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INTEGRATED HEALTH FACILITY ASSESSMENT USING LOCAL DATA TO IMPROVE THE QUALITY OF CHILD CARE AT HEALTH FACILITIES IN GHANA

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ACRONYMS

AEE	Ajumako Enyan Esiam
ARI	Acute Respiratory Infection
BASICS	Basic Support for Institutionalizing Child Survival
BCG	Bacillus Calmette Guerin
CDD	Control of Diarrheal Diseases
CHW	Community Health Worker
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Programme on Immunization
HC	Health Center
HFA	Health Facility Assessment
HW	Health Worker
IMCI	Integrated Management of Childhood Illness
MOH	Ministry Of Health
OPD	Out Patient Department
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
URTI	Upper Respiratory Tract Infection
USAID	United States Agency for International Development
WHO	World Health Organization

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EXECUTIVE SUMMARY

An integrated health facility assessment was conducted in Ghana between August 10 and 25, 1998 The assessment was conducted in districts selected to be representative of the epidemiological, ethnic and ecological characteristics of the country Birim South, East Mamprusi, Atwima, Ajumako Enyan Esiam (AEE), and Ga The facility assessment was designed to collect integrated information on the quality of case management for the common causes of childhood morbidity and mortality In addition, the survey was designed to collect information on the facility itself, such as the availability of drugs, supplies, equipment and clinic organization Data were gathered by five district teams of three persons each A total of 25 facilities were visited and observations were conducted on 180 sick children

The survey found that a number of key elements required for the high quality management of sick children at first-level health facilities are in place in Ghana Most facilities have essential drugs, vaccines, equipment, and supplies available Some critical aspects of case management were well conducted by primary health workers and public health knowledge of both health workers and caretakers is high in some areas Deficiencies were found in several aspects of case management These included the assessment of sick children, screening of vaccination and nutritional status, clinical examination of children, treatment of sick children, and the counseling of mothers

The development of effective strategies for improving case-management practices will require that the barriers to changing health worker practices be identified and addressed It is unlikely that training and supervision on their own will result in long-term changes in health worker practices Possible barriers to changing practices will include lack of personnel, limited time, and lack of motivation

In order to develop an integrated approach to improving the quality of care provided at health facilities, a number of actions will need to be taken, including—

- adopting an integrated case-management program
- reviewing and updating essential child health policies and guidelines
- improving the capacity of districts to design, manage and monitor child health programs
- developing in-service training materials that teach health workers to practice simple clinical case-management tasks
- developing improved supervisory methods that include observation of health worker practices and problem solving

- developing strategies for the local situation by working with health workers to incorporate their suggestions and perspectives

The results from this survey will be used by the child health task force to finalize national child health policy guidelines and to develop an implementation plan for program activities In the longer term, facility-based indicators can be used to monitor and evaluate program performance

I BACKGROUND

In 1994, Ghana had an estimated population of 16 97 million people with approximately 20 percent of the population under the age of 5 years [UNPD 1994] The under-5 mortality rate for the period of 1989-1993 was estimated at 119/1000 live births, and the infant mortality rate at 66/1000 live births [GDHS 1993] Overall, more than 100,000 children under 5 die each year in Ghana, representing more than 50 percent of all deaths in the country each year [UNICEF State of the World's Children 1996] There is considerable regional variation in death rates, with the northern regions of the country experiencing child mortality rates that are almost double those of the southern regions The under-5 mortality rates in rural areas [149/1000 live births] are considerably higher than those in urban areas [90/1000 live births]

In Ghana, as in many developing countries, six primary health problems are responsible for the majority of all infant and child morbidity and mortality pneumonia, diarrhea, malaria, measles, malnutrition, and neonatal causes [MOH Draft Child Health Policy Guidelines, 1998] These problems represent at least 50 percent of all child admissions in the country There are limited routine facility-based data available In 1993, the GDHS survey estimated that for children under 5 years, the two week prevalence of fever was 28 percent, cough and rapid breathing, 10 percent, and diarrhea, 20 percent It is estimated that neonatal causes represent 60 percent of all mortality in the first year of life [41/1000 live births] and that it is more of a problem than has been previously estimated [GDHS, 1993] In 1992 a national sample of mothers estimated the mortality rate from neonatal tetanus to be 2 2/1000 live births [MOH, Primary Health Care survey, 1992] Vaccination coverage rates with BCG, DPT, polio, and measles have shown steady improvement in the last decade though routine services MOH administrative data from 1997 estimate coverage as follows BCG, 72 percent, DPT3, 60 percent, OPV, 61 percent, and measles, 58 percent Of particular concern is the continuation in the number of measles cases, 36,968 cases were reported in 1997 Measles, therefore, remains an important cause of morbidity, in the presence of a high prevalence of other common infectious diseases, malnutrition, and vitamin A deficiency, it is likely that measles is associated with high mortality

Malnutrition is a major health problem in Ghana It was estimated in 1993 that 26 percent of children aged 3 to 35 months were stunted, 27 percent were underweight, and 12 percent were wasted [GDHS, 1993] Only 8 percent of infants less than 4 months of age are exclusively breastfed [GHS 1993] In addition, it is recognized that deficiencies of the micronutrients, vitamin A, iron, and iodine are widespread in young children The Ghana Vitamin A Supplementation Trial Study in 1992 found that 65 percent of young children in northern Ghana

had low serum retinol levels Preliminary data from a recent national serum survey indicate that 81 percent of pre-school children have a serum hemoglobin of less than 11g/dl [Draft Child Health Policy Guidelines, 1998]

In order to address the six most important causes of morbidity and mortality for young children, the national MOH policy guidelines and strategy for child health have identified five key health sector areas which will be targeted quality of services, access to services, availability of funds and their efficient use, participation in communities, and health program issues Primary health care program development will be undertaken in the context of improved district-level capacity and autonomy for the planning, management, implementation, and monitoring of health care programs There is an increasing recognition of the need to develop integrated infant and child health programs that address all of the most important health problems at the same time One important element of improving primary health care for young children will be improving the management of sick children coming to first-level health facilities in the country In order to improve the quality of services and develop programs to improve the quality of these services, the MOH in Ghana has planned an assessment of the quality of care provided to sick children coming to outpatient health facilities These data will be used to develop program strategies to improve and develop programs to address the most important causes of infant and childhood morbidity and mortality in the country

II HEALTH FACILITY ASSESSMENT

A Objectives of the Survey

1 Collect baseline information on the case management of sick children at outpatient health facilities in Ghana

2 Determine—

a) current knowledge and practices of health workers at outpatient clinics regarding the assessment and management of sick children and women of childbearing age

b) the barriers to effective case management practices

c) the adequacy of training and supervision of health workers

3 Use information on case management practices, training, supervision, and barriers to public health practice to—

a) prioritize and plan improvements in outpatient health facilities, including staffing, clinic organization, equipment requirements, drugs, material supplies, and communication

b) improve and develop in-service training for health workers in the outpatient setting

c) improve and develop a strategy for supervising and monitoring health worker performance

4 Train MOH central and district staff in survey techniques, collection and analysis of survey data, and the use of data to improve the quality of management in outpatient health facilities

B Methodology

Sample

Data collection was focused in five districts that were selected to be reasonably representative of districts in the country For first stage sampling, four regions were randomly selected from each of the three ecological zones of the country [northern, central, and coastal], and one region was randomly selected from an urban area Ecological zones are representative of the different epidemiological profiles, health practices, economic status, access to care, and cultural differences within the country For second stage sampling, five districts were randomly selected from within the selected regions All peripheral assessment activities were conducted in these five districts The five selected districts are as follows

1 Birim South [Eastern Region]
2 East Mamprusi [Northern Region]
3 Atwima [Ashanti Region]
4 Ajumako Enyan Esiam (AEE) [Central Region]
5 Ga [Greater Accra Region]

The sampling frame comprised all health facilities in the five focus districts Birim South, East Manprusi, Atwima, Ajumako Enyan Esiam [AEE], and Ga Health facilities in each district were randomly selected from MOH listings The final sample is included in Appendix A

All infants and children under 5 years of age who presented to a health facility during the period of the study and whose caretakers described them as having a) *diarrhea/vomiting*, and/or b) *fever/malaria,* and/or c) *difficulty breathing/cough/pneumonia* were included in the sample The total number of infants and children, therefore, represent clusters brought to the selected health facilities The primary unit of analysis is generally the child (rather than the facility), thereby allowing greater measurement precision given the larger sample size

Instruments

Survey instruments were designed to obtain information on key aspects of the knowledge and practices of health workers and of caretakers regarding the management of sick children In addition, information was collected on the facility "supports" required to support case-management practices, such as the availability of drugs and equipment, was gathered on the health facility The survey was designed to assess important aspects of the case management of sick children

Four survey instruments were used at each health facility

1) Observation of how a health worker manages the sick child

2) Exit interview with the caretaker of the child as she/he leaves the health facility

3) Interview of health personnel regarding knowledge and practice of case management of sick children

4) Assessment of facility equipment and supplies

In order to fit local policies, guidelines, and practices, survey instruments were adapted by MOH staff and pretested at outpatient health facilities in Accra, Ghana The exit interview questionnaire was translated into Ga, Twi, and Fanti, and administered in these local languages Questionnaires were back-translated into English to check for accuracy Survey instruments are attached in Appendix B

Training of supervisors and surveyors

The training of survey teams was conducted between August 10 and 14, 1998, in Accra Training included a review of survey methodology and objectives, methods for field work, and a careful review of survey instruments Participant guidelines were prepared in advance and distributed to surveyors/supervisors during the training session Training involved group activities, role plays, and practice sessions during two morning outpatient clinics at Princess Marie Louise [PML] Hospital During the five-day training, participant consensus was reached and rules established on how to interpret questions or words Rules for each questionnaire were sorted, typed, and distributed to the survey teams on the last day of the training Inter-surveyor reliability was checked during the two last days of the training and was over 90 percent by the end of the training period A travel itinerary was prepared and discussed by survey teams on the last day of the training

Field work

Field work was conducted by five teams, each composed of a supervisor and two surveyors In addition, outside supervisors periodically observed the practices of each team at health facilities Field work was conducted between August 17 and 21, 1998 A different health facility was visited on each of the five data collection days At each health facility, survey teams arrived at 8 00 a m and attended the entire clinic session, which was usually conducted between 8 30 a m and 3 00 p m All children under 5 attending the facility on the day of the survey were included in the sample

At each health facility, the supervisor was responsible for introducing the team and explaining the purpose of the visit During the clinic visit, the supervisor identified children meeting the criteria for inclusion into the survey and gave an enrollment card to the caretakers of these children to ensure that they were followed in the clinic In addition, the supervisor conducted the facility equipment and supplies checklist section of the survey One surveyor was stationed in the consulting room and conducted the health worker observation component of the survey, at the end of the consultation, this surveyor also conducted the health worker interview The second surveyor conducted the exit interviews with caretakers as they left the clinic with their child The supervisor regularly monitored the performance of the surveyors to ensure that the questionnaires were correctly completed, errors or incomplete questionnaires were discussed and corrected in the health facility At the end of the day, the supervisor reviewed all questionnaires for completeness and accuracy, as well as coded key indicators boxes Survey teams are listed in Appendix C

Data entry and analysis

Completed questionnaires were collected during the data collection week from four of the five survey teams, questionnaires from the team stationed in the northern district, East Mamprusi, were returned at the end of the data collection week Completed questionnaires were reviewed for completeness, numbered, coded, and then entered into Epi-Info (version 6 01) software Data were cleaned at the end of the survey week, on August 22 and 23 Data analysis was conducted between August 24 and 26, 1998, by survey team supervisors and facilitators Descriptive data analysis and key indicators were summarized for the overall sample, as well as for each district Key indicators were discussed with district staff Survey findings were used to identify and discuss barriers to improving the child health program and possible solutions to these problems An emphasis was placed on the development of feasible and realistic program strategies Preliminary results were presented to a group of Ministry of Health staff and representatives of donor organizations on August 28

III RESULTS

A General Descriptive Information

A total of 25 health facilities were visited, and observations were conducted on 180 children The distribution of ages of children observed ranged from 2 to 59 months, with a mean of 22 months and a median of 18 months

Of all health workers responsible for seeing sick children at health facilities visited, 11/25 (44%) were medical assistants, 7/25 (28%) were nurses, 5/25 (20%) were doctors, and 2/25 (8%) were community health nurses A total of 125/180 (69%) of all sick children were seen by health assistants or nurses, and 37/180 (21%) were seen by a doctor Of all facilities visited, 18/25 (72%) were public and 7/25 (28%) were mission or NGO

Table 1 Number of children observed by district and category of health worker, Ghana Health Facility Assessment, August 1998

	Birim South	E Manprusi	Atwima	AEE	Ga	**Total**
Doctor	10	12	9	0	6	37
Nurse	12	5	13	17	0	47
M assistant	12	15	15	12	24	78
C H nurse	8	10	0	0	0	18
Total	42	42	37	29	30	**180**

Comments

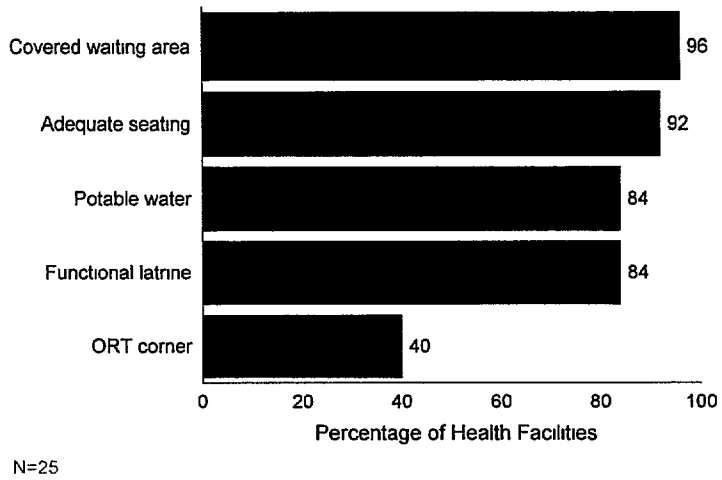
Medical assistants and nurses were most frequently responsible for seeing sick children in the outpatient setting This has implications for training, these categories of health workers should be able to effectively assess, classify, and treat the common causes of infant and childhood mortality and morbidity

B Facility Equipment, Supplies, and Record-Keeping

Patient and health worker accommodation and the availability of basic equipment is summarized in Figures 1, 2, 3, and 4 The majority of health facilities had basic patient and health worker accommodation available, including adequate seating, a covered waiting area, functional latrine, and potable water However, only 10/25 (40%) had a functional oral dehydration therapy (ORT) corner

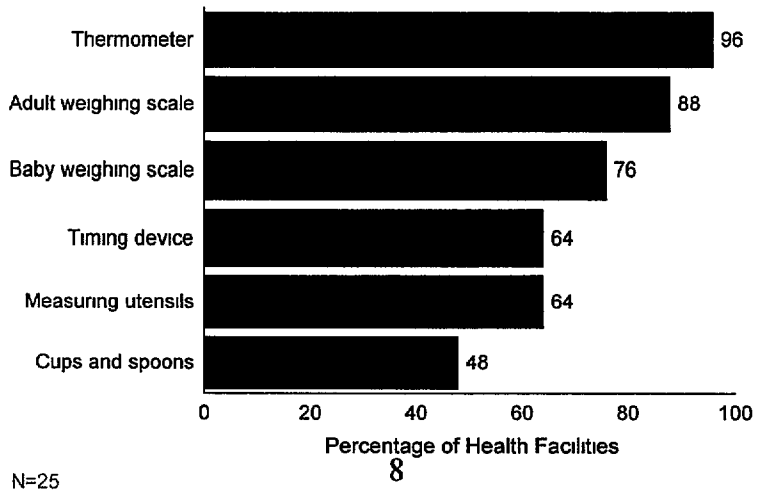
The majority of health facilities had functional weighing equipment and a thermometer A timing device for counting respiratory rate was present in 16/25 (64%) of facilities Measuring utensils were present in 16/25 (64%) of facilities, and cups and spoons were in 12/25 (48%) of facilities

Figure 1 Patient and Health Worker Accomodation
Ghana Health Facility Assessment, August 1998



Of all facilities, 23/25 (92%) had a refrigerator The refrigerator was functional in 18/23 (78%) of cases Overall, 18/25 (72%) of facilities had a working refrigerator A total of 11/23 (50%) of refrigerators were powered by electricity, 7/23 (30%) were mixed (kerosene/electric) The condition of cold chain equipment is summarized in Figure 3 An up-to-date temperature chart was present in 11/18 (61%) of cases Cold boxes in good condition were present in 23/25 (92%) of facilities

Figure 2 Availability of functional Equipment
Ghana Health Facility Assessment, August 1998

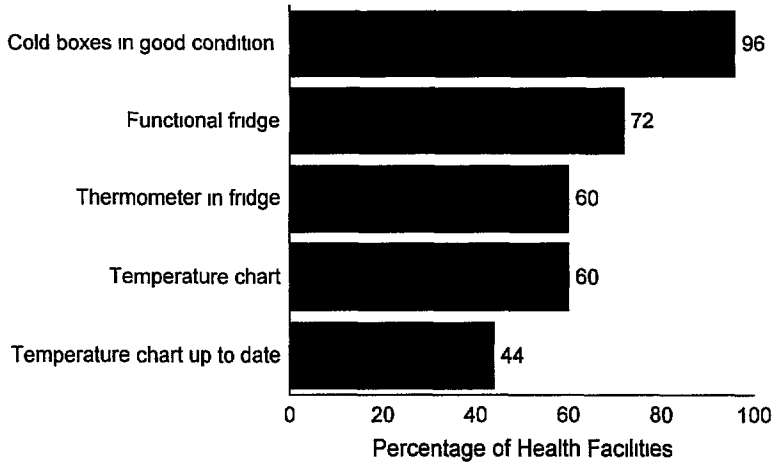


Facilities with a stock of medications, disposable needles, or syringes on the day of the survey is summarized in Table 2 Expired essential medications were noted in the stock of 6/25 (24%) of facilities Expired medications included injectable penicillin, aspirin, and chloramphenicol eye ointment

Table 2 Health facilities with stock available on the day of the survey, by district, Ghana Health Facility Assessment, August 1998

STOCK ITEM	PROPORTION OF FACILITIES WITH STOCK AVAILABLE ON THE DAY OF THE SURVEY					
	B South	E Manp	Atwima	AEE	Ga	**Total**
Chloroquine tabs/syrup	5/5	5/5	5/5	5/5	5/5	25/25
Ampi/amoxycillin tabs/syrup	4/5	5/5	5/5	4/5	5/5	24/25
Cotrimoxazole tabs/syrup	4/5	5/5	5/5	5/5	5/5	24/25
Paracetamol tablets	5/5	5/5	5/5	5/5	5/5	25/25
Inj Chloramphenicol	1/5	3/5	1/5	0/5	0/5	5/25
ORS sachets	5/5	4/5	5/5	5/5	5/5	24/25
Vitamin A capsules	0/5	3/5	0/5	0/5	0/5	3/25
Disposable needles	5/5	5/5	5/5	5/5	4/5	24/25
Syringes	5/5	5/5	5/5	5/5	5/5	24/25

Figure 3 Availability of Cold Chain Equipment
Ghana Health Facility Assessment, August 1998



N=25

At least one stock-out of essential medications [amoxycillin, co-trimoxazole, chloroquine] had occurred in the previous month at 1/25 (4%) of facilities At least one stock-out of oral dehydration solution had occurred in the previous month at 3/25 (12%) of facilities At least one stock-out of vaccines had occurred in the previous month at 11/25 (44%) of facilities The number of health facilities with stock-outs and the average number of days of stock-outs in the 30 days preceding the survey is summarized in Table 3

Table 3 **Number of health facilities with at least 1 stock-out in the previous 30 days, Ghana Health Facility Assessment, August 1998**

ITEMS	PROPORTION OF FACILITIES WITH A LEAST 1 STOCK OUT IN THE PREVIOUS 30 DAYS					
	B South	E Manp	Atwima	AEE	Ga	**Total**
Vaccines	1/5	0/5	5/5	2/5	3/5	11/25 (44%)
Essential drugs	0/5	0/5	0/5	0/5	1/5	1/25 (4%)
ORS sachets	0/5	1/5	0/5	0/5	2/5	3/25 (12%)
Syringes/needles	2/5	0/5	0/5	0/5	2/5	4/25 (16%)
Cards/forms	1/5	0/5	1/5	0/5	3/5	5/25 (20%)

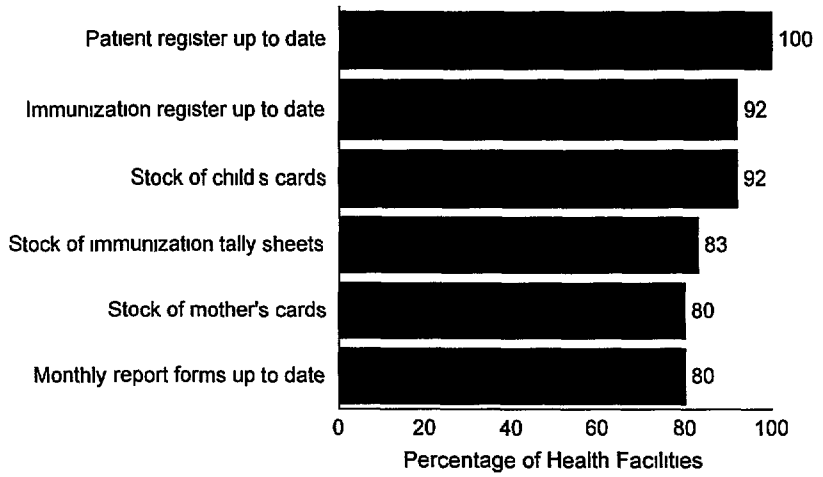
A total of 19/25 (76%) of health workers reported that they had experienced problems getting supplies in the past The most common causes of delayed supplies, according to health workers, are summarized in Table 4 with a lack of transportation for collecting supplies from the central store being the most frequently mentioned cause of delays

Table 4 **Most frequent reasons given by health workers for a rupture of essential medications and supplies, Ghana Health Facility Assessment, August 1998)**

CAUSE OF RUPTURE	PROPORTION OF HWS MENTIONING					
	B south	E Man	A wima	AEE	Ga	**Total**
No transport	1/3	0/5	4/4	3/4	1/3	9/19
Financial problems	1/3	2/5	0/4	0/4	1/3	4/19
Rupture at the central store	0/3	2/5	0/4	0/4	1/3	3/19
Administrative problems	1/5	1/5	0/4	1/4	0/3	3/19

The proportion of facilities conducting basic documentation and record-keeping is summarized in Figure 4

Figure 4 Availability of Documentation and Records
Ghana Health Facility Assessment, August 1998



N=25

Comments

The majority of health facilities had all essential equipment as well as potable water and functional latrines available All of these are required for the provision of basic child health services at health facilities and it is encouraging that they are available at the majority of sites The absence of functioning ORT corners at the majority of facilities may reflect a lack of awareness of the importance of giving oral rehydration for mildly and moderately dehydrated children in the facility A refrigerator was present in 23/25 (72%) of facilities, although only 18/25 (76%) were functional Some of these facilities were storing vaccines in functional refrigerators off site, and so were able to provide vaccine services on certain days of the week The temperature chart was up-to-date at 61 percent of sites These data suggest that the cold chain is not being well maintained in all sites This will limit the capacity to deliver vaccines regularly and to ensure that the vaccines are still potent

Most facilities had supplies of essential drugs and vaccines on the day of the survey Stock-outs in the previous 30 days were reported most frequently for vaccines, which may reflect problems with forecasting vaccine needs The lack of major problems with the provision of essential drugs is encouraging There are a number of points at which the delivery of drug and vaccine supplies to facilities could be compromised These points include the ordering and delivery of drugs to peripheral sites, the maintenance and use of stock inventories at the level of the central store At many health facilities, supplies need to be picked up by health workers who often did not have the transportation available to complete the task

C Observation of Sick Children

Of the 180 children observed, a total of 143 were described as having fever, 67 with diarrhea, and 42 with cough or difficulty breathing A total of 39 children were described as having both fever and diarrhea, and 27 as having both fever and cough or difficulty breathing Only five children were described as having all three symptoms

The median duration of consultation was 5 minutes with a range between 2 and 29 minutes The general history questions asked by health workers to the caretakers of all sick children are summarized in Table 5

Questions to assess general danger signs (able to drink/breastfeed, vomits everything, convulsions, and a change in consciousness) were not asked by the majority of health workers The most frequently obtained information on general danger signs was a history of vomiting everything (33/180) Information on a history of convulsions was obtained in 11/180 cases Health workers frequently asked about a history of the presenting complaint or were given this information by caretakers, with 171/180 (95%) asking about a history of fever, 133/180 (74%) asking about a history of cough/difficulty breathing, and 109/180 (61%) asking about a history of diarrhea Of all sick children, 77/180 (43%) were asked all of the key history questions

Table 5 General information obtained from the caretakers of sick infants and children, Ghana Health Facility Assessment, August 1998

HISTORY QUESTIONS	PROPORTION OF CHILDREN WHERE INFORMATION WAS OBTAINED*
Able to drink or breastfeed	0% (0/180)
Vomiting everything	18% (33/180)
Convulsions	5% (11/180)
Change in consciousness	5% (9/180)
Hx of fever	95% (171/180)
Hx of diarrhea	61% (109/180)
Hx of cough or difficult breathing	74% (133/180)
Hx of ear problems	1% (1/180)

*History questions could have been asked by the health worker or information could have been reported by the caretaker

Assessment tasks completed for sick children are summarized in Table 6 Very few children had their nutritional status checked at the time of the sick child visit, 31/180 (17%) of children were weighed and 7/180 (4%) were plotted on a weight chart Children were rarely examined for signs of malnutrition The most frequently checked area was observation for conjunctival pallor For children with a complaint of cough or difficulty breathing, the shirt was raised in 27/42 (64%) of cases, although the respiratory rate was never checked For children with a presenting complaint of fever, the duration of the fever was asked in 114/143 (80%) of cases, although stiff neck was looked for in only 1/180 (1%) case For children with a presenting complaint of diarrhea, 37/67 (55%) were asked about the duration of the episode, 9/67 (13%) about blood in the stool, and 5/67 (8%) had the skin turgor checked for dehydration For children with a presenting complaint of diarrhea, 18 percent of all key assessment tasks were completed [duration of illness, history of blood in the stool, observation of drinking or breastfeeding, and assessment of skin turgor and sunken eyes] For children with a presenting complaint of cough/difficulty breathing, 33 percent of all key assessment tasks were completed [duration of cough, raise the shirt, count the respiratory rate, and look for chest indrawing] For children with a presenting complaint of fever, 41 percent of all key assessment tasks were completed [duration of fever, and look for stiff neck, rash, runny nose, or red eyes]

Table 6 Assessment tasks completed by health workers for sick children by presenting complaint, Ghana Health Facility Assessment, August 1998

ASSESSMENT AREA	PROPORTION OF CHILDREN ASSESSED
General [N=180]	
Weighed the child	17% (31/180)
Plotted weight/age on growth chart	4% (7/180)
Pallor checked	81% (145/180)
Looked for visible wasting	0% (0/180)
Edema of both feet checked	8% (14/180)
Complaint of ARI [N=42]	
Asked duration of illness	64% (27/42)
Shirt raised	64% (27/42)
Respiratory rate counted	0% (0/42)
Looked for chest indrawing	26% (11/42)
Complaint of diarrhea [N=67]	
Asked duration of illness	55% (37/67)
Asked about blood in the stool	13% (9/67)
Observed drinking/breastfeeding	3% (2/67)
Skin turgor checked	8% (5/67)
Sunken eyes checked	3% (2/67)
Complaint of fever [N=143]	
Asked about duration of illness	80% (114/143)
Looked for stiff neck	1% (1/143)
Looked for rash	4% (5/143)
Looked for runny nose/red eyes	78% (112/143)

The proportion of caretakers with sick children who were asked for the child's vaccination card at the time of consultation was 60/180 (33%) Of those asked, 42/60 (70%) had the card on the day of the visit The proportion of mothers who were asked for their own TT vaccination card at the time of the consultation for their child was 3/180 (2%) Questions asked at the exit interview indicated that 74/180 (41%) of mothers had their child's vaccination card with them on the day of the visit Of the 151 children who needed a vaccination or referral for vaccination assessment, 20/151 (13%) were given the vaccine or referred appropriately

Appropriate treatment was defined by the national treatment guidelines and was based on the diagnosis made by the health worker In order for treatment to be considered appropriate, all of the diagnoses made for each child had to be treated appropriately The diagnosis made by the health worker was not validated and so it may not reflect the correct diagnosis for each sick child The proportion of all sick children treated correctly, based on the diagnosis made by the health worker, was 87/180 (48%) Treatment for fever, diarrhea, and pneumonia are summarized in Table 7

Table 7 Proportion of cases treated appropriately according to national treatment guidelines, Ghana Health Facility Assessment, August 1998

HEALTH WORKER DIAGNOSIS	PERCENT TREATED APPROPRIATELY
Malaria	75% (117/156)
Pneumonia	100% (1/1)
Simple diarrhea	27% (7/26)
Upper respiratory tract infection [URTI]	27% (27/37)

Most cases diagnosed as malaria were treated correctly with an antimalarial, antipyretic or tepid bathing or sponging (75% [117/156]) Only one case of pneumonia was diagnosed and this single case was managed correctly For simple watery diarrhea, 8/26 (31%) of cases were managed correctly Treatment for simple diarrhea and URTIs are summarized in Table 8 ORS alone was used by only 7/26 (27%) of cases, and an antibiotic was given in 16/26 (62%) of cases For simple URTIs, 27/37 (73%) were inappropriately given an antibiotic

Table 8 Treatment given by diagnostic category, Ghana Health Facility Assessment, August 1998

DIAGNOSIS AND TREATMENT	PROPORTION GIVEN
Simple diarrhea given ORS	27% (7/26)
Simple diarrhea given antibiotic	62% (16/26)
Simple diarrhea given antidiarrheal	8% (2/26)
URTI given antibiotic	73% (27/37)

Health education messages given to caretakers at the time of the observation are summarized in Table 9 Key messages, in particular, advice to continue feeding or breastfeeding (17% [30/180]) or signs of worsening illness at home (0%), were not given consistently An explanation of how to administer all given/prescribed oral medications was given in 30 percent (54/179) of cases, but health workers rarely demonstrated how to give oral medications (3% [5/179]) or verified comprehension by asking an open-ended question (6% [11/179])

Table 9 Health education messages given to caretakers by health workers, Ghana Health Facility Assessment, August 1998

MESSAGE GIVEN	PROPORTION OF CHILDREN RECEIVING MESSAGE
Explain how to administer all medications	54/179 (30%)
Demonstrate how to administer medications	5/179 (3%)
Verify caretaker's comprehension of how to administer medications	11/179 (6%)
Continue feeding or breastfeeding	30/180 (17%)
Give the same quantity or more fluids	14/180 (8%)
When to return for follow-up	55/180 (31%)
Return if the child becomes worse at home give at least 3 signs of severity	0% (0/180)

Health workers infrequently gave information on danger signs for returning immediately with sick children Messages given to caretakers on when to return are summarized in Table 10

The most frequently given general message was advising the caretaker to return if the child became sicker or developed a fever at home Health workers never instructed caretakers to return if their child developed fast or difficult breathing, or was not able to eat/breastfeed or drink None of the caretakers of children with diarrhea were instructed to return if their child developed bloody diarrhea

Table 10 Health education messages given on signs of when to return with the child, Ghana Health Facility Assessment, August 1998

MESSAGE GIVEN	PROPORTION OF CARETAKERS GIVEN MESSAGE
General [N=180]	
Is not able to drink or drinking poorly	1% (2/180)
Is not able to eat or breastfeed	1% (1/180)
Becomes sicker	10% (18/180)
Develops a fever	3% (6/180)
Children with diarrhea [N=26]	
Develops blood in the stool	0% (0/26)
Children with URTI [N=37]	
Develops fast or difficult breathing	0% (0/37)

Comments

The median consultation time for all out-patient visits was five minutes All training designed to improve the case management practices of health workers should take this into consideration Improving the quality of health worker practices may require that they spend more time with each sick child, especially to improve counseling practices Changing the organization of how sick children are managed could improve management practices, for example, by having essential counseling tasks conducted by staff other than the health worker after the initial consultation Danger signs of severe illness are rarely assessed, although a high proportion of cases had all key history questions asked (history of fever, diarrhea, or ARI) Cases were infrequently asked about a history of ear problems, a common cause of fever in young children Improved on-the-job training could reinforce the importance of each of these areas when assessing all sick children

None of the children had their nutritional status correctly assessed A low proportion of all children were weighed and plotted on a growth chart Very few children were assessed for other signs of nutritional status A full nutritional assessment is considered to be important for all sick

children The importance of a complete nutritional assessment should be emphasized during health worker training and supervision In addition, disease specific assessment tasks were also rarely conducted Children with diarrhea rarely had their hydration status correctly assessed Similarly, children with a complaint of cough or difficulty breathing rarely had the chest examined and respiratory rate was never counted, although it is a sensitive diagnostic measure of the severity of respiratory tract infections Many of these clinical tasks are simple and not time consuming Improved training with an emphasis on practice training at health facility level and supervision with an emphasis on clinical supervision would stress, using existing resources, a simple and systematic approach to all sick children

A small proportion of sick children and their mothers had their vaccination status checked In addition, exit interviews indicate that only about 40 percent of caretakers had brought their child's vaccination card on the day of the visit Overall, only 13 percent of sick children who needed a vaccination were given or referred for a vaccination appropriately These data suggest that health workers are missing opportunities to vaccinate children and their mothers, and that awareness of the importance of bringing vaccination cards to every visit is low in communities Vaccinating children and their mothers, or referring them to the next vaccination session, at the time of the sick child visit is a critical strategy for reducing missed opportunities to vaccinate Health worker training could stress the importance of this activity Asking for and checking the immunization status is simple It does not require much time nor additional resources to complete Facilities that do not vaccinate daily should at least ensure that the mother understands that she should return with her child on the day that vaccinations are given

Over three-quarters of children with malaria were given or prescribed the appropriate drug(s) according to the health worker's diagnosis Only 31 percent of children with simple diarrhea were treated correctly, with the most frequent treatment error being the use of antibiotics Antibiotics were also overused for upper respiratory tract infections As the assessment and classification (diagnosis) of sick children was not validated, this measure does not necessarily reflect the quality of the diagnosis made nor the appropriateness of treatment given for each child Appropriate treatment for common diseases should also be reinforced as part of on-the-job training and supervision

Key education messages on the management of sick children at home were given to a low proportion of caretakers Treatment counseling is rarely performed systematically Key counseling messages are considered essential for the correct management of sick children at home and for prevention of mortality This component of case management was least well conducted by health workers, and could also be addressed through strengthened training and supervision Improving the messages given to mothers does not require any additional resources and should not require a lot of time if health workers are familiar with the key messages The development and use of simple job aids for counseling could improve this area

D Exit Interview with the Caretakers of Sick Infants and Children

A total of 180 caretakers were interviewed as they left the health facility with their children after the clinical visit

The proportion of caretakers with correct knowledge of how to administer four key oral medications [chloroquine, antibiotics, paracetamol, ORS] given or prescribed to them by the health worker was 16/177 (9%) The proportion of caretakers with correct knowledge by district is summarized in Table 11

Caretakers were asked to describe the daily dose and the number of days for which they would give the medicine To be correct, the amount of each dose, the number of times a day that they would give this dose, and the number of days for which they would continue had to be in accordance with the national treatment guidelines for each essential medication Caretaker knowledge of dosing was lowest for chloroquine and antibiotics

The most frequent errors for the administration of chloroquine were incorrect frequency of dose and number of days to give the treatment The dosing frequency and number of days to give the treatment were most commonly too high The most frequent error for the administration of antibiotics was that caretakers did not know the number of days of treatment, or reported that they would give antibiotics for less than five days The most frequent error for the administration of aspirin or paracetamol was that caretakers described giving an inadequate dose The most frequent error described for the administration of ORS was that caretakers did not know how often or when to give ORS to their children

Table 11 Proportion of caretakers with correct knowledge of how to administer oral medications by medication, Ghana Health Facility Assessment, August 1998

MEDICATION	CORRECT KNOWLEDGE OF DOSAGE SCHEDULE					
	Birim South	East Manprusi	Atwima	AEE	Ga	**Total**
Chloroquine tablet or syrup	3/37 (8%)	6/39 (15%)	2/32 (6%)	2/27 (7%)	12/24 (50%)	25/159 (16%)
Antibiotic tablet or syrup	5/21 (24%)	1/18 (6%)	10/24 (42%)	1/15 (7%)	1/9 (11%)	18/87 (21%)
Aspirin or paracetamol tablet	9/37 (24%)	6/39 (15%)	8/34 (24%)	5/27 (19%)	13/26 (50%)	41/163 (25%)
ORS sachets	1/1 (100%)	4/7 (57%)	6/7 (86%)	2/2 (100%)	7/9 (78%)	20/26 (77%)

The proportion of caretakers who knew at least two aspects for the home case management of their child at home was 155/180 (86%) General home case-management strategies were not illness specific and included continuing to feed or breastfeed, to complete the course of treatment, and to bring the child back if he/she got worse at home The most frequently mentioned home case-management strategies were continuing feeding or breastfeeding (158/180 [88%]) and to continue and complete medication at home (155/180 [86%])

The proportion of caretakers who knew at least two signs of worsening or severe illness in their child at home was 100/180 (56%) The most frequently reported signs were "fever begins or does not go away" (110/180 [61%]), and "child unable to eat" (49/180 [27%])

Caretaker correct knowledge of the number of vaccination visits required in the first year of life was 50/180 (28%), five or six visits were considered to be correct Of all caretakers, 33/180 (18%) did not know any of the immunization target diseases, while the remainder knew at least one disease for which vaccinations are given

Comments

Caretakers knowledge on how to give essential oral medications at home was poor This measure does not distinguish between errors made because health workers had incorrectly prescribed the medication (providers do not have correct knowledge of the dosage schedule) or because caretakers had not understood correct instructions (providers do not communicate the dosage schedule effectively to mothers) In either case, there is a need to improve the prescribing practices of health workers to focus both on the correct dosage of commonly used medications and on strategies for communicating the dosage to caretakers

Caretaker knowledge of home case management or of danger signs of when to return to the health facility was relatively high This is an encouraging finding, as these behaviors are critical to reducing mortality from the common childhood diseases Nevertheless, 20 percent of all caretakers do not have good knowledge of home case management, and almost half of caretakers did not know a minimum of three danger signs for when to seek care for their children Improving communication between health workers and their patients is required to further reinforce these principles

E Interview with the Health Care Worker

Of all health workers, 22/25 (88%) had a supervisor Overall, 21/25 (84%) of health workers had been supervised at least once in the previous six months The average number of supervisory visits in the previous six months was 2 5 and the average number of supervisory visits in the previous 12 months was 5

Overall, 15/22 (68%) of health workers had received feedback from the last supervisory visit This feedback was most frequently (12/22 [80%]) received as an oral report Supervisory

registers were present in 6/25 (24%) of facilities Table 12 summarizes the activities of supervisors at the time of the last supervisory session

Table 12 Supervisor activities at the time of the last supervisory visit, Ghana Health Facility Assessment, August 1998

ACTION	PROPORTION DISCUSSING
Discussed problems with supplies and equipment	14/22 (64%)
Reviewed reports prepared by health workers	9/22 (41%)
Updated health worker on current information	11/22 (50%)
Observed management of sick children	7/22 (32%)
Observed immunization technique	2/22 (9%)

The most common problems reported by health workers when doing their job is summarized in Table 13 The most frequently reported problems were lack of supplies/stock and inadequate transport

Table 13 Most common problems faced by health workers, Ghana Health Facility Assessment, August 1998

PROBLEM REPORTED BY HWs	PROPORTION REPORTING					
	Birim South	E Manprusi	Atwima	AEE	Ga	**Total**
Lack of training	0/5	1/5	0/5	1/5	2/5	4/25 (16%)
Inadequate transport	1/5	2/5	1/5	2/5	3/5	9/25 (36%)
Poor working environment	1/5	1/5	0/5	4/5	2/5	7/25 (28%)
Staff shortage/lack of time	1/5	5/5	1/5	0/5	5/5	12/25 (48%)
Mother don't bring children to clinic	1/5	1/5	4/5	0/5	0/5	6/25 (24%)

The proportion of health workers responsible for seeing sick children who had participated in at least 1 child-health-related training program in the previous 12 months was 9/25 (36%) The

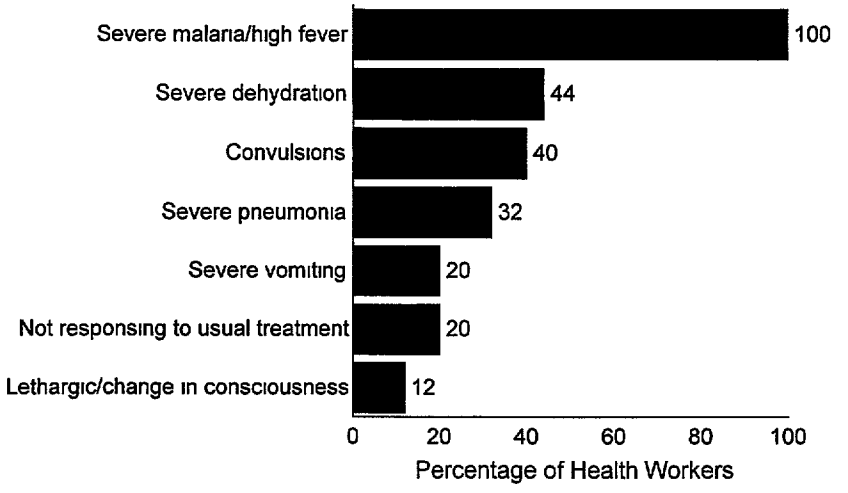
types of training received were EPI (3/9), malaria (5/9), diarrhea (3/9), and nutrition (1/9) Clinical practice had been included in 2/9 (22%) of the last training sessions

The proportion of health workers with correct knowledge of the infant/child vaccination schedule was 6/25 (24%) The proportion of health workers who knew correctly the target groups for TT vaccination was 15/25 (60%) The number of clinic vaccination days ranged from one to five Of all facilities, 15/25 (60%) offered vaccinations at least 1 day per week, with 3/25 giving vaccinations 2 days a week, 1 facility, 3 days a week, and 1 facility, 5 days a week Overall, five facilities gave vaccinations on one day a month and four facilities on one day every two weeks

Antenatal care clinics were offered by 25/25 (100%) of facilities, with 11/25 (44%) offering 1 clinic day per week, 9/25 (36%) offering 2 clinic days per week, and 4/25 (16%) offering 5 clinic days per week

The proportion of health workers knowing at least three signs of when to refer a sick child to the hospital was 16/25 (64%) Figure 5 summarizes the reasons for referral given by health workers A total of 12/25 health workers had wanted to refer a child to hospital in the past, but had been unable to do so The most frequent reasons for non-referral were that families did not have enough money to pay for transportation or care (8/12 [67%]), that they refused to go (6/12 [50%]), and that no transport was available (5/12 [42%])

Figure 5 Reasons for Immediate Referral Given by HWs
Ghana Health Facility Assessment, August 1998



N=25

All health workers interviewed believed that they had a role in communicating with the caretakers of sick children Health workers' self-described roles in communicating with caretakers are summarized in Table 14 The communication tasks most frequently mentioned were to advise caretakers on how to prevent illnesses and to tell caretakers how to give medications at home Of all health workers, 8/25 (32%) saw no barriers in communicating with the caretakers of sick children Of those who saw communication barriers, 9/17 (53%) said that there was no time for counseling, 7/25 (28%) said that there were language barriers, and 5/25 (20%) said that it was someone else's role

Table 14 Health information that health workers report to be important for caretakers of sick children, Ghana Health Facility Assessment, August 1998

ROLES GIVEN BY HWs	PROPORTION REPORTING
Advise on how to prevent illnesses	17/25 (68%)
Tell caretakers when to come back to the health facility	8/25 (32%)
Give information on danger signs to watch for	7/25 (28%)
Give information on what to do at home	13/25 (52%)
How to give medications	15/25 (60%)
Ensure mothers understand	6/25 (24%)

Comments

Most health workers receive regular supervision and of those supervised, the majority had some type of supervisory feedback Most supervisors do not observe clinical practice using a checklist-based approach It is encouraging that health facilities are receiving supervisory visits The quality of supervision provided is unlikely to be ideal for improving the sick child case management since the quality of care is not regularly assessed Establishing regular supervisory visits is difficult in many countries and getting supervisors to the facilities is often the most difficult step, this has already been accomplished in most health facilities visited A systematic approach to supervisory visits, including the observation of health workers' practices, the use of standard supervisory checklists, a schedule of supervisory visits, and strategies for providing feedback and continuing education to health workers, is required

The most frequently reported problems by health workers were a lack of supplies/stock and a lack of transportation Transportation shortages may be associated with stock-outs, since the health workers often have to pick up supplies themselves A minority of health workers had received training in the last 12 months, but training did not usually involve clinical practice

Regular training, as well as supervision, is important for introducing and maintaining new skills A clear on-the-job training plan is required in addition to supervisory visits with strong emphasis on clinical practices The quality of practice after training will be affected by other peripheral constraints to practice, such as the availability of staff and time available to spend with sick children

Health worker knowledge of the vaccination schedule for children was found to be low and this is reflected in missed opportunities to vaccinate or refer children for vaccination Health workers were familiar with the concept that a woman coming to the clinic with her sick child is a possible target for TT vaccination, although the case-management observation revealed that very few health workers asked for the mother's vaccination card at the time of the sick child visit Only about 60 percent of facilities were offering vaccinations at least one day a week, with 40 percent offering vaccinations less frequently The combination of limited health worker awareness of the childhood vaccination schedule and relatively low numbers of vaccination clinic days is likely to contribute to missed vaccination opportunities Barriers to avoid missed opportunities to vaccinate need to be addressed There are a number of reasons why more frequent vaccination service are not offered, including lack of communication between preventive and curative services staff, a lack of trained staff, a reluctance to open vaccine vials for low number of cases, lack of clinic space, and low daily attendance In some clinics, it may be possible to reorganize service delivery using existing resources and this should be investigated where possible

More than half of health workers knew at least three signs of severity that would prompt to refer a sick infant or child to hospital However, problems with referral had been experienced in the past The most common reasons given for the non-referral were that parents had not enough money, refused to go to the hospital, or were not able to go due to lack of transportation The barriers to an effective referral system will need to be further investigated in order to develop strategies for addressing these barriers

All health workers described themselves as having a role in communicating with caretakers, most frequently in the areas of prevention of childhood diseases and advice on how to take medications However, the clinical observation revealed that counseling for the caretakers of sick children is practiced infrequently There is a gap between the knowledge and practices of health workers Key messages and strategies for communicating these messages need to be further developed and health workers need to be trained in the routine use of communication strategies

IV PROGRAM INDICATORS

Indicators were calculated in four key areas 1) health worker practice (screening, clinical examination, immunization, treatment, interpersonal communication), 2) health worker knowledge (training and supervision), 3) caretaker knowledge and practice (management of the sick child at home), and 4) facility equipment and supplies (availability of drugs and supplies, availability of equipment, documentation, and record-keeping)

Summary of Key Program Indicators

The following indicators can be used to monitor and evaluate progress over time and to develop specific facility-based program activities The baseline data presented below are for all districts combined

1 Screening

1 1 Proportion of children who were assessed for all danger signs = **0 % [0/180]**

Breakdown by danger signs

Not able to drink/breastfeed	=	**7% [13/180]**
Vomits everything	=	**18% [33/180]**
Convulsions	=	**6% [11/180]**
Change in consciousness	=	**5% [9/180]**

1 2 Proportion of children who were assessed for all main symptoms = **43% [77/180]**

Breakdown by all main symptoms

History of diarrhea	=	**61% [109/180]**
History of cough/difficult breathing	=	**74% [133/180]**
History of fever	=	**95% [171/180]**
History of ear problem	=	**1% [1/180]**

1 3 Proportion of health workers with correct knowledge of at least 3 signs for referring a sick child = **64% [16/25]**

2 Clinical examination

2 1 Proportion of assessment tasks completed for sick children with a history of diarrhea = **18% [59/335]**

2 2 Proportion of assessment tasks completed for sick children with a history of ARI = **35% [55/168]**

2 3 Proportion of assessment tasks completed for sick children with a history of fever = **41% [232/572]**

3 Nutrition

3 1 Proportion of children who had nutritional status examined = **0% [0/180]**

Breakdown by nutrition assessment tasks completed

Proportion of children weighed	=	**17% [31/180]**
Proportion of children whose weight was plotted on a growth chart	=	**4% [7/180]**
Proportion of children undressed and examined for wasting	=	**0% [0/180]**
Proportion of children examined for conjunctival pallor	=	**81%[145/180]**
Proportion of children examined for edema of both feet	=	**8% [14/180]**

4 Immunization

4 1 Proportion of children who had vaccination card checked at sick child's visit = **33% [60/180]**

4 2 Proportion of children needing vaccination vaccinated or referred for vaccination = **13% [20/151]**

5 Treatment

5 1 Proportion of children who received an appropriate medication for the diagnosis made by the health worker = **48% [87/180]**

5 2 Proportion of children with simple diarrhea who received ORS = **31% [8/26]**

5 3 Proportion of children with simple diarrhea who received an antibiotic = **62% [16/26]**

6 Communication between health worker and caretaker

6 1 Proportion of treatment counseling tasks completed = **13% [71/537]**

Breakdown by treatment counseling tasks completed

Proportion of children whose caretakers were told how to administer oral medication/ORS = **30% [54/179]**

Proportion of children whose caretakers received a demonstration how to administer oral medication/ORS = **3% [5/179]**

Proportion of children whose caretakers were asked an open-ended question to verify the comprehension of how to administer oral medication/ORS = **6% [11/179]**

6 2 Proportion of children receiving oral medication whose caretakers who knew correctly how to administer the essential treatment at home = **9% [16/177]**

6 3 Proportion of caretakers who know at least two signs of when to return if the child becomes worse at home = **56% [100/180]**

7 Training and supervision

7 1 Proportion of health workers who saw sick children and who had received training in the management of child illness in the last 12 months = **36% [9/25]**

7 2 Proportion of last training sessions that involved clinical practice = **22% [2/9]**

7 3 Proportion of health workers who had received at least one supervisory visit in the last six months = **84% [21/25]**

7 4 Average number of supervisory visits per year per health facility in the last 6 months = **2 5**

V DISCUSSION AND RECOMMENDATIONS

The following discussion includes suggestions on how to improve the quality of care of sick children at outpatient clinics based on the results of the two day analysis and discussion of survey results with district health staff

1 Assessment of sick children

There is evidence that health workers do not regularly use an integrated approach for the assessment of sick children Although key history questions are often asked, children are not screened for severe illness, nor are simple clinical examination tasks performed in an integrated or systematic manner Children with fever were rarely assessed for stiff neck or rash, children with diarrhea did not routinely have skin turgor checked, and respiratory rate was never counted for children with a complaint of cough/difficult breathing Many of the clinical assessment tasks do not require a long time to complete

There are a number of reasons why health workers may not be screening children systematically These include lack of awareness of danger signs and of the importance of a systematic approach, lack of training, poor clinic organization, and lack of personnel to conduct screening tasks Some health workers may not evaluate children systematically because they expect caretakers to report signs and symptoms spontaneously

Nutritional status is not systematically assessed, although most facilities visited had functional weighing equipment available Malnutrition is an important public health problem in Ghana, sick child visits provide an opportunity for identifying malnourished children and counseling caretakers on feeding practices The first step in improving nutritional screening practices will be to ensure that all children are weighed and that their weight is plotted on a growth monitoring chart

2 Immunization practices

The survey found that neither children nor their mothers are routinely screened for vaccination status during sick child visits Most health facilities had a stock of vaccines and a functional cold chain Missed opportunities to vaccinate children and mothers are an important problem in the facilities visited Checking the vaccination status of every child and mother is a simple, quick and inexpensive clinical action Improved health worker practice in this area should encourage more caretakers to bring their cards with them at every visit Vaccination of those infants and children who need vaccines on the day of the visit is ideal in order to eliminate missed vaccination opportunities If this is not possible, caretakers should at least be referred to the next vaccination session and the importance of this next visit strongly reinforced

The current barriers to regular assessment of the vaccination status of children include 1) lack of awareness of the importance of checking vaccination status at every facility visit by both health workers and caretakers, 2) the belief by health workers that vaccination status should only be checked at vaccination sessions, and 3) lack of awareness by caretakers of children that they should bring vaccination cards to sick child visits

3 Treatment practices

Approximately half of sick children were treated correctly The proportion treated correctly was higher for children with the diagnosis of malaria and pneumonia than for children with simple diarrhea, one of the major causes of morbidity and mortality Antimicrobials were overused for the treatment of watery diarrhea and upper respiratory tract infections It was noted that a functional ORT corner was present in only 40 percent of health facilities This may reflect a lack of awareness about the importance of oral rehydration at health facility level for the prevention and management of dehydration It was noted that a stock of ORS sachets was available in all facilities except one, and about half the facilities were missing measurement utensils The use of oral fluids is a simple, cheap, and effective treatment strategy—regular supervision should clearly emphasize these principles Improving ORT use should also stress the importance of correctly instructing caretakers on the administration of these fluids at home Reasons for the overuse of antibiotics for simple diarrhea and upper respiratory tract infections may need further exploration There may be pressure on health workers from caretakers to give antibiotics, and health workers may overuse antibiotics because they are uncertain about the underlying diagnosis Improving standard case-management practices and counseling of caretakers could help to improve treatment practices

4 Communication between health worker and caretaker

Key counseling messages were not systematically given by health workers, although knowledge of the importance of communication was widespread There are a number of possible reasons for this problem, including 1) no systematic training or reinforcement of the importance of communicating to caretakers, 2) lack of knowledge of the most important messages, 3) lack of appreciation of the important role that home case management plays in the outcome for each child, and 4) lack of education materials The time required to conduct effective counseling could also be a barrier to routine practice

The quality of counseling messages is not high Treatment counseling messages were given in a minority of cases, and relatively few caretakers knew correctly how to give treatment at home when asked during the exit interview, caretakers are not being adequately educated at the time of prescribing or dispensing medications Barriers mentioned for effective communication between health workers and caretakers included language barriers in some health facilities and a lack of time Strategies for improving communication will need to be developed in close collaboration with health workers Strategies should reinforce effective communication principles by providing 1) regular supervision, 2) on-the-job training, 3) health education materials, and 4) reorganizing clinic activities to allow the health worker more time to conduct counseling It is possible that counseling tasks could be shared between staff to allow time for their completion, staff responsible for dispensing medications could give better treatment counseling, for example The quality of counseling will also need to be addressed, including the use of open-ended questions to verify the comprehension of the caretakers more frequently Counseling on how to give medications should include practical demonstrations

Recommendations management of sick children

a <u>Adopt integrated case-management approach</u> Consider adopting and implementing an integrated approach to the management of sick children An orientation to the integrated management of sick the sick child approach [IMCI] would be useful first step This orientation should include representatives from key MOH departments, including family health, nutrition, health education, diarrheal diseases, malaria, human resources, institutional care, and key pediatricians

b <u>Revise and update child health policies and guidelines</u> These should include guidelines on integrated case management of children for the six most important causes of morbidity and mortality Complete policies and guidelines on nutrition counseling, complimentary feeding, vitamin A, and the use of iron for the prevention of anemia are needed This should also include the distribution of clear job descriptions to all health staff, which reflect revised responsibilities

c <u>Strengthen the capacity of district health offices to plan and manage integrated child health programs</u> District teams need to be given better information on current health

worker practices and guidelines for improving practices District teams should coordinate the process of improving in-service training and supervision

d Consider developing an integrated approach to supervision Improved supervisory practices should include an observation of the practices of health workers using a standardized checklist Supervisory skills, including how to give feedback and solve problems locally, should also be addressed

e Work with local health workers to identify barriers to improving case-management practices and possible solutions to these barriers This could be done at the time of routine supervisory visits or at routine meetings at the district level For example, local health workers may be able to identify barriers and possible solutions to improving nutritional screening at the clinic setting

f Investigate the possibility of increasing the motivation of health workers Possible strategies could include feedback on performance, rewards by certificate of merit, or in-service training

g Consider developing health information materials on key child health topics Topics could include danger signs for care seeking that should be recognized by the caretakers of young children and key counseling messages that should be given by health workers Health information messages could be disseminated using several channels, including 1) health facilities, 2) during outreach, 3) during community meetings, and 4) with the involvement of community leaders

5 Training and supervision

Training in child health had been received by 36 percent of health workers involved in the management of sick children during the previous 12 months Training was mostly conducted in the areas of EPI and malaria, and rarely involved clinical practice In-service and on-the-job training is considered important for introducing new skills and maintaining them The survey found that health workers' knowledge was relatively high with respect to case management, but they did not 1) check for symptoms of severe illness, 2) ask for the child's or mother's vaccination card, 3) assess nutritional status, or 4) conduct appropriate clinical examination Health education messages on the home management of children were rarely given, although health workers had a high level of knowledge of the importance of health communication Practice in all these areas could be improved with simple training and supervision strategies without expenditure of major additional resources Training should be need-based and focus on the most important weaknesses It should emphasize an integrated approach to the management of children when possible and always involve practical clinical experience When designing a training strategy, all of the other factors which influence the sustainability of these practices should be considered, such as 1) the average consultation time, 2) the availability of drugs and supplies, 3) the frequency of vaccination sessions, 4) the staffing of the clinic, and 5) barriers to

the referral of very sick children Training without close follow up is less likely to change health worker practices Therefore, a mechanism for providing ongoing supervision should be considered in tandem with future training activities

All health facilities visited had received at least two supervisory visits in the previous 12 months It is encouraging that supervisory visits are being made The quality of the feedback given to health workers and the activities undertaken to keep health workers up-to-date remains uncertain Most of the activities conducted by the five to six person supervision team are administration oriented (records, reports, budget, etc) For example, supervisors rarely or never observed case-management practices using checklists nor spoke to caretakers as they left the clinic Most commonly, it appears that all health facility activities stop during supervisory visits Supervision can be strengthened by training supervisors to evaluate facilities systematically using a supervisory checklist and by training them to provide feedback and educate health workers at the time of their supervisory visit Schedules for supervisory visits should be distributed in advance to health staff at all levels The nature of supervision may have to change in order to be more effective in improving health workers' practices Supervisors will need to work more effectively with health workers in order to solve problems with them and to provide in-service training, a change in the culture of supervision may be a key to better quality supervisory visits Improved supervisory tools and methods will need to be developed in close collaboration with district and regional staff

Recommendations training and supervision

a Develop a pre- and in-service training approach which addresses the gaps identified in case-management practice Consider adopting the IMCI approach in Ghana Before adoption, consider simple training to improve key elements of health worker practice, such as screening vaccination and nutritional status, and counseling the caretakers of sick children

b Improve the capacity of the district and regional staff to develop and conduct PHC training Trainers could be provided with on-the-job training in the development of supervisory and training approaches Consider using survey data to assist with the planning of pre-service training programs at the regional level, in particular those components which focus on case-management practices and the barriers to effective case-management practices

d Develop an improved approach to regular supervision at the district and regional levels, using existing resources Develop an integrated supervisory checklist based on key program indicators in collaboration with district and regional health staff Test approaches to changing health worker practice at the facility level

e Use information collected from supervisory visits to monitor program activities and quality of health services Consider establishng a supervisory database to track change in program indicators

f Conduct in-service training on supervisory techniques for district and regional health staff

VI CONCLUSION

A number of key elements required for the high quality management of sick children at first-level health facilities are in place in Ghana Most facilities have the essential drugs, vaccines, equipment, and supplies required for high quality case management The results of this health facility assessment indicate that a number of elements of case-management practices require improvement Health workers do not routinely screen for the most important causes of morbidity and mortality, including malnutrition Vaccination status is not routinely checked, and health counseling is not routinely conducted Many of these case-management tasks could be improved using existing strategies, such as improved in-service training and supervision

In order to develop effective strategies for improving case-management practices, it will be critical that the barriers to changing health worker practices be identified and addressed It is unlikely that training and supervision on their own will result in long-term changes in health worker practice Possible barriers to changing practice will include lack of personnel, limited time, and lack of motivation

In order to develop an integrated approach to improving the quality of care provided at health facilities, a number of elements will need to be addressed, including adopting of an integrated case-management program, reviewing and updating essential child health policies and guidelines, improving the capacity of districts to design, manage and monitor child health programs, including in-service training and supervision of health worker practice, and developing strategies for the local situation by working with health workers to incorporate their suggestions and perspectives

The results from this survey will be used by the child health task force to finalize national child health policy guidelines and to develop an implementation plan for program activities

APPENDIXES

APPENDIX A

FINAL SAMPLE OF HEALTH FACILITIES FOR THE INTEGRATED HEALTH FACILITY ASSESSMENT

Appendix A

Final Sample of Health Facilities for the Integrated Health Facility Assessment

Birim South [Eastern Region]		
Oda	District Hospital	Public
Akroso	Health Centre	Public
Swedru	Clinic	Mission
Achiase	Health Centre	Public
Manso	Clinic	Public
East manprusi [Northern Region]		
Nalerigu	District Hospital	Mission
Bunkpurugu	Health Centre	Public
Gbintiri	Clinic	Mission
Binde	Health Centre	Public
Gambaga	Health Centre	Public
Atwima [Ashanti region]		
Abuakwa	Health Centre	Public
Barekese	Health Centre	Public
Nyinahin	Health Centre	Public
Nkawie	Health Centre	Public
Ntoboroso	Clinic	Mission
Ajumako Enyan Esiam (AEE) [Central region]		
Essiam	Health Centre	Public
Bisease	Health Centre	Public
Enyan Abaasa	Health Centre	Public
Ajumako	Health Centre	Public
Ba	Clinic	Mission
Ga [Greater Accra region]		
Amasaman	Health Centre	Public
Amanfro	Health Centre	Public
Obom	Health Centre	Public
Atomic Energy	Clinic	Public
Weija	Clinic	Public

APPENDIX B

SURVEY INSTRUMENTS

Appendix B Survey Instruments

1. OBSERVATION CHECKLIST—SICK CHILD

Region/District_____ HW Category_____ Date_____/_____/_____

Facility Name_____ Facility Type_____ Facility Status_____

Interviewer No _____ Child's Age (months)_____ Child ID No _____

Begin Timing the Observation Now. Time.

1 What reason does the caretaker give for bringing the child to the health facility? (Check all that apply)
____Diarrhea/vomiting ____Fever/malaria ____Difficulty breathing/cough/pneumonia

2 Does the health worker ask the age of the child or have the age available? Y N

3 Is the child weighed? Y N

4 Is the child's weight plotted on a growth chart? Y N

Does the health worker ASK about (or does the caretaker REPORT)—		**Does the health worker perform these EXAMINATION tasks—**	
Danger signs 5 Not able to drink or breastfeed? Y N 6 Vomits everything? Y N 7 Convulsions? Y N 8 Change in consciousness/ lethargic/sleepy? Y N		13 Look for lethargy or unconsciousness? Y N	
9 a **Diarrhea?** Y N b For how long? Y N c Is there blood in the stool? Y N		14 Observe drinking or breastfeeding? Y N 15 Pinch the skin on abdomen? Y N 16 Look for sunken eyes? Y N	
10 a **Cough or difficult breathing?** Y N b For how long? Y N		17 Raise the shirt? Y N 18 Count breaths/minute? Y N 19 Look for chest indrawing? Y N	
11 a **Fever?** Y N b For how long? Y N		20 Look or feel for stiff neck? Y N 21 Look for generalized rash? Y N 22 Look for cough, runny nose, or red eyes? Y N	
12 a **Ear problem?** Y N b Ear pain? Y N c Ear discharge? Y N d **If YES,** for how long? Y N		23 Look for pus from ear? Y N 24 Feel for swelling behind ear? Y N	
		Malnutrition 25 Undress and look for wasting? Y N 26 Look for palmar or conjunctival pallor? Y N 27 Look for edema of both feet? Y N	

A	**All danger signs (Q 5 to Q 8 [or Q 13]) assessed?**	**Y N**
B	**All main symptoms (Q 9 to Q 12) assessed?**	**Y N**
C	**Number of diarrhea assessment tasks completed?** (History and Examination)	**0 1 2 3 4 5**
D	**Number of ARI assessment tasks completed?** (History and Examination)	**0 1 2 3 4**
E	**Number of fever assessment tasks completed?** (History and Examination)	**0 1 2 3**
F	**Nutritional status correctly assessed? (Q 4, Q 25 to Q 27)**	**Y N**

Immunization and Screening

28 a Does the health worker ask for the *child's* immunization card? Y N
If NO, go to question 29
b **If YES**, does the child have the card? Y N
c Is the *child* referred for vaccination—
____Today ____Another day ____Not referred ____Up to date

29 a Does the health worker ask for the *caretaker s* vaccination card? N/A Y N
If NO or N/A, go to question 30
b **If YES**, does the caretaker have the card? Y N
c Is the *mother* referred for vaccination—
____Today ____Another day ____Not referred ____Up to date

Diagnosis and Treatment

How does the health worker classify the child?

30	Watery diarrhea	Y	N	39	Very severe febrile disease	Y	N
a	No dehydration	Y	N	40	Malaria	Y	N
b	Some dehydration	Y	N	41	Severe complicated measles	Y	N
c	Severe dehydration	Y	N	42	Measles (eye and mouth complications)	Y	N
31	Bloody diarrhea [dysentery]	Y	N	43	Measles	Y	N
32	Chronic diarrhea	Y	N	44	Fever, other cause (specify) _____	Y	N
33	Severe chronic diarrhea	Y	N				
34	Severe pneumonia	Y	N	45	Mastoiditis	Y	N
35	Pneumonia	Y	N	46	Acute ear infection	Y	N
36	Upper respiratory infection (cough or cold)	Y	N	47	Chronic ear infection	Y	N
37	Severe malnutrition	Y	N	48	No diagnosis	Y	N
38	Anemia or very low weight (moderate malnutrition)	Y	N				

What does the health worker administer or prescribe for the child?

49.	Immediate referral?	Y	N				
50	Antimalarial injection	Y	N	57	ORS/RHF	Y	N
51	Antimalarial tablets/syrup	Y	N	58	Antidiarrheal/antimotility	Y	N
52	Paracetamol/aspirin	Y	N	59	Metronidazole tablet/syrup	Y	N
53	Tepid bath	Y	N	60	Tablet/syrup, unknown type	Y	N
54	Antibiotic injection	Y	N	61	Injection, unknown type	Y	N
55	Antibiotic tablets/syrup	Y	N	62	Other (specify) _____	Y	N
56	Vitamin A or vitamins	Y	N	63	None	Y	N

H Is the medication appropriate for the diagnosis? **Y N**

I a	**Diarrhea case received appropriate medication?**	**N/A**	**Y**	**N**
I b	**Pneumonia case received appropriate medication?**	**N/A**	**Y**	**N**
I c	**Malaria case received appropriate medication?**	**N/A**	**Y**	**N**

Interpersonal Communication

For all oral medications—

64 a	Does the health worker explain how to administer medications/ORS?		Y	N
b	Does the health worker demonstrate how to administer medications/ORS?	N/A	Y	N
c	Does the health worker ask an open-ended question to verify the comprehension of how to administer medications/ORS?		Y	N

K Number of treatment tasks performed? (Circle one) **0 1 2 3**

65	Does the health worker explain when to return for follow-up?	Y	N
66	Does the health worker explain the need to give more liquid at home?	Y	N
67	Does the health worker explain the need to continue feeding or breastfeeding at home?	Y	N
68	Does the health worker tell the caretaker to bring the child back for the following signs?		
	Child is not able to drink or drinking poorly	Y	N
	Child is not able to breastfeed/eat	Y	N
	Child becomes sicker	Y	N
	Child develops a fever	Y	N
	Child develops fast or difficult breathing	Y	N
	Child develops blood in the stool	Y	N
	Change in consciousness/lethargic	Y	N

L Are at least three of the Q 68 messages circled? **Y N**

Check the Time of the Observation as the Caretaker Leaves Time _____

Duration of observation _____minutes

END OF HEALTH WORKER OBSERVATION

- **The surveyor may need to ask the health worker about the diagnosis 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**

2 EXIT INTERVIEW—SICK CHILD

Greet the caretaker and say that you would like to ask some questions about his/her visit to the health facility today.

1 Did the health worker give you any oral medicines at the health facility today? Y N
If NO, go to question 2
If YES, compare the caretaker's medications with the samples for identification of the oral medicines

Complete the table below for the listed oral medications Fill in the information in the table below by asking—
HOW MUCH medicine will you give the child EACH TIME?
HOW MANY TIMES will you give it to the child EACH DAY?
HOW MANY DAYS will you give the medicine to the child?
If the caretaker's answer is—
"As required," write AR in the appropriate cell
"Until completed," write UC in the appropriate cell
"I don't know," write DK in the appropriate cell

Medicine	How Much Each Time?	How Many Times/Day?	How Many Days?	All Correct? (Y or N)
Chloroquine tab/syrup				
Antibiotic tab/syrup Name _____ Dose/tab _____				
Aspirin tab/syrup OR Paracetamol tab/syrup Dose/tab _____				
ORS/RHF				
Other _____				

A Caretaker knows how to give ALL *essential* medications correctly? N/A Y N

2 What will you do for your child when you return home? (Check all that apply)
____Doesn't know
____Continue feeding or breastfeeding the child
____Give the same quantity or more fluids to the child
____Complete course of medications/ORS/RHF
____Bring the child back if he/she doesn't get better or gets worse
____Other (specify) _____

B Caretaker knows at least two aspects of home case management? Y N

3 How will you know if the child becomes worse at home? (Check all that apply)
____Doesn't know
____Fever begins or doesn't go away
____Child unable to eat
____Diarrhea continues
____Child has chest indrawing
____Vomiting begins or continues
____Child unable to drink
____Child has convulsions
____Child has difficulty breathing
____Blood in stool
____Other (specify) _____

C Caretaker knows at least two signs of child getting worse at home? Y N

4 Which diseases will be prevented by the immunizations you or your child has received? (Check all that apply)

____Doesn't know ____Measles
____Diphtheria ____Tuberculosis
____Tetanus ____Polio
____Whooping cough ____Other (specify) _____

5 a Do you know what might happen as a side effect after the immunization? Y N

b **If YES,** what were you told? (Check all that apply)

____Fever ____Pain at injection site
____Irritability/crying ____Swelling
____Other (specify) _____

6 How many vaccination visits does a child need in the first year of life to complete the series of vaccinations?_____

____Correct ____Incorrect ____Doesn't know

7 a Did your child receive an immunization today? Y N

b **If NO,** (Prompted question Check a single response)

____Referred for vaccination another day
____Was not given or referred for vaccination
____Up to date

8 Do you have your child's vaccination card?

____Yes ____Lost ____Never received ____Left at home

If the caretaker has the card, record the dates of ALL VACCINES GIVEN, both today and in the past, and the child's birth date and age

Birth date ____/____/____ Age _____Months

Immunization	Received
Polio-0 (birth)	Y N
BCG	Y N
DPT-1	Y N
Polio-1	Y N
DPT-2	Y N
Polio-2	Y N
DPT-3	Y N
Polio-3	Y N
Yellow fever	Y N
Measles	Y N

D Child is up to date? Y N

9 Do you have your own vaccination card?

____Yes ____Lost ____Never received ____Left at home ____N/A

If YES, copy the caretaker's tetanus toxoid vaccinations in the table below If the caretaker's TT doses are recorded on the child's vaccination card, copy them here also.

Immunization	Received
TT-1	Y N
TT-2	Y N
TT-3	Y N
TT-4	Y N
TT-5	Y N

E. Caretaker has received at least TT-2? Y N

9a If the caretaker does not have a vaccination card
How many vaccinations did you receive during your last pregnancy? _____Number

10 a Did you receive a tetanus vaccination today? N/A Y N
b **If NO,** (Prompted question Check a single response)
____Referred for vaccination another day
____Was not given or referred for tetanus vaccination
____Up to date

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 diarrhea, when to return for vaccination, how to give the prescribed medications, and when to return if the child becomes worse at home.

3 HEALTH WORKER INTERVIEW

Introduce yourself to the health worker Tell him/her that you would like to ask some general questions

Region/District_____ HW Category_____ Date_____/_____/_____

Facility Name_____ Facility Type_____ Facility Status_____

Interviewer No _____

about the health facility, followed by some questions about his/her job.

1 Where does the health facility *usually* get medications and supplies?
(Check a single response)
____Government supplier ____Private pharmacy supplier
____Community pharmacy ____NGO/Mission
____Other (specify) _____

2 How are supplies *usually* received? **(Check a single response)**
____Delivered to facility ____Both
____Picked up from the supplier ____Other (specify) _____

3 What is the *most common* cause of a delay in delivery of supplies?
(Check a single response)
____Inadequate transport ____Insufficient fuel
____Administrative difficulties ____Insufficient staff
____Financial problems ____Rupture of stock at the central store
____Other (specify) _____

4 Do you have a supervisor? Y N
If NO, go to question 9

5 Do you have a schedule for supervisory visits? Y N

6 How many times have you had a visit from a supervisor—
- In the last 6 months _____ (number of times)
- In the last 12 months _____ (number of times)
- Supervisor works here and sees worker daily ____

7 What did your supervisor do the last time he/she supervised you? **(Check all that apply)**
____Delivered supplies (fuel, medicines, etc)
____Observed immunization technique
____Observed management of sick children
____Reviewed reports prepared by health worker
____Updated health worker on current information
____Discussed problems with supplies and equipment
____Other (specify) _____

8 a Did you receive feedback from that supervisory session? Y N
b **If YES**, in what form?
____Supervisory register ____Written report
____Oral report ____Other (specify) _____

9 What are the most difficult problems that you face in doing your job?
(Check all that apply)

____Lack of training
____Caretakers don't bring children to clinic
____Lack of time
____Staff shortages
____Lack of supplies and/or stock
____Lack of supervision
____Low salary
____Inadequate transport
____Lack of motivation
____Poor working environment (health facility, housing)
____Other (specify) _____

10 Have you discussed these problems with your supervisor? N/A Y N

11 How many child-health–related training sessions have you received in the last 12 months? _____
If NO training received, go to question 14

12 What type of training was it?_____

13 Did your *last* training involve clinical practice? Y N

14 In this clinic, at what ages do you give—

(Age in WEEKS but in MONTHS for measles only)

	First	Second	Third	Fourth
DPT				
Polio				
BCG				
Yellow fever				
Measles				

A ____ EPI vaccination schedule all correct? Y N

15 To whom do you give tetanus toxoid? **(Check all that apply)**
____Doesn't know
____Pregnant women
____Women of childbearing age (15–49)

16 On what occasion would you give tetanus toxoid? **(Check all that apply)**
____Antenatal clinic visit
____Visit for curative services of mother
____Visit with child for immunization or treatment

17 On what days are immunizations given routinely at this facility? **(Circle days)**
M T W Th F Sa Number of immunization days/week____

18 a Does the health facility have an antenatal clinic? Y N

b **If YES**, on what days is the clinic held? **(Circle days)**
M T W Th F Sa Number of clinic days/week____

c **If NO**, why are antenatal clinics not held? **(Check all that apply)**
____Doesn't know
____No staff
____No supplies
____No training
____No space available
____Other (specify) _____

19 What are the signs that would make you refer a child to the next level of health facility? **(Check all that apply)**

____Child is lethargic/abnormally sleepy/unconscious
____Child has not responded to usual treatment
____Child is not eating or drinking
____Child has severe dehydration
____Child has severe malnutrition/anemia
____Child has had convulsions
____Child looks very unwell
____Child has a very high fever
____Child vomits everything
____Child has severe pneumonia
____Other (specify) _____

B Health worker knows at least three signs for referral? Y N

20 a Have you ever wanted to refer a child to the next level of health facility but have not been able to do so? Y N

If NO, go to question 21

b **If YES**, why could you not refer the child? **(Check all that apply)**

____Next level of health facility too far
____No transport available
____Parents didn't have enough money
____Caretaker/parents refused to go
____No fuel available
____Other (specify) _____

21 What do you see as your role in communicating with caretakers when they bring their child to the health facility? **(Check all that apply)**

____Giving information on danger signs to watch for
____Giving information on what to do at home
____Giving information on how to give medicine at home
____Finding out what caretakers have done at home and what are the symptoms of the child's illness
____Giving information on how to prevent illness
____Telling caretakers when to come back to the health facility
____Ensuring that mothers understand what to do at home
____Giving group talks
____Other (specify) _____

22 What prevents you from communicating with caretakers when they bring their children to the health facility? **(Check all that apply)**

____I don't know how
____Someone else does it
____They don't listen
____It isn't really my role
____No time
____They don't understand/comprehend what we say
____Language barriers prevent effective communication
____I don't have any education materials
____It isn't important
____Other (specify) _____

END OF HEALTH WORKER INTERVIEW

Thank the health worker for his/her cooperation and answer any questions that he/she may have about the correct recommendations for immunizations or management of sick children.

4 EQUIPMENT AND SUPPLIES CHECKLIST

Region/District_____ Date_____/_____/_____

Facility Name_____ Facility Type_____ Facility Status_____

Interviewer No _____

Category of health staff **with child case management responsibilities** (curative and preventive)

Category	Number Assigned to the Facility	Number Present the Day of the Survey
Physician		
Medical assistant		
Nurse midwife		
Nurse		
Community health nurse		

Patient and Worker Accommodation

1	Is there adequate seating for patients?	Y	N
2	Is there a covered waiting area?	Y	N
3	Is there potable water?	Y	N
4	Is there a *functional* toilet or latrine?	Y	N
5	Is there a *functional* waste disposal area/pit?	Y	N
6 a	Are health information posters displayed?	Y	N
b	**If YES,** are they written in the local language?	Y	N
7	Is an ORT corner present and being used?	Y	N

Equipment and Supplies

Are the following equipment and supplies present in the health facility?

8	Transportation					
	Vehicle	Y	N	**If YES,** in working order?	Y	N
	Motorcycle	Y	N	**If YES,** in working order?	Y	N
	Bicycle	Y	N	**If YES,** in working order?	Y	N
9	Social mobilization equipment					
	Megaphone	Y	N	**If YES,** in working order?	Y	N
	Flip-chart	Y	N	**If YES,** in working order?	Y	N
	Counseling cards/pamphlets	Y	N	**If YES,** in working order?	Y	N
10	Weighing equipment					
	Adult weight scale	Y	N	**If YES,** in working order?	Y	N
	Baby weight scale	Y	N	**If YES,** in working order?	Y	N
	Salter	Y	N	**If YES,** in working order?	Y	N

Medical Supplies

11	Thermometer	Y	N	**If YES,** in working order?	Y	N
12	Stethoscope					
	- Regular	Y	N	**If YES,** in working order?	Y	N
	- Obstetrical	Y	N	**If YES,** in working order?	Y	N
13	Otoscope	Y	N	**If YES,** in working order?	Y	N
14	Tongue depressor	Y	N	**If YES,** in working order?	Y	N
15	Watch with a second hand or other timing device	Y	N	**If YES,** in working order?	Y	N
16	Steam sterilizer	Y	N	**If YES,** in working order?	Y	N
17	Cooker or stove	Y	N	**If YES,** in working order?	Y	N

18 Measuring and mixing utensils Y N
19 Cups and spoons Y N
20 a Refrigerator for vaccines Y N
If NO, go to question 21
b **If YES—**
- Type ____Electric ____Kerosene ____Gas ____Solar ____Mixed
- Condition ____Good ____Fair ____Poor ____Nonfunctional
- Freeze-watch indicator? Y N
- Working thermometer inside? Y N Temp _____ °C
- Temperature chart? Y N
If NO, go to question 21
c In the last 30 days, temperature record up to date ? Y N
- Temperature above 8°C _____(number of days)
- Temperature below 0°C _____(number of days)
21 Ice packs Y N
22 Cold boxes Y N
Condition ____Good ____Fair ____Poor ____Nonfunctional
22a Vaccine carriers Y N
Condition ____Good ____Fair ____Poor ____Nonfunctional

Availability of Drugs and Other Supplies the Day of the Survey
(Circle Y or N for each item)

Supplies—						**Available**	
	Drugs for pneumonia						
23	*Penicillin tablets/syrup*			Y	N	*Amoxycillin tablets/syrup*	Y N
	Drugs for Shigella						
24	*Cotrimoxazole tablets/syrup*	Y	N			*Nalidixic acid*	Y N
	Drugs for malaria						
25 a	*Chloroquine tablets*	Y	N			*Fansidar*	Y N
b	*Injectable quinine*						Y N
26	Injectable penicillin						Y N
27	Injectable chloramphenicol						Y N
28	Paracetamol						Y N
29	Aspirin						Y N
30	Tetracycline eye ointment						Y N
31	Gentian violet						Y N
32	Iron						Y N
33	Vitamin A						Y N
34	Mebendazole						Y N
35	Sterile water for injection						Y N
36	ORS						Y N
37	IV solution for severe dehydration						Y N
38	Needles						Y N
39	Syringes						Y N
40 a	Are expired drugs in the health facility?						Y N
b	**If YES,** which ones?_____ _____ _____						

Vaccines—		**Available**		
41	BCG	N/A	Y	N
42	OPV	N/A	Y	N
43	DPT	N/A	Y	N
44	Measles	N/A	Y	N
45	Yellow fever	N/A	Y	N

46 Tetanus toxoid N/A Y N
47 a Are expired vaccines in the refrigerator? N/A Y N
b **If YES**, which ones?_____ _____ _____
48 Are frozen vials of DPT or TT in the refrigerator? N/A Y N
49 Rupture of stock in the last 30 days? Y N
If YES—

Item	Number of Days of Stock-Outs/Last 30 Days
Vaccines	
Syringes/needles	
ORS	
Essential drugs	
Cards/forms	

50 Are drugs and other supplies adequately organized and appropriately stored? Y N

Documentation and Record Keeping
Are the following items present in the health facility?
51 a Immunization register Y N
b **If YES**, is it up to date? Y N
52 Immunization tally sheets Y N
53 Stock of vaccination/child health cards Y N
54 Stock of TT/maternal health cards Y N
55 Stock of essential drugs cards Y N
56 Notifiable disease report forms Y N
57 a All essential monthly reporting forms Y N
b **If YES**, are they up to date? Y N
58 a Is a patient register kept? Y N
b **If YES**, is it up to date? Y N
59 Number of patients seen in last month _____
60 Number of patients 0–4 years of age seen in last month _____
61 Average number of patients seen per day _____

END OF EQUIPMENT AND SUPPLIES CHECKLIST

APPENDIX C

SURVEY TEAMS

Appendix C Survey Teams

Birim South

George Atinga, Health Service Administrator
Patience Odom, Nursing Officer
Paul Adwere, Technical Officer

East Mamprusi

Hajia Awabu Mahama, Senior Nursing Officer
Alhaji Inusah Fusheini, Medical Assistant
Moses Laar, Senior Technical Officer

Atwima

Anna Ofori, Nursing Officer
Rose Osafo, Medical Assistant
Simon A Mireku, Technical Officer, District Nutrition Officer

AEE

Nicholas Poku, Medical Assistant
Margaret Forsu, Senior Nursing Officer
Juliana Okotah, Senior Staff Nurse

Ga

Dr Mary Nana-Ama Liverpool, Medical Officer
Comfort Sylvia Addo, Senior Nursing Officer
Patricia A Kodjoe, Nursing Officer