hiv prevention menu

social & behavioural change

safer sexual practices, needle exchange, building next gen

barrier methods

condoms – male, female

testing

voluntary counselling and testing

circumcision

male medical circumcision

sti treatment

treating sexually transmitted infections

antiretroviral drugs

for infected patients: HAART (TasP), PMTCT for uninfected patients: PEP, PreP

under study

vaccines, rings, microbicides

Medical Male

Circumcision

Limakatso Lebina Perinatal HIV Research Unit



21 YEARS OF RESEARCH EXCELLENCE

Perinatal HIV Research Unit of the University of the Witwatersrand

21 YEARS OF RESEARCH EXCELLENCE

WHY ANOTHER "C"?



- Circumcision oldest and most common surgery performed. 20-25% of men circumcised.
- Religious, cultural





Biological Rationale

- Biological plausibility
 - Inner mucosa of foreskin is rich in HIV target cells (9x)
 - External foreskin/ shaft keratinized and not vulnerable
 - After circumcision, only vulnerable mucosa is meatus
- Foreskin is retracted over shaft during intercourse
 - Large surface area inner mucosal surface exposure
 - Micro-tears, especially of frenulum
- Intact foreskin associated with infections
 - GUD
 - Balanitis/phimosis
 - Possible increase HIV entry or shedding



Keratinised outer surface of Human Foreskin



External Surface

Mucosal Surface



Patterson et al. Am J Pathol 2002

Higher HIV Prevalence linked with uncircumcised males

- > 75% males uncircumcised = 16.4% HIV prevalence
- 90% males circumcised =
 0.9% HIV prevalence

Does not prove a cause and effect relationship.



Bongaarts AIDS 1989



The Circumcision Trials

Open access, freely available online PLOS MEDICINE

Randomized, Controlled Intervention Trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial

South Africa to test this hypothesis.

Methods and Findings

Bertran Auvert^{1,2,3,4*}, Dirk Taljaard⁵, Emmanuel Lagarde^{2,4}, Joëlle Sobngwi-Tambekou², Rémi Sitta^{2,4}, Adrian Puren⁶

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1112

Observational studies suggest that male circumcision may provide protection against HIV-7

infection. A randomized, controlled intervention trial was conducted in a general population of

A total of 3,274 uncircumcised men, aged 18-24 y, were randomized to a control or an

intervention group with follow-up visits at months 3, 12, and 21. Male circumcision was offered

to the intervention group immediately after randomization and to the control group at the end

of the follow-up. The grouped censored data were analyzed in intention-to-treat, univariate and multivariate, using piecewise exponential, proportional hazards models. Rate ratios (RR) of HV incidence were determined with 95% CL Protection against HV infection was

calculated as 1 - RR. The trial was stopped at the interim analysis, and the mean (interquartile

range) follow-up was 18.1 mo (13.0-21.0) when the data were analyzed. There were 20 HIV

infections (incidence rate = 0.85 per 100 person-years) in the intervention group and 49 (2.1 per

100 person-years) in the control group, corresponding to an RR of 0.40 (95% CI: 0.24%–0.68%; p < 0.001). This RR corresponds to a protection of 60% (95% CI: 32%–76%). When controlling for

behavioural factors, including sexual behaviour that increased slightly in the intervention

group, condom use, and health-seeking behaviour, the protection was of 61% (95% CI: 34%-

Male circumcision provides a degree of protection against acquiring HIV infection, equivalent

Competing Interests: The authors have declared that no competing interests exist. Background

77%).

Conclusion

Author Contributions: BA designed the study with DT, EL, and AP. DT and AP were responsible for operational aspects, including laboratory and field work and incountry administration of the study. An monitored the study with input from EL and wrote the paper with input from all authors: BA analyzed the data with RS, with inputs from JST. RS conducted the interim

Academic Editor: Steven Deeks, San Francisco General Hospital, San Francisco, California, United States of America.

analysis.

Citation: Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, et al. (2005) Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk The ANIIS 1265 trial. PLoS Med 2(11): e238.

Received: June 29, 2005 Accepted: September 26, 2005 Published: October 25, 2005

10.1371/journal.pmed.0020298

Copyright: 2005 Auvert et al. This is an open-acces and darbude under the terms of the Creative Common Attribution License, which permits unvestricted use, distribution, and reportation in sub-Saharan Africa. (Preliminary and partial results were presented at the International AIDS Society 2005 Conference, on 26 July 2005, in Rio de Janeiro, Brazil.)

Abbreviations: AE, adverse event; IQR, interquartile range; M[number], month [number]; MC, male circumcision; py, person-year; RR, rate ratic; STI, sexually transmitted infection; VCT, voluntary: counselling

and testing • To whom correspondence should be addressed, E-mail: bertran, auvert@apr.aphp.fr



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Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial



Robert C Bailey, Stephen Moses, Corette B Parker, Kawango Agot, Ian Maclean, John N Krieger, Carolyn F M Williams, Richard T Campbell, Jeckoniah O Ndinya-Achola

Summary

Background Male circumcision could provide substantial protection against acquisition of HIV-1 infection. Our aim tancet 2007; 369:643-56 was to determine whether male circumcision had a protective effect against HIV infection, and to assess safety and changes in sexual behaviour related to this intervention. See Comment page 617 See Comment page 617

Kenya

Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial



21 YEARS OF RESEARCH EXCELLENCE

Ronald H Gray, Godfrey Kigozi, David Serwadda, Frederick Makumbi, Stephen Watya, Fred Nalugoda, Noah Kiwanuka, Lawrence H Moulton, Mohammad A Chaudhary, Michael Z Chen, Nelson K Sewankambo, Fred Wabwire-Mangen, Melanie C Bacon, Carolyn F M Williams, Pius Opendi, Steven J Reynolds, Oliver Laeyendecker, Thomas C Quinn, Maria J Wawer

Summary

Background Ecological and observational studies suggest that male circumcision reduces the risk of HIV acquisition in men. Our aim was to investigate the effect of male circumcision on HIV incidence in men.

South Africa



MMC Scale-UP

- Medical Male Circumcision shown to reduce the risk of acquiring HIV
- 2007: WHO recommended the scale-up of VMMC for the prevention of HIV
- 80% coverage target
- SA: 2.4 million VMMC in 2012-2016 (NSP 2017-2022)
- SA Target 2017-2022: 2.5 million VMMC(NSP 2017-2022)



VMMC Costs



21 YEARS OF RESEARCH EXCELLENCE

VMMC cost-effective

CEA of MMC, health provider perspective

Characteristics	Gray 2007	Kahn 2006	Auvert 2008	Fieno 2008	Bollinger 2009
Country	Uganda	South Africa	SSA	Mozambique	Botswana
Time Horizon (years)	10	20	10-20	20	17
Cost per HIA	2808	193	174	390	642



Early Infant MMC not cost-effective

Conventional league table		Optimisation routine	% change in ICER between methods	
Rank	ICER (\$/LYS)	Rank	ICER (\$/LYS)	
Condom availability	Cost saving	Condom availability	Cost saving	N/A
Male medical circumcision	Cost saving	Male medical circumcision	Cost saving	N/A
SBCC 1 (HCT in adolescents, reduction in MSP)	46	ART (current guidelines)	109	14%
ART (current guidelines)	96	PMTCT	142	7%
PMTCT	132	Infant testing at 6 weeks	248	20%
Universal ART	186	Universal ART	249	34%
Infant testing at 6 weeks	208	SBCC 1 (HCT in adolescents, reduction in MSP)	749	1525%
HCT for sex workers	366	SBCC 2 (condoms)	*1200	112%
SBCC 2 (condoms)	566	General population HCT	1,236	-3%
SBCC 3 (condoms, HCT, MMC)	697	SBCC 3 (condoms, HCT, MMC)	1,816	161%
PrEP for sex workers	926	HCT for sex workers	2,643	621%
General population HCT	1,273	Infant testing at birth	2,937	118%
Infant testing at birth	1,349	PrEP for sex workers	9,947	974%
HCT for adolescents	1,772	HCT for adolescents	19,540	1003%
PrEP for young women	3,703	PrEP for young women Max	26,375	612%
Early infant male circumcision	8,712,984	Early infant male circumcision	89,642,731	929%

*Replaced by the ICER for SBCC 2 B +2. The ICER from SBCC 2 B+2 to Max is uninterpretable since it is cost saving due to non-linear effects

experimente experi

21 YEARS OF RESEARCH EXCELLENC



Proportion of men by age group



Total circumcisions: 45 264

Majority under 25years -65% (29 620/45 264)



Seasonal Demand of VMMC



21 YEARS OF RESEARCH EXCELLENCE

Number of circumcisions by month per site



21 YEARS OF RESEARCH EXCELLENCE

Overall HIV Prevalence by age





Surveillance Opportunity?



VMMC Program Data

HSRC Report, 2012

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Circumcision as a platform for HIV Testing

	ISSN 2380-5536		Zazi HCT Clinic (N=8,736)		Khula Ndoda VMMC Clinic (N=13,801)	
Journal of HIV and AIDS Research Article Volume: 2.1	Open Access	Age Groups	HIV-positive Males	% (CI)	HIV-positive Males	% (CI)
Circumcision Proarammes as a Platform for l	form for Received date: 25 Aug 2015; Accepted date: 25 Jan 2016; Published date: 28 Jan 2016. Citation: Lebina L, Milovanovic M, Essien T, Martinson N (2016) Circumcision Programmes	0-14 yrs	1	0,1 (-0.1-0.3)	18	2,7 (1.5-3.9)
IV Testing		15-19 yrs	24	3,4 (2.1-4.7)	27	4,0 (2.5-5.5)
bina L*, Milovanovic M*, Essien T*, and Martinson N*2 arinatal and HIV Research Unit, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, th Africa histor of Infectious Diseases in the School of Medicine, Johns Hopkins University, Baltimore, USA orresponding author: Dr. Limakatso Lebina, Perinatal and HIV Research Unit, Faculty of histices, University of the Witwatersrand, Johannesburg, PO Box 114, Diepkloof 1864, uth Africa, F-mail: limakatsol@phru.co.za	20-24yrs	38	5,3 (3.7-6.9)	64	9,6 (7.4-11.8)	
	Copyright: © 2016 Lebina L, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License,	25-34yrs	265	37,1 (33.6-40.6)	304	45,4 (41.7-49.3)
	which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.	35-49 yrs	349	48,8 (45.1-52.5)	238	35,5 (31.9-39.1)
		50+ yrs	38	5,3 (3.7-6.9)	19	2,8 (1.6-4.1)
		Total	715	100,0	670	100,0



So

COMBINATION PREVENTION





Study procedure completed

21 YEARS OF RESEARCH EXCELLENCE



Total Enrolled: 2464

Alcohol and Condom Use

Variablo	Overall	10-14	15-19	20-24	25-34
Valiable	Overall	years	years	years	years
Drink Too Much Alcohol Until You Forget					
Yes	378 (37.3)	2 (22.2)	48 (33.8)	104 (33.7)	224 (40.4)
Condom Use After Drinking Alcohol					
Never use a condom No	110 (12.9) 301 (35.2)	1 (25.0) 2 (50.0)	8 (7.9) 36 (35.6)	34 (13.0) 72 (27.5)	67 (13.7) 191 (39.1)



THC factors

However, only 484(20%) tested

Crack/cocaine,

mandrax, heroin,

crystal meth,

nyope

Tetraydrocannabinol

positive for

(THC)

Variable	Overall
Ever Smoked Dagga/Marijuana	
Yes	644 (26.2)
Median (IQR) Age of Dagga debut	17.0 (16.0-19.0)
Are You a Current Dagga Smoker	
Yes	300 (46.7)
Are You a Past Dagga Smoker	
Yes	328 (97.3)
Do You Mix Tobacco with Dagga	
Yes	327 (61.8)
Do You Mix Any Other Substance with Dagga	
Yes	29 (5.5)



DEVICE CIRCUMCISION





Increase in Research on Device Circumcision



Perceptions of the PrePex Device Among Men Who Received or Refused PrePex Circumcision and People Accompanying Them

Minja Milovanovic, MA,* Noah Taruberekera, PhD,† Neil Martinson, MBBch, MPH,*‡ and Limakatso Lebina, MBChB, MPH*

Background: The PrePex medical male circumcision (MMC) device has been approved for MMC scale-up. However, the WHO has recommended that a country-specific situation analysis should be carried out before MMC device rollout.

Method: A cross-sectional survey was conducted over 12 months in 3 MMC clinics, by trained nurses and researchers, to ascertain attitudes toward Proper MMC in 2 groups; more concerting for healing time suggest that the need for more research to further optimize methods and that MMC clients should be counseled on available methods to enable them to choose among options based on their preferences.

Key Words: attitudes, MMC, device circumcision, South Africa

(J Acquir Immune Defic Syndr 2016;72:S78-S82)

- Safe and clean
- Many opted for PrePex as they did not like injections or blades
- Challenges: Odour and pain
- Those who refused: Do not like to be part of research

"Its still a study and its new and more risky" (W302, 31years)

Easy, Faster, and Not Bloody: Providers' Perceptions on PrePexTM in South Africa

Minja Milovanovic, MA* Noah Taruberekera, PhD Karin Hatzold, MD, MPH Neil Martinson, MBBCh, MPH, MFGP Limakatso Lebina, MBChB, MPH

- Simple,
- faster,
- convenient,
- reduces risk of needle stick injuries

• Ηδικ Φ Ηδικ Φ Ηλάμ Φ Η Ηλάμ Φ Ηλάμ Η μλημ Φ Ηλάμ Φ Η

• can be incorporated into MMC Programs





Published: September 25, 2015

RESEARCH ARTICLE

Piloting PrePex for Adult and Adolescent Male Circumcision in South Africa – Pain Is an Issue

Limakatso Lebina¹*, Noah Taruberekera², Minja Milovanovic¹, Karin Hatzold³,

2b. Pain of Removal



2c. Pain 30 minutes after Removal



21 YEARS OF RESEARCH EXCELLENC

PrePex Device MMC AEs

TYPE OF AE	MODERATE	SEVERE	TOTAL
Bleeding	1	0	1
Displacement	1	4	5
Infection	1	0	1
Insufficient	0	1	1
Skin Removal			
Pain	3	0	0
Problems	1	0	1
Voiding			
TOTAL	7 (0.69%)	5 (0.49%)	12 (1.18%)

• Comparable to surgical circumcision

• Similar in other countries and studies



Delayed Healing with PrePex Device MMC



Increased risk of acquiring HIV if resumes sexual activities prior To complete healing



Analgesia for PrePex device removal







SHORT COMMUNICATION

Evaluating the cost of adult voluntary medical male circumcision in a mixed (surgical and PrePex) site compared to a hypothetical PrePex-only site in South Africa

Hae-Young Kim¹, Limakatso Lebina², Minja Milovanovic², Noah Taruberekera³, David W. Dowdy¹ and Neil A. Martinson^{2,4}*





VMMC & Tetanus

"a higher risk of tetanus following circumcision with the elastic collar compression device compared with other circumcision methods that removed the foreskin at the time of the procedure", WHO 2016

- 9 cases reported, 6 resulted in death
 - Recommendations
 - Clean care
 - Tetanus vaccination



2012: 15-19yrs = 33%; 20-24yrs = 47%; 25-49yrs = 50%

- 32% of males aged 15-64 years medically circumcised
- 43% of males
 15-24 years
 medically
 circumcised



HSRC Report, 2018

Summary

- MMC is a recommended cost-effective HIV prevention strategy
- Scale-up of MMC has increased access for HIV testing for men
- Combination prevention implementation challenged
- Increase in research on device based circumcisions
- PrePex device acceptable to South Africans, however pain on removal was an issue, but common analgesia alleviates some of it
- Mixed (device and surgical) sites does not reduce cost of MMC
- Need to do more circumcisions to achieve the 80% coverage

Acknowledgements

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- Funders of the VMMC sites
- Site staff
- Colleagues: N. Martinson, K. Otwombe, M. Milovanovic

