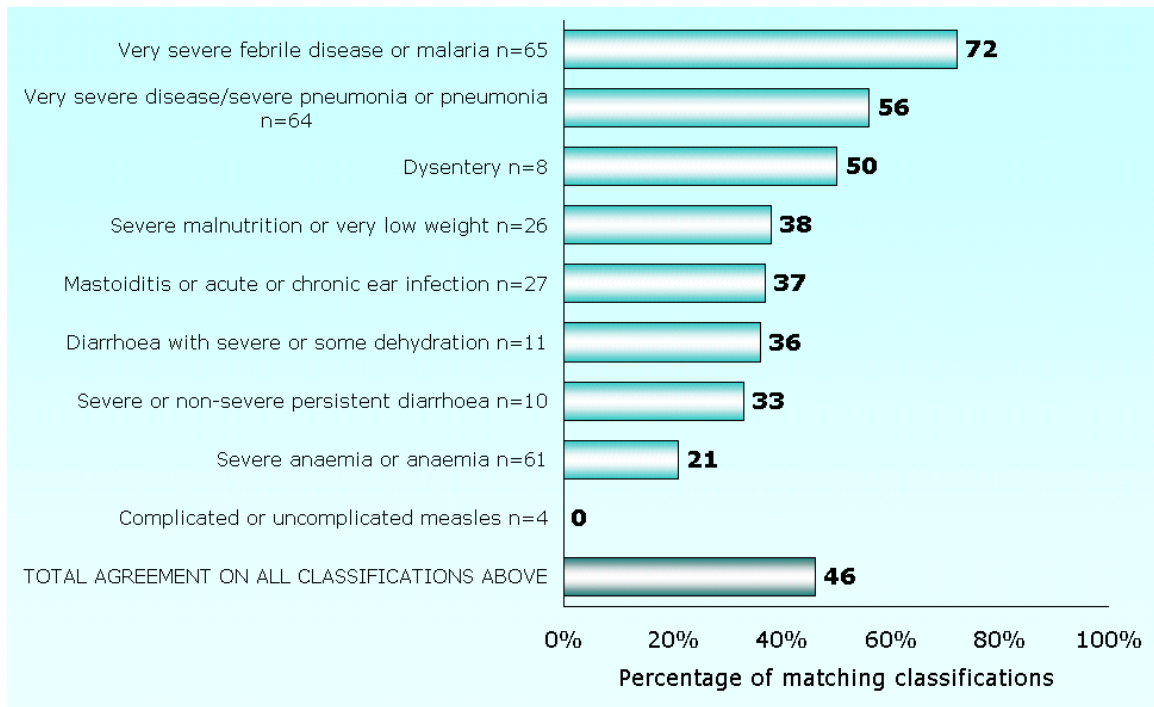
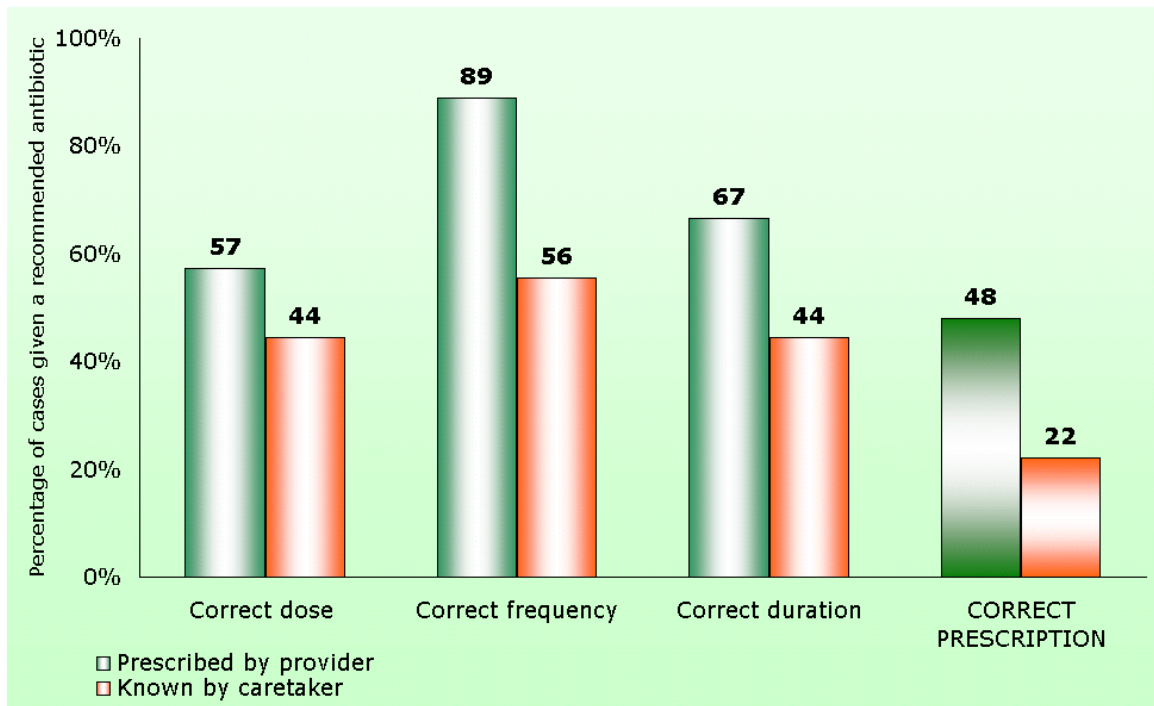


Fig. 4. Agreement of provider classifications with surveyor classifications on main conditions



(Cases given a recommended antibiotic for IMCI condition n=54)

Fig. 5. Provider correct prescription and caretaker correct knowledge about antibiotic treatment

instead, enables follow-up of improvements in care and progress over time, taking into account each of the tasks of which it consists: the higher the number of tasks performed, the higher the index. Two versions of the index were used in this analysis: a) one version based on the generic index proposed by WHO for these surveys on a trial basis; and b) a second version representing the index adapted to Sudan. The latter was meant to take into account a few additional, key assessment tasks and adaptations present in the Sudan IMCI guidelines. The WHO index was included in the analysis to allow comparisons with other surveys in different countries.

Note on results: Rather than describe health providers' 'practices', the survey results provide some information on providers' 'skills'. Health providers knew that they were being observed by the surveyor; therefore, what they did not necessarily reflect what they would do under routine circumstances (i.e. their routine practices). However, if they carried out a task and did it correctly while being observed, this would indicate at least that they would have the skills to do that task properly. The IMCI chart was consulted by the providers in the large majority of cases observed (72.5%). The use was obviously much higher for providers trained in IMCI (chart used in 93.2% of cases) than those untrained (3.6%).

- ❖ *Index of integrated assessment* (Fig. 3; Table A3): The index values found in this survey were: a) a mean of 5.9 tasks performed out of 10 assessment tasks to be performed, for the WHO index²⁶; and b) a mean of 7.6 out of 14 tasks, for the Sudan-adapted index²⁴. These values for both indices are of intermediate level and suggest that a number of tasks were often missed in the assessment of a child. However, when the findings are analysed by provider IMCI training status, the data consistently show that children seen by an IMCI-trained provider were assessed more systematically for the main tasks through the IMCI protocol than untrained staff (Fig. 10): while on average only 3.4 assessment tasks were carried out in a child by untrained staff (a rather poor performance), about twice as many tasks were performed by IMCI-trained providers ($P < 0.0001$). Yet, even in the latter group of providers, the index of 6.6 was sub-optimal (Table A36).
- ❖ *Assessment tasks* (Table A3): Most children were weighed (82%), while the weight was checked against the growth chart in half (52%) of the children to determine the weight-for-age and classify the child according to it. The temperature was taken in less than half of the cases (47%), and the vaccination status was checked in 60% of cases. One child in five (21%) was *correctly* checked for the presence of the three general danger signs (inability to drink, vomiting everything and convulsions) to detect cases with a very severe disease requiring urgent referral. In this survey, the emphasis was on 'correctly' checking for these signs, rather than simply checking, and this explains the difference between this rate and that observed in other studies. Three-quarters of children (75%) were checked for the presence of the three main symptoms of cough, diarrhoea and fever, irrespective of the initial complaints, in order not to miss conditions not reported spontaneously by caretakers. Sixty-one per cent (61%) of children were checked for the presence of an ear problem.

Signs that were assessed less frequently, apart from some of those mentioned above, included: palmar pallor (assessed in 45% of cases) to detect clinical anaemia; and oedema of both feet (32%) and visible severe wasting (24%) to detect clinical severe malnutrition. As for

²⁶ The ten assessment tasks of the WHO index are: child checked for three danger signs (1,2,3), checked for the three main symptoms (4,5,6), child weighed (7) and weight checked against a growth chart (8), child checked for palmar pallor (9) and for vaccination status (10). The Sudan index adds the following 4 tasks: temperature checked with thermometer (11) and child checked for the presence of ear problem (12), wasting (13) and oedema of both feet (14).

danger signs, the emphasis for these tasks was on tasks ‘correctly’ performed rather than simply performed.

As noted earlier, assessment tasks were performed more frequently in cases examined by providers trained in IMCI than those seen by untrained staff ($P < 0.0001$) for most of the individual tasks) (Fig. 11; Table A36). None of the 84 children seen by untrained providers was assessed for palmar pallor, visible wasting and presence of oedema on both feet.

Note: 32% of children in whom caretakers initially did not report cough or difficult breathing, 9% of those in whom they did not report diarrhoea and 16% in whom they did not report fever, were then found by the surveyor to have an acute respiratory infection (ARI), diarrhoea or fever (or history of fever), respectively, in addition to the complaint/s spontaneously reported: they were thus examined also for these conditions. The systematic checking for an ear problem enabled the surveyor to detect 10 additional cases of ear infection, for whom caretakers had initially not reported an ear problem, that is, about half (48%) of the 27 cases ultimately found to have an ear infection. These findings, which are similar to those found in the survey in Egypt, further confirm the validity of the integrated childcare (IMCI) guidelines for a more complete examination of the sick child, not limited to the main complaint initially reported by the caretakers.

- ❖ *Child road-to-health cards* (Table A3) were checked in 9% of cases. The cards contain useful information on the child’s nutrition and immunization status. Caretakers usually take it with them for immunization sessions but not for sick child visits – as they are not advised to do so, although the card contains useful information on the child.
- ❖ *Feeding assessment* (Table A4): About one child in four (24%) under 2 years old or with very low weight or anaemia not referred by the provider was assessed for feeding practices as recommended by the IMCI guidelines (including assessing breastfeeding for those less than 2 years old, complementary feeding and feeding changes during illness for all)²⁷. This task, which aims at detecting and improving incorrect feeding practices, was performed only by IMCI-trained providers: it was carried out in a third (30%) of cases seen by them but in none of the 47 eligible children seen by untrained providers ($P < 0.001$) (Table A37). Although children with very low weight-for-age and/or anaemia were not more likely to receive feeding assessment than those without those conditions, it should be noted that 78% of those older than 2 years with the condition had been misclassified by the provider as cases with no anaemia or not very low weight-for-age and, based on this wrong classification, would not have required feeding assessment.
- ❖ *Qualitative and additional findings on assessment:* As part of the adaptation of the survey instrument, an attempt was made to check not only whether a certain number (‘quantity’) of key tasks was carried out for *any* sick child, but also how (‘quality’) they were performed and whether further assessment tasks were carried out in those children in whom a condition was found. A sample of key assessment tasks was chosen that could reliably be assessed through observation (Table A5).
 - **Weight and temperature** for all children: although the weight was taken and also recorded in the majority of cases (80% of children), it was taken *correctly*²⁸ in about half (53%) of the cases. The temperature was taken *correctly*²⁸ in 14% of children. Noteworthy are the significant differences observed between cases seen by IMCI-

²⁷ See definitions at bottom of table A4. If the indicator is limited to children under 2 years of age, as proposed in the WHO general list of priority indicators for ease of calculation, the proportion of these children assessed for feeding in this survey rises slightly to 27.5%.

²⁸ For the definition of *correctly*, see footnote to Table A5.

trained and untrained providers (Table A36). For example, the temperature was hardly ever taken (although thermometers were often available) and never taken correctly by untrained providers.

- **History of difficult breathing:** providers failed to ask whether the child had a breathing problem in at least one caretaker in five (20%) among those who had reported no cough in their children. The entry symptoms into the ARI section of the IMCI protocol are in fact cough *or* difficult breathing *or* both. However, providers often ask only about cough and, if this symptom is not present, may not ask about breathing problems. In this way, they may miss cases with pneumonia that present with breathing problems as the main complaint. This omission has therefore important implications, as confirmed in this survey: the group asked only about cough and not about any breathing difficulty included a child with severe pneumonia and two children with non-severe pneumonia; eventually, two cases of pneumonia were missed by the provider. This fact may be due to the provider's asking questions automatically and quickly, without paying too much attention to them. In fact, the caretakers of these two children with pneumonia had reported that their children had cough and/or a breathing problem to both the survey supervisor upon arrival at the facility and then the surveyor. *This suggests that caretaker's unreliability may in some cases be due to the provider's not taking the history properly* (see 'Reliability of caretakers' under § 5.2).
- **Respiratory rate** in cases with cough or difficult breathing: This was counted in three-quarters (76%) of all cases (and in 89% of cases seen by trained providers, $P < 0.0001$). In 12 (22%) of the 55 cases in which it was not counted, the caretaker had told the provider that the child had no cough. The count was taken *correctly*²⁸, however, in 57% of children with ARI. There was a striking difference by provider training status, as the respiratory rate was rarely taken and taken correctly in cases seen by untrained providers (Table A38). In this analysis, the counts were considered 'reliable'²⁹ in 41% of cases in which they were taken. Ample differences in counts were found between the provider and the surveyor, ranging from -34 breaths/min. to +46 breaths/min. (Table A6). This analysis showed that 'unreliable' counts were directly responsible for providers' under-classifying as 'no pneumonia' 11 children who actually had fast breathing ('pneumonia') and over-classifying as 'pneumonia' 35 children with 'no pneumonia'.
- **History, skin pinch and offering water** in cases with diarrhoea: information on duration of the diarrhoea episode – necessary to distinguish acute from persistent diarrhoea cases – was asked in three-quarters (76%) of cases, and on presence of blood – to identify dysentery cases – in 57% of cases. These findings are similar to those of a CDD³⁰ health facility survey carried out in Sudan in October 1997³¹. More than two-thirds (69%) of children with diarrhoea had their abdomen skin pinched to check skin turgor, and 50% were offered something to drink to check thirst – to assess dehydration status. The latter rate is much higher than the one found in the CDD survey in 1997³². However, the skin was pinched *correctly* in only a third of children with diarrhoea³³. All the above tasks were performed much more frequently in children with diarrhoea seen by IMCI-trained providers, and were rarely done by the untrained providers (Table A38).

²⁹ Exclusively for the purpose of this analysis, a count was considered 'reliable' if the difference in count between the provider and the surveyor for the same child was not greater than 5 breaths per minute. This arbitrary level was based on experience from previous health facility surveys on acute respiratory infections: about two-thirds of all counts would usually lie within this difference.

³⁰ Control of diarrhoeal diseases programme.

³¹ FMOH/WHO: *A CDD health facility survey*, Sudan, October 1997

³² See footnote (31).

³³ See footnote (28)

- **Checking both ears** in children with an ear problem: more than a third (35%) of children with a history of ear pain or ear discharge had both their ears checked. This task was carried out only by trained providers (Table A38).
- **Checking for measles** in children with fever: a history of measles within the last 3 months was checked in 42% of children with fever or history of fever, but never by untrained providers (Table A38).
- ❖ *Assessment of other problems* (Table A3): Although the IMCI guidelines focus on the most common causes of mortality and important causes of morbidity, what makes them thorough are the instructions to complete the assessment of each child by asking about other problems and assessing them if present. The caretakers of almost half (48%) of the children were asked about the presence of any other problems.

5.2.2 Classification

There was an agreement between the provider's classification and the surveyor's classification on 46% of the *conditions* found in the 364 children examined and requiring urgent referral, drug treatment or specific counselling (Fig. 4; Table A7)^{34, 35}. The full breakdown by condition is presented in Tables A8 through Table A15 in Annex 20. Overall, about a third (32%) of all *children* having one or more of these conditions was correctly classified by the provider. The analysis of the data also tried to establish whether the misclassified cases had actually been 'under-classified', i.e. considered as milder cases than they actually were, as this would have important clinical implications. Under-classification occurred in 95% of the misclassified conditions (Table A7). The results are described below. Although the samples by illness or by condition are small in some cases, the data may help understand whether an inadequate assessment of the child (inaccurate history, or incomplete or incorrect physical examination) was responsible for the under-classification of the condition.

- **Very severe pneumonia, severe pneumonia and pneumonia** (Table A8): there was agreement on these classifications in 56% of the 64 cases identified by the surveyor. Most (95%) of the 28 such conditions that were misclassified by the provider were under-classified. This resulted in four cases of severe pneumonia not being referred by the provider and eight cases of pneumonia being about to be sent home with no antibiotic treatment³⁶. Caretakers of two of these cases with non-severe pneumonia had answered negatively the provider's question on whether the child had cough or difficult breathing, although they had reported it upon enrolment in the survey, and were therefore not assessed for pneumonia by the provider. Other reasons for missing non-severe pneumonia included provider's inaccurate count of the respiratory rate, or not taking it at all.
- **Diarrhoea with persistent diarrhoea, dysentery and severe or some dehydration** (Tables A9–A11): there was agreement on the classification of three of the 10 cases with persistent diarrhoea, four of the eight cases with dysentery, and four of the 11

³⁴ A total of 276 conditions requiring urgent referral, treatment, or specific counselling were identified, falling in the following seven categories: 1) Very severe disease or severe pneumonia or pneumonia; 2) Diarrhoea with severe or some dehydration, severe and non-severe persistent diarrhoea, dysentery; 3) Very severe febrile disease or malaria; 4) measles with or without eye and mouth complications; 5) Mastoiditis or acute or chronic ear infection; 6) Severe malnutrition or very low weight; and 7) Severe anaemia or anaemia.

³⁵ 'Correct' is used in this report when health provider's case management practices agree with surveyor's (the 'gold standard'), i.e. if they comply with the national, standard IMCI case management guidelines.

³⁶ These cases were advised correct treatment in the end. In fact, the survey team supervisor reviewed these cases with the facility provider, after they had been examined by the provider and re-examined by the surveyor, who detected the condition.

cases with dehydration. The reasons for the misclassification of diarrhoea cases varied: cases were either not assessed for this problem, or the assessment findings were not taken into account for the classification, or simply no classification was given. For example, although the provider asked about the duration of the diarrhoea episode in nine of the 10 cases with persistent diarrhoea and about the presence of blood in the stools in seven of the eight cases with dysentery, only three cases were classified as persistent diarrhoea and only four cases were classified as dysentery, respectively. All the seven dehydrated cases misclassified were under-classified.

- **Very severe febrile disease or malaria** (Table A12): there was agreement in 72% of these cases. The agreement rate was higher in cases with fever than other conditions because of provider's routine request for microscopical examination (blood smear) in cases with fever and relying on the laboratory results for the diagnosis, in the same way as the surveyor did. This process then required no clinical skills on the provider's side when laboratory facilities were available. Unfortunately, two independent and blind validity checks of the laboratory diagnoses carried out in Khartoum at the end of the survey showed that the diagnoses at health facilities were unreliable in many cases (see § 5.3.4). The 18 cases with fever that were misclassified by the provider were all under-classified: often no classification for fever was given.
- **Measles** (with or without complications) (Table A12): all four cases of measles were under-classified, including a case with eye or mouth complications. However, it was likely that the three cases without complications were simply given no specific measles classification because there were no complications. To support this view is the fact that in two of these three cases the providers specifically asked the caretaker whether the child had had measles in the last 3 months. In these cases it would then be more appropriate to talk about 'no classification given' rather than real under-classification.
- **Acute and chronic ear infection** (Table A13): provider and surveyor classifications agreed with each other in 37% of children with an acute or chronic infection. The reasons for missing the other cases included inadequately checking the ears³⁷, not asking about ear problems, not considering the findings of the assessment for the classification, or, in a few instances, caretaker's unreliable answer to the provider.
- **Severe malnutrition or very low weight** (Table A14): the provider classification agreed with the surveyor classification in 10 (38%) of the 26 cases with the condition. The nutrition status of one of the three cases with severe malnutrition was not classified at all. Of the 15 cases with very low weight under-classified, three had not been weighed while for the others it is possible that the weight had not been considered in the assessment of the child.
- **Severe anaemia or anaemia** (Table A15): as noted also in a previous survey in Egypt, this remains the most problematic area. There was agreement only in 21% of the 61 cases with clinically detected severe anaemia or anaemia. The only case having severe anaemia and 46 cases with non-severe anaemia were missed. The most common reason for missing anaemia was not checking for palmar pallor (39% of the 46 cases with anaemia not classified or under-classified for anaemia). Only for eight of the 46 cases with anaemia was an incorrect classification given, among which were seven 'no anaemia' classifications indicating true under-classification. In all the other 39 anaemia cases underclassified, instead, no classification was given, suggesting that particular attention should be paid to the assessment of this sign during training and follow-up.
- **Eye infections:** although not specifically included in IMCI among the main conditions to be checked routinely in each sick child, the prevalence of eye infections (pus draining from the eye) in the sample was high (11%). Data on this condition

³⁷ It was observed, for example, that some providers turned the child's head to both sides, as the surveyor was present, but looked at both ears very superficially and from a distance. Although the surveyor would record that both ears were checked in these cases, the ears were actually not *properly* checked.

showed a 41% agreement between surveyor and provider. In more than half (58%) of the 24 cases in which eye infections were not reported by the provider, he/she had not checked for other problems at the end of the examination, a task instead recommended in the IMCI guidelines.

- **Identification of feeding problems:** feeding problems were common and were found in 167 children (46% of cases) by the surveyors: providers were able to identify them in 8% of these cases.

5.2.3 Treatment and advice

5.2.3.1 Management of severe cases

A total of 14 cases were classified by the surveyor as cases with a severe condition warranting urgent referral or admission to hospital: two thirds (9) of them were ARI cases with ‘severe pneumonia’/‘very severe disease’ (Table A16). Six (43%) of the 14 severe cases were correctly identified as severe and referred or admitted to hospital by the local health providers, all of them trained in IMCI. Two-thirds (67%) of the cases referred by the provider were given explanations on the reasons for urgent referral, most of the caretakers (92%) accepted referral, and a referral note was prepared and given to half of the referred cases. However, no case eventually received pre-referral treatment as advised by the IMCI guidelines, i.e. first dose of a recommended antibiotic and/or antimalarial, ORS and vitamin A as applicable (Table A16). A study in Gezira had found a mortality risk of 10% among children requiring urgent referral according to the IMCI guidelines; the risk appeared lower in children presenting to the hospital on the same day of referral, although the number of deaths in that study was small and the difference was not statistically significant³⁸. In conclusion, none of the 14 severe cases was correctly managed, that is, was identified *and* managed according to the IMCI guidelines. The main reasons that may explain this outcome include provider’s failure to identify the severity of the case (inadequate assessment), the lack of pre-referral drugs at the facility in some cases, or failure to provide pre-referral treatment upon referral or admission. It should be noted that pre-referral drugs at primary health care level facilities are currently charged to the patient, unlike emergency treatment provided at hospitals. This fact may then act as a disincentive to administer pre-referral treatment, especially when caretakers may lack the financial resources to pay even for a single dose.

Note: The national IMCI guidelines recommend that even for children with a severe classification seen at the outpatient or emergency department of a hospital, a pre-referral (admission) dose of antibiotic and/or quinine should be given upon admission to those with suspected bacterial infection or severe malaria as standard operating procedure. In fact, these cases have a severe or very severe condition, and should be dealt with as medical emergencies. There is often a substantial delay in starting treatment at the referral facility, from the time the child is assessed in the outpatient or emergency department to the time the patient has been transferred to the ward, re-assessed, all treatment instructions have been given and treatment has finally been started.

5.2.3.2 Use of injectable drugs

Injectable drugs, including parenteral chloroquine (1 case) and benzylpenicillin (all other cases), seemed to enjoy some popularity among providers, although the overall use rate found in this survey was contained (Table A16). Benzylpenicillin was in fact administered in about 5% of all children who were not referred by the provider. When considering the classification given by the provider, whether correct or not, most of these cases were unlikely to need benzylpenicillin (e.g. most were classified as pneumonia cases). The proportion of

³⁸ *Evaluation of family responses to recommendations of referral and follow-up under the strategy IMCI, Masalamia District, Gezira State, 2000, Preliminary report by Simon Cousens, to WHO headquarters, Geneva.*

children who received therapy by injection in a previous study conducted in Gezira (4%) was similar³⁹.

5.2.3.3 Rational use of oral antibiotics

- ❖ *Prescription:* Most children (72%) with an IMCI condition not requiring urgent referral and who needed oral antibiotics were prescribed them. More than two-thirds (67%) were given a recommended antibiotic and less than a third (32%) were prescribed antibiotics correctly (Table A17). No child seen by untrained provider was prescribed antibiotics correctly ($P < 0.05$) (Fig. 12; Table A40). For the antibiotic to be prescribed correctly, the provider had to state the dose, frequency and duration of treatment clearly in the prescription. The main reason for an incomplete or incorrect prescription was prescribing an incorrect amount of the drug and, next, providing no or incorrect information about the duration of treatment. On the other hand, as many as 37% of children not needing antibiotics were prescribed antibiotics unnecessarily, mostly because these cases had been misclassified by the provider as conditions (mostly pneumonia) that would have required antibiotics had their classification been correct. Children seen by trained providers were given antibiotics unnecessarily much less often than those seen by untrained providers ($P < 0.001$) (Table A40).
- **Non-severe pneumonia** (Table A17): most (80%) of these cases were prescribed an oral antibiotic, 72% were given a recommended oral antibiotic. All children that the provider had correctly classified as having ‘pneumonia’ were prescribed an oral antibiotic – 90% were given a recommended one. On the other hand, all the 11 children with ‘pneumonia’ who were not prescribed an antibiotic had been misclassified by the provider as ‘no pneumonia’ cases. None of the nine children with pneumonia seen by untrained providers was prescribed an antibiotic correctly (Table A40).
- **Dysentery** (Table A17): only four (50%) of the eight cases with ‘dysentery’ were prescribed an oral antibiotic and three were prescribed a recommended antibiotic correctly. It should be noted that three of the four cases who were not prescribed an oral antibiotic had not been classified as dysentery cases by the provider.
- ❖ *Advice and caretaker recall:* Caretakers of children to whom an oral antibiotic is prescribed should be: a) given advice on how much, how many times per day and for how many days they should give the antibiotic to the child; b) shown how to give it to the child; and c) asked open-ended questions to check for their understanding of the instructions received. It can be assumed that if caretakers are given incorrect or no advice on treatment or are unclear about it, they may be less likely to administer it correctly to the child at home. The third task above (c) is therefore a key task, as oral antibiotic treatment is delegated to families: checking for caretaker comprehension of the instructions given is the only way to ascertain whether the caretaker has clearly understood all the instructions and to clarify any doubt before she leaves the facility. In this survey, about two caretakers in three (64%) were advised on drug treatment⁴⁰ (item a) above), 17% were shown how to give it (b), and only about one in five (19%) was asked checking questions (c) (Table A24). As few as 15% of children were given the first dose of the antibiotic at the facility. Providing the first dose of the antibiotic is important also because it may increase the chance that the caretaker will take the

³⁹ See footnote (38).

⁴⁰ This means that these caretakers were given some advice, whether correct or not. This item was included to know whether providers would as a routine practice explain treatment to caretakers or simply write the prescription or dispense the drug with no verbal instructions. It should be noted that caretakers of 42% of the children enrolled in this survey were illiterate and unable to read providers’ prescription.

child back for follow-up as advised. In a previous study on compliance with follow-up advice, receiving treatment at the health facility during the first visit was in fact found to be strongly associated with a higher compliance⁴¹.

As a result of the advice received, about one in five (22%) of the caretakers who had been prescribed an antibiotic for their child was able to describe correctly to the surveyor during exit interviews how to give the antibiotic to the child (Table A17). This means that 22% of caretakers correctly knew *all* the following three items before going home: a) the dose (44% recalled this individual message correctly), the frequency (56%), and the duration of treatment (44%). The lower level of knowledge about the dose and duration of treatment was consistent with providers' tendency to overlook this advice. In fact, there was a direct relationship of provider's advice on dose, frequency and duration of treatment with caretaker's correct knowledge about treatment: caretakers correctly advised on these items were more likely to recall them correctly at exit interview than those not advised ($P < 0.01$) (Table A18). *Given the above findings, it can be expected that only a low proportion of children with conditions needing antibiotic treatment would be managed correctly in the home (15%).*

- ❖ *Potential compliance with advice:* Caretakers of children who had been prescribed an oral antibiotic for any reason by the provider were asked what they would do if the child got better before completing the treatment course advised by the provider. Almost two thirds of them (64%) replied that they would continue treatment as advised, while 22% stated that they would stop treatment (Fig. 6; Table A19). A higher proportion of the caretakers who said they would continue the medicine was in the group that was given correct instructions on antibiotic compared with the group advised incorrectly ($P < 0.05$). *Thus, provider's advice makes a difference and is an essential component of correct medical management.*

5.2.3.4 Rational use of oral antimalarials

- ❖ *Prescription:* About three children with malaria in four (74%) not requiring urgent referral were prescribed recommended antimalarials; all but one of the cases not prescribed an antimalarial by the provider had been misclassified as cases without malaria. However, only one in four (27%) malaria cases was eventually prescribed antimalarials correctly (Table A20). For the antimalarial to be prescribed correctly, the provider had to state the dose, frequency and duration of treatment clearly in the prescription. The main reason for an incomplete or incorrect prescription was prescribing an incorrect or no amount of the drug. This was in some cases due to an incorrect estimate of the dose based on a formula learnt at the medical assistant school that differed from the national malaria guidelines. A recent change in the national guidelines about the duration of treatment may also have accounted for errors in advising the duration of treatment. Once more, children seen by IMCI-trained providers were prescribed oral antimalarials correctly more often than untrained providers ($P < 0.05$) (Fig. 13; Table A41).
- ❖ *Advice and caretaker recall:* Similarly to those given antibiotics, caretakers of children to whom an oral antimalarial is prescribed should be: a) given advice on how much, how many times per day and for how many days they should give the antimalarial to the child; b) shown how to give it to the child; and c) asked open-ended questions to check for their understanding of the instructions received. As observed already for the antibiotics, oral antimalarial treatment is delegated to families; thus, checking for caretaker comprehension of the instructions becomes critical to ensure that the caretaker has clearly understood the instructions. Most caretakers (80%) were advised

⁴¹ See footnote (38)

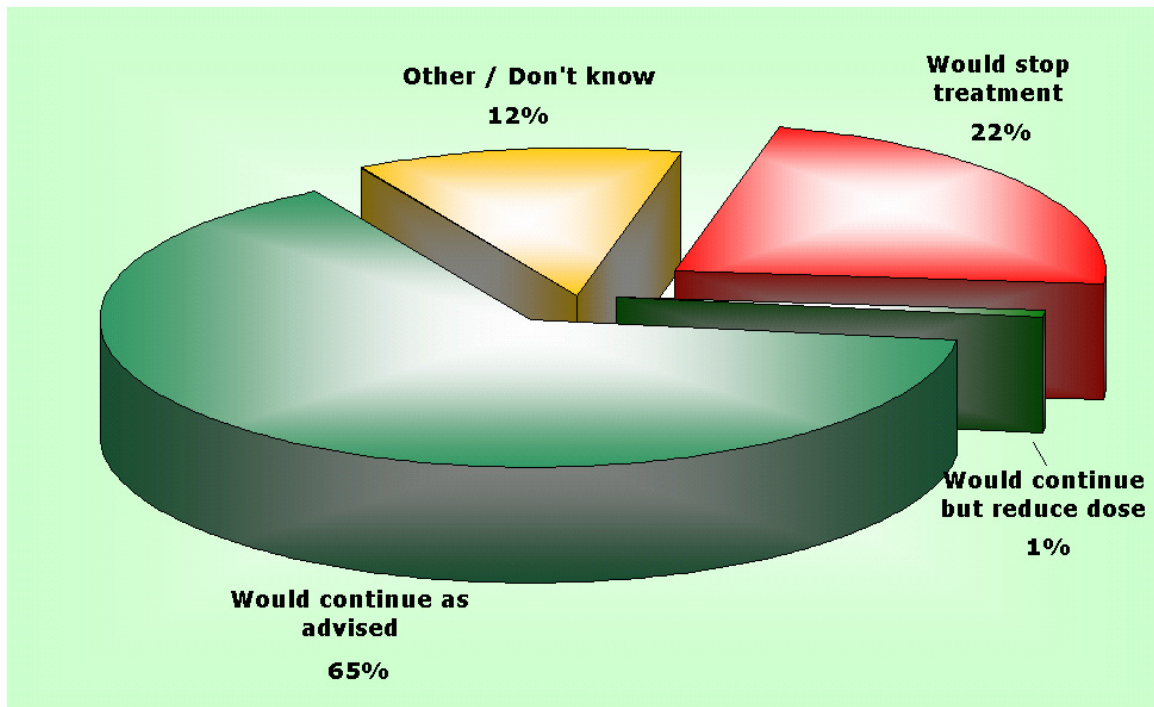


Fig. 6. Caretaker potential compliance with provider advice on duration of treatment should child get better before completing treatment course

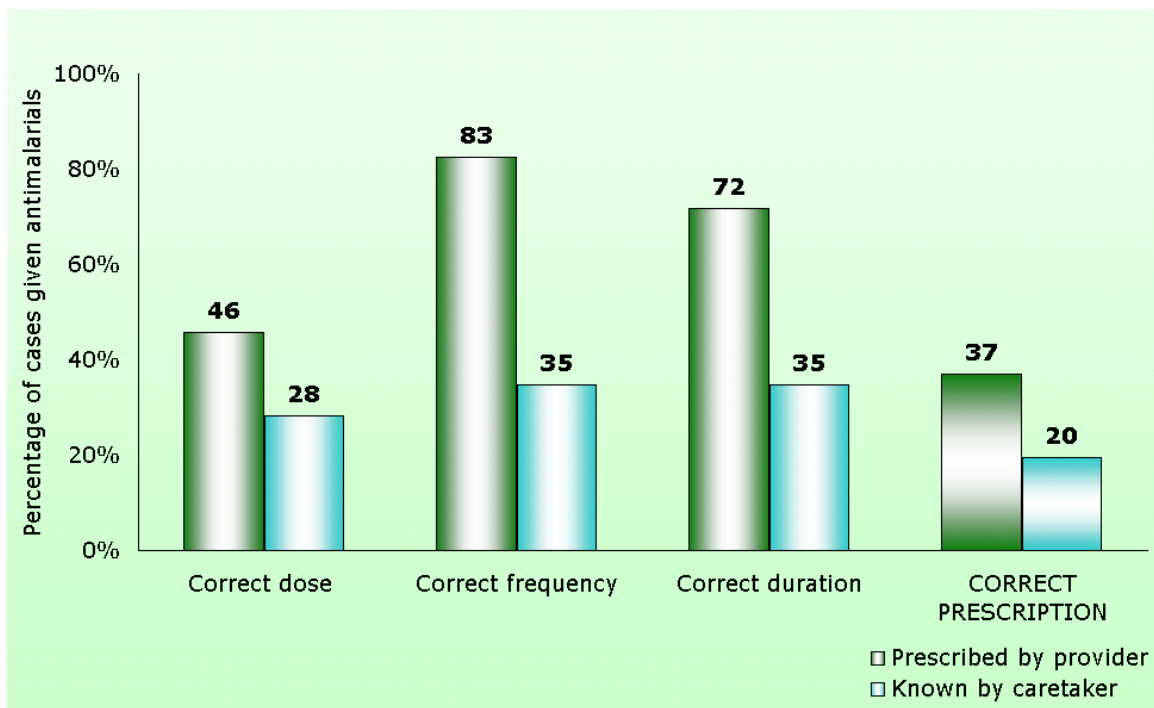


Fig. 7. Provider correct prescription and caretaker correct knowledge about oral antimalarial treatment (n=46)

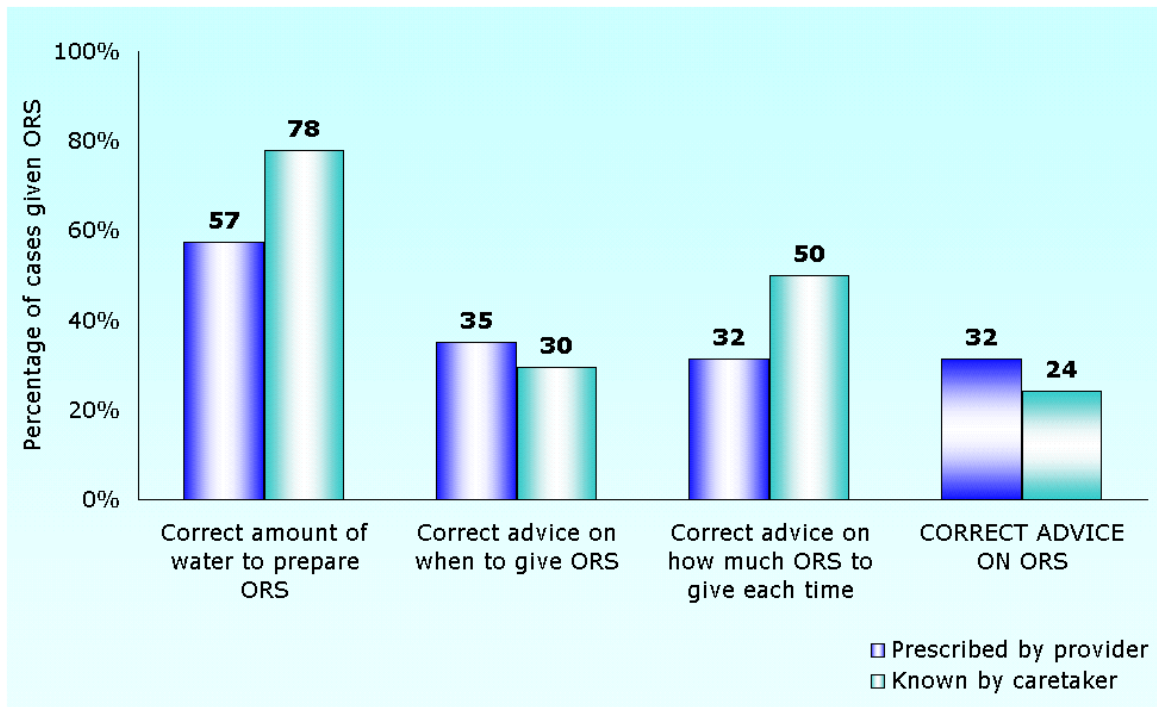


Fig. 8. Provider correct advice on ORS and caretaker knowledge about ORS treatment (n=54)

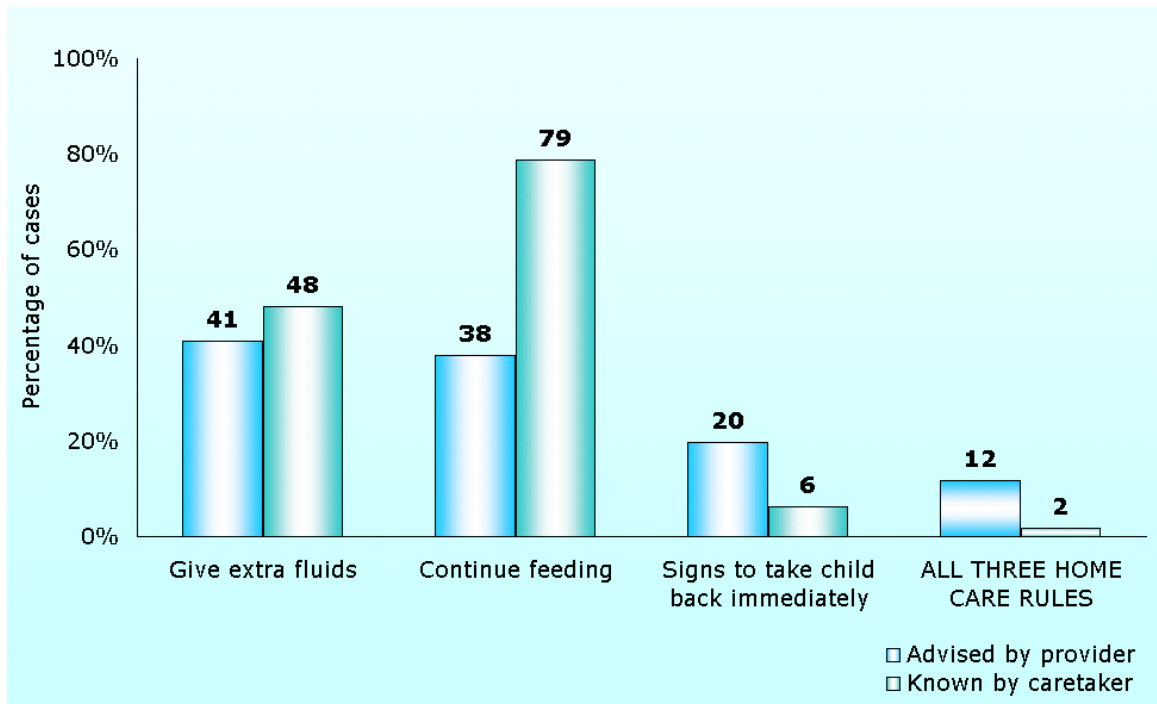


Fig. 9. Provider advice and caretaker knowledge about home care

on drug treatment⁴² (item a) above), 17% were shown how to give it (b), and only one in five (20%) was asked checking questions (c.) (Table A24). These results are very similar to those on antibiotic treatment, and the tasks were performed more often by IMCI-trained providers than untrained ones (Table A43). Only 4% of children was given the first dose of the antimalarial at the facility.

As a result of the advice received, one in five caretakers (20%) who had been prescribed an antimalarial was able to describe correctly how to give it to the child (Table A20). This proportion is very low, considering that antimalarials (e.g., chloroquine) are drugs used very commonly by families, also on their own. So, caretakers correctly knew *all* the following three items when leaving the facility: the dose (28% recalled this individual message correctly), frequency of treatment (35%) and duration of treatment (35%). As noted for antibiotics, there was a direct relationship between provider's advice on dose, frequency and duration of treatment and caretaker's correct knowledge about treatment: caretakers correctly advised on these items were more likely to recall them correctly at exit interview than those not advised ($P < 0.01$) (Fig. 7; Table A21). One may then expect knowledge level about antimalarial treatment to be very low or even lower at community level. None of the caretakers seen by untrained providers was able to describe how to give the antimalarials to the child correctly, compared to 24% of those seen by IMCI-trained providers ($P < 0.05$) (Table A41). The findings on malaria management of this survey therefore show that, despite being common, malaria is often misdiagnosed, provider's treatment instructions are often incomplete or incorrect and caretakers' knowledge of antimalarial treatment is poor. *In this scenario, the chances of a child with fever being managed properly at home are rather low. Also, providers' common belief regarding 'chloroquine resistance' may often be a biased 'perception' deriving from incorrect diagnosis in the first place – since the true conditions of course would not respond to chloroquine – and wrong use of the drug by both providers and families.*

5.2.3.5 Oral rehydration salts (ORS)

- ❖ *Prescription:* Two of the nine diarrhoea cases with some dehydration were treated with ORS at the facility (Table A22); five of the seven who were not treated had been misclassified by the provider. About half (49%) of the 95 diarrhoea cases with no clinical signs of dehydration were given ORS to take home. This was only partly due to the fact that only 57% of these cases had been correctly classified as such: in fact, still less than two-thirds of these cases – correctly identified by the provider – were given ORS sachets to take home. Since ORS was available at the health facility for all of these cases except two, who were not given it, and all these cases except two were seen by IMCI-trained providers, it can be concluded that *giving ORS for home use for children with diarrhoea and no dehydration is not a routine, standard practice.* This finding is somehow surprising as it differs remarkably from the one of the CDD survey of 1997, in which 81% of children with diarrhoea and no dehydration were prescribed ORS⁴³. However, data from IMCI follow-up visits had described the absence of functioning ORT corners as a problem with health facility support in many facilities. When ORS is prescribed, providers should state to caretakers how to prepare and administer it, since the solution will be prepared and used at home. Less than a third (31%) of the diarrhoea cases who were given ORS were correctly advised on ORS, especially because they were provided with no advice or incorrect advice on when and how much solution to give to the child each time. Furthermore, no child with diarrhoea seen by untrained providers was given any advice on ORS (Fig. 14; Table A42).

⁴² See footnote (40)

⁴³ FMOH/WHO: *A CDD health facility survey*, Sudan, October 1997.

- ❖ *Advice and caretaker recall:* As noted also for antibiotic and antimalarial treatment, caretakers of children with diarrhoea given ORS for home use should be advised on treatment (dose, frequency and duration), given a demonstration on or explained how to prepare ORS referring to containers commonly available at home, and checked for their understanding of the advice received. The caretakers of half of the diarrhoea cases (52%) given ORS were advised on the three items of ORS treatment and one in five (20%) was shown how to give it to the child and asked checking questions (Table A24).

When asked how they would prepare ORS, and when and how much solution they would give to the child, caretakers of less than a quarter (24%) of the cases with diarrhoea who were prescribed ORS were able to describe *all* the following items correctly: a) how much water to mix with an ORS sachet to prepare the solution (78% responded correctly on this item), b) when to give ORS to the child each day (30%), and how much ORS to give the child each time (50%) (Fig. 8; Table A22). Interestingly, while a direct relationship was noted of provider advice on ORS administration with caretaker correct knowledge about it, this was not the case for the information on ORS preparation (Table A23). In fact, while only 57% of children given ORS were correctly advised by the provider on how much water to mix with one sachet, a much higher proportion of the caretakers (80%) mentioned the correct amount, including therefore those who had not been told about it by the provider during this encounter at the facility. This finding was noted also in the CDD survey in 1997⁴⁴ and most likely reflects caretaker's pre-existing knowledge, probably acquired through earlier, effective CDD promotion activities. It is obvious that this knowledge is incomplete and should continue to be sustained and reinforced by providers each time, rather than taken for granted, as otherwise it is bound to decrease over time. Caretakers of children advised by untrained providers tended to know how to use ORS at home less often than those advised by IMCI-trained providers, although the number of cases was small and the difference was not statistically significant (Table A42). *In conclusion, the chances of a child with diarrhoea receiving ORS and being given the solution correctly at home were rather low, i.e. one in seven (14%).*

5.2.3.6 Other treatment and opportunities for immunization

Data are shown in Table A24

- **Paracetamol** for children with high fever and ear pain: 71% of children with high fever (i.e. an axillary temperature of 38.5°C or above) and half (52%) of those with an acute ear infection were given paracetamol, as recommended by the national IMCI guidelines. Paracetamol was often given also to children with lower temperature values.
- **Salbutamol** for children with wheezing: Just three children of the 364 of the whole sample surveyed were found to have wheezing during the surveyor's re-examination; only one of them was given salbutamol by the provider as the other two were misclassified. Interestingly, another five cases were prescribed salbutamol, although the provider had not reported wheezing.
- **Cough medicines** use in children with ARI: The majority of children was correctly prescribed no cough or cold medicines by the provider (only 14 did receive it), in line with the national guidelines.
- **'Antidiarrhoeal'** use in children with diarrhoea: The use of these drugs has been strongly discouraged by the national CDD programme in Sudan in the past, because of their potential harmful effects, especially in infants. Only two children, both older than two years, were prescribed antidiarrhoeal (antispasmodic) drugs in this survey:

⁴⁴ See footnote (43).

this should be seen as a very positive outcome, sustained over time. In fact, antispasmodic drugs were prescribed in five (4%) cases enrolled in the CDD survey in 1997, which covered facilities with high CDD training coverage⁴⁵.

- **Metronidazole** use in children with diarrhoea: Metronidazole plays no role in the routine treatment of watery diarrhoea: 16 children were prescribed it, most of them having only diarrhoea. Also the CDD survey in 1997 found that this drug enjoyed some popularity among providers⁴⁶. A household survey in 1995 reported a 19% rate of use of ‘anti-protozoal drugs’ (mostly metronidazole) in children below 5 years old with diarrhoea⁴⁷.
- **Iron** for children with anaemia: Only 25% of children with clinical pallor was prescribed iron, as most (95%) of those who were not, had been misclassified by the provider.
- **Vitamin A** for children with measles, severe malnutrition, and as supplementation for children aged 6 months or older who had not received it in the previous 6 months: 17% of the 46 children who needed vitamin A were given it or advised to come back on another day to receive it. It may be noted that in all other cases but one who did not receive it, vitamin A was available at the facility.
- **Tetracycline** for children with eye infection⁴⁸: About one child in four (24%) with an eye infection was given tetracycline ointment. For those who did not receive it, the eye infection had been missed by the provider in most cases (56%) but correctly identified in a few (20%). *Thus, three-quarters of children with an eye infection were left untreated, because either the condition was missed or they were prescribed no treatment.* This happened despite the fact that 72% of caretakers of these children with eye infection had spontaneously reported an ‘eye problem’ in their child among the complaints. It should be noted that routinely checking for eye infections is not listed specifically in the IMCI guidelines; in fact, there was no difference in identifying these cases between the providers trained in IMCI and those untrained. *Given the common occurrence of eye infections in children in Sudan and the current weak treatment practices described in this survey, there is a strong argument in favour of including ‘eye infections’ among the ‘IMCI conditions’ to be assessed routinely in each child.*
- **Immunization**: About half (49%) of all children needing vaccination left the facility with all needed vaccinations or advice to come back for vaccination on the scheduled vaccination day⁴⁹.

5.2.3.7 Advice on follow-up

The national IMCI guidelines recommend that children found to have some specific conditions should come back to the facility for definite follow-up within a certain number of days, which may vary according to the condition. In this survey, almost two-thirds (62%) of all children seen would have needed definite follow-up based on the guidelines (Table A26). *This rate is very high and there is concern that it may not be practical and feasible to advise the caretakers of such a high proportion of children to return for follow-up and expect them to do so.* Forty-three per cent (43%) of the cases that should have been advised to return to the facility for follow-up based on the IMCI guidelines were cases with feeding problems (e.g. changes in feeding practices during illness). In a previous study on adherence to provider’s follow-up advice in Gezira, a little more than half (57%) of caretakers complied and took their children back for follow-

⁴⁵ See footnote (43).

⁴⁶ See footnote (43)

⁴⁷ Mangiaterra V, *An ARI, CDD and Breastfeeding household survey*, Report of a mission, Sudan, 1996, Alexandria, WHO Regional Office for the Eastern Mediterranean, 1996.

⁴⁸ Defined in this survey as ‘pus draining from the eye’

⁴⁹ Immunization services are not always provided on a daily basis.

up⁵⁰. In that study, factors most strongly associated with compliance were: a) caretaker's education (the higher, the more likely to return); b) caretaker's place of residence (more likely to return if living in the same village in which the health facility was located); c) Receiving treatment at the health facility; and d) the number of days of follow-up (the fewer, the more likely to return). *Changing feeding practices during illness is very common and it may be practical in this setting and at this stage to follow up only those children with feeding problems that are very low weight or anaemic.* The shorter the interval of days the child should be taken back to the facility for follow-up, the higher was the agreement of provider's advice on definite follow-up with surveyor's: providers correctly advised follow-up in 37% of the children who needed to return in 2 days, in 20% of those needing to return in 5 days and in only one of the 11 children needing to come back in 2 weeks for follow-up (Table A26). Follow-up in 2 days was required for those cases given antibiotics, such as pneumonia, dysentery and acute ear infection cases. When caretakers were given the advice on follow-up, they recalled it well in most (70%) cases (Table A27). The study in Gezira indicated that caretakers who complied did so because they had been advised by the provider⁵¹. *Once more, this underlines the importance of communicating properly to caretakers, as, when they are advised properly, they do listen carefully and recall the advice correctly. This increases the chances of their compliance with the advice received.*

5.2.3.8 Provider advice and caretaker knowledge about home care

Three basic messages on home care during illness—'home care rules'—should be given to the caretakers of all sick children: giving extra fluids, continuing feeding and knowing which signs to watch out for at home that would prompt immediate return to the health provider. In this survey, the caretakers of only 12% of children were advised by the provider on *all* three home care rules (Fig. 9; Table A28). Hardly any advice was given to caretakers by untrained providers (Fig. 15; Table A44).

When the caretakers were interviewed before leaving the facility and asked about the three home care rules, only six of them (2%) mentioned *all* the three rules (Table A28). What was missed in most cases was the specific early danger signs that should prompt a caretaker to take the child back to the facility without delay. It is important to note that this was the caretaker knowledge level *after* provider advice. Some of the knowledge was however pre-existing, as clearly indicated by a high percentage of caretakers (79%) responding that they would continue feeding the child during illness, when only about half of them had been given this advice by the provider in this particular encounter. In the end, a little less than half of the caretakers (45%) mentioned they would give extra fluids *and* continue feeding the sick child at home. It is important to emphasize that while this is knowledge, a gap between knowledge and practice should be expected. In fact, in a household survey in Sudan, carried out in three States in 1995, only 18% of children with diarrhoea were reported to have received both increased fluids *and* continued feeding during the diarrhoea episode, although caretaker knowledge about it was higher⁵². Although there are methodological issues related to the way a general question on knowledge about care-seeking is formulated in these surveys, caretakers tended to miss the key signs while mentioning others that are much more generic as 'triggers' to care-seeking (e.g. diarrhoea, vomiting, cough) (Table A29). For example, only a small proportion of caretakers of children with cough and no pneumonia mentioned respiratory signs as signs to watch out at home (i.e. 4% mentioned fast breathing and 18% difficult breathing). As seen also for other advice, caretakers who had been correctly advised by the provider on the signs to seek care, mentioned most of those signs significantly more often

⁵⁰ *Evaluation of family responses to recommendations of referral and follow-up under the strategy IMCI, Masalamia District, Gezira State, 2000, Preliminary report by Simon Cousens to WHO headquarters, Geneva.*

⁵¹ See footnote (50).

⁵² See footnote (47)

than those who had not ($P < 0.01$) (Table A30). Yet, the level of caretaker knowledge about some of the signs remains very low and calls for more efforts in this area.

5.2.3.9 Provider communication skills

Giving correct advice to caretakers of sick children is certainly important, as shown in the above sections: it is the caretakers who will be caring for children at home and even treating them with drugs. Delivering child care messages using good communications techniques gives this action more chances to be effective. In this survey, attention was paid to the use of the ‘home care card’, which is a standardized IMCI home care counselling card with illustrated messages meant for providers’ use when advising caretakers of sick children⁵³. The card was used in about a third (34%) of children that were not referred – it was not available in 23% of cases – and it was used properly with good communication techniques in just a 5% of cases (Table A31). In fact, in only 12% of cases was the card held properly – in such a way that the caretaker could see the pictures and text, were the pictures pointed to while referring to the related messages and was caretaker’s understanding of the messages given checked. Caretakers of children seen by IMCI-trained providers were more likely to be counselled using these techniques ($P < 0.01$), but the rate remained low also in this group. Also the study in Gezira had found that provider performance in counselling was much weaker than clinical performance⁵⁴. Thus, more practical emphasis should be given in training courses and follow-up visits, not only to advising caretakers, but also to using effective communication techniques, which currently seem to be rather deficient.

5.2.3.10 Age-appropriate advice on feeding

The caretakers of only 24% of children below 2 years old and those with very low weight and/or anaemia were given appropriate advice on feeding according to the age of the child, including breastfeeding and frequency of complementary feeding (for the definition of appropriate feeding, please refer to the footnote at the bottom of Table A32). The group of children in which the feeding advice was more often inadequate was that of children 2 years old or older with very low weight and/or anaemia. Feeding advice therefore appeared largely inadequate.

5.2.3.11 Use of mosquito bednets and chloroquine at home

About half (52%) of caretakers reported having a mosquito bednet at home and about one in five (21%) having a bednet impregnated with insecticide (Table A33). Bednets are an effective means of protection against malaria if they are used regularly. In this particular sample of sick children taken to a health facility, 20% of children were reported to have slept under a bednet and 10% under a treated bednet the night before, with no difference between the group with fever and without fever. All areas included in the survey were low risk malaria areas, and March and April were not considered malaria peak months. Caretakers with higher education level tended to be more likely to use bednets and bednets treated with insecticide, and their children to sleep under them, but the difference was not statistically significant. Caretakers of 6% of children with fever or history of fever reported having given chloroquine to their child during this fever episode before coming to this facility.

⁵³ Also commonly known as ‘mother card’

⁵⁴ See footnote (50)

5.2.3.12 Advice on mother's health

Only two of all the caretaker-mothers of children not needing urgent referral received some advice on their health⁵⁵. The IMCI guidelines recommend that health providers should counsel the mother of the sick child about her own health. The low rate of counselling on mother's health was expected, as training courses in Sudan, as in other countries in the Region, have to date focused on child health. This is a missed opportunity, as mothers represented 83% of all caretakers in this survey. For children seen at health facilities having mild conditions, IMCI would help build a bridge between child and mother health by reminding health providers that the child's mother, and not only the child, is also there.

5.3 HEALTH SYSTEMS

The survey reviewed some key aspects of health systems support that are required for the provision of quality services and affect their utilization, namely: caretaker satisfaction with the services provided; organization of work at the facility; provider's IMCI training status; reliability of malaria laboratory examinations; availability of essential drugs, basic supply and equipment – including immunization, and transportation facilities for referred cases; cost of care; supervision of providers; and records. The main findings are summarized in Table 7. When looking at the results and drawing conclusions, it should be noted that the survey excluded from the sample facilities with small case load, i.e. those with an average of less than two cases below 5 years old per day, i.e. about half (46%) of all facilities covered by the IMCI strategy in the country (§ 3.2).

5.3.1 *Caretaker satisfaction*

Most (88%) of the caretakers interviewed reported being satisfied or very satisfied with the health services provided at the facility (Table A34). The aspects of care that were most appreciated by the caretakers included the treatment that had been given (35%), the fact that their child had been examined by the provider (26%), and provider's good attitude (8%). It should be noted that these aspects of care that were perceived by the caretakers as an indication of good services are an integral part of the IMCI approach. According to the IMCI protocol, all children are to be examined thoroughly, treatment is standardized, with the first dose to be administered at the facility whenever possible, and counselling is a prominent feature of the clinical process. Thus, indirectly, the findings suggest that the use of the IMCI case management protocols and approach, including counselling, should help make services more attractive to the clients and contribute to improving their reputation. However, for those who expressed lack of satisfaction for the services received, the main reasons were again the treatment given or not given (e.g. unavailability of drugs), and the cost of services.

5.3.2 *Organization of work*

The task that was most often redistributed among health providers at the facilities visited was taking the child's weight: while in half (51%) of the children it was taken by the provider examining the child, in as many as 40% of cases this was done by the nutrition educator, especially at health centres. At dispensary level, one child in five (22%) was weighed by the nurse. When the weight was taken by a person different from the medical assistant at non-hospital facilities, it was then likely to be checked against the growth chart by the same person who had taken it or by the medical assistant. The situation with regard to taking the

⁵⁵ Any of the following: counselling on how to care for herself if sick or if she has a breast problem; advising to eat well; checking her tetanus toxoid immunization status; and ensuring access to reproductive health services and counselling for STD and AIDS prevention.

Table 7. **Main findings on health system support**

Health system component	Findings
• Caretakers satisfied with the child health care services	87.8%
• Non-hospital facilities with at least 60% of doctors managing children trained in IMCI	57.6%
• Index of availability of essential oral treatments	5.0 out of 6 drugs
• Index of availability of 12 non-injectable drugs	8.7 out of 12 drugs
• Index of availability of injectable drugs for pre-referral treatment	2.6 out of 4 drugs
• Facilities providing immunisation services with vaccination supply and equipment available at time of the visit	35.8%
• Facilities with basic supplies and materials for IMCI available	31.8%
• Facilities with minimum malaria laboratory supply and equipment	62.1%
• Facilities that received at least one supervisory visit in the last six months that included observation of case management	10.6%

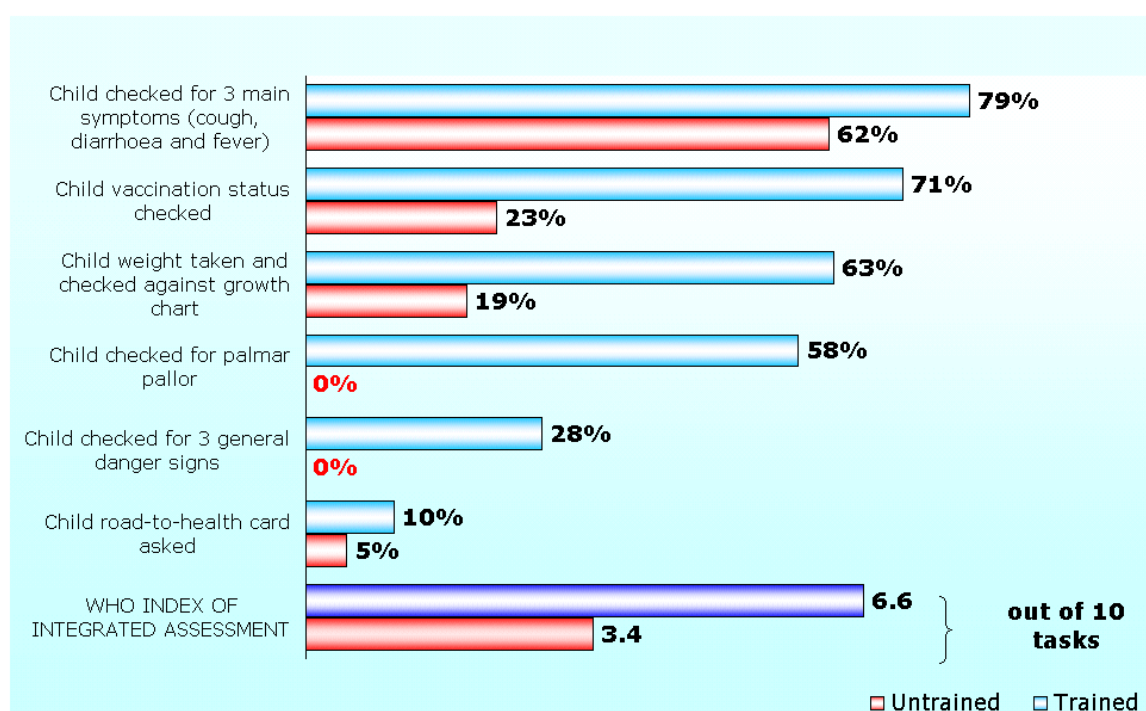


Fig. 10. **Integrated assessment by provider IMCI training status: main tasks and WHO index trained vs untrained**

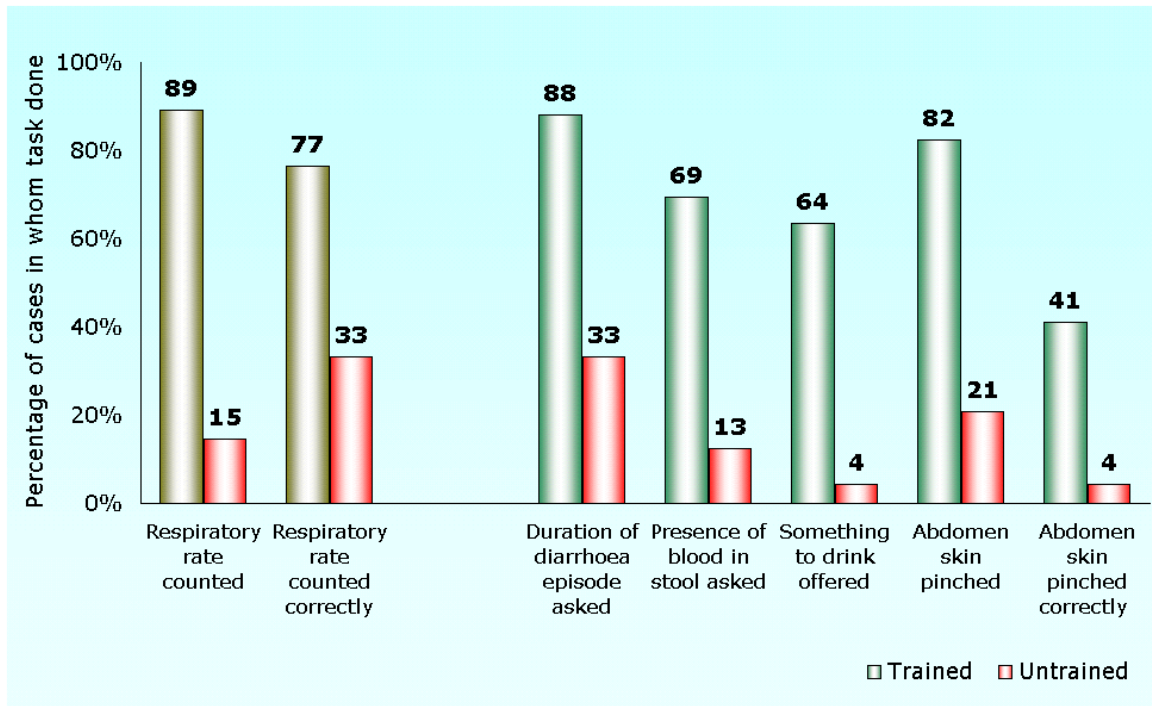


Fig. 11. Performance of selected assessment tasks by provider IMCI training status: ARI and diarrhoea trained vs untrained

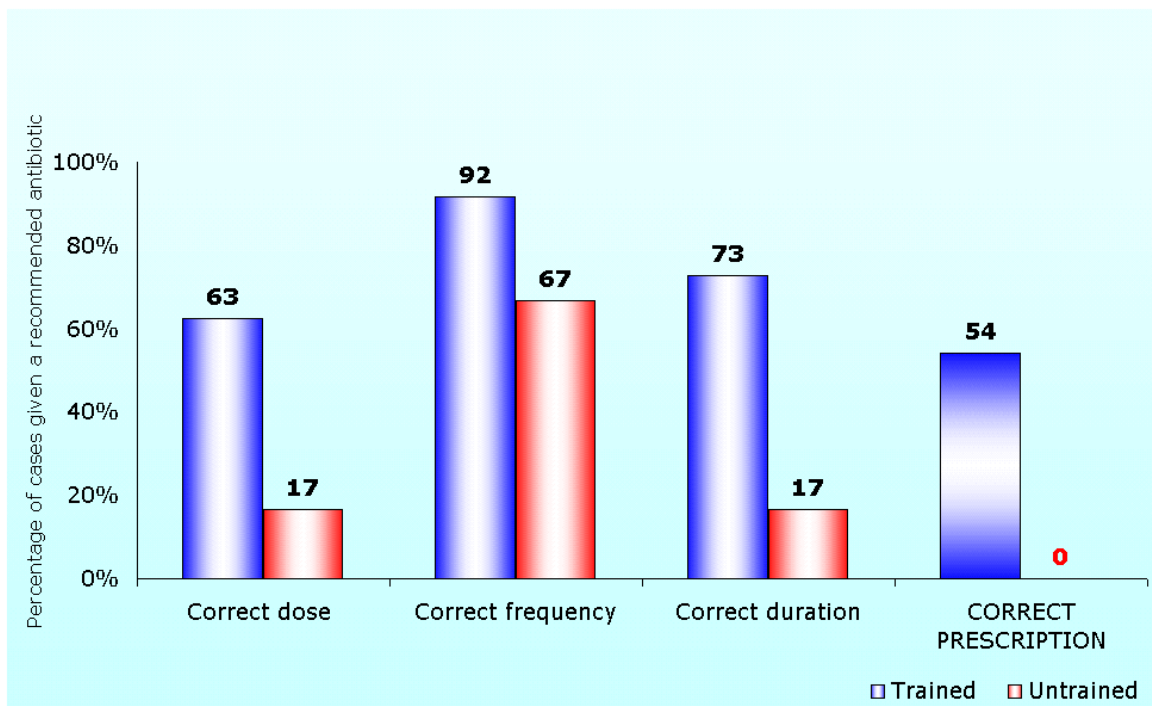


Fig. 12. Prescription of recommended oral antibiotic treatment by provider IMCI training status trained vs untrained

temperature was different: temperature was taken directly by the person examining the child in 91% of cases – most often incorrectly. At dispensary level, the temperature was taken by the nurse in 26% of cases. Thus, the data suggest that, while taking the child's weight (a task done in immunization sessions) was a task not rarely carried out by a person different from the one examining the child, the load of all the other tasks usually fell on just one person, even at facilities where other staff, e.g. nutrition educator, vaccinator, were available. Also, the nurses trained in IMCI assisted in some other tasks at dispensaries and dressing stations, such as assessing feeding practices and advising on feeding. *There is therefore good evidence that selected tasks at health facilities could be re-distributed among available health personnel, in order to facilitate the delivery of the whole scope of IMCI while reducing the load on the one person.*

5.3.3 IMCI training

5.3.3.1 IMCI training coverage

Forty percent (40%) of all providers managing children in the facilities visited had received IMCI training. The training coverage for all clinical staff managing sick children was highest at dispensary level (100% of all providers had been trained in IMCI), decreasing to 47% at health centres and 8% at hospitals. Overall, almost two-thirds (62%) of non-hospital primary care facilities had at least 60% of providers managing children trained in IMCI and more than half (51%) had all providers trained. This by itself is a good achievement, considering how demanding it is to increase and maintain in-service training coverage. Worth mentioning is the high proportion of facilities (82%) with at least 60% of providers trained found in Gezira (compared with 33% in Khartoum). Half of the facilities in the sample, i.e. 34 of them, were staffed with one provider to manage children: in all but three of them the provider had been trained in IMCI. Thus, all sick children taken to these 31 facilities were going to be seen by an IMCI-trained provider.

The findings related to cases managed by IMCI-trained providers showed that the large majority of providers had been trained in the past 2 years, reflecting the efforts to expand the coverage after the early implementation phase (Table A35). In fact, almost two-thirds (64%) of children were managed by providers who had received IMCI training in the previous 12 months or so. All children but one (99%) seen in Gezira were examined by an IMCI-trained provider, as compared with 52% of those seen in Khartoum. Although the sample was not stratified by state, the data on IMCI training coverage – presented here – and provider's clinical performance by state would suggest that there might be substantial differences between states. Although reported as a problem and partly suggested by these figures, turnover of staff trained in IMCI was not measured directly in this survey. Information on follow-up after IMCI training has been described earlier (see § 5.1.1).

5.3.3.2 Quality of child care by provider training status

When the data on the quality of case management were disaggregated by the provider training status, the results showed that *key case management tasks were much more likely to be performed, and performed correctly, by the IMCI-trained providers than the untrained ones, despite the fact that IMCI-trained providers happened to see more complex cases. In many cases the difference reached high statistical significance (even at $P < 0.0001$). Although caution should be exercised in interpreting the data as the survey was not stratified by provider training status, the data describe a pattern of rather poor clinical performance by untrained providers: this is a cause for great concern and raises the issue of the level of pre-service training and in-service supervision.* Also, although the performance of tasks by IMCI-trained providers was consistently and often significantly better than the performance of untrained ones, *there was still much room for improvement for many case management tasks to reach a desirable level of quality.* Furthermore, the findings raise the issue about

institutionalization of standard procedures: as the aim of the IMCI strategy is to improve care in facilities in which it is introduced and implemented, similar standards of care should in principle remain also after IMCI-trained staff leave. The IMCI strategy is in fact meant to go well beyond the training undertaking. Some of the findings by training are shown in Fig. 10 to Fig. 15, while more details are provided in Tables A36–A46.

- ❖ *Assessment* (Table A36–A38): the index of integrated assessment, that is, the average number of key assessment tasks performed on a child, was almost twice as high for children seen by IMCI-trained providers as for those seen by untrained providers ($P < 0.0001$) (Fig. 10). Assessment tasks that were carried out almost exclusively by IMCI-trained providers included checking for: the three general danger signs, child's temperature, history of recent measles in cases with fever, palmar pallor, visible wasting, oedema of both feet and feeding practices. Children with diarrhoea were more likely to be assessed properly by IMCI-trained providers than untrained providers ($P < 0.001$) (Fig. 11).
- ❖ *Treatment* (Table A40): Children needing antibiotics were more likely to be prescribed the drugs correctly if they were seen by IMCI-trained providers ($P < 0.05$) (Fig. 12). Also, antibiotics were used more rationally by IMCI-trained providers than untrained staff: about three-quarters (74%) of the children seen by untrained providers and not needing antibiotics received them unnecessarily compared with a quarter (26%) of children seen by IMCI-trained providers ($P < 0.001$). None of the caretakers of children with diarrhoea given ORS by untrained providers received any instructions on its preparation and administration (Fig. 14).
- ❖ *Advice on home care* (Table A44): Caretakers of children seen by IMCI-trained providers were much more likely to be advised on home care than those seen by untrained ones who often received no advice at all ($P < 0.001$), even on key messages originally promoted by of the CDD and ARI programmes (Fig. 15). *Much work then needs to be undertaken in the area of pre-service training.*

5.3.4 Availability and reliability of malaria laboratory

The second and most recent version of the Sudan IMCI guidelines recommends that the clinical malaria diagnosis be confirmed by laboratory test, namely microscopy, in facilities provided with a laboratory for this purpose. Functional microscopes were found in all hospitals but one (83%), most (83%) of the health centres, and one of the 11 dispensaries visited; except for 5 health centres, these facilities also had minimum supplies for the malaria laboratory, including equipment and reagents (Table A49). Because of the wide availability of malaria laboratory facilities in this survey sample, children with fever or history of fever were automatically referred by the provider to the laboratory for microscopic examination of the blood smear; the provider then relied on the laboratory results for the malaria diagnosis.

Microscopy is sensitive, informative (description of species and stages of the malaria parasite), relatively inexpensive, but also time-consuming and strongly dependent on well-trained and well-supervised technicians. To assess the reliability of the malaria laboratory results, a sample of 111 blood smears among those performed by health facilities' laboratory technicians on children with fever or history of fever during the survey were taken to Khartoum by the survey teams to be re-examined independently at the end of the survey by two skilled staff of the National Malaria Administration, who were kept blind to the results of the field. When the findings of the re-examination ('gold standard') were compared with the results in the field, the field microscopic malaria diagnosis had a sensitivity of 0%, specificity of 74%, and a positive predictive value of 0%, with an accuracy of 73%. In simple words, none of the positive blood slides was confirmed to be positive for malaria parasites, and one

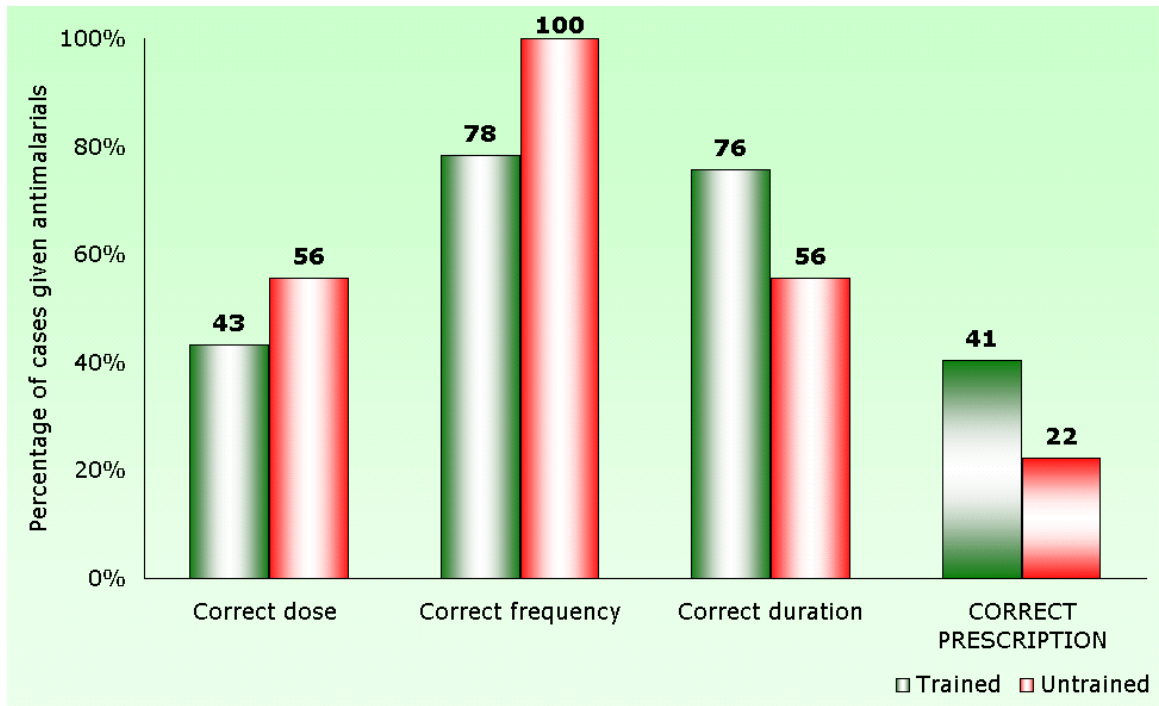


Fig. 13. Prescription of oral antimalarial treatment by provider IMCI training status trained vs untrained

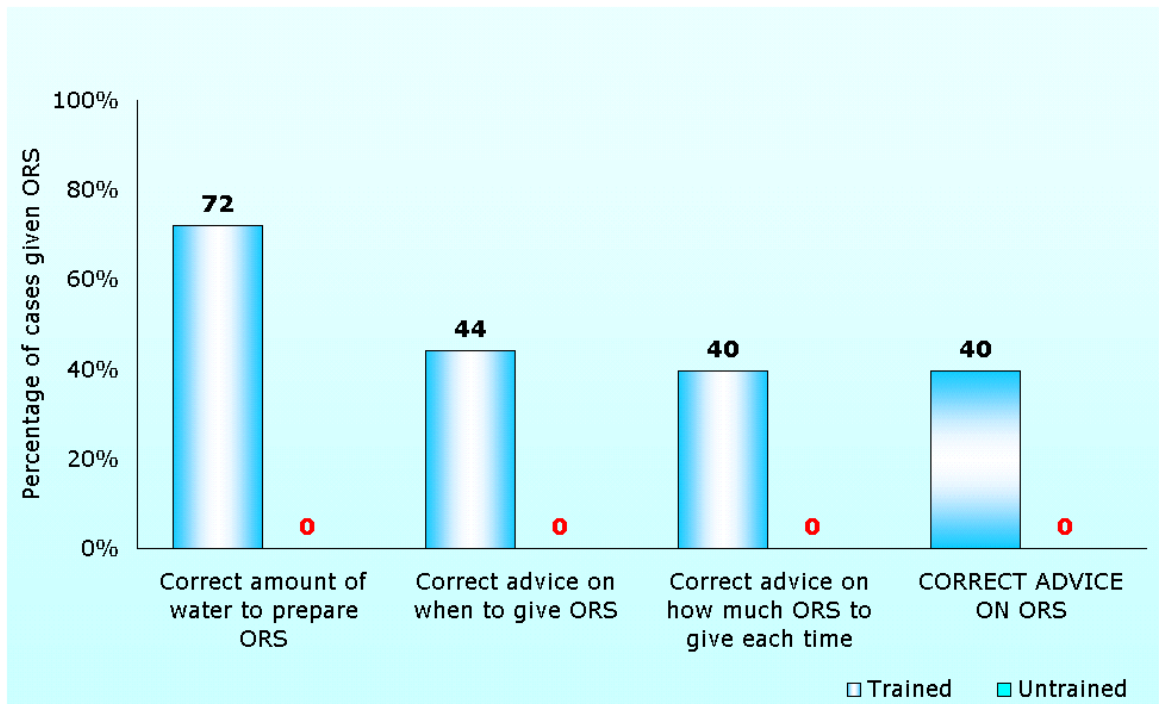


Fig. 14. Advice on ORS treatment by provider IMCI training status trained vs untrained

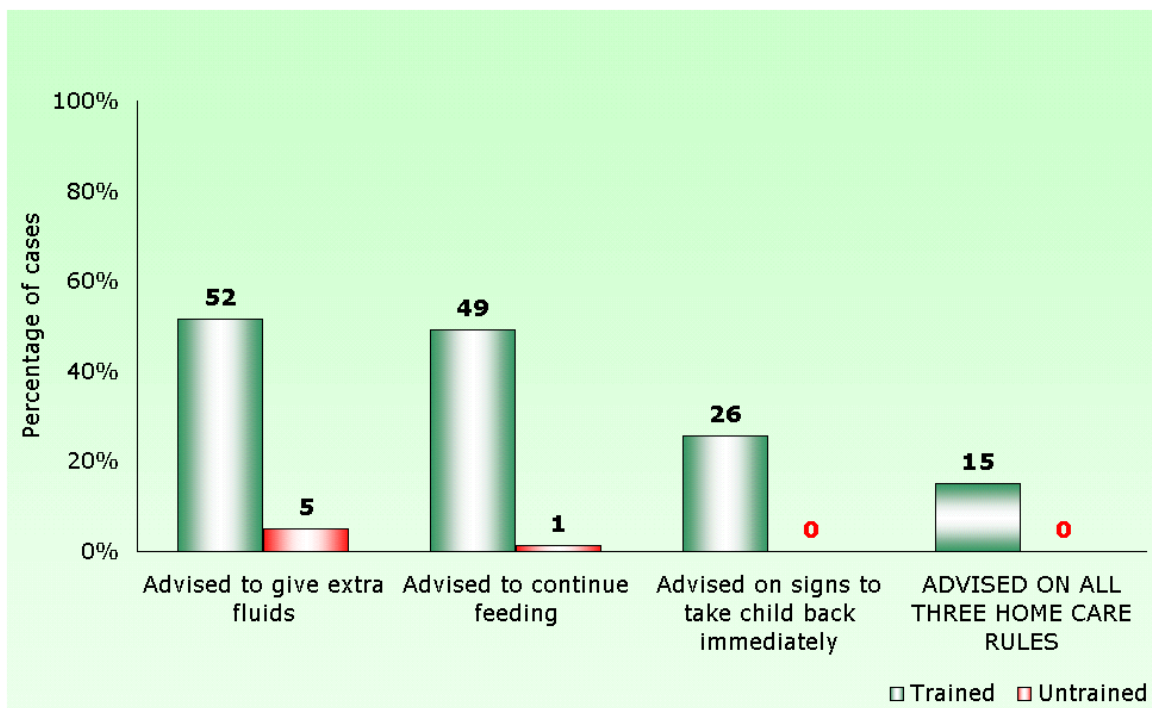


Fig. 15. Advice on home care by provider IMCI training status trained vs untrained

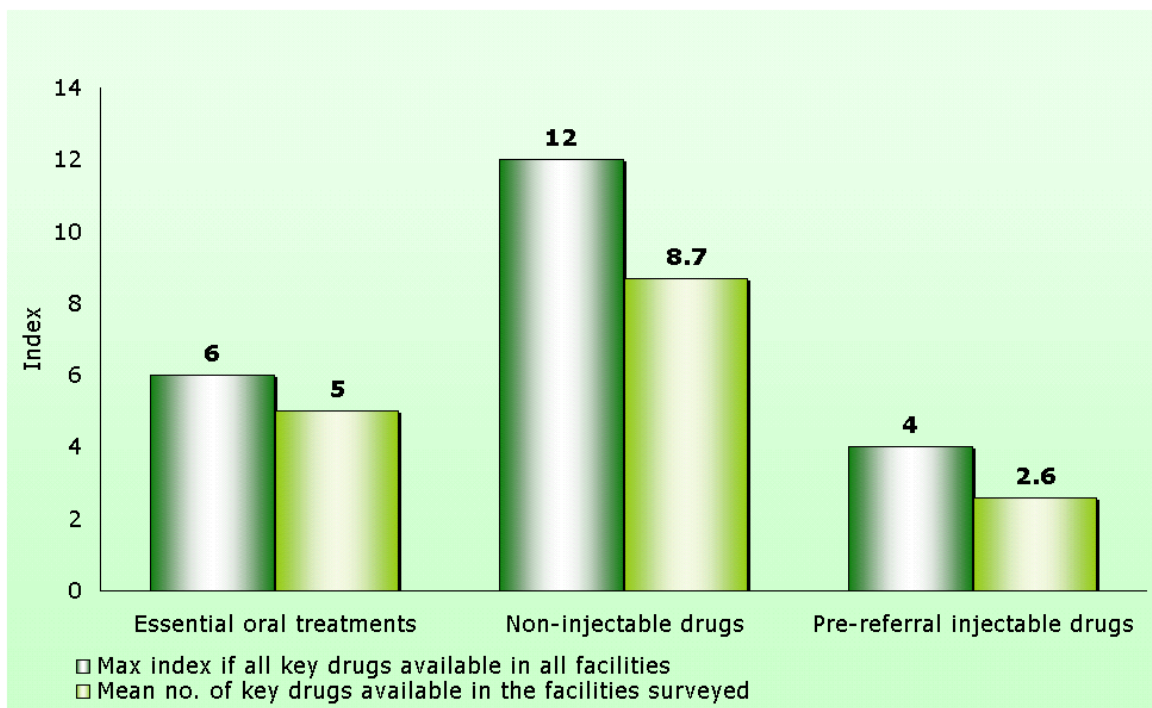


Fig. 16. Index of drug availability (n=66 facilities)

of the negative slides was found to be positive⁵⁶. Low quality of laboratory services and diagnosis, and high false positive rates for some areas were also described in ‘The national strategic plan for Roll-Back Malaria (RBM)–2001-2010, Sudan’. As most of the results in the field contained no information on the *Plasmodium* species and stage, this information is omitted here. The implications were that many children without malaria were treated as malaria cases unnecessarily, mostly with chloroquine. Furthermore, should fever persist for more than a few days (as may be the case in ARI episodes), then providers would be likely to believe that chloroquine resistance was the reason for the lack of response. It was also observed that the microscopic examination was often carried out in a short time, further reducing its reliability in case of a negative reading. Adequate time should in fact be spent on each smear before excluding the presence of malaria parasites. Fortunately, this was not the malaria peak season, when more cases may have malaria and the implications of the unreliability of the microscopic diagnosis in the field would be expected to be much higher. *In these circumstances, microscopic diagnosis loses much of its value and becomes rather unreliable, unless intensive initiatives are pursued to ensure high-quality training and follow-up, and close quality supervision of laboratory technicians and assistants.*

5.3.5 Availability of drugs

Three measures – indexes⁵⁷ – to assess the availability at health facilities of drugs required to manage cases according to the national IMCI clinical guidelines (Fig. 16; Table A47) were used, namely the indexes of availability of:

- **Essential oral treatments**, that is oral drugs recommended for home treatment of pneumonia, malaria, dysentery, diarrhoea, fever and anaemia (i.e. cotrimoxazole, chloroquine, ORS, vitamin A, iron and paracetamol). The index was 5.0, that is a mean of 5.0 drugs available out of 6 drugs.
- **12 non-injectable drugs**, including the six above and another six drugs for the treatment of pneumonia, dysentery and malaria cases not responding to first-line treatment (amoxicillin, sulfadoxine-pyrimethamine and nalidixic acid, respectively), eye infections (tetracycline ointment), skin infections (gentian violet), and convulsions (diazepam). The index level was low, a mean of 8.6 out of 12 drugs.
- **Injectable drugs for one-dose pre-referral treatment** for children with severe classifications needing urgent referral, namely chloramphenicol, quinine, benzylpenicillin and gentamicin. The index was 2.6 out of 4 drugs.

Salbutamol solution or metered dose inhaler was available in just one in ten (12%) facilities (Table A48). This is not surprising as only 10 (15%) facilities had a working nebulizer. An acceptable solution for intravenous rehydration of children with diarrhoea and severe dehydration was available in 73% of facilities; Ringer’s lactate solution was found in only one of the five hospitals visited.

The definition of drug availability used in this and similar surveys required only the presence of just one full course of treatment for each of the drugs per facility (Annex 18). Thus, non-availability of a drug meant total lack of any dose of that drug. An attempt was made in this survey to relate stocks of drugs for pneumonia (cotromixazole or amoxicillin) and malaria (chloroquine or sulfadoxine-pyrimethamine) to caseload, to estimate very approximately for how long the stock might last. As data on caseload were rather unreliable,

⁵⁶ There was no agreement on one additional negative slide, confirmed as negative by one re-examiner but reported as positive by the second re-examiner. The ‘false positives’ of field laboratories represented 26.1% of all their readings, i.e. about one in four tests.

⁵⁷ As observed for the index on integrated assessment, each index of drug availability represents the mean of the total number of drugs considered in each category.

this analysis is not presented here. The data, however, would suggest that drug stocks were unlikely to be based on actual needs, resulting in facilities either under- or over-supplied. Problems in regular supply of drugs were described in this survey and reported not rarely also in the IMCI follow-up visits. In a number of facilities, providers themselves procured the drugs they needed, in some cases on a daily basis, to sell them on in turn to the patients, according to their own prescription pattern. This practice, while ensuring to a certain extent some availability of certain drugs based on the provider's own initiative, is likely to act as an incentive to prescribing drugs, as it tends to become a source of income. This also partly explains why drugs such as cotrimoxazole, chloroquine, paracetamol and benzylpenicillin – commonly prescribed by providers – were found more often than for example iron, tetracycline eye ointment and salbutamol, which were more rarely used (Table A48).

5.3.6 Availability of supplies and equipment for vaccination

The data related to availability of supply and equipment for immunization should be interpreted with caution, as some facilities are not supposed to provide such services in Sudan. The communities served by those facilities may be covered by other levels of the health system through out-reach immunization services that bypass the facility itself. Also, vaccines and syringes may only be taken to a facility on the day of the immunization session and may then not be found on other days, including when the survey team may have visited the facility. In this survey, 53 (80%) of the 66 facilities surveyed reported providing immunization services. Of these, 36% had cold chain equipment and supplies for vaccination (Table A50). All facilities but one (22) which were supplied with a refrigerator had a functioning thermometer inside; in 18 of the 23 refrigerators the temperature was kept within the range of 2°C to 8°C as recommended by the national EPI. For the reasons given above, information on the availability of vaccines on the day of the visit was not collected, as it might have been misleading. A total of 47 (89%) of the 53 facilities providing immunization services held weekly sessions for all or some of the antigens; 16 (30%) facilities held sessions less frequently – but within a month – for all the antigens or for those which they were not able to administer within the weekly sessions (Table A51). All in all, 37 (70%) of the 53 facilities reported providing all antigens (measles, BCG, DPT, and OPV) during weekly sessions and another 13 facilities (24%) being able to provide all of them within each month (Table A52). The only antigen that was not available within a month in the remaining three facilities was BCG.

5.3.7 Availability of other basic supplies and equipment for IMCI

Only about a third (32%) of the facilities visited were provided with the basic supply and equipment needed for IMCI, including adult and baby scales, timing devices to count the respiratory rate, supplies to mix ORS, and tap water (Table A49). Adult scales needed to weigh older children were the items less often available among them, making it difficult to identify older children with very low-weight-for-age. Basic equipment and supplies for a malaria laboratory were available in 62% of facilities (§ 5.3.4). IMCI cards to counsel caretakers on home care and IMCI chart booklets were found in three-quarters (77%) of cases, although the 'home care cards' were used infrequently (§ 5.2.3.9). Lack of these cards was also reported in IMCI follow-up visits in a number of states. Supplies such as thermometers, road-to-health cards and recording forms were available in more than three-quarters of cases. Nebulizers in working condition were found in only 10 (15%) facilities (§ 5.3.5).

5.3.8 Availability of transportation for referred cases

People living in the catchment area of 85% of the facilities visited were reported by facility staff to have access both physically (e.g. distance) and economically to a means of transportation to transfer referred cases to a higher-level facility. For most (79%) facilities, it was estimated that the referral hospital could be reached within 30 minutes – usually 15 minutes, with only 3 facilities reporting time longer than an hour (Table A53). It should be noted that: the implementation of the IMCI strategy is often started in areas with accessible services, almost two-thirds (62%) of facilities were located in urban areas, and many (61%) of the facilities covered by this survey were located in Khartoum and Gezira states. Despite this, various problems related to referral were reported in almost a third (32%) of facilities, the proportion being higher in rural than urban areas, although the difference was not statistically significant. Some of the problems concerned the inability of patients to afford expenses related to referral and hospitalization and not just to transportation. It is these cases which are often more vulnerable. *Access to referral facilities for severe cases appeared therefore constrained for a proportion of patients.* It was not within the scope of this survey to assess how functional the referral system was, as this would have required a different survey design.

5.3.9 Health expenditure

An attempt was made in the survey to obtain – very approximately – some of the direct health care costs borne by families. The figures so obtained should be considered very indicative and interpreted with some caution.

- **Transportation:** Caretakers of more than two-thirds (69%) of children seen lived near the health facility, as documented by their reporting no transportation expenses to reach the facility. For the remainder who needed transportation, the average (mean) cost was SDP 1057⁵⁸, with a maximum of SDP 8000⁵⁸. People in rural areas were likely to pay more to reach the facility than those in urban areas ($P < 0.01$), i.e. about twice as much (a mean of SDP 920 in urban areas vs SDP 1765 in rural areas).
- **Total health expenditure at the facility:** At the health facility, the health expenses that were considered included fees for laboratory investigations and consultation, and drug costs. A fifth (22%) of caretakers had no expenses: their children were prescribed no laboratory tests and no drugs. For those who paid, the average cost was SDP 5028, with a maximum of SDP 17 500. It should be taken into account that some laboratory investigations are requested often, such as the microscopic examination of blood smears for malaria in children with fever or history of fever, a symptom present in 57% of children in this survey, which was not conducted during a malaria peak season. Expenses per child were higher at hospital level (average SDP 6440), than health centre (SDP 3976) and dispensary (SDP 2311), although a higher proportion of complex cases was seen at dispensaries than higher-level facilities in this sample (§ 5.1.2).
- **Drug expenses:** Given the high rate of prescribing, especially by untrained providers, 73% of caretakers reported that they had spent on drugs an average of SDP 3 942 (up to SDP 16 000 in two cases)⁵⁹. However, it should be considered that patients covered by insurance would be charged only 25% of the drug cost: 16% of children seen in this survey were covered by health insurance. The amount spent on drugs by caretakers for their sick children represented 73% of the total amount they spent at

⁵⁸ Although the official currency in Sudan is the ‘Sudanese Dinar’ (SDD), people still express most prices in ‘pounds’, here abbreviated as SDP. One dinar corresponds to 10 pounds. One US dollar corresponded approximately to SDP 2605 at the time of the survey. So, SDP 8000 = about US\$ 3.1.

⁵⁹ Ample differences may exist between locally produced and imported drugs.

the facility for health-related items (see previous item); drugs were the only expense for 121 cases.

The issue of health care cost plays an important role in access to care, as poorer families—who are those most in need for care—may be unable to afford services when they need them most. The study in Gezira confirmed that the single most commonly cited reason why caretakers of referred children had not complied with the referral advice was lack of money⁶⁰.

5.3.10 Availability of child health services

All facilities but two (97%) were reported to provide services, including child health services, at least 6 days a week (Table A54).

5.3.11 Supervision

Half (50%) of the facilities visited reported having received at least one supervisory visit for whatever purpose in the past 6 months; urban facilities were more than twice as likely to be supervised as rural facilities ($P<0.05$). About a quarter (26%) had a supervisory book available, broadly defined as any book – even a multi-purpose register – in which supervisory visits would be recorded (Table A54). Observation of case management was performed as a supervisory task in a fifth (21%) of the last supervisory visits conducted in the past six months. *Supervision appeared therefore usually inadequate to support clinical achievements made with IMCI training and follow-up visits.* It should be noted that the CDD survey in 1997 had already reported that health providers who were properly supervised performed better⁶¹. Findings and recommendations made during the last visit were recorded on a supervisory book in 30% of the facilities in which the visit had been carried out, although a supervisory book was available in a higher proportion of facilities. Thus, recording findings and recommendations for effective follow-up was not a standard practice. Combining all findings together, only one facility had eventually received clinical supervision with findings and recommendations recorded on a supervisory book. *These data confirmed that quality supervision was an activity given low priority, conducted unevenly among facilities, and unstructured.*

5.3.12 Records

An attempt was made to collect some additional information on patterns of cases by reviewing routine outpatient records for the month of January 2003 at the facilities visited. Most (82%) of the health facilities visited had a logbook where the outpatients' diagnoses were to be recorded. Unfortunately, the records were often unreliable or some information was not available. For example, no information was available on outpatients in 36% of the facilities. Lack of or incomplete records were also reported not rarely in the IMCI follow-up visits.

There was underreporting of children under 5 years in many facilities, especially if the insurance system was being implemented: less than 20% of all OPD consultations were recorded as visits for children under 5 years in as many as 75% of the facilities that had records on insured patients vs 28% of the facilities without records on insured patients. Also, the proportion of under-five OPD visits in the 'insured' and 'uninsured' groups varied remarkably from each other in 62% of facilities in which data were available for both. An attempt to compare caseload data from records with those estimated by providers often yielded unreliable information and discordant data. It is unclear how these data can be used

⁶⁰ See footnote (50)

⁶¹ See footnote (43)

effectively for estimating drug needs and planning purposes in general. *The situation of recording and unreliable data therefore adversely affects the quality of planning and services that should rely on such data.*

5.4 CONTEXT TO INTERPRET FINDINGS: THE PRE-INTERVENTION SURVEY

Interpretation of the findings of this survey should take into consideration:

- a) the high quality standards set by the IMCI strategy on outcome indicators for outpatient child health services; and
- b) the basic level of performance of these services in facilities in which IMCI has not yet been introduced.

The latter would enable understanding of whether there has been some progress, even when the optimal standards have not been reached. As no comparable health facility baseline data were available for IMCI before implementation, a 'Pre-intervention survey in health facilities not implementing IMCI' was carried out by the PHC Department of FMOH in February 2003 in 66 facilities, mostly health centres, located in five of the seven states already selected for the IMCI survey and in which no staff had ever been trained in IMCI. These facilities therefore were not included in the IMCI survey sampling frame. Most of the staff surveyed (79%) were medical assistants: although not trained in IMCI, three-quarters of them (73%) had received training in ARI and almost two-thirds (62%) in CDD. Although the sample was smaller than the IMCI survey and the limits of precision should therefore be expected to be wider than this survey, the results on clinical management describe a rather low level of performance for many of the tasks reviewed, much lower than that observed in the IMCI survey. For example, only 3% of children had their weight correctly checked against the growth chart (vs 53% in the IMCI survey), 12% had their immunization status checked (vs 60% in IMCI), and 3% were checked for danger signs to help identify severe cases (vs 21% in IMCI). Thirteen per cent (13%) of caretakers of children with diarrhoea were advised on ORS (vs about three times as many in IMCI), 8% were advised on fluids and feeding during illness (vs 32% in IMCI) and 1% on all the three home care rules (vs 12% in IMCI). Expectedly, only 3% of caretakers knew when they should take their child back without delay (vs 33% in IMCI), while only 12% of caretakers of children with diarrhoea knew how much ORS to administer to the child each time (vs 26% in IMCI). Furthermore, 13% of those needing vaccination were given the needed vaccinations or advised where to go or when to return for vaccination (vs 49% in IMCI); one case (5% of all) needing vitamin A was given it or advised on it (vs 17% in IMCI).

Drugs also tended to be less available than in the IMCI facility survey, for example: ORS (found in 71% in the pre-intervention survey vs 92% in the IMCI survey), salbutamol syrup (42% vs 68%), IM chloramphenicol (29% vs 50%), diazepam (61% vs 82%), gentian violet (36% vs 50%), vitamin A (61% vs 71%), iron syrup (47% vs 56%), benzylpenicillin (85% vs 92%), cotrimoxazole (91% vs 97%). Very similar rates of availability were found for antimalarial drugs. On the other hand, data from IMCI follow-up visits show patterns that differ substantially between states. For example, quinine for parenteral use was available in 25% of facilities followed up after IMCI training in Khartoum, vs 54% in River Nile, 74% in Gezira, etc.; wide variations also concerned availability of gentamicin, chloramphenicol, vitamin A, diazepam etc. These differences may reflect differences existing between facilities according to the various approaches followed to avail of the needed drugs.

A full report on the pre-intervention survey with more details is available from FMOH. Even if caution must be exercised when comparing data from the two surveys, the pre-intervention data seem to indicate that in facilities where the IMCI strategy has been

introduced child health services tend to perform better than in ‘non-IMCI facilities’, even in those with staff trained in ARI or CDD.

5.5 LIMITATIONS OF THIS SURVEY

In any study, it is very important to identify and describe its limitations and take into account the original objectives, so that the findings can be interpreted and used properly. No study is exempt from limitations. Below are the main limitations found for this survey.

- ❖ *Sampling frame:* the caseload criterion of at least 2 cases less than 5 years old used to include health facilities in the sampling frame led to the exclusion of 46% of all facilities initially listed among those in which the IMCI strategy had been introduced. Within the time and financial resources allocated, however, this was unavoidable. As there were more facilities in rural areas with very low caseload than urban areas, ultimately the sampling frame had a higher representation of urban facilities.
- ❖ *Surveyors and supervisors:* the criteria for selection of surveyors and supervisors included previous training in IMCI and facilitation skills, and involvement in IMCI follow-up visits after training. This enabled the selection of staff who were very familiar with IMCI and supervisors who needed to be trained only in the survey procedures. The limitation of this choice is in that people fully involved in IMCI may in principle be unintentionally more biased than people not involved in it. However, it would have been almost impossible to conduct a survey of this type – requiring excellent familiarity with the IMCI clinical guidelines as a prerequisite for surveyors – using staff not trained in IMCI. To reduce the effects of this bias, attention was placed on the supervision of survey activities and interpretation of data.
- ❖ *Generalization of results:* for any survey, it must be very clear to which population the results apply, to avoid inappropriate generalizations for which the data would be unsuitable. The results of this survey apply to the whole sample, consisting of the total of all facilities in all districts covered by the survey and meeting the enrolment caseload criteria. The sample was not stratified by state, district or type of facility, to limit it to a manageable size. Based on the objectives of this survey, *the results refer only to the quality of care provided to children aged 2 months up to 5 years old in facilities where the IMCI strategy had been introduced and with an estimated daily caseload of two or more cases.* The results therefore describe the quality of care that a sick child would be likely to receive in an IMCI facility in general, whether or not the child was seen by an IMCI-trained provider, and they do not apply to facilities with a small caseload. A quick look at the data on performance of clinical indicators by state, suggested that *there might exist a substantial difference in performance between states.* However, as the sample was not stratified by state, the data breakdown by state is not presented in this report. In fact, there were considerable differences in the proportion of children seen by IMCI-trained providers by state (§ 5.3.3.1), and the findings have shown that training favourably affected quality of care. Furthermore, the different distribution by state of the number of ‘clusters’ (health facilities) and number of cases, complex cases (red and yellow row classifications), and cases seen by doctors and medical assistants, at hospital or health centre or dispensary, at rural and urban facilities, at facilities that had received clinical supervision, etc. did not warrant this type of analysis, more so in the limited time available.
- ❖ *Availability of drugs:* the presence of just one course of treatment was sufficient to meet the definition of drug availability in this survey. Attempts to relate drug stocks to caseload failed, due to incomplete or unreliable records in many facilities.
- ❖ *Staff turnover:* 7 (11%) of the 66 facilities visited no longer had any staff trained in IMCI (including two hospitals and five health centres) and in another three facilities

(all health centres) IMCI-trained staff were not present at the time of the visit. Thus, no IMCI-trained staff were available in 15% of facilities. This information indirectly underlines the importance of the problem of staff turnover, whether temporary or permanent, and its implications for an in-service training strategy in the long term.

6. CONCLUSIONS AND RECOMMENDATIONS

This survey has provided useful information on outcome indicators related to the quality of health care delivered to children below 5 years old at public health facilities. These data will help to monitor progress towards the achievement of the child health-related Millennium Development Goals to which the country has committed.

The results relative to indicators for clinical and communication skills clearly show a *better performance* for many of the tasks assessed of health providers *trained in IMCI* than those who have not been trained, including assessment, treatment and advising skills. They provide evidence that IMCI training can improve quality of outpatient child care. The overall level of performance for both trained and untrained health providers is however sub-optimal and calls for the strengthening of the *planning approach to training*, as outlined below. According to the selection criteria of this survey, all the facilities surveyed had introduced the IMCI strategy. The clear differences observed in the skills between staff trained in IMCI and those not trained in IMCI in these facilities, therefore, on the one hand, underline the challenges of institutionalizing changes in the quality of care at health facilities where the IMCI strategy has been introduced and, on the other hand, draw attention to the urgent need to improve pre-service training in general. While substantial efforts have been made to date to upgrade health providers' skills through IMCI in-service training, the survey suggests that much work needs to be undertaken to improve the *health system component* of the IMCI strategy in Sudan. Strengthening of this component, which is vital for successful implementation of an 'IMCI strategy' and would complement current IMCI efforts (mostly training), requires strong coordination with the various parties involved.

The analysis of the results of the survey also identifies some clinical and communication skills and tasks that require further emphasis in future training, follow-up visits after training and supervision (see Annex 1). It also supports arguments in favour of *reviewing* some aspects of the current *IMCI guidelines*, to consider including eye infections, and revising recommendations on feeding and indications for definite follow-up, which currently include a large proportion of the children seen. The analysis finally suggests that it would be beneficial to establish better links between IMCI and mother care.

The recommendations presented in this section should serve as the basis to develop a strategic plan for IMCI implementation in the future, in close collaboration with all the main actors involved in child health and, especially, IMCI.

6.1 ACCESS TO DRUGS AND SERVICES: PROVIDING EQUITABLE ACCESS TO CARE TO THE MOST VULNERABLE GROUP

Facts and rationale: None of the severe cases that required urgent referral received proper pre-referral treatment, even in facilities where the recommended drugs were available. One of the possible explanations given was that patients should pay for them, as for any other drugs. Patients seen at hospital casualty departments are exempted from paying emergency care costs. Children in poor families, which may be unable to afford the costs of outpatient and hospital care (drugs, transport, etc.), are also among those most exposed to illness and most in need of health services. Most of the very severe cases needing referral occurred in children under 2 years old: the cost of pre-referral treatment is limited to a pre-referral dose of the

drugs for the few cases of severe sickness requiring urgent referral. Currently, there seems to be no systematic approach to providing free drugs, including the pre-referral dose to those referred, to young children. Improving access to care for those most at risk is an essential approach to reducing infant and under-5 mortality and achieving the ambitious Millennium Development Goals.

Recommendation 1: Consideration should be given to protecting children below 2 years old, especially in poor families, by issuing a policy and establishing mechanisms (e.g. funds) to provide affordable (free or at reduced cost) drugs to them.

Facts and rationale: Drugs are made available and procured by providers at health facilities in different ways, whether through a drug revolving mechanism, other schemes or personal initiative. Many children received antibiotics and other drugs unnecessarily, according to the IMCI guidelines. The revenues generated through the sale of drugs to patients may act as an incentive to prescribing. The availability of key drugs for child care at the facilities visited varied considerably, with some lacking even a single dose of selected pre-referral drugs, ORS, vitamin A, iron, paracetamol etc. The lack of a regular supply of key drugs seriously reduces the potential for impact of the IMCI strategy on the quality of care and child health outcomes. The ‘open vial’ policy in immunization to reduce missed opportunities seemed to be rarely practised at health facilities providing immunization services. This policy, if implemented especially for OPV and DPT, would help reduce wastage of vaccines and improve immunization coverage.

Recommendation 2: When planning to train staff from health facilities in IMCI, States should commit to making key drugs regularly available through effective schemes to the health facilities where those staff work, to make the most of the substantial financial investment placed in IMCI training.

Recommendation 3: States should promote the implementation of the ‘open vial’ policy to increase immunization coverage and reduce vaccine wastage.

6.2 TRAINING

6.2.1 Skills reinforcement: strengthening follow-up visits after training

Facts and rationale: Although most of the cases in the survey were seen by providers trained in IMCI and followed up after training, most of the follow-up visits appeared to have been originally conducted 2 or more months after training. ‘Follow-up visits’ in IMCI are an essential part of training aiming at reinforcing the skills acquired in the standard 11-day training and providing the required support in the setting where the trained provider works. A delay in conducting them beyond 6 weeks after training is strongly believed to reduce their value as a training and supportive instrument. Furthermore, the practice of covering more than one facility per day and using role-play rather than actual cases further reduces their effectiveness.

Recommendation 4: The Federal level and States concerned should jointly plan to develop and commit adequate human resources to follow up visits after IMCI training, to conduct them on timely basis and according to the standard methodology.

6.2.2 Improving basic skills of health providers

Facts and rationale: The level of performance of health providers not trained in IMCI was very low, highlighting weaknesses in basic clinical and communication skills adversely affecting the

quality of child care. Most of the primary health care providers in Sudan are medical assistants. The turnover of health providers represents a big challenge to a strategy if it relies only on in-service training, and hampers efforts to sustain achievements in improved quality of care in the future. Teaching at schools should be consistent with FMOH guidelines (e.g. treatment of malaria).

Recommendation 5: Consideration should be given to strengthening the curriculum of pre-service training of medical assistants and introducing the IMCI outpatient care approach as a way to develop basic skills.

6.3 STRENGTHENING MALARIA LABORATORY DIAGNOSTIC CAPACITY

Facts and rationale: More than two-thirds of the facilities surveyed, 60% of which were located in urban areas, had laboratory facilities to prepare and examine blood smears for malaria parasites. A quality control test was carried out in Khartoum of the reading results made at health facilities for children enrolled in the survey and for whom blood smears had been prepared in the field. None of the results reported as positive by the health facility laboratory staff (26% of the survey total) were confirmed as positive. This raises serious concerns about the reliability of laboratory malaria diagnosis in the field and results also in a high percentage of false positives and unnecessary treatment with antimalarials. Most (87%) of the laboratory technicians or assistants who had prepared and read the blood films in the field had received specific training in microscopic examination of malaria parasites, in addition to their basic training.

Recommendation 6: Close supervision by Federal and State levels with quality control of malaria microscopic diagnosis should be carried out regularly to improve the quality of malaria laboratory diagnosis.

6.4 ORGANIZATION OF WORK: BUILDING CAPACITY AND REDISTRIBUTING SELECTED TASKS AT HEALTH FACILITIES

Facts and rationale: There are currently many facilities staffed with more than one category of health provider, such as ‘vaccinator’, ‘nutrition educator’, in addition to the doctor or medical assistant. To provide the full scope of quality care promoted by IMCI, these staff could assist routinely in selected tasks for sick children, for example taking and recording weight and temperature, checking the child’s road-to-health card and immunization status, providing counselling on feeding.

Recommendation 7: States should consider setting and promoting the policy that all child caretakers take the road-to-health card to the facility not only for immunization but also for sick child visits.

Recommendation 8: Federal and State in-service training curriculum for vaccinators and nutrition educators should be revised to include taking temperature and weight, checking immunization status by the health card, counselling on feeding and similar basic skills, as part of their routine responsibilities.

6.5 IMPROVING SUPERVISION AND REPORTING

Facts and rationale: Supervision remains a major challenge: half of the facilities reported receiving no supervisory visit in the past 6 months; clinical supervision was infrequently conducted and the findings and recommendations of the visits were rarely recorded in a book to facilitate follow-up also by other supervisors. Regular and good quality supervision is the main instrument to maintain the gains obtained through IMCI training and skills

reinforcement ('follow-up') visits. It requires quality training, including practising of the supervisory skills. The lack of reliable information on the number and type of cases seen at health facilities makes it difficult to plan (e.g. for staffing health facilities, estimating drug requirements, prioritizing interventions in selected areas, etc.). Discussions to revise the current health information system are ongoing.

***Recommendation 9:* A training package on supervision of child health services should be developed; supervisors responsible for routine supervision should be trained and involved in IMCI follow-up visits and trained in child health supervisory skills on a trial basis once the materials are developed.**

6.6 IMPROVING CARE-SEEKING PRACTICES

Facts and rationale: The level of knowledge about the signs that should prompt families to seek care for their sick children without delay was low among the caretakers interviewed, despite the fact that some of these caretakers had also received some advice on these signs by the provider at the health facility. This finding is further supported by the fact that two-thirds of caretakers who had recognized a breathing problem in their children waited more than a day before seeking advice from the health provider.

***Recommendation 10:* High priority should be given to targeting the community through health communication activities to improve family knowledge about the early signs that should prompt care-seeking for sick children (e.g. breathing problem in a child with cough).**

ANNEXES

ANNEX 1. AREAS TO BE EMPHASIZED IN FUTURE IMCI CLINICAL TRAINING AND FOLLOW-UP VISITS

Step	Targeted children	Condition	Areas to emphasize	Evidence from survey (cases managed by IMCI-trained providers)
Assessment	All children	All	<i>Case history</i> and caretaker's answers should be carefully validated (unreliability of caretaker)	Discordant information provided by the same caretaker to provider and surveyor in several cases, leading to incorrect assessment and management of the child
	All children	Severe conditions	<i>General danger signs</i> should be correctly checked in all children	The three general danger signs were not checked in 72.1% of children
	All children	All	The <i>temperature</i> should be taken correctly	The temperature was not taken or not taken correctly with a thermometer in 82.1% of children
	All children	Very low weight	Child's <i>weight</i> should not only be taken but also <i>checked against a growth chart</i>	Child's weight was not checked against a growth chart in 37.5% of children
	All children	ARI	Caretakers should be asked not only whether the child has cough but also <i>whether the child has difficult breathing</i>	Breathing problem not asked of 20% of caretakers reporting that child had no cough
	Children with cough or difficult breathing	ARI	The <i>respiratory rate</i> should be counted carefully; more supervised practice is needed	Respiratory rate considered unreliable in 59% of children in whom taken
	Children with diarrhoea	Diarrhoea	Correct <i>technique to pinch abdomen skin</i> to be emphasized and practised	Abdomen skin either incorrectly pinched or not pinched in 58.8% of children with diarrhoea
	Children with an ear problem	Ear problem	Children should be checked more carefully; both tasks should be performed: checking both ears and feeling for tender swelling behind the ear	(Both) ears not checked in 57.7% and feeling for tender swelling behind the ears not performed in 80.8% of children with ear problem
	Children with fever	Fever	<i>History of measles</i> within the last three months should be asked in all children with fever or history of fever	History of measles within the last three months not checked in 47.3% of children with fever or history of fever.

Step	Targeted children	Condition	Areas to emphasize	Evidence from survey (cases managed by IMCI-trained providers)
Assessment (continued)	All children	Anaemia	All children should be checked for <i>palmar pallor</i> More practice is needed to assess palmar pallor	Palmar pallor not assessed in 41.8% of children No agreement on classification of cases with severe anaemia or anaemia in 76.6% of children with palmar pallor
	All children	Malnutrition	All children should be checked properly for <i>visible severe wasting and oedema of both feet</i>	Visible severe wasting not (or not properly) assessed in 68.2% of children; oedema of both feet not (or not properly) checked in 58.2% of children
	Children less than 2 years old and those with low weight and/or anaemia	Feeding assessment	Particular attention should be paid to <i>asses feeding practices</i> , also in children with low weight and/or anaemia	Feeding assessment not performed in 65.1% of children age less than 2 years and in 93.1% of those two years old or older with low weight and/or anaemia
Road-to-health card	All children	Other problems	Asking about and <i>checking for 'other problems'</i> and routinely checking for <i>eye infections</i> in all children should be emphasized	Caretakers not asked about the presence of other problems in 55.7% of children; 59% of children with eye infection – pus draining from the eye – missed
	All children	Road-to-health card	Child's <i>health card</i> should be routinely asked for and checked also for sick children, not only for immunization sessions. Caretakers should be advised on it.	Health card not asked for in 89.6% of children
Classification	Children with diarrhoea	Persistent diarrhoea and dysentery	<i>Assessment findings</i> should be used to classify the child	Caretakers of 9 out of 10 children with persistent diarrhoea asked about duration of diarrhoea, but 7 cases not classified as persistent diarrhoea; caretakers of 7 out of 8 children with blood in stools asked about presence of blood in stool, but 4 cases not classified as dysentery
	Children needing urgent referral or admission to hospital	Severe classification	All children with a severe classification needing urgent admission to hospital should receive the <i>first dose of 'pre-referral treatment'</i> , including at the hospital out-patient or emergency department: this should be practised during training courses	None of the severe cases needing urgent referral or admission to hospital received a first dose of pre-referral treatment (antibiotic, quinine, ORS, vitamin A -- as appropriate)

Step	Targeted children	Condition	Areas to emphasize	Evidence from survey (cases managed by IMCI-trained providers)
Treatment and counselling (continued)	Children needing oral antibiotics and/or antimalarials	IMCI conditions requiring antibiotics and/or antimalarials	<p>Providers should improve their prescription practices and advise caretakers correctly on <i>treatment</i></p> <p>Giving the <i>first dose of treatment</i> at the facility should be practised during training courses</p>	<p>Prescription incorrect in 62.3% and 69.4% of cases with IMCI conditions needing oral antibiotics and/or antimalarials, respectively; caretakers of 75% of children prescribed oral antibiotics and of 75.7% of children prescribed oral antimalarials did not know how to administer them correctly at home</p> <p>85.7% and 94.6% of children not given the first dose of antibiotic and antimalarial, respectively, among those prescribed them</p>
	Children with diarrhoea	Diarrhoea	<p>Children with diarrhoea and <i>some dehydration should be rehydrated with ORS at the facility and ORS sachets given for home use</i> to those with no dehydration</p> <p>Communication skills to <i>advise on ORS treatment</i> should be enhanced through more supervised practice</p>	<p>71.4% of children with diarrhoea and some dehydration not administered the solution at the facility; caretakers of 48% of children with diarrhoea and no dehydration given no ORS sachets for home use</p> <p>Caretakers of 74.4% children given ORS were given no demonstration or explanation on how to give it nor asked checking questions; 72.1% were unable to describe how to prepare and administer ORS correctly; 65.1% did not know when to give it to the child, and 44.2% did not know how much to give it each time</p>
	Children needing vitamin A	IMCI conditions requiring vitamin A, and children age 6 months or older not given a dose in previous 6 months	<p><i>Giving vitamin A</i> to the target group of children, according to the IMCI guidelines, should be practised during training</p>	<p>82.8% of children needing to receive vitamin A were not given it or not advised to come back to receive it on another day</p>
	Children with eye infection	Other problems	<p>All children with an <i>eye infection should be given tetracycline ointment</i>: practise during the training course</p>	<p>75.9% of children with pus draining from the eye were not given tetracycline ointment</p>

Step	Targeted children	Condition	Areas to emphasize	Evidence from survey (cases managed by IMCI-trained providers)
Treatment and counselling (continued)	All children	Any non-severe condition	<p><i>Advice on giving extra fluids and continue feeding</i></p> <p><i>Advice on when to take the child back to the facility immediately</i></p> <p><i>Use of home care card and communication techniques should be emphasized and practised under supervision during training and closely monitored during follow-up visits</i></p>	<p>Caretakers of 58.0% of children not needing urgent referral given no advice on <i>both</i> home care rules</p> <p>84.8% of caretakers not given advice on <i>all</i> the three home care rules, especially the specific early danger signs to watch out at home (74.3% not advised on at least 3 of the 7 key signs)</p>
	Children needing immunization	Needing immunization	<p>Ensure that all children's <i>immunization status</i> and road-to-health card are routinely checked and those needing immunization are given it or advised when/where to obtain it</p>	<p>Home care card <i>and</i> good communication techniques not used in 93.2% of caretakers of children not needing urgent referral</p> <p>48.2% of children needing immunization left the facility with no immunization nor advice on where/when to obtain it</p>
	Children less than 2 years old and children with low weight and/or anaemia	Feeding	<p>Practice on <i>counselling on complementary feeding</i> should be strengthened during training and follow-up visits</p>	<p>Caretakers of 76.3% of children less than 2 years old and those with very low weight and/or anaemia (seen by IMCI-trained and untrained providers) not given correct advice on breastfeeding and frequency of complementary foods</p>
Caretaker-mother	Children not needing urgent referral, drug or ORS treatment, or specific advice (i.e., "green row" conditions)	<p>Training should start emphasizing the need to <i>counsel on their health mothers</i> of sick children who have only a mild illness</p>	<p>99% of caretaker-mothers of children not needing urgent referral were asked no questions on their health</p>	

ANNEX 2. MAIN STEPS OF THE IMCI PROCESS IN SUDAN

August 1996 –December 1999

1996

- August
 - IMCI Task Force established and a focal point appointed
- October
 - IMCI Working Group created with two Sub-groups: Adaptation (4 technical units) and Implementation
- November
 - National IMCI Orientation Meeting
 - Adoption of the IMCI strategy by the Federal Ministry of Health
 - Preliminary planning workshop
 - Selection of 4 Districts (2 in Khartoum and 2 in Gezira)

1997

- May
 - National IMCI Steering Committee established by Ministerial Decree
 - IMCI Planning and Adaptation Workshop (1st Consensus meeting)
- August
 - State IMCI co-ordinators and IMCI Task Forces established in Khartoum and Gezira
- September
 - 2nd Consensus meeting on the IMCI adapted guidelines
- December
 - First national 11-day IMCI training course

1998

- March
 - First IMCI facilitation skills training course
- April
 - 2nd national IMCI case management course
- May
 - 2nd IMCI facilitation skills training course
- June
 - Strengthening health facilities' services¹ in the 4 districts selected for early implementation
- July – December
 - Translation of IMCI materials into Arabic

1999

- February
 - Implementation at district level
- March
 - Arabic version of IMCI training materials used for 1st course for medical assistants
- June
 - First follow-up visit
- December
 - Review of the IMCI Early Implementation Phase and Planning for Expansion

¹Provision of drugs, organization of work, etc.

DRUGS: Drugs needed for IMCI were already included in the national Essential Drug List (EDL). However, use of some drugs (e.g. parenteral chloramphenicol and gentamicin as injectable pre-referral drugs) was not allowed for medical assistants and nurses at dispensaries and health centres. Special arrangements were made with local authorities for exemption from EDL restrictions of facilities with staff trained in IMCI.

ANNEX 3. IMCI TRAINING AND IMPLEMENTATION

IMCI Training

Type of course	Level	No. of courses	No. of participants	
			Nationals	Foreigners
Case Management	National	4	91	0
	Regional	5	93	17
	State/Dr*	43	360	
	State/MA*		520	
	Others		25	
Facilitation skills	National	7	82	
	Regional	1	8	2
	State	13	104	
Supervisory (follow-up after training)	National	2	12	
	State	6	31	
University		2	48	
Total		83	1374	19

State/Dr: Course at State level for doctors

State/MA: Course at State level for medical assistants

IMCI implementation status

	1997	1998	1999	2000	2001	2002
<i>Khartoum</i>	Introduction	Training				
<i>Gezira</i>	Introduction	Training				
<i>River Nile</i>				Int. Training		
<i>Sennar</i>				Int. Training		
<i>North Kordofan</i>					Int. Training	
<i>Kassala</i>					Int. Training	
<i>El Gadarif</i>					Introduction	Training
<i>Red Sea</i>					Introduction	Training
<i>South Darfour</i>					Introduction	Training
<i>White Nile</i>						Int. Training
<i>West Kordofan</i>						Introduction
<i>South Kordofan</i>						Introduction
<i>West Darfour</i>						Introduction
<i>Bher Elgazal</i>		Introduction		Training		
	1997	1998	1999	2000	2001	2002

IMCI COVERAGE: Percentage of districts and facilities implementing IMCI in 14 States where IMCI has been introduced from inception through August 2002

States IMCI introduced	Date 1st training	Districts implementing IMCI	Total districts in State	% implementing	Facilities implementing IMCI	Total facilities in IMCI districts	% implementing in IMCI districts	Total facilities in State	% implementing in State
<i>Khartoum</i>	1998	18	36	50%	97	355	27%	474	20%
<i>Gezira</i>	1998	13	34	38%	177	236	75%	913	19%
<i>River Nile</i>	2000	9	19	47%	65	176	37%	327	20%
<i>Sennar</i>	2000	5	16	31%	46	68	68%	213	22%
<i>North Kordofan</i>	2001	8	18	44%	35	109	32%	645	5%
<i>Gadarif</i>	2002	4	24	17%	19	114	17%	262	7%
<i>Red Sea</i>	2002	7	20	35%	22	45	49%	75	29%
<i>White Nile</i>	2002	2	21	10%	16	73	22%	238	7%
<i>Kassala</i>	2001	3	17	18%		65		302	
<i>South Darfour</i>	2002	3	41	7%	15	77	19%	396	4%
<i>West Darfour</i>	2002	2	16	13%				248	
<i>South Kordofan</i>	2002	2	19	11%				247	
<i>West Kordofan</i>	2002	2	19	11%				357	
<i>Bher Algazal</i>	1998	2	11	18%	3	15	20%	64	5%
Total		80	311	26%	495	1333	37%	4761	10%

ANNEX 4. SCHEDULE OF SURVEY ACTIVITIES

October 2002 (planning); March – April 2003 (survey)

- **PLANNING**

Planning meeting 26 – 31 October 2002

- **TRAINING**

Surveyor training 15 - 20 March 2003

- **FIELD WORK**

Data collection 22 March - 3 April 2003

- **DATA ENTRY AND ANALYSIS**

Completion of data entry and cleaning 5 – 9 April 2003

Preparation of tables for data analysis 10 - 13 April 2003

Team analysis 14 - 15 April 2003

Additional analysis, preparation for feedback meeting, conclusions and recommendations 16 - 20 April 2003

- **PRESENTATION OF MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

Meeting with H.E. the Federal Minister of Health and Undersecretary of Health 21 April 2003

National feedback meeting 22 April 2003

Calendar

March																April					
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	
Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	
<i>Surveyor training</i>						<i>Data collection</i>															
						<i>Data entry</i>															

April																	
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu
<i>Data cleaning</i>				<i>Tables</i>				<i>Data analysis, with conclusions and recommendations</i>						<i>Meetings*</i>			
<i>Data entry</i>								<i>Graphs</i>									

* Meetings with H.E. the Federal Minister of Health and Undersecretary of Health, and National feedback meeting

ANNEX 5. SCHEDULE OF PLANNING

Federal Ministry of Health

26–31 October 2002

Saturday, 26 October

- ↻ Meeting with National IMCI coordinator and focal point
- ↻ Meeting with UNICEF
- ↻ Meeting with survey planning team: Planning for the survey:
 - ▶ Background on the child health situation in the country (e.g., DHS data, health facility data), rationale for the IMCI strategy and progress in implementation; summary results of follow-up visits and observations and lessons.
 - ▶ Tentative schedule of planning visit
 - ▶ Survey manager and co-ordinator
 - ▶ Objectives of survey
 - ▶ Geographic scope and sampling (options and related issues, data required)
 - ▶ Surveyors, supervisors (responsibilities, requirements)
 - ▶ Review of survey forms -to be cont'd-

Sunday, 27 October

- ↻ Meeting with interested partners (SCF)*
- ↻ Meeting with survey planning team: Planning for the survey (continued):
 - ▶ Review of survey forms (and plans for translation of selected sections) –to be cont'd-
 - ▶ Initial list of country-specific health facility survey rules

Monday, 28 October

- ▶ Review of survey forms (and plans for translation of selected sections) – continued -
- ▶ List of country-specific health facility survey rules – continued -

Tuesday, 29 October

- ▶ Visit to the outpatient department of Omdurman hospital, Khartoum:
 - Pre-test of forms
 - Patient flow, outpatient logbooks, drug stock cards
 - Revision of forms and survey rules

Wednesday, 30 October

- ▶ Plans for revision of EpiInfo data entry and analysis files based on revised forms
- ▶ Selection of districts
- ▶ Health facilities to survey: criteria and random selection procedures
- ▶ Estimate of number of sets of forms, summary comment sheets and surveyor instructions needed for the survey; instruments to translate (survey rules, checklist of tasks, forms)
- ▶ List of potential surveyors and supervisors
- ▶ Review of plans for data entry and analysis
- ▶ Budget

Thursday, 31 October

- ↻ Debriefing with the Undersecretary of Health and Director-General for International Health
- ↻ Planning for surveyor training (responsibility, language, schedule)
- ↻ Planning for data collection (survey itinerary)
- ↻ Planning for data entry and analysis; labels for 'health facility envelopes'
- ↻ Planning for dissemination of findings and Feedback Meeting
- ↻ Finalization of survey schedule
- ↻ Planning for remaining survey tasks
- ↻ Debriefing with WR

*Unavailable

ANNEX 6. SURVEY PLANNING TEAM

26–31 October 2002

Federal Ministry of Health

Department of Primary Health Care

Dr Samia Mohammed El Hassan	Acting Director, and national IMCI coordinator
Dr Iqbal Ahmed El Bashim	National IMCI focal point
Dr Khalid Mohamed Khalid	IMCI team (1 st component)
Dr Hanan Mukhtar	IMCI team (2 nd component)
Dr Wafaa Mustafa Osman	Nutritionist, IMCI team (3 rd component – community)
Dr Tarig Abdul Wahid	PHC support
Dr Rogaia Abuelgasim	Reproductive health and Dean, School of Nursing, Khartoum University
Dr Siham Ahmed Balla	Nutrition

Academic institutions

Khartoum University

Prof Zein Abdul Rahim Karrar*	Dean, Graduate College
Ms Nadia Bushra	Sociologist, Faculty of Medicine

Gezira University

Dr Samira Hamid Abdelrahman	Associate Professor, Department of Community Medicine
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Al Rabat University

Dr Abd Rahim Babikir	Department of Community Medicine
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UNICEF

Dr Rafah S. Aziz*	Senior Project Officer for Health and Nutrition, Chief of Health and Nutrition Section, UNICEF Sudan Country Office
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World Health Organization

Dr Sumaia Elfadil	National Officer, Focal Point for Child Health, Office of the WHO Representative for Sudan
Dr Sergio Pièche	Medical Officer, Child Health and Development (CAH), Regional Office for the Eastern Mediterranean (EMRO)

Resource persons

Dr El Tayeb Ahmed El Sayed	<i>Expanded Programme on Immunization</i>
Dr Al Fatih Malik	<i>Malaria Programme</i>

*Able to attend some of the sessions

ANNEX 7. SURVEY SELECTION CRITERIA

The following criteria were agreed upon to decide which geographical areas and facilities to cover in the survey:

- *States where more than one IMCI training course (with follow-up visit after training) had been conducted.* This was done to provide time for implementation of actions recommended at debriefing meetings after follow-up visits to strengthen health system support in facilities located in districts implementing IMCI (“IMCI districts”);

- *Facilities implementing IMCI (“IMCI health facilities”) and belonging to the following types:*
 - Outpatient departments of hospitals;
 - Health centres;
 - Dispensaries; and
 - Dressing stations.

ANNEX 8. SAMPLING OF DISTRICTS

Sampling method: probability proportionate to size (pps)

Areas to be selected: 40 Contained in 29 districts

Sampling method: Probability proportionate to size

Areas to be selected: 40 Contained in 29 districts

State	Districts		Total population under-five	Cumulative population under-five	Areas selected		
Khartoum	1 Soba Walgeref		12,726	12,726			
	2 White Nile	1	52,984	65,710	13,430	52,619	
	3 Elkalakla	2	45,701	111,411	91,808		
	4 Elazhari	3	41,856	153,267	130,997		
	5 Omdurman North		15,568	168,835			
	6 Omdurman South	4	13,427	182,262	170,185		
	7 Elreif Elganoubi		19,311	201,573			
	8 Elameer	5	91,623	293,196	209,374	248,563	287,752
	9 Elbogaa	6	107,740	400,936	326,941	366,130	
	10 Elsalam	7	97,607	498,543	405,319	444,507	483,696
	11 Elreif Elshamali		8,850	507,393			
	12 Elmukhtar	8	24,135	531,528	522,885		
	13 Elgaile		8,498	540,026			
	14 Elhag Yousif	9	122,596	662,622	562,074	601,263	640,452
	15 Elgeraifat & Omdoum	10	63,446	726,068	679,640	718,829	
	16 Elailafoon		8,284	734,352			
	17 Umdwanban		11,559	745,911			
	18 Elsileat		2,322	748,233			
Gezira	19 Alhoosh	11	18,518	766,751	758,018		
	20 Elhadad		14,439	781,190			
	21 Wadmedani	12	45,505	826,695	797,207		
	22 Alhag abdala	13	19,327	846,022	836,396		
	23 Ummalgura wasat		17,047	863,069			
	24 Umelgura Ganoop	14	18,267	881,336	875,585		
	25 Umelgora shimal		7,516	888,852			
	26 Elmanagil		16,464	905,316			
	27 Reifi Almanagil	15	22,189	927,505	914,774		
	28 Almosalamia		10,727	938,232			
	29 Alhasahesa	16	21,054	959,286	953,962		
	30 Lemaseed		17,382	976,668			
	31 Wasat Elbotana	17	16,976	993,644	993,151		
River Nile	32 Reif Barbar		14,153	1,007,797			
	33 Abeedeaya		7,709	1,015,506			
	34 Barbar		5,923	1,021,429			
	35 Elbawga		8,158	1,029,587			

State	Districts		Total population under-five	Cumulative population under-five	Areas selected	
	36 Atbara	18	24,976	1,054,563	1,032,340	
	37 Damar		9,176	1,063,739		
	38 Reifi Damar	19	10,593	1,074,332	1,071,529	
	39 Zeidab		18,697	1,093,029		
	40 Sedwan		7,601	1,100,630		
Al Gadarif	41 Algardarif	20	62,268	1,162,898	1,110,718	1,149,907
	42 Middle Gadarif		21,086	1,183,984		
	43 Kasap	21	13,442	1,197,426	1,189,096	
Red Sea	44 Middle Portsudan		20,930	1,218,356		
	45 East Portsudan	22	18,537	1,236,893	1,228,284	
	46 South Portsudan		28,500	1,265,393		
North Kordofan	47 Elobeid	23	63,539	1,328,932	1,267,473	1,306,662
	48 Reifi sheakan	24	22,971	1,351,903	1,345,851	
	49 Abu Haraz		13,660	1,365,563		
	50 Alrahad	25	34,864	1,400,427	1,385,040	
	51 Bara wasat		12,836	1,413,263		
	52 Sharig Bara	26	21,392	1,434,655	1,424,229	
	53 Garip Bara		16,183	1,450,838		
	54 Kasgail			1,450,838		
White Nile	55 Kosti	27	41,773	1,492,611	1,463,417	
	56 Aldeweam	28	15,700	1,508,311	1,502,606	
Sennar	57 Singa		7,771	1,516,082		
	58 Soki		5,510	1,521,592		
	59 Shargi		10,416	1,532,008		
	60 Elgarbi	29	16,531	1,548,539	1,541,795	
	61 Sennar		19,015	1,567,554		
Total population in IMCI districts			9,558,256			
Total population under five			1,567,554			
Sampling interval			39189			
Random number			13430			
Population in the districts selected:			7,131,323			
Population under-five			1,169,537			
Proportion of total population:			74.6%			

Note: The population of the district of Kasgail was not available at the time of the selection and the district was then automatically left out. It was learnt later on, however, that the correct name of the district was Sheikan district, already included in this list. For practical purposes, it was agreed to accept the list of districts as shown in this annex.

ANNEX 9. LIST OF HEALTH FACILITIES SURVEYED

STATE	DISTRICT	FACILITY				
		Code	Name of facility	Type	Caseload/month	Location
RED SEA	EAST PORT SUDAN	1	Deam Altigani	Health centre	75	Urban
RED SEA	EAST PORT SUDAN	2	Almawani	Health centre	311	Urban
AL GADARIF	AL GADARIF	3	Ummshagara	Health centre	143	Rural
AL GADARIF	AL GADARIF	4	Algomhoria	Health centre	140	Urban
AL GADARIF	AL GADARIF	5	Al Soufi Al Azrag	Health centre	176	Urban
AL GADARIF	AL GADARIF	6	Ababo	Health centre	196	Urban
AL GADARIF	AL GADARIF	7	Alsaumah	Dispensary	93	Urban
AL GADARIF	KASSAB	8	Wad Alsanosi	Dispensary	225	Rural
KHARTOUM	AL AMIR	9	AL Fa'imab	Health centre	87	Urban
KHARTOUM	AL AMIR	10	Al Quosai	Health centre	134	Urban
SENNAR	ALRIF ALGARBI	11	Ribia	Health centre	66	Rural
SENNAR	ALRIF ALGARBI	12	33 alsukarr	Dispensary	65	Rural
SENNAR	ALRIF ALGARBI	13	Hilat albagar	Dispensary	138	Rural
GEZIRA	AL HAJ ABDALLAH	14	Aldawha	Health centre	60	Rural
GEZIRA	AL HAJ ABDALLAH	15	Awlad Yaseen	Dispensary	63	Rural
GEZIRA	AL HASAHISA	16	Arbagi	Hospital	194	Rural
GEZIRA	AL HASAHISA	17	Alaikora	Health centre	78	Rural
GEZIRA	AL HASAHISA	18	Arbagi	Health centre	106	Rural
GEZIRA	AL HASAHISA	19	Wad Alsaid	Health centre	185	Rural
GEZIRA	AL HOUSH	20	Alhoush	Hospital	204	Rural
GEZIRA	RIFI ALMANAGIL	21	Alshikeania	Health centre	86	Rural
GEZIRA	RIFI ALMANAGIL	22	Al Raga	Dispensary	58	Rural
GEZIRA	RIFI ALMANAGIL	23	Umm Sidira	Dispensary	78	Rural
GEZIRA	RIFI ALMANAGIL	24	Bagadi	Dispensary	86	Rural
GEZIRA	RIFI ALMANAGIL	25	Ummzikra	Dispensary	89	Rural
GEZIRA	RIFI ALMANAGIL	26	Katir alnifidia	Dressing station	116	Rural
GEZIRA	UMM ALGOURA GANOOP	27	Babanosa	Health centre	85	Rural
GEZIRA	UMM ALGOURA GANOOP	28	Algaria 30	Dispensary	75	Rural
GEZIRA	UMM ALGOURA GANOOP	29	Almasara	Dispensary	83	Rural
GEZIRA	WADMEDANI	30	Arkawit	Health centre	63	Urban
GEZIRA	WADMEDANI	31	Habeeb Allah	Health centre	81	Urban
GEZIRA	WADMEDANI	32	Awoodah	Health centre	103	Urban
GEZIRA	WADMEDANI	33	Alkireaba	Health centre	264	Urban
KHARTOUM	AL AZHARI	34	Soba Al Aradi	Health centre	1000	Urban
KHARTOUM	AL BOKAA	35	Badr Al Kobra	Health centre	57	Urban
KHARTOUM	AL BOKAA	36	AL Manara	Health centre	124	Urban
KHARTOUM	AL BOKAA	37	Al Sheikh Abuzeid	Health centre	177	Urban
KHARTOUM	AL HAJ YOUSSEF	38	Al Shahida Nada	Health centre	115	Urban
KHARTOUM	AL HAJ YOUSSEF	39	Kamboni	Health centre	424	Urban
KHARTOUM	AL HAJ YOUSSEF	40	Khaled Ben Al Walid	Health centre	588	Urban
KHARTOUM	AL HAJ YOUSSEF	41	Al Razi	Dispensary	447	Urban
KHARTOUM	AL JERIFFAT & UMM DOM	42	Halat Koko	Health centre	342	Urban
KHARTOUM	AL SALAM	43	Al Bar International Organization	Dispensary	159	Urban
KHARTOUM	AL SALAM	44	Al Kanaes	Dispensary	206	Urban
KHARTOUM	ALKALAKLAT	45	Sankaat	Health centre	900	Urban

Note:

> Gezira State: Facility with code 18 – “Arbagi” health centre (rural) in Al Hasahisa district: replaced during the survey with “Maringan Alumal” health centre (urban) in Medani district

List of health facilities surveyed (continued)

STATE	DISTRICT	FACILITY				
		Code	Name of facility	Type	Caseload/month	Location
WHITE NILE	ALDOIM	46	Alshitb	Health centre	128	Urban
WHITE NILE	ALDOIM	47	Alarshkol	Health centre	137	Urban
WHITE NILE	KOSTI	48	Kosti	Hospital	690	Urban
WHITE NILE	KOSTI	49	Allia	Health centre	86	Urban
WHITE NILE	KOSTI	50	Aligani Mohamed Khir	Health centre	127	Urban
WHITE NILE	KOSTI	51	Kadogli	Health centre	172	Urban
WHITE NILE	KOSTI	52	Alengaz	Health centre	181	Urban
GEZIRA	WADMEDANI	53	Banat	Health centre	499	Urban
GEZIRA	WASAT ALBUTANA	54	Alginhead	Hospital	90	Rural
KHARTOUM	WHITE NILE	55	Abaashar	Dispensary	650	Urban
RIVER NILE	ATBARA	56	Elsilah Eltibi	Hospital	66	Urban
RIVER NILE	ATBARA	57	Aldakhla	Health centre	110	Urban
RIVER NILE	ATBARA	58	Alshargi	Health centre	125	Urban
RIVER NILE	ATBARA	59	Hai Almatar	Health centre	183	Urban
RIVER NILE	RIFI ALDAMER	60	Alaliab Ganoop	Health centre	53	Rural
RIVER NILE	RIFI ALDAMER	61	Almahamia	Health centre	62	Rural
RIVER NILE	RIFI ALDAMER	62	Alaliab Wasat	Health centre	65	Rural
RIVER NILE	RIFI ALDAMER	63	Thiat	Dispensary	54	Rural
KHARTOUM	OUMDORMAN SOUTH	64	Daw Haggog	Health centre	199	Urban
KHARTOUM	WHITE NILE	65	Tiba Alhasanab	Health centre	169	Urban
KHARTOUM	WHITE NILE	66	Sadra	Dispensary	529	Urban

Note:

> White Nile State: Facility with code 49 – “Allia” health centre (urban) in Kosti district: replaced during the survey with “Goze Al Salam” health centre (urban) in the same district

Table. Distribution of health facilities (clusters) in the states (sample not stratified by state)

State	No. of districts	Facilities included (clusters)	Children enrolled
Gezira	7	22	123
Khartoum	9	18	99
River Nile	2	8	52
White Nile	2	7	41
Al Gadarif	2	6	27
Sennar	1	3	12
Red Sea	1	2	10
Total: 7 states	24	66	364

ANNEX 10. CONSIDERATION ABOUT TIMING OF THE SURVEY

- Typical diarrhoea peak months are usually in Sudan in July and August. A higher under-five caseload would then be expected to occur at that time. At the same time, access to some facilities would also be likely to become an issue for some health facilities because of the rainy season.
- Colder months – December to February – would have been suitable, with an expected increase in number of cases among children under 5 years old. However, these months were too close to the planning for all the arrangements to be completed by then. There was also the need to collect and validate data on caseload from the field, to select the sample of facilities to survey. This task took many months.

For the above reasons the survey was carried out in March and April 2003.

ANNEX 11. MAIN SURVEY FORM ADAPTATIONS

Enrolment card: The enrolment card was thoroughly revised to become a true form containing key information not only on the enrolment of children in the survey but also on some key aspects of care-seeking behaviour, such as local terminology for major illness entities and symptoms, delay in care-seeking since the appearance of danger signs or respiratory signs, and signs triggering the care-seeking process.

Observation of case management (Form 1): Further information on health provider's IMCI training, follow-up after training and case management was included in the form. The aim of the additional questions on case management was to collect valuable information not only on whether a certain task was performed by the health provider ("quantity"), but also on "how" the task would be carried out ("quality") and "who" would carry it out (organization of work). Feeding was given due attention. A number of questions on malaria were added (see below). "Eye infections" were pre-listed under "other problems" to standardize the collection of information on this condition, that was reportedly a common cause of consultation at health facilities in Sudan. Coding of selected questions by supervisors was improved.

Exit interview (Form 2): A few questions on caretaker recall of the home care messages in Form 2 were added and harmonized with the observation of counselling on home care in Form 1, to enable relational analysis. A section relating to the use of the "IMCI mother card" to assess health provider communication skills and a section on total child care costs – including also costs of transportation to facility - were added. The malaria scope of the survey instrument was expanded to include information on availability and use of bed-nets, and timely home treatment. As the revised version of the IMCI guidelines in Sudan required a blood smear for the classification of cases with fever in facilities with a laboratory, all the blood smears taken in children enrolled in the survey were collected by the survey teams and brought back to Khartoum, to be re-examined in a malaria reference laboratory. This procedure was suggested because of concerns about the reliability of laboratory examinations in the field³².

Equipment and supply (Form 4): One long-debated and still open issue in this type of surveys is the assessment of drug availability by rapid techniques. The common lack of information or of reliable information on drug management at health facilities (drug stock cards or registers), the need to relate drugs available at the time of the visit to expected caseload by age and illness and next procurement date, buffer stocks and so on, make the issue complex. The current survey method looks at the availability of just one course of treatment of each of the key drugs needed for IMCI as a rapid index of drug availability. This index is of limited value, although the absence of even a course of treatment on the day of the visit points to a serious problem in drug availability. In this survey, an attempt was made to use a proxy indicator on a trial basis, accepting all the limitations that such an indicator entails. When reviewing records to calculate the caseload for a given month in Form 4, supervisors were asked also to count the number of cases classified or diagnosed as "pneumonia" and "malaria" in the same logbook and for the same period and, independently, request health providers to estimate the number of the same type of cases they had managed the previous week. The supervisors then checked whether the facility has at least as many treatment courses of the recommended antibiotic for pneumonia and recommended antimalarial for malaria as the number of pneumonia and malaria cases, respectively, that have been recorded for the reference month. These figures were compared also with the estimates given verbally by the health providers. Pneumonia and malaria were chosen as they represented leading causes of mortality in children in Sudan and require prompt drug treatment, more so in young children.

³² The National Strategic Plan for Roll-Back Malaria, 2001-2010, Sudan

ANNEX 12. LIST OF SUPERVISORS AND SURVEYORS

Survey responsibility	Name	Position	IMCI Responsibility
<i>Survey manager</i>	Dr Samia M. Hassan	FMOH – Acting director of PHC Dept	National IMCI coordinator
<i>Survey coordinator</i>	Dr Igbal Ahmed	FMOH – PHC Dept	National IMCI focal point
<i>Technical support</i>	Dr Sergio Pièche	WHO/EMRO – Medical officer	Child health and development
<i>Supervisor</i>	Dr Huda Mohamed Haroon	Paediatrician, University of Gezira, Faculty of Medicine	Senior IMCI trainer and supervisor
<i>Supervisor</i>	Dr Iglal Bashir Nasir	Public health consultant, Gezira State	State IMCI focal point; senior IMCI trainer and supervisor
<i>Supervisor</i>	Dr Khalid Mohamed Khalid	FMOH – National trainer officer; Paediatrics registrar	National IMCI team
<i>Supervisor</i>	Dr Yasir Osman Abdallah	FMOH – National trainer officer; Paediatrics registrar	National IMCI team
<i>Supervisor</i>	Dr Tayfour Khidir	Community physician; EPI officer	Senior IMCI trainer and supervisor
<i>Supervisor</i>	Dr Ayman Osman Fadlala	Medical officer, Gezira State	IMCI team
<i>Supervisor</i>	Dr Mohamed Sid Ahmed	FMOH – Community physician, PHC Dept	Senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Hanan Mukhtar Abdu	Registrar, community medicine	National IMCI team
<i>Surveyor</i>	Dr Bashir Mukhtar Elwasila	Registrar, paediatrics, Bhri Teaching hospital	Senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr El Sadig Abdelrahman	Medical officer, Khartoum State	Senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Mubarak Abdelrahman	Registrar, paediatrics, Soba hospital	National IMCI team; senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Abdelrahman Ali Sanosi	Registrar, paediatrics, Omdurman Paediatrics hospital	Senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Seham Abdallah Gabir	Registrar, community medicine, Al Gadarif State	State senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Mohamed Banaga Elyas	Medical officer, River Nile State	State senior IMCI trainer and supervisor
<i>Surveyor</i>	Dr Mohamed Sabir Bahary	Medical officer	Master IMCI trainer and supervisor
<i>Surveyor</i>	Dr Amir Omer Ahmed	MOH, IMCI office, Khartoum State	Master IMCI trainer and supervisor
<i>Surveyor</i>	Dr Hind Omer Osman	MOH, IMCI office, Khartoum State	Master IMCI trainer and supervisor
<i>Surveyor</i>	Dr Wefag Ibrahim Elkhidir	Registrar, paediatrics, Khartoum State	State master IMCI trainer and supervisor
<i>Surveyor</i>	Dr Safa Mohamed El Haj	Medical officer, Sennar hospital, Sennar State	State IMCI coordinator; master IMCI trainer and supervisor
<i>Surveyor</i>	Dr Yara Badreldin El Sheikh	FMOH – Medical officer	National IMCI team
<i>Observer</i>	Dr Abdel Halim El Tahir	UNICEF – Khartoum	
<i>Data entry coordinator</i>	Ms Nadia Bushra	Sociologist, Khartoum University, Faculty of Medicine	

FMOH=Federal Ministry of Health; PHC=Primary health care; IMCI=Integrated Management of Childhood Illness; WHO=World Health Organization; EMRO=Eastern Mediterranean Regional Office

ANNEX 13. SURVEYOR TRAINING SCHEDULE

15–20 March 2003

8:00–16:30 (30 min. for tea break)

DAY 1:

- Welcome, purpose of the training and introduction of participants
- Administrative information
- Introduction to the survey: survey objectives and training agenda
- Survey methodology
- Introduction to survey forms
- Introduction to survey Q-by-Q instructions
 - *Enrolment card*
 - *Form 1: Observation of case management*
 - Classroom practice with exercises and role-plays
- Briefing on 1st practice with outpatients at health facility

DAY 2:

↳ 1st practice with outpatients: using Enrolment Form and Form 1

- Review of practice in groups

- ❖ *Meeting with team supervisors:*
 - ✓ Enrolment Form and Form 1

DAY 3:

- Plenary on 1st practice
 - *Form 2: Exit interview*
 - Classroom practice
 - *Form 3: Re-examination of child*
 - Classroom practice
 - *Form 4: Equipment and supply*
- Briefing on 2nd practice with outpatients at health facility

- ❖ *Meeting with team supervisors:*
 - ✓ Forms 2, 3 & 4
- ✓ Providing feedback to health facility staff

DAY 4:

↳ 2nd practice with outpatients: using all forms

- Review of practice in groups and plenary
- Briefing on 3rd visit to health facility

- ❖ *Meeting with team supervisors:*
 - ✓ Checking surveyor reliability and forms
 - ✓ Summarizing qualitative observations

DAY 5:

↳ 3rd practice at health facility: using all forms

- Review of practice in groups and plenary

- ❖ *Meeting with team supervisors:*
 - ✓ Checking forms in the field
 - ✓ Collection of blood smears
- ✓ Supervisors' daily meetings with teams in the field

DAY 6:

- Drills on Q-by-Q instructions and survey procedures
 - Training evaluation
- ❖ *Meeting with team supervisors:*
 - ✓ Survey itinerary
 - ✓ Team composition
 - ✓ Forms and supplies
 - ✓ Final arrangements

ANNEX 14. TRAINING EVALUATION FORM

20 Respondents

1) How do you rate the training overall?

Very good [8] Good [12] Just right [] Inadequate []

2) How confident do you feel in using the survey forms by now?

Very confident [11] Confident [9] Not too confident yet [] Not confident []

3) How clear do you feel about the survey procedures?

Very clear [6] Clear [14] Not too clear yet [] Unclear []

4) How much practice do you feel you have had with the form/s that you are going to use in the survey?

Too much [2] Adequate [17] Just right [1] Insufficient []

Practice with examples: Adequate [19] Too many [1] Too few []

Practice with role plays: Adequate [17] Too many [1] Too few [2]

Case demonstration at hospital: Very helpful [11] Helpful [9] Not helpful []

Practice with actual cases at hospital: Adequate [19] Too many [] Too few [1]

5) In general, how clearly were all issues raised addressed in the training?

Very clearly [4] Clearly [16] Not too clearly [] Not clearly []

6) Which training method did you enjoy most? (Tick only ONE choice)

Examples [1] Role-plays [2] Practice with actual cases [14] Drills [3]

7) How did you find the Q-by-Q explanations?

Very useful [11] Useful [8] Not very useful [1] Not useful []

8) Do you think that the duration of this training course was:

Adequate [16] Too long [3] Too short [1]

9) Do you think the venue of the training was:

Suitable [19] Not suitable [1]

ANNEX 15. SURVEY TEAMS ITINERARY

Teams	State	District	Code	Health facility	Date of visit	
Team A Supervisor: Yasir S1: Amir S2: Bahari	Red Sea	East Port Sudan	01	Deam Altigani	22/3	
		East Port Sudan	02	Almwani	23/3	
	Alghadarif		Alghadarif	03	Ummshagra	24/3
			Alghadarif	04	Algomhoria	26/3
			Alghadarif	05	Alsoufi Al Azrag	27/3
			Alghadarif	06	Ababyo	29/3
			Alghadarif	07	Alsaumah	30/3
			Kassab	08	Wad Alsanosi	31/3
	Khartoum		Al Amir	09	Al fatimab	2/4
			Al Amir	10	Al Quosai	3/4
Team B Supervisor: Iglal S1: Alsadig S2: Yara	Sennar	Alrif Algarbi	11	Ribia	22/3	
		Alrif Algarbi	12	33 Alsukarr	23/3	
		Alrif Algarbi	13	Hilat Albagar	24/3	
	Gezira		Al haj Abdallah	14	Aldawha	26/3
			Al haj Abdallah	15	Awlad Yaseen	27/3
			Al Hasahisa	16	Arbagi hospital	29/3
			Al Hasahisa	17	Alakora	30/3
			Al Hasahisa	18	Arbagi*	31/3
			Al Hasahisa	19	Wad Alsaid	1/4
			Alhoush	20	Alhoush	2/4
			Rifi Almanagil	21	Alshikeania	3/4
Team C Supervisor: Huda S1: Mohammed S2: Abdelrahman	Gezira	Rifi Almanagil	22	Alraga	22/3	
		Rifi Almanagil	23	Umm Sidira	23/3	
		Rifi Almanagil	24	Bagadi	24/3	
		Rifi Almanagil	25	Ummzikra	25/3	
		Rifi Almanagil	26	Katir Alnifidia	26/3	
		Umm Algoura Ganoop	27	Babanosa	27/3	
		Umm Algoura Ganoop	28	Algaria 30	29/3	
		Umm Algoura Ganoop	29	Almasara	30/3	
		Wadmedani	30	Arkawit	31/3	
		Wadmedani	31	Habeeb Allah	1/4	
		Wadmedani	32	Awoodah	2/4	
		Wadmedani	33	Alkireab	3/4	

*Note - Gezira State: Facility with code 18 – “Arbagi” health centre (rural) in Al Hasahisa district: replaced during the survey with “Maringan Alumal” health centre (urban) in Medani district

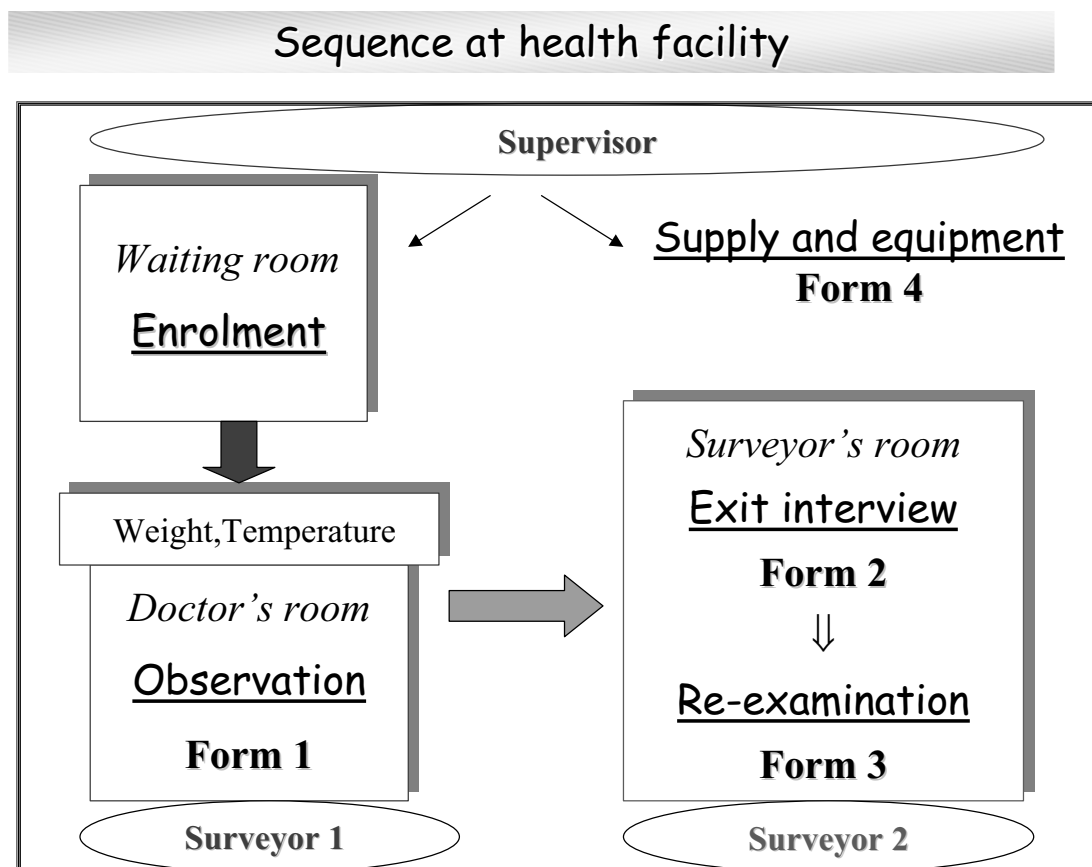
SURVEY TEAMS ITINERARY (continued)

Teams	State	District	Code	Health facility	Date of visit		
Team D Supervisor: Mohammed Sid Ahmed	Khartoum	Alazhari	34	Soba Al Aradi	22/3		
		Albukaa	35	Badr Alkobra	23/3		
		Albukaa	36	Al Mannara	24/3		
		Albukaa	37	Al Sheikh Abuzeid	25/3		
		Alhaj Youssef	38	Al Shahida Nada	26/3		
		Alhaj Youssef	39	Kamboni	27/3		
		S1: Hanan	Alhaj Youssef	40	Khaled Ben Al Walid	29/3	
		S2: Mubarak	Alhaj Youssef	41	Al Razi	30/3	
			Al Jeriffat & UmmDom	42	Halit KoKo	31/3	
			Al Salam	43	Al Bar international	1/4	
	Al Salam	44	Al Kanaes	2/4			
	Al Klaklat	45	Sankaat	3/4			
Team E Supervisor: Khalid	White Nile	Aldoim	46	Alshitib	22/3		
		Aldoim	47	Alarashkol	23/3		
		Kosti	48	Kosti hospital	24/3		
		Kosti	49	Allia*	25/3		
		S1: Wefag	Kosti	50	Altigani mohammed Khir	26/3	
		S2: Hind	Kosti	51	Kadogli	27/3	
			Kosti	52	Alengaz	29/3	
			Gezira	Wadmedani	53	Banat	1/4
				Wasat Albutana	54	Alginead	2/4
			Khartoum	White Nile	55	Abaashar	3/4
Team F Supervisor: Tayfoor	River Nile	Atbara	56	Elsilah Eltibi	22/3		
		Atbara	57	Aldakhla	23/3		
		Atbara	58	Alshargi	24/3		
		Atbara	59	Hai Almatar	25/3		
		S1: Siham	Rifi Al Damer	60	Alaliab Ganoop	26/3	
		S2: Basheer	Rifi Al Damer	61	Almahamia	27/3	
			Rifi Al Damer	62	Alaliab Wasat	29/3	
			Rifi Al Damer	63	Thiat	30/3	
			Omdurman South	64	Daw Haggog	1/4	
			Khartoum	White Nile	65	Tiba alhasanab	2/4
		White Nile	66	Sadra	3/4		

S1 = surveyor 1; S2 = surveyor 2

*Note - White Nile State: Facility with code 49 – “Allia” health centre (urban) in Kosti district: replaced during the survey with “Goze Al Salam” health centre (urban) in the same district

ANNEX 16. SURVEY PROCEDURES FOR DATA COLLECTION AT HEALTH FACILITY



ANNEX 17. LIST OF PARTICIPANTS IN THE NATIONAL FEEDBACK MEETING

Federal Ministry of Health

1	Dr Ibrahim Elsubaie	Health Promotion, FMOH
2	Mrs Nadia Eldirdery	Curative Medicine directorate, FMOH
3	Miss Amani A. Razig	IMCI, PHC, FMOH
4	Ms Amira Mohamed Elmuneer	Nutrition, PHC, FMOH
5	Ms Nima Ibrahim Mohamed	TB Programme, FMOH
6	Dr Hajir Ali El Haj	IMCI, PHC, FMOH
7	Mr Tarig A./Alla	Health education, FMOH
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9	Mrs Hala Mohamed A.Rahim	School Health, health promotion, PHC, FMOH
10	Dr Mustafa Salih	Planning director, FMOH
11	Dr A.All Tuktuk	FMOH
12	Dr El Sadig Eljali	PHC support, FMOH
13	Dr Abubaker Mohamed Toum	EPI, PHC, FMOH
14	Dr Khalid Mohamed Eltahir	Nutrition, PHC, FMOH
15	Dr Yara Badr Eldin Elsheikh	IMCI, PHC, FMOH
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17	Dr Tarig A.Wahid	PHC Support, PHC, FMOH
18	Mrs Shazza Mohamed ElAmin	RH, PHC, FMOH
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22	Dr Ashraf Ibied Mohamed Elhadi	Development and planning, FMOH
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25	Dr Mayadah Imam Ali	Nutrition, PHC, FMOH
26	Dr Rawda Mohamed Ahmed Idris	IMCI, PHC, FMOH
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Federal Ministry of Social Welfare

30	Rabab Hamid	Ministry of Social Welfare
31	Madina Ekrayah	Ministry of Social Welfare
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Federal Ministry of Education

33	Mrs Awatif Mohamed Babiker	Ministry of Education
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Federal Ministry of Communication

34	Marum Hassan Saad	Ministry of Communication
35	Niemat Mohamed Awad	Ministry of Communication
36	Samia Ibrahim Ahmed	Ministry of Communication
37	Mutaaz Mirghani Hussien	Ministry of Communication
38	Ibrahim Ahmed Mohamed Salih	Ministry of Communication

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39	Al-Amin Hassan Al –Amin	Ministry of Agriculture & Forest
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40	Dr Ahmed Karamino	Minister of health - Northern State
41	Dr Peter Adok Aouto	Minister of health – Organization Council for Southern States
42	Dr Younis A.Rahman	Minister of health – Sinnar State
43	Dr Agweir Sabino	Minister of health – Western Kordofan State
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45	Ms Fatima Awad Elkarim	PHC, MOH, Northern State
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50	Dr Ahmed Omer El Fahal	MOH, Khartoum State
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68	Dr Mabou Mustafa	Paediatrician
69	Dr El Sir M. Hashim	Paediatrician
70	Dr Attiyat Mustafa	Paediatrician
71	Dr Zin El Abdeen Karrar	Paediatrician, Faculty of Medicine, Khartoum University
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74	Dr Samira Hamid	PHC, Faculty of Medicine, Gezira University
75	Dr Siddiga A. Rahim Washy	Ahfad University
76	Ms Iqbal Ahmed Ibrahim	Khartoum University
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78	Ms Tahani El – Hussien	Suna Agency
79	Ms Geronika Alex	Ireland Goal Organization
80	Ms Rawia Suliman Eljak	NCCW, Childhood council
81	Ms Manal Elbadri	Sudan Academy for Communication Science
82	Ms Fatima Hamid Ali	Childhood Council , Western Kordufan
83	Dr Ali Naser Eissa	Plan Sudan, Khartoum
84	Mr Fath El Rahman Abu Elgasim	Khartoum T.V. & Broadcast Corporation
85	Mrs Nagia Elwasela Elsadig	SABA
86	Ms Rasha Fadl Alla	SABA
87	Ms Intisar Elhadi Bad Eldin	HTP Association
88	Dr A.Rahman Ali Sanosi	Omdurman Paediatric Hospital
89	Dr Bashir Mukhtar Elwasela	Sudan Medical Association Council , FMOH
90	Dr Mubarak A.Rahamn Mohamed	Khartoum Paediatric Hospital
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List provided by FMOH; names arranged by institution and order of registration

Abbreviation used:

FMOH=Federal Ministry of Health; IMCI=Integrated Management of Childhood Illness; PHC=Primary Health Care; SABA=Sudanese Association for Breastfeeding Action; TB=Tuberculosis control programme; RH=Reproductive health; MOH=Ministry of Health; EMRO=Eastern Mediterranean Regional Office of WHO; HTP=Harmful Traditional Practices

ANNEX 18. MINIMUM SURVEY REQUIREMENT FOR DRUG AVAILABILITY

1. ORS	1 sachet
2. Cotrimoxazole (tablet or suspension—First line antibiotic for pneumonia and dysentery).....	2 bottles
3. Amoxicillin tablets (125mg) or suspension—Second line antibiotic for pneumonia	2 bottles
4. Nalidixic acid tablets (250mg)—Second line antibiotic for dysentery.....	20 tabs
5. Chloroquine tablet (150) or syrup (50 mg or 75 mg base/5ml).....	1 bottle
6. Sulfadoxine+ pyrimethamine tablets (500mg Sulfa + 25 mg Pyrim.).....	1 strip
7. Vitamin A blue (100,000 IU) or red (200,000 IU) capsules with nipple	3 caps
8. Iron syrup or drops 25mg/ml.....	1 bottle
9. Paracetamol syrup 120 mg/5 ml or tablets 100 mg or 500mg	1 bottle
10. Tetracycline eye ointment	1 item
11. Gentian violet (0.5%)	1 bottle
12. Salbutamol solution or metered dose inhaler (MDI).....	1 bottle
13. Salbutamol syrup 2mg/5ml or tablets 2 mg or 4 mg.....	1 bottle
14. Diazepam ampule (10mg/2ml)	1 ampule
14. Chloramphenicol IM	1 ampule
16. Quinine IM	1 ampule
17. Benzyl penicillin IM	1 ampule
18. Procaine penicillin IM	1 ampule
19. Gentamicin IM	1 ampule
20. Sterile water for injection	3 vials
21. Ringer's Lactate Solution (for severe dehydration)	1 drip
22. Saline (for severe dehydration).....	1 drip

ANNEX 19. FINDINGS RELATED TO THE WHO GENERIC LIST OF IMCI PRIORITY INDICATORS (P) AND SUPPLEMENTAL MEASURES (S) AT HEALTH LEVEL

*A validated classification is a classification made by the surveyor after re-examining the child.
The indicators listed below refer to children two months up to five years of age*

CASE MANAGEMENT

❖ ASSESSMENT

- P1. Child correctly checked for three general danger signs:** (**adapted definition*) **21.4%** of children were checked for the three general danger signs.
- Numerator:** Number of sick children aged 2 months up to five years seen who are *correctly* checked for three danger signs (is the child able to drink or breastfeed, does the child vomit everything, has the child had convulsions)
- Denominator:** Number of sick children aged 2 months up to five years seen
- S11. Child not visibly awake checked for lethargy:** Seven (**77.8%**) of the nine children who were not visibly awake (*i.e. who were not playing, smiling, or crying with energy*) were checked for lethargy.
- Numerator:** Number of sick children not visibly awake when assessed by the health provider (who are not playing, smiling, or crying with energy) who are checked for lethargy.
- Denominator:** Number of sick children not visibly awake seen.
- P2. Child checked for the presence of cough, diarrhoea and fever:** **74.7%** of children were checked for the presence of cough, diarrhoea, and fever.
- Numerator:** Number of sick children seen whose caretakers were asked about the presence of cough, diarrhoea, and fever
- Denominator:** Number of sick children seen
- P3. Child weight checked against a growth chart:** **52.5%** of children were weighed the same day and had their weight checked against a recommended growth chart.
- Numerator:** Number of sick children seen who have been weighed the same day and have their weight checked against a recommended growth chart
- Denominator:** Number of sick children seen
- P4. Child vaccination status checked:** **59.6%** of children had their vaccination status checked.
- Numerator:** Number of sick children seen who have their vaccination card or vaccination history checked.
- Denominator:** Number of sick children seen

P5. WHO Index of integrated assessment: *mean of 5.9 assessment tasks performed out of 10 tasks per sick child assessed*

Definition: Arithmetic mean of 10 assessment tasks performed for each child (checked for three danger signs, checked for the three main symptoms, child weighed and weight checked against a growth chart, checked for palmar pallor, and checked for vaccination status).

Calculation:

- checked for “ability to drink or breastfeed”, “vomits everything”, and “convulsions”: 1 point each
- checked for presence of “cough & fast/difficult breathing”, “diarrhoea”, and “fever”: 1 point each
- child weighed the same day and child’s weight used against a recommended growth chart: 1 point each
- child checked for palmar pallor: 1 point
- child vaccination status checked (card or history): 1 point

P6. Child under two years of age assessed for feeding practices: *Caretakers of 27.5% of children under two years of age were asked about breastfeeding, complementary foods, and feeding practices during this episode of illness.*

Numerator: Number of sick children under two years of age whose caretakers are asked if they breastfeed this child, whether the child takes any other food or fluids other than breastmilk, and if during this illness the child’s feeding has changed.

Denominator: Number of sick children under two years of age seen

S3. Child with very low weight and/or anaemia assessed for feeding problems: *16.9% of sick children with very low weight and/or anaemia were assessed for feeding problems.*

Numerator: Number of sick children with a validated classification of very low weight and no severe classification whose caretaker are asked if the mother breastfeeds the child, if the child takes food or fluids other than breastmilk, and if during this illness the child’s feeding has changed.

Denominator: Number of sick children with a validated classification of very low weight and/or anaemia

S1. Child checked for other problems: *48.1% of children brought to the facility were checked for “other problems”.*

Numerator: Number of children brought to the facility for one or more of the main symptoms (cough/fast/difficult breathing, diarrhoea, fever) or for “ear problems” and with an “other problem”, whose caretaker were asked to describe this other problem.

Denominator: Number of children brought to the facility for one or more of the main symptoms (cough/fast/difficult breathing, diarrhoea, fever) or for “ear problems”.

❖ CLASSIFICATION

S4. Child with very low weight correctly classified: *34.8% of children with very low weight were correctly classified.*

Numerator: Number of children with a validated classification of very low weight who are classified as very low weight.

Denominator: Number of children with a validated classification of very low weight

- S5. Child correctly classified: (*adapted definition) 46.0% of classifications given by the health provider for important conditions matched the classifications# given by an IMCI-trained surveyor for the same conditions (validated classification)**

Numerator: Number of validated classifications# for important conditions (very severe disease or severe pneumonia or pneumonia, and/or severe dehydration or some dehydration, and/or severe persistent diarrhoea or persistent diarrhoea, and/or dysentery, and/or mastoiditis or acute or chronic ear infection, and/or very severe febrile disease or malaria, and/or measles with or without eye and mouth complications, and/or severe malnutrition or very low weight, and/or severe anaemia or anaemia) that match the classifications given by the health provider.

Denominator: Number of classifications# for important conditions

'Red-coded' and 'yellow-coded' classifications, including also the 'green-coded' classification of measles.

❖ TREATMENT AND ADVICE

- S12. Child with severe illness correctly treated: (*adapted definition) None of the 13 children with severe classifications needing urgent referral and whose caretakers accepted referral received correct pre-referral treatment and referral.**

Numerator: Number of children with validated classifications of severe disease needing urgent referral (very severe disease or severe pneumonia, severe dehydration, severe persistent diarrhoea, very severe febrile disease, severe complicated measles, mastoiditis, severe malnutrition or severe anaemia) who receive correct pre-referral dose of the recommended antibiotic and/or antimalarial and/or ORS and/or vitamin A and referral

Denominator: Number of children with validated classifications of severe disease needing urgent referral

- P7. Child needing an oral antibiotic and/or antimalarial prescribed the drug correctly: 29.5% of children who did not need urgent referral and who needed an oral antibiotic and/or an antimalarial were prescribed the drug correctly.**

Numerator: Number of sick children with validated classifications, who do not need urgent referral, who need an oral antibiotic and/or antimalarial (pneumonia, and/or dysentery, and/or malaria, and/or acute ear infection) who are correctly prescribed them, including dose, number of times per day, and number of days

Denominator: Number of sick children with validated classifications who do not need urgent referral, who need an oral antibiotic and/or an antimalarial.

- S6. Child with pneumonia correctly treated: 33.3% of children with pneumonia were prescribed antibiotic treatment correctly.**

Numerator: Number of children with a validated classification of pneumonia and no severe classification who are given/prescribed treatment with an appropriate antibiotic (including correct amount, times per day, and number of days)

Denominator: Number of children with a validated classification of pneumonia and no severe classification

- S7. Child with dehydration correctly treated: 22.2% of children with diarrhoea and some dehydration received ORS at the facility.**
- Numerator:** Number of children with a validated classification of diarrhoea with some dehydration and no severe classification who receive ORS at the facility.
- Denominator:** Number of children with a validated classification of diarrhoea with some dehydration and no severe classification
- S7. Child with malaria correctly treated: 27.4% of children with malaria who are prescribed antimalarial treatment correctly.**
- Numerator:** Number of children with a validated classification of malaria and no severe classification who are given/prescribed treatment with an appropriate antimalarial (including correct amount, times per day, and number of days)
- Denominator:** Number of children with a validated classification of malaria and no severe classification
- S9. Child with anaemia correctly treated: (*adapted definition) 25.5% of children with anaemia were prescribed iron treatment.**
- Numerator:** Number of children with a validated classification of anaemia and no severe classification who are given/prescribed iron treatment.
- Denominator:** Number of children with a validated classification of anaemia and no severe classification
- S10. Child receives first dose of oral treatment at facility: 9.1% of children, who did not need urgent referral, who needed an oral antibiotic and/ or antimalarial received the first dose(s) at the facility.**
- Numerator:** Number of children with validated classifications, who do not need urgent referral, who need an oral antibiotic and/or antimalarial (pneumonia, dysentery, malaria, acute ear infection) who receive the first dose(s) at the health facility.
- Denominator:** Number of children with validated classifications, who do not need urgent referral, who need an oral antibiotic and/or antimalarial
- P8. Child not needing antibiotic leaves the facility without antibiotic: 62.6% of children who did not need urgent referral and who did not need an antibiotic left the facility without having received or having been prescribed antibiotics.**
- Numerator:** Number of children with validated classification who do not need urgent referral and do not need an antibiotic for one or more IMCI classifications or other problems (no pneumonia: cough or cold, diarrhoea with or without dehydration, persistent diarrhoea, malaria, fever-malaria unlikely, measles, chronic ear infection, no ear infection, anaemia / very low weight, and/or no anaemia / not very low weight, and/or other problems) who leave the facility without receiving antibiotics or a prescription for antibiotics for those validated classifications.
- Denominator:** Number of children seen who do not need urgent referral and who do not need an antibiotic for one or more IMCI classifications or other problems

- S13. Child prescribed oral medication whose caretaker is advised on how to administer the treatment: 27.9% of children not needing urgent referral and who received or were prescribed an antibiotic and/or an antimalarial and/or ORS, who received at least two treatment counselling messages.**

Numerator: Number of children with validated classifications not needing urgent referral and who received or were prescribed an antibiotic and/or an antimalarial and/or ORS, who receive at least two treatment counselling messages (explanation on how to administer treatment, demonstration on how to administer treatment, open-ended question to check caretaker understanding).

Denominator: Number of children with validated classifications not needing urgent referral, who received or were prescribed an antibiotic and/or an antimalarial and/or ORS

- P10. Child needing vaccinations leaves facility with all needed vaccinations: (*adapted definition) 48.6% of children needing vaccinations (based on vaccination card or history) left the health facility with all needed vaccinations or advice to come back for vaccination on the scheduled vaccination day.**

Numerator: Number of children who need vaccinations (based on vaccination card or history) who leave the health facility with all needed vaccinations or advice to come back on the scheduled vaccination day

Denominator: Number of children seen who need vaccinations (based on vaccination card or history)

❖ ADVICE ON HOME CARE

- P9. Caretaker of sick child is advised to give extra fluids and continue feeding: the caretakers of 32.3% of sick children were advised to give extra fluid and continue feeding.**

Numerator: Number of sick children with validated classifications, who do not need urgent referral, whose caretakers are advised to give extra fluid and continue feeding

Denominator: Number of sick children with validated classifications, who do not need urgent referral

- S14. Sick child whose caretaker is advised on when to return immediately: the caretakers of 19.7% of sick children received at least three counselling messages on when to return immediately.**

Numerator: Number of sick children, who do not need urgent referral, whose caretakers received at least three of the following counselling messages on when to return immediately to a health facility: if the child is not able to drink or breastfeed, becomes sicker, develops a fever, has difficult breathing, has fast breathing, has blood in the stool, or is drinking poorly.

Denominator: Number of sick children seen who do not need urgent referral

- S15. Child less than two years old or with very low weight or anaemia whose caretaker received correct age-appropriate feeding counselling: (*adapted definition) The caretakers of 23.7% of children less than two years old or with very low weight and/or anaemia were provided with age-appropriate feeding messages[#].**

Numerator: Number of children less than two years old or with a validated classification of very low weight and/or anaemia, who do not need urgent referral, whose caretakers are provided with age-appropriate feeding messages[#].

Denominator: Number of children less than two years old or with a validated classification of very low weight and/or anaemia, who do not need urgent referral.

[#] For definition of age-appropriate feeding advice used in this survey see note under Table A32.

- S16. Child leaving the facility whose caretaker was given or shown a mother's card:** *The caretakers of 34.0% of children, who did not need urgent referral, were shown a mother's counselling card by the health provider.*

Numerator: Number of children, who do not need urgent referral, whose caretakers have been shown a mother's card by the health provider during the visit.

Denominator: Number of sick children seen who do not need urgent referral.

❖ CARETAKER KNOWLEDGE ABOUT ORAL TREATMENT

- P11. Caretaker of child who is prescribed ORS, and/or an oral antibiotic and/or an oral antimalarial knows how to give the treatment:** *caretakers of 24.3% of children prescribed ORS, and/or an oral antibiotic and/or an oral antimalarial could describe correctly how to give the treatment.*

Numerator: Number of sick children prescribed ORS, and/or an oral antibiotic and/or oral antimalarial whose caretakers can describe how to give the correct treatment including the amount, number of times per day, and number of days

Denominator: Number of sick children prescribed ORS and/or an antibiotic and/or an antimalarial

❖ REFERRAL

- P12. Child needing referral is referred:** *42.9% of children needing referral were referred by the health providers.*

Numerator: Number of sick children with a validated classification of severe disease needing referral (one or more danger signs, severe pneumonia or very severe disease, and/or severe dehydration with any other severe classification, and/or severe persistent diarrhoea, and/or very severe febrile disease, and/or severe complicated measles, and/or mastoiditis, and/or severe malnutrition or severe anaemia) who were referred by the health providers

Denominator: Number of sick children with a validated classification of severe disease needing referral

HEALTH SYSTEM SUPPORT

- P13. Health facility received at least one supervisory visit that included observation of case management during the previous six months:** *10.6% of health facilities received at least one visit of routine supervision that included the observation of case management during the previous six months.*

Numerator: Number of health facilities that received at least one visit of routine supervision (excluding the follow-up visits to health providers shortly after their training that are part of IMCI training) that included the observation of case management during the previous six months

Denominator: Number of health facilities surveyed

- P14. Index of availability of essential oral treatments:** *a mean of 5.0 out of 6 essential oral drugs for home treatment of sick children were present on the day of visit.*

Definition: Arithmetic mean of essential oral drugs recommended for home treatment of diarrhoea, dysentery, pneumonia, fever, malaria and anaemia available at each facility the day of visit.

Calculation:

- ORS, 1 point
- recommended antibiotic for pneumonia and dysentery, 1 point
- recommended antimalarial, 1 point
- vitamin A, 1 point
- iron, 1 point
- paracetamol, 1 point

- P15. Index of availability of injectable drugs for pre-referral treatment:** *a mean of 2.6 out of 4 injectable antibiotics and antimalarials for pre-referral treatment of sick children and young infants were available in each facility on the day of visit.*

Definition: Arithmetic mean of recommended injectable pre-referral treatment for children and young infant with severe classification needing immediate referral.

Calculation:

- chloramphenicol, 1 point
- quinine, 1 point
- gentamicin, 1 point
- benzylpenicillin, 1 point

- P16. Health facility has the equipment and supplies to support full vaccination services:** *(*adapted definition) 35.8% health facilities providing immunisation services had the equipment and supplies to provide full vaccination services on the day of survey.*

Numerator: Number of health facilities providing immunisation that have the equipment and supplies to support full vaccination services (functioning refrigerator or cold chain, and functioning sterilizer and needles/syringes or disposable needles/syringes) available on the day of survey

Denominator: Number of health facilities surveyed

- S17. Health facility has essential equipment and materials:** *31.8% of health facilities had all needed equipment and materials available on the day of the survey.*

Numerator: Number of health facilities with all needed equipment and materials (accessible and working weighing scales for adults and children, timing device, source of clean water, spoons, cups and jugs to mix and administer ORS) available on the day of the survey

Denominator: Number of health facilities surveyed

- S18. Health facility has IMCI chart booklet and mothers' counselling cards[#]:** *77.3 % of health facilities had IMCI chart booklet available for use by health providers and mothers' counselling cards for use during mothers' counselling on the day of the survey.*

Numerator: Number of health facilities with at least one legible IMCI chart booklet available for use by health providers managing children and at least one mother counselling card for use during counseling of caretakers of sick children.

Denominator: Number of health facilities surveyed

[#]Counselling card given or shown to the caretaker during counselling and that includes at least country-appropriate and age-specific feeding advices and the danger signs when to bring the child immediately back to a health facility.

- P18. Health facilities with at least 60% of providers managing children trained in IMCI:** *(*adapted definition) 60.7% of first-level health facilities had at least 60% of doctors managing children trained in IMCI.*

Numerator: Number of non-hospital health facilities with at least 60% of doctors managing children who are trained in IMCI

Denominator: Number of non-hospital health facilities surveyed

ANNEX 20. FINDINGS: TABLES AND GRAPHS

REPORT OF BREATHING PROBLEMS AND PNEUMONIA

Table A1. Sensitivity and specificity of caretakers' report of breathing problems or 'pneumonia' for 64 children with "Very severe disease"/"Severe pneumonia" or "Pneumonia" (as classified by the surveyor) among 227[#] children with an acute respiratory condition

Symptom reported by caretakers	Classification of cases by surveyor	
	Cases with pneumonia or Serious illness n = 64	Cases with only cough or cold (no pneumonia or serious illness) n = 163
Breathing problem/pneumonia reported	Sensitivity 12 (18.8%) ¹	25 (15.3%)
Only cough and no breathing problem/pneumonia reported	52 (81.3%)	Specificity 138 (84.7%) ²
<i>Accuracy</i> ³ of symptom "breathing problem"/"pneumonia" in detecting pneumonia	(12+138)/(64+163) = 66.1%	

¹*Sensitivity* of symptom "breathing problem" or "pneumonia", as reported by caretakers, for pneumonia or serious illness in this selected population of sick children taken to health facilities [true positives / (true positives + false negatives)]

²*Specificity* [true negatives / (true negatives + false positives)]

³*Accuracy* [(true positives + true negatives) / all]

- *Likelihood ratio*: 1.2 [sensitivity / (1 - specificity)]

Table A2. Predictive values for pneumonia or severe illness of caretakers' report of fast or difficult breathing or 'pneumonia' (based on surveyor classification of 227[#] ARI cases)

Severity of illness by surveyor	Symptoms or condition reported by caretaker	
	Breathing problem or 'pneumonia' ³ n = 37	Only cough n = 190
Severe illness or pneumonia ¹	Positive predictive value 12 (32.4%) ⁴	52 (27.4%)
No pneumonia ²	25 (67.6%)	Negative predictive value 138 (72.6%) ⁵

¹"Very severe disease", "severe pneumonia" or "pneumonia"

²Cough or cold or other non-serious ARI

³Children in whom a breathing problem or 'pneumonia' was reported by the caretaker

⁴*Positive predictive value* [true positives / (true positives + false positives)]

⁵*Negative predictive value* [true negatives / (true negatives + false negatives)]

[#] One ARI case excluded from this analysis as information was missing on breathing problem.

QUALITY OF CLINICAL CARE: ASSESSMENT

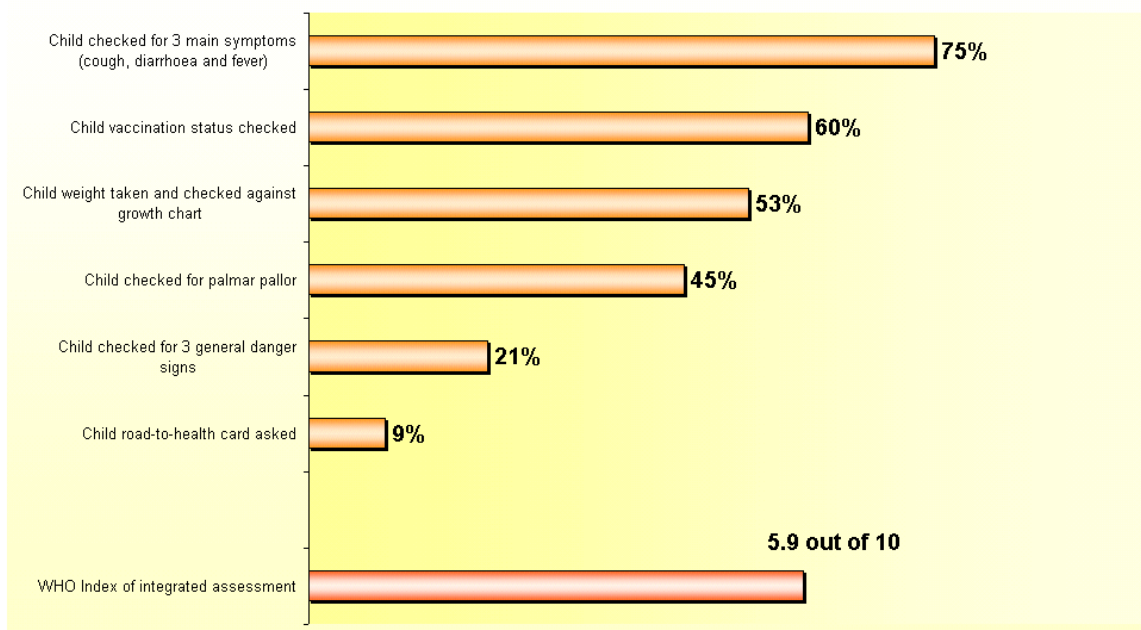
Table A3. **Integrated assessment: proportion of sick children in whom selected assessment tasks were performed by the health providers** (WHO “priority indicators” shown in italics)

ASSESSMENT TASKS	CASES (%) IN WHOM DONE n = 364
○ <i>Child (correctly) checked for three general danger signs¹</i> (ability to drink, vomiting everything, convulsions)	78 (21.4%)
○ <i>Child checked for the presence of three main symptoms: cough, diarrhoea and fever</i>	272 (74.7%)
○ Child checked for the presence of an ear problem	224 (61.5%)
○ Child (correctly) checked for palmar pallor	163 (44.8%)
○ Child (correctly) checked for visible wasting	89 (24.5%)
○ Child (correctly) checked for the presence of oedema of both feet	117 (32.1%)
○ Child temperature taken (by thermometer)	173 (47.5%)
○ Child weight taken and recorded	291 (79.9%)
○ <i>Child weight checked against a growth chart</i>	191 (52.5%)
○ Child road-to-health card asked	33 (9.1%)
○ <i>Child vaccination status checked</i>	217 (59.6%)
○ Child checked for the presence of other problems	175 (48.1%)
● WHO INDEX OF INTEGRATED ASSESSMENT (mean of 10 assessment tasks performed) [#]	5.9
● ADAPTED INDEX OF INTEGRATED ASSESSMENT - SUDAN (mean of 14 assessment tasks performed) [#]	7.6

¹ The three signs were checked correctly with the following frequency: Ability to drink in 210 (57.6%) cases, child vomiting everything in 186 (51.1%) and convulsions in relation to this episode of illness in 105 (28.8%)

[#] Index calculated as the arithmetic mean of the following 10 assessment tasks: child checked for three danger signs (1,2,3), and the three main symptoms (4,5,6); child weighed and weight recorded (7) and checked against a growth chart (8); child checked for palmar pallor (9) and health card asked to check for vaccination status (10). The Sudan index adds the following 4 tasks: child’s temperature checked with thermometer (11) and child checked for the presence of ear problem (12), wasting (13), and oedema of both feet (14).

INTEGRATED ASSESSMENT (1) : MAIN TASKS AND INDEX



INTEGRATED ASSESSMENT (2): OTHER TASKS

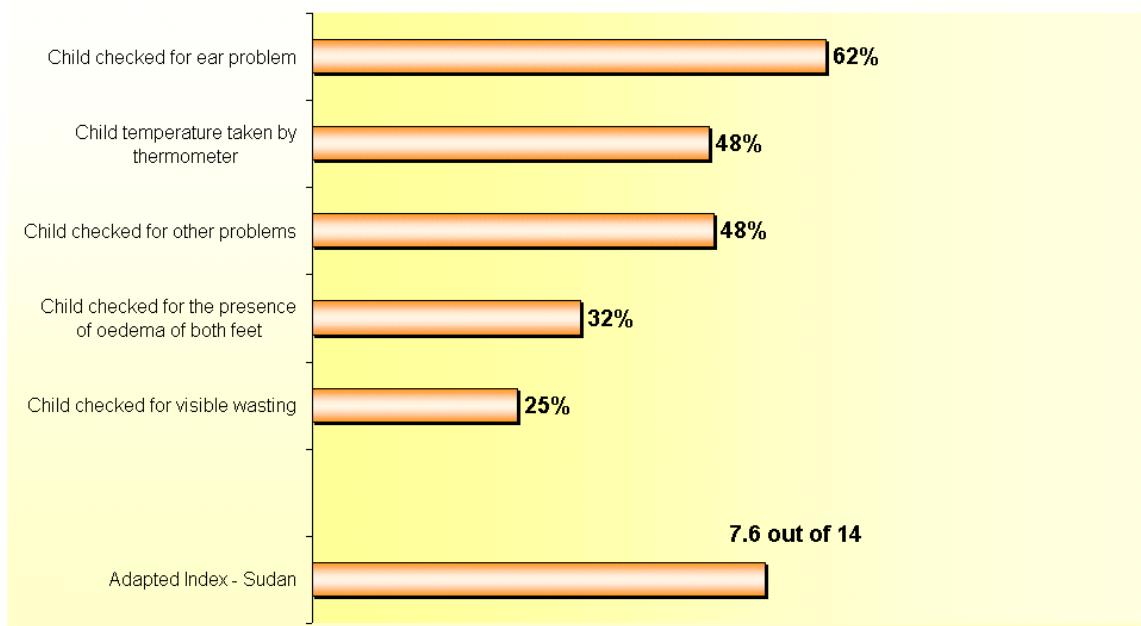


Table A4. Assessment of feeding practices in all children under two years old or in older children with anaemia and/or very low weight

TARGET GROUPS FOR ASSESSMENT OF FEEDING PRACTICES	FEEDING PRACTICES ASSESSED
○ Children under 2 years old - not referred by provider - assessed for feeding practices: breastfeeding, complementary foods and changes in feeding during this episode of illness (n = 189) ^{1,2} :	52/189 (27.5%)
> Children under 2 years old - not referred by provider - with very low weight and/or anaemia assessed for feeding practices (n = 29)	9/29 (31.0%)
> Children under 2 years old - not referred by provider - without very low weight and/or anaemia assessed for feeding practices (n = 160)	43/160 (26.9%)
○ Children 2 years old or older - not referred by provider - with very low weight and/or anaemia assessed for feeding practices (n = 36) ³	2/36 (5.6%)
● IMCI target group for feeding assessment: <i>Children not referred by provider who are under 2 years old or older children with very low weight and/or anaemia assessed for feeding practices</i> (n = 225) ³	54/225 (24.0%)

¹ Nine children less than 2 years old referred by the provider are excluded from this denominator

² Of the caretakers of the 189 children not referred by the provider, 127 (67.2%) were asked about breastfeeding, 108 (57.1%) were asked about complementary foods and 57 (30.2%) were asked whether feeding practices had changed during the illness

³ Same definition as above used for children with very low weight or anaemia less than 2 years old; for older children, feeding practices were considered as assessed if caretakers were asked about complementary foods and changes in feeding practices during this episode of illness. 78% of children two years old or older with anaemia or very low weight had been misclassified by the provider as cases with no anaemia or not very low weight-for-age.

ASSESSMENT OF FEEDING PRACTICES: CHILDREN LESS THAN 2 YEARS OLD (N = 189) AND OLDER CHILDREN WITH VERY LOW WEIGHT AND/OR ANAEMIA (N = 36)

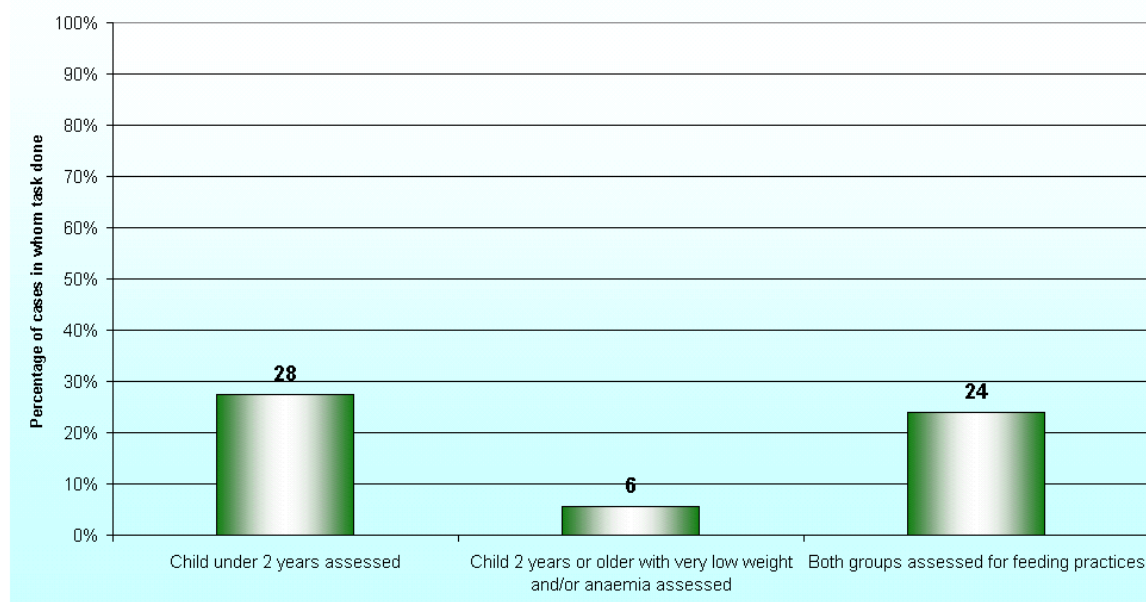


Table A5. Use of correct methodology for selected assessment tasks by the observed providers

TASK	CHILDREN IN WHOM TASK TO BE PERFORMED	CHILDREN IN WHOM TASK PERFORMED	CASES IN WHOM TASK <CORRECTLY> PERFORMED
Child weighed ¹	n = 364	300 (82.4%)	194 (53.3%)
Child's weight recorded		291 (79.9%)	
Child weighed and weight recorded		291 (79.9%)	
Child's temperature taken ²	n = 364	173 (47.5%)	50 (13.7%)
Children with cough or difficult breathing:	n = 228 ⁴		
> Respiratory rate counted ³		173 (75.9%)	130 (57.0%)
Children with diarrhoea:	n = 109 ⁶		
> Duration of episode asked		83 (76.1%)	
> Presence of blood in stools asked		62 (56.9%)	
> Something to drink offered		55 (50.5%)	
> Abdomen skin pinched ⁵		75 (68.8%)	36 (33.0%)
Children with ear problem:	n = 31 ⁷		
> a. Looks at both ears		11 (35.5%)	-
> b. Looks for tender swelling behind ear		5 (16.1%)	-
> Looks for both		5 (16.1%)	-
Children with fever:	n = 207		
> Checks for measles within the last 3 months		87 (42.0%)	-

¹ Weight considered as taken correctly if child weighed undressed or lightly clothed and using scale appropriate for child (as defined during surveyor training)

² Temperature taken correctly if thermometer shaken first, then correctly placed under child's axilla and kept in place for at least 2 minutes. A thermometer was available at the facility in 108 (56.5%) of the 191 children in whom the temperature was not taken.

³ Respiratory rate considered as counted correctly if the child was calm, the count was for a full minute and the child's chest was undressed

⁴ Of the 18 cases in whom the respiratory rate was not counted by the provider: 12 caretakers told the provider that the child had no cough, while in 6 the provider did not check for the presence of cough

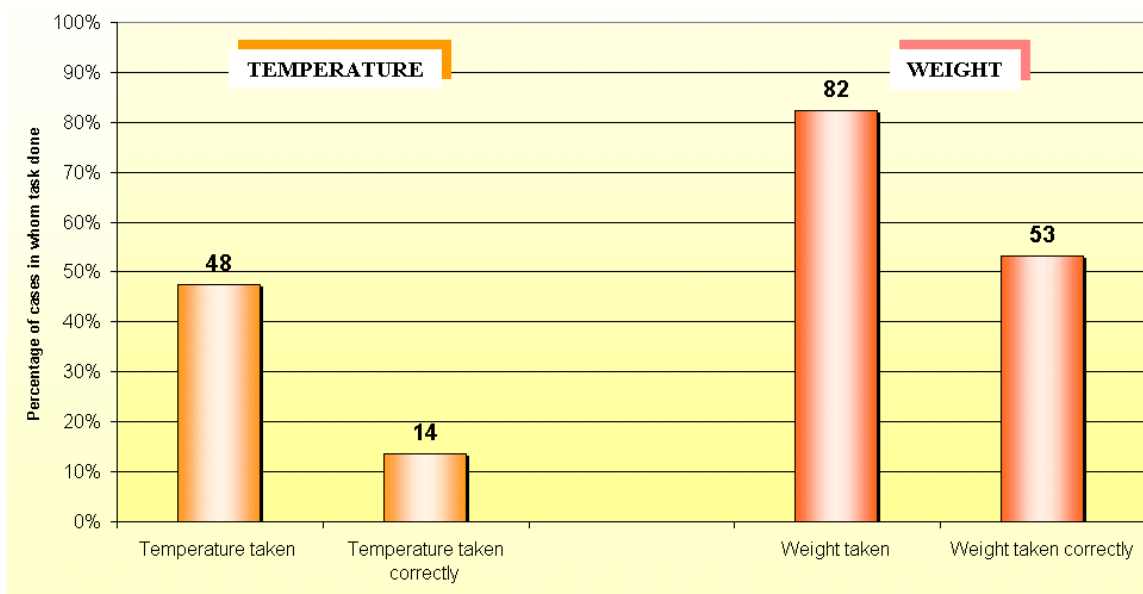
⁵ Skin pinched correctly if abdomen skin pinched halfway between the umbilicus and the side of abdomen, skin held firmly for one second between the thumb and the 1st finger in line up and down the child's body

⁶ The caretakers of 7 of the 109 children with diarrhoea - identified by the surveyor - had told the provider that the child had no diarrhoea; in other 3 cases, the provider did not check for the presence of diarrhoea

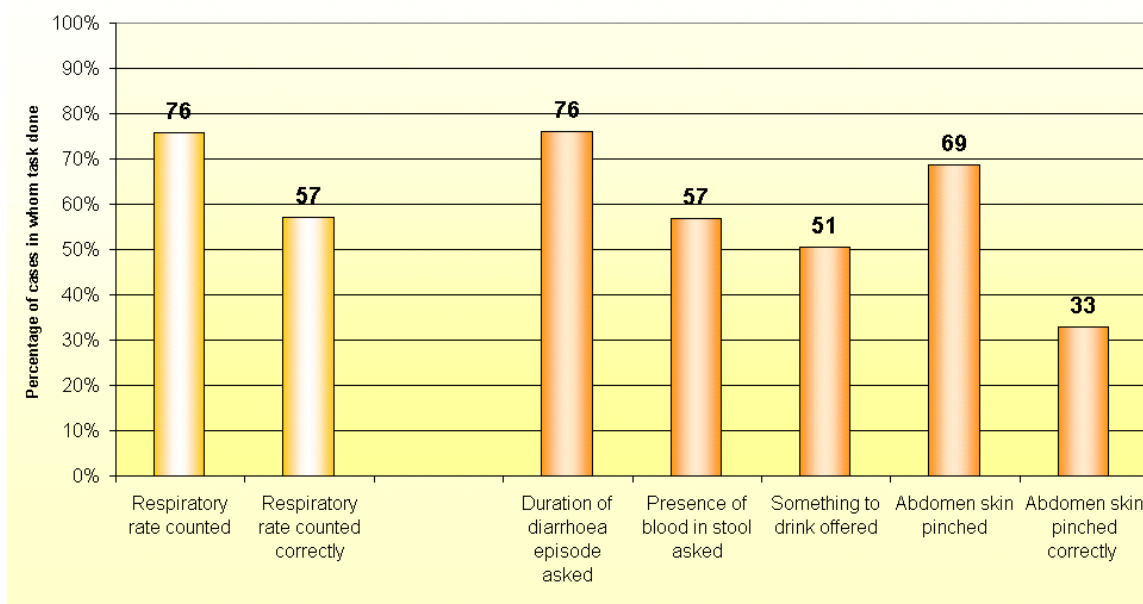
⁷ In 7 cases in whom the ear problem was not assessed: 3 caretakers told the provider that the child had no ear problem, while in 4 cases the provider did not check for the presence of the ear problem

⁸ In 14 of the 120 cases with fever in whom measles was not checked: 5 caretakers told the provider that the child had no fever, in 8 cases the provider did not ask and in 1 case the information was missing

**PERFORMANCE OF SELECTED TASKS:
TAKING TEMPERATURE AND WEIGHT**



**PERFORMANCE OF SELECTED ASSESSMENT TASKS:
ARI (N = 228) AND DIARRHOEA (N = 109)**



**PERFORMANCE OF SELECTED ASSESSMENT TASKS:
EAR PROBLEM (N = 31) AND FEVER (N = 207)**

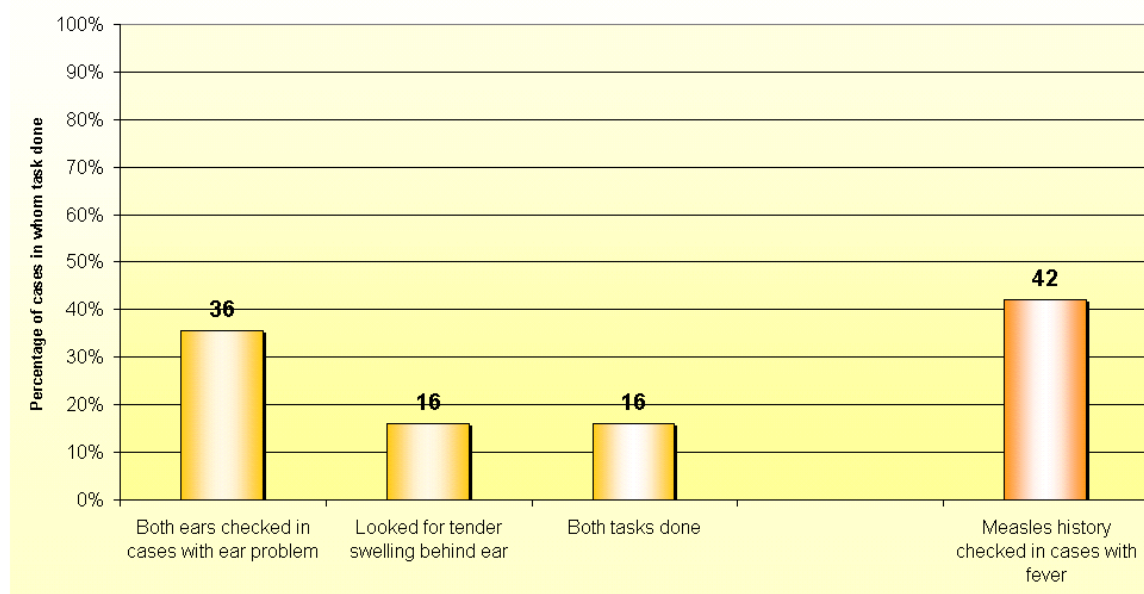


Table A6. Counting the respiratory rate in children with cough or difficult breathing: accurate counts and implications for classification of non-severe pneumonia

RESPIRATORY RATE COUNTS AND THEIR IMPLICATIONS	
> Children in whom the respiratory rate was counted by both surveyor and provider	n = 172 ¹
• Respiratory rate counts considered as:	
> Reliable ¹	70 (40.7%)
> Unreliable ¹	102 (59.3%)
Differences in counts of 10 or more breaths per minute (range from 10 to 46)	33 (19.2%)
• “Pneumonia” cases that would have been incorrectly classified as “no pneumonia” by the provider based on his/her “unreliable” count (“ <u>under-classification</u> ”):	11/64 ³ (17.2%)
- In infants (less than 12 months old)	6
- In older children	5
• “No pneumonia” cases that would have been incorrectly classified as “pneumonia” by the provider based on his/her unreliable count (“ <u>over-classification</u> ”):	35/164 ⁴ (21.3%)
- In infants (less than 12 months old)	12
- In older children	23

¹ Exclusively for the purpose of this analysis, “reliable” count was considered each count for which the difference in count between the provider and the surveyor for the same child was not greater than 5 breaths per minute. This arbitrary level was based on experience from previous health facility surveys on acute respiratory infections. The difference in counting the respiratory rate between health providers and surveyors was in the range between -34 (i.e., the provider counted 34 breaths per minute less than the surveyor for the same child) and +46 (i.e., the provider counted 46 breaths per minute more than the surveyor for the same child).

² One child who was crying at the time the rate was counted by the provider and for whom the provider’s count was not available was removed from this analysis

³ The denominator is the total number of “pneumonia” cases

⁴ The denominator is the total number of cases with “no pneumonia”

QUALITY OF CLINICAL CARE: CLASSIFICATION

All 3 children found to have **danger signs** by the surveyor were missed by the provider

Table A7. Agreement of provider's case classifications with surveyor's classifications on identified conditions requiring urgent referral, treatment or special counselling (mostly "red" and "yellow" rows of the IMCI chart, and measles).

CONDITION	IDENTIFIED BY		AGREEMENT (%)	UNDERCLASSIFIED (OUT OF MISCLASSIFIED)
	Provider	Surveyor		
<i>Very severe disease/severe pneumonia or pneumonia</i>	36	64	56%	26/28
<i>Diarrhoea with severe or some dehydration</i>	4	11	36%	7/7
<i>Severe and non-severe persistent diarrhoea</i>	3	10	33%	4/7
<i>Dysentery</i>	4	8	50%	4/4
<i>Very severe febrile disease or malaria</i>	47	65	72%	18/18
<i>Measles (with or without complications)</i>	0	4	0%	4/4
<i>Mastoiditis or acute or chronic ear infection</i>	10	27	37%	15/17
<i>Severe malnutrition or very low weight</i>	10	26	38%	16/16
<i>Severe anaemia or anaemia</i>	13	61	21%	47/48
TOTAL	127	276	46.0%	141/149 (94.6%)

The denominator is the total number of "IMCI conditions" that were identified in 189 (51.9%) of the 364 children examined, (i.e. 276 conditions). A sick child often had more than one condition.

AGREEMENT OF PROVIDER'S CLASSIFICATIONS WITH SURVEYOR'S CLASSIFICATIONS ON MAIN CONDITIONS

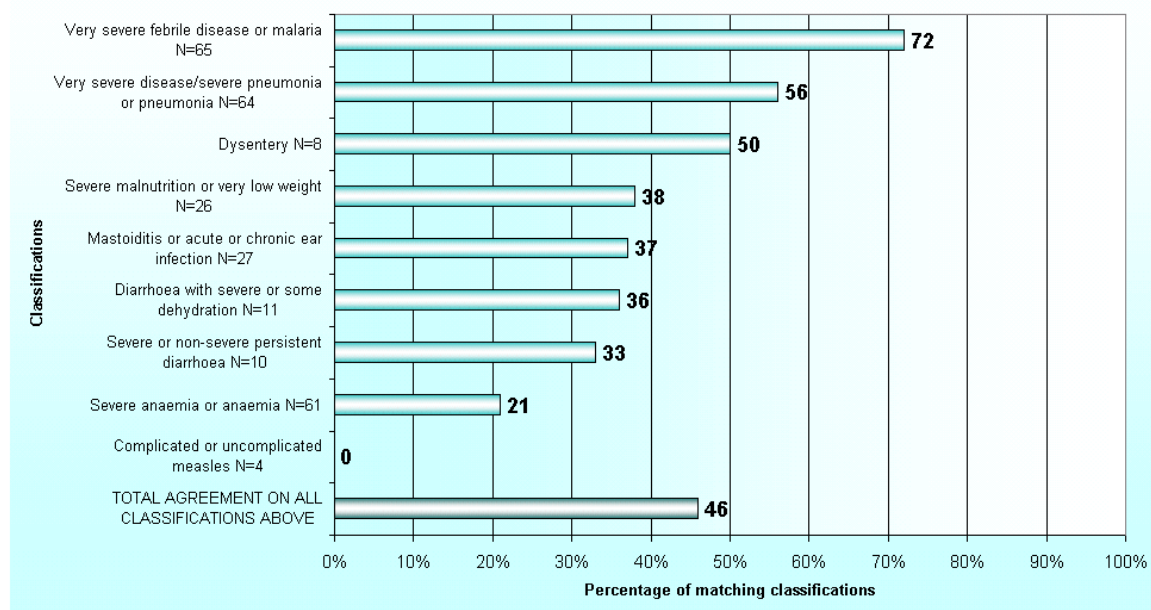


Table A8. Agreement of provider's case classification with surveyor's classification for children with cough or difficult breathing (n = 228)

SURVEYOR	HEALTH PROVIDER			TOTAL n = 228	
	VSD ¹ /Severe Pneumonia	Pneumonia	No Pneumonia		
				Cough not assessed or classified	
VSD ¹ /Severe Pneumonia	5 (50%)	2	2	1	10
Pneumonia	2	31 (57%)	12	9	54
No Pneumonia	3	34	99 (60%)	28	164

Agreement between health provider's and surveyor's classifications for cases with cough or difficult breathing: 135/228 (59%)

- Agreement on cases with pneumonia or severe illness: 36/64 (56%)
- 26 of the 28 cases with severe pneumonia and pneumonia misclassified were underclassified

¹ VSD: Very severe disease

All the 3 cases with **wheezing** – according to the surveyor – were missed by the provider

Shaded areas above show agreement

Table A9. Agreement of provider's case classification with surveyor's classification for children with diarrhoea (n = 109)

SURVEYOR	HEALTH PROVIDER			TOTAL n = 109	
	Severe dehydration	Some dehydration	No dehydration		
				Diarrhoea not assessed or classified	Pattern of cases
Severe dehydration	0 (0%)	-	-	2	2
Some dehydration	-	4 (44%)	3	2	9
No dehydration	-	8	55 (56%)	35	98

Agreement between health provider's and surveyor's classifications for cases with diarrhoea: 59/109 (54%)

- Agreement on cases with severe or some dehydration: 4/11 (36%).
- 7 of the 11 cases with dehydration were underclassified

Shaded areas above show agreement

Table A10. Agreement of provider’s case classification with surveyor’s classification for children with persistent diarrhoea (n = 10)

SURVEYOR	HEALTH PROVIDER			TOTAL n = 10 Pattern of cases for persistent diarrhoea
	<i>Severe persistent diarrhoea</i>	<i>Persistent diarrhoea</i>	No classification given for persistent diarrhoea	
<i>Severe persistent diarrhoea</i>	-	-	-	0
<i>Persistent diarrhoea</i>	3	3 (30%)	4	10

- Agreement between health provider’s and surveyor’s classifications on cases with *persistent diarrhoea*: 3/10 (33%)
- 4 of the 10 cases with persistent diarrhoea were underclassified.

Shaded areas above show agreement

Table A11. Agreement of provider’s case classification with surveyor’s classification for children with dysentery (n = 8)

SURVEYOR	HEALTH PROVIDER		TOTAL n = 8
	<i>Dysentery</i>	No classification given for dysentery	
<i>Dysentery</i>	4 (50%)	4	8

- Agreement between health provider’s and surveyor’s classifications for cases with dysentery: 4/8 (50%)
- 4 of the 8 cases with dysentery were underclassified

Table A12. Agreement of provider's case classification with surveyor's classification for children with fever (n = 207)

SURVEYOR	HEALTH PROVIDER				TOTAL n = 207
	<i>Very severe febrile disease</i>	<i>Malaria</i>	<i>Fever – Malaria unlikely</i>	Fever not assessed or classified	
<i>Very severe febrile disease</i>	0 (0%)	1	0	2	3
<i>Malaria</i>	-	47 (76%)	5	10	62
<i>Fever – Malaria unlikely</i>	-	40	56 (39%)	46	142

Agreement between health provider's and surveyor's classifications for cases with fever: 47/207 (23%)

- Agreement on cases with very severe febrile disease or malaria: 47/65 (72%).
- All the 18 cases with very severe febrile disease or malaria misclassified were underclassified
- **Measles:** All 4 cases with measles were underclassified by the provider: 1 case with measles and eye and mouth complications was classified as non-complicated measles by the provider; the other three non-complicated measles cases were given no classification for measles by the provider

Shaded areas above show agreement

Table A13. Agreement of provider's case classification with surveyor's classification for children with an ear problem (n = 31)

SURVEYOR	HEALTH PROVIDER				TOTAL n = 31
	<i>Acute ear infection</i>	<i>Chronic ear infection</i>	<i>No ear infection</i>	Ear problem not assessed or classified	
<i>Acute ear infection</i>	9 (39%)	1	3	10	23
<i>Chronic ear infection</i>	2	1 (25%)	0	1	4
<i>No ear infection</i>	1	0	0 (0%)	3	4

Agreement between health provider's and surveyor's classifications for cases with ear problem: 10/31 (32%)

- Agreement on cases with acute or chronic ear infection: 10/27 (37%).
- 15 of the 17 cases with acute or chronic ear infection misclassified were underclassified

¹ In 3 of the 17 cases misclassified the caretaker told the provider that the child had no ear problem; in 4 other cases the provider did not check for ear problem

Shaded areas above show agreement

Table A14. **Agreement of provider’s case classification with surveyor’s classification on nutritional status** (n = 26)

SURVEYOR	HEALTH PROVIDER			Nutritional status not classified	TOTAL n = 26
	Severe malnutrition	Very low weight	Not very low weight		
Severe malnutrition	2 (67%)	0	0	1	3
Very low weight	0	8 (35%)	1	14	23

- Agreement on cases with severe malnutrition or very low weight: 10/26 (38%).
- All the 16 cases misclassified were underclassified

Shaded areas above show agreement

Table A15. **Agreement of provider’s case classification with surveyor’s classification on anaemia** (n = 61)

SURVEYOR	HEALTH PROVIDER			Anaemia not classified	TOTAL n = 61
	Severe anaemia	Anaemia	No anaemia		
Severe anaemia	0 (0%)	0	0	1	1
Anaemia	1	13 (22%)	7	39	60

- Agreement on cases with severe anaemia or anaemia: 13/61 (21%)
- 47 of the 48 cases misclassified were underclassified

Shaded areas above show agreement

Agreement of provider’s case classification with surveyor’s classification on “**Not very low weight / no anaemia**” (n = 290): 67/290 (23%)

Provider agreement with surveyor on children with **eye infections**: 17/41 (41.5%)

Provider’s correct identification of a **feeding problem** using surveyor’s identification of feeding problems as a reference: 13/167 (7.8%)

QUALITY OF CLINICAL CARE: MANAGEMENT OF SEVERE CASES AND USE OF INJECTABLE DRUGS

Table A16. Management of severe cases needing urgent referral and use of injectable drugs

TYPE OF CASES	No. (%)
• Cases needing urgent referral:	14/364 (3.8%)
> <i>Referred</i> (correctly identified by the provider)	6/14 (42.9%) ¹
> <i>Administered appropriate pre-referral treatment</i>	
○ <i>Severe pneumonia</i> administered parenteral chloramphenicol or recommended oral antibiotic at the facility	0/9 (0.0%) ³
○ <i>Severe dehydration</i> started receiving ORS at the facility	0/2 (0.0%) ⁴
○ <i>Very severe febrile disease</i> administered parenteral quinine at the facility	0/3 (0.0%) ⁵
○ <i>Severe malnutrition</i> administered vitamin A	0/3 (0.0%) ⁶
○ <i>Severe anaemia</i> administered vitamin A	0/1 (0.0%) ⁶
> <i>Correctly managed</i> (referred and given appropriate pre-referral treatment)	0/13 (0.0%) ⁷
• Cases referred by the provider:	n = 12 ⁸
> <i>Given explanation about the need for referral</i>	8 (66.7%)
> <i>Accepting referral</i>	11 (91.7%) ⁹
> <i>Given referral note</i>	6 (50.0%)
• Cases prescribed or administered an injectable drug at the facility ¹⁰ :	n = 21
- Cases referred by the provider	4 (19.0%)
- Cases not referred by provider and unlikely to need injection	17 (80.9%)

¹ All the 6 cases correctly identified as needing urgent referral were assessed by health providers trained in IMCI. There was agreement on urgent referral between the provider and the surveyor in 6 (42.9%) of the 14 cases, i.e. 6/11 (54.5%) cases seen by IMCI-trained staff and 0/3 (0.0%) cases seen by non-IMCI-trained staff.

² Appropriate pre-referral treatment here refers to the administration of a pre-referral dose of the recommended antibiotic, parenteral quinine and vitamin A as required by the national IMCI guidelines

³ 2 of these 9 cases were administered Penicillin G IM. All facilities in which these cases were seen had cotrimoxazole; chloramphenicol was available in 4 cases; penicillin G was available in all cases.

⁴ ORS was available in both cases

⁵ Quinine was available only in 1 of the 3 cases

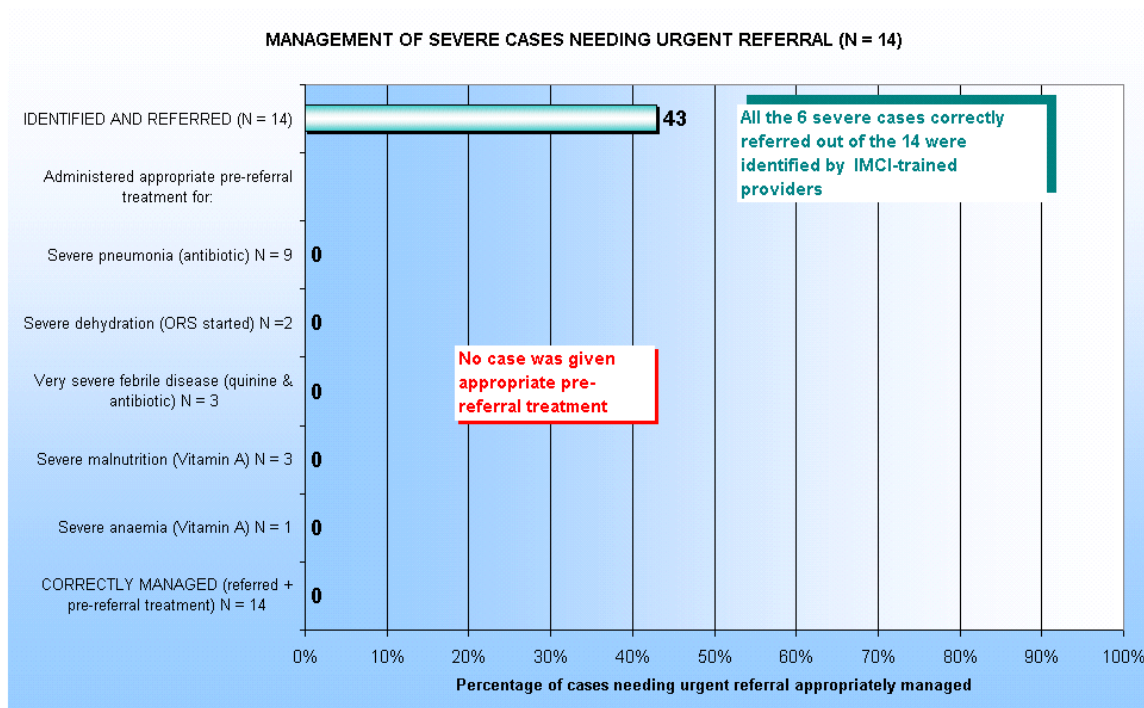
⁶ Vitamin A was available in 2 of the 3 cases with severe malnutrition and in the case with severe anaemia

⁷ One of the cases referred by the provider refused referral and was removed from this analysis

⁸ 17 cases were referred by the provider; however, only 12 of them were referred urgently and thus considered in this analysis

⁹ The case that refused referral was given no explanation about the need for referral

¹⁰ One case was injected chloroquine and all the other cases were given benzylpenicillin



QUALITY OF CARE: ORAL ANTIBIOTIC TREATMENT

Table A17. Oral antibiotic treatment prescribed correctly for children with an “IMCI condition” not requiring urgent referral and needing oral antibiotics, and caretaker recall of the instructions

CASES	No. (%)
• Children with an IMCI condition not requiring urgent referral and needing oral antibiotics:	n = 80
> Prescribed oral antibiotics	58 (72.5%)
> Prescribed a recommended oral antibiotic	54 (67.5%)
> Prescribed recommended oral antibiotics correctly (all three below):	26 (32.5%)
- Of those prescribed recommended oral antibiotics:	n = 54
> 1. Prescribed correct amount (dose)	31 (57.4%)
> 2. Prescribed correct number of times per day (frequency)	48 (88.9%)
> 3. Prescribed correct number of days (duration)	36 (66.7%)
> Prescribed correctly (all 3 above)	26 (48.1%)
• Caretakers of children prescribed recommended oral antibiotics:	n = 54
> 1. Knowing the dose to be given each time	24 (44.4%)
> 2. Knowing the number of times a day to be given	30 (55.6%)
> 3. Knowing for how many days to be given	24 (44.4%)
> Able to describe correctly how to give antibiotics (i.e., knowing all 3 above)	12 (22.2%)
• Pneumonia cases (not requiring urgent referral):	n = 54
> Prescribed oral antibiotics	43 (79.6%) ¹
> Prescribed recommended oral antibiotics	39 (72.2%)
> Prescribed oral antibiotics correctly	18 (33.3%)
• Dysentery cases (not requiring urgent referral):	n = 8
> Prescribed oral antibiotics	4 (50.0%) ²
> Prescribed recommended oral antibiotics	3 (37.5%)
> Prescribed recommended oral antibiotics correctly	3 (37.5%)
• Children not needing antibiotics (for an IMCI or non-IMCI reason) and not requiring urgent referral:	n = 254
> Prescribed no antibiotics	159 (62.6%)
> Prescribed antibiotics unnecessarily	95 (37.4%) ³

¹ All the 11 “pneumonia” cases that were not prescribed an antibiotic had been misclassified by the provider as “no pneumonia” cases

² Three of the 4 cases with dysentery who were not prescribed an oral antibiotic had not been classified as ‘dysentery’ cases by the provider

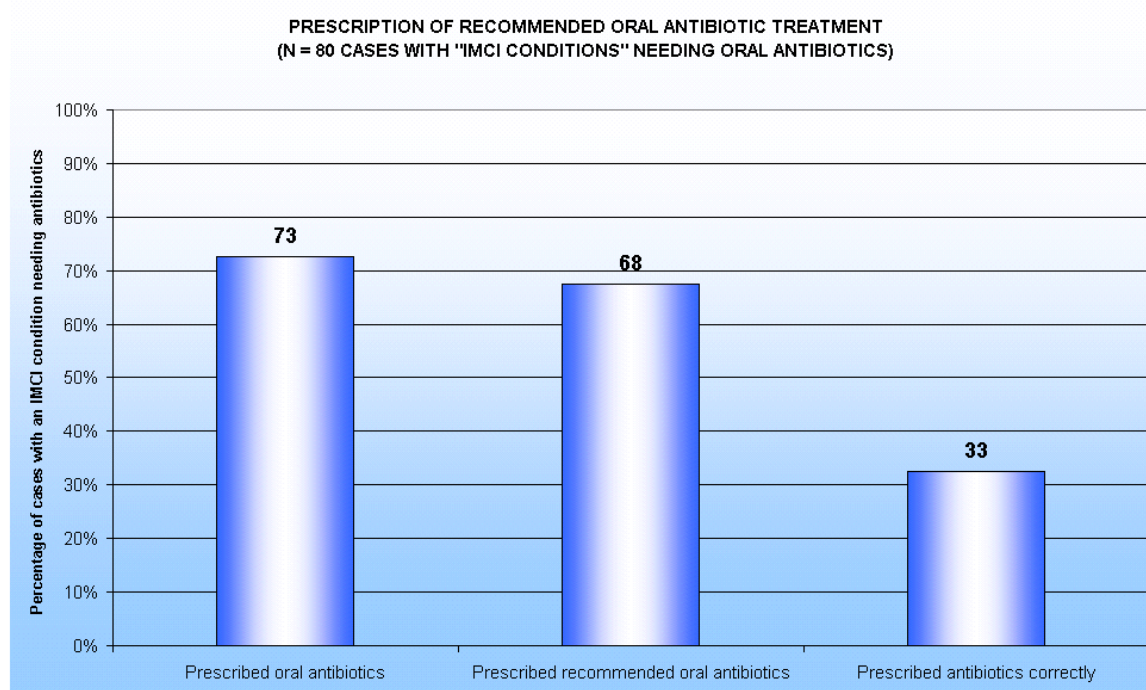
³ 40 (42%) of these 95 cases that were prescribed antibiotics unnecessarily had been misclassified by the provider as cases with “pneumonia” (36 cases), “dysentery” (1) or “acute ear infection” (3), all of which would have required antibiotics had the classifications been correct

Table A18. Relationship of provider's correct advice on treatment with a recommended oral antibiotic with caretaker correct recall of the advice (for cases not referred by the provider and for whom information is available)

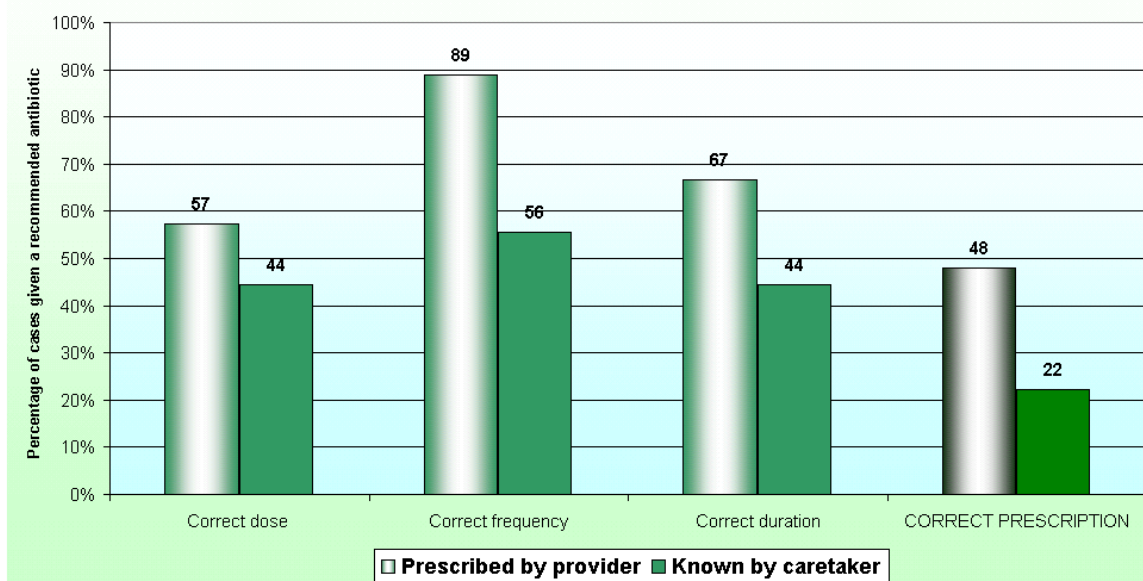
ADVICE	CORRECT ADVICE GIVEN AND RECALLED CORRECTLY BY CARETAKER	ADVICE INCORRECT OR NOT GIVEN BUT MENTIONED CORRECTLY BY CARETAKER	TOTAL (n = 132 CASES NOT REFERRED AND GIVEN ANTIBIOTICS)
Dose	43/76 (56.6%)*	7/56 (12.5%)*	50/132 (37.9%) ¹
Frequency	66/113 (58.4%)*	2/19 (10.5%)*	68/132 (51.5%) ¹
Duration	43/77 (55.8%)*	6/55 (10.9%)*	49/132 (37.1%) ¹

¹ Information not available in 6 cases, removed from this analysis

*The difference is statistically significant at P<0.01



PROVIDER CORRECT PRESCRIPTION AND CARETAKER CORRECT KNOWLEDGE ABOUT ANTIBIOTIC TREATMENT
 (CASES GIVEN A RECOMMENDED ANTIBIOTIC FOR IMCI CONDITION = 54)



RATIONAL USE OF DRUGS: CASES NOT NEEDING ANTIBIOTICS GIVEN NO ANTIBIOTICS
 (N = 254)

Cases prescribed antibiotics but not needing them

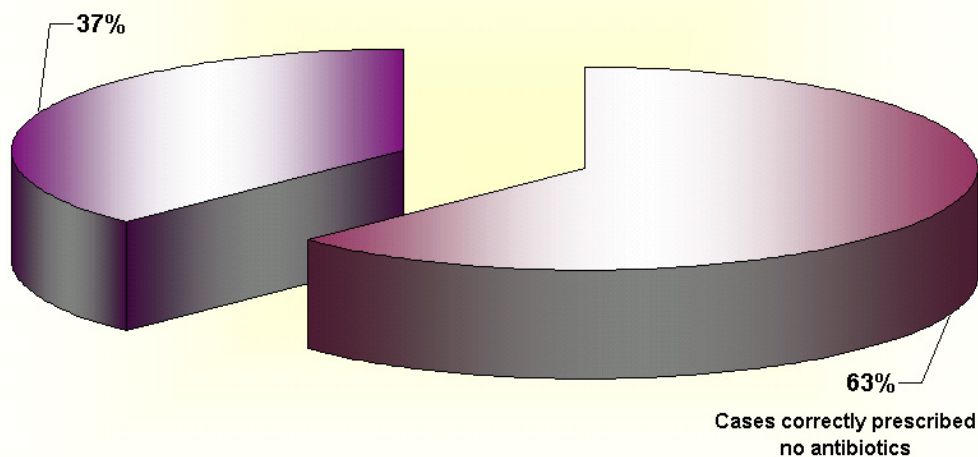


Table A19. Potential compliance with advice on duration of treatment

CASES PRESCRIBED AN ANTIBIOTIC	n = 107 ¹ (%)
• Caretaker intention to continue treatment in case child gets better:	
- Would stop treatment	24 (22.4%)
- Would continue as advised	69 (64.5%)
- Would continue but reduce the dose	1 (0.9%)
- Other options	3 (2.8%)
- Would not know	2 (1.9%)
- Information missing	7 (6.5%)

¹ A total of 158 caretakers were identified during the exit interview as having been prescribed an antibiotic; 51 of them were excluded from this analysis, as they did not recall for how long they should give the antibiotic to the child

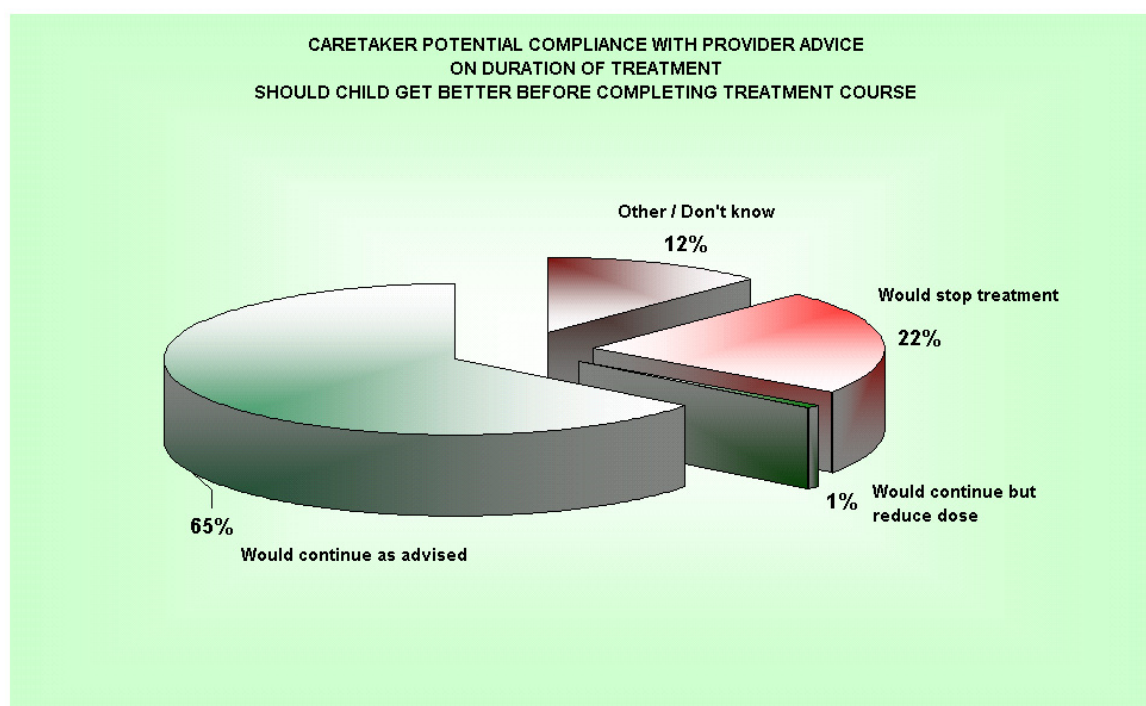


Table A20. Oral antimalarial treatment prescribed correctly for children with malaria not requiring urgent referral, and caretaker recall

CASES	No. (%)
• Children with malaria not requiring urgent referral:	n = 62
> Prescribed oral antimalarials	46 (74.2%)
> Prescribed recommended oral antimalarials	46 (74.2%)
> Prescribed recommended oral antimalarials correctly (see below)	17 (27.4%)
- Of those prescribed recommended oral antimalarials:	n = 46
> 1. Prescribed correct amount (dose)	21 (45.7%)
> 2. Prescribed correct number of times per day (frequency)	38 (82.6%)
> 3. Prescribed correct number of days (duration)	33 (71.7%)
> Prescribed correctly (all 3 above)	17 (37.0%)
• Caretakers of children prescribed recommended oral antimalarials:	n = 46
> 1. Knowing the dose to be given each time	13 (28.3%)
> 2. Knowing the number of times a day to be given	16 (34.8%)
> 3. Knowing for how many days to be given	16 (34.8%)
> Able to describe correctly how to give antimalarials (i.e., knowing all 3 above)	9 (19.6%)

Table A21. Relationship of provider's correct advice on treatment with an oral antimalarial with caretaker correct recall of the advice (for cases not referred by the provider and for whom information is available)

ADVICE	CORRECT ADVICE GIVEN AND RECALLED CORRECTLY BY CARETAKER	ADVICE INCORRECT OR NOT GIVEN BUT MENTIONED CORRECTLY BY CARETAKER	TOTAL (n = 102 CASES NOT REFERRED AND GIVEN ANTIMALARIALS)
Dose	24/44 (54.5%)*	4/58 (6.9%)*	28/102 (27.5%)
Frequency	41/77 (53.2%)*	2/25 (8.0%)*	43/102 (42.2%)
Duration	36/71 (50.7%)*	3/31 (9.7%)*	39/102 (38.2%)

*The difference is statistically significant at $P < 0.01$

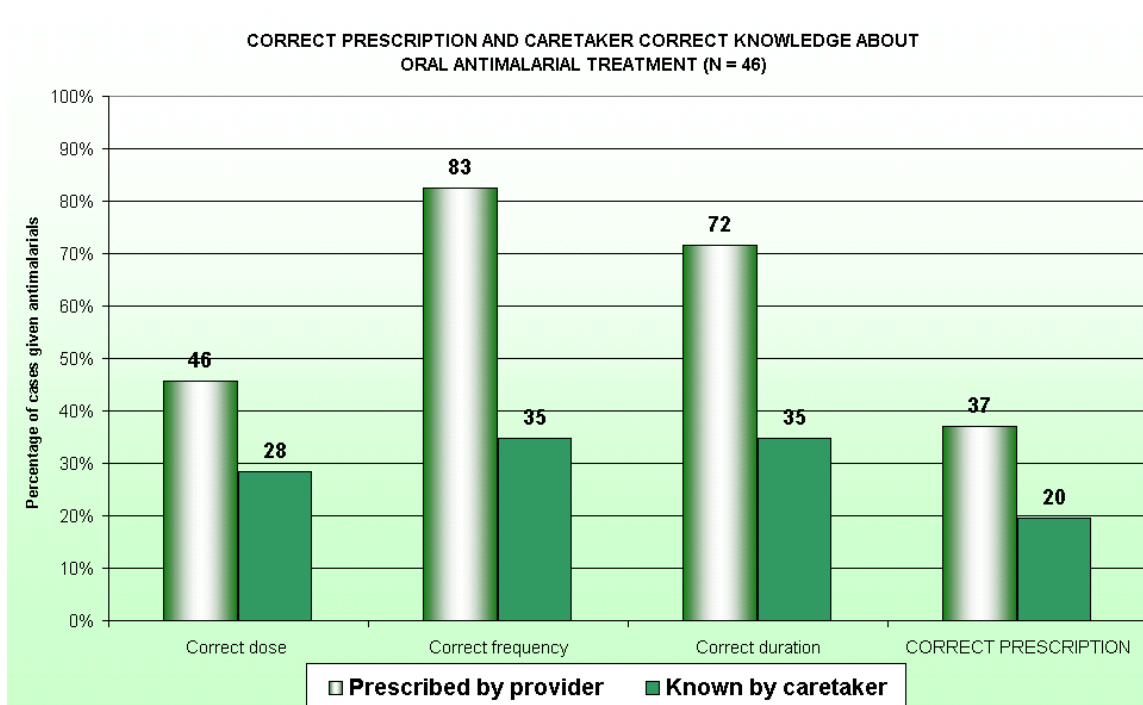
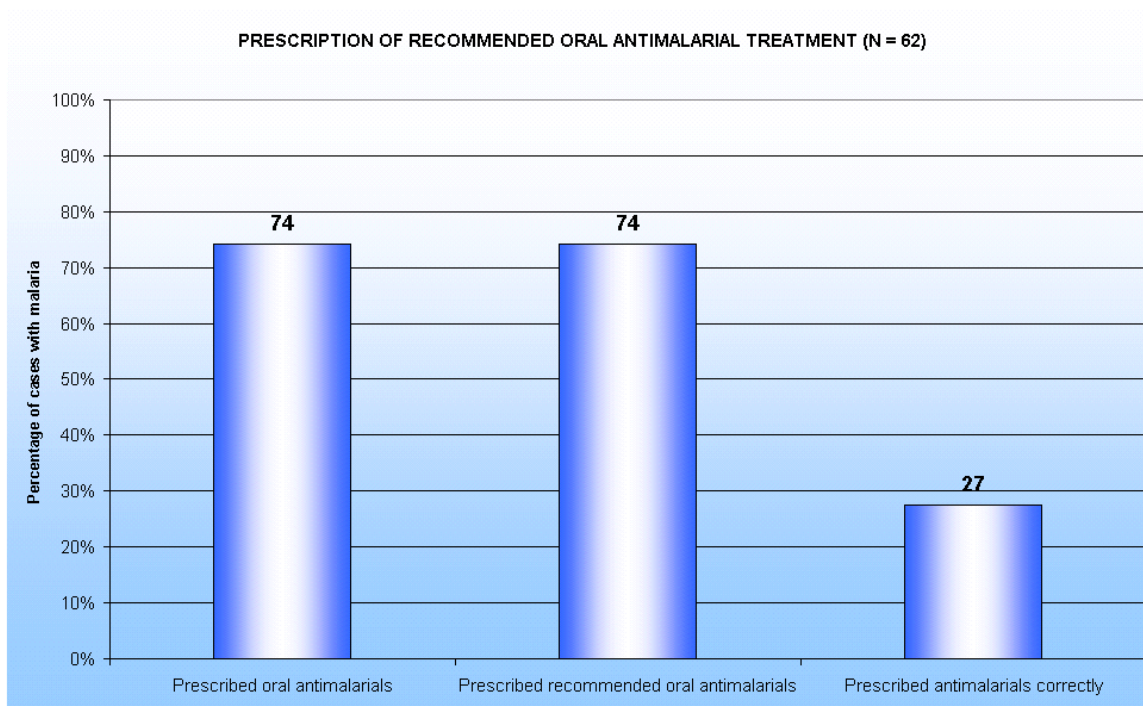


Table A22. **Oral rehydration salts (ORS) prescribed correctly for children with diarrhoea not requiring urgent referral, and caretaker recall**

CASES	
• Children with diarrhoea not needing urgent referral ¹ :	
> <i>No signs of dehydration</i> : given ORS sachets	47/95 ^{1,2} (49.5%)
> <i>Some dehydration</i> :	
- Administered the ORS solution at the facility	2/9 ¹ (22.2%)
- Given ORS sachets	5/9 ¹ (55.6%)
> <i>Given correct instructions on ORS, including its preparation</i> (all three below):	17/54 ³ (31.5%)
- Of those given ORS:	n = 54 ³
> 1. Correctly advised on <i>amount of water</i> to mix with 1 ORS sachet to prepare the solution	31 (57.4%)
> 2. Correctly advised on <i>when to give</i> ORS to the child each day	19 (35.2%)
> 3. Correctly advised on <i>how much</i> ORS to give to the child each time	17 (31.5%)
• Caretakers of children prescribed ORS:	n = 54 ³
> 1. <i>Knowing how much water</i> to mix with 1 ORS sachet to prepare solution	42 (77.8%)
> 2. <i>Knowing when to give</i> ORS to the child each day	16 (29.6%)
> 3. <i>Knowing how much</i> ORS to give to the child each time	27 (50.0%)
> Able to describe correctly how to give ORS (i.e., knowing all 3 above)	13 (24.1%)

¹ A total of 109 cases of diarrhoea were identified. Five of these were excluded from this analysis as they had severe conditions requiring urgent referral. Included in this analysis were then 104 cases, of which 95 with no signs of dehydration and 9 with some dehydration.

² Only 54 (57%) of the 95 cases with no signs of dehydration were correctly classified as such by the provider but, even so, only 34 of these 54 cases were prescribed or given ORS packets for home use, although ORS was available at the facility for all but six cases

³ The denominator of 54 cases refers to: the 47 cases with no dehydration and the 5 cases with some dehydration given ORS sachets, and 1 case with some dehydration and 1 case with no dehydration administered the ORS solution at the facility

Table A23. **Relationship of provider's correct advice on ORS (oral rehydration salts) treatment with caretaker correct recall of the advice** (for cases not referred by the provider and for whom information is available)

ADVICE	CORRECT ADVICE GIVEN AND RECALLED CORRECTLY BY CARETAKER	ADVICE INCORRECT OR NOT GIVEN BUT MENTIONED CORRECTLY BY CARETAKER	TOTAL (n = 59 CASES NOT REFERRED AND GIVEN ORS)
How much water to use to prepare ORS	32/35 (91.4%)	17/24 (70.8%)	49/59 (83.1%)
When to give ORS	14/21 (66.7%)*	6/38 (15.8%)*	20/59 (33.9%)
How much ORS to give each time	15/19 (78.9%)**	16/40 (40.0%)**	31/59 (52.5%)

*The difference is statistically significant at $P < 0.01$

**The difference is statistically significant at $P < 0.05$

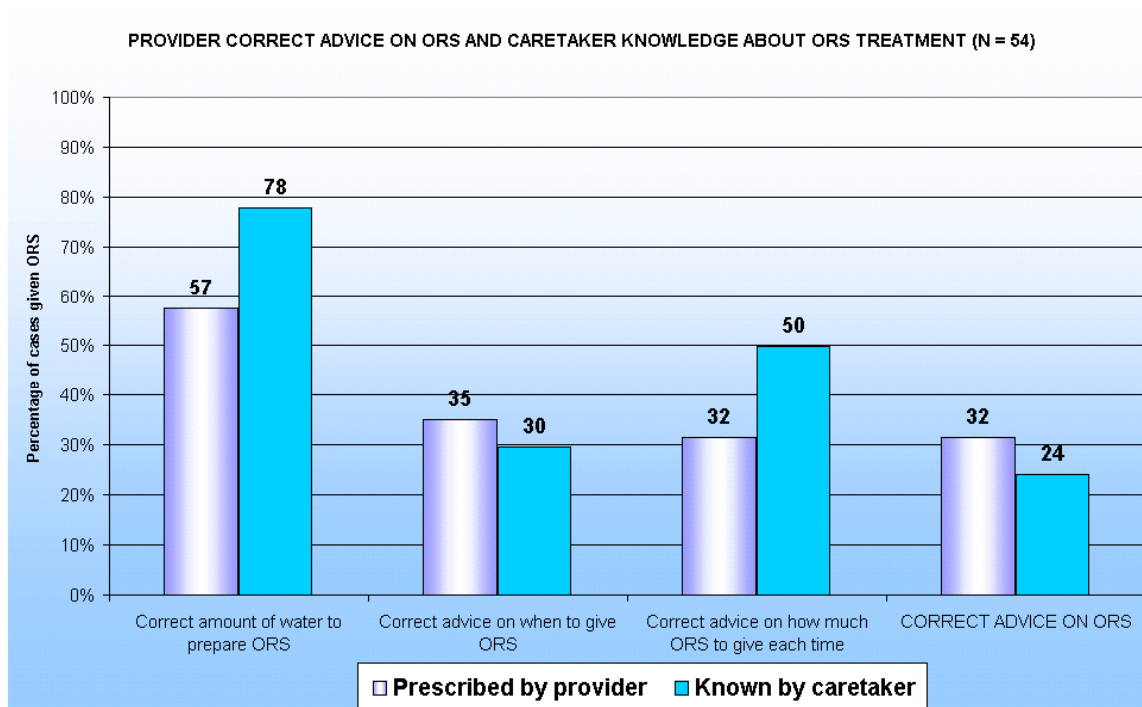


Table A24. Antibiotic, antimalarial and/or ORS treatment: provider communication tasks in giving advice

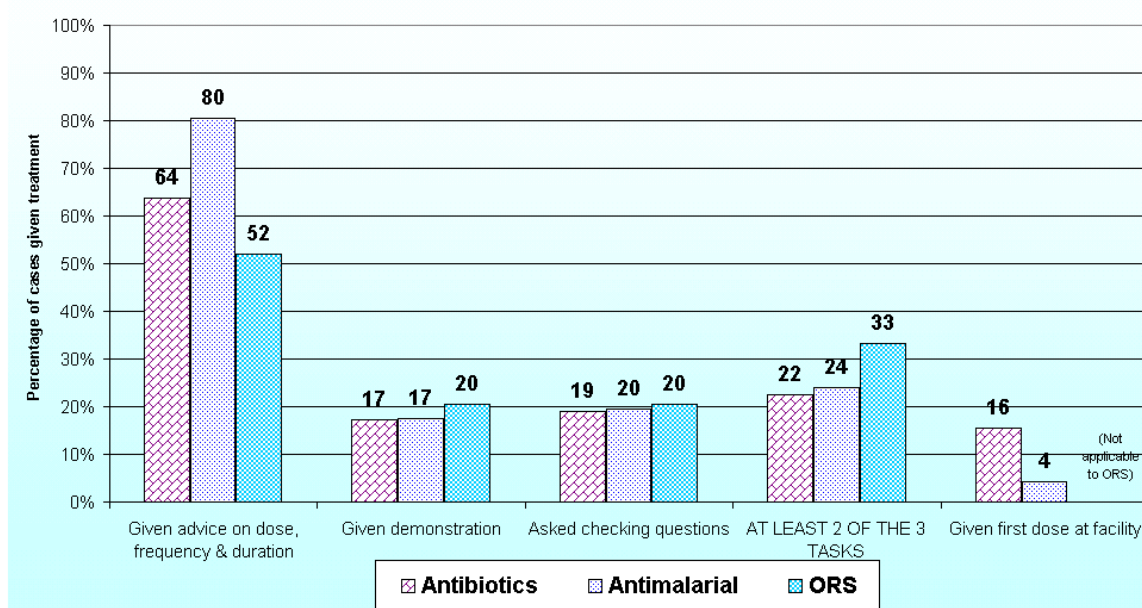
ADVICE	No. (%)
<ul style="list-style-type: none"> Caretakers of children not needing urgent referral, requiring an antibiotic for an IMCI condition and prescribed oral <u>antibiotics</u>: 	n = 58 ¹
> 1. Given advice on dose, frequency and duration of treatment	37 (63.8%)
> 2. Given demonstration on how to give it	10 (17.2%)
> 3. Asked open-ended question to check for understanding	11 (19.0%)
> For whom at least 2 of the above 3 counselling tasks were performed	13 (22.4%)
> Given first dose of antibiotic at the facility	9 (15.5%)
<ul style="list-style-type: none"> Caretakers of children not needing urgent referral, requiring an antimalarial and prescribed oral <u>antimalarials</u>: 	n = 46 ²
> 1. Given advice on dose, frequency and duration of treatment	37 (80.4%)
> 2. Given demonstration on how to give it	8 (17.4%)
> 3. Asked open-ended question to check for understanding	9 (19.6%)
> For whom at least 2 of the above 3 counselling tasks were performed	11 (23.9%)
> Given first dose of antimalarial at the facility	2 (4.3%)
<ul style="list-style-type: none"> Caretakers of children with diarrhoea not needing urgent referral given <u>ORS</u>: 	n = 54 ³
> 1. Given advice on dose, frequency and duration of treatment	28 (51.9%)
> 2. Given demonstration on how to give it	11 (20.4%)
> 3. Asked open-ended question to check for understanding	11 (20.4%)
> For whom at least 2 of the above 3 counselling tasks were performed	18 (33.3%)

¹ A total of 163 children not needing urgent referral were given antibiotics. Of these, the following were excluded from this analysis: 6 cases who needed urgent referral and, of the remaining cases, 99 who did not have an IMCI condition requiring antibiotics (according to the surveyor)

² A total of 99 children not needing urgent referral were given antimalarials. Of these, 53 were removed from this analysis as they did not need an antimalarial according to the surveyor

³ A total of 62 children not needing urgent referral were given ORS by facility providers. Of these, 8 cases were excluded from this analysis as they had no diarrhoea according to the surveyor

ANTIBIOTIC (N=58), ANTIMALARIAL (N=46) AND ORS (N=54) TREATMENT: PROVIDER COMMUNICATION SKILLS



QUALITY OF CLINICAL CARE:

OTHER TREATMENT AND IMMUNIZATION

Table A25. Other curative and preventive treatments[#]

CASES	No. (%)
• Children with wheezing given salbutamol	1/3 (33.3%)
• Children given paracetamol:	128/364 (35.2%)
> Of those with an axillary temperature $\geq 38.5^{\circ}\text{C}$	27/38 (71.1%)
> Of those with acute ear infection with a temperature $< 38.5^{\circ}\text{C}$	12/23 (52.2%)
> Of those with an axillary temperature $> 37.4^{\circ}\text{C}$ and $< 38.5^{\circ}\text{C}$ and no acute ear infection	29/52 (55.8%)
> Of those with an axillary temperature $< 37.5^{\circ}\text{C}$ and no acute ear infection	60/251 (23.9%)
• Children with an eye infection (pus draining from the eye) not needing urgent referral given tetracycline ointment	9/39 (23.1%)
• Children with anaemia not needing urgent referral prescribed iron ²	14/55 (25.5%) ²
• Children needing vitamin A:	n = 46
> Given vitamin A	6/46 (13.0%) ³
> Given vitamin A or told to come back on another day to receive vitamin A	8/46 (17.4%)
• Children needing vaccinations and not referred by provider:	n = 74
> Leaving the facility with all needed vaccinations given	18 (24.3%)
> Leaving the facility with all needed vaccinations given or advice to come back for vaccination on scheduled vaccination day	36 (48.6%)

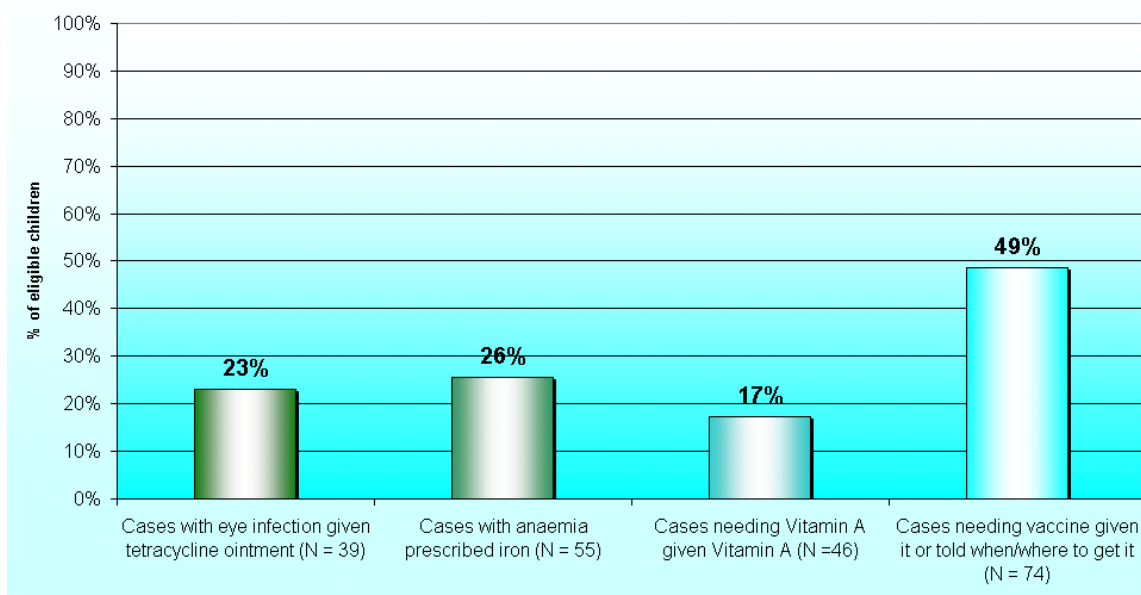
[#] Concerning other medicines given than those recommended by the IMCI guidelines, 2 cases were prescribed an “antidiarrhoeal” drug (antispasmodic) and 14 were prescribed a “cough/cold medicine”. Interestingly, 16 children were prescribed *metronidazole*: according to the provider, 11 had diarrhoea (among which: 1 reported to have giardiasis and 1 amoebic dysentery), while 1 was reported to have a skin infection, 1 a “dental problem”, 1 giardiasis and 1 “intestinal parasites”. Three children were prescribed *mebendazole*, two of which reported to have “intestinal parasites”.

¹ Of the 7 cases which were not administered the ORS solution at the facility: 3 cases were misclassified as cases with no dehydration (2 of them were given ORS sachets); 2 cases, classified correctly as having some dehydration, were given only ORS sachets; 1 case was not classified for diarrhoea; and in 1 case the caretaker told the provider that the child had no diarrhoea

² 39 of the 41 children not given iron were misclassified as cases with no anaemia

³ Vitamin A was available at the health facility for 39 of the 41 children who needed it and were not given it

OTHER CURATIVE AND PREVENTIVE TREATMENTS AND OPPORTUNITIES FOR IMMUNISATION FOR NON-REFERRED CASES



QUALITY OF CLINICAL CARE: ADVICE ON FOLLOW-UP AND CARETAKER RECALL

Table A26. Advice on follow-up (definite follow-up)

CASES	No. (%)
• Caretakers of children not needing urgent referral needing definite follow-up:	217/350 (62.0%)
> Advised to come back for follow-up by the provider	99/217 (45.6%)
• Overall agreement of provider's advice on number of days caretaker should come back for definite follow-up with surveyor's advice (for children not needing urgent referral and requiring definite follow-up)	52/217 (24.0%)
• Agreement of provider's advice with the following surveyor's advice on definite follow-up	
- In 2 days	21/57 (36.8%)
- In 5 days	30/149 (20.1%)
- In 14 days	1/11 (9.1%)

AGREEMENT OF PROVIDER'S ADVICE ON DEFINITE FOLLOW WITH SURVEYOR'S ADVICE

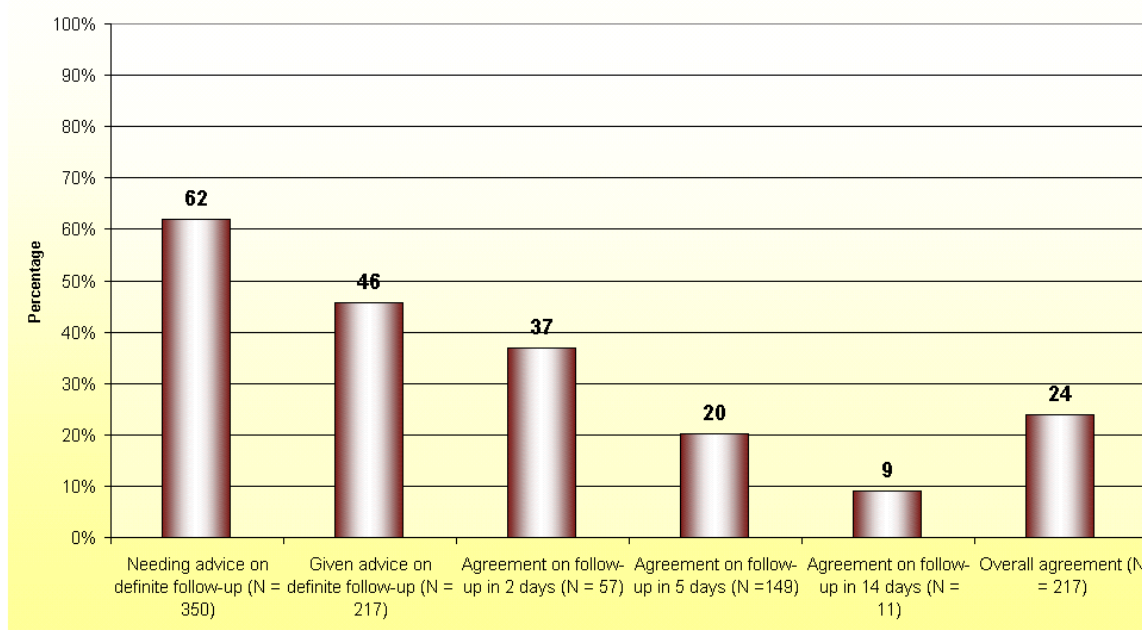


Table A27. Relationship of provider's advice on follow-up with caretaker correct recall of the advice (n = 99 cases advised on definite follow-up by provider)

DAYS WITHIN WHICH FOLLOW-UP ADVISED BY PROVIDER	CARETAKER CORRECT RECALL OF FOLLOW-UP ADVICE
Any advice on follow-up	69/99 (69.7%)
Follow-up within 2 days	39/57 (68.4%)
Follow-up within 5 days	29/40 (72.5%)
Follow-up within 14 days	1/2 (50.0%)

QUALITY OF CLINICAL CARE: ADVICE ON HOME CARE AND CARETAKER KNOWLEDGE

Table A28. Advice on home care: advice given by provider

CASES	
• Caretakers of children not needing urgent referral advised by the provider:	n = 350 ¹
> <i>To give extra fluids</i>	143 (40.9%)
> <i>To continue feeding</i>	133 (38.0%)
> Both messages on extra fluids and continue feeding	113 (32.3%)
• Caretakers of children not needing urgent referral advised by the provider to take the child back to the facility immediately if the child:	n = 350 ¹
> 1. <i>Is unable to drink</i>	74/350 (21.1%)
> 2. <i>Becomes sicker</i>	112/350 (32.0%)
> 3. <i>Develops a fever</i> (for those not having fever by history or temperature)	36/147 ² (24.5%)
> All the three above (the first 2 signs for all children and the last one only for children with no fever)	52/350 (14.9%)
• Caretakers of children classified as “ <u>cough or cold: no pneumonia</u> ” not needing urgent referral advised by the provider to take the child back to the facility immediately if the child:	n = 162
> 4. <i>Develops fast breathing</i>	30 (18.5%)
> 5. <i>Develops difficult breathing</i>	34 (21.0%)
• Caretakers of children with “ <u>diarrhoea and no signs of dehydration</u> ”, not needing urgent referral, advised to take the child back to the facility immediately if the child:	n = 95
> 6. <i>Has blood in stools</i> (for those with no bloody stools)	13 (13.7%)
> 7. <i>Drinks poorly</i>	5 (5.3%)
• Caretakers of children not needing urgent referral advised by the provider to take the child back to the facility immediately:	n = 350
> <i>On at least three of the above 7 signs</i>	69 (19.7%)
• <i>Caretakers advised on all the three home care rules</i> (to give extra to drink and continue feeding and at least three signs on when to return immediately)	n = 350
	41 (11.7%)

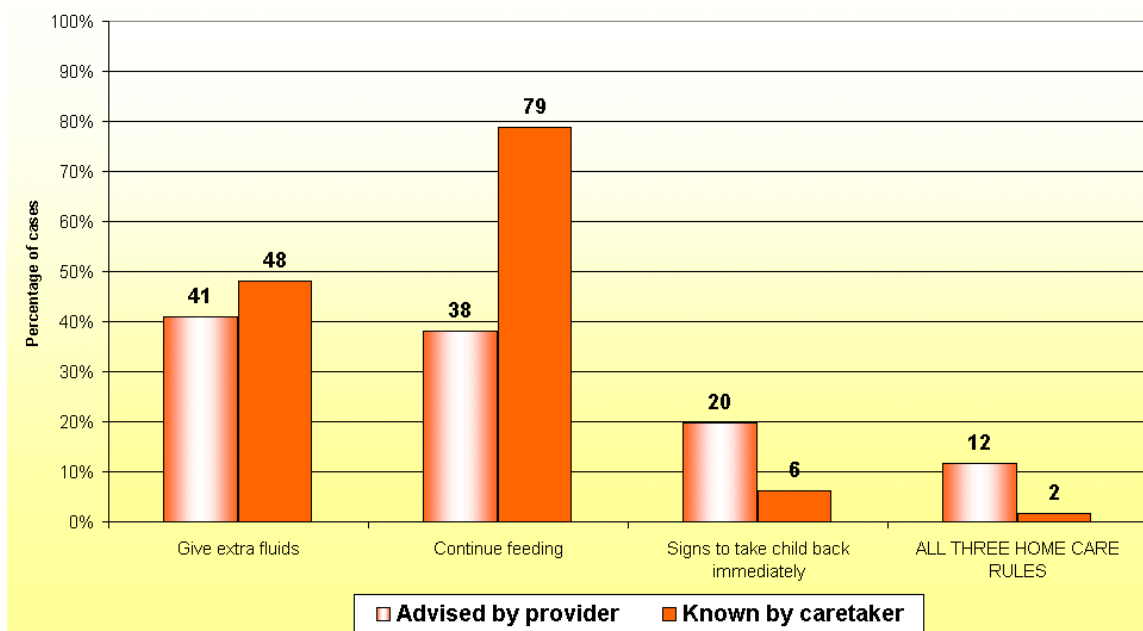
¹ 10 of the children who were not advised on fluids and food were referred by the provider but did not need urgent referral according to the surveyor. These children are included in the denominator. Information was missing for 2 children

² This denominator refers to children having no fever

Caretakers, mothers of children not referred by provider, advised on their health: 2/284 (0.7%)

Child visits during which providers consulted the IMCI chart: 264/364 (72.5%)

CASES GIVEN ADVICE BY PROVIDER AND CARETAKER KNOWLEDGE ABOUT HOME CARE



CARETAKERS ADVISED ON SIGNS TO RETURN IMMEDIATELY AND KNOWING ABOUT THEM

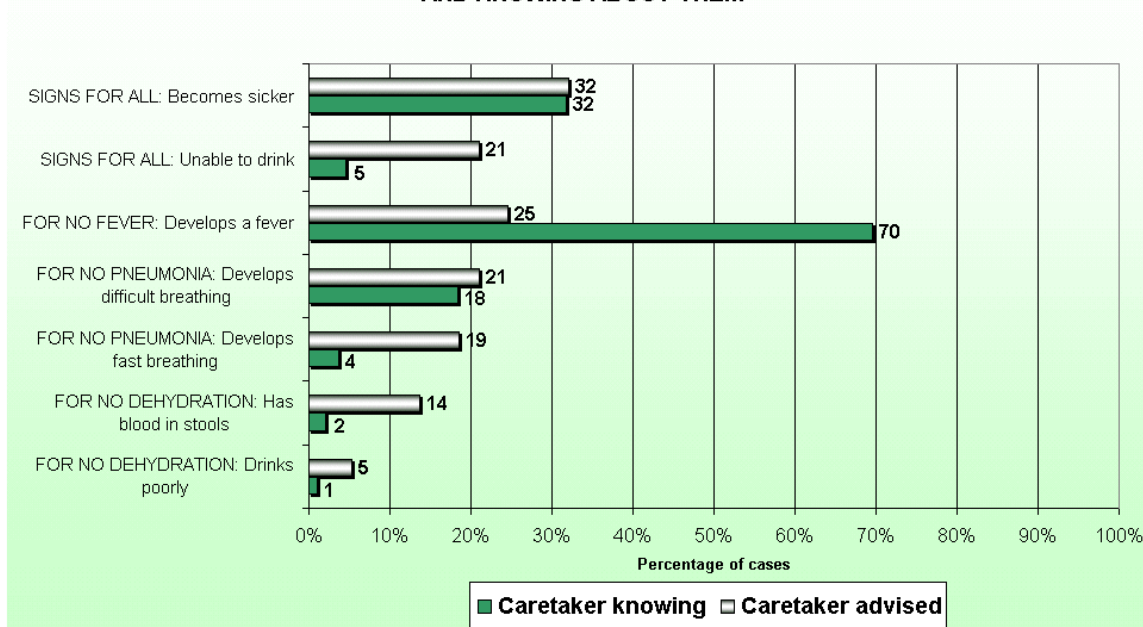


Table A29. Caretaker knowledge about home care

CASES	No. (%)
Caretakers of children not referred by the provider knowing about the need:	n = 347 ¹
> To give extra to drink to their sick children	167 (48.1%)
> To continue feeding their sick children	274 (78.9%)
> To give extra fluids and continue feeding their sick children during illness	156 (45.0%)
• Caretakers of children not referred by the provider knowing the signs that indicate the need to seek care immediately:	n = 347 ¹
> 1. Child is unable to drink or breastfeed	16 (4.6%)
> 2. Child becomes sicker	110 (31.7%)
> 3. Child develops a fever	241 (69.5%)
> All the 3 signs above	4 (1.2%)
• Caretakers of children with “cough or cold: no pneumonia” not referred by the provider knowing the specific ‘respiratory’ signs indicating the need to seek care immediately:	n = 163
> 4. Develops fast breathing	6 (3.7%)
> 5. Develops difficult breathing	30 (18.4%)
> Either fast or difficult breathing	36 (22.1%)
• Caretakers of children with diarrhoea and no signs of dehydration, not referred by the provider knowing the specific ‘diarrhoea’ signs indicating the need to seek care immediately:	n = 94
> 6. Has blood in stools	2 (2.1%)
> 7. Drinks poorly	1 (1.1%)
• Caretakers of children not referred by the provider knowing at least two signs to seek care immediately	n = 347 ¹ 116 (33.4%)
• Caretakers of children not referred by the provider knowing the three rules of home care (give extra to drink, continue feeding and at least three signs on when to seek care immediately)	n = 347 ¹ 6 (1.7%) ²
Other signs mentioned by caretakers which would worry them and prompt them to seek care for a sick child ³ :	n = 347
- (Simple) diarrhoea	221 (63.7%)
- Vomiting	143 (41.2%)
- (Simple) cough	91 (26.2%)
- Abdominal pain	19 (5.5%)
- No improvement	18 (5.2%)
- Eye problem	17 (4.9%)

¹ 17 cases referred by the provider were excluded from this analysis, as caretaker interviews were not conducted for those cases confirmed by the surveyor to need urgent referral, in order to avoid any delay in referral. It should be noted that the denominator in the earlier table showing the advice given by the provider on the same items of home care is different, as it concerns cases not needing urgent referral according to the surveyor, rather than cases not referred by the provider as in this case.

² If only 2 signs on when to seek care had been used as a criterion for this compound indicator, the rate about caretaker knowledge of the three home care rules would have been: $156/347 = 45.0\%$

³ In many cases, caretakers were unable to “switch” to this hypothetical, general question and tended to simply mention the reasons why they had actually taken their sick children to the facility

Table A30. Comparison between provider's advice on signs to return immediately with caretaker knowledge of signs to seek care promptly (n = 342 interviews for which this information available, irrespective of child illness, for cases not referred by provider)

SIGNS TO RETURN IMMEDIATELY	SIGN ADVISED BY PROVIDER AND MENTIONED BY CARETAKER	SIGN NOT ADVISED BY PROVIDER BUT MENTIONED BY CARETAKER	TOTAL (n = CARETAKERS INTERVIEWED)
Child is unable to drink	66/74 (89.2%)*	8/266 (3.0%)*	74/340 ¹ (21.8%)
Child becomes sicker	29/112 (25.9%)	80/230 (34.8%)	109/342 (31.9%)
Child develops a fever	44/60 (73.3%)	197/282 (69.9%)	241/342 (70.5%)
Child develops fast breathing	5/47 (10.6%)*	4/295 (1.4%)*	9/342 (2.6%)
Child develops difficult breathing	13/51 (25.5%)	50/291 (17.2%)	63/342 (18.4%)
Child has blood in stool	5/20 (25.0%)*	0/322 (0.0%)*	5/342 (1.5%)
Child drinks poorly	1/12 (8.3%)	4/329 (1.2%)	5/341 ³ (1.5%)

¹ Information missing on 2 records for this specific item

³ Information missing on 1 record for this specific item

* The difference is statistically significant at $P < 0.01$

QUALITY OF CARE: PROVIDER COMMUNICATION

Table A31: Caretakers of children not referred by provider advised on home care by use of the mother home care counselling card and communication techniques

TASK/SKILL	No. (%)
• Caretaker of children not referred by provider with whom provider:	n = 347 ¹
- Used the home care card;	118 (34.0%)
- Used the home card and good communication techniques ²	18 (5.2%)
• Caretakers of children not referred by provider who recalled being shown home care card	96 (27.7%)
• Use of good communication techniques in cases in which the home care card was used:	n = 118
> Holding card properly	31 (26.3%)
> Pointing at pictures	29 (24.6%)
>Checking for caretaker understanding	27 (22.9%)
• Caretakers who recalled being shown the card among those with whom the provider actually used the card	82 ^{3,4} (69.5%)

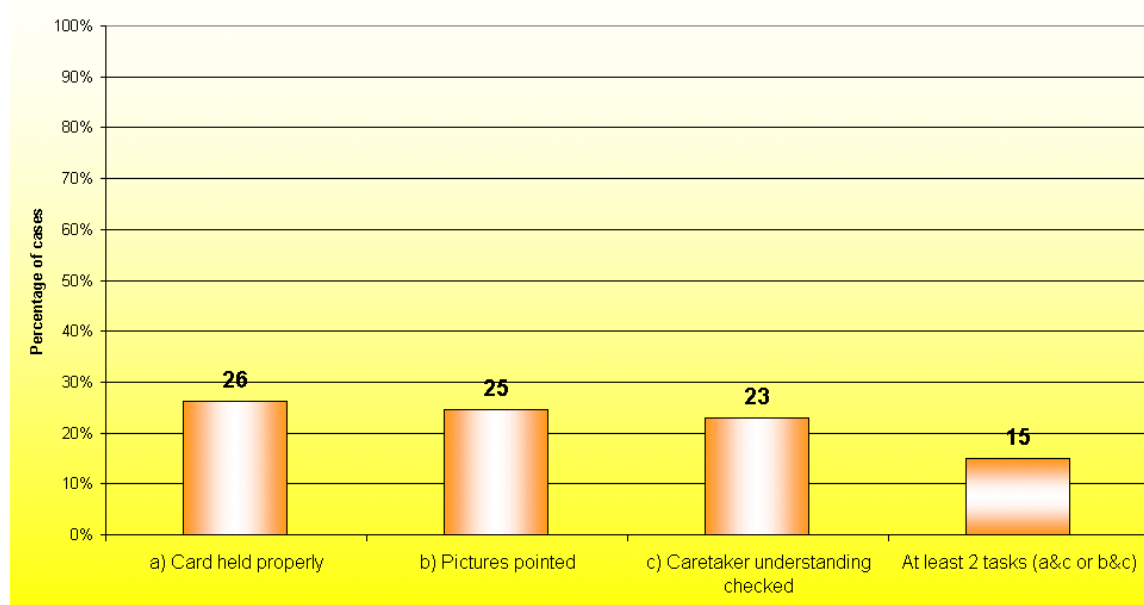
¹ 14 caretakers who had not been shown the home care card actually responded during the exit interview that they had been shown it

² The card was not available at the facility in 81 (35.8%) of the 226 cases in whom the home care card was not used by the provider. In 45 of these 81 cases the, IMCI chart booklet (that includes also the home care card) was not available at the facility either.

³ Information missing on 3 of these cases, included in this denominator

⁴ This indicator includes cases in whom all the following occurred: a) the home care card was used; b) The card was either held properly facing the caretaker or the pictures on the card were pointed at while counselling; and c) Caretaker understanding of the advice given was checked by open-ended questions

USE OF HOME CARE CARD: COMMUNICATION TECHNIQUES
(n = 118 cases in which card used)



QUALITY OF CLINICAL CARE: ADVICE ON FEEDING

Table A32. **Age-appropriate advice on feeding** (cases not referred by provider whose caretakers were advised on feeding by the provider and interviewed by the surveyor)

AGE GROUPS	CASES GIVEN AGE-APPROPRIATE FEEDING ADVICE ¹
Children less than 6 months old:	16/62 (25.8%) ¹
> Children from 2 up to 4 months old	11/34 (32.4%) ¹
> Children from 4 up to 6 months old	5/28 (17.9%)
Children 6 to 11 months old	11/56 (19.6%) ²
Children 12 to 23 months old	18/71 (25.4%) ³
Children 2 years old or older with very low weight and/or anaemia	5/36 (13.9%) ¹
<i>Children less than 2 years old and those with very low weight and/or anaemia</i>	50/225 (23.7%) ⁴

¹ Information on breastfeeding status or advice given missing for 5 cases

² Information on breastfeeding status or advice given missing for 1 case

³ Information on breastfeeding status or advice given missing for 4 cases

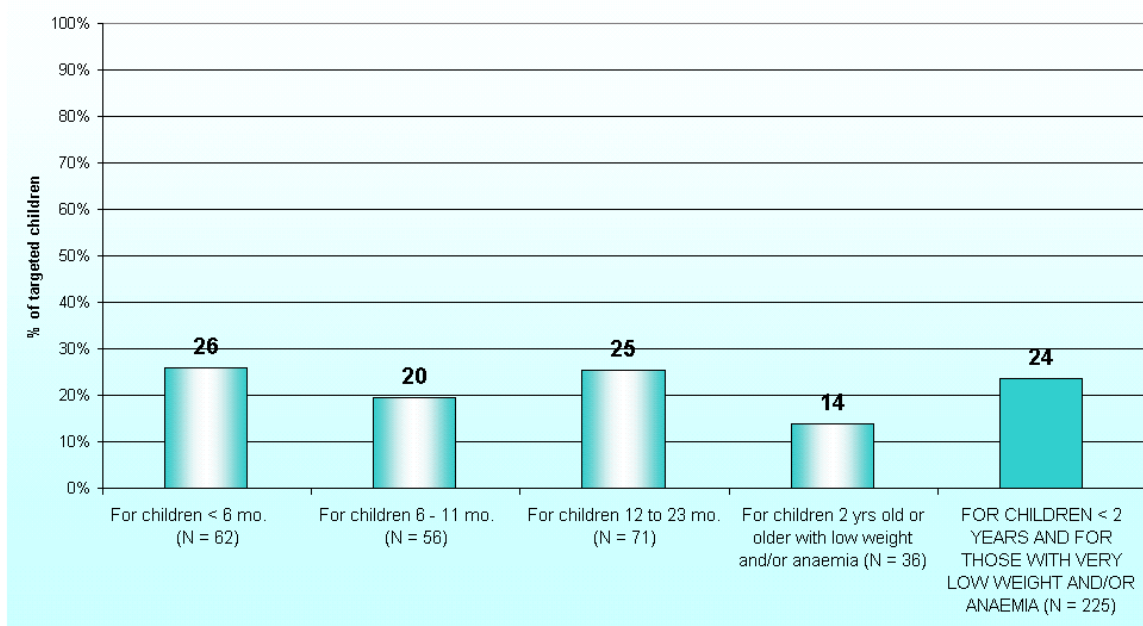
⁴ Information on breastfeeding status or advice given missing for 15 cases

This table was prepared mostly according to the 2nd version of the Sudan IMCI guidelines on feeding that started being used in IMCI training courses in 2001, and some practical considerations. The previous version of the guidelines recommended exclusive breastfeeding up to 4 months, rather than up to 6 months, as in the revised guidelines. Although a number of providers trained in IMCI before 2001 were then oriented to the new guidelines, other providers were not up to the time of the survey. In some of these cases, therefore, the provider's feeding advice might have been considered not appropriate for the child age based on the revised guidelines, but might have been appropriate according to the previous version of the guidelines.

The advice on feeding given by the provider was considered appropriate in this survey as follows:

- > Children less than 6 months old exclusively breastfed: advised to breastfeed at least 8 times a day and not to give complementary foods;
- > Children less than 4 months old breastfed but not exclusively: advised to breastfeed at least 8 times a day and not to give complementary foods;
- > Children from 4 up to 6 months old breastfed but not exclusively: advised to breastfeed at least 8 times a day exclusively, or to breastfeed at least 8 times a day and give complementary foods 2 times a day;
- > Children less than 6 months old not breastfed: advised to give complementary foods 5 or more times a day (this practical approach was considered acceptable when re-lactation would appear less feasible);
- > Child 6 to 11 months old breastfed, whether exclusively or not: advised to continue to breastfeed (as much as the child wants) and to give complementary foods as small frequent meals 5 times a day;
- > Child 6 to 11 months old not breastfed: advised to give complementary foods 5 times a day;
- > Child 12 to 23 months old, or child 2 years old and older with very low weight and/or anaemia: advised to give complementary foods 5 times a day.

CARETAKERS GIVEN AGE-APPROPRIATE ADVICE ON FREQUENCY OF FEEDING



Tables A33. Use of mosquito bednets (n = 350)

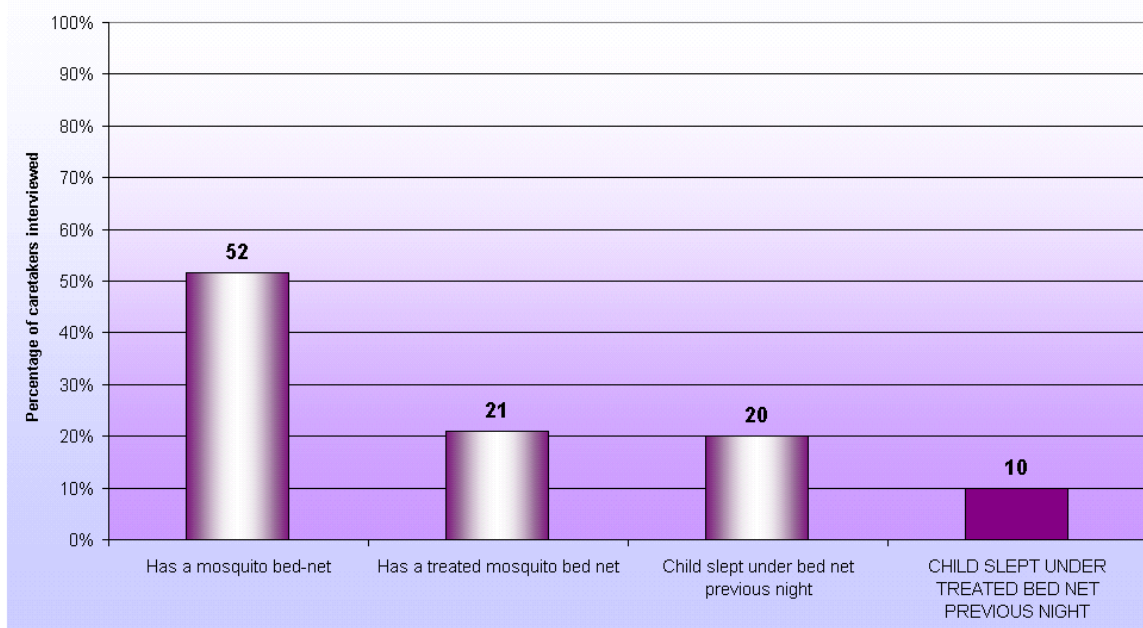
ACTION	No. (%)
Caretakers having a mosquito bed-net at home	181 (51.7%)#
Caretakers having a mosquito bed-net treated with insecticide at home	73 (20.9%)# ¹
Children who had slept under a mosquito bed-net last night	70 (20.0%)# ²
Children who had slept under a mosquito bed-net treated with insecticide last night	35 (10.0%)#

Analysis by caretaker education level suggests an upward trend in these rates for higher caretaker education level

¹ 8 caretakers, included in the denominator, were unsure about whether the bed net had been treated with an insecticide

² 2 caretakers, included in the denominator, did not know whether the child had slept under the bed net the night before

MOSQUITO BED NETS AND THEIR USE (N = 350 CARETAKERS INTERVIEWED)



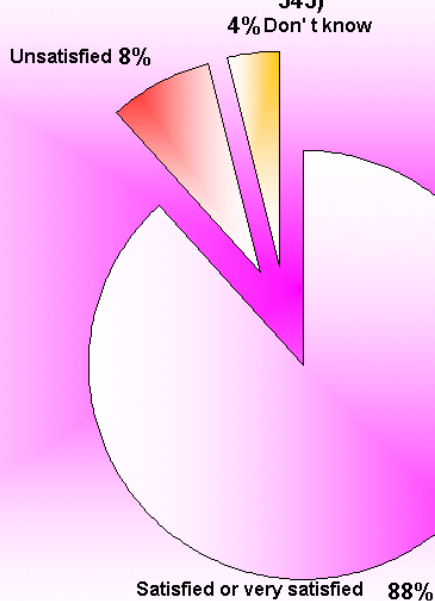
QUALITY OF CARE: HEALTH SYSTEMS

CARETAKER SATISFACTION WITH HEALTH SERVICES

Table A34. Caretaker satisfaction with services (cases not referred)

CARETAKER SATISFACTION WITH SERVICES	No. (%)
	n = 343
Very satisfied	27 (7.9%)
Satisfied	274 (79.9%)
Unsatisfied	26 (7.6%)
Does not know	16 (4.6%)
Reasons for satisfaction (either very satisfied or satisfied)	% of all reasons given
- Treatment given	35.0%
- Examination of the child	26.4%
- What learnt	4.3 %
- Provider's good attitude	7.8%
- Affordable	2.5 %
- Laboratory tests	2.5 %
- Time spent	2.5 %
- Accessible (near home)	1.0%
- Does not know or others	18.0 %
Main reasons for dissatisfaction:	% of all reasons given
- Treatment given / not given	42.8 %
- Costly	21.4 %

CARETAKER SATISFIED WITH CHILD HEALTH SERVICES AT THE FACILITY (n = 343)



Caretakers of cases seen by trained providers were "satisfied" more often than those seen by untrained providers (90.3% Vs 81.5%: P < 0.05)

QUALITY OF CARE: HEALTH SYSTEMS

TRAINING

Table A35. Cases managed by providers trained in IMCI by year of training

YEAR OF IMCI TRAINING	CASES MANAGED BY IMCI-TRAINED PROVIDERS	
	No.	(%)
2003	26	(9.2%)
2002	154	(55.0%)
2001	61	(21.8%)
2000	26	(9.3%)
1999	3	(1.1%)
1998	10	(3.6%)

Facilities with no staff trained in IMCI at time of visit: 10/66 (15.2%). In 3 of these 10 facilities, among the staff currently working at the facility, some were reported to have been trained in IMCI, but none of them was present at the time of the visit.

COMPARATIVE FINDINGS BY PROVIDER TRAINING STATUS

Table A36. Integrated assessment, by provider training status: proportion of sick children in whom selected assessment tasks were performed (WHO “priority indicators” shown in italics)

ASSESSMENT TASKS	CASES (%) IN WHOM TASK DONE, BY PROVIDER STATUS	
	Trained n = 280	Untrained n = 84
○ <i>Child (correctly) checked for three general danger signs</i> (ability to drink, vomiting everything, convulsions)	78 (27.9%) ¹	0 (0.0%)
○ <i>Child checked for the presence of three main symptoms: cough, diarrhoea and fever</i>	220 (78.6%) ²	52 (61.9%)
○ Child checked for the presence of an ear problem	220 (78.6%) ¹	4 (4.8%)
○ Child (correctly) checked for palmar pallor	163 (58.2%) ¹	0 (0.0%)
○ Child (correctly) checked for visible wasting	89 (31.8%) ¹	0 (0.0%)
○ Child (correctly) checked for the presence of oedema of both feet	117 (41.8%) ¹	0 (0.0%)
○ Child temperature taken (by thermometer)	170 (60.7%) ¹	3 (3.6%)
○ Child weight taken and recorded	248 (88.6%) ¹	43 (51.2%)
○ <i>Child weight checked against a growth chart</i>	175 (62.5%) ¹	16 (19.0%)
○ Child road-to-health card asked	29 (10.4%) ³	4 (4.8%)
○ <i>Child vaccination status checked</i>	198 (70.7%) ¹	19 (22.6%)
○ Child checked for the presence of other problems	124 (44.3%)	51 (60.7%) ⁴
● WHO INDEX OF INTEGRATED ASSESSMENT (Mean of 10 assessment tasks performed) [#]	6.6¹	3.4¹
● ADAPTED INDEX OF INTEGRATED ASSESSMENT – SUDAN (Mean of 14 assessment tasks performed) [#]	8.8¹	3.5¹

¹ P<0.0001

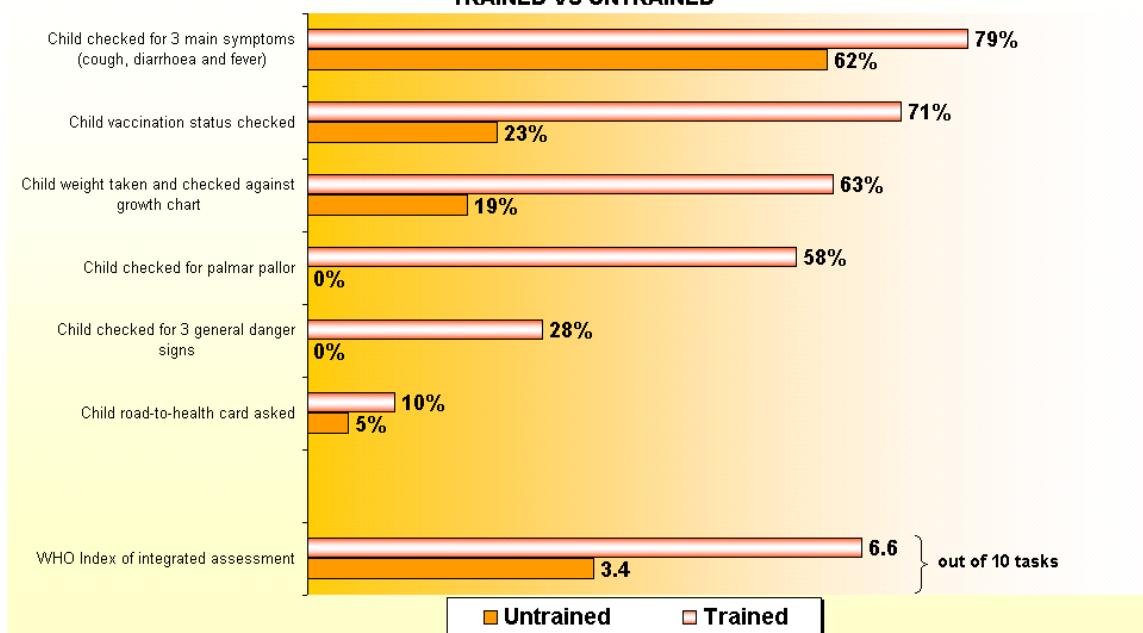
² P<0.01

³ NS = difference not significant (P>0.05)

⁴ P<0.05

[#] Index calculated as the arithmetic mean of the following 10 assessment tasks: child checked for three danger signs (1,2,3), and the three main symptoms (4,5,6); child weighed and weight recorded (7) and checked against a growth chart (8); child checked for palmar pallor (9) and health card asked to check for vaccination status (10). The Sudan index adds the following 4 tasks: child’s temperature checked with thermometer (11) and child checked for the presence of ear problem (12), wasting (13), and oedema of both feet (14).

**INTEGRATED ASSESSMENT (1): MAIN TASKS AND INDEX
TRAINED VS UNTRAINED**



**INTEGRATED ASSESSMENT (2): OTHER TASKS
TRAINED VS UNTRAINED**

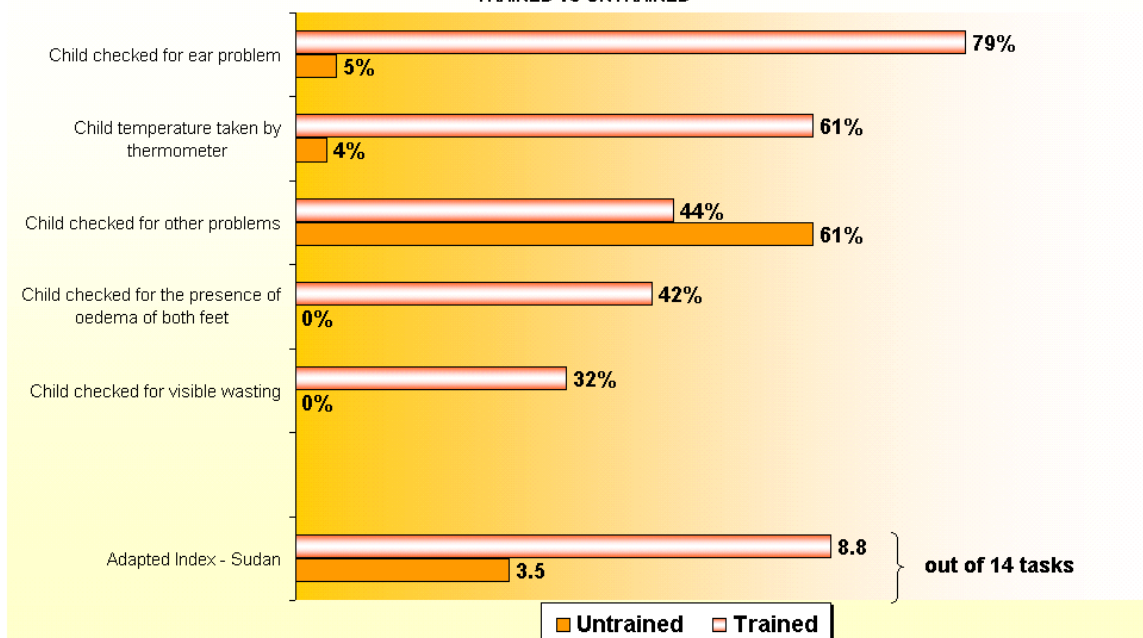


Table A37. Assessment of feeding practices in all children under two years old or in older children with anaemia and/or very low weight, by provider training status[#]

TARGET GROUPS FOR ASSESSMENT OF FEEDING PRACTICES	FEEDING PRACTICES ASSESSED	
	No. (%)	
	TRAINED	UNTRAINED
○ Children under 2 years old - not referred by provider - assessed for feeding practices: breastfeeding, complementary foods and changes in feeding during this episode of illness:	52/149 (34.9%) ¹	0/40 (0.0%)
> Children under 2 years old - not referred by provider - with very low weight and/or anaemia assessed for feeding practices	9/23 (39.1%) ²	0/6 (0.0%)
> Children under 2 years old - not referred by provider - without very low weight and/or anaemia assessed for feeding practices	43/126 (34.1%) ¹	0/34 (0.0%)
○ Children 2 years old or older - not referred by provider – with very low weight and/or anaemia assessed for feeding practices	2/29 (6.9%) ²	0/7 (0.0%)
● <i>IMCI target group for feeding assessment:</i> Children not referred by provider who are under 2 years old or older children with very low weight and/or anaemia assessed for feeding practices	54/178 (30.3%) ¹	0/47 (0.0%)

[#] Children not referred by provider

¹ P < 0.001

² NS = difference not significant (P>0.05)

ASSESSMENT OF FEEDING PRACTICES IN THE TARGET GROUP
TRAINED VS UNTRAINED

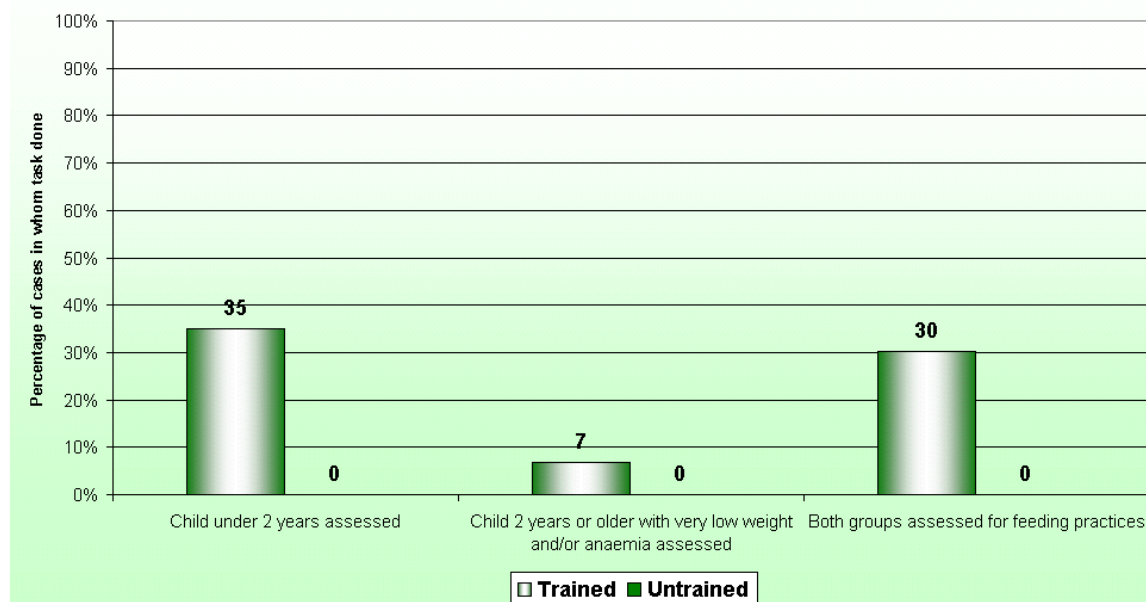


Table A38. Use of correct methodology for selected assessment tasks, by provider training status

TASK	TRAINED	UNTRAINED
	n = 280	n = 84
Child weighed	254 (90.7%) ²	46 (54.8%)
Child's weight correctly taken	155 (55.4%) ³	39 (46.4%)
	n = 280	n = 84
Child's temperature taken	170 (60.7%) ²	3 (3.6%)
Child's temperature correctly taken	50 (17.9%) ²	0 (0.0%)
Children with cough or difficult breathing:	n = 187	n = 41
> Respiratory rate counted	167 (89.3%) ²	6 (14.6%)
> Respiratory rate correctly counted	128 (68.4%) ⁴	2 (4.9%)
	n = 166 ¹	n = 6
> Respiratory rate considered reliable in those in whom counted	68 (41.0%)	2 (33.3%) ⁵
Children with diarrhoea:	n = 85	n = 24
> Duration of episode asked	75 (88.2%) ²	8 (33.3%)
> Presence of blood in stools asked	59 (69.4%) ²	3 (12.5%)
> Something to drink offered	54 (63.5%) ²	1 (4.2%)
> Abdomen skin pinched	70 (82.4%) ²	5 (20.8%)
> Abdomen skin correctly pinched	35 (41.2%)	1 (4.2%) ⁵
Children with ear problem:	n = 26	n = 5
> a. Looks at both ears	11 (42.3%)	0 (0.0%) ⁵
> b. Looks for tender swelling behind ear	5 (19.2%)	0 (0.0%) ⁵
> Looks for both	5 (19.2%)	0 (0.0%) ⁵
Children with fever:	n = 165	n = 42
> Checks for measles within the last 3 months	87 (52.7%) ²	0 (0.0%)

¹ Surveyor's count missing in 1 case, excluded from this analysis

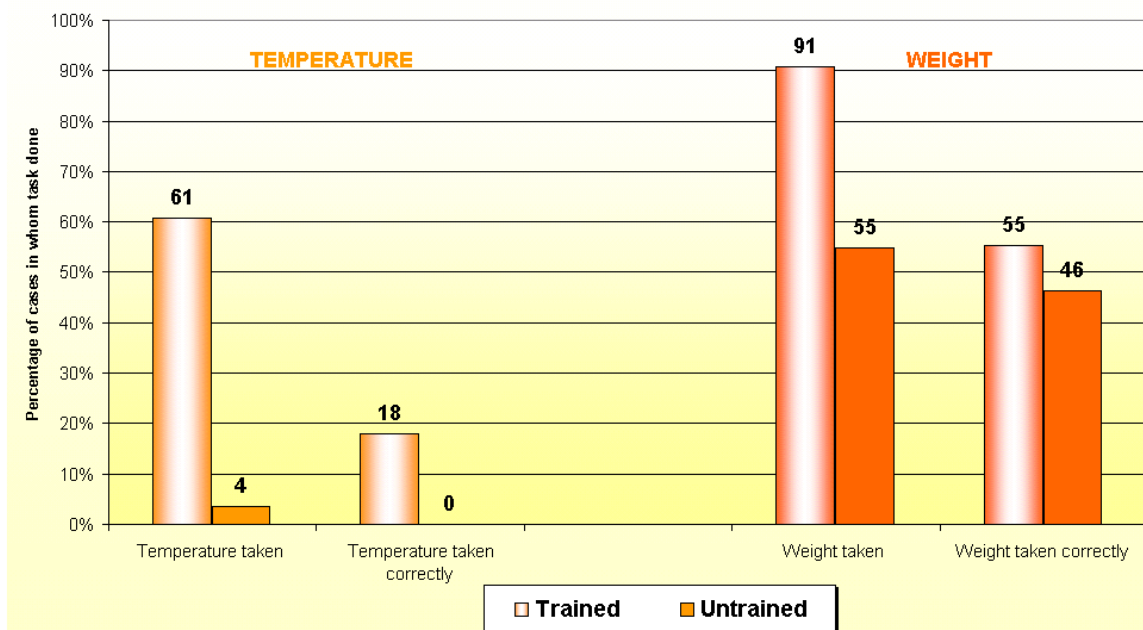
² P < 0.001

³ P < 0.01

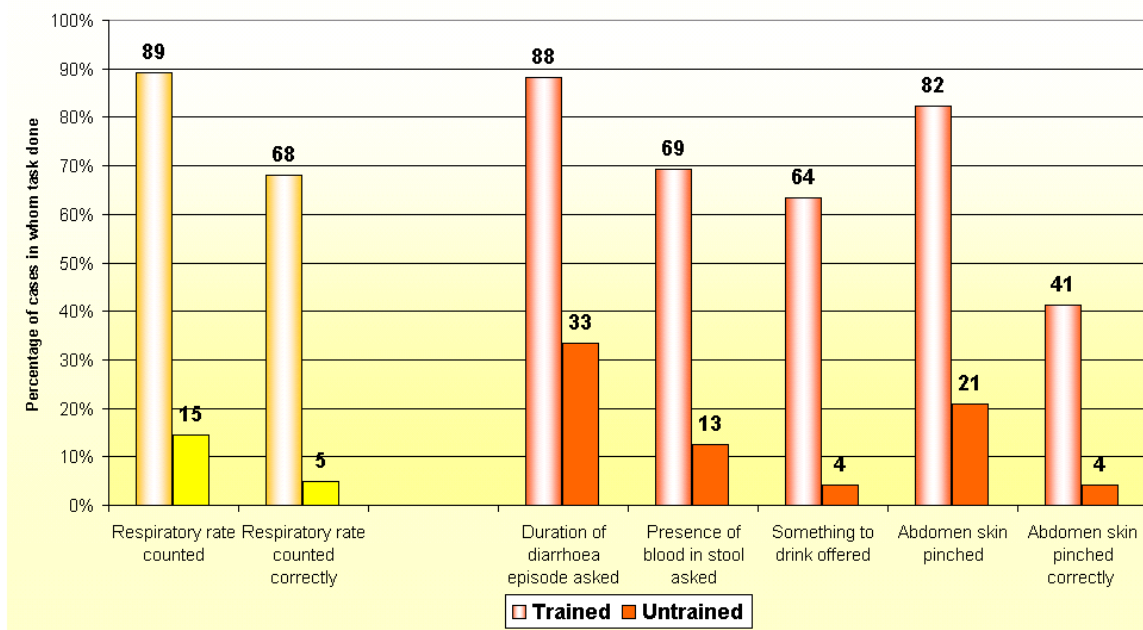
⁴ P < 0.05

⁵ Very few total observations as denominator: NS = difference not significant (P>0.05)

PERFORMANCE OF SELECTED TASKS: TAKING TEMPERATURE AND WEIGHT
TRAINED VS UNTRAINED



SELECTED ASSESSMENT TASKS: ARI AND DIARRHOEA
TRAINED VS UNTRAINED



SELECTED ASSESSMENT TASKS: EAR PROBLEM AND FEVER
TRAINED VS UNTRAINED

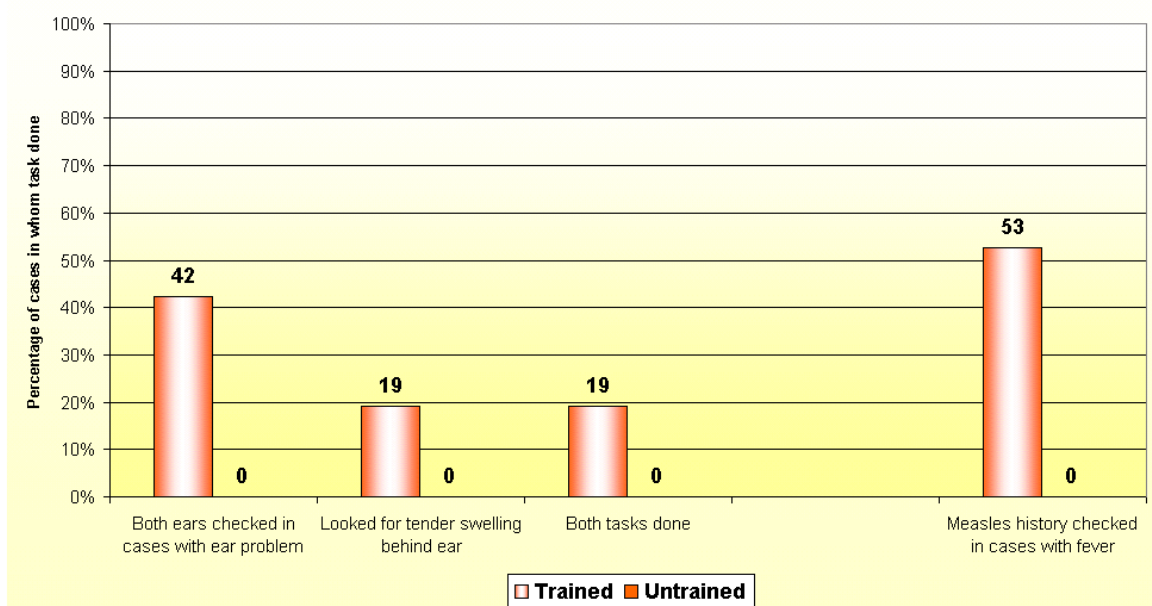


Table A39. Agreement of provider’s classifications with surveyor’s classifications for 189 cases needing treatment, urgent referral or special counselling, by provider training status[#]

CLASSIFICATIONS	AGREEMENT	
	TRAINED ¹	UNTRAINED ¹
Danger signs	0/2 (0.0%)	0/1 (0.0%)
Severe or non-severe pneumonia	32/54 (59.3%)	4/10 (40.0%)
Severe or some dehydration	4/8 (50.0%)	0/3 (0.0%)
Severe and non-severe persistent diarrhoea	3/7 (42.9%)	0/3 (0.0%)
Dysentery	4/8 (50.0%)	No case seen
Very severe febrile disease or malaria	37/52 (71.2%)	10/13 (76.9%)
Severe or non-severe measles with or without complications	0/4 (0.0%)	No case seen
Mastoiditis, acute or chronic ear infections	7/23 (30.4%)	3/4 (75.0%)
Severe malnutrition or very low weight	9/21 (42.9%)	1/5 (20.0%)
Severe or non-severe anaemia	11/47 (23.4%)	2/14 (14.3%)
CHILDREN FOR WHOM THERE WAS AGREEMENT ON THE ABOVE CLASSIFICATIONS	53/154 (34.4%)²	7/35 (20.0%)

[#] Includes all “red” and “yellow” row classifications of the IMCI chart, and measles. The proportion of cases with the above classifications seen by IMCI-trained provider was higher than that seen by untrained providers. The difference was statistically significant at $P < 0.05$. These cases require more clinical skills than those with “green” row classifications that need only advice on home care.

¹ The number of cases in the untrained group, and for some indicators also in the trained group, was too small for any difference to reach statistical significance

² NS = difference not significant ($P > 0.05$)

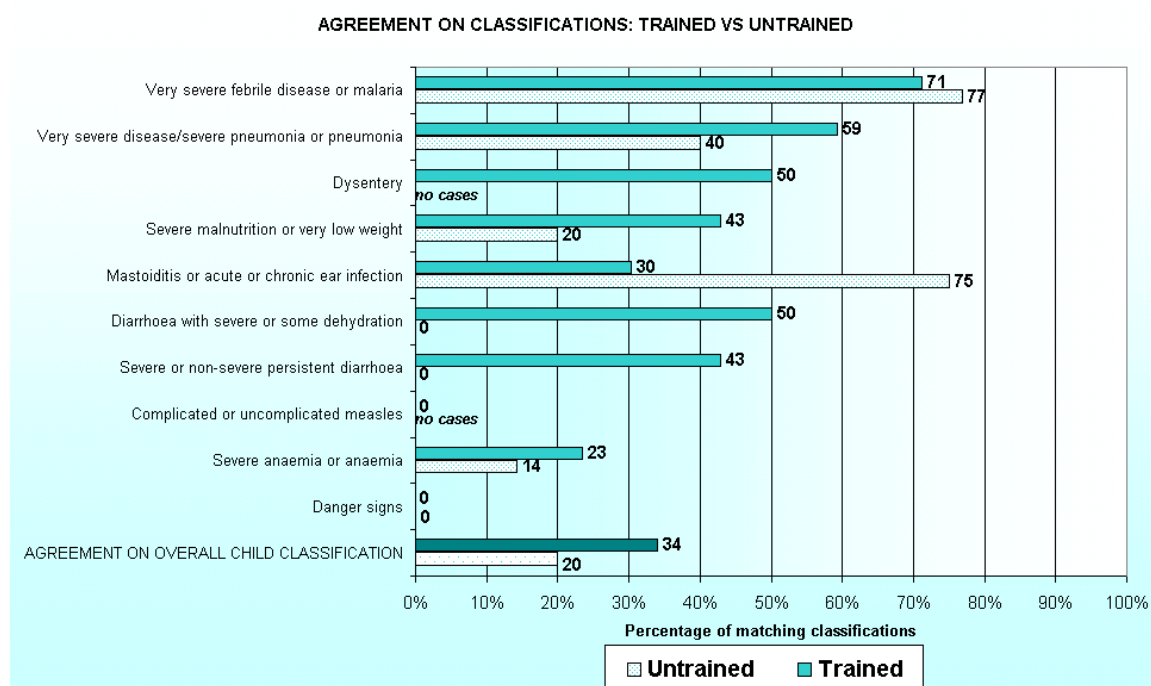


Table A40. Oral antibiotic treatment prescribed correctly for children with an “IMCI condition”, by provider training status[#]

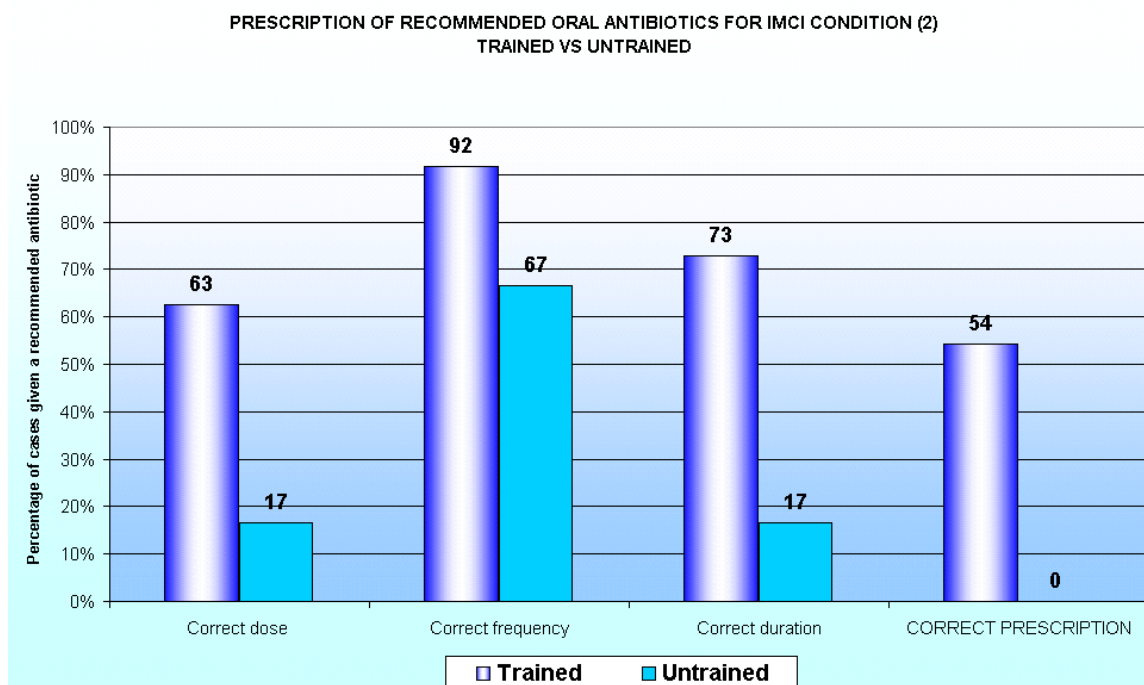
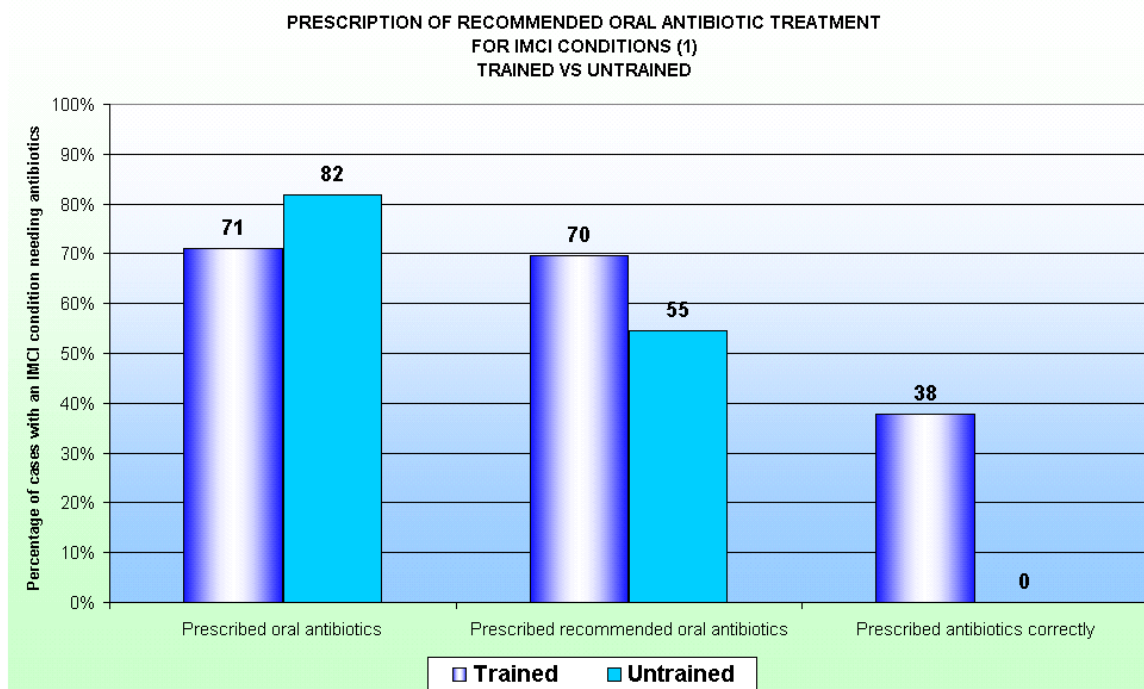
CASES	TRAINED	UNTRAINED
• Children with an IMCI condition not requiring urgent referral and needing oral antibiotics:	n = 69	n = 11
> Prescribed oral antibiotics	49 (71.0%)	9 (81.8%)
> Prescribed a recommended oral antibiotic	48 (69.6%)	6 (54.5%)
> Prescribed recommended oral antibiotics correctly (see below):	26 (37.7%) ¹	0 (0.0%)
- Of those prescribed recommended oral antibiotics:	n = 48	n = 6
> 1. Prescribed correct amount (dose)	30 (62.5%)	1 (16.7%)
> 2. Prescribed correct number of times per day (frequency)	44 (91.7%)	4 (66.7%)
> 3. Prescribed correct number of days (duration)	35 (72.9%)	1 (16.7%)
> Prescribed correctly (all 3 above)	26 (54.2%)	0 (0.0%)
• Caretakers of children prescribed recommended oral antibiotics:	n = 48	n = 6
> 1. Knowing the dose to be given each time	24 (50.0%)	0 (0.0%)
> 2. Knowing the number of times a day to be given	29 (60.4%)	1 (16.7%)
> 3. Knowing for how many days to be given	22 (45.8%)	2 (33.3%)
> Able to describe correctly how to give antibiotics (i.e., knowing all 3 above)	12 (25.0%) ²	0 (0.0%)
• Pneumonia cases (not requiring urgent referral):	n = 45	n = 9
> Prescribed oral antibiotics	36 (80.0%)	7 (77.8%)
> Prescribed recommended oral antibiotics	35 (77.8%)	4 (44.4%)
> Prescribed recommended oral antibiotics correctly	18 (40.0%) ¹	0 (0.0%)
• Dysentery cases (not requiring urgent referral):	n = 8	n = 0
> Prescribed oral antibiotics	4 (50.0%)	-
> Prescribed recommended oral antibiotics	3 (37.5%)	-
> Prescribed recommended oral antibiotics correctly	3 (37.5%)	-
• Children not needing antibiotics (for an IMCI or non-IMCI reason) and not requiring urgent referral:	n = 193	n = 61
> Prescribed no antibiotics	143 (74.1%)	16 (26.2%)
> Prescribed antibiotics unnecessarily	50 (25.9%) ³	45 (73.8%)

[#] Children needing oral antibiotics and not requiring urgent referral

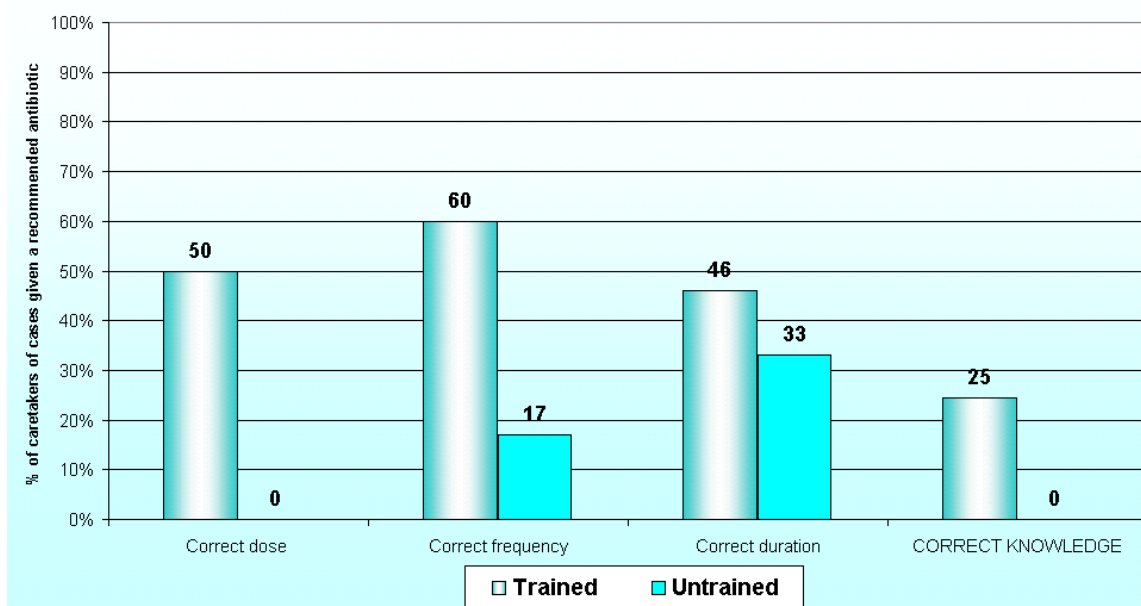
¹ P < 0.05

² NS = difference not significant (P>0.05)

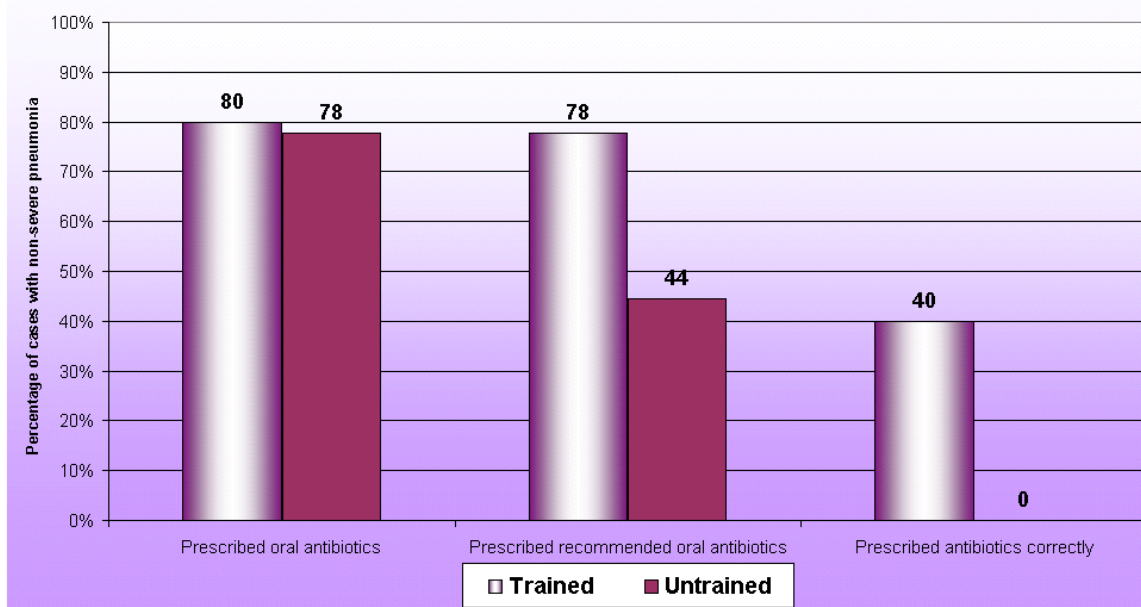
³ P < 0.001



CARETAKER KNOWLEDGE ABOUT ORAL ANTIBIOTIC TREATMENT (IMCI CONDITIONS)
BY PROVIDER TRAINING STATUS



PRESCRIPTION OF ORAL ANTIBIOTICS FOR CASES WITH NON-SEVERE PNEUMONIA
TRAINED VS UNTRAINED



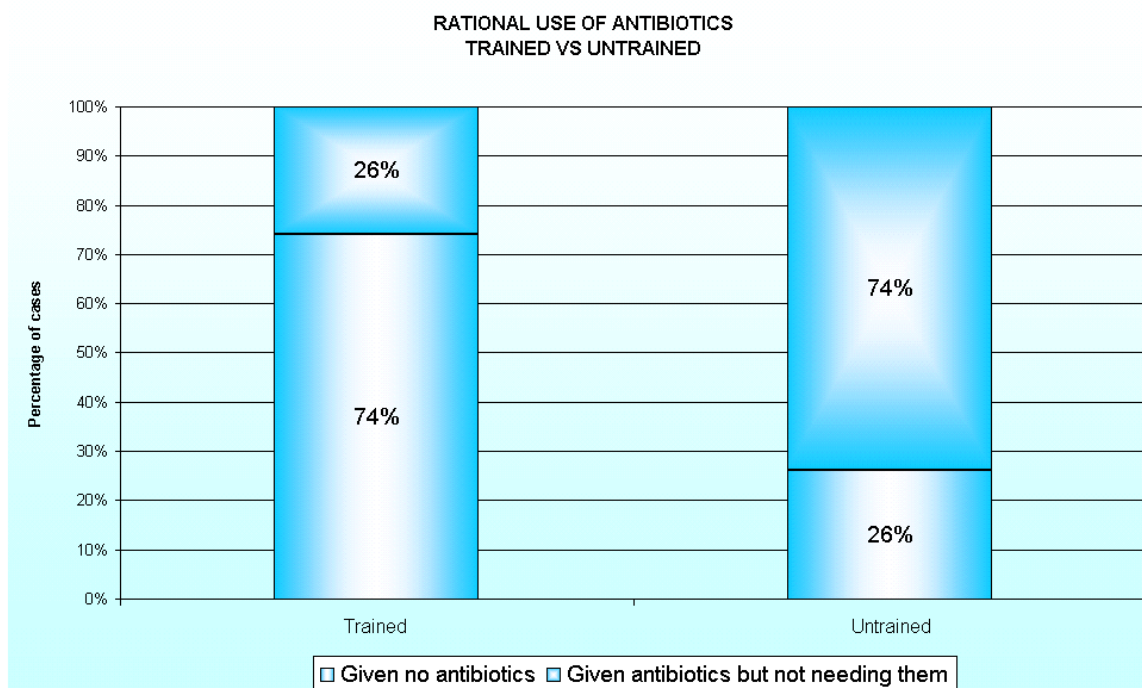
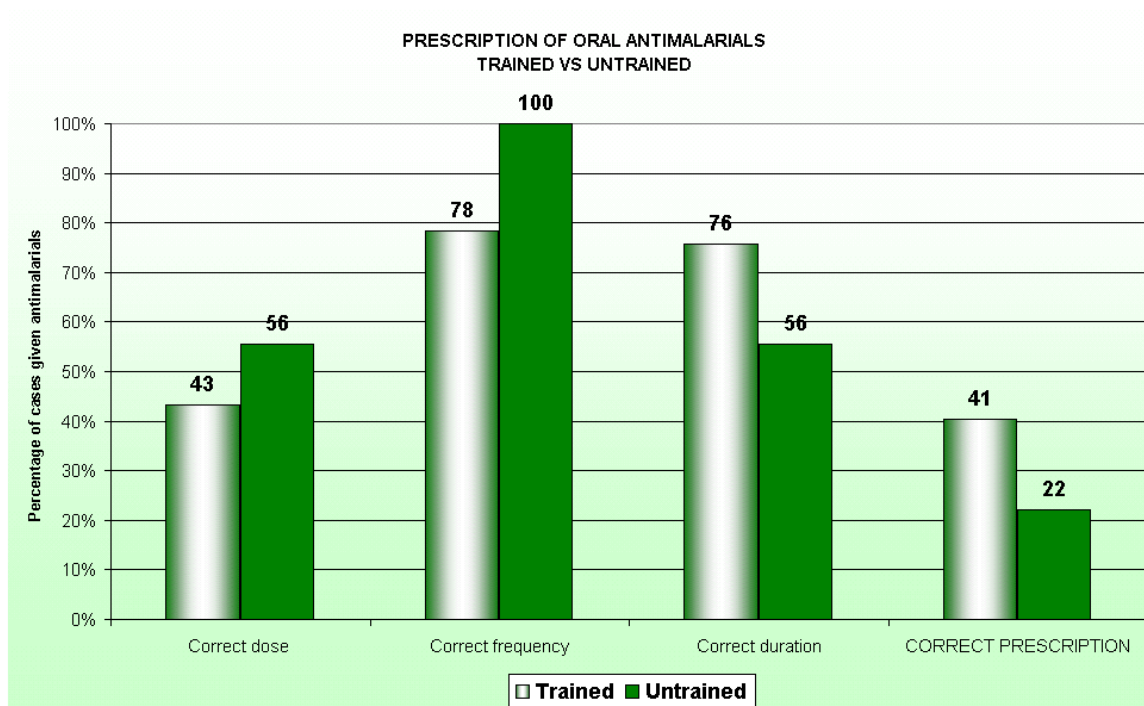
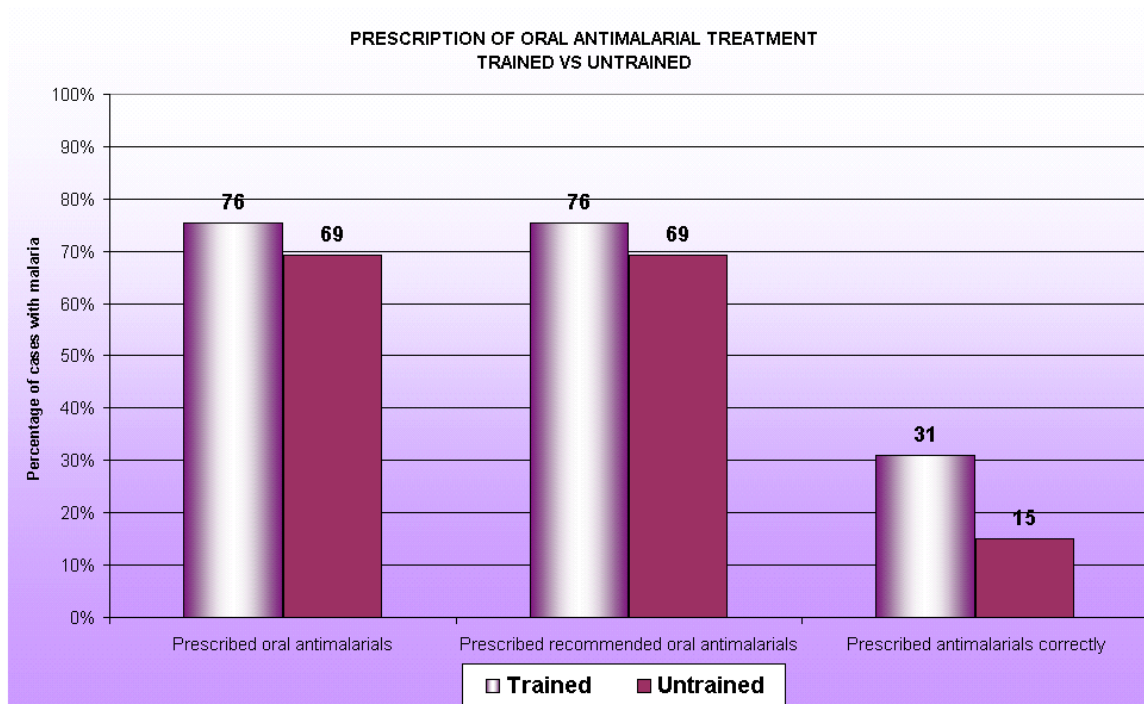


Table A41. Oral antimalarial treatment prescribed correctly for children with malaria not requiring urgent referral, by provider training status

CASES	TRAINED	UNTRAINED
• Children with malaria not requiring urgent referral:	n = 49	n = 13
> Prescribed (recommended) oral antimalarials	37 (75.5%) ¹	9 (69.2%)
> Prescribed recommended oral antimalarials correctly (see below)	15 (30.6%) ¹	2 (15.4%)
- Of those prescribed recommended oral antimalarials:	n = 37	n = 9
> 1. Prescribed correct amount (dose)	16 (43.2%)	5 (55.6%)
> 2. Prescribed correct number of times per day (frequency)	29 (78.4%)	9 (100%)
> 3. Prescribed correct number of days (duration)	28 (75.7%)	5 (55.6%)
> Prescribed correctly (all 3 above)	15 (40.5%) ¹	2 (22.2%)
• Caretakers of children prescribed recommended oral antimalarials:	n = 37	n = 9
> 1. Knowing the dose to be given each time	13 (35.1%)	0 (0.0%)
> 2. Knowing the number of times a day to be given	14 (37.8%)	2 (22.2%)
> 3. Knowing how many days to be given	16 (43.2%)	0 (0.0%)
> Able to describe correctly how to give antimalarials (i.e., knowing all 3 above)	9 (24.3%) ²	0 (0.0%)

¹ NS = difference not significant (P>0.05)

² P < 0.05



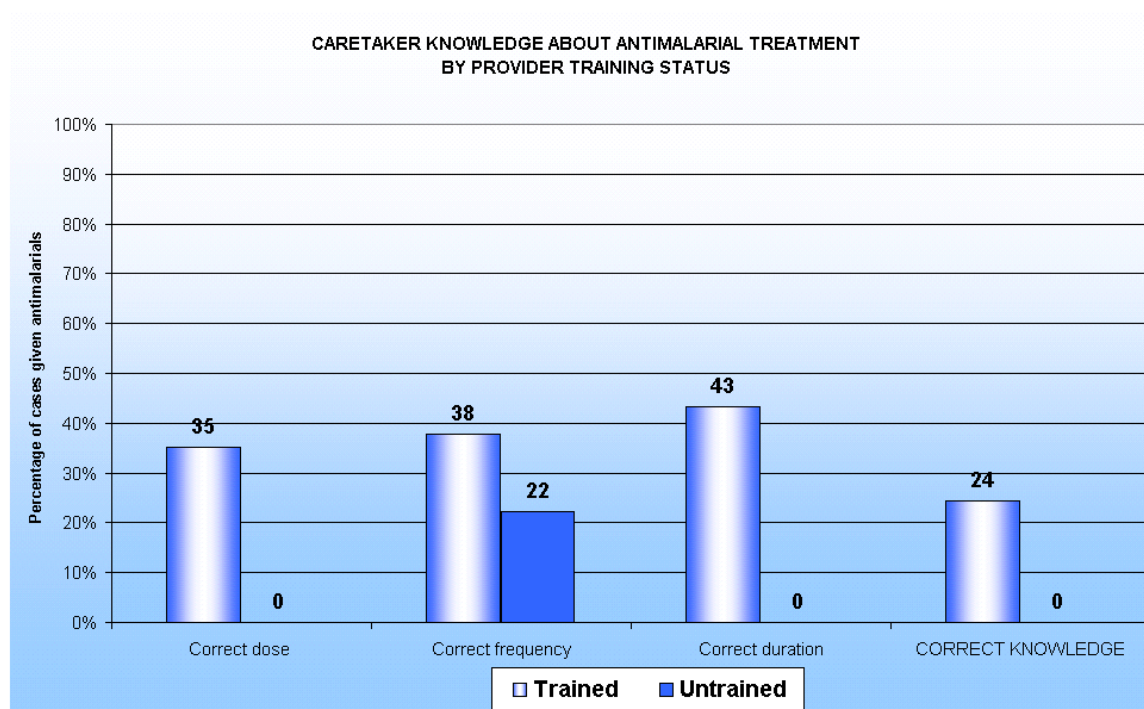


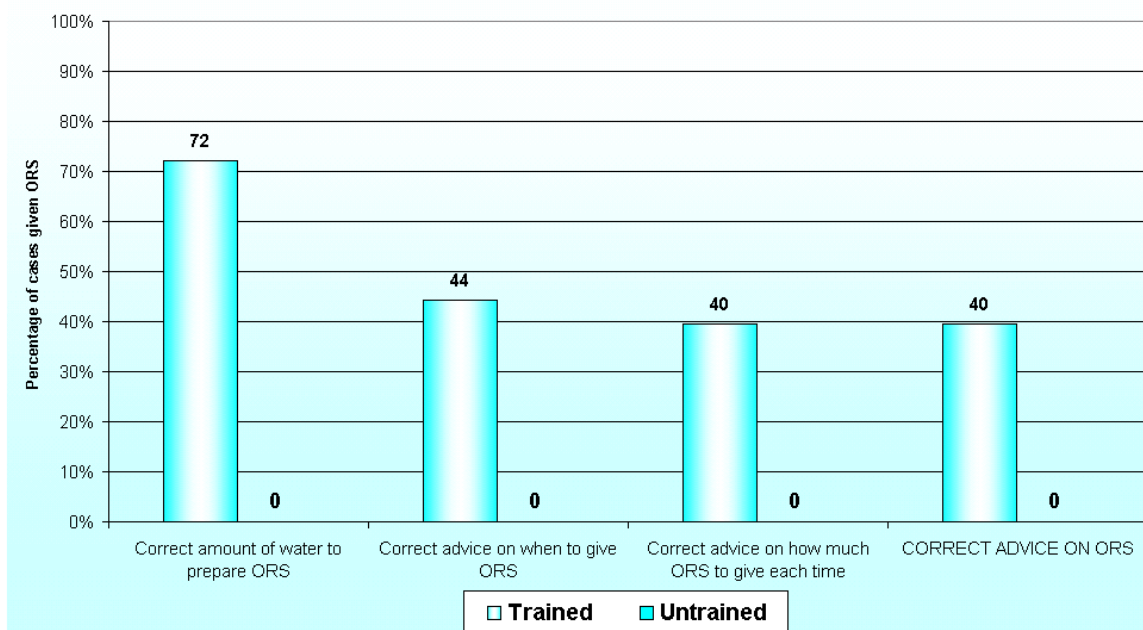
Table A42. Oral rehydration salts (ORS) prescribed correctly for children with diarrhoea not requiring urgent referral, by provider training status

CASES	TRAINED	UNTRAINED
• Children with diarrhoea not needing urgent referral:	n = 82	n = 22
> Given correct instructions on ORS, including its preparation (all three below):	17 (20.7%) ¹	0 (0.0%)
- Of those given ORS:	n = 43	n = 11
> 1. Correctly advised on <i>amount of water</i> to mix with 1 ORS sachet to prepare the solution	31 (72.1%)	0 (0.0%)
> 2. Correctly advised on <i>when to give</i> ORS to the child each day	19 (44.2%)	0 (0.0%)
> 3. Correctly advised on <i>how much</i> ORS to give to the child each time	17 (39.5%)	0 (0.0%)
• Caretakers of children prescribed ORS:		
> 1. <i>Knowing how much water</i> to mix with 1 ORS sachet to prepare solution	34 (79.1%)	8 (72.7%)
> 2. <i>Knowing when to give</i> ORS to the child each day	15 (34.9%)	1 (9.1%)
> 3. <i>Knowing how much</i> ORS to give to the child each time	24 (55.8%)	3 (27.3%)
> Able to describe correctly how to give ORS (i.e., knowing all 3 above)	12 (27.9%) ²	1 (9.1%)

¹ P < 0.05

² NS = difference not significant (P>0.05)

ADVICE ON ORS: TRAINED VS UNTRAINED



CARETAKER KNOWLEDGE ABOUT ORS PREPARATION AND ADMINISTRATION BY PROVIDER TRAINING STATUS

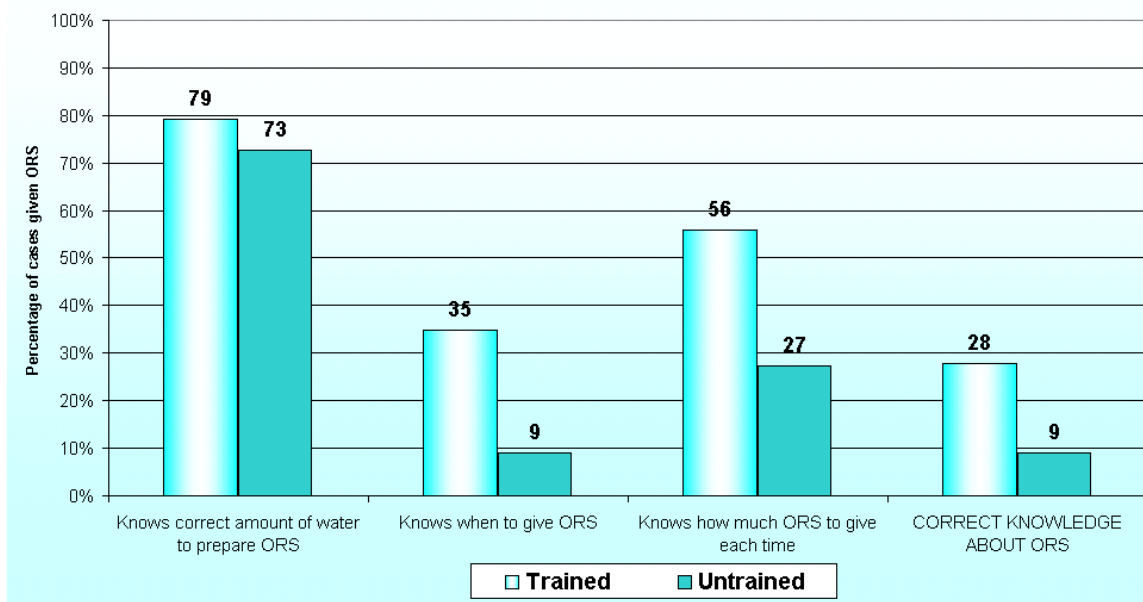
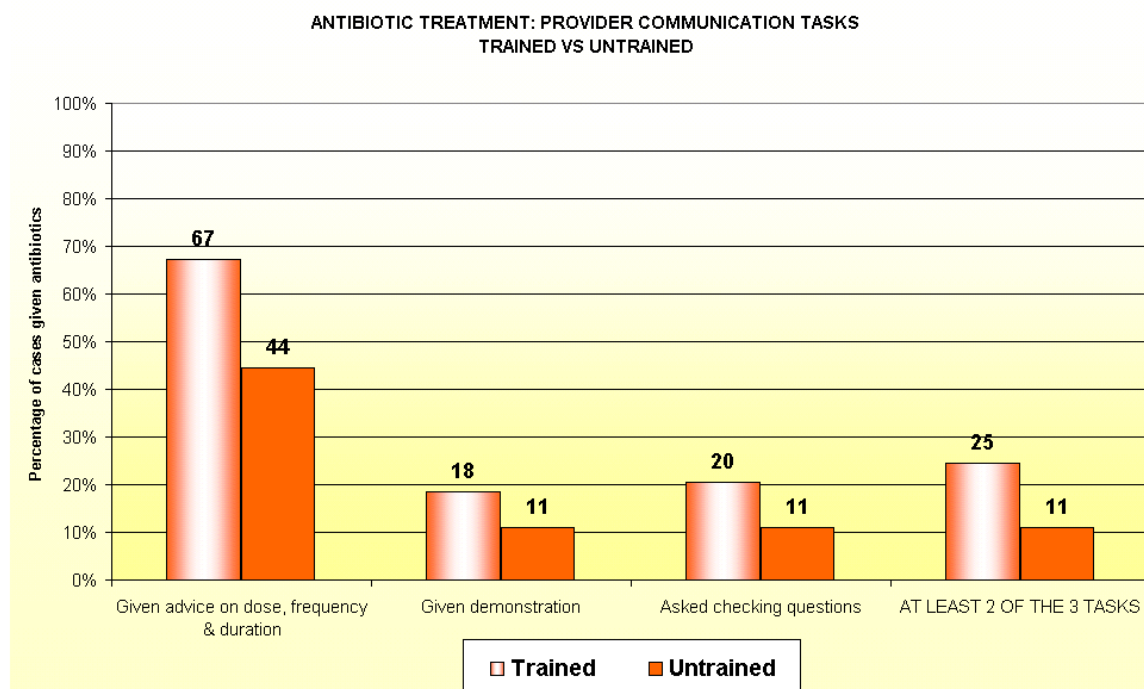


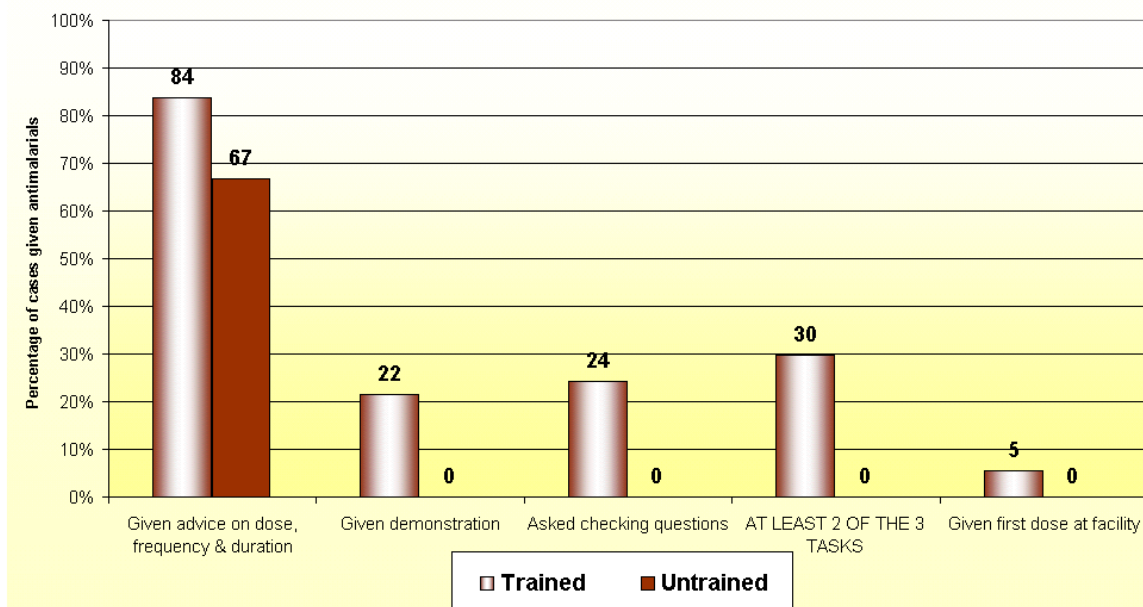
Table A43. Antibiotic, antimalarial and/or ORS treatment: communication tasks in giving advice, by provider training status

ADVICE	TRAINED	UNTRAINED
• Caretakers of children not needing urgent referral, requiring an antibiotic for an IMCI condition and prescribed oral <u>antibiotics</u> :	n = 49	n = 9
> 1. Given advice on dose, frequency and duration of treatment	33 (67.3%)	4 (44.4%)
> 2. Given demonstration on how to give it	9 (18.4%)	1 (11.1%)
> 3. Asked open-ended question to check for understanding	10 (20.4%)	1 (11.1%)
> For whom at least 2 of the above 3 counselling tasks were performed	12 (24.5%)	1 (11.1%)
> Given first dose of antibiotic at the facility	7 (14.3%)	2 (22.2%)
• Caretakers of children not needing urgent referral, requiring an antimalarial and prescribed oral <u>antimalarials</u> :	n = 37	n = 9
> 1. Given advice on dose, frequency and duration of treatment	31 (83.8%)	6 (66.7%)
> 2. Given demonstration on how to give it	8 (21.6%)	0 (0.0%)
> 3. Asked open-ended question to check for understanding	9 (24.3%)	0 (0.0%)
> For whom at least 2 of the above 3 counselling tasks were performed	11 (29.7%)	0 (0.0%)
> Given first dose of antimalarial at the facility	2 (5.4%)	0 (0.0%)
• Caretakers of children with diarrhoea not needing urgent referral given <u>ORS</u> :	n = 43	n = 11
> 1. Given advice on dose, frequency and duration of treatment	28 (65.1%) ¹	0 (0.0%)
> 2. Given demonstration on how to give it	11 (25.6%)	0 (0.0%)
> 3. Asked open-ended question to check for understanding	11 (25.6%)	0 (0.0%)
> For whom at least 2 of the above 3 counselling tasks were performed	17 (39.5%)	1 (9.1%)

¹ For this indicator: P < 0.001. For all the other indicators in this table no significant difference (P>0.05).



ANTIMALARIAL TREATMENT: PROVIDER COMMUNICATION SKILLS
TRAINED VS UNTRAINED



ORS: PROVIDER COMMUNICATION SKILLS
TRAINED VS UNTRAINED

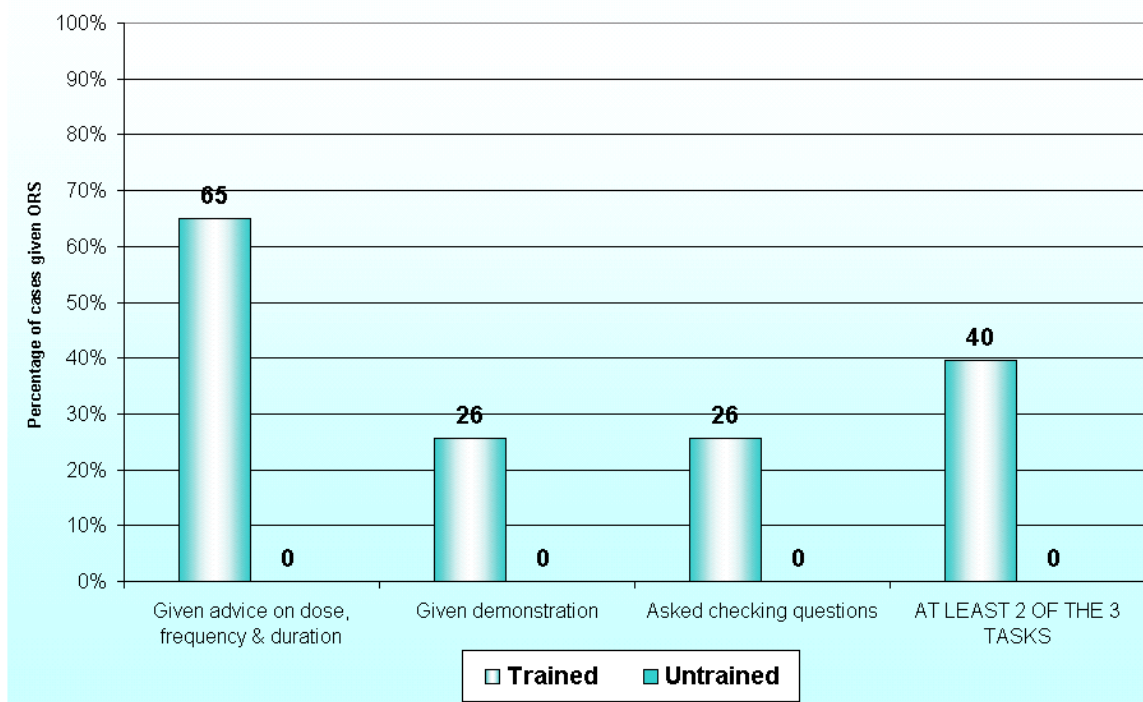


Table A44. Advice on home care: advice given, by provider training status

CASES	TRAINED	UNTRAINED
• Caretakers of children not needing urgent referral advised by the provider:	n = 269	n = 81
> <i>To give extra fluids</i>	139 (51.7%) ²	4 (4.9%)
> <i>To continue feeding</i>	132 (49.1%) ²	1 (1.2%)
> Both messages on extra fluids and continue feeding	113 (42.0%) ²	0 (0.0%)
• Caretakers of children not needing urgent referral advised by the provider to take the child back to the facility immediately if the child:	n = 269	n = 81
- 1. <i>Is unable to drink</i>	74 (27.5%) ²	0 (0.0%)
- 2. <i>Becomes sicker</i>	107 (39.8%) ²	5 (6.2%)
- 3. <i>Develops a fever</i> (for those not having fever by history or temperature)	n = 108 36 (33.3%) ²	n = 39 0 (0.0%)
> All the three above (the first 2 signs for all children and the last one only for children with no fever)	n = 269 52 (19.3%) ²	n = 81 0 (0.0%)
• Caretakers of children classified as “ <u>cough or cold: no pneumonia</u> ” not needing urgent referral advised by the provider to take the child back to the facility immediately if the child:	n = 132	n = 30
- 4. <i>Develops fast breathing</i>	30 (22.7%) ³	0/30 (0.0%)
- 5. <i>Develops difficult breathing</i>	34 (25.8%) ⁴	0/30 (0.0%)
• Caretakers of children with “ <u>diarrhoea and no signs of dehydration</u> ”, not needing urgent referral, advised to take the child back to the facility immediately if the child:	n = 75	n = 20
- 6. <i>Has blood in stools</i> (for those with no bloody stools)	13 (17.3%) ⁵	0 (0.0%)
- 7. <i>Drinks poorly</i>	5 (6.7%) ⁵	0 (0.0%)
• Caretakers of children not needing urgent referral advised by the provider to take the child back to the facility immediately:	n = 269	n = 81
> On at least three of the above 7 signs	69 (25.7%) ¹	0 (0.0%)
> <i>Caretakers advised on all the three home care rules</i> (to give extra to drink and continue feeding and at least three signs on when to return immediately)	n = 269 41 (15.2%) ⁶	n = 81 0 (0.0%)

¹ This denominator refers to children having no fever

² P < 0.0001

³ P < 0.05

⁴ P < 0.01

⁵ NS = difference not significant (P>0.05)

⁶ P < 0.001

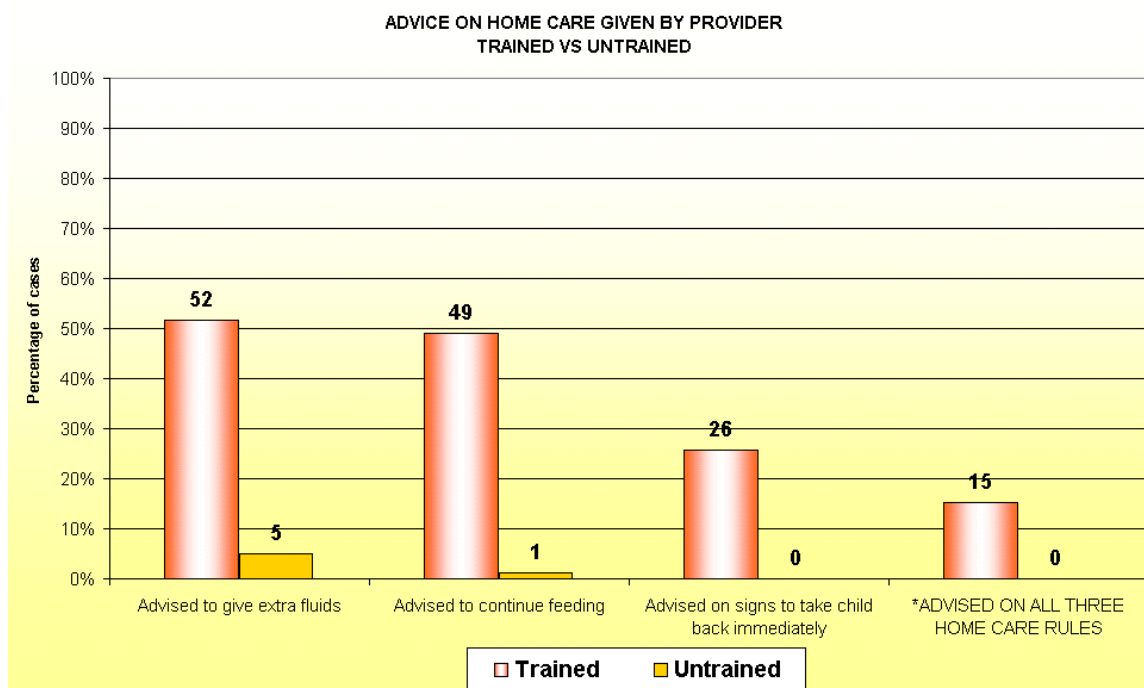


Table A45: Caretakers of children not referred by provider advised on home care by use of the mother home care counselling card and communication techniques, by provider training status

TASK/SKILL	TRAINED	UNTRAINED
• Caretaker of children not referred by provider with whom provider:	n = 266	n = 81
- Used the home care card;	118 (44.4%) ¹	0 (0.0%)
- Used the home card and good communication techniques ¹	18 (6.8%) ²	0 (0.0%)
• Use of good communication techniques in cases in whom the home care card was used:	n = 118	n = 0
> Holding card properly	31 (26.3%)	0
> Pointing at pictures	29 (24.6%)	0
>Checking for caretaker understanding	27 (22.9%)	0

¹ This indicator includes cases in whom all the following occurred: a) the home care card was used; b) The card was either held properly facing the caretaker or the pictures on the card were pointed at while counselling; and c) Caretaker understanding of the advice given was checked by open-ended questions

¹ P < 0.001

² P < 0.01

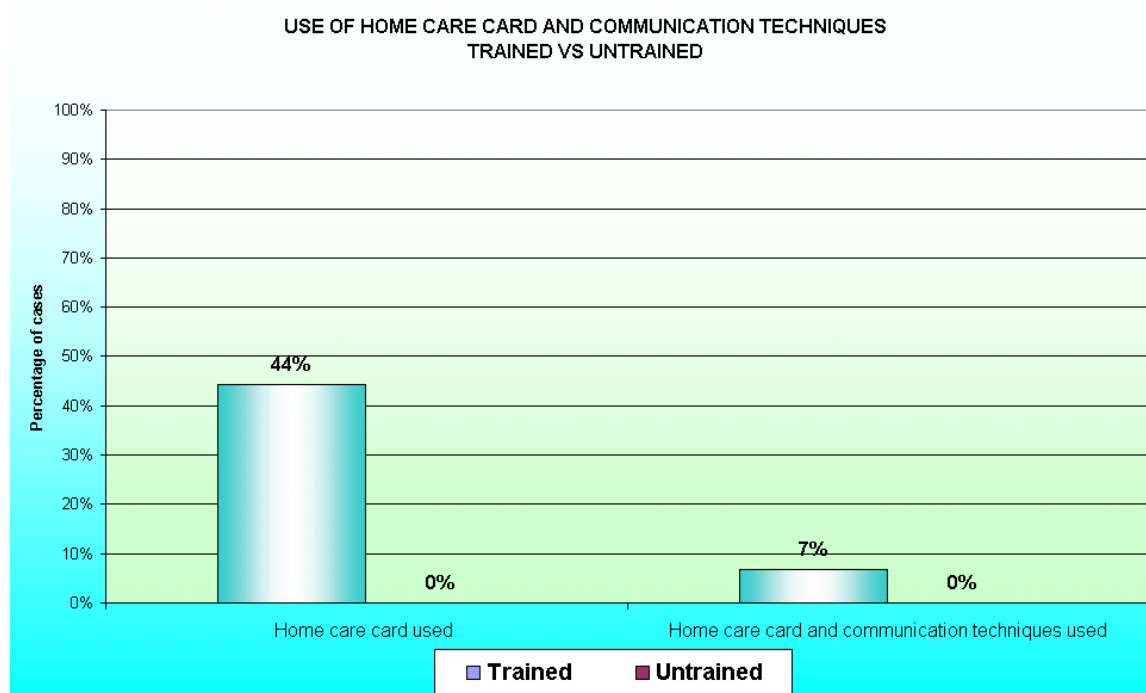


Table A46. Children needing immunisation and given it or advised to come back for a scheduled session, by provider training status

CASES	TRAINED	UNTRAINED
• Children needing vaccinations and not referred by provider:	n = 56	n = 18
> Leaving the facility with all needed vaccinations given	14 (25.0%) ¹	4 (22.2%)
> Leaving the facility with all needed vaccinations given or advice to come back for vaccination on scheduled vaccination day	29 (51.8%)	7 (38.9%)

¹ NS = difference not significant (P>0.05)

QUALITY OF CARE: HEALTH SYSTEMS

AVAILABILITY OF DRUGS

Table A47. Indexes of availability of at least a treatment course of drugs for IMCI

CATEGORY OF DRUGS	INDEX
○ Index of availability of <i>essential oral treatments</i> , namely cotrimoxazole, chloroquine, ORS, Vitamin A, iron and paracetamol (Max index = 6)	5.0 ¹ out of 6
○ Index of availability of the <i>12 non-injectable</i> drugs for IMCI, including the 6 drugs listed above and the following: amoxicillin, nalidixic acid, sulfadoxine-pyrimethamine, diazepam, tetracycline eye ointment and gentian violet (Max index = 12)	8.7 ² out of 12
○ Index of availability of <i>injectable drugs for pre-referral treatment</i> for children and young infants needing urgent referral, namely chloramphenicol, quinine, benzylpenicillin and gentamicin (Max index = 4)	2.6 ³ out of 4

¹ Arithmetic mean of the 6 essential oral drugs recommended for home treatment of pneumonia and dysentery, malaria, diarrhoea, anaemia and fever. Expressed as a percentage, the index is 83.3%. 28 (42%) of the 66 facilities had all the 6 drugs; 18 (27%) facilities had 5 of the 6 drugs available

² Arithmetic mean of the 12 non-injectable drugs required for IMCI. Expressed as a percentage, the index is 72.5%. 6 (9%) of the 66 facilities had all the 12 drugs; 5 (8%) had 10 and 55 (83%) had 9 or less.

³ Arithmetic mean of the 4 recommended injectable drugs for pre-referral treatment of children under five years old with severe classification. Expressed as a percentage, the index is 65.0%. 25 (38%) facilities had all the 4 drugs available, 10 (15%) had 3 of these drugs (chloramphenicol missing in 5 facilities – 4 health centres and 1 dispensary -, gentamicin in 3 – 1 health centre and 2 dispensaries- and quinine in 1, while benzylpenicillin was available in all the 10).

INDEX (ARITHMETIC MEAN) OF DRUG AVAILABILITY (N = 66 FACILITIES)

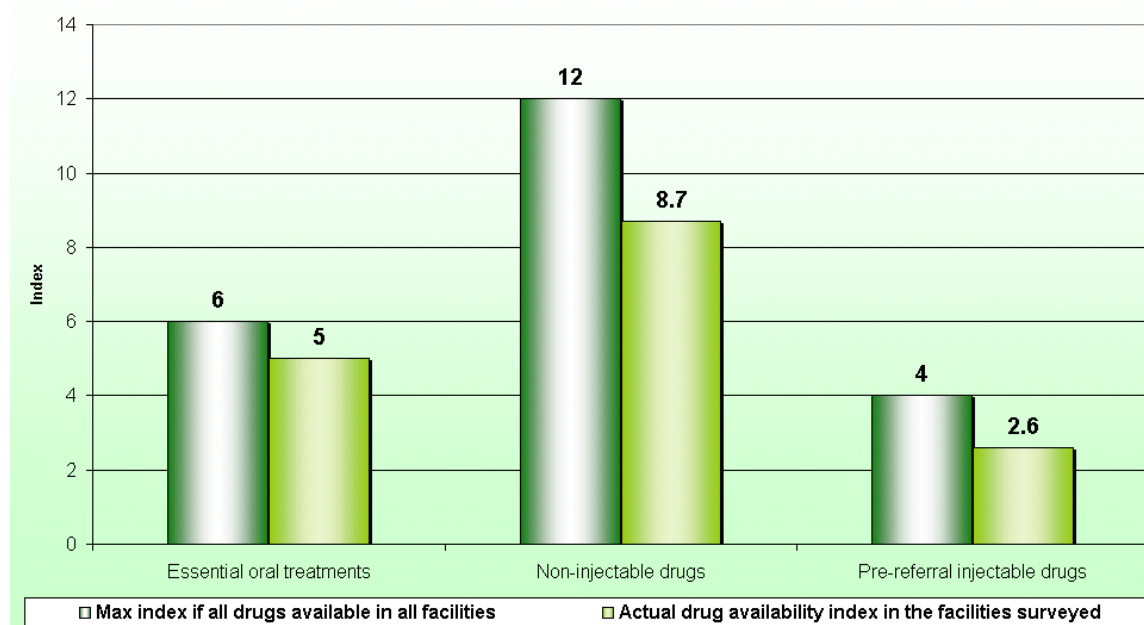


Table A48. Availability of individual drugs recommended for IMCI at the 66 facilities surveyed

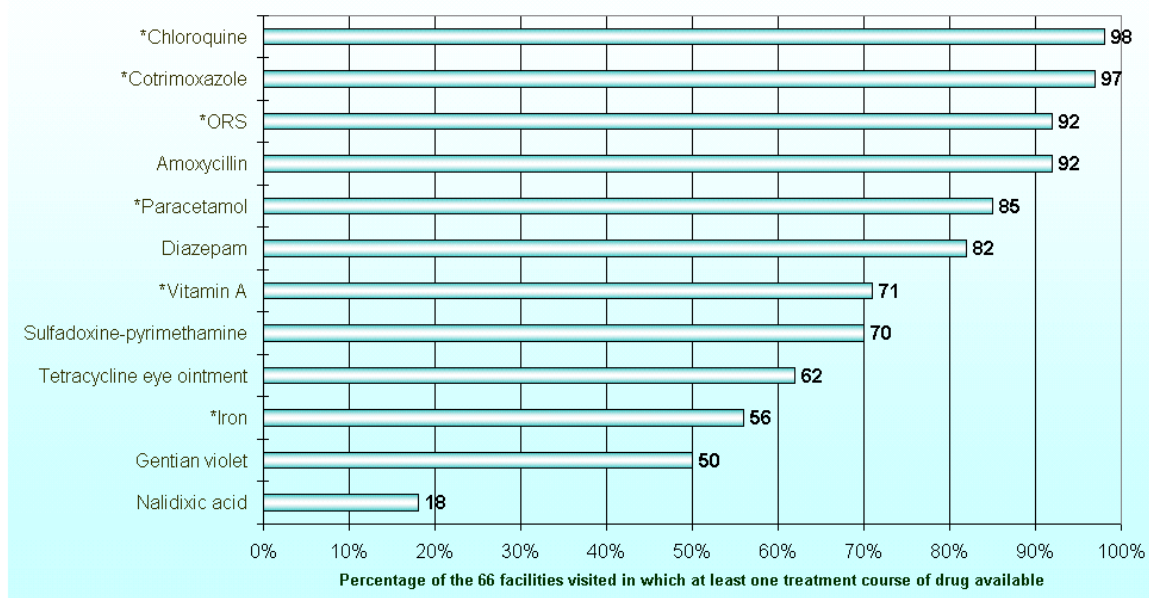
DRUGS	AVAILABLE
	No. (%)
Cotrimoxazole	64 (97%)
Chloroquine	65 (98%)
ORS	61 (92%)
Vitamin A	47 (71%) ¹
Iron	37 (56%)
Paracetamol	56 (85%) ¹
Amoxycillin	61 (92%)
Nalidixic acid	12 (18%)
Sulfadoxine-pyrimethamine	46 (70%) ¹
Tetracycline eye ointment	41 (62%)
Gentian violet	33 (50%)
Salbutamol solution or metered dose inhaler	8 (12%)
Salbutamol syrup	45 (68%)
Diazepam	54 (82%)
Chloramphenicol (inj)	33 (50%)
Quinine (inj)	45 (68%)
Benzylpenicillin (inj)	61 (92%) ¹
Procaine penicillin (inj)	49 (74%)
Gentamicin (inj)	33 (50%) ¹
Ringer's Lactate Solution ²	14 (21%) ^{1,3}
Saline ²	43 (65%) ³

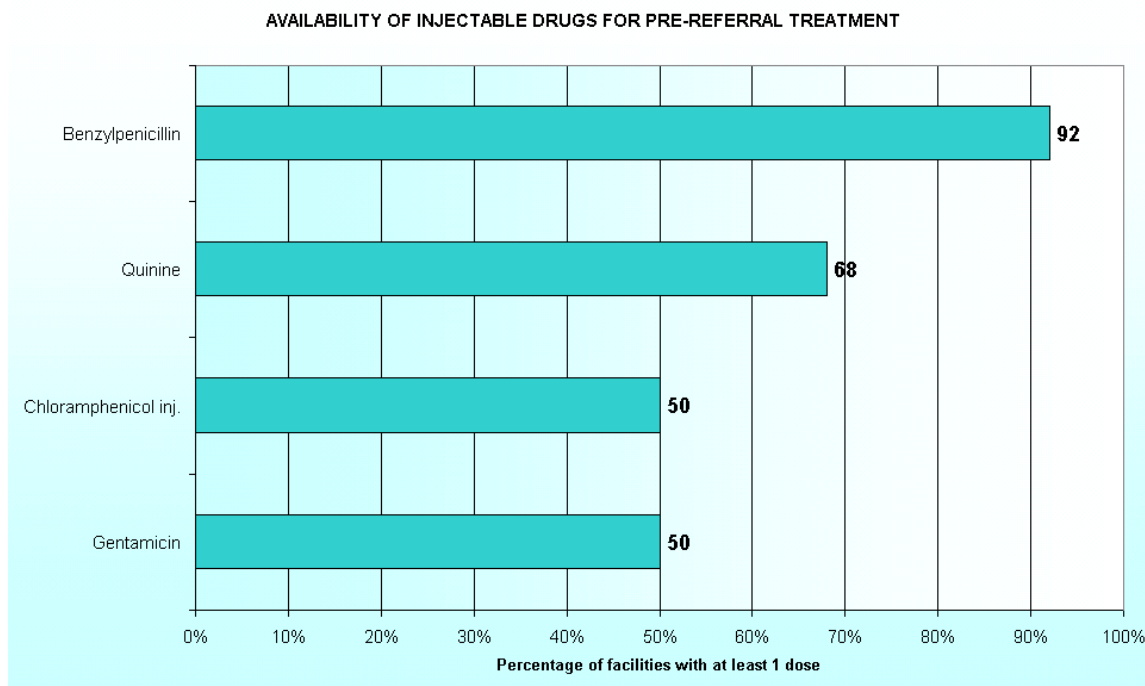
¹ Information missing for 1 facility

² Acceptable IV solutions for rehydration of diarrhoea cases with severe dehydration. Ringer's Lactate Solution available in only one of the five hospitals visited.

³ At least one of the two intravenous solutions available in 48 (72.7%) of the 66 facilities surveyed.

AVAILABILITY OF 12 NON-INJECTABLE DRUGS RECOMMENDED FOR IMCI
(* = Essential oral treatments)





QUALITY OF CARE: HEALTH SYSTEMS

AVAILABILITY OF EQUIPMENT AND SUPPLY

Table A49. Availability of equipment and supply items for IMCI at the 66 facilities surveyed

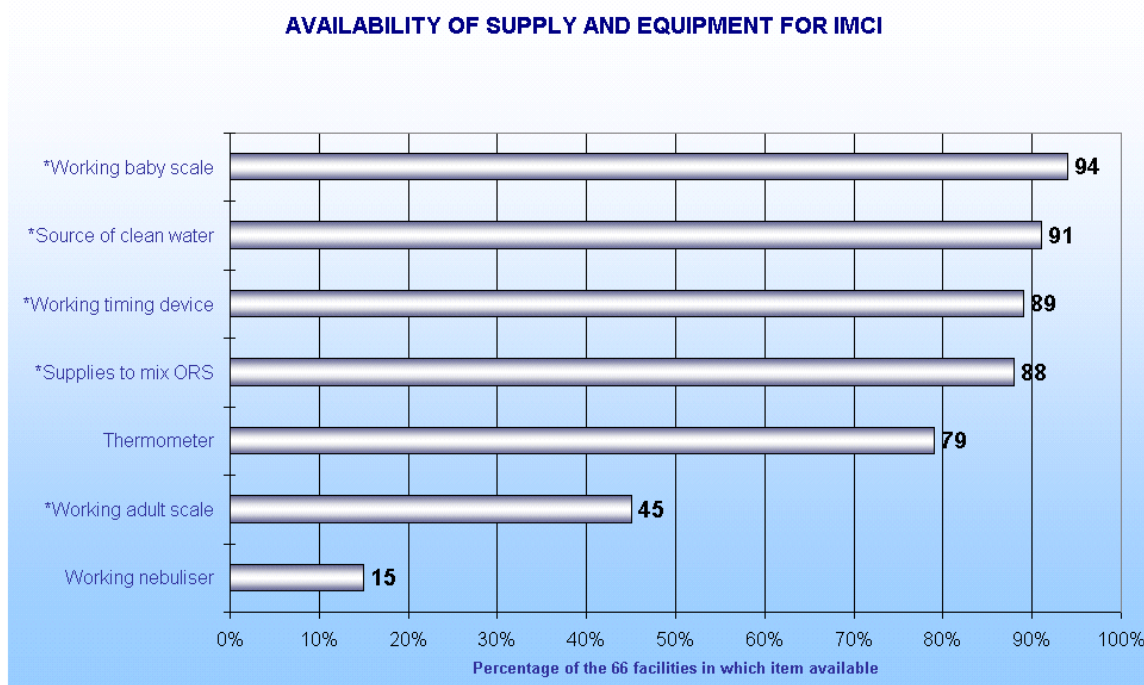
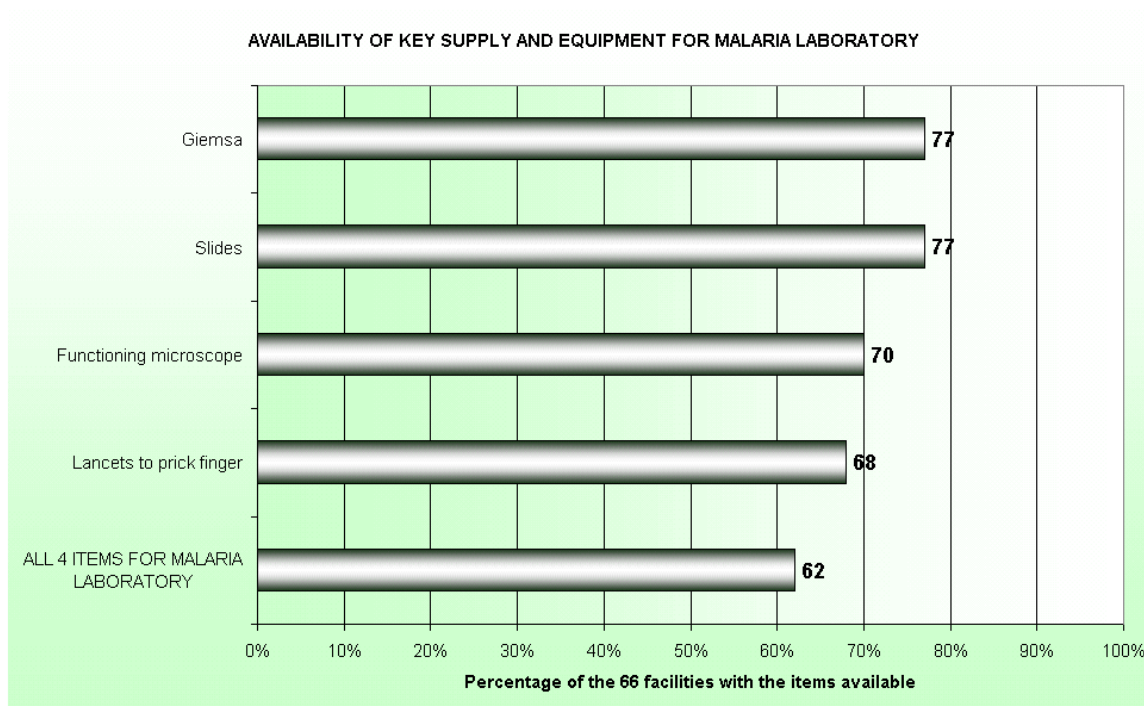
ITEMS	AVAILABLE
	No. (%)
Accessible and working adult scale*	30 (45%)
Accessible and working baby scale*	62 (94%)
Watch or other working timing device *	59 (89%)
Supplies to mix ORS (cups, spoons)*	58 (88%)
Source of clean water (tap water)*	60 (91%)
- Functioning microscope	46 (70%)
- Slides	51 (77%)
- Giemsa	51 (77%)
- Lancets to prick finger	45 (68%)
<i>All 4 items for malaria laboratory</i>	41 (62%)
Mother counselling card on home care for use by provider [#]	51 (77%)
Road-to-health cards	46 (70%) ²
Drug stock cards	27 (41%) ¹
Vaccination register	43 (65%) ¹
IMCI chart booklet [#]	58 (88%)
Working nebuliser	10 (15%)
Thermometer	52 (79%)
IMCI recording forms	51 (77%)
IMCI daily register	43 (65%)

¹Information missing for one facility

²Information missing for 2 facilities

* Facilities with basic equipment and materials (items marked with *): 21/66 (32%).

Facilities with mother counselling card and IMCI chart booklet: 51/66 (77%).



AVAILABILITY OF IMCI RECORDS, COUNSELLING CARDS AND CHART BOOKLET AND OTHER RECORDS

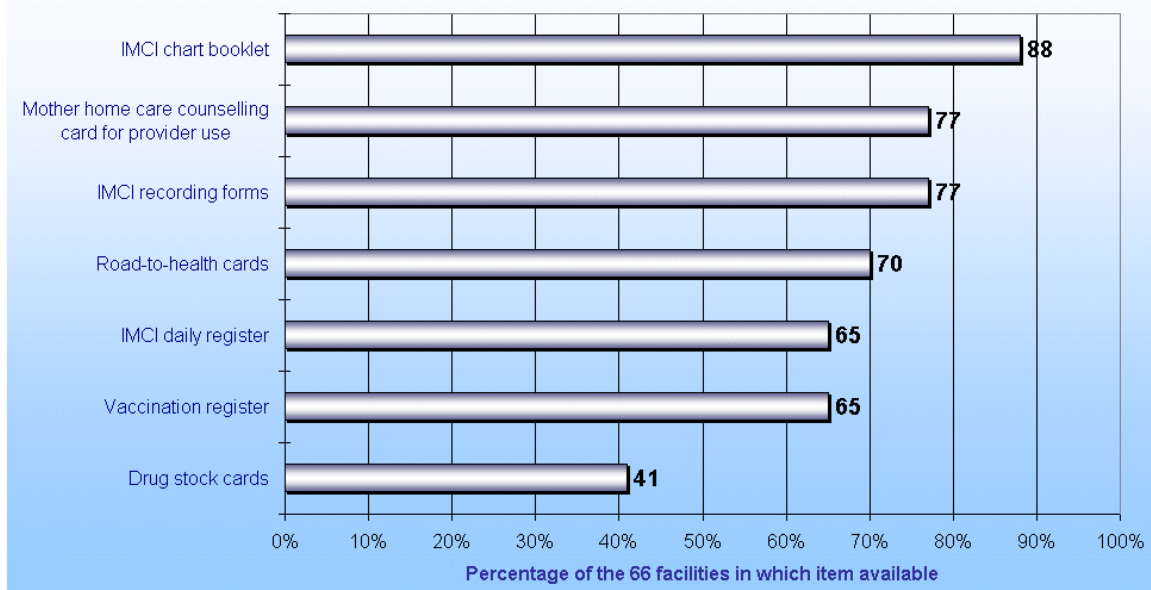


Table A50. Availability of equipment and supply for vaccination¹

ITEMS	AVAILABILITY No. (%)
Facilities that reported providing immunization services	53/66 (80.3%) ^{1,2}
Facilities with availability of:	n = 53
1. Needles and syringes for vaccinations	49 (92.4%)
- Safety box to dispose of used needles and syringes	41 (77.4%)
2. Functioning refrigerator with correct temperature inside	17 (32.1%) ³
3. Cold box and all ice packs frozen	9 (17.0%)
Availability of equipment and supply for vaccination (1. and either 2. or 3. above)	19 (35.8%) ⁴

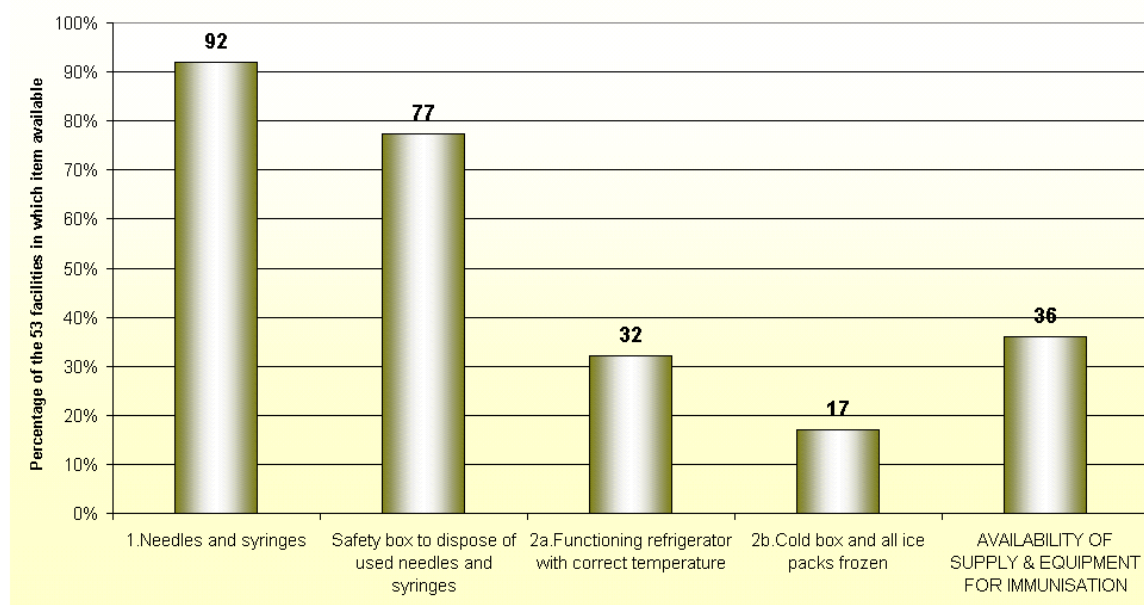
¹ The proposed WHO index of availability of key vaccines was not calculated because facilities providing immunisation services may receive the vaccines just for the immunization session. Vaccines would therefore not be found necessarily during the other days of the week. Thus, information on availability of vaccines on the day of the visit during the survey would have been misleading in the case of Sudan. Among the 13 facilities that did not provide immunisation services were: 4 health centres and 9 dispensaries.

² This rate has to be interpreted with caution. In Sudan, even if some facilities may provide no immunization services, these services may be provided to the areas they cover by other levels of the health system through outreach services directly to those areas.

³ No information available on one refrigerator locked at the time of the visit

⁴ However, vaccines may be taken to the health facility by vaccine carrier on the day of the immunization session. No cold chain equipment would therefore be found at these facilities in these cases.

AVAILABILITY OF SUPPLY AND EQUIPMENT FOR IMMUNISATION
AT 53 FACILITIES PROVIDING IMMUNISATION SERVICES



QUALITY OF CARE: HEALTH SYSTEMS

IMMUNIZATION SERVICES

Table A51. Immunization sessions in the 53 facilities providing immunization services[#]

SERVICE	AVAILABILITY No. (%)
• Immunization sessions held weekly:	47 (88.7%)
> Number of sessions per week:	
- 1 session	2 (3.8%)
- 2 sessions	13 (24.5%)
- 3 sessions	8 (15.1%)
- 4 sessions	2 (3.8%)
- 6 sessions	22 (41.5%)
• Immunization session for selected or all antigens held less frequently than weekly but within any given month	16 (30.2%)

[#] 13 facilities reported providing no immunization services and are excluded from this denominator

Table A52. Provision of vaccines in the 53 facilities providing immunization services[#]

Availability of antigens	Available weekly	Not available weekly but available monthly	Total available within any given month
> All antigens below	37 (69.8%)	13 (24.5%)	50 (94.3%)
- Measles	41 (77.3%)	12 (22.6%)	53 (100%)
- BCG	40 (75.5%)	10 (18.9%)	50 (94.3%)
- DPT	45 (84.9%)	8 (15.1%)	53 (100%)
- OPV	46 (86.8%)	7 (13.2%)	53 (100%)

[#] 13 facilities reported providing no immunization services and are excluded from this denominator

QUALITY OF CARE: HEALTH SYSTEMS

FACILITY SERVICES AND SUPERVISION

Table A53. **Referral** (n = 66 health facilities surveyed)

SERVICE	No. (%)
Availability of transportation to reach the referral facility ¹	56 (84.8%)
> <i>Time to go to the referral hospital:</i>	
- Less than 30 minutes	52 (78.8%)
- From 31 minutes up to 1 hour	11 (16.7%)
- More than an hour	3 (4.5%)
Facilities reporting problems with referral	21 (31.8%)

¹ Any means of transportation available to, and affordable by, the population living in the area covered by the facility

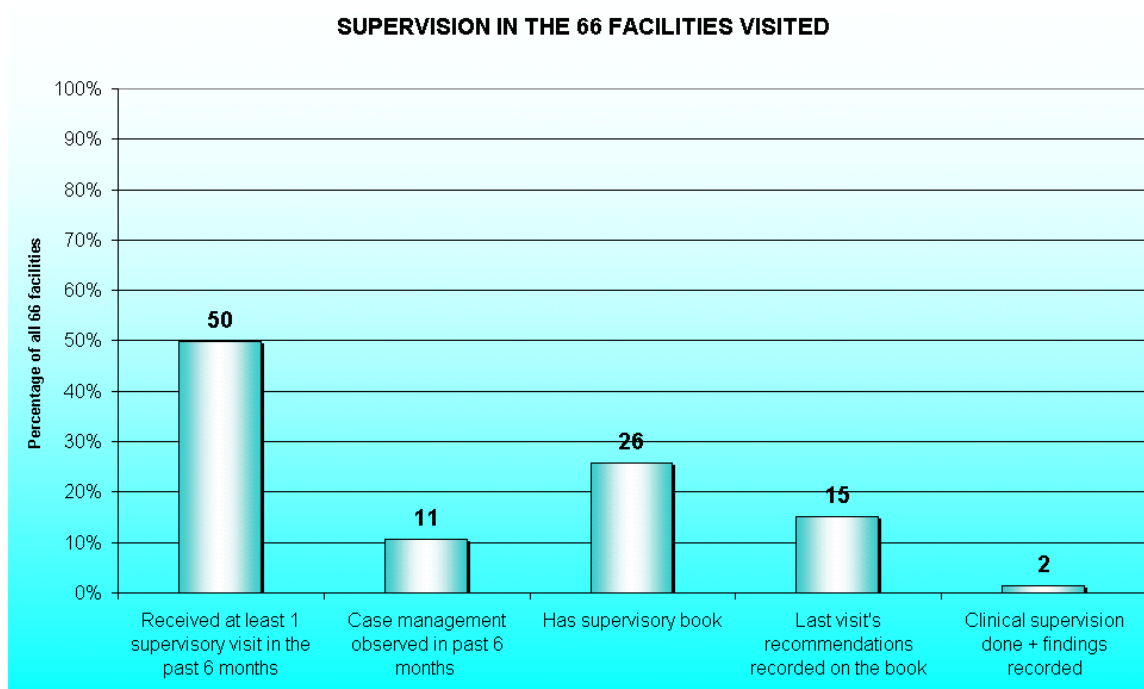
Table A54. **Facility services and supervision** (n = 66 health facilities surveyed)

SERVICE	No. (%)
Clinical services both for adults and for children available:	
- 7 days a week	14 (21.2%)
- 6 days a week	50 (75.8%)
- 5 days a week	2 (3.0%)
Facilities with a supervisory visit in the past 6 months	33 (50.0%)
Facilities with a supervisory book	17 (25.8%) ¹
a) Case management observed as part of supervisory visit in the past 6 months	7 (10.6%) ²
b) Last visit's recommendations recorded on the supervisory book	10 (15.2%) ³
Facilities that received clinical supervision with findings recorded	1 (1.5%) ³

¹Information missing for 5 facilities

²Information missing for 2 facilities

³ Information on availability of supervisory book not available for 7 facilities; supervisory book not found in 3 facilities in which the health provider said it was available



A P P E N D I X

SURVEY FORMS

[English and, where applicable, Arabic version]

Enrolment Card

Date: ____/____/2003

State: _____

District: _____

Facility code: |__|__| Facility Name: _____ Facility type: [HOSP] ① [HC] ② [D/DS] ③

Child's Name: _____ Child's ID: |__|__| **Questionnaire #** |__|__|__|__|
HF code | Child ID

Child's birthdate: |__|__|/|__|__|/|__|__|__|__| Age (months):|__|__| Child sex: [M] ① [F] ②

■ Include *only* children 2 months up to 5 years, i.e. born after ____ March 1998 and before ____ January 2003.
(today's date) (today's date)

EC1. Ask caretaker whether this is the first (initial) visit for this illness of the child at this facility. DO NOT INCLUDE follow-up visits for the same episode of illness.

1st visit?: [Yes] ① [No] ② → ⊖ STOP here

EC2. Ask reasons for bringing child to health facility and tick all signs mentioned (then probe, asking: 'Any other problems?').

A. Diarrhoea.....A. [Yes] ① [No] ②

B. Fever/malaria....B. [Yes] ① [No] ②

 B1.If Yes: write term used: _____

C. Cough.....C. [Yes] ① [No] ②

D. Fast/difficult breathing/ pneumonia

D. [Yes] ① [No] ②

 D1.If Yes: write term/s used: _____

 D2.**Ask** how long caretaker waited to seek care since she realised child had this sign: days |__|

E. Ear problem.....E. [Yes] ① [No] ②

F. Unable to drink/breastfeed, vomiting everything, convulsions, lethargic/unconscious

F. [Yes] ① [No] ②

 F1. **Ask** how long caretaker waited to seek care since she realised child had this sign: days |__|

G. Other.....G. [Yes] ① [No] ② (If Yes: specify _____)

EC3. Ask: "What symptom worried you most that made you decide to take your child here?"

_____ (write local term as mentioned by caretaker) (_____ (write meaning in English))

Read statement on this survey to caretaker and ask for her/his consent: Consent given: [Yes] ① [No] ②
(Supervisor initials: _____)

Weight: |__|__|.____| **Temperature:** |__|__|.____| °C |__|__|.____| °F

Form 1:Observation [] **Form 2:**Caretaker interview [] **Form 3:**Re-examination []

➔ Approximate time taken for observation: _____ minutes

Form 1. OBSERVATION CHECKLIST—CHILD (2 months - 5 years)

Date: ___/___/ 2003 Facility: Code: |___|___| Type: [HOSP]① [HC]② [D/DS]③

Child: Name _____ ID:|___|___| Birth date: ___/___/___ Age (months)|___|___|

Surveyor ID: |___|___| Health worker: Name _____ ID: |___| Sex: [M] ① [F] ②

Type: [Doctor] ① [Medical ass't] ② [Nurse] ③

❖ **I1. Health worker trained in IMCI?**

[Yes] ① [No] ② → Skip to question # A1

🔔 *If YES (trained in IMCI):*☞ **I2. When trained in IMCI?** |___|___||___|___||___|___|___|
(Day) || Month || Year☞ **I3. Followed up after training?**

[Yes] ① [No] ② → Skip to question # A1

🔔 *If YES (followed up):*☞ **I4. How many follow-up (not supervisory) visits after the training course?**

|___|___| visits

☞ **I5. How long after the training course the 1st follow-up visit?**

[<2 months] ① [2 or more months] ② [Don't remember] ③

ASSESSMENT MODULE (Record what you hear or see)➤ **WEIGHT****A1. Does the health worker, or another staff, weigh the child today?**

[Yes] ① [No] ② → Skip to question # A4 [Don't know] ③ → Skip to question # A4

🔔 *If YES (weight taken):*☞ **A1a. Who has taken the weight?**

[Doctor]① [Medical ass't]② [Nurse]③ [Nutrition educator]④ [Vaccinator]⑤ [Health visitor]⑥

☞ **A1b. Is the weight taken correctly?**

[Yes] ① [No] ② [Don't know] ③

☞ **A1c. Is the weight recorded?**

[Yes] ① [No] ②

Record the weight, if taken, on the enrolment card

➤ **TEMPERATURE**

A4. Does the health worker, or another staff, check the temperature of the child today (with thermometer)?

[Yes] ① [No] ② → Skip to question # A6 [Don't know] ⑧ → Skip to question # A6

🔔 *If YES (temperature taken):*

☞ **A4a. Who has taken the temperature?**

[Doctor]① [Medical ass't]② [Nurse]③ [Nutrition educator]④ [Vaccinator]⑤ [Health visitor]⑥

☞ **A4b. Is the temperature taken correctly?**

[Yes] ① [No] ② [Don't know] ⑧

Record the temperature, if taken, on the enrolment card

➤ **DANGER SIGNS**

A6. Does the health worker ask *and* correctly check whether the child is able to drink or breastfeed?

[Yes] ① [No] ② [Child breastfeeding now] ③

A7. Does the health worker ask *and* correctly check whether the child vomits everything?

[Yes] ① [No] ②

A8. Does the health worker ask *and* correctly check whether the child has convulsions (related to this episode of illness)?

[Yes] ① [No] ② [Child convulsing now] ③

A9. Is the child visibly awake (e.g., playing, smiling, crying with energy)?

[Yes] ① → Skip to question # A11 [No] ②

☞ **A10. 🔔 *If child NOT visibly awake: Does the health worker check for lethargy or unconsciousness (try to wake up the child)?***

[Yes] ① [No] ②

A11. Does the health worker ask for COUGH or DIFFICULT BREATHING?

[Yes] ① [No] ② → Skip to question # A12

☞ **A11a. 🔔 *If YES: Does the child have cough or difficult breathing?***

[Yes] ① [No] ② → Skip to question # A12 [Don't know] ⑧ → Skip to question # A12

If YES, child has cough or difficult breathing:

☞ **A11b. Does the health worker count the respiratory rate?**

[Yes] ① [No] ② → Skip to question # A12

If YES, rate is counted:

☞ **A11c. Child calm before and during the count?**

[Yes] ① [No] ②

☞ **A11d. Respiratory rate counted correctly?**

[Yes] ① [No] ②

☞ **A11e. Write the respiratory rate/min counted by the health worker:**

A12. Does the health worker ask for DIARRHOEA?

[Yes] ① [No] ② → Skip to question # A121

☞ **A12a. 🚫 If YES: Does the child have diarrhoea?**

[Yes] ① [No] ② → Skip to question # A121 [Don't know] ⑧ → Skip to question #A121

🚫 *If YES, child has diarrhoea:*

☞ **A12b. Does the health worker ask for how long the child has been having diarrhoea?**

[Yes] ① [No] ②

☞ **A12c. Does the health worker ask if there is blood in the stools?**

[Yes] ① [No] ②

☞ **A12d. Does the health worker offer the child something to drink or observe breastfeeding?**

[Yes] ① [No] ②

☞ **A12e. Does the health worker pinch the abdomen skin?**

[Yes] ① [No] ② → Skip to question # A121

☞ **A12f. 🚫 If YES: Does the health worker pinch the skin correctly?**

[Yes] ① [No] ②

A121. Does the health worker ask if the child has an EAR PROBLEM?

[Yes] ① [No] ② → Skip to question # A13

☞ **A121a. 🚫 If YES: Does the child have an ear problem?**

[Yes] ① [No] ② → Skip to question # A13 [Don't know] ⑧ → Skip to question # A13

If YES, child has an ear problem:

☞ **A121b. Does the health worker look at both ears of the child?**

[Yes] ① [No] ②

☞ **A121c. Does the health worker feel for swelling behind both ears of the child?**

[Yes] ① [No] ②

A13. Does the health worker ask/feel for FEVER (or refer to temperature if taken previously)?

[Yes] ① [No] ② → Skip to question # A14

☞ **A13a. 🚫 If YES: Does the child have fever ($\geq 37.5^{\circ}\text{C}$) or history of fever?**

[Yes] ① [No] ② → Skip to question # A14 [Don't know] ⑧ → Skip to question # A14

If YES, child has fever:

☞ **A13b. Does the health worker ask if child had MEASLES within the last 3 months?**

[Yes] ① [No] ②

A14. Does the health worker check for visible severe WASTING?

[Yes] ① [No] ② [Don't know] ⑧

A15. Does the health worker look for PALMAR PALLOR?

[Yes] ① [No] ② [Don't know] ⑧

A16. Does the health worker look for OEDEMA of both feet?

[Yes] ① [No] ② [Don't know] ⑧

A17. Does the health worker check child's WEIGHT against a growth chart?

[Yes] ① [No] ② → Skip to question # A18a

🚫 If YES (weight checked against the growth chart):

☞ **A17a. Who has checked the weight against a growth chart?**

[Doctor]① [Medical ass't]② [Nurse]③ [Nutrition educator]④ [Vaccinator]⑤ [Health visitor]⑥

A18a. Does the health worker ask for the child's road-to-HEALTH CARD?

[Yes] ① [No] ② → Skip to question # A20

A19. Does the caretaker have the child's road-to-health card?

[Yes] ① [No] ② → Skip to question # A20

A19a. Does the health worker check the child's road-to-health card?

[Yes] ① → Skip to question # A21 [No] ②

☞ **A20. If caretaker does NOT have the health card or health worker does not check it:
Does the health worker try to find out from the caretaker whether the child has ever received:**

- a. An injection in the forearm against tuberculosis (BCG)? a. [Yes] ① [No] ②
- b. Drops against polio? b. [Yes] ① [No] ②
- c. An injection against DPT (thigh)? c. [Yes] ① [No] ②
- d. A '9 months injection' against measles? d. [Yes] ① [No] ② [NA] ③
- e. Vitamin A blue/red capsule with nipple? e. [Yes] ① [No] ② [NA] ③

A21. Does the health worker ask about BREASTFEEDING?

[Yes] ① [No] ②

A22. Does the health worker ask whether the child takes any other FOODS/FLUIDS?

[Yes] ① [No] ②

A23. Does the health worker ask whether child FEEDING CHANGED DURING ILLNESS?

[Yes] ① [No] ②

A23a. Who has asked these questions on feeding? (*Tick all that apply*)

[Doctor]① [Medical ass't]② [Nurse]③ [Nutrition educator]④ [Vaccinator]⑤ [Health visitor]⑥

[None] ⑦

A24. Does the health worker ask whether the child has "OTHER PROBLEMS"?

[Yes] ① [No] ②

Classification Module

C1. Does the health worker give one or more classifications for the child?

If the health worker does not say anything spontaneously, probe by asking what his/her conclusions are about the child. If he does not know after probing, tick "No"

[Yes] ① [No] ② → skip to Treatment Module

Record all classifications given in the table below:

To be completed by supervisor:


		YES NO		YES NO	
		<i>Based on the re-examination of the child (Form 3) tick surveyor classifications:</i>			
C05. One or more danger signs	[1]	[2]	105. One or more danger signs.....	[1]	[2]
C10. Severe pneumonia/very severe disease	[1]	[2]	110. Severe pneumonia/ Very sev. Disease.....	[1]	[2]
C11. Pneumonia	[1]	[2]	111. Pneumonia.....	[1]	[2]
C12. No pneumonia (cough or cold)	[1]	[2]	112. No pneumonia (cough or cold)	[1]	[2]
C13. Wheezing	[1]	[2]	113. Wheezing.....	[1]	[2]
C20a. Severe dehydration	[1]	[2]	120. (a) Severe dehydration	[1]	[2]
C20b. Some dehydration.....	[1]	[2]	120. (b) Some dehydration.....	[1]	[2]
C20c. No dehydration.....	[1]	[2]	120. (c) No dehydration.....	[1]	[2]
C21. Severe persistent diarrhoea	[1]	[2]	121. Severe persistent diarrhoea	[1]	[2]
C22. Persistent diarrhoea.....	[1]	[2]	122. Persistent diarrhoea.....	[1]	[2]
C23. Dysentery.....	[1]	[2]	123. Dysentery.....	[1]	[2]
C30. Very severe febrile disease	[1]	[2]	130. Very severe febrile disease.....	[1]	[2]
C31. Malaria.....	[1]	[2]	131. Malaria.....	[1]	[2]
C32. Fever, malaria unlikely	[1]	[2]	132. Fever, malaria unlikely	[1]	[2]
C34. Severe complicated measles	[1]	[2]	134. Severe complicated measles.....	[1]	[2]
C35. Measles with eye/mouth complications	[1]	[2]	135. Measles with eye/mouth complication	[1]	[2]
C36. Measles	[1]	[2]	136. Measles	[1]	[2]
C40. Mastoiditis	[1]	[2]	140. Mastoiditis.....	[1]	[2]
C41. Acute ear infection.....	[1]	[2]	141. Acute ear infection	[1]	[2]
C42. Chronic ear infection	[1]	[2]	142. Chronic ear infection	[1]	[2]
C43. No ear infection	[1]	[2]	143. No ear infection.....	[1]	[2]
C50a. Severe malnutrition	[1]	[2]	150. a Severe malnutrition	[1]	[2]
C50b. Severe anaemia	[1]	[2]	150. b Severe anaemia	[1]	[2]
C51a. Very low weight.....	[1]	[2]	151. a Very low weight.....	[1]	[2]
C51b. Anaemia	[1]	[2]	151. b Anaemia.....	[1]	[2]
C52a. Not very low weight/No anaemia.....	[1]	[2]	152. a Not very low weight/No anaemia.....	[1]	[2]
C60. Other: Eye infection	[1]	[2]	160. Other: Eye infection	[1]	[2]
C61. Other (specify) _____	[1]	[2]	161. Other(specify) _____	[1]	[2]
C62. Other (specify) _____	[1]	[2]	162. Other(specify) _____	[1]	[2]
C63. Feeding problems.....	[1]	[2]	163. Feeding problems	[1]	[2]
			164. Child needs to be referred?.....	[1]	[2]
			165. Follow-up visit required in _____ days [if not required, enter 0]		
			166. Any non-IMCI reason for antibiotics?	[1]	[2]
			(e.g. skin infection, urinary tract infection, etc.)		
			170. HIGH MALARIA RISK?.....	[1]	[2]

NOTE: IF CHILD HAS AN EYE PROBLEM, TICK [1] IN C60.

TREATMENT MODULE

T5. Does the health worker advise immediate referral for the child?

[Yes] ① [No] ② → Skip to question # T1

 *If YES (health worker advises immediate referral):*

 **T5a. Does the health worker explain to the caretaker the reasons for referral?**

[Yes] ① [No] ②

 **T5b. Does the caretaker accept referral for the child?**

[Yes] ① [No] ②

 **T5c. Does the health worker complete a referral note?**

[Yes] ① [No] ②

T1. Does the health worker administer or prescribe injection(s)?

[Yes] ① [No] ② → Skip to question # T3

 **T2.  If YES: Record all injections given:**

T2a. Antimalarial [Yes] ① – T2as. Specify _____ [No] ②

T2b. Antibiotic: [Yes] ① – T2bs. specify _____ [No] ②

T2c. Other injection: [Yes] ① – T2cs. specify _____ [No] ②

Supervisor	
<i>Correct as pre-referral Tx?</i>	
YES	NO
①	②
<input type="checkbox"/> T1a1	<input type="checkbox"/>
<input type="checkbox"/> T2a1	<input type="checkbox"/>
<input type="checkbox"/> T2b1	<input type="checkbox"/>

T3. Does the health worker prescribe or give ORS sachets to take home?


[Yes] ① [No] ② → Skip to question # T6

 *If YES (health worker prescribes/gives ORS to take home):*

○ **Does the health worker explain:**

 **T3a. How much water to mix with 1 ORS sachet?**

[Yes] ① *If Yes, Amount:* _____ [No] ②

 **T3b. When ORS should be given to the child during the day?**

[Yes] ① *If Yes, When:* _____ [No] ②

 **T3c. How much ORS should be given to the child each time?**

[Yes] ① *If Yes, How much:* _____ [No] ②

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
<input type="checkbox"/> T3a1	<input type="checkbox"/>
<input type="checkbox"/> T3b1	<input type="checkbox"/>
<input type="checkbox"/> T3c1	<input type="checkbox"/>

 **T4. Does the health worker actually administer ORS – solution – to the child at the facility?**

[Yes] ① [No] ② [Don't know] ⑧

T6. Does the health worker administer or prescribe oral treatment?

[Yes] ① [No] ② → Skip to question # T12 if child not referred. If child referred and caretaker accepts referral, skip to question # CM12 at the end of the questionnaire.

- T7. IF YES: Record all oral treatment given:**
- a. Antidiarrheal/antimotility a. [Yes] ① [No] ②
 - a1. Cough/cold medicine..... a1. [Yes] ① [No] ②
 - b. Metronidazole tablet/syrup b. [Yes] ① [No] ②
 - c. Chloroquine tablets/syrup..... c. [Yes] ① [No] ②
 - d. Sulfadoxine+pyrimethamine tablet..... d. [Yes] ① [No] ②
 - e. Paracetamol e. [Yes] ① [No] ②
 - f. Recommended* **antibiotic** tablets/syrup f. [Yes] ① [No] ②
(*: amoxicillin, cotrimoxazole, nalidixic acid)
 - g. Other **antibiotic** tablet/syrup..... g. [Yes] ① [No] ②
 - g1. Salbutamol tablet/syrup..... g1. [Yes] ① [No] ②
 - h. Vitamin A..... h. [Yes] ① [No] ②
 - i. Multi-vitamins i. [Yes] ① [No] ②
 - k. Mebendazole..... k. [Yes] ① [No] ②
 - l. Iron tablet/syrup..... l. [Yes] ① [No] ②
 - n. Others [Yes] ① – n1. specify: _____ [No] ②

i If the health worker has referred the child and the mother has accepted referral (T5b=Yes), go to question CM12 at the end of the form. Otherwise, go to next question.

T8. Is an oral antibiotic given or prescribed by the health worker? (see # T7)

[Yes] ① [No] ② → Skip to question # T10

T9. IF YES (i.e. an oral antibiotic is given or prescribed): Record what the health worker says:

	<div style="border: 1px solid black; padding: 5px;"> <p>Supervisor Correct for an IMCI condition? YES NO ① ②</p> <p><input type="checkbox"/> T9a1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9c1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9d1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9e1 <input type="checkbox"/></p> </div>	
<u>First antibiotic</u>		<u>Second antibiotic:</u>
a. Name: _____		f. Name: _____
b. Formulation: _____		g. Formulation: _____
c. Amount each time: _____		h. Amount each time: _____
d. Number of times per day: _____		i. Number of times per day: _____
e. Total days: _____		j. Total days: _____
		<div style="border: 1px solid black; padding: 5px;"> <p>Supervisor Correct for an IMCI condition?? YES NO ① ②</p> <p><input type="checkbox"/> T9f1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9h1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9i1 <input type="checkbox"/></p> <p><input type="checkbox"/> T9j1 <input type="checkbox"/></p> </div>

☞ **T10. Is an oral antimalarial given or prescribed by the health worker?**

[Yes] ① [No] ② → Skip to question # T12

☞ **T11. IF YES** (i.e. an oral antimalarial is given or prescribed): **Record what the health worker says:**

<p><u>First antimalarial:</u></p> <p>a. Name: _____</p> <p>b. Formulation: _____</p> <p>c. Amount each time: _____ _____</p> <p>d. Number of times per day: _____</p> <p>e. Total days: _____</p>	<p>Supervisor Correct?</p> <p>YES NO</p> <p>① ②</p> <p><input type="checkbox"/> T11a1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11c1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11d1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11e1 <input type="checkbox"/></p>	<p><u>Second antimalarial:</u></p> <p>f. Name: _____</p> <p>g. Formulation: _____</p> <p>h. Amount each time: _____ _____</p> <p>i. Number of times per day: _____</p> <p>j. Total days: _____</p>	<p>Supervisor Correct?</p> <p>YES NO</p> <p>① ②</p> <p><input type="checkbox"/> T11f1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11h1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11i1 <input type="checkbox"/></p> <p><input type="checkbox"/> T11j1 <input type="checkbox"/></p>
---	---	--	---

T12. Is any of the following medicines given or prescribed by the health worker?

- a. Salbutamol inhaler/nebulised a. [Yes] ① [No] ②
- b. Epinephrine subcutaneous..... b. [Yes] ① [No] ②
- c. Tetracycline eye ointment c. [Yes] ① [No] ②

FORM 1: SUPERVISOR CODING

	Information needed	Where to find data	Codes		
B	If <u>oral</u> antibiotics were prescribed for an IMCI condition, were they prescribed correctly?	YES in T8 and CORRECT for T9c1, d1 and e1 (and T9h1, i1 and j1 if 2 antibiotics)	[Yes] ①	[No] ②	[NA] ⑧ <i>(no AB)</i>
C	If <u>oral</u> antimalarials were prescribed (whatever the reason) were they prescribed correctly?	YES in T10 and CORRECT for T11c1, d1 and e1 (and T11h1, i1 and j1 if 2 antimalarials)	[Yes] ①	[No] ②	[NA] ⑧ <i>(no AM)</i>
D	If the child was referred (whatever the reason), did the child receive an appropriate pre-referral treatment?	YES in T5b and - if needing <u>antibiotics</u> : CORRECT in T1a1 and T2b1; (OR YES in T7f) - if needing <u>antimalarials</u> : CORRECT in T1a1 and T2a1; - if <u>dehydrated</u> : CORRECT in T3	[Yes] ①	[No] ②	[NA] ⑧ <i>(child not referred)</i>

NA = NOT APPLICABLE

COMMUNICATION MODULE

In some settings, tasks are shared and the drug dispenser counsels the caretaker on the treatment given and also administers the first dose. The child should then be followed to the drug dispenser to complete the observation.

- ▶ If NO ORS (T3=No), oral Ab (T8=No) or Am (T10=No) is prescribed or given, skip to question # CM5.

CM1. Does the health worker explain how to administer oral treatment?

- a. Antibiotic a. [Yes] ① [No] ② [NA] ③
 b. Antimalarial b. [Yes] ① [No] ② [NA] ③
 c. ORS c. [Yes] ① [No] ② [NA] ③

CM2. Does the health worker demonstrate how to administer the oral treatment?

- a. Antibiotic a. [Yes] ① [No] ② [NA] ③
 b. Antimalarial b. [Yes] ① [No] ② [NA] ③
 c. ORS c. [Yes] ① [No] ② [NA] ③

CM3. Does the health worker ask an open-ended question to check if the caretaker understands how to administer the oral treatment?

- a. Antibiotic a. [Yes] ① [No] ② [NA] ③
 b. Antimalarial b. [Yes] ① [No] ② [NA] ③
 c. ORS c. [Yes] ① [No] ② [NA] ③

CM4. Does the health worker give or ask the mother to give the first dose of the oral drug at the facility?

- a. Antibiotic a. [Yes] ① [No] ② [NA] ③
 b. Antimalarial b. [Yes] ① [No] ② [NA] ③

CM5. Does the health worker advise *and* explain when to return for a ('definite') follow-up visit?

[Yes] ① [No] ② → Skip to question # CM7

CM6. *If YES*: In how many days does the health worker advise the caretaker to come back?

____ days

CM7. Does the health worker advise to give more to drink (liquid or breastmilk) at home?

[Yes] ① [No] ②

CM8. Does the health worker advise to continue feeding or breastfeeding at home?

[Yes] ① [No] ②

CM9. Does the health worker advise how often (no. of times) to feed and/or breastfeed the child?

[Yes] ① [No] ② → Skip to question # CM10

🔊 *If YES (health worker advises how many times to feed and/or breastfeed the child):*

CM9a. How many times/24 hours did the health worker advise to feed the child?

____ times per 24 hours (Write 00 if nothing is mentioned about food and 77 if advice is "as much as the child wants")

CM9b. How many times/24 hours did the health worker advise to breastfeed the child?

____ times per 24 hours (Write 00 if nothing is mentioned about breastfeeding and 77 if advice is "as much as the child wants")

☞ **CM9c. Who has provided this advice on feeding and/or breastfeeding?**

[Doctor]① [Medical ass't]② [Nurse]③ [Nutrition educator]④ [Vaccinator]⑤ [Health visitor]⑥

CM10. Does the health worker tell the caretaker to bring the child back immediately for the following signs? Tick all that apply.

- a. Child is not able to drink or breastfeed a. [Yes] ① [No] ②
 b. Child becomes sicker..... b. [Yes] ① [No] ②
 c. Child develops a fever c. [Yes] ① [No] ②
 d. Child develops fast breathing..... d. [Yes] ① [No] ②
 e. Child develops difficult breathing e. [Yes] ① [No] ②
 f. Child develops blood in the stool f. [Yes] ① [No] ②
 g. Child drinks poorly g. [Yes] ① [No] ②
 h. Other. [Yes] ① (CM10hs.Specify _____) [No] ②

CM11. Does the health worker ask at least one question about the mother's health (ask about her own health, access to family planning or vaccination status)?

[Yes] ① [No] ② [NA] ⑧ (Not Applicable if caretaker is not the child's mother)

CM11a. Does the health worker use the "mother card" to advise the caretaker?

[Yes] ① [No] ② → Skip to question # CM12

☞ IF YES, mother card used:

☞ **CM11b. Does the health worker hold the card so that caretaker sees the pictures easily?**

[Yes] ① [No] ②

☞ **CM11c. Does the health worker point at the pictures on the card while counselling the caretaker?**

[Yes] ① [No] ②

☞ **CM11d. Does the health worker ask open-ended questions to check if the caretaker understands how to care for the child at home (fluids, feeding, signs to watch out...)?**

[Yes] ① [No] ②

CM12. Did the health worker use the IMCI chart booklet at any time during the management of the child?

[Yes] ① [No] ② [Don't know] ⑧

① NOW: CHECK THE FORM AND MAKE SURE IT IS COMPLETE!

END OF OBSERVATION - The surveyor may need to ask the health worker about the classification made and the treatment given during the consultation, but only if these two components were not stated during the consultation. The surveyor must complete this form before the next child observation.

SUPERVISOR: Complete coding for Form 1 (drug treatment)

Form 2: EXIT INTERVIEW—CARETAKER OF CHILD (2 months-5 years)

[If the caretaker has more than a sick child enrolled in the survey, complete separate exit interview forms for each child. Copy questions 1, 2, 21, 22 and 24 for all children and conduct a new interview with the caretaker for all remaining questions for each child.]

Date: ___/___/ 2003 State: _____ District: _____

Facility: Name: _____ Code: |__|__| Type: [HOSP] ① [HC] ② [D/DS] ③

Child: Name _____ ID: |__|__|

Birth date: ___/___/____ Age (months): |__|__| Sex: [M] ① [F] ②

Surveyor ID: |__|__|

Caretaker: Sex: [M] ① [F] ② Education: [None]① [Primary]② [Secondary]③ [Higher]④

Relationship to child: [Mother] ① [Father] ② [Other relative] ③ [Other] ④: _____
(e.g.: neighbour)

1. How satisfied are you with the care provided to children in this facility? Read all options to the caretaker: “Very satisfied”, “Satisfied” or “Unsatisfied”?

[Very satisfied] ① [Satisfied] ② [Unsatisfied] ③ [Don’t know] ⑧ → Skip to question # 3

2. Why? Tick all reasons that apply. Do not prompt (do not read options).

- a. Time health worker spent with child a. [Yes] ① [No] ②
- b. I was given a chance to ask questions b. [Yes] ① [No] ②
- c. Way the health worker examined the child c. [Yes] ① [No] ②
- d. Treatment given (or not given) d. [Yes] ① [No] ②
- e. What I learnt from the health worker e. [Yes] ① [No] ②
- f. Don’t know f. [Yes] ① [No] ②
- g. Other.....[Yes] ① If Yes, specify: _____ [No] ②

3. Did the health worker give you or prescribe any oral medicines for <CHILD’s NAME> at the health facility today?

[Yes] ① [No] ② → Skip to question # 16 [Don’t know] ⑧ → Skip to question # 16

If YES, ask the caretaker to show you the prescription or the medicines. Look at the prescription or the actual medicines and record:

4. ► Oral antibiotics included?

[Yes] ① [No] ② → Skip to question # 8

► Record name and formulation of the antibiotic:

4a. Name: _____

4b. Formulation: _____

Then ask the caretaker the following questions about the antibiotic (record only what the caretaker says, not what is written on the prescription):

5. How much of this medicine will you give to <NAME> each time? _____

6. How many times will you give it to <NAME> each day? |__|__| times

7. For how many days will you give it to <NAME> ? |__|__| days

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
☐ 5S ☐	
☐ 6S ☐	
☐ 7S ☐	

- ☞ **7o. If <NAME> gets better before then, what will you do with the medicine? (Tick only 1 answer)**
- Will stop the medicine.....[] ①
- Will continue the medicine, but will reduce the dose.[] ②
- Will continue the medicine as prescribed[] ③
- Other.....[] ④ (Specify: _____)
- Don' t know.....[] ⑧

☞ **7x. ► Second antibiotic included?**

[Yes] ① [No] ② → Skip to question # 8
 (second antibiotic included) (no, only one antibiotic included)

☞ **► Record name and formulation of second antibiotic:**

7a. Name: _____

7b. Formulation: _____

Then ask the caretaker the following questions about the second antibiotic (record only what the caretaker says, not what is written on the prescription):

- ☞ **7c. How much of the medicine will you give to <NAME> each time? _____**
- ☞ **7d. How many times will you give it to <NAME> each day? [] [] times**
- ☞ **7e. For how many days will you give it to <NAME> ? [] [] days**

<u>Supervisor</u> Correct?	
YES	NO
①	②
<input type="checkbox"/> 7cS	<input type="checkbox"/>
<input type="checkbox"/> 7dS	<input type="checkbox"/>
<input type="checkbox"/> 7eS	<input type="checkbox"/>

☞ **8. ► Oral antimalarials included?**

[Yes] ① [No] ② → Skip to question # 16

☞ **► Record name and formulation of the antimalarial:**

☞ **8a. Name: _____**

☞ **8b. Formulation: _____**

Then ask the caretaker the following questions about the antimalarial (☞ record only what the caretaker says, not what is written on the prescription):

- ☞ **9. How much of this medicine will you give to <NAME> each time? _____**
- ☞ **10. How many times will you give it to <NAME> each day? [] [] times**
- ☞ **11. For how many days will you give it to <NAME> ? [] [] days**

<u>Supervisor</u> Correct?	
YES	NO
①	②
<input type="checkbox"/> 9S	<input type="checkbox"/>
<input type="checkbox"/> 10S	<input type="checkbox"/>
<input type="checkbox"/> 11S	<input type="checkbox"/>

☞ **12. ► Second antimalarial included?**

[Yes] ① [No] ② → Skip to question # 16

☞ **► Record name and formulation of the antimalarial:**

☞ **12a. Name: _____**

☞ **12b. Formulation: _____**

Then ask the caretaker the following questions about the antimalarial (☞ record only what the caretaker says, not what is written on the prescription):

- ☞ **13. How much of this medicine will you give to <NAME> each time? _____**
- ☞ **14. How many times will you give it to <NAME> each day? [] [] times**
- ☞ **15. For how many days will you give it to <NAME> ? [] [] days**

<u>Supervisor</u> Correct?	
YES	NO
①	②
<input type="checkbox"/> 13S	<input type="checkbox"/>
<input type="checkbox"/> 14S	<input type="checkbox"/>
<input type="checkbox"/> 15S	<input type="checkbox"/>

16. Find out from caretaker and/or prescription whether ORS prescribed or given:

[Yes] ① (ORS prescribed or given) [No] ② → Skip to question # 19a
 (no ORS prescribed or given)

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
<input type="checkbox"/> 17S	<input type="checkbox"/>
<input type="checkbox"/> 18S	<input type="checkbox"/>
<input type="checkbox"/> 19S	<input type="checkbox"/>

If YES (ORS prescribed or given):

17. How much water will you mix with one ORS packet? _____

18. When will you give ORS to <NAME> each day? _____

19. How much ORS will you give to <NAME> each time? _____

19a. Now that <NAME> is unwell:

Will you give him/her *more, about the same or less* fluids - including breastmilk - to drink?

[More] ① [About the same] ② [Less] ③ [Don't know] ⑧

19b. And will you give him/her *more, about the same or less* food - including breastmilk -?

[More] ① [About the same] ② [Less] ③ [Don't know] ⑧

19c. ASK THIS QUESTION IF CHILD IS LESS THAN 24 MONTHS OLD (if not, skip to next question):
How many times/24 hours did the health worker advise you to breastfeed <NAME>?

8 times or more..... [] ① *(Tick only 1 answer)*

As much as the child wants. [] ②

Less than 8 times [] ③

Other..... [] ④ (Specify: _____)

Did not tell me or don't know [] ⑧

19d. How many times/24 hours did health worker advise you to feed <NAME>?

(Enter: 77 if caretaker says "as the child wants", 00 if caretaker says she was not told, and 88 if caretaker says she does not know)

____ times

20. Did the health worker tell you to bring <NAME> back to this facility on a specific day?

[Yes] ① [No] ② → Skip to question # 20b [Don't know] ⑧ → Skip to question # 20b

20a. If YES: In how many days should you bring <NAME> back? |__|__| days

20b. Do you have a mosquito bed-net at home?

[Yes] ① [No] ② → Skip to question # 21 [Don't know] ⑧ → Skip to question # 21

If YES (mosquito bed-net available at home):

20c. Is the bed-net treated with insecticide (a product that kills mosquitoes)?

[Yes] ① [No] ② [Don't know] ⑧

20d. Did <NAME> sleep under the bed-net last night?

[Yes] ① [No] ② [Don't know] ⑧

21. Sometimes children who are sick should be taken right away to a health facility: What symptoms would worry you that would make you take your child to a health facility right away? Do not prompt – Tick all that is mentioned. Ask up to 2 times for more signs/symptoms

- | | Mentioned | Not mentioned |
|---|-----------|---------------|
| a. Child not able to drink or breastfeed.....a | [Yes] ① | [No] ② |
| b. Child becomes sickerb | [Yes] ① | [No] ② |
| c. Child develops a feverc | [Yes] ① | [No] ② |
| d. Child has fast breathing.....d | [Yes] ① | [No] ② |
| e. Child has difficult breathing/pneumonia....e | [Yes] ① | [No] ② |
| f. Child has blood in the stools.....f | [Yes] ① | [No] ② |
| g. Child is drinking poorlyg | [Yes] ① | [No] ② |
| h. Child has convulsions.....h. | [Yes] ① | [No] ② |
| i. Other [Yes] ① (specify: _____) [No] ② | | |
| j. Other [Yes] ① (specify: _____) [No] ② | | |

22. IF THE CARETAKER IS THE MOTHER OF THE CHILD, ASK: Were you ever given an injection in the arm to prevent the baby from getting tetanus, that is convulsions after birth?

[Yes] ① [No] ② → Skip to question # 23 [Don't know] ⑧ → Skip to question # 23

 **If YES** (injection received):

 **22a. How many injections did you receive?**

--	--

 injections

 **22b. When did you receive the last injection?** Year:

--	--	--	--

23. Did you receive or were you shown this card today? Show mother's IMCI counselling card.

[Yes] ① [No] ② [Don't know] ⑧

24. How long did it take you to reach this facility from your place today?

--	--	--

 minutes

25. How much did you spend for transport for you and your child to get to this facility from your place today?.....

--	--	--	--	--

 SDD

26. How much did you spend for consultation, drugs, tests here today?

--	--	--	--	--

 SDD

27. How much of this was for medicines?

--	--	--	--	--

 SDD

28. Is the child covered by health insurance?

[Yes] ① [No] ② [Don't know] ⑧

ⓘ NOW: CHECK THE FORM AND MAKE SURE IT IS COMPLETE!

END OF EXIT INTERVIEW

Thank the caretaker for answering your questions and ask if he/she has any questions. Be sure that the caretaker knows how to prepare ORS for a child with diarrhoea, when to return for vaccination, how to give the prescribed medications, and when to return if the child becomes worse at home.

**SUPERVISOR: Complete coding for Form 2
(oral drugs and ORS)**

Form 2: EXIT INTERVIEW—CARETAKER OF CHILD Arabic version (2 months-5 years)

[If the caretaker has more than a sick child enrolled in the survey, complete separate exit interview forms for each child. Copy questions 1, 2, 21, 22 and 24 for all children and conduct a new interview with the caretaker for all remaining questions for each child.]

Date: ___/___/2003 State: _____ District: _____

Facility: Name: _____ Code: |__|__| Type: [HOSP] ① [HC] ② [D/DS] ③

Child: Name _____ ID: |__|__|

Birth date: ___/___/___ Age (months): |__|__| Sex: [M] ① [F] ②

Surveyor ID: |__|__|

Caretaker: Sex: [M] ① [F] ② Education: [None] ① [Primary] ② [Secondary] ③ [Higher] ④

Relationship to child: [Mother] ① [Father] ② [Other relative] ③ [Other] ④: _____
(e.g.: neighbour)

1 () .1

Read all options to the caretaker:

"راضية جدا"، "راضية"، "غير راضية"

[Very satisfied] ① [Satisfied] ② [Unsatisfied] ③ [Don't know] ⑧ → Skip to question # 3


1 .2

Tick all reasons that apply. Do not prompt (do not read options)

- a. Time health worker spent with child a. [Yes] ① [No] ②
 b. I was given a chance to ask questions b. [Yes] ① [No] ②
 c. Way the health worker examined the child c. [Yes] ① [No] ②
 d. Treatment given (or not given) d. [Yes] ① [No] ②
 e. What I learnt from the health worker e. [Yes] ① [No] ②
 f. Don't know f. [Yes] ① [No] ②
 g. Other [Yes] ① If Yes, specify: _____ [No] ②

1 (Ø) Ø () Ø Ø .3

[Yes] ① [No] ② → Skip to question # 16 [Don't know] ⑧ → Skip to question # 16

 If YES, ask the caretaker to show you the prescription or the medicines. Look at the prescription or the actual medicines and record:

4. ► Oral antibiotics included?

[Yes] ① [No] ② → Skip to question # 8

► Record name and formulation of the antibiotic:

4a. Name: _____

4b. Formulation: _____

<u>Supervisor</u> Correct?	
YES	NO
①	②
<input type="checkbox"/> 5S	<input type="checkbox"/>
<input type="checkbox"/> 6S	<input type="checkbox"/>
<input type="checkbox"/> 7S	<input type="checkbox"/>

Then ask the caretaker the following questions about the antibiotic (record only what the caretaker says, not what is written on the prescription):

_____ ¹ Ø (Ø) Ø **. 5**

____|____| times ¹ Ø **. 6**

____|____| days ¹ (Ø) Ø **. 7**

¹ . Ø (Ø) **. 7o**

(Tick only 1 answer)

Will stop the medicine.....[] ①

Will continue the medicine, but will reduce the dose.[] ②

Will continue the medicine as prescribed[] ③

Other.....[] ④ (Specify: _____)

Don' t know.....[] ⑧

☞ **7x. ► Second antibiotic included?**

[Yes] ① (second antibiotic included) [No] ② → Skip to question # 8 (no, only one antibiotic included)

☞ **► Record name and formulation of second antibiotic:**

7a. Name: _____

7b. Formulation: _____

<u>Supervisor</u> Correct?	
YES	NO
①	②
<input type="checkbox"/> 7cS	<input type="checkbox"/>
<input type="checkbox"/> 7dS	<input type="checkbox"/>
<input type="checkbox"/> 7eS	<input type="checkbox"/>

Then ask the caretaker the following questions about the second antibiotic (record only what the caretaker says, not what is written on the prescription):

_____ ¹ Ø (Ø) Ø **7c.**

____|____| times ¹ Ø **7d.**

____|____| days ¹ (Ø) Ø **7e.**

☞ **8. ► Oral antimalarials included?**

[Yes] ① [No] ② → Skip to question # 16

► Record name and formulation of the antimalarial:

☞ **8a.** Name: _____

☞ **8b.** Formulation: _____

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
<input type="checkbox"/> 9S	<input type="checkbox"/>
<input type="checkbox"/> 10S	<input type="checkbox"/>
<input type="checkbox"/> 11S	<input type="checkbox"/>

Then ask the caretaker the following questions about the antimalarial (☀ record only what the caretaker says, not what is written on the prescription):

_____ 1 Ø (Ø)Ø **9.**

 _____ times 1 Ø **10.**

_____ days 1 (Ø)Ø **11.**

☞ **12. ► Second antimalarial included?**
 [Yes] ① [No] ② → Skip to question # 16

► Record name and formulation of the antimalarial:

☞ **12a.** Name: _____

☞ **12b.** Formulation: _____

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
<input type="checkbox"/> 13S	<input type="checkbox"/>
<input type="checkbox"/> 14S	<input type="checkbox"/>
<input type="checkbox"/> 15S	<input type="checkbox"/>

Then ask the caretaker the following questions about the antimalarial (☀ record only what the caretaker says, not what is written on the prescription):

_____ 1 Ø (Ø)Ø **13.**

_____ times 1 Ø **14.**

_____ days 1 (Ø)Ø **15.**

16. ► Record whether ORS prescribed or given:

[Yes] ① (ORS prescribed or given) [No] ② → Skip to question # 19a (no ORS prescribed or given)

Supervisor	
<i>Correct?</i>	
YES	NO
①	②
<input type="checkbox"/> 17S	<input type="checkbox"/>
<input type="checkbox"/> 18S	<input type="checkbox"/>
<input type="checkbox"/> 19S	<input type="checkbox"/>

☀ *If YES* (ORS prescribed or given):

1_ _ **17.**

_____ 1 Ø (Ø)Ø- - **18.**

_____ 1 Ø - - **19.**

1 () 19a.
 [More] ① [About the same] ② [Less] ③ [Don't know] ⑧

1 () 19b.
 [More] ① [About the same] ② [Less] ③ [Don't know] ⑧

19c. ASK THIS QUESTION IF CHILD IS LESS THAN 24 MONTHS OLD (if not, skip to next question):

1 (24) () () 19d.

(Tick only 1 answer)

8 times or more..... [] ①

As much as the child wants. [] ②

Less than 8 times [] ③

Other..... [] ④ (Specify: _____)

Did not tell me or don't know [] ⑧

(Enter: 77 if caretaker says "as the child wants", 00 if caretaker says she was not told, and 88 if caretaker says she does not know)

times

1 () () 20.

[Yes] ① [No] ② → Skip to question # 20b [Don't know] ⑧ → Skip to question # 20b

20a. If YES:

days

1 20b.
 [Yes] ① [No] ② → Skip to question # 21 [Don't know] ⑧ → Skip to question # 21

If YES (mosquito bed-net available at home):

1 () 20c.

[Yes] ① [No] ② [Don't know] ⑧

1 () 20d.

[Yes] ① [No] ② [Don't know] ⑧

21. مرآت الأطفال العيانين مفروض يودوهم بسرعة للوحدة الصحية ، باتو أعراض (حاجة) بتخليك تودي طفلك للوحدة الصحية بسرعة ؟
Do not prompt – Tick all that is mentioned. Ask up to 2 times for more signs/symptoms

- | | Mentioned | Not mentioned |
|---|-----------|---------------|
| a. Child not able to drink or breastfeed.....a | [Yes] ① | [No] ② |
| b. Child becomes sickerb | [Yes] ① | [No] ② |
| c. Child develops a feverc | [Yes] ① | [No] ② |
| d. Child has fast breathing.....d | [Yes] ① | [No] ② |
| e. Child has difficult breathing/pneumonia....e | [Yes] ① | [No] ② |
| f. Child has blood in the stools.....f | [Yes] ① | [No] ② |
| g. Child is drinking poorlyg | [Yes] ① | [No] ② |
| h. Child has convulsions.....h. | [Yes] ① | [No] ② |
| i. Other [Yes] ① (specify: _____) [No] ② | | |
| j. Other [Yes] ① (specify: _____) [No] ② | | |

.22 IF THE CARETAKER IS THE MOTHER OF THE CHILD, ASK:

() (/) Û Û Û

[Yes] ① [No] ② → Skip to question # 23 [Don't know] ⑧ → Skip to question # 23

☞ If YES (injection received):

_____|injections 1 22a.

Year:_____|_____|_____|_____| 1 22b.

Show mother's IMCI counselling card:

23.

[Yes] ① [No] ② [Don't know] ⑧

_____|_____|_____| minutes 1 24.

_____|_____|_____|_____| SDD 1 25.

_____|_____|_____|_____| SDD 1 26.

_____|_____|_____|_____| SDD 1 27.

_____|_____|_____|_____| SDD 1 (Ø) Ø 28.
[Yes] ① [No] ② [Don't know] ⑧

ⓘ NOW: CHECK THE FORM AND MAKE SURE IT IS COMPLETE!

END OF EXIT INTERVIEW

Thank the caretaker for answering your questions and ask if he/she has any questions. Be sure that the caretaker knows how to prepare ORS for a child with diarrhoea, when to return for vaccination, how to give the prescribed medications, and when to return if the child becomes worse at home.

**SUPERVISOR: Complete coding for Form 2
(oral drugs and ORS)**

FORM 3: RE-EXAMINATION

Surveyor ID: _____ Date: ____/____/2003

District: _____ FACILITY: Name: _____ Code: _____ Type: [HOSP] ① [HC] ② [D/DS] ③ HF code: _____ Child ID: _____

CHILD: Name: _____ ID: _____ Age: _____ Sex: [M] ① [F] ② Weight: _____|____|Kg Axillary temperature: _____|____|°C

Visit: [Initial] ① [Follow-up] ② ASK: What are the child's problems? _____

Questionnaire: _____|____|

ASSESS (circle all signs present)		CLASSIFY (Tick all relevant classifications)	
		YES	NO
<p>1. DOES THE CHILD HAVE ANY GENERAL DANGER SIGNS? [Yes] ① [No] ②</p> <p>NOT ABLE TO DRINK OR BREASTFEED VOMITS EVERYTHING HISTORY OF CONVULSIONS / CONVULSIONS NOW LETHARGIC OR UNCONSCIOUS</p>			105. ONE OR MORE DANGER SIGNS [] ① [] ②
<p>2. DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? [Yes] ① [No] ②</p> <p>For how long? _____ ____ days 3. Count the breaths in one minute: _____ ____ breaths per minute. Fast breathing?</p> <ul style="list-style-type: none"> • Look for chest indrawing. • Look and listen for stridor. 			110. SEVERE PNEUMONIA/VERY SEVERE DISEASE [] ① [] ② 111. PNEUMONIA [] ① [] ② 112. NO PNEUMONIA (Cough or cold) [] ① [] ②
<p>4. DOES THE CHILD HAVE WHEEZING? [Yes] ① [No] ②</p>			113. WHEEZING [] ① [] ②
<p>5. DOES THE CHILD HAVE DIARRHOEA? [Yes] ① [No] ②</p> <ul style="list-style-type: none"> ○ For how long? _____ ____ days <ul style="list-style-type: none"> ○ Is there blood in the stool? <ul style="list-style-type: none"> • Look for sunken eyes • Offer the child fluid. Is the child: <ul style="list-style-type: none"> Lethargic or unconscious? <ul style="list-style-type: none"> Restless and irritable? Look for sunken eyes • Pinch the skin of the abdomen. Does it go back: <ul style="list-style-type: none"> Very slowly (longer than 2 seconds)? Slowly? 			120 a. SEVERE DEHYDRATION [] ① [] ② 120 b. SOME DEHYDRATION [] ① [] ② 120 c. NO DEHYDRATION [] ① [] ② 121. SEVERE PERSISTENT DIARRHOEA [] ① [] ② 122. PERSISTENT DIARRHOEA [] ① [] ② 123. DYSENTERY [] ① [] ②
<p>6. DOES THE CHILD HAVE FEVER? (by history/feels hot/temperature 37.5°C or above),... [Yes] ① [No] ②</p> <ul style="list-style-type: none"> ○ For how long? _____ days <ul style="list-style-type: none"> ○ If more than 7 days, has fever been present every day? ○ Has child had measles within the last 3 months? <p>If the child has measles now or within the last 3 months</p> <ul style="list-style-type: none"> • Look for mouth ulcers • If Yes, are they deep and extensive? • Look for pus draining from the eye • One of these: cough, runny nose, or red eyes • Look for clouding of the cornea 			130. VERY SEVERE FEBRILE DISEASE [] ① [] ② 131. MALARIA [] ① [] ② 132. FEVER, MALARIA UNLIKELY [] ① [] ② 134. SEVERE COMPLICATED MEASLES [] ① [] ② 135. MEASLES WITH EYEMOUTH COMPLICATION [] ① [] ② 136. MEASLES [] ① [] ②
<p>6a. MEASLES? [Yes] ① [No] ②</p>			

FORM 3: RE-EXAMINATION

Questionnaire: _____ HF code _____ Child ID _____

ASSESS (circle all signs present)		CLASSIFY (Tick all relevant classifications)	
		YES	NO
7. DOES THE CHILD HAVE AN EAR PROBLEM? <input type="radio"/> Is there ear pain? <input type="radio"/> Is there ear discharge? If Yes, for how long? _____ days		[Yes] <input type="checkbox"/>	[No] <input type="checkbox"/>
CHECK FOR MALNUTRITION AND ANAEMIA <ul style="list-style-type: none"> Look for visible severe wasting Look for palmar pallor Severe palmar pallor? Some palmar pallor? Look for oedema of both feet Determine weight for age Very low _____ Not very low _____ 		[] <input type="checkbox"/>	[] <input type="checkbox"/>
CHECK THE CHILD'S IMMUNISATION STATUS Circle immunisations and vitamin A needed today Birth 6 weeks 10 weeks 14 weeks 9 months BCG DPT1 DPT2 DPT3 Measles Vitamin A (1 st dose) Vitamin A (2 nd dose) OPV0 OPV1 OPV2 OPV3		[] <input type="checkbox"/>	[] <input type="checkbox"/>
ASSESS CHILD'S FEEDING if child has ANAEMIA OR VERY LOW WEIGHT or is less than 2 years old ❖ 8. IS <NAME> BREASTFED? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/> [Don't know] <input type="checkbox"/> → If NO breastfeeding or caretaker does not know, skip to question # 11 ❖ 9. 24 if YES: HOW MANY TIMES IN 24 HOURS? [] Do you breastfeed during the night? Yes ___ No ___ ❖ 10. IS NUMBER OF TIMES OF BREASTFEEDING AS RECOMMENDED? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/> ❖ 11. DOES THE CHILD TAKE ANY OTHER FOOD OR FLUIDS? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/> [Don't know] <input type="checkbox"/> → If NO other food or fluids or caretaker does not know, skip to question # 15 If Yes, what food or fluids? _____ ❖ 12. IS THIS TYPE OF FOOD APPROPRIATE? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/> ❖ 13. HOW MANY TIMES PER DAY? [] times. ❖ 14. IS NUMBER OF TIMES OF FEEDING AS RECOMMENDED? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/> What do you use to feed the child? _____ If low weight for age: How large are servings? _____ Does the child receive his own serving? Yes ___ No ___ Who feeds the child and how? _____ During this illness, has the child's feeding changed? Yes ___ No ___ If Yes, how? _____		[] <input type="checkbox"/>	[] <input type="checkbox"/>
15. ASSESS OTHER PROBLEMS: ANY OTHER PROBLEMS? [Yes] <input type="checkbox"/> [No] <input type="checkbox"/>		[] <input type="checkbox"/>	[] <input type="checkbox"/>
(Enter 00 if no follow-up is needed) →		[] <input type="checkbox"/>	[] <input type="checkbox"/>
140. MASTOIDITIS [] <input type="checkbox"/> [] <input type="checkbox"/> 141. ACUTE EAR INFECTION [] <input type="checkbox"/> [] <input type="checkbox"/> 142. CHRONIC EAR INFECTION [] <input type="checkbox"/> [] <input type="checkbox"/> 143. NO EAR INFECTION [] <input type="checkbox"/> [] <input type="checkbox"/> 150 a. SEVERE MALNUTRITION [] <input type="checkbox"/> [] <input type="checkbox"/> 150 b. SEVERE ANAEMIA [] <input type="checkbox"/> [] <input type="checkbox"/> 151 a. VERY LOW WEIGHT [] <input type="checkbox"/> [] <input type="checkbox"/> 151 b. ANAEMIA [] <input type="checkbox"/> [] <input type="checkbox"/> 152 a. NOT VERY LOW WEIGHT / NO ANAEMIA [] <input type="checkbox"/> [] <input type="checkbox"/> 160. EYE INFECTION (OTHER PROBLEM 1) [] <input type="checkbox"/> [] <input type="checkbox"/> 161. OTHER PROBLEM 2 (Sp.: _____) [] <input type="checkbox"/> [] <input type="checkbox"/> 162. OTHER PROBLEM 3 (Sp.: _____) [] <input type="checkbox"/> [] <input type="checkbox"/> 163. FEEDING PROBLEMS [] <input type="checkbox"/> [] <input type="checkbox"/> 164. DOES CHILD NEED TO BE REFERRED? [] <input type="checkbox"/> [] <input type="checkbox"/> 165. RETURN FOR DEFINITE FOLLOW-UP IN: [] days 166. ANY NON-IMCI REASON FOR ANTIBIOTICS? [] <input type="checkbox"/> [] <input type="checkbox"/> 170. HIGH MALARIA RISK? [] <input type="checkbox"/> [] <input type="checkbox"/>		[] <input type="checkbox"/>	[] <input type="checkbox"/>

FORM 3: RE-EXAMINATION

Questionnaire:

--	--	--	--

HF code || Child ID

16. Record if the child needs Vitamin A today:

[Yes] ① (Vitamin A needed) [No] ② (not needed) [Don't know] ⑧
 → If NO or DON'T KNOW, skip to question # 19

17. IF YES, ASK THE CARETAKER:

Has <NAME> been given vitamin A drops from a capsule like this today? (Show the mother a capsule of vitamin A as per child age)

[Yes] ① → If YES, skip to question # 19 [No] ② [Don't know] ⑧

18. IF NO or Don't know: Has the health worker told you to bring back <NAME> to receive vitamin A on another day?

[Yes] ① [No] ② [Don't know] ⑧

19. Record if child's road-to-health or vaccination card is available:

[Yes] ① (available) [No] ② (not available)

20. Record if child needs to receive any immunisation today:

[Yes] ① (immunisation needed) [No] ② (not needed) [Don't know] ⑧
 → If NO or DON'T KNOW, go to 🚫

IF YES, ASK THE CARETAKER:

21. Did <NAME> receive a vaccination today or has the health worker referred <NAME> to the immunisation room?

[Yes] ① → If YES, go to 🚫 (vaccination received or child referred to immunisation room) [No] ② (vaccination not given and child not referred) [Don't know] ⑧

22. IF NO or Don't know: Has the health worker told you to bring back <NAME> on another day or to take him/her to another place to receive a vaccination?

[Yes] ① [No] ②

🚫 DOES THE CHILD HAVE A FEVER CLASSIFICATION? IF NO, STOP HERE. IF YES, ASK THE CARETAKER:

23. Did <NAME> receive a medicine for 'malaria' before being taken to this health facility?

[Yes] ① [No] ② → ⊖ STOP here [Don't know] ⑧ → ⊖ STOP here

24. IF YES: Which medicine did <NAME> receive? (Do not prompt)

- a. Paracetamol..... a. [Yes] ① [No] ②
- b. Chloroquine..... b. [Yes] ① [No] ②
- c. Fansidar c. [Yes] ① [No] ②
- d. Other d. [Yes] ① (specify: _____) [No] ②
- e. Do not know e. [Yes] ① [No] ②

25. IF CHLOROQUINE OR FANSIDAR, ASK: How long after <NAME> started having fever did <NAME> receive this medicine?

[Within 24 hours] ① [1 or 2 days later] ② [3 or more days later] ③

① SUPERVISOR: COPY CLASSIFICATIONS IN APPROPRIATE BOX ON FORM 1, PAGE 6 AND COLLECT BLOOD FILM IF TAKEN

FORM 3: RE-EXAMINATION

Surveyor ID: _____ Questionnaire: _____
 Date: ____/____/2003
 District: _____ FACILITY: Name: _____ Code: _____ Type: [HOSP] ① [HC] ② [D/DS] ③ HF code || Child ID
 CHILD: Name: _____ ID: _____ Age: _____ Sex: [M] ① [F] ② Weight: _____Kg Axillary temperature: _____°C
 Visit: [Initial] ① [Follow-up] ② ASK: What are the child's problems? _____

Arabic version

ASSESS (circle all signs present)		CLASSIFY (Tick all relevant classifications)	
		YES	NO
<p>1. DOES THE CHILD HAVE ANY GENERAL DANGER SIGNS? [Yes] ① [No] ②</p> <p>NOT ABLE TO DRINK OR BREASTFEED VOMITS EVERYTHING HISTORY OF CONVULSIONS / CONVULSIONS NOW LETHARGIC OR UNCONSCIOUS</p>	<p>105. ONE OR MORE DANGER SIGNS [] ① [] ②</p>		
<p>2. DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? [Yes] ① [No] ②</p> <p>For how long? _____ days 3. Count the breaths in one minute: _____ breaths per minute. Fast breathing?</p> <ul style="list-style-type: none"> ▪ Look for chest indrawing. ▪ Look and listen for stridor. 	<p>110. SEVERE PNEUMONIA/VERY SEVERE DISEASE [] ① [] ②</p> <p>111. PNEUMONIA [] ① [] ②</p> <p>112. NO PNEUMONIA (Cough or cold) [] ① [] ②</p>		
<p>4. DOES THE CHILD HAVE WHEEZING? [Yes] ① [No] ②</p>	<p>113. WHEEZING [] ① [] ②</p>		
<p>5. DOES THE CHILD HAVE DIARRHOEA? [Yes] ① [No] ②</p> <ul style="list-style-type: none"> o For how long? _____ days o Is there blood in the stool? <ul style="list-style-type: none"> ▪ Look at the child's general condition. Is the child: Lethargic or unconscious? Restless and irritable? ▪ Look for sunken eyes ▪ Offer the child fluid. Is the child: Not able to drink or drinking poorly? Drinking eagerly, thirsty? ▪ Pinch the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds)? Slowly? 	<p>120 a. SEVERE DEHYDRATION [] ① [] ②</p> <p>120 b. SOME DEHYDRATION [] ① [] ②</p> <p>120 c. NO DEHYDRATION [] ① [] ②</p> <p>121. SEVERE PERSISTENT DIARRHOEA [] ① [] ②</p> <p>122. PERSISTENT DIARRHOEA [] ① [] ②</p> <p>123. DYSENTERY [] ① [] ②</p>		
<p>6. DOES THE CHILD HAVE FEVER? (by history/feels hot/temperature 37.5°C or above)... [Yes] ① [No] ②</p> <ul style="list-style-type: none"> o For how long? _____ days o If more than 7 days, has fever been present every day? o Has child had measles within the last 3 months? <p>If the child has measles now or within the last 3 months</p> <p style="text-align: center;">↓</p> <p>6a. MEASLES? [Yes] ① [No] ②</p> <ul style="list-style-type: none"> ▪ Look for mouth ulcers If Yes, are they deep and extensive? ▪ Look for pus draining from the eye ▪ Look for clouding of the cornea 	<p>130. VERY SEVERE FEBRILE DISEASE [] ① [] ②</p> <p>131. MALARIA [] ① [] ②</p> <p>132. FEVER, MALARIA UNLIKELY [] ① [] ②</p> <p>134. SEVERE COMPLICATED MEASLES [] ① [] ②</p> <p>135. MEASLES WITH EYE/MOUTH COMPLICATION [] ① [] ②</p> <p>136. MEASLES [] ① [] ②</p>		

FORM 3: RE-EXAMINATION

Questionnaire: _____

HF code _____ Child ID _____

ASSESS (circle all signs present)

CLASSIFY (Tick all relevant classifications)

YES NO

<p>7. DOES THE CHILD HAVE AN EAR PROBLEM?</p> <ul style="list-style-type: none"> <input type="radio"/> Is there ear pain? [Yes] ① [No] ② <input type="radio"/> Is there ear discharge? [Yes] ① [No] ② If Yes, for how long? _____ days 	<p>140. MASTOIDITIS [] ① [] ②</p> <p>141. ACUTE EAR INFECTION [] ① [] ②</p> <p>142. CHRONIC EAR INFECTION [] ① [] ②</p> <p>143. NO EAR INFECTION [] ① [] ②</p>
<p>CHECK FOR MALNUTRITION AND ANAEMIA</p> <ul style="list-style-type: none"> <input type="checkbox"/> Look for visible severe wasting <input type="checkbox"/> Look for palmar pallor Severe palmar pallor? Some palmar pallor? <input type="checkbox"/> Look for oedema of both feet Determine weight for age Very low _____ Not very low _____ 	<p>150 a. SEVERE MALNUTRITION [] ① [] ②</p> <p>150 b. SEVERE ANAEMIA [] ① [] ②</p> <p>151 a. VERY LOW WEIGHT [] ① [] ②</p> <p>151 b. ANAEMIA [] ① [] ②</p> <p>152 a. NOT VERY LOW WEIGHT / NO ANAEMIA [] ① [] ②</p>
<p>CHECK THE CHILD'S IMMUNISATION STATUS Circle immunisations and vitamin A needed today</p> <p>Birth 6 weeks 10 weeks 14 weeks 9 months</p> <p>BCG DPT1 DPT2 DPT3 Measles Vitamin A (1st dose) Vitamin A (2nd dose)</p> <p>OPV0 OPV1 OPV2 OPV3</p>	
<p>ASSESS CHILD'S FEEDING if child has ANAEMIA OR VERY LOW WEIGHT or is less than 2 years old</p> <ul style="list-style-type: none"> ❖ 8. IS <NAME> BREASTFED? [Yes] ① [No] ② [Don't know] ⑧ → ❖ 9. 24 <u>IF YES</u>: HOW MANY TIMES IN 24 HOURS? [] [] [] Do you breastfeed during the night? Yes ___ No ___ ❖ 10. IS NUMBER OF TIMES OF BREASTFEEDING AS RECOMMENDED? [Yes] ① [No] ② ❖ 11. DOES THE CHILD TAKE ANY OTHER FOOD OR FLUIDS? [Yes] ① [No] ② [Don't know] ⑧ → <p>If Yes, what food or fluids? _____</p> <ul style="list-style-type: none"> ❖ 12. IS THIS TYPE OF FOOD APPROPRIATE? [Yes] ① [No] ② ❖ 13. HOW MANY TIMES PER DAY? [] [] [] times. ❖ 14. IS NUMBER OF TIMES OF FEEDING AS RECOMMENDED? [Yes] ① [No] ② <p>What do you use to feed the child? _____</p> <p>If low weight for age: How large are servings? _____</p> <p>Does the child receive his own serving? Yes ___ No ___ Who feeds the child and how? _____</p> <p>During this illness, has the child's feeding changed? Yes ___ No ___</p> <p>If Yes, how? _____</p>	<p>If <u>NO</u> breastfeeding or caretaker does not know, skip to question # 11</p> <p>If <u>NO</u> other food or fluids or caretaker does not know, skip to question # 15</p>
<p>15. ASSESS OTHER PROBLEMS: ANY OTHER PROBLEMS? [Yes] ① [No] ②</p>	<p>160. EYE INFECTION (OTHER PROBLEM 1) [] ① [] ②</p> <p>161. OTHER PROBLEM 2 (Sp.: _____) [] ① [] ②</p> <p>162. OTHER PROBLEM 3 (Sp.: _____) [] ① [] ②</p> <p>163. FEEDING PROBLEMS [] ① [] ②</p> <p>164. DOES CHILD NEED TO BE REFERRED? [] ① [] ②</p>
<p>(Enter 00 if no follow-up is needed) →</p> <p>165. RETURN FOR DEFINITE FOLLOW-UP IN: [] [] days</p> <p>166. ANY NON-IMCI REASON FOR ANTIBIOTICS? [] ① [] ②</p> <p>170. HIGH MALARIA RISK? [] ① [] ②</p>	<p>165. RETURN FOR DEFINITE FOLLOW-UP IN: [] [] days</p> <p>166. ANY NON-IMCI REASON FOR ANTIBIOTICS? [] ① [] ②</p> <p>170. HIGH MALARIA RISK? [] ① [] ②</p>

16. ▶ Record if the child needs Vitamin A today:

[Yes] ① (Vitamin A needed) [No] ② (not needed) → If NO skip to question # 19

☞ **17. 🚫 IF YES, ASK THE CARETAKER:**

1 () (Ø) Ø

(Show the mother a capsule of vitamin A as per child age)

[Yes] ① → If YES, skip to question # 19 [No] ② [Don't know] ⑧

☞ **18. 🚫 IF NO or Don't know:**

(Ø) () Ø Ø Ø
 1 ()

[Yes] ① [No] ② [Don't know] ⑧

19. ▶ Record if child's road-to-health or vaccination card is available:

[Yes] ① (available) [No] ② (not available)

20. ▶ Record if child needs to receive any immunisation today:

[Yes] ① (immunisation needed) [No] ② → If NO, go to 🚫 (not needed)

🚫 IF YES, ASK THE CARETAKER:

1 () Ø (Ø) Ø . 21

[Yes] ① → If YES, go to 🚫 (vaccination received or child referred to immunisation room) [No] ② (vaccination not given and child not referred) [Don't know] ⑧

☞ **22. 🚫 IF NO or Don't know:**

(Ø) () Ø Ø Ø
 1

[Yes] ① [No] ②



IF THE CHILD HAS A FEVER CLASSIFICATION



ASK THE CARETAKER:

1 Ø (Ø) Ø 23.

[Yes] ① [No] ② → ⊖ STOP here [Don't know] ⑧ → ⊖ STOP here

IF YES... (next page)

☞ 24. 🚫 IF YES: (Do not prompt)

1 (Ø)Ø

- a. Paracetamol..... a. [Yes] ① [No] ②
- b. Chloroquine..... b. [Yes] ① [No] ②
- c. Fansidar..... c. [Yes] ① [No] ②
- d. Other..... d. [Yes] ① (specify: _____) [No] ②
- e. Do not know..... e. [Yes] ① [No] ②

☞ 25. 🚫 IF CHLOROQUINE OR FANSIDAR, ASK:

1 (Ø)

- [Within 24 hours] ① [1 or 2 days later] ② [3 or more days later] ③

① SUPERVISOR: COPY CLASSIFICATIONS IN APPROPRIATE BOX ON FORM 1, PAGE 6 AND COLLECT BLOOD FILM IF TAKEN

Form 4. EQUIPMENT AND SUPPLY CHECKLIST

Date: ___/___/ 2003 State: _____ District: _____

Facility: Name _____ Code | | | Type: [HOSP] ① [HC] ② [D/DS] ③

Team: | | |

Discuss with the head of facility to determine the number of health providers who usually manage children:

Table 1: Characteristics of health providers with case management responsibilities

Category	No. managing children	No. managing children trained in IMCI	No. trained in IMCI present today
Doctor			
Medical assistant			
Nurse			
Total			

Ask a health provider to show you around the facility. Look and physically check items to complete the following questions. These questions are for you to answer, based on what you see and find.

EQUIPMENT AND SUPPLIES MODULE

E1. Does the facility have the following equipment and materials?

- a. Accessible and working adult scale?a. [Yes] ① [No] ②
- b. Accessible and working baby scale?b. [Yes] ① [No] ②
- c. Working watch or timing device?c. [Yes] ① [No] ②
- c1. Functioning microscopec1. [Yes] ① [No] ②
- c2. Slides (at least 5)c2. [Yes] ① [No] ②
- c3. Giemsac3. [Yes] ① [No] ②
- c4. Lancets to prick finger (at least 10)c4. [Yes] ① [No] ②
- d. Supplies to mix ORS, cups and spoonsd. [Yes] ① [No] ②
- e. Improved source of water (hand-pump, tap water, deep well)e. [Yes] ① [No] ②
- f. Stock cards/drug logbookf. [Yes] ① [No] ②
- f1. Vaccination register/logbookf1. [Yes] ① [No] ②
- g. Child road-to-health cardsg. [Yes] ① [No] ②
- h. Mothers' IMCI counselling cards for use by health worker?h. [Yes] ① [No] ②
- i. IMCI chart booklet?i. [Yes] ① [No] ②
- l. Working nebuliser?l. [Yes] ① [No] ②
- n. Thermometer?n. [Yes] ① [No] ②
- o. IMCI recording forms?o. [Yes] ① [No] ②
- p. IMCI daily register?p. [Yes] ① [No] ②

k. Accessible* means of transportation for patients requiring referral .k. [Yes] ① [No] ②

*Accessible here refers to transportation that is both physically accessible (e.g., distance) and economically accessible (= affordable) daily to most people living in the catchment area of this facility during the clinic hours.

E1z. Does the facility provide immunisation services?

[Yes] ① [No] ② → Skip to Availability of Drugs Module, question # D1

E2. Does the facility have needles and syringes appropriate for vaccinations?

[Yes] ① [No] ② → Skip to question # E4a

☞ **E2a.** 🚫 IF YES (appropriate needles/syringes): **How do health workers use these needles?**

[Single use] ① [Multiple uses] ② → Skip to question # E4a

☞ **E2b.** IF SINGLE (DISPOSABLE) USE: **Does the facility have the safety box to dispose of them?**

[Yes] ① [No] ②

E4a. Does the facility have a functioning refrigerator?

[Yes] ① [No] ② → Skip to question # E5

☞ **E4b.** 🚫 IF YES: **Is there a working thermometer inside the refrigerator?**

[Yes] ① [No] ② → Skip to question # E5

☞ **E4c.** IF YES: **Is the refrigerator's temperature between 2⁰C and 8⁰C at the time of visit?**

[Yes] ① [No] ②

E5. Does the facility have ice packs and undamaged cold boxes?

[Yes] ① [No] ② → Skip to Availability of Drugs Module, question # D1

☞ **E5a.** 🚫 IF YES: **Are ice packs frozen?**

[Yes] ① [No] ②

AVAILABILITY OF DRUGS MODULE

Check the drug stocks. Answer the following questions based on what you see.

D1. Does the facility have the following drugs available at the time of the visit?

- a. **ORS**a. [Yes] ① [No] ②
- b. **Cotrimoxazole** tablets or susp. – First line antibiotic for pneumonia
and First line antibiotic for dysentery:b. [Yes] ① [No] ②
- c. **Amoxicillin** tablets (250mg) or susp.–
Second line antibiotic for pneumoniac. [Yes] ① [No] ②
- e. **Nalidixic acid** 250mg tab. - Second line antibiotic for dysentery:e. [Yes] ① [No] ②
- f. **Chloroquine** tablet (150mg base) or syrup (50mg or 75mg base/5ml)f. [Yes] ① [No] ②
- g. **Sulfadoxine+pyrimethamine** tablet (500mg Sulfa + 25mg pyrim.)g. [Yes] ① [No] ②
- h. **Vitamin A** *blue* (100,000 IU) or *red* (200,000IU) caps with nippleh. [Yes] ① [No] ②
- i. **Iron** syrup or Drops 25mg/mli. [Yes] ① [No] ②
- j. **Paracetamol** syrup 120mg/5 ml or Tablets 100mg or 500mgj. [Yes] ① [No] ②
- l. **Tetracycline eye ointment**l. [Yes] ① [No] ②
- m. **Gentian violet** (0.5%)m. [Yes] ① [No] ②
- n. **Salbutamol** solution or metered dose inhaler (MDI)n. [Yes] ① [No] ②
- o. **Salbutamol** syrup 2mg/5 ml or Tablets 2mg or 4mgo. [Yes] ① [No] ②
- p. **Diazepam** ampule (10mg/2ml)p. [Yes] ① [No] ②

D2. Does the facility have the following injectable drugs available at the time of the visit?

- a. **Chloramphenicol IM**a. [Yes] ① [No] ②
- b. **Quinine IM**b. [Yes] ① [No] ②
- c. **Benzylicillin IM**c. [Yes] ① [No] ②
- c1. **Procain penicillin IM**c1. [Yes] ① [No] ②
- d. **Gentamycin IM**d. [Yes] ① [No] ②
- e. **Sterile water for injection**e. [Yes] ① [No] ②
- f1. **Ringer’s Lactate Solution** (for severe dehydration)f1. [Yes] ① [No] ②
- f2. **Saline** (for severe dehydration)f2. [Yes] ① [No] ②

How many treatment courses of the following drugs for child weighing 10 kg does the facility have right now?

- D4. **Cotrimoxazole** - for pneumonia -
- D5. **Amoxicillin, oral** - for pneumonia -
- D6. **Chloroquine, oral** – for malaria -
- D7. **Sulfadoxine+pyrimethamine** – for malaria -

FACILITY SERVICES MODULE

Ask the following questions of the health provider who has been observed during case management. If there are several health providers who have been observed managing cases in the same facility, discuss the following questions with all of them and try to reach a consensus for each question. Add comments on the back of the form if you have any problems.

S1. How many days per week is the facility open (including emergency services)? |__| days/week

S2. How many days per week are curative child health services provided? |__| days/week

S3. Does the facility hold immunisation sessions during the week?

[Yes] ① [No] ② → Skip to question # S4

 If Yes (immunisation sessions available during the week):

 **S3a. How many sessions are held at the facility per week?** |__| no./week

 **S3b. Which vaccinations are not available during the week? (Tick all that apply)**

[Measles] ① [BCG] ② [DPT] ③ [OPV] ④ [All are available] ⑤ → Skip to question # S5

  If not all available: **S4. Does the facility hold immunisation sessions in a month?**


[Yes] ① [No] ② → Skip to question # S5

  If Yes: **S4a: Which vaccinations are not available in a month? (Tick all that apply)**

[Measles] ① [BCG] ② [DPT] ③ [OPV] ④ [All are available] ⑤

S5. How many times during the last six months did the facility receive a supervisory visit? |__|__| times/6 months

→ If No visit in the last 6 months, enter 0 and skip to question S7a

 **S6. How many of these supervisory visits were follow-up visits after training to health workers who have been recently trained in IMCI?** |__|__| visits

ASK THE HEALTH PROVIDER/S QUESTION S7, BASED ON THE MOST RECENT SUPERVISORY VISIT THAT WAS NOT AN IMCI FOLLOW-UP VISIT AFTER TRAINING:

 **S7. Did the supervisor observe case management of a sick child the last time he/she visited the facility?**

[Yes] ① [No] ② [Doesn't know] ③

S7a. Does the facility have a supervisory book?

[Yes] ① [No] ② → Skip to question # S9 [Doesn't know] ③ → Skip to question # S9

 **S7b.  If YES: Does the record of the latest supervisory visit in the book include also any recommendations to facility staff?**

[Yes] ① [No] ② [No record of visit found] ③ → Skip to question # S9

 **S7c. How many months ago was the latest record of a supervisory visit?** |__|__| months ago

S9. How long does it take for the patient to get to the referral hospital using the most common* local transport? hours minutes
[If this is the OPD of a hospital, enter "0"]

*Common here refers to the means of transport commonly taken by and affordable to most people in this area

S10. Have you ever wanted to refer a very severely-ill child but been unable to do so?

[Yes] ① [No] ② → Skip to question # S11

☞ S10a. ☞ IF YES, Why? _____

S11. If you had to refer 10 children to the hospital, how many of them do you think will end up going to the hospital? children

FACILITY CASELOAD DATA: ESTIMATED FIGURES

ASK THE FOLLOWING QUESTIONS OF ALL THE HEALTH WORKERS SEEING OUTPATIENTS AND RECORD THE TOTAL NUMBER OF CASES FOR ALL OF THEM:

F1. How many outpatients (all ages) did you see last week (best estimate)?

outpatients all ages seen last week

F2. How many of these outpatients were children under-five (best estimate)?

children under-five seen last week

F3. How many outpatients all ages had *pneumonia or bronchopneumonia* last week (best estimate)?

outpatients all ages with pneumonia or bronchopneumonia seen last week

F4. How many of these outpatients with pneumonia or bronchopneumonia were children under-five (best estimate)?

children under-five with pneumonia or bronchopneumonia seen last week

F5. How many outpatients all ages had *malaria* last week (best estimate)?

outpatients all ages with malaria seen last week

F6. How many of these outpatients with malaria were children under-five (best estimate)?

children under-five with malaria seen last week

F7. Does the facility have a logbook where outpatients' diagnoses are recorded?

[Yes] ① [No] ② → If NO, Stop here ⊗

FACILITY RECORDS MODULE

Ask the health provider responsible for records to help you identify records for all visits to the health facility. Do not include inpatient records. Use these records to answer the questions below. If not enough information is available to answer a question, mark NI (not enough information).

Note: The availability of records may vary by level of health facility. Procedures to estimate attendance should be determined in each site. These procedures must be practical!

➤ **CHECK THE RECORDS OF THE MONTH OF JANUARY 2003 AND FILL IN THE TABLE BELOW**
 Count total for each type of service. Children may visit more than one service during one visit to the facility.

		OUTPATIENT		WELL CHILD (growth monitoring)	
		Insured	Uninsured	Immunisation	Growth monitoring
R1.	What is the total number of visits to the health facility for OUTPATIENT services (ALL AGES) during the month of January?	<input type="text"/>	<input type="text"/>		
R2.	How many of these visits were made by children UNDER-FIVE (from 0 up to 5 years old)?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
R3.	How many of these under-five child visits were made by FEMALE children?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
R4.	How many of these under-five visits were made by children UNDER TWO MONTHS (from 0 to 2 months)?	<input type="text"/>	<input type="text"/>		
R5.	How many OUTPATIENT visits (ALL AGES) were classified / diagnosed as PNEUMONIA or BRONCHOPNEUMONIA?	<input type="text"/>	<input type="text"/>		
R6.	How many of these visits were for UNDERFIVES?	<input type="text"/>	<input type="text"/>		
R7.	How many OUTPATIENT visits (ALL AGES) were classified / diagnosed as MALARIA?	<input type="text"/>	<input type="text"/>		
R8.	How many of these visits were for UNDERFIVES?	<input type="text"/>	<input type="text"/>		

OBSERVATION SHEET

Date: _____ Supervisor: _____ Team: _____

District: _____ Health facility code: |__|__|

1. ORGANISATION OF WORK AT THE FACILITY (Flow of patients, waiting time, distribution of tasks - triage to select severe cases, counselling, etc.-)

2. DRUGS (Availability in the past 3 months and out-of-stock situations lasting more than 1 week – esp. antibiotics and malaria drugs -, drug procurement system, perception about affordability of drugs by families)

3. REFERRAL (Pathway, accessibility to referral sites and perceived quality of services at the referral facility, feedback received from referral facility)

4. UTILISATION OF SERVICES (Has there been an increase in the utilisation of health services for sick children since IMCI has been introduced in this facility? If so, are there any data supporting this point?)

5. HIS: RECORDING AND REPORTING TO HIGHER LEVELS (how many different records are used to record information on the sick child from the time s/he enters the facility to the time s/he leave it? Check if the facility has a copy of the last routine report submitted to higher level)

6. PERCEIVED MAIN CONSTRAINTS TO THE IMPLEMENTATION OF THE IMCI STRATEGY AT THIS FACILITY AND SUGGESTED SOLUTIONS

Continue on the back of this page if necessary.