Republic of Kenya

KENYA
WORKING PAPERS

Child Health Services in Kenya

JANUARY 2009

BASED ON FURTHER ANALYSIS OF THE
2004 KENYA SERVICE PROVISION ASSESSMENT SURVEY

Annah Wamae
George Kichamu
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Irene Muhunzu

No. 2

The *Kenya Working Papers* series is an unreviewed, unedited prepublication series of papers reporting on studies in progress. This paper is based on further analysis of data collected in the 2004 Kenya HIV/AIDS and Maternal and Child Health Service Provision Assessment (KSPA). The 2004 KSPA was supported by the United States Agency for International Development (USAID), the United Nations Children's Fund (UNICEF), and the U.K. Department for International Development (DFID). It was implemented by the Kenya National Coordinating Agency for Population and Development (NCAPD), the Ministry of Health (MOH), and the Central Bureau of Statistics (CBS). Additional funding for the development of these papers was provided by the USAID, President's Emergency Plan for AIDS Relief (PEPFAR), and UNICEF, which took place under the auspices of NCAPD. The MEASURE DHS program at Macro International Inc., Calverton, Maryland, USA provided technical support for the main survey and for the preparation of these papers. The views expressed in this paper are those of the authors and do not necessarily represent the views of the Government of Kenya, NCAPD, USAID, UNICEF, DFID, or the organizations with which the authors are affiliated.

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BASED ON FURTHER ANALYSIS OF THE
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The further analysis of the 2004 Kenya Service Provision Assessment (KSPA) was undertaken during the 2007/2008 period to provide answers to some of the key issues raised during the national and regional disseminations of the 2004 KSPA report. These issues touched on the following services; Family Planning, Child Health, HIV/AIDS, and Maternal Health. Five thematic areas on the above services were then identified for further analysis in response to the issues raised during the disseminations. Based on the findings of the 2004 KSPA, 5 teams were constituted and assigned a thematic area to research on. From these teams, a total of five main reports have been compiled. A summary of these 5 reports was also compiled. In addition to this, a report on the District Health Management Teams (DHMTs) was developed by a sixth team using data that was collected alongside the service provision survey.

The National Coordinating Agency for Population and Development (NCAPD) wishes to acknowledge the 2004 KSPA Further Analysis Technical Committee for its role in effectively guiding this research. Special thanks go to the six teams that were involved in the compilation of the various reports for their time and dedication in ensuring that quality reports to inform policy and programmes are produced.

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ABSTRACT

Given the worrying trends in infant and child mortality rates, there is a clear need to assess current practices in the management of childhood illnesses and to identify opportunities for intervention. The 2004 Kenya Service Provision Assessment Survey (KSPA) findings indicate that most health care providers are not taking care of sick children holistically, but rather are treating children only for the presenting illness. Using data obtained from the 2004 KSPA, this study aims to establish the factors that are associated with the promotion of child health using a holistic approach, such as the Integrated Management of Childhood Illness (IMCI) strategy to manage a sick child. The IMCI strategy aims to reduce morbidity and infant and child mortality by implementing three main components: improving health workers' skills in case management; improving the health systems; and improving family and community childcare practices.

Three composite dependent variables representing the holistic approach to child health care were created to measure the following: full assessment of sick child; proper counseling of the child's caretaker; and facility support services for holistic care of sick children. The independent variables used in the analysis include facility type, facility managing authority, region, qualifications of the provider, and sex of the provider.

Almost all health providers surveyed missed critical opportunities to conduct a full assessment of the sick children who presented to them for care. According to the survey, enrolled nurses and doctors were doing better in full assessment and counseling of sick children compared to registered nurses and clinical officers. This difference can be attributed to the fact that doctors and enrolled nurses were likely to have received IMCI training in the previous year compared to registered nurses. Notably, about twice as many female health providers as male health providers assessed major signs and thrice as many female health workers assessed for all three danger

signs. Female providers were also more likely than male providers to properly monitor child growth. Counseling caretakers on children's illnesses was generally poor, with only one in every five caretakers being counseled in clinics and one in every ten caretakers being counseled in health centres. Male providers were more likely to counsel caretakers than their female counterparts. Providers in private facilities were twice as likely to counsel caretakers as providers in public facilities. The full range of essential equipment was lacking in almost all facilities. Hospitals were more likely to be stocked with all essential equipment, followed by dispensaries and maternities with health centers and clinics the least likely.

The results reveal that the quality of care provided to sick children at the first level of health facilities should be improved. Also, help is needed to determine the areas that should be emphasized during the training and supervision of IMCI and other child survival strategies. The KSPA results also suggest the need to improve the skills of more health workers managing children younger than five years and to mobilize more resources for child health.

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante Natal Clinic
ART	Anti Retroviral Therapy
CBS	Central Bureau of Statistics
DHMB	District Health Management Board
DHMT	District Health Management Teams
DPHN	District Public Health Nurse
EmOC	Emergency Obstetric Care
FP	Family Planning
HFS	Health Facility Survey
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IMCI	Integrated Management of Childhood Illnesses
KDHS	Kenya Demographic and Health Survey
KEPI	Kenya Expanded Programme on Immunization
KSPA	Kenya Service Provision Assessment
MCE	Multi Country Evaluation
MOH	Ministry of Health
NCAPD	National Coordinating Agency for Population and Development
NHIF	National Hospital Insurance Fund
NHSSP	National Health Sector Strategic Plan
PMTCT	Prevention of Mother to Child Transmission
PNC	Post Natal Clinic
SMH	Safe Motherhood
STI	Sexually Transmitted Infections
TB	Tuberculosis
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WDR	World Development Report
WHO	World Health Organization

INTRODUCTION

Background

About 10.8 million children under five years of age die in the world each year mainly from preventable conditions or diseases that could be treated effectively; 42 countries account for 90% of child deaths while 6 countries account for 50% of the deaths (Black et al., 2003). Causes of death differ substantially from one country to another; however, pneumonia and diarrhoea remain the illnesses that are most often associated with child deaths. The lives of an estimated 6 million children could be saved each year if proven interventions such as antibiotics for pneumonia and oral rehydration therapy for diarrhoea were universally available in the 42 countries responsible for 90% of child deaths. Existing child survival interventions could, if implemented through efficient and effective strategies, prevent a substantial proportion of current deaths (Jones et al., 2003). Evidence confirms it is possible to design intervention packages that effectively improve child survival and development in very different contexts, depending on the relative burden of causes of death.

Kenya is one of the 42 countries accounting for 90% of all under-five deaths in the world. The findings of the 2003 Kenya Demographic and Health Survey (KDHS) reveal that one in every nine children born dies before age five, mainly of acute respiratory infection, diarrhoea, measles, malaria, and malnutrition. That major challenges remain in the effort to reduce child mortality in Kenya is evidenced by the continued increase in mortality rates since the 1990s. In the years between the 1970s and 1990s, infant and child mortality declined rapidly in Kenya as a result of the global initiatives to improve child health. For various reasons, this trend has reversed and the result is that the infant mortality rate increased from about 60 per 1,000 in 1990

to 74 in 1998 and 77 in 2003, while under-five mortality continued to increase from about 90 per 1,000 in 1990 to 112 in 1998 and 115 in 2003 (NCPD, 1994; NCPD, 1999; CBS, 2004).

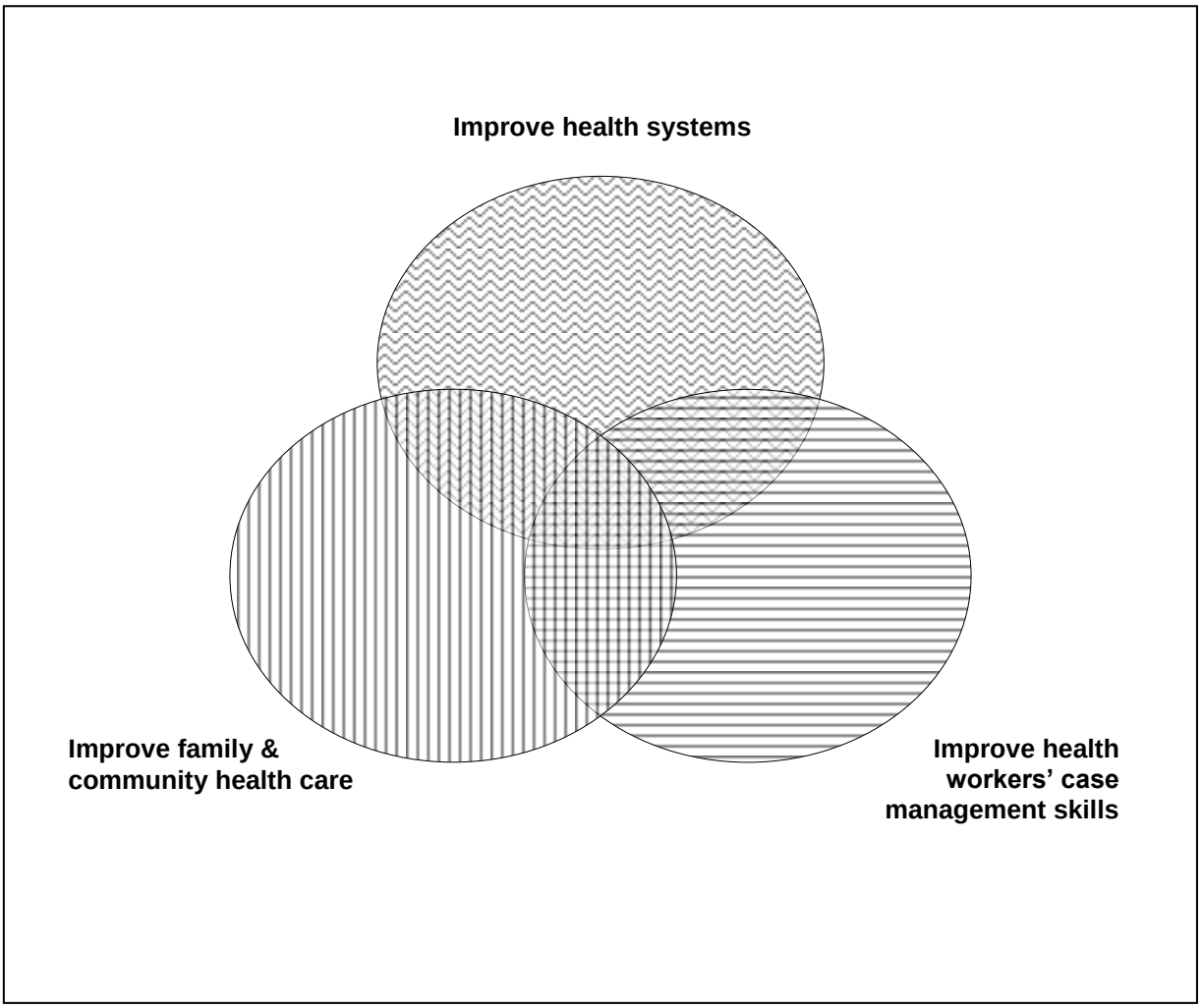
Given the worrying trends in infant and child mortality rates, there is a clear need to assess current practices in the management of childhood illnesses and identify opportunities for intervention. Holistic approaches to improving child survival, such as the Integrated Management of Childhood Illnesses (IMCI) strategy, are one set of practices that have been shown to improve health outcomes for children. Conceptually, holistic approaches encompass components from the health facility such as availability of drugs and supplies, components from the health system such as skills training, and the family and community component of care-seeking practices. This conceptual framework is used to analyze client observation, exit interviews, and facility inventory data from the 2004 Kenya Service Provision Assessment in an effort to discern the factors that are associated with the practice of a holistic approach to child health care. Recommendations are made as to how the results might be used to influence programme and policy, with the aim of increasing child survival and development.

Context

In order to reduce mortality among children under five, the government of Kenya, through the Ministry of Health, has developed and implemented new approaches to child survival efforts. The Kenyan government is also committed to the achievement of Millennium Development Goal number 4: reducing the infant and under-five mortality rates to 21 and 32 per 1,000 childbirths respectively by the year 2015. This section reviews the key child survival strategy being implemented in Kenya, Integrated Management of Childhood Illnesses (IMCI), as well as recent evidence from health facilities on the implementation of this strategy.

IMCI in Kenya. The IMCI strategy implemented by the Government of Kenya, in collaboration with the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other partners, encompasses a range of interventions that combines prevention and better management of childhood illness with nutrition, immunization, maternal health, and other health programmes (Kenya National Health Sector Strategic Plan II 2005-2010). For example, Kenya's child survival programme includes immunization through the Kenya Expanded Programme on Immunization (KEPI), enhanced nutrition through growth monitoring, and intensified efforts to combat malaria through promotion of insecticide-treated bed nets.

Figure 1.1 Components of IMCI



The IMCI strategy, which promotes use of every opportunity by the provider to assess the child's current status and provide preventive interventions, has been recommended as a cost-effective child survival intervention. IMCI aims to reduce morbidity and infant and child mortality by implementing three main components: improving health workers' skills in case management, improving the health systems, and improving family and community childcare practices (Figure 1.1). This is one of the best ways of delivering integrated child health care, as demonstrated by the WHO's Multi-Country Evaluation (MCE). Multi-Country Evaluation is a global evaluation to determine the impact of IMCI on health outcomes and its cost-effectiveness. Preliminary findings from an MCE study site in Tanzania show dramatic improvement in the quality of case management in health facilities implementing IMCI. Children seeking care at the health facilities in IMCI districts were more thoroughly assessed and received better quality care in comparison to districts where IMCI had not yet been implemented (Victora and Schellenberg, 2002). Further analysis of the MCE project data additionally demonstrated that IMCI was not associated with higher costs than routine child health care (Adam et al., 2005), as illustrated in Table 1.1.

Table 1.1 Differences between IMCI districts and comparison districts in the United Republic of Tanzania in annual costs of health care per child less than 5 years old. (Estimates are standardized to a district with 50,000 children less than five 5 years old.)

Level of Analysis	IMCI Districts US $11.19	Comparison Districts US $16.09
National	0.17	0.07
District	2.3	3.35
Hospital	2.89	7.33
Primary Facilities	3.16	2.94
Household	2.68	2.4
Total Cost per Child	**11.19**	**16.09**
Total Cost Excluding Hospital Costs	**8.3**	**8.76**

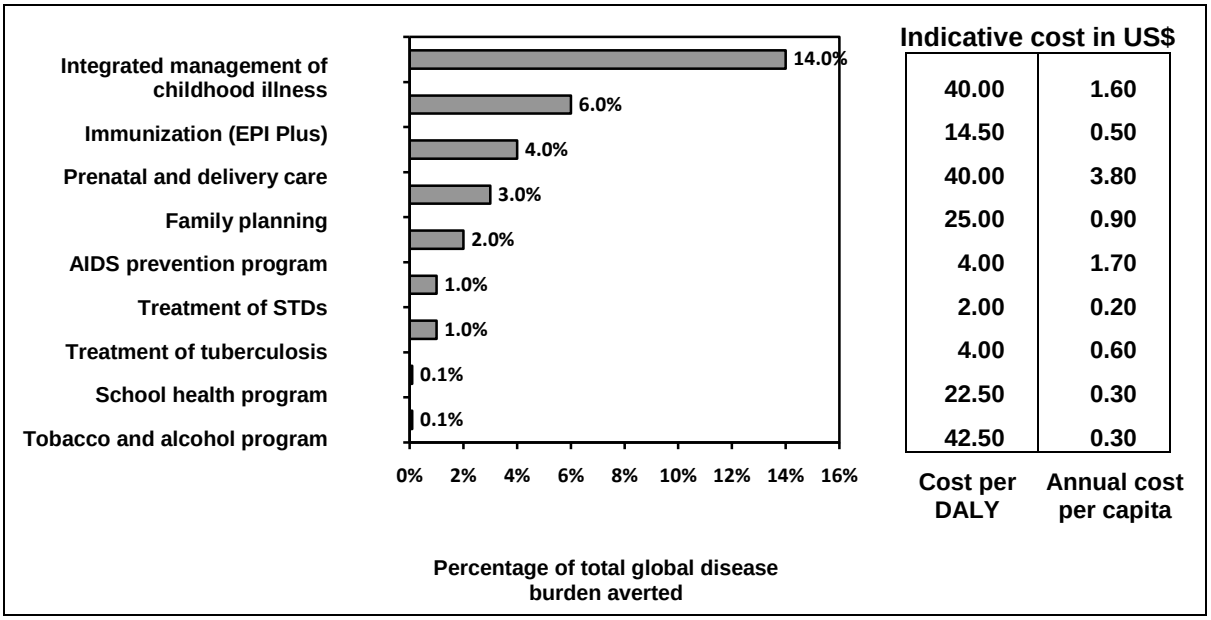
Source: Adam et al., 2005.

The above table shows that the annual cost per child of providing health care for children under five in districts with IMCI was US $ 11.19, 44% lower than the cost in the districts without IMCI (US$ 16.09). Much of the difference was due to higher rates of hospitalization of children less than five years old in the districts without IMCI. But even when differences in hospitalization rates are excluded, the cost per child was still 6% lower in IMCI districts. There was no difference in costs incurred at primary care facilities or at the household level.

As illustrated in Figure 1.2 below, IMCI was identified as one of the potentially cost-effective and affordable public health and clinical services in the 1993 World Development Report: Investing in Health (WDR) and in the Health, Nutrition and Population (HNP) Sector Strategy Paper.

The figure shows that IMCI, compared to the other programmes and services, ranks high in terms of its potential to avert a large part of the global disease burden and in its relatively low cost per disability- adjusted life year and annual cost per capita.

Figure 1.2 Cost-Effective and Affordable Public Health and Clinical Services



DALY disability – adjusted life years

Source: World Bank, 1997.

Findings from Recent Health Facility Surveys. The 2004 Kenya Service Provision Assessment (KSPA) survey was conducted to assess, among other things, the care for sick children and availability of preventive services, immunization, and growth monitoring. Service provision was compared to standard guidelines for IMCI, although information was collected from health facilities that were not necessarily implementing IMCI. The survey shows that 4 out of 5 facilities offer all three basic child health services (curative care, immunization, and growth monitoring); however, there are gaps in providing these important basic and preventive care services. The results from the 2004 KSPA and the 2006 Kenya IMCI Health Facility Survey (HFS), which collected information from facilities implementing IMCI, both reveal that quality of care provided to sick children at the first level of health facilities needs improvement.

Opportunities to promote preventive health interventions each time a child is brought to a facility for consultation are being missed. Assessments of immunization, weight, and feeding practices for children less than 24 months occurred in only 66%, 53%, and 36% of cases, respectively (NCAPD, 2005). This also contributes to an explanation of the decrease in overall immunization coverage and existing levels of chronic malnutrition documented in the 2003 KDHS. Assessment for general danger signs in sick children is also poor. Only 6 percent were assessed for all three danger signs (inability to drink or breastfeed, vomiting everything, and convulsions) (CBS, 2004).

Treatment guidelines offer service providers the right methods for medication and infection control. Guidelines of any kind, including the new WHO-prescribed IMCI guidelines, were available in only 22% of facilities offering sick child services, while treatment protocols were found in only 1 in 5 facilities.

Many child illnesses can easily and safely be treated at home as long as caregivers know what to do and what danger signals to watch for. 2004 KSPA results suggest that many health care providers are failing to help caregivers protect the children's health. Only 5% of caregivers of children with diarrhoea received all three IMCI-recommended counsels (increased fluids, increased food in-take, and list of symptoms for which the child must be brought back immediately). Few counselling materials are available and these are rarely used. IMCI counselling cards for providers and mothers are each available in only 5% of health facilities. Visual aids for client education are available in less than 30% of facilities (NCAPD, 2005).

IMCI aims to ensure good quality of health services by improving health workers' skills in case management of childhood illnesses; however, KSPA results show that only 9% of child health providers had received in-service training related to IMCI during the 12 months preceding the survey.

Given the findings that health care providers are not taking care of sick children holistically but are rather treating the child for only the presenting illness, the overall objective of this study is to establish the factors that are associated with the promotion of child health using a holistic approach such as the IMCI strategy to manage a sick child.

DATA AND METHODS

Data

To address our research question, we used data from the previously described 2004 KSPA that covered a total of 440 health facilities in Kenya. The survey included all levels of facilities (i.e., dispensaries, clinics, health centres, hospitals, maternities, and nursing homes) operated under a variety of authorities including governmental, private, non-governmental and faith-based. The sample was drawn from about 3,500 health facilities and was designed to provide a national and provincial level representation of all health facilities offering child health, family planning, maternal health (antenatal and delivery care), STI & TB services, and HIV/AIDS services. These facilities were stratified by province and by district before selection. During the survey, facilities that could not be assessed for whatever reason were replaced by similar facilities in the same locality.

The data for the analysis of child health service provision was collected using the following methods: facility inventory questionnaire, health worker interviews, observation of sick-child consultations, and an exit interview of the caretaker of a sick child. In each case, consent was obtained by the interviewers before the data collection tools were administered. The respondents indicated their consent by signing consent forms presented to them by the interviewers.

The facility inventory questionnaire was administered to the health worker in charge of the facility or any other responsible person. This tool sought information on available units/departments, staff, equipment, and job aids within the facilities surveyed. The interviewers were required to indicate if the resources that were reported as available were actually observed.

Health worker questionnaires were administered to health workers who were present on the day of the interview. These questionnaires sought information on services provided by the health workers, training (pre and in-service), and supervision of the health workers.

During the observation of the sick child consultations, the interviewers observed and recorded the health provider's interaction with the caretaker and sick child. Information on the assessment, diagnosis, and treatment of the sick child, as well as the counselling of the caretaker, was collected. For the exit interview, a questionnaire administered to the caretaker of the sick child sought to establish the sick child-care knowledge of the caretakers as imparted to them by the health workers. Information on client satisfaction was also collected using this module. In total, 1,211 children were observed and 1,165 caretakers were interviewed.

SPSS 13.0 software was used to run frequencies on the variables of interest to this analysis. Bivariate analyses and chi-square tests were also carried out to establish the relationships between the variables and their deviation from normal distributions, respectively.

Variables Used in the Analysis

This analysis used both dependent and independent variables. The dependent variables used were derived from three different data sets, namely: the facility inventory data, health worker interviews data, and the observation of sick-child consultations and exit interviews of the caretaker data. For each of the dependent variables, the same independent variables were used to measure the quality of care being provided to sick children.

Dependent Variables. Three composite dependent variables representing the holistic approach to child health care were created to measure the following: full assessment of sick child, proper counselling of the child's caretaker and facility support services for holistic care of sick children.

The dependent variable for ***full assessment of sick child*** was derived from the following variables in the sick child consultations and exit interviews data set: check for 4 major symptoms, check for 3 danger signs, caretaker asked about child's feeding, check for immunization and vitamin A status, and proper growth monitoring.

The ***proper counselling of caretaker*** dependent variable was derived from the sick child consultations and exit interviews data set using the following three variables: counselling on drugs, counselling on child's illness, and counselling on feeding.

The ***facility support services*** dependent variable was derived from the facility inventory data set using the following two variables: equipment availability and job aids availability.

To construct each of the dependent variables above, their constituent elements were dichotomized into 0 (appropriate behavior not noted) and 1 (appropriate behavior noted). The dependent variables were then recoded such that if any constituent element of appropriate care giving was missing, the caregiver was scored with a "0" on that dependent variable. If all elements were present, the caregiver was scored with a "1".

Independent Variables. The independent variables used to measure the dependent variables are listed below:

- Facility type
- Facility managing authority
- Region
- Qualifications of provider
- Sex of provider

RESULTS

Full Assessment of Sick Child

Adherence to the standardized IMCI guidelines for assessing a sick child helps to ensure the provision of quality care. Health providers are expected to follow these guidelines in conducting a full assessment of the child's health status, since it is known that sick children often present with signs and symptoms of more than one condition that require more than one diagnosis. It is evident from the results as shown in Table 1.2 that full assessment of sick children is inadequate, about 90 percent of health providers were missing critical opportunities to conduct full assessments of sick children.

Major Symptoms and General Danger Signs. IMCI guidelines call for full assessment of the following four major symptoms common in childhood illness: *cough/respiratory difficulty, diarrhea, fever, and ear problems*. According to the guidelines, health providers are also required to check all sick children for the following three general danger signs: *inability to drink or breastfeed, vomiting everything, and convulsions.* The analysis results show that health providers failed to ask for the major symptoms and danger signs in sick children. Assessment of all four major symptoms and all three danger signs in health facilities is quite low at 3.2 percent and 5.9 percent respectively (Table 1.2).

Table 1.2 Full assessment of sick child by facility type, region, provider cadre and sex

	Dependent variable 1: Full assessment of sick child															
Category	**DV1: Provider conducted full assessment**		**Asked for 4 major symptoms**		**Asked for 3 danger signs**		**Full exam for relevant signs**		**Asked caretaker about feeding**		**Checked immunization/ Vitamin. A**		**Properly monitored child growth**	
Facility characteristics														
Facility type	p < 0.01													
Hospital	1.0%	n=101	**7.8%**	n=102	**10.8%**	n=102	**9.9%**	n=101	**6.9%**	n=102	**4.0%**	n=101	**21.8%**	n=101
Health centre	0.9%	n=543	**4.4%**	n=543	**8.7%**	n=543	**3.7%**	n=543	**2.9%**	n=543	**7.2%**	n=544	**19.3%**	n=543
Maternity	0.0%	n=27	**3.7%**	n=27	**7.4%**	n=27	**14.8%**	n=27	**0.0%**	n=26	**0.0%**	n=26	**29.6%**	n=27
Clinic	0.0%	n=14	**7.1%**	n=14	**7.1%**	n=14	**7.1**%	n=14	**0.0%**	n=14	**0.0%**	n=14	**28.6%**	n=14
Dispensary	0.3%	n=696	**1.4%**	n=697	**3.0%**	n=696	**4.4%**	n=697	**1.6%**	n=697	**3.2%**	n=697	**14.4%**	n=696
Total	**0.6%**	**8-1382**	**3.2%**	**44-1384**	**5.9%**	**82-1383**	**4.8%**	**66-1383**	**2.5%**	**34-1383**	**4.7%**	**65-1383**	**17.3%**	**239-1382**
Management authority	p < 0.01													
Government	0.8%	n=983	**3.6%**	n=983	**6.4%**	n=983	**4.7%**	n=983	**2.6%**	n=983	**6.0%**	n= 983	**16.4%**	n=983
NGO/FBO	0.0%	n=400	**2.0%**	n=399	**4.8%**	n=400	**5.0%**	n=400	**2.3%**	n=400	**1.8%**	n=400	**19.8%**	n=400
Region	p < 0.01													
Nairobi	0.0%	n=189	**1.1%**	n=189	**1.1%**	n=189	**4.2%**	n=189	**2.6%**	n=189	**3.2%**	n=188	**18.0%**	n=189
Central	0.0%	n=149	**3.4%**	n=149	**6.7%**	n=149	**0.7%**	n=149	**2.0%**	n=149	**4.7%**	n=149	**23.3%**	n=150
Coast	0.0%	n=167	**1.8%**	n=167	**0.6%**	n=168	**4.2%**	n=167	**0.6%**	n=167	**0.0%**	n=167	**14.9%**	n=168
Eastern	0.0%	n=277	**2.2%**	n=277	**2.5%**	n=277	**0.7%**	n=276	**0.4%**	n=277	**0.0%**	n=277	**11.2%**	n=277
North Eastern	0.0%	n=15	**0.0%**	n=15	**0.0%**	n=15	**0.0%**	n=15	**0.0%**	n=15	**6.3%**	n=16	**13.3%**	n=15
Nyanza	0.0%	n=174	**0.6%**	n=174	**0.6%**	n=173	**6.9%**	n=174	**2.3%**	n=174	**4.6%**	n=174	**21.8%**	n=174
Rift Valley	0.0%	n=327	**0.0%**	n=327	**7.3%**	n=327	**0.3%**	n=327	**0.9%**	n=326	**0.9%**	n=326	**5.8%**	n=327
Western	9.6%	n=85	**30.6%**	n=85	**42.4%**	n=85	**40.0%**	n=85	**19.0%**	n=84	**45.9%**	n=85	**65.9%**	n=85
Provider characteristics														
Cadre	p < 0.01													
Medical doctor	0.0%	n=30	**16.1%**	n= 31	**20.0%**	n=30	**10.0%**	n=30	**3.3%**	n=30	**19.4%**	n=31	**23.3%**	n=30
Clinical officer	0.3%	n=326	**2.8%**	n=326	**3.7%**	n=326	**4.6%**	n=326	**3.7%**	n=326	**4.0%**	n=326	**15.0%**	n=326
Reg. nurse	0.0%	n=185	**3.8%**	n=186	**4.3%**	n=185	**0.0%**	n=185	**0.0%**	n=185	**3.2%**	n=185	**14.6%**	n=185
Reg. midwife	0.0%	n=112	**0.9%**	n=112	**3.6%**	n=111	**1.8%**	n=112	**0.9%**	n=112	**0.0%**	n=112	**0.9%**	n=112
Enrolled nurse	3.2%	n=247	**4.5%**	n=247	**8.5%**	n=246	**12.1%**	n=247	**4.5%**	n=246	**7.7%**	n=247	**18.3%**	n=246
Enrolled midwife	0.0%	n=454	**2.4%**	n=453	**6.4%**	n= 454	**2.6%**	n=454	**2.2%**	n=454	**4.8%**	n=454	**23.8%**	n=454
Total	**0.7%**	**9-1376**	**3.2%**	**44-1377**	**5.8%**	**80-1374**	**4.7%**	**65-1376**	**2.5%**	**35-1375**	**4.8%**	**66-1377**	**17.4%**	**239-1375**
Sex	p < 0.01													
Male	0.7%	n=694	**2.3%**	n=694	**3.0%**	n=694	**5.0%**	n=694	**2.3%**	n=694	**2.6%**	n=694	**13.3%**	n=694
Female	0.6%	n=684	**4.1%**	n=684	**8.9%**	n=684	**4.1%**	n=683	**2.8%**	n=683	**6.9%**	n=683	**21.2%**	n=683

Figure 1.3 shows that national hospitals are most likely to make a full assessment (7.8%), followed closely by clinics (7.1%), while dispensaries are the least likely to evaluate children for all major symptoms (1.4%). Sick children are more likely to be observed for all danger signs in hospitals (10.8%) and health centres (8.7%), followed by maternities (7.4%), but less likely to be checked in dispensaries (3%). Comparatively, non-government facilities are more often failing to check for all major symptoms and danger signs (2% and 4.8%) than government health facilities (3.6% and 6.4%).

With regard to cadre of provider, it is evident from the results that assessment of major symptoms and general danger signs by health providers is fairly low (3.2% and 5.8%).

Figure 1.3 Assessment of all 4 major symptoms and 3 danger signs by facility type

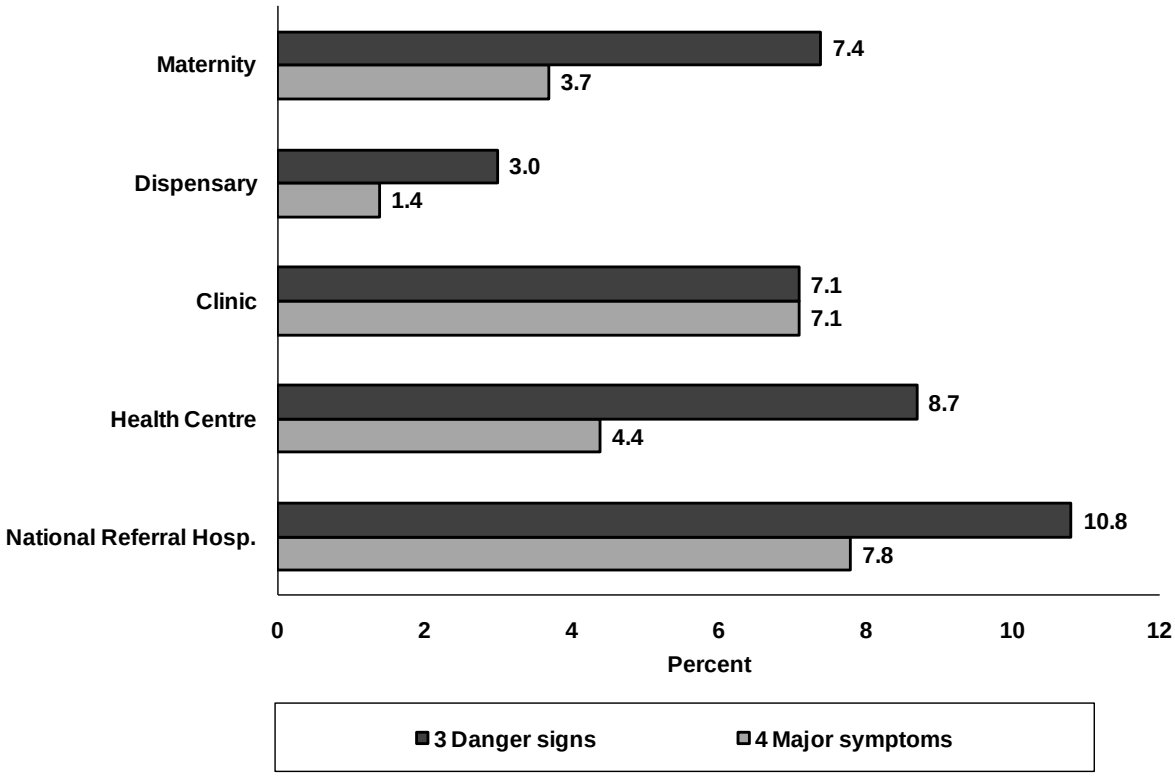
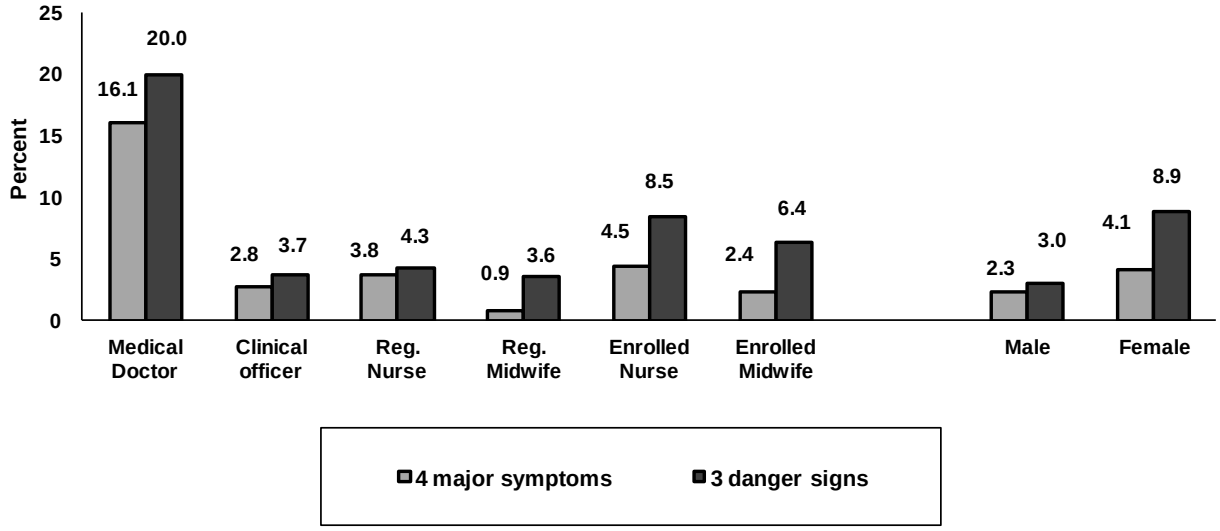


Figure 1.4 below shows that a considerable proportion of doctors are more likely to assess sick children for major symptoms and danger signs (16% and 20%). The proportion of enrolled nurses (4.5% and 8.5%) assessing sick children for all major symptoms and danger signs is slightly higher compared to registered nurses (3.8% and 4.3%), and clinical officers (2.8% and 3.7%). Moreover, enrolled midwives are doing better in assessing sick children for major symptoms and danger signs (2.4% and 6.4%) compared to registered midwives (0.9% and 3.6%).

Figure 1.4 Assessment of all 4 major symptoms and all 3 danger signs by qualification of health provider



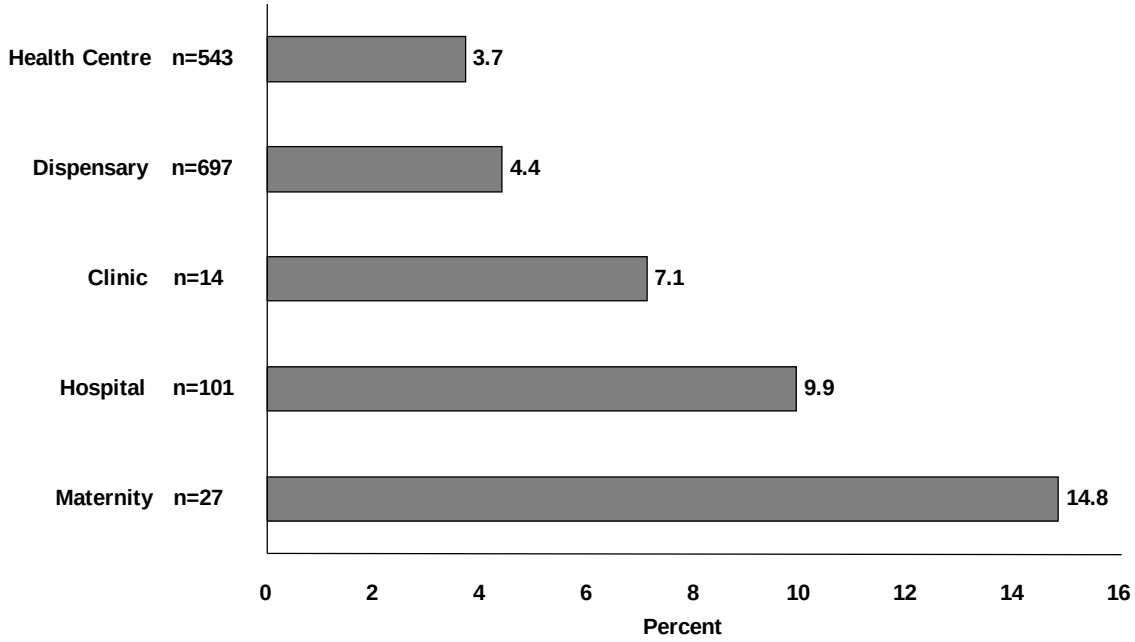
Notably, about twice as many female health providers (4.1%) were assessing major symptoms compared to male health providers (2.3%). A remarkable proportion of female health providers (8.9%), thrice as many, were assessing for all three danger signs compared to male health providers (3%).

Overall, the assessment of sick children for major symptoms and danger signs was poor in almost all regions (less than 5% and less than 10%, respectively) apart from Western province (31% and 42%, respectively).

Complete Physical Examination. The health provider is expected to conduct a complete physical examination after assessing for the various signs and symptoms. This includes a basic examination, including taking the temperature or feeling the child for fever, counting rate of respirations, measuring state of dehydration, and checking for anaemia and oedema.

Health providers are missing critical opportunities to carry out full physical examinations of sick children. Only 4.8 percent of health facilities conducted full physical examinations on sick children (Table 1.2). The results in Figure 1.5 indicate that there are marked differentials in health facilities regarding complete physical examination, with maternities registering a fairly high proportion of 14.8% while health centres registered the lowest at only 3.7%.

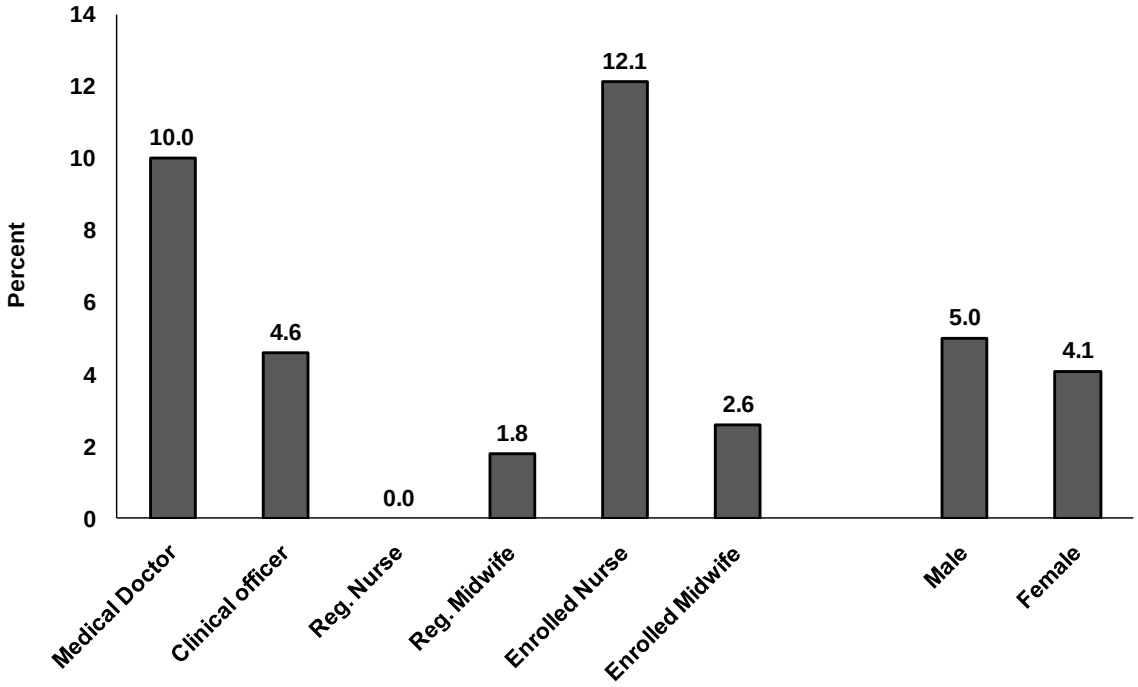
Figure 1.5 Complete Physical Examination by Facility Type



Government (4.7%) and non-government (5%) facilities are equally unlikely to conduct complete physical examinations on sick children.

It is of considerable concern that registered nurses did not conduct a complete physical examination on any sick child (see Fig. 1.6). Clinical officers (4.6%) were also less likely to conduct full physical examinations. In comparison, a considerable proportion of enrolled nurses (12.1%) and doctors (10%) were able to conduct complete physical examinations. There is no marked difference between male and female health providers in conducting complete physical examinations.

Figure 1.6 Complete physical examination by qualification of health provider



Immunization and Vitamin A Status. The status of immunization and vitamin A needs to be established in all sick children to avoid missed opportunities. Results show a low significant proportion of health facilities (4.7%) checking for immunization and vitamin A (Table 1.2). Regarding facility type, none of the clinics or maternities checked immunization and vitamin A

status of the child. The health centre performed best at 7.2%, while 4.0% and 3.2% of the national referral hospitals and dispensaries, respectively, checked children's immunization and vitamin A status. There was considerable variation by type of provider, with doctors, at 19.4%, the most likely to check for both immunization and vitamin A status of the child. None of the registered midwives checked for the status of both, while 7.7 of enrolled nurses and 4.8 percent of enrolled midwives checked children for both immunization and vitamin A status.

The child's immunization and vitamin A status were more likely to be checked at a government/public facility (6%) than at a non-government facility (1.8%), while female providers were more likely to check for both vitamin A and immunization status than males (6.9% compared to 2.6%).

Caretaker Asked about Feeding Practices. Caretakers were hardly asked about feeding practices of the sick child during consultations; only 2.5% of the total facilities asked caretakers about feeding practices (Table 1.2). Notably, none of the caretakers of the children attended at clinic and maternity facilities were asked about feeding practices. Though still quite low, the national referral hospital had the highest percentage of caretakers who were asked about feeding (6.9%), followed by health centres (2.9%) and dispensaries (1.6%). Enrolled nurses were the most likely to ask the caretaker about feeding practices, though only 4.5% of them did. None of the registered nurses/nursing officers asked caretakers about feeding, while 0.9%, 3.3%, and 3.7% of the registered midwives, medical doctors, and clinical officers, respectively, asked caretakers about feeding practices. Both government and non-government facilities recorded very low percentages of caretakers being asked about feeding practices of the sick child at 2.6% and 2.3%, respectively. There is not much difference between male (2.3%) and female (2.8%) providers who asked caretakers about feeding practices.

Growth Monitoring Properly Done. Overall, only 17.3% of the facilities conducted growth monitoring properly. Clinics and maternities were most likely to conduct growth monitoring properly at 28.6% and 29.6%, respectively. At the national referral hospital, health center, and dispensary, the proportion was 21.8%, 19.3%, and 14.4%, respectively. Non-government facilities performed better than government/public facilities, with 19.8% of them having proper growth monitoring compared to 16.4% of government/public facilities. Enrolled midwives and doctors were more likely to conduct growth monitoring properly at 23.8% and 23.3%, respectively. In the other categories, 18.3% of the enrolled nurses, 15% of clinical officers, and 14.6% of registered nurses conducted growth monitoring properly.

Counselling of Caretaker

Generally, 10.2% of all health facilities counselled caretakers on oral drugs during the sick child consultations. Caretakers in Eastern (1.8%) and Nairobi (2.6%) provinces were least likely to be counselled on oral drugs. Comparatively, a substantial proportion of caretakers in Central province (46%), followed by North –Eastern province (20%) were most likely to be counselled on oral drugs. (Table 1.3)

Caretaker Counselled on Oral Drugs/First Dose. The results, as indicated in Figure 1.7, show that counselling on oral drugs was more likely to be given in clinics (21.4%) and maternities (14.8%) than in dispensaries (10.5%) and health centres (10.3%). Counselling was also rarely done in referral hospitals (5%).

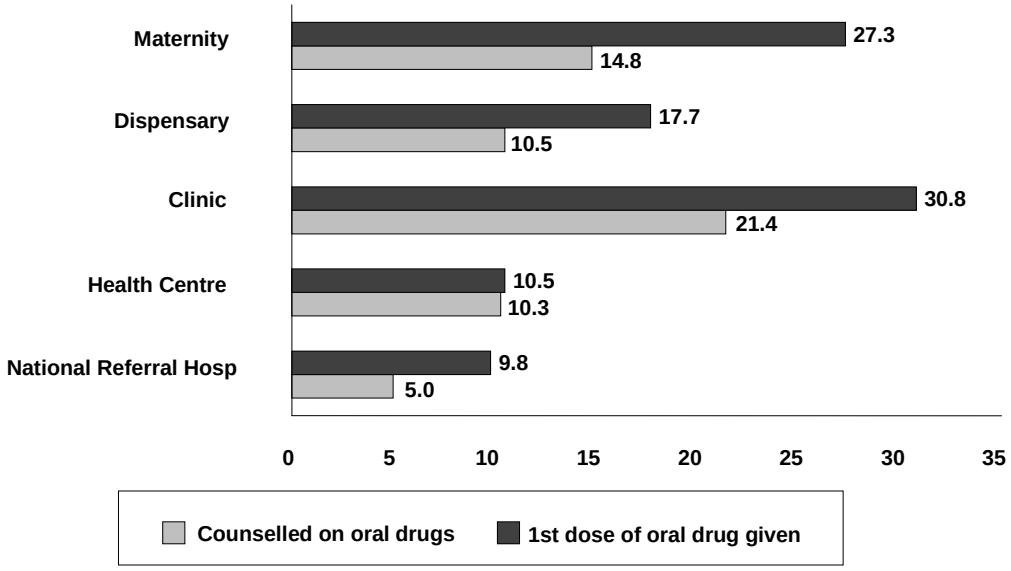
Table 1.3 Counselling of caretaker by facility type, region, provider cadre and sex

	Dependent variable 2: Counselling of caretaker						
Category	**DV2: Provider counselled caretaker of sick child**	**Counselled on oral drugs**		**Counselled on child's illness**		**Counselled on feeding**	
Facility characteristics							
Facility type	p < 0.01						
Hospital		**5.0%**	n=101	**16.7%**	n=102	**12.7%**	n=102
Health center		**10.3%**	n=543	**9.4%**	n=543	**4.8%**	n=543
Maternity		**14.8%**	n=27	**22.2%**	n=27	**14.8%**	n=27
Clinic		**21.4%**	n=14	**21.4%**	n=14	**7.1%**	n=14
Dispensary		**10.5%**	n=696	**12.4%**	n=696	**6.3%**	n=696
Total		**10.2%**	**141-1382**	**11.8%**	**163-1383**	**6.4%**	**88-1383**
Management authority	p < 0.01						
Government		10.4%	n=983	**9.1%**	n=983	**6.0%**	n=983
NGO/FBO		9.8%	n=400	**18.5%**	n=400	**7.3%**	n=400
Region	p < 0.01						
Nairobi		**2.6%**	n=189	**16.9%**	n=189	**3.2%**	n=188
Central		**46.0%**	n=150	**18.1%**	n=149	**24.2%**	n=149
Coast		**4.2%**	n=168	**9.6%**	n=167	**1.8%**	n=167
Eastern		**1.8%**	n=277	**6.5%**	n=277	**2.2%**	n=277
North Eastern		**20.0%**	n=15	**0.0%**	n=15	**0.0%**	n=15
Nyanza		**17.2%**	n=174	**8.6%**	n=174	**3.4%**	n=174
Rift Valley		**4.9%**	n=327	**5.8%**	n=327	**2.8%**	n=327
Western		**9.4%**	n=85	**42.4%**	n=85	**25.9%**	n=85
Provider characteristics							
Cadre	p < 0.01						
Medical doctor		**6.5%**	n=31	**22.6%**	n=31	**12.9%**	n=31
Clinical officer		**8.9%**	n=326	**10.7%**	n=326	**4.6%**	n=326
Reg. nurse		**3.2%**	n=185	**3.8%**	n=185	**0.5%**	n=185
Reg. midwife		**7.1%**	n=112	**0.9%**	n=112	**8.0%**	n=112
Enrolled nurse		**9.3%**	n=246	**17.0%**	n=247	**8.5%**	n=247
Enrolled midwife		**16.1%**	n=454	**15.2%**	n=454	**8.1%**	n=454
Sex	p < 0.01						
Male		**11.7%**	n=694	9.1%	n=694	**6.1%**	n=694
Female		**8.8%**	n=683	14.2%	n=684	**6.7%**	n=684

There was no significant difference between counselling in government facilities (10.4%) and non-government facilities (9.8%). In both categories only one out of ten caretakers were counselled.

Counselling by various cadres of medical staff was generally very poor, with registered nurses hardly counselling caretakers on administration of oral drugs (3.2%). Clinical officers' and enrolled nurses' counseling rates were both about 9%, while enrolled midwives were more likely to counsel caretakers (16.1%) than any other category of caregivers.

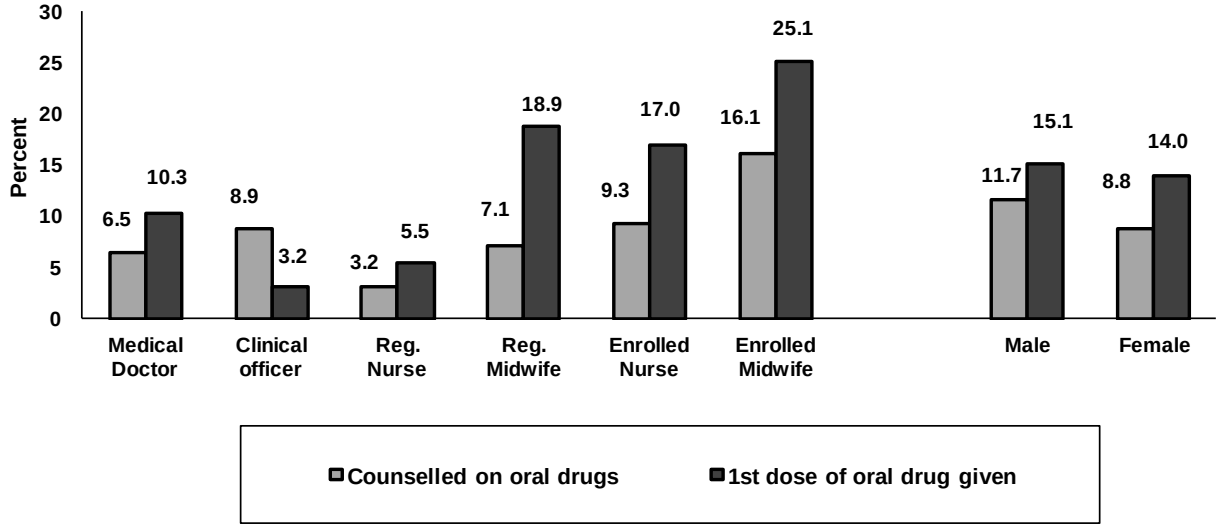
Figure 1.7 Proportion of sick children counselled on oral drugs and if 1st dose of oral drug given by facility type



The KSPA analysis shows a slight difference between the sexes in the degree of counselling, with males being more likely to counsel caretakers (11.7%) than their female counterparts (8.8%). (Figure 1.8)

Service providers in clinics (30.8%) are three times more likely to administer the first dose of oral drugs than those in national referral hospitals (9.8%) or in health centres (10.5%). In maternity homes, slightly over a quarter (27.3%) of providers administer the first dose of drugs, while in dispensaries the corresponding figure is 17.7% (Figure 1.7). Service providers in non-government facilities are more likely to administer the first dose to sick children (18.4%) than in government facilities (13.1%), although these rates are extremely low.

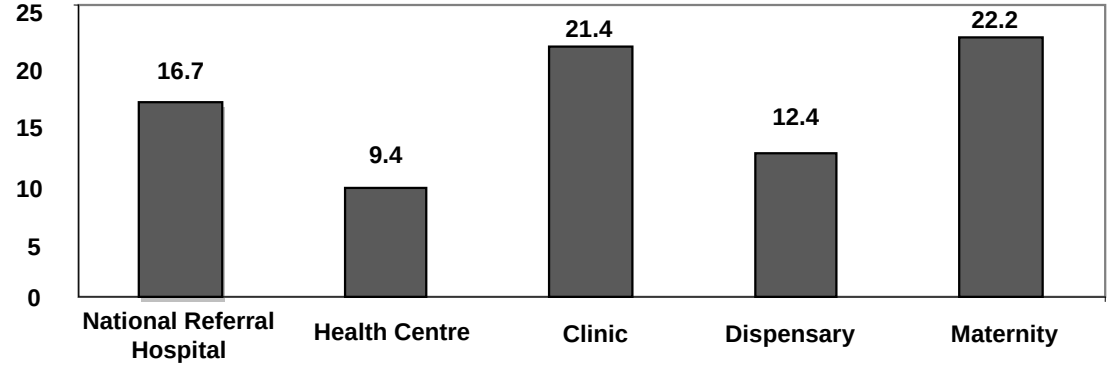
Figure 1.8 Proportion of sick children counselled on oral drugs and 1st dose of oral drug given by qualification of health provider



A quarter of enrolled midwives are likely to administer the first dose of medication to sick children compared to one out of ten of the doctors and one out of twenty of the registered nurses. Only 3.2 % of clinical officers administered the first oral dose, which was the lowest rate among all medical personnel observed (Fig. 1.8). There was no significant difference between the sexes in terms of administration of the first dose to sick children.

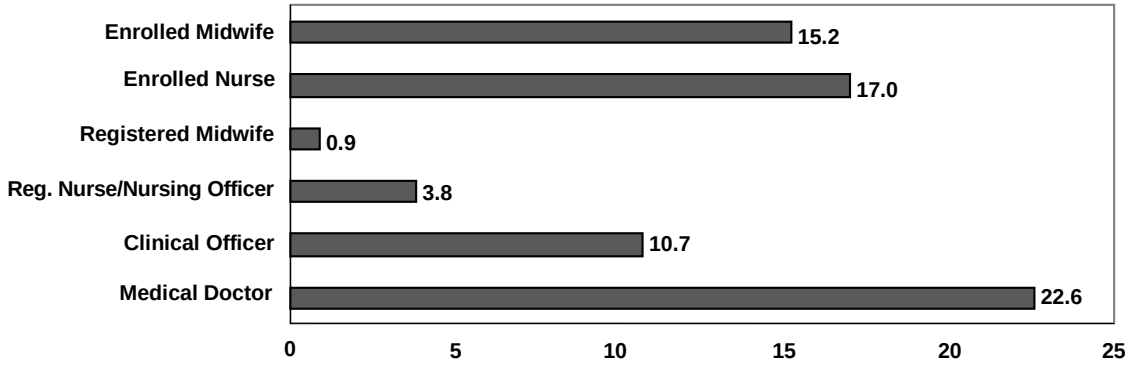
Counselling of Caretaker on Child's Illness. The counselling of caretakers on the children's illness was generally poor. From the survey findings, clinics and maternities were the most likely to counsel caretakers, with about one in every five caretakers being counselled. Health centres were least likely to counsel caretakers, with only 1 in every 10 caretakers being counseled (Fig. 1.9). Providers in non-government facilities were twice as likely to counsel caretakers as providers in government facilities (9.1% compared with 18.5%, respectively) (Table 1.3).

Figure 1.9 Counselling of illness by facility type



Doctors (22.6%) and enrolled nurses (17.0%) were more likely to counsel caretakers than registered nurses (3.8%) and registered midwives (0.9%) (Figure 1.10). Female health workers were one and a half times more likely to advise the caretakers on the illness of the children than male health workers.

Figure 1.10 Counselling of Illness by Health Worker Qualifications



Counselling of Caretaker on Feeding. Malnutrition is one of the underlying causes in over half of all childhood deaths. IMCI therefore recommends counselling the child's caretaker on the feeding of the sick child.

However, caretakers were rarely counselled on feeding. Counselling on feeding was more likely to be done at a maternity (14.8%) and national referral hospital (12.7%) than at a clinic (7.1%) or dispensary (6.3%) (Table 1.3). Caretakers were least likely to be counselled on feeding at the health center, where only 4.8% were counselled. There was little difference in caretaker counselling on feeding between the government/public (6.0%) and non-government facility (7.3%). A medical doctor was more likely to counsel the caretaker on feeding (12.9%) than an enrolled nurse (8.5%), enrolled midwife (8.1%) or registered midwife (8.0%). Only 0.5% of the registered nurses/nursing officers counselled caretakers on feeding, while 4.6% of the clinical officers counselled caretakers. Sex was not associated with counselling of the caretaker on feeding practices, with male and female scores at 6.1% and 6.7% respectively.

Facility Support

Child health IMCI training. Only 14.6% of child health providers had IMCI training in the past year. Referral hospitals and clinics registered a high proportion of health providers receiving IMCI training in the past year at 19.5% and 25%, respectively (Table 1.4).

Table 1.4 Level of facility support by facility type, region, provider cadre, and sex

	Dependent variable 3: Facility Support						
Category	**DV 3: Facility conducive to holistic care giving**	**Provider received IMCI training (past 1 year)**		**Equipment availability**		**Staff supervision (past 6 months)**	
Facility characteristics							
Facility type	p < 0.01						
Hospital		19.5%	n=190	21.4%	n=28	54.0%	n=612
Health centre		8.9%	n=101	9.6%	n=125	68.5%	n=432
Maternity		5.6%	n=18	14.3%	n=21	78.9%	n=95
Clinic		25.0%	n=4	0.0%	n=7	60.0%	n=10
Dispensary		12.4%	n=105	13.7%	n=248	75.3%	n=275
Total		**14.4%**	**61-423**	**12.5%**	**55-439**	**64.1%**	**918-1432**
Management authority	p < 0.01						
Government		18.4%		10.6%	n=246	62.1%	n=831
NGO/FBO		11.4%		14.9%	n=194	66.9%	n=602
Region	p < 0.01						
Nairobi		17.5%	n=63	0.0%	n=40	64.4%	n=208
Central		30.0%	n=20	6.0%	n=50	46.6%	n=148
Coast		19.0%	n=42	16.3%	n=49	56.6%	n=196
Eastern		18.2%	n=44	7.2%	n=83	70.5%	n=227
North Eastern		40.0%	n=5	0.0%	n=8	63.6%	n=11
Nyanza		16.9%	n=77	7.4%	n=54	74.5%	n=204
Rift Valley		9.6%	n=136	19.2%	n=125	59.2%	n=326
Western		2.7%	n=37	33.3%	n=30	83.0%	n=112
Provider characteristics							
Cadre	p < 0.01						
Medical doctor		23.1%	n=13			31.0%	n=29
Clinical officer		21.1%	n=57			54.8%	n=126
Reg. nurse		14.8%	n=54			80.0%	n=100
Reg. midwife		20.4%	n=49			76.4%	n=110
Enrolled nurse		20.4%	n=54			54.5%	n=272
Enrolled midwife		23.0%	n=74			67.4%	n=435
Total		**14.6%**	**62-424**			**64.6%**	**918-1422**
Sex	p < 0.01						
Male		14.4%	n=167			68.5%	n=448
Female		14.6%	n=253			62.2%	n=981

Training by Technical Qualification. Apart from registered nurses (14.8%), slightly over 20% of most health providers had been trained in IMCI in past one year. A considerable proportion of health providers in Central and North Eastern province received training in the past year. Providers in Western province, however, hardly received training in the past year (2.7%). There

is no great differential in proportion of male (14.4%) and female (14.6%) health providers trained in IMCI in the past year (Table 1.4).

Training of Child Health Workers in IMCI in the Past Three Years. About half of the health workers in all facility types had undergone training in the past three years. Both health centres and national referral hospitals had trained 54% of their health workers. The dispensary had the lowest percentage of trained health workers at 45%, while clinics and maternities had 48.6% and 48.9% trained, respectively.

Availability of Essential Equipment. There was a notable lack of essential equipment, with only 12.5% of facilities having all essential equipment. As expected, referral hospitals, at 21.4%, were more stocked with essential equipment. About 10% of health centers and only 14% of dispensaries and maternities were stocked with essential equipment, with clinics recording none (Table 1.4). Thermometers were the most commonly available (79.7%), followed by infant scales (72.3%). The child scale, timing device, and cup and spoon were available in 58.3%, 51.4% and 48% of the facilities assessed.

Availability of Job Aides. Most facilities lacked job aides with only 8.1% having protocols/guidelines on childhood illness, 11.2% with IMCI chart booklets and 4.8% with IMCI counseling cards. Only 2.5% had all the three items.

DISCUSSION AND CONCLUSION

It is evident from the results that health providers are not wholly following the recommended IMCI guidelines of assessing all signs and symptoms and conducting complete physical examinations during sick child consultations, thus missing out on critical opportunities in holistic promotion of child health care. The component of skills training in IMCI should therefore be intensified to improve health workers' case management in promotion of child health care in a holistic approach. To ensure that this skilled attendance is provided at all levels of the health care delivery system, strong regular support, supervision, and supervisory systems ought to be enhanced, especially in dispensaries and health centres.

Generally, doctors, followed by enrolled nurses, are slightly more alert in their assessment and examinations than registered nurses and clinical officers. Female health providers, on the other hand are more likely to assess for all signs and symptoms compared to their male counterparts. Strategies should be devised to increase the level of commitment of health providers that are not performing.

Poor assessment and examination of sick children is evident in both government and non-government health facilities. Emphasis of the IMCI protocol and guidelines should therefore be stressed not only at all levels of public health delivery systems, but also in private facilities. The low percentage of children whose immunization and vitamin A status was checked could be attributed to the fact that vitamin A supplementation was a new policy. Government facilities were more likely to check vitamin A status when compared to non-government facilities.

Children under five years of age are the most vulnerable population. They are prone to common illnesses and are likely to get repeated infections due to their weak immune systems. More often than not, they present with more than one condition. Holistic management of the sick

child aims to avoid re-visits and deaths from illnesses not discerned from the first visit; such holistic management saves lives as well as ensures proper use of available resources. Promotion of child health at every opportunity ensures the application of human rights principles of universality; non-discrimination; and equality, indivisibility, inalienability and accountability.

Child health promotion at every opportunity and holistic management of the child, or lack of these, are appropriate indicators of the status of implementation of child survival programmes in Kenya, and especially the IMCI strategy. This analysis provides information on the extent of application of knowledge, skills, and attitude on holistic management of childhood illnesses.

The results help determine the areas that need to be emphasized during training and supervision of IMCI and other child survival strategies. They also give an indication of the need to improve the skills of more health workers managing children less than five years of age and the need to mobilize more resources for child health.

The results should be used by both policymakers charged with the development of child health policy for Kenya and implementers of child survival programmes. In particular, the Child Health Interagency Coordinating Committee (CHICC) needs to access and utilize the results in making policy decisions, as does the Permanent Secretary in the Ministry of Public Health and Sanitation, the Permanent Secretary in the Ministry of Medical Services, the Director of Public Health and Sanitation, the Director of Medical Services, and the heads of departments and divisions concerned with implementation of child survival programmes. The Provincial and District Health Managers will find the results useful in planning and supervising the child health programmes. It is also important that the health providers at the facility level get these results so they know the areas of case management of sick children that need improvement.

Ministries responsible for the health sector, particularly the Division of Child and Adolescent Health, will be the greatest beneficiary of the study findings. To be able to improve on the service delivery with the ultimate goal of better health for children, the critical aspects that a health provider must check should be disseminated to all. The further analysis will inform the Ministry of Health on areas that require more emphasis during training and supervision of the health providers. It will also be a tool for resource mobilization for child health. This will contribute to the reduction in child morbidity and mortality and result in health savings for the family and the nation as a whole.

REFERENCES

Adam, T., F. Manzi, J. Armstrong Schellenberg, L. Mgalula, D. de Savigny, and D. B. Evans. Does the Integrated Management of Childhood Illness cost more than routine care? Results from the United Republic of Tanzania. Bulletin of the World Health Organization 83 (5): 369-377.

Black, R., S. Morris, and J. Bryce. 2003. Where and why are 10 million children dying every year? Lancet 361: 2226-34.

Central Bureau of Statistics (CBS) [Kenya], Ministry of Health (MOH) [Kenya], and ORC Macro. 2004. Kenya Demographic and Health Survey 2003. Calverton, Maryland: CBS, MOH, and ORC Macro.

Jones, G., R. Steketee, R. Black, Z. Bhutta, S. Morris, and the Bellagio Child Survival Study Group. 2003. How many child deaths can we prevent this year? Lancet 362:65-71.

Ministry Of Health (MOH). 2006. Health Sector Reform Secretariat. Norms and Standards for Health Service Delivery. Nairobi, Kenya.

Ministry of Health (MOH). 1994. Health policy framework. The Second National Health Sector Strategic Plan (NHSSP 11-2005-2010). Nairobi, Kenya.

Ministry of Health (MOH). 2006. IMCI Health Facility Survey (HFS). Nairobi, Kenya.

Ministry of Health (MOH). Reversing the trends: The second national health sector strategic plan of Kenya (NHSSP II) - 2004-2010. Nairobi, Kenya.

National Coordinating Agency for Population and Development (NCAPD). 2004. Where are we now? Kenya's progress in implementing. The International Conference on Population and Development Programme of Action, 1994-2004.

National Coordinating Agency for Population and Development (NCAPD) [Kenya], Ministry of Health (MOH), Central Bureau of Statistics (CBS), ORC Macro. 2005. Kenya Service Provision Assessment Survey 2004. Nairobi, Kenya: National Coordinating Agency for Population and Development, Ministry of Health, Central Bureau of Statistics, and ORC Macro.

National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) (Office of the Vice President and Ministry of Planning and National Development [Kenya]), and Macro International Inc. (MI). 1994. Kenya Demographic and Health Survey 1993. Calverton, Maryland: NCPD, CBS, and MI.

National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) (Office of the Vice President and Ministry of Planning and National Development) [Kenya], and Macro International Inc. (MI). 1999. Kenya Demographic and Health Survey 1998. Calverton, Maryland: NDPD, CBS, and MI.

UNICEF. 1998. Situational Analysis of Children and Women in Kenya. Nairobi, Kenya.

Victora, C. G., and J. Schellenberg. 2002. Guidelines for Equity Analyses in MCE. Geneva: WHO/CAH, Multi-Country Evaluation of IMCI Effectiveness, Cost and Impact. January 2002. Geneva: Department of Child and Adolescent Health and Development, World Health Organization.

World Bank. 1997. Health, Nutrition, and Population Sector Strategy Paper. Washington, D.C.: Health, Nutrition, and Population Family, Human Development Network, World Bank.