University of the Witwatersrand
WITS RHI

What we have achieved in Africa so far?

So close yet so far away

Professor Francois Venter
Wits Reproductive Health and HIV Institute

Disclosures…

- **Part of optimisation collaborations – grants to improve testing, new drug regimens, linkage to care**
- **Pharma (including drug donations for studies) and managed care**

UNITAID

OPTIMIZE

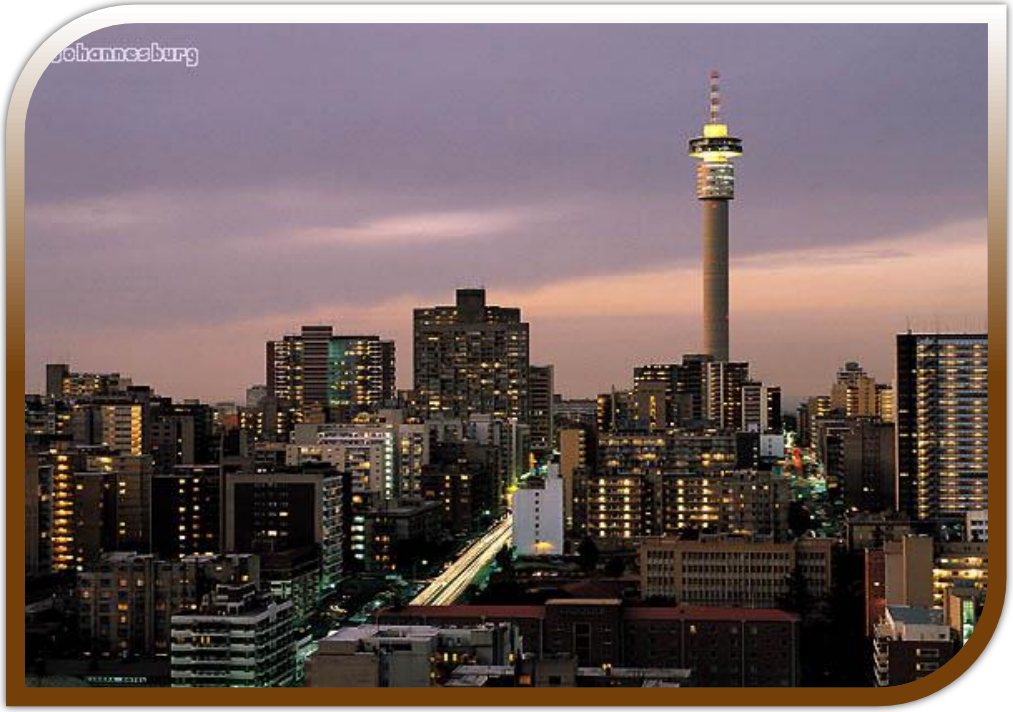
SOUTH AFRICANS AND AMERICANS IN PARTNERSHIP TO FIGHT HIV/AIDS

PEPFAR

saMRC advancinglife

Question: Which is Francois' biggest ARV regimen choice headache in 2019?

- 1) TB– green
- 2) Paediatrics– yellow
- 3) Women - red



A caveat: Africa is not a country

What does an Africa health care worker have to think about?

- **Advanced disease with limited diagnostics**
- **TB and drug interactions**
- **Hepatitis B**
- **High viral loads**
- **Paediatrics**

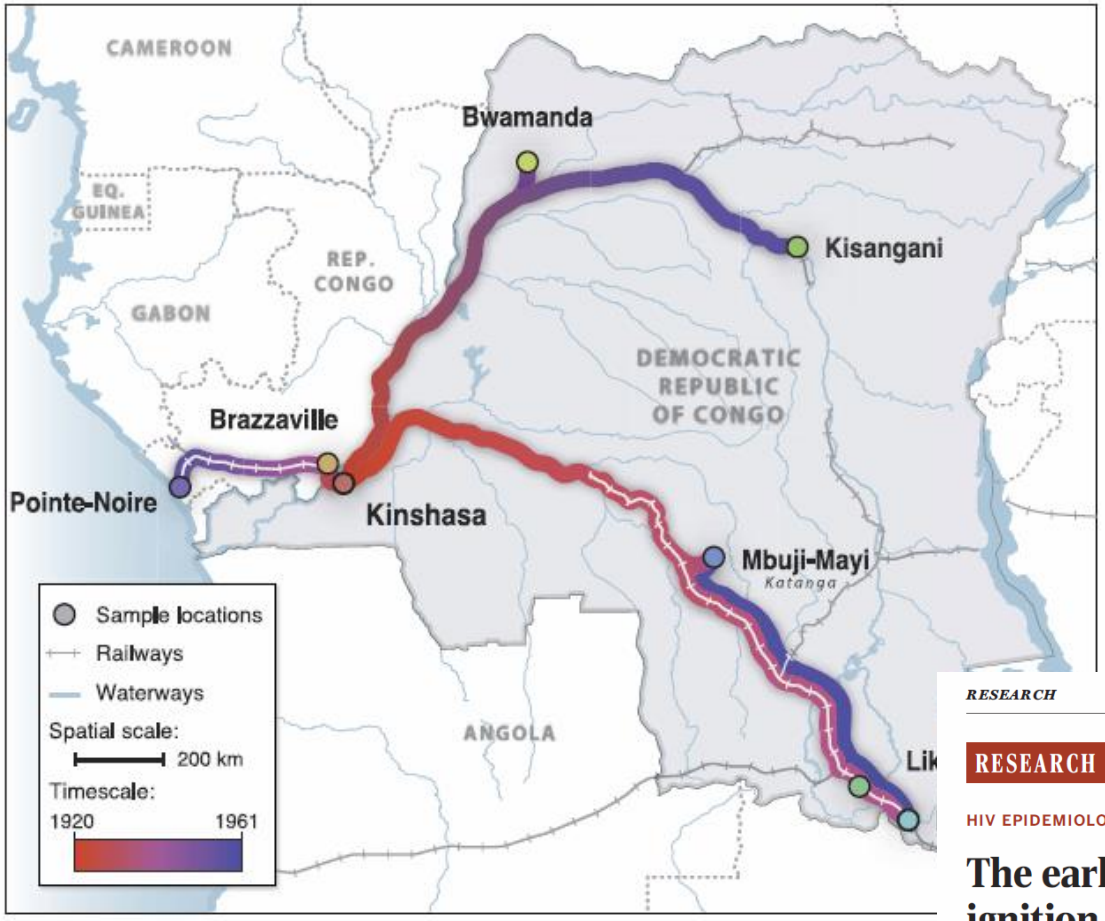
Other things…

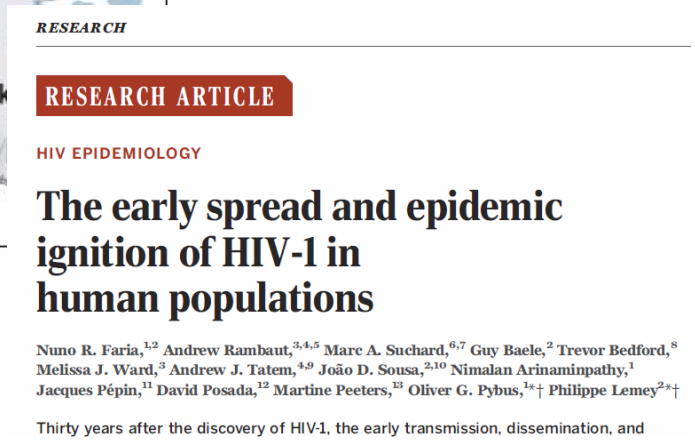
- Scale of health services
- Cost
- Stockouts
- Push for integration
- Limited formulations
- Data gaps in key populations

Challenges

- Increasing efavirenz resistance
- Re-entry to system – drive this resistance
- Large numbers – drug storage
- Stockout of singles
- Lots of pregnancies
- Patients getting older – increased co-morbidities
- (very small numbers of paeds)

Spread of the HIV virus





RESEARCH

RESEARCH ARTICLE

HIV EPIDEMIOLOGY

The early spread and epidemic ignition of HIV-1 in human populations

Nuno R. Faria,[1,2] Andrew Rambaut,[3,4,5] Marc A. Suchard,[6,7] Guy Baele,[2] Trevor Bedford,[8] Melissa J. Ward,[3] Andrew J. Tatem,[4,9] João D. Sousa,[2,10] Nimalan Arinaminpathy,[1] Jacques Pépin,[11] David Posada,[12] Martine Peeters,[13] Oliver G. Pybus,[1*†] Philippe Lemey[2*†]

Thirty years after the discovery of HIV-1, the early transmission, dissemination, and

Spread of HIV 1890-1950

1890-1950

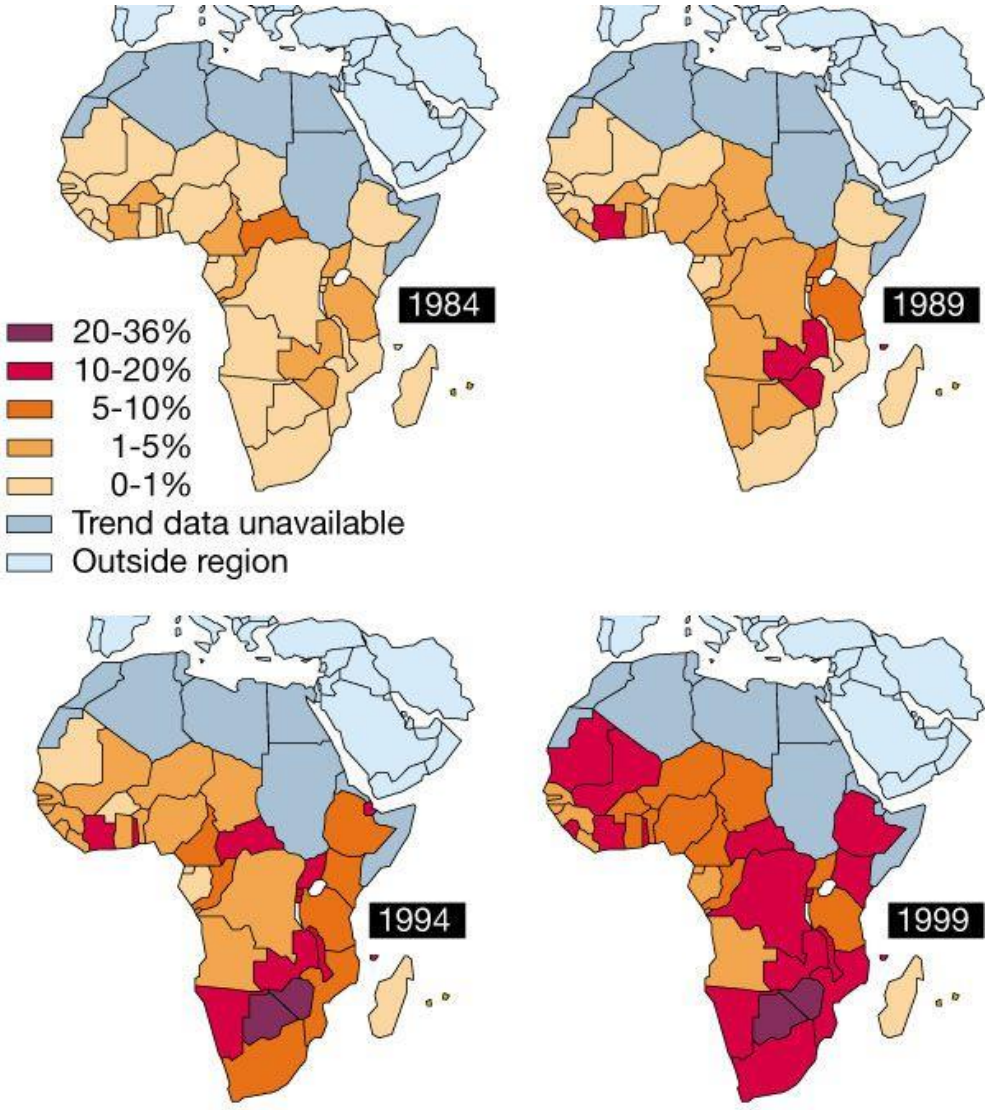
Spread of HIV to Europe 1950-1980

1950-1980

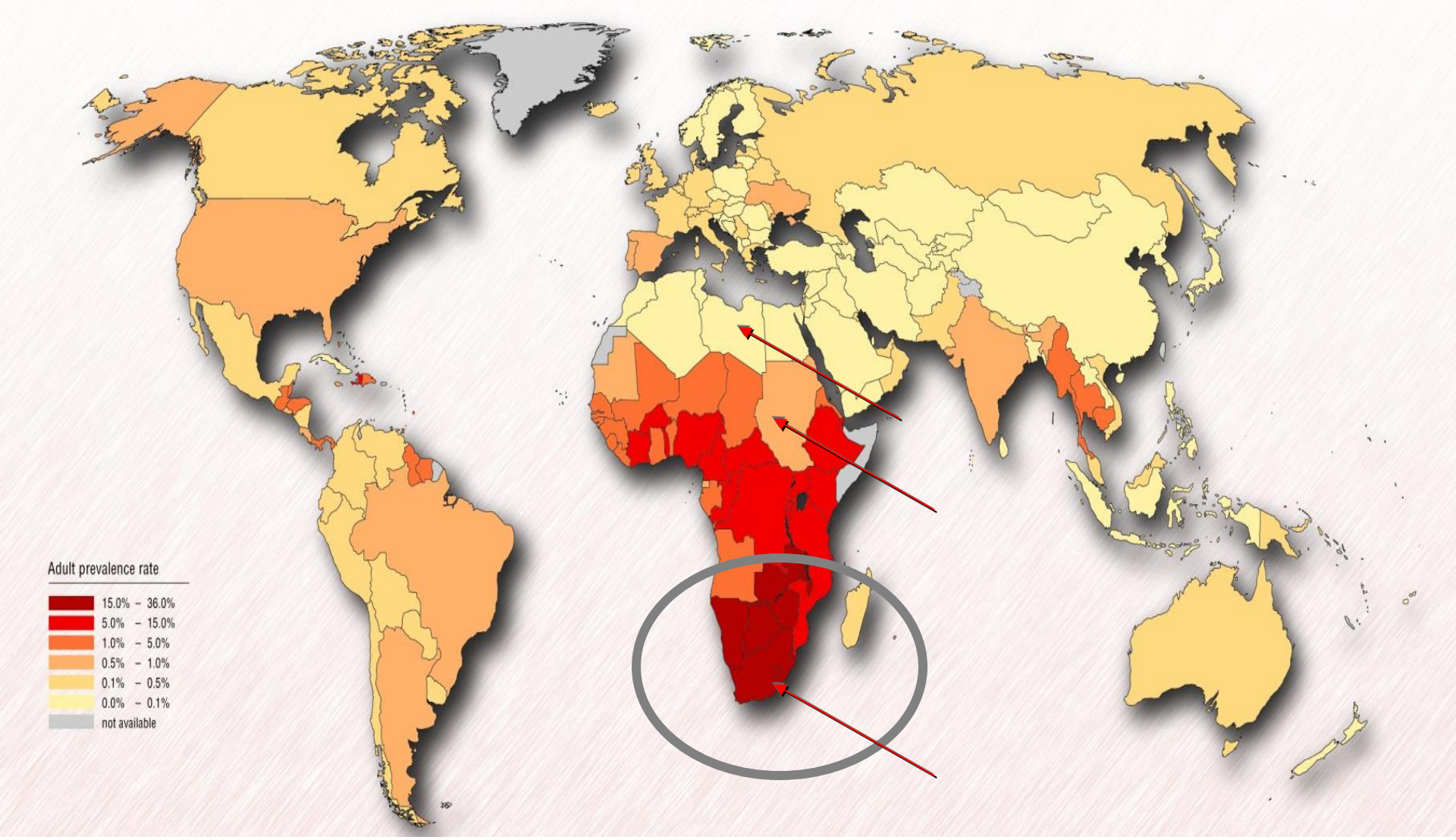
Spread of HIV to Southern Africa

1980-now

The HIV epidemic started in central Africa and has spread over the last 30 years to most parts of the world



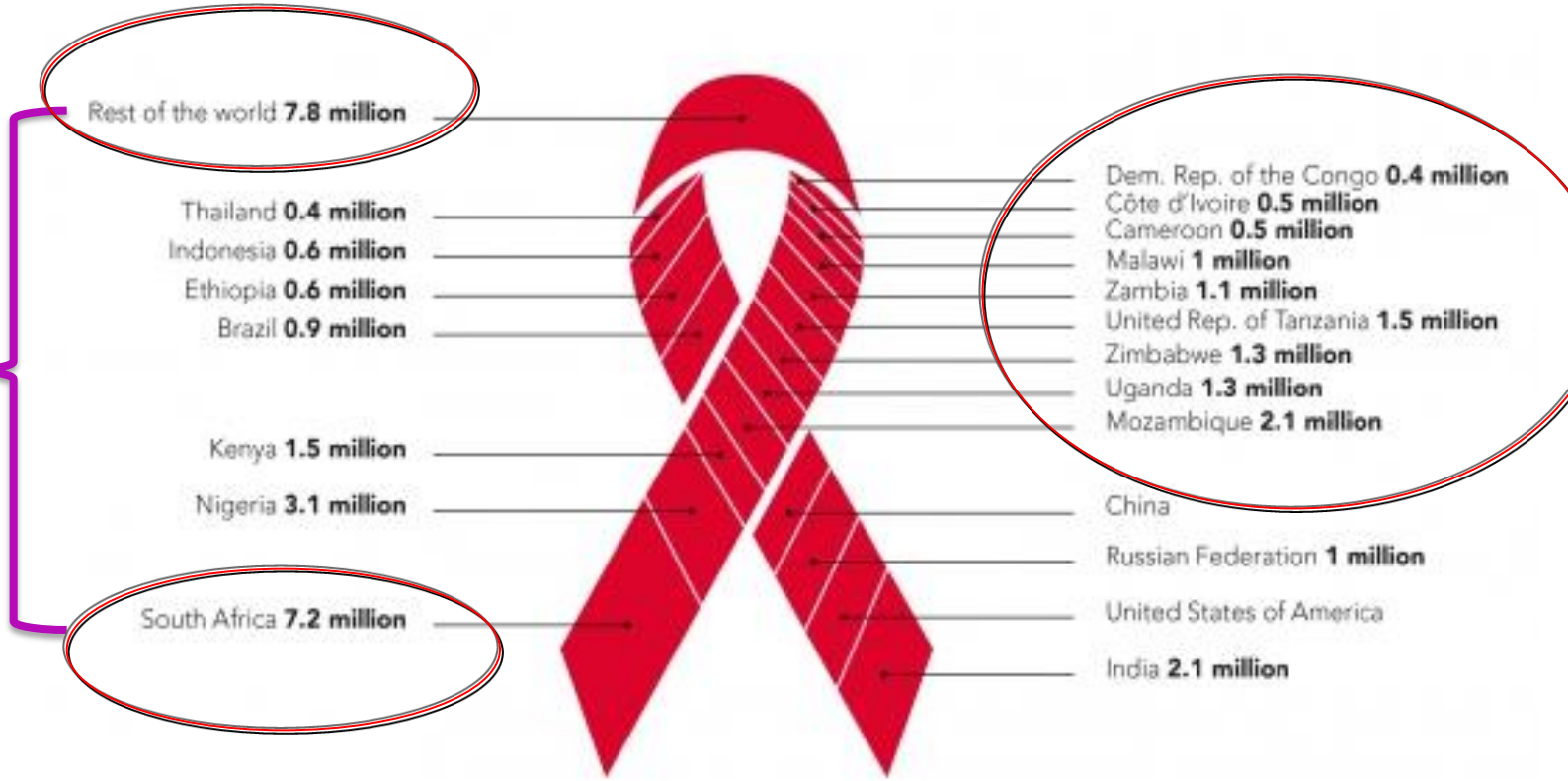
HIV, Africa and scale



Currently, 36.9M people are estimated to be living with HIV, the large majority of which live in sub-saharan Africa

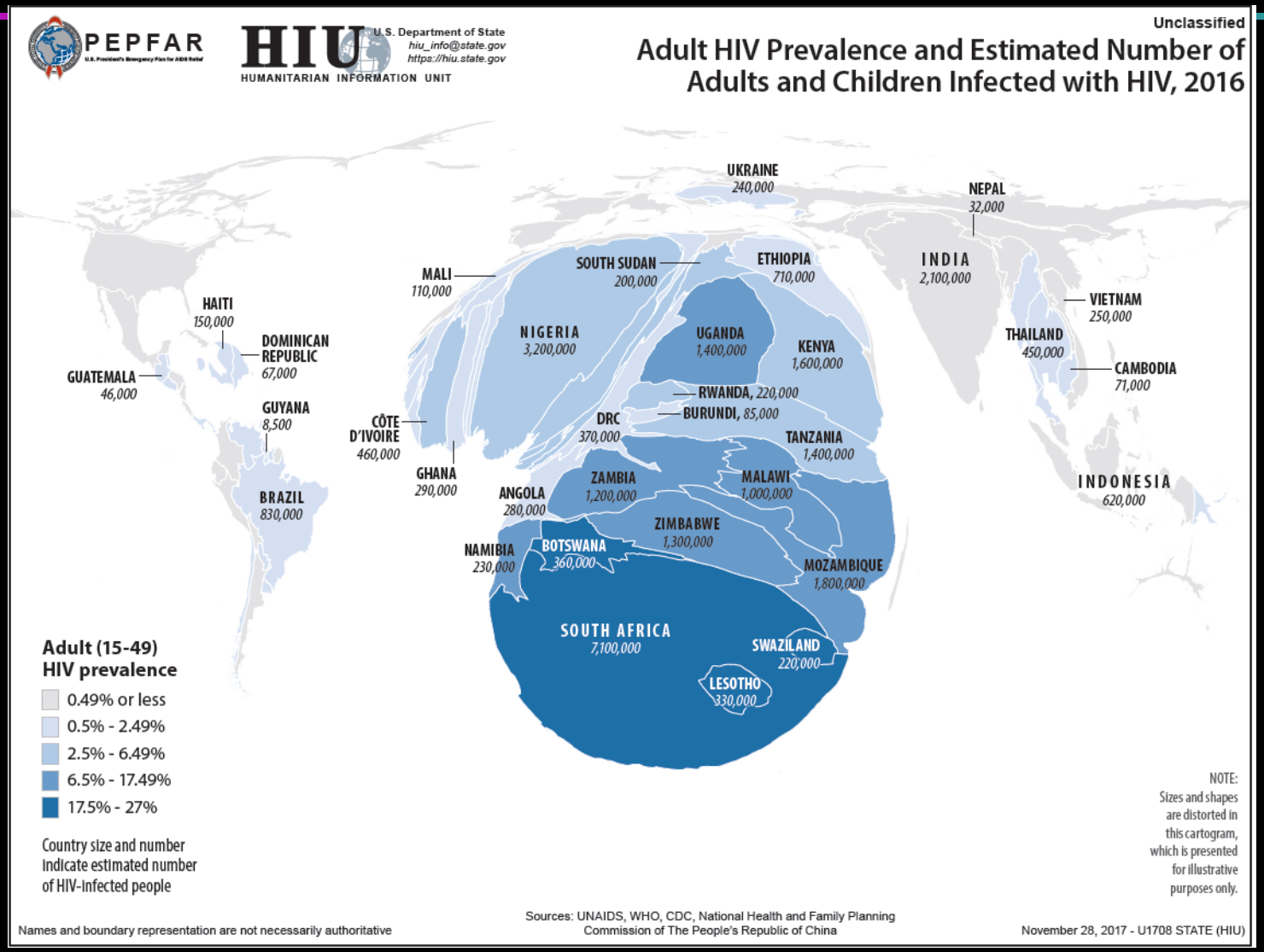
25% of the persons living with HIV do not know their status

Almost 20% of the world's HIV population lives in South Africa



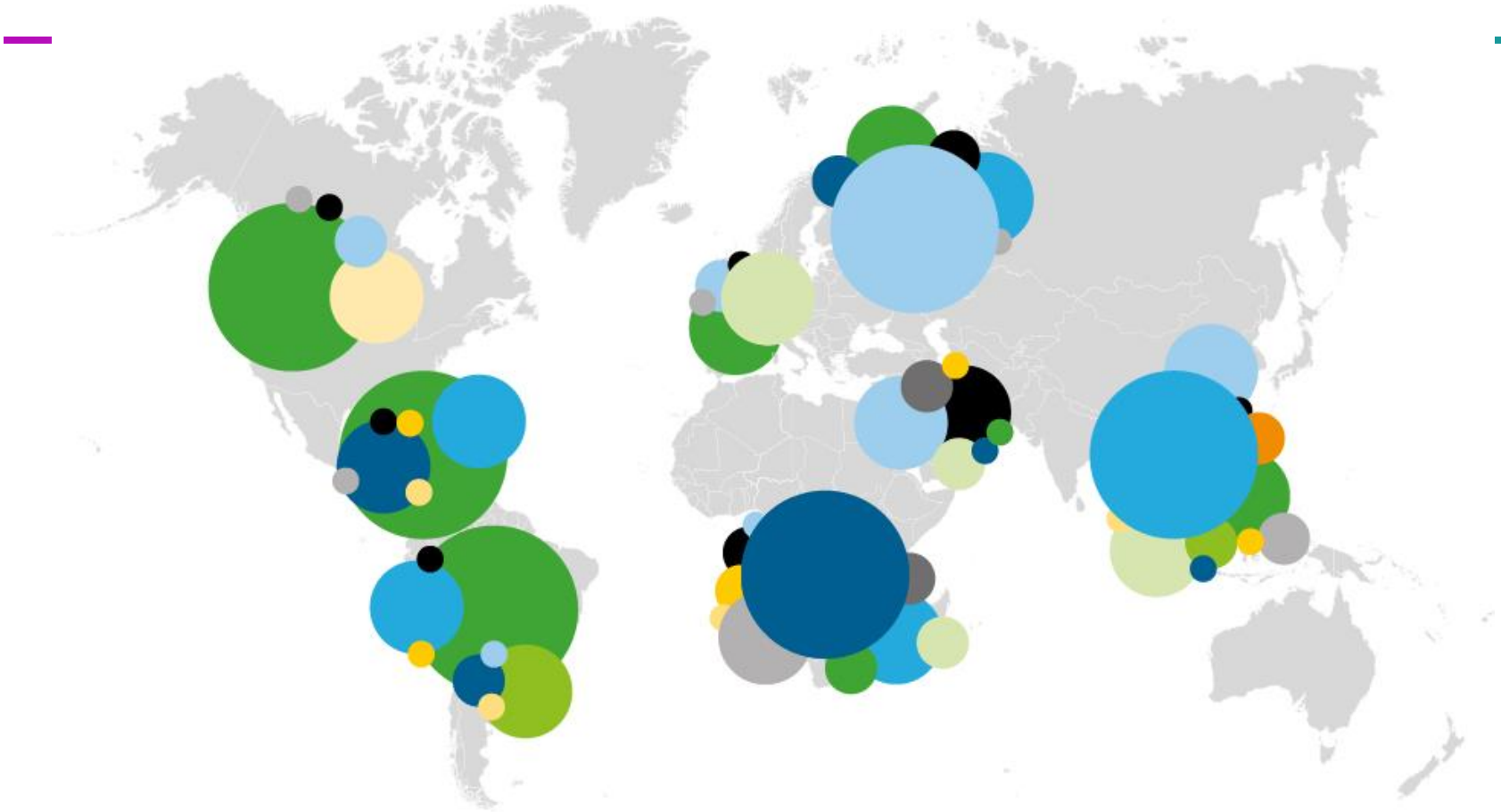
Source: UNAIIDS Global Report 2018

African HIV Burden



PEPFAR

The importance of location and population



- Young women
- Sex work
- People who inject drugs
- Men who have sex with men
- Transgender
- Migrants
- Prisoners
- Displaced
- Pregnant women
- 50+
- Disabled
- African-American women
- Intimate partners

People living with HIV (children and adults) are included as members of all of the featured populations. They are implicitly included in this map as they must have universal access to services.

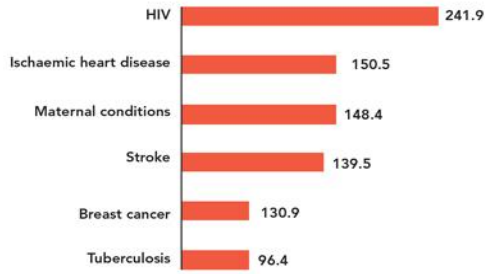
In Africa, young women and girls are disproportionately affected by HIV

AT A GLANCE

In sub-Saharan Africa, three in four new HIV infections among 15–19-year-olds are among girls.

Source: UNAIDS 2017 estimates.

AIDS-related illnesses are the leading cause of death among 15–49-year-old females globally (hundred thousands)



Source: Global health estimates 2015: deaths by cause, age, sex, by country and by region, 2000–2015. Geneva, World Health Organization; 2016.

10X

HIV INCIDENCE IS 10 TIMES HIGHER AMONG FEMALE SEX WORKERS THAN AMONG THE GENERAL POPULATION

Source: UNAIDS. Prevention gap report. Geneva: UNAIDS, 2016.

52%

of adolescent girls and young women in rural areas are unable to make decisions about their own health, compared with

47%

in urban areas.

Source: Population-based surveys, 2011–2016. The statistics are based on available data from 28 countries in which 83% of all women aged 15–24 in sub-Saharan Africa live.

IN SUB-SAHARAN AFRICA, **42%** OF WOMEN LIVING IN **URBAN** AREAS AGED 15–24 HAD A PREGNANCY BEFORE THE AGE OF 18.
IN **RURAL** AREAS, MORE THAN **50%** OF WOMEN AGED 15–24 HAD A PREGNANCY BEFORE THE AGE OF 18.

Source: Population-based surveys, 2011–2016. The statistics are based on available data from 27 countries in which 80% of all women aged 15–24 in sub-Saharan Africa live.

42% of **urban** young women aged 15–24 who live in sub-Saharan Africa who have had sex and have had an HIV test.

30% of **rural** young women aged 15–24 who live in sub-Saharan Africa who have had sex and have had an HIV test.

Source: Population-based surveys, 2011–2016. The statistics are based on available data from 28 countries in which 83% of all women aged 15–24 in sub-Saharan Africa live.

16% of **rural** currently married adolescent girls and young women who live in sub-Saharan Africa report using a modern contraceptive.

23% of **urban** currently married adolescent girls and young women who live in sub-Saharan Africa report using a modern contraceptive.

Source: Population-based surveys, 2011–2016. The statistics are based on available data from 28 countries in which 83% of all women aged 15–24 in sub-Saharan Africa live.

Globally, young women are twice as likely to acquire HIV as their male counterparts.

Source: UNAIDS 2017 estimates.

Each year, 12 million girls are married before the age of 18—married too soon, endangering their personal development and well-being.

Source: UNICEF 2018 estimates.

AROUND

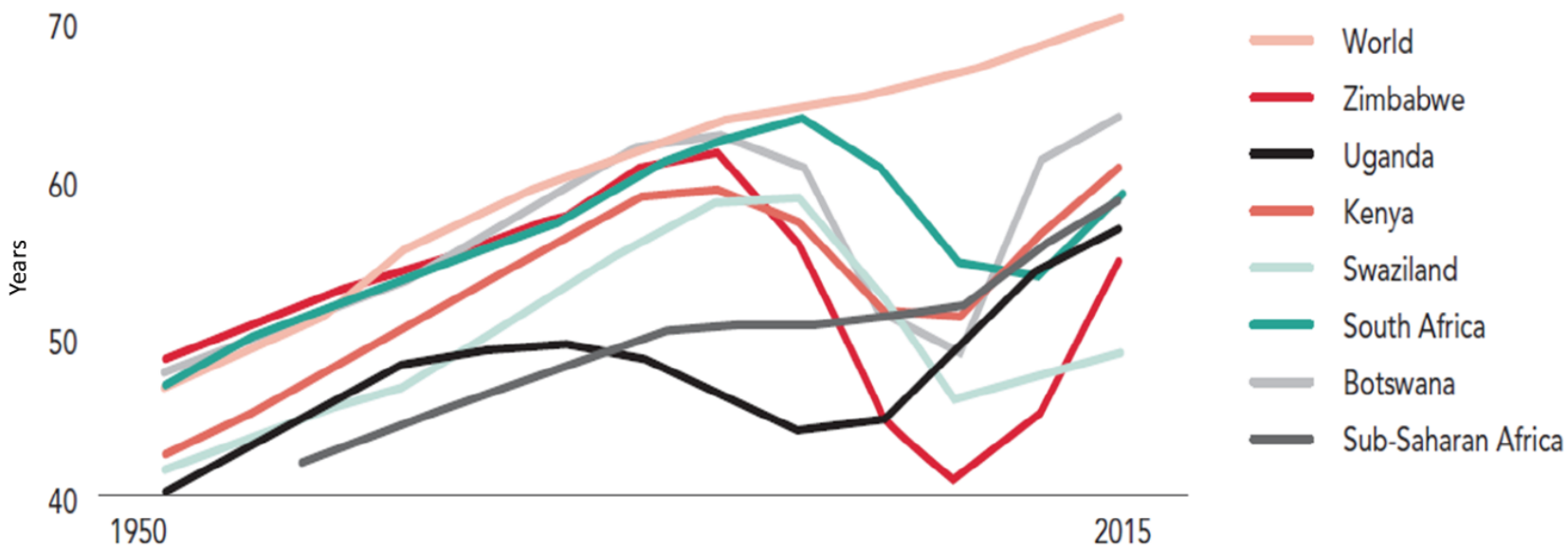
150

adolescents (10–19 years) died of AIDS-related illnesses every day in 2016.

Source: UNAIDS 2017 estimates.

Impact of HIV response on life expectancy

Dramatic impact of HIV response on life expectancy, 1950-2015



Source: United Nations Population Division, World Population Prospects, 2015 revision.

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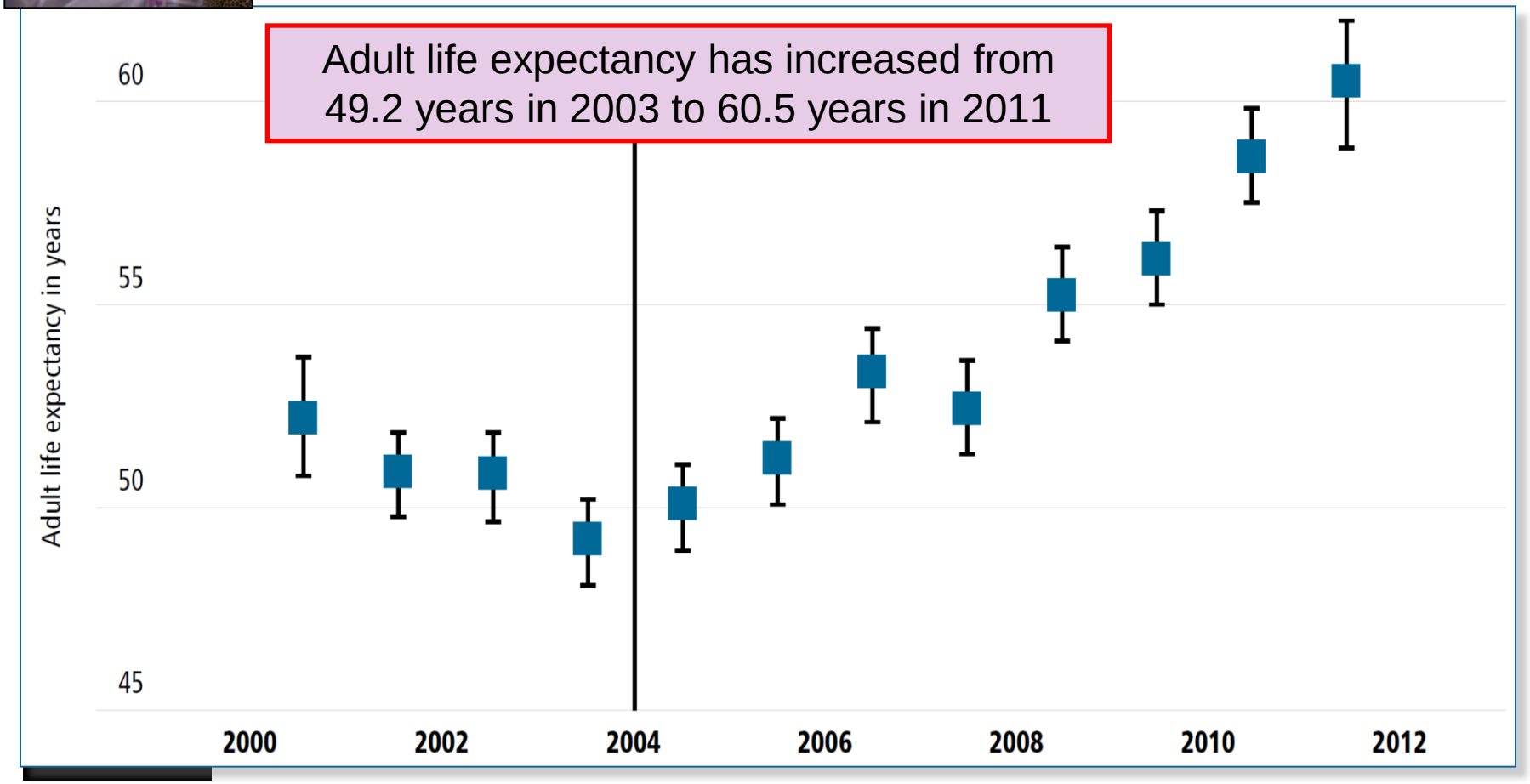
Increases in Adult Life Expectancy in Rural South Africa: Valuing the Scale-Up of HIV Treatment

Jacob Bor,[1,2]* Abraham J. Herbst,[1] Marie-Louise Newell,[1,3] Till Bärnighausen[1,2]



Source: Bor *et al*. Increases in adult life expectancy in rural South Africa: valuing the scale-up of HIV treatment. Science, 2013, 339:961–965.

90%

of all

living with HIV will know their HIV status

90%

of all

living with HIV will receive sustained antiretroviral therapy

90%

of all

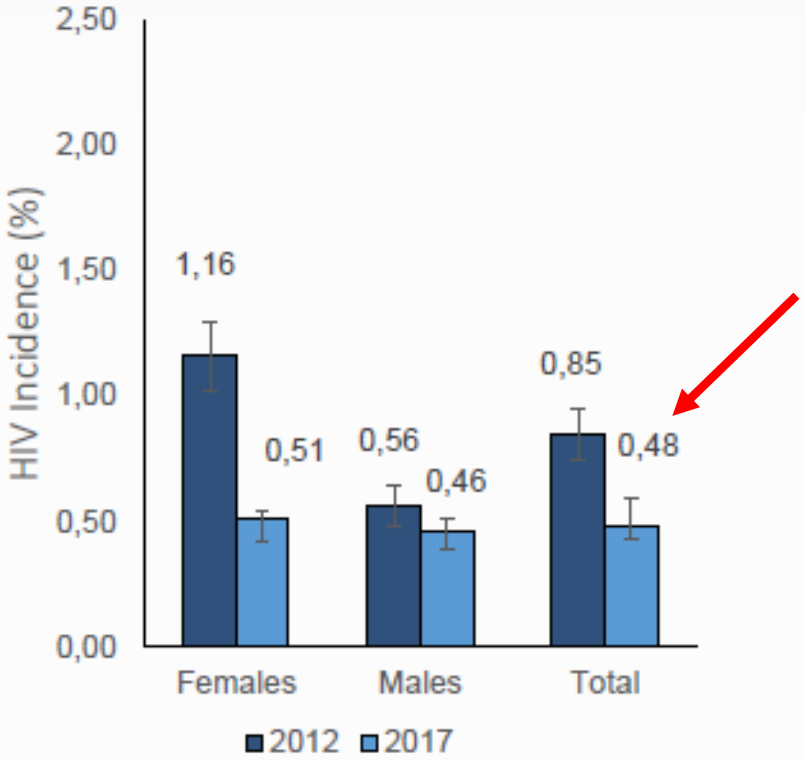
receiving antiretroviral therapy will have durable viral suppression

Test and treat and PrEP seems to be bearing fruit (2018/9)…

- **SA: 44% reduction– in only 5 years (2012-2017)!**
- **Similar in Swaziland, Zimbabwe**
- **Botswana – 30% (finally!)**

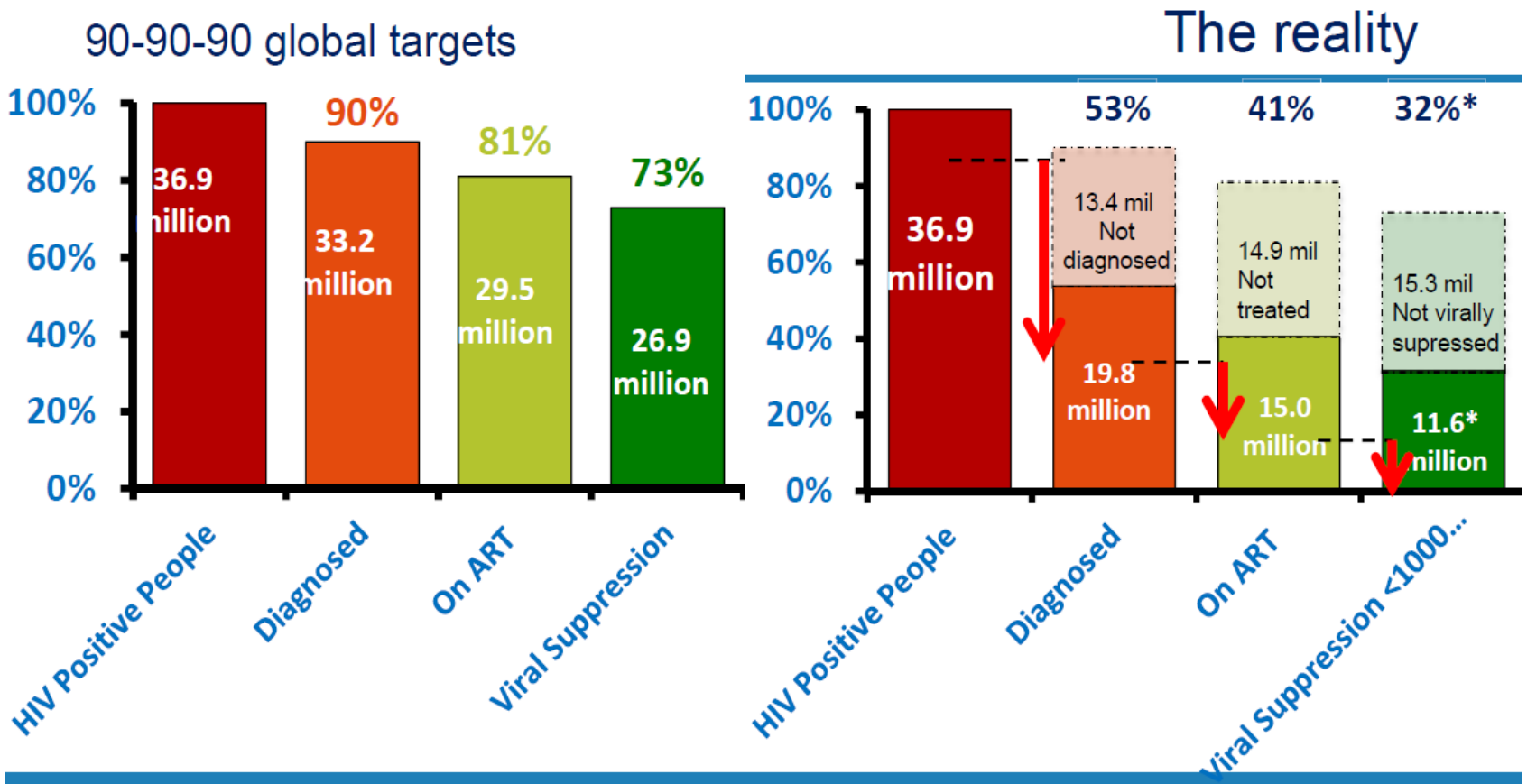
Changes to HIV Incidence among those aged two years and older by Sex, South Africa, 2012-2017

- NB. The 2012 results were re-calculated using the 2017 test parameters
- The overall HIV incidence has significantly dropped by 44%.
- The largest decline (56%) in incidence was among females.
- Among males the incidence declined by 18%



And late presentation

Global targets for HIV programmes



Ref: UNAIDS. 90-90-90 An ambitious treatment target to help end the AIDS epidemic. 2014; JC2684 (Numbers as of March 2015) How Aids Changed Everything. Fact Sheet. UNAIDS 2015. MDG 6: 15 YEARS, 15 LESSONS OF HOPE FROM THE AIDS RESPONSE July 2015.

World Health Organization

- **Uganda/ US/ UK – 'higher life expectancy that matched populations**

Annals of Internal Medicine | ORIGINAL RESEARCH

Life Expectancy of Persons Receiving Combination Antiretroviral Therapy in Low-Income Countries: A Cohort Analysis From Uganda

Edward J. Mills, PhD, MSc, LLM; Celestin Bakanda, MSc; Josaphine Birungi, MBChB; Keith Chan, MSc; Nathan Ford, PhD, MPH; Curtis L. Cooper, MD, MSc; Jean B. Nachega, MD, PhD; Mark Dybul, MD; and Robert S. Hogg, PhD, MA

1. Expect a normal life expectancy:

May et al. AIDS 2014

- UK CHIC: 21 388 people started ART 2000-2010

Annals of Internal Medicine | EDITORIAL

Life Expectancy in Africa: Back to the Future?

rom 1950 to 1990, life expectancy in sub-Saharan Af- uals challenged global trade rules and regulations, ulti-

If 35 year old man started ART:

	life expectancy		
CD4	Baseline	1 year ART	5 years ART
<200	71		& VL>50 54
200-349	78	78	
>350	77	81	& VL<50 80
General population	78		

10 | 16 August 2011 | Annals of Internal Medicine | Volume 155 • Number 4

Conclusion: If diagnosed, in care and on effective ART: life expectancy is normal

Great information to give to people newly diagnosed and encourage good adherence

Thanks: Julie Fox, Guys

What about the non-communicable diseases?

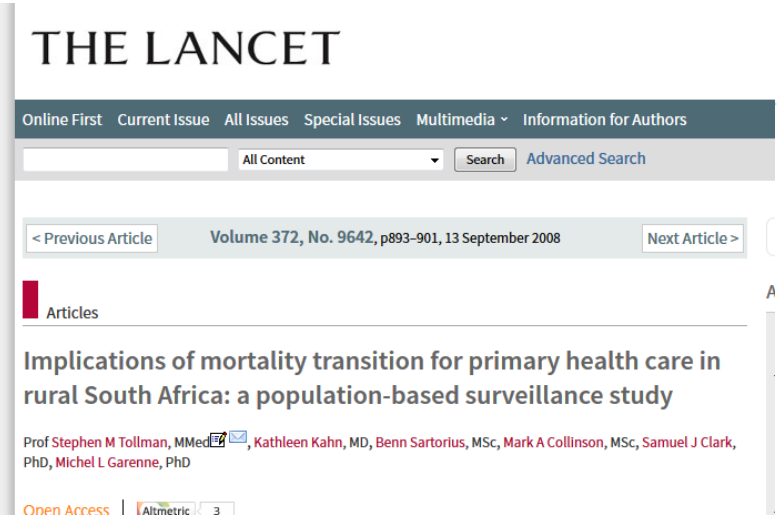
Table 1

Age-standardised death rates for broad cause categories and broad health-care categories in Agincourt subdistrict, 1992–2005

	Years				Relative change	
	1992–94	1995–97	1998–2001	2002–05	RR (95% CI)	p value
Broad cause categories						
All causes	593	604	737	1111	1·87 (1·73–2·03)	<0·0001
Infectious and parasitic diseases	74	147	255	446	5·98 (4·85–7·38)	<0·0001
Non-communicable diseases	197	158	187	227	1·15 (0·99–1·33)	0·066
External causes*	76	63	61	72	0·95 (0·74–1·21)	0·673
Ill defined or unknown	198	178	115	237	1·19 (1·03–1·38)	0·019
Broad health-care categories						
All health care	593	604	737	1111	1·87 (1·73–2·03)	<0·0001
Acute care†	162	148	192	212	1·31 (1·12–1·55)	0·0003
Chronic care‡	209	230	330	550	2·63 (2·30–3·01)	<0·0001
Ill defined/unknown care§	222	225	215	348	1·57 (1·37–1·80)	

All rates are per 100 000 person years (N=6153). RR=rate ratio. All rate ratios i

*External causes include homicide, suicide, road traffic accidents, accidental in
†Acute care: for disorders that are potentially curable with up to 1 month of app
‡Chronic care: for disorders that are incurable or need more than 1 month of ap
§Difficult to classify as acute or chronic care.

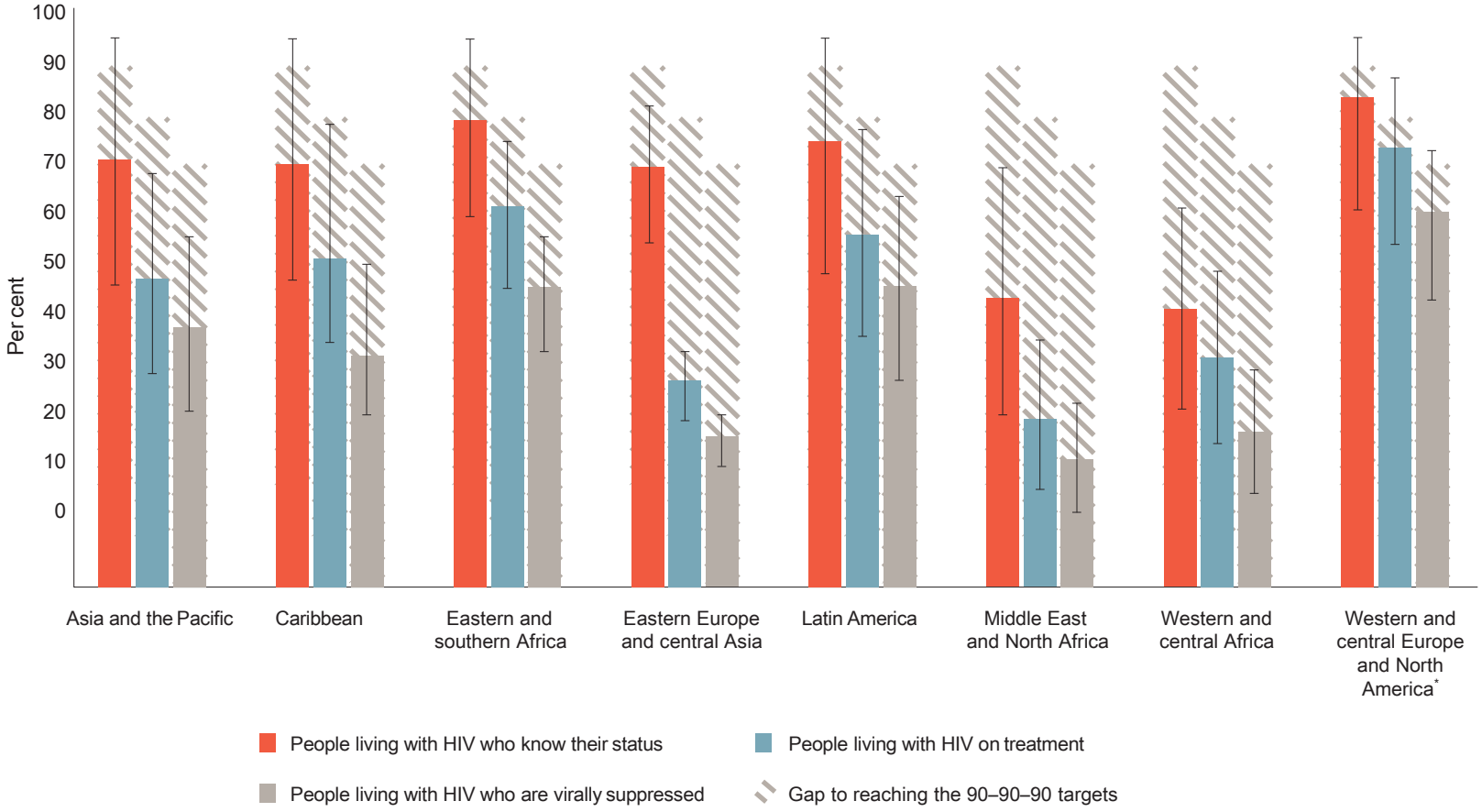


So, we have a growing population…

- **Bigger clinics, huge supply lines**

But progress varies in different regions, with western and central Africa progressing particularly slowly

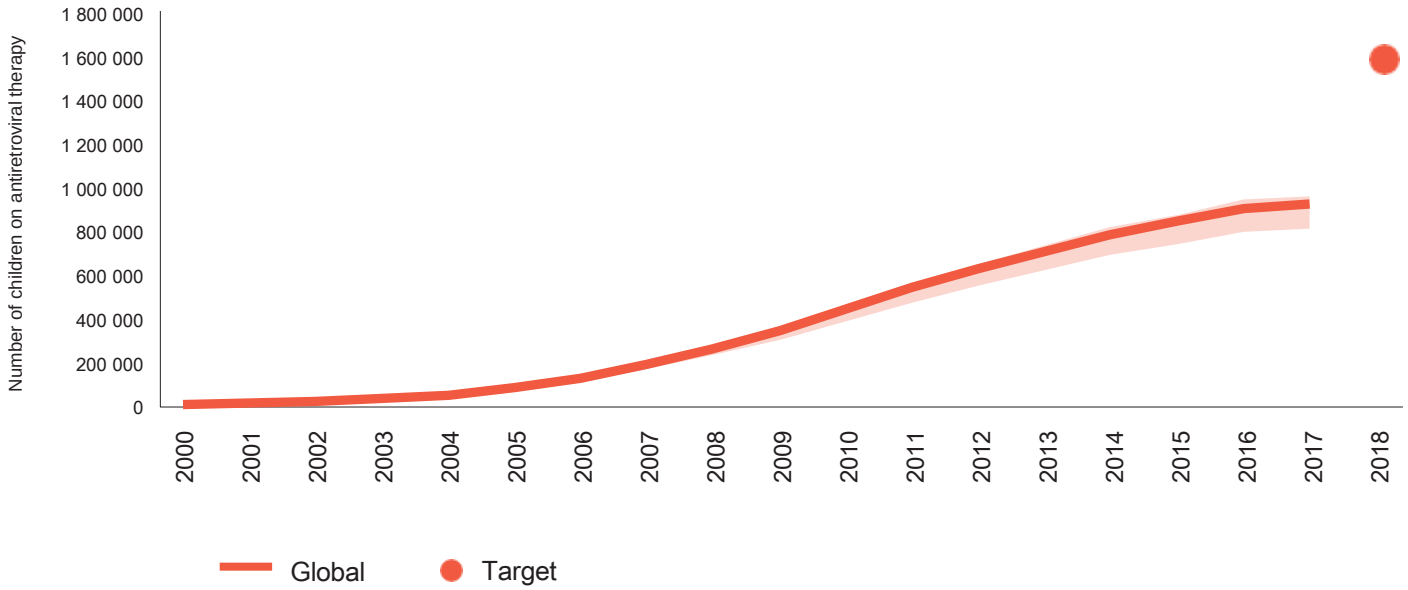
Knowledge of HIV status, treatment coverage and viral load suppression among people living with HIV, 2017[1]



UNAIDS global update 2018

However, children lag far behind in ART treatment coverage…

Number of children (aged 0–14 years) accessing antiretroviral therapy, global 2000–2017 and 2018 target



Source: UNAIDS 2018 estimates; Global AIDS Monitoring, 2018.

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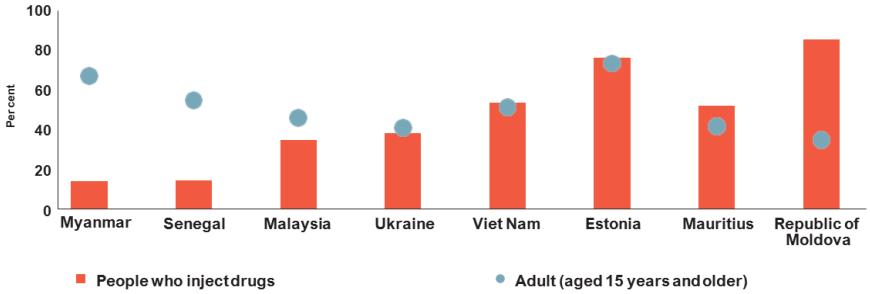
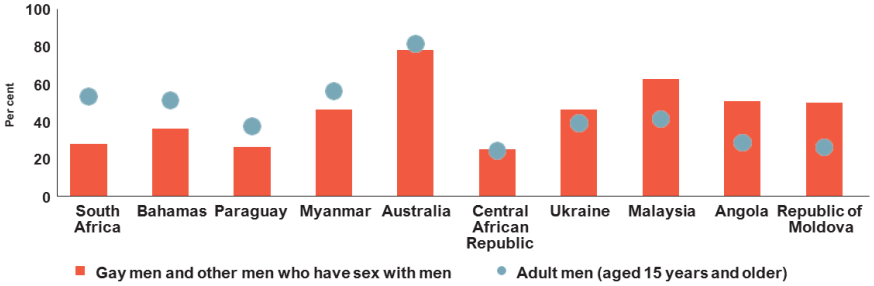
…as do key populations

Antiretroviral therapy coverage, by population, select countries, 2014–2017

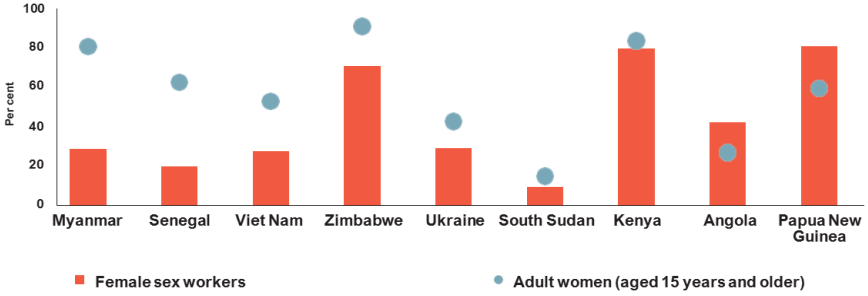
People who inject drugs and all adults
(aged 15 years and older), 2014–2017



Gay men and other men who have sex with men and adult men
(aged 15 years and older), 2016–2017



Female sex workers and adult women
(aged 15 years and older), 2016–2017



What does this mean in practice?

- **Innovative programmes that:**
  - Don’t use doctors, nurses
  - Bypass classic health care delivery models
  - Simplified public health approach, single tablet, switch to ‘’best guess’’ regimen
  - Integrate reproductive health – paeds screening, vaccines, contraception…
- **What does that look like?** Increasingly, same day initiation after HIV diagnosis – initial results good!
- **But often manifests as poorly thought-through integration**

Service integration: Responding to co-morbidities and multiple needs

OPEN ACCESS Freely available online PLOS | ONE

The Effect of Complete Integration of HIV and TB Services on Time to Initiation of Antiretroviral Therapy: A Before-After Study

Bernhard Kerschberger[1], Katherine Hilderbrand[1,2], Andrew M. Boulle[2], David Coetzee[2], Eric Goema
Virginia De Azevedo[4], Gilles Van Cutsem[1,2]*

1 Médecins sans Frontières, Khayelitsha, Cape Town, South Africa, 2 Centre for Infectious Disease Epidemiology and Research, School of Public Health an
Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, 3 South African Medical Unit, Médecins sans Frontières, Johannesbur
Africa, 4 City of Cape Town, Health Directorate, Khayelitsha, South Africa

Abstract

ART initiation in TB/HIV co-infected patients lowers mortality. One way
be through integration of TB and HIV services, a more efficient model of ca
a model of full TB/HIV integration and estimate its effect on time to initiati

ectively reviewed TB registers and clinical notes of 209 TB/HIV co-infect
istered for TB treatment at one primary care clinic in a South African townsh
an-Meier and Cox proportional hazard analysis, we compared time betwe
ods before and after full, "one-stop shop" integration of TB and HIV servic
were determined a priori through directed acyclic graphs. Robustness
analyses. The analysis included 188 patients (100 pre- and 88 post-integratio
yielding 56 person-years of observation. Baseline characteristics of the two groups were similar. Median time to A
initiation decreased from 147 days (95% confidence interval [CI] 85–188) before integration of services to 75 days (95%
52–119) post-integration. In adjusted analyses, patients attending the clinic post-integration were 1.60 times (95% CI 1.1
2.29) more likely to have started ART relative to the pre-integration period. Sensitivity analyses supported these finding

Conclusions/Significance: Full TB/HIV care integration is feasible and led to a 60% increased chance of co-infected patier
starting ART, while reducing time to ART initiation by an average of 72 days. Although these estimates should be confirm
through larger studies, they suggest that scale-up of full TB/HIV service integration in high TB/HIV prevalence settings m
shorten time to ART initiation, which might reduce excess mortality and morbidity.

Citation: Kerschberger B, Hilderbrand K, Boulle AM, Coetzee D, Goemaere E, et al. (2012) The Effect of Complete Integration of HIV and TB Services on Time
Initiation of Antiretroviral Therapy: A Before-After Study. PLoS ONE 7(10): e46988. doi:10.1371/journal.pone.0046988

Editor: Sten H. Vermund, Vanderbilt University, United States of America

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Competing Interests: The authors have declared that no competing interests exist.

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Introduction

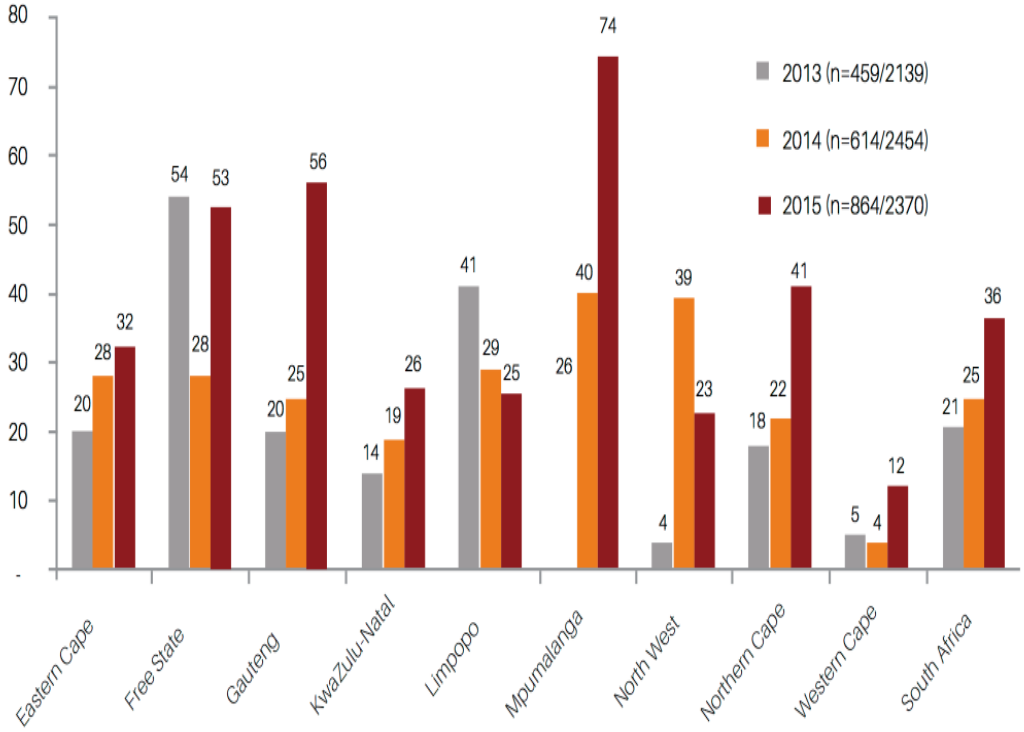
HIV changes the clinical presentation of TB from a slowly

ons:

- TB care settings
- MCH/ANC settings
- OST settings with linkage to continued HIV care and treatment

African facilities reporting at least one ARV or TB medicine stockout

- In 2015, 20% of 2,804 South African clinics experienced stockouts of HIV and TB medicines, 70% lasting for over a month.
- Côte d'Ivoire following 1,554 people on ART for 13 months reported that stockouts of these medicines doubled their risk for treatment discontinuation and death.
- In Tanzania, stockouts in 16/20 clinics led 10% of patients to change their ARVs within a 12-month period.
- DRC: mass stockouts
- **Issues for hep B**



Source: 2015 Stockouts National Survey

Late presentation remains a problem

- % presenting < CD4 200, 100 not significantly changed
- Cryptococcal meningitis levels

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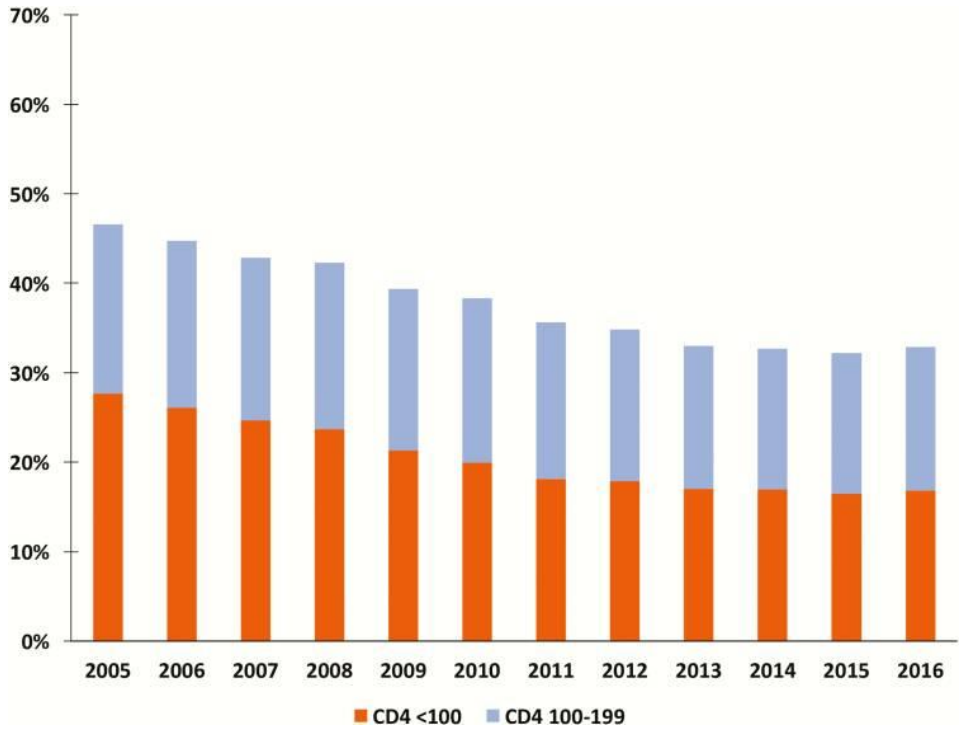
Clin Infect Dis. 2018 Apr 1; 66(Suppl 2): S111–S117.
Published online 2018 Mar 4. doi: [10.1093/cid/ciy045]
PMCID: PMC5850436
PMID: 29514238

Persistent High Burden of Advanced HIV Disease Among Patients Seeking Care in South Africa's National HIV Program: Data From a Nationwide Laboratory Cohort

Sergio Carmona,[1,2] Jacob Bor,[3,4,5] Cornelius Nattey,[3] Brendan Maughan-Brown,[6] Mhairi Maskew,[3] Matthew P Fox,[3,4,5] Deborah K Glencross,[1,2] Nathan Ford,[7] and William B MacLeod[3,4]



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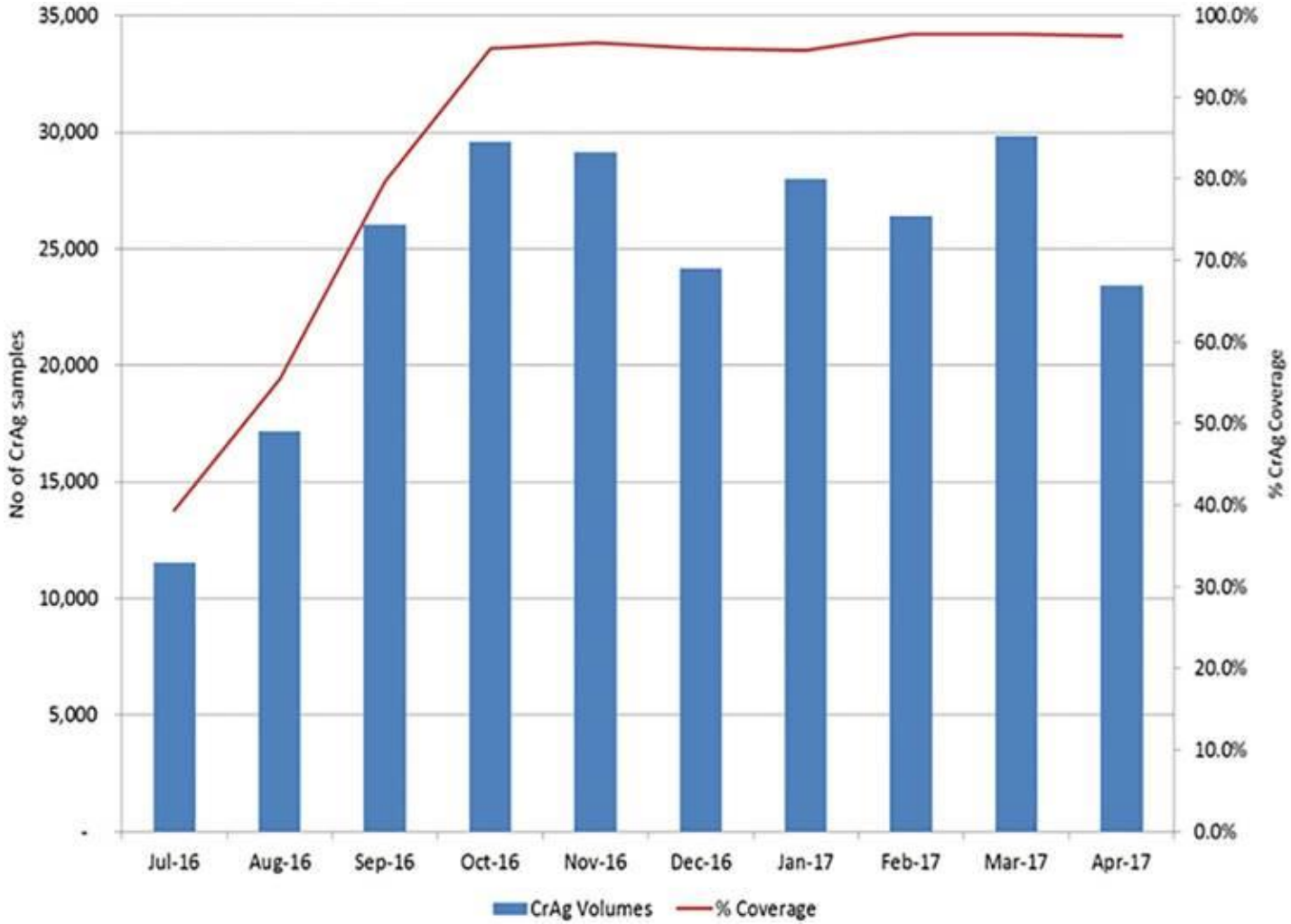
PLoS One. 2018; 13(6): e0198993.
Published online 2018 Jun 12. doi: [10.1371/journal.pone.0198993]
PMCID: PMC5997320
PMID: 29894509

Cryptococcal antigen positivity combined with the percentage of HIV-seropositive samples with CD4 counts <100 cells/μl identifies districts in South Africa with advanced burden of disease

Lindi-Marie Coetzee, Conceptualization, Data curation, Formal analysis, Methodology, Validation, Writing – original draft, Writing – review & editing,[1,2,*] Naseem Cassim, Conceptualization, Data curation, Formal analysis, Methodology Software, Writing – original draft, Writing – review & editing,[1,2] Charlotte Sriruttan, Resources, Writing – review &



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PEOPLE INITIATING TREATMENT EARLIER, BUT MANY STILL START WITH ADVANCED DISEASE

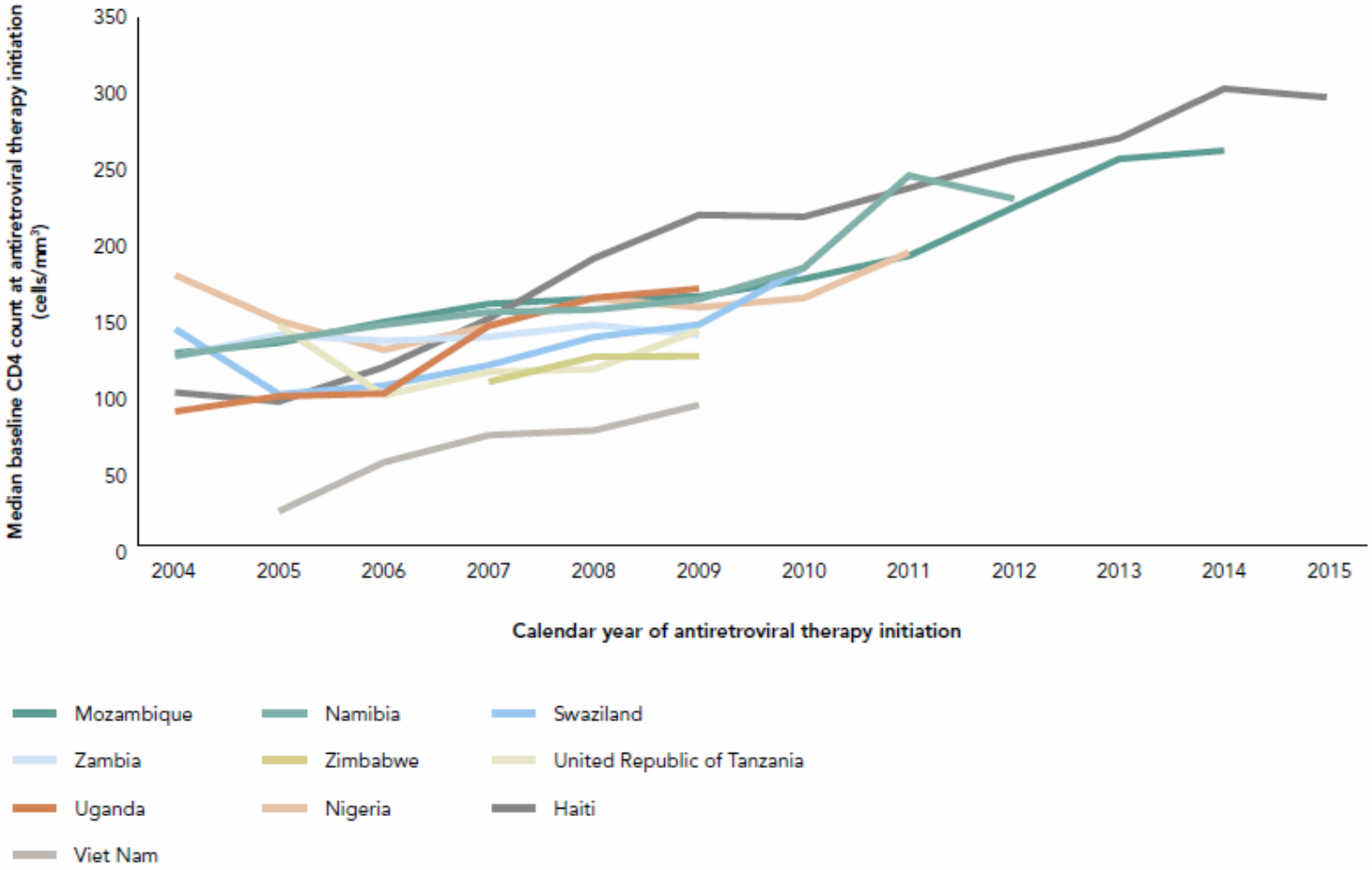
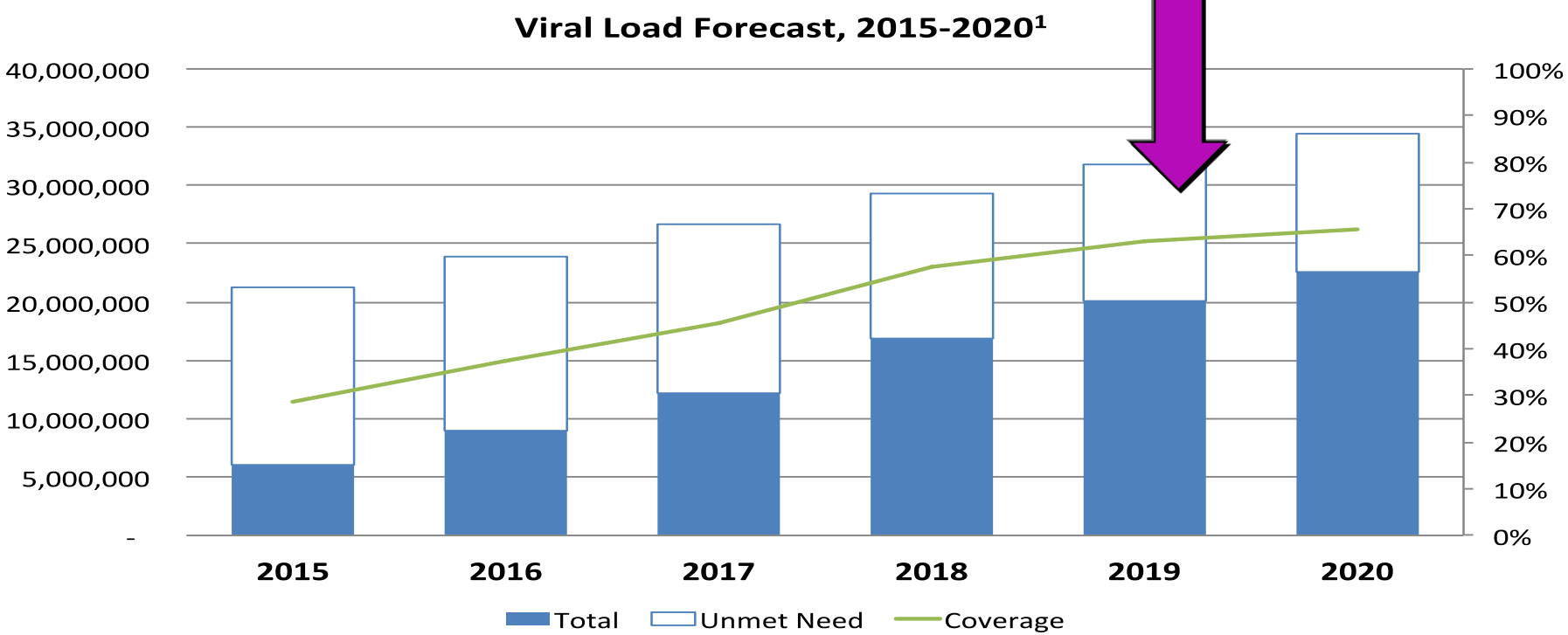


FIGURE 3.9. TRENDS IN MEDIAN CD4 T-CELL COUNT AT ANTIRETROVIRAL THERAPY INITIATION, 10 COUNTRIES, 2004–2015

Source: Auld AF, Shiraishi RW, Oboho I et al. Trends in Prevalence of Advanced HIV Disease at Antiretroviral Therapy Enrollment—10 Countries, 2004–2015. MMWR Morb Mortal Wkly Rep 2017;66:558–563. doi: http://dx.doi.org/10.15585/mmwr.mm6621a3.

Viral load scaling up, but coverage remains incomplete

But most of these absolute numbers from <u>Kenya and SA</u>



[1] Need is estimated using projected ART patient numbers and testing guidelines. Where national guidelines are unknown the WHO's recommendations are used.

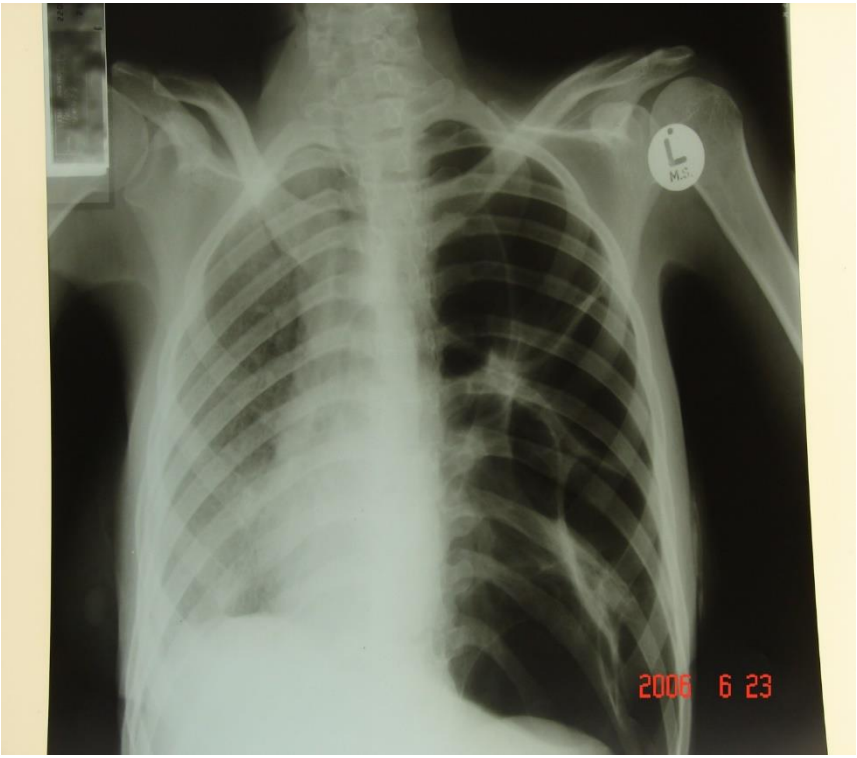
Slide courtesy of Andrew Hill

Viral Load Monitoring in 7 sub-Saharan African countries, January 2015 – June 2016

	Total no. of ART patients		No. of ART patients with ≥1 viral load test		% ART patients with ≥1 viral load test		% viral load tests with viral suppression*		No. CD4 tests		
Country	2015	2016	2015	2016	2015	2016	2015	2016	2014	2015	2016
Côte d'Ivoire	147,947	160,561	15,502	17,114	10	11	78	66	186,159	145,755	177,815
Kenya	860, 297	923,000	650,645	456,756	76	49	83	84	ND	ND	ND
Malawi†	595,186	606,673§	115,971	115,528	19	19	82	89	125,543	75,973	16,164
Namibia	143,805	148,940	130,367	63,732	91	43	87	87	50,091	23,424	8,048
South Africa	3,318,384	3,422,724	2,875,734	3,125,011	87	91	83	83	3,933,588	3,627,960	1,736,211
Tanzania	758,344	769,527	41,289	66,344	5	9	88	72	ND	ND	ND
Uganda	1,066,519	1,213,091	243,099	267,140	23	22	91	92	1,097,691	960,241	341,019

Source: MMWR, 2016

TB…



- **Delays ART initiation**
  - Clinician fear re IRIS
- **TB meningitis**
- **Drug interactions**

Thanks: Braamie Variava

MDR and XDR?

LOTTO
LAST NIGHT'S DRAW
6 7 10 22 30 45 + 23
PAYOUTS & LOTTO PLUS ▸ 2

The Star
with BUSINESSREPORT

THURSDAY SEPTEMBER 14 2006

GET a Wheel of Chance Game Card today and WIN your share of prizes worth R500 000
▸ Page 7 & 11

ISOLATED Doctors tell how they rescued TB timebomb

ON ENTERING THIS UNIT
KINDLY WEAR A MASK OR
KINDLY SIT OUTSIDE WITH
YOUR PATIENT. BE AT LEAST
1 METRE APART FROM
EACH OTHER.
THANK YOU

UMA UNGENA KILELIGUMBI
LE M.D.R. UCELWA UGQOKE
I MASK EMBOZA
AMAKHALANOMLOMO, NOMA
NIHLALE NGAPHANDLE.
SIYABONGA

DANGER: This is the warning sign outside the isolation ward at the Sizwe Tropical Diseases Hospital, where the young woman who was found yesterday is being kept.

PICTURE: THOMAS ZULU NGWABA

BY JILLIAN GREEN AND POLOKO TAU

This is the hospital ward where a young woman infected with a deadly and incurable strain of tuberculosis is in isolation today after being saved from almost certain death.

Yesterday's drama came hours after *The Star* reported that the 30-year-old woman was walking the

The Star
KILLER TB HITS GAUTENG

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

~4 YEAR LAG BETWEEN SCALE UP OF ART AND DECLINE IN MTB INCIDENCE

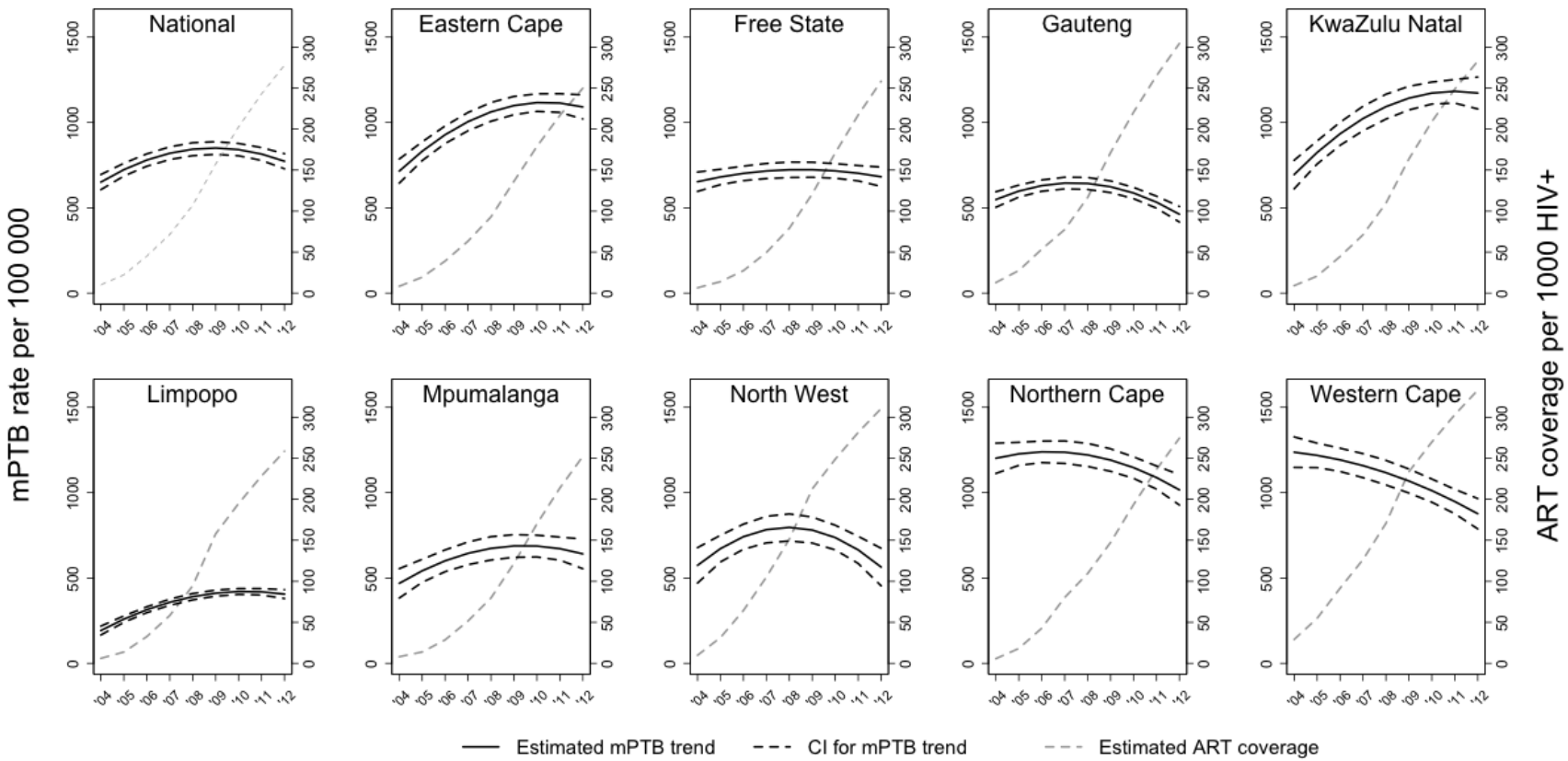


Figure 1: Incidence of microbiologically-confirmed pulmonary tuberculosis (per 100,000 population) and antiretroviral treatment coverage rates in HIV-infected individuals nationally in South Africa nationally and provincially from 2004 to 2012

The solid black line represents the estimated trend in PTB incidence per 100,000 population over the study period and the dotted black line the corresponding 95% confidence interval. The overlaid dotted grey line is the ART coverage per 1000 HIV positive individuals based on data from the ASSA 2008 model.

Nanoo A, Izu A, Ismail, NA, Ihekweazu C, Abubakar I, Mametja D, Madhi SAM. 2015. Nationwide and regional decline in incidence of microbiologically-confirmed pulmonary tuberculosis in South Africa: a time series analysis from 2004 to 2012. The Lancet Infectious Diseases, In press

WHO/African regimens

Tenofovir + XTC + Efavirenz

Failure

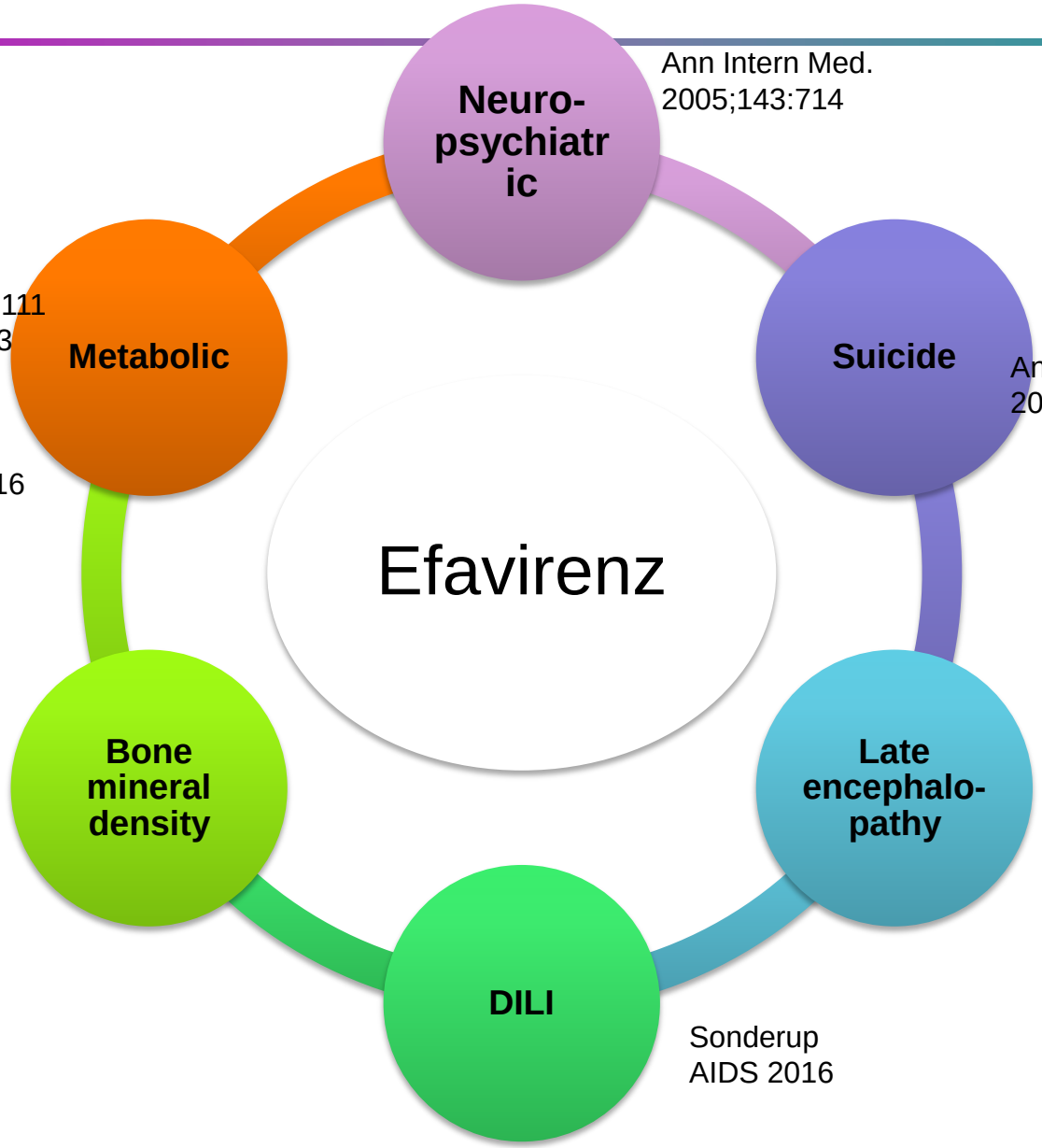
AZT + Lamivudine + PI (lopinavir or atazanavir)

Failure

XTC, other nukes

Darunavir | Dolutegravir | Etravirine

Efavirenz's warts…



Ann Intern Med. 2005;143:714

Ann Intern Med. 2014;161:1-10

Variava JAIDS 2017

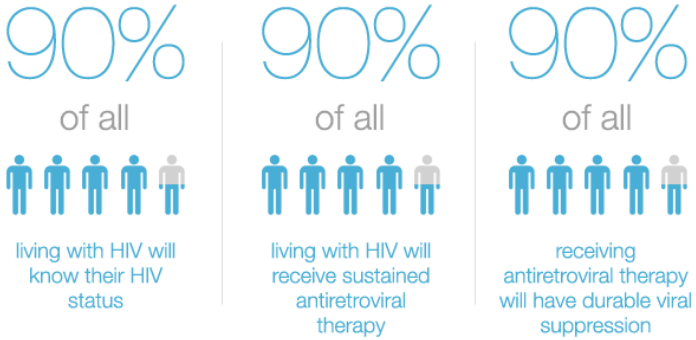
Sonderup AIDS 2016

Dave PLoS ONE 10(12): e0144286.

PLoSMed 2004;1:e19
JAIDS 2012;60:33
Lancet Infect Dis 2012;12:111
Clin Infect Dis 2006;42:273
Lancet 2009; 374: 796
AIDS 2014;28(10):145
JAIDS 2011;57:2841
Karamchand Medicine 2016

“Dolutegravir in first line therapy has by far the highest impact in getting to the last 90 for South Africa”

Professor Gesine Meyer-Rath -Boston University/HE^{2}RO



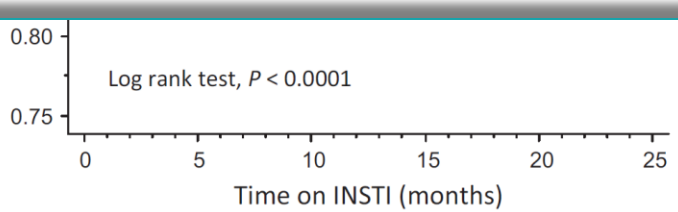
WITS RHI

New drugs in the REAL real world…

Intolerance of dolutegravir-containing combination antiretroviral therapy regimens in real-life clinical practice

AIDS 2016

Mark G.J. de Boer[a], Guido E.L. van den Berk[b], Natasja van Holten[a], Josephine E. Oryszcyn[b], Willemien Dorama[a], Daoud ait Moha[b] and Kees Brinkman[b]



Older age (> 60 years), *vs.* younger age	2.86	1.42–5.77	0.003
ABC with DTG initiated, *vs.* no ABC	2.42	1.38–4.24	0.002
DTG start in 2016, *vs.* in 2014/2015	11.36	4.31–29.41	< 0.0001

ABC, abacavir; CI, confidence interval.

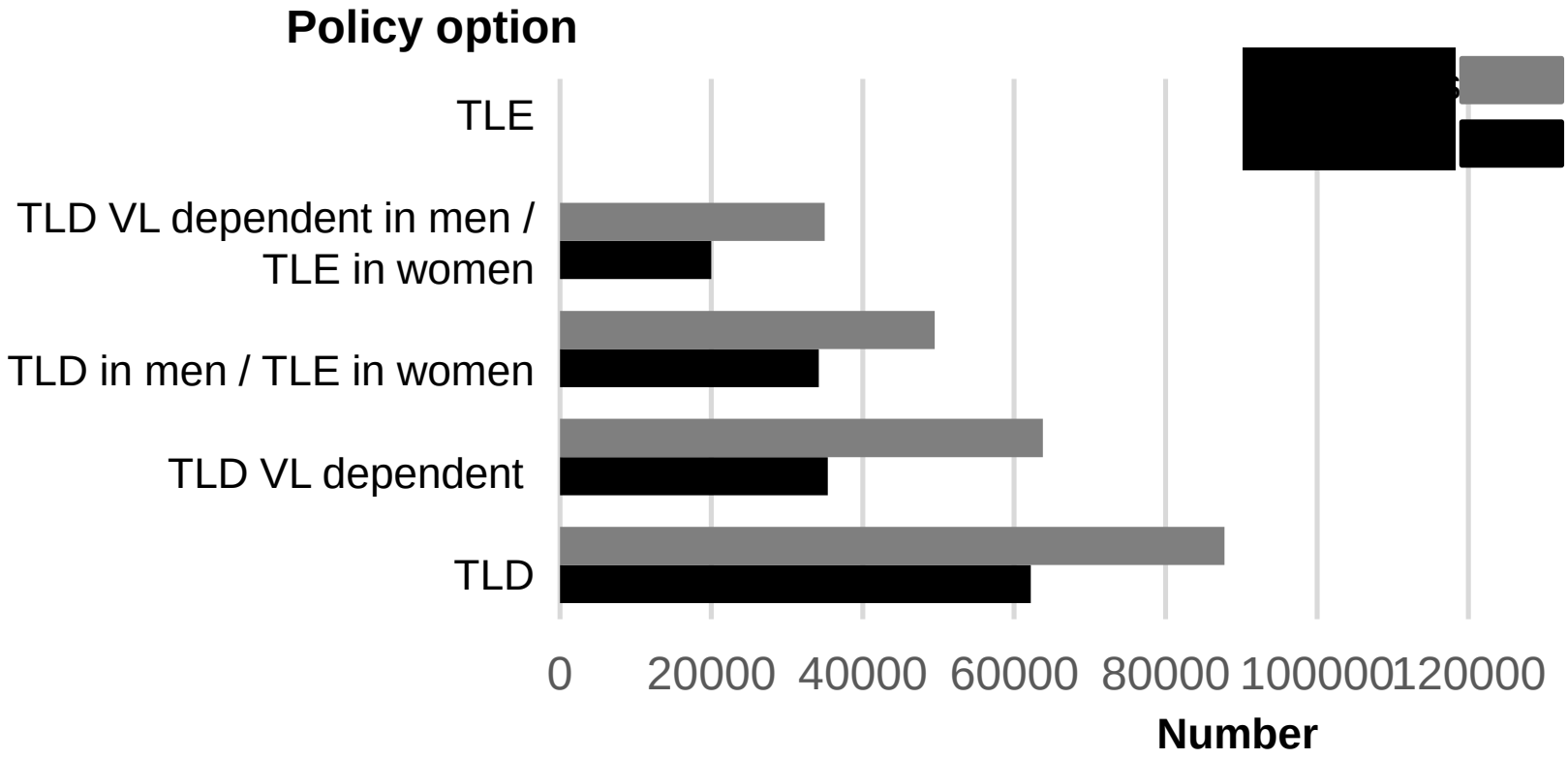
Hoffmann et al. HIV Medicine 2017; Libre et al. CROI 2017 abstract #615; Hsu et al. CROI 2017 abstract #664

Risks and benefits for use of dolutegravir-based antiretroviral drug regimens in sub Saharan Africa: a modelling study

Andrew N Phillips, Francois Venter, Diane Havlir, Anton Pozniak, Daniel Kuritzkes, Annemarie Wensing, Jens D Lundgren, Andrea De Luca, Deenan Pillay, John Mellors, Valentina Cambiano, Loveleen Bansi-Matharu, Fumiyo Nakagawa, Thoko Kalua, Andreas Jahn, Tsitsi Apollo, Owen Mugurungi, Polly Clayden, Ravindra Gupta, Ruanne Barnabas, Paul Revill, Jennifer Cohn, Silvia Bertagnolio, Alexandra Calmy.

Overall health benefit

DALYs and cost-adjusted (net) DALYs averted per year compared with TLE



[redacted]verted

Journal of Virus Eradication 2019; 5: e45–e47 VIEWPOINT

Are new antiretroviral treatments increasing the risks of clinical obesity?

Andrew Hill[1]*, Laura Waters[2] and Anton Pozniak[3]

[1] Department of Translational Medicine, University of Liverpool, UK
[2] Central and North West London NHS Trust, Mortimer Market Centre, London, UK
[3] Chelsea and Westminster Hospital, London, UK; London School of Hygiene and Tropical Medicine, UK

Table 1. Effects of raltegravir, dolutegravir and bictegravir on body weight in randomised trials

Study [ref]	Design	Results
Raltegravir		
NEAT 001 [12] (naïve, *n*=126)	DRV/r+RAL DRV/r + TDF/FTC	DEXA sub-study: trunk fat 7.3% higher DRV/r/RAL *vs* TDF/FTC/RAL at week 96 (*P*=0.021)
ACTG 5260s [10,11] (naïve, *n*=126)	TDF/FTC/RAL TDF/FTC/DRV/r TDF/FTC/ATV/r	Higher risk of severe weight gain for RAL vs ATV/r
Dolutegravir		
NEAT 022 [13] (switch, *n*=415)	NRTIs + DTG NRTIs + PI/r	+1 kg increase in body weight to week 48 (*P*=0.002)
SPRING-1 [13] (naïve, *n*=204)	TDF/FTC/EFV TDF/FTC/DTG	Increases in body weight higher in DTG arms
Gilead 1490 [15] (naïve, *n*=645)	TAF/FTC/DTG TAF/FTC/BIC	+3.9 kg increase in body weight to week 96 +3.5 kg increase in body weight to week 96
MONODO [9] (naïve, *n*=8)	DTG monotherapy	+4.1 kg increase in body weight to week 24

ATV/r; atazanavir/ritonavir; BIC: bictegravir; DRV/r: darunavir/ritonavir; DTG: dolutegravir; FTC: emtricitabine; NRTI: nucleoside reverse transcriptase inhibitors; PI/r: ritonavir-boosted protease inhibitor; RAL: raltegravir; TAF: tenofovir AF; TDF: tenofovir DF.

And demographics very different

BUT! A strong caution…

- **Most patient who interrupt therapy do NOT do so for <u>side effects</u>**
- **Life challenges:**
  - Stockouts, healthcare inaccessibility
  - Depression/anxiety
  - Relationship breakdown
  - Changing/losing jobs
  - Alcohol use
  - Inability to pay
- **Poverty and healthcare access remain a major challenge**

WITS RHI

Why aren't these drugs more widely available in LMICs?

>80% of HIV positive people black, most female; registration usually >80% white, largely male

Not preferred options in WHO guidelines

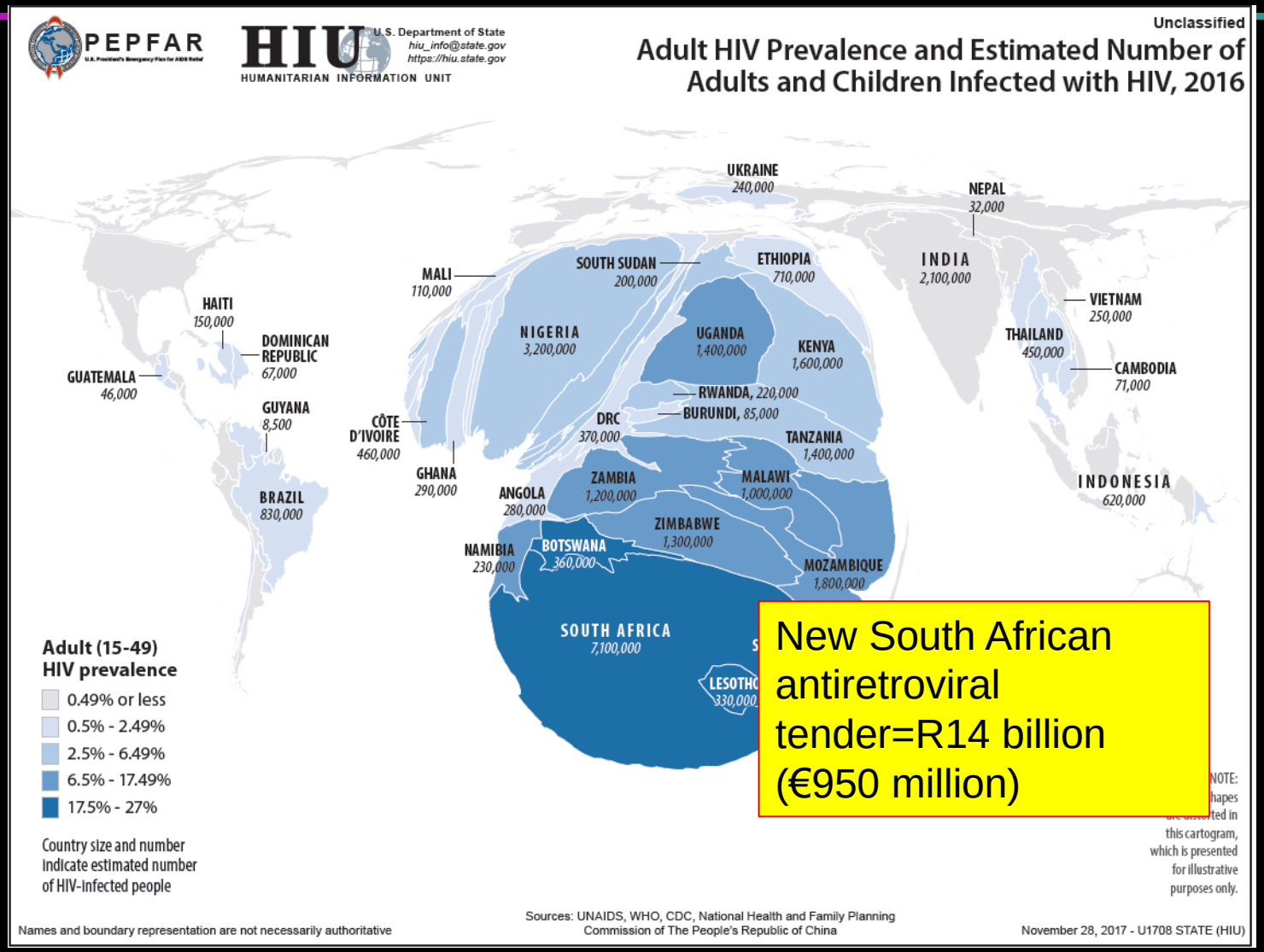
Many drugs are not registered and no co-formulations are available

Limited data on use in TB (almost all new drugs)

Limited data on use in pregnancy (almost all new drugs)

Costs: abacavir, all integrase inhibitors – hope for dolutegravir

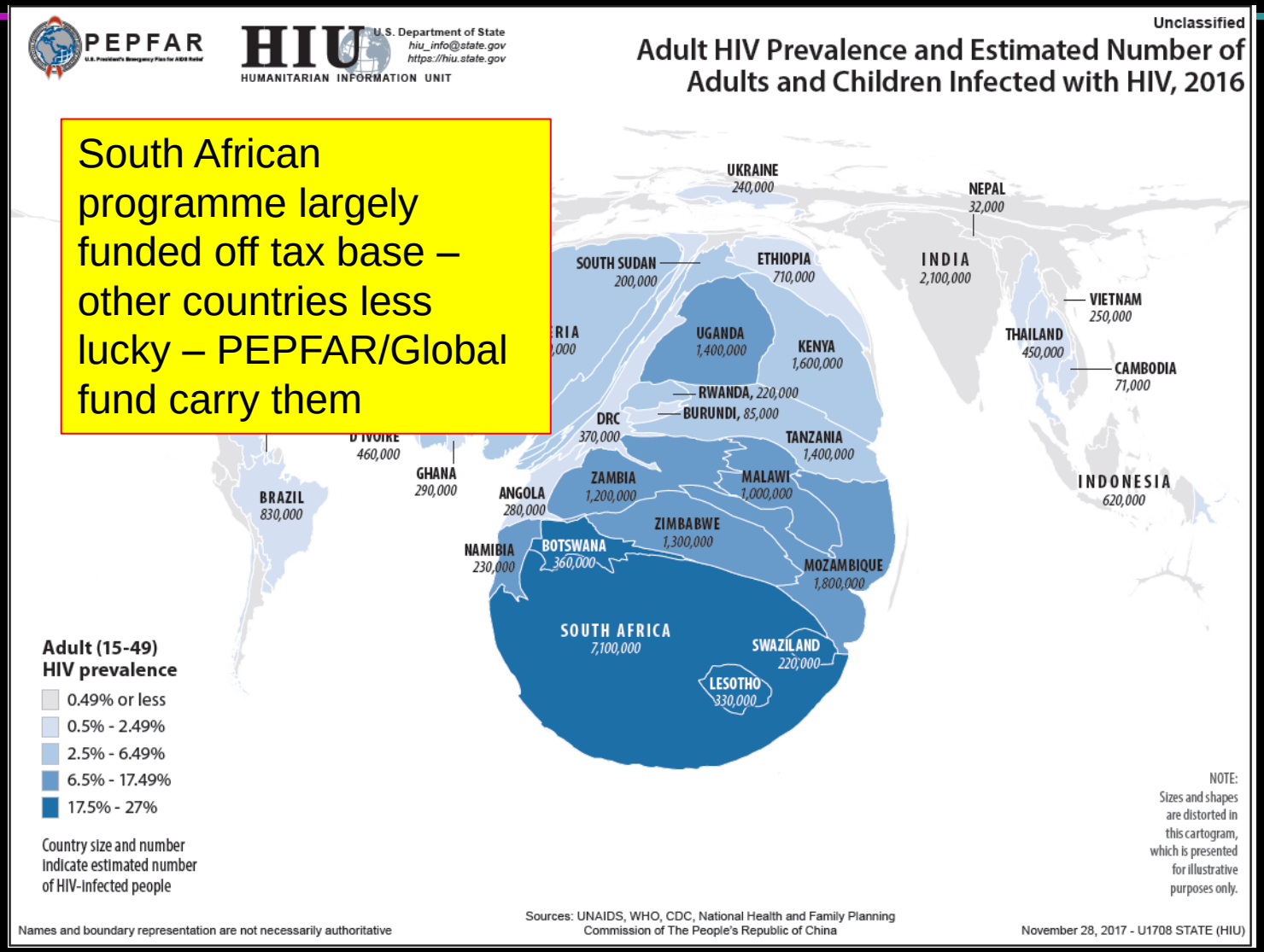
But this costs money!



New South African antiretroviral tender=R14 billion (€950 million)

PEPFAR

But this costs money!



South African programme largely funded off tax base – other countries less lucky – PEPFAR/Global fund carry them

PEPFAR

CLINICAL UPDATE

Cutting the cost of South African antiretroviral therapy using newer, safer drugs

W D F Venter,[1] FCP (SA), MMed; **B Kaiser**,[2] MPH, PharmD, BCPS; **Y Pillay**,[3] PhD; **F Conradie**,[4] MB BCh; **G B Gomez**,[5] PhD; **P Clayden**;[6] **M Matsolo**;[7] **C Amole**,[8] BA; **L Rutter**,[7] BA; **F Abdullah**,[9] M
M Barnhart,[12] MD, MPH; **A Pillay**,[13] PhD; **A Pozniak**,[14] M
M Moorhouse,[1] MB BCh; **M Chersich**,[1] MB BCh, PhD; **C**

[1] *Wits Reproductive Health and HIV Institute, University of t*
[2] *Formerly UNITAID, Geneva, Switzerland*
[3] *HIV/AIDS, TB and Maternal, Child and Women's Health i*

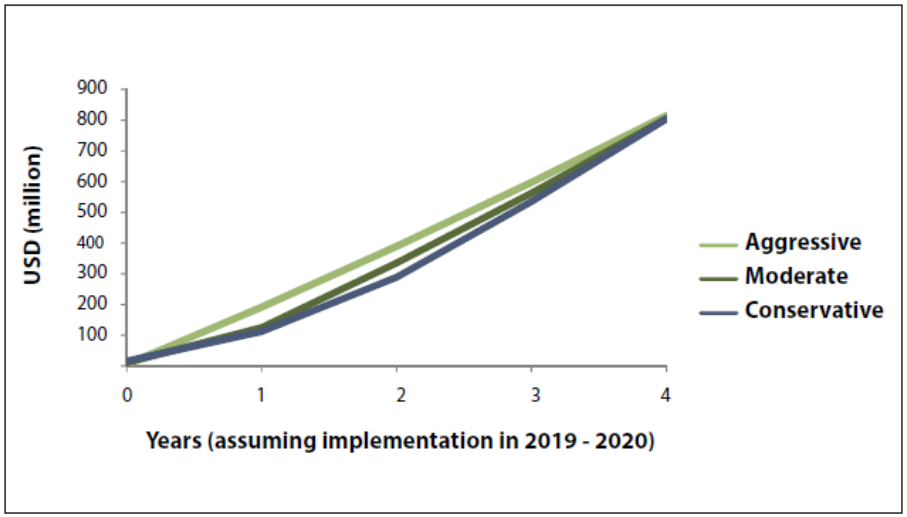
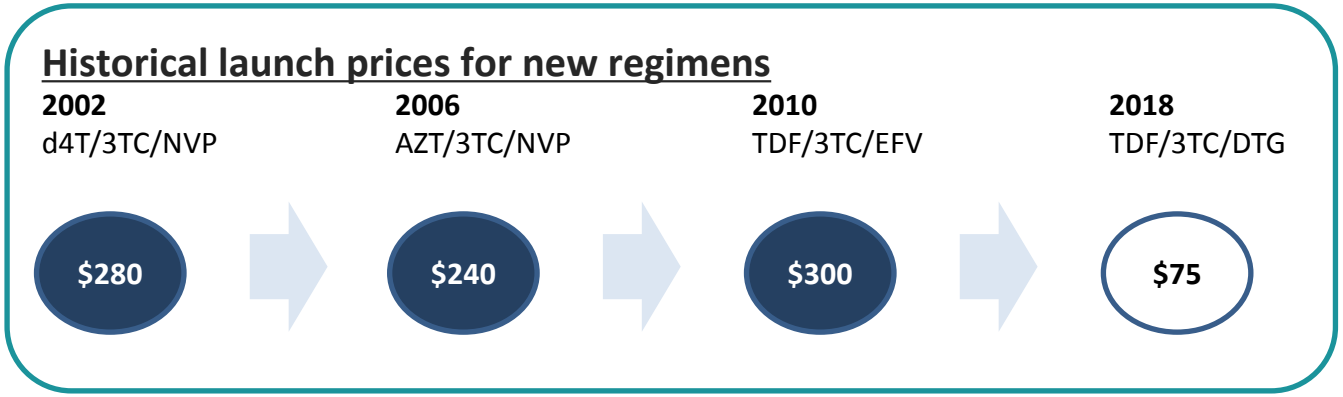


Fig. 2. Estimated crude savings on antiretroviral drugs (assuming implementation of new regimen in 2019 - 2020). Cumulative savings compared with status quo (conservative = 300 000 annually, transition from old regimen to new over 3 years; moderate = new regimen, 400 000 annually, transition over 2 years; aggressive = new regimen, 500 000 annually, transition over 1 year).

Ceiling price agreement announced

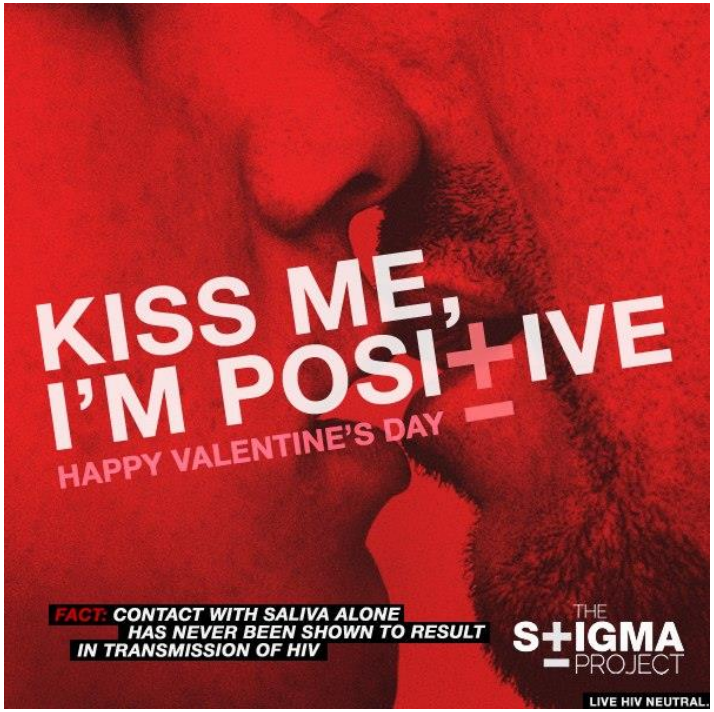
- This ceiling price agreement could yield billions of rand in savings through TLD rollout and enable widespread access to a clinically superior regimen



- The TLD agreement lasts four years: 01 April 2018 – 31 March 2022
- Applies to over 90 countries
- Results of collaboration from many partners: Governments of Kenya and South Africa, the Bill & Melinda Gates Foundation; Clinton Health Access Initiative; Global Fund to Fight AIDS, Tuberculosis and Malaria; President's Emergency Plan for AIDS Relief (PEPFAR); United Kingdom's Department for International Development; Unitaid; UNAIDS; and USAID, with Mylan Laboratories and Aurobindo Pharma.

Treatment is nailed (barring getting it to everyone and ensuring sustainable)

- **What about prevention?**



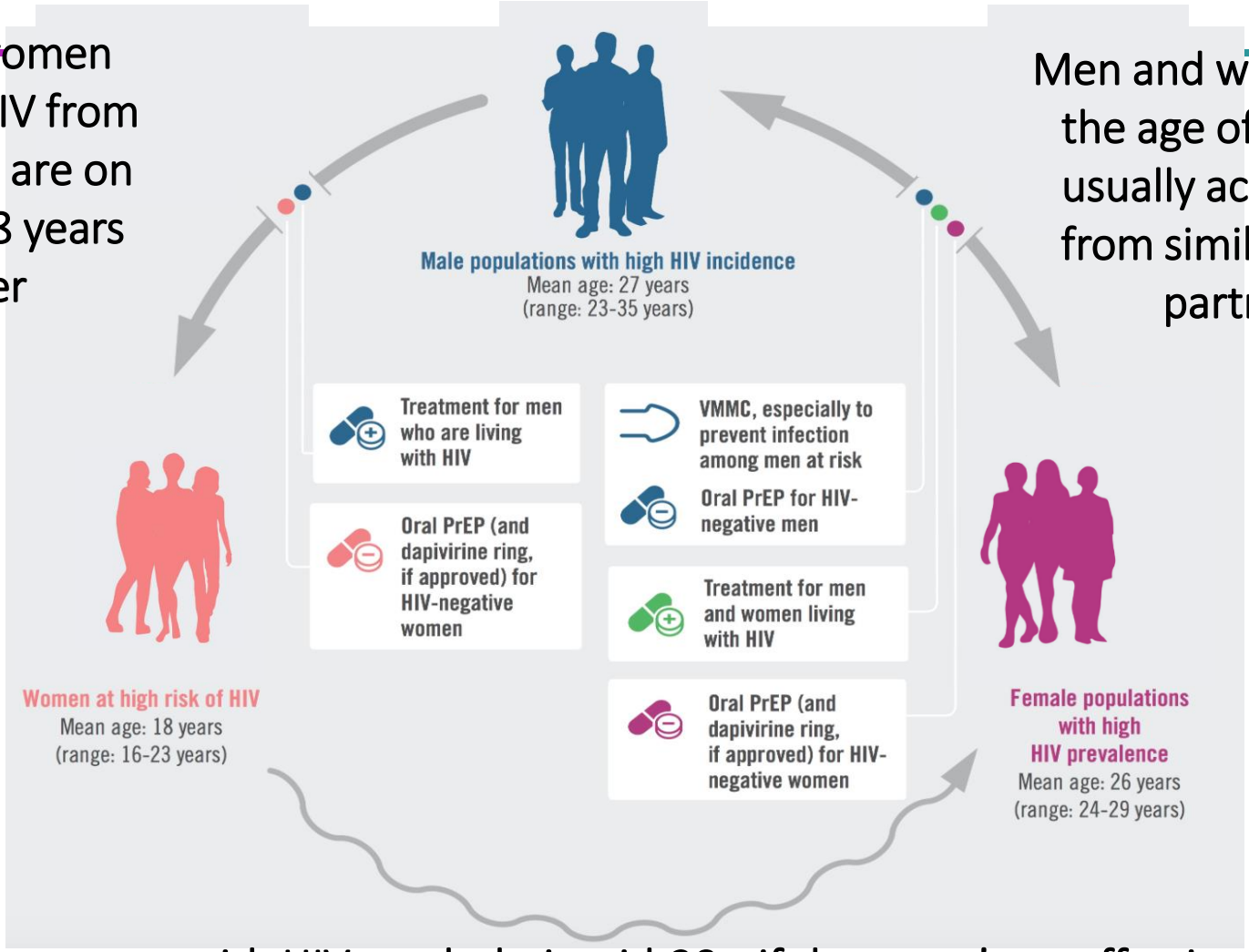
So what do we have in the bag?

- **Test &Treat**
- **Condoms**
- **Male circumcision**
- **Post Exposure Prophylaxis (PEP)**
- **Pre-exposure prophylaxis (PrEP)**
- **Male circumcision**
- **(New microbicides)**
- **(Vaccines)**
- **(behavioural change)**

Breaking the Cycle of Heterosexual Transmission

~~Young~~ women acquire HIV from men who are on average 8 years older

Men and women over the age of 24 years usually acquire HIV from similarly aged partners



When teen women with HIV reach their mid-20s, if they aren't on effective ART, then they may transmit to partners of the same age—and vice versa

Adapted from: Dellar R, Tanser F, Abdool Karim Q, et al. Manuscript in preparation. / Abdool Karim Q. *HIV infection in young women in Africa: An overview.* Presentation at AIDS 2016. *http://programme.aids2016.org/Programme/Session/1257.*

http://www.avac.org/infographic/breaking-cycle-heterosexual-transmission

GUIDELINES

Southern African guidelines for the safe use of pre-exposure prophylaxis in men who have sex with men who are at risk for HIV infection

GUIDANCE ON PRE-EXPOSURE ORAL PROPHYLAXIS (PrEP) FOR SERODISCORDANT COUPLES, MEN AND TRANSGENDER WOMEN WHO HAVE SEX WITH MEN AT HIGH RISK OF HIV:
Recommendations for use in the context of demonstration projects

July 2012

World Health Organization

GUIDELINE ON WHEN TO START ANTIRETROVIRAL THERAPY AND ON PRE-EXPOSURE PROPHYLAXIS FOR HIV

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES - 2014

What are the big challenges to Africa HIV in 2019?

- Prevention, prevention, prevention
- TB
- Late presentation
- Dealing with the health systems failures that stop adherence
- Information tracking
- Public health priority setting
- Continuing to fund an ever-enlarging programme

Thank you

USAID FROM THE AMERICAN PEOPLE

SOUTH AFRICANS AND AMERICANS IN PARTNERSHIP TO FIGHT HIV/AIDS
PEPFAR

Unitaid

saMRC advancing life

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