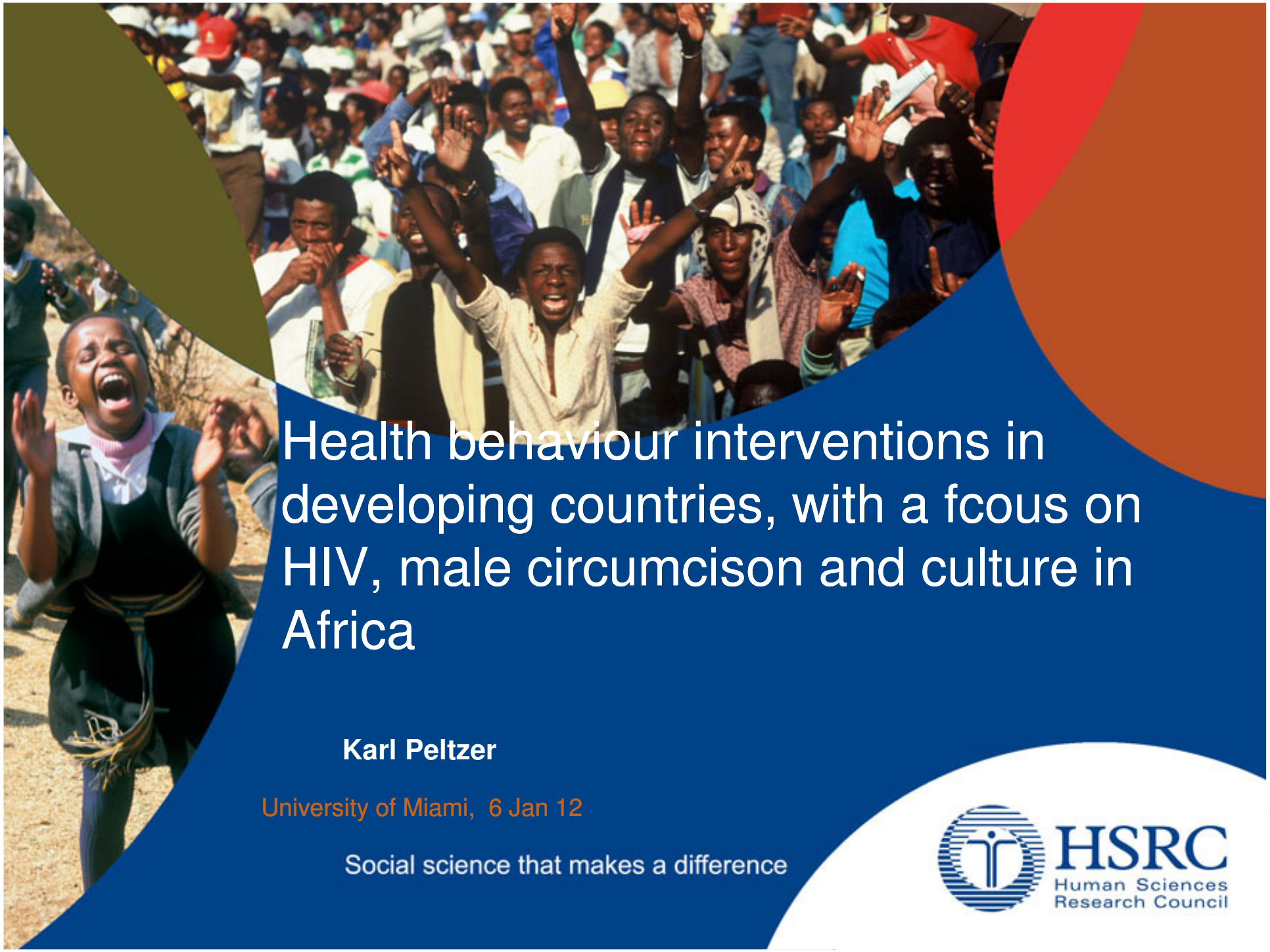


Health behaviour interventions in developing countries, with a fcous on HIV, male circumcison and culture in Africa

Karl Peltzer

University of Miami, 6 Jan 12

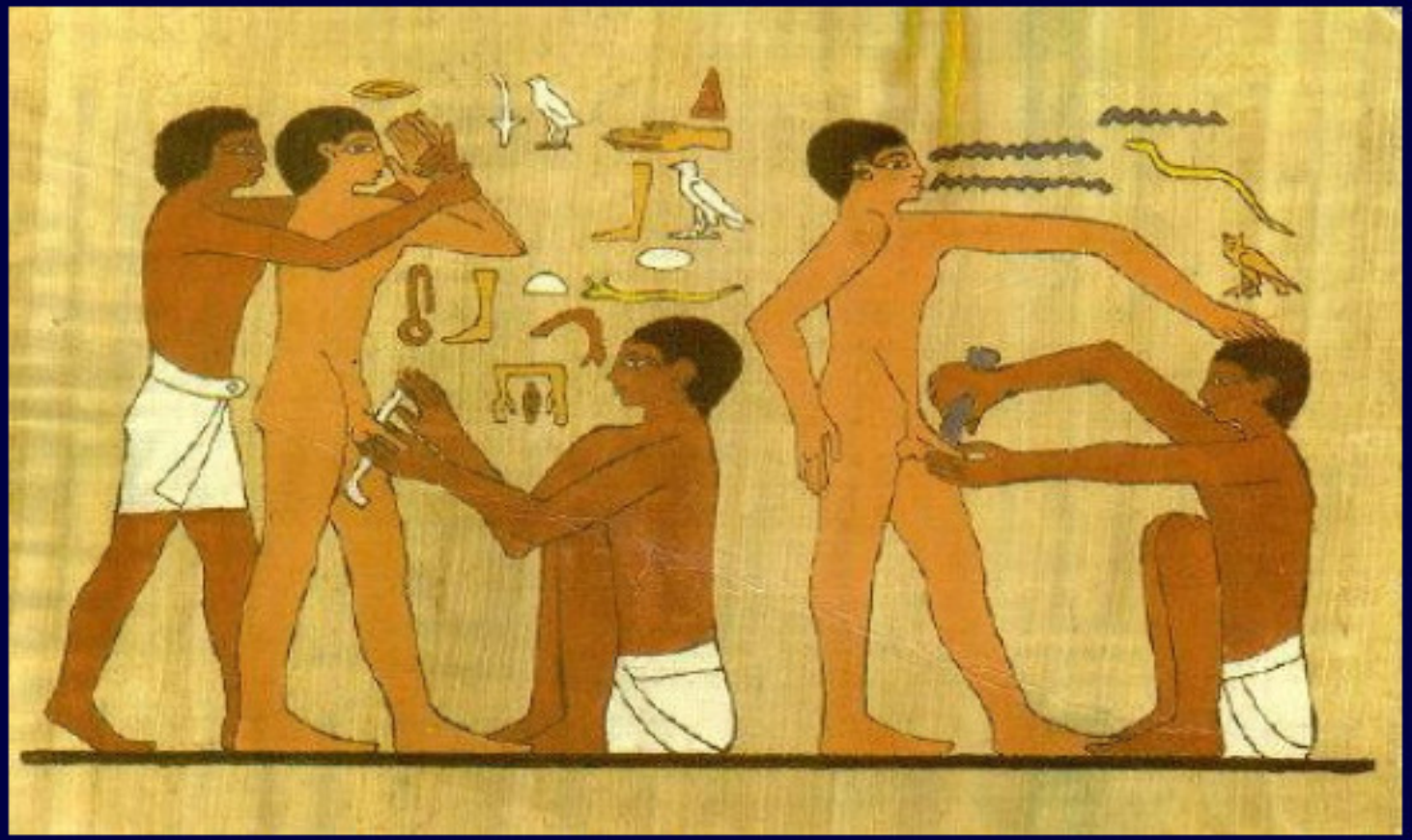
Social science that makes a difference

HSRC
Human Sciences
Research Council

Overview

- Research on Male Circumcision for HIV prevention
- Scale up of medical male circumcision (MMC)
- Traditional male circumcision and cultural considerations

Male circumcision is probably the oldest and most common surgery performed in humans



Research

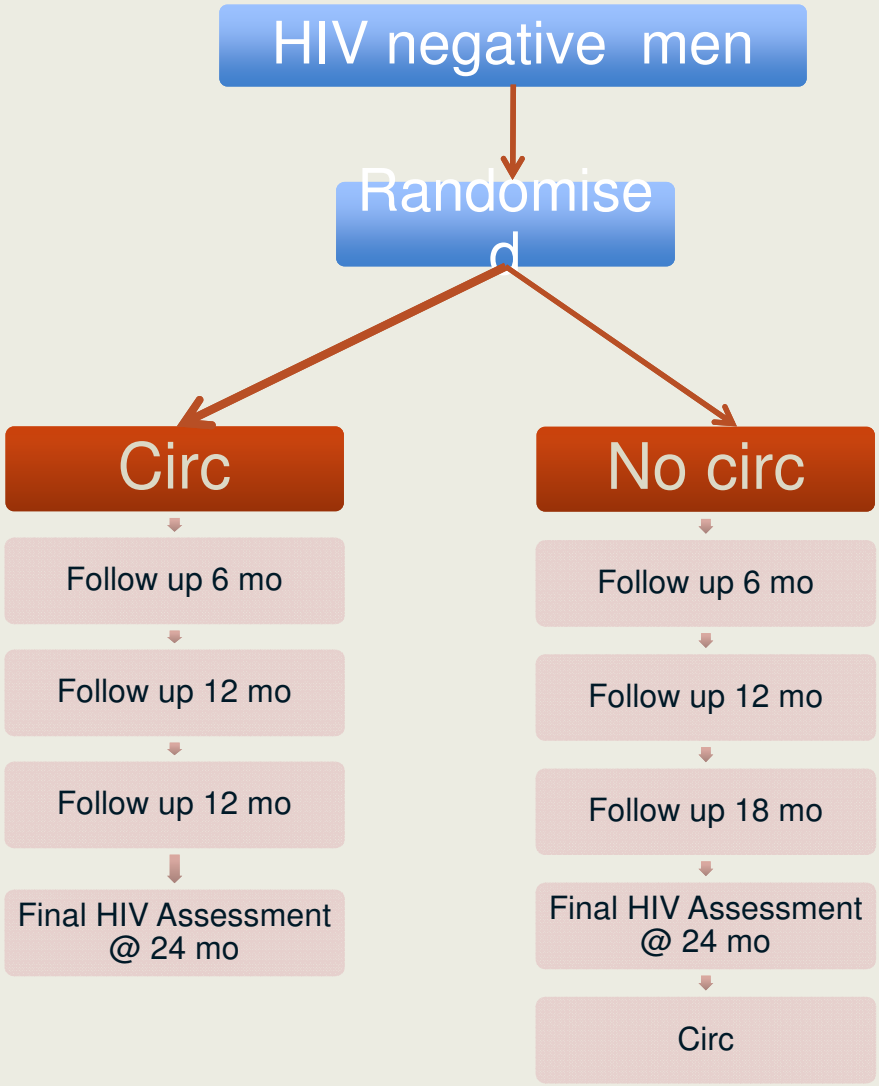
- 4 **ecological studies**
- 35 **cross-sectional studies**
- 14 **prospective studies**
- 3 **randomized controlled trials**

Confirm that male circumcision provides approximately 60% protection against HIV

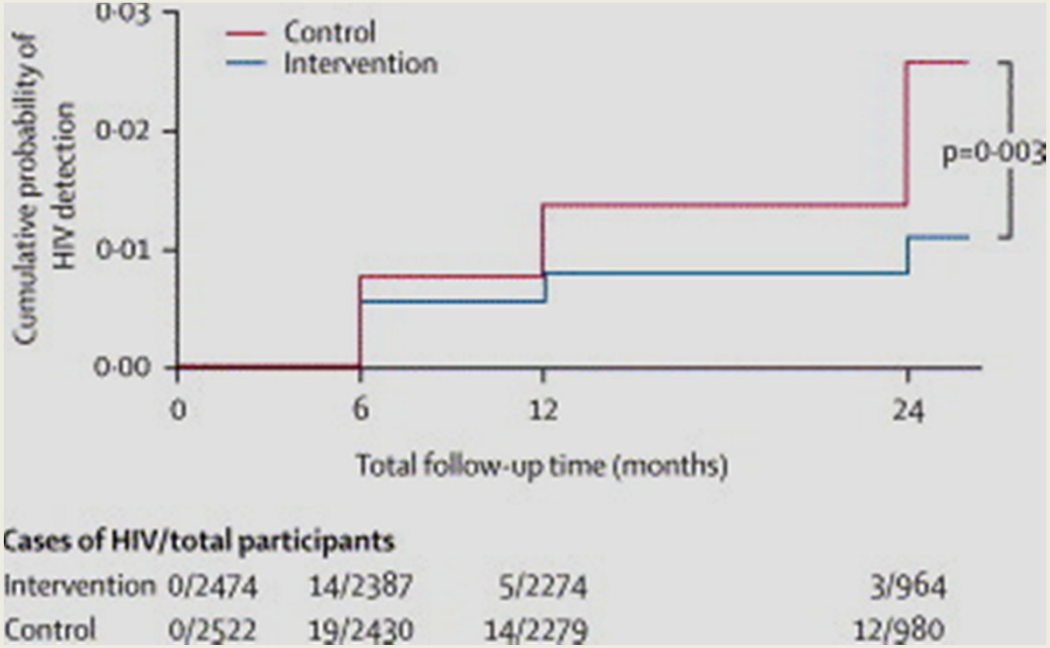
Three Randomised Control Trials of Male Circumcision

- Orange Farm – South Africa Nov 2005
- Kisumu – Kenya Feb 2007
- Rakai – Uganda Feb 2007

The three studies: design



Results 2: Rakai - Uganda

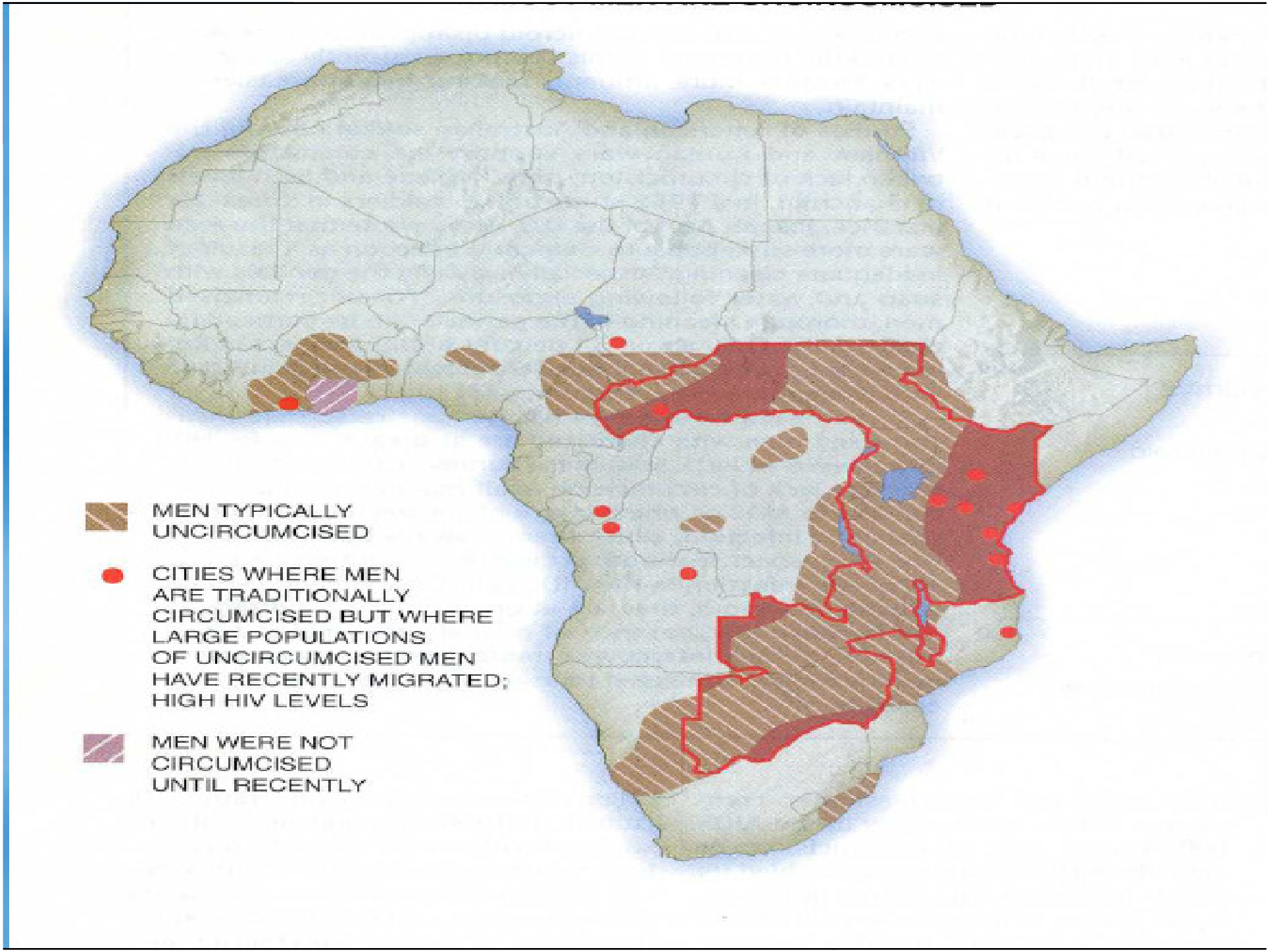


Overall efficacy of male circumcision in preventing HIV acquisition: 55%

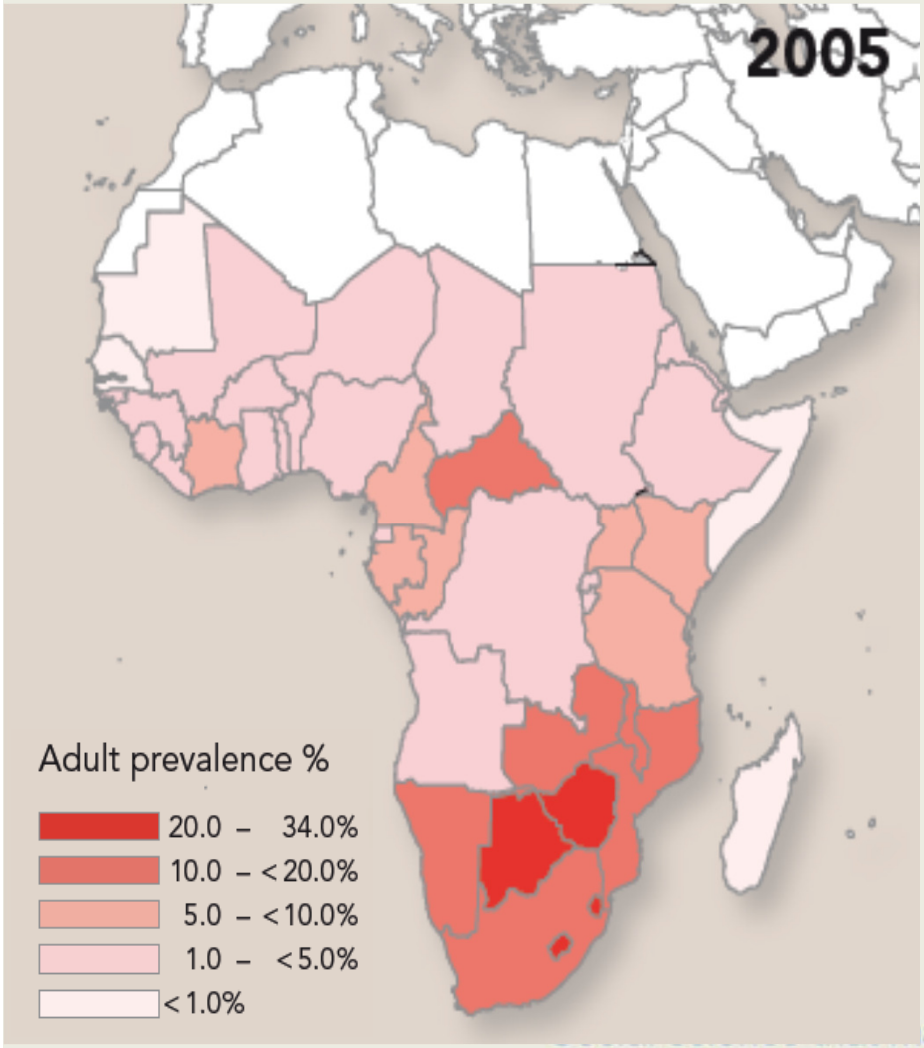
8% had adverse event related to circ.

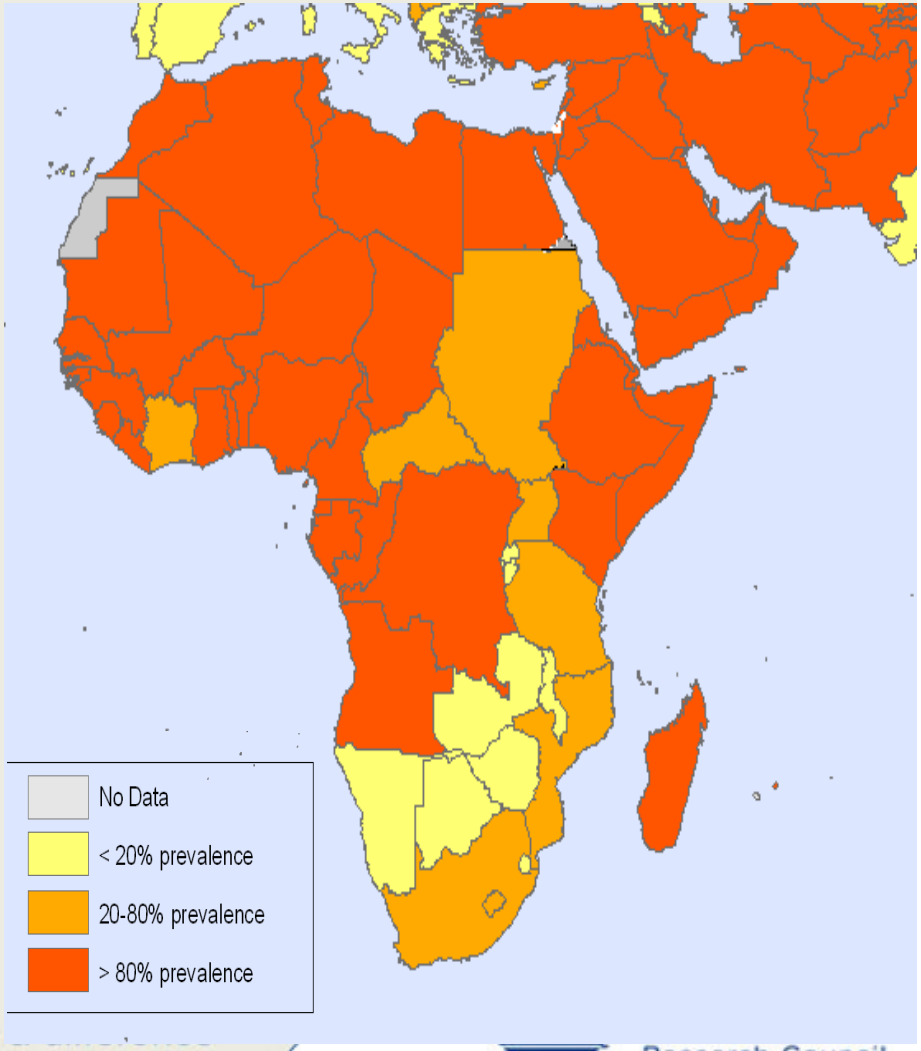
Time	Circ group	Uncirc group
0-6 months	1.2%	1.6%
6-12	0.4%	1.2%
12-24	0.3%	1.2%
ALL	0.7%	1.3%

Gray et al Lancet 2007


MEN TYPICALLY UNCIRCUMCISED
CITIES WHERE MEN ARE TRADITIONALLY CIRCUMCISED BUT WHERE LARGE POPULATIONS OF UNCIRCUMCISED MEN HAVE RECENTLY MIGRATED; HIGH HIV LEVELS
MEN WERE NOT CIRCUMCISED UNTIL RECENTLY

Simple comparison provides first evidence of MC – HIV link



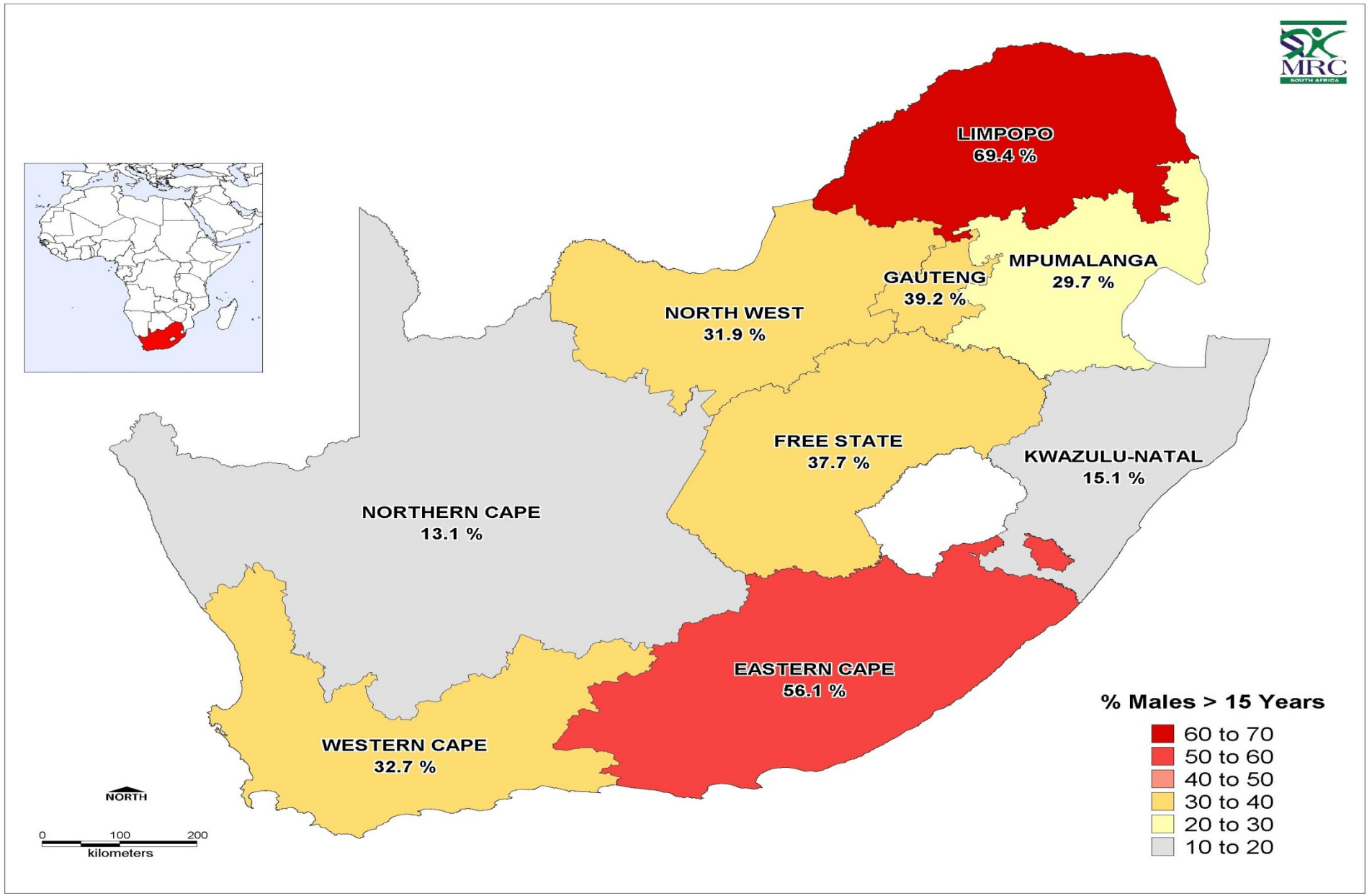


Prevalence of male circumcision; mostly traditional

Table 1: MC prevalence (Halperin & Bailey, 1999; Measure DHS, 2006; Williams et al., 2006) and HIV prevalence (UNAIDS, 2006) in percent

West Africa			East & Central Africa			Southern Africa		
Country	MC	HIV	Country	MC	HIV	Country	MC	HIV
Benin	84	1.8	Burundi	2	3.3	Botswana	25	24.1
Burkina Faso	89	2.0	Rwanda	9	3.1	Malawi	21	14.1
Cameroon	93	5.4	Central African Republic	67	10.7	Namibia	15	19.6
Côte d'Ivoire	93	7.1	Chad	64	3.5	Swaziland	<15	33.4
Equatorial Guinea	86	3.2	Ethiopia	76	?	Zambia	16	17.0
Gabon	93	7.9	Sudan	47	?	Zimbabwe	10	20.1
The Gambia	90	2.4	Tanzania	70	6.5	Lesotho	48	23.2
Ghana	95	2.3	Uganda	25	6.7	Mozambique	56	16.1
Guinea	83	1.5	The Congo	70	5.3	South Africa	35	18.8
Guinea-Bissau	91	3.8	Dem. Rep. Congo	70	3.2	Angola	66	3.7
Liberia	70	?	Djibouti	94	3.1	Comoros	>80	<.01
Mali	95	1.7	Eritrea	95	2.4	Madagascar	80	0.5
Mauritania	78	0.7	Kenya	84	6.1	Mauritius	>80	0.6
Niger	92	1.1	Somalia	93	0.9			
Nigeria	81	3.9						
Senegal	89	0.9						
Sierra Leone	90	1.6						
Togo	93	3.2						

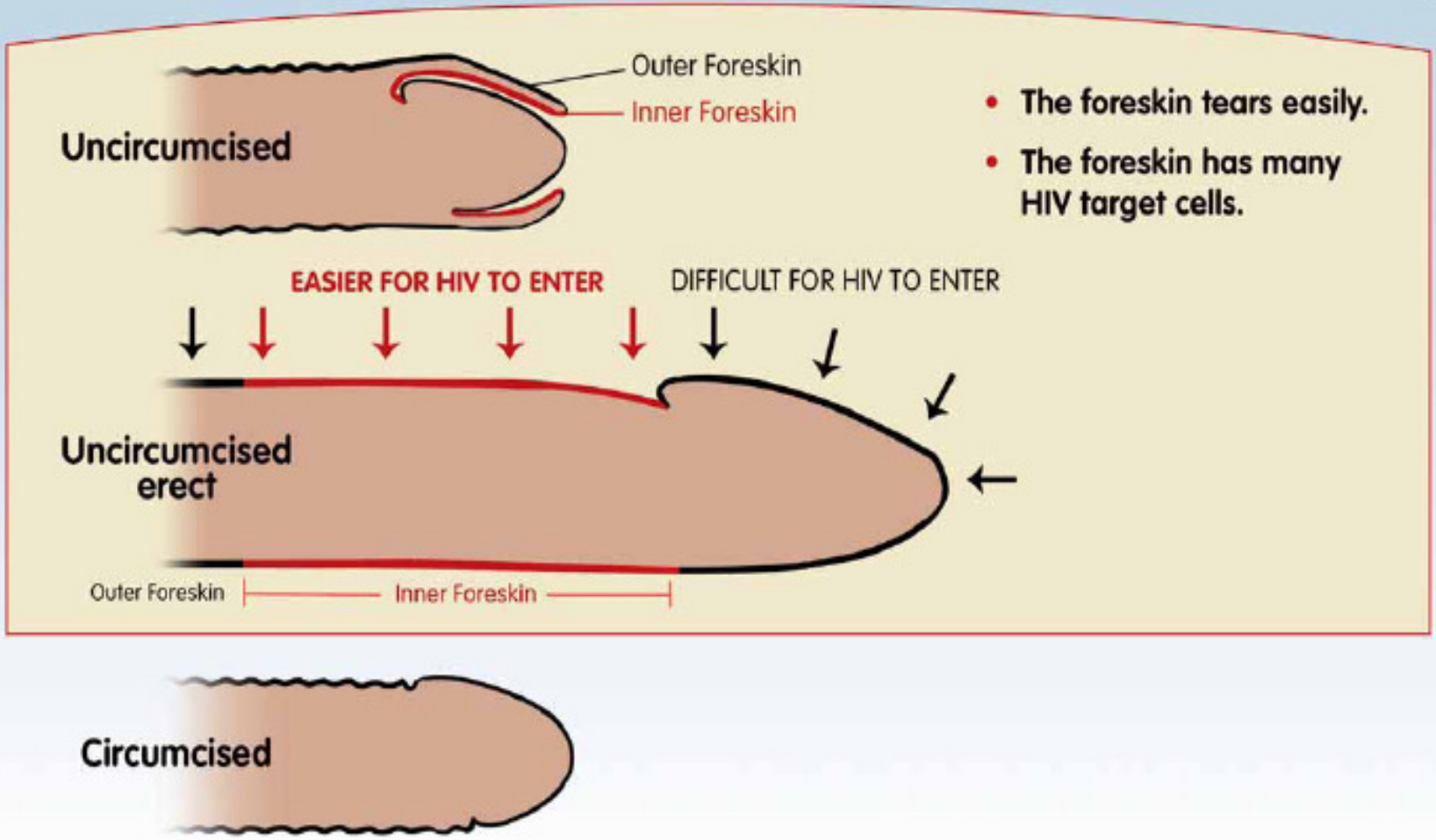
Prevalence of self-reported male circumcision: South Africa 2002. (Source: Connolly, Simbayi, Shanmugam & Nqeketo, SAMJ)



Traditional and medical male circumcision, South Africa 2002

Demographics		Traditional male circumcision				Medical male circumcision			
Age		all	0-11	12-17	18+	all	0-11	12-17	18+
All		24.8	8.8	33.1	58.2	13.2	48.3	17.1	34.6
African Black		31.9	8.7	33.3	58.0	9.3	22.7	25.9	51.8
-Xhosa		57.3	2.1	12.3	85.5	4.7	9.2	15.9	74.9
-Zulu		10.7	2.4	41.0	56.6	6.1	24.4	2.3	73.3
-Venda		71.1	53.0	34.8	12.2	25.6	8.3	91.7	0

HOW CAN MC HELP PREVENT HIV?



Global Recommendations

- Countries with high prevalence (>15%), generalized heterosexual HIV epidemics and low rates of MC should consider urgently scaling up access to MC services
- 13 countries identified: Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe
- Consider ethics, communication, culture, health systems, funding, gender, comprehensive prevention strategies

Cost and Impact of MC

Scaling up of MC to reach 80% of adult and newborn males in 13 African countries by 2015:

- Could prevent more than 4 million adult HIV infections over 15 years (2009 – 2025)
- Could result in cost savings of US$20.2 billion between 2009 – 2025 with an overall investment of approx *US$ 4 billion
- Would require almost 12 million MCs to be performed in the peak year, 2012

Source (* adapted):
USAID/HPI (2009) The Potential Cost and Impact of Expanding Male Circumcision in Eastern and Southern Africa
http://www.malecircumcision.org/research/policy_briefs.htm

Botswana plans to circumcise almost half a million men

Botswana's Ministry of Health plans to circumcise 460,000 men over the next five years to help reduce one of the world's highest HIV infection rates.

The ministry says it needs to reach 80 percent of eligible men to realise the public health benefits of male circumcision.

About 50 health-care providers, including 27 doctors, have been trained to perform the surgery. Government-sponsored

TV and radio ads are encouraging men to seek safe circumcision services at primary and district hospitals with trained providers (*Daily Telegraph*, 7 May 2009).

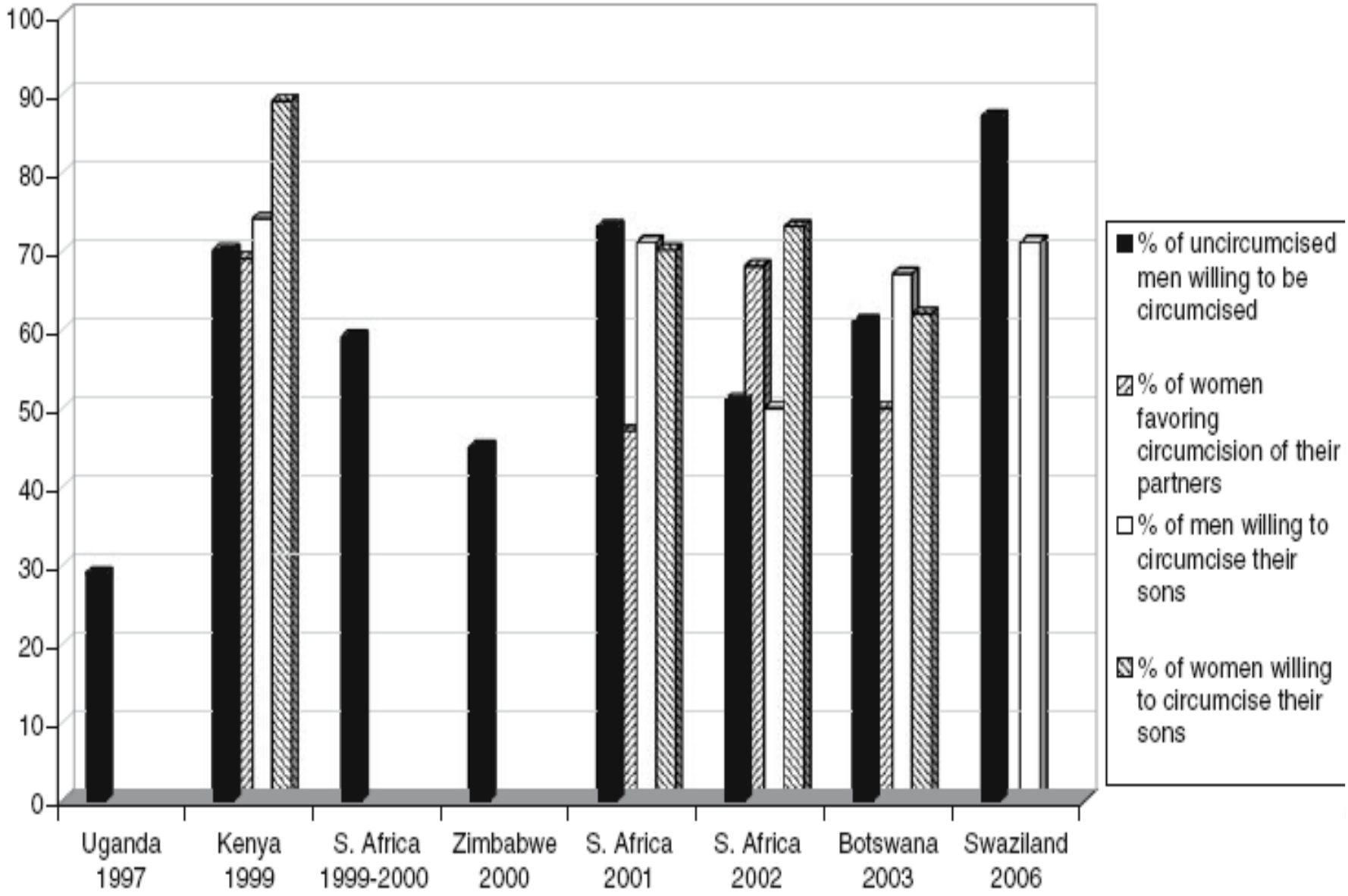


Fig. 2 Levels of male circumcision (MC) acceptability from eight quantitative studies in six sub-Saharan African countries

The Communication Strategy

Drive demand for MC services through...

1. Communicating benefit of MC
2. Addressing Risk compensation

    Male Circumcision is not the magic bullet and must be used alongside condoms and other HIV prevention measures

psi
Swaziland

MC DOES NOT PROVIDE 100% PROTECTION


DON'T
GIVE
HIV
A PLACE
TO HIDE
Viruses love to hide in the folds of the foreskin, which is why circumcised men have much less chance of getting or transmitting sexual diseases such as HIV.
To be 100% safe always wear a condom.

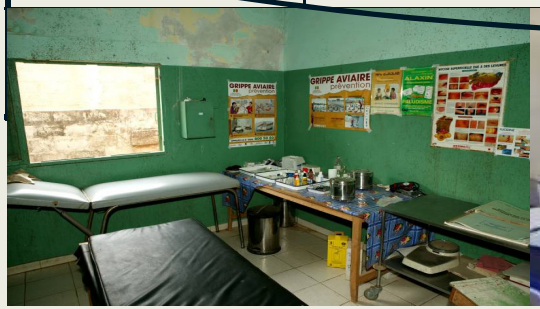
How do I get there?

(And how much does it cost?)

- Walk or public transport
- Dedicated bus for high volume sites

MC Service Delivery Update, Jan 2010

Country	Botswana	Kenya	South Africa	Swaziland	Zambia	Zimbabwe
Begin date	Apr 2009	Sept 2008	Jan 2008	Jan 2008	July 2009	May 2009
No. of MC's	4326	90 396	14 253	5122	16 801	3000
No. of MCs Nov – Dec 09	580	**36 000**	1547	1816	6171	1510



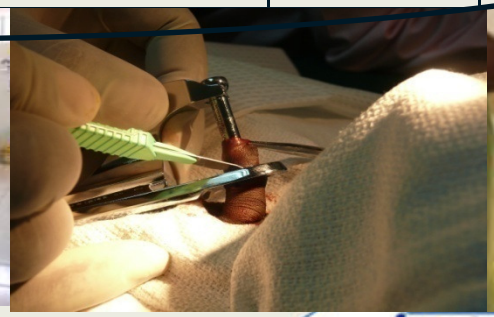




Fig 1a. Number (000s) of male circumcisions performed by country and number remaining to achieve target*

(countries ordered by total number of male circumcisions needed to achieve target)

* target is 80% of males 15 - 49 years

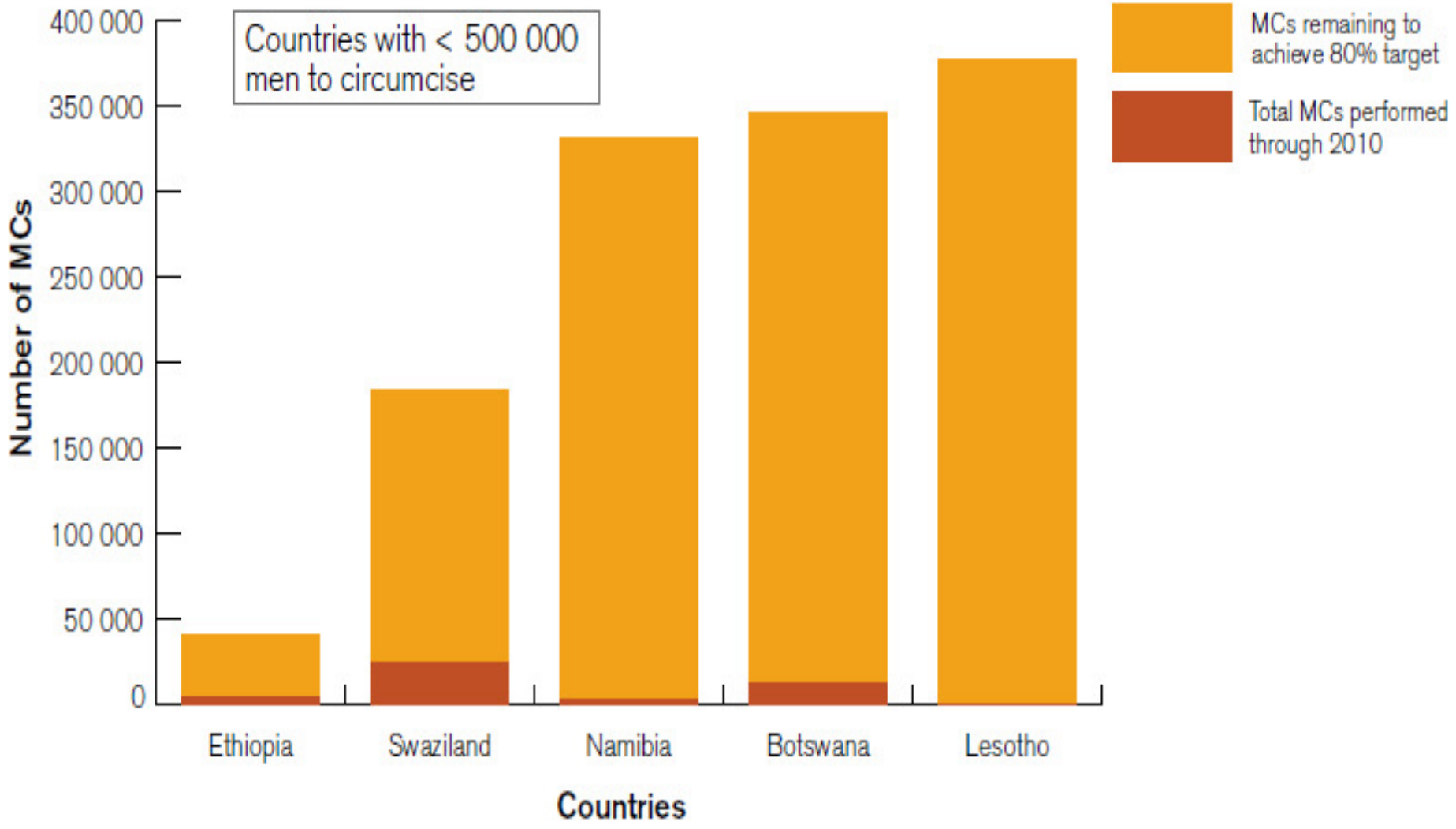
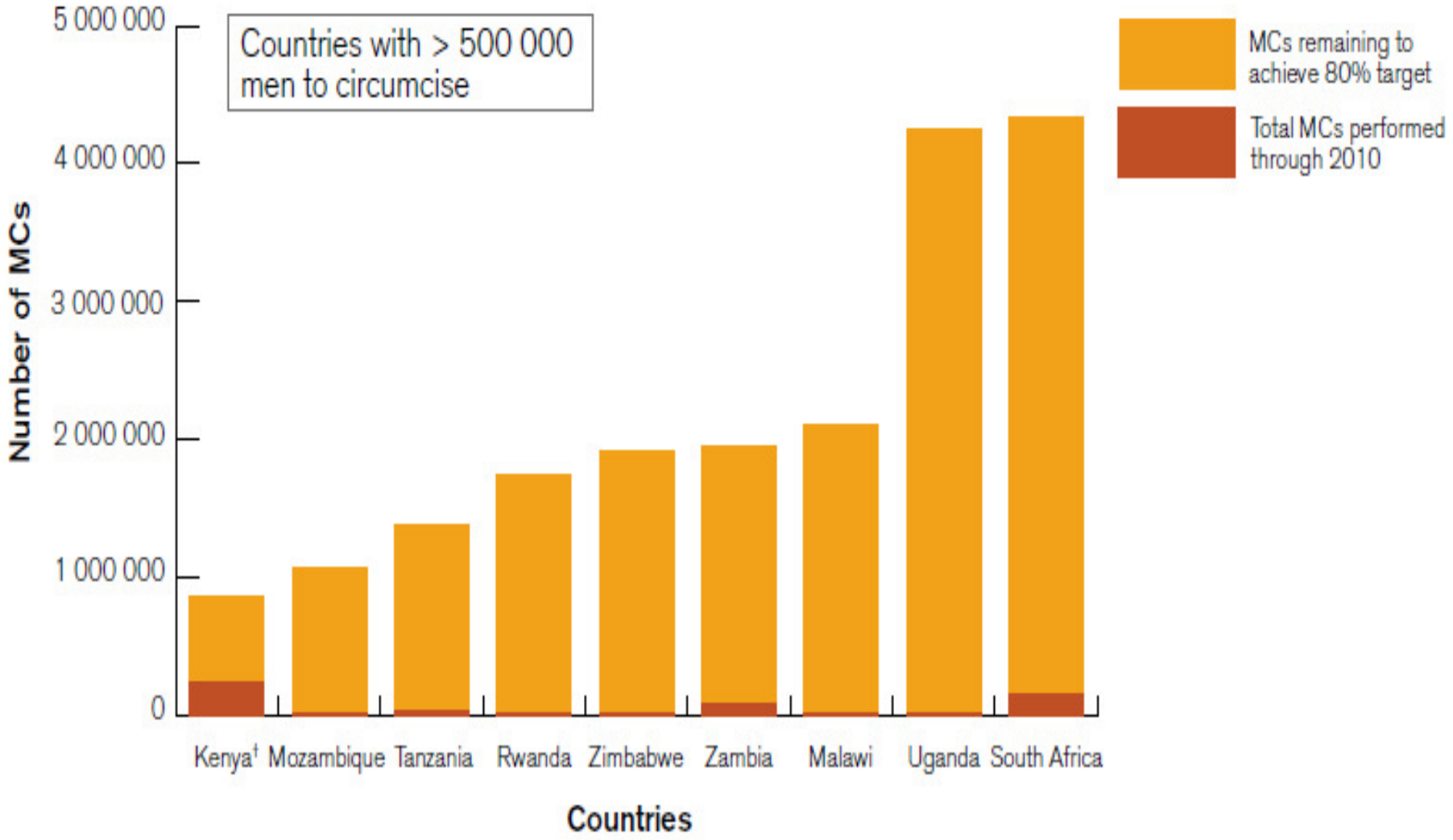


Fig 1b. Number (000s) of male circumcisions performed by country and number remaining to achieve target*

(countries ordered by total number of male circumcisions needed to achieve target)
* target is 80% of males 15 - 49 years



SOUTH AFRICA

HIV prevalence: 18%

MC prevalence: 42% (NCS 2009[6])

Total number MCs 2008—2010: 145,475

Service delivery strategy: A mix of delivery approaches has been used as services expand into all nine provinces. Fixed sites (mainly district hospitals) were used with MC services integrated into these settings. Linked services were also used where HTC and other elements of the minimum service package were provided at routine public health sites with links to a dedicated facility for the MC procedure. Camps/campaigns have been organized in some provinces. As a means of strengthening the health system and minimizing the accumulation of biomedical waste, South Africa decided not to use disposable kits or medical devices for MMC in health facilties. All health facilities use the conventional surgical technique, forceps-guided method, for MMC.

Service delivery statistics: During 2010 over 130 000 MCs were performed at 143 sites.

Achievements: South Africa is moving towards scaling-up services with all provinces now initiating the provision of services. Funds have been provided by the Government to cover the costs of MCs for the coming three years and additional funds are available from The Global Fund to Fight AIDS, Tuberculosis and Malaria.

Challenges: Inadequate commodities and human resources present the major barriers.

SWAZILAND

HIV prevalence: 26%

MC prevalence: 8.2% (DHS 2008)

Total number MCs through 2010: 24,315

Service delivery strategy: Service delivery options include free-standing sites (about 80%) and service integration. A national catch-up MC campaign, the Accelerated Saturation Initiative (ASI), has been planned for 2011. Adolescent and neonatal MC is foreseen as the longer-term strategy.

Service delivery statistics: During 2010, 24 315 MCs were performed; about 15% of clients declined HIV testing.

Achievements: Swaziland has good financial and technical commitment nationally and from numerous players. The number of facilities providing services has increased. Progress is on track for service delivery, human resources and facility capacity.

Demand: Demand was static despite a number of communication activities, so new approaches were being explored.

Key Challenges: Strengthened consultations with key local stakeholders; coordination and collaboration.

ZAMBIA

HIV prevalence: 14%

MC prevalence: 12.8 % (DHS 2009)

Total number MCs 2008—2010: 81,849

Service delivery strategy: Service delivery options included static and outreach/mobile sites in public and private facilities. Safe MC services were integrated into STI and HIV services to optimize the resources available. These services were further linked to other programmes such as ART, VCT and MCH. Zambia uses a multisectoral approach involving the defence forces, the police and prison services, and the private sector. In parallel to the catch-up phase with adolescents and men, Zambia has commenced neonatal MC at three sites.

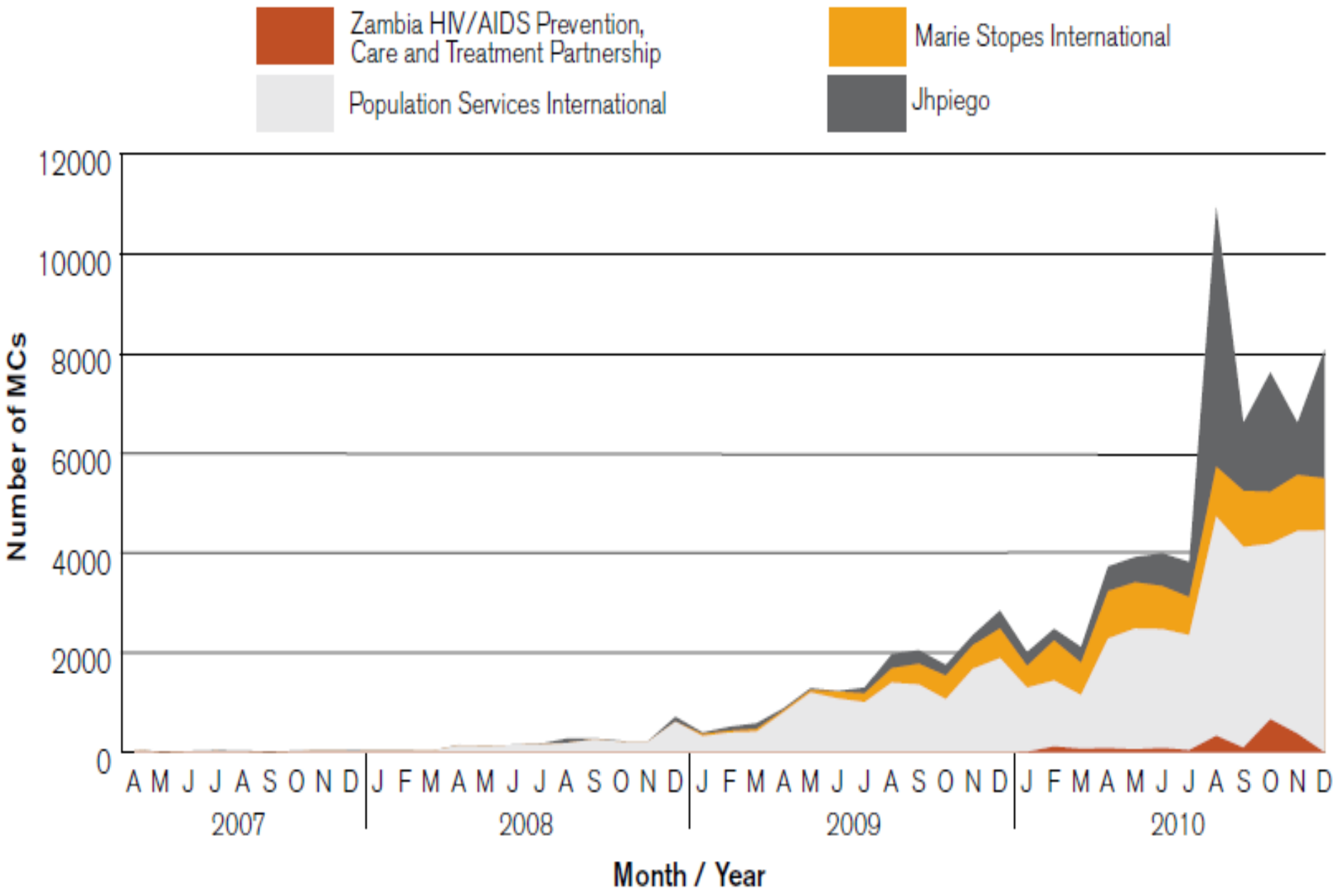
Service delivery statistics: The MC target for 2010 was 100 000 males. As of December 2010, the cumulative total was 81 849; about 62 000 MCs were performed in 2010, representing a 62% achievement of the annual target.

Demand was affected by geographical location and season; the number of MCs increased during the school holidays. About 40% of clients learned about MC sites from friends or family members, followed by posters, newspapers or leaflets.

Achievements: The MOH has established mechanisms to coordinate and lead the programme for MC scale-up with several partners who are involved and have contributed to this process. High-level commitment has been sustained. Zambia adopted task-shifting to nurses, midwives and clinical officers as a model to expand services.

Challenges: Limited demand partially attributable to culture and beliefs: MC is not traditional and circumcising tribes were stigmatized in the past. The management of commodities needs to be strengthened.

Fig. 3. Male circumcisions performed in Zambia by month and supporting agency, 2007 - 2010



Traditional circumcisers and cultural considerations

1. How traditional rites of passage and medical circumcision may be integrated.
2. Involvement of traditional circumcisers and leaders from traditionally circumcising and non-circumcising tribes in decision making processes

Figure 2: Traditional circumcision in Uganda (photo permission pending)

Approaches to improving the safety of traditional male circumcision – some uns

- TMC occurs at home, bushes, kraals, mountains, etc.
- Unsterilized "knives", sharing knives,
- transmission of diseases through blood contact,
- overcutting,
- undercutting,
- sprinkling dust on the penis
- washing the penis in a river after circumcision,
- post – circumcision practices,
- poor post-operative care
- Teachings, sex post - circum.

Key differences between Traditional MC and Medical MC

Characteristic	TMC	MMC
Purpose	Rite of passage Religious reasons	HIV prevention
Contact with the circumciser	Long-term	Short-term
Activities surrounding the circumcision	Extensive	Minimal
Age	Adolescents and children Clearly culturally defined	Young men and adolescents (and neonates)
Standardization of training and equipment	Minimal/moderate	Extensive: use of sterile instruments, anaesthesia, complete removal of the foreskin
Consent/Assent	Family/community/cultural pressure/expectation	Informed consent
Involvement of women in the circumcision	Only men provide the circumcision (although women may sometimes be involved in the ritual)	Men and women may provide the circumcision

Zulu king promotes male circumcision

Zulu King Goodwill Zwelithini is reviving the tradition of male circumcision to help prevent the spread of HIV in South Africa's KwaZulu-Natal Province, where one in seven adults are infected with the virus, CNN reports.

The king supports the provision of medical male circumcision at medical facilities, where it is offered as part of a package of HIV prevention measures (CNN, 1 July 2010).

Circumcision camps

Type of traditional male circumcision: full-partial

- **Lesotho:**
- **Only about 15% of men are "fully circumcised"**

- (MOHSW, 2008. Male circumcision, situation analysis report Lesotho)

Integration traditional rites of passage and medical circumcision

1. Training of traditional MC providers (safer MC)

2. Integration of medical MC with manhood initiation

3. Integration Provider initiated Counselling & Testing, HIV, Sexual Reproductive Health education into traditional circumcision rituals

1. Training of traditional MC providers

- Anatomy, aseptic technique, control of blood loss and wound closure;
- Ensuring supply of necessary instruments and dressings;
- Rapid transfer to, or intervention by, clinical services if a medical complication arises;

(Male circumcision clearing house, 2010)

Training for and collaboration between traditional and medical circumcisers would increase the level of quality and quantity of services offered, Namibia

(Pappas-DeLuca et al., 2009)

- Creating a certificate programme for traditional circumcisers to legitimize those with experience and prevent those who should not be practicing from doing so
- Fostering collaborative relationships between traditional circumcisers and health personnel

Proposed areas of collaboration between traditional surgeon and health workers, Tanzania (Mboera et al., 2009)

- Training and sensitizing of traditional practitioners on safety and hygienic circumcision procedures
- Provide traditional practitioners with surgical operation kits for circumcision
- Involvement of health personnel during traditional male circumcision (improve safety)
- Referral of cases from traditional practitioners
- Traditional practitioner to bring clients at health facilities for circumcision and thereafter continue with traditional rituals and adulthood coaching.

Increasing control

- **National level**: legislation focusing on what can be done and who can be circumcised eg. South Africa *Application of Health Standards in Traditional Circumcision Act*, 2001
- **Local level**: self-regulation e.g. *Isiko loluntu*, Easter Cape, system of self-regulation with reporting of unauthorized practitioners and sanctions on use of alcohol etc.

(Dick & Wilcken 2009)

Act to regulate traditional circumcision (Eastern Cape, South Africa)

- Each prospective initiate must be examined by a medical doctor to ensure that he is "fit and health" to undergo circumcision and initiation into manhood
- Designated health officers have a right to inspect each and every circumcision school, and to institute whatever remedial action is necessary if the health of the initiates is at risk
- The initiate(s) must, at least within the first eight days of the circumcision, be allowed by the traditional nurse "to have a reasonable amount of water to avoid the initiate suffering any dehydration."

Act to regulate traditional circumcision (Mpumalanga Province, South Africa)

Person who may perform circumcisions:

- a medical practitioner who has previously attended an ingoma or a person registered in the prescribed manner as a traditional surgeon …
- Must observe due care and diligence and maintain appropriate health and safety standards
- Is wholly responsible for the medical treatment and care of the initiate…
- Must not use the same instrument on more than one initiate

1. Training of traditional providers: curriculum

- Introduction into initiation rites; Social, legal and cultural context of the practice; Roles and responsibilities of stakeholders;
- Normal anatomy and physiology of the male genital, with emphasis on structure of the penis;
- Congenital and acquired abnormalities of the male sex organs;
- Traditional circumcision instruments and their care; Recommended procedure of safe traditional male circumcision;
- Infection control measures; Sexually transmitted infections and blood borne infections, e.g. viral hepatitis B; HIVand AIDS;
- Aftercare of the initiate including after care of the circumcision wound and initiate as a whole; Detection and early management of common complications of circumcision;
- Nutrition and Fluid Management; Code of conduct and ethics for traditional health practitioners;
- Sexual health education; Role of alcohol and drugs; Human rights issues (Kanta, 2004).
- Certificate, length of training, supervision, registration, accreditation

1. Training of traditional providers: Tool kit

- a disposable instrument (surgical blade) with a handle
- alternatively the surgeon will have to have several traditional circumcision instruments so that each initiate is circumcised by an unused cleaned and sterilized instrument;
- to use disposable latex gloves;
- a proper cleaning and sterilizing procedure;
- sterilization chemicals and disinfectants, and paper towel rolls (Peltzer et al. 2008)

Traditional MC training evaluation

- Traditional surgeons and nurses were trained
- Initiates examined & interviewed on 2nd, 4th, 7th and 14th day after circumcision.

- From 192 initiates physically examined at the 14th day
- →high rates of complications:
- 40 (20.8%) had mild delayed wound healing,
- 31 (16.2%) had a mild wound infection,
- 22 (10.5%) mild pain and
- 20 (10.4%) had insufficient skin removed.
- 53% did not use the recommended circumcision instrument.

(Peltzer et al. 2008)

Traditional male circumcision procedures, training evaluation, Gauteng, South Africa

(Peltzer et al. 2010)

	N	%
Use of gloves		
Yes	31	36.0
No	55	64.0
Type of circumcision instrument:		
Knife	55	64.0
Surgical blades (without handles)	31	36.0
Use of gloves and surgical blades	31	36.0
Used a new instrument on each initiate		
Yes	80	93.0
No (rinses knife in hand basin with water)	6	7.0
Wound dressing (none)	86	100

Traditional circumcision provider (wanzam) with basic kit provided following training by the Ghana health Service in greater Accra

Wanzam (traditional circumcision provider, Ghana)

-Neonatal circumcision

-Challenges: no hand washing, insufficient sterilization of instruments, post-operative dressings used tobacco leaves and ginger, and complications were not reported to hospitals

-Training : once a week for six weeks

-infection control techniques, HIV, early referrals to health facilities

-build an association of trained wanzams for effective monitoring, supervision and evaluation.

-Following the training the wanzams are given a kit with the necessary supplies

2. Integration of medical MC with manhood initiation

- Medical circumcision in initiation school
- Medical circumcision in health facility and subsequent manhood initiation
- Medical circumcision in mobile facility and subsequent manhood initiation
- Medical circumcision in hospital with features of manhood initiation

2.1 Medical circumcision in initiation school

The medical provider conducts the male circumcision inside the initiation school (instead of a traditional provider);

Examples have been reported in various parts of South Africa

2.2 Medical circumcision in health facility and subsequent manhood initiation,Eastern Cape, South Africa

In the context of the existing practice of medical circumcision followed by traditional initiation (Peltzer & Kanta 2009)

Study example, Eastern Cape, South Africa

After medical circumcision (n=76)
→immediately after the operation taken to the traditional initiation school.

Most (n=64) had their medical bandages removed and replaced with traditional herbal dressings

At the 7th day after circumcision examined (Peltzer & Kanta, 2009)

Initiates live in seclusion in the bush. Traditionally grass huts are built to live in at the circumcision lodge. These are torched at the conclusion of the process. Grass is cooler than the plastic sheeting which is often used at contemporary circumcision lodges, particularly those closer to urban areas.

(Vincent, 2008)

Medical Complication	7nd day N=78	%
Pain	1	1.3
Excessive bleeding	0	0
Infection	1	1.3
Excessive skin removed	1	1.3
Insufficient skin removed	4	5.5
Swelling or haematoma (collection of blood)	0	0
Damage to the penis	0	0
Problems with passing urine	0	0
Dehydration	0	0
Appearance	0	0

Focus group discussions

Attitude community towards medical male circumcision

Medically circumcised initiates were looked down upon as compared to traditionally circumcised.

"The community perceives us (medical initiates) as *abadlezana* (women who just gave births)."

"They regard the traditionally circumcised people as real men."

2.4 Medical circumcision in hospital with features of manhood initiation

Integration of traditional and clinical male circumcision among Meru people in Kenya.

Hospital circumcision is combined with the traditional seclusion period (20-30 boys secluded in a special hospital ward)

Offer young men modern-day education on reproduction health and life skills.

Brown (2002)

2.3 Medical circumcision in mobile facility and subsequent manhood initiation

For example, there have recently been plans in the Eastern Cape to set up tents in locations where medical circumcision can be performed within a hygienic health-care environment nearer to initiation schools.

However, traditional leaders had been against this plan

(Dweba, 2008)

3. Integration PICT, HIV SRH education into traditional circumcision rituals

- HIV risk reduction group counselling prior to discharge from initiation school, South Africa (Peltzer et al. 2010)

- HIV prevention, sexual and reproductive health integration into traditional circumcision ceremonies Kenya (Bett et al. 2009)

2. Involvement of traditional circumcisers and leaders from traditionally circumcising and non-circumcising tribes in decision making processes

- Consult and Involve traditional leaders & traditional MC providers in medical circumcision scale up; message of medical MC; community mobilization
- Traditional leaders orient boys prior to medical circumcision (Botswana, KwaZulu-Natal, South Africa)

Circumcision camp activities, KwaZulu-Natal, South Africa

Day 1: Lifeskills and counselling day

-train and counsel young men on various issues including, lifeskills coaching, counselling on healthy lifestyles, gender relations, alcohol and drug abuse, sexual and reproductive health.

-Young men will also get a pre-medical assessment to prepare them for a circumcision the following day.

Day 2: Circumcision

This day will be dedicated to the actual circumcision procedures. Seven service delivery teams (consisting of a doctor, nurse, counselor and prevention officer) will each circumcise about 29 young men during this day. The service delivery teams will convert seven classrooms into operating theatres or circumcision rooms and will use ready-made sterile circumcision packs for each individual.

Day 3: Review and observation day

For review and observation and then send off function. A community leader will be invited to address the boys on their send off. Among others, he will address them on their responsibility in HIV prevention, delaying sexual debut, respect for women and female partners and safe sex.

Training traditional MC providers (for medical MC facilitation)

- Similar to traditional birth attendance (facilitate facility delivery), facilitate medical circumcision and traditional rituals and adulthood coaching.

Thank you

Traditional materials are used to bind the circumcision wound. The wound is not stitched in the Xhosa rite. If a man is found to bear 'cats claws' – the scars from stitches that point to a hospital circumcision – he risks assault for avoiding the pain of the traditional rite but dressing like one of its graduates.

(Vincent 2008)

Health Behavior Interventions in Developing Countries

Professor Karl Peltzer is a Research Director in the HIV/AIDS, STI and TB (HAST) research program at the Human Sciences Research Council (South Africa); an extraordinary Professor in Psychology at Free State University (South Africa); and a Visiting Professor in Psychology at University of Klagenfurt (Austria). He was previously Professor of Psychology and Director of the Health Behavior Research Unit at the University of Limpopo. His education is a Dr. Habil in Health Psychology from the University of Klagenfurt (Austria), has his PhD in Social Health Psychology from the University of Hannover (Germany) as well as an MA in Clinical Psychology from the University of Bremen (Germany). He is a prevention researcher and evaluator with over 25 years of experience in the study of health promotion, risk behavior and disease prevention, as well as socio-behavioral interventions. Dr. Peltzer has published extensively on health behavior and health interventions, which includes 16 books 350 articles and 50 book chapters. He has worked extensively on the public health subject areas of alcohol, tobacco, cancer, tuberculosis and HIV control; nutrition, physical activity, hypertension, mental health, injury and violence prevention and health promotion. His current research interests include: psychology applied to health, health promotion, chronic diseases of lifestyle, substance use, communicable diseases including HIV, injuries, cultural health practices, and program evaluation in low- and middle-income countries including Africa.

Professor Supa Pengpid is a Head of The Department of Health System Management and Policy at the School of Public Health, University of Limpopo, South Africa. Previously, she worked as a Professor in the Department of Social and Behavioral Health Sciences at the same university; and, for 15 years, as Health Education Specialist at the Ministry of Public Health in Thailand. Dr. Pengpid has her Doctor of Public Health (Dr.PH) and Master's of Sciences in the area of Health Education and Behavioral Sciences, both from Mahidol University (Thailand). In addition, she also possesses her Master's of Business Administration from Regenesys Business School (South Africa). She is a behavioral health researcher and public health educator with over 15 years of experience in various health risk behaviors, health promotion and prevention, health systems research and international evaluation. She is a project leader of public health intervention research projects, under Flemish Interuniversity Council—Institutional University Cooperation program (VLIR-IUC), Belgium. She has published more than 50 articles and five books and book chapters. Professor Pengpid's main research interests are health behavior interventions in the areas of obesity management (diet and physical activities), child health and nutrition, alcohol intervention, HIV and sexuality education and intervention, including testing and comparing theory-based interventions.

Cover design: Sharon Carty
Cover art based partially on a photo of Peshawar by John Jackson.
www.novapublishers.com

Nova Biomedical

ISBN 978-1-61209-934-7

Health Behavior Interventions in Developing Countries • Peltzer • Pengpid

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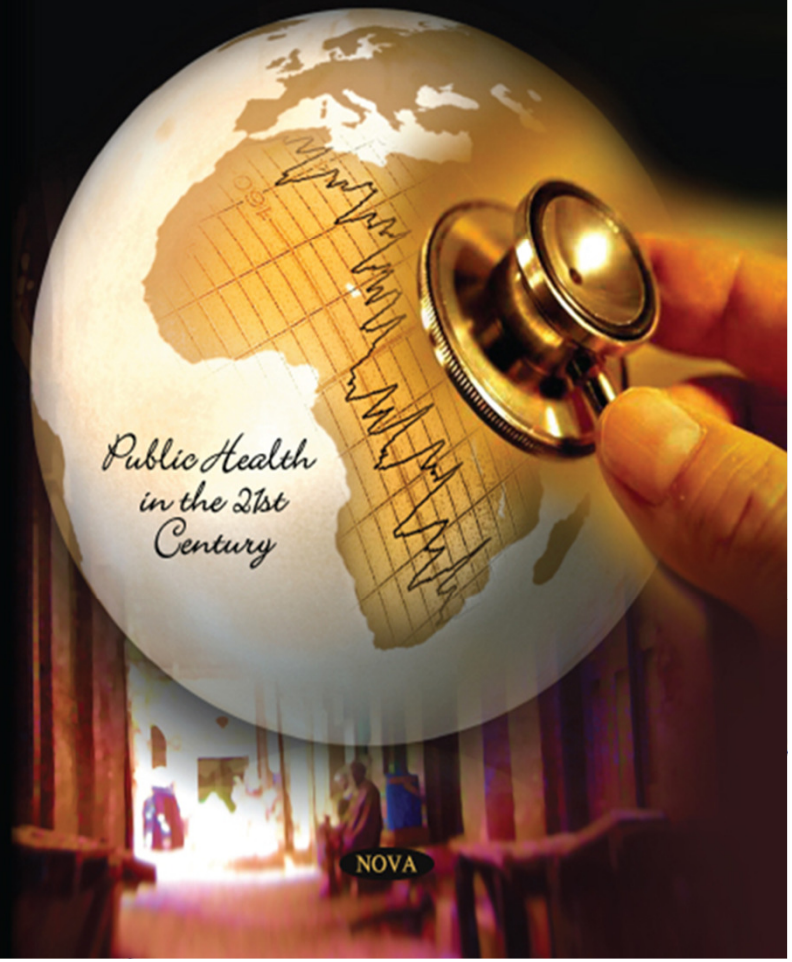

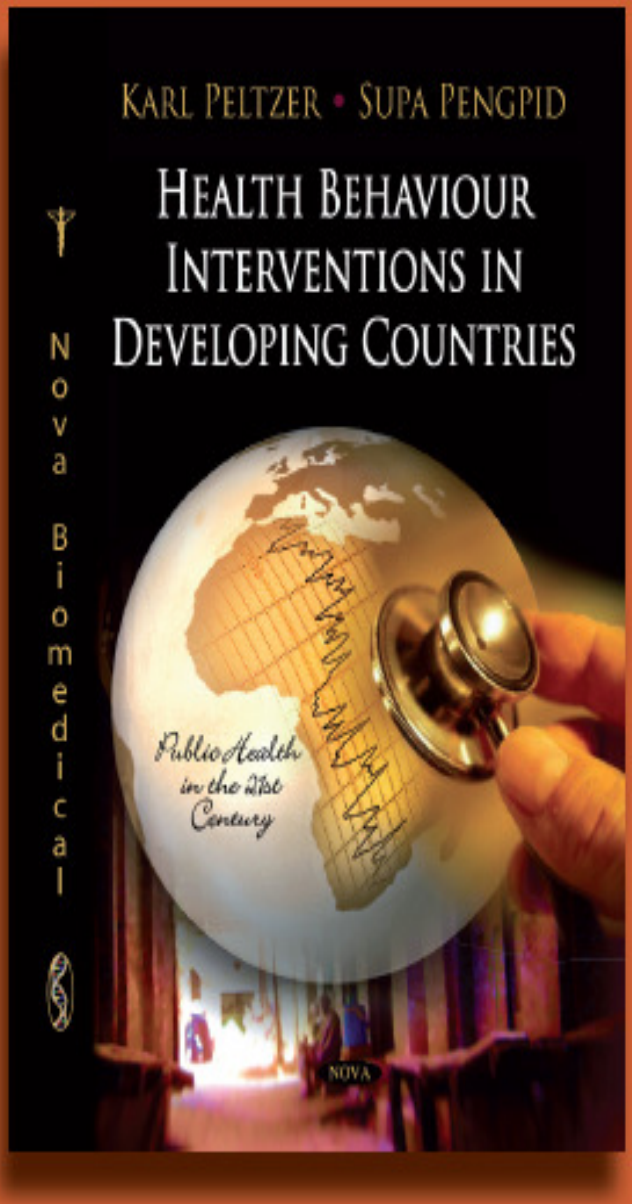

INVITATION:

To public health researchers, academics, public health specialist, health professionals and post graduate students, to develop and implement effective Public Health Intervention programmes and research.

"This book may be the first to systematically apply the principles underlying the relationship of physical health and behavioral factors to the major drivers of health status in low and middle income countries. This book brings together health behavior research conducted around the world, suggesting how the extant theoretical models of health behavior change and maintenance could be applied to the major health risks in low and middle income countries.

This book will be an excellent resource for researchers, clinicians, and public health policy makers to focus their attention on the successes, thus far, as well as the formidable challenges that lie ahead in finding the most effective combination of evidence-based approaches to resolving the world's most pressing health problems"

Foreword by:

Stephen Weiss, PhD, MPH, Dept. of Psychiatry & Behavioral Sciences, University of Miami Miller School of Medicine
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