

**SYNDROMIC MANAGEMENT OF SEXUALLY TRANSMITTED
INFECTIONS AMONG PREGNANT WOMEN ATTENDING
NAIROBI CITY COUNCIL CLINICS**

Alice Nangekhe Songwa

I56/9140/2000

**A Thesis Submitted in Partial Fulfillment for the Degree of Master of
Public Health and Epidemiology of Kenyatta University**

Songwa, Alice
*Syndromic management
of sexually*



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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University or any other award.

Signed Aboungwa Date: 1. 8. 2003

SUPERVISORS' APPROVAL:

We confirm that the work reported in this thesis was carried out by the candidate under our supervision.

1. Dr. John Nzyoka Mbithi,
School of Pure and Applied Sciences,
Department of Zoology,
Kenyatta University.

Signed J. Mbithi Date: August 11, 2003

2. Dr. Zipporah Ng'ang'a,
School of Pure and Applied Sciences,
Department of Zoology,
Kenyatta University.

Signature Z. Ng'ang'a Date: 11th August 2003

3. Prof. Job Joab Bwayo,
College of health Sciences,
Department of Medical Microbiology,
University of Nairobi.

Signed J. Bwayo Date: 1st August 2003

DEDICATION

This work is dedicated to my husband Henry Musemate Murwa and my children: Dan-Hickson Aluvi, Frank Muhande and Karen Khaoya for their love, patience, support and encouragement throughout the study.

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ABSTRACT

Syndromic management (SM) is a World Health Organization (WHO) strategy for the management of Sexually Transmitted Infections (STI). Diagnosis is based on identification of syndromes, which are combinations of symptoms as reported, by client and signs observed during examination. The recommended treatments are effective for all possible causative agents that could cause the identified syndrome. Syndromic management is recommended for STI management in developing countries especially where laboratory facilities are unavailable. Although Syndromic Management has a wide application in developing countries, there are no systematic surveys to evaluate its performance in many of these countries including Kenya. This study was therefore designed to assess knowledge of STI attitude towards STI Management and health seeking behavior among pregnant women with STI. In addition knowledge and attitude towards SM practice among health care providers (HCP) was assessed. In both cases, structured interview were used to collect data. Availability of Syndromic management drugs and materials was assessed using a checklist. In all, 414 women and 37 health care providers were recruited in the study.

The knowledge of STI among pregnant women was generally poor but high on a few specific STI namely Syphilis (93.5%) Gonorrhoea (90.5%) and HIV/AIDS (78.3%). The respondent's attitude towards the quality of STI management was below average (37.2%), although the patient perceived the quality to be high if the drugs were available (87.2%) or the health care providers were friendly (56.3%). On health seeking behaviour most respondents sought STI medical care (61.4%) but mainly from Public clinics (56.7%). Private clinics were sought by only 38.2% with few patients treating themselves (4.7%) or seeking help from traditional herbalist (0.4%).

The HCP had good knowledge of the indicators outlined in the WHO Syndromic management strategy. However, their attitude towards SM practice in Nairobi City Council clinics (NCC) was poor (16.7%), and was mainly moderated by the poor supply of drugs and availability of SM equipment and materials.

In conclusion majority of the women had excellent knowledge of syphilis, gonorrhoea and HIV/AIDS but had extremely poor knowledge of all other STI. Sexually transmitted infection management was perceived by the respondents as drug availability and staff friendliness. Although the Health Care Providers had good syndromic management knowledge, SM practice was hampered by availability of drugs and equipments.

Health education campaign should target STI pregnant women. Drug and material supply should be encouraged to permit Syndromic Management practice among health care providers in Nairobi City Council Clinics. Taken together, these measures will facilitate STI control.

TABLE OF CONTENTS

	Page
Title Page	i
Declaration	ii
Dedication	iii
Acknowledgement	iv
Abstract	v
Table of Contents	vii
List of Tables	xi
List of Figures	xii
List of Abbreviations	xiii

CHAPTER ONE: INTRODUCTION AND LITERATURE REVIEW

1.0 Introduction	1
1.2 Literature Review	2
1.2.1 Sexually transmitted infections in pregnancy	3
1.2.2 Management of sexually transmitted infections	5
1.2.3 Syndromic management	5
1.3 Justification of the study	7
1.3.2 Null Hypothesis	8
1.4 Objectives of the study	8
1.4.1 General objective	8
1.4.2 Specific objectives	8

CHAPTER TWO: MATERIALS AND METHODS

2.0 Study area.....	9
2.1 Study population	9
2.2 Study design	10
2.2.1 Inclusion criteria	10
2.2.1.1 Health care facilities	10
2.2.1.2 Health care Providers.....	10
2.2.1.3 patients	10
2.2.2 Exclusion criteria	11
2.2.2.1 Health care facilities	11
2.2.2.2 Health care providers	11
2.2.2.3 Patients.....	11
2.3 Health care facility assessment.....	11
2.3.1 Observation of health care provider-patient interaction	12
2.3.2 Interview of health care providers	12
2.3.3 Patient exit interview	12
2.3.4 Sampling	13
2.3.5 Ethical considerations.....	13
2.4 Data Collection	14
2.5 Data management and analysis	14
2.6.0 Calculation of Respondent Knowledge Index of STI.....	14
2.6.1 Calculation of HCP practice Index on SM	15

CHAPTER THREE: RESULTS

3.0 Distribution of STI clinics in Nairobi	16
3.1 Socio-demographic characteristics of the Respondents	17
3.1.1 Respondents Age Distribution	17
3.1.2 Marital Status Of The Respondents.....	18
3.1.3 Education Level Of The Respondents	19
3.1.4 Parity of the Respondents	20
3.1.5 STI Pregnant Women Distribution	21
3.2 Knowledge of STI Among pregnant women.....	22
3.2.1 Attitude Towards Health Care Quality Among the Pregnant women	24
3.2.2 Health seeking Behavior of The pregnant women	24
3.2.3 Treatment Facility Preference Among The Respondent	25
3.2.4 Knowledge Index of STI Among pregnant women.....	27
3.3 Pregnant women Respondent Screened for Syphilis.....	28
3.4 Common STI Syndromes in NCC Clinics	30
3.4.1 STI Distribution Among The Divisions Of Nairobi	32
3.4.2 Temporal Distribution Of STI in Nairobi.....	32
3.5 Distribution of Health Care providers	34
3.5.1 Syndromic Management Knowledge Of Health Care Providers.....	35
3.5.2 Syndromic Management Practice Among Health Care Providers	35
3.5.3 Knowledge Index of Syndromic Management Among Health Care providers	38
3.5.4 Practice Of Syndromic Management Among Health Care Providers	39
3.6 Attitude of Health Care providers towards SM Improvement	40
3.7 Availability of Syndromic Management Drugs.....	40
3.8 Availability of Syndromic Management Materials	42

3.8.1 Use of STI Syndromic Materials42

CHAPTER FOUR: DISCUSSION

4.0 General Discussion44

4.1.0 Knowledge and attitude of STI Among pregnant women44

4.2 Knowledge, Attitude and SM Practice Among Health Care Providers47

4.3 Syndromic Management Strategy51

4.4. STI drugs for Syndromic Management52

4.5 Materials for STI Syndromic management53

4.6 Scope and extent of STI in NCC clinics53

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions.....56

5.2 Recommendations.....57

References.....58

Appendices.....65

LIST OF TABLES

Table Number	Title	Page
1	Distribution Of Strengthened Health Care Facilities Within Nairobi ...	16
2	Distribution Of Pregnant Women Respondents.....	21
3	Knowledge Of STI Among Pregnant Women.....	23
4	Respondents STI Experience And Health Seeking Behavior.....	25
5	Syphilis Screening In Selected Clinics.....	29
6	Distribution Of Health Care Providers.....	34
7	Knowledge And Practice Of Syndromic Management Of STI Among Health Care Providers.....	37
8	Drugs Available At STI Clinics	41
9	Availability And Use of Syndromic Management Materials.....	43

LIST OF FIGURES

Figure Number	Title	Page
1	Respondent Age Distribution.....	17
2	Marital Status of Patient Respondents.....	18
3	Respondents Level of Education	19
4	Parity of Patient Respondents.....	20
5	Treatment Facility Preference Among The Respondents.....	26
6	Knowledge Index Of STI Among Pregnant Women.....	27
7	Common STI Syndromes Among Pregnant Women In Nairobi	31
8	Temporal Variation of Common STI Syndromes In Nairobi.....	33
9	Knowledge Index Of SM Among Health Care Providers.....	38
10	Practice of SM Among Health Care providers	39

LIST OF ABBREVIATIONS

ANC	-	Ante-natal care
CIDA	-	Canadian International Development Agency
EU	-	European Union
GPA	-	Global Programme on AIDS
HB	-	Haemoglobin Level
HCP	-	Health Care Provider
HCF	-	Health care facility
HIV	-	Human Immunodeficiency Virus
HSB	-	Health Seeking Behaviour
KDHS	-	Kenya Demographic Health Survey
KEMRI	-	Kenya Medical Research Institute
MCH/FP	-	Maternal Child Health and Family Planning
NCC	-	Nairobi City Council Clinics
NASCOP	-	National AIDS and STD Control programme
PI6	-	Preventive Indicator 6
PI7	-	Preventive Indicator 7
RPR	-	Rapid Plasma Reagin
N	-	Number of subjects
STI	-	Sexually Transmitted Infections
STD	-	Sexually Transmitted Diseases
STC	-	Special Treatment Center
M.O.H	-	Ministry of Health
VDRL	-	Venereal Disease Research Laboratory
WHO	-	World Health Organization

CHAPTER ONE

INTRODUCTION AND LITERATURE REVIEW

1.0: Introduction

Sexually Transmitted Infections (STI) are recognized as a serious global threat to the health of mankind. In 1995, the World Health Organization (WHO) estimated that as many as 333 million new cases of curable STI occur each year (UNAIDS/WHO, 1995; WHO, 1996). These comprise 12 million (3%) new cases of syphilis, 62 million cases (19%) of gonorrhoea, 89 million cases (27%) of chlamydia, and 170 million cases (51%) of trichomoniasis. Sixty five million (20%) of these curable STI occur in Sub-Saharan Africa. This region has the highest levels of STI including HIV infections. In Kenya, as in other African countries, STI remain a major public health problem and over 50,000 cases of STI are reported each month (NASCO, 1999).

The prevalence of STI in the general population in Nairobi is unknown. However, studies among a sub-population of antenatal and family planning attendants have shown STI rates to be substantial (Temmerman *et al.*, 1994; Tyndall *et al.*, 1999). Although STI prevalence among female antenatal clinic attendants in Nairobi declined between 1992 and 1999 from 9% to 2% for gonorrhoea, 5% to 3% syphilis while chlamydia increased from 4% to 7% respectively (Solo *et al.*, 1999), the HIV prevalence increased from 15% to 19% (NASCO, 1999). STI such as gonorrhoea, chlamydia, syphilis and HIV are known to have an adverse effect on pregnancy outcome (Temmerman *et al.*, 1992; Leroy *et al.*, 1998).

Syndromic management is one of the tools that can be used to help control the spread of STI as well as prevent complications resulting from STI in infected individuals, including reduction of

the probability of HIV transmission (Malbey and Vos, 1997; Grosskurth *et al.*, 1995). However, little is known about the use of syndromic management of STI in pregnant women. This study investigated the problems associated with syndromic management among pregnant women in various health clinics in Nairobi city, Kenya. In addition, the study also assessed the knowledge, attitude and health seeking behaviour of pregnant women with STI.

1.2: Literature Review

The terms STI is used for all infections that are transmitted mainly through sexual contact, but other routes like, mother to child transmission; unsafe blood transfusions; or medical instruments also play an important role (NASCO, 1999). Diverse pathogenic organisms that include bacterial, fungal and viral agents cause sexually transmitted infections. Bacterial agents of STI spread over several genera like spirochaetaceae that feature the syphilitic agent *Treponema pallidum*; Neisseriaceae which is represented by *Neisseria gonorrhoea* causative agent for gonorrhoea; *Chlamydia trachomatis* of Chlamydiae group which is an agent for non-gonococcal infections. Candida infection is caused by the fungus *Candida albicans*, while Trichomoniasis is caused by protozoan agent *Trichomonas vaginalis*.

Sexually transmitted infections evolved from the older term venereal diseases. Evolution of the term reflects recognition of the increasing number of infections that are sexually transmissible (Holmes *et al.*, 1998). The occurrence of STI began with the earliest written record of man some 4,000 to 5,000 years ago (Kampmeier, 1984). The outbreak of syphilis in Europe in the 15th century began with a thorough documentation of the history of STI and had a significant influence on public health measures as well as placing STI within the moral context (Smith *et al.*, 1993). Gonorrhoea is one of the oldest known STI, and there are references to venereal

urethritis in ancient Chinese writings, the biblical Old Testament (Leviticus, 15: 1-6) and other literature of antiquity.

Sexually transmitted infections are an important cause of morbidity and mortality throughout the world (Simms *et al.*, 1998). They are recognized as a serious global threat to the health of populations (WHO, 1996). Further, they are a major burden of diseases in many developing countries including Kenya (Mabey, 1996; Murray *et al.*, 1998). In addition, STI enhance the transmission of HIV (Laga *et al.*, 1991; Plummer *et al.*, 1991).

1.2.1: Sexually Transmitted Infections In Pregnancy

The importance of STI in pregnancy stems from their influence on pregnancy outcome, which includes: ectopic pregnancy, spontaneous abortion, neonatal blindness and infections, fetal wastage and premature labour. It is estimated that at least 60% of pregnant women with syphilis will experience an adverse pregnancy outcome, which include stillbirths, neonatal deaths, premature delivery and spontaneous abortions (Van Dam, 1995). Gonorrhoea in pregnant women is associated with increased risks of spontaneous abortion due to premature rupture of membranes, and perinatal infant mortality (Handsfield, 1973; Edwards, 1978; Schulz, 1987). Infected mothers with gonorrhoea can transmit the disease to the newborn baby either in *utero*, during delivery or in the postpartum period. Gonococcal conjunctivitis of the newborn (ophthalmia neonatorum) is the most clinically recognized manifestation in those born to mothers with gonorrhoea (Desenclos *et al.*, 1992). This was recognized as one of the most common cause of blindness in new-borns in the United States and still remains common in some developing countries including Kenya (Laga *et al.*, 1986). Therefore the control of gonorrhoea during pregnancy may have a substantial impact on prematurity and perinatal mortality.

There is increasing evidence of an association between *Trichomonas vaginalis* and Bacterial vaginosis with adverse premature rupture of membranes, low-birth weight and pre-term delivery (WHO, 2001). Gonococcal and chlamydial infections, as well as syphilis and HIV are associated with adverse obstetric outcomes as stated above. Further more, pregnancy is known to accelerate the development of full - blown AIDS particularly in asymptomatic healthy mothers who are sero-positive (NASCOB, 1999). In Kenya, studies carried out in Nakuru Municipal Council Clinics to improve the management of STI in mothers attending antenatal clinics and family planning clients reported that 59% of pregnant women and 50% family planning clients had at least one STI (Solo *et al.*, 1999). Another study carried out in Nairobi City Council (NCC) clinics to validate the different algorithms for the diagnosis of *gonococcal* and *chlamydial* infections among pregnant and non-pregnant women consulting health services for vaginal discharge (Fonck *et al.*, 2000), showed overall prevalence rates as 50% candidiasis, 23% trichomoniasis, 9% bacteria vaginosis, 7% gonorrhoea, 9% chlamydia, 7% syphilis and 22% HIV. Based on this study, 54% of those found with STI were pregnant women. Antenatal treatment of syphilitic women significantly improved pregnancy outcome but the risk of adverse outcome remained 2.5 fold higher than the risk observed in uninfected mothers (Temmerman *et al.*, 2000). Studies by Gichangi *et al.*, (2000) for partner notification of pregnant women infected with syphilis in Nairobi, Kenya showed 67% to have received syphilis treatment whereas 23% had not sought treatment. Management of STI in pregnancy should therefore be given utmost priority to prevent adverse effects like pregnancy wastage, ectopic pregnancy, spontaneous abortions, still births, premature labour, congenital abnormalities and neonatal death or latent infections.

1.2.2: Management of Sexually Transmitted Infections

Management of STI includes proper history taking, examination, diagnosis, treatment and STI health education. These form Preventive Indicators (PI) PI6 and PI7 of the WHO Guidelines (WHO, 2001). Preventive Indicator-6 comprises history taking, examination, diagnosis, and treatment while PI7 involves proper STI health education and partner notification (WHO 2001). According to National guidelines PI7 also includes advice on compliance and counseling thus forming the 4 Cs, thus: (Counseling, Compliance, Condom promotion, Partner notification / Contact tracing). Effective STI management consists not only of anti-microbial therapy to obtain cure and reduce infectivity, but also comprehensive care of the patient's needs for reproductive health (WHO, 2001). These are goals in their own rights and strategies in prevention of HIV infections (Grosskurth *et al.*, 1995).

There are two approaches to the management of STI, namely: clinical and laboratory diagnosis. Management of STI can be difficult particularly in situations where use of laboratory diagnosis is unavailable or prohibitively expensive. Laboratory diagnosis is the most accurate way of identifying the causative agents of STI but it is not feasible in many parts of the world especially in resource poor settings, as this approach is costly and may lead to delayed diagnosis and treatment. To overcome the limitations of the etiological management of STI, the WHO has placed an increased emphasis on integrated care using syndromic management at the primary care level, especially in developing countries (WHO, 2001).

1.2.3: Syndromic Management

In an effort to standardize and improve clinical practice, the WHO developed a syndromic approach, whereby diagnosis is based on identification of syndromes which are combinations

of symptoms as reported by client and signs observed during examination. The most common STI syndromes that are managed using the National syndromic management flow chart are urethral discharge in men, vaginal discharge in women, lower abdominal pain in women, Genital ulcer disease and ophthalmia neonatorum in newborn babies as outlined in appendix 10. The recommended treatments are effective for all possible causative agents that could cause the identified syndrome (WHO, 2001). The most recent drugs in recommended dosages are explained and are effective for specific syndromes. Generally the treatment is provided during the patient's first visit, without the need to return to the clinic. Health education; counseling, condom promotion, the importance of treatment adherence, and partner referral are all recommended by the process as an integral part of effective management (WHO, 2001).

Syndromic Management (SM) approach focuses on common curable STI namely syphilis, chancroid (GUD), gonorrhoea, chlamydia, trichomoniasis and candidiasis (WHO, 2001). Many STI including HIV are known to be asymptomatic, lacking signs that are clinically observable (Wilkinson *et al.*, 1999). Evidence is also growing of self-reported symptoms of common lower tract infections (bacterial vaginosis, candidiasis and *Trichomonas vaginalis*) that correlate poorly with laboratory evidence of infection (Zurayk *et al.*, 1995; Bulut *et al.*, 1997), resulting in poor association between clinical diagnosis and laboratory results (Kaufman *et al.*, 1999).

The main syndromes addressed by syndromic management are; genital ulcers in men and women, urethral discharge in men, vaginal discharge and lower abdominal pain in women. Treatment of STI of the above syndromes is prescribed according to the STI management National flow chart Guidelines (NASCO, 1999).

Use of Syndromic Management approach has been tested, implemented and found to be effective in various countries (WHO 2001). Syndromic approach is ideal for situations where

sophisticated laboratory diagnosis is either impractical or too costly. It is also ideal for primary health care settings and can be used in different types of clinics such as antenatal and family planning clinics (Solo *et al.*, 1999). In Kenya, syndromic management was introduced in the early 1990s (NASCO, 1999). STI case management in Kenya has been found to be lacking due to incorrect history taking, incorrect genital examination and incorrect treatment of causative agents (Voeten *et al.*, 2001) as well as poor STI health education to the clients (O'Hara *et al.*, 2001). However, little has been reported on quality of care and problems associated with syndromic management of STI in pregnant women in Nairobi, Kenya. In addition, little has been determined on the knowledge, attitude and health seeking behaviour of pregnant women.

1.3: Justification Of The Study

STI management by syndromic approach has been shown to be an effective method for STI management and control. However, issues related to adherence to protocol by various health care providers, and the availability of necessary drugs for pregnant women in Kenya has not been elucidated for syndromic management. These can probably only be realized if there is proper training of Health Care Providers (HCP), availability of SM drugs and materials, compliance by the HCP in prescribing the correct combination of drugs and acceptance of the SM approach and proper patient health seeking behaviour (HSB). So far, no studies have been done to assess the effectiveness of syndromic management of STI especially in pregnant women attending Nairobi city council clinics.

This study aimed at addressing these issues in the STI strengthened NCC clinics since they are supposed to be well equipped with trained personnel, drugs and materials for syndromic management of STI in pregnant women.

1.4: Null Hypothesis

1. STI knowledge and attitude towards quality care among pregnant women does not influence their health seeking behaviour.
2. Knowledge and attitude towards syndromic management does not affect the practice of STI syndromic management among HCP.
3. Inadequacy of recommended STI drugs and materials does not hamper syndromic management of STI in pregnant women.

1.5.0: Study Objectives

1.5.1: General Objective

To assess problems associated with syndromic management of STI in pregnant women attending Nairobi City Council clinics.

1.5.2: Specific Objectives

1. To assess knowledge, attitude, and health seeking behaviour of pregnant women seeking STI management.
2. To assess knowledge and practice of health care providers in syndromic management of STI in pregnant women.
3. To assess attitude of health care providers towards syndromic management of STI in pregnant women.
4. To assess the availability and use of syndromic management drugs and materials for the management of STI in pregnant women.

CHAPTER TWO

MATERIALS AND METHODS

2.0: Study Area

The study was carried out in Nairobi, the capital city of Kenya and the main commercial center. Nairobi is a cosmopolitan town with a large population of the urban poor living in the slums. Nairobi situation analysis of 2001 indicates that 88.3 % live in slums. This is according to Kenya government and United Nations center for human settlement (UNCHS, 2001) report. Nairobi has an area of 696.1km² and is divided into 8 administrative divisions (Appendix 1). It has a population of 2,143, 254 of which 54% are males and 46% females inclusive of children with a density of 3, 079 per km² (KDH, 1998). The populations of women of childbearing age (15-45 years) is 28%; with an overall rate of illiteracy of 2%. Nairobi is mainly served by health facilities run by the Nairobi City Council, which has 54 health centers and dispensaries in the eight administrative divisions of the city. City Council health facilities have been classified into two Divisions namely Division One and Division Two for administrative purposes. Division One encompasses all city council clinics located East and North of Nairobi River while health care facilities located on the South and West parts of the river fall under Division Two. Nairobi residents also benefit from Kenyatta and Mbagathi referral hospitals and numerous private health facilities.

2.1: Study Population

The study included 12 antenatal NCC clinics that are strengthened to manage STI syndromes. All health care providers working in these clinics and attending to pregnant women with STI were recruited into the study as respondents.

2.2: Study Design

This was a descriptive cross-sectional study using structured questionnaires to collect quantitative data (Appendix 2,3,4,5 & 6). The questionnaires were pre-tested in a similar clinic. This was necessary for familiarization purposes to ensure that the questions were well understood. Alterations were effected before the main study.

2.2.1: Inclusion Criteria

2.2.1.1: Health Care Facilities (HCF)

All STI strengthened NCC antenatal clinics offering STI syndromic management, were included in the study. These clinics are distributed throughout Nairobi as illustrated in Appendix I. Division one has seven of these clinics, which included Makadara, Eastleigh, Mathare-North, Jericho, Kariobangi, Baba Dogo, and Dandora Health Centers. While Division two included Langata, Riruta, Ngong Road, Westlands and Kangemi Health Centers respectively.

2.2.1.2: Health Care Providers

Health care providers working in the 12 STI strengthened clinics, in the two divisions of Nairobi HCF and attending pregnant women using syndromic approach, were included in the study if they gave consent to participate. Additionally, they should have managed two or more STI pregnant women in the preceding week.

2.2.1.3: Patients

All pregnant women that were coming to the clinics for STI management during study period were recruited into the study if they gave consent to participate.

2.2.2: Exclusion Criteria

2.2.2.1: Health Care Facilities

Health care facilities not offering STI syndromic management were excluded from the study. The clinics that did not give consent to participate in the study were also left out of the study.

2.2.2.2: Health Care Providers

Health care providers not attending to pregnant women with STI, did not use syndromic approach, did not give consent and those who attended to less than two STI pregnant women in the preceding week of data collection were excluded from the study.

2.2.2.3: Patients

Non-pregnant women with STI attending these clinics and pregnant women with STI who did not give consent to participate were excluded from the study.

2.3: Health Care Facility Assessment

A standard checklist was used to obtain an inventory of drugs, flow-charts, equipment, STI health education materials used for STI syndromic management (Appendix 2 & 3) in each clinic. Assessment of the availability of trained personnel in STI syndromic management was also carried out. The resulting clinic profile was used to provide a quantitative assessment of adequacy of health care facilities and the suitability of the clinics in the provision of STI syndromic management. Ten days was allocated for each clinic during which time the HCF was assessed, the HCP observed as they managed STI pregnant women and the HCP interviewed, and at least four consecutive women diagnosed with STI were interviewed per day on exit.

2.3.1: Observations Of Health Care Provider-Patient Interaction

To assess the actual practice of the HCP, each was observed as he or she managed STI pregnant woman. Verbal consent was obtained by the HCP from each patient to allow the observer to be present during the consultation. The interaction between health care provider and STI patient was recorded on a structured questionnaire (Appendix.4.). The questionnaire contained questions mainly on history taking; steps followed on examination of STI women, including the diagnosis, treatment and STI health education given. There was no interference from the observer during these consultations.

2.3.2: Interview Of The Health Care Providers

Health care providers were interviewed to assess their knowledge and attitude regarding syndromic management of STI among pregnant women using a structured questionnaire similar to the one used during observation (Appendix 5). In addition, their attitude of syndromic approach in STI management was noted. The interview also covered socio-demographic characteristics and education qualification on training in STI.

2.3.3: Patient Exit Interview

The purpose of the exit interview outlined in (Appendix 6) was to assess the knowledge, attitude and health-seeking behavior of the STI pregnant women and was explained to the patient by the HCP. The researcher then explained the study aims, and obtained a verbal consent from the patient before proceeding with the interview. Information obtained was recorded on a structured questionnaire (Appendix 6).

2.3.4: Sampling

All the 12 STI strengthened NCC clinics and all STI pregnant women attending these antenatal NCC clinics were included in the study. HCP working at the STI strengthened clinics and having attended 2 or more pregnant women with STI in the preceding week were included in the study.

Sample size was calculated according to Fisher *et al.*, (1998) thus:

$$n = Z^2 pqD/d^2$$

n = required sample size

Z = standard normal deviation (1.96) which corresponds to the 95% confidence limit

p = proportion of pregnant women with STI which is unknown and in accordance with Fisher *et al.*, (1998) shall be assumed to be 50% or 0.5.

Hence q = 1-p = 1- 0.5 = 0.5,

D = design effect = 1

d = degree of accuracy desired and chosen to be (0.05).

The required sample size was $= 1.96^2 \times (0.5 \times 0.5) / (0.05)^2 = 385$. This was rounded off to 400 pregnant women. A minimum of 33 women was recruited from each of the 12 STI strengthened clinics.

2.3.5: Ethical Considerations

Clearance for the research was sought from the Office of the President, Ministry of Health and from Medical Officer of Health NCC. The purpose of the study was explained by the researcher, to all potential participants so as to get an informed verbal consent from health care facility personnel, health care providers and patients. All information obtained was treated

with confidentiality to protect the source and participants were at liberty to leave or terminate the interview at will.

2.4: Data Collection

Data was collected using structured questionnaires. Pilot testing of the study tools used was carried out in different clinics in the city as opposed to those selected for the real study and the necessary alterations effected before the real study. The questionnaire included information on demographic data for both the HCP and the patient. Data was obtained on knowledge and attitude on STI from health care providers and patients as well as practice of the HCP during syndromic management of STI.

2.5: Data Management And Analysis

Data collected using structured questionnaires was entered into SPSS for windows, version 10.05 (Chicago, Illinois, U.S.A). Descriptive statistics sought were to indicate the nature of the data. Further Chi-square (χ^2) statistic was used to establish any association between the variables such as knowledge and age, education level and knowledge of STI, knowledge and practice of health care providers.

2.6.0: Calculation Of Respondent Knowledge Index of STI

Knowledge indices were calculated as set out in Appendices 7, 8 and 9.

Knowledge index of STI among pregnant women was based on their ability to respond to specific questions on common diseases, STI known to the patients, signs and symptoms of STI and knowledge of STI pregnancy affection. The knowledge was categorized as good, average and poor knowledge. A good knowledge index was equated to a score of 75-100% (6-13 points) while average knowledge was equal to a score of 50-74% (4-5 points), and finally a poor knowledge was a score of 49% (0-3 points) Appendix 7.

The knowledge index for HCP was based on their ability to address specific questions on history taking, physical examination, diagnosis, treatment, source of drugs and health education topics pertaining to SM of STI pregnant women. The knowledge was categorized as good, average and poor. A good knowledge index was equated to a score of 75-100% (17-22 points) while average knowledge was equal to a score of 50-74% (11-16 points) and finally a poor knowledge was a score of 49% (0-10 points) appendix 8.

2.6.1: Calculation Of HCP Practice Index on SM

The practice index for HCP was based on their ability to address specific questions on history taking, physical examination, diagnosis, treatment, source of drugs and health education topics pertaining to SM of STI pregnant women. The practice was categorized as good, average and poor. A good practice index was equated to a score of 75-100% (17-22 points) while average practice was equal to a score of 50-74% (11-16 points) and finally poor practice was a score of 49% (0-10 points) appendix 9.

CHAPTER THREE

RESULTS

3.0: Distribution Of STI Clinics In Nairobi

Strengthened clinics are clinics supported in terms of personnel training, drug and equipment supply for STI syndromic management. The distribution of these clinics was found to be uneven in the eight administrative divisions of Nairobi City Council. Kasarani Division had the majority of the clinics (3) followed by Westlands, Dagoretti and Makadara. Kamukunji, Lang'ata and Embakasi Divisions, had 1 clinic each while Starehe had none (Table 1).

Table 1: Distribution Of Strengthened Health Care Facilities Within Nairobi

Administrative Division	Clinic Name	Clinics	
		Number	%
Makadara	1. Jericho 2. Makadara	2	16.7
Embakasi	1. Dandora	1	8.3
Kasarani	1. Kariobangi 2. Mathare-North 3. Baba dogo	3	25
Kamukunji	1. Eastleigh	1	8.3
Lang'ata	1. Lang'ata	1	8.3
Westlands	1. Kangemi 2. Westlands	2	16.7
Dagoretti	1. Ngong Road 2. Riruta	2	16.7
Total: 7 Divisions	12 clinics	12	100

NB: Starehe Division did not have ANC STI clinic

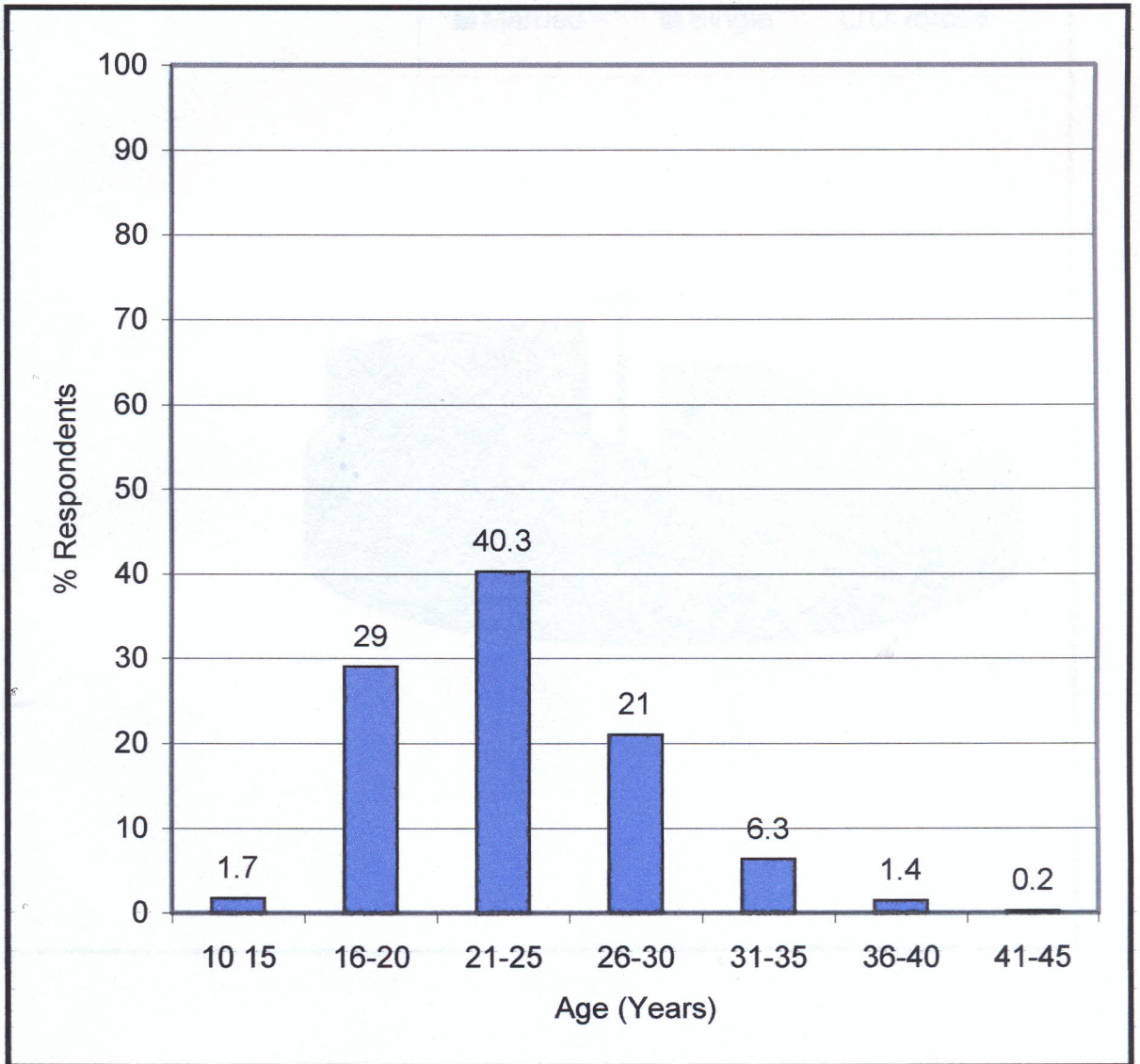
3.1: Socio-Demographic Characteristics Of The Respondents

3.1.1: Respondent Age Distribution

The age of women interviewed ranged from 10 to 45 years. The mean age was 23.5 years.

Majority of women 40.3% (167) were in these age group 21-25 (Figure 1).

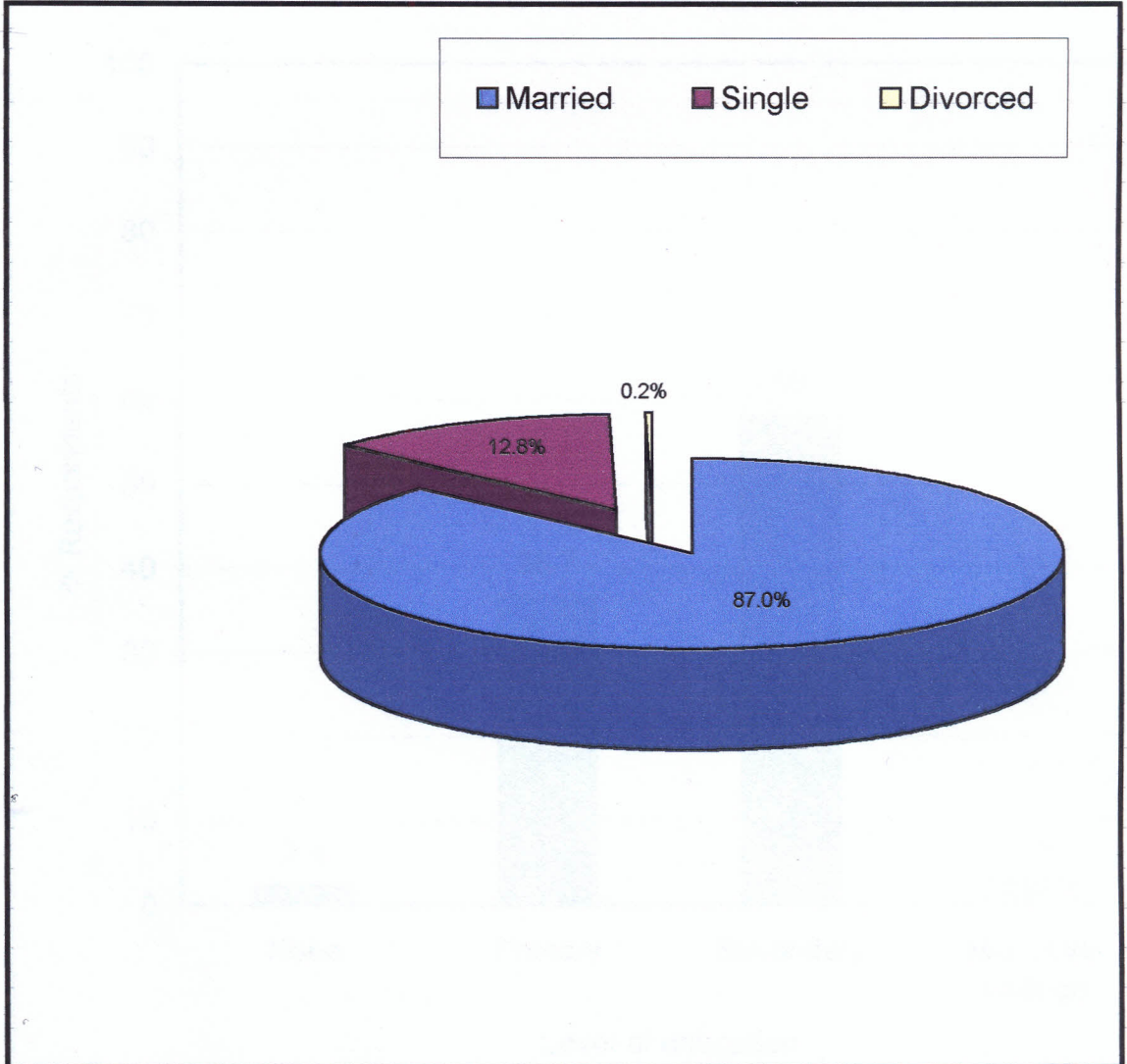
Figure 1: Respondent Age Distribution



3.1.2: Marital Status Of The Respondents

Of the 414 women interviewed, 87% (360) were married, 12.8% (53) single while, 0.2% (1) divorced (Figure 2).

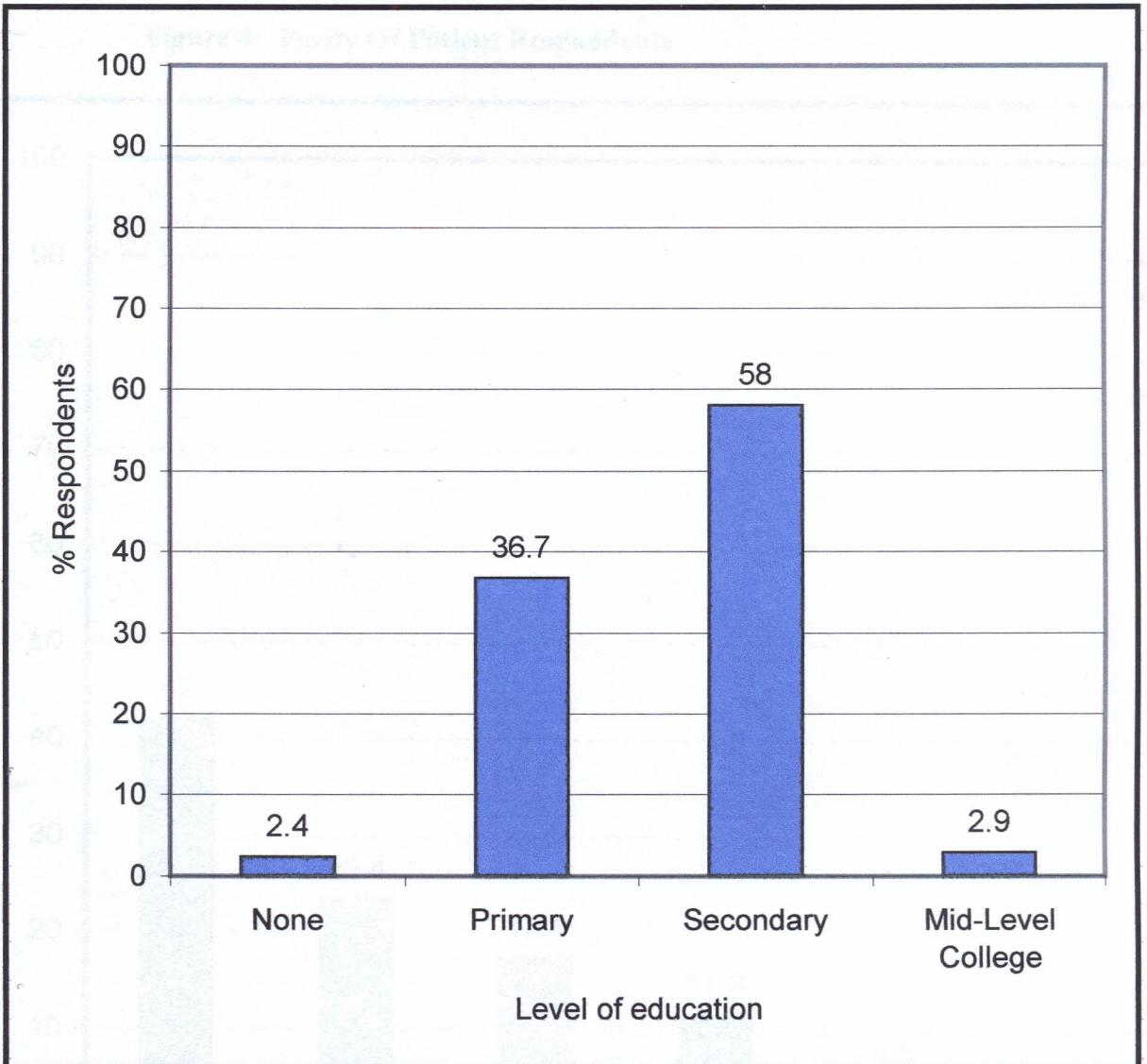
Figure 2: Marital Status Of Patient Respondents



3.1.3 Education Level Of the Respondents

Majority of the pregnant women had some level of formal education. Those with secondary education constituted 58%(239), 2.9% (13) had mid-level college education, 36.7%(152) had primary school education while 10 (2.4%) had no formal education (Figure3).

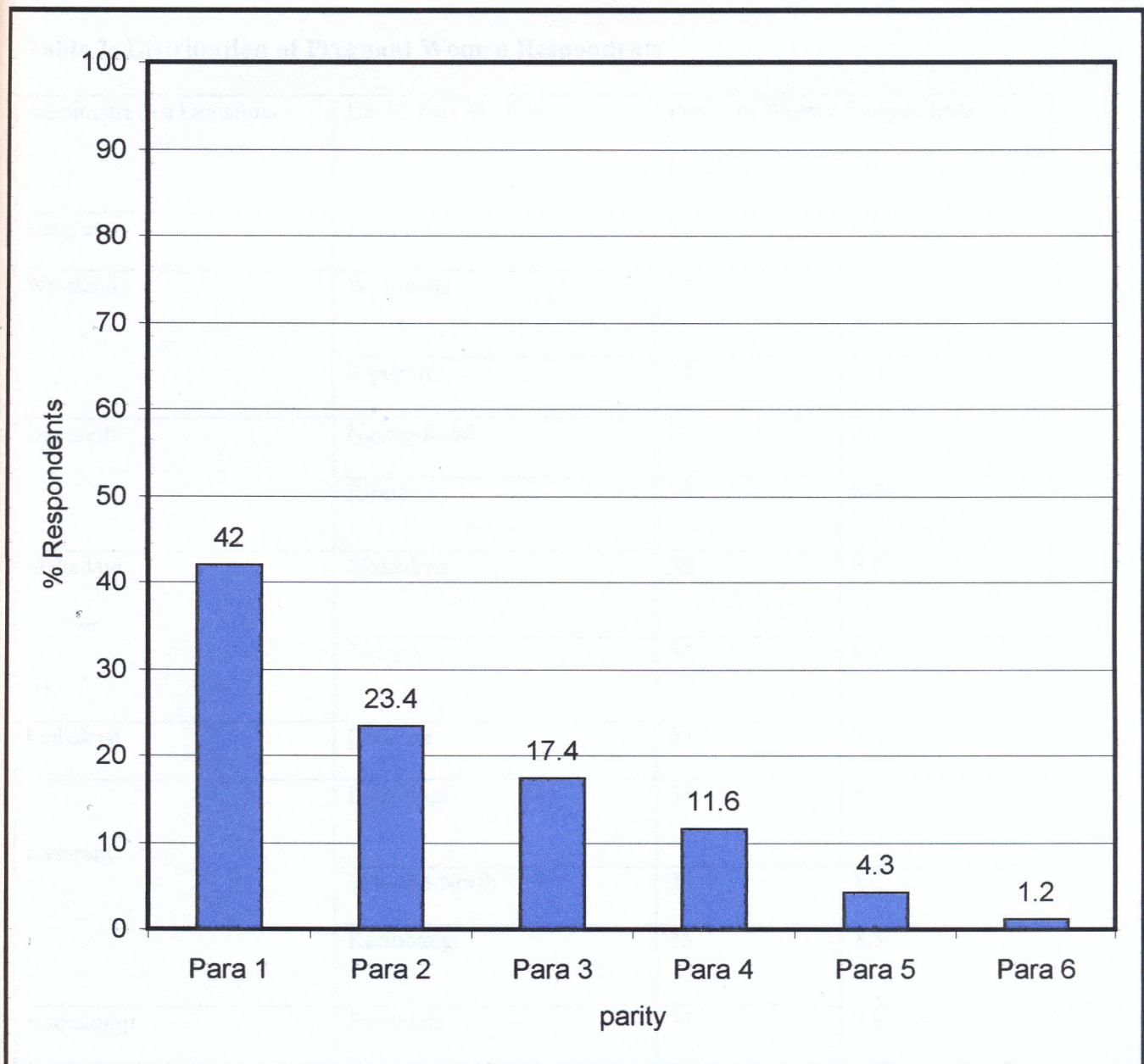
Figure 3: Respondents Level Of Education



3.1.4: Parity Of Respondents

Primegravidae women constituted 42% (174) of the women. This was followed by second parity 23.4%(97), third 17.4%(72), fourth 11.6%(48), fifth 4.3%(18) while sixth parity had 1.2%(5) mothers (Figure 4).

Figure 4: Parity Of Patient Respondents



3.1.5: STI Pregnant Women Distribution

An average of four STI pregnant women per day were recruited and interviewed from each clinic in a period of ten working days, giving a total of 414 respondents. Lang'ata, Westlands, Kangemi, Riruta, Jericho, Dandora and Mathare-North clinics each provided 34 STI pregnant women, Ngong Road and Kariobangi had 35 each, Makadara 36, Baba Dogo 33 while Eastleigh clinic gave 37 STI pregnant women (Table 2).

Table 2: Distribution of Pregnant Women Respondents

Administrative Divisions	Health care facilities	Pregnant Women Respondents	
		Number	%
Lang'ata	Lang'ata	34	8.2
Westlands	Westlands	34	8.2
	Kangemi	34	8.2
Dagoretti	Ngong-Road	35	8.5
	Riruta	34	8.2
Makadara	Makadara	36	8.7
	Jericho	34	8.2
Embakasi	Dandora	34	8.2
Kasarani	Baba dogo	33	8.0
	Mathare-North	34	8.2
	Kariobangi	35	8.5
Kamukunji	Eastleigh	37	8.9
Total	12	414	100

3.2: Knowledge Of STI Among Pregnant Women

This was carried out to assess knowledge of pregnant women with STI on exit after consultation with the HCP. Majority, 61.4 % (254) of women mentioned STI/HIV as the most common disease in Nairobi. On the types of STI, most 93.5% (387) knew about syphilis, gonorrhoea 90.5% (373), HIV/AIDS 78.3% (324) but had very poor knowledge of the others like (chlamydia, trichomoniasis, candidiasis, -herpes and pelvic inflammatory disease) Table 3.

Among signs and symptoms related to STI, most 93.5%(387) mentioned itchiness of genitals, while 76%(325) mentioned vaginal discharge. Other signs and symptoms like genital ulcers 16.7% (69) and lower abdominal pain 3.9% (16) were hardly mentioned (Table 3).

When knowledge of STI was cross-tabulated with age and education levels of the respondents, significant statistical differences were found. Thus awareness of syphilis depended on age and education ($\chi_1^2 = 16.52, p = 0.01 < p=0.05$ and $\chi_1^2 = 16.72, p = 0.001 < p=0.05$) respectfully. Similarly, gonorrhoea had $\chi_1^2 = 17.71, p = 0.001 < p= 0.05$ and $\chi_1^2 = 30.52, p = 0.001 < p=0.05$ for age and education while HIV/AIDS had $\chi_1^2 = 8.85, p = 0.031$ for age and $\chi_1^2 = 49.92, p = 0.001 < p = 0.05$ education level.

Table 3: Knowledge of STI Among Pregnant Women

Knowledge	Respondents	
	Aware Number (%)	Unaware Number (%)
<i>Common Diseases known to Respondents:</i>		
1.STI/HIV	254(61.4)	160(38.6)
2 malaria	58 (14)	356 (86)
3. Tuberculosis (TB).	72 (17.4)	342(82.6)
4. Typhoid	22(5.4)	392(94.7)
5. Cholera	3 (0.7)	411(99.3)
6. Diarrhea	3 (0.7)	411(99.3)
7. Respiratory Tract Infections (RTI)	1 (0.2)	413(99.8)
8. Skin Diseases	1 (0.2)	413(99.8)
<i>STI Known to the Patient:</i>		
1.Syphilis	387(93.5)	27(6.5)
2.Gonorrhea	373 (90.5)	41(9.9)
3.Trichomoniasis	2 (0.5)	412(99.5)
4.Candidiasis	3 (0.7)	411(99.3)
5.HIV/AIDS	324 (78.3)	90(21.7)
6.Chlamydia	1 (0.2)	413(99.8)
7.Herpes	3 (0.7)	411(99.3)
8.PID	1 (0.2)	413(99.8)
<i>STI Signs and Symptoms known to Respondents:</i>		
1.Itchiness of genitals	387 (93.5)	27(6.5)
2.Backache	194(46.9)	41(9.9)
3.Genital ulcers	69 (16.7)	412(99.5)
4.Headache	9 (22)	411(99.3)
5.Vaginal discharge	325 (78.5)	90(21.7)
6.Pain during sexual intercourse	186 (44.9)	413(99.8)
7.Painful micturation	68 (16.4)	411(99.3)
8.Lower abdominal pain (LAP)	16 (3.9)	413(99.8)
9.Body wasting	4 (1)	
<i>Awareness of STI Pregnancy effects</i>		
1. Abortion		
2. Congenital abnormality	190(46)	224 (54.1)
3. Still birth	97(23.4)	317 (76.6)
4. Complication on mothers (Infertility, longer pregnancy)	4(1) 5(1.2)	410 (99) 409(98.8)

3.2.1: Attitude Towards Health Care Quality Among Pregnant Women

Majority judged quality care by the value of staff friendliness 56.3% (223) and 87.2% (361) considered obtaining drugs at the facilities as the most important aspect of quality care. Those who mentioned getting better after treatment from the facility were 33.6% (139) while those who mentioned availability of laboratory services as quality care were 2.4% (10). Counseling rated least 1.5% (6) among the respondents in regard to quality care. Considering the attitude of the patients and looking into their consideration of good quality care it was evident that availability of drugs did influence their decision to seek medical treatment but was statistically, insignificant ($\chi_1^2 = 3.4, P= 0.07$)

3.2.2: Health Seeking Behaviour Of The Pregnant Women

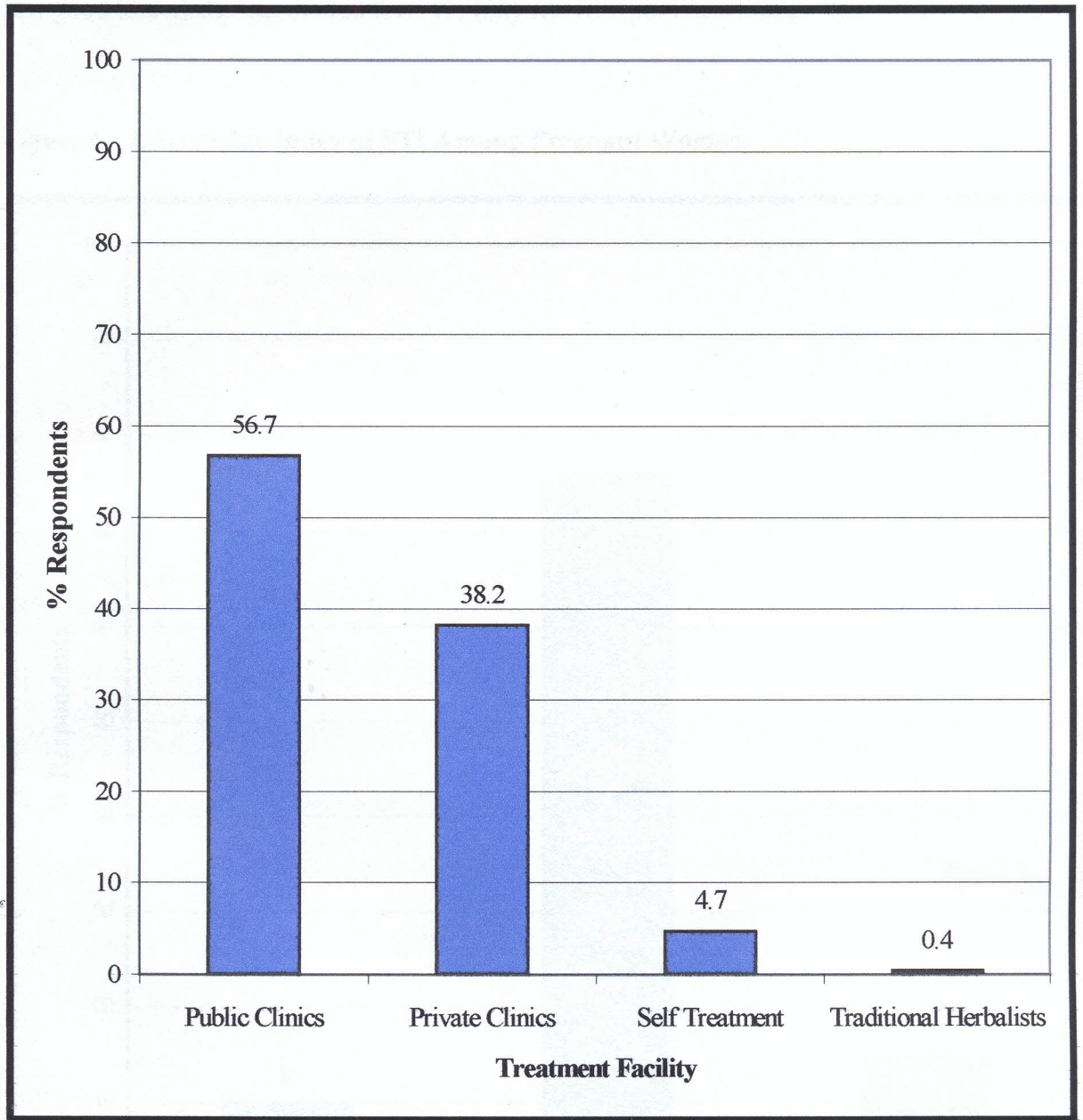
Of the 414 women who had suffered from STI in the last 12 months, it was found that 61.4% (254) had sought treatment, while 38.6% (160) had not. Chi – square analysis between treatment seeking behaviour and STI experience showed a strong evidence of association between pregnant women with STI seeking treatment and history of suffering from STI before ($\chi_1^2 = 291, p = 0.001 < P = 0.05$). Duration was grouped into less than 3 months, 4-6 and more than 6 months. Also there was a trend in duration towards seeking treatment in that the proportion of patients who had not previously been infected with STI seeking treatment was lower than those with previous infection (Table 4).

Table 4: Respondent STI Experience And Health Seeking Behaviour

Parameter Assessed	Respondents		Statistics	
	Number	%	χ^2	p - value
STI Experience				
Ever suffered from STI before?				
▪ Yes	254	61.4	290	< 0.001
▪ No	160	38.6		
When:				
▪ Unable to remember	9	3.5	291	< 0.001
▪ < 3 months	74	29.1		
▪ 4 – 6 months	104	41		
▪ > 6 months	67	26.4		
Sought Treatment:				
▪ Yes	254	61.4	-	-

3.2.3: Treatment Facility Preference Among the Respondents

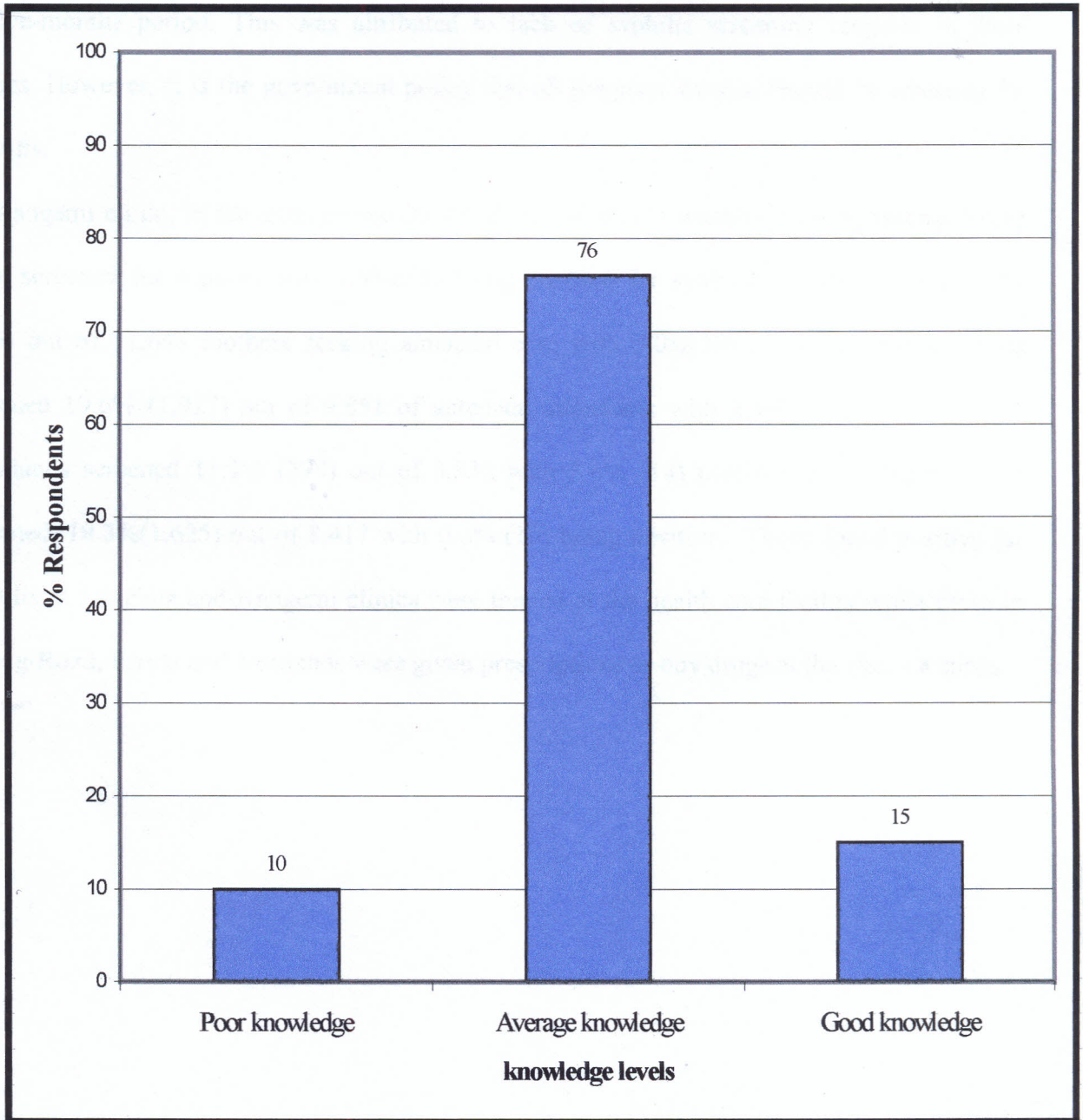
Out of the 254 respondents who sought treatment, 144 (56.7%) sought health care in public clinics, 97 (38.2%) in private clinics, 12 (4.2%) bought medicine while 1 (0.4%) went for a traditional herbalist (Figure 5).

Figure 5: Treatment Facility Preference Among The Respondents

3.2.4: Knowledge Index Of STI Among Pregnant Women

Overall, majority of the respondents 76% (315) had average knowledge of STI. Women who had good knowledge accounted for 14% (58) whereas poor knowledge was 10% (41)(Figure 6).

Figure 6: Knowledge Index of STI Among Pregnant Women



3.3: Pregnant Women Respondents Screened for Syphilis

Five out of the 12 STI strengthened antenatal NCC clinics screened for syphilis in pregnant women. These were Ngong Road, Riruta, Lang'ata, Kangemi and Westlands (Table 5). The highest rate of screening was in Kangemi clinic (26.4%). Overall, only 16.6% (7,304) out of 43,884 women seeking antenatal care were screened for syphilis in these five clinics during the twelve-months period. This was attributed to lack of syphilis screening reagents in these clinics. However, it is the government policy that all pregnant women should be screened for syphilis.

At Kangemi clinic, in the same period 26.4%(2753) of 10,433 mothers seeking antenatal care were screened for syphilis with 1.9%(53) being positive for syphilis. Riruta screened 2.9% (336) out of 11,648 mothers seeking antenatal care with 3.0%(10) cases positive. Lang'ata screened 19.6% (1,927) out of 9,851 of antenatal attendants with 2.4% (46) being positive. Westlands screened 11.1% (394) out of 3,535 with 3.6% (14) positive, while Ngong Road screened, 19.3%(1,625) out of 8,417 with 0.6% (10) being positive. Those found positive for syphilis in Lang'ata and Kangemi clinics were treated at the health care facility while those in Ngong-Road, Riruta and westlands were given prescriptions to buy drugs at the chemist shops.

Table 5: Syphilis Screening in Selected Clinics

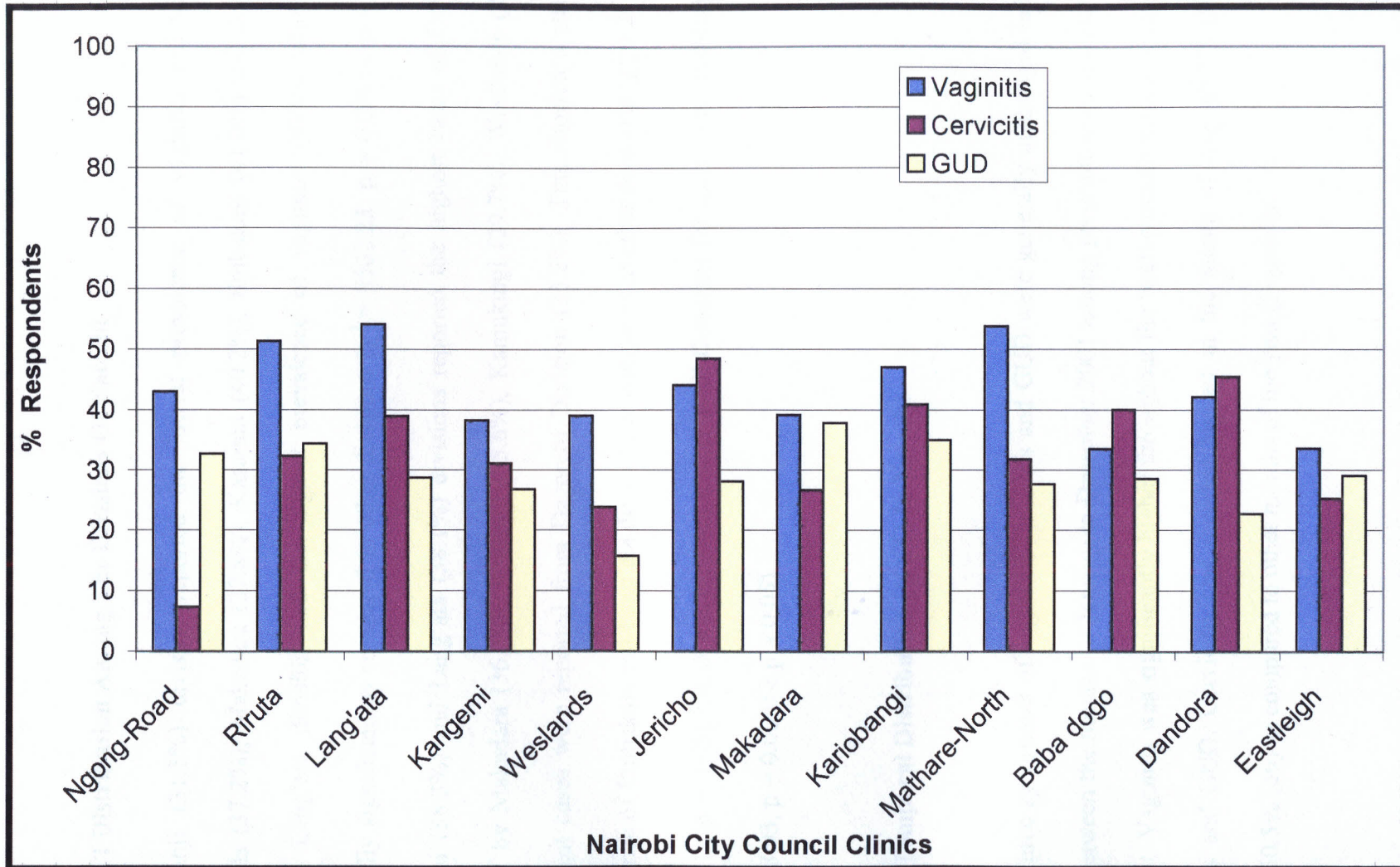
Months (2001)	Clinics					Total
	Ngong Road	Riruta	Langata	Kangemi	Westlands	
January	155 (1)	0 (0)	326 (8)	0 (0)	36 (1)	517 (10)
February	0 (0)	3 (0)	133 (2)	241 (7)	102 (1)	479 (10)
March	136 (1)	0 (0)	0 (0)	186 (4)	68 (1)	390 (6)
April	133 (0)	3 (3)	397 (8)	210 (6)	52 (4)	795 (21)
May	156 (1)	333 (10)	423 (12)	252 (7)	75 (4)	1239 (34)
June	154 (1)	0 (0)	359 (6)	216 (4)	61 (3)	790 (14)
July	193 (2)	0 (0)	282 (1)	210 (6)	0 (0)	685 (9)
August	207(2)	0(0)	0(0)	398(8)	0(0)	605(10)
September	138 (1)	0 (0)	0 (0)	272 (0)	0 (0)	410 (1)
October	173 (0)	0 (0)	0 (0)	266 (7)	0 (0)	439 (7)
November	142 (0)	0 (0)	5 (0)	214 (0)	0 (0)	361 (0)
December	38 (1)	0 (0)	268 (9)	288 (4)	0 (0)	594 (14)
Total	1625(10)	336(10)	1927(46)	2753(53)	394(14)	7304(136)

The numbers in brackets are the patients positive for Syphilis

3.4: Common STI Syndromes In NCC Clinics

The STI syndromes that were found to occur among pregnant women over twelve months period in the strengthened STI clinics included vaginitis, cervicitis and genital ulcer disease (GUD). The frequency occurrence of STI syndromes among antenatal women, vaginitis was highest among mothers seen in Lang'ata 54.1% (617) while the lowest rates of vaginitis was reported among women seen in Baba dogo 33.5% (120) (Figure7). There was a significant difference of vaginitis in Lang'ata clinics as compared to other clinics under study ($\chi_{11}^2 = 7006.01$, $p = 0.0001 < p = 0.05$). Cervicitis was reported more in Jericho clinic 48.4% (92) than Ngong-Road 7.4% (26), ($\chi_{11}^2 = 3120.35$, $p = 0.001 < p = 0.05$). GUD was highest 37.8% (17) at Makadara and lowest at Westlands 15.8% (12). A significant difference was noted in Makadara as compared to other clinics ($\chi_{11}^2 = 517.30$, $p = 0.0001 < p = 0.05$).

Figure 7: Common STI Syndromes Among Pregnant Women In Nairobi



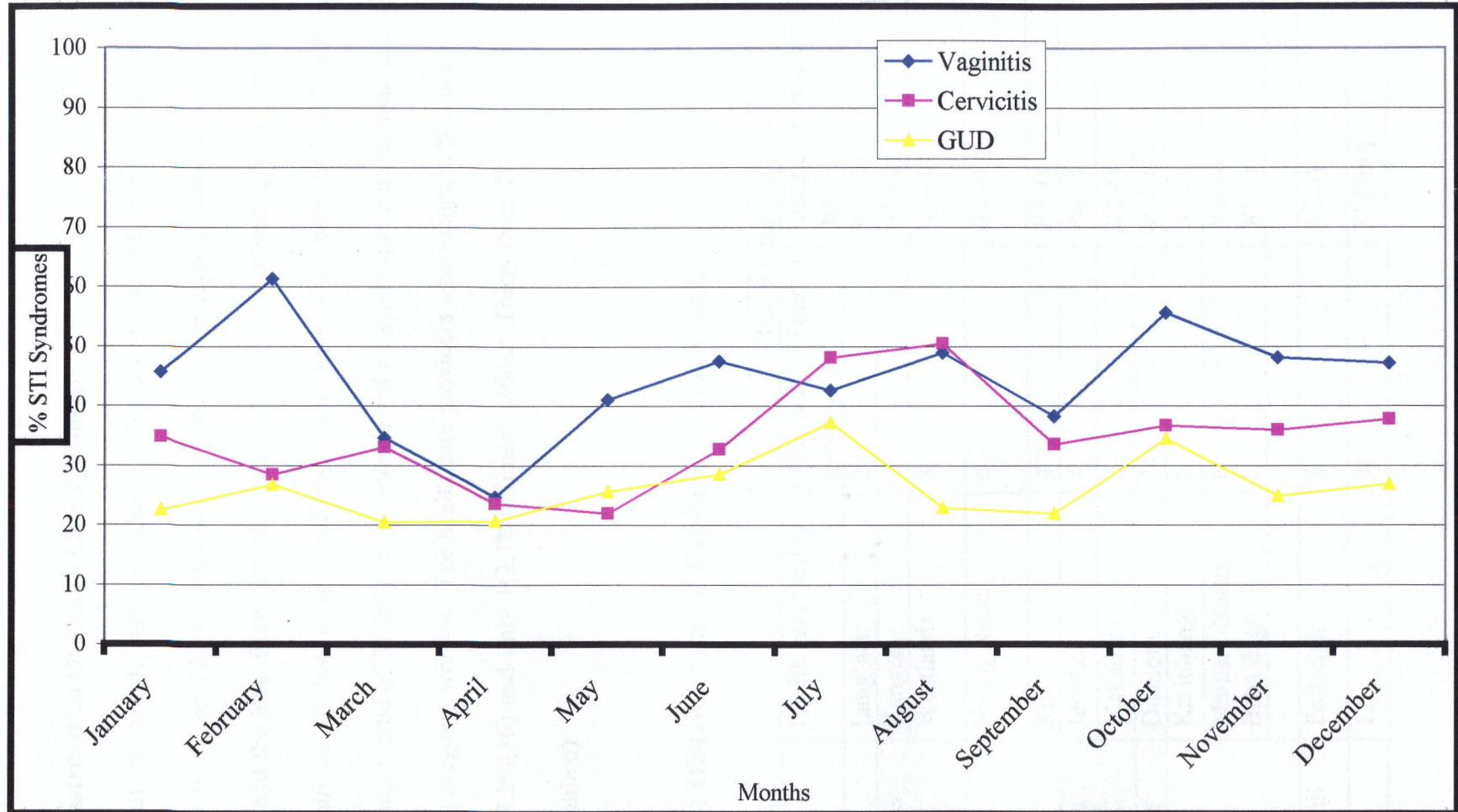
3.4.1: STI Distribution Among The Divisions Of Nairobi

Kamukunji (31.5%) division reported the lowest prevalence of vaginitis followed by Westlands (37.2%), Makadara (37.8%), Kasarani (40.2%), Embakasi (41.6%) and Dagoretti (45.4%). Lang'ata division had the highest prevalence of vaginitis (62%), which was statistically significant as compared to other divisions ($\chi^2_6 = 8502.23$; $p = 0.0001 < p = 0.05$).

Embakasi (38.3%) and Lang'ata (38.1%) divisions reported the highest cases of Cervicitis followed by Makadara (36.3%), Kasarani (35.6%), Kamukunji (29.7%), Westlands (28.7%) and lowest cases were reported from Dagoretti Division (25.2%). This showed a statistical significance of Embakasi and Lang'ata divisions as compared to other divisions ($\chi^2_6 = 2145.36$, $p = 0.001 < p = 0.05$). GUD was reported lowest in all Divisions for the twelve months period ($\chi^2_6 = 358.93$, $p = 0.0001 < p = 0.05$).

3.4.2: Temporal Distribution Of STI In Nairobi

All the three syndromes of vaginitis, cervicitis and GUD were generally unchanged in the 12 clinics between the months of January to December 2001 among pregnant women seeking STI treatment. Vaginitis was significantly higher throughout the twelve-month period compared to cervicitis and GUD. Cervicitis was reported highest in the month of July 48.1% (50) and August 50.5% (56) as compared to other months of the year (Figure 8).

Figure 8: Temporal Variation Of Common STI Syndromes In Nairobi

3.5: Distribution Of Health Care Providers

A total of 88 health care providers (HCP) trained in STI syndromic management were identified from the 12 strengthened STI clinics. The highest number of HCP was found in Lang'ata and the least from Eastleigh (Table 6). All HCP attending to STI pregnant women on duty within the 10 days of data collection from each clinic were included in the study. From these clinics a total of 37 HCP were interviewed on syndromic management and also observed managing pregnant women. The health care providers who managed STI patients were mainly nurses 97.3%(36) and only 1(2.7%) clinical officer. Thirty-three HCP were females and four males (Table 6).

Table 6: Distribution Of Health Care Providers

NCC Division	Health care facility	Health Care Providers	
		Number Trained (n=88)	Number Interviewed (%) (n=37)
Lang'ata	Lang'ata	20	5(13.5)
Westlands	Kangemi	10	4(10.8)
	Westlands	8	4(10.8)
Dagoretti	Ngong Road	6	2(5.4)
	Riruta	4	2(5.4)
Makadara	Jericho	4	3(8.1)
	Makadara	3	2(5.4)
Embakasi	Dandora	11	4(10.8)
Kasarani	Kariobangi	6	3(8.1)
	Mathare-North	6	3(8.1)
	Baba dogo	8	3(8.1)
Kamukunji	Eastleigh	2	2(5.4)
Total	12	88	37 (100)

The 37 HCP had their training in STI syndromic management between 1991-2002, with most (33) being trained in 1992, 1997 and 1998.

3.5.1: Syndromic Management Knowledge Of Health Care Providers

Questions were asked on the steps followed during history taking, physical examination, treatment, and STI health education. History taking by HCP ranged from 97.3-100%. Out of the three questions asked on history taking all the HCP had good knowledge. All the HCP (100%) had good knowledge on examination of the STI pregnant women on the indices asked as all scored the maximum indicators on examination. Knowledge on health education was good and ranged from 97.3- 100% on all the questions. The HCP who gave the diagnosis according to syndromes presented by the patients were 34 (91.9%) and those who gave diagnosis by both syndromic and etiologic were 3 (8.1%) while those HCP who informed the patients about their diagnosis were 36 (97.3%) Table 7. In terms of treatment, the knowledge was good except for lower abdominal pain 13 (35%). Almost all 34 (91.9%) HCP treated vaginal discharge correctly and GUD 35 (95%) in accordance with STI syndromic management guidelines (Appendix 10).

STI health education was done by all HCP (100%) and informed the patients the importance of completing treatment, use of condom and sexual abstinence during medication. Referral of partners for treatment was encouraged by 36 (97.3%) HCP and health education on risk reduction of STI/HIV/AIDS was mentioned by 36 (97.3%) whereas counseling of patients was done by 36 (97.3%) (Table 7).

3.5.2: Syndromic Management Practice Among Health Care Providers

Thirty-seven HCP were observed on history taking, physical examination, diagnosis, treatment of STI and health education availed to the patient. Of the observations made on 37 HCP, history taking was found to be good on present symptoms 37 (100%), duration of symptoms 36

(97.3%) and questions of recent sexual contacts were addressed by 25 (67.5 %) HCP. During examination 34 (91.9%) of the HCP requested patients for an examination. Thirty-five (94.6%) requested patients to undress so as to expose the genitals. Of the observed HCP 35 (94.6%) requested patients to lie down prior to examination. Those who examined the external genitalia for vaginal discharge 5 (13.5%) and genital lesions were 12 (32.4%) respectively. There was a significant difference between knowledge and practice on requesting patients for an examination ($\chi_1^2 = 15.05$, $p = 0.0001 < p = 0.05$ and examination of external genitalia for vaginal discharge ($\chi_1^2 = 41.66$, $p = 0.0001 < p = 0.05$). Blood taking for Hb 3 (8.1%) was hardly taken for screening as well as for VDRL/RPR testing 12 (32.4%). Majority 26 (70.3%) of HCP referred patients for HIV voluntary counseling and testing (Table 7).

The HCP who gave the diagnosis according to syndromes presented by the patients were 34 (91.9%) and those who gave diagnosis using both syndromic and combination of laboratory results were 3 (8.1%). Only 4 (10.8%) of the observed HCP informed the patients about their diagnosis. Treatment was quite poor especially for lower abdominal pain 4 (10.8%) and GUD 13 (35.1%) during HCP observation. Treatment for vaginal discharge was prescribed correctly by 24 (64.9%) HCP according to STI syndromic management chart (Appendix 10).

On STI health education, all HCP (100%) informed patients on the importance of completing treatment and 35 (94.6%) informed patients to refer their partners for treatment and 18 (48.6%) gave instruction on condom use. On informing STI pregnant women of their diagnosis, 4 HCP (10.8%) did inform their patients about their diagnosis, mention of STI/HIV/AIDS reduction was done by 18 (48.6%) HCP Table 7. Chi-square test showed statistical significance difference between knowledge of health care providers on informing patients on risks of STI/HIV and practice ($\chi_1^2 = 25.1$; $p = 0.0005 < p = 0.05$).

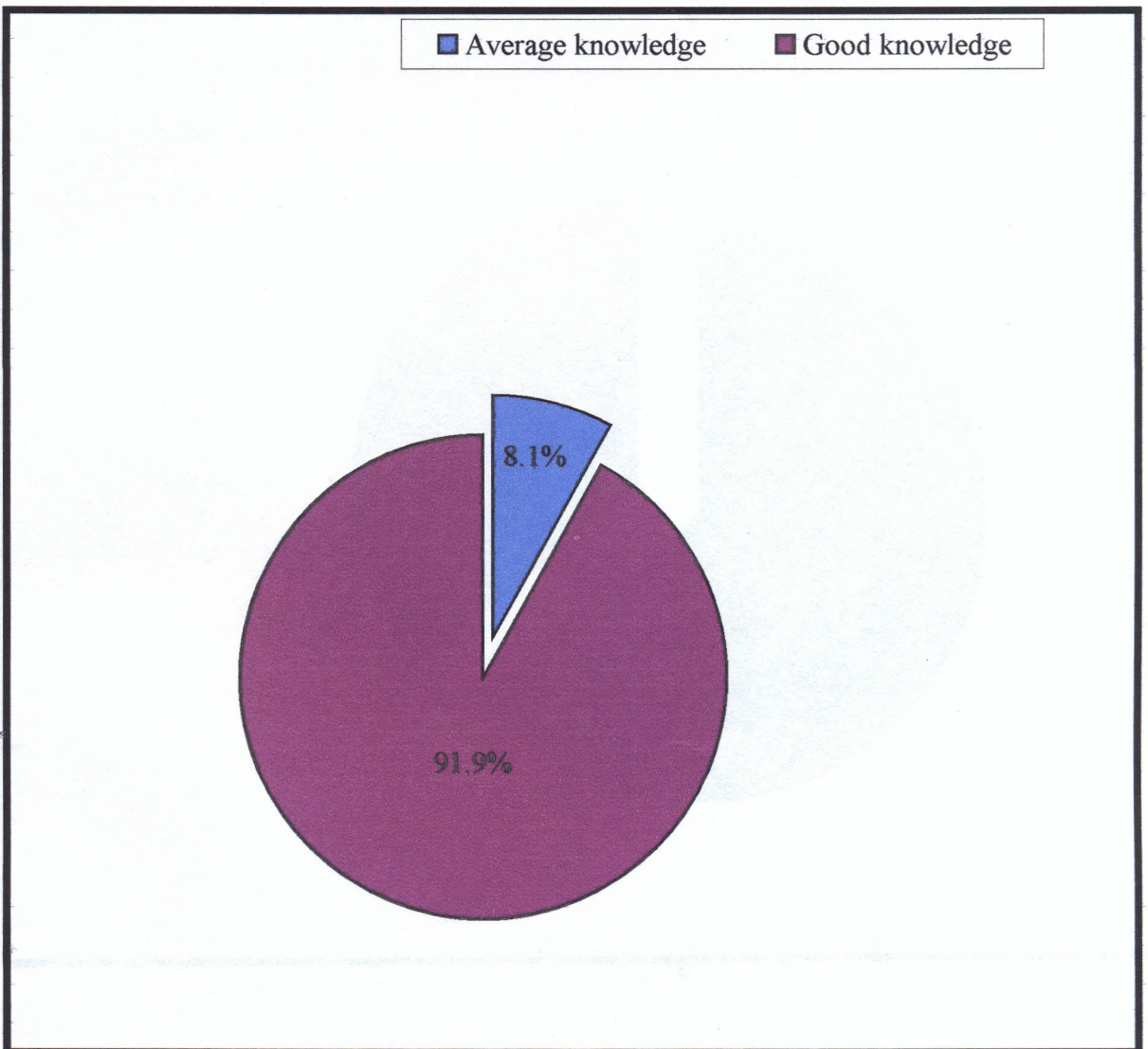
Table 7: Knowledge and practice of Syndromic management of STI Among HCP

Parameter Assessed	Knowledge	Practice
1. History taking		
i. Present symptoms	37(100)	37 (100)
ii. Onset/duration of symptoms	37(100)	36(97.6)
iii. Recent sexual contacts	36 (97.3)	25(67.5)
2. Examination		
i. Patients requested for an examination	37(100)	34 (91.9)
ii. Patients to undress and fully expose the genitals	37(100)	35 (94.6)
iii. Patients to lie down during examination	37(100)	35 (94.6)
iv. Patients examined for lesions on vulva and labia	37(100)	12 (32.4)
v. Patients examined for vaginal discharge	37 (100)	5(13.5)
Blood taken for:		
i. Hb	–	3 (8.1)
ii. RPR/VDRL	–	12(32.9)
iii. HIV	–	26(70.2)
3. Diagnosis by:		
i. Syndromes	34(91.1)	34 (82.9)
ii. Both syndromic and etiologic	3(8.1)	3(7.3)
iii. Patient informed diagnosis	36(97.3)	4(9.8)
4. Treatment for;		
i. Vaginal discharge	34(91.9)	24(64.9)
ii. Lower abdominal pains	13(35)	4(10.8)
iii. GUD	35(95)	13(35.1)
Source of prescribed drugs:		
1. Drugs paid for in HCF	34(91.9)	22(59.5)
2. Chemist shops buying	3(8.1)	20(54.1)
5. Health education (4cs, counseling, compliance, condoms, contact treatment).		
i. Discuss with patient on compliance	37(100)	37(100)
ii. Risk of STI/HIVAIDS mentioned	36 (97.3)	18 (48.6)
iii. Condom promotion done or instruction on condom use given	37(100)	18 (48.6)
iv. Sex abstinence mentioned during medication	37 (100)	27 (65.9)
v. Patient urged to refer partner for treatment	36(97.3)	35 (94.6)
vi. Counseling	36(97.3)	6 (1.5)

3.5.3: Knowledge Index Of Syndromic Management Among Health Care Providers

Majority 34 (91.9%) HCP had good knowledge of SM while 3 (8.1%) HCP had average knowledge. None of the interviewed HCP had poor knowledge based on the parameters assessed (Table 7 and Figure 9).

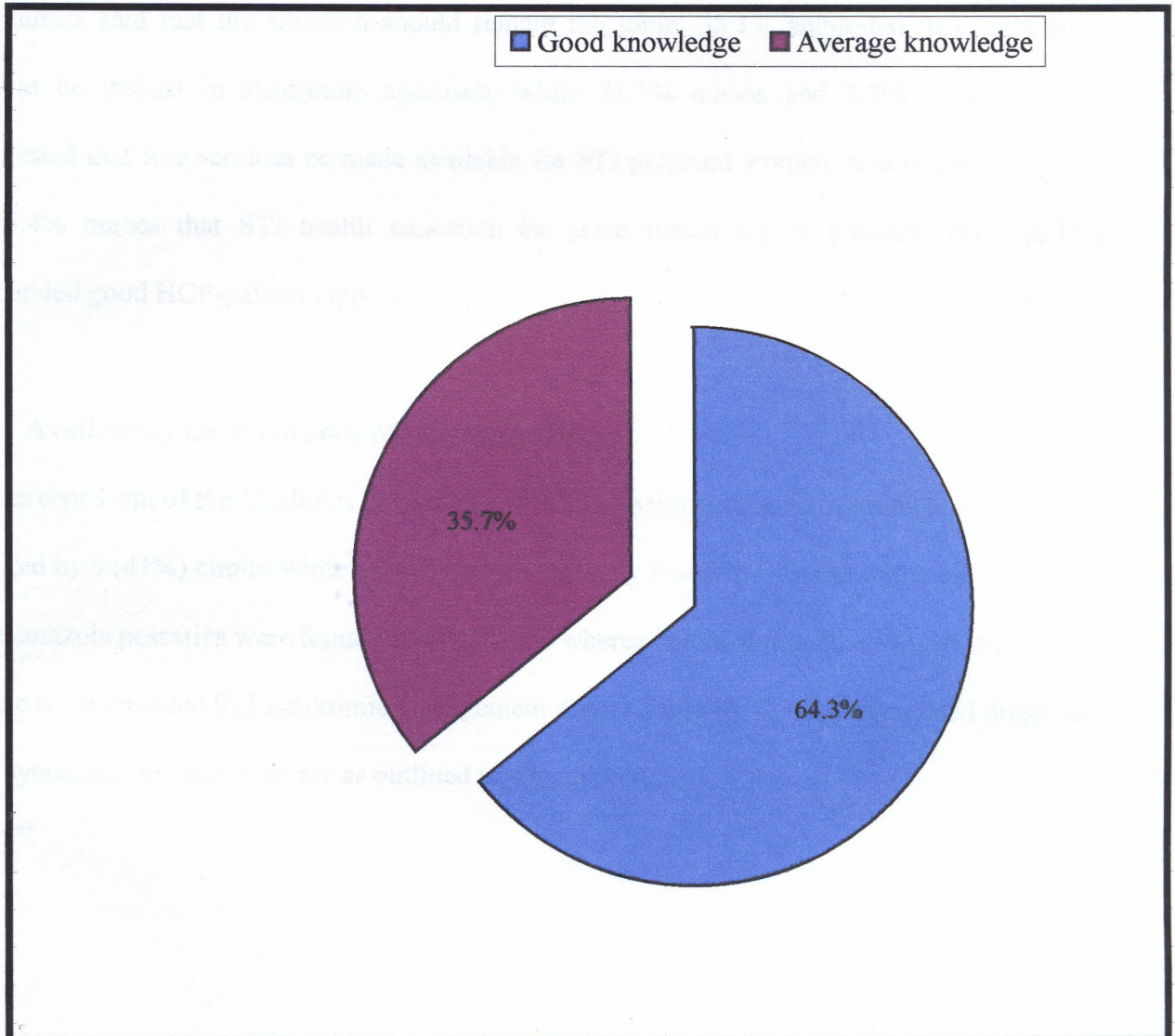
Figure 9: Knowledge Index Of SM Among Health Care Providers



3.5.4: Practice Of Syndromic Management Among Health Care Providers

Twenty-seven (64.3%) HCP translated knowledge of SM into practice and 14 (35%) HCP had average practice in relation to what they know. None of the HCP observed had poor performance based on parameters assessed (Table 7 and Figure 10).

Figure 10: Practice Of SM Among Health Care Providers



3.6: Attitude Of Health Care Providers Towards Syndromic Management Improvement

Attitude of HCP on syndromic management of STI in pregnant women was also assessed. All HCP interviewed used syndromic approach for STI management. Two nurses (5.4%) out of 36 suggested that drugs should be made affordable especially for STI pregnant women. On how syndromic approach can be improved in the management of STI in pregnant women, 8.1% of the nurses said that the situation should remain the same, 35.1% suggested that more HCP should be trained in syndromic approach, while 35.1% nurses and 2.7% clinical officer suggested that free services be made available for STI pregnant women. It was also suggested by 5.4% nurses that STI health education be given mandatory to patients, and (8.1%) demanded good HCP-patient rapport.

3.7: Availability Of Syndromic Management Drugs

All except 1 out of the 12 clinics had amoxicillin and erythromycin. Benzathine penicillin was stocked by 5 (41%) clinics while Metronidazole was only found in 6 (50%) of the clinics. Clotrimazole pessaries were found in 1(8%) clinic whereas none of the clinics under study had all the recommended STI syndromic management drugs (Table 8). The recommended drugs for STI syndromic management are as outlined in appendix 10.

Table 8: Drugs Available At STI Clinics

Drugs	Clinics Stocking Drugs	
	Number	(%)
Clotrimazole pessaries *	1	8
Nystatin pessaries	3	25
Erythromycin *	11	92
Amoxycilin *	11	92
Metronidazole	6	50
B/penicillin *	5	41
Spectinomycin *	None	None
Doxycycline	None	None
Norfloxacin	None	None
Probecid *	None	None
Augumentin *	None	None
Ciprofloxacin *	None	None
Ceftriaxone *	None	None
Ibobrufen	None	None
Tetracycline eye ointment	None	None

* *SM Recommended Drugs*

3.8: Availability Of Syndromic Management Materials

Besides the drugs, an assessment was carried out to determine availability of materials used in STI management. Lamps and torches for examination were not available in all the clinics. Apart from Mathare-North clinic, all clinics did not have vaginal speculum and detergents. Examination couch and condoms were available in all the 12 clinics (Table 9).

3.8.1: Use of STI Syndromic Management Materials.

Although, gloves were observed to be available in most of the clinics, during health care facility survey, only 4 (11%) HCP were observed using them during STI management. No use was made of the vaginal speculum at Mathare-North clinic. There was use of STI record cards plus contact slips in all clinics except Riruta (Table 9).

Table 9: Availability And Use Of SM Materials

SM Material	NCC Clinics		Use Among HCP	
	Number	%	Number	%
Running water/sink	12	100	37	100
Gloves	12	100	4	11
Speculum	1	8	None	None
Detergents	2	17	None	None
Towels	12	100	37	100
STI Record cards	11	92	36	92
Syringes/needles	12	100	37	100
Spirit swabs	12	100	37	100
Contact slips	11	92	36	92

CHAPTER FOUR

DISCUSSION

4.0: General Discussion

This study sought to establish knowledge level of STI among pregnant women respondents as well as their attitude towards health care quality and their health seeking behaviour. Similarly knowledge of SM and practice among HCP including their attitude towards SM strategy in the management of STI in pregnant women was assessed. Availability of drugs and materials and their use in SM was also evaluated. Before this study, SM strategy evaluation had not been done in association with pregnant women seeking STI management. Although SM approach has been in use for over one decade, there are no systematic studies that have examined its performance and the factors that hamper its use in developing countries where it is recommended as a management tool of STI (Dadian, 1996; WHO, 2001.). Similarly, knowledge of STI, attitude towards STI and health seeking behaviour, among pregnant women is largely unestablished. Hence, this study was an effort in this direction.

4.1.0: Knowledge of STI and Attitude Among Pregnant Women

In this study the overall knowledge among pregnant women seeking STI treatment was average based on their knowledge index assessment. The results showed no significant association between knowledge and health seeking behaviour of the women ($\chi_1^2 = 0.81$; $p = 0.67$). Similar studies done elsewhere in Nairobi, Kenya on health seeking and sexual behaviours among primary health care patients reported women's knowledge about health in general and STI in particular to be poor (Fonck et al., 2001). In this study, knowledge of STI was high with regard to syphilis (93.5%), gonorrhoea (90.5%) and HIV/AIDS (78.3%); it was poor for the others like trichomoniasis (0.5%), Candidiasis (0.7%) and chlamydia (0.2). Among common diseases in Nairobi STI was considered as a disease of concern by 61.4% of the

patients. The high knowledge of syphilis among respondents agrees with findings by Gichangi *et al.*, (2000) and is attributed to the intensified ongoing screening of antenatal mothers and the health education given in relation to the adverse effects of syphilis on pregnancy. Gonorrhoea is one of the oldest known STI, and was known by most of the mothers. There is evidence of gonorrhoea recorded in the Biblical Old Testament as one of the oldest recorded disease (Leviticus 15: 1-6). The much-publicized HIV/AIDS national campaigns in mass media and health institutions may have made these women more aware of HIV/AIDS and its devastating effects, resulting in it being as a disease of concern than other STI. This concurs with a study on change in sexual behaviour and decline in HIV infection among pregnant women in urban Uganda to government media campaigns or other health education efforts, or simply from emerging awareness of the HIV/AIDS epidemic, as has been reported in Uganda and linked to declines in HIV infection (Asiimwe-okiror *et al.*, 1997). Poor knowledge of other STI such as trichomoniasis, candidiasis, chlamydia, herpes and pelvic inflammatory diseases can be attributed to their less emphasis by the HCP during STI health education.

The patients considered quality care in syndromic management as the availability of STI drugs (87.2%) in the clinics (since treatment is supposed to be effected immediately). Based on the patients' attitude as determined by the survey questionnaire, the availability of drugs would be a major factor in their decision to seek medical treatment. Considering the attitude of the patients and looking into their consideration of good quality care it would appear that availability of drugs would influence their decision to seek medical treatment ($\chi_1^2 = 3.4, P = 0.07$) and staff friendliness was (56.3%) ($\chi_1^2 = 0.113, P = 0.74$), this was insignificant. This was observed not to be so especially with regard to availability of drugs as majority of the NCC clinics did not have most of the recommended drugs for syndromic management of STI in pregnancy. It was also observed that for the current STI, 61.4% of these pregnant women had first gone to other health care facilities before coming to NCC clinics, assuming that other

public health facilities had drugs and attended STI cases. This could also be due to unfriendly staff, which agrees with a study by (Abigael *et al.*, 1998) on quality of STI case management in South Africa that cited level of staff friendliness as a hindrance to STI management. Lack of drugs at the level of NCC clinics or ignorance as where to go for STI management played a key role on where to seek treatment. To prevent adverse pregnancy outcomes in the infected mothers, drugs should be made available at all times in these clinics. It is therefore the collective responsibility of the NCC health management team to ensure that drugs are made available at these clinics for effective STI management, and staff friendliness improved especially towards the younger mothers, as they are the most affected. To effectively implement this, support of STI drugs and materials should be sought from other Organizations and the Ministry of Health, cost-sharing monies should be effectively utilized to purchase drugs for STI management. It is believed that if these aspects are improved more pregnant mothers will be motivated to seek STI care in these facilities, since they have trained personnel in syndromic management of STI, and are cheaper than private health care facilities.

The findings from this study indicate that more than 50% of the women had previously had an STI. This is in agreement with a study conducted in Antenatal/Family Planning clinics in Nakuru, which reported 59% of pregnant women having at least one STI (Solo *et al.*, 1999).

Of the 414 women, the age ranged from 10-45 years with majority (90.3%) aged between 16-30 years with one respondent aged 10 years house help with no formal education. As would be expected this is the sexually active age group where STI is most prevalent. The majority (58%) had attained secondary level of education with only (2.4%) having had no formal education, (2.9%) mid-level college and (36.7%) attained primary level of education. It is therefore assumed that most could follow given basic instructions on STI management. Therefore, the high STI prevalence among this group was mainly attributed to lack of proper STI management

and poor STI health education as observed in these clinics. This in turn may be due to lack of STI drugs within these clinics, poor attitude of the HCP, and little time for patient-HCP interaction, hindering delivery of proper STI health education. The high prevalence of STI may also be due to inadequate health seeking behavior on the part of the patient due to poor knowledge of some STI conditions like chlamydia (0.2%), herpes (0.7%) and pelvic inflammatory disease (0.2%).

4.2: Knowledge, Attitude and Practice Of SM Among Health Care Providers

Of the 37 HCP interviewed, majority 33 (89.2%) were trained between 1992- 1998 when the European union and CIDA aided the government. The number trained thereafter became less and less as the funds from the two organizations came to an end. Majority of the trained HCP were nurses 36 (97.3%) with only one clinical officer, mostly females 33 (89.2%) with only four males. When comparing provision and profession, nurses managed 97.3% of the mothers while clinical officers only managed 2.7%. It therefore appears that majority of the first category of HCP targeted for training were nurses as they managed most of the primary health care facilities where majority of the low socio-economic status women patronize. Since both males and females are affected by STI, training should target all levels of medical professionals equally, and to both gender so as to cater for a wider population, and for patients who are not comfortable on being attended to by the opposite sex especially on partner referrals. Considering that HCP training mostly occurred in the 1990s, and that effect of training abates over time and new technology also changes with time, there is need for more training and refresher courses/workshops to be carried out as an ongoing process.

Knowledge on STI syndromic management among the HCP was observed to be high in all aspects: history taking, physical examination, diagnosis, and treatment and STI health

education. However, this was not fully translated into actual practice. Among STI health education topics, the National guidelines requires that the patient be informed on compliance, STI/HIV, condom promotion, abstinence during medication and patient notification. The actual practice was observed to be good on only two aspects; compliance and partner notification, while performance on the others was poor. Observations (practice) and interviews (knowledge) have been recommended by as the most appropriate method for measuring performance of a defined set of activities that are essential components of adequate case management (WHO/GPA 1994). Observations have been used in several other domains of public health such as family planning. The advantage of observations is that they allow for assessment of what people actually practice in comparison to their knowledge (Tobi *et al.*, 1998).

Condom use is one of the most effective strategies in reducing the rate of STI / HIV/AIDS transmission (Garcia *et al.*, 1998). Education about condom use and its role in STI / HIV/AIDS prevention should form a major component in programs to control STI / HIV. In this study, although the health care providers level of knowledge on condom promotion seemed high (100%), it was often not translated into actual practice (43.9%) in regard to HCP promotion of condom use. This is perhaps due to weakness on the part of HCP not to stress to the patients the importance of condom use. Of the observed STI patients, none of them received information on the importance of condom use or provided with the same. Since these clinics have condom dispensers at strategic points, it is assumed that patients will pick some on their way out. However, this may not be the case as this practice was not assessed in this study on how many took condoms from dispensers / boxes. It is important to improve condom promotion as this could considerably improve the prevention of STI / HIV transmission in Nairobi.

Contact tracing is one of the few effective ways in which asymptomatic STI cases can be treated and one of the sure ways to prevent re-infection. It is encouraging that the actual

performance (94.6%) on this aspect was quite comparable to the knowledge (97.3%) (Table 7). However, high rates of promotion on contact tracing do not guarantee the utilization of this information by the patient, especially in cases of women who fear the reactions of their partners (Twahir *et al.*, 1996). These results are in agreement with findings of O'Hara *et al.*, (2001) who on assessing quality of STI health education in syndromic management of non-pregnant women and men in Nairobi City Council clinics found knowledge on STI health education to range from 64% to 97%, while the actual practice ranged from 15% to 80% indicating that knowledge was not fully translated to actual practice. The reasons for this were given as lack of time due to heavy workload in these clinics. This can be improved if the workload per health care provider is taken into account. For instance some HCP working in STI rooms hurry to finish attending STI patient as they are allocated more than one duty (MCH/FP, ANC and STI clinics) as was observed in this study. Therefore more HCP should be distributed to NCC clinics where the workload is high.

In addition, lack of materials for STI health education like STI flow charts can also contribute to poor performance as this guides the HCP on what drugs to prescribe to the patients. Although compliance and partner referral for treatment in STI health education was well done, more counseling and condom promotion needs to be done in order to improve on the other aspects of STI health education as these also play a major role in the prevention and control of STI spread.

STI case management on history taking, examination, diagnosis and treatment, knowledge was good in all aspects except for the treatment of lower abdominal pain 35.1% (Table 7). However, this was not fully translated into practice with regard to examination and treatment. On examination, performance was poor on two aspects. Only 29.3% of the patients were examined for lesions on vulva and labia while, only 12.6% were examined for vaginal

discharge. The average performance in examination can only be speculated to be due to either poor attitude of the HCP or lack of time due to heavy workload. In addition non-use of gloves by HCP though available in these clinics can also contribute to the poor performance of the two aspects of examination. The poor performance in treatment was mainly attributed to lack of drugs for STI pregnant women within these facilities. The observed poor performance agrees with the findings of Voeten *et al.*, (2001) who assessed quality of STI case management in non-pregnant women and men in the same clinics.

STI drugs are key to STI syndromic management and STI control in general. In most clinics the drugs were missing making it difficult for the HCP to effectively attend to pregnant women with STI. This resulted in low turn over of the patients seeking STI health care in these clinics hence resulting in low percentages of the three syndromes studied as compared to other similar studies done in Nairobi by Gichangi *et al.*, (2000).

Health care providers on syndromic management of STI said it was beneficial to pregnant women when treatment is done on site. However, there were no drugs in most of these clinics to effect immediate treatment. Women had to buy drugs from pharmacies outside the clinics. If one did not have the money, delayed treatment resulted thus increasing the risks to the unborn child and the spread of the STI. Drugs should therefore be made available especially for pregnant mothers, in order to prevent adverse pregnancy outcomes.

4.3: Syndromic Management Strategy

Syndromic management is the only feasible way to treat patients in developing countries that present to a health facility with an STI in under resource settings (WHO, 1994; Mabey 1996). The key principles behind the strategy are that it is not possible to make an accurate etiological diagnosis in patients with STI in developing countries, and many patients with an STI have multiple infections given that the approach to diagnosis and management of presumed STI is through laboratory procedures to determine the etiological agents. This approach is expensive and often results in delays in diagnosis and treatment (Adler and Foster, 1998). The efficacy of SM is however, dependent on both quality of service provided and health seeking behaviour of patients and their partners need to present for care (WHO/GPA, 1994; Abigail *et al.*, 1998). Clinical diagnosis without laboratory tests is cheaper, but due to low sensitivity of clinician's diagnoses many patients are inadequately treated (Mathews *et al.*, 1998). Syndromic management approach is recommended in developing countries in resource poor settings like NCC clinics. Similarly this approach has hindrances to its performance ranging from inadequate drugs, equipments, materials and poor health seeking behaviours of the women and poor attitude of HCP towards SM of STI. The limitations that it has includes over and under treatment due to wrong diagnosis. Syndromic management has inherent limitations as it relies on symptomatic patients presenting for care. Asymptomatic patients will not present with signs and symptoms meaning that syndromic management approach can not be used in these particular group of patients and no feasible screening strategies to identify asymptomatic patient exist in developing countries (Abigail *et al.*, 1998).

4.4: STI Drugs for Syndromic Management

Of the required STI drugs used in pregnancy, only Erythromycin and Amoxicilin were present in 11 out of the 12 clinics while Clotrimazole pessaries, Benzathine Penicillin, Augmentin, Probenicid, Spectinomycin, Ciproxine and Ceftriaxone were either missing or only present in very few clinics (Table 8). The few drugs present could not be given to the patients due to the fact that syndromic management depends on combination therapy for treatment of most common curable STI syndromes. The patients were therefore required to buy missing drugs before they could be issued with the drugs in the clinics. This was so because most patients once given drugs found within the clinics do not buy the remaining drugs which results in under treatment hence contributing to drug resistance. Unfortunately this also led to many patients not coming back as majority had no money to buy the required drugs. This further leads to the spread of STI since their condition remains untreated. This compares to a study conducted in Nairobi, Kenya that cited lack of financial resources to buy drugs and other costs involved in attending an STI clinic (Moses *et al.*, 1994). It also concurs with a study done in South Africa by (Mathews *et al.*, 1998) on assessment of care provided by a public sector STD clinic in cape town cited inadequacy of STI treatment on overall, 16% of men and 61% of women left STI clinic with at least one infection inadequately treated.

Inadequacy of drugs in the clinics was due to lack of supplies from NCC Headquarters, the Ministry of health and other agencies. Revenue collected from cost sharing however, should be used to buy drugs for their patients. They can utilize these monies to buy drugs since waiting for supplies from the M.O.H or any other body may not be easy to come by, given the current economic situation in the country. They should strive to be self reliant with scarce resources at hand so that STI can be managed and controlled effectively in pregnancy and general population in Nairobi.

4.5: Materials for STI Syndromic Management

Although all the clinics were well equipped with materials for STI management except for Riruta clinic, some of these materials were rarely used by the HCP. For instance gloves were available in 12 clinics but only 4 HCP were observed using them during STI patient examination. Perhaps these could be due to laxity on the HCP due to non-supervision. Lamps and torches for examination were not available in all the clinics. However, natural light was quite adequate and used during patient's examinations. Apart from Mathare-North clinic, all clinics did not have vaginal speculum and detergents. Although speculums are not crucial in examination of pregnant women they should be made available for use on other patient when need arises. Detergents should be made available in the clinics, as it is a vital item in infection control in health care institutions. A study conducted in Jamaica on quality of sexually transmitted disease services on evaluation of a clinic-based approach cited lack of STI materials in the clinics such as speculum and condoms as hampering STI management (Bryce *et al.*, 1994).

4.6: Scope and Extent of STI in NCC Clinics

The highest cases of vaginitis were reported in Lang'ata Division (62%) over the twelve-month period while the least were reported in Kamukunji (31.5%) division. This could be attributed to lack of STI drugs in this clinic and it is situation as it serves the densely populated Kibera slum. The life style of people in slum area may also have played major role due to promiscuity. Similar studies conducted in India on SM of vaginal discharge among women in a reproductive health clinic found the common infection to be trichomoniasis (26%) and at least one sexually transmitted infection was detected in (21.9%) of women (Vishwanath *et al.*, 2000). Cases of cervicitis were highest in Embakasi division (38.3%) and GUD was lowest in

all divisions for the twelve-month period. Eastleigh clinic in Kamukunji division serves as a referral center for the densely populated slums of Eastlands in Nairobi and the latter (Langa'ta) serves the densely populated areas of Kibera slums.

The least cases of STI were reported in Riruta clinic. This was attributed to lack of STI drugs within the facility and non-recording of STI cases although women were attended to and given prescriptions to buy the required drugs. The non-recording of STI cases is contrary to the regulations, which requires that a record should be maintained for future reference. The occurrence of STI in pregnancy over the six-month period in 12 STI strengthened clinics showed a significant difference in STI distribution by months in Vaginitis and Cervicitis but not in GUD. Despite the fact that these clinics are strengthened they all faced drug shortage during the entire period of the study.

Antenatal attendance in strengthened clinics was observed to be much higher than that in non-strengthened clinics over a six-month period (July–December 2001). The high attendance in strengthened clinics was attributed to the fact that they offer STI management alongside antenatal care and also they are health centers that serve as referral clinics for non-strengthened clinics that do not offer STI management.

On average only (21%) of women seeking antenatal care in the three strengthened clinics, (Langata, Kangemi and Ngong-Road) were screened for syphilis whereas no screening was done in the remaining clinics. This compares with the study by Gloyd *et al.*, 2001 on antenatal syphilis screening in 22 sub-saharan African countries which showed that, at best, only 38% of women attending antenatal services were screened, for syphilis and over one million syphilis-infected pregnant women attending antenatal care were missed out. Kangemi clinic screened

the highest number due to the densely populated catchment and its location in a slum area. Several studies in Africa have reported high prevalence rates of syphilis among the general population as well as among pregnant women, ranging from 3 to 16% (Temmerman *et al.*, 2000). In Kenya, syphilis sero-reactivity rates of approximately 3% have been reported in urban settings for many years (Temmerman *et al.*, 2000). Lack of screening for syphilis may be due to lack of simple, inexpensive and sensitive point of care tests. This is in contrary to the Ministry of Health Policy, which requires that all pregnant women be screened for syphilis.

CHAPTER FIVE

CONCLUSIONS

5.1

1. Majority of women had knowledge of syphilis, gonorrhoea and HIV/AIDS but had poor knowledge of other STI such as chlamydia, chancroid and herpes.
2. A large proportion of women sought medical care from public health institutions and NCC clinics for STI management rather than private clinics.
3. Pregnant women considered the quality of care in terms of drug availability and staff friendliness at health care facilities.
4. Health care providers had good knowledge of syndromic management of STI but practiced poorly in some exceptions.
5. Limited or lack of STI drugs for syndromic management hampered provision of quality health care to women with STI by health care providers in the clinics.
6. Syndromic Management approach is the best available option to improve STI control where laboratory facilities are inadequate or lacking like in NCC clinics despite valid criticism found in other literature.

5.2

Recommendations

1. There is need for continuous health care education campaign by HCP to STI patients in order to prevent spread of STI and health promotion on the urgency for STI patients to seek timely and correct medical care, taking into account the different attitudes and behaviour of women and HCP. This is more cost effective approach to curative measures.
2. In-service training, refresher courses and supervision systems should be put in place to keep HCP update their practice in syndromic management of STI.
3. Drugs and materials for syndromic management should be made available in public health care facilities where most pregnant women seek medical care to enhance STI control.
4. Since Cost sharing in public health facilities is a government policy, some of the revenue collected from patients as part of cost sharing should be utilized to buy drugs and materials in order to strengthen public institutions to avoid the shortages of these items in the clinics and to cope with high demand.
5. A further study on evaluation of syndromic management approach in terms of its performance against laboratory diagnosis is recommended.

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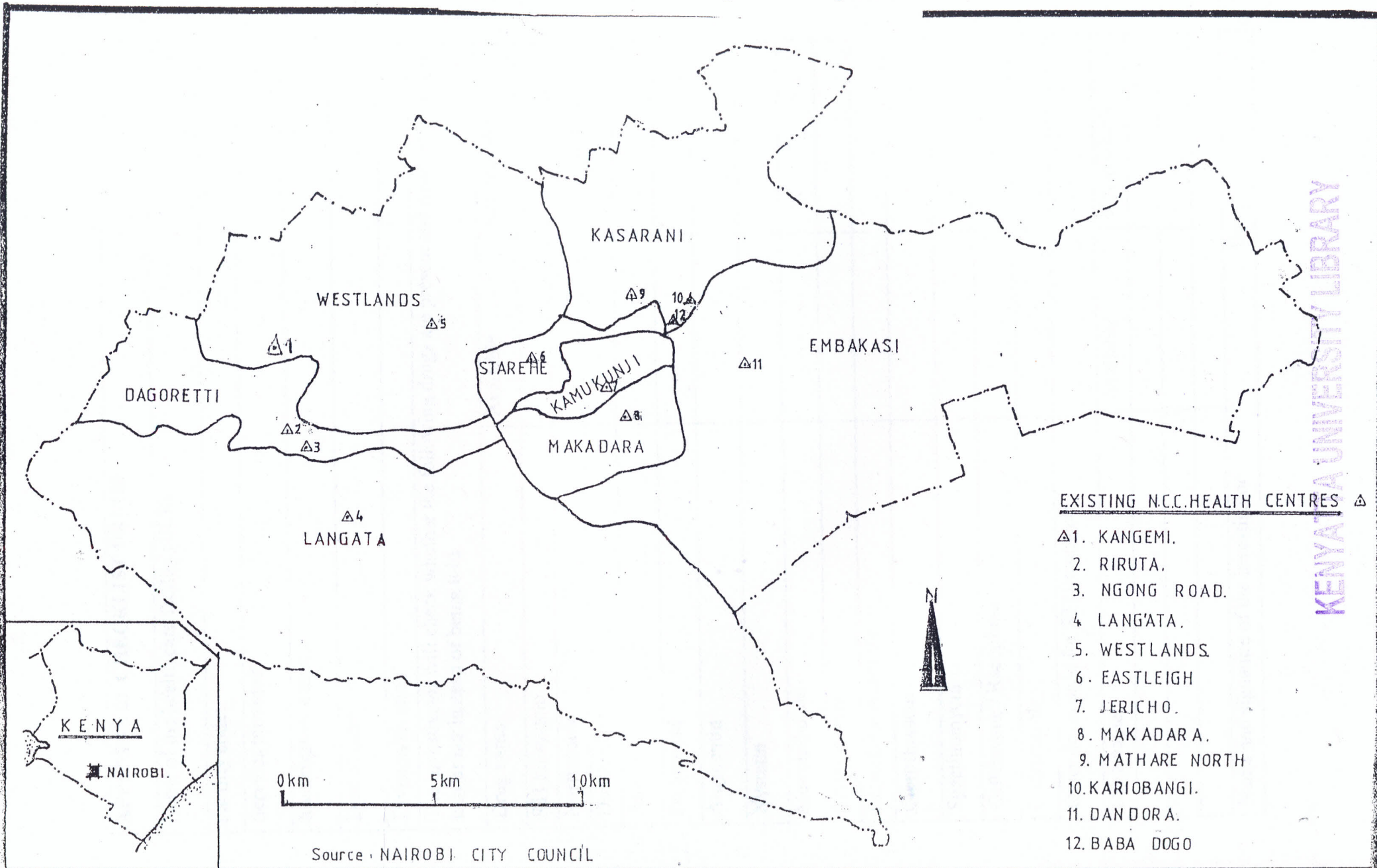
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Appendix 1: Map Showing The Study Area



APPENDIX 2: CHECKLIST DRUGS

Name of the health care facility (HCF):

Facility code:

Services provided:

Investigators name:

Date of interview:

Division/location:

The investigator will check whether the following drugs are present and must be shown to him or her instead of being told.

Drug name	Available	Not available
STI kit system		
Norfloxacin		
Doxycycline		
Amoxicilin		
Probenecid		
Augmentin		
Nystatin		
Metronidazole		
Erythromycin		
Benzathine penicillin		
Ciprofloxacin		
Spectinomycin		
Ceftriaxone / Recophine		
Clotrimazole		

Other drugs used for STI treatment:

Drug name	Available	Not available

Name and signature of the investigator:

Date:

APPENDIX 3: CHECK LIST MATERIALS

Name of health care facility (HCF) _____

Facility Number _____

Services provided _____

Name + code of investigator _____

Date of interview _____

[MATERIALS SHOULD BE SHOWN TO THE INVESTIGATOR]

- | | | | | |
|----------------------------------|-----------|--------------------------|---------------|--------------------------|
| 1. Record Cards | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 2. Examination couch /table | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 3. Vaginal speculum | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 4. Light | | | | |
| - Torch | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| - Examination lamp | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 5. Presence of condom dispenser | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 6. Condom supply | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 7. Referral slips /contact cards | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 8. Examination gloves | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 9. Sink and running water | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 10. Detergent | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |
| 11. Towel/paper towel | Available | <input type="checkbox"/> | Not available | <input type="checkbox"/> |

12. Presence of syringe and needle Available Not available
13. Spirits or alcohol swabs Available Not available
14. Presence of sterile specimen swabs Available Not available

15. Literature on STI at the HCF:

- | | | | | |
|---------------------------------|-----|--------------------------|----|--------------------------|
| Leaflets | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| Booklets | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| Posters | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| MOH/STI flowcharts | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| Flip Charts | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| Newsletters for clinic provider | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |

16. Other materials that are used for STI control-----

17. Good storage facilities for the drugs:

- ___ Are they kept cool? YES NO
- ___ Are they kept dry? YES NO
- ___ Are they kept dark? YES NO

Name and signature of the investigator: -----Date: -----

**APPENDIX 4: QUESTIONNAIRE FOR HEALTH CARE PROVIDER (HCP)
OBSERVED MANAGING A PREGNANT WOMAN WITH SEXUALLY
TRANSMITTED INFECTION (STI).**

COMPLETE THIS SECTION BEFORE OBSERVATION.

1. Name of Interviewer's name _____

2. Date of interview ____ I ____ I ____ I

Demographic Information

3. Name of health care Facility (HCF) _____

4. Division /Location _____

5. Facility code _____

6. First name of HCP _____

7. Profession of HCP

1-Doctor

2-Nurse

3-Clinical officer

4-Others specify _____

8. Sex of HCP

1-Male

2-Female

Knowledge

9. Are the following issues addressed?

1- Nature of presenting symptoms 1=Y I__ I 2=N I__ I

2- Onset or duration of symptoms 1= Y I__ I 2= N I__ I

3- History of recent sexual contacts 1=Y I__ I 2=N I__ I

Practice

10. Was the patient requested for an examination?

1= Y I__ I

2= N I__ I

11. Are patient's genitals fully exposed during examination, with the patient lying down? 1=Y
I__ I

2=N I__ I

12. Are gloves available? 1= Y I__ I

2= N I__ I

13. Are gloves used? 1= Y I__ I
2= N I__ I

14. Are speculums available? 1= Y I__ I
2= N I__ I

15. Is speculum examination performed / used? 1= Y I__ I
2= N I__ I

16. If yes is adequate light source used? 1= Y I__ I
2= N I__ I

17. Are the external genitalia thoroughly examined for discharge and genital ulcers? 1= Y I__ I
2= N I__ I

18. Are labia separated and examined? 1= Y I__ I
2= N I__ I

19. Was the patient informed about the diagnosis? 1= Y I__ I
2= N I__ I

20. If yes, write down the diagnosis _____

21. If no, then ask the HCP what his/her diagnosis is and write down

22. Is blood taken for;

1- HB 1= Y I__ I 2= N I__ I

2- RPR/VDRL 1= Y I__ I 2= N I__ I

3- HIV (VCT) 1= Y I__ I 2= N I__ I

4- Others specify _____

23. Are tests in (Qs 22) done on site laboratory (same day)

1= Y I__I

2= N I__I

24. If yes, is the result of the RPR/VDRL available on the day of the consultation? 1= Y I__I

2= N I__I

25. Does the HCP obtain/ request laboratory investigations other than those in question 22?

1=Y I__I

2=N I__I

26. If yes, which tests? _____

Knowledge

27. Ask the HCP what therapy he or she is prescribing / providing to the patient, at this consultation

1- Drug name I Dosage I Route I Duration of treatment

2- Drug name I Dosage I Route I Duration of treatment

3- others please specify _____

28. Did the final treatment depend on?

1- Etiologic causes

2- Syndromes presented by the patient

3 - Others please specify _____

30. Where does the patient obtain the prescribed drugs?

1- At this clinic (free)

2- At this clinic same day (paid)

3- At the pharmacy / chemist shop (Buying).

4- At this clinic and at the pharmacy

5- Others, please specify _____

31. Was there any delay between waiting time before consultation and the provision of treatment? 1=Y I__I

2= N I__I

32. If yes,

1- same day I__I

2- Next day I__I

3- others, please specify _____

Practice

33. Did the HCP instruct the patient on the importance of completing the full course of treatment? 1=Y I__ I
2= N I__ I

34. Is the risk of STII/HIV / AIDS mentioned? 1= Y I__ I
2= N I__ I

35. Was condom use mentioned /provided to the patient? 1=Y I__ I
2= N I__ I

36. Are instructions on condom use offered? 1= Y I__ I
2= N I__ I

37. Is abstinence of sexual intercourse mentioned during medication?
1= Y I__ I
2= N I__ I

38. Is patient urged to refer partner for treatment?
1=Y I__ I
2=N I__ I
3= others specify _____

39. Was privacy maintained during consultation? 1=Y I__ I
2= N I__ I

Remarks /Observation

APPENDIX 5: HEALTH CARE PROVIDER (HCP) INTERVIEW ON THE MANAGEMENT OF STI IN PREGNANT WOMEN.

COMPLETE THIS SECTION BEFORE INTERVIEW.

1. Name Interviewer _____ CODE I __ I

2. Date of Interview ____ I ____ I ____ I

Demographic Information

3. Name of health care Facility (HCF) _____

4. Division /Location _____

5. Facility Code _____

6. First name of HCP _____ I CODE I __ I

7. Sex of HCP

1-Male

2-Female

8. Profession of health care provider

1-Nurse. I __ I

2-Clinical officer. I __ I

3-Medical practitioner. I __ I

4-Others please specify _____

9. Do you have any post-graduate qualification? 1= Y I __ I

2=N I __ I

10.If yes, which one;

1.Venereologist

2.Trained in syndromic STI Management

3.Obs/Gynae

4.Dermatologist

5.Others specify _____

11. Which year did you attain STI management training? _____

12. Was this HCP observed managing an STI pregnant woman? 1= Y I __ I

2=N I __ I

13. How many cases of pregnant women with STI did you see at this clinic last week? No:

14.How many cases of pregnant women with STI do you see at this clinic during an average month? No: _____

Knowledge

15. When pregnant women come to the clinic with STI, are they routinely asked questions? 1=Y I__I

2=N I__I

16. If yes, which questions do you ask them?

1. Present symptoms? 1=Y I__I 2=N I__I 2. Onset /duration of symptoms? 1=Y I__I 2=N I__I

3. Recent sexual contacts. ? 1=Y I__I 2=N I__I

4. If visited any clinic for this problem? 1=Y I__I 2=N I__I

17. Do you routinely perform a general examination on your pregnant women who are unwell?

1=Y I__I

2=N I__I

18. Please describe each step of how you would examine a pregnant woman with STI?

1. Patient asked to undress so that genitals are fully exposed

1=Y I__I

2=N I__I

2. Patient asked to lie down during examination 1=Y I__I 2=N I__I

3. Patient examined for lesions on vulva and labia 1=Y I__I 2=N I__I

4. Patient examined for vaginal discharge? 1=Y I__I 2=N I__I I__I

5. Others specify _____

19. Do you base your diagnosis on?

1. Etiologic diagnosis such as gonorrhea or syphilis?

2. Syndromic diagnosis such as vaginal discharge? I__I

3. Both. I__I

Practice

20. What is the first choice of treatment that you usually prescribe for?

1) Pregnant woman with vaginal discharge?

Drug name | Dosage | Route | Duration of treatment

1. _____

2. _____

3. _____

4. Others specify _____

2) With lower abdominal pain?

Dosage | Route | Duration of treatment

1. _____

2. _____

3. _____

4. Others specify _____

3) With genital ulcer disease? (GUD)

Drug name | Dosage | Route | Duration of treatment

1. _____
2. _____
3. _____
4. Others specify _____

21. Do you provide drugs to prevent your clients from contracting STI (do you provide STI prophylaxis) 1= Y I__I

2=N I__I

22. If so which drugs and diseases _____

23. Where do pregnant women with STI obtain the drugs you prescribe for them?

1. At this clinic (free)
2. At this clinic (paid)
3. At the pharmacy /chemist shop (Buy).
4. At this clinic and at the pharmacy.
5. Others specify _____

24. Do you have any problem with drug supply? 1=Y I__I

2=N I__I

25. If yes, what problem. (s)

Attitude

26. Do you think drugs should be reserved and be used in the treatment of STI in pregnant women only? 1=Y I__I

2=N I__I

27. If yes, explain

28. What are your views about syndromic management of STI in pregnancy?

29. How can this approach be improved? _____

30. Do you follow any other treatment guidelines apart from the syndromic STI management chart in your management of pregnant Women with STI?

1= Y I__I

2=N I__I

31. If yes, which ones? _____

32. Have you received a copy of the STD treatment schedules recommended by the national STD control programme? 1=Y I__I

2=N I__I

33. Do you discuss with your patients on compliance? 1= Y I__I

2=N I__I

34. If yes, what do you inform them on?

1. Take full course of medication prescribed and not share or keep

2. Avoid self medication I__I

3. Others specify _____

34. Do you counsel your patients Y I__I N I__I

35. Is the risk of STI/HIVAIDS mentioned? 1= Y I__I

2=N I__I

36. Is condom promotion mentioned / provided to the patient during medication?

1=Y I__I

2=N I__I

37. Is sex abstinence mentioned during medication? 1=Y I__I

2=N I__I

38. Is patient urged to refer partner for treatment or is patient given drugs for partner? 1=Y I__I

2=N I__I

39. What are the main constraints on your work with STI management in pregnancy

Time interview ended _____

APPENDIX 6: EXIT QUESTIONNAIRES FOR THE PREGNANT WOMAN WITH SEXUALLY TRANSMITTED INFECTIONS (STI)

1. Name Interviewer _____
2. Date of interview _____ I _____ I _____ I

Demographic Information

3. Name of Health care facility (HCF) _____
4. Division/Location _____
5. Facility code _____
6. First name of health care provider (HCP) _____
7. Profession of HCP

1. Doctor
2. Nurse
3. Clinical officer
4. Others please specify _____

8. Initials of patient's name _____

Age: _____

10. Parity _____

11. Gestation period / L .M. P _____

12. Education level
 - 1 None
 2. Primary
 3. Secondary
 4. Mid-level college
 5. University
 6. Others Please specify _____

13. Marital status

- 1 ___ Married
- 2 ___ Single
3. ___ Divorced
4. ___ Windowed

Knowledge

14. What do you think are the most common diseases in Nairobi?

- 1-STI
- 2-Malaria
- 3-TB
- 4-Others Specify _____

15. What are some of the STI that you know?

- 1-Syphilis
- 2-Gonorrhoea
- 3-Trichomoniasis
- 4-candidiasis
- 5-HIV/AIDS
- 6-Others specify_____

16. Have you ever suffered from STI? 1= Y I__I
2=N I__I

17. If yes, how many months ago? _____

18. What do you believe are signs and symptoms of diseases related to sexual intercourse?

1. Itchiness of genital parts.
2. Backache.
3. Genital ulcers.
4. Headache.
5. Vaginal discharge
6. Pain during sexual intercourse.
7. Others specify _____

Health Seeking Behaviour;

19. Did you seek Medical treatment? 1=Y I _ I
2=N I _ I

20. If yes where do you go for most of your health problems?

1. Private clinic
2. Public clinic
3. Traditional herbalist
4. Buy medicine
5. Others please specify

1 st	2 nd	3 rd	4 th	5 th

21. What are the reasons for attending the clinic today?

1. ANC
2. Unwell
3. STI clinic
4. Others Specify _____

Attitude

22. Do you think STI can affect your pregnancy? 1=Y I _ I
2= N I _ I

23. If yes, in which way?

- 1-Abortion
- 2-Congenital abnormality to the baby
- 3-None
- 4-Others specify _____

24. How do you judge good quality health care?

- 1- Given time to explain the disease
- 2- Counseling
- 3- Laboratory services
- 4- Staffs friendly
- 5- Given drugs at the health facility
- 6- Getting better after treatment
- 7- Other specify _____

25. Were you asked about:

1. Nature of present symptoms? 1=Y I ___ I 2= N I ___ I
2. Onset or duration of symptoms? 1= Y I ___ I 2=N I ___ I
3. History of recent sexual contact? 1= Y I ___ I 2= N I ___ I

26. Did you have a general physical examination done? 1= Y I ___ I 2= N I ___ I

1. Were you told to undress prior to examination? 1= Y I ___ I 2= N I ___ I
I ___ I

2. Were you told to lie down during examination? 1= Y I ___ I 2= N I ___ I

3. Were the genitals fully examined for vaginal discharge and genital ulcers? 1= Y I ___ I 2= N I ___ I I ___ I

27. Were you told the diagnosis of your sickness? 1=Y I ___ I 2=N I ___ I

28. If yes what was it:

1. Syphilis
2. Gonorrhoea
3. Chlamydia
4. Candidiasis
5. Trichomoniasis
6. Others please specify _____

29. If no, then inquire from the HCP the diagnosis _____

30. Was the risk of STI or HIV/AIDS mentioned? 1= Y I ___ I 2= N I ___ I

31. Which treatment were you put on? _____

32. The interviewer should request to be shown the prescription/drugs

(Are the drugs prescribed reflected on the Syndromic STI management chart?) 1=Y

I ___ I

2. N I ___ I

33. Write down the name of the drugs as per;

- 1-The patient's prescription 1 _____
2 _____
3 _____
4 _____

- 2-Drugs given to the patient in the STI clinic 1 _____
2 _____
3 _____

34. Were you told the importance of completing the full course of treatment?

1=Y I ___ I

2= N I ___ I

35. Were you told any of the following?

1. To tell your partner to come for treatment? 1=Y I ___ I

2=N I__I

2. The patient is given drugs for the partner? 1 =Y I__I 2 =N I__I
2. Use of condoms? 1=Y I__I 2=N I__I

36. Was privacy maintained during consultations? 1=Y I__I
2= N I__I

37. What are the main constraints that you encountered in seeking consultation and treatment / Do you have any comments or questions?

38. Thank you very much for your time today to talk with me and answering all these questions. Everything you have told me will be kept strictly confidential. Your answers will greatly help in improving STI management in pregnancy.

Time interview ended _____

Appendix 7: Calculation of Knowledge index of STI Among pregnant women

Respondents

To assess knowledge of STI Among Pregnant Women Respondents, the following index was developed (for the purpose of this study).

1. Respondent's knowledge of common diseases
2. Respondent's knowledge on STI known to the patient
3. Respondent's knowledge on signs and symptoms of STI
4. Respondent's Knowledge if STI pregnancy Affection.
 - Knowledge of common diseases = 1 point
 - Knowledge of STI known to the point = 5 points
 - Knowledge of signs and symptoms of STI = 6 points
 - Knowledge of STI pregnancy Affection = 1 point
 - Total score = 13 points

Scoring:

- Good knowledge = 6-13 points 75-100%
- Average knowledge = 4-5 points 50-74%
- Poor knowledge = 0-3 points 49%

Appendix 8: Calculation of Knowledge Index of SM Among HCP

To assess knowledge of HCP on SM of STI in pregnant women, the following index was developed.

1. Respondent's knowledge on questions of history taking on pregnant women
2. Respondent's knowledge on examination of STI pregnant women
3. Respondent's knowledge on whether blood should be taken for Hb and RPR/VDRL from pregnant women
4. Respondent's knowledge of diagnosis of STI on pregnant women
5. Respondent's knowledge for treatment of STI pregnant women basing on syndromes
6. Respondent's knowledge of source of SM drugs
7. Respondent's knowledge health education topics to be discussed with STI pregnant women

• Knowledge of History taking	= 3 points
• Knowledge of examination	= 5 points
• Knowledge of treatment	= 3 points
• Knowledge on diagnosis of STI	= 2 points
• Knowledge according to syndromes	= 3 points
• Knowledge of health education topics	= 6 points
• Total score	= 22 points

Scoring

• Good knowledge	= 17-21 points	75 -100%
• Average knowledge	= 11- 16 points	50 - 74%
• Poor knowledge	= 0—10 points	0 - 49%

Appendix 9: Calculation of Practice Index of SM Among HCP

To assess practice of HCP on SM of STI in pregnant women, the following index was developed.

8. Respondent's practice on questions of history taking on pregnant women.
9. Respondent's practice on examination of STI pregnant women.
10. Respondent's practice on whether blood should be taken for Hb and RPR/VDRL from pregnant women.
11. Respondent's practice of diagnosis of STI on pregnant women.
12. Respondent's practice for treatment of STI pregnant women basing on syndromes.
13. Respondent's practice of source of SM drugs.
14. Respondent's practice health education topics to be discussed with STI pregnant women.

• Practice of History taking	= 3 points
• Practice of examination	= 5 points
• Practice of treatment	= 3 points
• Practice on diagnosis of STI	= 2 points
• Practice according to syndromes	= 3 points
• Practice of health education topics	= 6 points
• Total score	= 22 points

Scoring

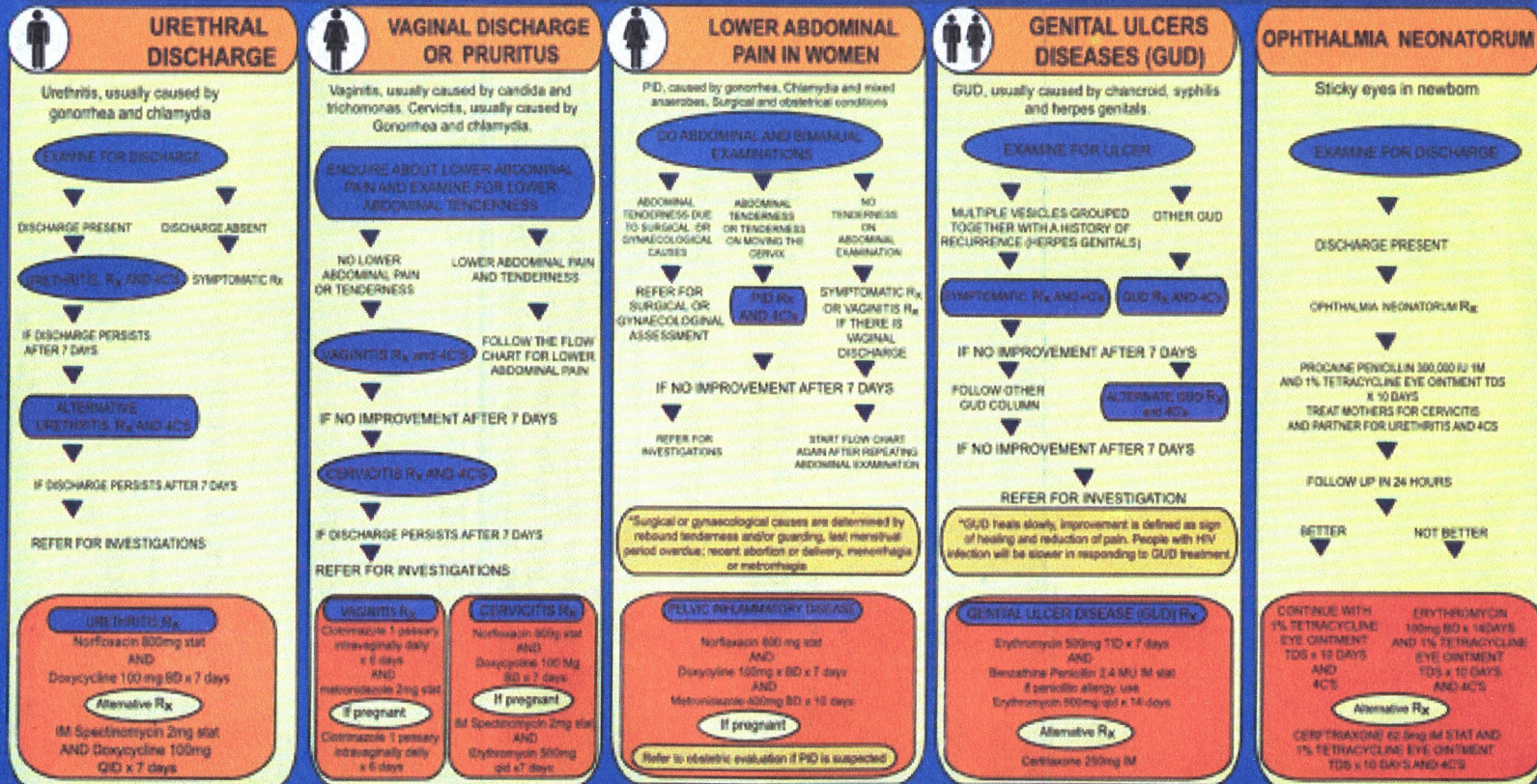
• Good knowledge	= 17-21 points	75 -100%
• Average knowledge	= 11- 16 points	50 - 74%
• Poor knowledge	= 0—10 points	0 - 49%



MANAGEMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)



THE CHART PRESENTS THE MOST COMMON STI SYNDROMES AND TREATMENTS. FOR MORE INFORMATION CONSULT THE NATIONAL GUIDELINES FOR THE CONTROL OF STI



FIGHT AIDS! REMEMBER THE 4C'S OF GOOD STI MANAGEMENT

<p>Counselling * Empathise with your patient (put yourself in your patient's place) * Dialogue with your patient * discuss the other 3C's</p>	<p>Compliance Your patient should * Avoid self medication * Take the full course of medication and not share or keep it * Follow your other instructions.</p>	<p>Condoms * proper condom use is the only other alternative to abstinence * Give condoms to your patient * explain and demonstrate the proper use of the condoms</p>	<p>Contact treatment Your patient should * Tell all his / her sexual partners to seek medication</p>
---	--	---	---

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NAIROBI

PUBLIC HEALTH DEPARTMENT

The Chairman,
Department of Medical Microbiology,
University of Nairobi

DATE17th October, 2001

PERMISSION TO CARRY OUT RESEARCH AT NAIROBI CITY COUNCIL CLINICS - ALICE N. SONGWA

Permission is hereby granted for the above named to carry out the research at the following clinics : Baba Dogo, Dandora, Eastleigh, Langata, Kariobangi, Westlands, Ngong Road, Mathare North, Jericho, Makadara, Woodly, Riruta and Highrise. The title of the Research is on Syndromic Management of Sexually Transmitted Infections among pregnant women in Nairobi City Council Clinic.

A research fee of KShs. 1,200/- will be paid to Nairobi City Council.

By a copy of this letter the Asst. Medical Officer of Health Division I and The Asst. Medical Officer of Health Division II are requested to give you the necessary assistance.

DR. DANIEL M. NGUKU
for: MEDICAL OFFICER OF HEALTH

c.c. A.M.O.H. - Div. I
A.M.O.H. - Div. II

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When replying please quote

Ref. No. MOEST 13/001/32C 34/2
and date



JOGOO HOUSE "B"
HARAMBEE AVENUE
P.O. Box 30040
NAIROBI

1st March....., 20..02

Alice Songwa
Kenyatta University
P.O. BOX 43944
NAIROBI

Dear Madam

RESEARCH AUTHORISATION

On the basis of your application for authority to conduct research on 'Syndromic Management of sexually Transmitted infections among pregnant Women in Nairobi City Council Clinics, I am pleased to inform you that you have been authorised to conduct research in Nairobi for a period ending 30th July, 2002.

You are advised to report to the Provincial Health Officer Nairobi and the Director of City Clinics before embarking on the study.

You are further advised to avail two copies of your research findings to this Office upon completion of your research project.

Yours faithfully


A. G. KAARIA

FOR: PERMANENT SECRETARY/EDUCATION

CC

The Provincial Health Officer
Nairobi

The Director
City Clinics
P.O. BOX
NAIROBI

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