Syndromic Surveillance of Sexually Transmitted Infections in Private General Practices in the Gauteng Province

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DECLARATION

I, Abdul Samad Soni, declare that this research report is my own work. It is being submitted for the degree of Master of Family Medicine in the University of the Witwatersrand, Johannesburg. It has not being submitted before for any degree or examination at this or any other University.

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.....DAY OF 2005

DEDICATION

This is dedicated to my wife, Salima and my family for all their support, patience and help.

ABSTRACT

The epidemic of Sexually Transmitted Infections (STIs), including HIV infection, is one of the major challenges facing South Africa at the present time.

Controlling the epidemic of conventional STIs will decrease the suffering and complications caused by these diseases as well as the spread of HIV/AIDS.

In order to manage patients in an efficient and cost-effective way, the WHO has advocated syndromic management. This approach is characterised by the management of persons with STIs by providing treatment for a group of diseases, which may cause one or more signs or symptoms, rather than by treating a specific disease.

The incidence of STIs is very high in South Africa and many patients with STIs are consulting private general practitioners but very little information is available on syndromic management in general practice.

To this view, sexually transmitted diseases tally sheets were given to twenty self selected private general practitioners and were requested to complete sheets for all STI and non-STI patients for a period of eight weeks. Also a demographics questionnaire with regard to the doctors and their practices was given to the doctors for completion. The data was captured and analysed using the Microsoft Access and the EpiInfo 6 statistical package

The results indicated that although private general practitioners manage a fair number of STI patients, not all are familiar with syndromic management. While recognising that the respondents were self-selected, 19 (95%) of the 20 participating doctors were very keen to attend courses on syndromic management.

It is recommended that more information be made available to general practitioners on syndromic management.

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1 INTRODUCTION

Sexually Transmitted Infections (STIs) are a major cause of ill health in Southern Africa. According to the World Health Organization (WHO), the estimated yearly incidence of curable STIs in adults for sub-Saharan Africa is around 28%.[1] Making a difference to the STI epidemic requires inventive strategies, which involve both the public and private sectors. Although there is a lack of population-based data on the prevalence and incidence of STIs in South Africa, [2] it is safe to assume that STIs are common.

Gauteng Province is a densely populated province of the republic of South Africa with a population of 7.2 million recorded in 1996. It has an area of 17010 km² with a population density of 423/ km² compared to the national average of 31/ km². According to Professor Ron Ballard, head of the National Reference Center for STIs in Johannesburg the prevalence of STIs in Gauteng is high and it is still rising.[3]

Sexually transmitted diseases have largely been neglected in South Africa. In many areas in both the public and private sector no preventive activities are undertaken (information, education and counseling on reducing the risk of acquiring an STI) nor is there any system of contact or partner notification and management.[4]

It would be of great benefit in the fight against STI and HIV/AIDS disease if the quality of care for STIs in general practice were to be improved.

1.1 Sexually Transmitted Infections

Sexually transmitted diseases (STIs) have been recognized as a major public-health problem for a number of years. Since the total management of the problem is not reliant on drug therapy alone, STIs continue to pose a threat to the health and welfare of individuals.[5] In the last decade there have been considerable advances in the field of STIs. These have been fuelled to a large extent by the HIV/AIDS epidemic, but also by the by increased recognition of the range and severity of complications and sequel that can be linked to these infections and the development of new case-management approaches.

STIs infect the reproductive tract as their primary site, with transmission occurring during sexual intercourse or from mother to child during pregnancy and childbirth. As a result, the greatest risk of infection is found among sexually active individuals and in infants born to infected mothers. Multiple infections within the same individual are also frequent, as is re infection if partners have not been adequately treated. [6]

2 MOTIVATION, AIM AND OBJECTIVES

2.1 Motivation

The incidence of STIs is very high in South Africa and many patients with STIs are consulting private general practitioners but very little information is available on syndromic management in general practice. Patients with STIs are at increased risk of being infected with the HIV virus. HIV sero-positivity in South Africa ranges from 7.1% in the Western Cape to 32.5% in KwaZulu-Natal. Rates in Gauteng 23.9% and the Free State 27.9% are closer to the national rate of 22.4%. These figures are based on 1999 antenatal clinic surveys and it is important to note that population-based studies for the country as a whole have not been performed.[7]

In a study carried out by Htun Y and Leong G et al [34] it was found that the incidence of symptomatic STIs among teenagers was over 10%, which indicated high-risk sexual behavior. Also the stigma attached to STIs may have deterred other teenagers from seeking help at the public primary health care clinics (PHC) clinics. Therefore in addition to obtaining adult STI incidences it would be of great importance to determine the number of teenagers seeking treatment at private practices as well for comparison.

The available evidence suggests that private practitioners, whether general practitioners, traditional healers or pharmacists, are frequently consulted for the treatment of STIs. Yet co-operation with the public sector in addressing this major health issue is limited[1]

Little is known on the quality of private general practice STI care. A structured telephone interview schedule designed by the Center for Health Policy[8] was administered by the private market research company, Decision Surveys International, who randomly selected 120 private GPs across the country. The majority of the doctors so selected were from Gauteng (77%). It was found that the quality of STI management was inadequate and may be a contributing factor to the continued spread of STIs in South Africa. The main problem for the low quality of STI management appears to be the failure to fully apply the syndromic approach to management of STIs[8]. Determination of the incidence of STIs in general practice and the range of STI syndromes and comparisons with the public primary health care clinics (PHC) incidences will assist a great deal in formulating strategies for management of patients and educational programmes for general practitioners.

2.2 Aim of research

To determine the profile of patients with symptomatic STIs in selected Gauteng private general practices.

2.3 Objectives of research

1. To define the following characteristics regarding patients attending selected private general practices over an 8-week period in Gauteng.
    a. Demographics features of all patients, including their numbers, ages and sex
    b. Numbers of patients with symptomatic STIs
    c. Relative number of STI syndromes in symptomatic patients
    d. The ratio of STI patients to those without STIs
    e. The relationship between STI syndromes and the demographic features of patients.
2. To define the demographic features of the participating general practitioners including age, sex, year and university of primary medical qualification, postgraduate medical qualifications and attendance of STI management courses and the use of syndromic management by practitioners.
3. To determine the demographic features of the participating practices including the suburb of practice and socio-economic status of patients.
4. To determine the relationship between the demographic features of participating practices and other variables.

3 LITERATURE REVIEW.

A preliminary literature review revealed that although many STI surveillance studies have been carried out in the public sectors hardly any research has thus far been carried out in private practice or at general practitioners level.

It is estimated that 30% of South Africans make use of the private sector for health care, either on a regular basis through medical schemes, or irregularly by means of self-finance.[9] Treatment of STIs appears to be one of the conditions for which treatment is regularly sought in the private sector. Private general practitioners still provide the bulk of STI care in South Africa.

In interviews with patients with STIs in a rural community clinic in KwaZulu Natal McCoy[10] reported a quarter of the patients having utilised the services of a private practitioner prior to attending the clinic, and if one considers patients who were seen and successfully treated by the private practitioners the number that consult private practitioners is probably even higher.

This finding is supported by two studies in urban Alexandra (Gauteng Province) which found that most women visited a private practitioner before attending a public antenatal clinic[11] and 63% of health service visits for STIs in Alexandra occurred in private general practitioner's rooms.[12] Comparisons done in other parts of Gauteng suggest that more patients utilise private general practitioners than public STI clinics.

This is particularly true in urban areas, where private practitioners constitute a more frequent source of STI care than the public sector.[12]

The perception among patients is that the private practitioner provides a better quality of care and privacy is usually assured as compared to a public sector clinic.[13]

In a study of health service utilisation carried out by Beattie and Rispel[14] in rural KwaZulu Natal among farm labourers, the majority of whom earned about R300 per month, the majority of the respondents were prepared to pay the private consultation fee of R40 because they believed the quality of treatment would be better.

Globally the Word Health Organization (WHO) has estimated that during 1997 over 333 million episodes of curable STIs occurred with the overwhelming majority being detected in developing countries.[15] This information has been obtained as a result of the implementation of various surveillance and epidemiological studies undertaken throughout the world.

In order to manage patients in an efficient and cost-effective way, syndromic management (managing persons with STIs by providing treatment for the group of diseases which may cause one or more signs or symptoms rather than by treating a specific disease) has been advocated by theWHO[4]

The Gram stained smear of urethral exudates is an inexpensive, rapid test but requires either access to a laboratory or a microscope in the consulting rooms.

In symptomatic men, the sensitivity of Gram stain compared with culture is about 95%[35]. In asymptomatic men with culture proved gonococcal urethritis, the sensitivity of the Gram stain drops to about 60%. In Benin, Alary et al[16] showed that Gram stain confirmation of inflammation did not perform better than syndromic management based on clinical signs and symptoms.

Dalabetta et al[17] confirmed in a population of young sexually active men in Malawi that symptoms of dysuria or discharge were highly specific for documented urethritis. These findings further lend support that men with symptoms of dysuria or discharge should be treated syndromically especially in poor resource settings.

A syndrome can be defined as a combination of symptoms or complaints and signs subsequently detected during clinical examination. Fortunately, many of the symptoms and signs caused by different STIs are similar enough to be easily recognised clinically, and these can be grouped in a small number of syndromes.

The following are the most important STI related syndromes:

- Urethral discharge in men.
- Scrotal swelling.
- Vaginal discharge in women.
- Lower abdominal pain.
- Genital ulcer in men and women.
- Inguinal bubo (swelling) without ulcer.
- Balanitis in men.

The aim of syndromic management is to identify one of these syndromes and treat it accordingly with combination therapy that will cover the main pathogens that cause it.

3.1 Prevalence of sexually transmitted diseases

Prevalence refers to the number of infections prevailing at a point in time.

The two main sources of information on the prevalence and incidence of a particular disease are case-notification reports and epidemiological studies. In countries with good reporting systems, the number of reported cases is a good proxy for the total number of infections if the disease has very definite symptoms

Sexually Transmitted Infections however, are often symptomless and when there are symptoms they are often not specific. Antonio C Gerbase and Jane T Rowley [5] in their article indicate that 70-75% of women infected with chlamydial infection are symptom-free. In addition, the social stigma associated with an STI may result in people seeking care from alternative providers or not seeking any care. As a result, report-based STI surveillance systems tend to underestimate substantially the total number of new cases. In the past, intervention strategies focused only on the treatment of symptomatic STI patients in the form of syndromic management and played a limited role in controlling the spread of STI. More recently periodic, presumptive treatment (PPT) of target groups with a high risk of acquiring STIs but without symptoms has shown a reduction in STI acquisition.[18]

In 1996, WHO generated a new set of global estimates for four major STIs drawing on an extensive review of the published and unpublished prevalence data. These estimates suggest that there were more than 333 million new cases of syphilis, gonorrhoea, chlamydia, and trichomoniasis in adults aged 15-49 years in 1995:12.2 million cases of syphilis, 62.2 million cases of gonorrhoea, 89.1 million of chlamydia, and 167.2 million of trichomoniasis.[5] Geographically, the vast majority of these new cases occurred in the developing world, which reflects the global distribution of the population. The largest number of new infections occurred in the region of south and Southeast Asia (45.6%), followed by sub-Saharan Africa (19.7%), and then Latin America and the Caribbean (10.9%). It should be noted, however, that these four infections account for only a proportion of infections acquired through sexual intercourse each year.

The quantity and quality of prevalence data available from the different regions and knowledge of the duration of infection, although based on a comprehensive survey of the available information, limit the WHO estimates.

Interpreting the data from prevalence studies and comparing results is further complicated by the nature of the populations studied (the majority of data originate from studies carried out in “convenient” populations, such as STI or antenatal clinic attendees, small sample sizes, and the different diagnostic approaches used.)

Data from epidemiological surveys show that within countries and between countries in the same region, the prevalence and incidence of STIs may vary widely even in similar population groups.[5] In general, the prevalence of STIs tends to be higher in urban residents, in unmarried individuals, and in young adults. STIs tend to occur at a younger age in females than in males, related to patterns of sexual activity and to the relative rates of transmission from one sex to the other.[5]

3.2 Incidence of sexually transmitted diseases.

Epidemiological surveys can provide information on the prevalence of one or more STIs in specific population groups, but only a handful of surveys provide information on the incidence of infection, as incidence studies are significantly more complicated and expensive to conduct.[19]

To obtain a true incidence of infection a proper cohort study measuring new episodes of STIs during a specific period of time is required. To establish such a community cohort is found to be logistically difficult, particularly in resource poor countries. However many cross sectional prevalence studies using representatives of specific communities have been implemented to establish the burden of infections in these communities.

3.3 Risk Factors for Sexually Transmitted Infections.

At the population level, the spread of an STI depends upon the average number of new cases of infection generated by an infected person. This can be described in terms of the basic or case-reproduction ratio (Ro) which, for an STI, depends upon the efficiency of transmission (…*)*, the mean rate of sexual partner change (c), and the average duration of infectiousness (D).[20] The higher the value of Ro the greater the potential for the spread of the infection:

$$Ro = \ldots cD$$

Furthermore, the ways in which infected persons seek care, and the consequent delays in diagnosis and the treatment, influence STI incidence and the probability of complications. Additional data on this issue will lead to a better understanding of health-seeking behavior and could help in the design of STI interventions. Results from such a study[5] in the Mwanza region, Tanzania, have shown that this is indeed the case. A 42% reduction in the incidence of HIV was documented in the intervention communities that received improved STI treatment.

3.4 Quality of STI management

The prognosis of sexually transmitted disease is dependent on both the patients' and the doctors' management of STIs. According to Dartnall and Schneider et al[21] general practitioners see an estimated 5 million STI cases per annum, yet a distressing number of these are inadequately managed. In particular, women who present to their GPs with symptoms of STIs have very little chance of being adequately managed. Dartnall and Schneider et al[21] also found that only half of them are likely to be screened for syphilis during pregnancy and although there is widespread awareness of antibiotic resistance, overall however, reported treatment regimens are largely ad hoc and individualistic in nature, and do not appear to be informed by developments in the syndromic management of STIs. GPs frequently reported prescribing better regimens for medical aid versus cash paying patients. Therefore the cure rate in successful treatment of STIs is dependent on both the doctors' management of STI and improvement in the patient knowledge regarding prevention and spread of STI.

3.5 Consequences of sexually transmitted diseases.

Sexually transmitted diseases (STIs) are among the most common causes of illness in the world and have far reaching health, social and economic consequences. Their impact, however, is not evenly spread. Disproportionately, they affect the health and social well being of women, particularly those in the reproductive and economically most productive age groups, and their offspring. In addition, complications from STIs are found more often in resource poor settings and, as a result, the greatest burden falls on the least well off countries, and within countries, on the poor.

Apart from the large number of cases, STIs are a major public health problem for two additional reasons: many of these infections can result in serious complications and sequelae and a number of conventional STIs have been identified as facilitating the spread of HIV. Complications in females result primarily from the migration of STI pathogens upward from the lower reproductive tract. This can lead to pelvic inflammatory disease, chronic pelvic pain, tubo-ovarian abscesses, ectopic pregnancies and infertility. In adult males, infection spreads from the urethra to the epididymis and can result in urethral stricture and infertility. STIs are also associated with particular types of cancer in adult males and females, notably the high risk types of HPV being strongly associated with the development of vulva intraepithelial neoplasia and cancer of the cervix in females, and penile intraepithelial neoplasm in men and in the case of untreated syphilis with cardiovascular and neurological disease.

In pregnant women untreated STIs may result in foetal wastage, stillbirths, low birth weight, eye damage, lung damage, and congenital abnormalities.[22]

The social consequences of STI are considerable. The stigma attached to STIs and its effect on relationships at the husband-wife, family, religious and community levels can be devastating. Also the consequences relating to disease morbidity, absenteeism from work or study and infertility also affect the quality of life of the people.

Although the economic burden of STIs has not been researched in South Africa, research carried out by Joanna E. Siegel[23] in the United States conservatively estimates the cost to the nation of the classical STIs (excluding HIV) to be US$7 billion in direct cost. Direct costs are those for services and materials, both medical and non-medical. Major categories of direct costs include the costs of health care workers services (physicians, nurses, technicians and others), pharmaceuticals, medical equipment and supplies, outpatient treatment, hospital admission, cost of transportation, home care and special schooling. Productivity or indirect costs are also incurred by STIs, which has not been accounted for in this study,[23] and this includes productive time lost because of illness. Productivity costs include both time spent sick, when an individual is unable to engage in the activities in which he or she would otherwise, and premature mortality.

3.6 Sexually transmitted diseases (STI) diagnosis

3.6.1 Clinical diagnosis of STIs

It is not possible to diagnose specific STIs with a high degree of accuracy using clinical criteria alone because signs and symptoms vary and may overlap. Studies conducted in South Africa reveal that clinicians correctly identified only 30% of cases of syphilis or chancroid in men, only 50% of cases of syphilis or chancroid in women and less than 10% of mixed infections.[4]

3.6.2 Serological testing for STIs

At present there are very few centers in the country, which have the expertise and equipment to provide the comprehensive laboratory services required giving an accurate disease-specific diagnosis

Many STIs can be diagnosed using gold standard laboratory investigations such as culture methods, serological tests and nucleic acid amplification tests (NAAT), but these tests are very expensive to perform. Although many rapid diagnostic methods such as dipstix technology are available on the market they have very poor sensitivity and specificity.

Limited facilities such as microscopy, culture and rapid antigen /nucleic acid detection methods are available in private pathology laboratories and at academic medical centers in urban areas, while there are only two reference centers in South Africa capable of providing comprehensive laboratory testing covering all aspects of STIs.

The two reference centers are the SAIMR in Johannesburg and the MRC Genital Ulcer Disease Research unit at the University of Natal, Durban.[24]

3.6.3 Sexually Transmitted Infections and HIV

The epidemic of Sexually Transmitted Infections (STIs), including HIV infection, is one of the major challenges facing South Africa at the present time. Over 3 million episodes of STIs are estimated to occur each year, with associated severe morbidity including tubal infertility, ectopic pregnancy, spontaneous abortion and cervical cancer in women, and tertiary syphilis HIV-related disease and death in both women and men. In neonates and children STIs may result in congenital syphilis, blindness, pneumonia and AIDS.[25]

Over the past 20 years the focus has broadened beyond the traditional 'venereal' diseases of gonorrhoea, chancroid and syphilis to include infection with chlamydia trachomatis, human papillomavirus (HPV) and herpes virus (HSV).[26]

Sexually transmitted diseases including gonococcus, chlamydia and syphilis are good indicators of onset of unprotected sexual activity and therefore can be used as indicators of the risk of acquiring HIV infection

Robbins and Ballard[27] suggested that, along with violent crime, AIDS constitutes the biggest threat to the South African society since the demise of the apartheid system.

AIDS poses an economic threat to the workplace in that it will affect productivity and costs; those infected being predominantly the young and active.[28]

Therefore to prevent the Aids epidemic from destroying the country effective STI management is of vital importance.

Coetzee and Ballard [4]reported that STIs have been neglected in South Africa. They also make the point that services have been fragmented and inaccessible and many health workers have taken a judgmental attitude to persons with STIs without understanding and recognizing the real problem and actual circumstances. Migrancy, poverty and the low status of women have all contributed to the large number of persons with STIs.

Coetzee and Ballard[4] also make the point that in many areas in both the public and private sector no preventive activities are undertaken (information, education and counseling on reducing the risk of acquiring an STI) nor is there any system of contact or partner notification and management.

The advent of the HIV epidemic and the interrelationships between HIV and STIs have made the control of STIs an urgent priority. In South Africa HIV infection is usually sexually transmitted and the same sociological and behavioral factors, which underline the spread of all STIs, also place individuals at risk of HIV infection. Secondly, immuno-suppression, as a result of HIV infection, may change the patterns of STIs, their clinical presentation, laboratory diagnosis and treatment. Thirdly, the presence of STIs other than

HIV infection greatly enhances the ability of HIV to be transmitted to an uninfected person.

Fourthly there is strong evidence that both ulcerative and non-ulcerative reproductive tract infections including STIs significantly increase the risk of acquiring and subsequently transmitting HIV. The presence of a genital ulcer may increase the risk of acquiring HIV-8fold and non-ulcerative STIs 5-fold. Consistent with this evidence, improved management of STIs in Tanzania led to a 42% reduction in the incidence of HIV infection.[29] In South Africa, several univarite studies have reported on associations between HIV and other STIs, with results consistent with prevailing theories of increased risk of HIV in the presence of other STIs.[30, 31] This confirms the importance of STI management in the prevention of HIV/AIDS.

Finally STIs may influence the natural history of HIV, e.g. by accelerating progression to clinical disease [4]

Likewise, both in developing and industrialized countries, the patterns of conventional STIs have changed as a result of the bi-directional nature of the interactions between STIs and HIV/AIDS.[32] Thus, temporal changes in incidence of various STIs by syndrome and aetiology should be re-examined periodically to improve the cost-effectiveness of syndromic STI management.

3.7 Sexually Transmitted Infections (STI) Surveillance

Sexually Transmitted Infections are a major global cause of acute illness, infertility, long term disability and death, therefore the importance of STI surveillance. STI surveillance data should actively be used to improve the quality and effectiveness of STI and HIV prevention programmes and programmes of sexual and reproductive health.

The five components of STI surveillance that are necessary for effective control programmes are the following:[33]

- case reporting
- prevalence assessment and monitoring
- assessment of STI syndrome etiologies
- antimicrobial resistance monitoring
- special studies

These are complementary activities, with their utility differing for different aspects of STI control. There exists no single model for a STI surveillance system that is ideal for all countries. However, the five basic components listed above provide a useful framework that can be adapted by most countries.

Case reporting is the process of reporting cases of notifiable diseases from health care providers or laboratories to public health authorities.

STIs may be reported either syndromically or etiologically, depending on the availability of laboratory tests. In most developing countries, syndromic case reporting is the only option as no laboratory diagnostic tests are required.

Etiologic case reporting requires diagnosis based on laboratory testing and can only be performed in settings where well developed systems of laboratory diagnosis are incorporated into routine STI clinical cure.

The primary purpose of STI prevalence assessment and monitoring is to identify population subgroups with high prevalence of STIs and monitor trends in STI prevalence among defined populations. An important limitation of STI prevalence data is that it has no role in the management of individual patients or their sex partners.[33]

Periodic assessment of etiologies of STI syndromes should be considered a core STI surveillance activity, especially in countries where STI syndromic management and case reporting are routinely performed. The primary purpose of assessing syndrome etiologies is to provide data for guiding STI syndromic management and to assist in interpretation of syndromic case reports and assessment of disease burden due to specific pathogens. In each country where patients are managed syndromically, and where syndromic STI case reporting is used, syndrome etiologies should be reassessed once every two to three years. In view of the substantial use of drugs for treatment of gonococcal infections and increasing rates of resistance world wide, it is important for each country to monitor antimicrobial resistance in neisseria gonorrhoeae as a core component of STI

surveillance. The objectives being able to obtain data for developing guidelines for treatment and to detect resistance.[33]

Periodically, public health personnel or university collaborators may perform special studies to address important STI surveillance issues that are not part of routine case reporting or prevalence assessment.

The establishment of a minimum set of epidemiological information to be collected in public primary health care clinics has long been a problem. Therefore an STI surveillance needed to be developed which would not only be feasible to implement in developing countries but did so without compromising quality and comprehensiveness of the epidemiological information required for programme management. The National Reference Center for STI (NRC-STI) was established in Gauteng in 1994 to design and assist the provinces in implementing syndromic STI management, STI surveillance training and to perform epidemiological research.

Subsequently the NRC-STI in collaboration with Gauteng Provincial Health Department have designed and implemented a stratified STI surveillance system in public primary health care clinics (PHC) in the Gauteng province of South Africa.

During the period January 1995 – July 1997, pilot implementation of syndromic STI surveillance was conducted in public PHC in Gauteng.[34] A summary tally sheet listing clinical syndromes was developed and piloted in several regions of the province in 1999.

The epidemiological information obtained through the above surveillance studies showed a high proportion of patients attending PHC clinics with STI- related symptoms to be female. The majority of STI patients were in the 20-29 age group and teenagers represented over 10% of the patients. Among men, urethritis was the most common presentation (61%) followed by genital ulcer disease (24%) and inguinal bubo (4.3 %). Among women, vaginal discharge was the most common presentation (69 %) followed by pelvic inflammatory disease (11.6 % in 1995 and 14.9 % in 1997).[34] In some rural health facilities serving relatively smaller populations such as in Kwazulu Natal, an attempt was made to collect comprehensive information from STI patients. In this case, the data collected included age, sex, marital status, STI syndromes, previous treatment received, residency status of patients and sexual partner from each patient by using specially designed tear-off tally sheets. This data provided valuable information for the health service providers to use in planning, implementation and evaluation of STI prevention and control activities. Implementation of such a system on a nationwide basis is problematic owing to limited resources.[34]

3.8 Syndromic Management

The traditional approach to the diagnosis and management of a presumed STI is through laboratory diagnosis to determine the aetiological agent(s). This approach is expensive both in terms of diagnostics and laboratory infrastucture maintenance, also results in delays in diagnosis and subsequently often in treatment as well. Moreover, in developing countries reliable laboratory facilities are usually not available at public primary health

care clinics and quality control procedures to ensure valid laboratory results are often lacking even when laboratories do exist. A presumptive aetiological diagnosis based on clinical manifestation eliminates the laboratory component but is often inaccurate or incomplete.[35]

To address the limitations of both aetiological and presumptive aetiological diagnosis and management of symptomatic STIs, the WHO developed and advocated the syndrome management approach.[35] The essential components of this simple and effective approach include taking a good history, performing a clinical examination and providing effective management including treatment, information, education and counseling on compliance, risk reduction, the use of barrier methods such as condoms and the management of sexual contacts or partners.

The effectiveness of syndromic management of urethritis in men was well documented in a study carried out in Brazil by Moherdaui et al [35] where they determined the validity of clinical aetiological diagnosis and the national STI treatment recommendations both with and without a Gram stain component in symptomatic men. Djajakusumah et al [35] determined the feasibility, validity and cost effectiveness of syndromic management of male patients with urethral discharge discharge in Indonesia. In Benin, Alary et al [35] showed that Gram stain confirmation of inflammation did not perform better than syndromic management based on only clinical signs and symptoms.

In all three sites the studies showed a high sensitivity and an acceptable positive predictive value of the syndromic approach to the management of urethritis.[35]

In a population of young, sexually active men in Malawi, Dalabetta et el [35] confirmed that the symptoms of dysuria or discharge were highly specific for documented urethritis.

These findings support the continued recommendation that men with complaints of dysuria or discharge be treated syndromically in resource poor settings.

3.8.1 Reasons for using Syndromic Management

There are a number of reasons for using this approach[4]

- It is not possible to diagnose specific STIs with a high degree of accuracy using clinical criteria alone because signs and symptoms vary and may overlap.
- Studies conducted in South Africa reveal that clinicians correctly identified only 30% of cases of syphilis or chancroid in men, only 50% of cases of syphilis or chancroid in women and less than 10% of mixed infections.[4]
- Mixed infections occur in a high proportion of cases, especially in women. It is therefore not possible to differentiate clinically between different infections (some infections may mask others). Studies conducted in South Africa show that 13-19% of women and 12-14% of men with genital ulcer disease had more than one infection while 46-56% of women with a vaginal discharge had more than one infection.[4]
- At present there are very few centers in the country that have the expertise and equipment to provide the comprehensive laboratory services required to give an accurate disease-specific diagnosis.

- Laboratory tests are expensive
- Many patients do not return for follow-up
- As syndromic treatment covers all the major pathogens, treatment failure is unlikely.
- More time is available for providing information, education and counseling.

3.8.2 Advantages of using Syndromic Management

Therefore to summarise there are many more advantages than disadvantages of syndromic management. The advantages being.[4]

- Effective, comprehensive and good quality care is provided.
- It is efficient and does not require high technology and trained specialists.
- Treatment is provided immediately and this promotes appropriate health seeking behavior in the future.
- Expensive laboratory tests are not required.
- Patients are treated at their first point of contact with the service.
- It allows more time for and stresses the importance of providing information and counseling on compliance and the prevention of the complications of STIs,
- Risk reduction for acquiring STIs, the promotion and provision of barrier methods and demonstration of their use, and the notification and management of sexual contacts.

3.8.3 Disadvantages of using syndromic management

The disadvantages of syndromic management are basically

- There will be over-treatment of patients, which may be costly especially for private patients and patients whose medical aids do not cover for these infections.
- Since patients may be requested to take a number of drugs this may result in poor compliance.

The control of the STI epidemic requires more than simply the provision of effective treatment for persons presenting with STIs. It should also involve preventative activities to decrease the risk of future episodes as well as a concerted effort to reduce the core of carriers of STIs, both symptomatic and asymptomatic. It is imperative that such activities are undertaken in both the public and private sectors and that these efforts are co-ordinated.[4]

4 METHODOLOGY

4.1 Study Design

A cross-sectional descriptive study.

4.2 Study Population

All patients attending 20 selected practices in Gauteng over an 8-week period.

No sampling of patients was done.

These practices were selected as follows:

Sixty general practitioners were personally contacted by the researcher from known colleagues (convenience) and requested to participate in the study. Twenty responded favourably. The main reason stated for non-involvement was perceived increased workload.

Sampling can be either random or non random.

Random sampling is a selection tool, which can ensure that one's sample is representative of the population. This is also known as probability sampling, since each individual in the study population has a known chance of being included in the sample.

Various types of non-random sampling exist, for example, judgement or quota sampling.

In judgement sampling, the researcher selects individuals based on his or her own judgement. Clearly, no matter how objective one tries to be in choosing a balanced sample, it is impossible to say how representative such a sample is.

Bias occurs if the sample is not representative of the study population, that is, if the individuals in the sample differ systematically from the study population. Bias can occur even if random sampling is used. Bias is a deviation from that which is correct and true. The presence of a large bias in a study seriously undermines the validity and value of the findings.

There are many kinds of bias, but all biases can be classified into one of three categories: selection bias, information bias, and confounding.

Selection bias is when representative samples are drawn from a population in order to make the findings of the study applicable to the population.

Selection biases are often subtle and it is important to pay particular attention to the sampling design in order to reduce selection bias to a minimum.

Information bias refers to systematic inaccuracies in measurement, recording, management, and analysis of data.

4.3 Measurement Instruments

All the participating general practitioners received a letter of introduction and information on the study (Appendix A), a demographic questionnaire (Appendix B), a surveillance tally sheet (Appendix C) and guidelines for the use of the tally sheets (Appendix D).

The participating doctors were also required to complete a separate form outlining the demographics of their practices and of themselves (Appendix B). Also all non-STI patients seen were being entered on the tally sheets by a simple tally stroke. The surveillance tally sheet has been utilised previously in the studies by Htun Ye, Leong, et at.[34] referred to in the literature review under syndromic surveillance.

4.4 Pilot study

A pilot study was conducted involving four independent general practitioners over a one-week period. These four general practitioners were excluded from the study.

Information so obtained from the pilot study was, amongst other things, used to improve the questionnaire and test the strategy for keeping tally.

4.5 Analysis of results

Data was entered into an Epi-Info 6 database and Microsoft Excel and Access and analysed. A record file was created and relevant variables entered. Chi-squared tests and

t-tests were performed. These included age and gender distribution, relative prevalence of STI syndromes and comparisons between the various practices.

4.6 Resources and costs

The cost of the research was minimal and borne out by the researcher.

4.7 Ethical considerations

Application was made to the Ethics Committee of the University of the Witwatersrand for ethical clearance to do the study. A letter explaining the purpose of the study was forwarded to each of the participating doctors. The doctors by virtue of agreeing to participate in the research and completing the demographics questionnaire meant implied consent. As far as patient consent was concerned only the age, gender and the STI syndrome was entered and in non-STI patients only the age and gender was entered in the tally sheets. Consent from the patients was not sought for since it was considered to be normal practice data and total anonymity was assured.

4.8 Limitations of the study

Although the participating medical practices do not adequately cover population at risk of STIs in Gauteng, patients attending the medical practices represented in the present study cover the full range of socio-economic strata in the Johannesburg and surrounding areas.

Sowetan practices were not included in the study but the population groups representative of the Sowetan people was reflected in some of the urban practices. Cultural and social practices in Soweto may differ substantially from populations living in previously white dominated and industrial areas. The unemployment rate with its social consequences is known to be appreciably higher in Soweto and therefore may well have a bearing on the findings of the present study.

The present study only represents patients that were prepared to pay for their medical services and therefore excludes public sector patients belonging to lower socio-economic communities where the incidence of STIs is likely to be higher.

As the participating doctors were recruited on a voluntary basis, it is possible that the non-participating practices may present patients with risk factors different from those represented in the study.

With regard to the methodology and problems with the questionnaire and surveillance tally sheet, few problems with the completion of the surveillance tally sheet were encountered. It is possible but unlikely that errors relating to patient data occurred on the sheets returned for analysis as it was easy to transcribe findings that occurred over a period of only one week.

5 RESULTS .

5.1 Demographic Features of the participating doctors

5.1.1 The ages of the participating doctors

The age distribution of the doctors is shown in figure 1 below.

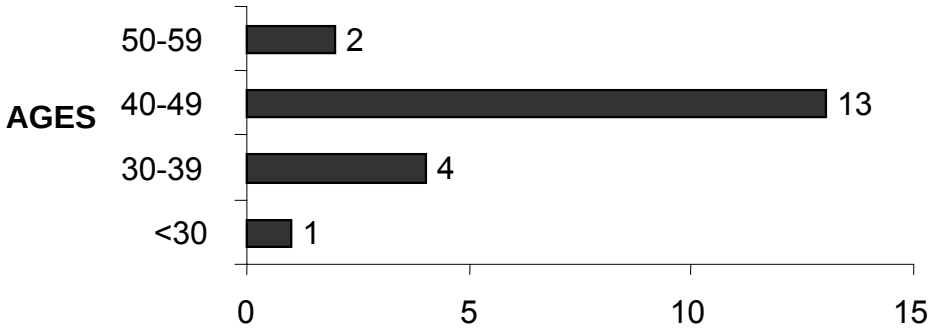

Figure 1: Age groups of doctors (n=20)

As shown in the figure above the majority of the doctors (13) are in the age groups of 40-49. Only one of the doctors is under 30 years.

5.1.2 Year of graduation

The years of graduation of the participating doctors is shown in Table 1

Table 1: Years of Graduation of the participating Doctors (n=20)

Year of graduation	Number of Doctors
1963	1
1971	1
1976	3
1977	2
1979	1
1980	3
1981	2
1983	1
1985	1
1987	2
1991	1
1992	1
1994	1

The majority of the doctors 85 %(17/20) graduated before 1990, or more than ten years ago. The most recent doctor having graduated six years ago.

5.1.3 University of graduation.

The University of graduation of the participating doctors is shown in Table 2.

Table 2: University of Graduation (n=20)

UNIVERSITY GRADUATED	NUMBER
UNIVERSITY OF WITWATERSRAND	12
UNIVERSITY OF CAPE TOWN	3
UNIVERSITY OF ORANGE FREE STATE	1
UNIVERSITY OF NATAL	1
TRINITY COLLEGE, DUBLIN	1
ROYAL COLLEGE OF SURGEONS, IRELAND	1
LUCKNOW, INDIA	1

The University of the Witwatersrand make up 60%(12/20) of the local graduates and there are three overseas graduates. The high number of University of Witwatersrand graduates is to be expected as the research was conducted in the Johannesburg area.

5.1.4 Doctors Gender

The majority of the participating doctors were male (16/20) with the remaining being female(4/20).

5.1.5 Possession of postgraduate qualifications by participating practitioners.

The postgraduate qualifications of the participating doctors are shown in the table 3

Table 3 Post Graduate qualifications of the doctors (n=20)

Doctor ID	Suburb	Doctors with post graduate qualifications
1	NEWCLARE	no
2	BOSMONT/INDUSTRIA	no
3	ENNERDALE	yes
4	ROSEBANK	yes
5	NEWCLARE	no
6	FORDSBURG	yes
7	WYNBERG	no
8	RIDGEWAY	no
9	MAYFAIR	yes
10	MELVILLE	yes
11	JOHANNESBURG	no
12	LENASIA SOUTH	no
13	FLORIDA	yes
14	JOHANNESBURG	no
15	FAIRMOUNT	yes
16	ENNERDALE	yes
17	NEWCLARE	no
18	FLORIDA	no
19	SUNNINGHILL	no
20	MAYFAIR	yes

Nine of the doctors have a post graduate qualification with the remaining eleven of the doctors not having any post graduate qualifications. The nine doctors with post graduate

qualifications four doctors have a MFGP/ MCFP, (member of college of family practitioners) and of the remaining five doctors, one doctor has a DCH (SA), (diploma in child health) another DCH (SA) and DIP PEC, (diploma in emergency medicine) and the third a DTM and H, (diploma in tropical medicine and health) and the fourth a M FAM MED. degree (master of family medicine) and the fifth qualifying with a MCFP. MMED(FAM. MED) DIPPEC and DCH.

5.2 Doctors Practices

5.2.1 Suburbs

The suburbs in which the practices are located in are shown in table 4

Table 4 Suburbs of participating practices (n=20)

Suburb	Number of practices that participated in the study
BOSMONT/INDUSTRIA	1
ENNERDALE	2
FAIRMOUNT	1
FLORIDA	2
FORDSBURG	1
JOHANNESBURG(CBD)	2
LENASIA SOUTH	1
MAYFAIR	2
MELVILLE	1
NEWCLARE	3
RIDGEWAY	1
ROSEBANK	1
SUNNINGHILL	1
WYNBERG	1

Six of the practices were from the West Rand, four from the South of Johannesburg, three from Fordsburg/Mayfair area (west of the Johannesburg CBD), four from the Northern Suburbs with one of the Northern Suburbs being the predominantly black township of Wynberg. The remaining two practices of the participating practices were in the Johannesburg CBD and one practice from the Melville area.

5.2.2 Practice Situations.

The respondents were asked to indicate the situation of their practices, i.e. Urban, peri-urban or rural

The situation of the practices is shown in Table 5.

Table 5: Stated situation of Practices (n=20)

Doctor ID	Suburb	Stated situation
1	NEWCLARE	URBAN
2	BOSMONT/INDUSTRIA	URBAN
3	ENNERDALE	URBAN
4	ROSEBANK	URBAN
5	NEWCLARE	URBAN
6	FORDSBURG	URBAN
7	WYNBERG	URBAN
8	RIDGEWAY	URBAN
9	MAYFAIR	URBAN
10	MELVILLE	URBAN
11	JOHANNESBURG	URBAN
12	LENASIA SOUTH	PERI-URBAN
13	FLORIDA	URBAN
14	JOHANNESBURG	URBAN
15	FAIRMOUNT	URBAN
16	ENNERDALE	PERI-URBAN
17	NEWCLARE	URBAN
18	FLORIDA	URBAN
19	SUNNINGHILL	URBAN
20	MAYFAIR	URBAN

The majority 18 of the practices was defined as being in the urban areas with only 2 in a peri urban area. It is interesting to note that although the practices in Ennedale are situated close to each other the one practice was defined by the doctor as urban and the other as peri-urban.

5.2.3 Stated Socio- economic profiles of practices.

Respondents were asked whether they considered the majority of their patients to be in the lower, middle or higher socio-economic groups.

Seventeen of the practices were stated to be servicing patients from the middle socio-economic groups while the remainder were seeing patients from the lower socio-economic groups. The three practices seeing patients from the lower socio-economic groups, one was from Wynberg (Alexandra), the other was from one of the Johannesburg CBD and one other was one of the practices from the Newclare area.

5.3 Doctors stated STI management.

5.3.1 Syndromic Management

The respondents were asked if they practiced syndromic management.

Fourteen of the doctors practice syndromic management as compared to six who do not practice syndromic management**.**

5.3.2 Doctors' reasons for use or non-use of syndromic management.

The reasons for doctors use or non-use of syndromic management is stated in Table 6.

Table 6: The doctors' reasons for use or non-use of syndromic management (n=20)

Dr ID	Suburb	Justification for using syndromic management	Practice Syn Management	Attended Synd Manag Course
1	NEWCLARE	Less costly. Easier to treat and more effective	yes	no
2	BOSMONT/ INDUSTRIA		no	no
3	ENNERDALE	Treatment of uretral discharge and genital ulcers	yes	no
4	ROSEBANK	Best coverage	yes	no
5	NEWCLARE	Not familiar	no	no
6	FORDSBURG		yes	yes
7	WYNBERG		yes	yes
8	RIDGEWAY		yes	no
9	MAYFAIR	Do not know syndromic management	no	no
10	MELVILLE	Cannot make microscopic diagnosis, treat clinically.	yes	yes
11	JOHANNESBURG		yes	no
12	LENASIA SOUTH		no	no
13	FLORIDA		yes	yes
14	JOHANNESBURG	Urethral discharge treated with Novicillin, Tetracycline and Ciprofloxacin	yes	no
15	FAIRMOUNT		yes	no
16	ENNERDALE	Not sure of treatment modality	no	no
17	NEWCLARE		no	no
18	FLORIDA	Easy, conventional and practical	yes	yes
19	SUNNINGHILL	Cost effective, medical school advised regimes	yes	yes
20	MAYFAIR	Discharge cover for chlamydia. GC-Cyclidox/recephin stat. Genital ulcer-cover for LGV/Syphilis/Chancroid-treat with Cyclidox and benzyl penicillin	yes	yes

The table above shows that although 14 of the doctors practice syndromic management only 5 of doctors who replied to the question to justify syndromic management fully practice syndromic management. Three other doctors who justified the use of syndromic

management and attended syndromic management courses lack an understanding of syndromic management.

5.3.3 Syndromic management courses

Respondents were asked if they had attended any courses on syndromic management

Only six of the respondents had attended courses in syndromic management.

All except one respondents requested further information on syndromic management.

5.4 Patient Profiles

5.4.1 Total number of STI and non-STI patients.

The total reported number of patients with and without STIs who consulted participating private general practitioners is shown in Table 7 below.

Table 7: Total STI and non STI patients seen by participating practitioners (n=22572)

Doctor ID	Suburb of Practice	TOTAL STI		TOT NON STI		Total Patients
		Number	%	Number	%	
1	NEWCLARE	114	7.8	1347	92.2	1461
2	BOSMONT/INDUSTRIA	139	5.0	2656	95.0	2795
3	ENNERDALE	16	1.6	1011	98.4	1027
4	ROSEBANK	12	1.4	847	98.6	859
5	NEWCLARE	26	3.2	789	96.8	815
6	FORDSBURG	178	10.7	1493	89.3	1671
7	WYNBERG	166	14.4	986	85.6	1152
8	RIDGEWAY	39	6.0	609	94.0	648
9	MAYFAIR	64	4.3	1412	95.7	1476
10	MELVILLE	11	2.9	368	97.1	379
11	JOHANNESBURG	290	24.1	915	75.9	1205
12	LENASIA SOUTH	12	1.3	917	98.7	929
13	FLORIDA	27	2.3	1169	97.7	1196
14	JOHANNESBURG	109	18.0	496	82.0	605
15	FAIRMOUNT	8	1.7	455	98.3	463
16	ENNERDALE	31	3.0	1014	97.0	1045
17	NEWCLARE	110	10.5	939	89.5	1049
18	FLORIDA	13	0.9	1370	99.1	1383
19	SUNNINGHILL	99	7.2	1276	92.8	1375
20	MAYFAIR	33	3.2	1006	96.8	1039
	TOTALS	**1497**	**6.6**	**21075**	**93.4**	**22572**

The total number of STI patients seen in participating private practices over the eight-week period was 1497 and non-STI patients totalled 21075. As can be noted from table 7

6.6%(1497/22572) of the patients presenting to participating private practices were STI patients 95% confidence interval (6.35%; 7.0%).

In Johannesburg 24%(290/1205) and in Wynberg 14.4%(166/1152) have STI and this difference is statistically significant ($p<0.001$), 95% confidence interval for this difference is (6.50%; 12.85%).

The number of STI and non-STI patients are further graphically depicted in the figure 2 below.

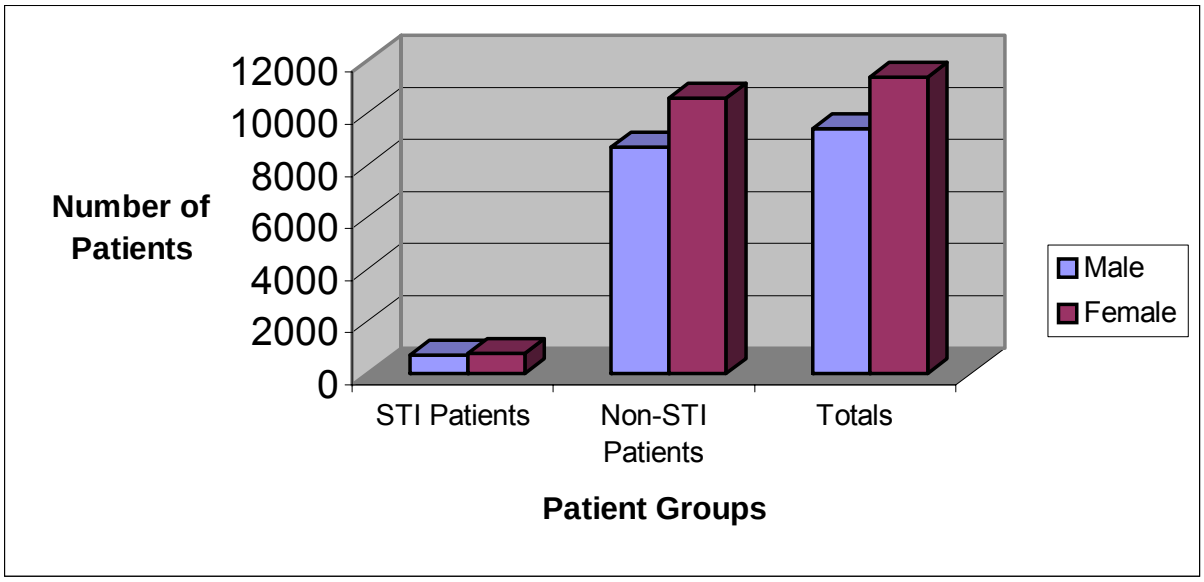

Figure 2: Total number of STI and non-STI patients (n=22572)

5.4.2 Patients without STIs

The total reported number of patients without STIs who consulted participating private general practitioners is shown in Table 8.

Table 8: Total numbers of patients without STI (n=21075)

		NON STI PATIENTS				
Doctor ID	Suburb of Practice	Male Non STIs		Female Non STI		Total All Non STIs
		Number	%	Number	%	Number
1	NEWCLARE	564	41.9	783	58.1	1347
2	BOSMONT/INDUSTRIA	1310	49.3	1346	50.7	2656
3	ENNERDALE	449	44.4	562	55.6	1011
4	ROSEBANK	0	0.0	0	0.0	* 847
5	NEWCLARE	401	50.8	388	49.2	789
6	FORDSBURG	740	49.6	753	50.4	1493
7	WYNBERG	560	56.8	426	43.2	986
8	RIDGEWAY	223	36.6	386	63.4	609
9	MAYFAIR	698	49.4	714	50.6	1412
10	MELVILLE	177	48.1	191	51.9	368
11	JOHANNESBURG	484	52.9	431	47.1	915
12	LENASIA SOUTH	427	46.6	490	53.4	917
13	FLORIDA	495	42.3	674	57.7	1169
14	JOHANNESBURG	276	55.6	220	44.4	496
15	FAIRMOUNT	135	29.7	320	70.3	455
16	ENNERDALE	528	52.1	486	47.9	1014
17	NEWCLARE	0	0.0	0	0.0	* 939
18	FLORIDA	454	33.1	916	66.9	1370
19	SUNNINGHILL	457	35.8	819	64.2	1276
20	MAYFAIR	327	32.5	679	67.5	1006
	TOTALS (excl ID 4 & 17)	8705	45.1	10584	54.9	19289
	TOTAL (all)					21075

5.4.3 Patients with STIs

The total reported number of patients with STIs who consulted participating private general practitioners is shown in Table 9.

Table 9: Total number of patients with STIs seen by participating practitioners (n=1497)

		STI PATIENTS				
		MALE		FEMALE		TOTAL
Dr ID	Suburb of Practice	Number	%	Number	%	Number
1	NEWCLARE	24	21.1	90	78.9	114
2	BOSMONT/INDUSTRIA	72	51.8	67	48.2	139
3	ENNERDALE	9	56.3	7	43.8	16
4	ROSEBANK	2	16.7	10	83.3	12
5	NEWCLARE	14	53.8	12	46.2	26
6	FORDSBURG	94	52.8	84	47.2	178
7	WYNBERG	76	45.8	90	54.2	166
8	RIDGEWAY	17	43.6	22	56.4	39
9	MAYFAIR	11	17.2	53	82.8	64
10	MELVILLE	7	63.6	4	36.4	11
11	JOHANNESBURG	168	57.9	122	42.1	290
12	LENASIA SOUTH	7	58.3	5	41.7	12
13	FLORIDA	17	63.0	10	37.0	27
14	JOHANNESBURG	72	66.1	37	33.9	109
15	FAIRMOUNT	2	25.0	6	75.0	8
16	ENNERDALE	16	51.6	15	48.4	31
17	NEWCLARE	47	42.7	63	57.3	110
18	FLORIDA	2	15.4	11	84.6	13
19	SUNNINGHILL	52	52.5	47	47.5	99
20	MAYFAIR	2	6.1	31	93.9	33
	TOTALS	711	47.5	786	52.5	1497

Male STI patients numbered 711/1497 and female STI patients 786/1497 showed equal number of men and women consulted participating private practitioners with STIs.

5.4.4 The age distribution among male patients with STIs

The age distribution of male patients is shown in figure 3 below.

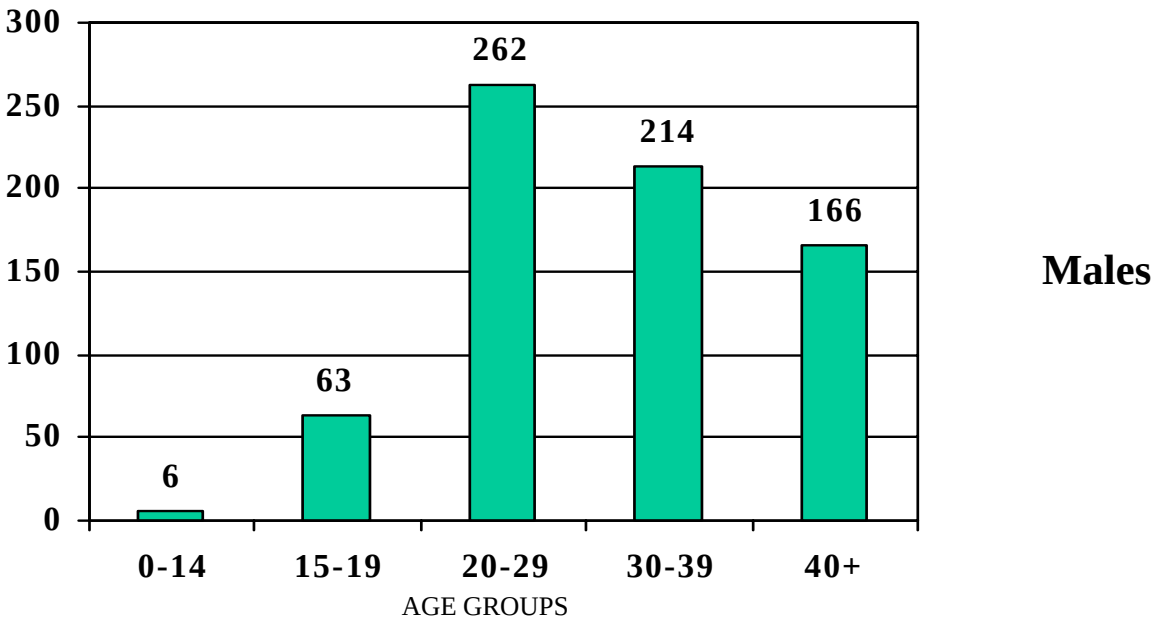

Figure 3: Age distribution among male patients with STIs (n=711)

indicates that the largest number of STI patients among men are in the age groups 20-29 making up 36.8% (262/711) of the patients with STIs.

5.4.5 Age distribution among female patients with STIs.

The age distribution of STIs among female patients is shown in figure 4 below.

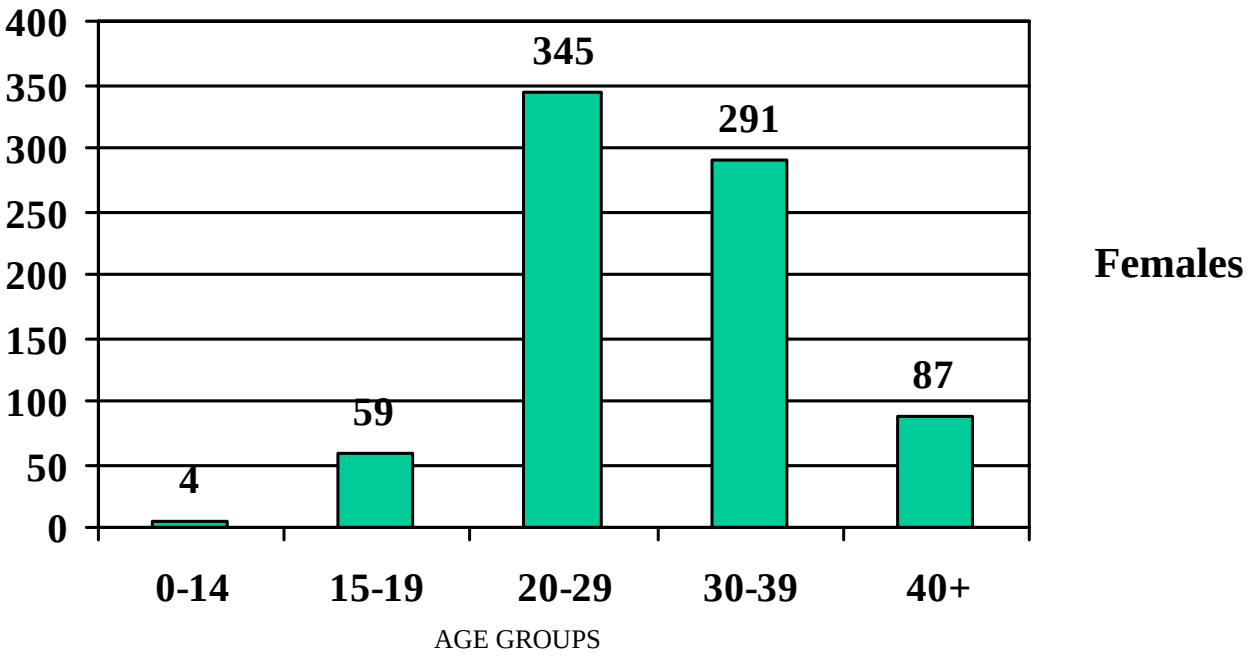

Figure 4: Age distribution among female patients with STIs (n=786)

As can be seen from figure 4 the largest number of STIs was seen in the age groups 20-29, which may reflect the more sexually active age group. In males 36.9% (262/711) 95% confidence interval (33,2%-40,5%) were in the 20-29 age group as compared to females, where 43.9% (345/786) 95% confidence interval (40,4%-47,4%) were from the same age group. The proportion of STIs in the male and female age groups of 20-29 differ significantly (36,9% vs. 43.9%; p=0.0065; normal approximation of the binomial test) and in particular more females than males fall in 20-29 age group categories.

The next most frequent STIs were seen in the age groups 30-39 with males 214 (30.1%) females 291 (37%) respectively. The total number of female patients in the age groups 15-19 was slightly lower 59 (13.3%) than their male counterparts 63 (11.28%).

5.4.6 Percentages of STI and non STI patients

The percentages of male and female STI and non-STI patients to the total number of patients is shown in figure 5 below.

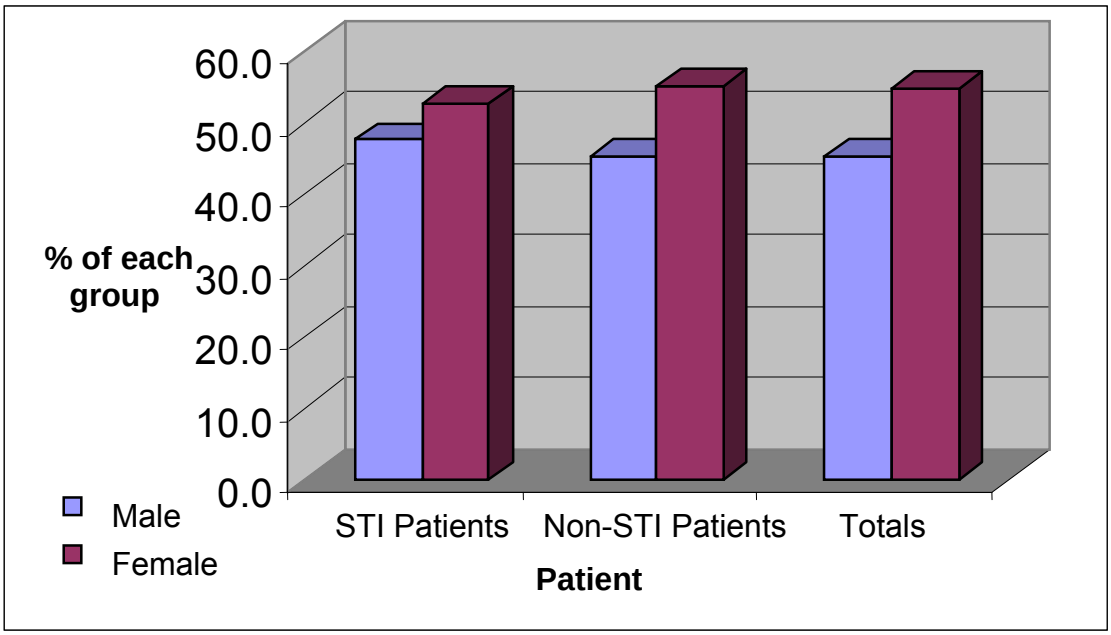

Figure 5: Percentages of male and female STIs patients to non-STIs patients (n=22572)

5.5 Relative number of each syndrome presenting in participating practices.

5.5.1 The relative number of STI syndromes among men patients.

The relative number of STI syndromes among men presenting in private general practices is shown in Table 10.

Table 10: STI syndromes among men in private general practice (n=711)

ID	Suburb	URETHRITIS		GENITAL ULCER		BUBO		BALANITIS		EPIDIDIMI-ORCH		GENITAL WART		OTHER STD		TOTAL STI	TOTAL NON-STI	TOTAL MALES
		No	%	No	%	No	%	No	%	No	%	No	%	No	%			
1	NEWCLARE	14	58.3	1	4.2	0	0.0	4	16.7	3	12.5	2	8.3	0	0.0	24	564	588
2	BOSMONT/INDUSTR	56	77.8	3	4.2	0	0.0	5	6.9	2	2.8	4	5.6	2	2.8	72	1310	1382
3	ENNERDALE	5	55.6	3	33.3	0	0.0	1	11.1	0	0.0	0	0.0	0	0.0	9	449	458
4	ROSEBANK	0	0.0	1	50.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	2	0	2
5	NEWCLARE	14	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	401	415
6	FORDSBURG	42	44.7	13	13.8	0	0.0	19	20.2	4	4.3	10	10.6	6	6.4	94	740	834
7	WYNBERG	30	39.5	9	11.8	4	5.3	13	17.1	8	10.5	8	10.5	4	5.3	76	560	636
8	RIDGEWAY	4	23.5	8	47.1	2	11.8	2	11.8	1	5.9	0	0.0	0	0.0	17	223	240
9	MAYFAIR	3	27.3	0	0.0	0	0.0	1	9.1	5	45.5	2	18.2	0	0.0	11	698	709
10	MELVILLE	4	57.1	1	14.3	0	0.0	1	14.3	1	14.3	0	0.0	0	0.0	7	177	184
11	JOHANNESBURG	60	35.7	37	22.0	9	5.4	27	16.1	15	8.9	16	9.5	4	2.4	168	484	652
12	LENASIA SOUTH	3	42.9	3	42.9	0	0.0	0	0.0	1	14.3	0	0.0	0	0.0	7	427	434
13	FLORIDA	10	58.8	2	11.8	0	0.0	4	23.5	0	0.0	0	0.0	1	5.9	17	495	512
14	JOHANNESBURG	40	55.6	24	33.3	0	0.0	4	5.6	4	5.6	0	0.0	0	0.0	72	276	348
15	FAIRMOUNT	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	2	135	137
16	ENNERDALE	10	62.5	4	25.0	0	0.0	1	6.3	1	6.3	0	0.0	0	0.0	16	528	544
17	NEWCLARE	31	66.0	10	21.3	4	8.5	1	2.1	0	0.0	1	2.1	0	0.0	47	0	47
18	FLORIDA	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	2	454	456
19	SUNNINGHILL	38	73.1	12	23.1	0	0.0	0	0.0	0	0.0	0	0.0	2	3.8	52	457	509
20	MAYFAIR	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	327	329
	TOTALS	**366**	**51.5**	**131**	**18.4**	**19**	**2.7**	**86**	**12.1**	**45**	**6.3**	**45**	**6.3**	**19**	**2.7**	**711**	**8705**	**9416**

Urethritis 51.5%(366/711) was the most common followed by genital ulcer disease 18.4%(131/711) and then followed by balanitis 12.1%(86/711).

The percentages of the various STI syndromes among men is shown in figure 6 below.

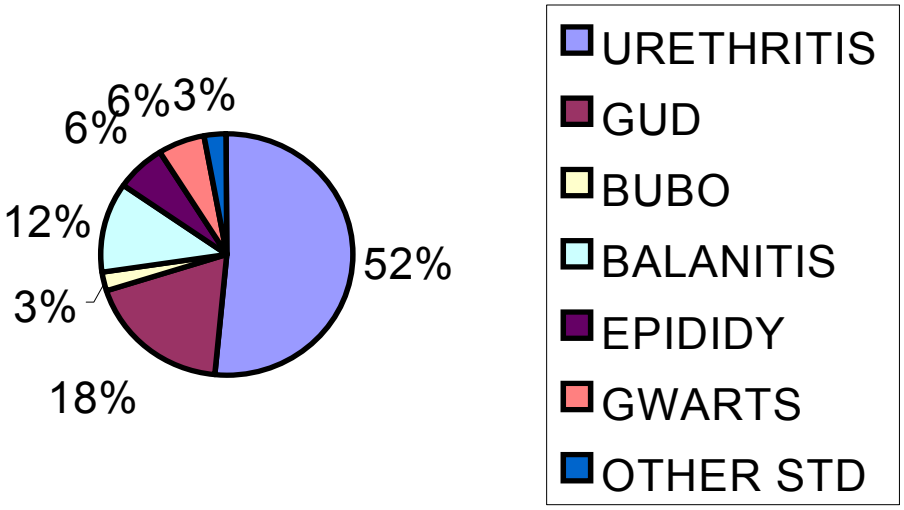

Figure 6: Percentages of various STI syndromes among men (n=711)

5.5.2 The relative number of STI syndromes among women patients.

The relative number of STI syndromes among women patients presenting in general private practices is shown in table 11.

Table 11: STI syndromes among women patients (n=786)

Suburb	Vaginal Discharge		Gentital Ulcer Disease		Pelvic Inflam Disease		Inguinal Bubo without ulcer		Genital Warts		Other STIs		TOTAL STI		TOTAL NON-STI		TOTAL FEMALE
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	
NEWCLARE	42	46.7	3	3.3	45	50.0	0	0.0	0	0.0	0	0.0	90	10.3	783	89.7	873
BOSMONT/INDUST	41	61.2	0	0.0	25	37.3	0	0.0	1	1.5	0	0.0	67	4.7	1346	95.3	1413
ENNERDALE	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	1.2	562	98.8	569
ROSEBANK	8	80.0	0	0.0	0	0.0	0	0.0	2	20.0	0	0.0	10	100.0	0	0.0	10
NEWCLARE	6	50.0	0	0.0	6	50.0	0	0.0	0	0.0	0	0.0	12	3.0	388	97.0	400
FORDSBURG	32	38.1	10	11.9	42	50.0	0	0.0	0	0.0	0	0.0	84	10.0	753	90.0	837
WYNBERG	34	37.8	3	3.3	41	45.6	5	5.6	5	5.6	2	2.2	90	17.4	426	82.6	516
RIDGEWAY	16	72.7	3	13.6	2	9.1	0	0.0	1	4.5	0	0.0	22	5.4	386	94.6	408
MAYFAIR	38	71.7	0	0.0	14	26.4	0	0.0	1	1.9	0	0.0	53	6.9	714	93.1	767
MELVILLE	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	4	2.1	191	97.9	195
JOHANNESBURG	51	41.8	27	22.1	33	27.0	3	2.5	6	4.9	2	1.6	122	22.1	431	77.9	553
LENASIA SOUTH	3	60.0	0	0.0	2	40.0	0	0.0	0	0.0	0	0.0	5	1.0	490	99.0	495
FLORIDA	8	80.0	1	10.0	1	10.0	0	0.0	0	0.0	0	0.0	10	1.5	674	98.5	684
JOHANNESBURG	25	67.6	3	8.1	9	24.3	0	0.0	0	0.0	0	0.0	37	14.4	220	85.6	257
FAIRMOUNT	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	1.8	320	98.2	326
ENNERDALE	8	53.3	0	0.0	7	46.7	0	0.0	0	0.0	0	0.0	15	3.0	486	97.0	501
NEWCLARE	28	44.4	7	11.1	27	42.9	1	1.6	0	0.0	0	0.0	63	100.0	0	0.0	63
FLORIDA	9	81.8	1	9.1	1	9.1	0	0.0	0	0.0	0	0.0	11	1.2	916	98.8	927
SUNNINGHILL	21	44.7	3	6.4	23	48.9	0	0.0	0	0.0	0	0.0	47	5.4	819	94.6	866
MAYFAIR	26	83.9	4	12.9	1	3.2	0	0.0	0	0.0	0	0.0	31	4.4	679	95.6	710
TOTALS	409	1216	65	112	283	620.5	9	9.6	16	38.4	4	3.9	786	6.9	10584	93	11370

As can be seen from the above table Pelvic Inflammatory Disease 36%(283/786) and Vaginal Discharge 52%(409/786) are the most common STI syndromes seen among women patients.

The percentages of the various STI syndromes among women patients is shown in figure 7 below.

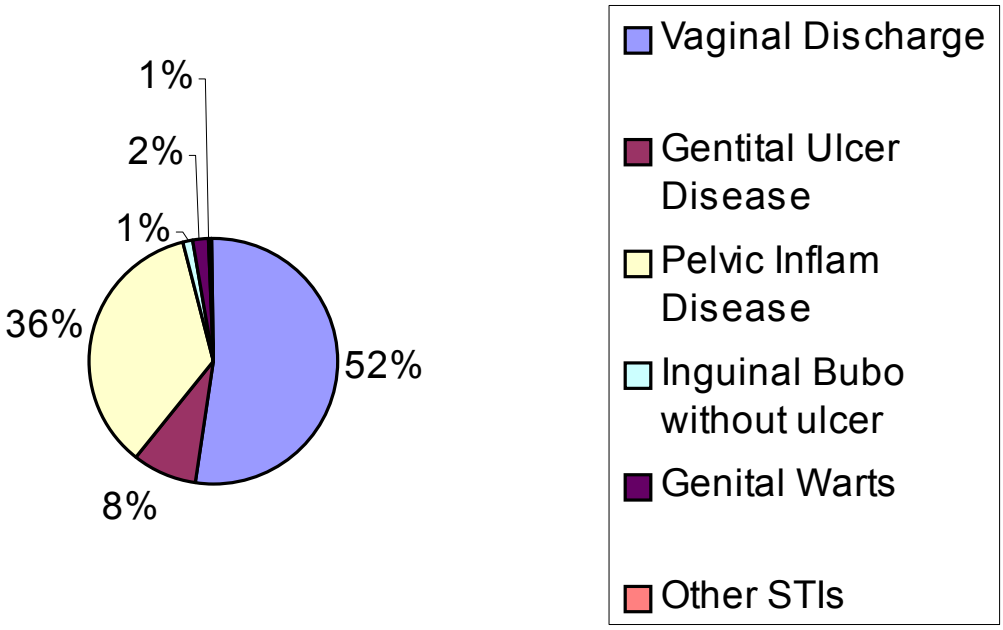

Figure 7: Percentages of various STI syndromes among women patients (n=749)

6 DISCUSSION AND CONCLUSION

6.1 INTRODUCTION

The private sector is crucial to the success of STI management and ultimately control in South Africa especially with the threat of the HIV epidemic. Providing early and effective STI care is one of the most feasible and immediate measures, which could be invoked.

Teenagers and young adults have already inherited certain fixed ideas concerning sexual practices, which will continue to prove very difficult to change, therefore effective STI management is probably the best opportunity to stress on not only the appropriate treatment but also counseling to prevent subsequent episodes of disease.

6.2 PATIENTS WITH STIs

It has been estimated that countrywide private GPs see an estimated 3.5 to 4.6 million STI consultations annually. The estimated figures for Gauteng are approximately one million in the private sector and half a million in the public sector[34], therefore effective STI management cannot be over emphasized. This figure was arrived at in the following way. The total number of STI patients seen in private practices over the eight-week of the research period was 1497 this represents 9.3 STI patients seen per week. The doctors practices are open a mean of six days per week with an average patient load of 30 patients. Therefore this translates to an average of 1.55 STI patient per day.

Extrapolating these figures to the entire GP population it can be conservatively estimated that GPs in South Africa see just over 3,55 million cases of STI annually.

This extrapolation was made on the assumption that GPs see 1.55 STI cases over five days of the week and work for 48 weeks of the year. Therefore 1.55 x 5days x 48 weeks x 9558 GPs (this figure was supplied by Decision Surveys International a private market research company) =3,555,576 cases per year. If maximum assumptions made for a six day working week i.e. 1.55 x 6 days x 52 weeks x 9558 GPs, the number of STI cases seen by GPs per year would be 4,622,248 million.

For Gauteng where the numbers of GPs are 2322 (this figure was supplied by Decision Surveys International, a private market research company) the number of STIs seen per year is 863,784 thousand for 5 day working week and for a 6-day working week it would be 1,122,919.

6.3 AGE AND GENDER DISTRIBUTION OF STI PATIENTS

The results obtained in this survey confirm some common findings obtained in surveys undertaken in the public sector[34] namely the population at risk are mainly young adults in the 20-29year old age groups. In contrast to other study,[5] more male teenagers presented with STIs than female teenagers 13% as compared to 11%. The figure in public sector for teenagers is also just over 10%. The slightly higher percentage in the private sector could possibly be due to the fact that teenagers prefer to consult private GPs and this age group

is where considerable energy should be directed to promote better health seeking behaviour and safer sexual practices.

6.4 SYNDROMES PRESENTING IN PRIVATE PRACTICES

Male STI patients 8.17%(711/ 8705) were slightly more than their female counterparts who totaled 7.43% (786/10584) which showed that almost equal numbers of men and women consulted private practitioners

Among men, urethritis 51%(366/711) was the most common STI syndrome followed by genital ulcer disease 118 %(131/711) and then balanitis 10% (72/711). The figure for the PHC clinics was urethritis (61%) followed by genital ulcer disease (24%) and balanitis (4.3%).

Among women vaginal discharge 49.2%(409/786) and PID 34%(283/786) were the more common STI syndromes seen. Among women attending PHC clinics the common presentations were 69% for vaginal discharge and 13.25% for PID.[34] Vaginal discharges present more frequently at PHC clinics then at private GPs rooms whereas the figures for PIDs are reversed. Possible reasons are that women could be presenting earlier at PHC clinics. One other and perhaps more likely reason could be that private GPs may be seeing asymptomatic vaginal discharges or ineffectively treated vaginal discharges as PIDs.

The surveillance information collected by the National Reference Center for STIs in Gauteng[34] has shown that majority of clinic attenders at dedicated STI clinics were male patients. In contrast, female patients represent the majority of STI patients at the PHC clinics despite all patients attending the dedicated clinics receive free service. The patterns detected in private practice are similar to those seen in PHC clinics

The possible reason being that there is a greater stigma to women attending dedicated STI clinics than men[12].

6.5 ASYMPTOMATIC STI INFECTIONS

The detection and management of silent infections represents one of the biggest challenges in STI control. Private practitioners have as great a role to play as the public sector in this control. The results show that just under 1% of the patients presenting to general practices were referred by sexual partners and had no signs or symptoms of STI disease. It would have been interesting to know how the private practitioners managed these asymptomatic patients, or do they represent a great opportunity lost?

The importance of STI control and prompt and effective treatment is considered an essential component of both STI and HIV control. In individuals, early and effective treatment of STIs prevent their complications, at the population level, it prevents further transmission of STIs and also reduces HIV transmission.[35] The improvement in case finding through screening or increasing the individual awareness about early symptoms enhances the early detection and treatment of the asymptomatic and inapparent

individuals with STI in the community. The underlying demographic, cultural and socio-economic factors and sexual behaviours play a major role in the hyperendemic level of STIs found in many developing countries. The improvement in overall socio-economic conditions and the promotion of safer sex are the essential intervention strategies for sustained reduction in the incidence of STIs. However, these interventions require significant amount of resources and long-term implementation to achieve its objectives. Meanwhile the lack of co-ordinated effective health services (for example, untrained health care providers, lack of effective antimicrobials and inadequate treatment of STIs by medical doctors) for STI case management is a major contributing factor[36] in continued spreading of STIs. This inefficiency can be eliminated in short duration by improving overall quality of STI care at the point of care. The core components of syndromic management of STIs such as counseling for behaviour change, condom promotion, compliance to treatment, partner notification and treatment are found to be more cost effective when targeting to the high risk individuals with STIs.

6.6 DOCTORS AND SYNDROMIC MANAGEMENT

In response to the question where the doctors were asked if they practiced syndromic management 70%(14/20) of the doctors replied in the affirmative but when asked to justify their answers only 42.85%(6/14) appeared to understand the principles of syndromic management. The remaining 57.15%(8/14) of the 70%(14/20) that practiced syndromic management seemed unsure of what exactly syndromic management implied. One of the participating doctors who practice syndromic management continues to treat

urethritis with procaine penicillin injections. Possible reasons could be that 85% of the participating doctors graduated before 1990 and the age groups of the majority of the participating doctors was between 40-49 (65%) and 20% in the 30-39age groups and syndromic management was only implemented by the National Reference Center for Sexually Transmitted Infections from 1994. The common perception persists among GPs that aetiological diagnoses can be made on clinical grounds alone. These findings correlate closely to the findings of Schneider et al[12] whose article on assessment of services for the control of sexually transmitted diseases in the PWV province whereby through telephonic interviews with 27 GPs in the old PWV province (which used to encompass the greater Johannesburg, Pretoria and Vaal Triangle areas) on how they usually treated a man presenting to them with a penile discharge the following results were obtained: only thirteen of the 27 GPs who responded to the above question indicated that they would prescribe drugs for both gonococcal and non-gonococcal urethritis (NGU) or they would treat the most likely candidate and routinely ask the patient to come back if symptoms persisted. The remaining 14 or 51.8% treated with only one drug or indicated that they would treat on the basis of a clinical diagnosis. If you consider that one quarter of gonococcal infections are clinically indistinguishable from NGU,[12] than the above treatments are hopelessly inadequate. Knowing that gonorrhoea is frequently found in association with non-gonococcal infections, and genital ulcers are also difficult to distinguish clinically[37 38] and in the absence of a laboratory diagnosis and also the cost factor it makes good sense to use syndromic management for STIs.

6.7 POST GRADUATE QUALIFICATIONS AND SYNDROMIC MANAGEMENT

Although nine of the twenty participating doctors have post graduate qualifications only seven practice syndromic management. This proves that a doctor with postgraduate qualification is not necessarily going to practice syndromic management.

6.8 DOCTORS AND SYNDROMIC MANAGEMENT COURSES

An interesting fact to emerge is that all seven out of the twenty participating doctors that attended syndromic management courses practice syndromic management. The willingness of the doctors 90% (18/20) of whom would like to attend further courses on syndromic management gives one an indication of the doctors to want to learn to manage STI patients more effectively.

These findings correlate closely with the survey carried out by the Center for Health Policy[8] whereby the GPs interviewed were very keen to work with other stakeholders on this issue and to receive guidelines on management of STIs and to be involved in continuing medical education.

7 RECOMMENDATIONS

The single biggest threat facing South Africa as we go forward into the 21st century is the cure or control of the HIV epidemic. The one and perhaps easier method would be to treat STIs effectively and promptly. The control of STIs is a public- health priority and has assumed even greater priority with the HIV epidemic.

Since STIs and HIV share many behavioural risk factors, efforts to encourage individuals to modify sexual behaviours and adopt safer sexual practices will have a beneficial effect on them both.

Primary and secondary prevention programmes need to be strengthened and integrated into health systems, and must be accessible to all.

Below is a list of few of the strategies that could be adopted:

These are not necessarily totally borne out of the study but have been emphasized in the literature review.

Firstly preventing the uninfected population from becoming infected through community and private sector STI and AIDS education and condom promotion strategies.

Secondly detecting and treating asymptomatic infections through screening programmes and simple partner notification systems.

Thirdly making health services accessible and affordable, integrating STI services into PHC, encouraging early health care seeking behaviour in people with symptoms,

Fourthly utilising opportunities within health services to detect and treat mildly symptomatic infections.

Finally improving continuing medical education for private GPs on syndromic management and the need to conduct surveillance.

Ensuring prompt and effective treatment for all individuals with symptomatic infections is a challenge in itself but providing prompt and effective treatment to asymptotic individuals is even a far greater challenge especially with increasing antimicrobial resistance. The need for the development of new diagnostic tools that can be used to detect symptomless infections and are rapid, non-invasive, inexpensive and easy to use. One of the cornerstones of reaching the sexual partners of people with STIs and to prevent reinfection, and is also of critical importance to the control of STI epidemics is via partner notification. This is also one of the main routes in which asymptomatic infections can be detected and treated. The idea is very simple and all health providers can use it. It involves giving the patient a slip of paper to hand to his partner informing them to see the same health provider or health provider closes to the contact partner. Perhaps a good idea would be to write the diagnosis on the contact slip by means of a generally agreed code and this way most of the asymtomatic contacts will be adequately treated with syndromic management protocols.

A pilot project has been started in the Western Cape whereby GPs have been invited to a training course, which will be result in accreditation. The Provincial Department of Health of the Western Cape is offering free literature, free counseling services, free condoms and free medication for doctors for the syndromic treatment of STIs for to those who become accredited. In return the doctors have to keep tally sheets of all the STI syndromes that they see in private practice resulting in ongoing surveillance of STIs in the private sector. If successful this could be implemented countrywide and would go a long way in the fight against STI and reduce the vulnerability to HIV/AIDS.

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APPENDICES

A copy of the letter of introduction is appended (Appendix A).

A copy of the demographics form is appended (Appendix B)

A copy of the sexually transmitted diseases surveillance tally sheet is appended (Appendix C).

A copy of the guidelines for the use of the tally sheet is appended (Appendix D).