

# When Health Care Priorities Collide: Using Drugs for Treatment and Prevention

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# Why do we need a biomedical prevention intervention in South Africa?

- South Africa has the world's largest HIV epidemic
  - Largest ART programme estimated at 600,000<sup>1</sup> to 1 million<sup>2</sup> persons started on treatment since 2004
  - 400-500,000 new infections **per year**<sup>3</sup>
  - Behavioural interventions have had moderate success but little impact on the epidemic

1. Adam M.A. and Johnson L.F. (2009) Estimation of adult antiretroviral treatment coverage in South Africa. *South African Medical Journal*. 99(9): 661-7
2. UNAIDS country report [http://data.unaids.org/pub/Report/2010/southafrica\\_2010\\_country\\_progress\\_report\\_en.pdf](http://data.unaids.org/pub/Report/2010/southafrica_2010_country_progress_report_en.pdf)
3. ASSA model 2003

# Current Use of Drugs for Prevention

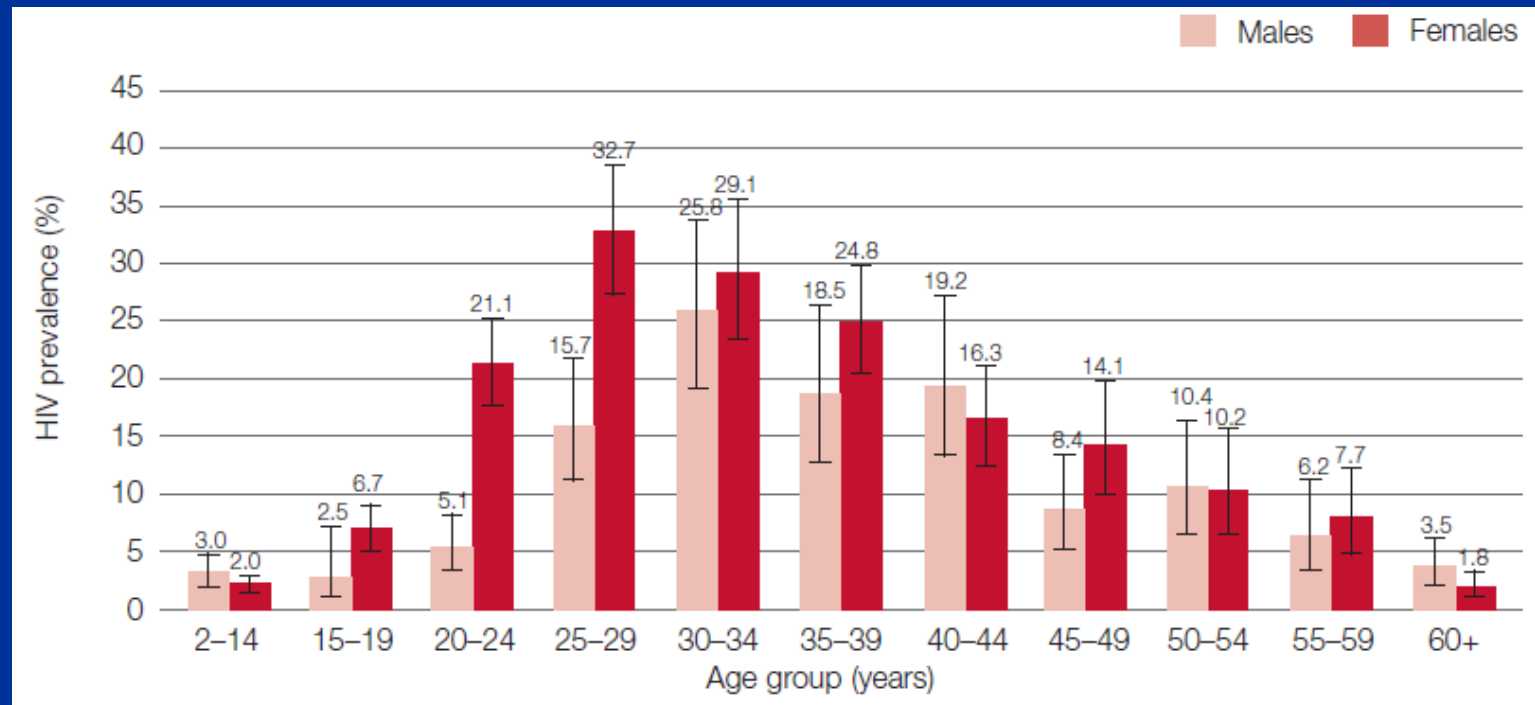
- Prevention of vertical transmission
  - Treatment of the mother to prevent transmission
  - Post-exposure prophylaxis to the exposed baby
- Post-exposure prophylaxis
  - Usually systemic drugs used in exposed individuals
- **Pre-exposure prophylaxis**
  - Using drugs before exposure occurs in uninfected persons
  - Can be local or systemic, various delivery systems (gels, rings, tablets)
- Treatment as prevention - TasP
  - Using drugs early in infected individuals to reduce transmission to uninfected individuals

# Implementation of a PrEP programme

- Target population
- Adherence
- Drug resistance – HIV testing
- Risk compensation
- Costs
- Ethics

# Target Population

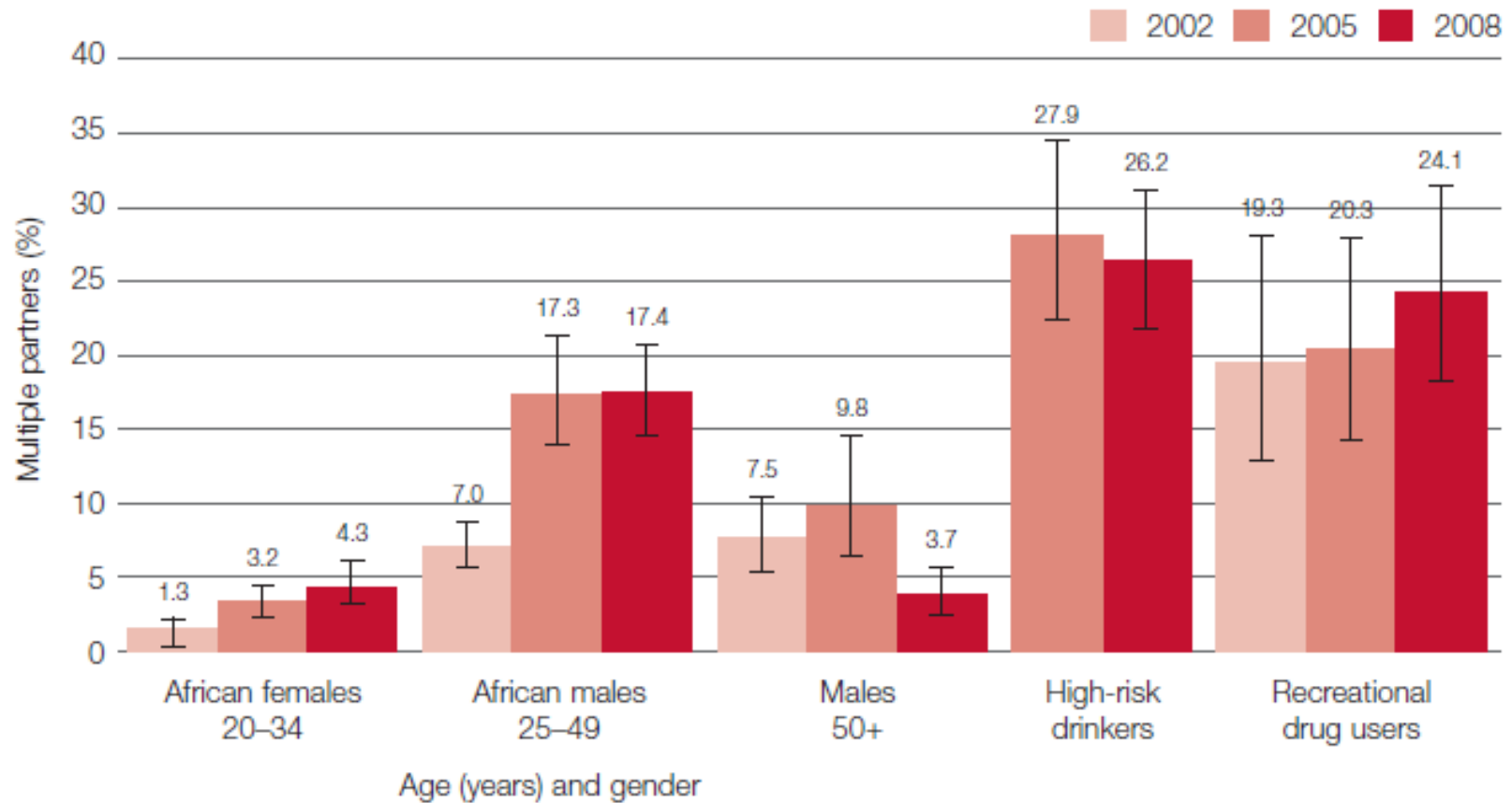
- PrEP needs to be targeted to highest behavioural risk group (MARPs)



South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2009

# Most at Risk Populations

Figure 3.6: MARPs with multiple sexual partners, South Africa 2002, 2005, and 2008



# Target Population

- Discordant couples
  - High rates of discordance all over Africa
  - 43% of spouses of ART eligible patients are HIV negative
  - 59% of discordant couples desire children
- Sex workers/clients
  - 60-70% of sex workers are infected
  - Need to identify them before infection

# Adherence

- Adherence to treatment
  - In trials
    - Partners in prevention trial: acyclovir adherence 96%
    - Oral Tenofovir PrEP study: 74% (excluding pregnancy)
    - Gel use varies from 44-80% depending on the trial
    - 13.2 pregnancies per 100-woman years in HPTN 039
  - Women are motivated to participate in research by desire to access information and health care
    - High levels of adherence when personal benefit is high
  - PEP: 65% HCW initiate PEP after exposure, 35% complete the course

# Retention in Care / Access

- 5- 25% of loss to follow-up in ART programmes
  - Influenced by distance travelled, employment status, baseline CD4
- 90% retention in prevention trials
- Difficulty in retaining patients in Wellness programmes
  - Would lack of stigma improve retention?
- Access: public health care is difficult to access

# Drug resistance

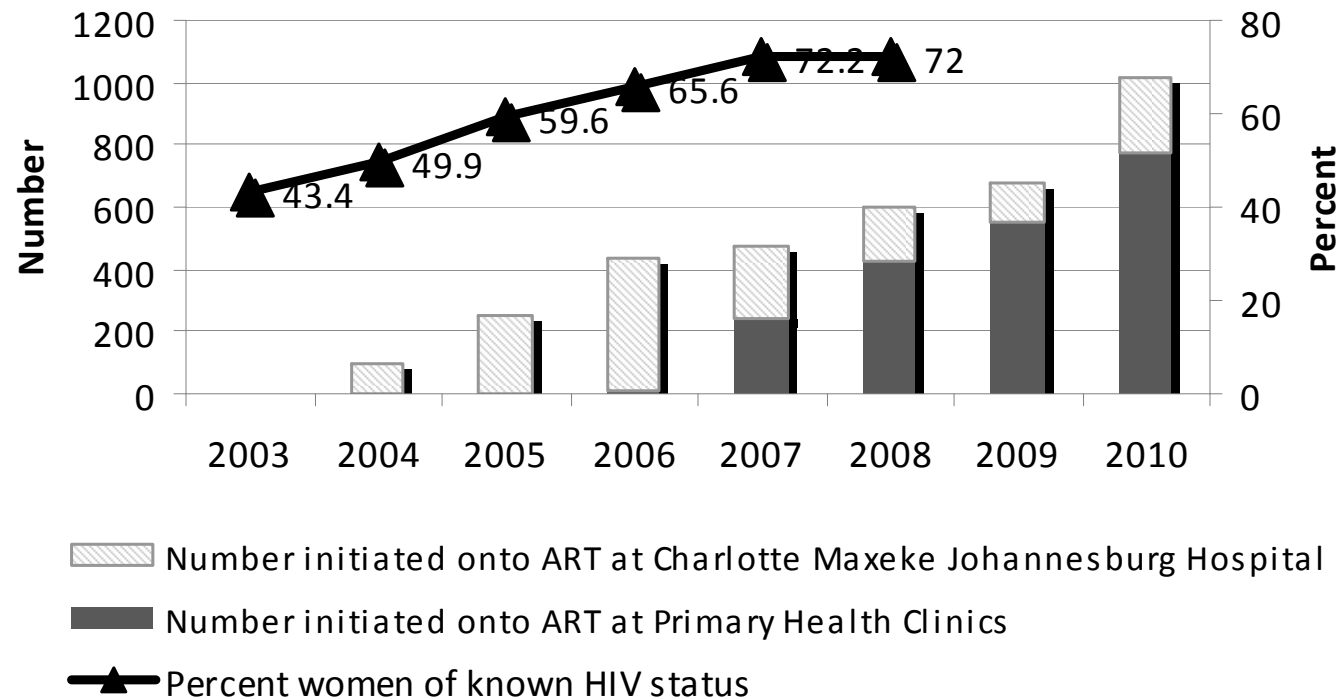
- Drug resistance
  - Circulating resistance
    - May decrease efficiency of PrEP if the same drugs are used
  - Development of resistance in breakthrough infections
    - Increased resistance in HIV-infected children exposed to sdNVP
  - Requires rigorous testing to decrease number of HIV positive individuals receiving inadequate therapy

Church JD, AIDS Res Hum Retroviruses. 2009 Jul;25(7):673-7.

Hudelson SE, AIDS. 2010 Feb 20;24(4):557-61

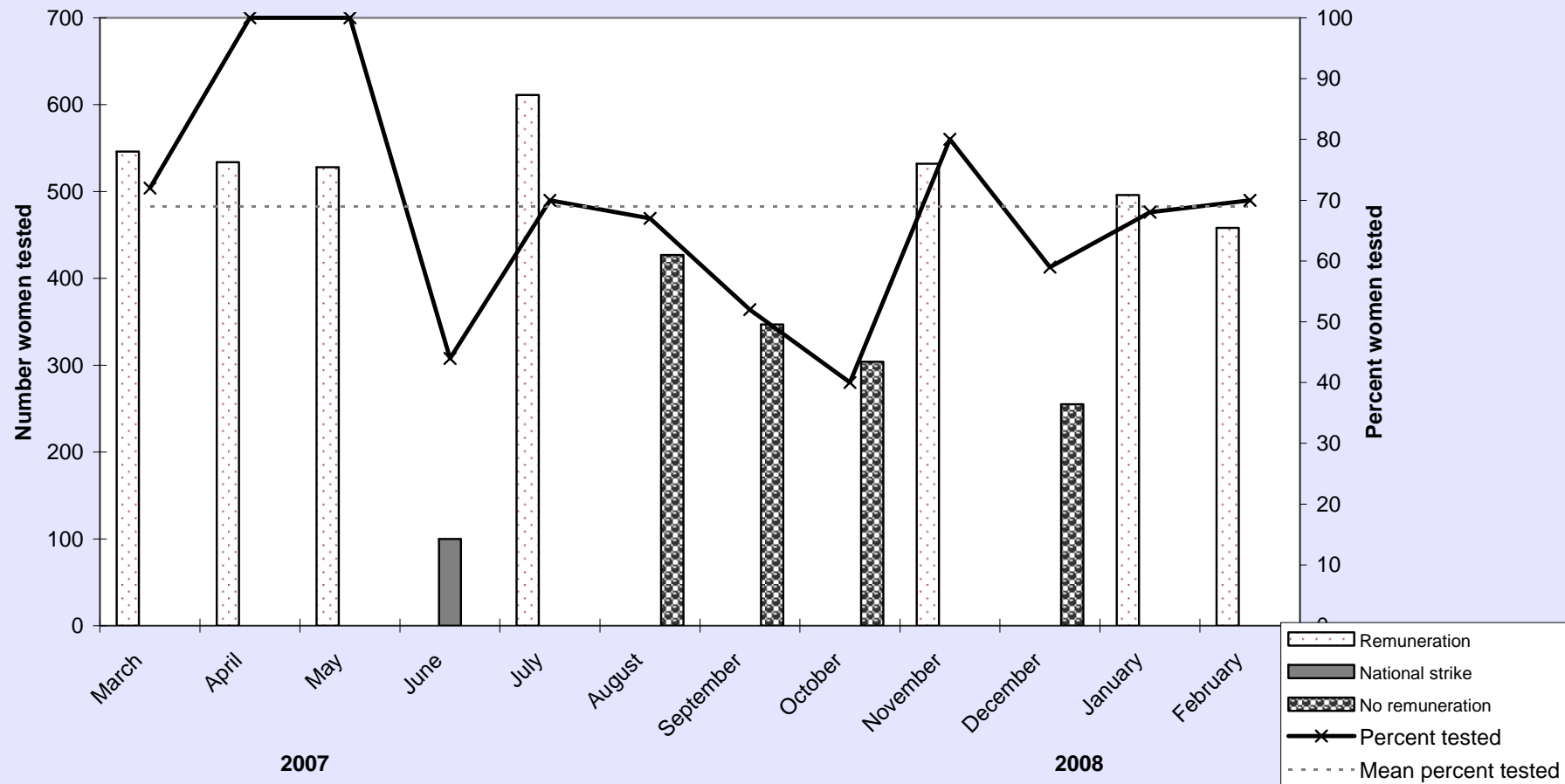
# HIV Counselling and Testing

Number of Women Accessing HAART in Antenatal Clinics in the Inner City and Proportion of Known HIV Status at Delivery



# HIV Counselling and Testing

Number and proportion of women tested for HIV at first antenatal visit at three clinics in Johannesburg, South Africa from March 2007 to February 2008



# Risk compensation

- Influence of risk compensation depends on
  - Effectiveness of the method
  - Coverage
- Scenarios
  - Increase condom use may result from extensive counselling given during enrolment
  - Competing priorities
    - PrEP may confer a message of protection and therefore reduced condom use
    - PrEP would be useful in couples trying to conceive

# Cost-effectiveness

- Depends on
  - Effectiveness of PrEP
  - Target population (small highly exposed populations)
    - Concept of MARP in SA is not clearly defined, heterosexual women are most at risk
    - monitoring of adverse events
  - Extent of risk compensation

# Ethical considerations

- Needs for treatment are huge – competing resources
  - Close to 6 million persons infected
  - Average starting CD4 is still close to 100 cells/mm<sup>3</sup>
  - Five years after rollout, coverage is estimated at 40%-55% of need.
- Immediate deaths can be averted by focusing on treatment
- Access to treatment for HIV positive persons is limited, and health care facilities and staff are overburdened
- Issues of toxicity and resistance are prompting discussion around “saving” PrEP drugs for prevention only

# There are more questions than answers...

- Studies of feasibility are needed now
- The ideal PrEP intervention would have to:
  - Be highly effective
  - Targeted at young, heterosexual women or other appropriate population
  - Address issues of testing, retention and adherence
  - Address the concerns around risk compensation
  - Address the concerns around ethics of access and feasibility of the roll-out

# So Why Bother?

- For every person started on treatment, 3 new people get infected
- The health system has to be strengthened to manage the burden of disease
  - This is true for the 5 million persons still needing to be treated
- Alternative methods for delivery of PrEP can be explored
  - Community engagement
  - Task-shifting
- The only way to reduce HIV resistance in the population is to reduce new infections

Without the implementation of a safe, effective and widely available biomedical prevention intervention, the generalized epidemic in South Africa with its associated economic, health care and social costs will continue unabated for a long time.

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