

# Estimating HIV Prevalence from the Swaziland HIV Incidence Measurement Survey

**Shims**  
Swaziland HIV Incidence  
Measurement Survey



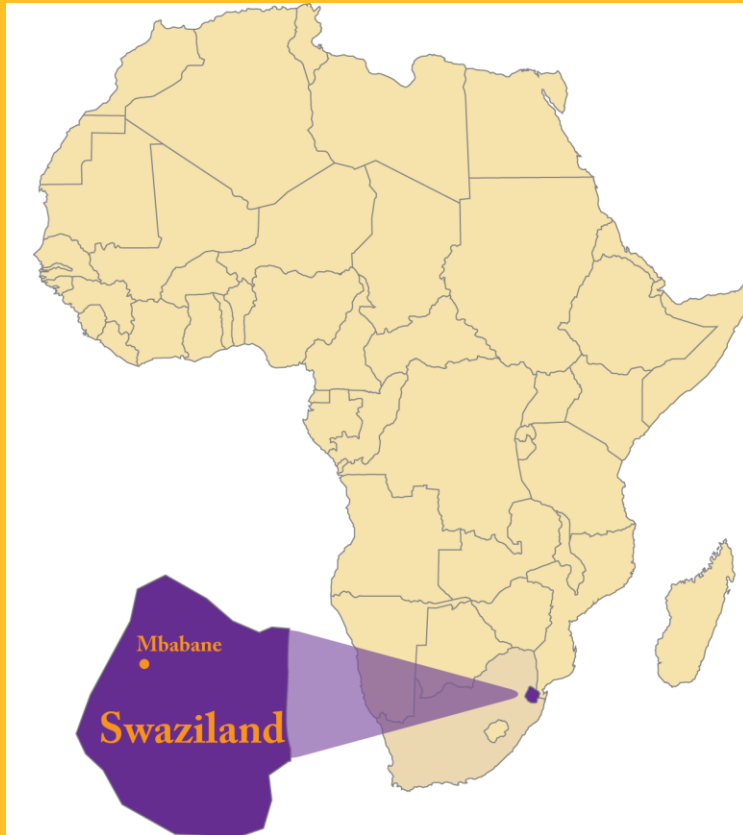
"A DROP THAT COUNTS ...  
..the number of new HIV infections"



Rejoice Nkambule, Henry Ginindza, George Bicego,  
Deborah Donnell, Jessica Justman, Jason Reed, Ingrid Peterson  
and the SHIMS team

Abstract # 142  
March 8, 2012

# The Kingdom of Swaziland



- Small country in southern Africa
- Population: 1.2 million
- Demographic Health Survey 2006: Overall HIV prevalence 31% among men and women (ages 18-49)\*
- Highest national HIV prevalence in the world

*Adapted from WorldVision*

\*calculated from DHS 2006

# Male Circumcision as Part of Swaziland's Scale-Up of Combination Prevention Strategy

- **National combination prevention program:**
  - HIV testing and counseling
  - PMTCT
  - Social behavior change communication
  - ART expansion
  - *Voluntary medical male circumcision*



2010: Soka Uncobe (“Conquer through Circumcision”), the national campaign to scale-up male circumcision from 8% to 80% of adult men in one year

**What will be the reduction in HIV incidence in Swaziland?**

# Swaziland HIV Incidence Measurement Survey (SHIMS)

## **Primary Objective:**

To estimate HIV incidence rates in a household-based, nationally representative sample of men and women, before and after accelerated scale-up of HIV prevention programs.

## **Current Analysis**

To estimate **HIV prevalence rate** in a household-based, nationally representative sample of men and women.

# SHIMS Methods





# SHIMS: Two-stage Cluster Sampling Design

**Select 575 of 2054 Enumeration Areas (EAs)**



**Randomly select 26 households from each EA**

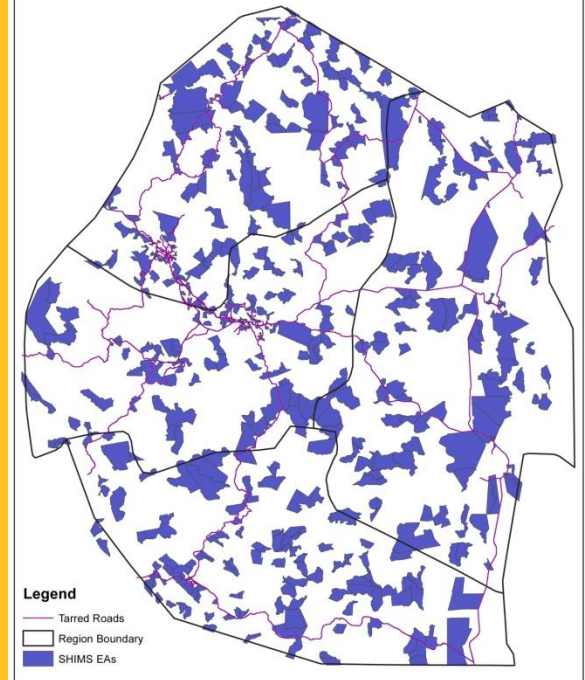


**Invite all adults aged 18-49 in households to participate in cross-sectional survey**



**Invite HIV-uninfected adults to join incidence cohort**

SHIMS SAMPLE: 575 Enumeration Areas (EAs)



# SHIMS Survey: Inclusion Criteria

- Resides or has slept the night before in selected household
- Age 18-49 years
- Able to provide consent



*SHIMS Study team visiting a selected household*

# SHIMS Study Procedures

- Interviewer-administered questionnaire
- HIV counseling and testing
  - 4<sup>th</sup> generation Determine® HIV 1/2 Antigen/Antibody Combo
- If HIV-positive, refer to care services
- If HIV-negative, refer to prevention services





# Weighting Methods

- SHIMS sample weighted to achieve population representativeness
- Weights adjust for sample selection and differences in non-response



# Results



# SHIMS Survey Participation

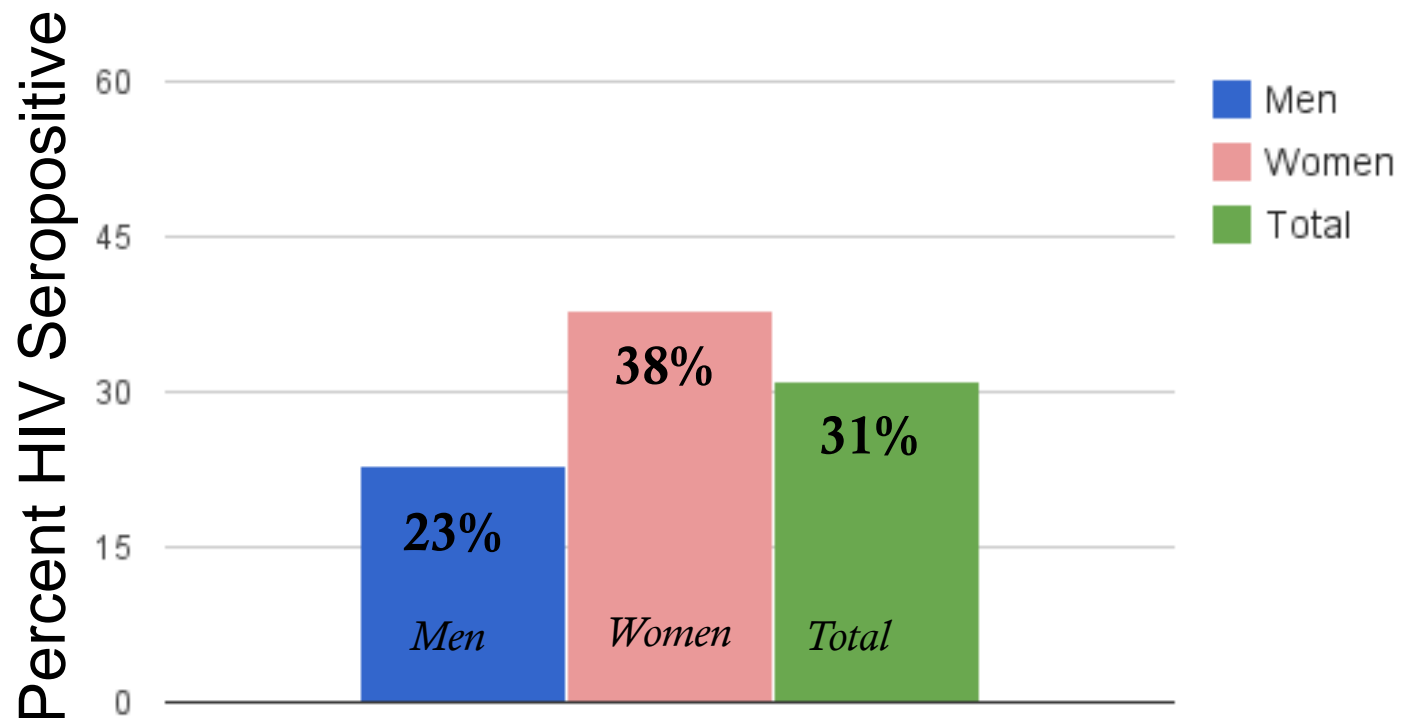
	Total		
Selected households	14,950		
Participating households	12,597 (84%)		
	Men	Women	Total
Eligible household members	10,886	13,414	24,300
No contact made	2445 (22%)	1353 (10%)	3798 (16%)
Refused participation	1362 (13%)	1084 (8%)	2446 (10%)
Participating household members	7,079 (65%)	10,977 (82%)	18,056 (74%)

# Swaziland Demographics (Ages 18-49)

	Men	Women	Total
<b>Age</b>			
18-24	37%	35%	36%
25-34	36%	33%	34%
35-49	27%	32%	30%
<b>Education</b>			
None	6%	7%	7%
Primary	27%	29%	28%
Secondary	49%	50%	50%
Higher	17%	14%	15%
<b>Married or living with a partner</b>	36%	51%	44%
<b>Circumcised (self-reported)</b>	15%	-	-

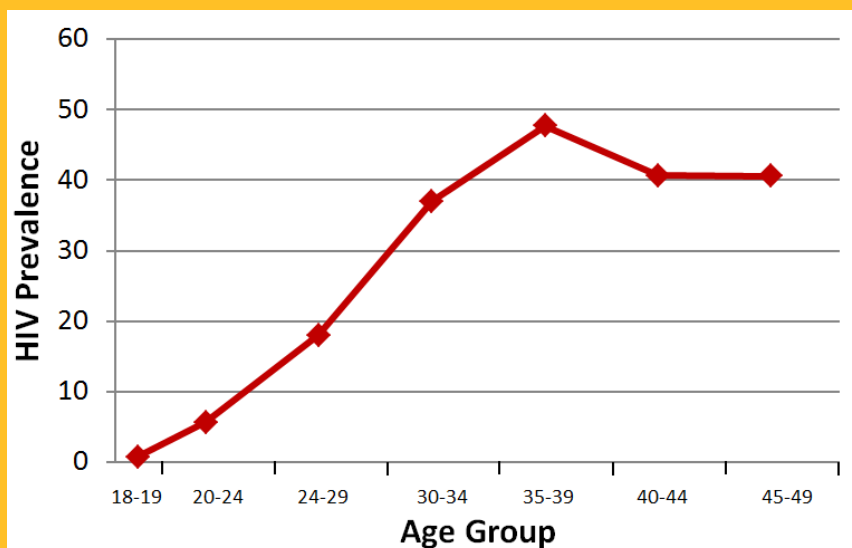


# HIV Prevalence In Swaziland: HIV+ Test in SHIMS (n= 18,056)



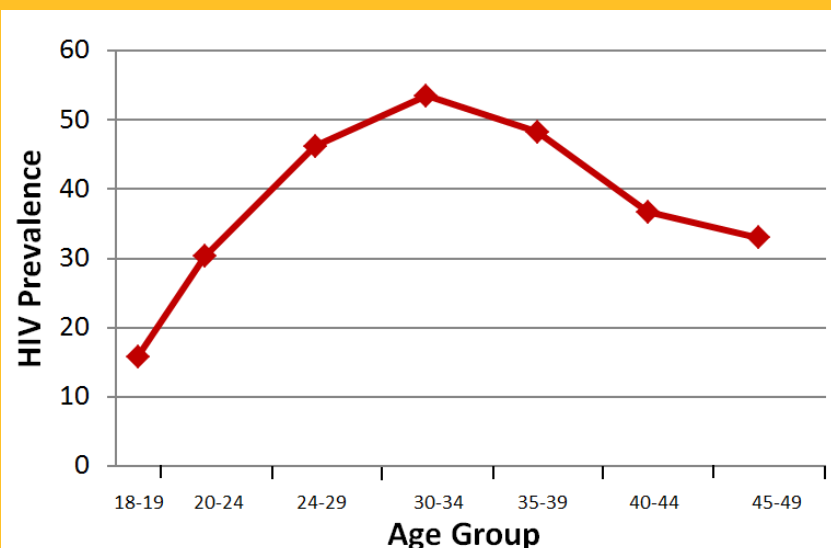
# 2011 HIV PREVALENCE IN SWAZILAND SHIMS SURVEY (AGES 18-49)

## Men: Prevalence by Age



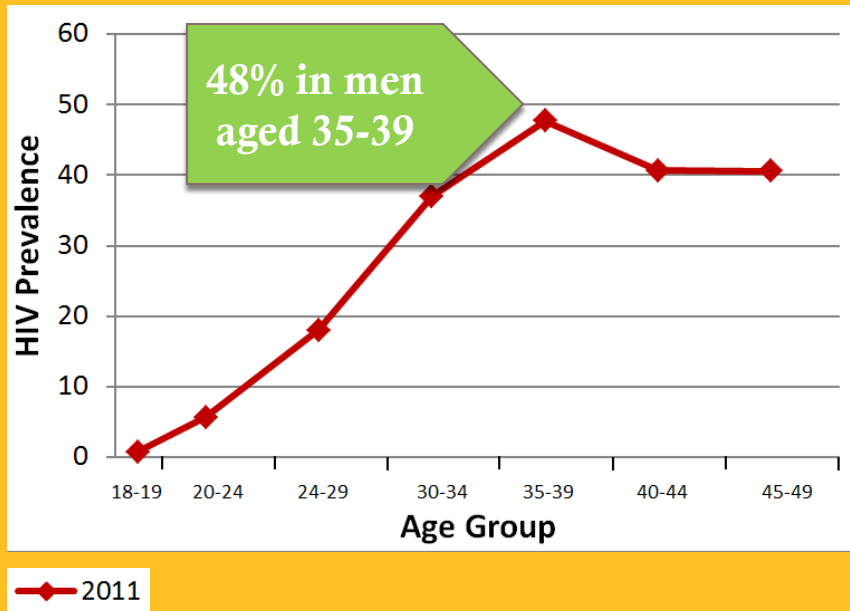
—◆— 2011

## Women: Prevalence by Age

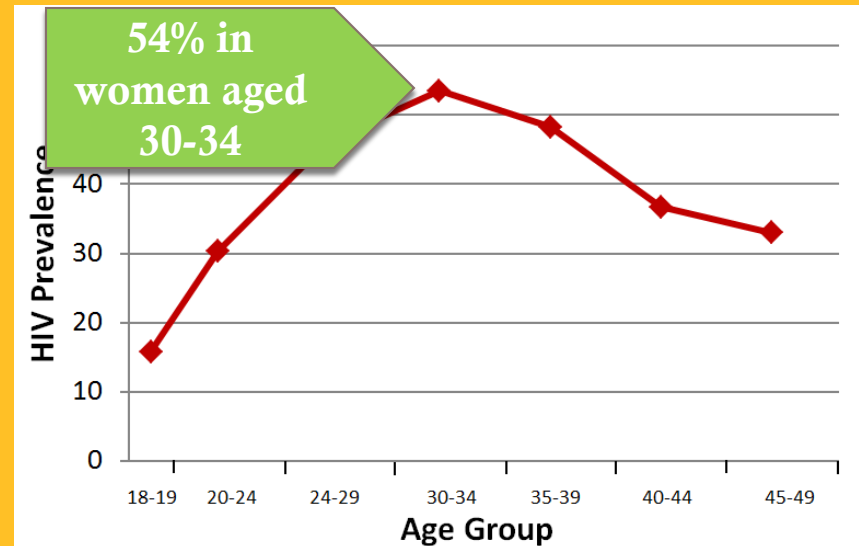


# 2011 HIV PREVALENCE IN SWAZILAND SHIMS SURVEY (AGES 18-49)

## Men: Prevalence by Age

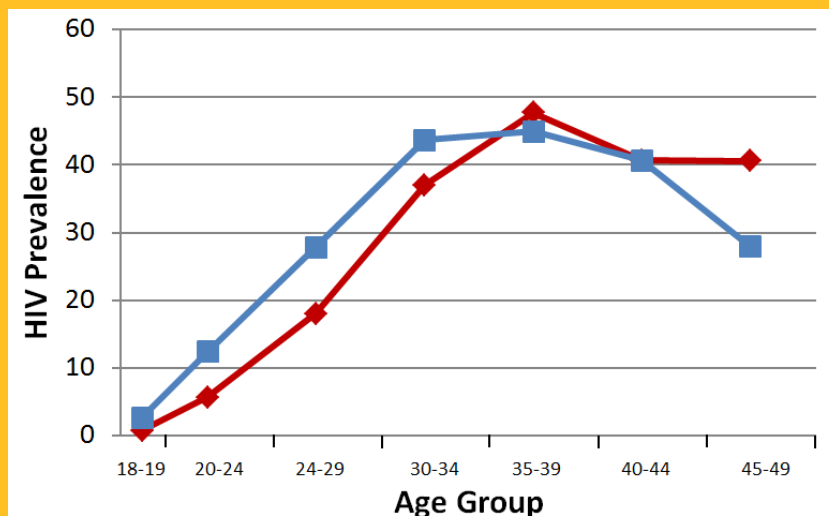


## Women: Prevalence by Age

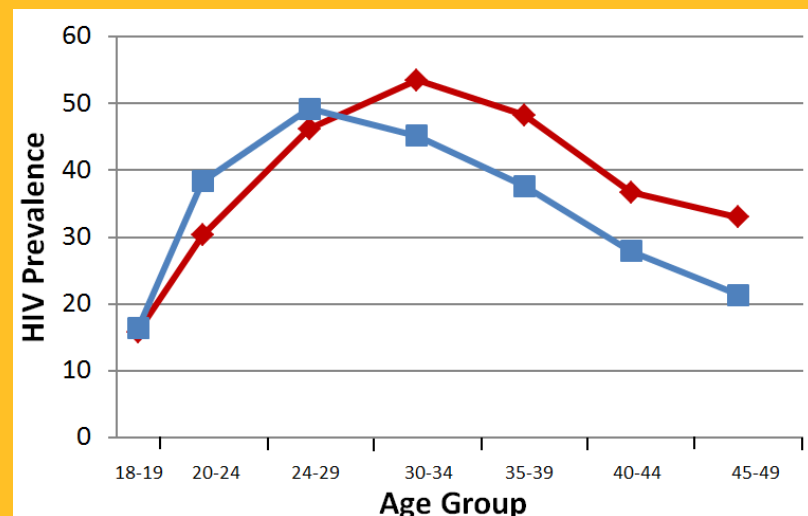


# 2006 DHS AND 2011 SHIMS HIV PREVALENCE IN SWAZILAND (AGES 18-49)

## Men: Prevalence by Age



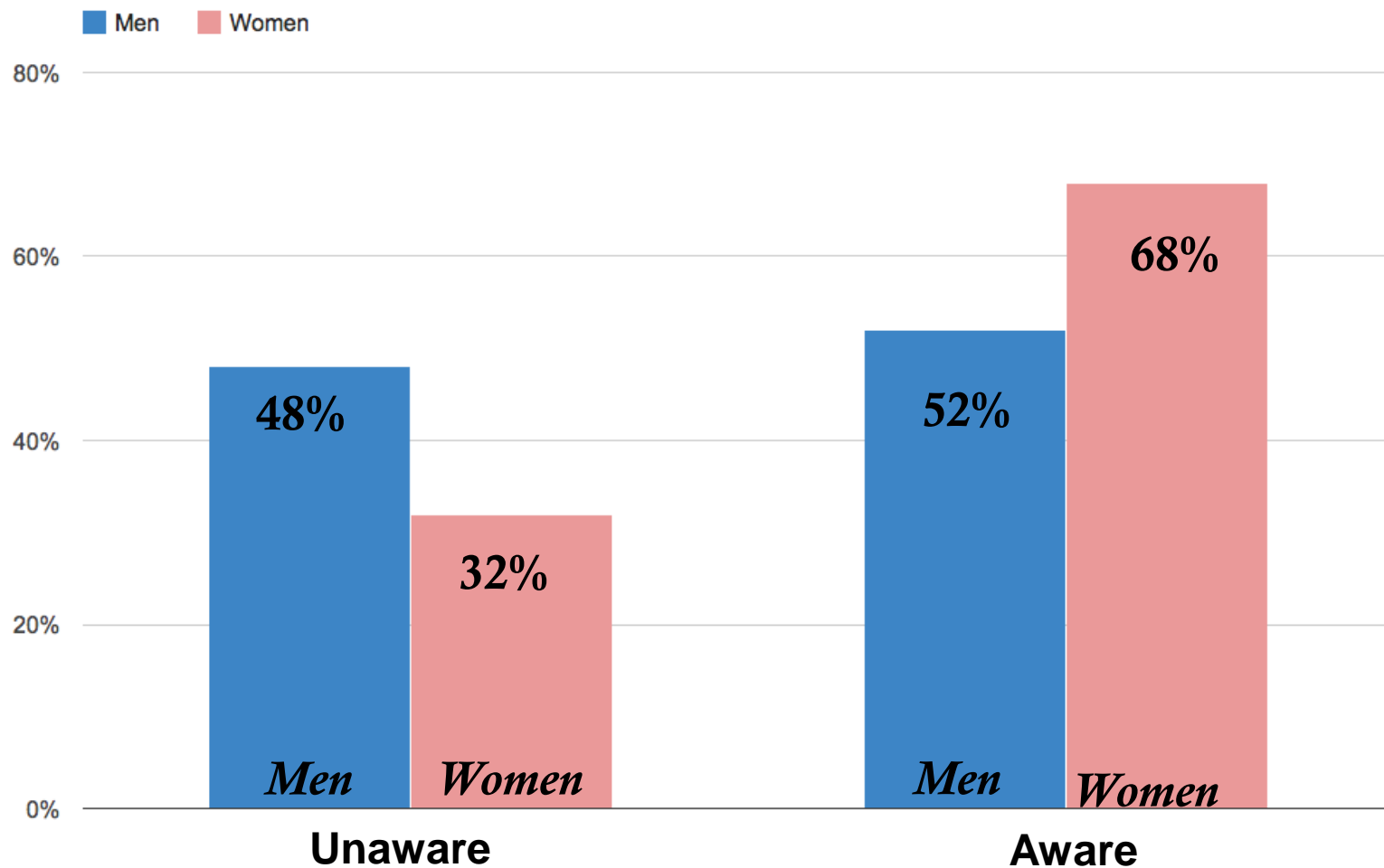
## Women: Prevalence by Age



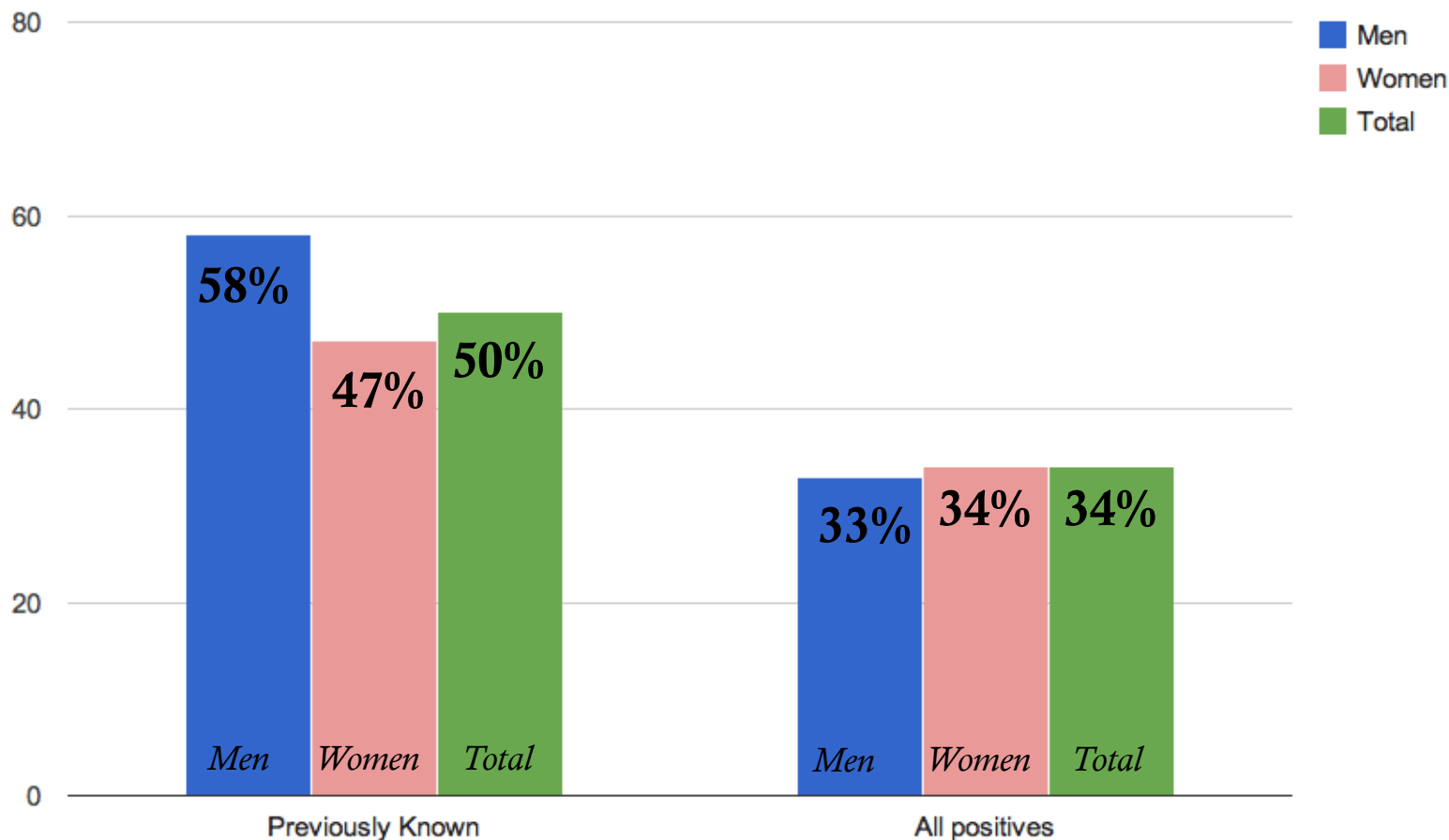
◆ 2011  
■ 2006



# Among HIV-Seropositives: Knowledge of HIV Status



# Self-Reported ART Use among HIV-Seropositives



**\*No CD4 data collected therefore results  
do not indicate proportion eligible for ART**

# Conclusions

- **National HIV prevalence remains high at 31%**
- **Overall HIV prevalence stable since 2006**
- **Shift in age-pattern of prevalence points towards**
  - “survival effect” related to ART use at older ages
  - reduced rate of new infections at younger ages
- **Half of all HIV+ men are not aware of their status**
  - Evidence for public programs to target HTC for men
- **Half of individuals aware of their HIV infection are on ART, irrespective of CD4**
- **Analysis of HIV incidence estimate in progress**

# It Takes A Village:

## Protocol Team

**\*Rejoice  
Nkambule**

**\*George Bicego**

Naomi Bock

Muhle Dlamini

Deborah Donnell

Dennis

Ellenberger

Tedd Ellerbrock

Wafaa El-Sadr

Jonathan Grund

**\*Jessica Justman**

Amy Medley

Jan Moore

Emmanuel

Njeuhmeli

**\*Jason Reed**

Nelisiwe

Sikhosana

## CDC Swaziland

Peter Ehrenkranz

Ahmed Liban

Khosi Makhanya

## CDC Atlanta

Anindya De

Joy Chang

Josh DeVos

Yen Duong

Dennis Ellenberger

Al Garcia

Carole Moore

John Nkengasong

Michele Owen

Bharat Parekh

Hetal Patel

Connie Sexton

Barbara Suligoi

Chunfu Yang

## Nat'l Ref Laboratory

Hosea Sukati

Sindi Dlamini

All Laboratory Scientists

## ICAP in Swaziland

Alfred Adams

Kerry Bruce

Gcinekile Dlamini

Ndumisi Dlamini

Sindisiwe Dlamini

Henry Ginindza

Sibuse Ginindza

Alison Koler

Yvonne Mavengere

Khudzie Mlambo

Phakamile

Ndlangamandla

Ingrid Peterson

Nicola Pierce

Bhangazi Zwane

## SCHARP

Claire Chapdu

Lynda Emel

Iraj Mohebalian

Lei Wang

## Epicentre/Maromi Health Research

Cherie Cawood

Mark Colvin

David Khanyile

Nomsa Nzama

Phindile Radebe

All Regional Managers

All field teams

## ICAP at Columbia University

Elizabeth

Barone

Montina Befus

Mary Diehl

Mark Fussell

Allison

Goldberg

Leslie Horn

Jacqueline

Maxwell

Joan

Monserate

Neena Philip

Peter Twyman

Leah Westra

Allison Zerbe



# Local And International Partnership



Kingdom of Swaziland & CSO  
MINISTRY OF HEALTH



**ICAP**

Global. Health. Action.

COLUMBIA UNIVERSITY  
Mailman School of Public Health



Statistical Center for  
HIV/AIDS Research & Prevention  
**SCHARP**

