# **MSM in Sub-Saharan Africa**

# A neglected but significant population for prevention research.



Linda-Gail Bekker The Desmond Tutu HIV Foundation

## Hyperendemic Scenarios



### Southern Africa:

Adult population : >15%

Drivers include early sexual debut, inconsistent condoms, transgenerational sex



#### More than half infections in women/ girls

LOW LEVEL EPIDEMICS



#### **CONCENTRATED EPIDEMICS**



## Ungass reporting: 2008



35/52 African countries were unable to report any information relating to MSM indicators

# HIV Incidence by modes of transmission



Sources: Kevin De Cock, PEPFAR Implementers MEETING 2009 Draft results from Know your Epidemic project

# The Challenge of Politics and Discrimination

- Homosexuality is outlawed in 38 African countries.
- In 13 nations homosexuality is either legal or there are no laws pertaining to it.
- Providing MSM focused services, or enrolling MSM into studies in these countries becomes a major challenge

#### Homosexuality legal



Same-sex marriage recognized Other type of partnership (or unregistered cohabitation) recognized Foreign same-sex marriages recognized No recognition of same-sex couples

#### Homosexuality illegal

Penalty Life in prison Death penalty





#### Law

#### **Public Opinion**

#### "homosexuality is a way of life society should not accept"



Sources: Ottoman, LGBT 2009 Pew Global Attitudes Survey 2002

#### Death

۰.

11 yr to life long imprisonment

1 to 10 yr imprisonment

Imprisonment, unstated duration

No specific law

Protective legislation

# Homoprejudice

- Deputy President Zuma (2006):
- Same sex marriage was "a disgrace to the nation and to God": "When I was growing up, an ungqingili (a homosexual) would not have stood in front of me. I would knock him out."



#### Studies with HIV-testing & MSM, 2000-2006



### Structural Risks Across Africa



The judge added three years to a

The men belonged to a group set up to

fight HIV and Aids

five-year sentence, saying the

men were also members of a

criminal group.

Also in the news

Video and Audio

He said this in Parliament yesterday during the vice-president's question time when he responded to a question from Chadiza Member of Parliament, Allan Mbewe (MMD). Mr Mbewe had asked whether it was appropriate for people in a Christian nation to be practising homosexuality.

## MSM action in Africa



Advocacy meeting at ICASA/SA AIDS: in Dakar: 2008. in Durban : 2009 in CT: 2011 in Addis : 2011

### Studies with HIV-testing & MSM, 2000-2008



A Smith, et al.Lancet 2009

**HIV prevalence :** *Country (number of studies)* 

# Data from 4 sites in SADC



#### Sexual concurrency, bisexual practices, and HIV among MSM in 4 S African countries

JH school of public health Chris Beyrer Stefan Baral Center for Public Health and Human Rights, JHU Gift Trapence Center for the Development of People, Blantyre, Malawi Felistus Motimedi Botswana Network on Ethics, Law, and HIV/AIDS Department of Community Health, University of Eric Umar Malawi, College of Medicine, Blantyre, Malawi HIV/AIDS Coordinator, University of Namibia, Scholastika lipinge Windhoek, Namibia Friedel Dausab The Rainbow Project, Windhoek, Namibia

Methods : Epi probe with simple questionnaire and oroquik anonymous testing

Supported by the Open Society Institute Southern Africa and The Sexual Health and Rights Program, OSI

### 4 sites : Results

Characteristic	Malawi	Namibia	Botswana	RSA
Age	25	24	26	26
HIV prevalence	21.4	12.4	19.7	26
>30 yrs	35	31	46	36 (township)

### 4 sites : Results

Characteristic	Malawi	Namibia	Botswana	RSA
Age	25	24	26	26
HIV prevalence	21.4	12.4	19.7	26
>30 yrs	35	31	46	36 (township)

## 4 sites: Risk Behaviour

risk	Malawi	Namibia	Botswana	RSA
H-S	6.5	19.4	3.4	1
Gay	41	48	67	77
Bisex	53	29	29	18
Trans	0	3	1	5
# partner	3.9	2.9	2.8	4
range	(0-52)	(0-30)	(0-24)	(0-75)
M and F	63	50	43	17
IVDU	12	8	3.4	2.5

## 4 sites: Risk Behaviour

risk	Malawi	Namibia	Botswana	RSA
H-S	6.5	19.4	3.4	1
Gay	41	48	67	77
Bisex	53	29	29	18
Trans	0	3	1	5
# partner	3.9	2.9	2.8	4
range	(0-52)	(0-30)	(0-24)	(0-75)
M and F	63	50	43	17
IVDU	12	8	3.4	2.5

## Cape Town Township study



200 MSM in informal venues in Nyanga, Khayelitsha and Athlone and Mitchells Plain

Oraquick HIV prevalence

Short questionnaire



### HIV Prevalence : CT township



# SA: HIV prevalence

Univariate associations :



- older than 26 years old (p<0.05), unemployed (p<0.05),
- less educated (p<0.05),
- received money for casual sex (p<0.05), not always wearing condoms with men (<0.05), reporting >5 male partners in previous 6 months(p<0.01),
- having been blackmailed (p=0.06).

# SA: HIV prevalence

Independent associations:

unemployment (aOR=3.4, 95% CI=1.5-7.5,p<0.01), higher age (aOR=3.5, 95% CI 1.6-7.8,p<0.01), less condom use with men (aOR2.2, 95% CI=1.0-4.7),

less educated (aOR=4.0, 95% CI1.3-12.5,p<0.05), blackmailed (aOR3.7, 95% CI=1.2-11.3), and more male partners (aOR=2.5, 95% CI=1.0-6.3,p=0.06).



## Bisexual practices in SA study

#### Reported by 17.1%

8% reported having a regular female partner. Associated with:

always wearing condoms (p<0.001), not having disclosed sexual orientation (p<0.05),

received money for casual sex with a man (p<0.05)

a lower prevalence of HIV (p<0.05). Bisexual concurrency reported by 5% and associated with being older than 26 (p=0.05).

#### Lessons from the Soweto Men's Study

#### PERINATAL HIV RESEARCH UNIT



#### SIMON NKOLI CENTRE FOR MEN'S HEALTH



### Soweto Men's Study (2008)

- Objectives:
  - Describe MSM population characteristics
  - Estimate seroprevalence
  - Determine social/behavioral predictors of HIV infection
- Recruitment: Respondent Driven Sampling (RDS)
  - Behavioral questionnaire
  - VCT and HIV rapid testing
- Prevention packs: condoms, lubricant, information
- HIV+: CD4, referral to PHRU clinic for care / ART

### Soweto men's study: Results

- N=378 (including 15 seeds)
- Soweto MSM population estimates:
  - 16.1% gay-identified
  - 33.6% bisexual-identified
  - 43.2% straight-identified
- Crude sample HIV prevalence: 23.9%
- Adjusted HIV prevalence estimates: 13.2% overall; 34.0% gay-identified



### Soweto MSM risk factors for HIV

Variable	<u>OR (95% CI)</u>
Age >25	3.8 (3.2-4.6)
Income <r500< td=""><td>1.4 (1.2-1.7)</td></r500<>	1.4 (1.2-1.7)
Gay ID	2.3 (1.8-3.0)
Unprotected RAI	4.4 (3.5-5.7)
3-5 partners (6 months)	1.9 (1.4-2.6)
Buy drugs/alcohol for male partner	3.9 (3.2-4.7)
Regular female partner	0.2 (0.2-0.3)
Circumcised	0.2 (0.1-0.2)

# 542 self-identified MSM at 37 venues in Cape Town

- •HIV prevalence 10,4%
- •77% self identified as "gay"
- •HIV infection associated with previous STI diagnosis and known HIV+ve partner
- •9% bisexual





Feasibility of Recruiting MSM for Clinical Research in "Small Town" South Africa–The Aurum Institute's Experience

- The Aurum Institute has been conducting epidemiologic and clinical studies among persons at high risk of HIV in Rustenburg (NW Province) since 2008.
- The prevalence of MSM behaviour was **6.3%** in a *representative* household survey of Rustenburg, conducted in 2008.
- Rustenburg, with a pop'n of ~400,000 and 6.3% MSM prevalence, the estimated MSM pop'n is estimated at ~25,000
- Given this surprisingly high proportion of MSM in community, we initiated active recruitment of MSM to an existing cohort study.



Results of Initiative to recruit MSM for Clinical Research in Rustenburg, South Africa–The Aurum Institute's Experience

In 2009, we hired an MSM recruiter, which substantially improved screening of MSM for our cohort study.

#### In a 7-mo period...

- 138 MSM were contacted in the field (vs. 0 prior to MSM initiative)
- 82 MSM came to the research centre (vs. 2 prior)
- 58 MSM screened for cohort study (vs. 2 prior)
- Incidence estimates still underway, but 2 of the 3 HIV seroconversions observed to date among men were among MSM.

#### Key challenges of enrolling MSM were ...

- MSM more likely to be HIV-positive at baseline
- MSM more likely to fear HIV testing (and therefore lower proportion agreed to screen (70% study uptake among MSM vs. ~100% for others who came to research centre)
- MSM more likely to report condom use, and therefore, les likely to screen eligible for our particular cohort study

For further information, please contact Mary Latka, PhD, MPH mlatka@auruminstitute.org



### Context, IAVI-supported studies, Mombasa



Population: 1 million

Multiple ethnic and religious groups

Local economy reliant on sea port and international tourism

MSM and MSM sex work reported in anthropology literature in 1960-80s

Adult HIV prevalence<sup>il</sup>(coast).<sup>4, 1987</sup> **7.9%** 

Kenya AIDS Indicator Survey, 2009

21% of new HIV infections attributed to 'MSM & men in prison'

Kenya Mode of Transmission Model, 2008

### Context: Mombasa MSM & FSW cohorts

Started 2005

#### Peer recruitment to

- 1. HIV negative high risk cohort
- 2. HIV positive cohort

#### Three monthly Follow up

- Recall of sexual behaviour, condom use, IV drug use, and sex work
- STI & HIV testing
- Risk reduction counselling & provision of free condoms / lubricants



KEMRI-IAVI-clinic, Mtwapa

# Age distribution, and number tested by year, 705 MSM, 2005-10, Kilifi, Kenya



\*including n=25, Q1, 2010

#### HIV incidence in MSM, and by age group, Kilifi

number of SC = 51



HIV incidence density = 8.9 /100 PYO (95% CI:6.8 - 11.7) AIDS RESEARCH AND HUMAN RETROVIRUSES Volume 26, Number 2, 2010 © Mary Ann Liebert, Inc. D CE: 10.1089/aid.2009.0115 EPIDEMIOLOGY

#### Evaluation of HIV Type 1 Strains in Men Having Sex with Men and in Female Sex Workers in Mombasa, Kenya

Sodsai Tovanabutra,<sup>1</sup> Eduard J. Sanders,<sup>2,3</sup> Susan M. Graham,<sup>2,4</sup> Mary Mwangome,<sup>2</sup> Norbert Peshu,<sup>2</sup> R. Scott McClelland,<sup>4</sup> Allan Muhaari,<sup>2</sup> Jacqueline Crossler,<sup>1</sup> Matt A. Price,<sup>5</sup> Jill Gilmour,<sup>5</sup> Nelson L. Michael,<sup>1</sup> and Francine M. McCutchari,<sup>4</sup>

- Compared viral strains in MSM and female sex workers
- Both acute and prevalent samples
- Full length genomic sequencing
- Collaboration with Francine McCutchan (USA)
## **Conclusion: MSM viral strains**

- MSM epidemic is connected to local, Kenyan epidemic
- High proportion of recombinant, dual infections, and novel strains
- New strains arising in MSM could easily bridge to much larger hetero-sexual community

# Tracking spread of HIV using sequences

By analyzing the viral sequence we can:

- -Determine where HIV originated
- -Track its global dissemination
- Identify transmission networks

Every time HIV replicates, it introduces changes/mutations into its genome. The HIV sequence within an individual is unique and, outside of analysis very close to time of transmission, no two HIV sequences from different individuals are identical.



### HIV-1 epidemic in South Africa: Timelines



### Subtype Distribution: 1986-1993

#### Heterosexual

#### MSM



Van Harmelen, Wood et al., AIDS 1997



#### Second heterosexual epidemic: Region spread of subtype C



#### Exploratory Study to Determine Identity, Social Networks and Circulating HIV Clades Among Men-Who-Have-Sex-With-Men (MSM) in Cape Town

#### Carolyn Williamson and Desmond Tutu HIV Foundation





UNIVERSITY OF CAPE TOWN



#### **Subtypes in MSM in Cape Town**



Maximum Likelihood Tree of 147 MSM HIV-1 Gp160 with 19 subtype reference sequences.

### Cape Town MSM Subtype Distribution (2010)



C, n=119
B, n=19
F2, n=2
A, n=2
BC, n=2
B-like, n=2
AC, n=1



### Location in CT

#### Urban MSM

#### Peri-urban MSM





## Clade by race



#### SA Coloured

SA White



## Clade by race

SA Black

#### SA Coloured

SA White



# Conclusions



- MSM in Cape Town engage in sex with women.
- Genotyping data showed that there is bridging between the generalized heterosexual and concentrated MSM HIV epidemics in Cape Town.
- For vaccine trials it is important to know subtype circulating as this may impact on vaccine efficacy



- Higher diversity of subtypes circulating in MSM in Cape Town compared to heterosexual infection which is >95% subtype C.
- 20% of infection in MSM were not due to subtype C, 13% comprised of subtype B.
- Sequencing information is also useful to define local transmission patterns. No obvious evidence of extensive local spread although some linked clusters were identified.

# PREP

# CAN A PILL A DAY PREVENT

#### FOR INFORMATION ON THIS NEW AND EXCITING HIV PREVENTION STUDY

SMS "Info" at no cost to 30060 or e-mail MCMHP@hiv-research.org.za

All participants will be compensated for their time and transport.







#### **PrEP Initiative / Iniciativa PrEx**

# Sponsored by NIH/NIAID/DAIDS

#### with co-funding by the Bill & Melinda Gates Foundation

and drug donated by Gilead Sciences

#### **The Global PrEP Study**

Enrolling ( $\bigstar$ ), Invited ( $\bigstar$ ), January 2008



Number of Participants 3000 Number of Sites 11

# The PrEP Study: Safety, Efficacy, Behavior, and Biology



#### The PrEP Study: Safety, Efficacy, Behavior, and Biology

Sponsored by NIH/NIAID/DAIDS with co-funding by the

Bill and Melinda Gates Foundation

and drug donated by

**Gilead Sciences** 



BILL& MELINDA GATES foundation

# Background

- The Global iPrEx Study Design
  - Double blind, placebo controlled
  - Safety and efficacy
  - Once a day, daily oral use of an ARV drug for HIV prevention
- Study medication
  - Tenofovir 200 mg. Emtricitabine 300 mg

# Background (cont.)

- Study population
  - 2,499 men and transgender women who have sex with men at 11 sites
    - Rio de Janeiro (2), Brazil
    - Sao Paulo (1), Brazil
    - Guayaquil (1), Ecuador
    - Lima (2), Peru
    - Iquitos (1), Peru
    - Cape Town (1), South Africa
    - Chiang Mai (1), Thailand

#### PrEP study Cape Town: Background

- "Chemoprophylaxis for HIV Prevention in Men"
- Safety and efficacy of Truvada® in preventing HIV
  - high-risk MSM in greater Cape Town
  - Launched in Dec 2008
- Multiple recruitment strategies to reach diverse population
  - SMS advertising campaign
  - LGBT-venue fieldwork
  - Community recruiters
  - Referrals
  - Passive Internet recruitment



CAN A PILL A DAY PREVENT

#### FOR INFORMATION ON THIS NEW AND EXCITING HIV PREVENTION STUDY

SMS "Info" at no cost to 30060 or e-mail MCMHP@hiv-research.org.za

All participants will be compensated for their time and transport.



# IPrEx – Cape Town

Enrollment: Initiated : Jan 09 Halted : Oct 09



#### PrEP study Cape Town: Recruitment





**Challenges:** 

• HIV negative and traceable township MSM

#### **Solutions:**

- Prescreen
- More targeted recruitment campaign
- Employ an army of well networked peer recruiters!
- Must engage community fully

### Race









# Background

- Study results
  - iPrEx showed that daily use of oral PrEP provided 44% additional protection in preventing HIV infection
  - All participants received comprehensive HIV prevention services

#### iPrEx Open Label Extension

iPrEx Ole

# iPrEx Next Steps

• iPrEx Open Label Extension

 Aimed at providing additional safety data regarding long-term PrEP use among those rolling over from the active arm

# iPrEx Next Steps (cont.)

- Rationale:
  - Information about PrEP efficacy might decrease perception of HIV risk
  - Risk compensation: incrased risk behavior (decreased use of condoms or more sex partners)
  - information about PrEP safety and efficacy may increase pill use and drug exposure

# iPrEx Next Steps (cont.)

- Study Implementation
  - Every participant enrolled in the blinded phase will be unblinded
  - Invited to enroll in the Open Label Extension
    - HIV (-) participants will be offered Truvada®
    - HIV (+) participants will receive HIV Viral Load and CD4 count monitoring and Referrals of ART treatment when needed

# iPrEx Open Label Extension

- The iPrEx Open Label Extension will provide unique opportunities to address questions about how information about PrEP safety and efficacy might affect risk behavior and pill use
- Cape Town : 55 of 88 MSM have enrolled
## MSM Africa : What is still needed?

- Activism and advocacy
- Serious community engagement
- More research
- Better services





APRIL 2010

## MSM Sensitivity Training For Health Workers

- >450 HIV Counselors, trainers, and coordinators trained 2010
- Now extended to online education in partnership with Kilifi team.
- French and Portuguese translation underway.



## Lubricants



#### IRMA lube survey

More Science

mat:

microbicides.org

- Internet-based
- SurveyMonkey with e-promotion
  - Ran 29 weeks in 2007
- 6 languages (EN/FR/SP/POR/GER/TUR)
  - 8,945 Responses from 107 countries

 – 6,273 reported AI within the past 6 months (70.1%)

- 911 women,

- 428 Al in past 6 mos.
- Analysis by UCLA



#### Health4men: A Novel Urban Clinical Service Targeting Men Who Have Sex With Men (MSM)



#### IVAN TOMS CENTRE FOR MEN'S HEALTH

## SIMON NKOLI CENTRE FOR



You are invited to the controversial and ground-breaking event...

#### **'TAKING A RISK FOR SAFER SEX'**

A photo exhibition of naked Cape Town men

The series of more than 50 specially-commissioned photos will be exhibited from 17 – 25 July 2009, coinciding with the IAS (International Aids Society) Conference taking place in Cape Town.

The exhibition aims to increase awareness around safer sex issues among the gay community. Proceeds from the auctioned art will go to Play Nice, a non-profit organisation that promotes responsible sex among men.

The auction will commence at 8pm on Monday, 20 July 2009 following an address by internationallyacclaimed expert on men's sexual health, Professor Ken Mayer of Brown University at 7 pm.

WHERE: Adam & Eve (formerly The Loft Lounge), Napier St, De Waterkant CONTACT: Glenn de Swardt - 021 425 6463 - glenn@health4men.co.za

Health4Men is a partnership between Anova Health Institute, PHRU and the Western Cape Department of Health.









## Highly active HIV prevention.

A term coined by Prof K Holmes, University of Washington School of Medicine, Seattle, WA, USA.5



From Coates T et al 2008.

## **Targeted Prevention Packages**





Advanced Topics in Combination HIV Prevention Research with Men who have Sex with Men (MSM) in Africa.

> AIDS International Training and Research Program Workshop. 22-24 March 2011







## MSM package

- HCT
- ART
- PREP
- MSM Services
- Condoms and lube
- Education
- Psychosocial support
- Microfinancing
- Job skills
- Legal and human rights
- RM



## MSM package?



#### MP3 II



# Prevention Packages for MSM in Southern Africa

Emory University Desmond Tutu HIV Foundation Johns Hopkins University University of California, Los Angeles

## Literature Review

- Lead: Stefan Baral, JHU
- Builds on previous review of prevention literature in MSM for World Bank
- Utilizes the HASTE system for classification
- 1900+ documents archived



DIRECTIONS IN DEVELOPMENT Human Development

> The Global HIV Epidemics among Men Who Have Sex with Men

Chris Beyrer, Andrea L. Wirtz, Damian Walker, Benjamin Johns, Frangiscos Sifakis, and Stefan D. Baral



## Literature Review --Dissemination

ABOUT CFAR	CFAR CORES	FOR RESEARCHERS	FOR STUDENTS & VOLUNTEERS	CFAR LINCS
ABOUT CEAR Prevention Science Specific Aims Self-service Options Interventions User Guides Survey Questionnaire Database MSM International HIV Prevention Research Database MSM Online Research Database Full-service Options Staff Prevention Science	Home » Departments & Centh Prevention Science » Interver MSM Online Ress Coming soon! This database contains data 1 online surveys of MSM. 1. I. Content 1. Article 1. Bibliogra 2. Study for use) 3. Potential 2. Study 1. Study loc 2. Target ra 3. Survey 1. Duration 2. HIV statu 3. Sexual ri 4. Online re 5. Survey m	FOR RESEARCHERS ars * Centers * CFAR Home * tions earch Database from all journal articles public phic information trus (Sexual health, methods, article bias ation true and age of recruiting is k factors (number of sex pa terviting type and sites metrics (click throughs, enrolle	FOR STUDENTS & VOLUNTEERS CFAR Cores > whed using data from intervention, drug rtners, UAI, etc.) d, consented, etc.)	CRAFLINGS
	2. User expenses 1. A search will quu- target race and 3. Output 1. List of articles a Includes a link- cannot be attac	ary bibliographic keywords, st target age. nd associated data meeting to the article is permitted by i hed, a link to the citation in F	udy focus, location, he given criteria. copyright. If the article ubmed will be	

CFAR HOME | CONTACT CFAR | ACKNOWLEDGE CFAR | MAKE A GIFT | MEDIA INQUIRIES Copyright () 2011 Emory University - All Rights Reserved | 1518 Clifton Road, Atlanta, Georgia 30322, USA  Via Emory CFAR Prevention Sciences Core

website

- Faceted search
- Links to PDF documents
- Portal for updates?

Figure 4. Proposed standard of care and enhanced services in a CHPI for MSM in Africa. I: individual; P: partner-level; C: community \*pending trial results

Standard of care activities				
Service	Type (Level)			
HIV testing	Biomedical (I)			
Risk reduction counseling	Behavioral (I)			
Condoms/WBL	Biomedical (I)			
STI screening/treatment	Biomedical (I)			
ARV referral for HIV+	Biomedical (I)			
Circumcision evaluation	Biomedical (I)			
Preexposure prophylaxis*	Biomedical (I)			
"Enhanced" activities				
Service	Type (Level)			

Service	Type (Level)
Couples VCT	Behavioral (P)
Linkage to care	Behavioral (I)
Training of medical providers	Behavioral (C)
LGBT sensitization	Behavioral (C)
Promote LGBT-supportive	
care locations	Biomedical (C)
Community development	Behavioral (C)
SMS for HIV/STI screening	Biomedical (I)

## **RECTAL MICROBICIDES**



## Most anal intercourse around the world is unprotected.



## Finally :

- MSM in SSA represent a concentrated epidemic within a generalized epidemic
- HIV rates are higher than HS background
- Men CAN be reached and WILL volunteer
- Authentic community engagement key.



#### MSM present a new and exciting opportunity to engage our African communities more comprehensively and enhance the diversity and scope of our prevention research agenda.

## Final word:



"I would never worship a homophobic God."

Archbishop Emeritus Desmond Tutu
The Washington Post

## Acknowledgments

- DTHF Mens Division (Ben Brown, Andrew Scheibe, Earl Burrell, Keren Middelkoop)
- Cape Town IPREX team
- PHRU (Glenda Gray, Sibongile Dladla, Tim Lane)
- Anova (James McIntyre, Helen Struthers)
- IPREX Team
- Robert Grant (Gladstone inst)
- Chris Beyrer, Stefan Baral (OSISA)
- IAVI (Pat Fast, Maaza Seyoum)
- Eduard Sanders (IAVI, US Military HIV Research Program )
- Aurum Institute (Gavin Churchyard, Mary Latke)
- Carolyn Williamson and Viral Diversity Lab
- Health4men (Kevin Rebe, Glenn De Swaart)
- Jim Pickett and IRMA
- Ian Mc Gowan and MTN