

# TABLE OF CONTENTS

DECLARATION.....ERROR! BOOKMARK NOT DEFINED.

DEDICATION.....ERROR! BOOKMARK NOT DEFINED.

POSTER PRESENTATIONS ARISING FROM STUDY.....ERROR! BOOKMARK NOT DEFINED.

ABSTRACT.....ERROR! BOOKMARK NOT DEFINED.

ACKNOWLEDGEMENTS .....ERROR! BOOKMARK NOT DEFINED.

TABLE OF CONTENTS ..... VIII

LIST OF FIGURES ..... XII

LIST OF TABLES ..... XIII

NOMENCLATURE..... XIV

1 INTRODUCTION ..... ERROR! BOOKMARK NOT DEFINED.

1.1 The Human Immunodeficiency Virus and AIDS.....Error! Bookmark not defined.

1.1.1 The Epidemiology of HIV Infection..... **Error! Bookmark not defined.**

1.1.2 Vertical HIV Transmission from Mother to Child.....**Error! Bookmark not defined.**

1.1.3 Prevention of Vertical Transmission of HIV.....**Error! Bookmark not defined.**

1.1.3.1 Combination therapy ..... *Error! Bookmark not defined.*

1.1.3.2 Single dose regimens..... *Error! Bookmark not defined.*

1.2 Advanced Maternal Age and Chromosome Abnormalities.....Error! Bookmark not defined.

1.2.1 Down Syndrome ..... **Error! Bookmark not defined.**

1.2.1.1 Down Syndrome in South Africa..... *Error! Bookmark not defined.*

1.2.2 Genetic Counselling..... **Error! Bookmark not defined.**

1.2.2.1	<i>Genetic Counselling for AMA</i> .....	<b>Error! Bookmark not defined.</b>
1.2.3	Prenatal Diagnosis .....	<b>Error! Bookmark not defined.</b>
1.2.3.1	<i>Testing: Chorionic Villus Sampling and Amniocentesis</i> .....	<b>Error! Bookmark not defined.</b>
1.2.3.2	<i>Chromosomal Analysis</i> .....	<b>Error! Bookmark not defined.</b>
1.2.3.3	<i>Results of Testing</i> .....	<b>Error! Bookmark not defined.</b>
1.2.4	Termination of Pregnancy Act.....	<b>Error! Bookmark not defined.</b>
<b>1.3</b>	<b>The Impact of HIV on Genetic Counselling ....</b>	<b>Error! Bookmark not defined.</b>
1.3.1	Comparison of Risks.....	<b>Error! Bookmark not defined.</b>
1.3.2	HIV and Amniocentesis.....	<b>Error! Bookmark not defined.</b>
1.3.3	Decision Making.....	<b>Error! Bookmark not defined.</b>
<b>1.4</b>	<b>Aims</b> .....	<b>Error! Bookmark not defined.</b>
<b>2</b>	<b>METHODS</b> .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
<b>2.1</b>	<b>File Analysis</b> .....	<b>Error! Bookmark not defined.</b>
2.1.1	Population .....	<b>Error! Bookmark not defined.</b>
2.1.2	Setting .....	<b>Error! Bookmark not defined.</b>
2.1.3	Sample.....	<b>Error! Bookmark not defined.</b>
2.1.4	Data Collection .....	<b>Error! Bookmark not defined.</b>
<b>2.2</b>	<b>Questionnaire</b> .....	<b>Error! Bookmark not defined.</b>
2.2.1	Patient Information .....	<b>Error! Bookmark not defined.</b>
2.2.2	Check List.....	<b>Error! Bookmark not defined.</b>
2.2.2.1	<i>Questions 1 and 2</i> .....	<b>Error! Bookmark not defined.</b>
2.2.2.2	<i>Questions 3 to 7</i> .....	<b>Error! Bookmark not defined.</b>
2.2.2.3	<i>Questions 8 to 10</i> .....	<b>Error! Bookmark not defined.</b>
2.2.2.4	<i>Question 11</i> .....	<b>Error! Bookmark not defined.</b>
2.2.2.5	<i>Question 12 to 14</i> .....	<b>Error! Bookmark not defined.</b>

2.3	<b>Statistical Analysis</b> .....	Error! Bookmark not defined.
2.4	<b>Ethical Considerations</b> .....	Error! Bookmark not defined.
<b>3</b>	<b>RESULTS</b> .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
3.1	<b>File Search</b> .....	Error! Bookmark not defined.
3.1.1	Patient Demographics .....	<b>Error! Bookmark not defined.</b>
3.1.2	Patient Numbers.....	<b>Error! Bookmark not defined.</b>
3.1.3	Gestation of Pregnancy .....	<b>Error! Bookmark not defined.</b>
3.1.4	Prenatal Testing .....	<b>Error! Bookmark not defined.</b>
3.1.5	HIV Status.....	<b>Error! Bookmark not defined.</b>
	<i>3.1.5.1 HIV status and Prenatal Testing</i> .....	<i><b>Error! Bookmark not defined.</b></i>
3.1.6	Maternal Age and Prenatal Testing.....	<b>Error! Bookmark not defined.</b>
3.1.7	Impact of Counsellor.....	<b>Error! Bookmark not defined.</b>
3.2	<b>Questionnaire</b> .....	Error! Bookmark not defined.
<b>4</b>	<b>DISCUSSION</b> .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
4.1	<b>HIV Prevalence in AMA Women</b> .....	Error! Bookmark not defined.
4.1.1	The Impact of HIV Status on Amniocentesis Uptake	<b>Error! Bookmark not defined.</b>
4.1.2	Other Factors Influencing Amniocentesis Uptake	<b>Error! Bookmark not defined.</b>
4.1.3	The AMA Women’s Understanding of Risk	<b>Error! Bookmark not defined.</b>
4.1.4	HIV Positive Women, Amniocentesis and ART	<b>Error! Bookmark not defined.</b>
4.2	<b>HIV Positive Women and TOP</b> .....	Error! Bookmark not defined.
4.2.1	Termination of Pregnancy.....	<b>Error! Bookmark not defined.</b>
4.3	<b>Future Management</b> .....	Error! Bookmark not defined.
4.4	<b>Limitations</b> .....	Error! Bookmark not defined.
4.5	<b>Recommendations</b> .....	Error! Bookmark not defined.

**4.6 Summary.....**Error! Bookmark not defined.

**4.6.1 Study Findings .....**Error! Bookmark not defined.

**REFERENCES.....**ERROR! BOOKMARK NOT DEFINED.

**APPENDICES.....**ERROR! BOOKMARK NOT DEFINED.

**Appendix A Covering Page to Patient Questionnaire** Error! Bookmark not defined.

**Appendix B: Patient Information.....**Error! Bookmark not defined.

**Appendix C: Consent Form .....**Error! Bookmark not defined.

**Appendix D: Ethics Approval.....**Error! Bookmark not defined.

## LIST OF FIGURES

- Figure 1-1 Exponentially increasing risk of chromosome abnormalities in the offspring of women of advancing age at time of conception (adapted from Palomaki and Haddow, 1987)..... **Error! Bookmark not defined.**
- Figure 1-2 Example of a chromosome karyotype for a normal male (46, XY) showing 23 pairs of chromosomes arranged in descending size with the sex chromosomes X and Y listed last. .... **Error! Bookmark not defined.**
- Figure 3-1 Proportion of patients seen at three main Genetic Counselling Clinics in the two six-month periods of 2003 and 2004 combined **Error! Bookmark not defined.**
- Figure 3-2 Comparison of the gestation of pregnancies of women attending Genetic Counselling for AMA in two six-month periods ... **Error! Bookmark not defined.**
- Figure 3-3 HIV Status and Amniocentesis Uptake: February to July 2003 **Error! Bookmark not defined.**
- Figure 3-4 HIV Status and Amniocentesis Uptake: February to July 2004 **Error! Bookmark not defined.**
- Figure 3-5 Circumstances under which the HIV Positive patients would consider amniocentesis..... **Error! Bookmark not defined.**

## LIST OF TABLES

- Table 1-1 Risks of chromosome abnormalities in infants of mothers of advancing age..... **Error! Bookmark not defined.**
- Table 3-1 Comparison of pregnancy gestation of AMA women seen at the Genetic Counselling Clinics..... **Error! Bookmark not defined.**
- Table 3-2 Prenatal diagnosis for chromosome abnormalities, 2003 and 2004. **Error! Bookmark not defined.**
- Table 3-3 Number of AMA women seen at the main centres for genetic counselling..... **Error! Bookmark not defined.**
- Table 3-4 HIV status of AMA women attending Genetic Counselling Clinics in the six months of 2003 and 2004..... **Error! Bookmark not defined.**
- Table 3-5 Rates of amniocentesis uptake in HIV negative, HIV positive and HIV unknown women..... **Error! Bookmark not defined.**
- Table 3-6 Uptake of prenatal testing in older and younger AMA women. **Error! Bookmark not defined.**
- Table 3-7 Comparison of HIV status of older and younger women of AMA. **Error! Bookmark not defined.**
- Table 3-8 Uptake of prenatal testing between patients seen by either a genetic counsellor or a doctor from the Department of Human Genetics. **Error! Bookmark not defined.**

## NOMENCLATURE

ADI	AIDS defining illness
AMA	Advanced maternal age: pregnant women over the age of 35 years
Amniocentesis	Procedure whereby a sample of amniotic cells is obtained from the uterus
ART	Antiretroviral therapy for the treatment of HIV infection
AZT	Zidovudine (3'-azido-2',3'-dideoxythymidine) is a nucleoside analogue reverse transcriptase inhibitor (NRTI) which is used alone, or as part of combination therapy, in the treatment of HIV/AIDS
CD4 antigen	Surface antigen of T lymphocytes, which acts as a primary receptor for HIV
Chromosomes	The structures within each cell containing the genetic information, and which are transmitted precisely from generation to generation via the gametes
CVS	Chorionic villus sampling: a sample of tissue from the chorionic membrane of the fetus
Down syndrome	The presence of three copies of chromosome 21 resulting in a standard phenotype of intellectual disability, characteristic facial features and possible cardiac and thyroid function anomalies
Facesheet	A3 folded sheet containing patient contact details, family history and details pertaining to the genetic counselling session

HAART	Highly active antiretroviral therapy, a regimen that usually involves a combination of three or more drugs, which includes at least one protease inhibitor (PI) and/or a non-nucleoside reverse transcriptase inhibitor (NNRTI)
Karyotype	An individual's chromosome constitution, described in a standard manner or depicted as a microscopic preparation of dividing chromosomes
MTCT	Mother to child transmission of HIV, which occurs during pregnancy, birth or through breastfeeding
Nevirapine	A non-nucleoside reverse transcriptase inhibitor (NNRTI) used as mono-therapy to reduce the risk of vertical HIV transmission from mother to child during delivery
PCR aneuploidy screen	A screening test on uncultured amniotic fluid, able to detect numerical chromosome abnormalities of chromosomes 21, 18, 13, X and Y, usually within 72 hours.
Prenatal testing	Amniocentesis or CVS, used to investigate the chromosome constitution of a fetus
TOP	Selective termination of pregnancy
Trisomy	The presence of three copies of a chromosome
3TC	Lamivudine (-2'-deoxy-3'-thiacytidine), a cytosine analogue which is a nucleoside analogue reverse transcriptase inhibitor (NRTI)