

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH POLICY, MANAGEMENT, AND ECONOMICS



**QUALITY CARE MANAGEMENT OF FEBRILE ILLNESSES AMONG CHILDREN
UNDER 5 YEARS IN ATWIMA KWANWOMA DISTRICT IN THE ASHANTI
REGION OF GHANA**

NOVEMBER, 2019

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**A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH POLICY,
MANAGEMENT, AND ECONOMICS,**

SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCES,

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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LIST OF ABBREVIATIONS

| | |
|---------------|---|
| CBSVs | Community-Based Surveillance Volunteers |
| CHAG | Christian health association of Ghana |
| CHPS | Community-based health Planning and service |
| IMCI | Integrated management of childhood illness |
| OPD | Out-patient department |
| OS | Operating system |
| RDT | Rapid diagnostic testing |
| SDA | Seventh-Day Adventist |
| UHC | Universal health coverage |
| UNICEF | United Nations international children's emergency funds |

WHO

World health organization

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ABSTRACT Introduction

Febrile illnesses in children and its management (especially infectious diseases) continue to result in an enormous increase in morbidity and mortality in developing countries causing a global public health concern. However, most low-middle-income countries have failed to institute systematic outcome assessment measures to ensure quality in the management of these conditions at one breadth. This study therefore aimed at assessing the quality care management of febrile illness in under five (5) in health facilities in the Atwima Kwanwoma district of Ashanti Region, Ghana.

Methods

The study was quantitative using a cross-sectional study design. Data were collected from 58 healthcare providers and 390 folders of children treated for febrile illnesses. Data were analyzed using STATA version 14. Univariate and multivariate analyses were performed to identify socio-demographic, patient and prescribers' factors influencing the management of febrile illness among children under 5 years. Statistical significance for all testing was set as 0.05.

Results

More than fifty percent (68.4%) of the overall management of the febrile illnesses were classified as appropriate in accordance with the WHO/UNICEF IMCI guidelines. Issues of Scarcity or shortage of qualified employees; leadership interference; dissatisfaction from health care professionals; location-based challenges, absence of WHO/UNICEF guidelines for fevers management, Artemether Lumefantrine Dosing wall chart, stockout of Artemether Lumefantrine and Amoxicillin in some facilities were identified as some of the challenges inhibiting quality care management. Prescribers' factors such as belief in superstition (pvalue=0.02) and patients' socio-demographic factors such as the age of child below 1 year (pvalue= 0.04) and gender (p-value=0.02) were established to influence quality care management of febrile illnesses.

Conclusion

The study concludes that the quality of management of febrile illnesses was not impressive and required urgent attention. Stakeholders within the healthcare industry should come together and introduce policies that focus on improving the diagnostic and treatment capacity of healthcare facilities.

CHAPTER ONE

INTRODUCTION 1.1

Background of the study

Even though the concept of quality care is generally difficult to define without a universal and single acceptable one, several attempts have been made to describe it by management experts. Quality according to Peters et al (1982) is 'excellence', Gilmore (1974) is 'conformance to specification', Crosby (1996) is 'conformance to requirement', Juran & Godfrey (1999) is 'fitness for use' and according to Parasuraman et al (1985) is meeting and or exceeding customers' expectation. However, the difficulty in defining quality in healthcare becomes intense due to the intangibility of the output. Healthcare services are produced and consumed simultaneously unlike manufactured products that can be stored and assessed later (Ladhari, 2009).

Nonetheless, Donabedian defines quality in healthcare as "the application of medical science and technology in a manner which maximizes its benefits to health delivery without correspondingly increasing risk (Donabedian, 1980). In his definition, much emphasis was placed on three key components namely: technical quality, interpersonal and resources or amenities. In another angle, quality was defined by Mosadeghraz (2013) as providing efficacious, effective and efficient healthcare services to delight patients in accordance with up to date clinical guidelines and standards which meet the provider's and patients' needs. Similarly, Lohr & Schroeder (2010) also defines it as "the degree to which health services provided to clients are inconsistent with the standard and current professional practices with the probability of achieving the expected health outcome.

Quality is a key factor for achieving success in most business organizations in every competitive environment (Albassam & Alshawu, 2009). The Customer's continued demand for good products and services has been on the increase in recent times, which motivates experts and managers to place much emphasis on quality as a strategy to stay in business

(Mosadeghrad, 2014b). These competitions span across all sectors including health. As a result, the healthcare industry throughout the world in recent times consider quality as a strategic tool for sustaining competitive advantage (Mosadeghrad, 2014a). A situation that has placed the quality of healthcare on the agenda of most health care systems globally. Also, it has led to the growing interest by managers of the health and welfare systems towards achieving a rapid transformation and improvement in healthcare (Mainz, 2003).

Quality improvement in structures and processes leads to an increase in efficiency, waste reduction, delay avoidance, shorten waiting times, cost reduction, increase market share and ultimately raising organizations' image which eventually will maximize profit (Lagrosen & Lagrosen, 2005; Rahman, 2001). The concept, therefore, can be seen as a cycle with various actors playing their respective roles to ensure that it is complete. In as much as the onus lies on managers to ensure efficiency and judicious use of the limited resource in the organization, other stakeholders such as employees and consumers also have a role to play. The employee is the next key stakeholders in the quality cycle who cannot be overlooked as efficiency and wasted in the system all revolve around them.

Febrile illnesses account for one of the causes of global infant morbidity (Hay, Heron, & Ness, 2005a). It is one of the most common and single reasons why children under five seek both emergency and primary care in facilities (Alpern et al., 2006a; Heffernan et al., 2004; Massin, Montesanti, Gérard, & Lepage, 2006a). On average a child experiences an episode of febrile illnesses every year (Hay et al., 2005a). Even though there are several diseases that make up febrile illnesses, however, malaria has always been traditionally regarded as the most common and important febrile illness in sub-saharan Africa (Greenwood, Bojang, & Whitty, 2005). Because of this reason most febrile illness that is presented to health facilities are usually treated as malaria without any prior clinical confirmatory test, a situation which prolongs the healing process and also impacts on health care delivery (Greenwood et al., 2005). In most

cases some conditions are treated syndromically without confirmatory test, however not all conditions can be appropriately managed that way as they may require rigorous test and diagnosis (Peeling & Mabey, 2010).

Until recently, the WHO guidelines for syndromic management of illness allowed practitioners to treat the condition using common causes of those syndromes (Dale, 2006). In as much as this management style yielded positive results in the recent past, the reduction in malaria prevalence causes prescribers to wrongly treat other febrile illness. Aside the wrong diagnosis, there is also the problem of overtreatment, waste of scarce medical resource and increase in antimicrobial resistance (Peeling & Mabey, 2010). In situation where illnesses failed to show physical clinical signs and medication is potentially toxic or difficult to administer, the management may require a clinical confirmatory test. As part of the efforts to limit this old approach to Ghana Health Service through the Ministry adopted integrated management of childhood illness (IMCI) approach in managing febrile illness, including malaria, viral and bacterial infections (MoHG, 2009). The principles of the IMCI guidelines have been incorporated into pre-service curricula and training programs with the expectation that it will be implemented in all districts. However, not all health workers follow these principles in their management of illnesses

Even though it is obvious that quality management of illness has a positive impact on the general population and reduces disease burden, most prescribers still rely on earlier WHO guidelines for syndromic management of illness. Prescribers continue to practice what they believe is the right and standard procedure to use in the management of their cases (Kwarteng et al., 2015). Their failure to adopt evidence-based practice may lead to several problems and challenges in the health system. The persistence of these challenges may have an impact on the patient's health and affect the general quality of care in the management of febrile illnesses. It is therefore important to initiate a study of this nature which aimed to evaluate the quality care

management of febrile illness in children under five (5) at the Foase sub-district in the Atwima Kwanwoma district.

1.2 Problem statement

Quality and excellence have taken the center stage of most healthcare delivery systems globally. As a result, the quest for providers and managers to catch up with this new phenomenon cannot be underestimated. Recently both managers, providers, and buyers of healthcare have developed an increased interest in evidence-based practices. While providers are much interested in evidence-based medicine, buyers, on the other hand, are also focused on cost-effectiveness of the treatment they receive from their providers as well as the outcomes (Mainz, 2003). This means that management of medical conditions is as important to the provider as it is to the patient. Evidence suggests that good management of a medical condition has a direct impact on the outcome of such condition and in effect influencing the patient's satisfaction with the service received (Donabedian, 1980).

However, due to the volatile nature of medical practices coupled with the rapidly growing knowledge and technology, clinicians are expected to be abreast with modern ways of managing certain illnesses. But in most cases, they are not aware of the existence of such change. Keeping up with these updates becomes more challenging as most healthcare systems are constrained financially to carry out researches and also to provide education on these new trends (Davey, 1999).

Prescribers continue to practice what they believe is the right and standard procedure to use in the management of their cases (Kwarteng et al., 2015). The management of febrile illness in Ghana, just like any other condition may not be an exception from the problem of misdiagnosis and wrong management.

The high prevalent nature of malaria in Ghana makes it common for most practitioners to presume malaria when a patient first presents with any type of febrile illness and may eventually start its management as malaria (D'Acremont et al., 2009). Besides these challenges, inadequate training and education for practitioners also cause them to stick to the old ways of doing things.

Baltzell et al (2013) reported that education, training, participation in researches are the major influences on practitioner ability to diagnose rightly and manage a febrile illness. The deviation from standard clinical methods in the management of these febrile illnesses may affect the treatment outcome and the associated consequences will obviously impact on the quality of care given in the facility.

As reported earlier, the lack of a monitoring system on the quality of treatment procedure administered to patients makes it difficult to conclude when treatment is complete. It has therefore made it necessary for a study of this nature to be initiated so that routine care of febrile illness can be measured against the recommended standards by the WHO/UNICEF IMCI guidelines. Assessment of this nature will bring to bear the true quality of treatment that is offered in facilities within the Atwima Kwanwoma district of the Ashanti region of Ghana.

1.3 Study significance

Quality in health care has been on the global center stage in this era of evidence-based practice as most health care managers' focus on achieving excellence since consumers of healthcare are gradually becoming aware of value for money in their course of seeking care. Management of disease has been noted to be one of the surest ways that impact on treatment outcome. Despite the effect of disease management on the outcome, studies have reported that clinicians manage medical conditions using their own discretion instead of following the laid down standard

recommended by the WHO/UNICEF. Patients are believed to have suffered misdiagnosis and its associated problems, a situation that compromises treatment quality. Even though such information has been reported elsewhere. It is unclear the nature of care that is offered to Patients who are diagnosed with febrile illness and how they conform to the global standards. Also, to our best knowledge, not much has been investigated on the quality of disease management of febrile illness in the Atwima Kwanwoma district. Therefore, it became necessary to assess the quality of care in the management of febrile illnesses in Atwima Kwanwoma district to ascertain whether services delivered to patients conform to the quality standards as recommended. Embarking on a study like this will inform stakeholder about the routine practices in the management of febrile illnesses in the district and also identify the challenges and factors affecting the quality of treatment offered to the patients

1.4 Conceptual framework

Fig. 1.1 shows determinants of quality care management of febrile illness children under 5years. It also shows the way children are managed compared to the WHO/UNICEF IMCI guidelines has a direct influence on quality care management of febrile illness. The variables influencing quality care management of febrile illnesses included patient factors such as superstition, gender, and age of child. Also, the challenges impeding quality care management included human resource challenges such as recruitment/selection, training, and development, performance review/appraisal, reward, and recognition; infrastructure and logistics challenges such as Availability of diagnostics, Availability of drugs.

1.4 Conceptual framework

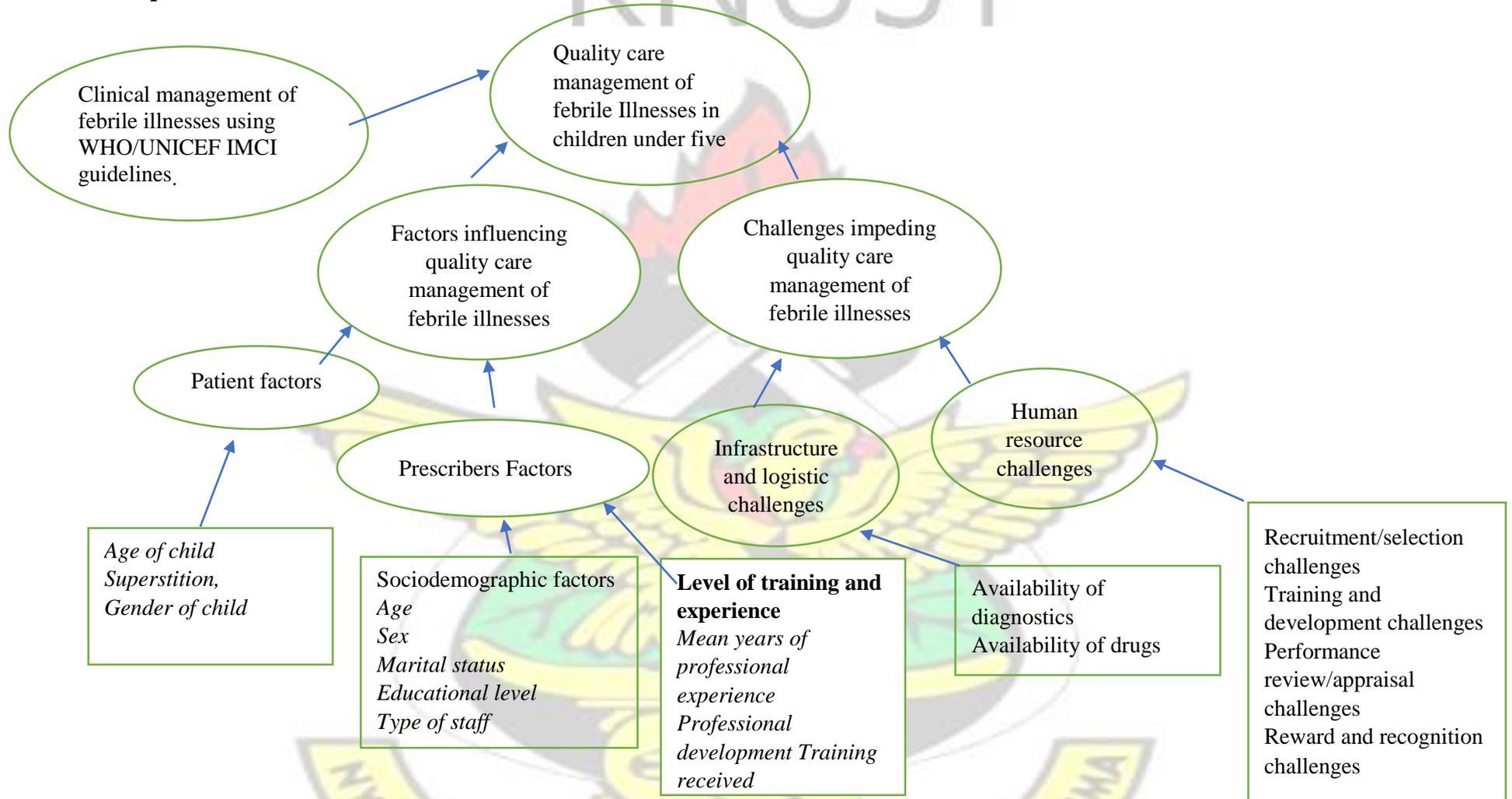


Figure 1.1 Determinants of quality care management of febrile illnesses in children under 5 years.

Source: Authors' Survey, 2019

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1.5 Research questions

1. Does clinical management of febrile illnesses in the Atwima Kwanwoma district conform to WHO/UNICEF IMCI guidelines?
2. What are the challenges impeding the quality care management of febrile illness in health facilities in the Atwima Kwanwoma district?
3. What are the prescribers' factors and patients' socio-demographic factors influencing the quality care management of febrile illness in health facilities in the Atwima Kwanwoma district?

1.6 Study objectives

1.6.1 Main objective

To assess quality care management of Febrile Illness among children under 5 years in the Atwima Kwanwoma District in Ashanti Region of Ghana

1.6.2 Specific objectives

1. To compare clinical management of febrile illnesses with WHO/UNICEF IMCI guidelines.
2. To identify challenges impeding quality care management of febrile illnesses.
3. To establish patients' socio-demographic factors and prescribers' factors influencing quality care management of febrile illnesses.

1.7 Profile of study area

Atwima-Kwanwoma is one of the thirty districts in the Ashanti Region of Ghana. The district was created in 2008 from the Bosomtwe-Atwima-Kwanwoma district. Foase, the district

capital is about 20 km from Kumasi the regional capital. The district shares common borders with Bosomtwe on the east, Atwima Nwabiagya on the west, Amansie West districts on the south and Kumasi Metropolis on the north. The district has been demarcated into 4 subdistricts and had 68 communities with a total projected population of 107,963. Predominantly, people living in the district are Asantes with few other tribes co-inhabiting with them.

1.7.1 Infrastructure

The road network from Kumasi, the regional capital, to Trede is a first-class road while Kumasi to Foase the district capital is a second-class road. Feeder roads linking other communities in the district are relatively motorable. However, the road network from Foase through Traboum to Nweneso is in a very deplorable state.

1.7.2 Health Service Delivery

Health care services are being delivered in 23 health institutions in the district with a total capacity of 290 health personnel. These institutions are six (6) governments, two (2) CHAG or Mission, eight (8) private facility and seven (7) CHPS compounds. The district has 72 outreach points where Reproductive and Child Health Services are rendered including health promotion. The district is further divided into five sub-districts namely, Foase, Trede, Ahenema Kokoben, and Traboum. Foase sub-district which we intend to carry our study at has five health facilities run under CHAG, Private hospitals, and a Ghana health service facility.

In addition to the sixty (60) functional and active Community Based Surveillance Volunteers (CBSVs), who have been trained to support community health activities, another category of health staff called community health workers have also been trained to conduct home visits and support the citizenry especially the vulnerable with preventive health needs including records and report on all health events in the communities including diseases, deliveries, deaths and

referrals for all health activities. Below is the tabular distribution of facilities in the district and sub-districts respectively (table 1).

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Table 1.1: Distribution of health facilities in Atwima Kwanwoma District

| FACILITY NAME | SUBDISTRICT | LOCATION |
|----------------------------------|------------------------|--------------------|
| Royal Lewuze Hospital | TREDE | Paa |
| Kwanwoma Health Center | | Kwanwoma |
| Trede Health Center | | Trede |
| Millennium Hospital | FOASE | |
| Trinity Hospital | | Boko |
| Aburaso Methodist Hospital | | Aburaso |
| Foase Health Center | | Foase |
| Dufie Memorial Clinic | | AkyeremadeKwanwoma |
| Asafo Boakye Specialist Hospital | AHENEMA KOKOBEN | Ahenema Kokoben |
| Garry Marvin Memorial Hospital | | Kotwi |
| Eye Adom Clinic | | Brofoyeddu |
| MABA Clinic | | Ampatia |
| Emmanuel Methodist Clinic (Bebu) | | Bebu Ahyiyem |
| Ahenema Kokoben Health Center | | Ahenema Kokoben |
| Krofofrom Health Center | | Krofofrom |
| Trabuom Health Center | TRABUOM | Trabuom |
| Nweneso No. 2 Health Center | | Nweneso No. 2 |

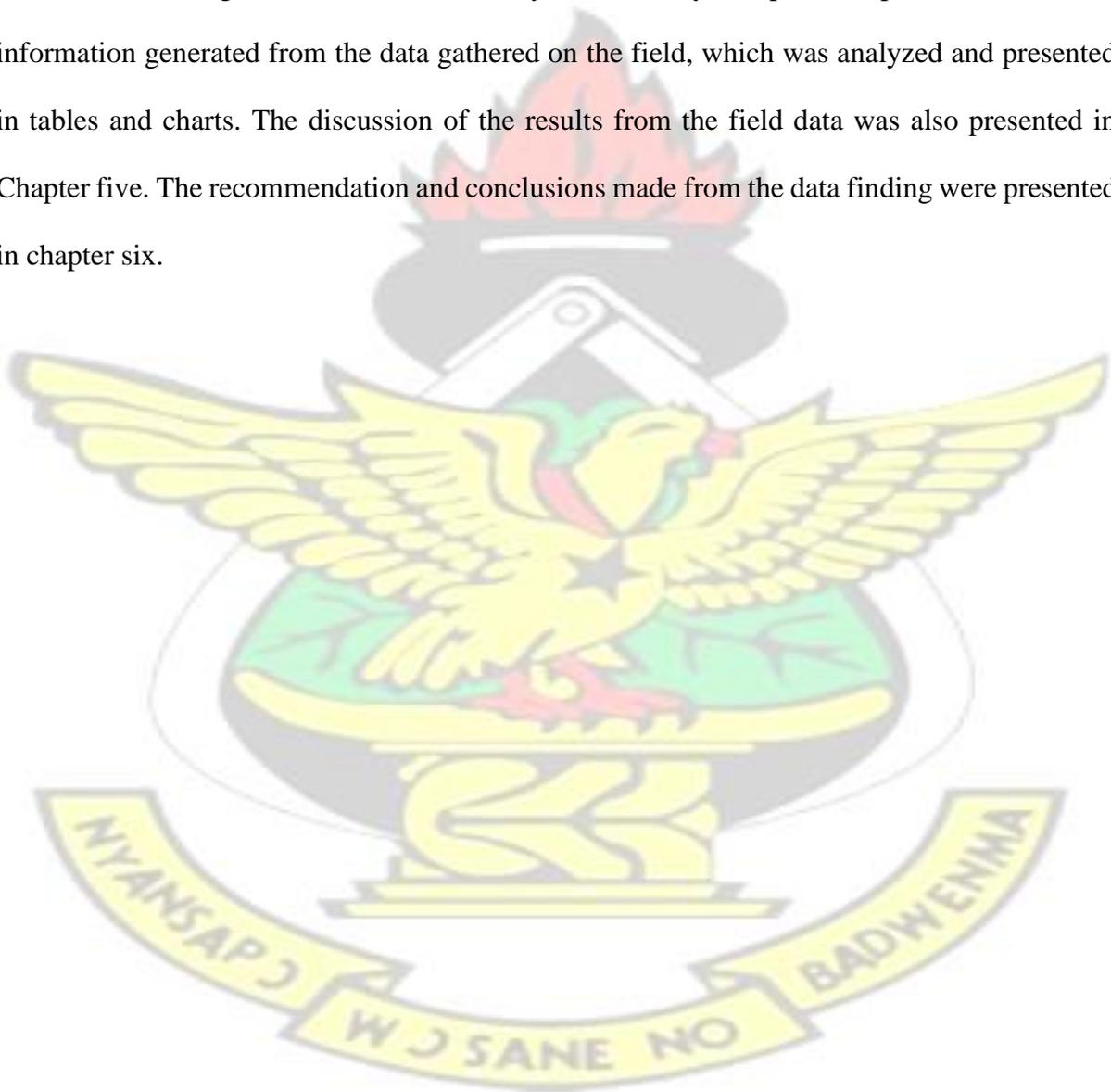
District health report, 2018

1.8 Scope of the study

The study sought to assess the quality of management of febrile illnesses among facilities in the Atwima Kwanwoma district by comparing the existing treatment by prescribers to the standard treatment guideline recommended by the WHO/UNICEF IMCI guidelines. The study targeted children under the ages of five who had been treated for febrile illness. The study was limited to prescribers who work in the Foase sub-district and data was collected from the five facilities in the sub-district. Factors and challenges that affect the quality of care were established for policy decisions.

1.9 Organization of the report

This study was sectioned into six chapters. Chapter one introduced the entire subject area, problem investigated, and rationale of the study and the objectives of the study. Chapter two reviewed the relevant documents that have been written on the quality of health care management of febrile illnesses, challenges facility face in the delivery of quality care and patient factors that affected quality care management. Chapter three reported on the various methods and strategies that were used to carry out the study. Chapter four presented results on information generated from the data gathered on the field, which was analyzed and presented in tables and charts. The discussion of the results from the field data was also presented in Chapter five. The recommendation and conclusions made from the data finding were presented in chapter six.



CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Quality

The concept of quality has been viewed from different dimensions by several scholars across different disciplines. This has made it practically impossible to give it a single universal definition, however management experts have made efforts to define it according to how they perceive it. According to Peters et al (1982) quality is ‘excellence’, to Gilmore (1974) is ‘conformance to specification’, Crosby (1996) is ‘conformance to requirement’, Juran & Godfrey (1999) is ‘fitness for use’ and Parasuraman et al (1985) also view it as “meeting and or exceeding customers expectation”. The difficulty in definition becomes more intense when we talk of the health care industry, due to the intangibility and subjectivity of outcomes from that sector. Unlike other manufacturing industries when items are produced and kept for later consumption, the healthcare services are produced and consumed simultaneously, making it difficult for the outcome to be accessed.

Despite the challenge in coming up with a definition in the healthcare industry, Donabedian defines came up with one as “the application of medical science and technology in a manner which maximizes its benefits to health delivery without correspondingly increasing risk (Donabedian, 1980). In his definition, much emphasis was placed on three key components namely: technical quality, interpersonal and resources or amenities. Kelley & Hurst, (2006) also defines it differently as the degree to which services provided to consumers and populations increase the likelihood of desired outcomes and whether they conform to current evidence-based practice and professional knowledge. According to Mosadeghraz (2013), it also means providing efficacious, effective and efficient healthcare services to delight patients in accordance with up to date clinical guidelines and standards which meet the providers' and patients' needs. Similarly, Lohr & Schroeder (2010) also defines it as “the degree to which health services provided to clients are inconsistent with the standard and current profession

practices with the probability of achieving the expected health outcome. The concepts that run through all these definitions are all directed at relying on evidence-based practices to provide services that are customer-centered at an acceptable expenditure (Donabedian, 1980; Kelley & Hurst, 2006; Lohr & Schroeder, 2010; Mosadeghrad, 2013, 2014a).

Defining, measuring and improving quality in healthcare is an essential task that cannot be overlooked. However, this concept in healthcare just like in most other sectors is difficult to define, measure and describe due to its intangibility, inseparability and heterogeneity feature (Conway & Willcocks, 1997; Campos et al., 2017). It is a complex, subjective and multidimensional concept that is viewed with different spectacles by different populations (WHO,

2015). What may constitute quality may be dependent on the context within which it is taken. From a facility manager's perspective, it may be viewed from the system-process-input dimension (Bitton et al., 2017). The patient may also analyze it from their satisfaction level and the provider or clinician will also see it from the output dimension with each of these actors placing much attention on a particular indicator (Peprah & Atarah, 2014)

Consumers' continuous demand for better products and services coupled with intense competition in the market in recent times has pushed healthcare managers in becoming more quality-oriented. These competitions have compelled actors to adopt innovative strategies to improve them (Mainz, 2003).

2.2 Quality in the clinical management of illness using standard routine clinical care

Achieving service quality in every industry revolves around a chain of events and activities, with a cycle that begins with management support, employee involvement coupled with teamwork and clients' feedback (Mohammad Mosadeghrad, 2013). Therefore, effective management of process and procedure in every sector becomes a vital determinant of the

successes and failures of such sectors. This explains why much energy is usually channeled into the designing of plans to streamline and guide organization processes and procedures. Due to the fallible nature of human beings, these guidelines are usually put in place to direct actors to follow a constant and similar path in order to achieve uniformity and excellence. Therefore, a deviation from such a normal and standard procedure equates to possible failure.

The health sector, just like others is an industry that observes strict procedures and standards. In the core clinical practices, virtually every procedure and process of operation has been laid down in blueprint with the expectation that clinicians will follow them. However, the volatile nature in the field of health coupled with the rapidly growing knowledge and technology every day, causes new trends to emerge which clinicians and managers are expected to be abreast with. However, keeping up with these updates becomes more challenging as most healthcare providers and regulators fail to research on these new trends (Mainz, 2003).

Even though in general clinical practices, managing a medical condition or ailment can be done in various ways that are acceptable, however, the question remains whether such a procedure or method chosen by the clinician is effective, efficient and meets the patient's needs and satisfaction. Until recently evidence gathering on quality of care in clinical processes was nonexistent and the few that existed were from the developed world (Mainz, 2003).

Failure by many countries especially from lower-middle-income (LMICs) to institute a systematic outcome assessment measures for assessing quality in relation to a particular disease and the medical condition has contributed to indefinite means to access our health system's performance as far as quality is concerned (SCHUSTER et al., 2005). Lack of documentation on the management of major health conditions in most health care settings and the continued variation in the provision of care to similar patients with same condition by providers creates a difficult environment for quality of care to be realized (Chassin, 2003).

Literature has reported it widely that despite the global quest to achieve excellence in healthcare most countries lack a mandatory national system that tracks and monitors the quality of care delivered to the citizenry and Ghana is not an exception to this (Mainz, 2003). Nonetheless, some efforts have been made to streamline the quality of care internally by Ghana health services and facilities themselves (Ayimbillah Atinga, Abekah . Nkrumah, & Ameyaw Domfeh, 2011; Lavy, Strauss, Thomas, & de Vreyer, 1996). However, these quality control measures are usually general and do not focus on one aspect of a medical condition. In extreme cases, these quality management guidelines are cantered on the treatment procedure alone forgetting about other aspects like interpersonal relations, cost-cutting, and customer satisfaction.

2.3 Comparing clinical management of febrile illness among children under 5 years with standard routine clinical care

Febrile illnesses are common in children, especially in children under 5 years of age. On average, young children experience three to six febrile illnesses per year (Hay, Heron, & Ness, 2005b). The parent is usually anxious over febrile conditions: 20-40% of parents, therefore, seek a medical assessment when their child develops a fever (Hay et al., 2005b). Febrile illness is the single most common reason for young children to be seen by prescribers at the outpatient department or present to emergency departments for acute care (Alpern et al., 2006; Massin et al., 2006; Schmitt, 1980).

In most cases, the cause of a febrile illness is a self-limiting (presumed viral infection), but 510% of children with fever have serious bacterial infections such as pneumonia, urinary tract infection, meningitis, sepsis, or bone or joint infection (Hsiao et al., 2006; MCGowan, Bratton, Klein, & Finland, 1973; Trainor, Hampers, Krug, & Listernick, 2001). These conditions can be difficult to distinguish from viral infections and when identified benefit from early antibiotic

therapy. The consequences of a delayed or missed diagnosis can be serious and, sometimes, fatal (Simpkins et al., 2009).

When a child presents with fever, the decision to commence antibiotics is based on a thorough clinical evaluation by the treating prescriber, supplemented by rapid tests such as a urine dipstick, RDT for malaria (Craig et al., 2010). Clinical assessment, including history taking for symptoms and physical examination for signs, is regarded as the cornerstone of clinical practice but has rarely been evaluated. The few evaluations that have been conducted are usually limited to individual items for a specific condition and rarely cover a combined set of symptoms and signs, as used in clinical practice (Sackett & Rennie, 1992). Recently, the problems of missed or delayed diagnosis have been emphasized, but no clear solutions provided (Newman-Toker & Pronovost, 2009).

Health-care services in Ghana are delivered through a three-level hospital system, which includes 6 tertiary hospitals, 9 regional hospitals, and 364 district hospitals, employing specialist staff. These hospitals receive referrals from urban and rural health centers and community-based health posts at the lowest levels of the health-care system throughout the country. As elaborated earlier, Health care in Ghana faces chronic challenges with human resources and infrastructure/logistics (inadequate supplies of drugs, equipment, and medical supplies) (Boadu et al., 2016; Ganle et al., 2016). The Ministry of Health adopted integrated management of childhood illness (IMCI) approach to managing the causes of childhood febrile illness, including malaria, viral or bacterial infections. The health ministry has made several adaptations to the generic IMCI guidelines issued by WHO and the United Nations Children's Fund (UNICEF). Therefore, in comparing clinical management of febrile illness among children under 5 years with standard routine clinical care, it would be appropriate to use the IMCI guidelines as the standard to compare with. Health workers assessment after interactions with febrile children under five(5) and their caregivers to assess history taking and examination, investigations performed or ordered to aid diagnosis and actions taken, including treatments

and counselling compared to IMCI guidelines using a structured data collection tool that was designed to assess all relevant steps in taking a history and examining a child, as described in the national IMCI guidelines will help compare the identified management with the standard management (Lunze et al., 2017).

2.4 Factors influencing quality care management of febrile illnesses

Febrile illness remains one of the most common medical condition that is presented to hospitals for treatment every day. Such diseases include malaria, measles, pneumonia, diarrhea and tuberculosis and its prevalence among children especially those under five cannot be overlooked (Nnedu et al., 2010). Being regarded as the main contributor to infant deaths in sub-Saharan Africa, febrile illnesses remain a major public health concern. (Black et al., 2003; Nnedu et al., 2010; World Health Organisation, 2004). Most disease burden in children under five is mentioned with fever being the main symptom reported in health facilities. Black et al. (2003), estimated that this ailment causes about 68% of all infant deaths in Africa with malaria being the leading cause of death in children under five. Due to the alarming nature of these diseases, effective medicines and control strategies to reduce its prevalence have been initiated in Africa. The WHO together with other stakeholder have made efforts for the effective management of this fever-related condition (WHO, 2005; WHO, 1999). However, not much has been achieved, as the impact of these interventions in the sub-Sahara is typically low. The failure of attempts to eliminate these diseases has been attributed to factors external to the prescriber's skills and efforts. Lack of funding to carrying on with continuous implementation of these interventions, lack of commitments from governments and poor health service systems devoid of enabling environment for innovation and improvement affect standards that keep changing in the health sector (Davey, 1999).

The quality care management of children under 5 with febrile illness at lower levels of the health system (health centers and second-level hospitals), which typically manage the majority of childhood febrile disease burden is mostly dependent on prescribers' factors and patient factors.

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2.4.1 Prescribers' factors

(Lunze et al., 2017) observed prescribers' deviations from practice as recommended by national IMCI guidelines for the management of childhood febrile illness. These included inadequate assessment for danger signs, such as limited evaluations to determine fever etiology, over- and under-diagnosis of malaria and inadequate pneumonia management, overtreatment with antibiotics which indicated a need to improve diagnostic capacity for nonmalaria causes of febrile illness and limit antibiotic use to patients with indefinite bacterial infections (Lunze et al., 2017).

As malaria prevalence declines, high-quality care for febrile children requires consistent use of malaria diagnostic tests and formulation of differential diagnosis based on symptoms and physical signs.

Despite the increasing availability of malaria rapid diagnostic tests in Ghana and health-care worker training in their use, little over half of febrile children are tested for malaria with either rapid diagnostic tests or microscopy. Of those tested, 13% of children with a negative test result are still classified as having malaria. Adherence to rapid diagnostic test results has varied widely in studies conducted in Africa (Kwarteng et al., 2015). While adherence to positive results tends to be appropriate, compliance with negative results still needs to improve (Kabaghe et al., 2016)

Withholding antimalarial drugs from patients with a negative rapid diagnostic test result seems a safe approach, even for children living in areas highly endemic for malaria. While the use of malaria rapid diagnostic testing has reduced the consumption of antimalarial drugs, in some settings, it has increased the use of antibiotics, replacing the problem of misuse of antimalarial drugs with antibiotic overtreatment. (Webster et al., 2014).

Few prescribers have the knowledge and skills to identify danger signs; make the right diagnosis, and initiate appropriate treatment following national guidelines (Lunze et al., 2017).

2.4.2 Patient factors

WHO (2012) estimated that 6.6 million children under the age of five died worldwide, eightytwo percent of which in Sub-Saharan Africa and Southern Asia. Thirty-three percent of these deaths were due to pneumonia (17%), diarrhea (9%) and malaria (7%).

Many variables such as patients' socio-demographic factors, severity of illness, socioeconomic status and cost of health care, gender, superstition, fear of lack of Confidentiality of patients' records, low participation in health insurance, geography (Proximity to the hospital) affect the outcomes of quality care management (Mohammad Mosadeghrad, 2014)

2.5 Challenges impeding quality care management of febrile illnesses

A challenge faced in the management of febrile illness is the fact that malaria which happens to be one of the groups of the disease has been regarded as the most common and most important febrile illness in Ghana and Africa at large (Greenwood et al., 2005). It has been reported that with lack of standard practices in most primary health facilities, limited diagnostic capabilities guided by international processes, has contributed to a situation where all febrile illness is presumed to be malaria and managed as such without any proper confirmatory test as

against the WHO recommendation (WHO, 2015). The WHO recommends that before antimalaria treatment is given to a patient, one must have a parasitological confirmation done on the patient (WHO, 2011).

Despite these recommendations, the opposite is realized in the management of febrile illness in Ghana due to the assumption that the prevalence of malaria in our communities is still high. Greenwood et al (2010) reported that malaria prevalence is gradually shrinking in the sub-Saharan and as a result most patients seen in health facilities for febrile illness test negative for malaria. A situation that is likely to increase the possibility of misdiagnosis of fevers. Diagnosing patient wrongly have inexhaustive consequences to an individual, the practitioner and the facility as a whole (Adams et al., 2007). For instance, the treatment of such patients may be prolonged, the possible development of antibiotic resistance resulting from overuse of some selected medicines are among the few consequences to be experienced (Reyburn et al., 2004; Franco et al., 2009). These problems coupled with others may compromise the quality of treatment offered to the patients.

Aside from that precious time, resources and the goodwill of the facility are compromised in the clients' view of rating of satisfaction with service offered (Anna et al., 2014). Mainz (2003) recounted that lack of resource evaluation in relation to the quality of a particular medical condition affects treatment outcomes and the entire standing of a facility.

From all indication, it means that for quality of care to be achieved in the treatment of febrile illness, all indicators concerning management, practitioner and the patient needs to be examined to achieve excellence. Therefore, the need to examine the clinical management of febrile illness by comparing it with standard routine care cannot be overlooked when the discussion on quality of care is on the table. Similarly, the need to identify challenges that impedes quality care is also worth examining as it will pave way for measures to be instituted against any challenge. Finally, the challenges to quality care management cannot be identified

without mentioning the various factors that influence the management of this illness. Answers to these statements could play an important role in improving the quality circle in the management of febrile illness, hence the need for a study of this nature to be carried out.

2.5.1 Human resource challenges

Health systems are increasingly complex; encompassing the provision of public and private health services, primary healthcare, and acute, chronic and aged care, in a variety of contexts. Health systems are continually evolving to adapt to epidemiological, demographic and societal shifts. Emerging technologies and political, economic, social, and environmental realities create a complex agenda for global health (Senkubuge et al., 2014)

In response, there has been increased recognition of the role of non-state actors to manage population needs and drive innovation. The concept of ‘collaborative governance,’ in which non-health actors and health actors work together, has come to underpin health systems and service delivery internationally (Senkubuge et al., 2014) in order to meet changing expectations and new priorities. Seeking the achievement of universal health coverage (UHC) and the Sustainable Development Goals (SDGs), particularly in low- and middle-income countries, have been pivotal driving forces (WHO, 2010) Agendas for change have been encapsulated in reforms intended to improve the efficiency, equity of access, and the quality of public services more broadly (Senkubuge et al., 2014; WHO, 2010)

The profound shortage of human resources for health to address current and emerging population health needs across the globe was identified in the World Health Organization (WHO) landmark publication ‘Working together for health’ and continues to impede progress towards the SDGs (WHO, 2010). Despite some improvements overall in health workforce aggregates globally, the human resources for health challenges confronting health systems are highly complex and varied. These include not only numerical workforce shortages but imbalances in skill mix, geographical maldistribution, difficulty in inter-professional

collaboration, inefficient use of resources, and burnout (WHO, 2010). Effective health leadership and workforce management are therefore critical to addressing the needs of human resources within health systems and strengthening capacities at regional and global levels (Lunze et al. 2017; WHO, 2010).

While there is no standard definition, health leadership is centered on the ability to identify priorities, provide strategic direction to multiple actors within the health system, and create commitment across the health sector to address those priorities for improved health services (Reich, Javadi, & Ghaffar, 2016). Effective management is required to facilitate change and achieve results through ensuring the efficient mobilization and utilization of the health workforce and other resources. As contemporary health systems operate through networks within which are ranging levels of responsibilities, they require cooperation and coordination through effective health leadership and workforce management to provide high-quality care that is effective, efficient, accessible, patient-centered, equitable, and safe (WHO). In this regard, health leadership and workforce management are interlinked and play critical roles in health services management (Reich et al., 2016).

Along with health systems, the role of leaders and managers in health is evolving. Strategic management that is responsive to political, technological, societal and economic change is essential for health system strengthening (Ginter et al., 1992). Despite the pivotal role of health service management in the health sector, the priorities for health service management in the global health context are not well understood. This rapid review was conducted to identify the current challenges and priorities for health leadership and workforce management globally.

2.5.2 Infrastructure and logistics challenges

In the study conducted by Lunze et al (2017) it was realized that most facilities lacked the needed infrastructure and logistics to diagnose and manage patients especially children under 5years.

In the Lunze et al (2017) study, it was observed that there were some deviations from practice as recommended by national IMCI guidelines for the management of childhood febrile illness. In the IMCI guidelines, children must be assessed for fever etiology and danger signs. Most clinicians who have not had IMCI training are not able to adequately assess patients with fever. These limited assessments to determine the cause of fever leads to over and under-diagnosis of malaria and inadequate pneumonia management.

Despite the increasing availability of malaria rapid diagnostic tests in Kenya for example and health-care worker training in their use, little over half of febrile children in this study were tested for malaria with either rapid diagnostic tests or microscopy (Boyce et al., 2017). Of those tested, 13% of children with a negative test result were still classified as having malaria (Lunze et al., 2017). Managing non-malaria fever continues to pose a challenge globally (Dhiman, 2019). WHO estimates that in the WHO African Region, over 60% of children with fever receive a blood test (rapid diagnostic test or microscopy) at public facilities. These were due to infrastructural/logistics challenges.

CHAPTER THREE

METHODOLOGY

3.1 Study type and design

A cross-sectional study design was used with the aim of examining the quality care management of febrile illness in the Atwima Kwanwoma district using a quantitative approach.

The cross-sectional study design is a type of observational study design in which the investigator measures the outcome and the exposures in the study participants at the same time (Olsen et al., 2004). This design was employed because it helps to reduce costs and time for the study since they are both limited. This study was completed in 3 months starting from July 2019 to September 2019.

3.2 Study population

The study population involved all prescribers in the Foase sub-district and also children under five (5) years with febrile illnesses who were seen in the health facilities in the Foase subdistrict between 1st January 2019 and 30th June 2019. The facilities included were; Millennium Hospital, Trinity Hospital, Aburaso Methodist Hospital, Foase Health Center, and Dufie Memorial Clinic.

Inclusion criteria

1. All prescribers (doctors, physician assistants, and nurse prescribers) in Foase Subdistrict of Atwima Kwanwoma district who have served in the district for at least three (3) months.
2. Medical records/folders of children under five (5) years diagnosed with and treated for febrile illness.
3. Children who presented to facilities with temperature ≥ 38.0 °C.

Exclusion criteria

1. Medical records/folders of children above 5 years.
2. Children who presented with a temperature < 38.0 °C.
3. Children who were diagnosed and treated with febrile illness in the health facilities outside the stipulated duration (1st January to 30th June 2019).

4. Prescribers who have served in the district less than 3 months and those who work outside the Foase sub-district.

3.3 Sample size and sampling method

3.3.1 Sample size

The sample size for the children was calculated using prevalence of febrile illnesses (the majority being malaria) in children under five (5) years in Ghana (64%) (Owusu-Agyei et al., 2009)

With this prevalence, the sample size will be calculated using the Cochran sample size formula. Where n = the desired sample size $p = 0.64$ proportion of children with febrile illness.

$d = 0.05$ desired precision

An initial sample size of 354 was estimated and an assumed non-response rate of 10% was factored in arriving at a final sample size of 389.4.

Also, a total of 58 prescribers (representing all prescribers) within the Foase sub-district were interviewed. These included; 2 medical officers, 13 physician assistants, and 43 nurse prescribers (18 midwives and 25 nurses).

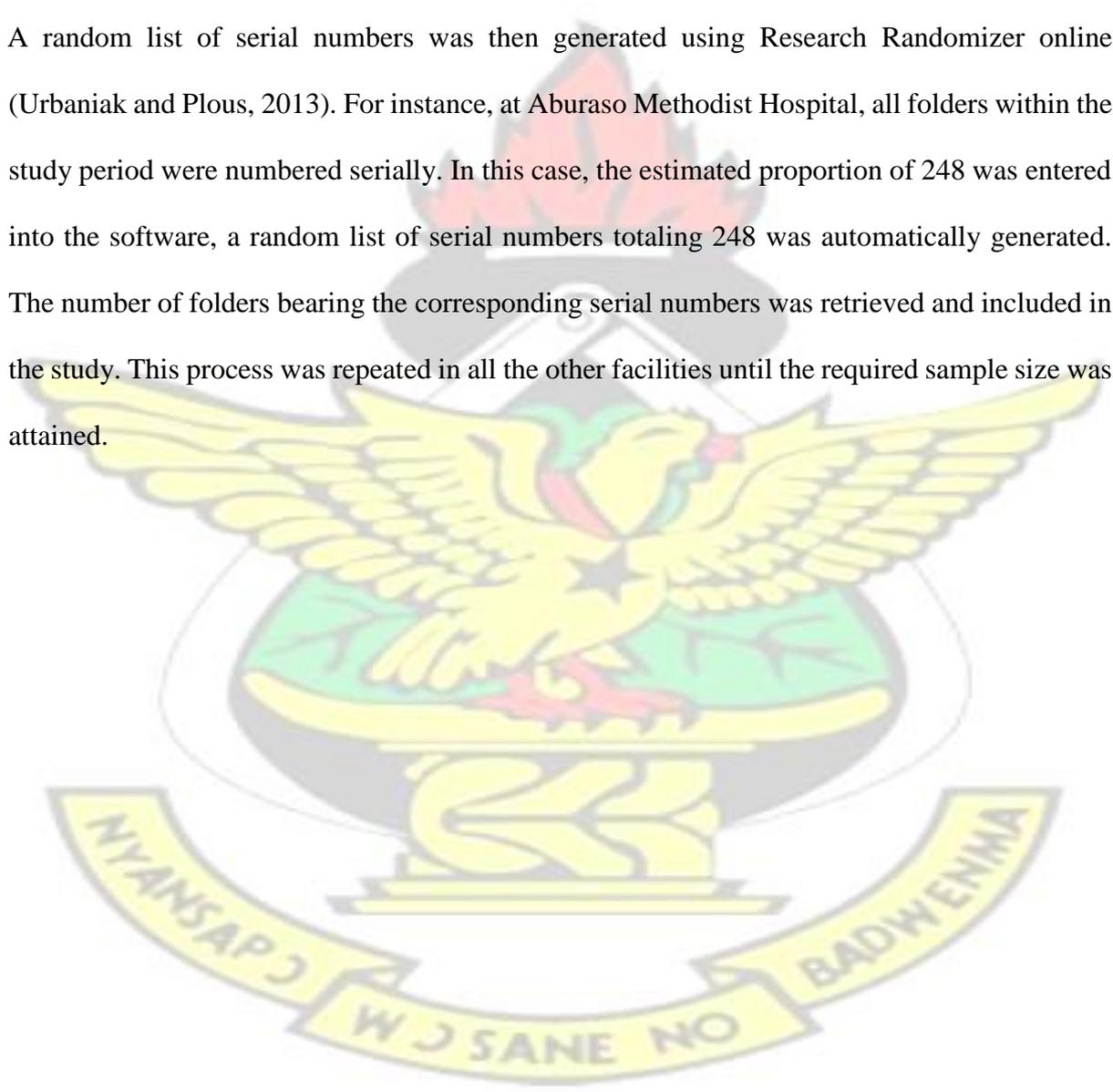
3.3.2 Sampling method

A simple random sampling method was used to select the sample of medical records of the children who visited the five health facilities. A population proportion to the size of the children under five within the sub-district was used to estimate the number of folders to be selected from each facility. This was done by obtaining records of the hospital attendance of children under five between 1st January 2019 and 30th June 2019 in each facility. The proportion of folders to be selected from each facility was calculated using the number of folders seen during the study

period in facility divided by the total number of folders seen in all the facilities and further multiply by the calculated sample size. The total number of folders selected from Aburaso Methodist Hospital, Trinity Hospital, Millennium Hospital, Foase Health Center and Dufie Memorial Clinic were 248, 22, 16, 21, 6 respectively.

A simple random sampling method was used to select the folders based on our inclusion criteria once the sample for each facility was determined.

A random list of serial numbers was then generated using Research Randomizer online (Urbaniak and Plous, 2013). For instance, at Aburaso Methodist Hospital, all folders within the study period were numbered serially. In this case, the estimated proportion of 248 was entered into the software, a random list of serial numbers totaling 248 was automatically generated. The number of folders bearing the corresponding serial numbers was retrieved and included in the study. This process was repeated in all the other facilities until the required sample size was attained.



3.4 Study variables

Table 3.1 Study variables

| Objective | Dependent Variable | Independent Variable | Scale of Measurement | Indicators | Data collection Method | Type of statistical analysis |
|---|--|--|-----------------------------|----------------------------------|-------------------------------|-------------------------------------|
| Clinical management of febrile illness given in | analytical health facility | compared with Standard routine clinical practices | Nominal | | Flow chart | Descriptive and |
| To establish factors influencing quality care management of febrile illnesses | Factors influencing quality care management of febrile illnesses | Patient factors | Nominal | Frequency and proportions | Questionnaire | Analytical |
| To identify challenges impeding quality care management of febrile illnesses | challenges impeding quality care management of febrile illnesses | Human resource challenges Infrastructure and Logistics challenges | Nominal | Frequency and proportions | Questionnaire | Analytical |



3.5 Data collection Technique and tools

Two types of data were collected; primary and secondary data. The primary data were collected using a structured questionnaire programmed and loaded onto a smartphone. The smartphone was running with Open Data Kit (ODK software designed for Android OS with software installed on it. The questionnaire was administered by trained research assistants and collected data uploaded to a cloud-based server for safekeeping and aggregation.

The questionnaire was grouped into sections. Data collected included socio-demographic characteristics of the respondents, prescribers' factors believed to influencing quality care management. Data on human resource challenges and infrastructural/logistics challenges impeding quality care management of febrile illness were also collected.

The questionnaires were drafted and administered in English by the researcher and research assistants. The questionnaire was pre-tested at Kwadaso SDA hospital due to the similar characteristics it shared with the study site. The researcher made the necessary adjustment to the weakness that was identified in the questionnaire. The secondary data was extracted from patient records at each of the sampled facilities in the study area. This data enabled the researchers to compare the management of febrile illness using the WHO/UNICEF Integrated management of childhood illness (IMCI) guidelines. All management of febrile illnesses were compared to the flow chart and grouped the procedures into appropriate and inappropriate management. Flow chart helped assess interventions for children under five (5) years in terms of history taking and examination, investigations performed or ordered to aid diagnosis and actions taken including treatments, counseling and follow up (scheduled review).

3.6 Data analysis

The data was entered and analyzed using Stata Version 14. The descriptive data were presented using frequencies, percentages, tables, and charts where necessary. Univariate and multivariate analyses were performed to identify patients' socio-demographic factors and prescribers'

factors influencing management of febrile illness among children under 5 years. Statistical significance for all testing was set as 0.05.

3.7 Ethical Consideration

All the study protocols were submitted to Committee on Human Research Publication and Ethics of the School of Medical Sciences, Kwame Nkrumah University of Science & Technology, Kumasi for review and clearance. Permission for the collection of the data was sought from the office of the District Health Directorate of Atwima Kwanwoma district, the medical superintendent and the head of the Outpatient Department (OPD). The purpose of the research was explained to prescribers and officers' in-charge of medical records at the various facilities in order to have access to the data. The privacy of respondents was strictly observed as much as possible. All the ethical principles were maintained to the latter during the conduct of this study.

3.8 Limitations

The time for the collection of data was too short and hence the whole district was not covered. Therefore, the findings of this study cannot be generalized as a true reflection beyond the Atwima Kwanwoma district. The use of secondary data made it difficult to get the views of patients on what they perceived as quality care and whether or not what they received from the facilities represented quality care.

CHAPTER FOUR

RESULTS

4.0 Introduction

The results were presented in this chapter in accordance with the study objectives; comparing clinical management of febrile illnesses with WHO/UNICEF IMCI guidelines, identifying challenges impeding quality care management of febrile illnesses and establishing prescribers and patient factors influencing quality care management of febrile illnesses.

4.1 Sociodemographic characteristics

4.1.1 Sociodemographic characteristics of Prescribers

The detailed results of the background characteristics of prescribers included in this study are presented in table 4.1.1 below. The mean age and standard deviation of the prescribers were 30.2 ± 3.4 . The majority of the prescribers (65.5%) were aged between 23-30years and the rest (34.5%) between 31-37years. About 67.3% were females and the rest (32.7%) were males, more than half of the prescribers (70.7%) were married and the rest (29.3%) were single. The majority of the prescribers (62.1%) had a diploma as the highest educational qualification while the rest (37.9%) had first degree. Most of the professionals (43.1%) were Nurse Prescribers followed by midwives (31.0%), Medical/Physician Assistants (22.4%) and medical officers (3.5%).

According to the ranks of the prescribers, most of them (43.1%) were nurse prescribers and the least number of prescribers were junior medical officers (1.7%) and senior medical officers (1.7%). The prescribers had been in their various professions for an average of 4 ± 2.8 years. The majority of prescribers (62.1%) had been working in their profession between 1-5years, 12.1% had been working between 1-11 months, and 28.6% had been working for more than 6 years. Prescribers' length of service was also grouped as follows; 62.5% had worked in their facility between 1-5years, 28.6% for more than 6 years and 8.9% had also worked between 111months. On average the prescribers had 4 ± 3.1 years as practice years of experience. More

than half (53.5%) of the prescribers work five days a week, while a few also work throughout the week (1.7%). On average, 3.8 ± 2.2 cases of febrile illnesses are seen every day, however majority (87.9%) of the prescribers stated that they see between 1-5 cases every day.

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Table 4.1.1 Demographic characteristics of prescribers

| Characteristics | <i>n=56</i> | % |
|---|-------------|-------|
| Age group | | |
| 23-30years | 38 | 65.5 |
| 31-37 years | 20 | 34.5 |
| Mean (SD) | 30.2 (3.4) | |
| Sex | | |
| Male | 19 | 32.7 |
| Female | 39 | 67.3 |
| Marital status | | |
| Single | 17 | 29.3 |
| Married | 41 | 70.7 |
| Educational level | | |
| Diploma | 36 | 62.1 |
| First degree** | 22 | 37.9 |
| Principal profession | | |
| Medical Officer | 2 | 3.5 |
| Medical/Physician Assistant | 13 | 22.4 |
| Midwife | 18 | 31.0 |
| Nurse prescriber | 25 | 43.1 |
| Rank at Facility | | |
| Senior Medical Officer | 1 | 1.7 |
| Junior medical officer | 1 | 1.7 |
| Senior Medical/Physician Assistant | 2 | 3.5 |
| Medical/Physician Assistant | 12 | 20.7 |
| Midwife | 10 | 17.2 |
| Nurse prescriber | 25 | 43.1 |
| Senior midwife | 7 | 12.1 |
| Working experience at Profession (Years) | | |
| 1-11months | 7 | 12.1 |
| 1-5 years | 36 | 62.1 |
| 6 years and above | 15 | 25.8 |
| Mean SD | 4.04 (2.8) | |
| Working experience at Facility (Years) | | |
| 1-11months | 5 | 8.9 |
| 1-5years | 35 | 62.5 |
| 6 years above | 16 | 28.6 |
| Mean SD | 4.3 (3.1) | |
| Weekly working days | | |
| 4 | 8 | 13.8 |
| 5 | 31 | 53.5 |
| 6 | 17 | 31.03 |
| 7 | 1 | 1.72 |
| Mean SD | 5.3(0.8) | |
| Number of febrile illness seen daily | | |
| 1-5 cases | 51 | 87.9 |
| 6-10 cases | 7 | 12.1 |

Source: authors survey, 2019

4.1.2 Demographic characteristics of Patients

The table 4.1.2 also reports on the demographic characteristics of patients who were presented with febrile illnesses from 1st January 2019 to 30th June 2019. More than half (55.6%) of patients seen were females and 44.4% were males. Most of the patients (43.8%) who presented with febrile illnesses were between 0-11 months, while 29.1% and 27.2% of them were between 1-2 years and 3-5 years respectively. The average age of children was 5.7 ± 2.3 months for those who were less than a year and 2.8 ± 1.4 years for those between 1-5 years. The majority of the patient's folder (79.2%) were from Aburaso Methodist Hospital with the least being from Dufie memorial clinic (1.9%) medical assistants (33.6%) dominated the ranks of prescribers who saw the cases used for this study.



Table 4.1.2 Demographic characteristics of Patients

| Variables | <i>n=313</i> | % |
|--|--------------|------|
| Sex of children | | |
| Male | 139 | 44.4 |
| Female | 174 | 55.6 |
| Age | | |
| 0-11 months | 137 | 43.8 |
| 1-2 years | 91 | 29.1 |
| 3-5 years | 85 | 27.2 |
| Mean age in months (SD) (n=137) | 5.7 (2.3) | |
| Mean age in years (SD) (n=176) | 2.8 (1.4) | |
| Facility patients are seen | | |
| Millennium Hospital | 16 | 5.1 |
| Trinity Hospital | 22 | 7.0 |
| Aburaso Methodist Hospital | 248 | 79.2 |
| Foase Health Center | 21 | 6.7 |
| Dufie Memorial Clinic | 6 | 1.9 |

Source: authors survey, 2019

4.2 Comparing clinical management of febrile illnesses with WHO/UNICEF IMCI guidelines

The study further explored the management outcomes of febrile illnesses seen in the district by using a fever management best practice evaluation algorithm (Appendix 3). The management process for febrile illnesses was extracted from folders of patients who were seen from 1st January 2019 to 30th June 2019 and compared to this standard chart.

Among the danger signs recorded in the folders, the patient's inability to drink or breastfeed (27.2%) constitutes the highest while 2.2% reported of all four signs. The majority of the folders did not have the severity of illness information recorded. The overall appropriateness of the treatment of febrile illness was 68.4% while the rest (31.6) was ranked inappropriate in accordance with the chart.

Table 4.2 Comparing clinical management of febrile illnesses with WHO/UNICEF IMCI guidelines

| Variables | <i>n=313</i> | % |
|-----------|--------------|---|
|-----------|--------------|---|

| | | |
|---|-----------|------|
| Sex of children | | |
| Male | 139 | 44.4 |
| Female | 174 | 55.6 |
| Mean age in months (SD) (n=137) | 5.7 (2.3) | |
| Mean age in years (SD) (n=176) | 2.8 (1.4) | |
| Facility patients are seen | | |
| Millennium Hospital | 16 | 5.1 |
| Trinity Hospital | 22 | 7.0 |
| Aburaso Methodist Hospital | 248 | 79.2 |
| Foase Health Center | 21 | 6.7 |
| Dufie Memorial Clinic | 6 | 1.9 |
| Rank of prescribers who saw patients | | |
| Senior medical officer | 21 | 6.7 |
| Junior medical officer | 52 | 16.6 |
| Senior medical assistant | 61 | 19.5 |
| medical assistant | 105 | 33.6 |
| Midwife | 3 | 0.96 |
| Nurse prescriber | 71 | 22.7 |
| Danger signs recorded | | |
| Unable to drink or breastfeed | 85 | 27.2 |
| vomits everything | 78 | 24.9 |
| convulsions | 29 | 9.3 |
| Lethargic or unconscious | 22 | 7.03 |
| At least TWO (2) signs recorded | 70 | 22.4 |
| At least THREE (3) signs | 22 | 7.03 |
| All four signs reported | 7 | 2.24 |
| Signs of severity illness available | | |
| No | 245 | 78.3 |
| Yes | 68 | 21.7 |
| Overall treatment outcome of febrile illnesses | | |
| Appropriate | 214 | 68.4 |
| Inappropriate | 99 | 31.6 |

Source: authors survey, 2019

4.3 Challenges impeding quality care management of febrile illnesses.

4.3.1 Human resource challenges

The various human resource challenges that impeded on quality care management of febrile illnesses were rated on a five Likert scale in table 4.3. 47.4% of prescribers agreed that staff shortages were one of the human resource challenges, also 38.2% of the prescribers agreed that the dilemma between education and experience was a human resource challenge affecting quality care management. Leadership interference (40.0%) and dissatisfaction among health

care professionals (39.3%) were agreed by a greater number of prescribers as human resource challenges impeding quality care management. About 54.5% agreed to location-based challenges and limited diversity in service delivery (47.3%) were other factors that were agreed to be affecting the management of febrile illnesses.

A little over thirty percent (33.3%) also agreed that lack of time could also affect quality care management. Also, lack of funding support and opportunities for study leave was strongly agreed by 39.3% and 37.5% of the prescribers to impede quality care management respectively. Limited performance improvement opportunities and high employee turnover were other factors that were agreed upon as impacting quality care management by about 62.1% and 54.6% of prescribers interviewed respectively. More than half also agreed with the following statements; Lack of standard procedures to measure performance (59.7%), absence of measurable goals (51.9%) and inconsistent performance reviews as affecting quality care management of febrile illnesses.

Table 4.3.1 Human resource challenges impeding quality care management of febrile illness

| Variables | Strongly Disagree | Neither agree | Agree | Strongly Disagree (%) | nor disagree |
|--|------------------------------|--------------------------|------------------|----------------------------------|-------------------------|
| | (%) | (%) | (%) | (%) | (%) |
| Recruitment/selection challenges | | | | | |
| Scarcity/shortage of employees | 4(7.0) | 12(21.1) | 4(7.0) | 27(47.4) | 10(17.5) |
| Dilemma between education and experience | 3(5.5) | 10(18.2) | 13(23.6) | 21(38.2) | 8(14.6) |
| Leadership interference | 3(5.5) | 9(16.4) | 12(21.8) | 22(40.0) | 9(16.4) |
| Dissatisfaction from health care professionals | 6(10.7) | 7(12.5) | 16(28.6) | 22(39.3) | 5(8.9) |
| Location based challenges | 4(7.3) | 7(12.7) | 12(21.7) | 30(54.6) | 2(3.6) |
| Limited diversity | 4(7.3) | 11(20.0) | 12(21.8) | 26(47.3) | 2(3.6) |
| Training and development challenges | | | | | |
| Lack of time | 8 (14.04) | 8 (14.04) | 5(8.8) | 19 (33.3) | 17(29.8) |
| Lack of funding | 8(14.3) | 4(7.2) | 2(3.6)) | 20(35.7) | 22(39.3) |
| Lack of provision of study leave | 7(12.50) | 4(7.2) | 8(14.3) | 16(28.6) | 21(37.5) |
| Performance review/appraisal challenges | | | | | |

| | | | | | |
|--|--------|----------|----------|-----------------|--------|
| Limited performance improvement opportunities | 1(1.7) | 11(19.0) | 6(10.3) | 36(62.1) | 4(6.9) |
| High employee turnover | 2(3.6) | 10(18.2) | 10(18.2) | 30(54.6) | 3(5.5) |
| Lack of standard procedures to measure performance | 3(5.3) | 7(12.3) | 9(15.8) | 34(59.7) | 4(7.0) |
| Absence of measurable goals | - | 8(14.8) | 18(33.3) | 28(51.9) | - |
| Inconsistent performance reviews | 3(5.6) | 9(16.8) | 22(22.2) | 30(55.6) | - |

Source: authors survey, 2019

4.3.2 Logistics and infrastructural challenges impeding quality care management of febrile illnesses

Table 4.3.2 below shows perceived logistics and infrastructural challenges impeding the quality care management of febrile illnesses. About 63.8% of respondents had WHO/UNICEF IMCI guidelines charts for managing fevers pasted at the work premises. Specifically, about 47.4% had only chart on Artemether Lumefantrine Dosing pasted, while 19.3% also had charts on Rapid Diagnostic Test only. In all, 15.8% and 12.3% had at least two and all three of these decision aids pasted on their walls at the workplace respectively.

Almost all prescribers (98.3% and 94.7%) positively confirmed their facility had functional laboratory and a competent technician respectively and 50% of these laboratories had a functional microscope in them. Similarly, all facilities visited had a pharmacy and with the majority (98.3%) having a competent pharmacist/dispensing technician managing the place. The majority of the facilities (96.6%) had Malaria RDT kits and few facilities (5.2%) also had respiratory rate counter or watch with an indicator for seconds in them. About 65.5% of facilities used in the study had experience stockout in Artemether Lumefantrine and Amoxicillin at least once in the last 6 months. However, majority of the facilities (94.8% and 96.6%) had available Artemether Lumefantrine and Amoxicillin available on the day of interview respectively.

Table 4.3.2 Logistics and infrastructural challenges impeding quality care management of febrile illnesses

| Variables | n=58 | % |
|--|-------------|----------|
| Decision Aids and diagnostics | | |
| WHO/UNICEF guidelines for fevers management | | |
| Yes | 37 | 63.8 |
| No | 21 | 36.2 |
| Decision Aids available | | |
| Artemether Lumefantrine Dosing wall chart only | 27 | 47.4 |
| Rapid Diagnostic Test chart only | 11 | 19.3 |
| Integrated Management of Childhood Illness (IMCI) chart only | 3 | 5.3 |
| At least two of the decision aids | 9 | 15.8 |
| All three of the decision aids | 7 | 12.3 |
| Functional lab | | |
| Yes | 57 | 98.3 |
| No | 1 | 1.7 |
| Competent technician | | |
| Yes | 54 | 94.7 |
| No | 3 | 5.3 |
| Pharmacy | | |
| Yes | 58 | 100 |
| No | - | - |
| Competent pharmacist/dispensing technician | | |
| Yes | 57 | 98.3 |
| No | 1 | 1.7 |
| Functional microscope | | |
| Yes | 29 | 50.0 |
| No | 29 | 50.0 |
| Malaria RDTs | | |
| Yes | 56 | 96.6 |
| No | 2 | 3.4 |
| Functional pulse oximeter | | |
| Yes | 20 | 34.5 |
| No | 38 | 65.5 |
| Respiratory rate counter or watch with an indicator for seconds | | |
| Yes | 3 | 5.2 |
| No | 55 | 94.8 |
| Stockout of basic medication within the last 6 months | | |
| Artemether Lumefantrine | | |
| Yes | 38 | 65.5 |
| No | 20 | 34.5 |

| | | | |
|--|--|----|------|
| Amoxicillin | | | |
| Yes | | 37 | 63.8 |
| No | | 21 | 36.2 |
| The stock of basic medication available on the day of the interview | | | |
| Artemether Lumefantrine | | | |
| Yes | | 55 | 94.8 |
| No | | 3 | 5.2 |
| Amoxicillin | | | |
| Yes | | 56 | 96.6 |
| No | | 2 | 3.4 |

n=frequency

%= percentage

Source: authors survey, 2019

4.4 Prescribers' factors and patients' socio-demographic factors influencing quality care management of febrile illnesses.

4.4.1 Prescribers' factors influencing quality care management of febrile illnesses

Table 4.4.1 describes prescribers' factors influencing quality care management of febrile illness as perceived by prescribers. The cost of healthcare (88.9%) and socioeconomic status of patients (90.7%) were believed by the majority of the prescribers to affect quality in the management of febrile illness. Also, majority of the prescribers (87.5% and 88.2%) believed that the level of severity of the illness presented and Confidentiality of patients' records influenced quality care management of febrile illness respectively. More than half of prescribers (74.6%) perceived low participation in national health insurance enrolment and proximity to the health facility (69.1%) to influence quality care management. Finally, majority of the prescribers (65.5%) perceived superstition to influence the quality of care management as presented in Table 4.4.1.

Table 4.4.1 Prescribers' factors influencing quality care management of febrile illnesses

| Variables | n=58 | % |
|--|-------------|----------|
| Superstition | | |
| Yes | 38 | 65.5 |
| No | 20 | 34.5 |
| Confidentiality of patients' records | | |
| Yes | 45 | 88.2 |
| No | 6 | 11.8 |
| Cost of health care | | |
| Yes | 48 | 88.9 |
| No | 6 | 11.1 |
| Geography (Proximity to the hospital) | | |
| Yes | 38 | 69.1 |
| No | 17 | 30.9 |
| Socioeconomic status | | |
| Yes | 49 | 90.7 |
| No | 5 | 9.3 |
| The severity of illness. | | |
| Yes | 49 | 87.5 |
| No | 7 | 12.5 |
| Low participation in health insurance | | |
| Yes | 41 | 74.6 |
| No | 14 | 25.4 |

Source: authors survey, 2019

In univariate and multivariate regression analysis, the results depict that prescribers' factor such superstition influenced quality care management of febrile illness as detailed in table 4.4.2. For instance, patients who believed in superstition were less likely to receive quality care management of febrile illness as compared with those who did not believe in superstitions (AOR=0.50; 95% CI= 0.03-0.70).

Table 4.4.2 Prescribers' factors predicting quality care management of febrile illnesses

| Variables | Univariate Model | | Multivariate Model | |
|--|------------------------------|---------------|--------------------------------|---------------|
| | Crude Odd ratio (95% C.I) | Pvalue | Adjusted Odd ratio (95% CI) | <u>Pvalue</u> |
| Cost of health care | | | | |
| No (Ref) | 1.00 | - | - | - |
| Yes | 1.70 (0.23 - 2.14) | 0.64 | 1.33(0.55-2.06) | 0.18 |
| Superstition | | | | |
| No (Ref) | 1 | - | - | - |
| Yes | 0.90(0.02 - 0.44) | 0.003* | 0.50(0.03- 0.70) | 0.02 |
| Clients proximity to a facility | | | | |
| No (Ref) | 1.00 | - | - | - |
| Yes | 3.97 (1.18-13.28) | 0.03 | 4.19(0.50- 3.4) | 0.18 |
| Low participation in health insurance | | | | |
| No (Ref) | 1.00 | - | - | - |
| Yes | 3.47 (0.97- 12.35) | 0.06 | 1.51(0.20- 11.30) | 0.63 |

OR: Odds ratio

AOR: Adjusted Odds ratio

Source: authors survey, 2019

4.4.2 Patients' socio-demographic factors influencing quality care management of febrile illnesses

Univariate and logistic regression analysis were performed to establish patient's sociodemographic factors influencing quality care management of febrile illness. The results depict that socio-demographic factors such as age of a child and gender influenced quality care management of febrile illness as detailed in table 4.4.3. For instance, children below 1 year were less likely to receive quality care management of febrile illness as compared with those above 3 years (AOR=0.50; 95% CI= 0.08-0.28). Also, female children were more likely to receive

quality care management of febrile illness as compared with their male counterparts (AOR=1.50; 95% CI=0.03-0.70).

Table.4.5 Patient socio-demographic factors influencing quality care management of febrile illnesses

| Variables | Univariate Model | | Multivariate Model | |
|-------------------------------------|----------------------------------|---------------|-------------------------------------|-------------|
| | Crude Odd ratio (OR; 95% C.I) | Pvalue | Adjusted Odd ratio (AOR; 95% CI) | Pvalue |
| Age of child | | | | |
| Above 3 years (Ref) | 1.00 | - | - | - |
| Below 1 year | 0.70 (0.23- 2.14) | 0.002 | 0.50 (0.08- 0.28) | 0.04 |
| 1-2 years | 0.81 (0.23-2.14) | 0.54 | 0.66 (0.16-1.84) | 0.33 |
| Gender | | | | |
| Male (Ref) | 1 | - | - | - |
| Female | 1.90(0.02-0.44) | 0.004* | 1.50(0.03-0.70) | 0.02 |
| Facility patients are seen | | | | |
| Aburaso Methodist Hospital (Ref) | 1 | - | - | - |
| Trinity Hospital | 0.81(0.53-1.24) | 0.32 | 0.62(0.43-0.89) | 0.22 |
| Millennium Hospital | 0.78(0.55-1.12) | 0.18 | 0.61(0.41-0.92) | 0.15 |
| Foase Health Center | 0.54(0.36-0.81) | 0.30 | 0.70(0.47-1.02) | 0.23 |
| Dufie Memorial Clinic | 0.60(0.37-0.98) | 0.07 | 0.62(0.43-0.89) | 0.09 |

OR: Odds ratio

AOR: Adjusted Odds ratio

Source: Authors survey, 2019

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter presents a detailed discussion of results generated from data gathered for the study in accordance with the study objectives. The study aimed at assessing quality care management of Febrile Illness among children under 5 years in the Atwima Kwanwoma District in the

Ashanti Region of Ghana. The overall assessment of the quality care management in the district was described as good by 60.3% of the prescribers, while the remaining 39.7% described it as bad. Variables such as duration of professional practice, training on child curative care services, availability of WHO/UNICEF guidelines and superstition on fevers at facility were identified by prescribers to influence quality care management of febrile illnesses. Also, sociodemographic factors of patients such as age of child and gender were identified as predictors of quality care management. The weaknesses, limitations, and assumptions for the study are discussed in this chapter.

5.1 Demographic characteristics of Prescribers and Patients

The study achieved a response rate of 96% for the prescribers and 100% for the client's data collected from the folders. This rate is comparable with rates from other studies elsewhere. A study with a high response rate enables us to generalize findings to other settings with similar characteristics. From the demographic characteristics of prescribers in this study, the age distribution was in the range of 23-37years which is an indication of the youthfulness of the prescriber's population in the district. This corresponds with general age distribution of the district which also has majority of its members being youthful (Ghana Statistical Service, 2014).

Also, a greater number of the prescribers were female (67.3%), the possible explanation for this could be as a result of how health staff has been distributed in the district. The majority of the prescribers sampled were nurses (both midwives and general nurses) and gender biases of these professions explain it. The educational level of the prescribers was basically first degree and diploma; however, diploma certificates constituted the greater number. As stated earlier, nurses constituted the highest number of prescribers in this study and until recently most of nursing certifications were awarded as diplomas, making the presence of nurses with degree few in the system.

Even though there have been varied views on the relationship between work experience and job performance, work experience is generally touted as a function of job performance outcome as the number of years one spends on a particular task is believed to influence his knowledge and skills on that particular task (Dokko, Wilk, & Rothbard, 2009; QuinÑones, Ford, & Teachout, 1995; Uppal, Mishra, & Vohra, 2014). Our study revealed that prescribers with fewer years of professional practice were 52% more likely to report poor quality management outcomes of fevers. This could be attributed to inexperience as they may still be learning on the job. Repetitive and routine management of febrile illnesses by a prescriber may enable them to sharpen their skills as the new and complex situation keeps presenting themselves. This finding is consistent with studies conducted by Lunze et al (2017) which revealed that work experience had positive relationship with management outcome.

The findings from this study also revealed that an average of 3.8 cases of febrile illness is seen by each prescriber daily. This finding contradicts other studies that report fevers to be the most prevalent case seen among children under five years (Nnedu et al., 2010; Novignon & Nonvignon, 2012). This figure may seem smaller; however, it will be depended on the total number of patients seen daily by prescribers in the facilities.

Findings revealed that the gender distribution of children seen for febrile illnesses in the district is female-dominated and this reflects that of the larger district (Ghana Statistical Service, 2014). Infants less than a year also dominated the age of children presenting with febrile illnesses in the district (Table 4.1.2). These findings reflected reports from studies conducted elsewhere in Bangladesh (El Arifeen et al., 2008). Even though all children appear to be vulnerable when we talk about their resilience to diseases, children under 1 year are more susceptible to febrile illnesses and have the worst morbidity and mortality from it.

5.2 Comparing clinical management of febrile illnesses with WHO/UNICEF IMCI

guidelines

Findings from this study indicated that about 32% of cases seen were inappropriately managed. A situation which means patients were either undertreated or overtreated eventually contributing to poor quality in the management of febrile illness. The rate of inappropriate management in this study is higher compared to findings from similar assessments conducted in Zambia using the same tool (Lunze et al., 2017). However, with respect to reporting of danger signs by prescribers, the percentages for all the four basic signs were relatively low.

The general explanation for the variation in the rates for the management outcome could be attributed to both prescriber's and external factors such as the number of trainings prescribers had had, level of experience in the field of practices, and availability of diagnostics among others. Unavailability of infrastructure and other logistics for proper management compels most prescribers to resort to syndromic management style, thereby practicing polypharmacy even though the WHO guidance states otherwise. With this kind of management style diagnosis of actual condition is not made, this means that prescriber may start without a baseline and may end up either over treating or undertreating patient (Peeling and Mabey, 2010). Also, the frequent stockouts of essential medication such as antimalaria and antibiotics results in children presenting with febrile illnesses associated with danger signs may not receiving the appropriate medications which could lead to morbidity and mortality and eventually affect the overall treatment outcome. With these challenges highlighted above, Atwima Kwanwoma District is far from reaching the sustainable development goal of reducing infant mortality to barest minimum.

Even though the WHO/UNICEF IMCI guidelines encourage prescribers to refer to higher facilities after initial patient stabilization, however, may not be in a state to

5.3 Challenges impeding quality care management of febrile illnesses.

5.3.1 Human resource challenges

The study attempts to evaluate the human resource aspect among others that are believed to affect quality in the management of febrile illness and other diseases at large. On recruitment and selection issues, the prescribers were asked to rate some of the challenges on a Likert scale of 1 to 5. Issues of Scarcity/shortage of qualified employees; dilemma between education and experience; leadership interference; dissatisfaction from health care professionals; locationbased challenges; limited diversity was agreed by a greater number of the prescribers as being major challenges that affect practices at the facility. Leadership interference and limited opportunity for diversification usually create monotony at the workplace which may create fatigue and boredom among workers. Once a worker is faced with these challenges, there will be tendency of less motivation in their delivery, thereby affecting work outcome. For instance, van der Heijden, van Dam, & Hasselhorn (2009) reported that nurses working in unsupportive environment with leadership interference are more likely to abandon their job compared to those enjoying a supportive environment.

Other issues such as lack of time, lack of funding support and lack of study leave were strongly agreed by a greater number of prescribers to be another challenge facing them as far as personal development and training are concerned. Being in a profession without time for upgrade and study leave is detrimental as far work output is concerned. This implies that there is a tendency of professionals becoming outdated with imminent issues concerning their practices.

The study further assessed appraisal and performance evaluation opportunities available in facilities sampled for the study. The study revealed that more than half of prescribers agreed that, there were limited performance improvement opportunities; high employee turnover; lack of standard procedures to measure performance; absence of measurable goals; inconsistent performance reviews. This finding is consistent with an earlier report which stated that unavailability of standard procedures and performance is one of that challenge that has plagued the health sector in the management of diseases (World Health Organization, 2015). It is

therefore not surprising that quality care management of febrile illness in the district was only 60% as reported in table 4.3.1.

5.3.2 Infrastructure and logistics challenges

Appropriate clinical management of ailments presented to facilities by patients still remains one of the global health challenges. Even though it can be argued that health sector has seen much improvement with the evolution of many diagnostics technologies, and point of care test among others, majority of these technologies were designed for the advanced economies and their application may not be readily transferable to limited resource settings (Drain et al., 2014). However, there are few of them that have been adopted in resource replete setting in order to obtain immediate test results to guide clinical decisions (Peeling & Mabey, 2010). Most of the time smaller facilities may have to compete with the bigger ones in order to have access to some of these infrastructures creating inequitable distribution and it is the patient that suffers at the end (Peeling & Mabey, 2010).

Our study evaluated the availability of facilities and diagnostics that will help achieve quality in the clinical management of febrile illness. More than sixty percent (60%) and forty-seven percent (47%) of the facilities had WHO/UNICEF guidelines for fevers management and Artemether Lumefantrine Dosing wall chart available respectively, this implies that at least prescribers in these facilities may be guided in their diagnoses and management. The absence of these guidelines and charts means that correct management of illness in some of the facilities may be challenging. For instance, Peeling & Mabey, (2010) reported that treating patients based on syndromic management style can result in ineffective outcomes, however, there is the tendency of overtreatment, waste of medication and other commodities. Our study revealed that only 12.3% of facilities had all decision aids available, this was consistent with findings

from a study on clinical management of febrile illness conducted in Zambia (Lunze et al., 2017).

The study further revealed that the majority of the facilities had functional laboratories and pharmacies with competent persons managing them. However, only half of these facilities had essential equipment such as a microscope. This means that certain diagnoses may have to be made using a syndromic style coupled with its associated challenges (Peeling & Mabey, 2010).

Our findings further indicated that the majority of the facilities (96.6%) sampled had malaria RDTs kits, while one-third had functional pulse oximeter and almost all facilities (94.8%) did not have a respiratory rate counter or watch with an indicator for seconds. The presence of malaria test kits in all facilities may be understood as a result high malaria burden in the district.

On medication availability, our study examined stockout with the last six (6) months and on the day of the interview. The findings revealed that most facilities usually had stockout for the medication (65.5% for Artemether Lumefantrine stock out and 63.8% for Amoxicillin stock out), however on the day of the interview, majority of facilities had these two essential medications available. The rate of stock out for Artemether Lumefantrine and Amoxicillin in this study in the last 6 months supersedes that rate reported in a Zambian study, however their availability on the day of interview for our study and the Zambian study was similar (Lunze et al., 2017). Stockouts in medication and other commodities at the Ghana Health services are one of the challenges battling the smooth operation of services delivery. This problem may be a result of both internal or external miscommunication and bottleneck within supply chain cycle.

5.4 Patients' socio-demographic factors and prescribers' factors influencing quality care management of febrile illnesses.

The treatment outcome of febrile illnesses, in general, depends on several factors that are interlinked (Müller, Traoré, Becher, & Kouyaté, 2003). The success of most treatment strategies may be linked to the behaviour of both the patient and the prescriber. For instance, no matter how potent a medical prescription may be unless the user of such medication is committed to following instructions on its dosage, it will never work as expected. In the same vein, the attitudes and behavior prescribers put up at the clinic may also motivate or demotivate a patient from following instructions. The study examined the various patient factors that are perceived to influence quality care management of febrile illnesses. The majority of prescribers reported that cost of care, severity of illness and economic status play a role in determining quality as far as the management of febrile illnesses is concerned. A third of the prescribers mentioned proximity as one of the patient factors they perceive to affect quality. This finding is consistent with a study conducted in Burkina Faso, which reported that patients closer to facilities are likely to return for review compared to those afar, which in effect compromise the treatment of malaria (Adhikari et al., 2019; Ansah, Gyapong, Narh-Bana, Bart-Plange, & Whitty, 2016; Müller et al., 2003).

Also, factors such as severity of illness, cost of care, and socio-economic status have been reported in several studies to have major influence on an individual's health-seeking behaviors (Baume, Helitzer, & Kachur, 2000; Molyneux, Mung'ala-Odera, Harpham, & Snow, 1999; Novignon & Nonvignon, 2012). For instance, Simanjuntak et al., (2004) and Lindblade et al., (2011) reported in separate studies that wealthier people are likely to seek early care for their children when compared to people with low-income status.

With regards to other factors related to the prescribers, the client's confidentiality, and low insurance coverage and superstition were also mentioned to influence quality care management. The role of socio-cultural beliefs on healthcare treatment outcomes of fevers has been reported in several studies across the globe (Abubakar et al., 2013; Adhikari et al., 2019). However, these cultural beliefs are geographic-specific. Findings from our study are consistent

with earlier reports as it revealed that superstition was one of the factors that could influence quality in the management of febrile illnesses. Clinical assessment of quality management cannot be mentioned without considering the client's confidentiality and privacy. It is an essential element as clearly mentioned in the patient charter, a little breach of such an element may affect the client-prescriber relationship and in the long run compromise quality. 1-in-3 of the prescribers perceived low insurance coverage as a means which can affect quality care management of febrile illness. This finding corroborates with other studies conducted elsewhere in Ghana (Ansah et al., 2016; Febir et al., 2016). They reported that one of the main motivations for seeking care at hospitals against using chemical shops and pharmacies was the existence of health insurance at the former.

The study revealed that the quality of care has a positive relationship with the age of a child. The likelihood of a child receiving quality care becomes higher as the child advances in age. Children between 0-11 months were less likely to receive quality care management in this study compared with older children between 1-2 years and above 3 years. This could probably be attributed to the fact that these neonates and infants are too young to show signs of discomfort when they are not well. Unlike the relatively older children most of which are able to complain or show visible signs prompting for appropriate treatment. For instance, a report from WHO suggest that risk of deaths for children less than four weeks is 15 times greater than those who have seen their first birthday. A situation which is explained by their weak immunity to deal with new infections compared to the older children (Collins, Weitkamp, & Wynn, 2018; Cuenca, Wynn, Moldawer, & Levy, 2013). It is therefore not surprising that these neonates and infant population in this study constituted a greater number of children presented with febrile illnesses as well as have reduced likelihood of receiving quality care in its management.

Gender was identified as a significant predictor of the quality of care management that a child receives after presenting with febrile illness in this study. Even though all children appear to

be vulnerable when we talk about their resilience to diseases, however, the gender role of causes a variation in terms of their susceptibility to febrile illness has been reported differently (El Arifeen et al., 2008). Whiles some study's findings are consistent with ours, others hold opposing views. For instance, Gold et al., (1993) reported that male children are more susceptible to Wheeze, cough, bronchitis than girls. Another study also reports that there is no significant gender difference with respect to febrile illness among children under five (El Arifeen et al., 2008).



CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter draws a conclusion from the study and summarizes the findings from the study in accordance with their underlying objectives. Additionally, recommendations are made to all stakeholders who are interested in addressing quality care management of febrile illnesses.

6.1 Conclusion

Comparing clinical management of febrile illnesses with WHO/UNICEF IMCI guidelines

Majority of the children with febrile illnesses were appropriately managed in accordance with WHO/UNICEF IMCI guidelines.

Challenges impeding quality care management of febrile illnesses.

Findings from the study revealed that human resource challenges such as shortage of qualified employees, dilemma between education and experience, leadership interference, dissatisfaction from health care professionals, location-based challenges and limited diversity were reported to impede quality care management.

Also, Logistics and infrastructural challenges such as unavailability of decision aids such as, WHO/UNICEF IMCI guidelines, Artemether Lumefantrine Dosing wall chart, Rapid Diagnostic Test chart, RDT kits and functional pulse oximeter and Respiratory rate counter or watch with an indicator for seconds were reported to impede on the quality care management of febrile illnesses in children under five.

Prescribers' factors and patients' socio-demographic factors influencing quality care management of febrile illnesses.

Prescribers' factors such as those who believed in superstition and socio-demographic factors of children such as age and gender influenced quality care management of febrile illness.

6.2 Recommendations

The study recommends

1. The Ghana Health Service (GHS) and Ministry of Health (MOH) must introduce policies that will focus on improving the diagnostic and management capacity of healthcare facilities (especially in identifying severity of febrile conditions – both clinically and laboratory or point of care tests).
2. Hospital administrators, Ghana Medical Association (GMA) and Medical and Dental Council (MDC) must ensure that regular trainings (professional development trainings) are organized to train health workers to appropriately and effectively manage childhood febrile conditions.
3. Patients are encouraged to participate in community education usually organised by health workers sick especially with a febrile condition.
4. Patients are to be encouraged by the government and other stakeholders to enroll in the National Health Insurance Scheme (NHIS).
5. Further studies need to be conducted to establish factors influencing quality care management from the patients' perspective.

References

- Abubakar, A., Van Baar, A., Fischer, R., Bomu, G., Gona, J. K., & Newton, C. R. (2013). Socio-Cultural Determinants of Health-Seeking Behaviour on the Kenyan Coast: A

- Qualitative Study. *PLoS ONE*, 8(11), e71998.
<https://doi.org/10.1371/journal.pone.0071998>
- Adhikari, B., Phommasone, K., Pongvongsa, T., Koummarasy, P., Soundala, X., Henriques, G., ... Mayxay, M. (2019). Treatment-seeking behaviour for febrile illnesses and its implications for malaria control and elimination in Savannakhet Province, Lao PDR (Laos): a mixed method study. *BMC Health Services Research*, 19(1), 252.
<https://doi.org/10.1186/s12913-019-4070-9>
- Aikins, M., & Arhinful, D. (2006). Review of exemption policy: A report on the annual health sector review 2005. *Ghana: Ministry of Health*.
- Albassam, T., & Alshawu, S. (2009). Service Quality Measurement In The Specific Context Of Internet-Based Self-Service Technologies : A Review. In *UK Academy for Information Systems Conference Proceedings 2009*. (pp. 1–8). Retrieved from <http://aisel.aisnet.org/ukais2009/1>
- Alpern, E. R., Stanley, R. M., Gorelick, M. H., Donaldson, A., Knight, S., Teach, S. J., ... Chamberlain, J. M. (2006a). Epidemiology of a Pediatric Emergency Medicine Research Network. *Pediatric Emergency Care*, 22(10), 689–699.
<https://doi.org/10.1097/01.pec.0000236830.39194.c0>
- Alpern, E. R., Stanley, R. M., Gorelick, M. H., Donaldson, A., Knight, S., Teach, S. J., ... Chamberlain, J. M. (2006b). Epidemiology of a Pediatric Emergency Medicine Research Network. *Pediatric Emergency Care*, 22(10), 689–699.
<https://doi.org/10.1097/01.pec.0000236830.39194.c0>
- Ansah, E. K., Gyapong, M., Narh-Bana, S., Bart-Plange, C., & Whitty, C. J. M. (2016). Factors influencing choice of care-seeking for acute fever comparing private chemical shops with health centres and hospitals in Ghana: a study using case-control methodology. *Malaria Journal*, 15(1), 290. <https://doi.org/10.1186/s12936-016-1351-1>
- Ayimbillah Atinga, R., Abekah, Nkrumah, G., & Ameyaw Domfeh, K. (2011). Managing healthcare quality in Ghana: a necessity of patient satisfaction. *International Journal of Health Care Quality Assurance*, 24(7), 548–563.
<https://doi.org/10.1108/09526861111160580>
- Baltzell, K., Elfving, K., Shakely, D., Ali, A. S., Msellem, M., Gulati, S., & Mårtensson, A. (2013). Febrile illness management in children under five years of age: a qualitative pilot study on primary health care workers' practices in Zanzibar. *Malaria Journal*, 12(1), 37. <https://doi.org/10.1186/1475-2875-12-37>
- Baume, C., Helitzer, D., & Kachur, S. P. (2000). Patterns of care for childhood malaria in Zambia. *Social Science & Medicine*, 51(10), 1491–1503.
[https://doi.org/10.1016/S02779536\(00\)00049-6](https://doi.org/10.1016/S02779536(00)00049-6)
- Bitton, A., Ratcliffe, H. L., Veillard, J. H., Kress, D. H., Barkley, S., Kimball, M., ... Hirschhorn, L. R. (2017). Primary Health Care as a Foundation for Strengthening Health Systems in Low- and Middle-Income Countries. *Journal of General Internal Medicine*, 32(5), 566–571. <https://doi.org/10.1007/s11606-016-3898-5>
- Black, R. E., Morris, S. S., & Bryce, J. (2003). Where and why are 10 million children dying every year? *Lancet*, 361(9376), 2226–2234.
[https://doi.org/10.1016/S01406736\(03\)13779-8](https://doi.org/10.1016/S01406736(03)13779-8)

- Boadu, N. Y., Amuasi, J., Ansong, D., Einsiedel, E., Menon, D., & Yanow, S. K. (2016). Challenges with implementing malaria rapid diagnostic tests at primary care facilities in a Ghanaian district: a qualitative study. *Malaria Journal*, *15*(1), 126. <https://doi.org/10.1186/s12936-016-1174-0>
- Campos, D. F., Negromonte Filho, R. B., & Castro, F. N. (2017). Service quality in public health clinics: perceptions of users and health professionals. *International Journal of Health Care Quality Assurance*, *30*(8), 680–692. <https://doi.org/10.1108/IJHCQA-092016-0140>
- Chassin, M. R. (2003). The Urgent Need to Improve Health Care Quality<SUBTITLE>Institute of Medicine National Roundtable on Health Care Quality</SUBTITLE>. *Jama*, *280*(11), 1000. <https://doi.org/10.1001/jama.280.11.1000>
- Collins, A., Weitkamp, J. H., & Wynn, J. L. (2018). Why are preterm newborns at increased risk of infection? *Archives of Disease in Childhood: Fetal and Neonatal Edition*. <https://doi.org/10.1136/archdischild-2017-313595>
- Conway, T., & Willcocks, S. (1997). The role of expectations in the perception of health care quality: developing a conceptual model. *International Journal of Health Care Quality Assurance*, *10*(3), 131–140. <https://doi.org/10.1108/09526869710167058>
- Craig, J. C., Williams, G. J., Jones, M., Codarini, M., Macaskill, P., Hayen, A., ... McCaskill, M. (2010). The accuracy of clinical symptoms and signs for the diagnosis of serious bacterial infection in young febrile children: prospective cohort study of 15 781 febrile illnesses. *BMJ (Clinical Research Ed.)*, *340*, c1594. <https://doi.org/10.1136/bmj.c1594>
- Crosby, P. B. (1996). *Quality is still free: making quality certain in uncertain times*. McGraw-Hill Companies.
- Cuenca, A. G., Wynn, J. L., Moldawer, L. L., & Levy, O. (2013). Role of innate immunity in neonatal infection. *American Journal of Perinatology*. <https://doi.org/10.1055/s-00321333412>
- D'Acromont, V., Lengeler, C., Mshinda, H., Mtasiwa, D., Tanner, M., & Genton, B. (2009). Time to move from presumptive malaria treatment to laboratory-confirmed diagnosis and treatment in African children with fever. *PLoS Medicine*, *6*(1), 0004–0006. <https://doi.org/10.1371/journal.pmed.0050252>
- Dale, H. (2006). *WHO Pocket Book of Hospital Care for Children - Guidelines for the Management of Common Illnesses with Limited Resources WHO Pocket Book of Hospital Care for Children - Guidelines for the Management of Common Illnesses with Limited Resources*. *Nursing Standard* (Vol. 20). <https://doi.org/10.7748/ns2006.07.20.44.36.b492>
- Davey, S. (1999). World Health Organization report on infectious diseases. Removing obstacles to healthy development.
- Dokko, G., Wilk, S. L., & Rothbard, N. P. (2009). Unpacking Prior Experience: How Career History Affects Job Performance. *Organization Science*, *20*(1), 51–68. <https://doi.org/10.1287/orsc.1080.0357>
- Donabedian, A. (1980). The Definition of Quality and Approaches to Its Assessment [= Explorations in Quality Assessment and Monitoring, vol. 1]. *Ann Arbor: Health Administration Press*, 8–11.

- Drain, P. K., Hyle, E. P., Noubary, F., Freedberg, K. A., Wilson, D., Bishai, W. R., ... Bassett, I. V. (2014). Diagnostic point-of-care tests in resource-limited settings. *The Lancet. Infectious Diseases*, *14*(3), 239–249. [https://doi.org/10.1016/S14733099\(13\)70250-0](https://doi.org/10.1016/S14733099(13)70250-0)
- El Arifeen, S., Baqui, A. H., Victora, C. G., Black, R. E., Bryce, J., Hoque, D. M. E., ... Siddik, A. (2008). Sex and socioeconomic differentials in child health in rural Bangladesh: findings from a baseline survey for evaluating Integrated Management of Childhood Illness. *Journal of Health, Population, and Nutrition*, *26*(1), 22–35. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18637525>
- Febir, L. G., Asante, K. P., Afari-Asiedu, S., Abokyi, L. N., Kwarteng, A., Ogotu, B., ... Owusu-Agyei, S. (2016). Seeking treatment for uncomplicated malaria: experiences from the Kintampo districts of Ghana. *Malaria Journal*, *15*(1), 108. <https://doi.org/10.1186/s12936-016-1151-7>
- Franco, B. E., Martínez, M. A., Sánchez Rodríguez, M. A., & Wertheimer, A. I. (2009). The determinants of the antibiotic resistance process. *Infection and Drug Resistance*, *2*(1), 1–11. <https://doi.org/10.2147/IDR.S4899>
- Ganle, J. K., Otupiri, E., Obeng, B., Edusie, A. K., Ankomah, A., & Adanu, R. (2016). Challenges Women with Disability Face in Accessing and Using Maternal Healthcare Services in Ghana: A Qualitative Study. *PLOS ONE*, *11*(6), e0158361. <https://doi.org/10.1371/journal.pone.0158361>
- Ghana Statistical Service. (2014). 2010 Population and Housing Census, District Analytical Report– Kumasi Metropolis. *Ghana Statistical Service*. <https://doi.org/10.1371/journal.pone.0104053>
- Gilmore, H. L. (1974). Product conformance cost. *Quality Progress*, *7*(5), 16–19.
- Gold, D. R., Rotnitzky, A., Damokosh, A. I., Ware, J. H., Speizer, F. E., Ferris, B. G., & Dockery, D. W. (1993). Race and Gender Differences in Respiratory Illness Prevalence and Their Relationship to Environmental Exposures in Children 7 to 14 Years of Age. *American Review of Respiratory Disease*, *148*(1), 10–18. <https://doi.org/10.1164/ajrccm/148.1.10>
- Greenwood, B M, Bojang, K., & Whitty, C. J. M. (2005). Target GAT. *Lancet*, *365*(1487), 98.
- Greenwood, Brian M, Sabot, O., Cotter, C., Abeyasinghe, R. R., Rodriguez, M. H., Phillips, A. A., ... Feachem, R. G. (2010). Shrinking the malaria map: progress and prospects. *The Lancet*, *376*(9752), 1566–1578. [https://doi.org/10.1016/s0140-6736\(10\)61270-6](https://doi.org/10.1016/s0140-6736(10)61270-6)
- Hay, A. D., Heron, J., & Ness, A. (2005a). The prevalence of symptoms and consultations in pre-school children in the Avon Longitudinal Study of Parents and Children (ALSPAC): a prospective cohort study. *Family Practice*, *22*(4), 367–374. <https://doi.org/10.1093/fampra/cmi035>
- Hay, A. D., Heron, J., & Ness, A. (2005b). The prevalence of symptoms and consultations in pre-school children in the Avon Longitudinal Study of Parents and Children (ALSPAC): a prospective cohort study. *Family Practice*, *22*(4), 367–374. <https://doi.org/10.1093/fampra/cmi035>

- Heffernan, R., Mostashari, F., Das, D., Karpati, A., Kulidorff, M., & Weiss, D. (2004). Syndromic Surveillance in Public Health Practice, New York City. *Emerging Infectious Diseases*. <https://doi.org/10.3201/eid1005.030646>
- Hsiao, A. L., Chen, L., Baker, M. D., White, K. C., Fisher, D. J., Dagan, R., & Powell, K. R. (2006). Incidence and predictors of serious bacterial infections among 57- to 180-dayold infants. *Pediatrics*, *117*(5), 1695–1701. <https://doi.org/10.1542/peds.2005-1673>
- Juran, J., & Godfrey, A. B. (1999). Quality handbook. *Republished McGraw-Hill*, 173–178.
- Kabaghe, A. N., Visser, B. J., Spijker, R., Phiri, K. S., Grobusch, M. P., & van Vugt, M. (2016). Health workers' compliance to rapid diagnostic tests (RDTs) to guide malaria treatment: a systematic review and meta-analysis. *Malaria Journal*, *15*(1), 163. <https://doi.org/10.1186/s12936-016-1218-5>
- Kelley, E., & Hurst, J. (2006). Health care quality indicators project: Conceptual framework paper. *Oecd Health Working Papers*. <https://doi.org/10.1787/18152015>
- Kwarteng, A., Asante, K. P., Abokyi, L., Gyaase, S., Febir, L. G., Mahama, E., ... OwusuAgyei, S. (2015). Provider compliance to artemisinin-based combination therapy at primary health care facilities in the middle belt of Ghana. *Malaria Journal*, *14*(1), 361. <https://doi.org/10.1186/s12936-015-0902-1>
- Ladhari, R. (2009, July 3). A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences*. Emerald Group Publishing Limited. <https://doi.org/10.1108/17566690910971445>
- Lagrosen, Y., & Lagrosen, S. (2005). The effects of quality management - A survey of Swedish quality professionals. *International Journal of Operations and Production Management*. <https://doi.org/10.1108/01443570510619464>
- Lavy, V., Strauss, J., Thomas, D., & de Vreyer, P. (1996). Quality of health care, survival and health outcomes in Ghana. *Journal of Health Economics*, *15*(3), 333–357. [https://doi.org/10.1016/0167-6296\(95\)00021-6](https://doi.org/10.1016/0167-6296(95)00021-6)
- Likic, R., & Maxwell, S. R. J. (2009). Prevention of medication errors: teaching and training. *British Journal of Clinical Pharmacology*, *67*(6), 656–661. <https://doi.org/10.1111/j.1365-2125.2009.03423.x>
- Lindblade, K. A., Johnson, A. J., Arvelo, W., Zhang, X., Jordan, H. T., Reyes, L., ... Padilla, N. (2011a). Low usage of government healthcare facilities for acute respiratory infections in guatemala: implications for influenza surveillance. *BMC Public Health*, *11*(1), 885. <https://doi.org/10.1186/1471-2458-11-885>
- Lindblade, K. A., Johnson, A. J., Arvelo, W., Zhang, X., Jordan, H. T., Reyes, L., ... Padilla, N. (2011b). Low usage of government healthcare facilities for acute respiratory infections in guatemala: Implications for influenza surveillance. *BMC Public Health*, *11*. <https://doi.org/10.1186/1471-2458-11-885>
- Lohr, K. N., & Schroeder, S. A. (2010). A Strategy for Quality Assurance in Medicare. *New England Journal of Medicine*. <https://doi.org/10.1056/nejm199003083221031>
- Lunze, K., Biemba, G., Lawrence, J. J., MacLeod, W. B., Yeboah-Antwi, K., Musokotwane, K., ... Hamer, D. H. (2017). Clinical management of children with fever: a cross-sectional study of quality of care in rural Zambia. *Bulletin of the World Health Organization*. <https://doi.org/10.2471/blt.16.170092>

- Mainz, J. (2003). Defining and classifying clinical indicators for quality improvement. *International Journal for Quality in Health Care*. <https://doi.org/10.1093/intqhc/mzg081>
- Massin, M. M., Montesanti, J., Gérard, P., & Lepage, P. (2006a). SPECTRUM AND FREQUENCY OF ILLNESS PRESENTING TO A PEDIATRIC EMERGENCY DEPARTMENT. *Acta Clinica Belgica*, 61(4), 161–165. <https://doi.org/10.1179/acb.2006.027>
- Massin, M. M., Montesanti, J., Gérard, P., & Lepage, P. (2006b). SPECTRUM AND FREQUENCY OF ILLNESS PRESENTING TO A PEDIATRIC EMERGENCY DEPARTMENT. *Acta Clinica Belgica*, 61(4), 161–165. <https://doi.org/10.1179/acb.2006.027>
- MCGowan, J. E., Bratton, L., Klein, J. O., & Finland, M. (1973). Bacteremia in Febrile Children Seen in a Walk-in Pediatric Clinic. *New England Journal of Medicine*, 288(25), 1309–1312. <https://doi.org/10.1056/NEJM197306212882501>
- Mohammad Mosadeghrad, A. (2013). Obstacles to TQM success in health care systems. *International Journal of Health Care Quality Assurance*, 26(2), 147–173. <https://doi.org/10.1108/09526861311297352>
- MoHG. (2009). *Home Management of Malaria, ARI and Diarrhoea in Ghana Implementation Guidelines*. Retrieved from https://www.ghanahealthservice.org/downloads/implementation_guide_final.pdf
- Molyneux, C. S., Mung'ala-Odera, V., Harpham, T., & Snow, R. W. (1999). Maternal responses to childhood fevers: a comparison of rural and urban residents in coastal Kenya. *Tropical Medicine and International Health*, 4(12), 836–845. <https://doi.org/10.1046/j.1365-3156.1999.00489.x>
- Mosadeghrad, A. M. (2013). Healthcare service quality: Towards a broad definition. *International Journal of Health Care Quality Assurance*, 26(3), 203–219. <https://doi.org/10.1108/09526861311311409>
- Mosadeghrad, A. M. (2014a). Factors Affecting Medical Service Quality. *Iranian Journal of Public Health*.
- Mosadeghrad, A. M. (2014b). Factors Influencing Healthcare Service Quality. *International Journal of Health Policy and Management*. <https://doi.org/10.15171/ijhpm.2014.65>
- Müller, O., Traoré, C., Becher, H., & Kouyaté, B. (2003). Malaria morbidity, treatment-seeking behaviour, and mortality in a cohort of young children in rural Burkina Faso. *Tropical Medicine and International Health*. <https://doi.org/10.1046/j.13653156.2003.01030.x>
- Newman-Toker, D. E., & Pronovost, P. J. (2009). Diagnostic Errors—The Next Frontier for Patient Safety. *JAMA*, 301(10), 1060. <https://doi.org/10.1001/jama.2009.249>
- Nnedu, O. N., Rimel, B., Terry, C., Jalloh-Vos, H., Baryon, B., & Bausch, D. G. (2010). Syndromic diagnosis of malaria in rural Sierra Leone and proposed additions to the national integrated management of childhood illness guidelines for fever. *American Journal of Tropical Medicine and Hygiene*, 82(4), 525–528. <https://doi.org/10.4269/ajtmh.2010.09-0188>

- Novignon, J., & Nonvignon, J. (2012). Socioeconomic status and the prevalence of fever in children under age five: Evidence from four sub-Saharan African countries. *BMC Research Notes*, 5. <https://doi.org/10.1186/1756-0500-5-380>
- Ofori-Adjei, D., & Arhinful, D. K. (1996). Effect of training on the clinical management of malaria by medical assistants in Ghana. In *Social Science and Medicine*. [https://doi.org/10.1016/0277-9536\(95\)00389-4](https://doi.org/10.1016/0277-9536(95)00389-4)
- Owusu-Agyei, S., Asante, K. P., Adjuk, M., Adjei, G., Awini, E., Adams, M., ... Chandramohan, D. (2009). Epidemiology of malaria in the forest-savanna transitional zone of Ghana. *Malaria Journal*, 8(1), 220. <https://doi.org/10.1186/1475-2875-8-220>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, 49(4), 41–50. <https://doi.org/10.1177/002224298504900403>
- Peeling, R. W., & Mabey, D. (2010). Point-of-care tests for diagnosing infections in the developing world. *Clinical Microbiology and Infection*, 16(8), 1062–1069. <https://doi.org/10.1111/J.1469-0691.2010.03279.X>
- Peprah, A. A., & Atarah, B. A. (2014). Assessing Patient's Satisfaction using SERVQUAL Model: A Case of Sunyani Regional Hospital, Ghana. *International Journal of Business and Social Research*, 4(2), 133–143. <https://doi.org/10.18533/IJBSR.V4I2.404>
- Peters, T. J., Waterman, R. H., & Jones, I. (1982). In search of excellence: Lessons from America's best-run companies.
- Quinónes, M. A., Ford, J. K., & Teachout, M. S. (1995). The relationship Between work experience and Job performance: A conceptual and Meta-analytic review. *Personnel Psychology*. <https://doi.org/10.1111/j.1744-6570.1995.tb01785.x>
- Rahman, S. U. (2001). A comparative study of TQM practice and organisational performance of SMEs with and without ISO 9000 certification. *International Journal of Quality and Reliability Management*. <https://doi.org/10.1108/02656710110364486>
- Reich, M. R., Javadi, D., & Ghaffar, A. (2016). Introduction to the Special Issue on "Effective Leadership for Health Systems." *Health Systems & Reform*, 2(3), 171–175. <https://doi.org/10.1080/23288604.2016.1223978>
- Reyburn, H., Mbatia, R., Drakeley, C., Carneiro, I., Mwakasungula, E., Mwerinde, O., ... Whitty, C. J. M. (2004). Overdiagnosis of malaria in patients with severe febrile illness in Tanzania: A prospective study. *British Medical Journal*, 329(7476), 1212–1215. <https://doi.org/10.1136/bmj.38251.658229.55>
- Sackett, D. L., & Rennie, D. (1992). The Science of the Art of the Clinical Examination. *JAMA: The Journal of the American Medical Association*, 267(19), 2650. <https://doi.org/10.1001/jama.1992.03480190092040>
- Schmitt, B. D. (1980). Fever Phobia. *American Journal of Diseases of Children*, 134(2), 176. <https://doi.org/10.1001/archpedi.1980.02130140050015>
- SCHUSTER, M. A., McGLYNN, E. A., & BROOK, R. H. (2005). How Good Is the Quality of Health Care in the United States? *Milbank Quarterly*, 83(4), 843–895. <https://doi.org/10.1111/j.1468-0009.2005.00403.x>
- Simanjuntak, C. H., Punjabi, N. H., Wangsasaputra, F., Nurdin, D., Pulungsih, S. P., Rofig,

- A., ... Clemens, J. D. (2004). Diarrhoea episodes and treatment-seeking behaviour in a slum area of North Jakarta, Indonesia. *Journal of Health, Population and Nutrition*, 22(2), 119–129.
- Simpkins, D., Wood, N., Jelfs, J., McIntyre, P. B., Menzies, R., Lawrence, G., & Booy, R. (2009). MODERN TRENDS IN MORTALITY FROM MENINGOCOCCAL DISEASE IN AUSTRALIA. *The Pediatric Infectious Disease Journal*, 28(12), 1119–1120. <https://doi.org/10.1097/INF.0b013e3181accde8>
- Soumerai, S. B., McLAUGHLIN, T. J., & Avorn, J. (2005). Improving drug prescribing in primary care: A critical analysis of the experimental literature. *Milbank Quarterly*. <https://doi.org/10.1111/j.1468-0009.2005.00435.x>
- Trainor, J. L., Hampers, L. C., Krug, S. E., & Listernick, R. (2001). Children with First-time Simple Febrile Seizures Are at Low Risk of Serious Bacterial Illness. *Academic Emergency Medicine*, 8(8), 781–787. <https://doi.org/10.1111/j.15532712.2001.tb00207.x>
- Uppal, N., Mishra, S. K., & Vohra, N. (2014). Prior Related Work Experience and Job Performance: Role of personality. *International Journal of Selection and Assessment*, 22(1), 39–51. <https://doi.org/10.1111/ijsa.12055>
- van der Heijden, B. I. J. M., van Dam, K., & Hasselhorn, H. M. (2009). Intention to leave nursing. *Career Development International*, 14(7), 616–635. <https://doi.org/10.1108/13620430911005681>
- Velo, G. P., & Minuz, P. (2009). Medication errors: prescribing faults and prescription errors. *British Journal of Clinical Pharmacology*, 67(6), 624–628. <https://doi.org/10.1111/j.1365-2125.2009.03425.x>
- WHO. (1999). WHO_CDS_99.1 World health Organization. Report on infectious Diseases. Removing obstacles to healthy development.pdf. Geneva Switzerland World Health Organization [WHO] 1999. Retrieved from <https://www.popline.org/node/284391>
- World Health Organisation. (2004). Facts and Figures: Water, Sanitation and Hygiene Links to Health. <https://doi.org/10.1136/ip.2004.005405>
- World Health Organization., D. of A. C., Health, Organization, W. H., & UNICEF. (2005). *Handbook IMCI: integrated management of childhood illness*. World Health Organization.
- World Health Organization. (2011). *Malaria: Global Fund proposal development*. [Www.who.int/malaria](http://www.who.int/malaria). World Health Organization. [https://doi.org/10.1016/00359203\(91\)90261-V](https://doi.org/10.1016/00359203(91)90261-V)
- World Health Organization. (2015). *Guidelines For The Treatment of Malaria - 3rd edition*. [Www.who.int/malaria](http://www.who.int/malaria). World Health Organization. [https://doi.org/10.1016/00359203\(91\)90261-V](https://doi.org/10.1016/00359203(91)90261-V)

Appendices Appendix

I:

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH SERVICE PLANNING AND MANAGEMENT
QUALITY CARE MANAGEMENT OF FEBRILE ILLNESSES AMONG
CHILDREN UNDER FIVE (5) YEARS IN ATWIMA KWANWOMA
DISTRICT IN ASHANTI REGION

QUESTIONNAIRES FOR PRESCRIBERS.

Section A: Socio-demographic characteristics

1. Age of respondent
.....
2. Sex of respondent
 - a. Male
 - b. Female
3. What is your marital status?
 - a. Married
 - b. Living with a partner
 - c. Divorced/separated
 - d. Widow/widower
 - e. Never married
4. What is your level of Education?
 - a. No education
 - b. Primary
 - c. Middle/JHS
 - d. Secondary/SHS
 - e. Tertiary

Staffing

5. What is your principal professional qualification?
 - a. Medical Officer
 - b. Medical/Physician Assistant
 - c. Midwife
 - d. Nurse prescriber
 - e. Other (specify).....
6. What is your rank in this health facility?
 - a. SNR. Medical Officer
 - b. Jnr medical Officer

- c. SNR. Medical/Physician Assistant
- d. Medical/Physician Assistant
- e. SNR. Midwife
- f. Midwife
- g. Principal Nurse prescriber
- h. Nurse prescriber
- i. Other specify.....

Professional experience

7. How long have you worked in this profession?

- a. <1 year,
- b. 1-3years,
- c. 4-6years,
- d. 7-9years,
- e. 10years and above)
- f. Others

8. How long have you worked at this facility?

- a. <1 year,
- b. 1-3years,
- c. 4-6years,
- d. 7-9years,
- e. 10years and above)
- f. Others

9. On the average how many febrile illnesses do you see in a day?

- a. 1-5
- b. 6-10
- c. 11-15
- d. 16-20
- e. >20

10. How do you perceive the quality of care provided to patient visiting this facility? Please circle

- a. Best
- b. Better
- c. Good
- d. Bad
- e. Worse
- f. Worst

Section B: Factors influencing quality care management of febrile illnesses

Prescribers factors

The following are patient factors that influence the quality care management febrile illness based on prescribers perspective.

Please tick the appropriate response

| | | Yes | No |
|----|---------------------------------------|-----|----|
| 11 | Superstition | | |
| 12 | Confidentiality of patients' records | | |
| 13 | Cost of health care | | |
| 14 | Geography (Proximity to the hospital) | | |
| 15 | Socioeconomic status | | |
| 16 | Severity of illness. | | |
| 17 | Low participation in health insurance | | |

Section C: Challenges impeding quality care management of febrile illness

Human resource challenges

The following are number of human resource challenges that are believed to impede quality care management of febrile illnesses. Please use the scale below to indicate the extent to which you agree or disagree with each item

1=Strongly Disagree, 2=Disagree, 3=neither agree or disagree, 4=Agree, 5=Strongly Agree

| <i>Recruitment/selection challenges</i> | | | | | |
|--|--|--|--|--|--|
| 18. | Scarcity/shortage of qualified employees | | | | |
| 19. | Dilemma between education and experience | | | | |
| 20. | Leadership interference | | | | |
| 21. | Dissatisfaction from health care professionals | | | | |
| 22. | Location based challenges | | | | |
| 23. | Limited diversity | | | | |
| <i>Training and development challenges</i> | | | | | |
| 24. | Lack of time | | | | |
| 25. | Lack of funding | | | | |
| 26. | Lack of provision of study leave | | | | |
| <i>Performance review/appraisal challenges</i> | | | | | |
| 27. | Limited performance improvement opportunities | | | | |
| 28. | High employee turnover | | | | |

| | | | | | | |
|---|--|--|--|--|--|--|
| 29. | Lack of standard procedures to measure performance | | | | | |
| 30. | Absence of measurable goals | | | | | |
| 31. | Inconsistent performance reviews | | | | | |
| <i>Reward and recognition challenges</i> | | | | | | |
| 32. | High employee turnover | | | | | |
| 33. | Absence of measurable goals | | | | | |
| 34. | Lack of standard procedures to measure performance | | | | | |
| 35. | Lack of funding | | | | | |

Infrastructural and logistics challenges

Availability of diagnostics and decision aids

36. Do you have a copy of the WHO/UNICEF guidelines for the management of fevers in this facility?
- Yes
 - No
37. Which of the following modern wall charts, algorithms/decision charts for disease is available in your facility?
- RDT wall chart displayed,
 - IMCI wall chart displayed,
 - AL dosing wall chart displayed,
 - At least two (2) wall charts displayed (malaria RDT, AL dosing or IMCI),
 - All three wall charts displayed (malaria RDT, AL dosing and IMCI)
 - Others.....
45. How familiar are you with the process of management?
- Very familiar
 - somehow familiar
 - Neither familiar or unfamiliar
 - Unfamiliar
 - Very unfamiliar
46. Mention the decision aids available in this facility with regards to management of fevers/febrile illness
-
38. Do you have functional laboratory in this facility?
- Yes
 - No
39. If yes, do have a competent technician to manage the laboratory?

- a. Yes
- b. No

40. Which of the following do you have in logistic/infrastructure do you have in your facility?

- a. Functional microscope,
- b. Malaria RDTs,
- c. Functional pulse oximeter,
- d. Functional X-ray machine,
- e. Respiratory rate counter or watch with indicator for seconds,

Availability of drugs

41. Is there a pharmacy in this facility?

- a. Yes
- b. No

If yes (go to 51), if no (go to 52)

42. Do you have a pharmacist/pharmacy technician to manage the pharmacy?

- a. Yes
- b. No

43. Do you have AL in stock today?

- a. Yes
- b. No

If no (go to 53), if yes (go to 54)

44. Do you have an alternative antimalarial?

Name it.....

45. Do you have Amoxicillin/cefuroxime in stock today?

- a. Yes
- b. No

If no (go to 55), if yes (go to 56)

46. Do you have an alternative antibiotic?

- a. Yes
- b. No

54. Name it.....

55. Have you had AL stock-outs in previous 12 months?

- a. Yes
- b. No

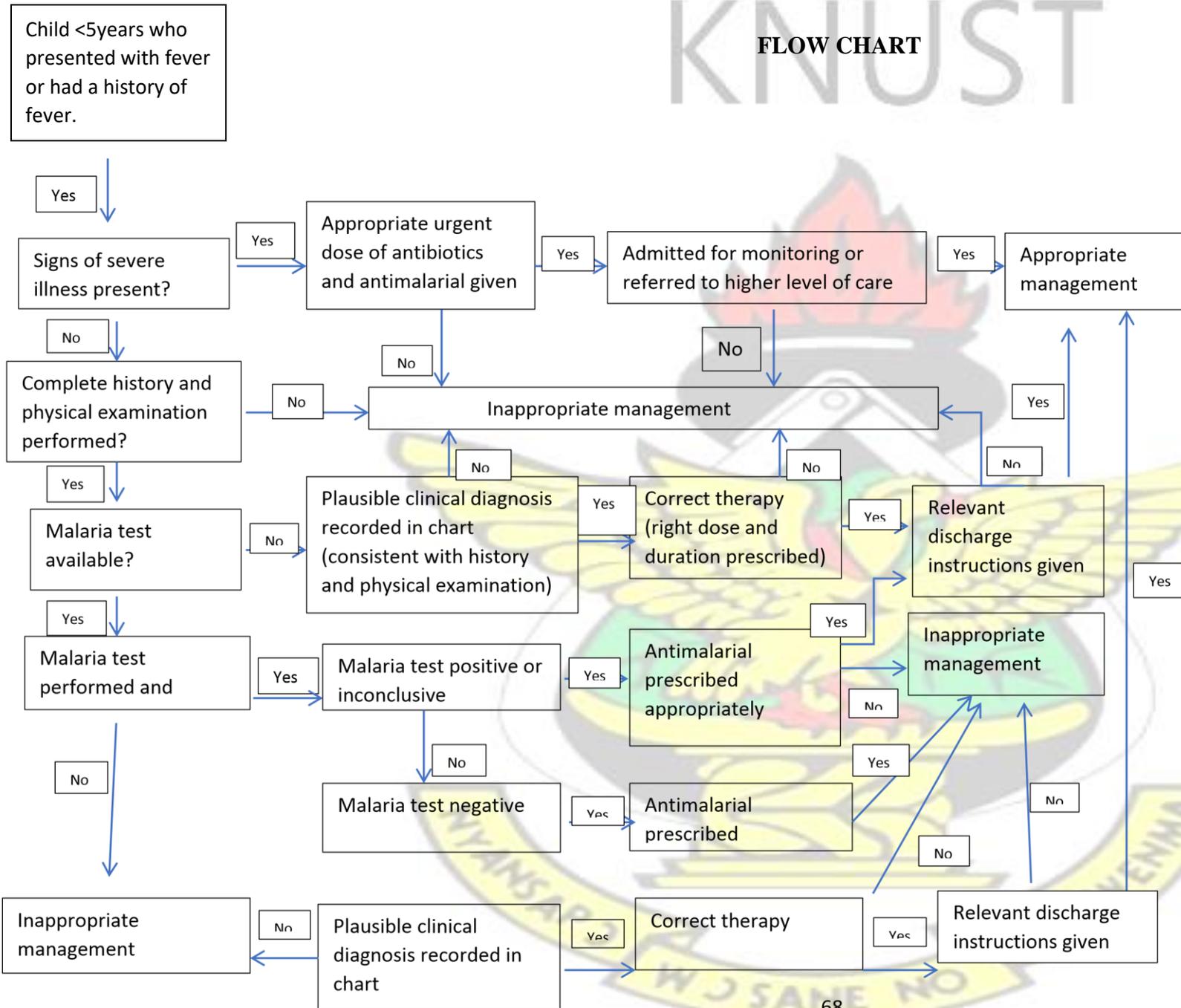
56. Have you had Amoxicillin/cefuroxime stock-outs in previous 12 months?

- a. Yes
- b. No

57. Do you have any other challenges you think affect quality care management of febrile illness in this facility (not listed above)?

KNUST

FLOW CHART



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Flowchart showing

Fever management best practice
evaluation algorithm derived from
the WHO/UNICEF IMCI
guidelines and the Guidelines for
diagnosis and treatment of malaria
in Ghana

Appendix 2 INFORMATION SHEET AND CONSENT FORM

Title of Project: QUALITY CARE MANAGEMENT OF FEBRILE ILLNESSES
AMONG CHILDREN UNDER 5 YEARS IN ATWIMA KWANWOMA DISTRICT IN
ASHANTI REGION

INFORMATION SHEET FOR CLIENTS

You are being invited to take part in a research study, aimed at examining quality care management of children under (5) years.

Before you decide to take part in this study, it is important for you to understand why the research is being done and what it will involve. Please take some time to read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would want more information. Take time to decide whether or not you wish to take part.

Who is conducting the study?

The study is being conducted by Samuel Koranteng Asante, a student being supervised by Dr. Kofi Akohene Mensah of Kwame Nkrumah University of Science and Technology, School of Public Health.

What is the purpose of the study?

The study is about examining quality care management of febrile illnesses in children under five(5) in order to provide important feedback to the relevant policymakers, practicing professionals, health workers, and providers and the general public as a whole and make necessary adjustments and help improve the way febrile illnesses are managed. The fieldwork for this study begins on the 1st July 2019 and will continue until 31st August, 2019.

Why have I been asked to take part?

You have been chosen to represent the views of prescribers on factors affecting and challenges impeding quality care management in children under five (5) years.

What would be involved?

The structured questionnaire will be administered to you at a designated place of the facility where you will feel comfortable. The questions will ask your views as a prescriber on factors affecting and challenges impeding quality care management in children under five (5) years.

What happens next?

If you are interested in taking part in this study then a consent form will be given to you to sign to affirm your willingness to take part in the study.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving reason.

What are the benefits of taking part?

There may be no direct benefits of filling the questionnaire. However, you will be providing useful and important information, which will contribute to the improvement of the management of febrile illnesses in the district.

Will my taking part in this study be kept confidential?

All information which is collected about you or your facility during the course of the study will be kept strictly confidential. No names will be recorded and so it will not be linked to you in anyway in the report of this study. However, your participation in this study is entirely voluntary.

What will happen to the results of the research study?

The results of the study will be presented to the school of public health of Kwame Nkrumah University of Science and Technology and also published in academic journals. If you wish, you can obtain a copy of the published results by contacting Samuel Koranteng Asante.

You will of course not be identified in the final report or publication.

Who is organizing and funding the research?

The research is being undertaken by Samuel Koranteng Asante, a Master's in Public Health student at the Kwame Nkrumah University of Science and Technology under the supervision from an academic lecturer. The student is funding this research.

Thank you for reading this.

