

Use of antiretroviral agents in developing countries

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THE UGANDA EXPERIENCE

- 1982 - First AIDS cases in Uganda
- 1986 - National committee for HIV prevention (AIDS control Program)
- 1992 - Uganda AIDS Commission (multi-sectoral approach to AIDS control)

Cumulative numbers infected - 2 million out of pop. of 20m.of whom more than 50% are dead

Results of Uganda's preventive program

By 1990, Uganda had the highest HIV prevalence in the world

- Early 1990s-HIV prevalence

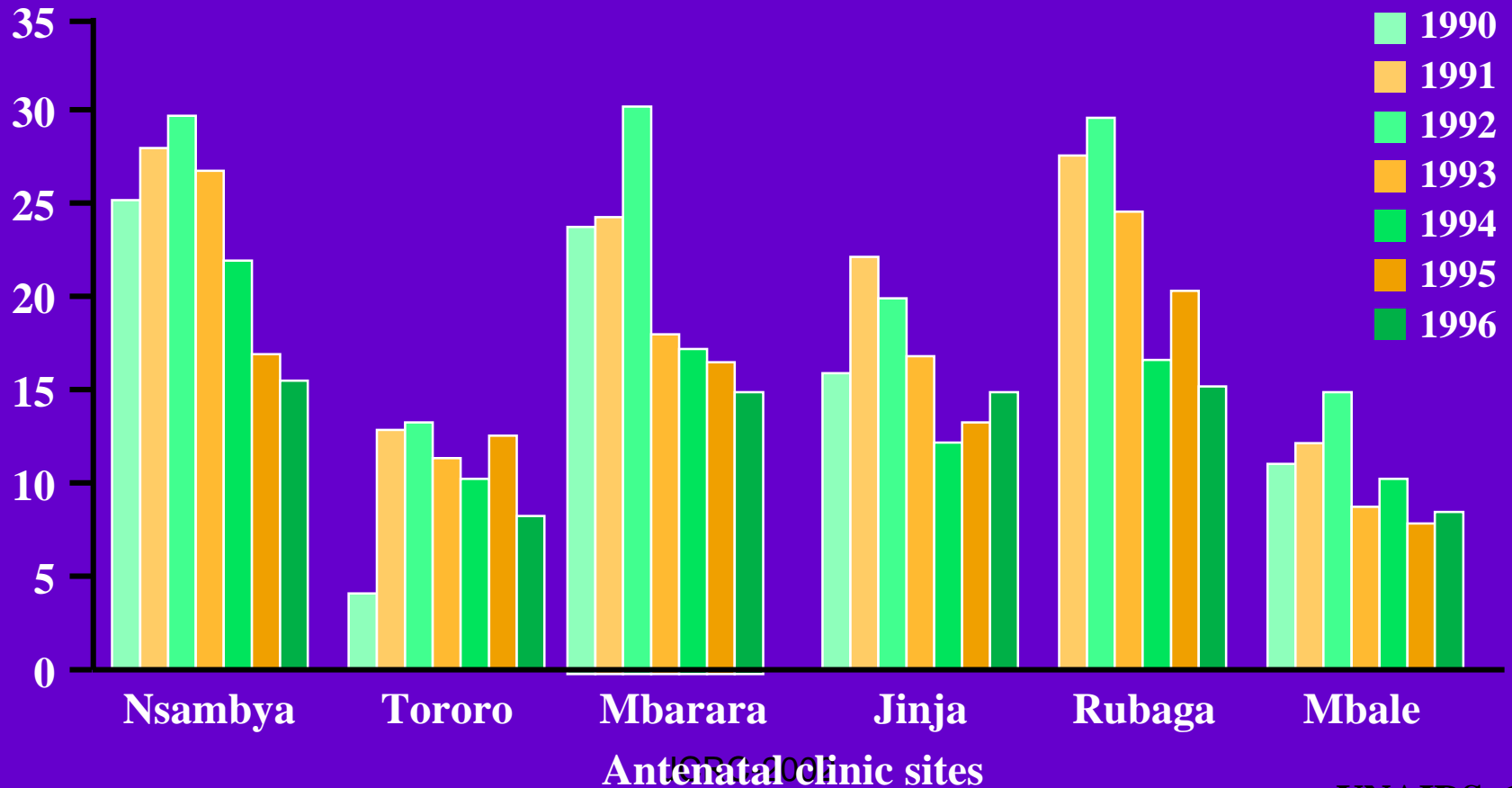
From **14% - to over 30%** in some sentinel sites

- Strong preventive measures

Brought down HIV rates to **6.2%**.
(March 2002)

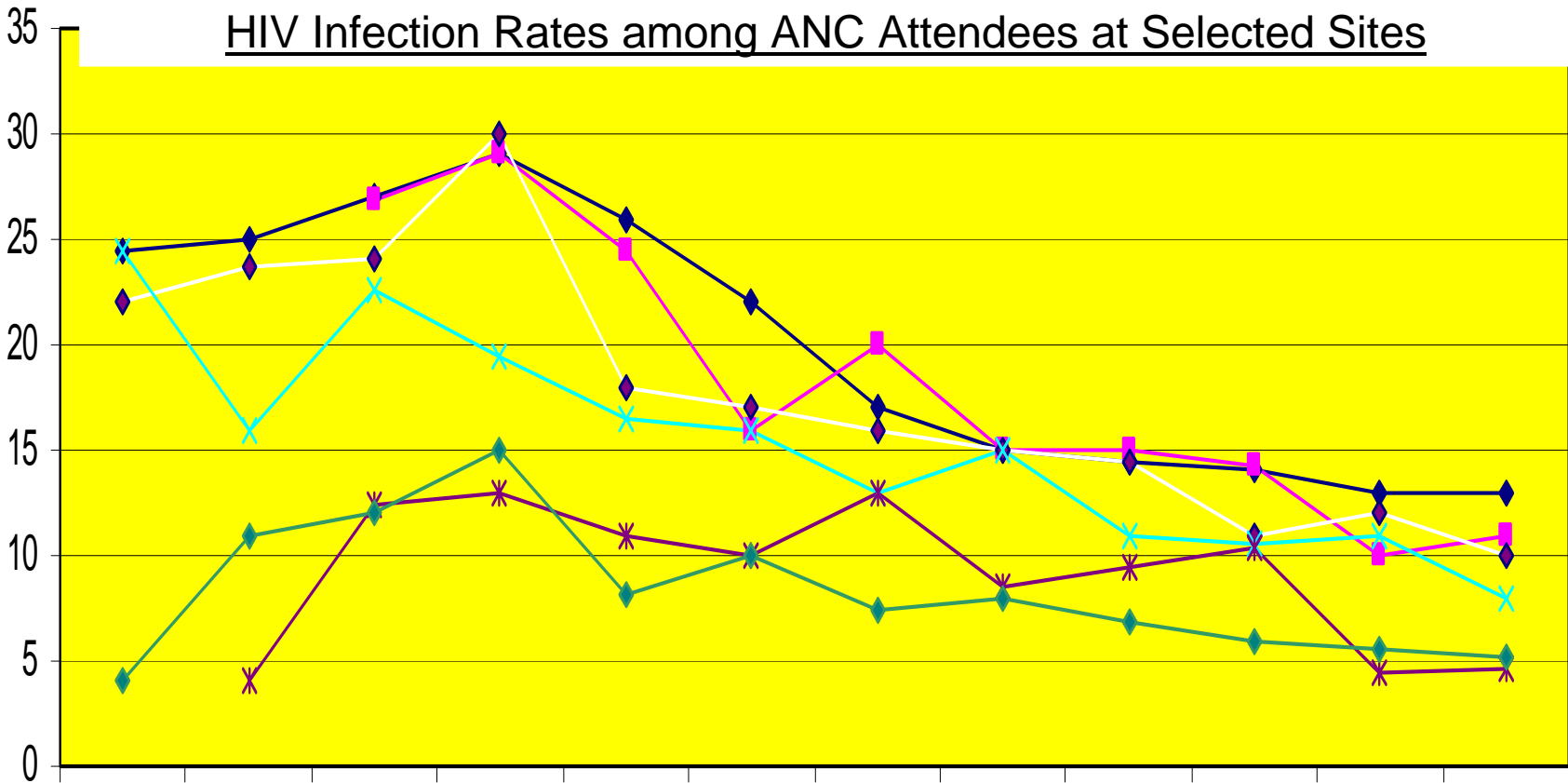
UGANDA'S SUCCESS

HIV positive (%)



HIV Infection Rates among ANC Attendees at Selected Sites

Rates(%)



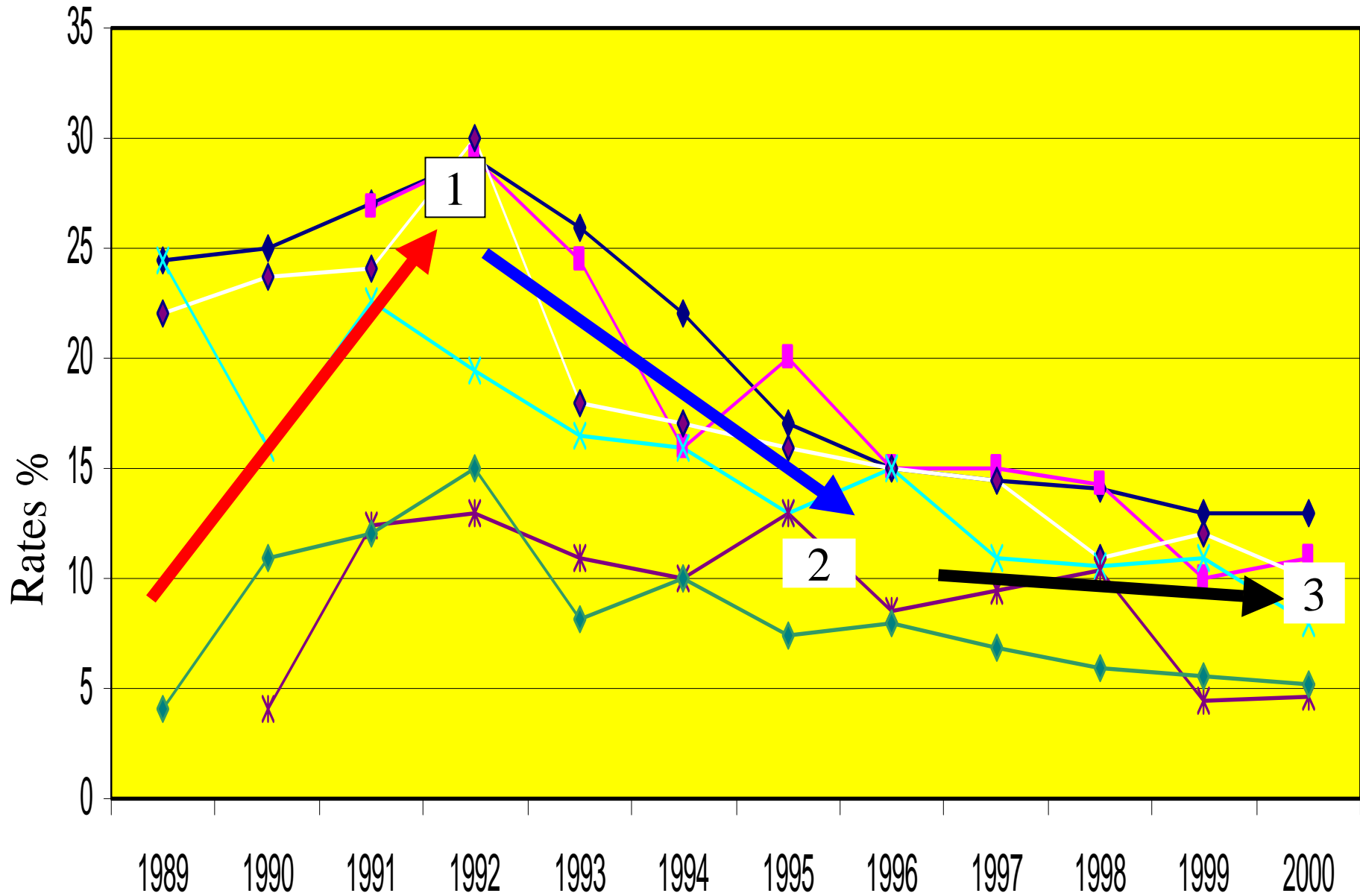
1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000

Years

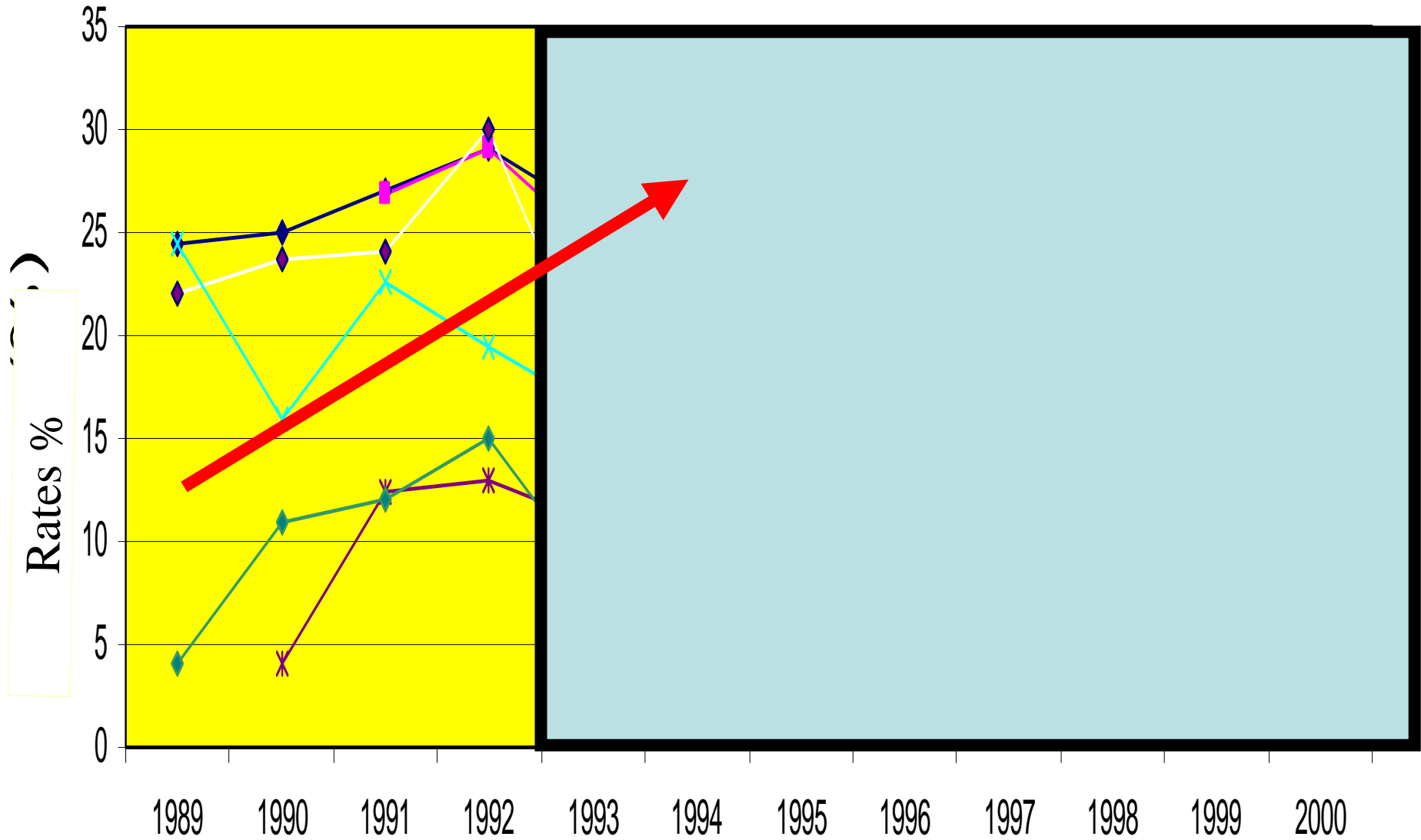


What Lessons can be learnt from the Ugandan Success on AIDS Prevention?

Analysis of the Trends in the Ugandan HIV Epidemic



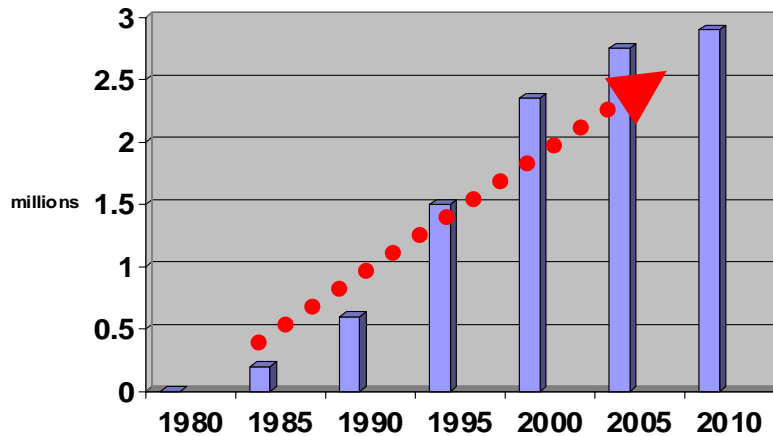
Phase 1- The “Out of Control” epidemic



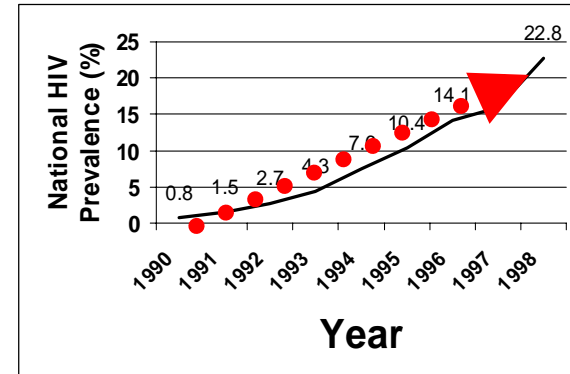
Countries in “Out of control Epidemic” Stage.

KENYA

HIV Trends and Projection in Kenya
(PLWAs)

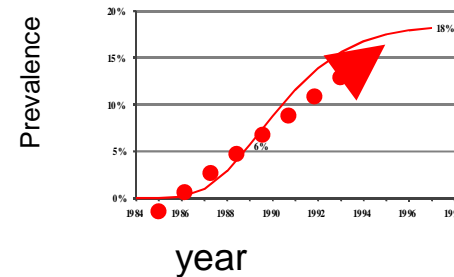


S.AFRICA

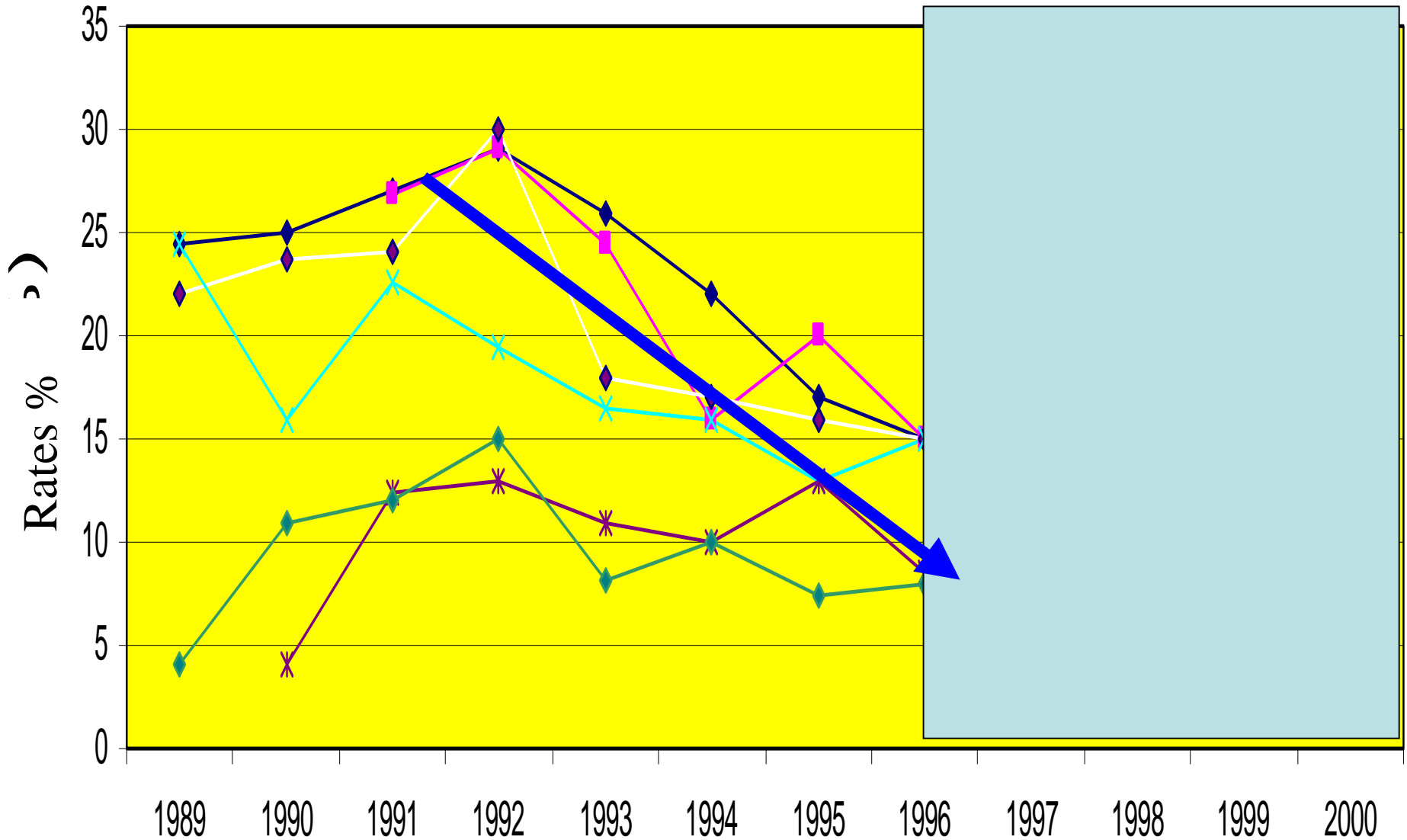


ETHIOPIA

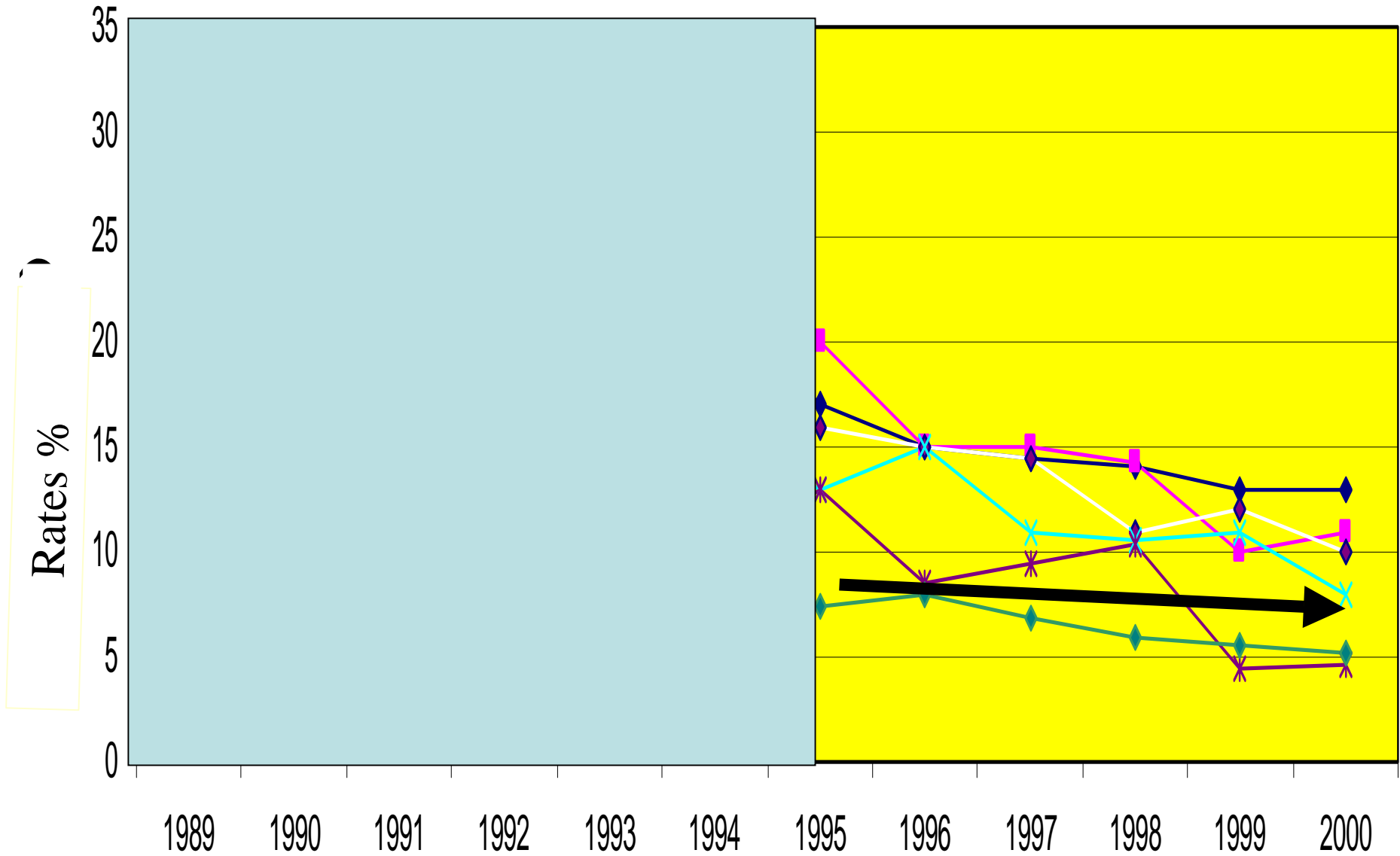
HIV Prevalence Among Pregnant Women in Addis Ababa (1984-1997)



Phase 2 - Epidemic under “effective preventive measures”

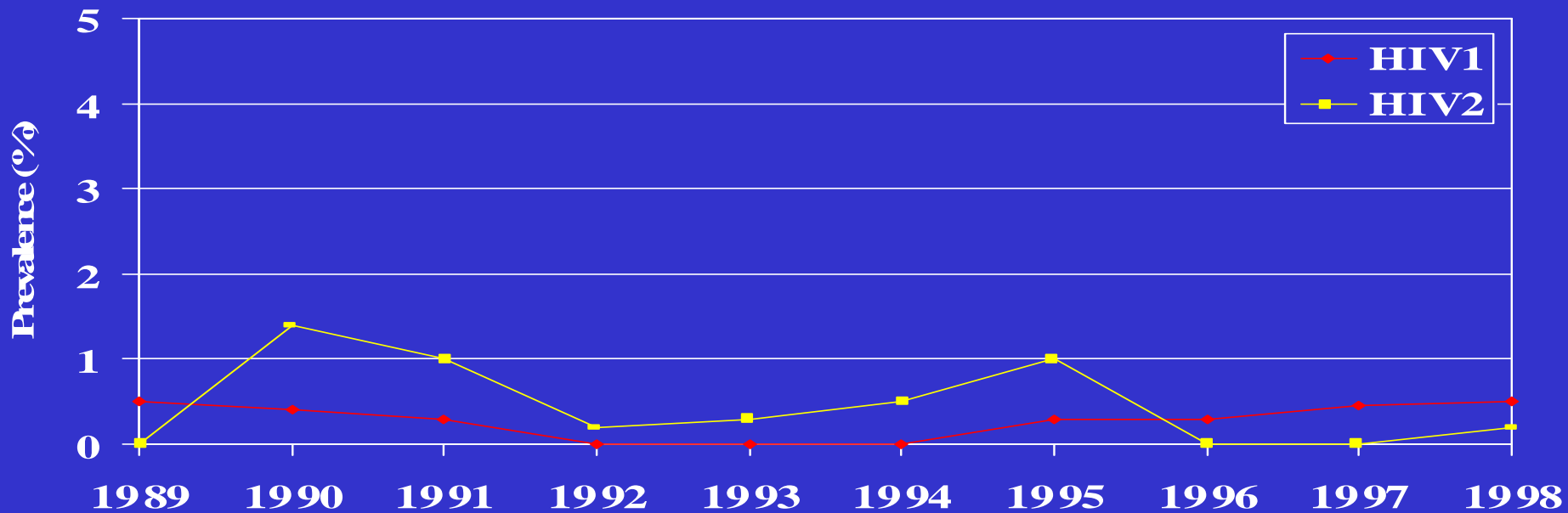


Phase 3 - Prevention at the “**Bottoming out**” stage.



Example of a country in ‘bottoming out’ stage

HIV infections Trends among Pregnant Women: DAKAR



χ^2 for trend: HIV1: p=0.6

HIV2: p=0.6

Prevalence in 1998:

HIV1 0.5 (95% CI [0 – 3.0])

HIV2 0.2 (95% CI [0 – 0.7])

Ugandan Preventive program Success in Perspective

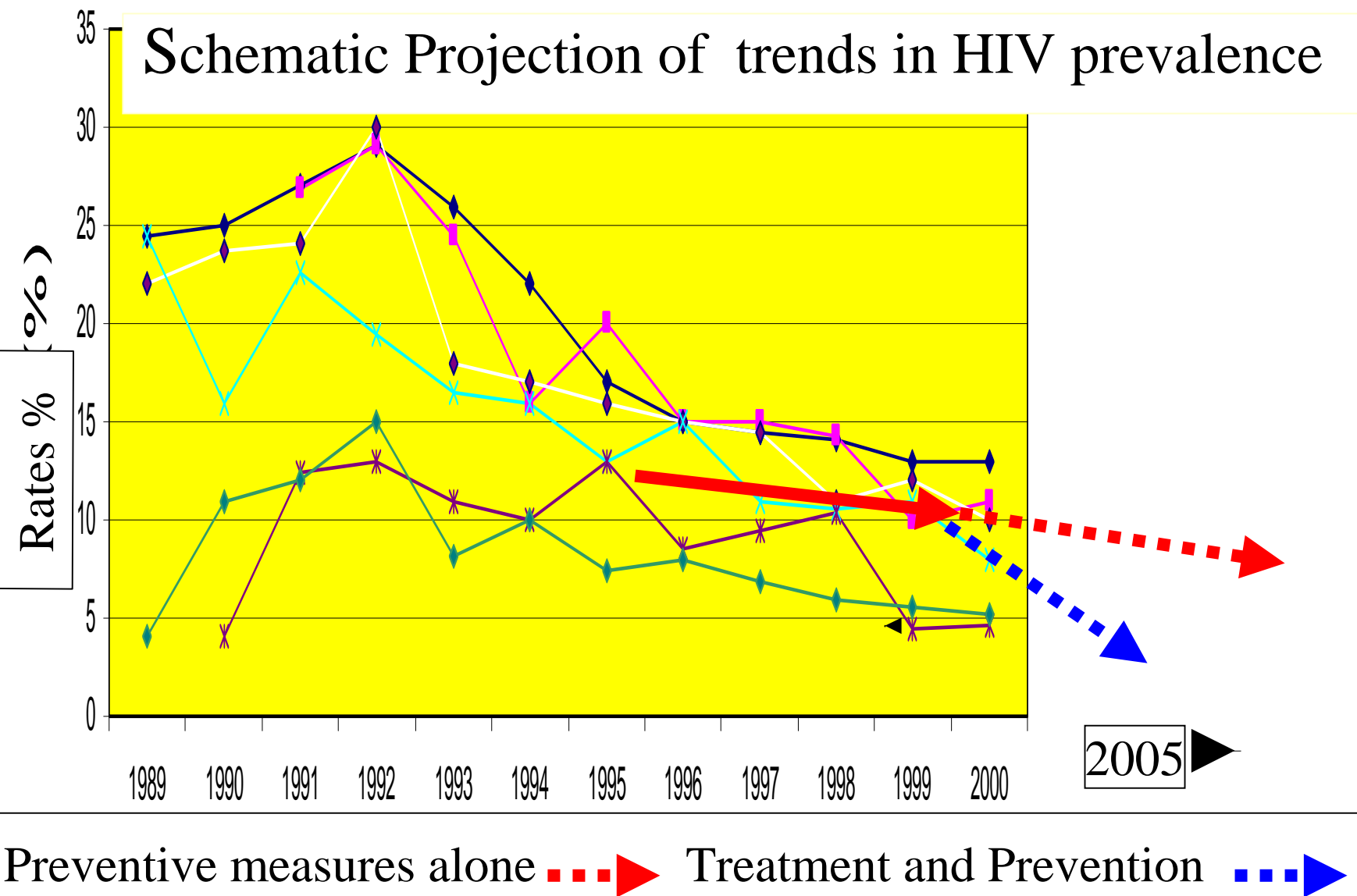
**6.2% Prevalence remains
unacceptably high and
appalling**

The need for New (Second Generation) Interventions in Uganda

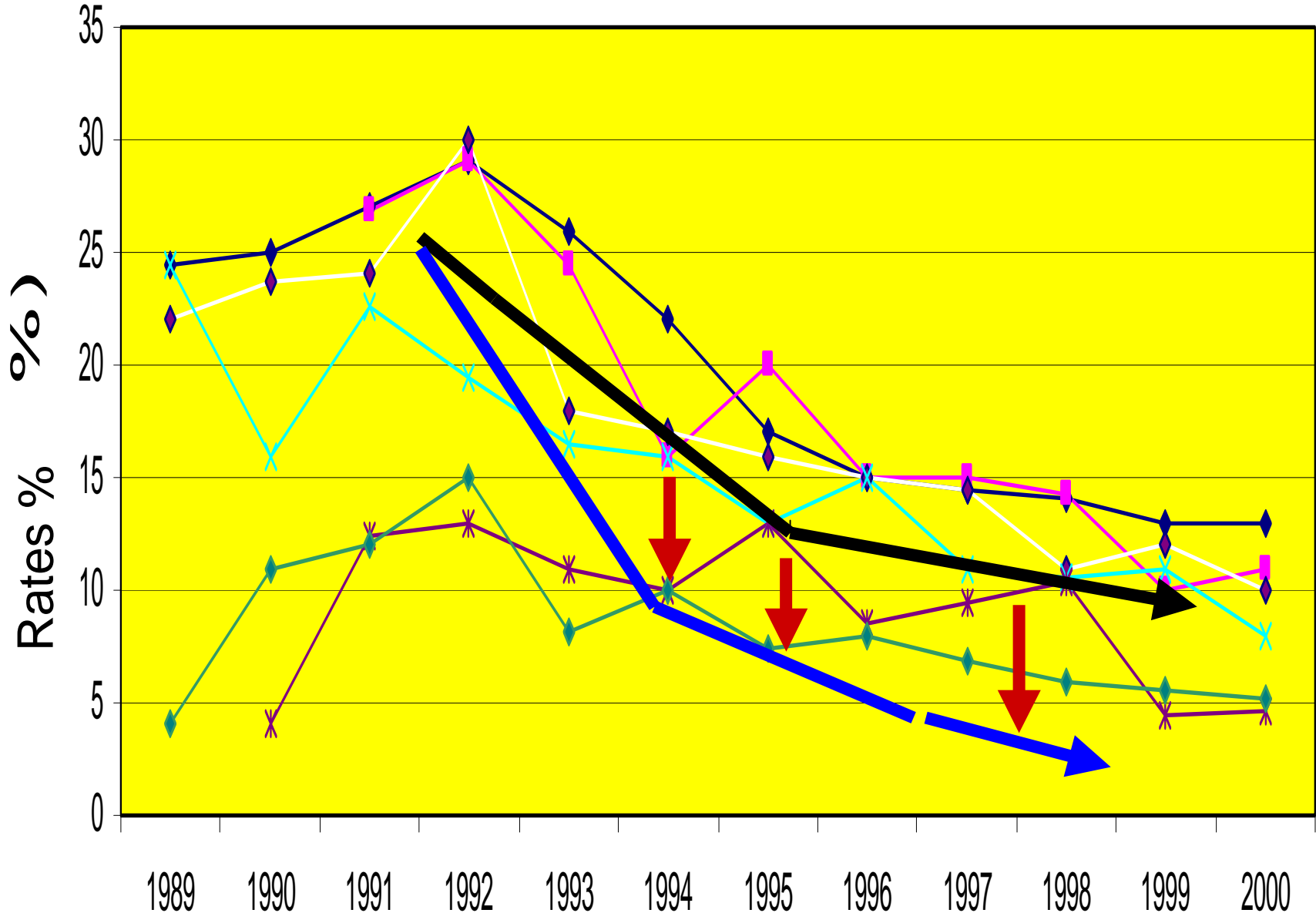
For a further desirable fall in incidence there is urgent need for new, more appropriate, and effective interventions

THE MISSING LINK IS
TREATMENT (ARVS)

Projected effect of adding Therapy (ARVs) to Prevention (Uganda model)



Projected effect of implementing both care and Prevention



1998

Estimated percentage of adults
(15–49) infected with HIV

16.0% – 32.0%

8.0% – 16.0%

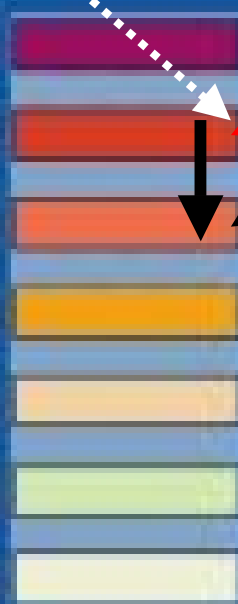
2.0% – 8.0%

0.5% – 2.0%

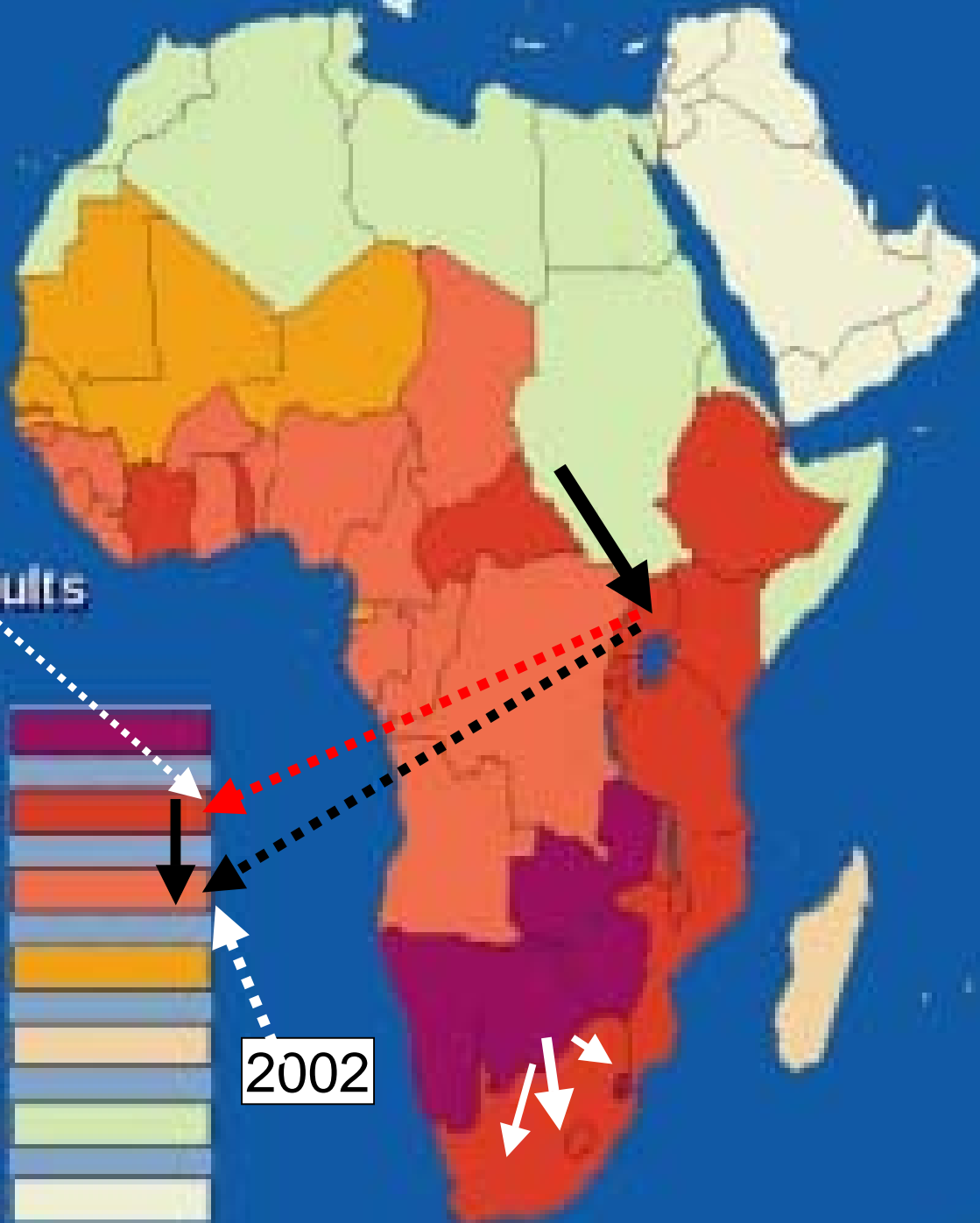
0% – 0.5%

trend data unavailable

outside region

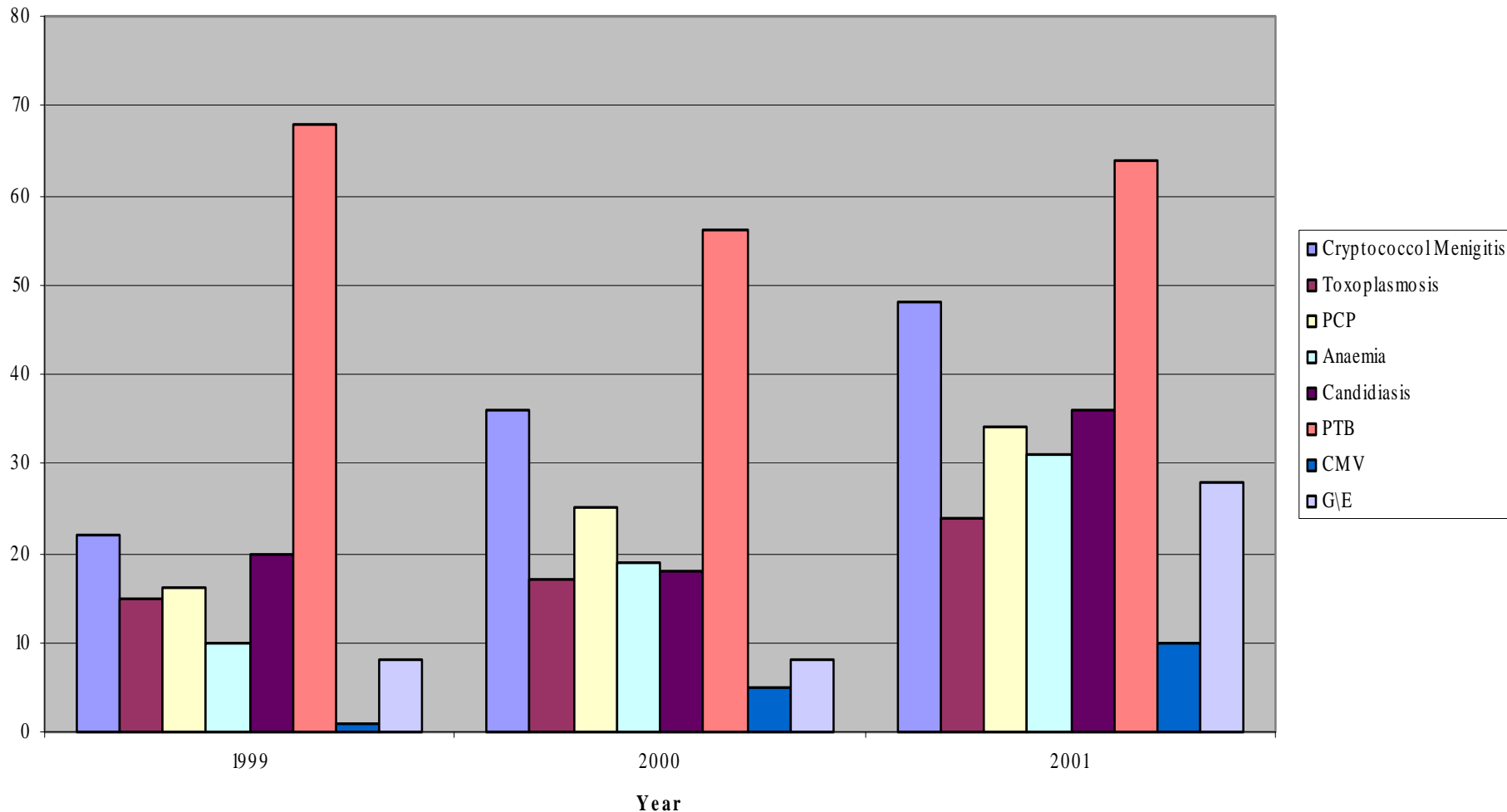


2002

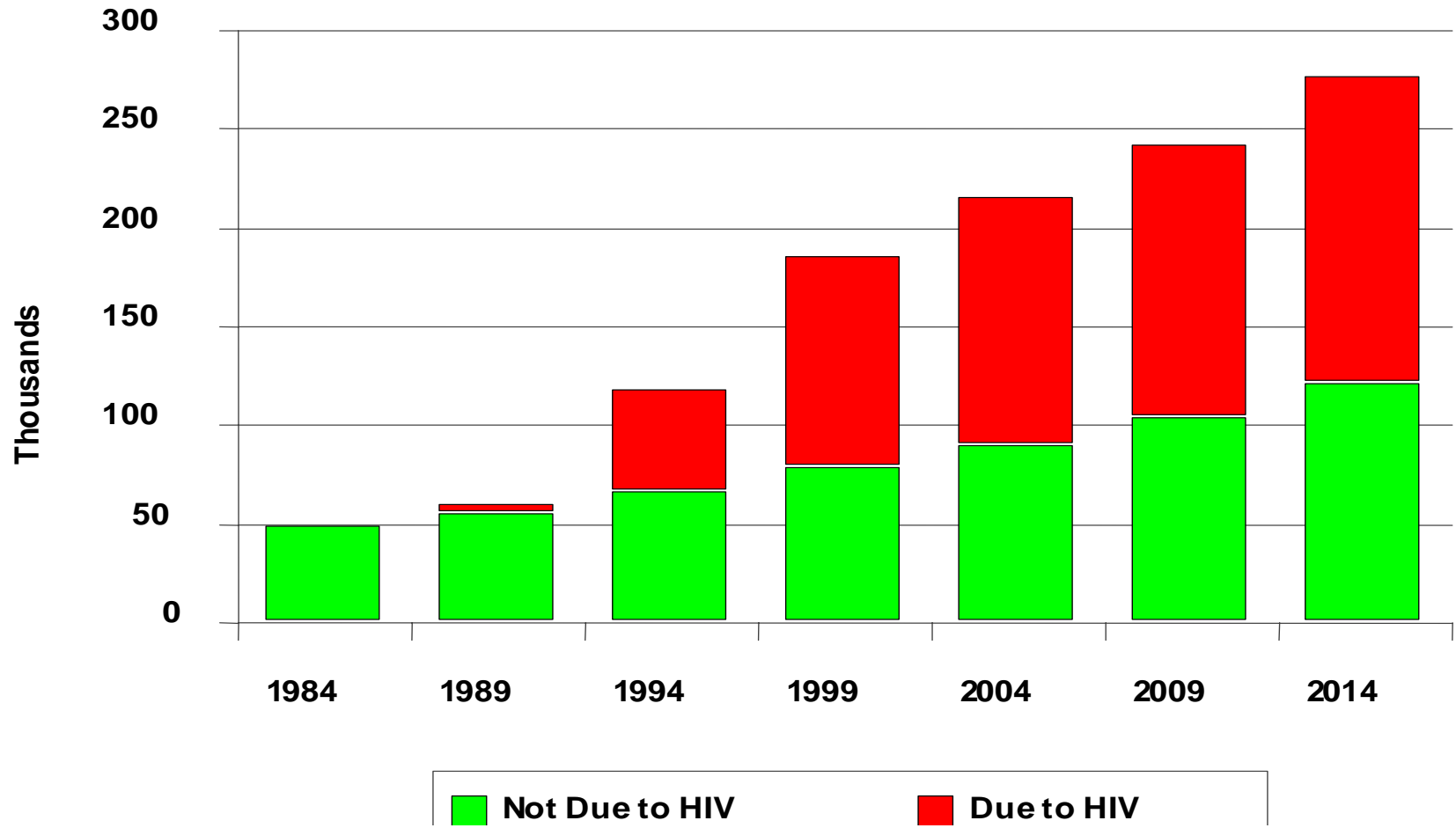


Secondary epidemics of OIs caused by AIDS.

Data from JCRC admissions 1999-2001

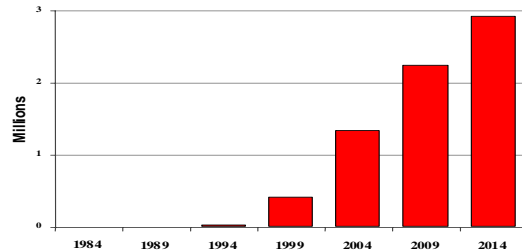


The burden of HIV fueled epidemics; New Tuberculosis cases (Ethiopia)

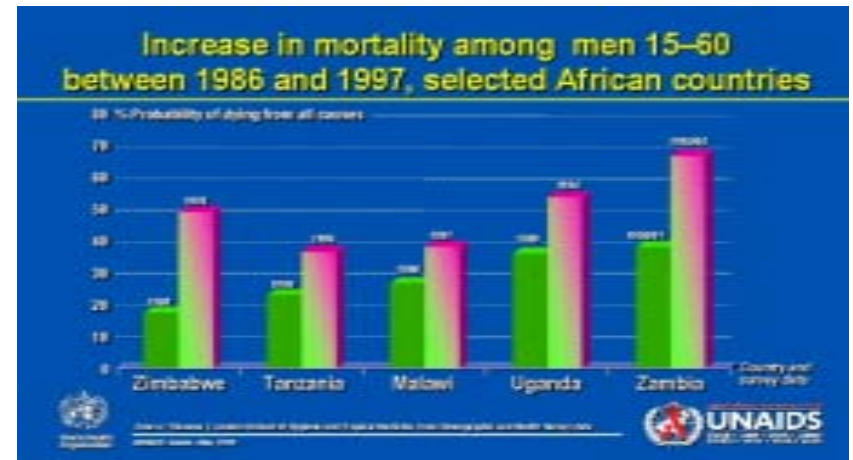
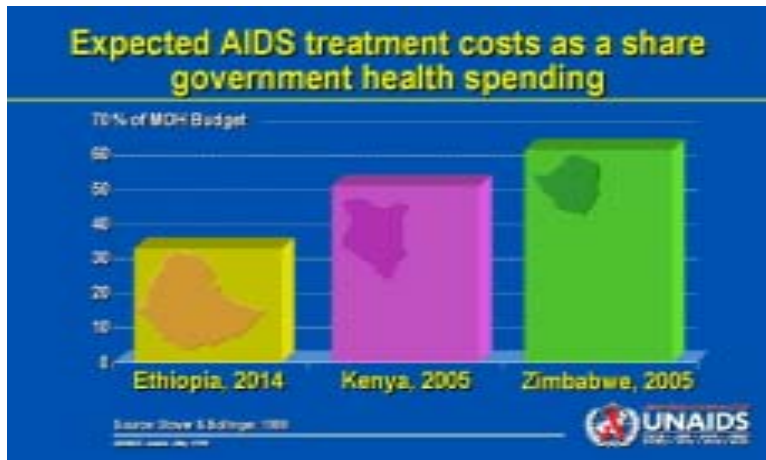
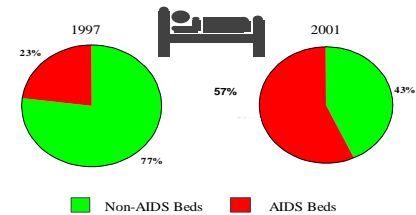


The deteriorating social-economic situation

AIDS Orphans (Ethiopia)



Hospital Bed Utilization (Ethiopia)



Justification for Treatment (ARVs)

- Huge numbers are already infected and are a source of continuing infection
- Majority of the infected do not know their sero-status and need powerful incentives (read ARVS) to go for VCT.
- Prevention is not matching with treatment, yet both are vital for successful AIDS control.

Justification for Treatment (ARVs)



- **Equity and moral imperative ;**
Continuing suffering and horror when effective therapy is available.



Orphan
Has multi-drug
Resistance because
Grandmother
Could not afford
drugs all the time

Stepmother and patient (15years) (Perinatal acquired HIV)



Presented with
CD4 <50
Survived to teens
Without therapy

History of ARV use in Uganda

- **1991** Low dose ZDV Study at JCRC
 - **1993** ZDV +DDI introduced
 - **1996** Triple Therapy (PI based)
 - **1998** - UNAIDS-Uganda project aimed at Accelerated ARV access.
 - **1999** EFV based regimens
 - **2000**->10 centers qualify for safe use of ARVs
 - **2000** NVP more widely available
Generics side by side with brands
 - **2001** Taking ARVs to the districts
- Currently 3 district AIDS Clinics are operational, at least 3 more are due to open this year**

APOLOGIES FOR LACK OF ARVs IN AFRICA 1

- (1) ARVs are too complicated
- (ii) Lack of infrastructure for safe and effective treatment
- (iii) Africans mainly illiterate, hence compliance will be problematic leading to widespread resistance

APOLOGIES FOR LACK OF ARVS 2

iv) Africa too poor to afford ARVs, use resources for prevention and OIs

(v) Donors view ARVS for Africa as 'a bottomless pit' and hard to sustain

(vi) Political commitment

Real Issues in ART practice in developing countries

- ARV drugs affordability
- Cost of Monitoring tests(PCR and CD4)
- Inadequate capacity (trained care givers and infrastructure)
- Logistics for drugs purchase,storage and distribution
- Compliance and proper (supervised) use of ARVs

Issues in ART practice in Uganda-2

- Extending access to the districts
- Setting up a system of referrals of both patients and laboratory specimens.
- IEC to sensitize the public about ARVs.
- Integration of ARVs into Ministry of Health Public care system
- **Funding and sustainability of the program**

Main constraint to ARVs use in
resource poor settings

Unaffordable cost of ARV

Access to ARV correlates with the cost
of the drugs

Trend of ARV drugs prices in Africa

Annual cost per person for triple therapy in Africa (US\$)



Cost of ARVs in Uganda

Before (October 2000)

2NRTIs +NVP/EFZ, (Brand) \$515p/m

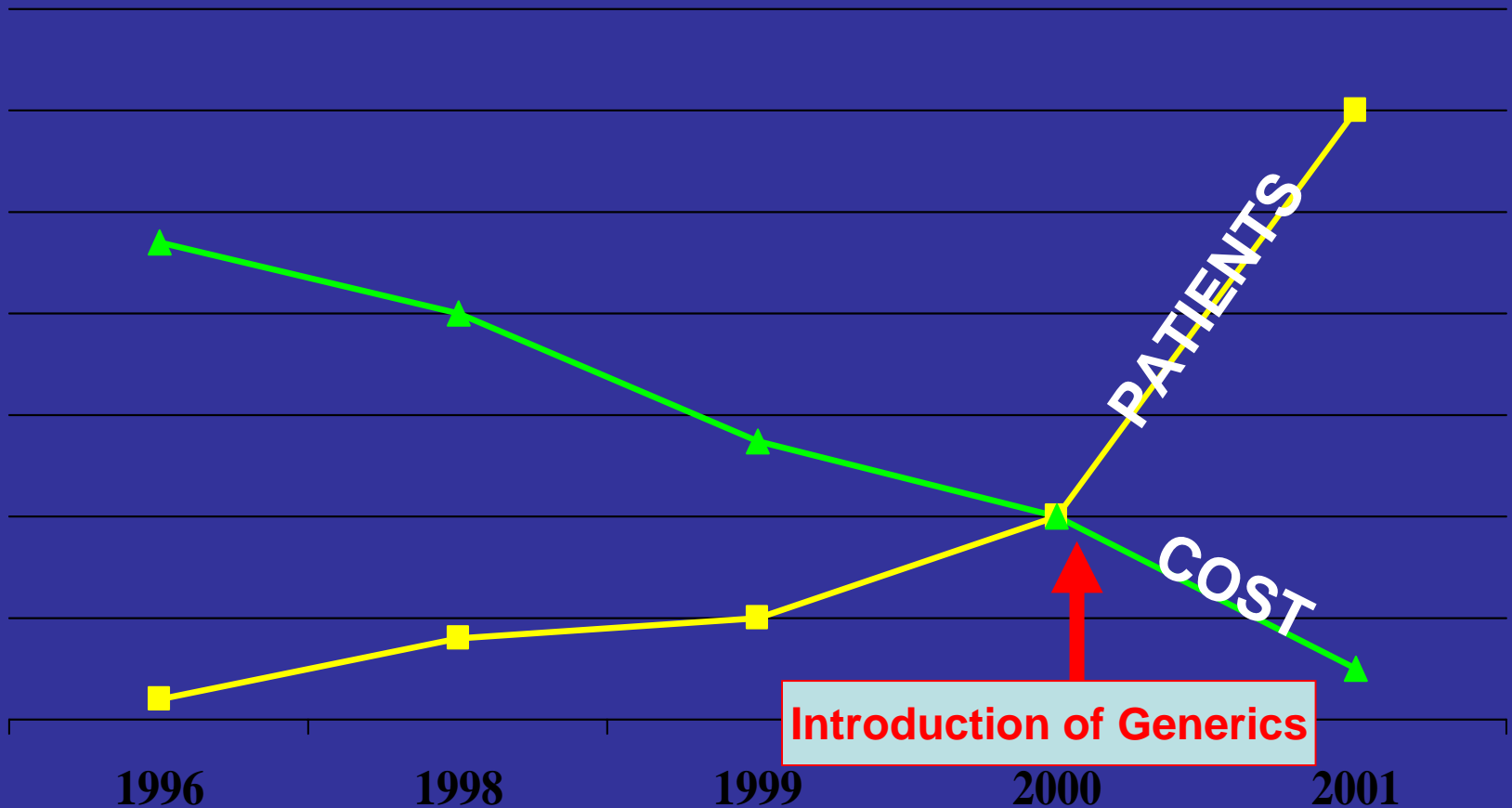
PI base regimens cost \$600-\$800

Current (March,2002)

Brand cost of NRTI +NNRTI \$80/m

Generics \$38 /m

EFFECT OF COST REDUCTION ON NUMBER OF PATIENTS ON ARVs IN UGANDA



Capacity building and training

- 1998: Only 3 centers were qualified to competently handle ARVs**
- 2001 :Over 10 centers including private practices qualified in Kampala**
- 2001-2002: ARVs extended to the districts. 3 centers now fully operational**

Infrastructure constraints in Africa can be overcome and are not a constraint to ARV use

Stepwise National Coverage

Extending care and treatment to the districts





Target

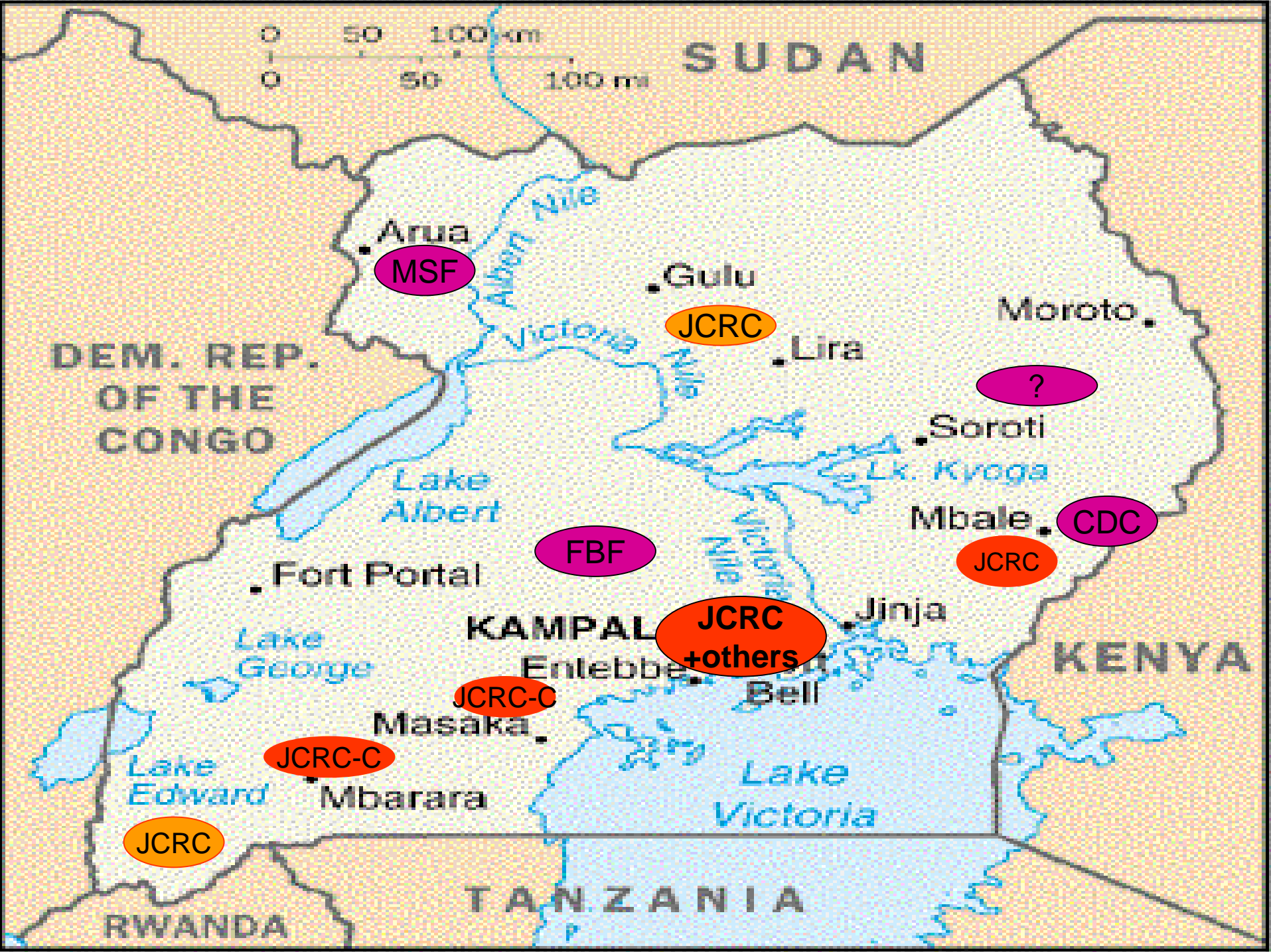
- Central Referral center (s)
- Main regions of country
- Extend to districts
- Health centers
- Rural communities

Methodology

- Set criteria/minimum standards at each level and logistics of coordination.

Countrywide Network of Referral System

<u>Location</u>	<u>Infrastructure</u>	<u>Personnel</u>	<u>Services</u>
<u>Capital city; Main Coordination</u> 	State of the art Laboratories (university Hosp.)	Experts, Researchers Trainers & data.	-ARVS, Resistance Testing, Severe Complications + All below
<u>Regional</u> 	Referral lab. For the region	Specialist Doctor/s, Counselors, Lab Technologists	-ARVS and CD4 Monitoring tests, LFTs, Kidney FTS, X-Ray, ELISA + All Below
<u>Districts</u> 	Laboratory	Doctors Lab Technologists Counselors	-CD4 or Referral Facilities. -ARVs -optional -ELISA/ Chemistry/m.biology -MTCT
<u>County; (Health centers)</u> 	Basic Lab Microscope	Junior Doctor, Medical Assistant, Nurse Practitioner, counselor.	Care for Opportunistic Infections Referral system
<u>Rural Health Facility</u>	—	Medical assistant Health Visitor	Home visits, Clinical Diagnosis of complications, DOTS, follow up on complications, Referral and Prevention



0 50 100 km
0 50 100 mi

SUDAN

DEM. REP.
OF THE
CONGO

Arua
MSF

Gulu
JCRC

Lira

Moroto

?

Soroti

Lk. Kyoga

Mbale
JCRC
CDC

Fort Portal

FBF

JCRC
+others

Jinja

KAMPAL

Entebbe

Bell

JCRC-C

Masaka

JCRC-C

Mbararara

JCRC

TANZANIA

KENYA

RWANDA

Joint Clinical Research/referral lab. well equipped
to support a nationwide program for the more
sophisticated tests.

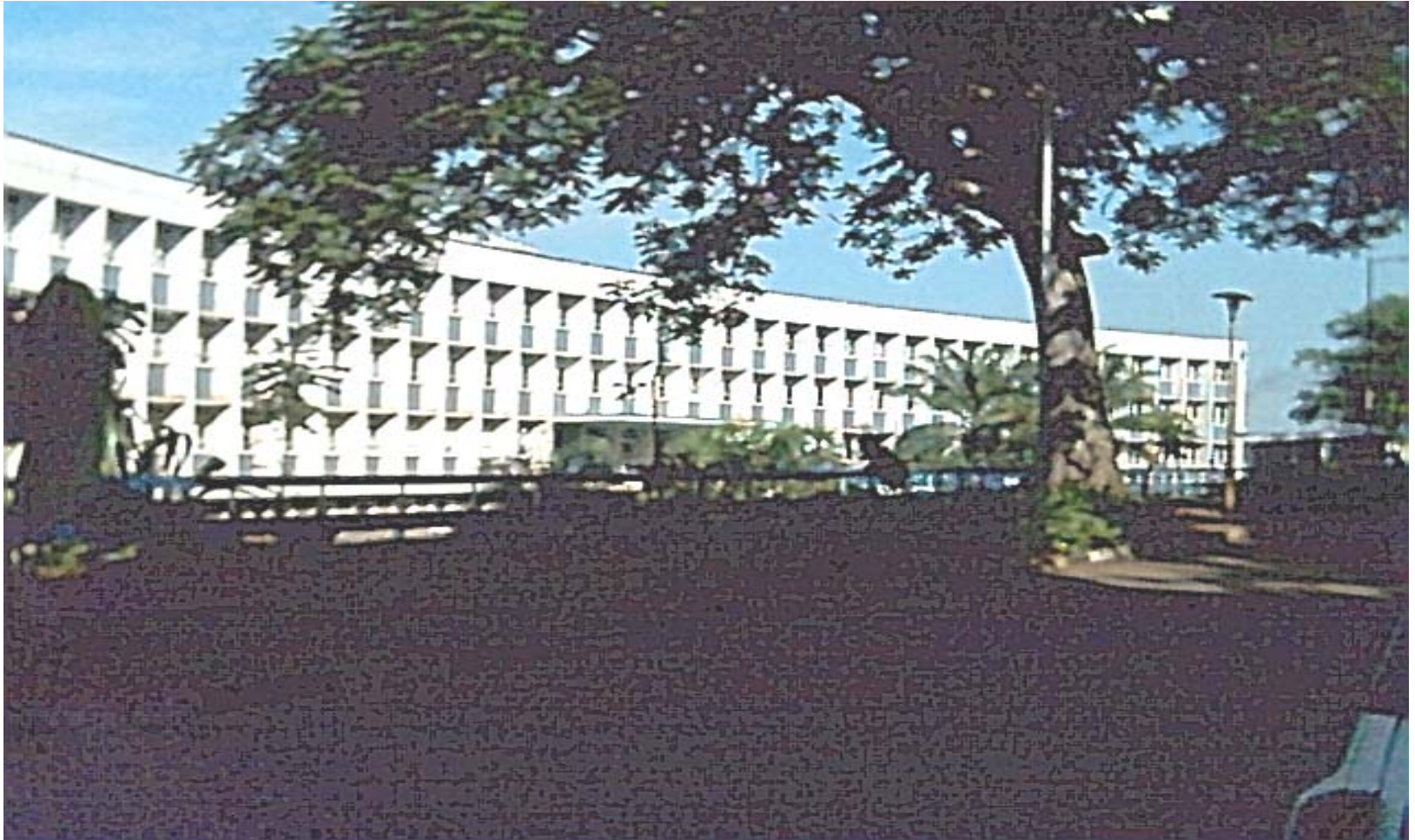


Current ARV use status in Uganda (Joint Clinical Research Centre)

Laboratory Facilities include:

CD4, PCR, **Genotyping**,
diagnostics for Ois,
microbiology (+biotech for TB)
chemistries and other specialized tests.

Main Uganda Teaching and referral Hospital, Kampala.



Health Center in Rakai District, Southern Uganda



Health facility in a poor area



Increasing access to ARVs in Uganda. Study supported by World AIDS Foundation.

To study issues associated with ARV drugs access in Uganda including;

- Affordability
- Compliance
- Drugs distribution logistics
- Clinical and laboratory monitoring
- Impact etc.

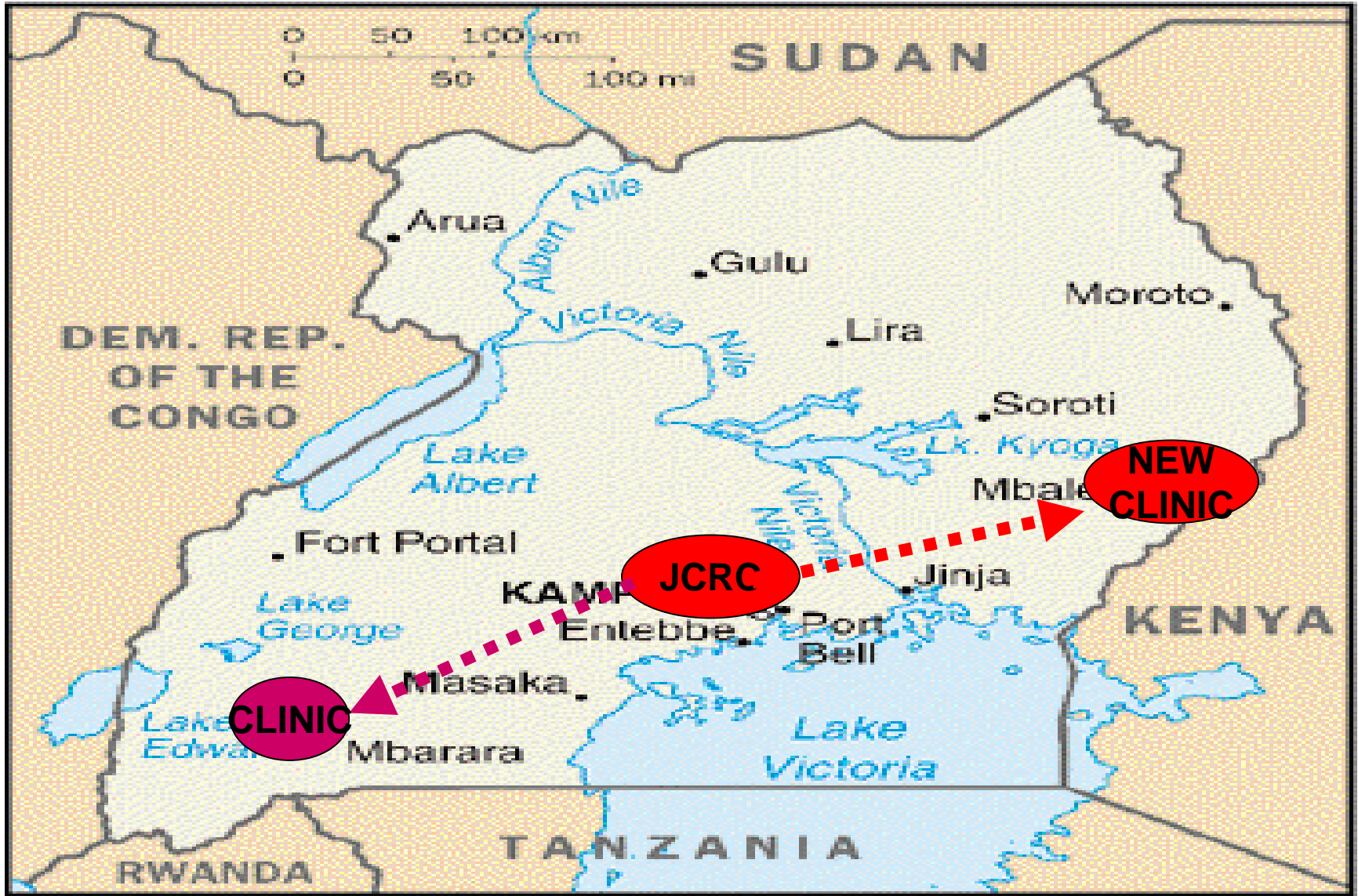
Can Africa District/Rural AIDS
treatment centers succeed?

YES

Celebrations at the opening Ceremony of JCRC District AIDS Clinic Eastern Uganda



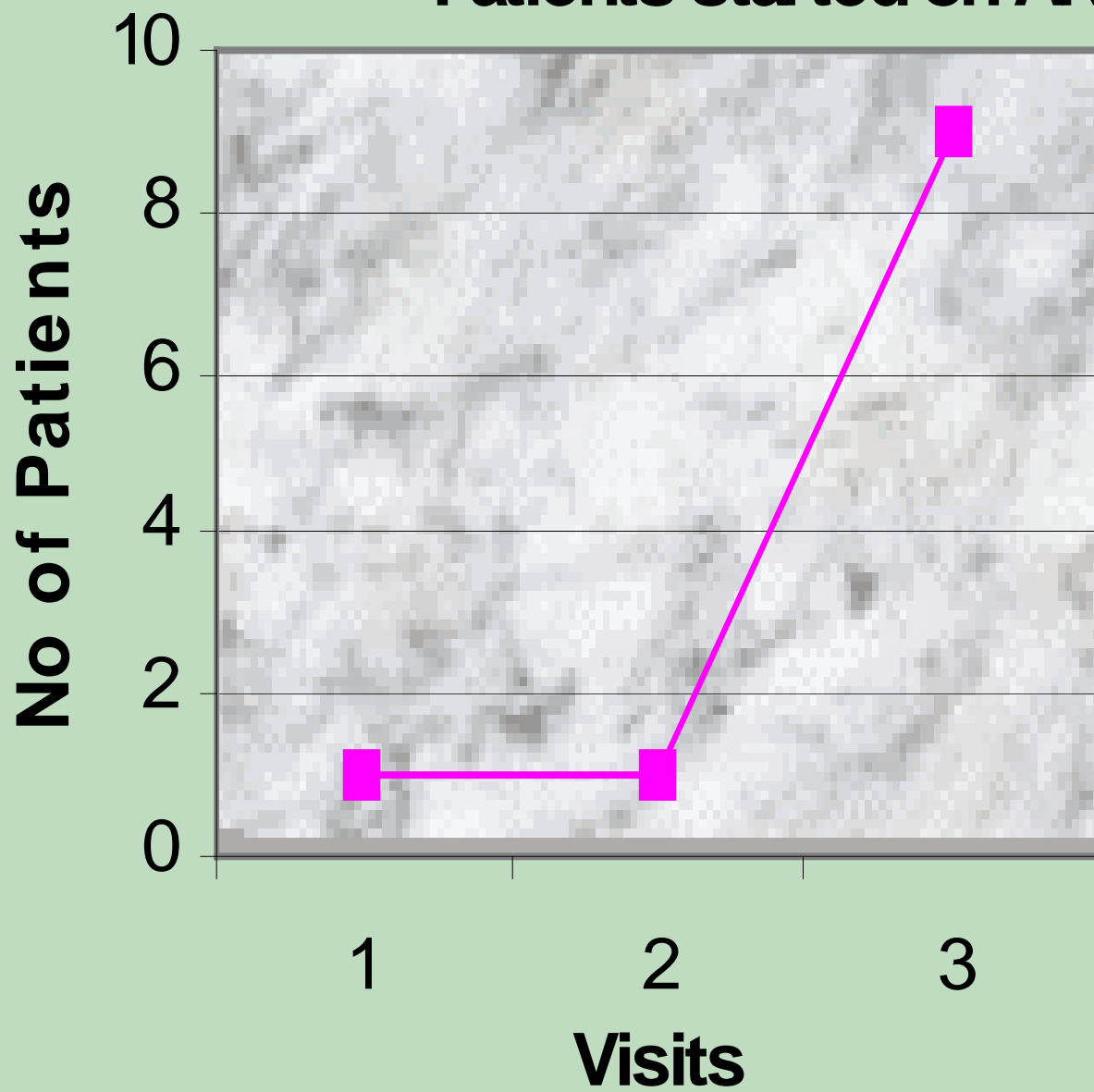
Operational Research- scaling up to the districts



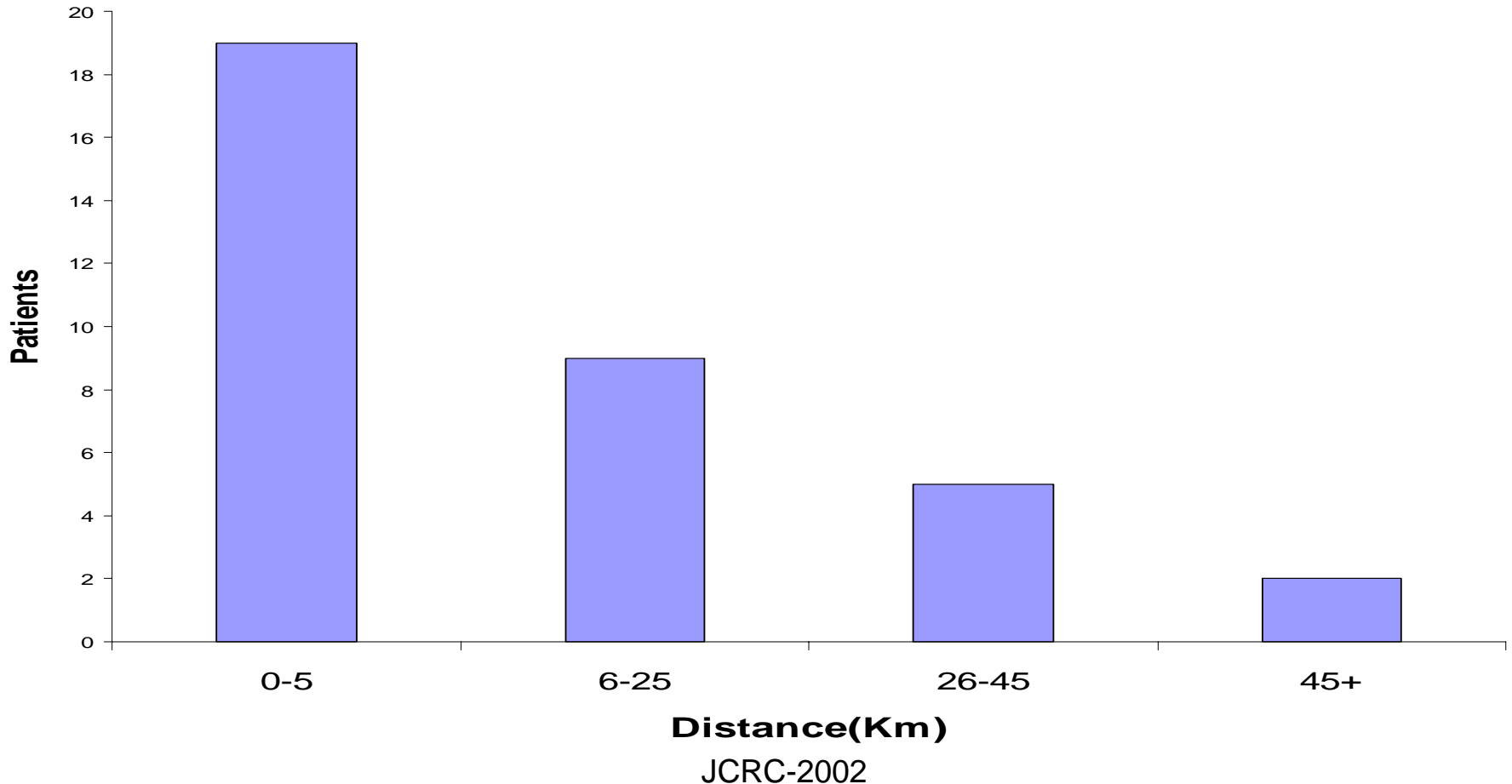
Make Operational Research/data
collection an integral part of
increased access to ARVS

Emerging data from new
district AIDS Clinic.

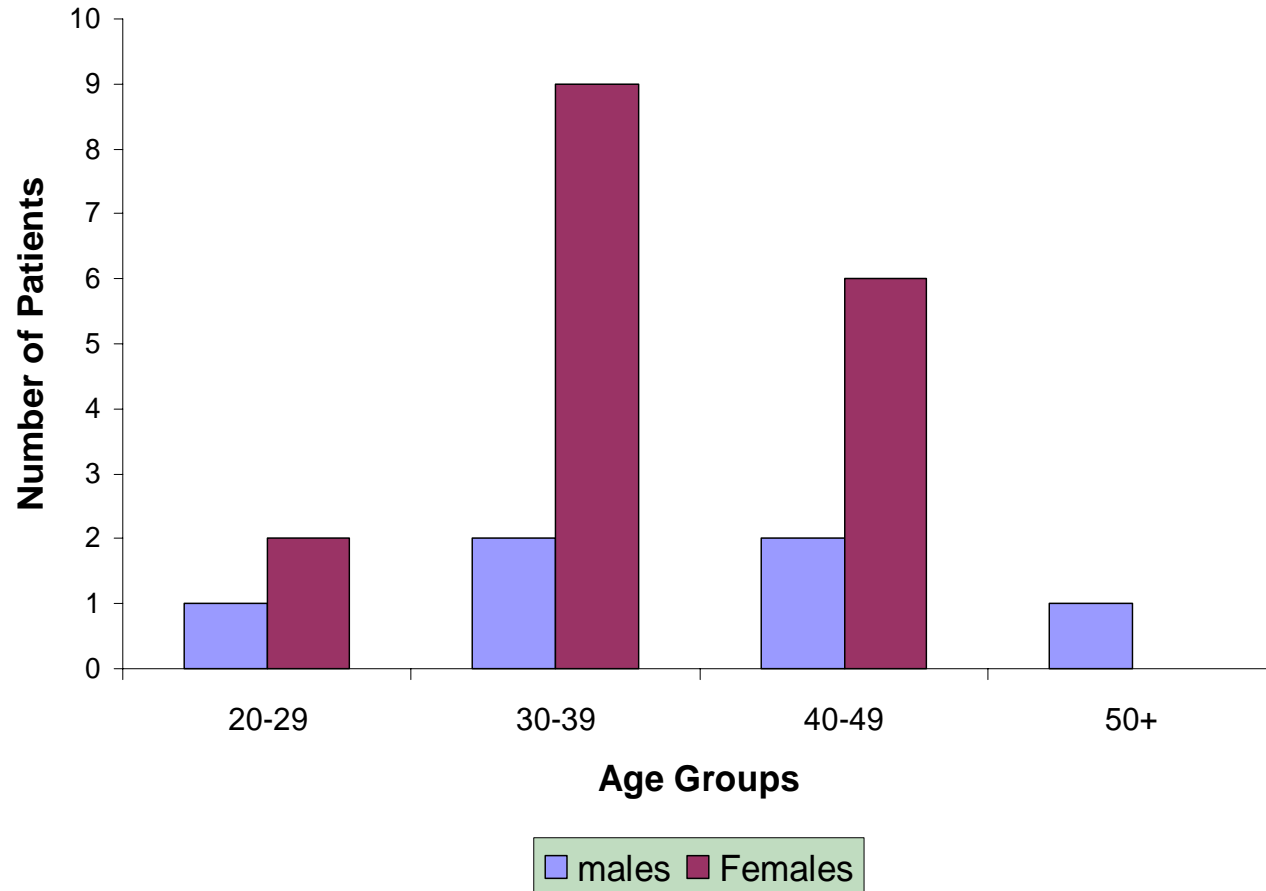
Patients started on ARVs



Distribution of JCRC Mbale patients by estimated distance to the clinic

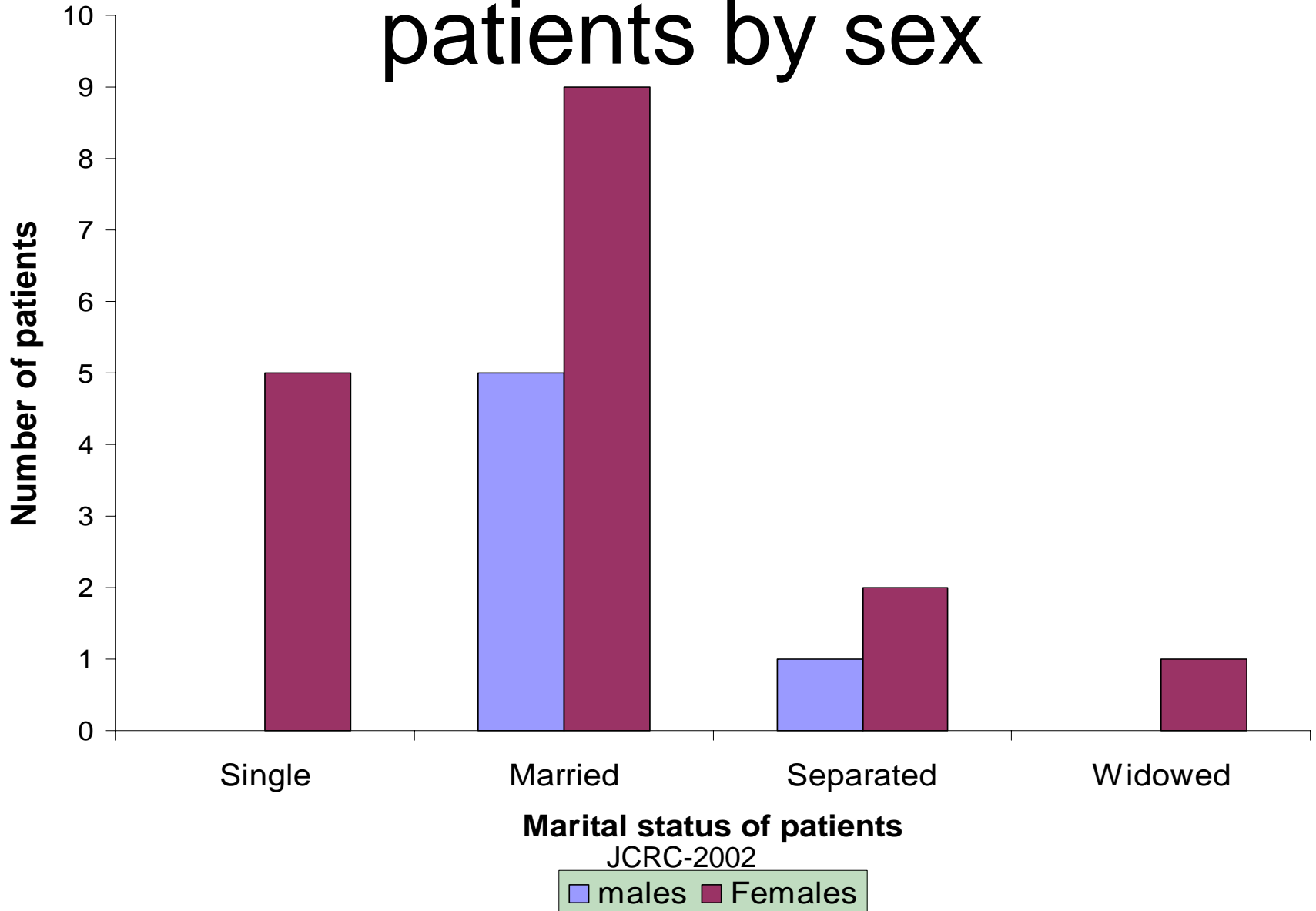


Age Sex distribution of JCRC Mbale Patients

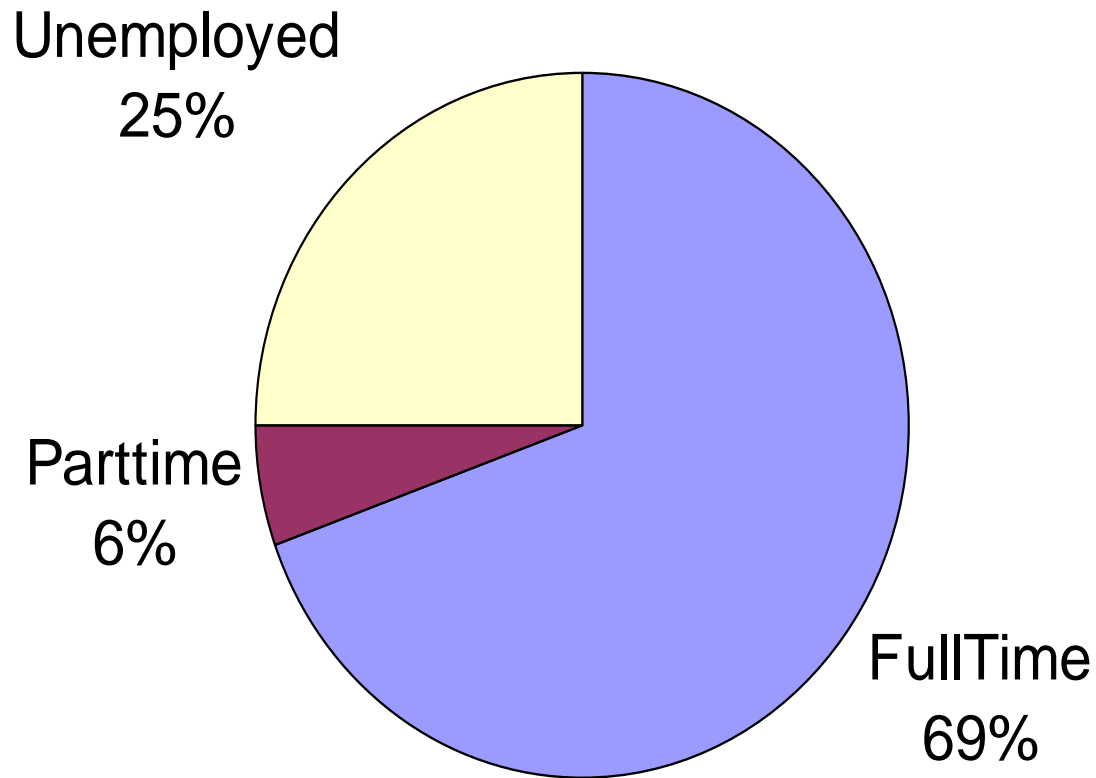


JCRC-2002

Marital status of JCRC Mbale patients by sex

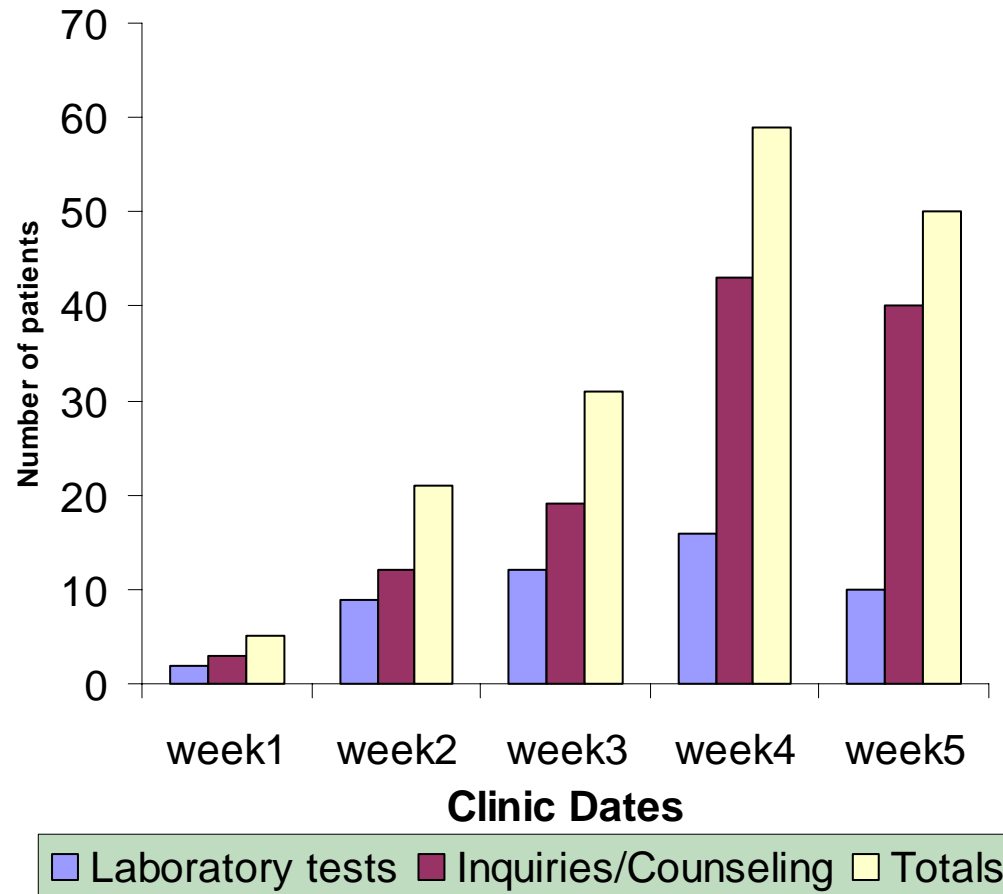


Employment Status of patients attending JCRC Mbale clinic

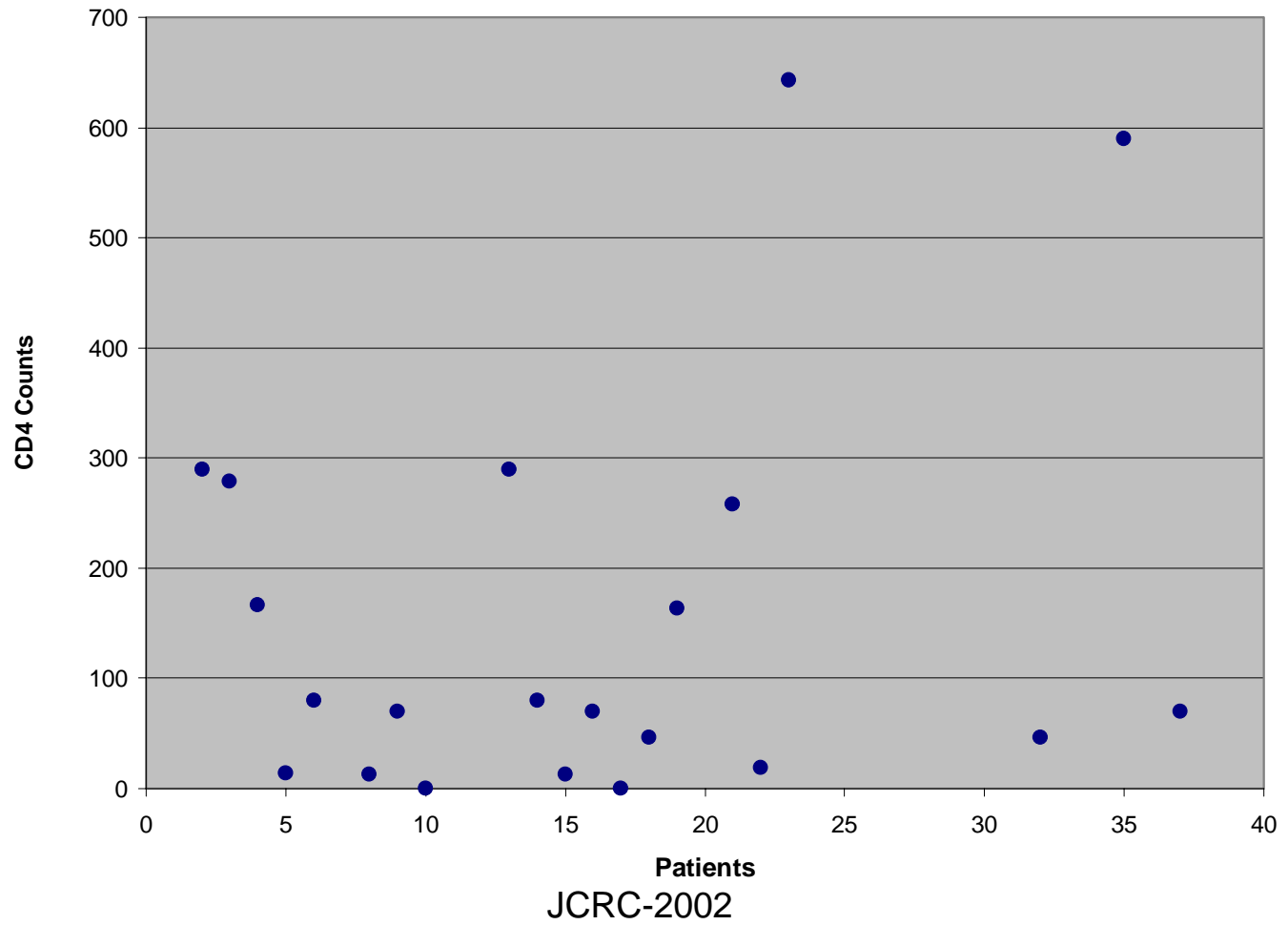


JCRC-2002

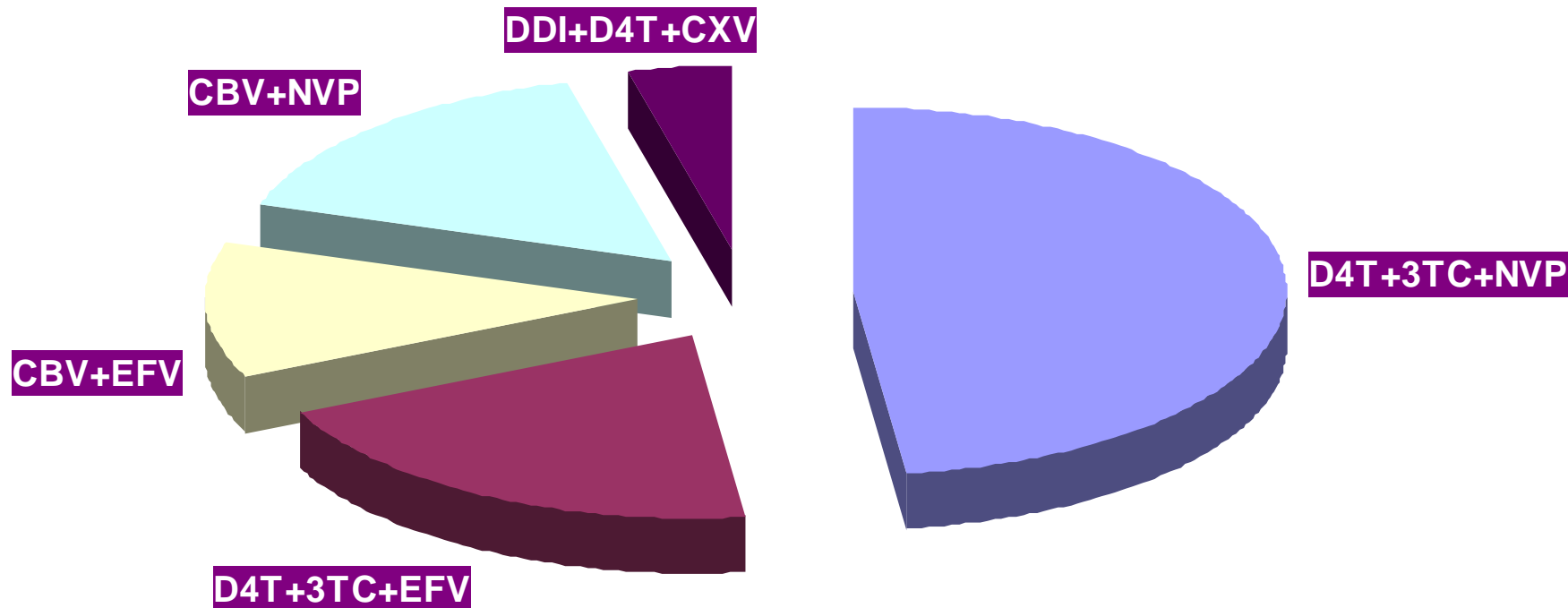
Bar graph showing patients reasons for attendance per Week in JCRC Mbale Clinic



CD4 COUNTS FOR PATIENTS COMING AT MBALE JCRC CLINIC



Graph Showing Drug Combinations taken by Patients on ARVs at JCRC Mbale Clinic



AIDS treatment in other African countries

- **SENEGAL** -Operational research project involving free ARVs, and evaluation of low cost monitoring tests
- **COTE D IVOIRE** - Evaluation of ARVs use in the districts
- **BOTSWANA**-working with Harvard to implement a countrywide free AIDS treatment program
- **MTCT PROGRAMS** -planned in many countries
- **Special access programs** -Rwanda,Zambia etc

Special ARV access initiatives

- **Employers treatment Sponsorships**
South African miners, Banks, Industries, NGOs, Embassies, etc.
- **Insurances** - planned in Uganda for employees
- **Special NGO programs-**
 - Academic Alliance for training and increased ARVs access,
 - African Dialogue on AIDS (ADAC) African expertise to advise on the possible way forward for the continent, etc.

Commonly used ARV Regimen

(Dictated by cost of drugs)

1. Zidovudine (Combivir	3TC/DDI Nevirapine)	Nevirapine Efanvirenz
2. Stavudine	3TC/DDI	Nevirapine Efanvirenz
3. ZDV/d4t	3TC/DDI	RTV+CXV RTV+FTV NFV/CXV Kaletra
4		

The Ugandan strategy to therapy

ACT WITH URGENCY

- **Set up planning sub-committees of experts**
- **In building capacity aim at quality by setting up qualification criteria for ARVs use in new centers.(Clinical and laboratory)**
- **Private - public sectors collaboration**
- **Plan for AIDS care and necessary logistics in the districts**
- **Mobilize and maximize recourses**
- **planing,implementation, and evaluation to proceed contemporaneously.**

Key to Expansion of quality care.

- Network of a nationwide referral system
- Training and facilitation to achieve necessary skills
- User friendly, reliable, affordable and sustainable treatment and monitoring tests

Expected Outcome

- (1) Increased access to ARVs/care:
- (2) Increased willingness for VCT and adoption of preventive behavior
- (3) Saving of lives and improved quality of life
- (4) Further fall in incidence of HIV

Reduce or Stop Suffering without ARVS



The Way forward

Increasing ARV access in resource poor settings



2 ultimate requirements for a successful AIDS care and treatment program

- **ARVS must be on the essential drugs list**
- **Care and treatment must be accessible to all.**

UGANDA HAS DEMONSTRATED THAT THESE ARE ACHIEVABLE. THE MAIN CONSTRAINT REMAINS THE HIGH COST OF DRUGS AND LAB.TESTS

END