QUALITY OF HEALTH CARE
IN
MUKONO DISTRICT

by
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DECLARATION

I hereby declare that the work presented in this book is original unless otherwise acknowledged. It has never been presented before to any institution of learning either in full or in part, for any academic award or publication or otherwise. The report is henceforth submitted for the award of the degree of Master of Public Health of Makerere University.

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DEDICATION

To my wife Pauline who stood by me throughout the course and preparation of this dissertation.

To my daughter Rachel for making it all worthwhile.
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LIST OF ABBREVIATIONS

ARI  Acute Respiratory Infection
CAO  Chief Administrative Officer
CDD  Control of Diarrhoeal Diseases
CQI  Continuous Quality Improvement
DHC  District Health Committee
DHT  District Health Team
DLC  District Local Council
DMO  District Medical Officer
EDLU Essential Drugs List of Uganda
ESI  External Standards Inspection
FBA  Facility Based Assessment
LC5  Local Council Five
MOH  Ministry of Health
NGO  Non-Governmental Organization
NSTG National Standard Treatment Guidelines
PHC  Primary Health Care
PI  Principal Investigator
PRI COR Primary Health Care Operations Research
QA  Quality Assurance
QAP  Quality Assurance Project/Program
QAU  Quality Assurance Unit
QIT  Quality Improvement Teams
RDC  Resident District Commissioner
TQM  Total Quality Management
WHO  World Health Organization
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EXECUTIVE SUMMARY

There is no reliable information on the quality of care offered in health units in Mukono District. This study was therefore carried out to provide the DHT with information for targeting improvements in quality of care.

The study objectives were to, i) assess patient satisfaction with quality of care provided in health units in Mukono District, ii) assess the quality of the process of health care delivery in health units in Mukono District, iii) assess health care provider prescribing behavior using treatment of malaria in children under five years as a proxy indicator, and iv) determine factors that influence delivery of quality health care among health care providers in Mukono District.

A descriptive cross sectional study was done. A stratified sample of eighteen health units was selected. Three hundred and eighty seven patients were interviewed to assess satisfaction with the quality of health care. To assess the process of health care delivery, 18 health care providers were observed attending to three sick under five year old children each. Health care provider prescribing behavior was assessed retrospectively by a review of records of malaria treatment in children under five years old. Three hundred and eighty four records of previous six months were reviewed. Factors affecting delivery of quality care by health care providers was assessed by use of key informant interviews.
The results on patient satisfaction revealed that 15.5% (60/387) of patient respondents were completely satisfied with the overall quality of care provided in the health units. Eighty percent (311/387) were satisfied, 4% (14/387) were dissatisfied and 0.5% (2/387) were completely dissatisfied.

The quality of the process of care was assessed using a scoring system. At a cut off mark of 60% of the expected total score, only 35.2% of the children were managed adequately.

This study also found that on average, 3.2 drugs were dispensed to each child with malaria and 41.8% received antibiotics. Eighty five percent received an injection and only 48.3% were treated according to NSTG.

The key informants thought that factors that contribute to quality health care were availability of drugs and equipment, adequate staffing with trained personnel, regular effective support supervision, and motivation of health care providers.

From the findings of this study, it may be concluded that patients are generally satisfied with the quality of health care provided in the health units of Mukono District. However, technical competence of health care providers does not reach required standards. It is therefore recommended that the DHT of Mukono District focus training of health care providers on clinical case management of common childhood illnesses and rational drug use.
CHAPTER 1

1.0 INTRODUCTION

1.1 Background:

The mission of the Ministry of Health (MOH) is to provide the highest affordable quality of health service to all the citizens of Uganda.\(^1\) To this end, government has instituted health sector reforms as a strategy for effective and efficient delivery of health services at all levels of health care.

Part of the strategy employed, was the introduction of a Quality Assurance Program (QAP) in January 1994. The purpose of the QAP, is to strengthen the management of district level health services through establishment of a continuous quality improvement methodology in the MOH and districts. To achieve this, the QAP has through the Quality Assurance Unit (QAU), conducted workshops with district political and health leaders throughout the country, trained district health managers on quality assurance management approach, and carried out support supervisory visits to districts. Annual conferences where participants share experiences in implementing the program have also been held.\(^1\)

One of the outcomes of the workshops has been the appreciation of the poor quality of health care provided. Participants however agreed that improvement of health services through better management of available resources is possible. They also recognized that the task of improving quality of health care requires collective effort of government, health care providers, individuals and the community. The active participation of the
community was particularly recognized as crucial because they are the final judges of the quality of health services.²

Mukono District was among the first district to start implementing a quality assurance management approach in Uganda. In 1994, the District Health Team (DHT) together with the QAU of the MOH identified communication between health care providers and the community as one the major areas that needed to be addressed in order to improve quality of care in the district. Through systems analysis, the levels of communication with the community, and the methods of communication were identified. It was found that face to face communication was more effective, and that people tended to listen to authority, though they trusted their own people more. With improved feedback to the community, community participation in health issues has been enhanced³

1.2 Statement of the problem:

Quality of care provided in health units in Mukono District has not been adequately assessed. This is in spite of the introduction of the QAP. Future evaluation of this program will therefore be difficult since there is no baseline information. Prioritizing areas for improvement of health care delivery in the district is also difficult without this information.

An analysis of major factors that may influence the quality of health care is outlined in Figure 1.
Figure 1 Problem analysis diagram of factors influencing quality of health care
A study done in 1996 on the effect of user fees on utilization of health services in Mukono District, intimated that the quality of health care provided had improved after the introduction of the user fees. This study used focus group discussions to assess patient satisfaction with the health services provided.

1.3 Justification of the study:

One of the principles of Quality Assurance (QA) is the use of data to analyze service delivery processes with a view to improving quality of health care. Yet data on quality of health care in Mukono District is lacking. Without this, prioritizing areas for improvements is difficult. The results of this study will therefore be of benefit to the DHT and the officers in charge of health units who may use the data as a basis for continuously assessing the quality of care provided and to target limited resources for improvement.
CHAPTER 2

2.0 OBJECTIVES

2.1.1 General objective

The objective of the study was to provide information to the District Health Team (DHT) on quality of health care offered in district health units, so as to enable them target strategies for improving health care delivery. This information may also serve as a basis for future evaluation of the Quality Assurance Program (QAP) in the district.

2.1.2 Specific objectives

1. To assess patient satisfaction with quality of care in health units in Mukono District.
2. To assess the quality of the process of health care delivery in the health units of Mukono District.
3. To assess health care provider prescribing behavior using malaria in children under five years as a tracer condition.
4. To determine factors that influence delivery of quality health care among health care providers in Mukono district.
CHAPTER 3

3.0 LITERATURE REVIEW

"Assenting to quality assurance is like approving of green grass."

(Chase and Carr-Hill, 1994)

3.1 Definitions

3.1.1 Quality of care

Quality of care is defined in the light of the provider’s technical standards and patients expectations. While no single definition of health service quality applies in all situations, the following definitions are helpful guides:

*The quality of technical care consists in the application of medical sciences and technology in a way that maximizes its benefits to health without correspondingly increasing its risks. The degree of quality is, therefore, the extent to which the care is expected to achieve the most favorable balance of risks and benefits.*

-Avedis Donabedian, MD, 1980*

*...proper performance (according to standards) of interventions that are known to be safe, that are affordable to the society in question, and that have the ability to produce an impact on mortality, morbidity, disability, and malnutrition.*

-M.I. Roemer and C. Montoya Aguilar, WHO, 1988*
The most comprehensive and perhaps simplest definition of quality is that used by advocates of total quality management: "Doing the right thing right, right away".

3.1.2 Dimensions of quality

Quality is a comprehensive, multifaceted and an elusive concept. There are several distinct dimensions of quality that vary in importance depending on the context in which a QA effort takes place. QA activities may address one or more of the following dimensions: technical competence, access to services, effectiveness, interpersonal relations, efficiency, continuity, safety and amenities. These have been developed by the Quality Assurance Project (QAP), but should be defined according to the local context. These dimensions are appropriate for clinical care as well as management services that support service delivery.

3.1.3 Quality Assurance

Quality assurance according to Donabedian is 'all arrangements and activities that are meant to safeguard, maintain, and promote the quality of care'. Ruelas and Frenk define it as a 'systematic process for closing the gap between actual performance and the desirable outcomes'. Heather Palmer defines it as a 'process of measuring quality, analyzing the deficiencies discovered and taking action to improve performance followed by measuring quality again to determine whether improvement has been achieved. It is a systematic cyclical activity using standards of measurement'. In essence quality assurance is that set of activities that are carried out to set standards and to monitor and
improve performance so that the care is effective and as safe as possible. This definition is also known as ‘external standards inspection’ (ESI).  

3.1.4 Continuous quality improvement

Continuous quality improvement (CQI), sometimes called total quality management (TQM) approach considers all work as a process. Health care providers are trained in ‘quality tools’ to analyze and improve the process which they are involved in. The focus is on identifying causes of problems in the process and removing them, so as to improve at the same time the service for the customer and the efficiency of the process.

It is argued that the use of set standards in monitoring quality as done in the QA approach has the limitation of only going as far as proving whether or not quality exists. It does not allow for improvement beyond the set standards. It therefore hampers dynamic and creative monitoring of quality as in CQI. However, the use of standards is easier to apply and can be used to provide useful baseline data.

3.2 Origins of quality assurance

Quality Assurance has been part of health care for the past 100 years. It was introduced into modern medicine by a British nurse, Florence Nightingale, who assessed the quality of care in military hospitals during the Crimean War. She introduced the first standards in nursing care; and these resulted in dramatic reductions of mortality rates in the hospitals.

Quality Assurance has expanded from traditionally being applied in industry to hospitals and eventually to Primary Health Care (PHC). Several projects from the World Health
Organization (WHO) and other agencies began using systems analysis and facility assessments to assess quality of care in 1985.

Recent experience in applying quality management to health care systems suggests that four tenets should be adhered to in an ideal quality assurance program:

- Quality assurance is oriented towards meeting the needs and expectations of the patient and community.
- Quality assurance focuses on systems and processes.
- Quality assurance uses data to analyze service delivery processes.
- Quality assurance encourages a team approach to problem solving and quality improvement.

3.3 Methods used to assess quality of health care

Suitable models for assessment of quality of care have yet to be developed in many developing countries. Some methods that have been used are described below.

3.3.1 Facility based assessment (FBA)

Between 1986 and 1990, researchers from the US Centers for Disease Control designed and conducted a facility-based assessment of 285 facilities in 9 sub-Saharan African countries to determine the degree to which health workers properly diagnosed and effectively treated children in selected child survival programs. The FBA included observations of and interviews with health workers, exit interviews with mothers, clinic record reviews, and inventories of available equipment and supplies. This method combined assessments of case management practices for several diseases which permitted
them to identify treatment practices for children with more than one symptom and to strengthen the validity of the results. Data resulting from applications of the method can be used to identify training needs among health personnel, and logistic problems that limit the quality of health care delivery. Repeated surveys can be used to assess the impact of training and other interventions designed to improve service quality.  

3.3.2 Primary health care operations research (PRICOR) project

Another method has been employed by the PRICOR Project. PRICOR has developed extensive lists of essential tasks and activities for the effective delivery of child survival interventions (PRICOR Thesaurus): case management of acute respiratory infection, malaria, and diarrhea; growth monitoring and promotion; maternal health; and child spacing. It has helped managers and researchers in the use of the Thesaurus to conduct comprehensive systems analyses of these interventions in Colombia, Costa Rica, Haiti, Niger, Indonesia, Pakistan, Peru, Philippines, Senegal, Togo, Thailand, and Zaire. These analyses have confirmed that researchers and program managers can study service delivery through systematic review of health worker performance.

Evaluation of PHC systems using the PRICOR Thesaurus in the 12 countries identified repeat program deficiencies. These analyses identified practical solutions to many of the program deficiencies. The project concluded that program and health care managers can use PRICOR techniques to design and implement strategies for sustained improvement in PHC in developing countries.
3.3.3 Health facility surveys

The Program for Control of Diarrhoeal Diseases in the World Health Organization (CDD/WHO) has produced a manual for a health facility survey\textsuperscript{14}, in which process of caring for children with diarrhea is assessed. The objective of the survey is to identify problems in care and suggest possible solutions. The health facility survey assesses the degree to which health workers comply with standards for diarrhea case management, and also contains an important element of expert validation of case management practices. The survey assesses 'process of care' using diagnostic procedures, therapeutic methods applied, advice given to the mother, and recording of information. The 'structure of care' is assessed by ascertaining whether the oral rehydration corner or unit has been set up, and if so, how well it is equipped, maintained and used. A check on supplies and storage conditions of oral rehydration salts, drugs and IV fluids is also made. The 'outcome of care' is not covered in this methodology. The procedure is concentrated around observation of case management, interview with caretakers, interview with health personnel, assessment of facilities and supplies, and a review of clinical records.\textsuperscript{15}

These methods have however been criticized for being vertical in nature, and lacking in community and health worker participation. Chase and Carr-Hill contend that assessments managed by outside 'experts' is contrary to the types of management systems advocated at Alma Ata. They further state that participatory methods of evaluation, devised during the planning stages of programs and involving all personnel in defining program objectives could do far more to create a 'quality' of service than the negative and largely diagnostic approach used in these methods of assessment.\textsuperscript{11}
3.3.4 Drug use surveys

Assessment of drug use is another method often used to assess quality of health care. Rational and appropriate drug use is of interest as a reflection of quality of care. Prescription of large number of drugs may reflect poor diagnostic capacity. Moreover it has been observed that patient compliance declines with the number of drugs prescribed. Indicators reflecting drug use can be used as part of an ongoing process of assessment of quality of care. The WHO has developed a methodology for measuring specific aspects of the behavior of health providers in health facilities in relation to drug use. The indicators developed can be used to assess potential problems in drug use, and to prioritize and focus subsequent efforts to correct these problems. However, the methodology admits that techniques for assessing the quality of the process of diagnosis and pharmaceutical treatment in a standardized, objective way do not yet exist. The indicators developed in the methodology are therefore best understood as first-line measures, intended to stimulate further questioning and to guide subsequent action.

3.3.5 The World Bank approach

De Geyndt, a public health specialist at the World Bank has reviewed World Bank-funded QA projects. He looked at various approaches and models of assessing quality of health care, and quality of health care studies in developing countries. The aim was to present state-of-the-art in measuring, assuring, and improving quality of health care, to set up a common knowledge base, and to propose a framework to direct current and future attempts to improve the quality of health care services in developing countries. The proposed framework attempts to ensure that limited resources have an optimal impact on
the health of the population. It consists of three elements (structure, process, and outcome) to help World Bank staff assist developing countries as they work towards selecting and organizing indicators. The structural inputs (buildings, equipment, drugs, medical supplies, vehicles; personnel; funds; organizational arrangements) are tangible and can be quantified. They are needed for good quality of health care but are not a sufficient condition of it. Assuming a sufficient minimal supply of inputs, the principal element to assure quality of health care is the process. Health care providers are encouraged to stress process measures and embody the philosophy and methods of quality improvement when designing a project. This it is thought, will allow project managers to assess and improve service delivery processes consciously and continuously. Process indicators include functions (e.g., preventive and diagnostic), patient and provider compliance, and support tasks (e.g., supervising). Outcomes are the end results of the process of patient care and of the timely availability of the necessary inputs. Their indicators are mortality, morbidity, pain and suffering, functional impairment, patient satisfaction, and behavioral changes. Factors that the health worker cannot control (e.g., environment and genetics) can also affect outcomes.18

3.5 Experiences with QA in developing countries

Despite the importance of quality, to date there have been few sustained QA efforts in developing countries. Many evaluations have focused on measuring changes in mortality and morbidity, or on measuring coverage rates. Few have emphasized the quality of service or the process of service delivery. Further, systematic efforts to improve quality based on findings about the delivery process have been extremely rare.5
However, few studies that have been done have revealed widespread deficiencies in health care services and management systems in the developing countries.

An early study by Malone in an antenatal clinic in Kiambu Hospital, Kenya revealed that the quality of care being provided in antenatal clinics was a serious problem. As part of an operations research project aimed at improving outpatient services in Kenya, the quality of care in Kiambu District Hospital's antenatal clinic was monitored in 1974-76 with particular emphasis on the identification of high risk women. Of the 270 patients studied, 57 (21%) were considered by midwives to be at no risk in terms of their pregnancy and 213 (79%) were considered at risk. Forty-six percent of the care observed in this study was considered adequate by the audit method; however, an implicit judgment assessment of the same care rated only 19% as adequate. Since the evaluators were familiar with the working conditions and capabilities of the staff, these low performance statistics suggest that the quality of care being provided in antenatal clinics was a serious problem. Dramatic improvements were recorded when more attention was given by midwives to obtaining a medical and obstetric history and using an antenatal card. There was a need for clearly defined criteria and instructions for categorizing and managing high and low risk groups of pregnant women. In-service training and clinical meetings proved essential in ensuring that midwives interpreted abnormal findings and estimated accurately the fundal height of the uterus. Although antenatal cards that guide midwives in the categorization of risk factors were available in Kenya then, they were frequently out of stock and were usually replaced with hastily developed, inadequate substitute forms.19
More recently, an in-depth evaluation of the quality and efficiency of government and non-governmental primary health care services in Tanzania's Morogoro region identified many weaknesses. Fifty-eight diverse health units, representing about a third of the region's total were assessed. Concerns noted at government dispensaries included over-staffing of some services, poor patient-health worker communication, weak diagnostic skills, inadequate staff supervision and continuing education, low staff morale, insufficient prenatal care services, and shortages of curative drugs. Such drugs represented 64% of total dispensary costs. Average costs were four times higher in the health centers surveyed, but these facilities still lacked necessary equipment and beds. The dispensaries run by the Catholic Church had the lowest costs, but the poorest overall quality of care. The study recommended rational drug prescribing procedures, more reasonable community demand for drugs, greater coordination between public and private sector managers, improved delivery of equipment and supplies to government units, guidelines on the components of a comprehensive maternal-child health package, and enhanced community accountability. The author suggests that implementation of a user fee scheme would significantly improve the quality of health care at these facilities; but hastens to recommend that the organizational and management problems identified in the study should be addressed first.20

In Niger, the role of improvements in the quality of health care in the context of health care financing reforms and cost recovery was explored in a 1993 pilot project. The project supported drug availability by training health workers in diagnostic and treatment protocols using generic brands, improved management systems and capabilities related to
fee collection, and installed systems for mobilizing additional resources at non-hospital facilities. Data on quality of care were collected using an evaluation of the cost recovery tests and through surveys of facilities and patients. In this study, quality of care was defined as the proper performance of safe, affordable, and effective interventions. This performance was measured at the structural, process, and outcome levels. Although implementation of the pilot program led to improvements in structural attributes of quality, significant gaps remained in the implementation of diagnostic and treatment protocols. The quality improvements put in place required significant investments in fixed and variable costs, and it is unlikely that optimal cost-effectiveness of services was achieved. The study concludes that sustainability of quality improvements rests with whether funds collected are re-channeled to pay for continued improvements.21

In 1994, the Quality Assurance Project helped the Niger government institutionalize quality assurance (QA) within the primary health care delivery system in the Tahoua region. Quality Improvement Teams (QIT) were organized in the medical center of each of Tahoua’s 7 districts. They used QA methods to solve service delivery problems. In Konni District, a key service delivery problem was poor case management of malaria. Health workers administered an incorrect dosage of chloroquine and aspirin to 66% of malaria cases. They did not use patient weight properly to calculate the dosage. The District Medical Officer ran an in-service training for the staff and hung up a treatment algorithm next to the examination table. The QIT developed a system to make sure that staff took vital signs on all patients in the examination room. The system improved work flow, provided privacy, and reduced congestion.22
CHAPTER 4

4.0 METHODOLOGY

4.1 Study site

4.1.1 Geography

Mukono District lies in the South-Eastern part of Uganda. Its headquarters, Mukono Town, is 20 kilometers East of Kampala, the capital city of Uganda. It is bordered by Kamuli District in the North-East, Lira District in the North, Luwero District in the North-West, Lake Victoria to the South, and Mpigi District to the West. The district has a total surface area of 14,241 square kilometers. It is divided into six administrative counties namely; Baale, Buikwe, Buvuma, Mukono, Nakifuma, and Ntenjeru. The counties are sub-divided into 32 sub-counties and 4 town councils.

4.1.2 Demography

The district has a population of 965,000. The average annual population growth rate is 2.4%. Male to female ratio is 1:1. The population is multi-ethnic, the majority (about 90%) reside in rural areas and engage in subsistence agriculture. The main language spoken is Luganda. The population strata of health significance is as follows:
Table 1 Population groups of Health significance, Mukono District 1995.
(Source - Makono District Population Office)

<table>
<thead>
<tr>
<th>Age-group</th>
<th>Population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants 1 - 11 months</td>
<td>45,355</td>
<td>4.7</td>
</tr>
<tr>
<td>Children 1 - 4 years</td>
<td>173,700</td>
<td>18.0</td>
</tr>
<tr>
<td>Women 15 - 49 years</td>
<td>221,950</td>
<td>23.0</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>48,250</td>
<td>5.0</td>
</tr>
</tbody>
</table>

4.1.3 Administrative structure

Following decentralization in 1993, most policy decisions are now made by the District Local Council (DLC). This body is made up of local council members elected to lead the people at various levels of the administrative hierarchy. It is headed by the Chairman Local Council Five (LC5). The civil service is headed by the Chief Administrative Officer (CAO) and is responsible to the DLC. The Resident District Commissioner (RDC) represents central government authority.

4.1.4 Structure of the District Health Services

The district health services are headed by the District Medical Officer (DMO). Together with other district health officials, they form the District Health Team (DHT). The DHT is responsible to the District Health Committee (DHC), which is responsible for formulating the district health policy and overseeing its implementation. The DHC is a
sub-committee of the DLC. There are 54 static health units under the DMO. The table below shows the stratification of the health units in the district.

<table>
<thead>
<tr>
<th>Type of facility</th>
<th>Government health units</th>
<th>NGO health units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Health center</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Dispensary/Maternity unit</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Dispensary</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sub-dispensary</td>
<td>19</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>16</td>
<td>54</td>
</tr>
</tbody>
</table>

4.2 Study population

The study population was health units (government and non-government) under the DMO’s jurisdiction.

4.3 Study design and data collection techniques

A descriptive cross-sectional study was done. Patient satisfaction was assessed by use of exit poll interviews with patients or caretakers (in case of children). The quality of the process of health care delivery was assessed by observing health workers during management of three sick children of under five years. Health care provider prescribing behavior was assessed retrospectively. Records of treatment of under five year old children with a diagnosis of malaria were reviewed. The records of the past six months were extracted from the out-patient register book. To determine factors that encourage
quality care among health workers, key informant interviews were done with in-charges of the health units.

4.4 Sample size determination

The sample size of 18 health units was selected. The total number of patients to be interviewed was 384. This was determined using the formula by Kish and Leshlic\textsuperscript{24} for single proportion:

\[ n = \frac{z^2 \cdot p \cdot q}{d^2} \]

where

\( n = \) sample size,
\( z = z \) score corresponding to 5\% level of significance (1.96)
\( d = \) absolute precision (± 5\%)
\( p = \) expected proportion in the population obtaining good quality care in the health units (0.5 since no records exist on quality of care).
\( q = (1-p) = 0.5 \)

4.5 Sampling procedure

A stratified sample of 18 health units was selected from five out of six administrative counties of the district. The strata were 6 hospitals, 5 health centers, and 7 dispensaries. Dispensary maternity units and sub-dispensaries were categorized as dispensaries. From each selected health unit, patients or care takers (in case of children), were interviewed at the exit point to assess patient satisfaction. At least ten patients were interviewed from
each health unit. Where this target was not met the first time, the health unit was revisited.

It was assumed that individual health care providers tend to exhibit consistent health care practices over time. In order to assess the quality of the process of health care delivery therefore, health care providers were observed attending to three sick under five children.

To assess the health care provider prescribing behavior, out-patient treatment records of children under five years, with a diagnosis of malaria were reviewed retrospectively. Records of sixteen health units were available for review. The records covered a period of six months from the survey date to cater for seasonal changes. From each unit, twenty four records were selected randomly. Each month was allocated four records. The records selected were of first attendance, complete with age, date, drugs prescribed, and with a diagnosis of malaria.

Key informants were sampled purposively. The officer in charge of each selected unit when present was recruited as a key informant. This is because he/she was likely to have attended a seminar in QA, and as a manager of the unit would likely know efforts instituted to improve quality.
4.6 Variables

The following variables were considered:

Independent variables

- Patient satisfaction
- Process of health care delivery
- Prescribing behavior
- Training
- Supervision
- Motivation
- Community participation

Dependent variable

- Quality of health care.

Indicators were developed for patient satisfaction, quality of the process of health care, and prescribing behavior.

Indicators for patient satisfaction were:

- waiting time
- proportion of patient given seats
- proportion of patients receiving all drugs prescribed
- proportion of patients told the diagnosis
- proportion of patients satisfied with the instructions on how to take their treatment
- proportion of patients told whether and when to return
- proportion of patients satisfied with the privacy in which they were seen
- proportion of patients satisfied with the promptness with which they were seen
- proportion of patients satisfied with staff attitude
- proportion of patients perceiving clinic to be clean

Process indicators were developed for observation of sick children being attended to. They included the following:

- proportion of health workers taking adequate history
- proportion of health workers examining sick children properly
- proportion of health workers making the correct diagnosis and giving the right treatment
- proportion of health workers explaining to mothers how to administer treatment
- proportion of health workers counseling mothers

Prescribing indicators were:

- average number of drugs per patient encounter
- percentage of drugs prescribed by generic name.
- percentage of encounters with an antibiotic prescribed
- percentage of encounters with an injection prescribed
- percentage of drugs prescribed from the essential drugs list of Uganda
- percentage of encounters treated with the correct dose
- percentage of encounters treated according to NSTG

4.7 Data collection instruments

- A structured and semi-structured standardized questionnaire was used to interview patients at the exit polls.
- An observation checklist was used for assessing the quality of the process of health care delivery.
- A summary form of prescribing practices indicators was used to enter data from reviewed records.
- A structured and semi-structured topic guide was developed for key informant interviews.

4.8 Quality assurance

In order to ensure quality of data collected, the following were done:

1. Meticulous training of research assistants in data collection.
2. The questionnaire for patient interviews was translated into the local language (Luganda) together with the research assistants.
3. The questionnaire was pre-tested before actual data collection. Adjustments were made to the questionnaire where necessary.
4. Validation of data was done before leaving the health unit and serial numbers assigned to the questionnaires. Where necessary, corrections were made there and then with the research assistants.
4.9 Data management
Data collected was coded by the PI and entered into a computer. Quantitative data was analyzed using EPI INFO version 6 computer program. Frequency distributions of variables were obtained. Associations between different variables were determined using crude odds ratios and chi square tests with a p value <0.05 level of statistical significance. Variations between and within groups was determined using ANOVA and Kruskal-Wallis tests. Where samples were small, Fisher’s exact tests were used. A scoring system was also used to assess quality of care. The information obtained was summarized in tables, charts, and text. Ethnographic analysis was used for qualitative data obtained from key informant interviews. The results are presented in text narrative and summary in table form.

4.10 Resources

1. Personnel
Five research assistants were recruited for data collection. One member of the DHT assisted in supervising the data collectors. A driver was needed for moving to the different health units.

2. Materials
A budget was drawn and the money received was used for the following items:

- DHT member and driver’s allowances
- Fuel for the vehicle
- Interviewers’ allowances
- Stationery, printing and photocopy services
4.11 Limitations of the study

The health care providers were observed attending to sick children. This may have modified their behavior thus introducing bias.

Prescription records were not complete in some cases. This reduced their reliability. And because prescription behavior was assessed retrospectively, it was not possible to determine the accuracy of the diagnosis.

Patient attendance was low especially in the small health units. It was not possible to realize the minimum required number of patient interviews in some of these units even after the second visit. Replacement was done from other units, more especially the bigger units. It was also not feasible to do systematic sampling of patients due to the low patient turn up. All the patients who came to the health unit were therefore in most cases, selected.

This was a facility based study. It is possible that there are some people whose opinions were not obtained because they were not utilizing the health services. These were probably those who were disappointed with the quality of care provided. This would bias the results towards good quality.

Because of bad weather and lack of resources, one county (Buvuma Islands) was not visited.
4.12 Ethical considerations

Informed consent was obtained from the patients before they were interviewed. Similar consent for interview was obtained from the officer in charge of the unit. Strict confidentiality was observed during data collection, storage, entry, analysis, and presentation of the results.

4.13 Dissemination of results

The results shall be presented to the DHT Mukono District, the Institute of Public Health, Makerere University, the Quality Assurance Unit of the Ministry of Health, and the School of Postgraduate Studies, Makerere University.
CHAPTER 5

5.0 RESULTS

A total of eighteen health units were investigated from five administrative counties. Table 3 shows the categories of health units investigated.

<table>
<thead>
<tr>
<th>Category</th>
<th>Government</th>
<th>NGO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Health Center</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Dispensary/Maternity Unit</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Dispensary</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sub-dispensary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>7</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

In this study, hospitals and health centers were considered 'big units', and dispensaries, sub-dispensaries, and dispensary maternity units were considered 'small units'.

Three hundred and eighty seven patient respondents were interviewed to assess satisfaction with the quality of care offered in the units. The respondents were distributed in the different health units as shown in the chart below.
Figure 2

Distribution of respondents according to health units, Mukono District, June 1997

- Sub-dispensaries: 14%
- Dispensaries: 8%
- Hospitals: 34%
- Dispensary/Maternity Units: 13%
- Health Centers: 31%

Fifty six percent (216/387) of respondents were from government health units while 44% (171/387) came from NGO units. Sixty five percent (250/387) of respondents were from big units and 35% (137/387) were from small units.

5.1 Patient satisfaction measures

5.1.1 Overall satisfaction

Using a four point satisfaction scale (completely satisfied, satisfied, dissatisfied and completely dissatisfied), 15.5% (60/387) were completely satisfied with the overall quality of care provided in the health units. Eighty percent (311/387) were satisfied, 4% (14/387) were dissatisfied and 0.5% (2/387) were completely dissatisfied. For the purpose of analysis, those who were completely satisfied and satisfied were grouped together and those who were dissatisfied and completely dissatisfied were also grouped together. Using this grouping, 96% (371/387) of respondents were overall, satisfied with the quality of care provided in the health units. Only four percent (16/387) of the
respondents were not satisfied. Respondents were more satisfied with the quality of care provided in the big units than in the small units, [Odds Ratio (OR) = 4.28, (95% Confidence Interval 1.32-14.62)]. When respondents attending government and non-government health units were compared, there was no statistical association with overall satisfaction with the quality of care and the ownership of the units, [OR = 0.56 (95% CI 0.16-1.81)].

5.1.2 Other satisfaction measures

Respondents were asked about their satisfaction with other aspects of health care. The table below summarizes the results of the various satisfaction indicators that were measured. The rows show the indicators and columns indicate the scales of satisfaction and their corresponding percentages.

<table>
<thead>
<tr>
<th></th>
<th>CS 1 (%)</th>
<th>Satisfied (%)</th>
<th>Dissatisfied (%)</th>
<th>CD 2 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seats</td>
<td>7.1</td>
<td>86.3</td>
<td>6.6</td>
<td>0</td>
</tr>
<tr>
<td>Promptness</td>
<td>14.7</td>
<td>61.8</td>
<td>21.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Examination*</td>
<td>15.9</td>
<td>65.6</td>
<td>5.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Privacy</td>
<td>17.6</td>
<td>77.7</td>
<td>4.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Instructions</td>
<td>11.8</td>
<td>84.5</td>
<td>3.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Staff attitude</td>
<td>8.8</td>
<td>86.3</td>
<td>3.9</td>
<td>1</td>
</tr>
</tbody>
</table>

CS 1 = Completely Satisfied
CD 2 = Completely Dissatisfied

*Examination was not carried out in 12.5% (48/384) of respondents.

Promptness as a function of waiting time was the major area of dissatisfaction. Seats were not available to some respondents in only three health units. Those who had seats were
more likely to be satisfied with the overall quality of care provided than those who did not have seats. [OR = 16.52, (95% CI 4.46-60.80)].

5.1.3 Waiting time

Waiting time was defined as the time interval taken by a client from arrival to the health facility to receiving attention from a health care provider. There were 364 responses to the question of waiting time. Non response rate was 6% (23/387). The chart below shows the frequency of waiting times that were observed.

Figure 3

![Waiting time in health units, Mukono District, June 1997](chart)

A- 0 minutes
B- 1-19 minutes
C- 20-59 minutes
D- 60-119 minutes
E- 120-300 minutes

The overall median waiting time was 15 minutes, with a range of 0-300 minutes. Fifty-five percent of patients (211/384) were attended to within 20 minutes. The median waiting time in government units was 20 minutes while it was 10 minutes in non-government units. There was a statistically significant difference between the government...
and non-government units waiting times. (Kruskal-Wallis H = 9.918, degrees of freedom (d.f.) 1, p value = 0.002). When big health units were compared with small units, there was no statistically significant difference in the waiting times. (Kruskal-Wallis H = 0.118, d.f. 1, p value = 0.73). When waiting time was grouped into ‘short waiting time’ (0-20 minutes) and ‘long waiting time’ (21 minutes or more), there was an association with satisfaction with the quality of health care. The respondents that were seen within twenty minutes were twenty times more likely to be satisfied with quality of care than those seen after twenty minutes, [OR = 20.51, (95% CI 2.80-420.97)]

5.1.4 Attention

Health care providers listened to 95.3% (369/387) of respondents during history taking, while 4.7% (18/387) said they (health care providers) did not pay particular attention to what was being told to them. The respondents whom were listened to were more likely to be satisfied with the overall quality of health care than those respondents who were not listened to, [OR = 114.40, (95% CI 27.07-528.79)]. Using logistic regression, attention was significantly and consistently associated with satisfaction with overall quality of care.

5.1.5 The diagnosis

The diagnosis was told to 63.2% (244/386) respondents and not told to 36.8% (142/386) of respondents. There was no statistical association between overall satisfaction and being told the diagnosis, [OR = 1.76, (95% CI 0.58-5.35)].
5.1.6 Drugs supplied

Eighty three percent (319/386) respondents received all the drugs prescribed while 17% (67/386) did not. The respondents who received all the drugs prescribed were more likely to be satisfied with the overall quality of health care than those who did not receive all the drugs, [OR = 17.18, (95% CI 4.85-66.54)].

5.1.7 Staff attitude

Respondents were asked about their satisfaction with staff attitude. Ninety five percent (367/386) of respondents were satisfied with staff attitude, while only 5% (19/386) were dissatisfied. The respondents who were satisfied with staff attitude were more likely to be satisfied with the overall quality of health care, [OR = 66.85, (95% CI 17.43-271.76)]. When big and small units were compared, there was no statistical association between satisfaction with staff attitude and type of health unit, [OR = 1.68 (95% CI 0.61-4.61)]. There was also no statistical association between satisfaction with staff attitude and attending government or non-government units, [OR = 0.92 (95% CI 0.33-2.54)].

5.1.8 Scores

The following variables were selected for the scoring: i) whether all drugs were supplied, ii) staff attitude, iii) promptness of service, iv) whether treatment was explained, v) cleanliness of the health unit. The scores were allocated as follows:
Table 5 Scoring of quality of care measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Alternatives</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs supplied</td>
<td>All</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Not all</td>
<td>0</td>
</tr>
<tr>
<td>Staff attitude</td>
<td>Completely satisfied</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Dissatisfied</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Completely dissatisfied</td>
<td>0</td>
</tr>
<tr>
<td>Promptness of service</td>
<td>Completely satisfied</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Dissatisfied</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Completely dissatisfied</td>
<td>0</td>
</tr>
<tr>
<td>Treatment explained</td>
<td>Completely</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Very much</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Somewhat</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Not at all</td>
<td>0</td>
</tr>
<tr>
<td>Cleanliness of health unit</td>
<td>Completely clean</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Clean</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Not at all clean</td>
<td>0</td>
</tr>
</tbody>
</table>

The maximum possible score was 12 and the minimum, 0. A score of 0-4 was considered poor quality of care. Score 5-8 was considered fair quality, and 9-12 good quality. The following table shows the distribution of scores.
Table 6 Scores of quality of care, Mukono District, June 1997

<table>
<thead>
<tr>
<th>Scores</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td>6</td>
<td>21</td>
<td>5.6</td>
</tr>
<tr>
<td>7</td>
<td>79</td>
<td>21.2</td>
</tr>
<tr>
<td>8</td>
<td>157</td>
<td>42.2</td>
</tr>
<tr>
<td>9</td>
<td>71</td>
<td>19.1</td>
</tr>
<tr>
<td>10</td>
<td>21</td>
<td>5.6</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>1.6</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Total 372 100

The mean score was 8 points. The scores were compared in the government and non-government units. The table below shows the distribution of scores in the two groups.
<table>
<thead>
<tr>
<th>Score</th>
<th>Government units</th>
<th>NGO units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>5-8</td>
<td>160</td>
<td>107</td>
<td>267</td>
</tr>
<tr>
<td>9-12</td>
<td>45</td>
<td>61</td>
<td>106</td>
</tr>
<tr>
<td>Total</td>
<td>211</td>
<td>170</td>
<td>381</td>
</tr>
</tbody>
</table>

A score of 0-4 was reported by 2.1% (8/381) of clients, while a score of 5-8 was reported by 70.1% (267/381) of respondents. A score of 9-12 was reported by 27.8% (106/381) of respondents. The mean score for both government and non-government units was 8. Using ANOVA, there was no statistical difference between the scores obtained in government and non-government units. (F statistic 0.26, p = value 0.61). The mean score in big and small units was also 8 points. There was no statistical difference in the scores obtained by the two groups. (F statistic 1.61, p = value 0.20).
5.2 Assessment of the process of health care delivery

A total of fifty-four sick children were surveyed. In each unit three sick children were observed. Sixty-one percent (33/54) were observed from government units and 39% (21/54) from non-government units. Sixty-one percent (33/54) of children were seen from the big units and 39% (21/54) from the small units.

5.2.1 The observation checklist

An observation checklist that was used had five sections (A-E). Section A was a general history section. This included asking the age of the child, taking weight, temperature, looking at the child health card, and referring the child for vaccination where applicable. Section B was on specific history taking. The critical questions to be asked of any sick child included duration of illness, presence or absence of fever, vomiting, diarrhea, blood in stools, cough, and history of home treatment. Section C dwelt on the physical examination of the child. Each child was expected to have his/her eyes, ears, throat, breathing, abdomen, and skin examined. In section D, the diagnoses made by the health worker managing the child and the principle investigator were compared. Section E looked at the instructions given to the mother or caretaker of the sick child on how to administer the treatment and what to do with the child at home.

Sections A, B, C, and E were scored to assess performance. A “Yes” was awarded 1 point and a “No”, 0 points. For each observed child, section A had a maximum of 6 points, section B 11 points, section C 7 points, and section E 7 points.
5.2.2. General history

The results of responses to the general history questions that were to be asked are shown in the table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Weight</td>
<td>46.3</td>
<td>53.7</td>
</tr>
<tr>
<td>Temperature with thermometer</td>
<td>55.6</td>
<td>44.4</td>
</tr>
<tr>
<td>Temperature by touching</td>
<td>79.6</td>
<td>20.4</td>
</tr>
<tr>
<td>Card looked at</td>
<td>42.6</td>
<td>57.4</td>
</tr>
<tr>
<td>Child referred for vaccination</td>
<td>31.5</td>
<td>68.5</td>
</tr>
</tbody>
</table>

The scores were awarded to section A. The graph below shows the results.

Figure 4

Scores for general history, Mukono District, June 1997

The median score was 3 points. Scores of government and non-government units were compared. There was no statistical difference in the scores of the two groups, Kruskal Wallis $H = 0.2$, d.f. 1, p value = 0.64. Scores of big and small units were then compared.
There was also no statistical difference in the scores of the two groups of units, Kruskal Wallis $H = 0.36$, d.f. 1 p value = 0.5.

5.2.3 Specific history

The results of section B are presented in the table below.

Table 9 Distribution of responses to specific history questions, (n=54), Mukono District, June 1997

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of illness</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Fever</td>
<td>96.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Convulsions</td>
<td>24.1</td>
<td>75.9</td>
</tr>
<tr>
<td>Chills</td>
<td>3.7</td>
<td>96.3</td>
</tr>
<tr>
<td>Vomiting</td>
<td>74.1</td>
<td>25.9</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>74.1</td>
<td>25.9</td>
</tr>
<tr>
<td>Blood in stool</td>
<td>14.8</td>
<td>85.2</td>
</tr>
<tr>
<td>Cough</td>
<td>77.8</td>
<td>22.2</td>
</tr>
<tr>
<td>Difficulty in breathing</td>
<td>31.5</td>
<td>68.5</td>
</tr>
<tr>
<td>Throat swelling</td>
<td>1.9</td>
<td>98.1</td>
</tr>
<tr>
<td>Home treatment</td>
<td>77.8</td>
<td>22.2</td>
</tr>
</tbody>
</table>

The scores followed a fairly normal distribution with a mean, median and mode of 6 points. Using ANOVA test, scores in government and non government units were compared. There was no statistical difference in the scores of the two groups, (F statistic 0.196, p value = 0.66). When the scores obtained in big and small units were compared, there was no sufficient evidence to show a difference, (F statistic 2.85 p value = 0.09).
5.2.4 Physical examination

Health workers were observed examining the sick children. A list of items expected to be examined were eyes, ears, throat, breathing, abdomen, skin turgor, and the respiratory rate. The results are presented in the table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Examined (%)</th>
<th>Not examined (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>96.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Ears</td>
<td>35.2</td>
<td>64.8</td>
</tr>
<tr>
<td>Throat</td>
<td>14.8</td>
<td>85.2</td>
</tr>
<tr>
<td>Breathing</td>
<td>63.0</td>
<td>37</td>
</tr>
<tr>
<td>Abdomen</td>
<td>83.3</td>
<td>16.7</td>
</tr>
<tr>
<td>Skin turgor</td>
<td>61.1</td>
<td>38.9</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>25.9</td>
<td>74.1</td>
</tr>
</tbody>
</table>

When the observations were scored, the median was 4 points with a range of 0-7. There were again no significant differences in scores obtained in either government and non-government units or big and small units, Kruskal Wallis $H = 0.727$, $p$ value = 0.39 and Kruskal Wallis $H = 0.652$, $p$ value = 0.42 respectively.

5.2.5 Diagnosis and treatment

In section D the diagnoses of the health care providers were compared with those of the observer (principal investigator). The principal investigator agreed with all but one of the diagnoses. The table below shows the distribution of the diagnoses made and the number of diseases managed according to the national standard treatment guidelines.
Table 11 Distribution of diseases and number treated according to NSTG, (n=54), Mukono District, June, 1997

<table>
<thead>
<tr>
<th>Disease</th>
<th>Frequency of diagnosis</th>
<th>Treated according to NSTG (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>18</td>
<td>94</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>7</td>
<td>86</td>
</tr>
<tr>
<td>Cough</td>
<td>18</td>
<td>78</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Malaria</td>
<td>48</td>
<td>69</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>80</td>
</tr>
</tbody>
</table>

Diarrhea ¹ = No dehydration

Diarrhea ² = Moderate dehydration

Other ³ = Malnutrition, anemia

5.2.6 Counseling of mothers

In the last section of the checklist, health care providers were observed giving advise to mothers about home-care and how to administer medication. The drugs that were selected on the checklist were chloroquine, paracetamol, antibiotics, oral rehydration salts (ORS), and any other drug for treatment of other diseases rather than those treated by the above drugs. In twenty percent of cases, mothers were not advised on how to administer medication. There were twenty five children for whom ORS had been prescribed. In of 60% (15/25) cases, the preparation of oral rehydration solution from ORS was not explained. Mothers of 36% of children with diarrhea, (9/25) were not told to give the children more fluids. Forty four percent (11/25) of the mothers were not told to give fluids after every motion and 48% (12/25) were not told to give fluids every time the child vomits.
Scores were awarded for advise on the need to complete treatment, the need to return for further management in case there was no improvement, the need to continue feeding the child, tepid sponging in case of fever, and not to dress the baby too warmly in case of fever. Scores were also awarded for asking the mother whether she had understood the instructions given and if she had any other questions to ask. The table below shows a summary of the scores.

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18.5</td>
<td>11.1</td>
<td>13</td>
<td>11.1</td>
<td>13</td>
<td>9.3</td>
<td>16.7</td>
<td>7.4</td>
</tr>
</tbody>
</table>

The median score was 3 points with a mode of 0. When comparisons were made of either government and non-government units or big and small units, there were no statistically significant differences in the scores, Kruskal Wallis $H = 1.878$, $p$ value = 0.17 and Kruskal Wallis $H = 0.006$, $p$ value = 0.93 respectively.

5.2.7 Total score

All the scores from section A, B, C, and E were combined to form an opinion of the quality of the process of care of sick children. The total maximum score was 31 points. A cut-off point of at least sixty percent of the total score (19 points) was used as a measure of quality of the process of care. It was found that 35.2% (19/54) of children were managed adequately while 64.8% (35/54) were not. Using single table analysis there were no statistical associations between the type of unit (big or small) and the quality of the process of health care delivery. [OR = 0.88, (95% CI 0.24-3.20)]. Similarly there was no
association between affiliation of the health unit (government or NGO) and quality of the process of health care delivery. [OR = 1.63, (95% CI 0.43-6.23)].

5.3 Health care provider prescribing behavior

Out-patient records of 16 health units were reviewed to assess quality of the prescriptions. These were records of children under the age of five years with a diagnosis of malaria. A total 384 records were reviewed. Twenty four records were picked from each unit. The table below summarizes the results.

Table 13 Prescribing pattern for malaria in children under 5 years, Mukono District, June 1997

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Malaria</th>
<th>Range</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average no. of drugs</td>
<td>3.2</td>
<td>2.2-4.0</td>
<td>&lt;1.6</td>
</tr>
<tr>
<td>% prescribed as generic</td>
<td>96</td>
<td>90-100</td>
<td>100%</td>
</tr>
<tr>
<td>% antibiotic prescribed</td>
<td>41.8</td>
<td>22.2-70.8</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>% injection prescribed</td>
<td>85.4</td>
<td>68.4-100</td>
<td>&lt;15%</td>
</tr>
<tr>
<td>% drugs from EDLU</td>
<td>99</td>
<td>90-100</td>
<td>100%</td>
</tr>
<tr>
<td>% with correct dose</td>
<td>55</td>
<td>29.2-95.8</td>
<td>100%</td>
</tr>
<tr>
<td>% conforming to NSTG</td>
<td>48.3</td>
<td>20.8-83.3</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.4 Key Informant Interviews

Sixteen key informant interviews were carried out. Twelve of these were from government and four were from non government health units.

5.4.1 Constraints faced by health care providers

Seven out of sixteen key informants complained of lack of adequate number of trained staff. They complained that at that level of staffing they were not able to meet clients needs.

While all health units visited were supervised by the DHT, some in charges (4) were not satisfied with the content and timing of the support supervision visits. Some in charges reported that they were supervised only once a year which was quite inadequate.

Officers in charge of 8 health units reported lack of drugs at one point in time. In four units drugs were out of stock for one month, while one unit did not have drugs for 2 months. Three units reported lack of drugs for less than one month. The officers reported that patients usually got dissatisfied if they did not get drugs.

Training was cited as one of the constraints. Only five of the 16 key informants had had any training at all in quality assurance management approach. Only four officers mentioned training as part of motivation for their workers. And only 46 health care
providers out of 380 (12%) had had refresher training in the past six months. More over, not all health units had NSTG.

Motivation of the health care providers was also reported as one of the constraint in delivery of quality care. Most officers in charge gave financial inducements for motivating their workers. Other types of inducements mentioned were personal encouragement, time off, and opportunities for training.

5.4.2 The role of the community in quality assurance

The key informants were asked about the role of the community in improving the quality of care in their various health units. Five key informants mentioned the health unit management committees, and their role in improving quality of care. User fees was mentioned by 3 key informants. Some unit heads mentioned the participation of the communities in construction and maintenance of health unit buildings. One unit head mentioned utilization of the health service as part of community contribution and appreciation. However, only one key informant said that the community was not participating in any way.

5.4.3 Factors that influence delivery of quality care

Key informants were asked what factors influence delivery of quality health care in their various health units. Seven key informants mentioned drugs as a key component in the delivery of quality health care. The same number of key informants mentioned staff motivation as a crucial ingredient in quality assurance. Other factors mentioned were
availability of the necessary equipment to carry out the required tasks, adequate staffing with well qualified personnel who have the right attitude to their work, team work among the staff, need for regular effective support supervision and ongoing training of the health workers.

5.4.4 Action being taken to improve quality in health units

Key informants were asked about what actions they are taking to improve quality of health care in their units. Four key informants said that they had improved drugs supply to their units through user fees. Two key informants mentioned refresher courses that have been carried out in conjunction with the DMO's office. Others mentioned were use of NSTG, regular staff meetings, support supervision, training of personnel, and health unit management committees.
The table below summarizes the results of key informant interviews:

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constraints faced by health care providers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of staff</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Lack of drugs</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Lack of training</td>
<td>11</td>
<td>69</td>
</tr>
<tr>
<td>Lack of motivation</td>
<td>Majority</td>
<td></td>
</tr>
<tr>
<td>Lack of supervision</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Role of community in quality assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health unit management committees</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>User fees</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Heath unit construction</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Service utilization</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Factors influencing delivery of quality care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug availability</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Motivation</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Equipment</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Staff</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Support supervision</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>
Key informants were asked about what actions they are taking to improve the quality of care in their respective units. The following table summarizes the responses that were given.

Table 15 Action being taken to improve quality of care in health units, Mukono District, June 1997

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved drug supply</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Refresher courses</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Use of NSTG</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Regular staff meetings</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Support supervision</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Health unit management committees</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Training of personnel</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>
CHAPTER 6

6.0 DISCUSSION

6.1 Patient satisfaction

6.1.1 Overall quality of health care.

About 96% of all those who were interviewed reported that they were satisfied with the overall quality of care provided in the health units. This compares well with a similar study done in Jinja Hospital. In that study, patients were asked what they thought about the quality of care offered in the hospital. The responses were almost uniformly “good”.26 Other studies have also found that patients are generally satisfied with the quality of care provided in the health units. A study done in Cameroon found that the majority of 80 clients interviewed were satisfied with the technical competence of the service providers.27 Another study done in family planning clinics in Kenya and Nigeria found that clients were satisfied with the overall quality of care they were receiving.28 However a study done in Senegal suggests that patients and staff may have poor perception of quality of care, and are likely to present a false picture.29 This might also explain the overwhelming satisfaction with the quality of care. In fact the Jinja study also revealed that while the respondents tended to say the quality of care was good, the same respondents would still recommend improvements in quality of care!
It was found that respondents were more likely to be satisfied with the quality of care provided in the big health units than in the smaller units. Similar findings were reported in the Sudan. In that study, many patients who could have received treatment at nearby health centers were apparently willing to travel long distances to obtain better services at the hospital. Ninety percent of the health center patients traveled less than 2 kilometers while 40% of the hospital patients were willing to travel more than 5 kilometers to obtain services. This may be because big health units tend to offer a wider variety of health care services including laboratory and dental services which attract patients to them. These units also in general have more qualified personnel than the smaller ones.

There was no difference in overall satisfaction of respondents attending government and non government health facilities. This contradicts the popular view that non government health facilities offer better services than the government ones. This may be explained by the introduction of user fees which has improved the quality of care in government health units.

6.1.2 Satisfaction with seats

Seats were generally available to patients. In fact only three units had patients complaining of lack of seats. While there is no data to compare with, this may suggest improved infrastructure in the health facilities in general.
6.1.3 Waiting time

The waiting time was skewed towards the right, with more than half of the respondents being seen within twenty minutes. Sixteen percent of the patients did not have to wait at all. This compares well with a study done in Nigeria which had 39% of interviewed clients reporting no waiting time and another 39% being seen within 30 minutes.31 However long waiting time of up to 5 hours was also reported. Studies in other places have also reported long waiting times. In Tanzania, one study reported waiting time of up to 3-4 hours.32 In a Cameroon study, the waiting time was up to 2.5 hours.27 The short waiting time experienced by the majority of respondents could be attributed to low turn up of patients that was experienced at this time of the year due to the rainy season. The short waiting time may therefore not be wholly related to improved quality of health care alone.

The waiting time was significantly different between government and non government facilities. The shorter waiting times in non government units might be explained by a lower patient attendance.

6.1.4 Attention given to respondents

The majority of patients were listened to. Those that were listened to were one hundred times more likely to be satisfied with the quality of care than those who were not listened to. In a related study done in the Ogun State of Nigeria, 97% of clients who spoke to nurses trained in counseling felt they were listened to earnestly compared to 66% of clients who spoke to untrained nurses. Ninety seven percent of the clients who talked to
trained nurses were also satisfied with the service compared to 76% who talked to untrained nurses. This factor was the most important for patient satisfaction.

6.1.5 The diagnosis

The diagnosis was told to 63% of the respondents. However, there was no statistical association between being told the diagnosis and satisfaction with the quality of health care. This shows that patients are usually interested in obtaining treatment for their ailments than in knowing the diagnosis.

6.1.6 Drugs

Eighty three percent of respondents received all the prescribed drugs. This compares well with other studies that have been done in Uganda and elsewhere. In a national study that covered six districts, Kafuko and others found that on average 90.5% of patients got the prescribed drugs with a range of 80.5% to 93.7%. A study in Rakai District found that 98% of prescriptions were actually received by patients. Similar finding were reported in a Kabarole study where on average 94% of prescription were actually dispensed. Improved drugs supply after the introduction of user charges may explain the near excellent drug dispensing statistic. Key informants mentioned that patients usually got dissatisfied with the services when drugs were not available. They also added that one of the contributions of the community was the payment of user fees. One of the improvements that were mentioned by the key informants was continuity of drug supply to meet the needs of their clients.
6.1.7 Staff attitude

On the whole, 95.1% of respondents were satisfied with the staff attitude. This was also found to be the case in Arua Hospital in 1995. Ajedra found that 97.6% of the 42 outpatients who were interviewed reported being treated kindly and with respect by the health care providers. However, a study done in Kenya found providers of family planning services in service delivery points to be unfriendly and unhelpful. The good staff attitude may be linked to job satisfaction and better remuneration accruing from incentives paid to them from the user fees and last years pay rise.

6.2 Assessment of the process of health care delivery

6.2.1 General history

Apart from the age of the children which was universally taken, there were inadequacies in the rest of the parameters in the general history section. This have negative influence on the outcome of management of the children. For instance weight was taken in only 46% of children. Yet it is known that most childhood drug doses are weight related. So it is likely that the health care providers would give an incorrect dose. The child health cards were looked at in 43% of cases. This implies that some children missed the opportunity for immunization against potentially fatal illnesses. Other studies have revealed similar deficiencies. In a study done in Niger, health care providers did not use weight properly to calculate doses of chloroquin. According to key informant interviews, there is lack of trained personnel and this may explain the inadequacy of history taking.
6.2.2 Specific history

The results of specific history questions again revealed incomplete history taking. Similar findings were reported in a study done in Papua New Guinea. It reported rudimentary history taking procedures for sick children below five years.\(^3^9\) It is known that history is key to making a diagnosis. Lack of adequate history therefore curtails the making of a complete diagnosis, especially in children who commonly present with multiple illnesses.

6.2.3 Examination

Examination of the children ranged from those who were not examined at all to some who had a full examination according to the criteria set. In Niger, a study done by PRICOR found that 65% of patients were not examined.\(^4^0\) Similar finding were reported by Kafuko et al. In their study, it was found that consultation time was half of what was expected because the majority of patients were not examined even in hospitals. The reasons they expounded included untrained health workers, lack of an examination room, and lack of patience by health care providers when faced with a heavy patient load.\(^3^3\) Other possible explanation is lack of correct attitude towards examining patients. Key informants cited lack of proper training as one of the constraints to delivery of quality service.

6.2.4 Diagnosis and treatment

While the health care providers generally made the correct diagnosis, the treatment was in most cases not according to the NSTG. Many studies in similar areas have shown unsatisfactory compliance to treatment guidelines. Kafuko et al found that only 23.9% of
the patients interviewed received correct treatment. The reasons to explain this could be lack of treatment guidelines in some centers, not using the standard treatment guidelines for those who had them, and lack of rational prescribing knowledge.

6.2.5 Counseling of mothers

This study revealed that counseling was not given to mothers in about one fifth of cases. When advise was given, it was not complete. In a similar study done in Zimbabwe, only 26% of the mothers were given advise on home care. This has implications for the successful management of children at home, considering that most of our population in rural areas are not sufficiently educated to interpret health care provider’s instructions accurately.

6.2.6 Scoring of process of care

Using the scores, and a sixty percent pass mark for adequate quality of the process of care, only 35.2% of cases were deemed to have been attended to adequately. It is however desired that every child be seen and attended to adequately. However, no health care provider met 100% the desired target.

6.3 Health care provider prescribing behavior

6.3.1 Average number of drugs

The study revealed that there was polypharmacy. Other studies in this country have shown similar results. In Kafuko’s study, the average number of drugs given were 2.4, in both Tororo and Kabarole it was 2.3, while it was 2.5 in Rakai. It should however be noted that the sample sizes were different, the Mukono study considered only
children under five years with a diagnosis of malaria, and Kafuko used both prospective and retrospective samples, which makes that study more representative and valid. Polypharmacy may be due to multiple disease presentation that occurs commonly in children, lack of adequate diagnostic skills leading to ‘shot gun therapy’, and patients demand for many drugs.

6.3.2 Generic names

Prescription by generic names was generally better than what was found by Kafuko (86.3%) 34, and Ario (72%) 42. This may be explained by the fact that malaria was the main disease of study in Mukono, where chloroquin has almost no other name.

6.3.3 Antibiotic use

Antibiotic use was higher than the national desired standards. This was especially so considering that the majority of cases were for malaria alone. Similar finding have been reported in the a fore mentioned studies of Rakai, and Kabarole. In Tororo, where malaria was considered as an entity, 16.2% were given an antibiotic, which was in conformity with the national standards. High antibiotic use may be due to multiple disease presentation of the children, and lack of adequate diagnostic and prescribing skills among the health care providers.

6.3.4 Injection use

There was high use of injections. The study revealed high injection use for malaria than in Tororo. 42 The use was about five times the recommended national level. The high injection use could be due to health care provider lack of confidence in tablets. It could
also be because of the frequent vomiting in children prompting the health care providers to prescribe injections by default. The mothers may also be demanding injections.

6.3.5 Conformity to NSTG

The study revealed that only about half of the patients were correctly treated. The treatment that conformed to the NSTG was slightly less. The same findings have been reported in other studies. 34, 35, 36, 42 Key informants thought that the use of NSTG would improve the quality of care offered.
CHAPTER 7

7.0 Conclusion

From the results of this study, it may be concluded that patients are generally satisfied with the quality of health care offered in the health units. There is however no apparent difference in the quality of care offered in government and non-government health facilities.

The quality of the process of health care delivery is poor. There is therefore a need to improve technical competence of health care providers.

This study has shown that there is irrational use of drugs in the health units.

Staffing, drug supply, supervision, training, and motivation of health care providers affect delivery of quality care.
CHAPTER 8

8.0 Recommendations

From the results of this study, the following recommendations are advanced to the District Health Team of Mukono, and other relevant authorities for improved delivery of health care services.

1. In order to improve technical competence of health care providers, the DHT should focus training in clinical case management of common illnesses in the district. The course curriculum could be modeled along WHO guidelines for the integrated management of childhood illnesses. The use of case management algorithms and NSTG is particularly encouraged.

2. Continuing in service training and focused support supervision on common illnesses in the district should be carried out by the DHT. The focus should be on improving the skills and attitudes of health care providers in managing patients. A standardized support supervision checklist could be designed. The observation checklist used in this survey could form a framework for this.
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APPENDIX 1 QUESTIONNAIRE ON PATIENT SATISFACTION

You are welcome to this study. The study addresses issues of immediate concern to you. It is about quality of care offered in this health unit. I shall therefore be grateful for your participation. However, your participation is entirely voluntary and you can withdraw it anytime at your own discretion. Thank you for your participation.

1. Overall, how satisfied were you with the health unit?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )

2. Overall, how satisfied were you with the quality of medical care provided?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )

3. Were seats available for you at the waiting room? (Y or N) ( )

4. How satisfied were you with the seats in the waiting room?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )

5. How satisfied were you with the promptness with which you were seen?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )

6. How long did you wait before being attended to? ___ min.

7. To what extent did the health provider pay attention to your concerns and worries
   - Completely ( )
   - Very much ( )
   - Somewhat ( )
   - Not at all ( )
8. How satisfied were you with the physical examination you received from the health worker?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )
   - I wasn’t examined ( )

9. How satisfied were you with the privacy in which you were seen?
   - Completely satisfied ( )
   - Satisfied ( )
   - Dissatisfied ( )
   - Completely dissatisfied ( )

10. Did the health provider tell you the diagnosis? (Y or N) ( )

11. To what extent did the health provider explain the treatment
    - Completely ( )
    - Very much ( )
    - Somewhat ( )
    - Not at all ( )

12. If treatment was explained, how satisfied were you with the instructions you were given on how to take medicine
    - Completely satisfied ( )
    - Satisfied ( )
    - Dissatisfied ( )
    - Completely dissatisfied ( )

13. Did you receive all the drugs prescribed for you? (Y or N) ( )

14. Were you informed whether and when to return? (Y or N) ( )

15. How satisfied were you with the staff attitude?
    - Completely satisfied ( )
    - Satisfied ( )
    - Dissatisfied ( )
    - Completely dissatisfied ( )

16. How clean was the health unit?
    - Completely clean ( )
    - Clean ( )
    - Not at all clean ( )
17. How clean were the toilet facilities in the health unit?
   Completely clean ( )
   Clean ( )
   Not very clean ( )
   Not at all clean ( )
   Did not visit ( )
   Toilet non-existent ( )

18. If you were to fall sick again, would you return to this health unit or would you rather go elsewhere?
   Return happily ( )
   Go elsewhere ( )
   Don’t know ( )
   There is nowhere else I can go ( )

19. Would you recommend this health unit to your family and friends?
   Definitely would recommend it ( )
   Probably would recommend it ( )
   Might or might not recommend it ( )
   Definitely would not recommend it ( )

20. What is the one main reason you say that?

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

21. How did each of the following features of the health unit compare with what you expected?

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<thead>
<tr>
<th></th>
<th>Much Better</th>
<th>Somewhat Better</th>
<th>About the Same</th>
<th>Somewhat Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quality of care you received</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>The equipment and facilities at the health unit</td>
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<tr>
<td>The people or staff making your treatment as pleasant as possible</td>
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22. What improvements would you like to see done in this health unit?

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
APPENDIX 2 OBSERVATION CHECK LIST

Observation checklist items for sick children

Does the health worker:

Determine

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<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>Y N</td>
</tr>
<tr>
<td>2</td>
<td>Weight</td>
<td>Y N</td>
</tr>
<tr>
<td>3</td>
<td>Temperature with a thermometer</td>
<td>Y N</td>
</tr>
<tr>
<td>4</td>
<td>Temperature by touching the child?</td>
<td>Y N</td>
</tr>
<tr>
<td>5</td>
<td>Look at the child’s health card?</td>
<td>Y N</td>
</tr>
<tr>
<td>6</td>
<td>Refer the child for vaccination?</td>
<td>Y N</td>
</tr>
</tbody>
</table>

Does the health worker ask questions about:

7 | The duration of the illness? | Y N |
8 | History of fever? | Y N |
9 | Convulsions | Y N |
10 | Chills? | Y N |
11 | Vomiting | Y N |
12 | Number of stools in past 24 hours? | Y N |
13 | Blood in the child’s stool? | Y N |
14 | Coughing? | Y N |
15 | Difficulties in breathing? | Y N |
16 | Throat swelling? | Y N |
17 | History of home treatment | Y N |

Does the health worker examine:

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<tr>
<td>18</td>
<td>Eyes</td>
<td>Y N</td>
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<tr>
<td>19</td>
<td>Ears</td>
<td>Y N</td>
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<tr>
<td>20</td>
<td>Throat</td>
<td>Y N</td>
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<tr>
<td>21</td>
<td>Breathing</td>
<td>Y N</td>
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<tr>
<td>22</td>
<td>Abdomen (palpation)</td>
<td>Y N</td>
</tr>
<tr>
<td>23</td>
<td>Skin turgor</td>
<td>Y N</td>
</tr>
<tr>
<td>24</td>
<td>Respiratory rate (timed, touching bare skin)</td>
<td>Y N</td>
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</table>

***Diagnosis***

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<tr>
<td>25</td>
<td>Diarrhea</td>
<td>Y N</td>
</tr>
<tr>
<td>26</td>
<td>Cough/cold</td>
<td>Y N</td>
</tr>
<tr>
<td>27</td>
<td>Pneumonia/bronchitis</td>
<td>Y N</td>
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<tr>
<td>28</td>
<td>Fever/malaria</td>
<td>Y N</td>
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<th></th>
<th>Other:</th>
<th>Y N</th>
<th>Y N UD</th>
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</table>

**Is the dose correct for the treatment of:**

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<th></th>
<th></th>
<th>Y N</th>
<th>Y N NA</th>
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<tbody>
<tr>
<td>30</td>
<td>Diarrhea</td>
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<tr>
<td></td>
<td>Dehydration None</td>
<td>Y</td>
<td>N</td>
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<td></td>
<td>(signs) Moderate</td>
<td>Y</td>
<td>N</td>
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<tr>
<td></td>
<td>Severe</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>31</td>
<td>Cough/cold</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>32</td>
<td>Pneumonia/bronchitis</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>33</td>
<td>Fever/malaria</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>34</td>
<td>Other:</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

**Does the health worker:**

<table>
<thead>
<tr>
<th></th>
<th>Explain how to prepare ORS?</th>
<th>Y</th>
<th>N</th>
<th>NA</th>
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<td>35</td>
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<tr>
<td>36</td>
<td>Demonstrate preparation of ORS?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>37</td>
<td>Have mother return demonstration?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
</tbody>
</table>

***Education to the mother***

**Does the health worker explain to the mother:**

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<thead>
<tr>
<th></th>
<th>How to administer:</th>
<th>Y</th>
<th>N</th>
<th>NA</th>
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</thead>
<tbody>
<tr>
<td>38</td>
<td>Chloroquine?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Paracetamol?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
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<tr>
<td></td>
<td>Antibiotics?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
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<tr>
<td></td>
<td>ORS?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
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<tr>
<td></td>
<td>Other?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>39</td>
<td>The importance of completing the treatment?</td>
<td>Y</td>
<td>N</td>
<td></td>
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<tr>
<td>40</td>
<td>To return to the health center if child does not improve?</td>
<td>Y</td>
<td>N</td>
<td></td>
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<tr>
<td>41</td>
<td>To give more fluids than normal?</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>To give fluids after each stool?</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>To give fluids after child vomits?</td>
<td>Y</td>
<td>N</td>
<td></td>
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<tr>
<td>44</td>
<td>To continue feeding or nursing the child?</td>
<td>Y</td>
<td>N</td>
<td></td>
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<tr>
<td>45</td>
<td>To give the child a sponge bath?</td>
<td>Y</td>
<td>N</td>
<td></td>
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<tr>
<td>46</td>
<td>Not to dress child too warmly?</td>
<td>Y</td>
<td>N</td>
<td></td>
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</tbody>
</table>

**Does the health worker:**

<table>
<thead>
<tr>
<th></th>
<th>Ask the mother question to see if she has understood?</th>
<th>Y</th>
<th>N</th>
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<tbody>
<tr>
<td>47</td>
<td>(yes/no only is acceptable)</td>
<td></td>
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<tr>
<td>48</td>
<td>Ask the mother if she has any questions?</td>
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</table>
APPENDIX 3 QUESTION GUIDE FOR KEY INFORMANT INTERVIEWS WITH IN-CHARGES OF HEALTH UNITS

1. Date
2. Name of Key Informant
3. Qualification
4. Designation
5. Name of Health Unit
6. Distance from Mukono Town
7. Category (tick one)
   - Hospital
   - Health Center
   - DMU
   - Dispensary
   - Sub-dispensary
8. Affiliation (tick one)
   - Government
   - NGO
9. Number of health workers

<table>
<thead>
<tr>
<th>Cadre of health worker</th>
<th>No. present</th>
<th>No. required</th>
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</thead>
<tbody>
<tr>
<td>Doctor</td>
<td></td>
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<tr>
<td>Medical assistant</td>
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<td>Nursing officer</td>
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<td>Enrolled nurse/midwife</td>
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<td>Nursing aid</td>
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<tr>
<td>Total</td>
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</table>

10. Is the number of staff adequate to meet requirement of your clients?
    Yes ( )
    No ( )
    Don't know ( )

11. Number of outpatients seen in 1996
12. Number of inpatients seen in 1996
13. Number of deliveries in 1996
14. Are national standard treatment guidelines available for treatment of (Yes or No)
    - Diarrhea ( )
    - Malaria ( )
    - ARI ( )
15. Do you have a sufficient supply of drugs all the time? Y or N ( )
16. If No to No. 15, for how long do you run out of drugs and other supplies?
   Less than one month  
   About one month  
   About two months  
   About three months  
   More than three months

17. Are you supervised?  
   Yes or No

18. Who does the supervision?
   The DMO  
   The DHT  
   The I/C Health center  
   All the above  
   None

19. How often are you supervised?
   Monthly  
   Every two months  
   Every three months  
   Every six months  
   Once a year  
   Never

20. Are you satisfied with the supervision you get?
   Completely satisfied  
   Satisfied  
   Dissatisfied  
   Completely dissatisfied

21. Have you had any training on quality assurance?  
   Y or N

22. If yes to No. 21, have you benefited from that training?
   Very much  
   Somehow  
   Not at all  
   Don’t know

23. How many of your staff have got refresher training this year?

24. Are these training sessions useful to you and your staff?
   Very useful  
   Fairly useful  
   Not useful  
   Completely useless
25. Are you satisfied with the attitude of your staff towards patients?
   Completely satisfied ( )
   Satisfied ( )
   Dissatisfied ( )
   Completely dissatisfied ( )

26. What is the average waiting time for your general out-patients? ____ min.

27. What is the commonest type of motivation you provide to your workers?
   Opportunities for training ( )
   Financial inducements ( )
   Time off ( )
   Personal encouragement ( )
   Other (specify) ( )

28. How does the community participate in the improvement of quality of care in the hospital?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

29. In your opinion, what factors influence delivery of quality care in your health unit?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

30. What are you doing to improve quality of care in your health unit?

   ______________________________________________________
   ______________________________________________________
APPENDIX 4 PRESCRIBING INDICATOR FORM

Name of health unit ___________________________ Date ___________

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Date</th>
<th>Age (yr.)</th>
<th># drugs prescribed</th>
<th>List of drugs</th>
<th># in generics</th>
<th>Antib. (Y/N)</th>
<th>Infect. (Y/N)</th>
<th># on EPLU</th>
<th>Other Diagnosis</th>
<th>Right dose (Y/N)</th>
<th>Rx accord</th>
<th>NSTG</th>
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</tbody>
</table>
APPENDIX 5 NATIONAL STANDARD TREATMENT GUIDELINES FOR MALARIA

(Source: Uganda Essential Drugs Management Programme, National Standard Treatment Guidelines 1993)

First line drug:

Chloroquine (150mg base)

The total dose to be given (for both children and adults) is 25mg/kg; broken down as 10mg/kg on the first day then 10mg/kg on the second day and 5mg/kg on the third day.

Table showing the treatment regimen for Chloroquine tablet.

<table>
<thead>
<tr>
<th>Age in years</th>
<th>1st Day (stat dose) (10mg/kg/day)</th>
<th>2nd Day (10mg/kg/day)</th>
<th>3rd Day (5mg/kg/day)</th>
<th>Total dose (25mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>¼-⅓</td>
<td>⅓-⅔</td>
<td>⅔</td>
<td>¾-1⅓</td>
</tr>
<tr>
<td>1-2</td>
<td>⅔</td>
<td>⅔</td>
<td>⅔</td>
<td>3½</td>
</tr>
<tr>
<td>3-5</td>
<td>1</td>
<td>1</td>
<td>⅔</td>
<td>2½</td>
</tr>
<tr>
<td>6-9</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>10-15</td>
<td>3</td>
<td>3</td>
<td>1½</td>
<td>7½</td>
</tr>
<tr>
<td>&gt;15 (adults)</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

If there is an indication for injectable Chloroquine, give 3.5 mg base/kg 6 hourly subcutaneously and change to oral route as soon as possible to complete a total dose of 25 mg base/kg.

For severe and complicated malaria and in a hospital setting, intravenous Chloroquine can also be given by a slow controlled infusion of 10 mg base/kg, diluted in physiological saline. It is to be given over eight hours, followed immediately by 15 mg/kg and given over the next 24 hours.

Five consecutive infusions of 5 mg/kg, each one given over a 6 hour period can also be given and the total dose should be 25 mg/kg.
Second line drugs

(i) Pyrimethamine (25 mg)/Sulfadoxine (500 mg) given as a single dose as follows:

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Approximate weight in kg</th>
<th>Dose in Tablets</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>&lt;10</td>
<td>½</td>
</tr>
<tr>
<td>1-3</td>
<td>10-14.4</td>
<td>½</td>
</tr>
<tr>
<td>4-6</td>
<td>14.5-18.4</td>
<td>1</td>
</tr>
<tr>
<td>7-11</td>
<td>18.5-34.9</td>
<td>1½</td>
</tr>
<tr>
<td>12-15</td>
<td>35-60</td>
<td>2</td>
</tr>
<tr>
<td>&gt;16</td>
<td>&gt;60</td>
<td>3</td>
</tr>
</tbody>
</table>

(ii) Amodiaquine tablets (200 mg/base)

The treatment regime is 10 mg/kg stat (first day) then 10 mg/kg on the second day and then 5 mg/kg on the third day.

For example, an adult of 60 kg body weight should be given 600 mg (3 tablets) on the first day, 600 mg (3 tablets on the second day and 300 mg (1½ tablets) on the third day.

Third line drug

Quinine (300 mg/salt)

Infants (below 1 year of age) can be given one tenth (1/10 th) of an adult dose (the single adult dose is 600 mg), to be given 8 hourly for 7-10 days.

For the older children the dose is calculated from the following formula:

Approximate dose = (age in years/20) X adult dose (quinine salt), to be given 8 hourly for 7-10 days.

For adults the single adult dose 10 mg salt/kg (or 600 mg of salt) and is to be given 8 hourly for 7-10 days.

Quinine can also be given intravenously and the regimen is 20 mg salt (dihydrochloride) /kg, put in 5% dextrose by infusion in over 4 hours. Followed by 10 mg/kg for over 4 hours, and this is to be given 8 hourly until the patient can swallow and then change to oral quinine, to complete a seven days treatment course. This is the treatment of choice for cerebral malaria.
APPENDIX 6 MAP OF MUKONO DISTRICT SHOWING HEALTH UNITS