DEVELOPING AN INTEGRATED MODEL FOR POST RAPE CARE IN A RURAL SOUTH AFRICAN HOSPITAL

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A research report submitted to the faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Medicine in the branch of Public Health Medicine.

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DECLARATION

I, Ntabozuko NN Dwane declare that this thesis is my own work. It is being submitted for the degree of Master of Medicine in Public Health in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any university.

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…… day of……, 2007

Research report

Master of Medicine in Public Health

IN LOVING MEMORY OF MY PARENTS

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PUBLICATIONS AND PRESENTATIONS

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ABSTRACT

Introduction

The health system is struggling with the implementation of a comprehensive and systematic approach to post rape management and HIV prevention, Post Exposure Prophylaxis (PEP). The main aim of this study was to evaluate the impact of an intervention programme implemented at a rural hospital.

Methods

The study was conducted in Acornhoek from March 2004 – August 2006. A five-part intervention was introduced, that included centralisation and coordination of post rape care; implementing a hospital rape management policy; a 2 day training workshop for HCW; engaging a broader group of stakeholders and raising community awareness.

Three hundred and sixty five of 409 rape survivor patient records were reviewed to assess changes in quality of care of (Voluntary Counselling and Testing) VCT, Post Exposure Prophylaxis (PEP) and Emergency Contraception (EC). One hundred and fifteen clients were followed up to assess clients' perceptions of quality of care and their adherence to PEP treatment. Key informant interviews were conducted with 19 service providers to assess whether the intervention had any impact on VCT, PEP and EC services.

Results

There were improvements in HCWs' knowledge: when to prescribe EC (22.7% vs. 79.0% OR 12.4 CI 2.5- 60.7); correct prescription of EC (10.3% vs. 61.9%; OR 12.5 CI 2.7-55.8 P<0.001) and use of anti-emetics (17.2% vs. 36.9% P<0.001). VCT services were provided more consistently at the first visit during Phase 2 compared to the Phase 1 (44.1% vs. 59.6% P<0.001). In the Post-Intervention phase 28 day PEP was introduced, thus minimising return visits.

Conclusions

Improvements in knowledge of the use of EC were greater than improvements in knowledge about the correct use of PEP. There are systematic obstacles to providing VCT and PEP which are difficult to address. One of the repeatedly cited obstacles was the shortage of trained VCT providers. The improvement of sexual assault services hinges on demonstrable commitment from senior management officials to providing good quality post rape care.

TABLE OF CONTENTS

Figures and Tables

ABBREVIATIONS

Primary Health Care	PHC
Post-Exposure Prophylaxis	PEP
Department of Health	DOH
Sexually Transmitted Disease	STD
Sexually Transmitted Infection	STI
World Health Organisation	WHO
Non-Governmental Organisation	NGO
Rural AIDS and Development Action Research	RADAR
Project Advisory Committee	PAC
Voluntary Counselling and Testing	VCT
Outpatients' Department	OPD
Emergency Contraception	EC
Department of Health and Social Welfare	DHSW
Key Informant	KI
Knowledge, Attitude and Practice	KAP
Health Care Workers	HCW
Chief Professional Nurse	CPN
Anti-Retroviral	ARV
Community Service Doctor	CSD
Department of Maternal, Child, and Women's Health	MCWH
United States of America	US
United Kingdom	UK
Sexual Assault Nurse Examiner	SANE
National Centres of Excellence in Women's Health	COE
Sexual Assault Referral Centres	SARC
Forensic Physician	FP
Primary Care Trusts	PCT

1. INTRODUCTION

South Africa is faced with the problem of widespread sexual violence against women and children, with an increase in child rape [1, 2] being a disturbing recent feature. The claim that rape incidence rates among adults are beginning to stabilise [3-5] is disputed, with opinion being that rape cases are increasing. The number of rape cases which were reported during the period between 2003 and 2004 is 52,733 (113.7/100 000); and 55,155 (118.3/100 000) between 2004 and 2005 [3]. These figures likely under-estimate the magnitude of the problem, the result of under-reporting, due to the fact that many sexual assault survivors do not report the cases to police in many instances due to coercion, misconceptions about rape and for fear of a negative experience of the justice system[4, 6] . Capacity limitations, which relate to the investigation, medical management and prosecution of cases contribute to this phenomenon of under-reporting [7]. According to police statistics, more than 40% of those who report their rape are under 18 years of age and 14% of this group is 12 years and younger [8].

At the same time, South Africa finds itself in the grip of the HIV epidemic: out of a global figure of 37 million people who are living with HIV, 25 million of these are found in Sub-Saharan Africa - accounting for the largest burden of HIV/AIDS-related disease in the world. Seventeen million of those afflicted with HIV in sub-Saharan Africa are women while 2.1 million are children under 15 years of age [9]. Rape is a recognised risk factor in HIV infection therefore, with such compelling HIV statistics. Sexual violence creates multiple traumas for those who experience its effects and who are vulnerable to HIV infection.

The HIV/AIDS epidemic can impact on the health sector in several ways. The health sector plays an important role in tracking and mitigating the effect of the epidemic, however, HIV/AIDS is not only a health sector challenge[10]. It permeates all facets of society and has profound effects on development, hence the importance of interventions targeted at combating the HIV and AIDS epidemic as part of the Millenium Development Goals[11]. Poverty and inequality are important social mechanisms that drive the epidemic. However, strategies that reduce vulnerability must given priority in country plans to address the HIV/AIDS epidemic. Sexual

assault further dis-empowers women and girls as it increases vulnerability at a societal level and vulnerability to the virus[10].

Sexual assault survivors frequently receive a poor standard of medical care following sexual assault[4, 12, 13] and this further increases the likelihood of physical and mental health problems. Appropriate, compassionate medical care and follow up can avert subsequent long term consequences and "episodic" over utilization of medical services[14] in the years after rape. Appropriate medical care can also provide early preventative care that minimises more costly interventions at a later stage. It therefore follows that an appropriate health sector response is fundamental in providing survivors of sexual assault with access to adequate, accessible and effective HIV prevention, care, information and education "services by and for vulnerable communities"[15]. In 2001, the South African Department of Health prioritised improving sexual assault services and engaged with stakeholders to undertake an evaluation of sexual assault services in South Africa[7].

2. BACKGROUND

2.1 Sexual Assault Services in South Africa

The provision of sexual assault services was previously a function delegated by the State to designated doctors, called district surgeons. This system was widely criticized by women's health and human rights' advocates as it denied women access to comprehensive, integrated and quality post rape services[16]. The District Surgeon system was abolished in 1999 in favour of the integration of sexual assault services into the Primary Health Care (PHC) system and when this happened, new models of service provision were introduced and implemented in South Africa. This approach provided clear guidelines, which outlined PHC responsibilities for addressing domestic violence and sexual assault [17]. These guidelines became a reference document for the national Sexual Assault Policy and Guidelines, which were launched in 2005 [18],[19] and under these guidelines any medical practitioner in the public or private health sector can provide health services to a rape survivor[16].

In line with international experience on the provision of sexual assault services, the National DoH (Department of Health) Guidelines for Management of Sexual Assault include the collection of forensic evidence, prophylactic treatment of STDs and the prevention of pregnancy where the survivors are at risk of HIV infection [20]. The provision of Post-Exposure Prophylaxis (PEP) for sexual assault survivors in South African hospitals and clinics was approved by the Cabinet in April 2002 [21]. In line with protocols which were initially used in developed countries, this includes a two-drug regimen of AZT and 3TC to be taken for 28 days. This regimen was associated with an 81% risk reduction for HIV transmission in a case control study among health care workers following occupational exposure [22].

In South Africa, however, the introduction of these changes and recommendations for sexual assault services has not taken the need for formal training of practitioners who provide these services into account. Such training is particularly important in addressing issues such as the narrow window of opportunity (72 hours) within which the provision of emergency contraception and PEP is effective. Within the existing legislative framework, practitioners can present significant obstacles to survivors' ability to access services to which they are entitled. This problem is exacerbated by poorly integrated sexual assault services and inadequate financial and human resources, particularly in rural areas [16].

2.2 Management of Sexual Assault

The focus of national and international medico-legal services, which are provided to survivors of sexual assault, has been to centralise medical services to a single location to improve survivors' chances of receiving quality medical treatment and undergoing comprehensive forensic examination [19, 20].

Survivors of sexual assault often enter the health care system through the Casualty Department of a hospital, where casualty doctors and nurses are often overworked, tired, inexperienced or insufficiently trained in conducting forensic examinations. A cross-sectional study of facilities in 9 provinces showed that 59.1% of providers within the facilities sampled had no facility based access to rape management protocols and that only 30.3% of practitioners had received training in the execution of forensic examinations in the following areas: medical treatment (93.2%); collecting specimens (88.6%); gender issues (34.8%); psychological aspects (50%) [16]. Of those who had been trained, nearly half received such training as undergraduate students. Staff attitudes to rape and to their role in providing care, still pose serious challenges. Many see their role as being primarily that of evidence collection. The study also highlighted structural problems that created barriers to the delivery of post rape care services namely: the absence of private examination facilities at all tertiary hospitals; inconsistent levels of availability of HIV tests in the examination rooms from district (60.7%) to tertiary hospitals (20%); a dearth of lockable storage facilities for completed sexual assault evidence collection kits and self reported referral of less than half (48.8%) of all rape survivors for counselling services[16].

From the situation analysis that was conducted on the state of sexual assault services in South Africa[7] 28.4% of respondents, overall, did not consider rape to be serious, while, 95.8% of respondents in Limpopo considered rape to be serious. However, this province had amongst the lowest proportion of providers trained in post rape care (20.%). Limpopo province performed poorly in the proportion of facilities that had a rape protocol at the facility (15.8%) and in facilities that provided private rooms where sexual assault survivors could be examined (20.9%). Access to HIV tests and pregnancy tests in examination rooms was good (100% for both).

Seven percent of nurses conducted examinations of rape survivors in Limpopo, compared to the national average of 9.7%. Limpopo ranked second highest after Free State province (87.3%) in the referral of rape survivors for counselling (71.6%).

The health consequences of rape, particularly pregnancy and the transmission of HIV and sexually-transmitted diseases (STDs) are a major concern. Limpopo province providers provided advice on STI risk (100%) and treated STIs in almost all instances (92.1%). However, correct identification of the drugs used in the syndromic management of STIs was poor[7].

The problems which are experienced with the provision of medico-legal services include women not being given information about HIV/AIDS or offered the HIV test[23], and being referred elsewhere, with consequent delays in PEP dispensation. As a result of several initiatives, undertaken in South Africa, to investigate the provision of HIV testing and PEP as part of a comprehensive approach to post-rape care, rapid testing has been made available to rape survivors who present themselves for treatment. In Limpopo province, the proportion of providers offering HIV counselling to rape survivors was 83.3% and the proportion offering an HIV test was 75.3%. The trend of fewer HIV tests being offered than was counselling, was consistent with the situation in other provinces. However, Limpopo faired poorly in offering ART advice (59.5%) and in offering ART to rape survivors (8%)[7].

A study conducted in Thohoyandou (Limpopo province) and Cape Town (Western Cape) looking at rape survivors' preferences of post rape services, found that a lower proportion of rape survivors from Thohoyandou returned at least once, (57%) compared to rape survivors from Cape Town, for their HIV test results. Reasons given for not returning, were being unaware that there was a reason to return and being unable to get money for transport[24]. This study also found that HIV prophylaxis was an important compelling factor in determining the choice of service. Women, especially those from rural areas preferred being offered an HIV test before being offered PEP. Skilled counselling with a positive attitude was found to be important, whereas negative attitudes and a lack of understanding, had a negative impact on choice of service.

At the present time, a systematic approach to post-rape management, including HIV post-exposure prophylaxis (PEP), has not been established at the national level. Although the Department of Health recently developed guidelines for post-rape care [19], these have not yet been operationalized in many healthcare settings. Within various provinces, individual hospitals, clinics, rape crisis centres and NGOs are developing approaches to PEP delivery on an *ad hoc* basis and with little systematic monitoring or evaluation. In the absence of clear guidelines or delivery models, and without an evidence base to guide the appropriate allocation of resources for PEP, it is likely that public sector health services will implement PEP without adequate support. In this context, there is a concern that the quality of such services will vary widely, and that an already fragmented and sub-standard approach to post-rape care may be further compromised[7, 21].

Following Cabinet's decision to provide HIV post exposure prophylaxis to sexual assault survivors in 2002, protocols were developed to provide a two drug regimen of AZT and 3TC based on international experience[21]. Pilot sites were identified where the intervention would be tested and programmes established. This has resulted in flagship sexual assault treatment centres in the Western Cape (Thuthuzela at G.F. Jooste Hospital) and in Limpopo, Thohoyadou. However the establishment of "one-stop" service centres where sexual assault survivors can access compassionate, timeous and efficient post rape care services has still not yet happened at broad based, provincial and facility levels as described earlier. Advocates have highlighted various Constitutional imperatives that should have catapulted the uniform provision of PEP to sexual assault survivors in order that they, like all individuals, could enjoy the highest attainable standard of health[4], as entrenched in the Bill of Rights.

2.3 Sexual Assault Services Internationally

There are number of models of post rape care, with numerous evaluations of sexual assault services having been done in the United States of America (US), Canada and the United Kingdom (UK). Experiences in these settings resonate with past and current experiences of rape care services in South Africa[16].

United States of America

In the US, the Sexual Assault Nurse Examiner (SANE) model is a non-physician model, supported by the American College of Physicians[25], that is most commonly reported on in the delivery of post rape services. Other services provided are the clinical care centres of the National Centres of Excellence in Women's Health (COEs)[26]. The COEs are community based health programmes which are affiliated to hospitals, albeit they are autonomous models. They provide a wide range of comprehensive primary health care services to women, including educational and clinical services and they act as "one stop shopping" models. These services arose out of a need to improve services to rape survivors, where rape survivors were generally not offered a high quality of care. It was not uncommon for rape survivors to wait long periods of time in emergency departments before being seen and rape survivors' injuries were not considered as serious as those of other trauma patients[12]. Health care personnel, generally lacked proper training[12, 27] and experience in providing adequate post rape care and they were generally unwilling to see rape survivors because of the time involved in doing the forensic exam. Other problems cited were: underutilization of services[28]; compartmentalization of reproductive and non-reproductive health services [26] and poor follow up compliance[13, 14]. The compartmentalization of services resulted in women having to rely on multiple service providers who worked sometimes in different settings, whose services were not always coordinated.

Problems experienced in post rape care in the UK were not dissimilar to those described above and included inconsistent availability and accessibility of post rape services to sexual assault survivors particularly in rural areas[13]; a lack of integrated care with a limited availability of forensically trained doctors[29]. Initially organisation of the forensic medical examination had been a police rather than a health service function[13]. This meant that doctors were contracted by police to conduct these examinations. Services assumed a forensic focus with varied medical attention given to rape survivors. Difficulties were also encountered in the referral of children under 12 years of age to a community paediatrician[29].

Forensic nurse examiners feature prominently in how sexual assault services are structured in the US and the UK, in contrast to the physician based sexual assault model currently in place in South Africa[7]. The SANE models were implemented

first in the US over two decades ago[12] in the US, and a little over a decade ago in Canada[30], as part of emergency staff functions in order to achieve the following: sexual assault evidence collection; a compassionate examination process and to obtain consistent data. Medical, psychological and legal services were provided and medical services included[14, 25]: forensic sexual assault examinations with diagnostic tests for STD's, pregnancy testing and prophylaxis (97%), HIV testing (26%) and prophylaxis, toxicology and ethanol screening[25]. Services not routinely offered were STD cultures, HIV tests[31], toxicology and ethanol screening; criteria for offering these services included: clinically active evidence of disease, high risk exposure or patient request. Child advocacy[27] centres also formed part of the spectrum of sexual assault and child abuse services offered to children in addition to crisis help-lines to provide support and guidance to victims of abuse and sexual assault[32]. A similar range of services is offered in post rape care, within the South African context, however, due to high prevalence of HIV/AIDS and high risk of HIV transmission following sexual assault HIV testing and PEP are routinely offered where rape survivors qualify[21, 33]. Other investigations do not feature in the package of care such as blood alcohol testing and screening for STIs[17].

Sexual services provided in the US are generally free of charge[32] and SANE teams predominantly consist of nurse programme directors and registered nurses who have received clinical and didactic forensic training in evidence collection and psychological support[25]. Programmes are generally staffed with two full time staff members, a rape crisis counsellor and five part time members. Canadian SANEs are supported by an on-call physician[30] and the programme is run using developed management protocols that outlined criteria for referral to a physician[30]. In South Africa there are number of obstacles to the allocation of dedicated staff to provide sexual assault services that include: poor planning and motivation to implement comprehensive sexual assault services within facilities at middle and senior management level; the lack of staff adequately trained in sexual assault services, negative HCW attitudes to rape and sexual assault[7, 16]. All of these are compounded by serious human resources challenges(34, 35) and a high rate of sexual assault in the country[3, 8].

Experiences from nurses, in the provision of these services, are that nurses are to a greater extent, interested in assuming autonomous roles as SANEs. However, they were concerned with the additional stress and anticipated role transition[36]. Sexual

assault survivors reported satisfaction with SANE services with a preference for SANE personnel over other emergency workers[30] and a preference by both male and female sexual assault survivors for being examined by females[12, 26, 37]. The literature supports the fact that treatment provided by SANEs is of a shorter duration with fewer interruptions than treatment provided by physicians[30]. The longer time taken to be seen by physicians could be attributed to the fact that they generally see more rape survivors with complications. However, the higher number of service interruptions could be as a result of competing responsibilities elsewhere, e.g. in emergency units. While doctors have expressed a reluctance to attend to sexual assault survivors because of the amount of time it takes to complete the examination[38]; the implementation of the SANE model in South remains a challenge as does role expansion of nurses working in sexual assault and/or reproductive health services[36].

United Kingdom

Experience in providing sexual assault services bears many similarities to the South African situation. In UK sexual assault referral services (SARC) are part of spectrum of services[29] available to sexual assault survivors. These services also include Primary Care Trusts (PCTs) which account for the greater part of service provision in the UK. SARCs predominantly provide services to rape survivors in urban areas[13]. The first SARC was established in 1986 to address the pervasive situation of wide service disparities and to serve as models of "good practice"[13]. Post rape care services, however, are still provided primarily by medical staff, namely, forensic physicians (FPs), in many areas. FPs, unless placed on exclusive police call, frequently attend to a wide range of other daytime work. In Sussex, which is the exception, there are a number of forensic nurse practitioners (FNPs) as well as doctors to provide a 24 hour service[13]. Services offered to sexual assault survivors are not comprehensive, due to a number of structural deficiencies such as: a lack of funding for comprehensive services; lack of equipment; lack of facilities and a poor working relationship with local services. This compromises care to sexual assault survivors despite the fact that the core package of post rape medical care is provided at most SARCs (including screening for pregnancy, HIV and STIs and the provision of prophylaxis for each respectively.

Experience from these models shows that it is possible to implement a sexual assault service based on SANEs but that a considerable investment is required in providing adequate supervision and training for SANEs to feel confident in their assumed roles. This includes gaining familiarity with the examination of sexual assault survivors and the accompanying additional demands placed on SANE[36]. In addition to this, finding personal and professional satisfaction is important in providing a compassionate service to sexual assault survivors. While this may be a cost effective strategy, SARC experience has shown that additional funds are necessary to: cover on-call costs; provide necessary staff and infrastructure and equipment within facilities; recruit additional staff (particularly female staff[26, 30]); cover training costs[39] and to build partnerships with the police service, health services, the judicial system and various advocates[13]. Role expansion or role transition would require considerable by in from nurses and doctors in consultation with all role players, not least of all labour unions.

3. STUDY CONTEXT

This MMed research formed part of a larger operations research project conducted by RADAR (Rural AIDS and Development Action Research) and the Population Council, based in a rural hospital (Tintswalo Hospital) in Acornhoek, Limpopo province from May 2004 to August 2006. This 450-bed hospital is one of 3 hospitals in the district and functions as a referral site for post-rape care. The purpose of the larger study was to define an operational model for introducing a strengthened, multi-sectoral response to post-rape care, and to evaluate it using a pre/post-intervention study design.

The pre-intervention (baseline) phase involved an assessment of existing experiences, practices, and services for post-rape care at the client, provider, sector, and community levels through a review of service statistics and record keeping, key informant interviews, and scheduled interviews with service providers and clients accessing post-rape care services. In addition, it was used to refine the intervention package to be tested. The 5-part intervention was introduced in March, 2005 and is described below.

Project Advisory Committee

It was clear from the diagnostic phase that a holistic, institutional approach would be needed in order to strengthen post-rape management at the hospital level. Since such an approach requires buy-in and support from stakeholders from multiple departments, as well as hospital management, a Project Advisory Committee (PAC) was established in order to engage the relevant stakeholders in the design and implementation of the study. This group included a broader range of stakeholders (pharmacist, psychiatric nurse, HIV services, doctors, OPD nursing management, social workers, and police) whose input had been identified as critical to the improvement of post-rape services. The PAC also provided critical input for co-ordinating a multi-sectoral response to post-rape management.

Hospital Rape Management Policy

During the project start-up, the CEO of Tintswalo Hospital was invited to join the PAC – her involvement was necessary to facilitate the execution of research at the hospital, and, also, access to medical charts. An unanticipated and welcome outcome of this engagement was the CEO's request that the PAC draft a Hospital Rape

Management Policy, which would include steps to strengthen monitoring and evaluation systems (including a rape register) at the hospital. The Hospital Rape Management Policy became an official hospital policy, signed by the CEO and relevant senior management (Appendix E). As part of the intervention, it was amended by the PAC to include specific protocols that are in line with the National Management Guidelines for Sexual Assault and to address problems which were identified during the pre-intervention phase. These included appropriate treatment for STIs and pregnancy prevention, access to VCT regardless of time of presentation, and the dispensing of a stat dose of PEP as an early step in the clinical management protocol. Given the fact that the hospital serves a rural population where multiple follow-up visits are difficult, the policy recommended that a full 28-day course of PEP be dispensed during the initial visit.

Training Workshop for HCW and Other Providers

During the diagnostic phase it became apparent that a lack of prior training, and substantial capacity gaps, negatively impacted health care workers' and other service providers' ability to render an efficient service. As a result, a Training Workshop for healthcare workers and other service providers was developed and implemented in March, 2005. Participants were proposed by the PAC and included senior managers and healthcare workers from the hospital, a hospital pharmacist, district representatives from the Department of Health and Social Welfare, social workers, police, and a representative from the local Prosecutors Office. Drawing on training expertise from the Department of Maternal, Child, and Women's Health (MCWH) in the Western Cape, the 2-day workshop focused on developing a multi-sectoral approach to rape management. Key issues included addressing common myths and attitudes about rape, an overview of clinical care (including PEP), exploring an expanded role for nurses, including forensic examination, and strengthening relationships between the health sector, social workers, police, and local prosecutors.

Centralisation and Co-ordination of Post-Rape Care

The system of providing services to survivors of sexual assault was initially not patient-focused. It was a fragmented service delivery approach which resulted in significant delays and unnecessary re-traumatisation of rape survivors. Following the training, and with input from the PAC (particularly senior nursing management), the decision was taken to centralise post-rape care through a designated room in the

OPD. With minor changes, the room was made more private, with all post-rape treatments being stocked and dispensed from a cupboard (including STI medicines, pregnancy tests, Emergency Contraception, HIV tests, and PEP) which was situated in the room. In addition to this, a set of clinical tools, designed to help health care workers to implement the National Management Guidelines for Sexual Assault, were made available and easily accessible in the examination room. These included a Step-by-Step Rape Management Guide, Paediatric Dosing Chart, and Medication Counselling Chart

Community Awareness

The importance of raising community awareness was emphasised by members of the Project Advisory Committee as well as most of the key informants interviewed during the pre-intervention phase. The project was advised by the PAC to embark on an awareness-raising campaign to inform community perceptions regarding rape; to increase awareness of the various treatments available (STI treatment, EC, PEP); and to clarify the separation of roles between the hospital and the police. In this regard, key messages emphasised the need for rape survivors to come to the hospital first and that it was possible to seek clinical care without first opening a police report. Community awareness activities included morning health talks which were delivered to clients standing in the OPD queue; community radio broadcasts; HIV awareness education, and local school-based campaigns organised by the DHSW (Department of Health and Social Welfare), among others.

Thus, the larger research project used a combination of qualitative and quantitative methods to develop and test an integrated delivery model for post-rape care.

3.1 Research Problem

Two key findings arose from the pre-intervention (baseline) findings, and became the basis for this MMed research project:

Lack of VCT availability is an obstacle to delivery of PEP:
The majority (86%) of rape cases are presented to hospital within 72 hours – early enough to qualify to receive both PEP and emergency contraception (EC). However, due to the absence of VCT after hours and over the weekend, only 16% of those who qualified for PEP actually received the full 28 day course of treatment.

Emergency contraception is not offered consistently:
Although the majority of rape survivors were at risk of pregnancy and eligible for EC, only two thirds received a screening pregnancy test, and only 65% were actually prescribed this treatment.

Thus, this nested study focused on:

- Supplementing the study with new qualitative research (gathered through key informant interviews conducted by the candidate) to explore the reasons for these obstacles – detailed above – to VCT, PEP, and EC service delivery.
- The analysis of a subset of quantitative data collected from the project in order to ascertain whether the intervention had any impact on provision of VCT, PEP, and EC services.

4. ETHICAL REVIEW

Ethical Clearance for the study was obtained from the University of the Witwatersrand HREC (Ethical Review Number: M060335).

5. STUDY OBJECTIVES

5.1 Research Objectives

Research conducted during the pre-intervention phase at the study site documented service delivery problems relating to VCT, PEP and Emergency contraception.

The specific objectives of this MMed research project were:

- To assess changes from baseline to follow-up in health care provider knowledge and practice including self reported practice related to the provision of emergency contraception, anti-emetics, VCT and PEP by conducting the following:
    - Health care provider survey
    - Patient chart reviews

- To assess changes from baseline to follow-up in clients' self report of treatment and care received such as the quality of service delivery for VCT, PEP, EC and the use of antiemetics by looking at:
    - Interviews conducted with rape survivors

- To assess provider perceptions of post rape care over the study period.

6. METHODOLOGY

6.1 Quantitative Methods

Study Period

The study period was from March 2004 to August 2006 whereas, enrolment of clients into the study for the clients using rape services began in June 2004. The review of patient charts included all available charts for rape cases dating back to March 2003 (retrospective) as well as all current cases presenting to hospital during the study period. The study was divided into pre- and post-intervention phases, dating respectively before and after April 1 2005.

6.1.1 Study Population

Health Care Providers

The study population included all health care workers (HCW) –doctors ,nurses,– working in the OPD during the study period. There were approximately 40 medical doctors working at the hospital during phase 1 and phase 2 (9 permanent staff doctors; 15 CSDs in phase 1, 9 of whom were part of the phase 2 study population and 2 CSDs who were only part of phase 2; 13 interns 8 of which were part of the phase 1 study population of whom 3 continued into phase 2 and 5 new interns who were only part of phase2). Interns, however, were not included the survey. A total of fifteen professional nurses rotated through OPD during both phases. A total of 50 health care workers (doctors and nurses attending to the hospital OPD) completed the health care provider questionnaire.

Patient Charts

All rape cases presenting to the hospital were recorded in an OPD rape register by OPD nurses. All rape cases entered into this register were eligible for inclusion into the review of patients' charts. According to the hospital's OPD rape register, a total of 409 rape survivors were seen in the hospital between March 2003 and August 2006. The charts of rape survivors that were eligible for inclusion in the study were all those of rape survivors that were seen from the beginning of the study enrolment period, March 2004, until August 2006.

Clients Using Post Rape Services

All rape survivors presenting during the study period were eligible to be interviewed. A total of 330 rape cases were eligible for interview from the beginning of the rape survivor interview enrolment period (June 2004 to August 2006). Rape survivors of ages 14 and above were eligible to give their consent to being interviewed. For rape survivors younger than 14 years consent was obtained from guardians.

6.1.2 Sampling and Sample Size

Health Care Providers

The sampling frame for health care providers consisted in the pre- intervention of 9 senior doctors and 23 junior doctors (8 interns and 15 community service doctors). In the post- intervention period, there were 9 senior doctors and 19 junior doctors (8 interns and 11 community service doctors). Interns were not sampled as medico-legally they are not qualified to see rape survivors unassisted or to give evidence in court. A total of fifteen professional nurses rotated through OPD during both phases.

Patient Charts

All available records of rape cases presenting to the hospital were eligible for review. A master list of 409 charts was generated, which represented all rape survivors presenting to the hospital during the study period. If a patient record was not found in the first round of record collection, an attempt was made to retrace it in the second round. If this failed, the record was excluded from the study. In total 365/409 (89.2%) eligible charts were reviewed.

Clients Using Post Rape Services

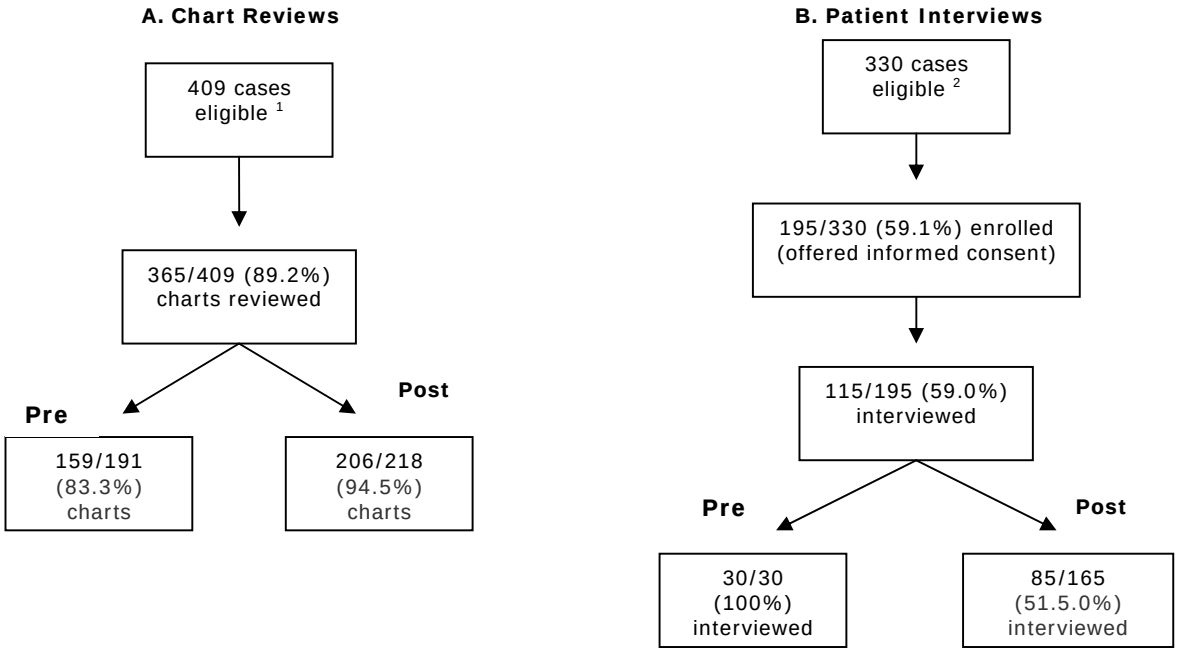
HCWs were requested to obtain informed consent from rape survivors to facilitate the participation of those using OPD services, during their first visit, in the study Demographic information of 312 clients was captured in the database. One hundred and ninety five rape survivors (59.1%) gave their consent to participate in the study and were enrolled into the study to return for a subsequent interview four weeks after the initial interview. Among these, 115 (59.0%) were able to follow-up for the interview.

Sample Size Calculations

The original sample sizes were calculated as follows[40] "…one of the objectives of the intervention is to increase the proportion of clients who present to hospital soon enough to be eligible for PEP, and who subsequently receive VCT (VCT rate). A second, and related, objective is to increase the proportion of clients who actually receive PEP during that visit (PEP rate). Using the current estimate of 10 clients/month and assuming a 50% increase in client load during the intervention phase, we would expect to see approximately 60 cases during a baseline 6-month

period in Phase 1, and 90 cases during a 6-month end-line period in Phase 2. The study will be able to detect a doubling of the VCT rate (from 36% to 72%) and a trebling of the PEP rate (from 16% to 48%) with > 80% power, allowing for a study enrolment rate of 60%."

Study Enrolment



[1] Presented to hospital during enrollment period for review of patient charts

[2] Presented to hospital during enrolment period for patient interview

Figure 1: Flow diagram of study enrolment for patients' chart and clients using rape services surveys

6.1.3 Data Collection

The health care provider survey questionnaires were self-administered and the questionnaires were only in English. The rape survivor survey was interviewer administered. The interview was a structured interview conducted in Northern Sotho and Shangaan (local languages) translated from the English questionnaires. Only one interviewer, who was fluent in both languages and trained in psychology, administered the questionnaires and followed up rape survivors. The patient chart survey was conducted using a measurement tool which is described in greater detail in the measurement section. There were two reviewers who were medical doctors who reviewed charts separately but not concurrently and with no overlap i.e. there was one study doctor per phase of the study.

6.1.4 Measurement Tools

All data collection instruments (except for key informant interview questionnaires), questionnaires and the patient chart measurement tool, were pre-tested and piloted at the study hospital. The purpose of the pilot was to ensure internal validity and reliability of measurement tools. Thereafter, some revisions were made to the questionnaire and the data was included in analysis.

Health Care Providers

A questionnaire was used to examine HCWs' knowledge, attitudes and practice (KAP) (Appendix D). The questionnaire was made up of 5 sections (personal data which included previous training in rape management, PEP, VCT, EC; prevalence and presentation of rape; causes of rape; hospital care and follow up rape survivors). The questionnaire made use of a number methods to test KAP namely likert scales, open ended questions, nominal scales, ordinal scales and written responses that were then post coded. Similar questionnaires were administered in the pre- and post- intervention phases of the study. These questionnaires were distributed to all HCWs working in sexual assault services. The objective was to assess changes in HCW attitudes towards rape survivors; knowledge and practice relating to EC, and PEP (Appendix D).

Patient Charts

A measurement tool (Appendix C) was developed to capture standards of care as reflected in National DOH Guidelines on Management of Sexual Assault and the Sexual Assault Evidence Collection Kit. The measurement tool was made up of 5 sections (background information; history; physical examination and forensic collection; investigations and treatment and counselling, follow up and referrals) and it was used assess whether there were any improvements in the following areas: Quality of History and the Forensic Exam, Emergency Contraception (EC) and VCT/PEP. The patient chart review form was piloted prior to its implementation.

The section on investigation and treatment was made of 25 questions (with sub-questions). Questions on treatment for STIs, VCT, PEP and pregnancy prevention were covered in this section. PEP and VCT directed questions made up the bulk of the section (14 questions) followed by pregnancy prevention (6) and lastly STI

questions (3). The measurement tool made use of nominal scales in the background section.

In subsequent sections, a scoring system was developed and each piece of information that was recorded in the patient charts was assigned a quantitative value. The scores identified whether or not the HCW had recorded adequately key elements (e.g. menstrual history). Specific criteria were also defined to determine whether or not, the patient had been eligible for and received relevant diagnostic tests or treatment, including the following: pregnancy test (if female, aged between 12-55 years); EC (if female aged between 12-55 years, negative pregnancy test, and presented within 5 days of sexual assault); VCT (if presented <72 hours of sexual assault) and PEP (if presented <72 hours and HIV negative). Scores were then used as measures, developed from national sexual assault management norms and standards of care.

Clients Who Used Rape Services

Interviews were conducted using structured questionnaires, as part of the larger study, with all consenting rape survivors (or guardians, in the case of minors) four weeks after initial presentation (Appendix B). Both qualitative and quantitative methods were used in the interview and questionnaire.

The questionnaire was made up eight sections and they included the following: interview details; rape incident; police involvement; treatment at hospital; counselling and support; treatment and adherence; PEP and estimates of patient contact with service providers; closing and interviewers notes. This questionnaire was not dissimilar to the patient chart measurement tool in its use of scoring for each question. The questionnaire included ordinal scales to assess rape survivors' perceptions of components of the post rape care they received, particularly police involvement and treatment at hospital. A number of open ended questions were asked in the counselling and support and closing sections of the interview.

The treatment and adherence section of the questionnaire was detailed, with separate sub- sections for adults and children. It sought to elicit from the client as much information as they could on treatments they had been given or been told about. A score was given to each piece of information they gave. Pill charts were

used to assist patient recall and were used in with all clients who had used post rape services.

6.2 Qualitative Methods

Key Informant Interviews with Service Providers

Key informant interviews were conducted from November 2005 to February 2006. These interviews were undertaken with HCWs, pharmacists, and other relevant service providers in order to understand:

1. obstacles to provision of VCT, PEP and EC, and
2. Perceptions of change resulting from the intervention, including the expanded role of nurses in the management of rape cases. Following informed consent, a semi-structured interview guide was used to elicit experiences and viewpoints relating to the provision of VCT, PEP, and EC.

Key Informant (KI) Interviews

At the time during which interviews were conducted the study population of HCWs consisted of 10 community service doctors and 9 staff doctors in the hospital; 5 Chief professional nurses (CPNs) working in the OPD and attending to rape survivors; 2 CPNs working in Rixile Clinic (ARV clinic); 6 VCT trained lay counsellors; 3 senior nursing managers overseeing rape care services and VCT in the hospital.

6.2.1 Sampling and Sample Size

Nineteen key informants from this population were purposively selected. Key informants identified by the PAC in the pre-intervention phase as key stakeholders (doctors, nurses, pharmacists and hospital managers), i.e. those involved in direct post-rape care management or supervision at the hospital, were sampled. Ten individuals were originally selected and snowball sampling (those interviewed identified further colleagues or providers who would likely provide useful information and viewpoints) was used to select an additional 9 interviewees.

6.3 Data Analysis

6.3.1 Quantitative Data

Data from the patient charts, interviews of clients using rape services and health care provider surveys. Questionnaires were entered into a previously designed Microsoft Access Database and analysed using STATA 9.0 (StataCorp, USA). To compare the difference between groups, t-tests and non-parametric Kruskal Wallis

test were used for continuous data, while chi-square tests and Fisher's Exact test were used to compare categorical data. To assess the intervention, univariate and multi-variate regression models were run to adjust for potential confounders and/or effect modifiers. Factors that had a 5% significance level were returned.

Health Care Providers

Logistic regressions models were fitted on the following outcome variables where questions had been answered correctly:

- provision of emergency contraception: EC must be given within 3-5 days; standard EC regimen
- provision of post exposure prophylaxis: PEP must be given within 72 hours; scenarios when PEP should not be given; PEP regimen; when to give a PEP starter pack; duration of PEP is 4 weeks.

The provision of VCT and prescription of antiemetics were assessed using patient chart survey.

The following variables were used in regression analysis to assess changes from baseline to follow- up in health care provider knowledge and self reported practice as stated in the first objective: age of HCW; sex; training in the medical management of rape; occupation; the number of rape survivors examined; the intervention phase.

Patient Charts

Logistic regression was done on the outcome variables to explore univariate relationships and finally to create multivariate models and the outcome variables were the following:

- provision of emergency contraception: eligible for pregnancy test; eligible for and given pregnancy test; eligible for emergency contraception; eligible and given emergency contraception
- provision of Voluntary Counselling and Testing: eligible for VCT; VCT given on first visit; VCT given at all
- provision of post exposure prophylaxis: PEP stat dose given; PEP 28day supply given
- provision of antiemetics: antiemetics given

Variables that were used in the regression analysis to assess changes from baseline to follow- up in health care provider knowledge and practice as stated in the first objective were: age less than 14 years (yes, no); time of presentation (less than 72 hours, after 72 hours); position of the attending health care provider (staff doctor, community service doctor, OPD nurse); sex of HCW (male, female); time of hospital visit (weekday office hours, weekday after hours, weekend/holiday); police involvement (yes, no); intervention phase (Phase 1, Phase 2).

Socio-demographic variables such as the patient age; time of presentation to the hospital; age, sex and occupation of health care provider and police involvement in the case were described and included as potential confounders in the analysis. Police involvement was included in the analysis as clients who report sexual assault to the police are generally taken more seriously and therefore offered a higher standard of care[40].

Clients Using Rape Services

Bivariate analysis was done on the variables from the client interviews using chi squares and fisher's exact tests to assess changes from baseline to follow in clients' self report of treatment and care received, as mentioned the second objective. This included looking at proportions of variables where the answer was "yes":

- comparing characteristics of clients eligible to those who were interviewed
- comparing characteristics of clients interviewed at baseline and at follow-up
- comparing medical treatment given to rape survivors from baseline to follow –up looking at the following self reported treatment: given EC; VCT done at all and VCT location; HIV result (negative); PEP given, median number of hours to first dose, PEP adherence, side effects and reasons for non-adherence

The main potential confounders that were considered were age of the client; police involvement in the case; HIV status of the rape survivor; occupation and rank of attending health care provider.

6.3.2 Qualitative Data

Key Informant Interviews with service providers were conducted in to fulfil the second main objective of assessing provider perceptions of post rape care over the study period. All interviews were conducted in English. All interviews were immediately documented through field notes, recorded using a mini-disc recorder, and later transcribed for analysis. The data was analysed using MaxQDA to generate codes from the text analysis. These codes were analysed thematically.

7. Results

7.1 Quantitative Analysis

Sociodemographic Characteristics of Health Care Providers

Due to the high staff turnover in the OPD, there was little overlap in the sampling groups at both time points. In both samples, the majority of respondents were female (77.8% at Phase 1 and 71.4% at Phase 2), and doctors pre-dominated over nurses (65.0% at Phase 1 and 52.4% at Phase 2 vs. 35.0% at Phase 1 and 47.6% at Phase 2). In the post-intervention sample, more healthcare workers reported having had prior training on rape management (31.0% at Phase 1 and 61.9% at Phase 2), PEP (41.40% at Phase 1 and 57.1% at Phase 2), and VCT (31.0% at Phase 1 and 71.4% at Phase 2). Relative to the pre-intervention period more HCWs had had other training, and five individuals had attended the 2 day workshop in March 2005. These details are represented in Table 1 below.

Table 1: Characteristics of Health Care Workers Completing health care provider survey questionnaires

Characteristics		Phase 1 N = 29 n %	Phase 2 N = 21 n %
Sex (Female)		21 (77.8)	15 (71.4)
Occupation	Doctor	13 (65.0)	11 (52.4)
	Nurse	7 (35.0)	10 (47.6)
Any prior training on:	Rape Management	9 (31.0)	13 (61.9)
	PEP	12 (41.4)	12 (57.1)
	VCT	9 (31.0)	15 (71.4)
Attended project's training workshop		-	5 (23.8)

In relation to HCWs' knowledge about post-rape care, several differences were noted among the post-intervention group, compared to the pre-intervention group (Table 2). With regards to EC, there was a significant difference in providers' knowledge about the time window for prescribing EC (22.7% vs. 79.0%, p-value <0.001), and the correct standard regimen for EC (Table 2).

Table 2: Health Care Workers' Knowledge about EC and PEP

Knowledge related indicators	Phase 1 N = 29 n %	Phase 2 N = 21 n %	*P*-value[1]
Emergency Contraception			
EC must be given within 3-5 days of rape	5 (22.7)	15 (79.0)	P<0.001
Standard EC regimen (wrote correct drug, dosage, and interval)	3 (10.3)	13 (61.9)	P<0.001
Post Exposure Prophylaxis			
PEP must be given < 72 hours	4 (21.1)	17 (89.5)	P<0.001
2 scenarios when PEP should not be given			
One scenario answered correctly	14 (53.8)	10 (55.6)	0.96
Two scenarios answered correctly	2 (7.7)	1 (5.6)	0.96
Standard PEP regimen (correct drug, dosage, and interval)	2 (6.9)	6 (28.6)	0.04
When to give a PEP starter pack	7 (25.9)	7 (35.0)	0.50
Duration of PEP treatment is 4 weeks	16 (61.5)	15 (75.0)	0.33

[i] Fisher's exact test

Emergency Contraception (EC)

Using logistic regression, to analyse the optimal timing for administration of EC (1= 3-5 days, 0= incorrect) and after adjustment, the intervention had a 12.4 times greater likelihood (CI 2.5- 60.7) of improving HCWs' knowledge of optimal time to administer EC (Table 3). Previous training in the medical management of rape was also found to be associated with a significant difference.

Table 3: Regression on optimal time to administer EC

(ECtimingR_0= wrong; 1= within 3-5 days)

Confounders adjusted for were: sex of HCW (0= female, 1=male); age of HCW; prior rape management training (0= No, 1= yes); occupation of HCW (0= doctor, 1= nurse); number of sexual assault exams done by HCW [1= (1-10); 2= (11-20); 3= (21-60)]

Variables	Univariate analysis		Multivariate analysis	
	OR	95% CI (P-value)	OR	95% CI (P-value)
Intervention				
Phase 1	1		1	
Phase 2	12.7	2.9- 56.4 (0.00)	12.4	2.5- 60.7 (0.00)
Sex HCW				
Female	1			
Male	0.5	0.1-2.1 (0.34)		
Age of HCW	0.9	0.9- 1.0 (0.25)		
Rape management training				
No	1		1	
Yes	4.6	1.2- 17.4 (0.02)	4.5	0.9- 21.7 (0.06)
Occupation				
Dr	1			
Nurse	0.5	0.1- 2.0 (0.34)		
No of sex assault exams				
1-10	1			
11-20				
21-60	1.6	0.1- 31.8 (0.76)		

Knowledge regarding the correct dosage of EC was only significantly associated with the post-intervention phase (10.3% vs. 61.9%; OR 12.5 CI 2.7-55.8 p<0.001).

Post Exposure Prophylaxis (PEP)

With regard to PEP (Table 2), the study noted a difference in providers' knowledge about when PEP should given; circumstances under which it should not be given and the correct regimen for prescribing PEP.

From multivariate analysis of optimal time to administer PEP (1= within 48-72 hours; 0= wrong), the intervention was found to increase the likelihood of HCWs' knowing

the optimal time to administer PEP by 23.8 times (CI 3.6- 155.4). The details are recorded in Table 4.

On logistic regression of knowledge regarding the correct dosage of PEP (1 = dosage correct; 0= dosage incorrect) the intervention (OR 5.4 CI 0.97- 30.2 *P* 0.05) was of borderline significance. On multivariate analysis with adjustment for age of HCW, it was no longer significant.

There were modest differences in knowledge about when to provide a starter pack, and the total duration of PEP treatment, but these were not significant.

Table 4: Regression on optimal time to administer PEP
(PEPtiming 0= wrong; 1= within 48 – 72 hrs)

Confounders adjusted for were: sex of HCW (0= female, 1=male); age of HCW; prior rape management training (0= No, 1= yes); occupation of HCW (0= doctor, 1= nurse); number of sexual assault exams done by HCW [1= (1-10); 2= (11-20); 3= (21-60)]

Variables	Univariate analysis		Multivariate analysis	
	OR	95% CI (P-value)	OR	95% CI (P-value)
Intervention				
Phase 1	1		1	1
Phase 2	31.9	5.1-199.5 (0.00)	23.8	3.6-155.4 (0.00)
Sex HCW				
Female	1			
Male	0.4	1.0- 1.2 (0.26)		
Age of HCW	1.1	1.0- 1.2 (0.08)	1.1	1.0- 1.2 (0.17)
Rape management training				
No	1			
Yes	1.9	0.5- 7.0 (0.33)		
Occupation				
Dr	1		1	1
Nurse	4.4	0.9- 20.3 (0.06)	2.9	0.4- 20.3 (0.27)
No of exams				
1-10	1			
11-20				
21-60	0.7	0.0- 9.2 (0.76)		

Management of Patients: Knowledge and Provision of Emergency Contraception and PEP

Out of the hospital records Figure 1, 365 (89.2%) patient records were available from the patient records department for review; 159 during Phase 1 (43.5%) and 206 during Phase 2 (56.4%).

Characteristics from the patient charts of rape survivors that used post rape services are shown in Table 5. For most characteristics, the study populations were similar in Phase 1 and Phase 2. In both groups, the majority of rape survivors seen at the hospital were female (97.4% at Phase 1 and 98.9% at Phase 2) and the mean age was approximately 20years (19.7 at Phase 1 and 20.7 at Phase 2). Children less than age 14 comprised slightly more than a quarter of the cases (26.3% at Phase 1 and 27.3% at Phase 2). In both groups, most rape survivors (86.3% at Phase 1 and 81.8% at Phase 2) presented to the hospital after regular hours, (during evenings, weekends or over public holidays). Although staff nurses assisted in the management of rape survivors, they did not attend to them in the absence of a medical doctor. In about half of cases, rape survivors were being treated by the more junior, community service doctors (CSDs) (73.0% at Phase 1 and 59.7% at Phase 2). Finally, most cases presenting to hospital had also opened a police report (90.1% at Phase 1 and 89.3% at Phase 2), with a slightly smaller proportion doing so in Phase 2.

Table 5: Characteristics of patients using rape care services

Characteristics	Phase 1 N=159	Phase 2 N=206	p-value
	n %	n %	
Number of cases/ month ($\bar{x}, std$ [1])	11.3	12.9	0.00[2]
Age (years, ($\bar{x}, std$)	19.7 (10.1)	20.0 (13.6)	0.74
Age <14 years	40 (26.3)	50 (27.3)	0.89
Female sex	147 (97.4)	181 (98.9)	0.89
Presented < 72 hours	113 (86.3)	135 (81.8)	0.30
Presented during hospital after hours	97 (65.1)	115 (63.9)	0.81
Treated by community service doctor	92 (73.0)	108 (59.7)	0.09
Police were involved in case	110 (90.1)	151 (89.3)	0.82

[1] Mean Standard Deviation
[2] Kruskal- Wallis Test

* Evening, weekend, or public holiday

The percentage of rape survivors who were HIV positive reduced overall in Phase2 compared to Phase 1 (18.4% vs. 7.6% *P* <0.001), reflected in Figure 2 below. Rape survivors who were not sure of their HIV results or where results were not obtained from patient charts were classified as "unsure".

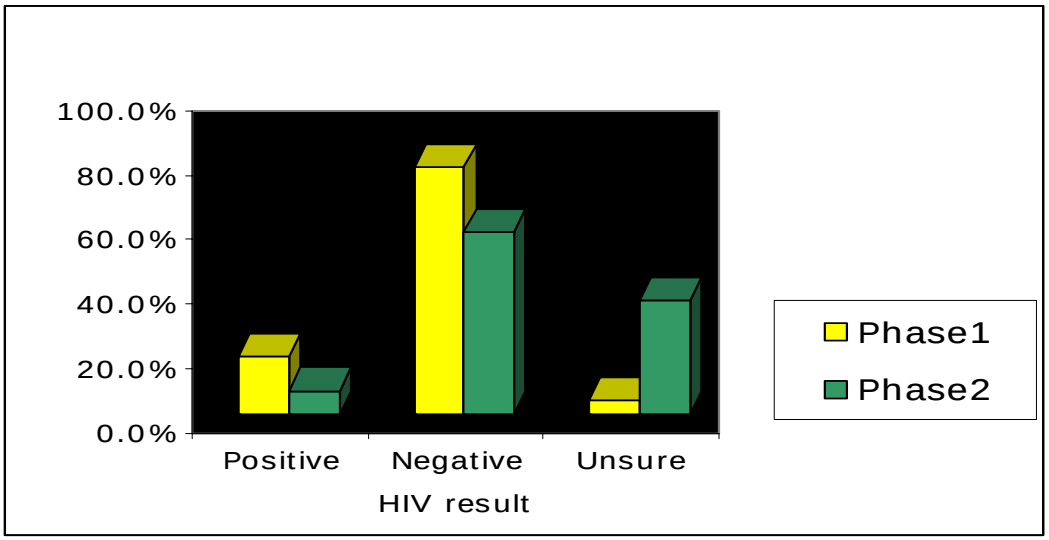


Figure 2**:** Patients Chart Survey– HIV Prevalence of Rape Survivors

Quality of Care: VCT, PEP and EC

Overall there were several changes noted in relation to the quality of medical treatment provided during the intervention period. These related primarily to VCT and PEP services rather than emergency contraception (Table 6).

In terms of pregnancy prevention, most clients presenting to the hospital (73.6% vs. 73.6%) were eligible for a pregnancy test, and nearly all of those eligible (96.5% vs. 96.8%) did receive a pregnancy test at baseline. Similarly, most clients (82.3% vs. 90.2%) had an initial negative pregnancy test, meaning they were eligible for EC, and the majority of these (98.9%) received EC. There was no significant difference noted in the provision of pregnancy testing or EC during the post-intervention period.

As noted earlier (Table 5), most patients presenting to the hospital came within 72 hours (86.3% vs. 81.8%) and were therefore eligible for VCT. At baseline, only 60.1% of patients received VCT at all, with fewer (41.2%) receiving VCT on their initial hospital visit following the rape. Prior to the intervention, no patients received a stat dose of PEP upon arrival at the hospital OPD, and 36% ultimately received a full 28 day prescription of PEP. Following the intervention, significant improvements were noted in all these parameters (Table 6). In addition, there was a difference noted in the provision of Maxolon (an anti-emetic drug important for countering the side-effects of EC, STI meds, and PEP).

Table 6: Quality of Medical Treatment: EC, VCT, PEP

Patient Chart Review	Phase 1 n %	Phase 2 n %	P-value
Eligible for preg test (1)	106 (73.6)	134 (73.6)	1.00
Eligible and given preg test	47 (95.9)	91 (96.8)	0.78
Eligible for EC (2)	28 (82.3)	83 (90.2)	0.23
Eligible and EC given	21 (100)	65 (98.4)	0.57
Eligible for VCT (3)	111 (85.4)%	143 (83.4)	0.67
VCT given at all	62 (55.9)	97 (67.8)	0.05*
PEP eligible (4)	47 (65.3)	75 (68.8)	0.62
VCT given on first visit	26 (44.1)	56 (59.6)	0.06*
PEP stat dose given	0 (0.0)	97 (68.8)	P <0.001*
PEP 28d given		31 (36.0)	
Anti-emetics given	26 (17.2)	65 (36.9)	P<0.001*

(1) Eligible for pregnancy if female, and aged between 12-55 years
(2) As above, pregnancy test negative, and presented within 5 days of sexual assault
(3) If presented within 72 hours of sexual assault
(4) As above and HIV negative

Voluntary Counselling and Testing (VCT)

The majority of rape survivors seen at the hospital presented within 72 hours (Table 5) with no significant change between both phases of the study (86.3% vs. 81.8% P 0.30). Nonetheless, it was not everyone who presented to the hospital in good time who received VCT (44.1% vs. 59.6% P 0.06, Table 8). In Phase 2, however, there was a significant increase in VCT which was offered to rape survivors.

Post Exposure Prophylaxis (PEP)

Of those who presented in less than 72 hours (Table 5 & Table 8), more than 65% were eligible to receive PEP with no expected change seen during the intervention phase (65.3% vs. 68.8% P 0.62). Although numbers were small, an improvement in the overall numbers was seen among rape survivors who were eligible for PEP but did not receive it.

Emergency Contraception (EC)

Not much change was seen in rape survivors receiving EC; this was possibly due to the fact that most eligible clients had already been given EC. An important rate limit step of receiving EC is being offered a pregnancy test. After univariate and multivariate logistic regression models were fitted with outcome, receiving anti-emetics (1 = given, 0 = not-given) rape survivors in the post-intervention period were 3.1 (CI 1.6- 5.8) times more likely to have received anti-emetics than those in the pre-intervention period see Table 7. Another interesting finding was that female HCW were 3.3 times more likely to dispense antiemetics (CI 1.8- 6.1).

Table 7: Logistic regression – the likelihood of receiving antiemetics

(Antiemetics given 1= yes; 0= no)

Confounders adjusted for were: age less than 14 years (0= yes, 1= no); time of presentation (0= more than 72 hours, 1= less than 72 hours); position of HCW (1= staff doctor, 0 = community service doctor); sex of HCW (0= male, 1= female); time of hospital visit (1= weekday office hours, 2= weekday after hours, 3= weekend/ holiday)

Variables	Univariate analysis		Multivariate analysis	
	OR	95% CI (P-value)	OR	95% CI (P-value)
Intervention				
Phase 1	1		1	1
Phase 2	2.8	1.7- 4.7 (<0.01)	3.1	1.7- 5.8 (<0.01)
Age<14				
Yes	1		1	1
No	3.1	1.6- 6.1 (<0.01)	3.5	1.6- 8.0 (<0.01)
Presentation				
More 72 hrs	1		1	1
Less 72 hrs	5.1	1.8- 14.7 (0.03)	4.6	1.4- 14.2 (0.01)
Position of HCW				
Staff doctor	1			
CSD	1.6	0.9- 2.7 (0.10)		
Sex of HCW				
Male	1		1	
Female	2.9	1.7- 4.9 (<0.01)	3.3	1.8- 6.1 (<0.01)
Time of hospital visit				
Weekday off. hours	1			
Weekday A/ h	2.6	1.3- 5.1 (0.04)		
Weekend /holiday	1.3	0.7- 2.3 (0.37)		

Looking at VCT done on the first visit detailed in Table 8 (1= first visit, 0= subsequent visit) rape survivors who were seen out of office hours were 40% (OR 0.4; CI 0.21- 0.76) to 50% (OR 0. 51 CI 0.2- 1.1) less likely to receive VCT on the first visit than those who presented during weekday office hours. Rape survivors in the post-Intervention phase had a more than double the chance (CI 1.2- 4.3) of being offered VCT on the first visit than did those in pre-intervention phase.

Table 6: Logistic regression – VCT given on the first visit

(VCT on first visit 1= yes; 0= no)

Confounders adjusted for were: age less than 14 years (1= yes, 0= no); time of presentation (1= more than 72 hours, 0= less than 72 hours); position of HCW (1= staff doctor, 0 = community service doctor); sex of HCW (1= male, 0= female); time of hospital visit (1= weekday office hours, 2= weekday after hours, 3= weekend/ holiday); police involvement (1= No, 0= yes)

Variables	Univariate analysis		Multivariate analysis	
	OR	95% CI (P-value)	OR	95% CI (P-value)
Intervention				
Phase 1	1		1	
Phase 2	1.9	1.1- 3.4 (0.03)	2.3	1.2- 4.3 (0.01)
Age<14				
Yes	1			
No	1.4	0.7- 2.6 (0.29)		
Presentation				
More 72 hrs	1			
Less 72 hrs	1.3	0.6- 3.0 (0.4)		
Position of HCW				
Staff doctor	1			
CSD	1.3	0.7- 2.4 (0.46)		
Sex of HCW				
Male	1			
Female	1.2	0.7- 2.2 (0.5)		
Time of hospital visit				
Weekday off. hours	1		1	
Weekday a/ h	0.5	0.2- 1.1 (0.08)	0.4	0.2- 1.0 (0.04)
Weekend /holiday	0.4	0.2- 0.8 (0.01)	0.3	0.2- 0.7 (0.02)

Clients Who Used Rape Services

Characteristics of Clients Who Used Post Rape Services

Characteristics of those eligible to be interviewed are shown in Table 9. Those who were interviewed were similar to those eligible in the following ways; the majority of rape survivors seen were female and the mean age was above 19years. Most rape clients presented to the hospital within the 72hour window period and most rape survivors presented after regular hours. Rape survivors were seen mainly by CSDs and in most instances they were reporting rape incident(s) to the police. The characteristics of those eligible and those interviewed were significantly different in the following ways: a greater proportion of those who came for the interview had undergone VCT however, there were no significant differences in the HIV status of those interviewed as opposed to those who were not.

Table 7: Socio-demographic characteristics of clients– those eligible compared to those interviewed

Variable	Eligible N=312	Interviewed N=115	P- value
	n %	n %	
Sex (female)	277 (98.6)	114(99.1)	0.47
Age (mean)	19.4 (12.0)	19.7 (12.9)	0.85
Presented <72H	206 (73.3)	73 (80.2)	0.47
Presented weekend or after hours	175 (62.3)	63 (63.6)	0.53
Treated by CSD	166 (59.1)	68 (68.0)	0.18
Police involved	226 (81.0)	83 (93.3)	0.52
VCT done	176 (62.6)	77 (77)	0.00
HIV negative	154 (88.0)	69 (90.8)	0.32

A total of 115 interviews with rape survivors were successfully completed during the study period: in the pre-Intervention phase, 30 interviews were conducted and in the post Intervention phase eighty five (85) interviews were completed. Their characteristics are shown below in Table 10.

Table 8: Characteristics of client who used post rape services – Phase 1 compared to Phase 2

Characteristics		Phase 1 N = 30	Phase 2 N = 85	
		n %	n %	*P*- value
Total eligible (presenting to hospital)		159 (43.6)	206 (56.4)	N/A
Successfully interviewed		30 (18.9)	85 (41.3)	<0.001
Female		30 (100.0)	85 (98.8)	0.55
Age (mean)		16.1 (9.4)	21.1 (13.8)	Ha diff=0 0.95
Age <14 years		11 (36.7)	24 (28.2)	0.51
First point of contact	Hospital	7 (25.9)	25 (30.9)	0.63
	Police	20 (74.1)	56 (69.1)	
Median number of providers seen (IQR)		7 (6-9)	6 (5-7)	<0.001*
Presented < 72 H		24 (85.7)	68 (85.0)	0.92
Presented weekend or after hours		16 (64)	47 (63.5)	1.0
Treated by CSD		16 (61.5)	52 (70.3)	0.03
Police were involved in case		27 (96.4)	78 (96.3)	0.97
VCT done		21 (80.8)	56 (75.7)	0.60
HIV negative		18 (85.7)	51 (72.4)	0.34

* Kruskal Wallis test

Clients interviewed in the pre-intervention and post-intervention phases were similar to each other in all characteristics except the median number of providers they saw on their initial hospital visit (7 vs. 6 $P < 0.001$). Both groups were comprised almost entirely of females. The mean age was around 16.1 (9.4) in the pre-intervention phase and 21.1 (13.8) in the post-Intervention phase with no significant difference in the mean age for the two groups. Most of the rape survivors interviewed had notified the police thus most presented within 72 hours, and were treated by a community service doctor. Of the rape survivors interviewed, most rape survivors had had VCT done and of those who responded, most were HIV negative. However, those presenting to hospital in Phase 2 were seen by a significantly smaller number of service providers on their initial visit, compared to those in Phase 1. There was no change in Phase 2 in the number of rape survivors seen who were under 14years of age.

Medical Treatment

Medical treatment given to rape survivors as reported is summarised in the table below.

Table 9: Medical treatment of clients using post rape services: Compare Phase 1, 2

Medical Treatment		Phase 1 N= 21 n %	Phase 2 N=57 n %	*P*- value
Reports given EC given		5 (23.8)	41 (71.9)	P< 0.001
VCT		**N=26**	**N=81**	
	VCT done at all	23 (88.5)	67 (83.7)	0.26
	First visit	9 (34.6)	38 (46.9)	0.26
VCT location	**In OPD**	1 (4.3)	34 (50.7)	P< 0.001
	Elsewhere	22 (95.6)	33 (49.2)	
		N=21	N=55	
HIV negative		18 (85.7)	51 (92.7)	0.34
Median hours before first dose PEP (IQR)		22 (12-30)	12 (10-24)	0.16*
		N=10	**N=52**	
Received 28 day PEP first visit		4 (40.0)	29 (55.8)	0.36
Reported adherence: Adults				
AZT		**N=28**	**N=76**	
	Identifies as given	12 (42.9)	57 (75)	P< 0.001
	Knows what for	3 (25.0)	24 (42.1)	0.03[1]
	Mean # days taken	19 (9.3)	20.3 (9.0)	0.67
3TC	**Identifies as given**	11 (37.9)	56 (74.7)	0.00
	Knows what for	2 (7.1)	21 (27.6)	0.00
	Mean # days taken	21 (5.3)	19.3 (1.5)	0.7
EC		**N=19**	**N=64**	
	Identifies as given	11 (57.9)	31 (48.4)	0.69[1]
	Knows what for	5 (45.4)	22 (71.0)	0.13
	Both doses taken	7 (70.0)	26 (83.9)	0.08[1]
Reported side effects with PEP		3 (60.0)	23 (47.9)	0.09[1]
Reason for non-adherence	**Side effects**			
	Not given full 28 days	3 (50.0)	2 (4.17)	0.01[1]

* Kruskal Wallis Test

[1] Fisher's exact

Emergency Contraception (EC)

No significant change was seen in the number of pregnancy tests done among rape survivors eligible for pregnancy testing in Phase2 as opposed to Phase 1 (Table 6; 95.9% vs. 96.8 *P* 0.78). However, there was an increase in the number of rape survivors who reported receiving EC at the hospital in Phase 2 (23.8% vs. 71.9% *P*< 0.001, Table 11). Rape survivors were generally better informed about the reasons behind the testing of their urine and there was an overall increase in rape survivors who were clear what the reasons behind urine testing were (23.1% vs. 52.7% *P* 0.05). It should also be noted that while rape survivors received more pregnancy related information (*P* 0.01) there was no significant difference in information given regarding their pregnancy risk. Less than 20% of rape survivors recalled being given such information in both phases of the study.

Voluntary Counselling and Testing (VCT)

There was no significant change in VCT being offered to rape survivors at the first visit. The availability of trained VCT counsellors to provide VCT services in the hospital had been a persistent problem in the hospital and in the post-intervention phase. There was no significant difference in the issuing of 28day PEP at the initial consultation. There was, however, a significant increase in VCT being done in both OPD and other locations in the hospital (*P* <0.001).

Post Exposure Prophylaxis (PEP)

There was no significant change in the mean number of days overall, that rape survivors were taking AZT (20.0 days SD 8.9) and 3TC (19.5 days SD 9.7). In Phase 2, there was a significant increase in rape survivors who had received either AZT or 3TC and similarly there was a significant increase in rape survivors who knew what AZT and 3TC were for.

Rape survivors were asked about the most important causes of non-adherence. Less than half of those who were interviewed reported side effects. The main reason for non-adherence was not having been issued with a full course of PEP at the initial visit. However, the respondents for this question were few.

7.2 Qualitative Analysis

Key Informant (KI) Interviews

Key informant interviews were conducted with 19 key service providers involved in post-rape care at the study hospital, including: hospital nursing management; clinical director; VCT coordinator; senior medical officers and community service doctors; OPD chief professional nurses; nurse VCT counsellors and lay VCT counsellors . The following section highlights key themes relating to health care workers attitudes and experiences of providing care (EC, VCT, and PEP) to rape survivors. Informants were also asked about their perceptions regarding any changes in quality of care following the implementation of the study intervention.

Emergency Contraception (EC)

Most nurses interviewed did not openly express sentiments that suggested they were opposed to prescribing EC following rape. Instead, there were concerns that fears around correct prescribing practices might emanate from limited access to knowledge about EC.

> *"Maybe they don't know what should they prescribe, maybe they don't have the information. But if they have information, it is not correct for them to not prescribe... But it should be given that side according to my understanding, isn't it, having being raped it's a traumatic situation..."* Female CPN

However reluctance to prescribe was expressed in terms of the ethical problems that might be encountered in prescribing EC. These included concerns that prescribing to clients that were too young might "encourage them to abuse" EC i.e. indulge in unprotected sexual intercourse. Another reason cited for not prescribing EC was if the rape survivor was reportedly already using a regular form of contraception.

> *"I think for both (rape or consensual sex) it would encourage them to have sex or to use sex without a condom for leisure, knowing, 'I will go for emergency contraception' they would be careless in other words, not taking care of themselves*." Female CPN

> *"If she is on contraceptive already, she is on injectables she is quite sure she is taking contraceptives orally, everyday there's no need for you to give it, she's already covered."* Female CPN

However some felt it was not the place of the health care worker to deny rape survivors or anyone requesting EC that service. Other concerns raised by some

nurses were whether or not nurses other than professional nurses had the legal authority to prescribe EC.

> *"I think they just don't know but it's not for them to judge whether the person has been raped … there is nobody who is too young to get them, if you have had sexual act whether it was rape or whatever, you need to get help."* Female CPN

Voluntary Counselling and Testing (VCT)

The baseline findings found numerous obstacles to accessing VCT and PEP that were due to institutional and provider barriers, rather than client delays. These include the absence of VCT services during the after-hour periods (weekends and evenings) when most assaults present to hospital, as well as the absence of a clear pharmacy policy for dispensing PEP following sexual assault. Provision of VCT was a major bottle-neck in the provision of PEP to rape survivors. Providers' explanations for the lack of VCT availability at the hospital included: shortage of trained nurses; inappropriate selection of nurses sent for VCT training; reluctance of doctors to provide VCT; poor VCT coverage after hours; and general reluctance to perform VCT.

Shortage of VCT-Trained Staff and inappropriate Selection of Nurses sent for VCT Training

According to National DOH policy, only staff who had attended a 2 week VCT training course was allowed to do VCT. There were few nurses in OPD who had received this training. Health managers noted that it is difficult to send staff away to attend a 2-week training workshop on VCT. Moreover, senior nursing staff was usually sent for training, although they in practice, usually had less time than junior nurses to perform VCT. As a result, many staff who had been certified, did not implement their skills.

> *"Even those people who they sent for training, you know to send someone to go and train for this and when she comes back she doesn't practice that thing, I think that's a waste of money… Can you imagine if you take someone to go train VCT, when she comes back she's not doing VCT she's far from that."* Male Social worker

> *"I think they have trained the professional nurses, so the professional nurses, they have a lot of responsibilities and then the other thing they are short staffed. You find that in the wards I'm the only professional nurse. And then I'm supposed to do the ward round, give treatment and then supervise the others. Where am I going to have the time to sit down and counsel a person for maybe more than twenty minutes…"* Female CPN

Reluctance of Doctors to Provide VCT

Due to the emphasis placed on the need to undergo a structured VCT training course in order to provide VCT, this created a gap, where doctors might have otherwise had the ability to provide VCT they were restricted in doing this. However, providing VCT was not viewed (by most nurses or doctors) as an appropriate use of a doctor's time:

> *"A doctor cannot sit for such a long time, discussing the problems of a client. And doctors, they don't do the counselling because with VCT…It is expensive for him to can do that."* Female, Nurse in Management

"..it's not seen as a doctor's role... it's gonna be a stress if you have to do VCT. I mean we haven't pushed for it because it takes a lot of time and we have so many other things to do, but we could have challenged it." Female, Senior Doctor

Poor VCT coverage After Hours

Most rape survivors present after hours and over the weekends. It was during these periods that the most acute shortages of VCT trained staff were felt.

> *"We need to offer VCT for them to protect them, but the problem, some (nurses) they don't take it serious I don't understand why and maybe they don't understand rape as such. Because you find that someone is VCT trained but doesn't understand where mostly to apply that skill… If you don't offer VCT for such a rape case, some who are VCT trained don't understand what's the consequences, they don't understand the link so that, they won't wait."* Female Nurse in Management

While the hospital staff are aware of this problem no-one ultimately took responsibility for addressing this gap in provision of VCT after-hours.

> *"Yes, it happens, for example the group which were on duty, there was no VCT trained nurse. It's the problem of the management because for example here in OPD they allocate, even if there is not the sister who is VCT trained they can allocate a nursing assistant who is VCT trained. This nowadays, there is an increase of rape cases. They must plan."* Female, Snr Nurse

Lay counsellors had been considered as a possible alternative, however for various reasons no steps had been implemented to put this into practice.

> *"If you do something, you must think of the continuity of that thing, today I might have time but tomorrow I don't know if I'll have time. We should train more lay counsellors."* Male, Snr Doctor.

General Reluctance to Perform VCT

While most HCW were aware of the need to provide VCT from a moral and practical perspective, they were often afraid of the investment it entailed in terms of their limited time and the emotional toll it would exert on them.

> *"Full counselling can take one and half or two hours especially if the client is difficult you can take even two hours but if the client is ok, you can take one hour ..."* Female Snr Nurse

> *"Well it's very difficult because this person has experienced a trauma, so when you come out with this thing of HIV, she is now used up but there is no other way, I must give it because I must also save her somehow from another complication. It's strenuous, especially if the person is emotionally affected, so it needs more time you know usually you'd like to spend more time, with the lady for two hours, or with the person for two hours."* Female CPN

Although many doctors were qualified to perform VCT, many expressed anxiety about the perceived time required to perform VCT, although they had not actually gained first-hand experience with it. Because of this lack of experience, some doctors did not feel confident in providing VCT, even when they were called upon to do so for a rape survivor:

> *"I always have a feeling that I don't know if what I'm saying is the message that's getting across. That's one of the big problems to think about. Most of the time it has been with a rape survivor and working usually on call and at the back of you mind there's always happening with the queue at casualty…"* Male CSD

> *"I'll do it for the rape survivors and that's about it. I know from what I've heard, the problem with the rape survivors is that they don't come back…if you (don't) start them on the drugs which are available it's criminal so that is the big differential."* Male Community service doctor (CSD).

Post Exposure Prophylaxis (PEP)

Interviews suggested that quality of care provided to rape survivors by service providers was sometimes related to judgmental attitudes regarding rape, and those who have been raped. As the (male) pharmacist noted, he believes that many women actually lie about rape, and this in turn colours his reluctance to provide PEP:

> *"What frustrates me it's sometimes you find, I just have a feeling that these people sometimes they fake this issue of rape, sometimes they come after a week and they tell you that I was raped. When? Last week, so it seems like*

> *there was an agreement between those people but because of some of things which maybe someone didn't meet, or maybe the lady requested or something like that then she will go and say "o, I will go and report you and say that you raped me"* Male Pharmacist

This pharmacist's attitude proved to be an obstacle of particular significance to implementing prescription of 28-day PEP on the initial visit to eligible survivors (following baseline findings that few patients were able to return to hospital once the PEP starter pack had been completed). In spite of the 28-day prescription being included in the intervention's Hospital Rape Management Policy, the pharmacist continued to express concern that such pills would be "wasted" on women that had not really been raped.

Improvement in Rape Services

Positive sentiments were generally expressed about the overall changes to rape services as a result of the intervention.

> *"The changes are very good because the person used to wait for hours, I wouldn't know what to do and maybe you just find that person sitting on the chair without whatever and she starts mentioning the problem and everybody is looking at her which is not nice. But for now, it seems the services are very good because people are getting treatment immediately unlike they had to wait for long hours."* Female CPN

Regarding the expanded role of nurses, most health care workers felt optimistic about expanding the role of nurses in post rape care management. Some HCWs expressed reservations about a number of issues, in particular, potential medico legal challenges.

> *"I think how we trying to do it, trying to mentor…I think it's a good idea but I think it's something that comes with practice. I do think they could do it, it's just a case if them gaining confidence" Male* CSD

> *"I think that's great, I think that legal thing needs to be clarified but I think eventually it would be good if the forensic nurses could do the whole thing"* Female Medical Officer.

8. DISCUSSION

The study was designed incorporated two phases, a pre-intervention (baseline) phase which started in May 2004, and a post-intervention phase (phase 2). The baseline phase involved an assessment of existing experiences, practices, and services for post-rape care at the client, provider, sector, and community levels. In Phase 2 (March 2005- August 2006, a 5-part intervention was introduced, as described earlier.

The baseline study showed that provider attitudes impact on the quality of care offered to sexual assault survivors. Sexual assault practitioners may perpetuate secondary victimisation of rape survivors as a result of these attitudes. Less than a third (28.4%) of health care workers around the country did not think rape serious [7].

The increase seen in the recorded HIV positive cases may be due to the introduction of a standard reporting form as part of the intervention and concurrent introduction of a new system for consent for HIV testing. In many instances, HIV results were not recorded on this form neither were the VCT consent forms retained in the patient charts. This might account in part for the change in numbers of HIV positive and negative clients between phases. While HCW were generally offering the full package of services, there are some areas that can be improved on from a counselling perspective with regards to assessment of risk of contracting HIV and unwanted pregnancy. The lack of adequate counselling and poor record keeping might be reflected in the increase in numbers of HIV "unsure" clients.

Emergency Contraception (EC)

It is evident from the health care provider surveys that knowledge about the provision of emergency contraception to rape survivors showed a marked difference in the post-Intervention phase. Health care workers' knowledge about the correct dosage in prescribing EC(10.3% vs. 61.9%; OR 12.5 CI 2.7- 55.8) and timing of EC (22.7% vs. 79.0%; OR 12.4 CI 2.5- 60.7) changed significantly in the post Intervention phase. The results supported the role of training on rape medical management, even if the training workshop on its own was not solely responsible for

the changes seen. The intervention contributed considerably to the improvements in EC prescribing and the use of anti-emetics.

From the patient chart reviews, one might argue that there was limited room for improvement as most eligible rape survivors were not only being offered pregnancy tests but they were also being given EC (100% vs. 98.4% *P* 0.57). An impediment to making a conclusive decision about overall improvement in EC provision was the limited recording of pregnancy test results and pregnancy related information in patient records. In addition to and as a result of this, the numbers of rape clients eligible for EC were small (small denominator), thus, proportions of those who received EC could be overestimates. Regardless of this fact, while correct prescribing patterns might have been well established, knowledge gains might have be ancillary and had no direct bearing on altering these habits. Consequently, improved knowledge about EC prescribing might possibly not be directly pertinent to immediate medical management but could be important to overall post rape care. The findings from the survey of clients using rape services support these findings. However, there is no evidence to suggest that HCW were giving better medication counselling about EC as they gave it.

It is certainly evident that HCW were more conscious of the need to provide antiemetics as the intervention increased the likelihood of giving antiemetics (17.2% vs. 36.9%; OR 1.6- 5.8). However, the majority of rape survivors receiving EC were still not being offered Maxolon.

In most instances emergency contraception (EC) studies have not been done among survivors of sexual violence, however, some inferences might be possible to this population of women. In the United States, approximately 30% of rapes happen to women under the age of 18years. "Fecundity among very young adolescents is not as high as that of adult women, but adult women are far more likely to be protected against pregnancy when raped because they are using hormonal contraception or are sterilised" [(41)]. The risk of pregnancy after sexual assault where the woman is not protected by some form of contraception is between 2% and 4% [(42)].

Despite evidence for the effectiveness and safety of emergency contraceptives, they are generally underused as a method of preventing pregnancy. Barriers to their use

include lack of knowledge, and lack of timely access to health care providers and facilities [43]. According to National guidelines, women of child-bearing age who are otherwise sexually active and not adequately covered by a contraceptive should receive a pregnancy test; and where it is negative they should be given EC. It is also important to exclude pregnancy as it might affect the type of treatment prescribed (e.g. STI regimen) and to indicate whether the pregnancy preceded the rape. In the baseline study, although the majority of rape survivors were at risk of pregnancy and eligible for EC, only 31% received a screening pregnancy test, and only 62% actually received this treatment [40].

The qualitative data showed consistently high EC prescription patterns for those who received pregnancy tests and at first glance, one might think that if there were any problems with the provision of EC, these would be minor. Qualitative findings gave some insight into a few issues that HCWs had with prescribing EC in general and with prescribing EC to rape survivors. Previous studies have shown it is not uncommon to find extremely judgmental attitudes from some providers. This is to the degree that there are instances where providers have refused altogether to give EC to women not using a regular form of contraception [44] or offer EC only to rape survivors [45]. Some HCW noted they only gave EC to rape survivors who were not using a regular form of contraception.

The issues that emerged from the KI interviews were largely about HCWs own attitudes to prescribing EC and ethical problems that the prescription of EC presented. While many nurses felt everyone had a right to receive EC, some were not so keen to make EC available to all rape survivors as they felt; ultimately it might promote careless use of EC. Another opinion that some HCW held was that the provision of EC to teenagers promoted unprotected sexual intercourse.

It has been found to be a common concern among family planning experts, that women “abuse” EC, instead of using regular contraceptive methods. Existing evidence does support the view that empowering sexually adolescent women with emergency contraception increases reported unprotected sexual behaviour [46].

Some HCWs were concerned that prescribing EC to young rape survivors might put them in a compromised position, particularly if it was done without a medical

practitioner or pharmacist present. As a result, they were reluctant for the prescription of EC to be delegated to professional nurses.

The service delivery realities of emergency contraception, however, are still poorly understood, and the literature on this topic outside of the United Kingdom is sparse. Despite highly variable levels of knowledge and use of EC within the industrialised countries and globally, users express concerns about the method, its availability and possible known side effects [47].In countries where the method is new, health concerns are particularly pronounced. For instance, in Kenya, Muia et al.[48] reported that about half of family planning clients surveyed were worried about the health risks that emergency contraception might entail and similarly concerns were found in Mexico City[49]. However, views and concerns expressed in the KI interviews were quite different, few of which were related to the health consequences of rape survivors.

Voluntary Counselling and Testing

While existing protocols make provision for initiating therapy within 72 hours, the rate limiting step is the experience of health care workers in providing VCT services and prescribing ART. The provision of voluntary counselling and testing (VCT) is a problem particularly in rural areas. In the baseline study, it was found that although 86% of cases present to hospital within 72 hours of the assault, only half received VCT. Of those who managed to get tested, the majority of adults (70%) and children (93%) were HIV negative. Although there was a decrease in numbers of HIV negative rape survivors in the post-Intervention phase (Fig 1), there was also a significant increase in charts where the HIV result was poorly recorded or omitted from these charts. This resulted in numerous charts where rape survivors' HIV status was uncertain.

From the client survey, a greater proportion of those who were interviewed had undergone VCT than other eligible clients (62.6% vs. 77% $P< 0.001$). However, there was no significant difference rape survivors who were HIV negative (88% vs. 90.8% P 0.32). Due to the challenges faced by the hospital in providing extended post rape care (up to 6 months) statements made about rape survivors HIV negative status are subject to change as a result of rape survivors that might have subsequently sero-converted.

Among those HIV negative clients eligible for PEP, 19% of adults and 46% of children failed to receive any PEP at all, besides a stat dose of PEP which was initiated as part of hospital's rape management policy. This matter will be further discussed in the PEP section. Regardless, these clients were disadvantaged typically because they presented after-hours (weekend or evening) and the tendency to present at these times is consistent with the pattern within which most rape crimes occur i.e. during weekends and holidays. It was also during such periods that VCT services were generally unavailable. By the time clients returned for testing, the 72-hour window for PEP had lapsed. Thus, among all those who received a starter pack during their first visit, only 14% managed to return and complete the full 28-day regimen [(40)]. This is not a unique finding in South Africa, as it has been observed in Kenya [(50)] and abroad [(51)].This suggests that the problem lies not in whether or not sexual assault survivors present in time, but in other factors that prevent their access to VCT services.

While access to VCT remains limited, (particularly outside of Southern Africa), with most testing still primarily hospital based and at the late stages of clinical disease (HIV/AIDS). Same day results are generally not available and often patients need to travel a long way to obtain results [52]. The experience at the study hospital was not a dissimilar one.

The patient chart showed significant changes in the provision of VCT services to rape survivors, particularly at the first visit (44.1% vs. 59.6% *P* 0.06). Rape survivors who presented after the intervention were more likely to receive VCT on the first visit (OR 1.6 CI 1.24- 4.28). Female HCW were 2.4 times more likely to give VCT than males. This could be due the fact that more nurses, who were the first to attend rape survivors, were female. It could also be due to a more empathetic attitude from female HCW.

Rape survivors' responses contrasted the patient charts with regards to VCT being done (88.5% vs. 83.7% *P* 0.26) with no improvement seen. In the patient chart there was an increase in VCT. Clients' responses might have been influenced negatively by recall bias, following memory impairment as a consequence of the traumatic nature of the consultation. However, the fact that these results did not concur might also have been due to problems with the quality of counselling given by the HCW at the initial visit. The improvement seen in VCT location is most likely due to increased usage of the privacy provided by the consultation room in OPD (which was set up as part of the intervention) which resulted in less VCT being done elsewhere (95.6 vs. 49.2% $P< 0.001$).

This leads one to the conclusion that there is still room for improvement in how the hospital provides VCT to rape survivors, particularly after hours. The intervention was successful in improving rape survivors' access to VCT on the first visit to the hospital.

Providers were aware of the limitations on VCT services, which was a problem found in the qualitative findings. From the KI interviews, HCW expressed frustrations about their fears, that providing VCT added an additional burden to their already heavy workloads. They noted also, that counselling rape survivors was particularly

challenging, as a result of the natures of the trauma and the consultation which they felt was emotionally demanding. Another concern expressed was about limitations on their time, in light of the time it took to manage rape survivors and staff shortages.

Certain HCW were willing to make a compromise and provide VCT to rape survivors after hours, however, the delineation of whose role it was ultimately to provide this service might have contributed to overall apathy. Some HCWs' felt the hospitals' response did not contribute to motivating staff. Paradoxically, it is most likely that senior management staff thought they were contributing to the alleviation of work pressure from doctors. This stance was more divisive than otherwise, where a collective response to affect service delivery would have been more appropriate.

The major challenges facing the hospital with respect to providing VCT were the deployment of staff and having sufficient numbers of qualified staff to deliver the service. While the hospital sends HCW for VCT training, the deployment of VCT trained staff in OPD is a problem as they are rotated into new units at regular intervals in the year. There was a clear sense from the HCW of the need for the hospital to make better provision for the training of HCW in VCT. What emerged as a significant problem was the retention of skilled staff in the more critical areas that required VCT services, particularly after hours, when there was leaner staff compliment. This is also when most rape survivors present.

While there was an improvement in the number of rape survivors receiving VCT in OPD, no-one was willing to accept ultimate responsibility for the staff allocation shortages when VCT services were found to be wanting. There is still opportunity to explore other avenues of alleviating staff shortages. Where lay staff are in shortage, professional nursing staff have assumed a greater counselling responsibility in other contexts [53], while this might provide short term solutions it could result in suboptimal utilisation of skills such personnel.

It had been the practice of the hospital to send the most senior professional nurses for VCT training. While some HCWs expressed concern about the time staff spent away from the hospital, others felt that this amount of time was justified. An issue that emerged was about the possibilities for the content of the VCT training course to

be adapted according to categories of staff by levels of training. It was also felt that, in many instances, it was inappropriate to send senior professional nurses as they had numerous concerns competing for their time. This meant that although they had the necessary VCT training, they were unable to be effective in a VCT counselling capacity due to these constraints. The supply and deployment of staff qualified to provide effective counselling and testing needs to be determined in accordance with existing and expected service loads. This is a matter requiring serious consideration, particularly in light of the fact that health systems will lose a formidable staff compliment to HIV/AIDS [52].

Staff shortage experienced at the study hospital is not unique. The country as a whole is experiencing a loss of skilled personnel, most notably from areas of low socio-economic development to more developed areas. This creates a health crisis in countries, such as this one, that are battling with conditions of extreme poverty and the irreplaceable loss of human resources [34].

The shortage of health workers in Southern Africa is exacerbated by the effect HIV/AIDS has on the health system as a result of absenteeism dues to illness, social or family obligations. Nearly 80% of all health care facilities in South Africa have expressed a need for more staff [54] with the absolute lack of skilled nurses being an important issue. Experience has shown that the effects of staff shortages on remaining staff are an increased work load on more junior, less experienced staff with consequent burnout and further attrition [55] [53]. In light of this, it is surprising that there was the appearance that the hospital had not yet made provision for this eventuality and started reorganising service provision to address these eventualities.

This situation is worsened by health workers exposure to increased risk of infection [52] and heightened perceived risk both of which affect health care workers' behaviour. Inadequate levels of knowledge increase psychological stress to workers and the fear of transmission and "social contamination" [52]. Many HCWs felt that working in HIV services would create a stigma in their social environments. This could compound factors encouraging exodus of health personnel and also result in a compromised ability of HCW to be sensitive to patients' needs [55]. While confidentiality was not seen to be compromised in the hospital, some HCW felt that rape survivors might feel self conscious when seen by HCWs from their communities.

It has been found that health care workers experienced increased stress levels and discomfort when patients are from the same communities as them, particularly when discussing and addressing sexual dimensions of HIV/AIDS [52].

Ultimately it is rural areas that are the worst affected as while movement of health care workers is bi-directional, movement to rural areas happens in smaller numbers. The rate of movement between cadres of health personnel differs and might have an impact on the quality of personnel that remain [34]. VCT related issues are institutional and not easily remedied. Longer term, practical institutional commitments that take into greater account the social context of the HIV/AIDS and sexual violence epidemic are necessary, particularly at senior hospital management level.

Post Exposure Prophylaxis

The results show that there was an improvement in knowledge in Phase2 about when PEP must be given (21.1% vs. 89.5% *P*< 0.001) and what the correct PEP regimen was (6.9% vs. 28.6% *P* 0.04). Health care workers, however, did not answer correctly questions, around the two scenarios outlined, regarding when PEP should not be given and there was no significant improvement in the post-Intervention phase (7.7% vs. 5.6% P 0.96). Despite training, HCW still demonstrated uncertainty about when to and when not to use starter packs (25.9% vs. 35.0% *P* 0.50). The limited ability of HCW to answer correctly questions around when PEP should not be given could be related to how the question were asked and poor motivation to answer the questions correctly. However, it is more likely that HCW that had developed a personal or professional interest in familiarising themselves with rape protocols coupled with some experience in providing post rape care fared better in answering the question. Nurse generally answered those scenarios better than doctors did, possibly due to their familiarity with dispensing PEP and working with sexual assault survivors in OPD. While previous training is important, medical staff trained in the use of sexual assault protocols in Limpopo province was few[7]. Furthermore, it is probably those who create their own standards of care who will benefit most from being training and experience in good clinical practice.

The intervention had the greatest effect in raising awareness on which rape survivors qualified as being eligible to receive PEP i.e. more HCW understood the urgency in

providing PEP within 72 hours and the need to provide it at the first visit. Nurses were found to have a 4.4 times (CI 0.9- 20.3) greater likelihood than doctors of knowledge about PEP timing, despite a slightly higher number of doctors who completed the health care providers' questionnaires. However, even though there was an increase in correctly answered questions about knowledge of the standard PEP regimen (6.9% vs. 28.6% P 0.04), the role of the intervention was not significant.

It was found in the baseline study that the rape survivors experienced delays in obtaining their first dose of PEP. During the post-intervention phase there was a marked increase in the numbers of rape survivors who were given a stat dose of PEP (as mentioned earlier, this became part of the hospital's rape management policy) (0.0% vs. 97% *P*< 0.001). The survey of clients using rape services demonstrated there had been a non significant decrease in the median number hours to the first PEP dose (22hours IQR 12-30 vs. 12hours IQR 10-24; *P* 0.16). It is encouraging that the median time was under 24hours, as it has been shown that taking the first dose of PEP as soon as possible, within 72 hours, to potential exposure significantly lowers the risk of infection. Animal studies suggest that PEP is not effective when started after 24- 36 hours it is not known when the protection to humans is lost [(56)] [(57)].

The provision of 28day PEP, at the initial visit for eligible rape survivors, occurred late in the post-Intervention phase and was introduced after much negotiation with significant resistance from HCWs in the pharmaceutical services. Averse attitudes are not only limited to doctors and nurses but to others, such as pharmacists, to the extent that they can impede rape survivors' access to the full course of PEP. It is a concern, when their perceived eligibility is measured against whether they may be "lying about rape" and whether or not provision of these "expensive drugs" is indeed warranted [(40)].

Significant strides were made in an effort to ensure eligible rape survivors had access to PEP at the first visit. While there are cogent reasons why this practice could be harmful to rape survivors, the benefits outweigh the risk. The data suggests rape survivors would be more amenable to treatment completion if they were given the full course of PEP (Table 11 reasons for non adherence). Despite the fact that full

28day PEP is available to eligible rape survivors, HCW attending to rape survivors need to make a more conscious effort to ensure that rape survivors are given adequate medication counselling. This implies a greater investment in supporting rape survivors to a level at which HCW are comfortable that clients will be able to complete their course of treatment from an informed position.

While most HCWs supported giving the full 28day PEP course, many had reservations about whether or not rape survivors would adhere to their treatment. In the baseline study, it was found that there were attitudes among HCW that had the potential to impede rape survivors' access to the full course of PEP. There was a concern, when some HCW expressed sentiments about the perceived eligibility of rape survivors, which was measured against whether or not they were "lying about rape" and whether or not provision of these expensive drugs was indeed warranted[38].

Although there were a small number of responses to adherence related questions, it is evident that clients were continuing their medication for at least 3 weeks (AZT 19.0days vs. 20.3 days *P* 0.67). It is difficult to say what overall adherence was, however, there was no indication that medication counselling had improved. As could be expected, there was no increase in the duration rape survivors took their medication and in resultant completion of the full course. In fact, a slight decrease in the mean number of days PEP was taken was evident. The reason preferred for non adherence was due to a short supply of PEP, which was also noted in the baseline study as a problem which was compounded by poor socioeconomic circumstances and limited mobility. Challenges to adherence become an issue especially where patients are from rural areas and inadequate transportation poses a major barrier too [53].

In a study where complete medication counselling was given: 71% of the clients accepted PEP all of whom were higher risk clients, where the assailant was known to be HIV positive or where there was a known high risk exposure to HIV. Only 8 clients completed the course. Various reasons were given for failure to complete the course were related to the fear of/ incapacity from effects to changing one's mind[51]. This remains an area warranting further investigation, particularly in a context such as the South Africa one, where the motivation to adhere to PEP following rape may be different from that found in industrialised countries.

In non-occupational exposures to HIV as a consequence of sexual or drug use exposure, PEP adherence rates of 70-80% have been quoted [22]. Lack of adherence to the full ART regimen has been documented among health care workers taking PEP following occupational exposure in France, the United Kingdom, United States, and Canada[42]. Similar findings have been noted with PEP provision following sexual assault in poorly industrialised countries. The issue of non-compliance with therapy (whether due to drug side effects or other factors) is a matter of concern in South Africa due to the theoretical risk of reduced efficacy, as well as the risk of generating drug resistance[58].

ARVs in South Africa

While Limpopo was the last province to start ARV rollout and Mpumalanga has showed poor performance compared to other province, a third of health care facilities have noted that the ARV programme has strengthened drug supply and management systems [53].

8.1 Study Limitations

The study used a pre-post design, and it would have been ideal to have a control group. However, for logistical and ethical reasons, this was not possible. Thus, it is not possible to exclude other factors, (e.g. temporal improvements), when attributing observed changes to the study intervention. In addition to this the HCW populations studied in the pre- and post-intervention phases were not identical. Due to the high turnover of such staff during the study, background information on the characteristics of this group was not readily available. Therefore, it is difficult to conclude that the intervention on its own was the cause of changes seen. Changes seen in the post-intervention phase in the health care provider survey were most likely due to the environment created by the intervention that enabled easy access to information about post rape care management. The low response rate from HCWs illustrated the difficulties encountered in obtaining respondents. Some of the main challenges were the high turnover of CSDs, staff reluctance to complete questionnaires and difficulty in accessing complete records that documented staff placements. However, due to the poor response rate from HCWs, lack of random sampling probably introduced a respondent and information bias into the study in favour of the HCW workers who were more motivated to provide post rape care services.

In terms of introducing potential selection bias, the pre- and post- intervention populations sampled from the patient charts and from clients using rape services were well matched. Similarly those eligible for the client using rape services' survey and those actually interviewed were generally similar, although there was a significant difference between the eligible group and interview group, in that those who returned for interviews had had VCT done and a greater proportion of this group was HIV negative. As a result this might have skewed results. Responses to VCT and PEP related questions might have been more optimistic than was the reality and this impacts on generalisability of the findings. Limited sample sizes in the client using rape services survey also resulted in wide confidence intervals for some questions.

Standardised, objective tools were used to capture data from the patient charts and in the survey of clients using rape services. However, for practical reasons, it was

not possible for researchers conducting the patient chart reviews and interviewing rape survivors to be blinded to the pre- and post-intervention status of the subjects. Thus some observer bias is possible, if for some subjective judgments, researchers were more likely to report indicators in a favourable direction during the post-intervention phase. It is likely that patients being interviewed during the interviews of clients using rape services would have been unaware of the study intervention period, and thus would have been blinded to their own pre-or post-intervention status, minimising reporting bias. Although it is possible they may have been inclined to report favourably about services at the hospital, it is unlikely that this would have differentially affected the pre- and post-intervention populations.

The use of non-probability sampling for key informant interviews was the best sampling strategy despite the loss of randomness in the sample chosen. Key informant interview samples are selected in a non-random fashion – in this instance a purposive sample was chosen obtain maximum information and optimise information gleaned from other key informants. It is useful for qualitative research as it is opportunistic and guided by judgments informed by results of Phase 1 data. Systematic error could be introduced as individuals identified could share common characteristics other than just being health care workers at the same hospital. The other limitation is the tendency for KI to want to give the most acceptable answers in line with the national treatment guidelines that would give the best possible reflection of the quality of the service.

Finally, the study was limited to a single rural hospital, which allowed an in-depth understanding of the challenges and opportunities for strengthening post-rape services in a resource-poor rural setting. Although instructive, further studies in other settings would be useful in understanding the generalisability of the findings.

9. CONCLUSION

Rape is a contentious issue in society and has received a fair amount of sensational coverage in the media. The restructuring of health services, in particular rape care, happens within this milieu therefore it is not surprising that rape services are faced with numerous challenges. While the Department of Health, civil society and other legislative bodies engage on changing the laws around the health response to gender based violence, at a facility level adequate provision needs to be made for effective rape care.

The KI interviews were useful in drawing out why systematic obstacles to VCT and PEP were difficult to address. In particular, the shortage of trained VCT providers was cited repeatedly and this was exacerbated by the reluctance of all HCW to perform VCT. In the context of South Africa's HIV epidemic, this shortcoming is particularly worrisome, and has implications that go well beyond provision of PEP to rape survivors. Attitudes to EC varied, but in general, HCW seemed willing to provide it in the context of rape. In the context of consensual sex, however, some expressed concerns regarding its potential impact on recipient's sexual behaviour and risk taking. Further research in this area would be valuable, as it was a minor component of this study.

Findings from the health care providers' questionnaire revealed low levels of knowledge at baseline. In general there were improvements seen over the study period, although given the turnover of staff during the study period, it is likely these changes could be attributed to a number of factors including the intervention.

Finally, findings from the patient charts and they survey of clients using rape services both reflected general improvements in accessibility of VCT and PEP. Given the small sample sizes of the clients using rape services, it was impossible to determine whether there were any effects on PEP adherence in this study, and further research would be useful.

There were not significant changes in EC observed in this study – however given the relatively good provision of EC to those who were pregnancy test negative means that it would be of benefit that more emphasis be place on offering pregnancy tests

more consistently. The hospital could take greater strides in improving EC access to rape survivors in this way. Solutions outside the public health system could benefit rape survivors and reduce the risk of unwanted pregnancy.

The improving sexual assault services hinges on demonstrable commitment from senior management officials to providing good quality post rape care. As improvement of documentation of care provided to rape survivors is a vital indicator to improving quality of care and it has important medico legal benefits too. Attitudes are not always easy to change, however the systems put in place can be designed to make the most of individuals who are willing to make a difference.

10. RECOMMENDATIONS

The following Recommendations arise from the study, and may be of relevance as the South African government plans to scale-up PEP, and implement the National Guidelines on Management of Sexual Assault.

1. The selection of HCWs with an interest working with rape survivors; experience in this area and experience in working in facilities where there were existing rape management protocols would be an important anchor to more junior staff.
    a. Designating specific staff to provide sexual assault services
2. Given the economic and social obstacles to returning to hospital after the initial visit, wherever possible, post-rape care should be delivered on first visit – don't count on follow ups.
    a. Lessons learned from the Baseline study were how few rape survivors came back for full PEP after being given a starter pack
    b. Even with a travel stipend for interview, only 34.4% (115) returned

3. Post rape service should be seen as integrated into HIV/RH services. Integrating programmes for HIV/AIDS and STI with reproductive health, child health and rape care services, has been shown to be a cost effective response to the epidemic [13, 52].
    a. Everything needed is there at the hospital (no stock-outs were reported during this study), but may need some re-organising to avoid fragmentation seen at baseline.
    b. There hospital needs to employ strategies that result in optimal deployment of staff to gain full benefit from available skills [55]. This would include reviewing the skills mix of health workers which includes revisiting job descriptions, especially where skills are in short supply[55] ,[59].
    c. Hospital policies which incorporate clerks, pharmacy, labs, HIV services, medical staff are critical in this re-organisation(improvements were seen e.g. fewer providers seen)
4. Designated OPD room critical
    a. Privacy raised by nurses – simple – extend walls, lock on door.

b. Not just a “soft” concern, but practical: Locked cabinet and routine stock checking are needed to maintain pregnancy tests, HIV tests and meds in one place (pharmacist expressed this as a concern)

5. National policy important but important to translate into formats that are locally appropriate and usable (e.g. hospital rape management policy). Hospital Policies also protect against personal beliefs/attitudes influencing the interpretation of national guidelines, particularly around PEP
6. Protocols are advantageous in that they systematise behaviour and make it easier for providers e.g. standard clinical care charts where HCW only need to tick off meds, nurses are empowered to dispense with checking by a doctor
7. Most obstacles to PEP are institutional – patients present in time, most HIV negative - but VCT availability is bottle neck – particularly after hours.
    a. The way most services currently organised PEP may be the last step in the hospital visit – further delaying time. Stat PEP instituted – and likely responsible for reducing delay to first dose
    b. Hospitals should consider who is being sent for VCT training senior nurse who don’t implement. The use of junior nurses and lay nurses is important. However, hospitals should have in place strategies to train all staff that interact with clients to provide VCT as part of generalised role expansion, particularly in a rural context
    c. Upgrading skills and knowledge on the job where possible[55]- which would could be an investment undertaken with surrounding health facilities (hospitals means which would reduce disruption for staff leaving posts).
8. Nurses’ need to take on a more central role in providing post rape care treatment and HIV care [60]. Nurses can play an expanded role – However, high turn-over of staff jeopardises this. Cooperation with other sectors is critical (e.g. police, SW)
9. It is important to involve workers in the design and implementation of reform. Training is frequently used as a substitute for participation and seldom achieves true commitment [61], this has implications for the priority given to PEP and sexual assault care.

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Greatest of all, to my parents: God my source of strength and inspiration, to my beautiful mother and my wonderful father whose light provides me with warmth and guides my path. It's been a blessing to be your child.

Sparse and thinly spread is the moss on the road you walk,
Yet I hear the far off gurgling of the underground stream.
At foot of yonder hill a tuft of green I see;
Tread on, pebble- counting pilgrim, the soothing water
Beckons.

(NR Dwane, Grieving Mum)

12. DISSEMINATION OF FINDINGS

The project has been actively involved in dissemination of findings throughout the research period. At the request of the PEP Coordinator at National DOH (Women's Health Sub-directorate), the project will continue to share research findings and lessons learned at their ongoing Quarterly Sexual Assault meetings. RADAR also participated in a number of national and international activities relating to research dissemination and the policy process. Two abstracts based on this study were presented at the 12th Priorities in Reproductive Health and HIV Conference in Stellenbosch, South Africa (Oct 18-21, 2005). Another abstract based on the study was given by the candidate as an oral presentation at the PHASA (Public Health Association of Southern Africa) Conference, Johannesburg (May 13-17th, 2006). This work was also presented to the London School of Hygiene and Tropical Medicine Centre for Research on Gender, Violence and Health (May 29-30, Brighton, UK). In addition, RADAR presented their experience and contributed to drafting international guidelines on non-occupational PEP, following participation at the WHO/ILO Expert Consultation for the Development of Policy and Guidelines on Occupational and Non-Occupational HIV Post Exposure Prophylaxis in Geneva.

Finally, on March 29th, the study results were presented at the Acornhoek Police Station to the local Project Advisory Committee (PAC) including hospital management, healthcare workers, pharmacist, social workers, police, and prosecutors. A final project report is being written for Population Council (by the PI as part of the larger study). Papers will eventually be submitted for peer review publication.

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14. APPENDICES

15. APPENDIX A – INFORMATION SHEET AND INFORMED CONSENT FORMS

Good Day

My name is Dr Zuko Dwane (and Dr Julia Kim), I am from the School of Public Health, (University of the Witwatersrand) and working with Refentse. Refentse is an operational research programme to improve post rape care services in the hospital. I would be most grateful if you would consider participating in this work.

Why are we doing this? In line with hospital policy, post rape care services include comprehensive medical examination and treatment for all rape survivors. The medical treatment provided includes treatment for sexually transmitted infections, prevention of pregnancy and prevention of HIV (post exposure prophylaxis, PEP). Following a baseline study that was done by Refentse in 2004 it was found that most rape cases present to hospital within 72 hours – early enough to qualify for PEP and emergency contraception. However due to socioeconomic issues and the absence of VCT after hours and over the weekend only a fraction of those who qualified for PEP actually received the full 28 day course of treatment.

What do we expect from the participants in the study? The purpose of the interview is to explore the provision of rape care at Tintswalo Hospital, learn where there are problems, and explore potential interventions. Hospital records will be examined to look at the provision of VCT, PEP and emergency contraception to rape survivors. Questionnaires will also be administered to health care workers and social workers who were at the hospital during the baseline data collection period (between October 2004 and April 2005) to assess their knowledge, attitudes and practices (KAP) around these issues. Your participation will be appreciated as it could contribute to our understanding of various aspects about the provision of these services including VCT and emergency contraception within the hospital.

Are there benefits to the participants? Yes. After gathering information from all the relevant stakeholders, Refentse will develop interventions and make recommendations based on the information we have been given. It is people like you that are working directly with rape survivors that are better able to see what is needed and what can be done. In addition, at the end of the study we will present out findings to the hospital management, local and provincial stakeholders through the project advisory committee meetings for further comment and to answer questions.

May I withdraw from the study? Certainly, you may do this at any time without having to give a reason. Remember that the study is completely voluntary and not taking part in it, or withdrawing from it, carries no penalty of any sort.

What about confidentiality? Confidentiality will be maintained by the use of a code instead of names on all results. Only the two researchers will have a list of names and codes to enable the code to be linked to a particular participant. This list will be kept locked in an office.

If you have any queries, more information may be obtained from Dr Zuko Dwane or Dr Julia Kim at telephone number (013) 795-5076.

Should you have any complaints regarding the way the study is being conducted, please contact Ms Anisa Keshav (REC Administrator) 011 7171234.

If you are happy to take part in the study, please read and sign the attached consent form.

Thank you

Dr Dwane and Dr Kim

Informed Consent Form for Key Informant Interviews (1)

Study I.D. Number for the respondent: _____

Background:

My name is Dr Zuko Dwane, I am from the School of Public Health, (University of the Witwatersrand) and working with Refentse. I would like to invite you to participate in a post rape care study by allowing me to interview you. I will be collecting information from various HCWs, clients and community members in the hope of identifying areas in rape care where services could be improved.

In line with hospital policy, post rape care services include comprehensive medical examination and treatment for all rape survivors. The medical treatment provided includes treatment for sexually transmitted infections, prevention of pregnancy and prevention of HIV (post exposure prophylaxis, PEP). Following a baseline study that was done by Refentse in 2004 it was found that most rape cases present to hospital within 72 hours – early enough to qualify for PEP and emergency contraception. However due to socioeconomic issues and the absence of VCT after hours and over the weekend only a fraction of those who qualified for PEP actually received the full 28 day course of treatment.

Purpose of this interview:

The purpose of the interview is to explore the provision of rape care at Tintswalo Hospital, learn where there are problems, and explore potential interventions. Your participation will be appreciated as it could contribute to our understanding of various aspects about the provision of these services including VCT and emergency contraception within the hospital.

Explain what will happen to the information:

During and after our conversation, I will be recording your opinions and concerns. After gathering information from all the relevant stakeholders, Refentse will develop interventions and make recommendations based on the information we have been given. It is people like you that are working directly with rape survivors that are better able to see what is needed and what can be done. Your participation is voluntary and you may refuse to answer any questions or stop the interview at any time.

Confidentiality

The interviews will be conducted in a private setting within the compound. Your name will not be recorded on the transcriptions from this interview or any document related to the study. You will be given a study identification number that will be used in place of your name on the interview.

Consent to Tape Record Interview

With your permission, I would like to tape record our discussion so that I will be able to keep track of all your comments and suggestions. All information that you provide will be considered private and confidential and will be used only for purposes of this study.

Any report from this study will not use your name or any other information that may identify you.

If you have any further questions you may contact the study **Principle Investigators Dr. Zuko Dwane, Dr Julia Kim** at the RADAR office located in Tintswalo Hospital **(Tel. No 795 5076 / 795 5082).**

Informed Consent Form for Key Informant Interviews (2)

Do you agree to be in this study as a volunteer?

Yes
No

Do I have your consent to interview you?

(1) Yes
(2) No

Do I have your consent to tape record the interview? (Please note that if you do not wish to have your interview recorded, you may still be included in this study)

Yes
No

Investigator's statement

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and benefits involved and have:

Obtained
Failed to obtain his/her consent to participate in the study.

I have:
(1) Obtained
(2) Failed to obtain his/her consent to tape record the interview.

_____ _____
Interviewer signature Date

_____ _____
Interviewee's signature Date

16. APPENDIX B: KI INTERVIEW WITH SERVICE PROVIDERS ABOUT VCT

Goals:

1. To explore potential obstacles to provision of VCT at Tintswalo Hospital

Notes:

1. Leave questions open ended, use probing questions only if responses are not covering the desired issues. May need to modify questions for health managers vs. direct providers

Introduction to interview: "Today, I'd like to talk to you about…" (attitudes and experiences, thoughts) There are no right or wrong answers; I'm interested in your own opinions….

Background info

Sex: Age: Professional status:

Provision of VCT at Tintswalo Hospital (not who is *trained*, but who is actually *doing* it)

Ward or Clinic	Name	Description (nurse, lay counsellor)	After hours (nights and weekends)
OPD/Casualty			
Female Medical			
Male Medical			
Female Surgical			
Male Surgical			
Paediatrics			
Maternity			
TB			
Antenatal Clinic			
Family Planning Clinic			

A. Personal experience providing VCT: “I’m going to begin by asking you some questions about….

Have you ever been trained in VCT?

How long was the course? How long ago did you take it?

On a scale of 1 – 10 *(define)*, how confident did you feel about doing VCT after the training?

How long do you think training on VCT should be? (days) (Probe: do you really need 2 weeks? Is it realistic to take HCW out of the service for that long?)

How many times do you perform VCT in a typical month? (estimate)

In general, how long do you think it should take to do a VCT session properly, including pre- and post- test counselling if someone is HIV + (not including rape survivors)? (minutes)

What areas of VCT counselling do you feel most comfortable with giving to the patient (e.g. explaining HIV infection, discussing sexual practices, giving the patient HIV results?) Least comfortable? *(unpack/ probe)*

B. General Provision of VCT at the hospital
A) Of all the patients who come to Tintswalo hospital for care, what kinds of patients do you think are routinely offered an HIV test? (explain “routinely” means HCW offers VCT even if the patient does not initiate the request) *Do not probe here, let’s see who they come up with spontaneously*

B) Who do you think *should* be routinely offered VCT? *(Do not probe at first, then after noting spontaneous responses, probe:* What about those who are 1) pregnant? 2) young and well? 3) rape survivors?

Would you say this hospital is currently doing a good job providing VCT to everyone who needs it, whenever they need it, or are there gaps? (if so, what are the gaps?) *read closely*

How do you think lay counsellors compare with nurses in providing VCT? Are they better or worse in terms of counselling? Maintaining confidentiality?

Currently lay counsellors are not allowed to do the finger prick part of HIV testing – only the pre and post-test counselling. Do you think lay counsellors should be allowed to do the finger prick test or should they only do counselling? (*probe)*

It seems that although many nurses at the hospital are trained to do VCT, few are doing it. Why do you think this is? *(probe: attitudes)*

How do you think nurses feel about doing VCT? Is it *emotionally stressful*? Helpful?

C. VCT and rape survivors: Add an explanatory sentence about why VCT must be done during the first visit following rape…

Because of the need to provide PEP, it is recommended that VCT be performed when someone comes to hospital following rape. Do you think this is a realistic thing to do, given the fact that the person has just been raped? *(Probe: traumatisation after rape, drawbacks of immediate VCT, drawbacks of postponing VCT)*

When someone has been raped, and comes to the hospital on the weekend or in the evenings, they are often told to come back the following day for VCT. Do you think there are any problems with this?

Is there anyone whom you think can provide VCT to rape survivors after-hours when the HIV clinic is closed? Why is this not happening? Who do you think should be doing this? (doctors, OPD nurses, lay counsellors, etc)

Have you ever provided VCT to a rape survivor? If so, how did you find the experience of providing emotional support? *(Probe: emotionally difficult, traumatic, satisfaction)*

If someone is HIV negative after the rape, and eligible for PEP, do you think we should be giving out the full 28 days PEP on the first visit to hospital, or just the starter pack? Why or why not?

Do you think people may "abuse" PEP in any way? (*e.g. lie about rape, come for PEP after consensual unprotected sex*)

D. Personal experience of VCT and PEP: "I'm now going to ask you a few questions about your own personal experiences of VCT…"

If you had a needle stick injury would you get tested? Why or why not?

Have you ever had PEP following an occupational exposure?

Did you have VCT? If so, who did it? (self? colleague?) How did you find the experience? How many days did you take the drugs for?

I don't want to know the results, but have you had VCT yourself?
How many times? If so, what were the circumstances (tested self at home/work, went to another hospital/clinic, etc.) *(Probe: confidentiality and confidence in confidentiality at hospital)*

Do you think that maybe it's better for people not to know their HIV status, because knowing you're positive only means you will worry, and you will die sooner.

C. Emergency Contraception:

Can you tell me what emergency contraception is?
How is it prescribed? *(do you know any other regimens? If so how are they used?*

How does it work? Is it different from abortion? Is it legal? Etc *(give options: which level it works at, preventing conception, implantations, causes abortion?)*

Under what circumstances do you think EC should be given to patients?
Any contraindications? Age restrictions? (*Recommendations for use, legal issues)*

Own experience:
In a typical month how many times have you given out EC? about
How many of these were rape cases?
Scenario 1
A 19 year old teenager is brought in by police to casualty on a Saturday afternoon after reporting being raped by two men on her way home from town.
Step by step, describe what the process would be for her to get PEP /where would this person get EC?
What are your attitudes to EC in this scenario?

Scenario 2
A 19 year old girl comes looking for contraceptive advice because she had unprotected sexual intercourse with her 21 year old boyfriend last night.
How would she be able to get EC at this hospital?
Step by step, describe how/where would this person access EC?
Step by step, describe what the process would be for her to get PEP /where would this person get EC?
Compare these two scenarios and how they evoke different responses *(attitudes around age, marriage, EC encouraging unprotected sexual behaviour)*

Sometimes EC has not been given to those who have been raped. Why do you think this is? *(forgot, medication not available…)*

E. Improvements in Rape services
What are your thoughts around the changes that have been made to rape care services at this hospital over the past year?
Probe: nurse driven model, nurses taking forensic history and doing forensic examinations, dispensing medication, training

In what way is it useful having a private examination room for providing rape care?
Probe: does it streamline the process of dispensing medication, make it easier for coordination of referrals and VCT
What improvements could be made?

What do you still find frustrating about rape care services?
How do you feel about the role you are playing in providing post rape care?

KI Interview with Social Workers: Themes to explore

Background info

Sex: Age: Professional status:

A. Community attitudes and rape care services
What are the various community attitudes towards sexual violence?

In what way does this affect the way in which rape survivors are treated in the community?

What effect, if any, does this have on their management at the hospital?

If any effect, do you think this might present a barrier to rape survivors presenting to the hospital?

In your opinion, what are the main problems that rape survivors face- is it maybe a concern for their personal safety, more health related concerns e.g. fear of contracting HIV or concerns that they see justice done?

As far as the health sector is concerned, in which aspects do think the health sector provides rape survivors with the best possible care?

In which aspects do think the health sector, in particular Tintswalo hospital, is not constructive or presents obstacles to rape survivors obtaining the best possible care?

B.General Provision of VCT at the hospital
A) Of all the patients who come to Tintswalo hospital for care, what kinds of patients do you think are routinely offered an HIV test? (explain "routinely" means HCW offers VCT even if the patient does not initiate the request) *Do not probe here, let's see who they come up with spontaneously*

B) Who do you think *should* be routinely offered VCT? *(Do not probe at first, then after noting spontaneous responses, probe:* What about those who are 1) pregnant? 2) young and well? 3) rape survivors?

Would you say this hospital is currently doing a good job providing VCT to everyone who needs it, whenever they need it, or are there gaps? (if so, what are the gaps?) *read closely*

How do you think lay counsellors compare with nurses in providing VCT? Are they better or worse in terms of counselling? Maintaining confidentiality?

Currently lay counsellors are not allowed to do the finger prick part of HIV testing – only the pre and post-test counselling. Do you think lay counsellors should be allowed to do the finger prick test or should they only do counselling? (*probe)*

It seems that although many nurses at the hospital are trained to do VCT, few are doing it. Why do you think this is? *(probe: attitudes)*

How do you think nurses feel about doing VCT? Is it *emotionally stressful*? Helpful?

C. Personal experience of VCT and PEP: "I'm now going to ask you a few questions about your own personal experiences of VCT…"

If you had a needle stick injury would you get tested? Why or why not?

Have you ever had PEP following an occupational exposure?

Did you have VCT? If so, who did it? (self? colleague?) How did you find the experience? How many days did you take the drugs for?

I don't want to know the results, but have you had VCT yourself?

How many times? If so, what were the circumstances (tested self at home/work, went to another hospital/clinic, etc.) *(Probe: confidentiality and confidence in confidentiality at hospital)*

Do you think that maybe it's better for people not to know their HIV status, because knowing you're positive only means you will worry, and you will die sooner.

D. Improvements in Rape services
What are your thoughts around the changes that have been made to rape care services at this hospital over the past year?
Probe: nurse driven model, nurses taking forensic history and doing forensic examinations, dispensing medication, training

In what way is it useful having a private examination room for providing rape care?
Probe: does it streamline the process of dispensing medication, make it easier for coordination of referrals and VCT
What improvements could be made?

What do you still find frustrating about rape care services?
How do you feel about the role you are playing in providing post rape care?

17. APPENDIX C: CLINICAL CARE ASSESSMENT TOOL

Clinical Care Assessment
The following tool is based on the clinical chart, and completed by the researcher.
RCR #: | | | | | | | _ | |

TN#: | | | | | | | | |

A. Background Information Complete, based on information available in the chart, including clerk sheet

	Question	Circle or fill in response
	Date of presentation to hospital for care	_____/ _____/ _____ DD MM YEAR
	Date of alleged assault (if available)	_____/ _____/ _____ DD MM YEAR
	Did client present to hospital < 72 hours after assault?	1 = Yes 2 = No 99 = Not enough information in chart to determine
	Sex of client	1 = Male 2 = Female
	Client's date of Birth	_____/ _____/ _____ DD MM YEAR
Cl	Client age < 14?	1 = Yes 2 = No
	Position of health care worker treating patient *(Circle as many as apply and indicate gender beside each one)* (Check progress notes, signature and SAECK form)	1 = Staff Doctor 2 = Community Service Doctor 3 = OPD Nurse 4 = Study Nurse 5 = Other _____ 99 = Don't know
	Sex of health care worker will combine with above into one question	1 = Male 2 = Female 99 = Don't know
	Time of hospital visit	1 = Weekday, regular hospital hours (Mon to Fri. 8am - 5pm) 2 = Weekday, during after-hours (Mon to Fri, 5pm to 8am) 3 = Weekend or public holiday 99 = Don't know
	Were the police involved?	1 = No 2 = Yes 99 = Don't know

B. History

Note whether the following have been recorded in the clinical chart by the attending HCW

	Question	Circle letter corresponding to details mentioned For each choice circled, score 1 point	Score
	Date of hospital visit (noted by healthcare worker)	Date (day, month, year) Time	
	Date or alleged rape incident	Date (day, month, year) Time	
	State of client at time of rape	Whether conscious or not Other _____	
	Nature of the assault	Location where assault occurred Circumstances (e.g. walking home, at work, on a date, etc) Whether threatened, grabbed, held, weapon seen / used, etc Actual or attempted penetration Route of penetration Whether condom used	
	Nature of perpetrator(s)	Number of perpetrators Whether known to client Nature of relationship to client Other _____	
	Notes (positively or negatively) any actions taken by client since assault :	Changed clothing Douched Bathed/showered Urinated/Defecated Removed/inserted tampon Brushed teeth/washed out mouth Other: _____	
	Notes (positively or negatively) whether any symptoms noted following assault	genital bleeding genital discharge/itch/sores pain (local, abdominal) urinary/rectal symptoms Emotional/behavioural disturbance	
	Menstrual history	Parity / whether currently pregnant Whether menarche/menopausal/LNMP Other: _____	
	Current contraceptive usage	Whether using any contraceptive Specifies type (IUCD, oral, injectable) Last dose/insertion of contraceptive Other: _____	
	Other sexual exposure	Whether coitus before assault (up to 72 hrs) Whether coitus after assault Whether condom used during that coitus	
	Other medical history	Past medical/surgical history Allergies Current medication	

C. Physical Examination and Forensic Evidence Collection

Note whether the following have been recorded in the clinical chart by the attending HCW

	Question	Circle letter corresponding to details mentioned For each choice circled, score 1 point	Score
	General appearance	Height, weight, or other general appearance Emotional status (withdrawn, tearful, controlled, agitated, etc) Whether appears under influence of drugs/alcohol	
	Vital signs	Temp Pulse BP	
	Whether any evidence of injuries (marks, bruises, abrasions) noted : 0 points if NO mention made of presence or absence of any evidence 1 point for every region where presence or absence of evidence noted	Head and neck region Upper extremities Lower extremities Trunk/back Breasts Any drawing/anatomical sketch used	
	A) Genital Exam: Female 1 point for any documentation (positive or negative) regarding findings in following areas: (Positive findings include: swelling, redness, bruises, lacerations, tenderness, bleeding, discharge, etc)	Vulva (labia, urethra, clitoris, perineum) Vagina (hymen, introitus) or cervix Anus/rectum Speculum exam performed if appropriate Any drawing/anatomical sketch used	
	B) Genital Exam: Male 1 point for any documentation (positive or negative) regarding findings in following areas:	Penis (foreskin, glans, shaft) Testicles Anus/rectum Any drawing/anatomical sketch used	
	Any forms used to document collection of forensic evidence? Score = 0 if NO, and skip to Section D	Sexual Assault Evidence Collection Kit SAECK Unique identifier: _____ Any additional form in chart to document examination/forensic evidence. Specify: _____	
	Information completed in SAECK form	Whether Dr. or R.N. Surname Medical registration number Healthcare facility Date Time Patient's history of previous consensual sex Signature for informed consent to forensic exam/evidence collection	
	Items of evidence collected per SAECK form Circle and count as 1 point each if any boxes are ticked under the following categories	Oral swab Clothing/sanitary pad Fingernail swabs Body fluid stain on patient's body Head hair combing Reference head hair sample Foreign material on patient's body Anal exam superficial swab Anal exam deep swab Tampon	

		External/superficial vulvar swab Deep vaginal swab Cervical swab Combed public hair sample Reference public hair sample Reference DNA sample	

D. Investigations and Treatment

Examine chart for documentation of investigations ordered, or medication/treatment prescribed

<table>
<tr><th></th><th>Question</th><th>Circle appropriate number (choose only 1)</th></tr>
<tr><td></td><td>Was client eligible to receive STI prevention?</td><td>1 = Yes
2 = No not exposed to risk through type of assault
99 = Not clear from chart</td></tr>
<tr><td></td><td>Did client receive STI prevention?</td><td>1 = Yes
2 = No (skip next question)
99 = Not clear from chart</td></tr>
<tr><td></td><td>What regimen for STI prevention was used? (circle number next to regimen below)

1) Adult, non-pregnant:
Ciprofloxacin 500 mg PO stat dose
Doxycycline 100 mg Q12 hourly x 7 days
Metronidazole 2G stat

2) Adult, pregnant
Ceftriaxone 125 mg IM stat dose
Erythromycin 500 mg Q6 hourly x 7 days
Metronidazole 2G stat

3) Child < 12 years
Ceftriaxone 125 mg (if <25 kg) or 250 mg (if>25 kg) IM stat OR Ciprofloxacin 500 mg PO stat (if > age 13)
Erythromycin 50mg/kg/day divided Q6 hourly (max 1 gm/day) x 7-14 days
Metronidazole:
<table><tr><th>Age(yrs)</th><th>Dosage</th><th>Frequency</th><th>Length (days)</th></tr><tr><td>1-3</td><td>50 mg</td><td>tds</td><td>7</td></tr><tr><td>4-7</td><td>100</td><td>bd</td><td>7</td></tr><tr><td>8-10</td><td>100</td><td>tds</td><td>7</td></tr><tr><td>>10</td><td>2 gm</td><td>od</td><td>1-3</td></tr></table></td><td><u>Ciprofloxacin</u>:
1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
99 = Not given
<u>Doxycycline</u>:
1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
99 = Not given
<u>Metronidazole</u>:
1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
4 = Prescribed as Metronidazole 400 mg TD x 7-10 days
99 = Not given
<u>Ceftriaxone</u>:
1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
99 = Not given
<u>Erythromycin</u>:
1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
99 = Not given
List antibiotic errors (including under/overdosing) and any other antibiotics given:
_____
_____
_____
___</td></tr>
<tr><td></td><td>Were Anti-emetics given? (circle regimen below)

1) Stemetil supps 25 mg 8 hourly PR

2) Maxolon 10 mg 8 hourly PO</td><td>1 = Yes, correct med (name) only
2 = Correct med and dosage (mgs)
3 = Correct med, dosage, & dosing interval (q hrs)
99 = Not given</td></tr>
<tr><td></td><td>What other lab tests/treatment were ordered?</td><td>1 = Blood count
2 = VDRL
3 = Hepatitis serology
4 = Hepatitis Anti-Toxoid
5 = Tetanus injection</td></tr>
</table>

		6 = Diagnostic swabs for STIs 7 = Pain meds (Panado, Brufen) 8 = Bicillin: _____
	Was client eligible for VCT as a screening test for PEP?	1 = Yes 2 = No, already known to be HIV pos 3 = No, presented > 72 hours after assault 99 = Not clear from chart
	Did client receive VCT?	1 = Yes 2 = No, not offered 3 = No, offered but client refused 4 = No, VCT not available at the time 5 = No, but reason not clear (If No, skip to Q 41)
	When was VCT performed?	1 = On first visit, by same healthcare worker 2 = On first visit, by another healthcare worker 3 = On subsequent visit _____days later 99 = Not clear from chart
	Which HIV test was used?	1 = Rapid HIV test 2 = Lab based ELIZA 99 = Not clear from chart
	Were test results available on same day?	1 = Yes 2 = No 99 = Not clear from chart
	What were the test results?	1 = Positive 2 = Negative 99 = Not clear from chart
	Was client eligible to receive PEP? Eligible if: Presents < 72 hrs after assault, HIV negative	1 = Yes 2 = No 99 = Unclear from chart
	Did client receive PEP?	1 = Yes 2 = No (skip to Q 46) 99 = unclear from chart
	What PEP regimen was used? (circle number next to regimen below: 1) PEP Adult regimen AZT 300mg PO Q 12 hourly 3TC 150 mg PO Q 12 hourly	b) Circle a number that best describes the prescription for both AZT and 3TC: <u>AZT</u>: 1 = Yes, correct med (name) only

	1) PEP Child regimen AZT 180 mg/m2 of body surface area* (up to 300 mg) PO Q 12 hourly - or calculated by weight as per SA guidelines 3TC 4mg/kg/dose (up to 150 mg) PO Q 12 hourly *Use nomogram or the following rough calculation: Body Surface Area (m2) = (4 x weight) + 7 weight + 90	2 = Correct med and dosage (mgs) 3 = Correct med, dosage, & dosing interval (q hrs) 4 = Prescribed as AZT 200 mg TD 99 = Not given 3TC: 1 = Yes, correct med (name) only 2 = Correct med and dosage (mgs) 3 = Correct med, dosage, & dosing interval (q hrs) 99 = Not given
	Were any other antiviral medications given?	1 = Yes 2 = No If yes, please list:
44a	Was the full PEP regimen prescribed?	1 = Yes, prescribed 28-day regimen 2 = No, prescribed "starter pack" x _____days 99 = unclear from chart
44b	Was the full PEP regimen dispensed?	1 = Yes, dispensed 28-day regimen (skip next question) 2 = No, dispensed "starter pack" x _____days 99 = unclear from chart
44c	Was stat PEP given?	1 = Yes 2 = No 99 = unclear from chart
45	If starter pack prescribed, did client return to collect remaining doses?	1 = Yes, returned in time 2 = Yes, returned, but missed some doses in interim 3 = No, did not return
46	Was client eligible for pregnancy test?	1 = Yes 2 = No, because male 3 = No, because not at risk due to age (pre-menarche or menopausal) 4 = No, because unable to conceive (e.g. already pregnant, infertile or hysterectomy) 5 = No, because on regular contraception 6 = No, because of timing in menstrual cycle 99 = Not clear from chart
47	Did client receive pregnancy test on this visit?	1 = Yes 2 = No 99 = Not clear from chart
48	What were results of pregnancy test?	1 = Positive, unrelated to assault 2 = Positive, possibly related to assault 3 = Negative 99 = Not clear from chart / No pregnancy test
49	Did client receive treatment for pregnancy prevention?	1 = Yes 2 = No (skip to Section E)
50	What regimen for Pregnancy prevention was used? (circle number next to regimen below) 1) 50 mcg ethinyloestradiol, 250 mcg levonorgestrel: 2 pills within 5 days, 2 pills 12 hrs later 2) 30 mcg ethinyloestradiol, 150 mcg levonorgestrel: 4 pills within 5 days, 4 pills 12 hrs later	In reference to this regimen, what aspects of the prescription were correct? 1 = Correct med (name only) given 2 = Correct med and dosage (mg & number pills)

	3) 750 mcg levonorgestrel: 1 pill within 5 days, 1 pill 12 hrs later 4) 30 mcg levonorgestrel: 25 pills within 5 days, 25 pills 12 hrs later	3 = Correct med, dosage, & dosing interval (q hrs) 4 = Correct med, dosage, dosing interval & duration (number doses or days)
51	If pregnancy prevention given, was first dose given within 5 days of assault?	1 = Yes 2 = No 99 = Not clear from chart

E. Counselling, Follow-up, Referrals

Examine chart for documentation of any counseling or referrals received

	Question	Circle letter corresponding to details mentioned For each choice circled, score 1 point	Score
52	From which services did the client receive counselling during the first visit?	Refense staff VCT counsellor Social worker Nurse Doctor Psychologist Psychiatric Nurse Other: _____	
53	To which services did the client receive a referral for subsequent visits?	Refentse staff VCT counsellor Social worker Nurse Doctor Psychologist Psychiatric Nurse Rixile Clinic Other: _____	

18. APPENDIX D: QUESTIONNAIRE FOR HEALTH CARE WORKERS

Thank you for agreeing to participate in completing this questionnaire. RADAR (Rural AIDS and Development Action Research), is based at Tintswalo Hospital (Acornhoek), and is conducting a study to understand how to improve health and related services for those who have been raped. Your participation will help us to gain a better understanding of what health care workers need to know in order to respond effectively to rape.

Your participation is entirely voluntary, and your responses will be kept anonymous and confidential – in fact your name is not required. The responses will be analyzed by the research team for the purposes of this study.

If you have any questions about the study, please feel free to contact Lufuno Mokwena (RADAR) at 013 795 5076.

Thank you once again for your participation.

Start time: ____ : ____

A. Personal Data

Sex	Age:
Occupation:	Department:
Years since graduation from basic training:	Length of time at Tintswalo Hospital:
Level of Training: Family Physician/Specialist Medical Officer Community Service Doctor Intern Medical Student	Chief Professional Nurse Senior Professional Nurse Professional Nurse Enrolled Nurse Nursing Auxiliary Student Nurse

1. Have you ever conducted a forensic exam (J88 and crime kit) for a rape survivor?
Yes / No

2. If yes, how many such exams have you performed in the past 12 months?

_____

3. Have you ever presented expert testimony at a rape trial?
Yes / No

4. If yes, how many times have you done so in the past 12 months?

_____

5. Have you received any training in any of the following areas? If yes, please fill in the details:

Topic	*Amount of training? (days/hrs)*	*How long ago?*	*At what stage in your training?*
Medical Management of Rape			
HIV Post-exposure prophylaxis			
Completion of J88 and crime kit			
VCT			
Post-rape counselling			

6. Did you attend the Workshop on Management of Sexual Violence Workshop at Blyde River Canyon Lodge in March 2005? (circle response)

Yes/No

Note: For the following questions, please keep in mind that in many cases, there is no "right" or "wrong" answer. We are simply interested in your opinion. Therefore, even if you do not have a lot of experience dealing with these issues, please choose what you think is the best answer, rather than deciding that you "don't know".

B. Prevalence and Presentation of Rape

	In one month, I would estimate the number of rape cases we see at this hospital to be:	_____ rape cases/month
	I would estimate the proportion of total cases that are rape of children (age 14 years or younger) to be:	_____ %
	Not all cases of rape present to the hospital. In my opinion, I would guess the proportion of rapes in the community that DO come to the hospital are:	_____ %
	In my opinion, the most important reasons why people don't come to the hospital after being raped are:	Please list five: 1. 2. 3. 4. 5.
	False reporting of rape can be a concern. In my opinion, women falsely accuse men of rape: *(circle ONE choice)*	Very often Often Rarely Very rarely Never

C. Causes of rape

For each of the following statements, indicate whether you: Strongly agree, agree, disagree, or strongly disagree. Choose ONLY ONE, and circle the letter of your choice.

	Most women are raped by strangers whom they don't know *(circle ONE choice)*	Strongly agree Agree Disagree Strongly disagree
	A reason why rape may be on the increase these days is because women are going out more at night	Strongly agree Agree Disagree Strongly disagree
	A reason why rape may be on the increase these days is because women are drinking alcohol and behaving provocatively.	Strongly agree Agree Disagree Strongly disagree
	A reason why rape may be on the	Strongly agree

	increase these days is because when men get drunk, they cannot control themselves.	Agree Disagree Strongly disagree
	Women often change their minds after they have sex, and then lie about rape in order to punish the man.	Strongly agree Agree Disagree Strongly disagree
	If a man spends the evening buying drinks for a woman, he cannot be blamed for expecting sex from her.	Strongly agree Agree Disagree Strongly disagree
	Men cannot be blamed for rape because sometimes they cannot stop themselves once they are sexually aroused.	Strongly agree Agree Disagree Strongly disagree
	If a man is married to a woman, it is normal for him to expect to have sexual relations with her; therefore he cannot really rape his own wife.	Strongly agree Agree Disagree Strongly disagree
	HIV can be cured by having sexual intercourse with a virgin.	Strongly agree Agree Disagree Strongly disagree

D. Hospital Care

	I think that after a rape incident, people will usually come to the hospital to report it: *(circle ONE choice)*	Within 3 days (72 hours) Between 4 - 7 days More than a week later More than a month later
	Are there any reasons why such a delay might be bad for the person who has been raped?	If yes, list them here:
	There may be many people waiting to be seen by the doctor. In general, how long do you think a rape survivor has to wait before being examined by the doctor?	_____

	The forensic exam and J88 form are used to collect medical evidence of rape. How long do you think it should take a doctor to conduct a good forensic exam?	_____

	How long do you think doctors actually spend conducting the forensic exam?	_____
	What proportion of crime kits (forensic exam kits) do you think actually make it to the crime lab to be analyzed?	_____ %
	Is there a rape management protocol at Tintswalo hospital?	Yes No Don't know
	If a woman has just been raped and comes to the hospital before going to the police, what should be done?	Refer her to the police station - it is important that she open a case immediately. The police can then bring her back to hospital with the J88 and crime kit. Call the police station and if possible, put her in a private room until police bring the J88 and Crime kit Call the police and begin treating her medically while waiting for the police to arrive
	By law, a healthcare worker must report child abuse to the authorities (e.g. police official or social worker).	Therefore, the rape of a child less than _____ years old should, by law, be reported to the authorities
	In my opinion, the proportion of child abuse cases seen by healthcare workers who *actually* get reported to the authorities (e.g. police official or social worker) is: *(circle ONE choice)*	_____ %
	In the past, rape cases were seen by the District Surgeon, but now they may be seen by a doctor or nurse. In my opinion, the old District Surgeon system: *(circle ONE choice)*	Worked better Worked worse There is no difference Explain why:
	By law, only doctors (and not nurses) are currently allowed to be expert witnesses in adult rape cases and present evidence in court. *(circle ONE choice)*	True False
	In my opinion, I currently have enough training and skills to conduct a good forensic exam and J88 *(circle ONE choice)*	Strongly agree Agree Disagree Strongly disagree

	In my opinion, a trained nurse would be able to do as good a job as a doctor in conducting a forensic exam and J88. *(circle ONE choice)*	Strongly agree Agree Disagree Strongly disagree

	How soon after the rape does the survivor need to be seen in order to receive: *(Please indicate hours or days)*	Emergency Contraception? _____ Post-Exposure Prophylaxis (medication to prevent HIV transmission)? _____
	A woman who was raped today tests HIV positive. Should she be given PEP (post-exposure prophylaxis)?	Yes No
	A woman who was raped 4 days ago tests HIV negative. Should she be given PEP?	Yes No
	If the rape victim refuses HIV testing, and his/her HIV status is unknown, can they still receive PEP?	Yes, a full course of PEP can be given Yes, but only a starter pack No Only if they pay for it
	How long should someone continue to take PEP medication?	3 days 7 days 4 weeks 3 months 1 year
	If someone eligible for PEP on first visit, I would prescribe	PEP x 7 days only PEP x 7 days and tell them to return weekly for remaining PEP x full regimen on first visit
	What is the standard regimen for PEP?	Drug Dosage Frequency _____
	What is the standard regimen for emergency contraception?	Drug(s) Dosage Frequency # of Doses
	What is the standard regimen for STI prevention?	Drug Dosage Frequency Length of treatment _____
	What treatment or counselling would you provide that might help them adhere to PEP?	1. 2.

F. Follow-up of Rape Survivors

	Counsellors may play an important role in providing follow-up support to rape victims. I would estimate that the proportion of rape survivors who see a counsellor at least once after the assault, is: *(Circle one choice)*	_____ %
	In addition to providing emotional support, there are several other reasons for follow-up with a rape survivor. Please list at least three:	1. 2. 3.
	Consider all the cases of rape where a docket is initially opened at this police station. What proportion of these do you think actually lead to the alleged rapist being brought to trial? *(Circle one choice)* (Note, we are not asking about the verdict or the outcome, only whether the case goes to trial)	_____ %

Finish time : _____: _____

Thank you very much for your co-operation and help!

19. APPENDIX E: TINTSWALO HOSPITAL RAPE MANAGEMENT POLICY

TINTSWALO HOSPITAL
POLICY AND PROCEDURE REGARDING
COMPREHENSIVE MANAGEMENT OF RAPE CASES

POLICY NUMBER: R 2 OF 2005

DATE OF ISSUE: FEBRUARY, 2005
DATE OF REVIEW: FEBRUARY, 2007

Originated by: Mongwe: Acting CEO, Tintswalo Hospital
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Authorized by: Mongwe: Acting CEO, Tintswalo Hospital

POLICY STATEMENT:
Sexual assault care in the health sector has to respond to the health needs of the rape survivors. These include care for physical injuries; immediate and long-term psychological support; pregnancy prevention; STI prevention and treatment; HIV counseling, testing (with consent) and prevention; and social effects. They also include access to proficient medico-legal examination to gather evidence for the prosecution of cases. Sexual assault care providers are therefore challenged to provide comprehensive sexual assault care by looking beyond the medico-legal needs of survivors to their mental and physical health needs.

PURPOSE:
The following policy and protocols aim to improve service delivery for rape survivors at Tintswalo Hospital by:
2.1 Strengthening clinical management and referral procedures
2.2 Establishing a system of monitoring and evaluation, in partnership with the Refentse Post-Rape Programme.

LEGAL FRAMEWORK:
There are several documents that lay out the roles and responsibilities of health care workers and the health sector in addressing rape and sexual assault. These include:

The National Norms and Standards for Primary Health Care, the National Management Guidelines for Sexual Assault (October 2003), the Child Care Act (Act 74/1983), and the Prevention of Family Violence Act (Act 133/1993).

POLICY:
Every survivor who presents to the hospital following rape must be recorded in the OPD Admissions Register by an OPD nurse.
Every rape case should be managed comprehensively according to the National Management Guidelines for Sexual Assault (October 2003)
Following medical treatment, every survivor should be offered a follow-up visit for trauma debriefing with the Refentse Program based at Tintswalo Hospital, then survivor should be referred for on-going counseling and support with the psychiatric counselor
Periodic assessment should be conducted in order to assess the effectiveness of the post-rape service.

POLICY PROCEDURE:
RECORDING RAPE CASES - The procedure for recording rape cases is as follows:
After the doctor or nurse has finished examining the survivor, the attending OPD nurse will record each case in the OPD Admissions Register (format and details to be recorded are described in Appendix A)
Every case of rape must be recorded, regardless of how recently or how late the rape happened, or whether or not the survivor is accompanied by the police

COMPREHENSIVE MANAGEMENT OF RAPE

Because of the possibility of becoming infected with HIV following rape, and the urgency of receiving PEP where appropriate, all cases of rape should be sent to Casualty, rather than waiting in the OPD queue.

The comprehensive management of rape includes the following:
Detailed History
Physical examination
Treatment of physical injuries
Medical treatment including:
5.2.4.1. Prevention of STIs including Hepatitis B
Regardless of delay in presentation, all rape survivors whose history and examination indicate a risk of STI should be offered appropriate antibiotics and a Hepatitis B vaccine.[1] (See Appendices C and D)
5.2.4.2. Prevention of pregnancy or referral for termination of pregnancy where appropriate: [2]
a) When the rape has the potential to cause pregnancy, any survivor presenting within five days of the rape should be offered emergency contraception (EC). (See Appendix C)

[1] Sections 11.4, 11.5 and 11.7 National Management Guidelines for Sexual Assault (NMGSA)
[2] Section 11.3 NMGSA

b) Furthermore, survivors should be advised regarding the availability of a termination if they present too late for EC, or if EC fails.

5.2.4.3. Provision of VCT and HIV post-exposure prophylaxis (PEP) where appropriate: [3] (See Appendices C and D)

a) All rape survivors presenting within 72 hours of the rape should be offered VCT and PEP if appropriate.

b) Both VCT and PEP should be available in OPD at all hours.

c) One stat dose of AZT and 3TC should be offered as soon as the rape survivor can be informed and give consent.

d) If rape survivors present to the hospital before going to the police, they should not be referred to the police, as this will delay starting PEP. Instead, they should receive a stat dose of PEP (as above), while the police are contacted to come to the hospital.

e) VCT should be offered during the initial visit, and if the survivor is eligible for PEP, the full 28 day course should be dispensed during the first visit, along with appropriate medication counseling...

f) If the survivor is not ready to have HIV testing at the first visit, a three-day starter pack of PEP should be provided with instructions to return for VCT and the remaining 25 days of PEP.

5.2.4.4. In order to co-ordinate care and minimize delays and discomfort to the rape survivor, all relevant medications and tests should be kept together in a locked cupboard in Casualty. This should include: Rapid HIV tests, pregnancy tests, STI medications, PEP medications, emergency contraception.[4]

Forensic examination and collection of evidence using the SAECK and J-88 where appropriate. [5]

a) If rape survivors do not want to report to the police, they should still be encouraged to have a forensic examination in case they change their mind in subsequent weeks. Evidence collected should be stored in a locked cupboard for at least 6 weeks after collection.

b) If rape kits are unavailable, evidence can still be collected as per national management guidelines.

Referral for follow-up counseling and support [6] All rape survivors should be informed of, and referred to the following services:

a) Psychiatric nurse available Tuesdays.

b) Social workers at Tintswalo and in the community are available for counseling and home visits.

c) Refentse continues to offer 4-week follow-up (see 5.3 below)

All cases of child abuse must be referred to a police official, commissioner for child welfare, or social worker. [7]

[3] Section 11.6 and 11.7 NMGSA
[4] Section 11.4 NMGSA
[5] Section 10.1 NMGSA
[6] Section 8.0 NMGSA
[7] Section 4 of the Prevention of Family Violence Act, 1993 (Act No 133 of 1993)

OFFERING FOLLOW-UP COUNSELLING - When offering a follow-up visit for counseling and informed consent to participate in an interview with Refentse, the following steps should be followed:
After the survivor has been treated by the health care worker, and before leaving the OPD, the OPD nurse should inform the survivor or guardian that further trauma counseling is available through the Refentse Program.
If the survivor is interested in counseling, a follow-up appointment at 4-weeks time should be made.
If the survivor agrees to the counseling, the nurse should obtain permission to contact the survivor by phone or visit and record contact details on the Informed Consent form (see Appendix A)
For each case, the nurse should record the survivor /guardian's decision to either accept or decline the counseling on the Informed consent form
Confidentiality and privacy should be respected. Therefore this discussion should take place in a private room (e.g. cubicle or nurse's bay), and all informed consent forms should be stored in a designated file kept in a box in the nurse's bay.

PERIODIC ASSESSMENT - In order to evaluate the effectiveness of the post-rape service, the following steps should be followed:
Statistics should be compiled and hospital bed letters reviewed by Refentse on a periodic basis to assess the utilization and effectiveness of the post-rape service delivered
Based on these findings, recommendations should be made to hospital management regarding potential steps to further improve the uptake and quality of service delivery.

SIGNATURE:
DESIGNATION