**SURVEY REPORT**

**IMCI Health Facility Surveys in Four Sub-Saharan Countries - Botswana, Malawi, South Africa and Tanzania, 2002-2004**

Mgalula L, Ketea T, Mason E

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**Abstract**

**Background:** The IMCI strategy has been implemented in the African Region since 1995. More than 95% of the countries in the Region are in various phases of IMCI implementation, with 50% in the expansion phase.

**Objective:** To assess the quality of care provided to children under-five years of age in health facilities implementing IMCI and to assess the availability of drugs, supplies and services essential for child health.

**Methods:** Random, cross-sectional health facility surveys were conducted in four countries: Botswana, Malawi, South Africa and Tanzania in 2003 and 2004.

**Results:** In all health facilities, more than 50% of the presenting children were assessed in an integrated manner for the presence of the most common presenting symptoms: cough, diarrhoea and fever. Most essential drugs were available in the surveyed health facilities. In all four countries, the proportion of health facilities surveyed that had supportive supervision during the six months before the date of the survey was quite low. A large proportion of mothers knew how to administer essential oral drugs at home.

**Conclusion:** The results of the health facility surveys showed that IMCI training not only improved quality of care provided to sick children at first-level health facilities but also brought a positive impact on availability of drugs. Supervision, however, was identified as an area that needs to be strengthened.

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**Introduction**

Child mortality varies among world regions, and these differences are large and increasing. In 1990, there were 180 deaths per 1000 live births in sub-Saharan Africa and only 9 per 1000 live births in developed countries - a 20-fold difference. Seventy percent of these deaths in developing countries are due to the leading childhood illnesses: pneumonia, diarrhoea, malaria, measles, HIV/AIDS and malnutrition.

The Integrated Management of Childhood Illness (IMCI) is an integrated approach to child survival, growth and development and addresses all these conditions. WHO and UNICEF developed IMCI in 1995 as a strategy to reduce the high morbidity and mortality in children under-five years of age. IMCI has three components: improving health workers' skills, improving the health system delivery and improving family and community practices.

Currently 44 countries in the African Region are implementing IMCI. 21 of these have expanded implementation beyond initial implementation districts. During the nearly 10 years that IMCI has been implemented in the Region, various methods of monitoring health workers' performance have been used. Follow up and supervision of health workers provide immediate feedback on performance and help improve and maintain quality of care. However, a systematic assessment of performance of health workers and the health facility support (including drugs availability and level of supervision) is needed for evidence-based planning and for identifying and strengthening key activities during the expansion phase. To support such an assessment, WHO has developed a health facility survey tool and has supported countries in conducting health facility surveys since 2000.

From 2002 to 2004, four countries, Botswana, Malawi, South Africa and Tanzania, conducted health facility surveys with the support of WHO/AFRO. The population of these countries ranged from 1.6 million in Botswana (National Health Statistics) to 68 million in South Africa (National Health Statistics). The under-five population ranged from 15-20% with an average of 17%. The districts studied were all rural with varying income levels, though most were poor. The IMCI target diseases -- pneumonia, malaria, malnutrition, diarrhoea and HIV/AIDS -- were the major health problems of the areas except in Botswana.
and South Africa where the surveyed areas were either malaria-free or with very low malaria prevalence. Implementation of IMCI started in Tanzania in 1997, Botswana and South Africa in 1998 and Malawi in 1999. All four countries were in the expansion phase of IMCI implementation during the surveys. The objectives of the surveys were to assess the quality of care provided to under-fives in health facilities implementing IMCI and the availability of drugs, supplies and services essential for child health.

Methods

We conducted cross-sectional health facility surveys based on probability methods in four countries: Botswana (05-21 October 2003), Malawi (05-30 January 2004), South Africa (10-26 July 2002) and Tanzania (06-30 September 2003), to determine child health indicators at health facility level. Districts implementing IMCI for at least two years were included in the sampling frame. Health facilities with an average of four or more child visits per day over the past year and with at least one health worker trained in IMCI were included. All health facilities in the sampling frame were then randomly sampled and stratified by type of facility. Accordingly, in Botswana, 38 health facilities in six districts, in Tanzania 100 health facilities in 10 districts, in South Africa 58 health facilities in eight districts and in Malawi 50 health facilities in 10 districts were selected.

We assessed the quality of case-management rendered to sick children, drug and vaccine availability, and frequency of support supervision in the selected health facilities. The surveys were conducted following the WHO guidelines for conducting IMCI surveys as stipulated in the WHO Health Facility Survey Manual. The WHO generic health facility survey instruments were adapted to countries' contexts and made consistent with national IMCI guidelines before they were used for data collection. The survey tools included: Form 0: Enrollment of the Sick Child, Form 1: Observation of Case Management, Form 2: Exit Interview, Form 3: Re-examination and Form 4: Health Facility Equipment and Supplies. Additional study instruments included drug management for childhood illnesses in Malawi and infection safety assessment in Botswana. Planning, training of surveyors, and data collection were done jointly with IMCI instruments, although the data collected using these additional study instruments were analysed separately.

Surveyors, who are IMCI-trained health workers, were trained for five days on survey methodology and interviewing techniques through application of the survey instruments. The training included classroom work and practices in the health facility on data collection. At the end of each training, reliability tests were conducted to ensure reliability of the data collected with the various surveyors. Survey teams of three or four members with specific tasks based on the survey instruments were formed. Supervisors were also trained with survey teams. On average, a supervisor supervised two to three teams of surveyors and checked all forms for completeness, accuracy and consistency.

In any one facility, the first three to five sick children aged 2 months to 59 months coming for an initial sick child visit were taken as study subjects after consent was obtained from the caretakers. Any health worker managing sick children on the day of the survey, regardless of IMCI training status, was observed by surveyors as the or he managed the sick children. The most common cadres across the four countries were clinical officers, assistant clinical officers, mother and child health aides, nurses, nurse midwives and auxiliary nurses. Exit interviews were done with mothers to assess their knowledge about the children's condition as explained by the health worker and to verify their understanding about home care, including doses of oral drugs prescribed, feeding, fluid intake at home and follow-up visits. Surveyors reassessed the children, and the surveyors' assessments and classifications became a gold standard against which to measure the performance of the observed health worker.

Data were collected for five days immediately after training of surveyors and supervisors. The Epi-Info application was used for data processing and analysis.

Results

Table 1 shows quality of care at the surveyed health facilities. The mean index of integrated case management is defined as the arithmetic mean of 10 tasks performed for each child divided by 10, was 0.8 or more in Tanzania and South Africa as compared to 0.5 in Malawi and close to 0.6 in Botswana.

In the surveyed facilities in Malawi and Botswana, children were rarely checked for general danger signs, while in the other two countries more than 70% of sick children were assessed for danger signs. More than 70% of children in Tanzania and South Africa were assessed for the presence of common childhood symptoms such as cough, diarrhoea and fever, while this figure was less than 60% in the other two countries. The proportion of children who had their vaccination status checked was highest in South Africa (91%), while for the other three countries about 60% of children had their vaccination status checked during their health facility visits.

With regards to correct oral treatment (with oral antibiotic and/or oral antimalarial), the correct treatment rate of pneumonia was much less in Botswana (28%) as compared to the other three countries, which ranged from 73% in Malawi and Tanzania to 93% in South Africa. The correct malaria treatment rate was assessed only in Malawi and Tanzania and was about 70% in both countries. This could not, however, be determined for the other two countries because of the absence or very low prevalence of malaria in the areas surveyed.

Giving first dose of oral treatments at health facilities was not a common practice in Botswana, as depicted by the fact that only 6% of the children received the treatment at health facilities. Other problems (other than pneumonia, diarrhoea, fever, measles and malnutrition) were assessed in more than half the children in Botswana, Tanzania and South Africa; in Malawi only 32% of the sick children were assessed for other problems.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Botswana</th>
<th>Malawi</th>
<th>Tanzania</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index of integrated assessment (mean)</td>
<td>0.57</td>
<td>0.53</td>
<td>0.80</td>
<td>0.86</td>
</tr>
<tr>
<td>Child correctly classified</td>
<td>60%</td>
<td>60%</td>
<td>78%</td>
<td>74%</td>
</tr>
<tr>
<td>Child needing an oral antibiotic and/or oral antimalarial is prescribed the drug correctly</td>
<td>31%</td>
<td>58%</td>
<td>60%</td>
<td>62%</td>
</tr>
<tr>
<td>Child checked for the presence of cough, diarrhoea and fever</td>
<td>52%</td>
<td>56%</td>
<td>81%</td>
<td>75%</td>
</tr>
<tr>
<td>Child vaccination status checked</td>
<td>60%</td>
<td>59%</td>
<td>59%</td>
<td>91%</td>
</tr>
<tr>
<td>Child checked for three danger signs</td>
<td>12%</td>
<td>15%</td>
<td>73%</td>
<td>75%</td>
</tr>
<tr>
<td>Child with pneumonia correctly treated</td>
<td>28%</td>
<td>73%</td>
<td>73%</td>
<td>93%</td>
</tr>
<tr>
<td>Child with malaria correctly treated</td>
<td>--</td>
<td>68%</td>
<td>71%</td>
<td>--</td>
</tr>
<tr>
<td>Child receives first dose of treatment at facility</td>
<td>6%</td>
<td>45%</td>
<td>60%</td>
<td>62%</td>
</tr>
<tr>
<td>Child checked for other problems</td>
<td>58%</td>
<td>32%</td>
<td>59%</td>
<td>75%</td>
</tr>
</tbody>
</table>
Table 2 shows the health systems’ support and the effect of counselling on caretakers. The indices of essential drug availability in the four countries ranged from 65% in Malawi and Botswana to 75% in Tanzania and 84% in South Africa. The proportion of health facilities that received at least two supervisory visits in the six months before the survey ranged from about 33% in Botswana to 36% in Tanzania. About 25% of the surveyed health facilities in Malawi and South Africa had been supervised six months before the date of the survey.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Botswana</th>
<th>Malawi</th>
<th>Tanzania</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index of availability of essential oral treatments (mean)</td>
<td>65%</td>
<td>65%</td>
<td>75%</td>
<td>84%</td>
</tr>
<tr>
<td>Health facility received at least one supervisory visit that included observation of case management during the previous six months</td>
<td>3%</td>
<td>24%</td>
<td>36%</td>
<td>24%</td>
</tr>
<tr>
<td>Proportion of health facilities that have the equipment and supplies to provoke full vaccination services on the day of survey</td>
<td>69%</td>
<td>90%</td>
<td>76%</td>
<td>93%</td>
</tr>
<tr>
<td>Caretaker of child who is prescribed ORS, and/or an oral antibiotic and/or an oral antimalarial knows how to give the treatment</td>
<td>97%</td>
<td>71%</td>
<td>67%</td>
<td>67%</td>
</tr>
<tr>
<td>Caretaker of sick child is advised to give extra fluids and continue feeding</td>
<td>23%</td>
<td>14%</td>
<td>31%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Table 2: Health facility support and counselling and its effect on caretakers’ knowledge in selected countries in sub-Saharan Africa, 2002-2004

Exit interviews of caretakers indicated that close to 100% of the caretakers in Botswana for whom ORS and/or antibiotic and/or oral antimalarial were prescribed knew how to give the treatment correctly. Sixty-seven percent of the caretakers in Tanzania and South Africa knew how to administer oral drugs at home, while this figure was 71% in Malawi.

Discussion

IMCI is an effective and proven strategy for improving the skills of health workers to correctly assess and classify sick children presenting to health facilities. Improved health workers’ performance has a direct positive effect on child mortality reduction. Several health facility surveys conducted in countries in the African Region have shown that children are assessed and classified better when seen by IMCI-trained health personnel. For example, the health facility survey conducted in Tanzania, where the analysis was stratified by status of training of health workers, demonstrated a significant statistical difference in the proportion of children correctly classified when the children were examined by IMCI-trained health workers. Though the proportion of children correctly classified was reasonably good in our present surveys, ranging from 60% in Botswana and Malawi to close to 80% in Tanzania, these figures could have been significantly improved for IMCI-trained health workers had stratification by IMCI training status of the health workers been done in the analysis.

Most children presenting to health facilities come with multiple symptoms. More commonly, two or more diseases occur together because they have the same environmental or behavioural risk factors, such as poor sanitation or no breastfeeding in infancy, leading to increased exposure to infections. For this reason, health workers must have knowledge and skills to assess the child in its entirety, if significant reduction from childhood mortality rate is to be achieved. This demonstrates how IMCI training has contributed to integrated disease assessment and management. Other interventions benefit from IMCI skills imparted to health workers because the same staff implements other interventions, especially at peripheral health facilities. IMCI, therefore, in addition to improving case management skills of health workers to curb child mortality, has an added value such as changing attitudes, integrating assessment, counselling and better prescribing practices for other interventions. A typical example for this is Tanzania where health workers were redeployed to improve services when potential capabilities in staff were discovered after they were trained in IMCI. Our surveys have proven that IMCI-trained health workers have improved case management skills—about 60% of children needing antibiotic and/or oral antimalaria drugs received the drugs correctly. This would still be improved by regular support supervision.

Implementation of integrated case management is possible only if the health staff has a steady supply of the drugs needed to implement IMCI case management guidelines. The availability and rational use of drugs are related to four areas: availability of drugs, store and stock management, rational prescription and dispensing of drugs, compliance/adherence and correct use of drugs. Lack of key drugs, especially in primary level health has been an impediment to effective IMCI implementation and scaling-up in a number of countries in the Region. IMCI has helped countries to improve availability of drugs through training on rational drug use. The index of availability of essential drugs, defined as the arithmetic mean of essential oral drugs recommended for home treatment of diarrhoea, dysentery, pneumonia, malaria, fever and anaemia available at health facility divided by eight, was also found to be more than 0.6 in all four countries, with the highest in South Africa at more than 0.8. Rational drug use is one factor contributing to the cost effectiveness of IMCI. In remote resource-constrained districts, IMCI has brought about a 13% mortality reduction over two years (MICE results Tanzania). Districts, therefore, could implement IMCI at almost no additional cost to what they could have spent if they applied interventions other than IMCI to address childhood health problems.

Supportive supervision is essential to ensure delivery of quality care to sick children. However, IMCI reviews and health facility survey results, including the ones from Botswana, Malawi, Tanzania and South Africa, indicate that district health systems experienced significant problems in supervision. Less than 35% of health facilities in these countries had supervisory visits during the six months before the surveys. In Zambia, 53% of the surveyed health facilities had supportive supervision, including observation of cases, during the six months before the survey, probably because of the lack of supervision tools. Thus, IMCI/AFRO needs to disseminate the already developed integrated supervision tool to countries and to support them in its implementation.

Counselling mothers is essential to empower them on home care of sick children and to increase their awareness of the signs that require urgent consultation at health facilities. A reasonable proportion of caretakers (about 70%) in Malawi, Tanzania and South Africa knew how to give the treatments. In Botswana, it was close to 100%. The reason for this high proportion of knowledgeable caretakers on how to give oral drugs needs to be explored, and this positive experience shared with other countries of the Region.

Beyond making data available for monitoring activities and for re-planning interventions, the opportunity created by conducting health facility surveys includes the ability to mobilise partners and stakeholders during planning for and conducting and disseminating the results of the surveys. IMCI has received more support after partners were better informed on IMCI, especially at health facility survey dissemination meetings. Once they are better informed, Ministry of Health and partners are more willing to support IMCI by allocating more resources to districts for child survival programmes.
Tanzania, Malawi and Zambia, for example, have increased funding from government to district budgets to support child survival interventions.  

Survey results have also enabled IMCI working groups to identify gaps and problem areas in the practical operational aspects of IMCI and to draw up strategies to overcome problems related to implementation at country and district levels. Moreover, results have been used for advocacy to enhance a wider understanding of the effects of IMCI on childhood indicators and how trained health workers have been able to respond better to the needs of sick children presenting to health facilities. Feedback to health facility workers has had significant impact in enhancing their motivation to perform better. At the same time as countries go through scaling up of IMCI, the survey results have been used to contribute to concrete evidence needed for drawing up future annual and 5-year strategic plans for IMCI in countries.

In all the countries, health facility surveys included other interventions closely related to IMCI such as Malaria, HIV, EPI, Health Systems, and Injection Safety Assessment. This collaboration in the context of the health facility surveys has increased the opportunity for enhancing integration of activities among programmes at country level.

Conclusion

The positive results achieved in childhood health indicators because of IMCI implementation is indicative of the benefits of investing in IMCI. The available evidence prompts deliberate moves to invest more in IMCI and scaling up implementation to cover larger population areas and broader strategy contents to achieve the Millennium Development Goals. Resources spent by governments and partners have resulted in the desired effects that this paper attempted to elucidate.

The results of the health facility surveys showed that IMCI training improved quality of care provided to sick children at first-level health facilities and brought a positive impact on availability of drugs. Supervision, however, was identified as one area needing strengthening.

If the Millennium Development Goals are to be achieved, IMCI implementation needs to be scaled up to reach the hard-to-reach and the most disadvantaged populations in countries. The ultimate challenge is, therefore, to increase coverage while sustaining the gains that have already been achieved.

References

2. World Health Organization, Division of Child Health and Development. Improving child health: IMCI: The integrated approach. WHA/CHD/97.12

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**SURVEY REPORT**

Assessing the Quality of Malaria Case Management in Eritrea: Health Facility Survey in Debub and Gash Barka

Tewolde Gebremeskel,* Solomon Mengistu,* Helen Fekadu,* Salehiya Muhsin,** Magda R. Correia e Silva,** Issa Sanou,** and Abdikarim Alialeid**

Abstract

**Background:** In 2002, Eritrea changed its national antimalarial drug policy. This decision necessitated change of national malaria treatment guidelines and re-training of front-line health workers on case management.

**Objectives:** This health facility survey was conducted to assess the quality of malaria case management in the light of recent drug policy shift and the re-training of thousands of health workers.

**Methods:** Two of the four malaria-endemic Zobas (Debub and Gash Barka) were selected, and 22 facilities in Debub and 24 in Gash Barka were surveyed after being selected through stratified probability sampling frame. Four survey tools were used: facility inventory, health worker interview, observation of outpatient consultation, and exit interview, for patients and caretakers.

**Results:** The median number of qualified health worker per facility is six in Debub and four in Gash Barka. Most health facilities (70%) in both Zobas were observed to have first- and second-line antimalarial drugs in stock on the day of the survey, and most patients (75%-90%) suspected to have malaria were given a combination therapy of CO + SP according to the national guidelines. During observed consultations, most health workers demonstrated adequate history taking and physical examination ability. However, assessing danger signs requires additional effort from both health workers and supervisors. Among patients who received CO+SP combination, almost all (96%) knew how to take or give the drugs at home. More than half of interviewed patients/caretakers were able to recognise at least two signs that warrant immediate return to a health facility.

**Conclusions:** Despite few oversight in assessing danger signs for severe malaria, the availability and quality of malaria case management in Debub and Gash Barka zones is adequate.

**Introduction**

Malaria is reported to be endemic in four of the six Zobas (administrative zones) of Eritrea. The Ministry of Health estimates that malaria accounts for 30% of the total outpatient morbidity and 28% of all hospital admissions. The case fatality rate of malaria in children is estimated 7.4%. For this reason, the National Malaria Control Programme (NMCP), among other major interventions, implements early diagnosis and prompt and effective treatment for malaria cases at health facilities and community levels.

Before 2002, Eritrea had been using chloroquine (CO) as a first-line drug for the treatment of uncomplicated malaria. In June 2002, however, the Ministry of Health, after reviewing the results of drug sensitivity studies, decided to change the