Developing an Integrated Model for Post-rape Care and HIV Post-exposure Prophylaxis in Rural South Africa

Rural AIDS and Development Action Research Programme (RADAR),

School of Public Health, University of the Witwatersrand

Julia Kim, Lufuno Mokwena, Ennica Ntlemo, Ntabozuko Dwane, Amanda Noholoza, Tanya Abramsky, Edmore Marinda

Population Council, Frontiers in Reproductive Health

Ian Askew, Jane Chege, Saiqa Mullick

Tshwaranang Legal Advocacy Centre

Liesl Gerntholtz, Lisa Vetten, Anneke Meerkotter

November 2007

This study is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of Cooperative Agreement Number HRN-A-00-98-00012-00 and Subagreement numbers A104.25A and S107.019A. The contents are the responsibility of the Population Council and do not necessarily reflect the views of USAID or the United States Government.

RADAR
Rural AIDS & Development Action Research Programme
School of Public Health
University of the Witwatersrand

Population Council
FRONTIERS
IN REPRODUCTIVE HEALTH

TSHWARANANG
LEGAL ADVOCACY CENTRE
TO END VIOLENCE AGAINST WOMEN

USAID
FROM THE AMERICAN PEOPLE

EXECUTIVE SUMMARY

Internationally, and in South Africa, there has been increasing recognition of the unmet needs of survivors of rape and sexual assault. Emerging best practice guidelines suggest that existing reproductive health interventions may be well positioned to play a critical role in meeting some of these needs, including the treatment of immediate injuries and trauma, prevention of STIs, including HIV, and unwanted pregnancy, and provision of adequate counseling and support. However the implementation and co-ordination of these services, particularly in under-resourced areas, remains a significant challenge.

Across the country treatment of rape survivors by police and healthcare workers is sub-standard. A rapidly evolving policy environment has yet to be met by a systematic approach to post rape management at local or national levels. Therefore, this study proposed to answer the following questions: What are the various program components that need to be strengthened as part of an integrated post-rape service? How can such a program be integrated into existing health services within a rural setting? How effectively can the service be delivered? And finally, what is the cost of such an intervention?

The project used a pre/post-intervention study design and a combination of qualitative and quantitative methods to address these questions through the development and testing of an integrated, nurse-driven delivery model for post-rape care. The study was undertaken from March 2003 to September 2007, in Bohlabela District, rural Mpumalanga province, South Africa. It was based at Tintswalo Hospital, Acornhoek, a 450-bed district hospital that functions as a referral site for post-rape care. Collaborating partners included RADAR (Rural AIDS and Development Action Research), School of Public Health, University of the Witwatersrand, the Population Council Frontiers in Reproductive Health program, and Tshwaranang Legal Advocacy Centre.

Key informant interviews were conducted with over 50 healthcare workers, pharmacists, police, and other relevant service providers at the beginning, and midway through the study, 334 hospital charts were reviewed to assess the quality of clinical care provided to the patient, and face-to-face interviews were conducted with 109 rape survivors who had sought care.

The study confirmed high levels of child abuse, with one-quarter of cases involving children younger than 14 years old, and half involving those younger than 18 years old. In the majority of cases, the perpetrator was known to the patient and this proportion increased with younger patients. The service was found to be fragmented and not patient-centered, and there were multiple obstacles to the timely provision of EC, VCT and PEP.

Given the systemic nature of these problems, a five-part intervention was implemented, which included: establishing a sexual violence Advisory Committee; instituting a Hospital rape management policy; Training Workshop for healthcare workers and other providers; centralizing and coordinating post-rape care through a designated OPD room; and community awareness campaigns. Following the implementation of this intervention, a number of improvements were noted:

Uptake and efficiency of services: Utilization of services increased from 8 to 13 cases per month. The service became more private and streamlined, necessitating fewer interactions with service providers; those who reported seeing six or more providers on their first visit decreased from 86% to 54%.

Clinical post-rape management: Both the chart review and patient interviews suggested substantial improvements across all domains measured, including the quality of history and exam, and the provision of pregnancy testing, emergency contraception, STI treatment; VCT and HIV post-exposure prophylaxis, as well as follow-up counseling and referrals.

Provision of PEP: Significant improvements were seen in provision of PEP. Following the intervention, patients were more likely to report having received PEP, to have received a full 28-day course on their first visit, and to have completed the full 28-day regimen. In addition, there was a reduction in the mean time interval (28 hours to 18 hours) between the assault and receiving the first dose of PEP.

An expanded role for nurses: This study demonstrated that it is possible to substantially expand the role of nurses in the management of sexual assault. Following the intervention, their role was expanded to include documenting the rape history, providing acute trauma debriefing, providing a stat dose of PEP, taking a pregnancy test., dispensing the treatment package, providing medication counseling, and making follow-up referrals. Disappointingly, however, training nurses to perform the forensic examination was not successful, as nurses were reluctant to learn about it and were intimidated by the long time required.

The **costing study** measured the additional cost of strengthening existing post-rape services at a rural district hospital; the total costs over three years amounted to $84,612 (ZAR 592,286) and the estimated annual cost of delivering the services was $17, 449 (ZAR 122,140).

The study also highlighted a weakness in the delivery of comprehensive services for rape survivors, in that although 91% of survivors laid criminal charges at the police station, only one quarter believed that the case would go to trial; national data show that only 5 percent of rape charges result in successful convictions and that large numbers of cases are withdrawn.

Although police services do not collect accurate statistics on domestic violence, several community-based prevalence surveys have illustrated the magnitude of the problem in South Africa. A comprehensive legal and policy framework has been developed to address the legal needs of women after domestic violence, but currently there is no formal health sector response to domestic violence. This project has initiated the introduction of direct legal services and psycho-social counseling for survivors of rape and domestic violence, and to assess the uptake and utility of these services.

Taken together, the results of this study suggest that it is possible to improve comprehensive services for the medical management of sexual assault, including PEP within a public sector hospital, using existing staff and resources, and that with additional training, nurses can play an expanded role in this care. There have been few such studies conducted in an African setting, and the findings are important for understanding how the health system is currently coping with high levels of sexual violence in communities – and how they might be improved.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

This study would not have been possible without the support and contributions of many people. Firstly, we would like to thank the members of the Project Advisory Committee, for their advice and guidance throughout the project. These include: Maake M.D., Madonsela T., Makhubela J., Mamphoke D.E., Mathebula N., Mazibe L., Mnisi B.P., Mogakane D.Z., Mongwe R.N., Ndlovu M., Ndubane V., Ngobeni W., Sibanda M., Sibuyi R., and Ubisi P.

Thanks also to Drs. Carol Wiebe and Ntabozuko Dwane who showed up on our doorstep to contribute their enthusiasm and skills to this project, to Stephen Jan for his support in the economic evaluation, and to Tanya Abramsky and Edmore Marinda for contributing statistical support to the research team.

For their technical support in the training workshop for service providers, and their input and advice in developing intervention tools, we are grateful to the Western Cape Provincial Reference Group for Sexual Violence, including Edna Arends, Omelia du Plessis, Lorna Martin, Leana Olivier, Delphina Sassman, and Sam Waterhouse.

The encouragement of various representatives within the Department of Health, including Zole Madonsela, Mantshi Menziwe, and Nomsa Ntimba, was greatly appreciated.

Finally, we are indebted to the many dedicated service providers at Tintswalo Hospital and the courageous women and children who, as survivors of sexual assault, contributed their experiences and insights in the hope of shedding greater understanding, and improving the care of those experiencing sexual violence in this country. They daily expressed the spirit of the name given to this program, "Refentse" – resilience in the face of adversity.

ABBREVIATIONS AND ACRONYMS

ARV	Anti-Retroviral
CPN	Chief Professional Nurse
CSD	Community Service Doctor
DOH	Department of Health
DHSW	Department of Health and Social Welfare
EC	Emergency Contraception
HCW	Health Care Workers
KAP	Knowledge, Attitude and Practice
KI	Key Informant
NGO	Non-Governmental Organization
OPD	Outpatients' Department
PEP	Post-Exposure Prophylaxis
PHC	Primary Health Care
PAC	Project Advisory Committee
RADAR	Rural AIDS and Development Action Research
STI	Sexually Transmitted Infection
VCT	Voluntary Counseling and Testing
WHO	World Health Organisation

A. INTRODUCTION

HIV/AIDS and sexual violence: Dual epidemics in South Africa

South Africa remains the only country in sub-Saharan Africa where HIV prevalence is increasing.[1] In 2000, an estimated 40% of deaths in adults aged 15-49 were attributable to AIDS, making it the single highest cause of death in South Africa. In the year 2005, there were more people living with HIV in South Africa than in any other country in the world.[1]

Simultaneously, South Africa has been the site of growing alarm at the high levels of rape reported from various sources, and the issue of sexual violence – and violence against women in general – has become one of considerable political importance and visibility.[2] In South Africa as elsewhere, accurate statistics capturing the true magnitude of sexual violence are difficult to obtain. Statistics released by the South African Police Service note that, in 2001, 52,860 rapes and attempted rapes were reported to the police.[3] Research suggests that this represents the tip of the iceberg of sexual assault in the country. A representative community-based survey found that in the 17-48 age group there are 2,070 such incidents per 100,000 women per year.[2] Sexual assault among men has not been the subject of much research and may be equally or more under-reported.[4]

Also alarming is the magnitude of child rape, including rape of infants, which has been the source of much media attention in South Africa. Although accurate information on the prevalence of child sexual abuse is particularly difficult to obtain, South African police statistics for 1996-1999 indicated that for the crime of rape and attempted rape, 40% of survivors were under the age of 18.[5] The high levels of sexual violence directed at younger women and children is of particular concern in light of the increased risk of HIV transmission due to the sexual immaturity of the victims, and their associated physiological trauma.

The health consequences of sexual violence

Sexual assault can profoundly affect the physical, emotional, mental and social well being of women, men and children. In addition to the immediate genital and other bodily injuries, patients are at risk of a range of medium and long-term health problems. These include pregnancy, sexually transmitted diseases including HIV, urinary tract infections, pregnancy-related problems and mental health problems including depression, post-traumatic stress disorder, sleep difficulties and suicide.[6] Women who have experienced sexual assault have been shown to experience problems related to the assault for many years afterwards, including post-traumatic stress, depression, substance abuse, chronic pelvic pain, and they are at greater risk for a repeated sexual assault than other women. Adult survivors of child sexual abuse have been shown to be at greater long-term risk of substance abuse, mental health problems and unsafe sexual practices than the general population.[7]

In South Africa and internationally, the recent emergence of new preventive treatments such as HIV post-exposure prophylaxis (PEP) – the provision of anti-retroviral drugs to reduce the risk of HIV transmission following sexual assault – has heightened the importance of ensuring that health needs are met urgently. International guidelines recommend that PEP be given within 72 hours of exposure in order to maximize efficacy.[8] Even in countries where PEP is not currently

available, other important treatments such as emergency contraception (EC) to prevent pregnancy are also time-dependent. And where forensic evidence is collected for medico-legal evidence, the physical exam must be conducted as soon as possible in order to safeguard the quality of the evidence. Indeed the range of skills and services that must be coordinated in order to deliver expedient, effective care to the rape survivor necessitates an integrated, multisectoral delivery model that may prove enormously challenging to health systems, particularly in under-resourced settings.[9]

Comprehensive management of sexual assault: Changes and challenges

South Africa has made important headway in laying out a strong policy framework for addressing sexual violence through the health sector. In 2000, the Department of Health introduced the Primary Health Care Package for South Africa, which set out the responsibilities of primary health care workers towards patients who have survived rape or domestic violence. In April 2002, Cabinet announced that it would make post-exposure prophylaxis (PEP) available to rape survivors as part of a comprehensive package of care. In 2005, the Department of Health launched its National Sexual Assault Policy and the Clinical Management Guidelines.[4] [10]

However, progress in developing policies has not been matched by implementation, due to a range of obstacles and challenges. In the past, public sector District Surgeons were responsible for examining and gathering medical evidence in cases of suspected rape. However, this system was fraught with problems, and has been severely criticized for providing a sub-standard service. As a result, the District Surgeon system was phased out in most provinces over the period from 1996 to the present. Sexual assault medical services are currently provided by all doctors in the public health system and can be provided by any private practitioner. However, the system was revised without taking account of the necessity for formal training or evidence of competence, and the overwhelming majority of doctors who currently provide sexual assault care have had no specific training.[4]

Developing operational models: The need for research

Although a policy framework supporting PEP and comprehensive rape management is now established, albeit with limited experience to guide implementation, there is an urgent need to develop and evaluate operational models that take into account the significant challenges described above. It is clear that the provision of HIV PEP cannot be implemented in isolation, and must be considered as part of a systematic approach to caring for rape survivors. Yet it is unclear how this can be operationalized, particularly in the context of the under-resourced rural areas where the majority of South Africans reside.

A Nurse driven model: In this respect, there is a need to define what should be included as part of an integrated post-rape service. Now that dismantling of the District Surgeon system has left a pronounced gap in service delivery (particularly in rural areas where there is a chronic shortage of doctors), a key question concerns the feasibility of developing a service that is primarily nurse-driven. Can a nurse-driven service lead to improved quality of care in meeting the comprehensive healthcare needs described earlier?

An Integrated model: Beyond defining a comprehensive post-rape intervention package, broader "systems" questions remain. PEP is one of a growing spectrum of inter-related reproductive health and HIV/AIDS interventions that healthcare workers are expected to implement and co-ordinate.[11] To what extent can PEP be effectively integrated into relevant pre-existing services, rather than adding yet another vertical program to the list? In addition to preventive treatment for sexually transmitted infections (STIs) and unwanted pregnancy, such a service relies on timely access to voluntary counseling and testing (VCT), delivery of anti-retroviral drugs with adequate monitoring and follow-up, and – for those who are HIV-positive – referral to ongoing HIV clinical care and support. In this context, it will be important to develop models for PEP and post-rape care that build on, rather than duplicate, existing programs.

The recent launch of the National Department of Health (DOH) Management Guidelines provides a timely opportunity to strengthen services. However, at the present time, a systematic approach to post-rape services and PEP has not yet been established and, within provinces, individual hospitals, clinics, rape crisis centers and NGOs are developing approaches 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 rape services or PEP, it is likely that public sector health services will endeavor to implement PEP without adequate support. In this context, there is the 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.

B. OBJECTIVES

Ultimate objective:
To determine the feasibility, effectiveness and cost of implementing a nurse-driven, integrated post-rape care program including HIV Post exposure prophylaxis (PEP), within the rural, public sector health services.

Specific objectives:

1) To document the existing state of post-rape care services as a basis for designing the intervention and for evaluating change within the study site.
2) To define and strengthen the components of an integrated rape care program, including PEP.
3) To assess the impact of this program on existing service delivery for rape survivors.
4) To determine the feasibility, effectiveness, and cost of the program.
5) To introduce a strengthened referral system between the health sector and the criminal justice sector.
6) To introduce direct legal services and psycho-social counseling for survivors of rape and domestic violence, and to assess the uptake and utility of these services.

C. STUDY DESIGN

The study was undertaken from March 2003 to September 2007 in Bohlabela District, a rural area of Mpumalanga province, South Africa. Four hospitals, two health centers and 45 clinics serve the district's healthcare needs. The study was based at Tintswalo Hospital in Acornhoek, a 450-bed district hospital that functions as a referral site for post-rape care. The hospital is within close proximity to a local police station. The study utilized a pre/post intervention design to test the hypothesis that introducing a nurse-driven, integrated post-rape care program would lead to improvements in the following indicators of post-rape care:

General post-rape management

1) Greater service utilization (number of rape cases presenting to hospital)
2) Greater efficiency of services (fewer providers, shorter hospital visit)
3) Better clinical management of rape including:
    - History and forensic examination
    - Provision of emergency contraception
    - Treatment of STIs
    - Counseling and support.

Provision of PEP

1) Greater proportion of patients presenting within 72 hours (and thus eligible to receive PEP).
2) Higher proportion of patients receiving HIV voluntary counseling and testing (VCT) within 72 hours of rape
3) Higher proportion of clients receiving PEP treatment
4) Higher 28-day treatment adherence rates for PEP.

Coordination with other sectors

1) Greater case referral from HCW to social workers and other support services
2) Increased linkages with community structures (e.g. traditional and civic leadership, churches, schools, NGOs).

D. DIAGNOSTIC RESEARCH

An initial diagnostic phase preceded the development of the intervention. During this phase, formative research was used to refine the intervention design, which was launched in March 2005. Data collection throughout the study was informed by international guidelines on technical, ethical, and safety considerations in conducting research on gender based violence.[12] Patient interviews were conducted by a female researcher who had attended a training course focusing on these issues.[13] In addition, counseling and trauma debriefing were routinely offered to research staff as well as subjects. Ethical Clearance for the study was obtained from the University of the Witwatersrand Human Research Ethics Committee (#M060335), the London School of Hygiene and Tropical Medicine Ethics Committee (#3036), and the Population Council IRB (Protocol No. 352).

Key informant interviews were conducted with service providers, pharmacists, police, and other relevant service providers at the beginning and midway through the study to understand obstacles faced with provision of post-rape care in this setting. Key informants (defined as those supervising or directly involved in post-rape care) were selected purposively using snowball sampling (those interviewed identified further colleagues who would likely provide useful information and viewpoints). Those interviewed included 16 service providers (3 doctors, 3 social workers, 1 pharmacist, 1 psychiatric nurse, and 8 police officers). Key informant interviews at midway included 19 service providers and were expanded to include more nurses, as well as VCT lay counselors. **Self-administered questionnaires** were distributed to 55 service providers at the study site (16 doctors; 13 OPD nurses; 21 police officers, 5 social workers) to obtain an indication of knowledge and capacity gaps among these groups.

Following informed consent, a semi-structured interview guide was used to elicit experiences and viewpoints relating to the provision of services. All interviews were conducted in English, recorded using a mini-disc recorder, documented immediately through field notes, and later transcribed for analysis. The data was analyzed using MaxQDA to generate codes from the text, which were then analyzed thematically. Results of the qualitative research have been presented in detail elsewhere [14]; the key findings were as follows.

Few service providers had prior training on post-rape management, and this was reflected in low levels of knowledge. For example, only 44% of doctors knew that PEP must be initiated within 72 hours, and among nurses and police this was even lower (15% and 24% respectively). Apart from social workers, few police (14%) or healthcare workers (doctors 25%, nurses 31%) could identify the mandatory reporting age for cases of child abuse.[15]

There were numerous obstacles to accessing VCT and PEP due to institutional and provider barriers, rather than client delays. These included the absence of VCT services during the after-hours periods (weekends and evenings), which tend to be the times when most assault survivors present to hospital. There was an absence of a clear pharmacy policy for dispensing PEP following sexual assault. During routine hospital hours, PEP was prescribed by doctors, and then collected by the patient from a pharmacist at the dispensary – usually the last step in the treatment chain (Appendix 1). In theory, PEP was also available after-hours, through an on-call pharmacist, who would take calls from home. Interviews with doctors, however, indicated that this resulted in delayed access, both in cases of sexual assault, as well as needle-stick injuries among providers themselves.

The pharmacist was reluctant to stock PEP in the OPD, feeling that this was unnecessary as the pharmacists were always reachable and could get to the hospital quickly. However, as he identified himself, there are problems inherent with this: "*unless if the…pharmacist is out from the hospital… or no network (cell phone coverage)…or my brother took the car to somewhere and I don't have a transport during that time, which means I have to go to catch a taxi, and who knows? Maybe I can arrive here after three hours."* Moreover, in the absence of a clear PEP policy, the pharmacist is free to interpret eligibility criteria for PEP based on his own reading of the hospital chart, which could lead to errors of interpretation.

Among those who presented within sufficient time to receive PEP, about half were automatically excluded from eligibility because VCT was unavailable at the time. Among those who did receive VCT and were eligible for PEP, the majority either received a starter pack (3 day regimen) or nothing at all. And of those offered starter packs, only 14% managed to return to hospital more than once to receive a full course. Taken all together, among those who presented in time for PEP, and should have been eligible, only 16% ultimately received a full 28-day course of PEP.[15]

An "institutional map" that shows the typical flow of rape cases through the services at the hospital revealed a fragmented system, involving contact with up to 10 different providers, and many delays, on the survivor's first visit (see Appendix 3).

A **hospital chart review** was conducted to assess the quality of clinical care provided to patients, and to describe the time of presentation, medications prescribed, investigations completed, documentation of any referrals made, and thoroughness of the history and forensic examination.

E. INTERVENTION DESIGN

Based on these findings, the following five-component model was developed and introduced in March 2005. The team named the project "Refentse" – meaning resilience in the face of adversity.

1) Project Advisory Committee

It was clear from the diagnostic phase that a holistic, institutional approach would be needed to strengthen post-rape management in the hospital. 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, police) whose input had been identified as critical to the improvement of post-rape services. The PAC also provided critical input for coordinating a multisectoral response to post-rape management.

2) Hospital Rape Management Policy

During the project start-up, the hospital CEO was invited to join the PAC – her involvement was necessary to facilitate the execution of research at the hospital, including access to medical charts. The CEO suggested that the PAC draft a Hospital Rape Management Policy, which subsequently became an official hospital policy, signed by the CEO and relevant senior management (Appendix 5). It was designed to include specific protocols that were in line with the National Management Guidelines for Sexual Assault and to address specific problems that were identified during the diagnostic phase. These included 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 problems identified with follow-up visits, the policy also specified that a full 28-day course of PEP should be dispensed during the initial visit.

3) Training Workshop for healthcare workers and other providers
Given the capacity gaps identified during the diagnostic phase, a two-day 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 Western Cape Province, the workshop focused on developing a multisectoral approach to rape management, based on key competencies outlined in the National Management Guidelines (Appendix 2). 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 exam), and strengthening relationships between the health sector, social workers, police, and local prosecutors.

4) Centralization and Co-ordination of Post-Rape Care
The diagnostic phase had revealed a service that was fragmented and not patient-focused, resulting in unnecessary delays and re-traumatization of rape survivors. Following the training workshop, Senior Nursing Managers advised the PAC to centralize 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, 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 (Appendix 7), and Medication Counseling Chart (Appendix 6)

5) Community Awareness
The importance of raising community awareness was emphasized by members of the PAC as well as most of the key informants interviewed during the pre-intervention phase. The project was advised to embark on an awareness-raising campaign to inform community perceptions regarding rape; to increase awareness regarding 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 emphasized 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 that were delivered to clients standing in the OPD queue; community radio broadcasts; HIV awareness education; and local school-based campaigns organized by the Department of Health and Social Welfare, among others.

F. EVALUATION METHODOLOGY

Data collection

A **structured chart review form** was developed to objectively document the quality of care delivered; the form was piloted prior to its implementation. The form was developed to capture standards of care as reflected in the National DOH Guidelines on Management of Sexual Assault [10] (See summary, Appendix 2). In order to minimize observer bias, specific criteria were

established for assigning quantitative values to each indicator. For example, to assess the quality of the history and forensic exam, a scoring system was developed to document whether the healthcare worker had made note of a range of factors (e.g. evidence of injury) recommended in the National Guidelines and the Sexual Assault Evidence Collection Kit (SAECK). Specific criteria were also defined to determine whether 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)
- PEP (if presented <72 hours and HIV negative).

All cases of rape presenting to Tintswalo Hospital Out-Patients' Department (OPD) that were recorded in the OPD Rape Register between March 1, 2003 and August 31, 2006 (42 months) were eligible for review. Criteria for inclusion to the study comprised all cases of rape regardless of age, sex, or time of presentation. 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.

Patient interviews through a structured questionnaire were held to measure indicators of quality of care that mirrored those in the chart review. In addition, the patient interview included questions on the characteristics of the rape incident, where patients first sought help, medication adherence, uptake of referrals and counseling, as well as more subjective impressions of quality of care. All interviews were conducted in the local language (Northern Sotho or Shangaan).

All cases of rape presenting to Tintswalo Hospital Out-Patients' Department (OPD) that were recorded in the OPD Rape Register between June 20, 2004 and August 31, 2006 (26 months) were eligible for patient interview. Recruitment of patients into the study occurred during the initial hospital visit, after all medical care had been received. At the end of the clinical visit, the attending nurse was trained to ask the patient (or guardian if age less than 14 years) for informed consent to participate in the study, which involved a follow-up interview 4 weeks later (a period chosen to be able to assess adherence to the 28-day PEP regimen). Additional informed consent was sought to remind the patient or guardian by phone, one week prior to the interview. Patients were informed that, in order to cover travel costs, a stipend would be given to those who presented for the interview. Among those who followed up, informed consent was again sought prior to beginning the interview.

Face-to-face interviews were conducted in a private room with a female interviewer, using a structured questionnaire. In the case of patients younger than age 14 years, interviews were conducted with the parent or guardian. All questions on medication adherence used a visual recognition tool, which contained unlabelled samples of each medication. Patients/guardians were asked a series of questions: 1) Was this medication given to you? 2) If so, what do you think it was for? 3) How did you take it (dose, interval and duration)? 4) How many pills remained when you stopped? The questionnaire was piloted prior to implementation.

Data analysis

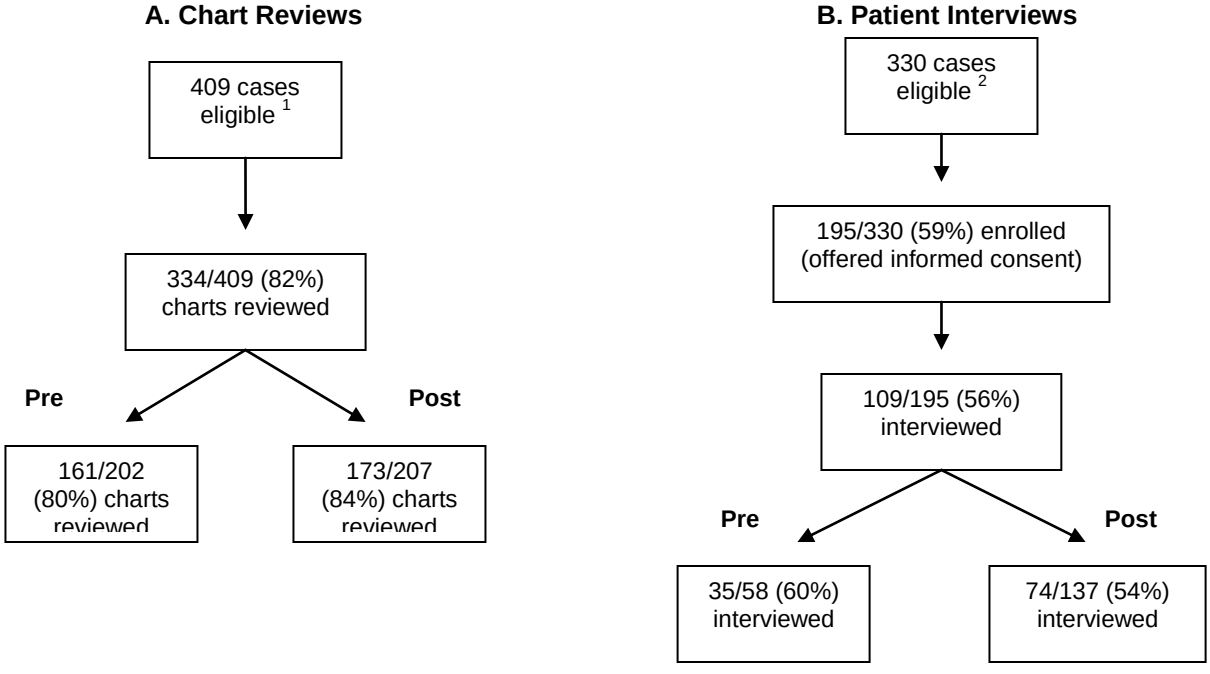
Data from the Chart Review and Patient Interviews were entered into a Microsoft Access Database and analyzed using STATA 9.0. Crude risk ratios (RR) of the intervention effect on all of the outcome indicators were calculated along with 95% confidence intervals. Due to problems of lack of convergence associated with fitting log-binomial models, risk ratios were estimated using poisson regression models with robust standard errors. Multivariate poisson regression was performed to calculate RRs adjusted for potential confounders (presentation within 72 hrs of the assault, presentation during hospital after-hours, age <14 years, and whether the patient had been seen by a senior or junior doctor). The patient's sex was not included in the models because observations were almost exclusively female.

Study enrolment

Chart Reviews: Among the 409 rape cases recorded in the OPD Rape Register, 334 (82%) were successfully reviewed, with roughly equal numbers and proportions reviewed in the pre- (n=161) and post- (173) intervention periods (Figure 1).

Patient interviews: Among the 330 cases recorded in the OPD register during interviews, 195 (59%) were offered informed consent, and enrolled into the study. Among these, 109 (56%) were successfully interviewed, with a smaller number, but higher proportion, interviewed in the pre-intervention period (Figure 1).

Figure 1: **Study enrolment**



[1] Presented to hospital during enrollment period for chart review

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

G. RESULTS

Comparability of pre and post intervention study populations in the chart review
Characteristics of rape cases assessed through the chart review are presented in Table 1. Cases assessed in the pre- and post-intervention phases were similar in terms of patient age, sex, time of presentation to hospital, proportion opening a police report, and eligibility criteria for relevant diagnostic tests and treatment. In both groups, documented cases were almost exclusively female, the mean age was 20 years (range 3 months to 94 years), and over one-quarter of cases were children younger than 14 years old. The majority of cases presented within 72 hours of the assault, and they were eligible for both EC and PEP. The majority were attended to by a junior doctor (community service doctor or CSD) rather than a senior doctor, although in the post-intervention group, a relatively larger proportion were seen by a senior doctor (40% vs. 25%; p=0.01). In the post-intervention period, a slightly greater proportion of patients had negative pregnancy tests and negative HIV tests on initial presentation.

Table 1: Characteristics of Pre and Post Intervention Groups (Chart Review)

Characteristics		Pre (N=161)		Post (N=173)		Chi-squared p-value
		n/N	%	n/N	%	
Patient age	$\bar{x}, std$	20.8 years (12.3)		19.4 years (12.4)		0.32†
	range	9 mos – 94.7 years		3 mos – 68.6 years		
	<14 years	40/159	25%	51/166	31%	0.26
	<18 years	74/159	47%	97/166	58%	0.03
Female		155/161	96%	172/173	99%	0.05
Presented < 72 hours		121/141	86%	127/155	82%	0.37
Presented during after hours		103/159	65%	109/170	64%	0.90
Examining HCW	Senior doctor	34/136	25%	68/171	40%	0.01
	Female	73/135	54%	91/171	53%	0.88
Opened police report		134/147	91%	145/162	90%	0.63
Eligible for Pregnancy test		114/154	74%	126/172	73%	0.88
Preg test negative		31/36	86%	81/85	95%	0.08
Eligible for EC		109/114	96%	122/126	97%	0.62
Eligible for STI prevention		147/150	98%	167/168	99%	0.26
Eligible for VCT		119/140	85%	135/161	84%	0.78
HIV negative		72/90	80%	99/111	89%	0.07
Eligible for PEP		55/88	63%	77/110	70%	0.27

† t-test p-value

Table 2: Factors associated with Quality of Post-Rape Care in Chart Review

Exposure Variables		Outcome Variables														
		Better history [1]			Better exam [2]			EC given			STI tx given			VCT done		
		n/N	%	p	n/N	%	p	n/N	%	p	n/N	%	p	n/N	%	p
Presented <72 hours	Earlier	**135/246**	**55%**	0.04*	**72/217**	**33%**	0.01*	**140/186**	**75%**	0.00*	**230/243**	**95%**	0.00*	150/211	71%	0.09
	Later	18/47	38%		4/34	12%		5/24	21%		31/45	69%		32/38	84%	
Hospital hours	Regular	60/117	51%	0.31	30/94	32%	0.33	41/68	60%	0.04*	99/115	86%	0.05*	**76/90**	**84%**	0.00*
	After	95/209	45%		49/186	26%		**116/157**	**74%**		**190/205**	**93%**		124/186	67%	
Age < 14 years	Child	35/90	39%	0.09	12/73	16%	0.01*	14/29	48%	0.01*	74/90	82%	0.01*	**63/76**	**83%**	0.02*
	Adult	115/232	50%		**65/201**	**32%**		**137/193**	**71%**		**210/227**	**93%**		133/195	68%	
Attending doctor	Senior	43/107	40%	0.02*	21/95	22%	0.14	39/71	55%	0.00*	85/102	83%	0.01*	60/84	71%	0.48
	Junior	**106/197**	**54%**		53/174	31%		**112/140**	**80%**		**184/197**	**93%**		130/172	76%	
Patient's HIV status	Neg	88/168	52%	0.92	49/150	32%	0.84	81/110	74%	0.78	152/166	92%	0.35	170/171	99%	0.16
	Pos	16/30	53%		9/26	35%		17/24	71%		28/29	97%		29/30	97%	

* Chi-2 test of association significant at 90%. Significant differences highlighted in bold.
[1] Scored >5/10 on chart review
[2] Scored >3/5 on chart review

Factors associated with quality of post rape care

Based on the chart review, a number of factors were found to be significantly associated with the quality of treatment received at the study hospital (Table 2):

- Those cases presenting within 72 hours of the assault were more likely to have a detailed history and physical exam documented in the chart, to have been given EC, and have had syndromic management of STIs, but no more likely to have VCT.
- Those presenting during regular hospital hours (i.e. not during evenings, weekends, or public holidays) were more likely to receive VCT, but less likely to receive EC and STI treatment. There was no difference in the quality of exam or history taken.
- Children younger than age 14 were less likely to have a detailed physical exam noted in their chart, less likely to receive STI treatment and EC, but more likely to receive VCT.
- Those who had been attended to by a senior doctor were less likely to have a detailed physical exam noted, and less likely to have received EC or STI treatment.
- Those who tested HIV positive during their initial visit did not receive different treatment than those who tested HIV negative.

Changes in quality of post-rape care provided

Table 3 compares 11 pre- and post-intervention indicators of post-rape care from the chart review. After adjusting statistically for potentially confounding factors, the data suggest that quality of post-rape care improved significantly and substantially across all indicators. Both the quality of the history and the quality of the physical exam documented in the medical chart improved significantly. In addition, after the intervention, survivors were 27% more likely to have been given a pregnancy test and prescription of EC likewise increased significantly. Syndromic treatment of STIs was already high at baseline (88%) and improved marginally. After the intervention, survivors were 37% more likely to have received any VCT and 57% more likely to have received it during their initial visit.

Significant improvements were also seen in provision of PEP; after the intervention, survivors were 57% more likely to have received any PEP – whether a starter pack or full 28 day course. Whereas prior to the intervention, only 15% had received a full 28-day course of PEP (and most had only received a starter pack), those presenting in the post-intervention period were more than three times as likely to receive the full course on their first visit. Significant improvements were also seen in prescription of anti-emetics and referrals to other service providers (e.g. social worker, or psychiatric nurse) for counseling.

Table 3: Changes in Quality of Post-Rape Care Provided Before and After Intervention

Quality of Care Indicators		Pre N=161		Post N=173		Crude RR (95%CI)	aRR *
		n/N	%	n/N	%		
History & Exam	History score >5/10	55/158	35%	101/173	58%	1.68 (1.31-2.15)	1.73 (1.35 – 2.21)
	Exam score >3/5	28/112	25%	51/171	30%	1.19 (0.80-1.77)	1.65 (1.10 – 2.47)
Pregnancy Prevention	Preg test given	52/77	68%	86/100	86%	1.27 (1.07-1.52)	1.27 (1.06 – 1.53)
	EC given	71/109	65%	87/120	73%	1.11 (0.93-1.33)	1.25 (1.06 – 1.47)
STI	STI meds given	140/160	88%	151/165	92%	1.05 (0.97-1.13)	1.09 (1.01 – 1.17)
VCT and PEP	Any VCT done	89/148	60%	113/130	87%	1.45 (1.25-1.68)	1.37 (1.18 – 1.60)
	VCT on first visit	35/85	41%	66/109	61%	1.47 (1.09-1.98)	1.57 (1.16 – 2.13)
	Any PEP given	77/161	48%	118/165	72%	1.50 (1.24-1.80)	1.57 (1.32 – 1.86)**
	28d given 1st visit	11/73	15%	59/107	55%	3.66 (2.06-6.49)	3.34 (1.81 – 6.18)
	Anti-emetics given	23/77	30%	52/115	45%	1.51 (1.02-2.25)	1.53 (1.04 – 2.25)
Referrals	Other providers	30/161	19%	79/173	46%	2.45 (1.71-3.52)	2.39 (1.64 – 3.49)

* aRRs adjusted for whether presented in <72 hrs, whether age <14, whether seen by senior doctor, sex of healthcare worker, whether presented to hospital after-hours.
** Additionally adjusted for HIV status.

Comparability of pre and post intervention study populations in the interviews

Table 4 describes the characteristics of those patients from whom informed consent was sought, compared to those who were successfully interviewed. The two populations were similar across all indicators, with one exception - those interviewed were slightly more likely to be HIV positive. Comparing Table 4 to Table 1 suggests that the subgroup of patients ultimately interviewed represent a population that was similar to those in whom their medical charts were reviewed. Those interviewed were almost exclusively female, with a mean age of 19 years and most (93%) had opened a police docket. The majority had presented within 72 hours of the incident and during hospital hours after-hours.

Table 4: Characteristics of those Enrolled vs. Interviewed

Characteristics		Informed consent sought (N=195)		Interviewed (N=109)		Chi-2 P value*
		n/N	%	n/N	%	
Patient age	Mean, stan dev.	19.9† (11.6)		18.9† (11.8)		0.19
	<14 years	42/161	26%	31/92	34%	0.01
	<18 years	88/161	55%	57/92	62%	0.03
Female		162/164	99%	91/93	98%	0.21
Presented < 72 hours		121/146	83%	69/86	80%	0.31
Presented during after hours *		101/161	63%	59/92	64%	0.67
Examining doctor	Senior doctor	49/156	31%	28/92	30%	0.75
	Female	83/154	54%	47/91	52%	0.50
Opened police report		143/154	93%	80/86	93%	0.93
Eligible for Pregnancy test		120/160	75%	64/92	70%	0.06
Preg test negative		71/77	92%	37/41	90%	0.49
Eligible for EC		114/120	95%	60/64	94%	0.50
Eligible for STI prevention		154/154	100%	91/91	100%	0.99
Eligible for VCT		128/151	85%	73/87	84%	0.73
HIV negative		104/120	87%	64/70	91%	0.07
Eligible for PEP		78/115	68%	46/66	70%	0.62

† Mean (sd)
*Chi-square test comparing those interviewed versus those eligible but not interviewed.

Nature of sexual assaults

Patients were asked about the circumstances surrounding the assault, and their main concerns afterwards (see Table 5). Nearly one-fifth of cases had involved more than one perpetrator. In the majority of cases (65%), the perpetrator was known to the patient, rather than a complete stranger – this proportion increased with younger patients. In 16% of cases in which the perpetrator was known he was also related to the patient and this proportion also increased with younger patients. Mirroring the chart review, the majority (82%) of assaults had occurred over weekends or evenings, rather than during the day. Most attacks had taken place outdoors, followed by the perpetrator's or the patient's home. Few had taken place at school or a workplace, and only one at a drinking establishment. When asked about their main concerns following the rape, HIV infection was at the top of the list (80%) followed by fears about other sexually transmitted infections and pregnancy. Only 7% mentioned psychological trauma as a concern.

Table 5: Nature of Sexual Assaults reported in Patient Interviews

Characteristics (N= 109)		n/N	%
> 1 perpetrator		20/107	19%
Perpetrator known to client	All	70/108	65%
	Age < 18 yrs	37/48	77%
	Age < 14 yrs	21/26	81%
If known, related to client	All	17/108	16%
	Age < 18 yrs	10/48	21%
	Age < 14 yrs	7/26	27%
Time of assault	Weekend	61/101	60%
	Eve/night	63/106	59%
	Either/both	82/100	82%
Location of assault	Outdoors	47/103	46%
	Perp's home	27/103	26%
	Patient's home	21/103	20%
	School/work	7/103	7%
	Bar/shebeen	1/103	1%
Concerns after rape	HIV infection	87/109	80%
	STI infection	43/108	40%
	Pregnancy	40/108	37%
	Psych trauma	8/108	7%

Changes in patient-reported treatment adherence and quality of care

Interviews conducted with patients four weeks after their hospital visit provided an opportunity to assess whether changes in the quality of care seen in the medical charts were also reflected in the care and treatment adherence reported by patients themselves. The median time interval between initial presentation at the hospital and the patient interview was 34 days and the interviews averaged 50 minutes in duration.

Table 6 presents RRs comparing indicators from the client interview pre- and post-intervention. The adjusted RRs control for age <14 years (additional variables were not included in the analysis as they did not remove the effect of the intervention and given limited sample sizes, we did not have the power to estimate further adjusted results with any precision). A consistent pattern of improvement was seen for almost all indicators, with many attaining statistical significance in spite of modest sample sizes.

Table 6: Patient - Reported Treatment Adherence and Quality of Care

Patient – Reported Indicators			Pre N=35		Post N=74		Crude RR	aRR*
Pregnancy prevention	Told about preg risk		20/32	63%	50/62	81%	1.29 (0.96-1.74)	1.29 (0.97 – 1.74)
	Recognized Ovral		11/25	44%`	31/57	55%	1.24 (0.75-2.05)	1.23 (0.76 – 1.98)
	Knew purpose		5/11	46%	22/31	71%	1.56 (0.78 -3.12)	1.64 (0.82 – 3.28)
	Took both doses		7/8	88%	26/31	84%	0.96 (0.70-1.30)	0.91 (0.70 – 1.18)
STI prevention	Recognized Doxycycline		18/25	72%	37/57	65%	0.90 (0.66-1.23)	0.90 (0.66 – 1.23)
	Knew purpose		1/18	6%	7/37	19%	3.41 (0.44-26.11)	3.41 (0.41 – 28.45)
	Correct dosing		9/18	50%	25/37	68%	1.35 (0.81-2.27)	1.36 (0.82 – 2.23)
	Took x 7 days		4/14	29%	12/29	41%	1.45 (0.56-3.73)	1.50 (0.54 – 4.15)
PEP	Recognized PEP		18/33	55%	51/68	75%	1.38 (0.98-1.94)	1.35 (0.96 – 1.90)
	Knew purpose		2/16	13%	24/49	49%	3.92 (1.03 -14.93)	3.93 (1.14 – 13.56)
	Correct dosing		10/15	67%	43/50	86%	1.29 (0.88 -1.88)	1.31 (0.91 – 1.89)
	Full course given 1st visit		14/36	39%	15/26	58%	1.48 (0.87-2.52)	1.46 (0.86 – 2.47)
	Took x 28 days		3/15	20%	21/36	58%	2.92 (1.01-8.41)	3.13 (1.10 – 8.93)
	PEP Side effects		8/17	47%	24/57	42%	0.89 (0.49-1.62)	0.94 (0.54 – 1.64)
	AZT mean # days taken	Adult	17 (10.8)		21 (8,7)		4.2 (-2.6-10.9)[1]	-
		Child	18 (7.6)		31 (4.0)		4.0 (-10.1-18.1) [1]	-
	3TC mean # days taken	Adult	17 (11.3)		21 (9.0)		4.4 (-2.5-11.2) [1]	-
		Child	17 (7.0)		29 (8.1)		11.7 (1.9-21.4) [1]	-
	Hours before 1st dose		28 (33.1)		18 (14.4)		-9.8 (-21.4-1.9) [2]	-9.71 (-21.31 – 1.89)[2]
Efficiency of Service	Presented to hosp. first		8/34	24%	24/74	24%	1.56 (0.62-3.95)	1.89 (0.72-5.00)
	Diverted to police		7/16	44%	6/35	17%	0.27 (0.07-1.00)	0.22 (0.05-0.93)
	Saw 6+ providers		30/35	86%	40/74	54%	0.20 (0.07-0.56)	0.17 (0.06-0.50)
	Spent > 4 hrs at hosp.		14/35	40%	36/74	49%	1.42 (0.63-3.21)	1.61(0.69-3.75)
	Received referral		7/34	21%	36/73	49%	3.75 (1.45-9.70)	4.10 (1.55-10.87)
Perceptions of Hospital	HCW attitude good/excel		25/33	76%	69/72	96%	7.36 (1.81-29.95)	10.10 (2.36-43.17)
	Forensic exam private		12/34	36%	70/72	97%	64.2 (13.3-308.96)	73.11 (14.19-376.71)
	Counseling was helpful		16/26	62%	64/65	99%	40.0 (4.77-335.71)	54.82 (6.07-495.20)
Perceptions of Police, Think that:	Police attit. good/excel		18/34	53%	42/69	61%	1.38 (0.60-3.17)	1.58 (0.66-3.77)
	>half cases go to trial		10/27	37%	13/48	27%	0.63 (0.23-1.73)	0.58 (0.21-1.64)
	Own case will go to trial		8/22	36%	11/50	22%	0.49 (0.16-1.48)	0.50 (0.16-1.54)

* aRRs adjusted for whether age <14 except where already stratified by age
[1] Difference in number of days took treatment, post- versus pre-intervention
[2] Difference in hours until treatment, post- versus pre-intervention
[3] Difference in mean number of providers seen, post- versus pre-intervention.

Pregnancy Prevention: After the intervention, survivors were 29% more likely to report that they had been counseled about their risk of pregnancy. There were modest improvements among those who could identify Ovral (a combined oral contraceptive pill) and its purpose, though these were not statistically significant. At baseline, most patients reported that they had taken both doses of EC, and this did not change significantly following the intervention.

STI Prevention: Changes in STI prevention were less clear-cut. Among the standard drugs given to non-pregnant women for syndromic treatment of STIs, Doxycycline is indicated for 7 days. The proportion of adults who recognized this drug did not change significantly, and there were some modest but non-significant improvements in those who could identify its purpose and dosing and who reported taking the full course.

HIV post-exposure prophylaxis*:* There were significant improvements in most indicators relating to PEP. After the intervention, survivors were 35% more likely to recognize AZT and/or 3TC and the proportion who knew that these drugs were given to prevent HIV infection also increased significantly (from 13% to 49%). Mirroring changes seen in the chart review, after the intervention survivors were more likely to report having received the full 28 day course of PEP on their first visit. In terms of PEP adherence, after the intervention survivors were more than three times as likely to report that they had taken a full 28-day course of PEP. Even among those who did not complete the full course, there were consistent patterns of improvement in the mean number of doses of PEP taken, for both adults and children. The time interval between the assault and taking the first dose of PEP also decreased from 28 hours to 18 hours. The proportion of patients reporting any side effects while taking PEP (around 43%) did not change to any significant degree.

Efficiency of services: Help-seeking patterns did not change after the intervention; afterwards only a minority of survivors (24%) presented to the hospital first, most preferring to go to police. However, following the intervention, when patients did present to the hospital first, nurses and clerks were more likely to initiate clinical care immediately, rather than re-directing them to the police.

The proportion of survivors who reported having to see six or more service providers on their first visit decreased from 86% to 54%. This streamlining of services is captured in the institutional flow diagram of post-rape care, which was repeated six months following the intervention (Appendix 4). These improvements did not translate into a decrease in the overall time spent at hospital, however, with similar proportions reportedly staying for more than four hours. Echoing the increases in referral patterns observed in the chart review, those interviewed after the intervention were more than twice as likely to report having received an appointment for follow-up counseling with another service provider.

Subjective impressions of care*:* Patients' perceptions of the care they had received at the hospital improved substantially in the follow-up period. These included significant improvements in their subjective ratings of the health care providers' attitude towards them, the privacy of the forensic exam, and their perceptions of whether any counseling they had received had been helpful in their recovery. In contrast, there were no significant changes seen in patient's impressions of, or confidence in, the police and judicial system.

H. COST ANALYSIS

Methods

The cost analysis measured the additional cost of strengthening the existing post-rape services at a rural public sector hospital. Thus costs associated with the routine delivery of such services by the hospital (e.g. medications, salary costs of existing healthcare workers) were not included. The program costs were estimated in South African rand (ZAR) in 2006 and were based largely on analysis of financial statements. The main categories of cost were capital items, personnel, and consumables and overheads. Excluded from this analysis were costs associated with conduct of the research, but because research activities were carried out alongside implementation of the intervention, much of the expenditure was incurred jointly and therefore some apportionment of costs was required in each case.

Capital costs: These included computers, printer/fax, office equipment and investment in staff training. The proportion allocated between research and intervention was based on estimated usage throughout the three years of the study as judged by the PEP Coordinator. The first three items listed were apportioned equally, whereas investment in training costs was apportioned in full to the intervention. All costs were based on annuitizing at a discount rate of 3% and allocating three years of usage to the intervention over an estimated expected life. An expected life of 5 years was estimated for investment in training and office equipment and of 3 years for computers and printer/fax.

The costs of the upfront investment in training comprised: salary costs for both the PEP Coordinator and the Study Nurse at 25% of a full time equivalent (FTE); travel costs for the trainers (airfares, accommodation and per diems); and production of training materials. The total cost was annuitized over an expected life of 5 years in line with conventional practice[1]. Building costs associated with the use of office space at the hospital were based on current rental costs, which were also apportioned equally between research and intervention.

Personnel: These costs include salaries of a PEP Coordinator and Study Nurse. In essence, 25% of each of these positions was allocated to investment in training, 25% in implementing the intervention, and 50% in conducting the research. In terms of the intervention, the PEP Coordinator was primarily responsible for liaising with hospital staff and assisting in training and coordination of post-rape services. The Study Nurse was primarily responsible for training and ongoing mentorship of hospital staff, as well as responding to training requests from the Department of Health.

Consumables and overheads: These costs included local transport costs, incidental costs associated with running project advisory committee meetings, phone/fax charges, stationery and copying. These were allocated equally between research and intervention.

[1] (Creese, A & Parker, D. 1994. Cost analysis in primary health care: a training manual for programme managers. Geneva: World Health Organization.

Results

Table 7 describes the program costs of the intervention over three years; in total, these were $84,612 (ZAR 592,286[2]). The major cost items were the initial investment in training and development, and the salaries of the PEP Coordinator and Study Nurse. Thus, the routine service delivery costs (total costs minus initial training and development costs) were $52,345 (ZAR 366,420) over the three years, which translates into an estimated annual cost of $17,449 (ZAR 122,140).

Table 7: Program costs

Item	Cost 2006 ZAR	US$
Capital		
Computers	10,000	1,429
Printer/fax	3,000	429
Office furniture	3,275	468
Training and development	225,866	32,267
Office rent	21,780	3,111
Personnel		
PEP Coordinator	72,600	10,371
Study Nurse	127,050	18,150
Consumables and overheads		
Local transport	38,115	5,445
Project Advisory Committee meetings	3,480	497
Phone/email/fax	43,560	6,223
Stationery and photocopying	43,560	6,223
Total	**592,286***	**84,612**

Table 8 provides a breakdown of the training and development costs, which totaled $41,485 (ZAR 290,400). This investment was assumed to have an expected life of 5 years, and so it was necessary to estimate an equivalent annual cost of $9,219 (ZAR 64,533) based on a discount rate of 3% and then attribute three years of usage at $32,267 (ZAR 225,866).

[2] Exchange rate US$1 = 7 ZAR.

Table 8: Training and development costs

Item	Cost 2006 ZAR	US$
Personnel		
PEP Coordinator	72,600	10,371
Study Nurse	127,050	18,150
Consumables and overheads		
Travel for training consultants		
Air travel	12,100	1,729
Accommodation	7,260	1,037
Per diem	29,040	4,149
Cape Town site visit PI + Study Nurse	6,050	864
Training materials	36,300	5,186
Total	290,400	
Annuitized cost	64,533	
Three years annuity	**225,866**	

I. COMMUNITY MOBILIZATION

To promote community awareness about sexual violence, PEP and availability of the post-rape services at the hospital and police station, the project nurse worked with local stakeholders (Tintswalo Hospital, social workers, schools, women's groups, police station, Radio Bushbuckridge) to distribute information pamphlets and convey key messages at community HIV awareness events. These community awareness campaigns reached over 14,000 individuals in the hospital catchment area. In addition, the project trained nurses at 15 local PHC clinics to include information regarding sexual violence, its health effects, and available services during their routine "morning health talks" for patients waiting in the clinic queues.

J. CAPACITY BUILDING

Throughout the project, Refentse was invited to provide technical assistance to the Department of Health at national (HIV/AIDS/STIs/TB program), provincial (Mpumalanga and Limpopo) and district levels. All such requests arose spontaneously, suggesting that there was interest in scaling up the Refentse model, and learning from the project's experiences. Over 15 such training workshops were conducted, during which approximately 650 health managers and health care workers were trained. Training covered the National DOH Guidelines for Management of Sexual Assault, as well as relevant hospital policies, management and provider tools, treatment algorithms, and approaches to monitoring and evaluation. In addition, Refentse and Tintswalo Hospital were invited to attend routine Quarterly Sexual Assault Meetings convened by the National Department of Health.

Although the main focus of the project was to strengthen the health sector response to sexual violence, doing so revealed existing weaknesses in addressing the legal needs of rape survivors. The Project Advisory Committee proved a useful link for opening up discussions with the local police station, and for initiating preliminary dialogue with the Station Commander, police officers, and prosecutors regarding ways of developing a more comprehensive and effective medico-legal response to sexual violence. Additional funding was obtained through the Foundation for Human Rights to develop initial collaborative links with Tshwaranang Legal Advocacy Center (TLAC) and to explore further work in this area. As part of these activities, Refentse worked closely with Acornhoek SAPS to develop and support their VEP (victim empowerment programme), culminating in the joint launch (on National Women's Day) of the Vuwieselo VEP Centre behind the police station. Over 400 community members attended, and speeches were delivered by the SAPS Area Office in support of future collaboration between Refentse/Tintswalo Hospital, SAPS, and TLAC.

K. DISCUSSION OF STUDY FINDINGS

This study reviewed over 300 medical charts from rape cases presenting to a rural South African hospital and interviewed over 100 of the patients who had sought care there. There have been few such studies conducted in an African setting, and so the findings are important for understanding how the health system is currently coping with high levels of sexual violence in communities – and how they might be improved.

The demographics of those who presented to hospital following rape are similar to those that have been reported by the national Police Services[5] and indeed, 91% of those presenting to hospital had also opened a case with the police. As with national statistics, it is likely that they under-estimate the true magnitude and distribution of sexual violence in communities and that those who are reluctant to report to the police are also unlikely to seek healthcare. Thus, it is not surprising that few cases involving males were reported in this study – a warning that the needs of this particular population are likely not being met. This study confirms the high levels of child abuse reported elsewhere, with one-quarter of cases involving children younger than 14 years old, and half involving those younger than 18 years old. A particularly depressing finding is the age range captured in this study, where the youngest case involved an infant of 3 months and the oldest a 94 year-old grandmother.

The baseline findings uncovered systemic problems in the delivery of post-rape care. Confirming findings reported elsewhere[16], few healthcare workers had received any training on post-rape management, including PEP. In contrast to principles outlined in the National Sexual Assault Policy, the service was fragmented and not patient-centered, and there were multiple obstacles to the timely provision of EC, VCT and PEP. Most patients presenting for care were eligible for PEP; however most arrived after-hours, when the service was least prepared to meet their needs. A key finding was that only 14% of patients prescribed a starter-pack of PEP were able to return for any subsequent doses.

Given the systemic nature of these problems, a 5-part intervention was implemented, which included: establishing a sexual violence Advisory Committee; instituting a Hospital Rape Management Policy; holding a Training Workshop for healthcare workers and other providers;

centralizing and coordinating post-rape care through a designated room in outpatient department; and implementing community awareness campaigns. Following the implementation of this intervention in March 2004, a number of improvements were noted during the evaluation:

Uptake and efficiency of services: Based on the hospital rape register, utilization of services increased after the intervention, with the mean number of rape cases presenting to hospital increasing from 8 to 13 cases per month. Interviews with patients suggested that the service had become more private and streamlined, necessitating fewer interactions with service providers. Much of this change is likely due to the centralization of care (including stocking all tests and medications) within a designated OPD room, and the expanded role of the nurse in delivering this care. Although we had hypothesized that the intervention might increase the proportion of cases presenting to hospital within 72 hours, this did not change significantly, probably because the baseline level was already high (86%). Similarly, the length of time spent in hospital as reported by patients did not change, most likely reflecting the duration of time required for the forensic exam.

Clinical post-rape management: Both the chart review and patient interviews suggested substantial improvements across all domains measured, including the quality of history and exam and the provision of pregnancy testing, EC, STI treatment; VCT and HIV PEP, as well as follow-up counseling and referrals. After the intervention, provision of pregnancy testing increased from 68% to 86%, and prescription of EC increased from 65% to 73%. Syndromic treatment of STIs also increased from 88% to 92% and those receiving any VCT increased from 60% to 87%. Many of these improvements are likely due to the institutionalization of the Hospital Rape Management Policy, the centralization of all tests and treatments in a designated room, and the introduction of standard treatment protocols, which made it possible for healthcare workers to be guided by written protocols rather than have to recall them or look them up each time.

Provision of PEP: Following the intervention, patients were more likely to report having received PEP, to have received a full 28-day course on their first visit, and to have completed the full 28-day regimen. In addition, the intervention introduced a "stat" dose of PEP at the start of the treatment protocol and police were trained to bring patients to hospital immediately, opening a docket only after clinical care had been received. These steps appear to have contributed to a reduction in the time to receiving the first dose of PEP from 28 hours to 18 hours, which is an important outcome as numerous studies suggest greater efficacy of PEP the sooner it is taken after exposure[8].

There is a concern that providing a full course of PEP at first visit (and without further counseling visits) may lead to poor adherence and a waste of expensive medication. However, it is important to note that patients who are unable to return to hospital and only complete a starter pack of PEP also receive incomplete treatment, and that these pills too are effectively "wasted". In this population, few patients were able to return and when we compared those given a full course of PEP on the first visit to those given a starter pack, the former group were much more likely to have taken PEP for 28 days (71% vs. 29%).

To support PEP adherence, national and international guidelines highlight that providing adequate medication counseling, alongside anti-emetics for control of nausea (a common side-

effect) are critical, particularly given the multiple medications involved. The provision of anti-emetics increased after the intervention, as did the proportion of patients who could report the correct dosing interval and purpose of PEP, suggesting that these elements may have contributed to the improvements in PEP adherence observed.

An expanded role for nurses: This study demonstrated that it is possible to substantially expand the role of nurses in the management of sexual assault. Prior to the intervention, most care was delivered by the doctor, with the nurse's role confined primarily to obtaining the medical chart, taking vital signs, and waiting to assist the doctor. Following the intervention, this role was expanded to include documenting the rape history, providing acute trauma debriefing, providing a stat dose of PEP, and taking a pregnancy test. Where qualified, she would also perform VCT and assist the doctor with the forensic exam. Using the designated protocol, the nurse would then assemble the treatment package (STI medications, EC and PEP) and provide medication counseling. Finally, she would make referrals to the social worker or psychiatric nurse, as appropriate (Appendix 4).

A disappointing finding from the study, however, was the lack of impact on building nurses' capacity and willingness to perform the forensic examination. In retrospect, this reflects a number of factors. Firstly, it is likely we under-estimated the intensity of training required to develop proficiency and confidence in this area. The study employed a designated forensic nurse who received three weeks of training and mentorship under the guidance of experts at the MCWH Department in the Western Cape Province, followed by ongoing supervision by doctors at the study hospital. Although she eventually gained the confidence and skill to conduct forensic exams, she was unable to transfer these skills to other nurses in OPD. Nurses were in general reluctant to learn about this aspect of post-rape management, and were intimidated by the long time required to conduct the forensic exam. Moreover, many felt there was a lack of clarity in current government policies that would allow nurses to present evidence in court, should they be called to testify. Both the training requirements, and the development of norms and standards for forensic nurses, are still evolving in South Africa and it is clear that further experience and research would be useful. Previous experience from a pilot project in Northern Cape, which trained nurses to conduct sexual assault examinations, also found problems with deployment following the training[4].

The **costing study** set out to measure the additional cost of strengthening existing post-rape services at a rural public sector hospital. The total costs of the program over three years amounted to $84,612 (ZAR 592,286), and the estimated additional annual cost for delivering these services (total costs minus initial training and development costs) was $17,449 (ZAR 122,140).

Study strengths and limitations

This study was conducted in a rural South African hospital, allowing for an in-depth understanding of the challenges and opportunities for strengthening post-rape services in a resource-poor setting. The study used a pre / post-intervention design and had a number of strengths. A range of qualitative and quantitative methods were used to assess change, allowing for triangulation across these different methods. Thus, changes in provider practice as measured in the chart review could be compared to corresponding changes observed through the patient

interview. Objective measurement tools for quality of care indicators were developed based on standards of care outlined in national treatment guidelines. Measures of effect were adjusted for a range of potential confounders including: presentation within 72 hrs of the assault; presentation during hospital after-hours; age <14 years; and whether the patient had been seen by a senior or junior doctor. Although it would have been ideal to have included a control group, for ethical and logistical reasons this was not feasible. It is difficult, therefore, to completely exclude the possibility that observed changes would anyway have occurred over time or that apparent intervention effects were not in part the result of confounding by other variables.

In terms of potential selection bias, the pre- and post- intervention populations sampled in the chart review and client interview were well matched. Similarly, those eligible for the patient interview and those actually interviewed were comparable in terms of age, sex, time of presentation, whether a police case was opened, and eligibility for relevant tests and treatment. It was not possible to assess for differences relating to socio-economic status, as this data is not routinely captured in hospital charts. Thus, it is possible that, in spite of offering a travel stipend, those who chose to come for the interview were better off than those who did not. It is also possible that they differed in terms of personal attributes (e.g. were more empowered or assertive). However, there is little reason to think that such differences would be differentially distributed between the pre- and post-intervention groups. Thus, while these factors might influence the generalizability of the findings, it is less likely that they would systematically bias the impacts observed. Similarly, although it is possible that patients may have been inclined to report favorably about services at the hospital, they did not know whether they were in the pre- or post-intervention group, and this is therefore unlikely to have affected comparisons between pre- and post-intervention groups.

Taken together, the results of this study suggest that it is possible to improve comprehensive sexual assault services including PEP within a public sector hospital, using existing staff and resources, and that with additional training, nurses can play an expanded role in this care. Further research conducted in other settings would be useful in understanding the generalizability and replicability of these findings.

L. LESSONS FOR PROGRAM STRENGTHENING

Based on this study, the following lessons can be drawn:

1. Post rape care can be effectively integrated into existing HIV/RH services at the district hospital level in South Africa. Most diagnostic tests and treatments are generally available within the hospital; however, they may be scattered across different departments and service providers, leading to obstacles and delays in providing care.

2. In this context, introducing a hospital rape management policy may be important in establishing an institutional framework for coordinating care. Such a policy should lay out the responsibilities of a range of actors, beyond health care workers (e.g. clerks, pharmacy, laboratory, VCT counselors, social workers), as many of these providers impact directly on patient care. Such policies may also reduce the scope for individual providers to allow

personal judgments and attitudes to shape their treatment of patients (e.g. withholding PEP in the belief that women lie about rape).

3. Specifying a designated room for treating cases of sexual assault may be useful for centralizing services and increasing privacy. Medications and diagnostic tests can be stored and dispensed directly from this room, minimizing delays and the need for additional providers.

4. Treatment protocols can systematize care and make it easier for providers to follow the National Management Guidelines. Such protocols are particularly important given the lack of training received by many healthcare workers, and their high turnover within health facilities.

5. Most obstacles to providing PEP are institutional rather than patient-driven. From the patient's perspective, HIV infection is the main health concern, and most come to hospital within 72 hours. However, non-availability of VCT at time of presentation may be a serious bottleneck, and because most patients present to hospital after-hours, VCT should be made available 24-hours a day.

6. Because of conventional practices for dispensing medications, PEP may be the last step in the hospital visit. Therefore providing a stat dose of PEP can reduce the time interval to first dose.

7. In rural areas, few patients are able to return to hospital after the initial presentation. Therefore, wherever possible, all diagnostic tests and treatment should be provided on the first visit. For those who are HIV negative, a full 28-day course of PEP should be dispensed on the first visit. Same-day provision of anti-emetics and medication counseling are important for encouraging adherence.

8. Nurses can play a much greater role in the provision of post-rape care, and this may be particularly important in rural areas where there are few doctors. Further research and experience in training nurses to perform forensic exams is needed to guide policy and practice.

9. Working with other sectors is critical. Because the majority of rape survivors present to police first, cooperation with this sector can lessen delays to treatment, and provide an opportunity to strengthen medico-legal services. Similarly, in the absence of Rape Crisis Centers or other NGOs, provision of ongoing counseling and support can be provided by strengthening referral systems to existing service providers, such as Social Workers.

M. DISSEMINATION OF RESULTS

Findings have been actively disseminated throughout the research period as they emerged. At the request of the PEP Coordinator at the National DOH (Women's Health Sub-directorate), the project regularly shared implementation tools, research findings and emerging lessons at their 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 as an oral presentation at the 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.

At the close of the study, results were presented at the Acornhoek Police Station to the Project Advisory Committee (PAC), including hospital management, healthcare workers, pharmacists, social workers, police, and prosecutors. Findings were also shared in Zambia at a regional meeting on Sexual Violence convened by the Population Council in October 2006. Dissemination of findings will continue at relevant national and international fora, including the DOH Quarterly Sexual Assault Meetings, a National Health Sector Summit on Gender Based Violence and the Sexual Violence Research Initiative (SVRI).

N. STRENGTHENING LINKS WITH LEGAL SERVICES

The vast majority (91%) of survivors coming to the hospital after rape had already opened a police report and many of these had spent over four hours in hospital to complete a forensic exam. However, interviews with patients revealed low confidence in the judicial system; for example, only 26% believed that their case would actually go to trial. National police data indicates that in the year 2000 only 45% of cases were referred to court, and of these, 47% were withdrawn in court and only 17% resulted in a guilty verdict. A woman, man or child laying a rape or indecent assault charge has only a one in 13 chance of seeing their rapist convicted. [5]

These findings highlight a major shortcoming in the delivery of comprehensive services for rape survivors and so building on the successes of the Refentse model, a justice component is now being developed and linked with the health services. This component will provide direct legal services to survivors in connection with rape, and will also extend the service to address the legal needs of women experiencing domestic violence. Over a nine-month period, TLAC and RADAR participated in several exchange visits and joint training workshops at Acornhoek in order to develop this platform of work. Because of changes in the funding mechanism, this work will continue through a separate project, and so activities completed over the period March – September 2007 are reported here.

The overall aim of the follow-on phase is to add a strengthened legal and mental health component to the existing model for post-rape care and HIV post-exposure prophylaxis in rural South Africa, and to begin to explore questions concerning the uptake and feasibility of the model. This phase seeks to:

1) Introduce a strengthened referral system between the health sector and the criminal justice sector.

2) Introduce direct legal services and psycho-social counseling for survivors of rape and domestic violence, and to assess the uptake and utility of these services.

This phase was introduced to the PAC in March 2007; the PAC welcomed the expansion of the project, as many members confirmed the problems exposed by the study, and it remains strongly supportive of the new intervention, continuing to meet regularly.

The referral systems between the police station and Tintswalo Hospital established during the first phase remain intact and project staff continue to monitor service utilization at both the hospital and police station. In July 2007, the hospital appointed a full time forensic nurse, which represents an important development given the problems described earlier. TLAC will continue to work with the new forensic nurse to develop her capacity to present expert evidence in court.

The provision of direct legal services and psycho-social counseling was introduced in March 2007. During the initial set up phase, paralegal and support officers were recruited and an office opened; both officers have received extensive training in the legal aspects of domestic violence and rape. A case management system has been developed and is currently being used to record details of all cases received by the office. Between March and September 2007, 159 complaints were received, with 60 (37%) relating to domestic violence. All clients are offered counseling and to date, all clients who presented with complaints related to domestic violence have accepted the offer.

Information obtained from a baseline survey to be completed in November 2007 will be used to further refine the case management system and the collection of information. Data are being collected from the police station (police dockets, occurrence books, domestic violence register), hospital (hospital charts, rape register, OPD register), courts (court files, protection orders) and TLAC's own client files.

A strong referral system between the police station and TLAC's paralegal office was established and all survivors who report to the police station during office hours are routinely referred to TLAC's office. Mechanisms have also been set up for referrals of those women who present after hours and over the weekend.

More difficulty has been experienced in establishing a referral system between the hospital and TLAC's office, for both rape and domestic violence survivors. It has been agreed that TLAC's paralegal will collect information from the OPD and rape registers and will then conduct follow up visits. This system has been in place since August 2007 and 13 rape survivors have received legal and psychosocial support from TLAC in the two months of its operation.

Currently there is no formal national policy guiding a health sector response to domestic violence. This lack has created challenges in identifying women who present to the hospital in connection with domestic violence. The baseline survey will identify a range of potential access points for women and TLAC will develop an intervention that will assist in identification and referral of patients to its office.

REFERENCES

1. UNAIDS. Report on the global HIV/AIDS epidemic. Geneva: UNAIDS; 2006.

2. Jewkes R, Abrahams N. "The epidemiology of Rape and Sexual Coercion in South Africa" Social Science and Medicine 2002.

3. South African Police Services. Provincial crime specific statistics 1994 to 2000. <http://www.saps.org.za/8_crimeinfo/bulletin/942000.htm>: SAPS.

4. South African National Department of Health. Sexual Assault Policy. Pretoria; 2005.

5. Crime Information Analysis Centre (CIAC). South African Police Service Crime Statistics. Pretoria; 2000.

6. Garcia-Moreno C, Jansen H, Ellsberg M, Heise L, Watts C. WHO Multi-country study on women's health and domestic violence against women: Initial results on prevalence, health outcomes, and women's responses. Geneva: World Health Organisation; 2005.

7. Garcia-Moreno C, Watts C. "Violence against women: It's importance for HIV/AIDS", AIDS 2000;14 (Suppl 3):S253-S265.

8. World Health Organisation. Guidelines for Medico-legal Care for Victims of Sexual Violence. Geneva; 2003.

9. Kim JC. Rape and HIV Post-Exposure Prophylaxis: The Relevance and the Reality in South Africa (WHO Discussion Paper). WHO Meeting on Violence Against Women and HIV/AIDS: Setting the Research Agenda. Geneva: World Health Organization; 2000 October 23-25.

10. South African National Department of Health. National Management Guidelines for Sexual Assault. Pretoria: South African National Department of Health,; 2005.

11. Askew, I. and Berer, M.. "The Contribution of Sexual and Reproductive Health Services to the Fight Against HIV/AIDS: A Review", Reproductive Health Matters 2003;11(22):51-73.

12. World Health Organisation. Putting women first: Ethical and safety recommendations for research on domestic violence against women. Doc. WHO/EIP/GPE/99.2. Geneva: WHO; 2001.

13. Ellsberg M, Heise L. Researching Violence Against Women: A Practical Guide for Researchers and Activists. Washington DC: World Health Organization, PATH; 2005.

14. Kim JC. RADAR Sexual Violence Program Report 2: RADAR, School of Public Health, University of the Witwatersrand; 2005.

15. Population Council Frontiers in Reproductive Health Program and RADAR SoPH, University of the Witwatersrand. Frontiers News: Integrating post-rape care services into existing reproductive health programs in South Africa. Johannesburg: Population Council; 2005.

16. Christofides NJ, et al. "'Other patients are really in need of medical attention'- the quality of health services for rape survivors in South Africa". Bulletin of the World Health Organisation 2005;83(7):495-502.

17. South African National Department of Health. Sexual Assault Policy. Pretoria; 2003.

18. South African National Department of Health. National Management Guidelines for Sexual Assault. Pretoria: South African National Department of Health; 2003.

Appendix 1: Sexual Assault Policy [17]

NATIONAL DEPARTMENT OF HEALTH

Maternal, Child, Women's Health and Nutrition Cluster

Definition of Sexual Assault
The term sexual assault is used in this policy to encompass a range of acts involving unlawful sexual penetration or attempts at penetration. The health concerns regarding sexual assault refer to circumstances in which there is sexual penetration to any extent whatsoever by the genital organs of one person into the anus, mouth or genital organs of another person, or by any object, or part of the body of one person into the anus, mouth or genital organs of another person.

This is the definition of sexual penetration found in the South African Law Commission's Discussion Document 'Sexual Offences: Process and Procedure' (2002). It is cited because it comprehensively describes the range of acts which a patient may have experienced before presenting to a health facility. Rape may be experienced by women and men of all ages, it may involve penetration or attempts at penetration of a range of body orifices by a range of body parts or other objects.

Service Delivery
Objective: To establish designated, specialised, accessible, 24 hour health care services for the holistic management of patients to improve health status after sexual assault

Guiding principles

1. This service seeks to integrate the disparate clinical and forensic service provision for patients who have been sexually assaulted
2. Care for sexual assault patients should be provided in a holistic, survivor-centered framework.
3. No patient should be turned away if they have not reported assault to police or choose not to report sexual assault
4. Non-judgemental provision of services. The allegation is always assumed to be true and the patient is made to feel confident that they are believed, not blamed and treated correctly and with dignity.
5. All patients should be thoroughly informed about medical and legal procedures, services available and legal rights
6. Patient should be encouraged to make their own informed decision regarding reporting the case to the police and that this decision should be respected
7. If the patient decides not to report sexual assault to the police at that time, the examination should be completed, documented and evidence preserved if the patients agrees and consents.
8. Services should be provided at no cost
9. Services for sexual assault patients should be seen as a specialist service and not part of the core package of Primary Health Care.
10. Services should be provided by specialists – both Doctors and Nurses who have completed the required training.

Appendix 2: National management guidelines for sexual Assault [18]

NATIONAL DEPARTMENT OF HEALTH

Maternal, Child, Women's Health and Nutrition Cluster

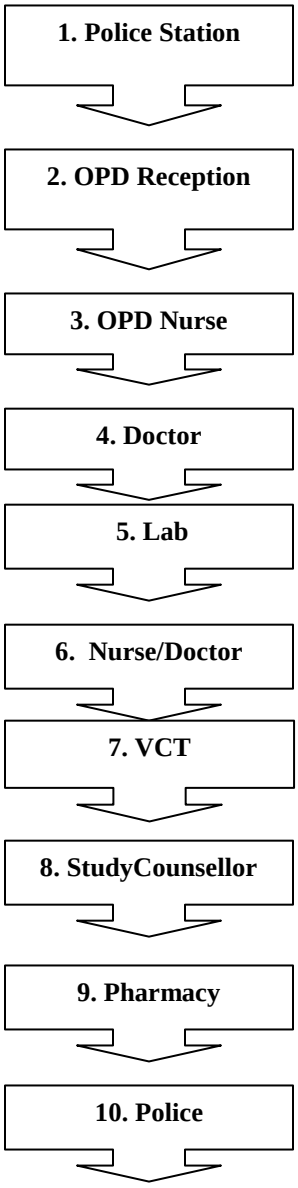
Health workers at all levels of the heath care system (looking after adult sexual assault patients) should be able to do the following:

- Recognise physical and sexual assault
- Document pertinent history
- Perform a thorough head to toe physical examination
- Document all injuries
- Collect forensic evidence as prescribed in the SAECK/SAEK
- Pre and post test counselling for HIV
- Screen for STI and HIV
- Treat physical injuries
- Prevent unwanted pregnancy
- Prevent and treat STIs
- Provide post exposure prophylaxis for HIV
- Provide psychological support
- Refer to appropriate resources
- Complete the J 88 form in police cases
- Present evidence in court

For child sexual assault at primary care level, the health worker should:

- Know when to suspect sexual abuse
- Recognise cases of sexual abuse and act appropriately
- Recognise urgent / life threatening complications of sexual abuse and act appropriately
- Refer the child for collection of data
- Offer post-exposure prophylaxis against HIV (antiretroviral) starter pack

Appendix 3: Pre-Intervention Flow Diagram for Management of Rape Cases



During Working Hours

1) **Police Station:** Most cases report first to the police station, where after waiting in a queue, a police case is opened.

2) **OPD Reception**: If accompanied by police officer, supposed to be prioritized. If presents without police and does not self identify as rape case to clerk or nurse, may wait in general queue. May also be re-directed to police station to open case before coming to hospital.

3) The **OPD nurse** will get the chart, take vitals and inform the doctor that a rape survivor needs to be seen.

4) The **doctors** currently provide all care, from the history and forensic examination, to the ordering of investigations and medications. Forensic exam kits are not stored at the hospital, and therefore if the survivor is unaccompanied by police, she may be sent back to police, or there may be a delay while police are summoned to bring the kit.

5) The **lab** is down the hallway, and usually has a queue as all patients have to wait there for any blood or urine tests

6) After going to lab for tests, the patient must **return to the doctor** to receive a prescription for STI meds, emergency contraception and PEP. This often involves another wait, as the doctor will have started to see other patients. They are then advised to go to the HIV clinic (separate building) for VCT before going to the pharmacy.

7) **VCT**: This rarely happens in OPD for three reasons. The test kits are often not available; nurses are not trained to do VCT; and there is a lack of privacy. Therefore, all patients are sent to the HIV Clinic for VCT. However, the clinic is only open during working hours. If HIV positive, they are referred to the HIV Clinic for ongoing care.

8) **Study counselor:** They are then seen by our study counselor for acute debriefing and to gain informed consent for a 4-week follow-up.

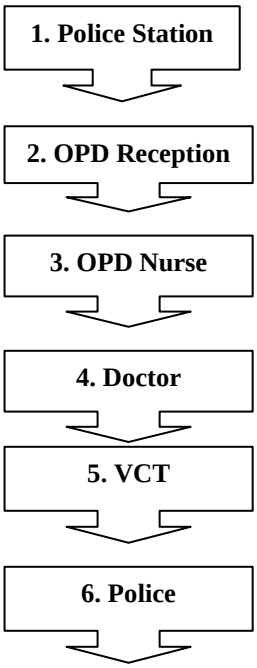
9) If VCT was done and the result is negative, client is then directed to the **pharmacy**. Here they receive a 7-day pack of AZT and 3TC and are advised to return weekly for refills. It is worth noting that accessing PEP is the *last* step in this protocol.

10) **Police:** After forensic examination and medical care are completed, the survivor **returns to the police station** with the police officer, where the paperwork and forensic evidence are filed, and the survivor is then driven home.

After-Hours

(Steps 1-4 as above)
5) On weekends and evenings, the **lab** technician needs to be called to the OPD in order to access HIV and pregnancy tests. This frequently prevents access to both.
6) The **nurse/doctor** provides the STI meds and emergency contraception from OPD supply, and pages the pharmacist to provide a starter-pack of PEP (3 or 7 days). The patient is advised to return the next working day for VCT and further PEP.
7) **VCT** generally not available after-hours, so patients told to return following working day
8) **Study Counselor** not available after-hours, so nurses trained to offer informed consent for follow-up counseling and interview at 4 weeks.
9) **Pharmacist:** Should come to provide PEP starter pack.- on call, but not always immediately available.

Appendix 4: Post-Intervention Flow Diagram for Management of Rape Cases



During Working Hours

1) **Police Station:** In order to minimize delays before PEP, police now bring clients straight to hospital before opening a police report (which is now done after clinical management).
2) **OPD Reception**: Those coming directly to hospital are no longer redirected to the police station – instead, police are phoned to come to hospital. Police bring the forensic exam kit with them. They also stock extra kits in a locked cabinet in OPD. 2) All rape cases are prioritized by the clerk and OPD nurses, so they do not wait in the OPD queue.
3) The role of the **OPD nurse** has been expanded, and all tests and treatment are delivered in a designated, private OPD room. The nurse now documents the rape history, and provides acute trauma debriefing. She administers one stat dose of PEP, as well as the pregnancy test. Where qualified, she performs VCT and assists or performs the forensic exam. Using tick boxes on the designated protocol, she puts together the treatment for STIs, Emergency Contraception and PEP, provides medication counseling, and referrals to the social worker or psych nurse.
4) The **doctor** reviews the forensic history and supervises or performs the forensic exam, and completes the J88 form (legal documentation). The doctor reviews and counter-signs the prescribed medications, which are dispensed directly from the OPD room.
5) **VCT**: Test kits are now stored in OPD. If a trained nurse is not available in OPD, the patient is sent to the HIV clinic for VCT, then returns to OPD for medications
6) Police no longer have to wait, or be present during the exam, but drop off the client and return when called by the hospital. The police report is now done after all medical treatment is complete – either at the hospital, or at the police station. The police then take the client home.

After-Hours

On weekends and evenings, the lab technician and pharmacist no longer need to be called in, as all tests and drugs are stocked in the designated exam room. However, VCT is still not available on weekends and evening, and in this case, clients are still given a starter pack of PEP and asked to return the following working day.

Appendix 5: 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
Mogakane DZ: Deputy Manager Nursing
Ndlovu M M: Manager OPD
Ntlemo E: Forensic Nurse Trainer, RADAR
Mokwena L: Post-Rape Care Coordinator, RADAR
Wiebe C: Rape Program Manager, RADAR
Kim J: Rape Program Supervisor, RADAR

Authorized by: Mongwe: Acting CEO, Tintswalo Hospital

1. 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 counselling, 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.

2. 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.

3. 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).

4. POLICY:

1. Every survivor who presents to the hospital following rape must be recorded in the OPD Admissions Register by an OPD nurse.
2. Every rape case should be managed comprehensively according to the National Management Guidelines for Sexual Assault (October 2003)
3. 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
4. Periodic assessment should be conducted in order to assess the effectiveness of the post-rape service.

5. **POLICY PROCEDURE**:

5.1. **RECORDING RAPE CASES -** The procedure for recording rape cases is as follows:

5.1.1. 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)

5.1.2. 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

5.2. **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:

5.2.1. Detailed History

5.2.2. Physical examination

5.2.3. Treatment of physical injuries

5.2.4. 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.[3]

5.2.4.2. Prevention of pregnancy or referral for termination of pregnancy where appropriate: [4]

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).

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: [5]

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.[6]

5.2.5. Forensic examination and collection of evidence using the SAECK and J-88 where appropriate. [7]

---

[3] Sections 11.4, 11.5 and 11.7 National Management Guidelines for Sexual Assault (NMGSA)
[4] Section 11.3 NMGSA
[5] Section 11.6 and 11.7 NMGSA
[6] Section 11.4 NMGSA
[7] Section 10.1 NMGSA

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.

5.2.6. Referral for follow-up counseling and support [8] 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)

5.2.7. All cases of child abuse must be referred to a police official, commissioner for child welfare, or social worker. [9]

5.3. **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:

5.3.1. 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.

5.3.2. If the survivor is interested in counseling, a follow-up appointment at 4-weeks time should be made.

5.4. **PERIODIC ASSESSMENT -** In order to evaluate the effectiveness of the post-rape service, the following steps should be followed:

5.4.1. 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

5.4.2. 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:

[8] Section 8.0 NMGSA

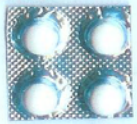
[9] Section 4 of the Prevention of Family Violence Act, 1993 (Act No 133 of 1993)

Hospital OPD Rape Register (template)

Identification				**Pregnancy test**			**VCT done**		**VCT Result**	**PEP**	**After stat dose, what other PEP given?** (choose 1 only)			**Referrals**			**Name HCW**	**Date Of admission**
Name	Sex M/F	Hosp #	D.O.B DD/MM/YY	Done (Y/N)	Result (pos/neg)	EC given (Y/N)	Today (Y/N)	Told to return later (Y/N)	Pos Neg Don't know	Stat dose (Y/N)	Starter pack only (Y/N)	Full 28 days today (Y/N)	Nothing	SW	Pysch Nurse	Other		dd/mm/yy
S Sibuyi	F	13748	12/3/78	Y	neg	Yes	No	Yes	Don't know	Yes	Yes	No	No	Yes	No		M. Nkhuna	01/03/2007

Appendix 6: Medication Counseling Chart

MEDICATION COUNSELLING CHART (English)

Name of Medication	What it is for	Instructions	Breakfast Meds	Lunch Meds	Supper Meds	Meds Before Bed	Side Effects and What to do
AZT (Retrovir) 	To prevent HIV	3 pills (or syrup) twice daily for 28 days	3 pills		3 pills		Panado for headache. Maxolon for stomach upset.
3tC (Lamivudine) 	To prevent HIV	1 pill (or syrup) twice daily for 28 days	1 pill		1 pill		Usually does not cause side effects.
Doxycycline 	To prevent sexually transmitted infection	1 pill twice daily for 7 days	1 pill		1 pill		Maxolon for stomach upset. Do not take on an empty stomach.
Erythromycin 	To prevent sexually transmitted infection	1 pill (or syrup) four times daily for 7 days	1 pill	1 pill	1 pill	1 pill	Maxolon for stomach upset. Do not take on an empty stomach.
Metronidazole 	To prevent sexually transmitted infection	2 gm stat or follow pediatric chart					Maxolon for stomach upset. Do not drink alcohol or take on an empty stomach.
Ovral 	To prevent pregnancy	2 pills now and 2 pills 12 hours later		2 pills		2 pills	Commonly causes nausea. Take Maxolon before each dose. Do not take at the same time as other medications.
Maxolon	For nausea and stomach upset	1 pill before Ovral doses and as needed for side effects		1 pill		1 pill	May make you sleepy. Do not drive or plan important activities after taking.

Appendix 7: Report on sexual assault examination for males and females

* Modified and used with permission of Provincial Reference Group, PAWC

Note: This document constitutes the confidential medical record of the patient. It may however be subpoenaed as a court document if the court deems it necessary. It is essential to record all information and findings accurately, legibly and to remember that the original document could become part of a court record.

- *<u>Please note:</u> Medical Officers and nurses can testify in court as expert witnesses.*

<u>PERSONAL DETAILS</u>

Name: ……

Folder No: ……

Additional information:
Has a charge been laid?

- If yes : SAPS Station …….

  MAS No. …….

- If no : does patient intend laying a charge

  Yes : ☐
  No : ☐
  Unsure : ☐

History of Assault. Take only relevant facts; not a detailed statement.

Date of alleged rape: ….. /….. /……. Time of alleged rape: ……. h…….

Was patient conscious at the time of rape? Yes / No

If no, specify

details……

……

……

Patient's description of assault: (e.g. walking home, at work, on a date, etc.)
……..……
…...……
……...……
……...……
……

Perpetrator/s

Number | Unknown ☐ Uncertain ☐

Rapist/s known to patient Yes ☐ Unknown ☐ Uncertain ☐

If yes, how known ……..

Any further comment
……

Details of sexual assault incident:

Where did the sexual assault occur? *(If patient knows or remembers circle choice.)*

Victim's Home	Rapist's Home	Work Place	Motor Car	Beach	Alley
Terminus	Open Space	Public Toilet	Shebeen/ Club	Field/Park	Bush

Other:……
……

Surface/s on which rape occurred e.g. bed, carpet, tar, sand
……

Abducted to another place: Yes / No *(circle choice)*

Can patient remember experiencing any of the following? Being threatened, grabbed, held, restrained punched, throttled, kicked, hit or other?

Specify:……

……

…….

Was a weapon seen or used? Yes / No *(circle choice)*

If yes, was it a knife, gun, bottle, screwdriver or other? (circle which). If other, specify……

……
…….

Sexual / indecent acts performed during assault:

Does patient remember the type of sexual act, if any, that occurred during the attack? State whether oral, genital, or anal penetration by penis, finger or any object; or attempts at penetration; any oral contact of genitals or anus; any masturbation, fondling, kissing or licking; or any other indecent act

……
……
……
……
……
……

Since assault, has patient:

Removed/ inserted tampon Yes ☐ No ☐

Brushed teeth/ washed out mouth Yes ☐ No ☐

(Also ask questions in J88: Section D, #13)

Ensure Medical History and Gynaecological History filled on J88 (Sections B & D)

History given by: (patient herself, friend, nurse)

……
……...

History taken by:

…….

Designation/Qualifications:

…….

Any other comment / note:

……
……
……
……
……...

Physical Examination – use both this form and the J88 form

1. Patient to change into clinic gown. Undress over large catch sheet of paper, which is then folded, placed in an envelope and into SAECK box. If possible all clothing to be kept in separate paper bag for forensic tests; otherwise advise the patient to change when at home and give clothing to SAPS investigating officer.
2. Remember to take all forensic specimens simultaneously with examination to avoid contamination and losing evidence.

Vital signs:

Temperature: ……. Pulse: …… BP: ……. Hb: …….

CVS/RS: (note any abnormality detected): ……

……

Head and neck examination (tick appropriate box):

Check eyes for haemorrhages (throttling) Yes ☐ No ☐

Describe: ……

Mouth & Lips (abrasions/bruising/cuts): Yes ☐ No ☐ **(take oral swab)**

Describe: ……

Scalp (lacerations etc): **(comb hair)** Yes ☐ No ☐

Describe: ……

Neck (finger-imprint bruises/ scratches etc): Yes ☐ No ☐

Describe: ……

Other Injuries: ……

……

Note injuries on sketch on J88 form.

Body:

Note all injuries on body – describe whether contusions, abrasions, lacerations, incised wounds, stab wounds or gun shot wounds. Measure the size of each wound, and describe position on the body using anatomical landmarks. **(Remember to collect all forensic biological evidence from body while examining)**

……
……
……
……
……
……
……

Pay particular attention to:

Elbows	Fingernails **(take swabs)**
Ulna aspect of forearms	Breast (especially bite marks) **(swab bite marks)**
Hands	Thighs (especially inner aspects)
Fingers	Back, buttocks, calves (struggle while lying on back)

Other (describe details noted above)

……

……

……

…….

NOTE: If no bruises noted consistent with the patient's history, then should be re-examined in 48 hours to reassess the extent of injuries that may not be immediately apparent.
Note injuries on Anatomical sketch on J88 form.

Genital Examination for Female Patients – chart on J88 form

External genital and anal examination: (***Take specimens simultaneously with examination in the following order– pubic hair, anal, rectal, external genital, deep vaginal, cervical***)

Special areas for attention: (document on J88)

Labia Majora/Labia Minora: (Inner aspects of the labia may have injuries from assailant's fingers, fingernail scratches):

Urethral Orifice / para-urethral folds:

Clitoris / Prepuce of clitoris:

Posterior commissure, perineum, natal cleft and rectum for tears/bruises

Check **hymen / hymenal remnants / introitus:** (need good light and examine hymen through 360°)

- Size of vaginal opening (whether admits 1, 2 or 3 fingers with ease or with difficulty alternatively estimate.

Check **vagina** (preferably use plastic speculum and good light - do not use if painful, a virgin or presence of obvious trauma to vulva and hymen e.g. tears):

- look for tears
- seminal fluid
- discharge
- bleeding

Genital Examination for Male Patients - chart on J88 form

External genital and anal examination: (***Take specimens simultaneously with examination in the following order– pubic hair, anal, rectal, external genital***)
Note any swelling, redness, bruises, lacerations, tenderness, bleeding or discharge.

Record of Forensic Specimens taken:

Sexual Assault Evidence Collection Kit used: Yes / No

If used, attach your copy of the inventory form from the SAECK to the examination form
If additional samples are taken, place into a clearly labelled official brown envelope, seal, sign across seal and place into SAECK or hand in separately. Add any additional samples to the SAECK form. Any other evidence handed in e.g. clothes or more swabs:
……
……
……..……..……

Was a photograph of injuries taken? Yes ☐ No ☐ By whom? ……

In whose possession are photographs? …….

Disposal of biological specimens **(NB for chain of evidence)**:

1. Handed to SAPS: Yes ☐

(Get details of police member to whom samples are given)

Name: ……..…….

Signature: ……

Persal Number: ……

Station and telephone number: ……

2. Placed in cupboard/By whom – Name: ……..……...
safe at HCF:

Yes ☐ Contact details: ……..…….……...

3. ***Treatment for pregnancy, STI's and HIV*** **(please check treatment given)**

1. Pregnancy prevention

Two doses of emergency contraceptive pills (ECPs) must be taken within 5 days of unwanted intercourse and 12 hours apart.

☐ Ovral ii tabs now and ii tabs 12 hours later

☐ Maxolon i tab 30 minutes prior to each dose
If possible, space between PEP meds.

2. Sexually transmitted infections:

Non-pregnant:	***Pregnant:***	***Children*:*** ***(write prescription given)***
☐ ciprofloxacin 500mg po stat dose	☐ ceftriaxone 125mg im stat dose	☐ ceftriaxone
☐ metronidazole 2 gm po stat (warn re alcohol)	☐ metronidazole 2 gm po stat (warn re alcohol)	☐ metronidazole
☐ doxycycline 100mg BD for 7 days	☐ erythromycin 500mg q6H for 7 days	☐ erythromycin

3. Anti-retroviral Post Exposure Prophylaxis *(Must also record in register)*:

PEP regimen*		
AZT	**300mg 12 hourly**	**For 28 days**
3TC	**150mg 12 hourly**	**For 28 days**

**(Refer to pediatric dosing chart on cupboard for STIs and PEP)*

In individual cases discuss the possibility of PEP against HIV transmission if rape occurred less than 72 hours before presentation.

Check everything given:

Stat PEP	**VCT**	**7-day Starter Pack (if no VCT)**	**28-day PEP (if HIV negative)**

<u>Post treatment Referral Options</u> (Use referral forms, and record in check boxes as provided)

☐ **Social Worker**
All cases of child abuse (all sexual assault under the age of 18)
Domestic violence, concerns about personal safety

☐ **Psychiatric Nurse**
Available weekdays at psych ward
Acute and long-term counselling

☐ **Refentse**
Providing follow-up counselling at 4 weeks
Please complete informed consent, with detailed contact information

- If during office hours refer directly to social worker.
- After hours provide immediate counselling, and ask patient to return to health facility within next week for further counselling.
- Inform patient of hospital services and VEP Centre at the Acornhoek Police Station.
- Provide patient and family with literature on rape.