

# **The business case for workplace HIV programmes**

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# HIV and business in South Africa

- Large public sector HIV programme (>3.5 million on ART), 80% publicly funded
- First workplace HIV programme started in 2002
- By now, many companies have HIV care and treatment programmes (KAP studies; HCT; some ART)
- Review of HIV programmes in South Africa:  
“Treatment of HIV-positive employees is a good investment for many large companies. Small companies have less capacity to respond to workforce illness and little concern about it.” (Rosen 2007)

# Impact of HIV on business

- HIV disease increases rates of absenteeism, labour force turnover, and costs of operations in sub-Saharan Africa
- Cost of HIV varies by industry, prevalence and skill levels
- Study amongst Kenyan tea pluckers: **18% decrease in earnings** in the year before termination amongst HIV-positive workers (Fox 2004 Kenya)
- **Cost of HIV** estimated as
  - **0.4% to 5.9% of the annual wage bill** (Rosen 2003, “*AIDS is Your Business*”, Rosen 2004; South Africa)
  - **0.6%–10.8% increase in labour costs** (Rosen 2004, sub-Saharan Africa)
  - **0.7% of wages** (Greener 1997; Botswana)
  - **1% of labour cost** (Feeley 2004; Uganda)
  - **1%–9% of profits** (FHI 1995; sub-Saharan Africa)

# Why should business care?

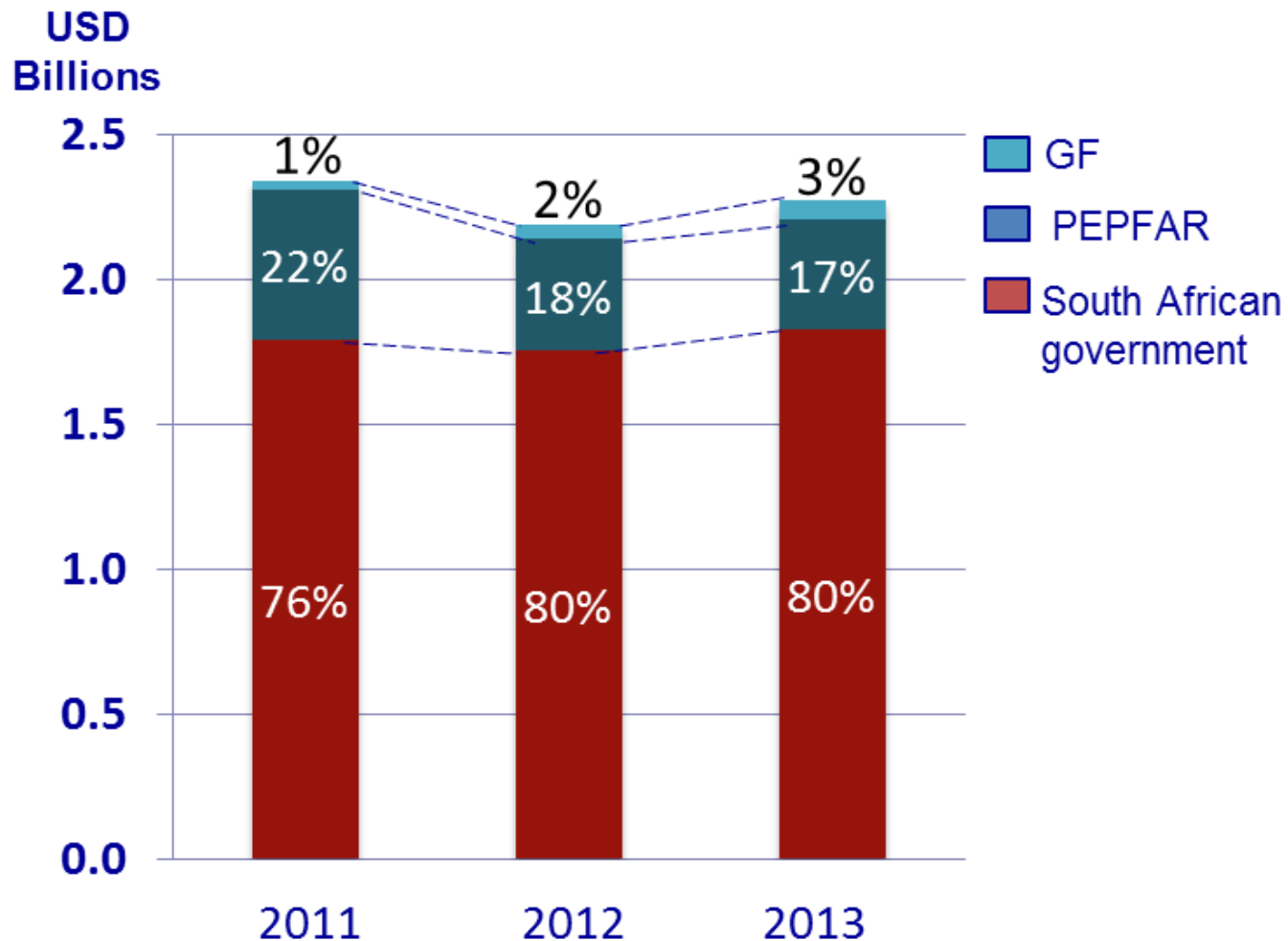
- 18.8% of working age adults (15–49 y old) are HIV positive (HSRC 2014)
    - Workforce HIV prevalence in a non-representative sample averaged 11% in 2002 (Evian 2004)
    - Estimates vary over time and between industries (Rosen 2007)
  - Currently, most employees on ART in the public sector → positive externalities for companies
1. **Alternatives to public-sector funding urgently needed**
  2. Public-sector programme reaches twice as many women as men; **workplace programme have higher coverage of men**
  3. Company-level HIV care programmes could **improve strained labour relations**, especially when extended to the entire community
  4. **Workplace ART provision is cost saving to companies**

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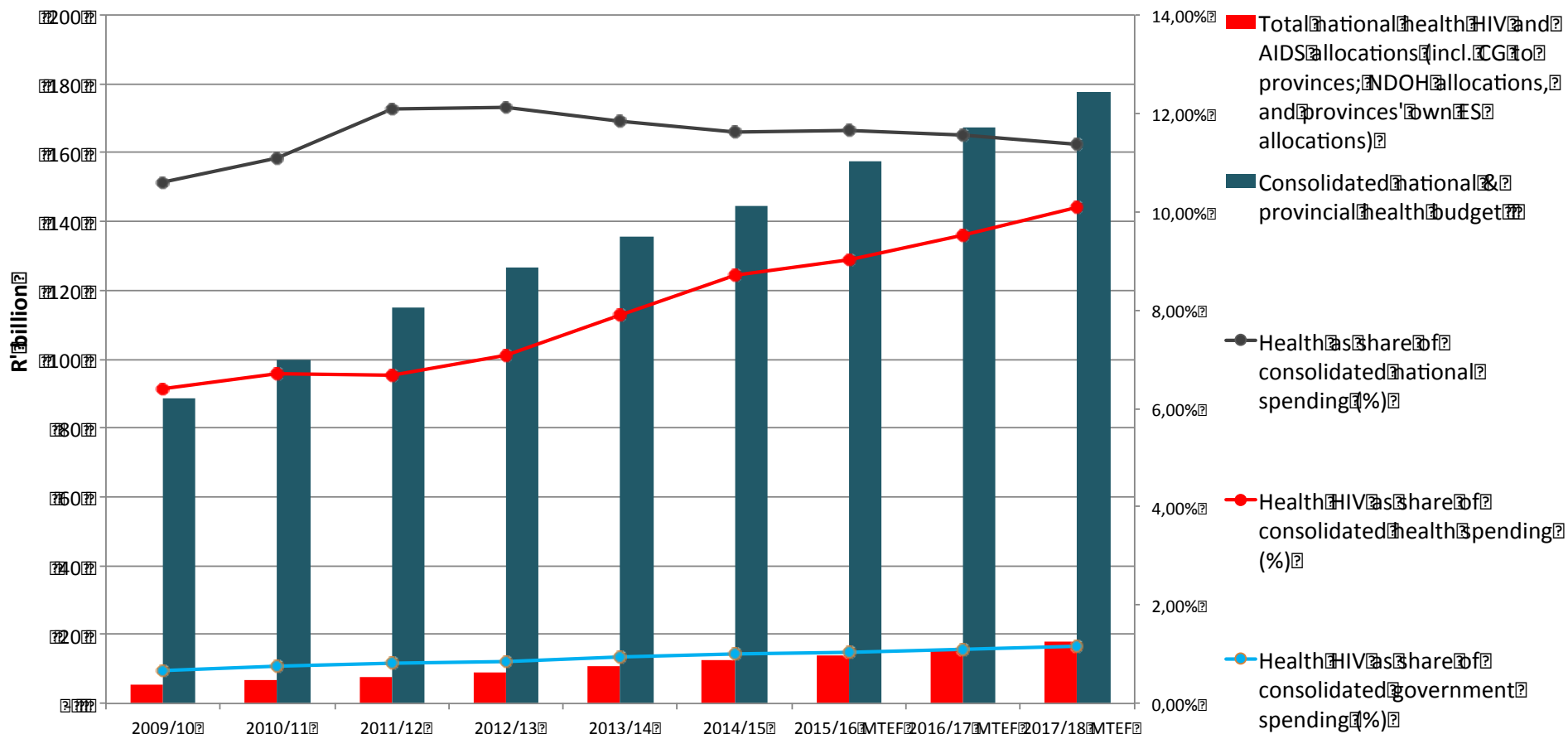
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**Alternatives to public-sector funding  
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# The South African government contributes the majority of funding for the country's HIV and TB programmes...



# ...and funding for HIV has grown substantially over the last 6 years.



- **Health expenditure** has grown in total terms (R140 billion in 2014/15), but has decreased as % of total budget since 2010/11 (**11% in 2014/15**)
- **HIV expenditure** is steadily increasing, both in total terms and as a % of the health budget (**9% in 2014/15**)
- HIV expenditure as a % of the total budget is below 2%



# The best buys for the public sector programme: The HIV Investment Case

## Key analytical questions

1. How much does it cost to fund the current HIV programme in the medium/long term?

*(Baseline scenario)*

1. What is the optimal mix of interventions in terms of allocative efficiency? *(Constrained and unconstrained optimisation)*

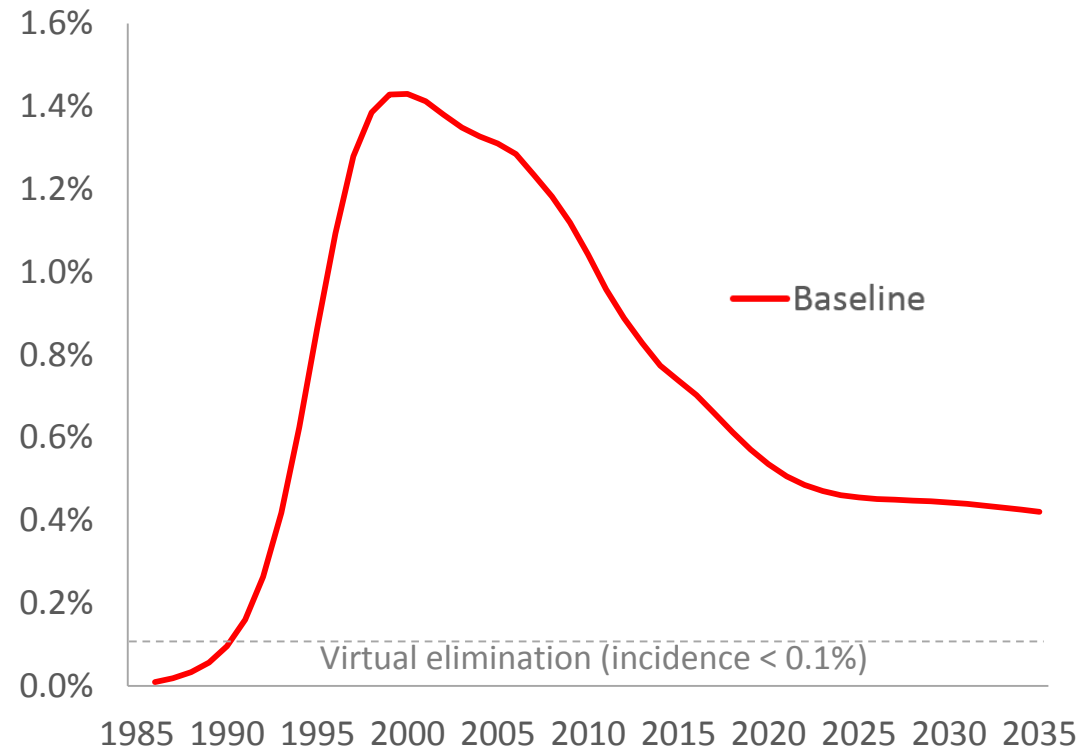
# Methods

- **Gathered evidence** through stakeholder consultation and working groups and reviewed for effectiveness
  - **16 HIV interventions** with proven effectiveness
  - **5 technical efficiency factors/ enablers** with proven effectiveness and acceptable cost effectiveness
- **Modelled the cost and epidemiological impact** of each intervention *on the entire HIV programme* and assessed cost per life year saved over 20 years
- **Ranked interventions by cost-effectiveness using a novel optimisation technique** that iteratively added the most cost-effective intervention onto a rolling baseline
- **Compared different scenarios** for epidemiological impact, cost effectiveness, and affordability against baseline

# HIV results: Optimisation

Intervention	ICER (USD/LYS)
Condom availability	Cost saving
Male medical circumcision	Cost saving
ART at current guidelines	84
PMTCT <b>Constrained optimisation</b>	103
Universal treatment	187
Infant testing at 6 weeks	193
SBCC campaign 1 (HCT, reduction in MSP)	547
SBCC campaign 2 (condoms)	872
General population HCT	932
SBCC campaign 3 (condoms, HCT, MMC)	1,374
HCT for sex workers	2,004
Infant testing at birth <b>Unconstrained optimisation</b>	2,207
PrEP for sex workers <b>Unconstrained optimisation</b>	7,476
HCT for adolescents	15,307
PrEP for young women	19,993
Early infant male circumcision	68,969,435

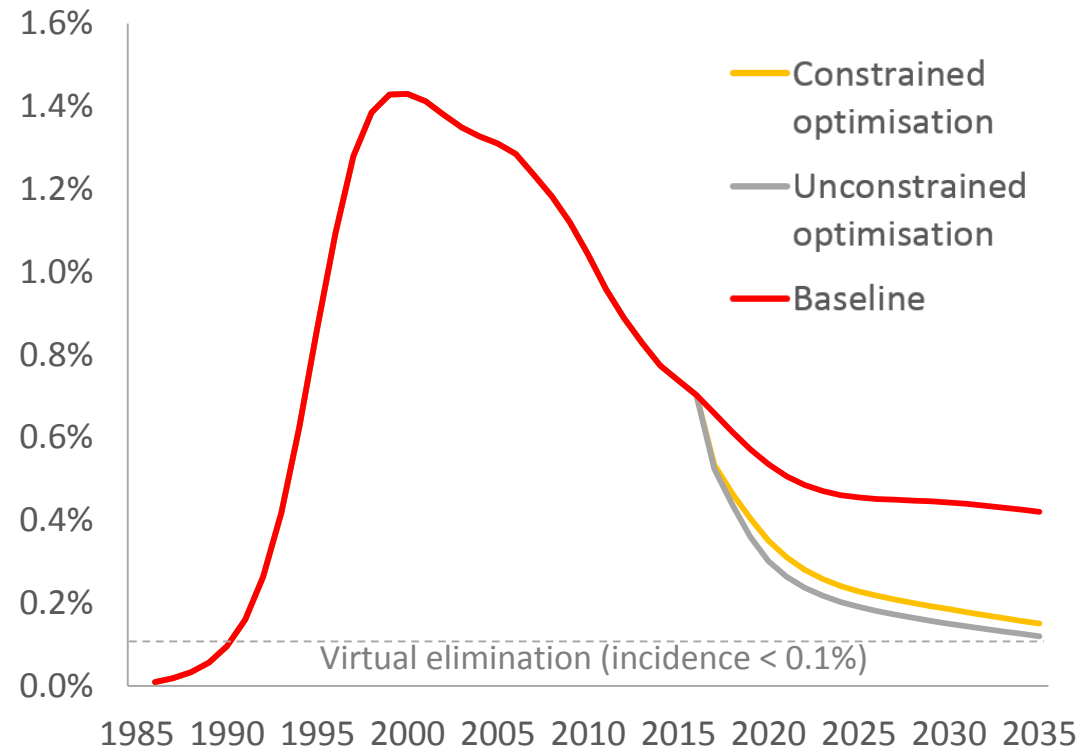
## HIV incidence



# HIV results: Optimisation

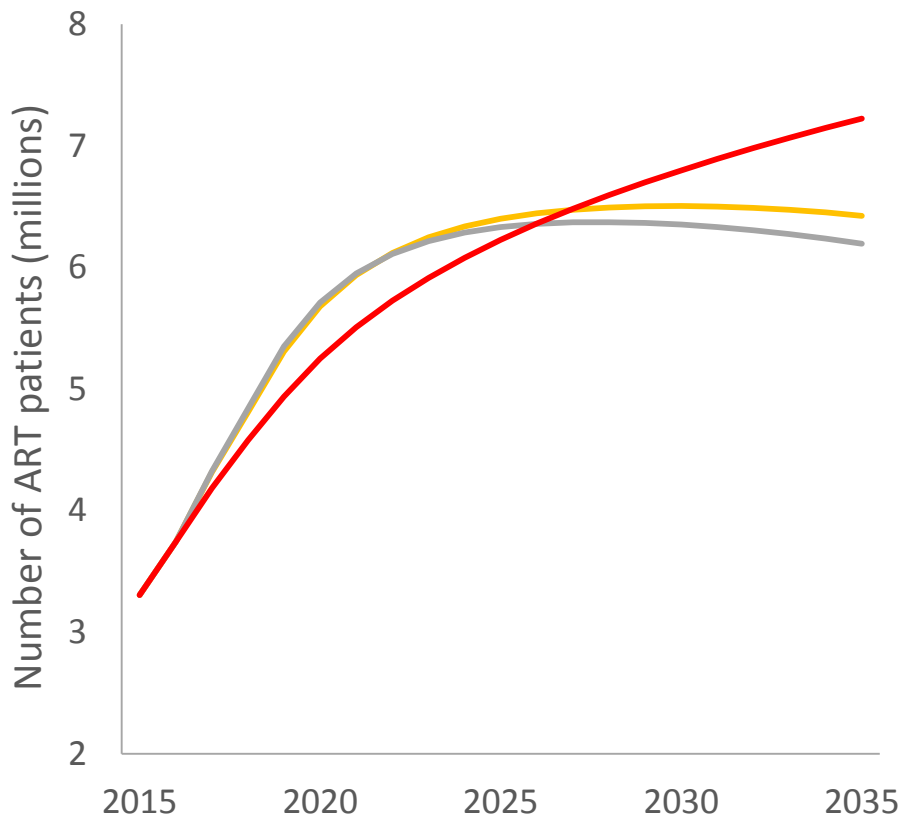
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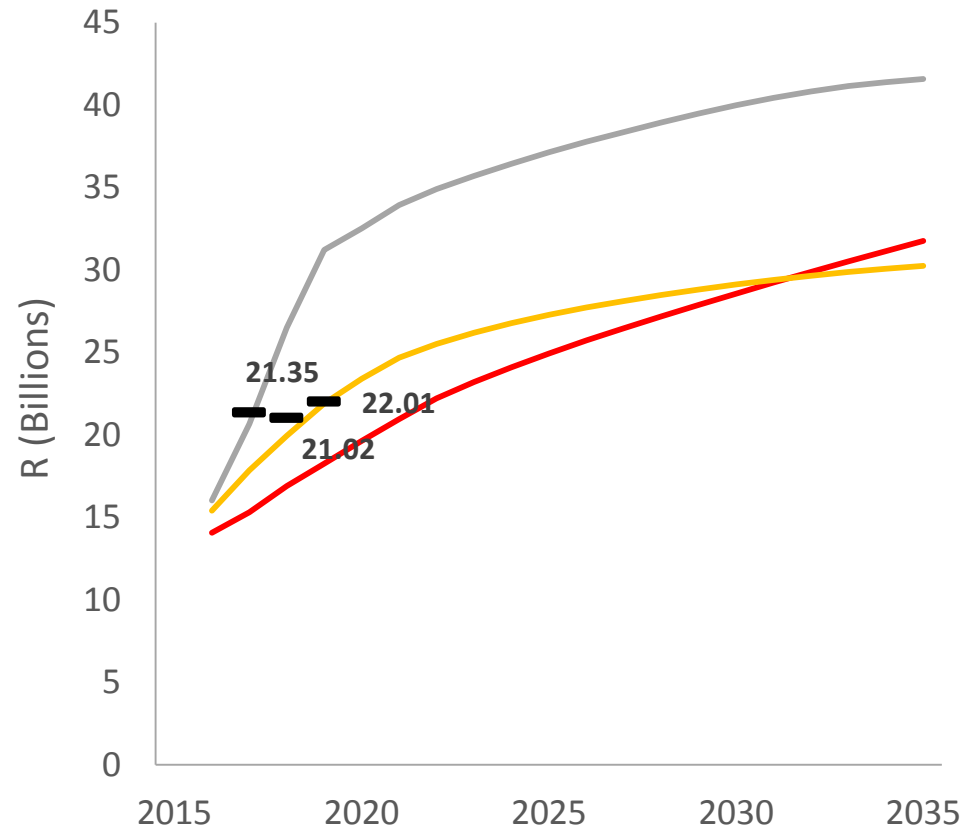


# HIV results: Costs

## Number of ART patients (millions)



## Total cost of HIV programme



— Baseline — Constrained optimisation — Unconstrained optimisation — Budget constraint

**Workplace ART provision is cost saving to companies**

# Cost-benefit analysis of ART programme at South African mining company

RESEARCH ARTICLE

## The Impact of Company-Level ART Provision to a Mining Workforce in South Africa: A Cost–Benefit Analysis

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# The workplace under study

- Coal mining company operating at two different mines north of Johannesburg
- Antiretroviral treatment (ART) programme started in 2003, eligibility at  $<350$  CD4 cells/ microlitre
- All HIV care takes place in outpatient clinics and hospitals on the mining premises → unusually complete data
- HIV incidence 1 to 2 per 100 person years in workforce, prevalence  $\sim 13\%$
- HCT coverage  $>85\%$  from 2007
- ART coverage of those eligible ( $CD4 < 350$ ) 74% from 2012



# Objective of study

- Analyse the **cost benefit of the company's ART programme compared to no ART** over 20 years from programme start in 2003
  - **ART at CD4 <350 cells/microl**
  - **Universal test and treat**
  - **Family treatment**
- **Employer's perspective**
- **Consider cost of HIV to company with and without ART**
  - **Cost of ART programme**
  - **Inpatient days and outpatient visits**
  - **Absenteeism** – salary costs lost
  - **Cost of replacing employees (benefit payments; training and recruitment)**

# Inputs from workforce data

	CD4 cell count [cells/microl]				
	>350	200-350	100-199	50-99	<50
<b>1. Absenteeism per year</b>					
<i>a) Patients not on ART</i>					
- Days absent	18	15	24	39	55
<i>b) Patients on ART</i>					
- Days absent	11	13	16	23	55
<b>2. Decrements per year</b>					
- Death	3%	5%	9%	25%	67%
- Disability	1%	2%	2%	3%	14%
- Other	7%	8%	9%	9%	13%

- Absent days reduce by 13-39% when on ART
- Mortality is by far highest in lowest CD4 category

# Inputs from workforce data

	CD4 cell count [cells/microl]				
	>350	200-350	100-199	50-99	<50
<b>3. Healthcare costs per year [2010 USD]</b>					
<i>a) Patients not on ART</i>					
- Inpatient care	335	425	557	1,832	1,153
- Outpatient care	164	152	157	129	250
<i>b) Patients on ART</i>					
- Inpatient care	222	133	219	303	1,166
- Outpatient care	122	124	120	124	147
- ART			1,826		

- Inpatient costs reduce by 34-83% on ART (except when CD4 <50), outpatient cost by 4-41%
- Cost is highest in lowest CD4 category

# Findings

- Without ART, HIV costs \$296 million for ~1000 HIV+ employees over 20 years; \$15 million per year (average); \$13,271 per employee/ yr
- **With ART,**
  - **absent days** are **8% less**
  - **deaths** due to HIV are **16% less**
  - total number of **HIV+ve life years in employment** are **8% more**
  - **total and annual cost** of HIV is **6% less**
  - **the company saves \$1 million per year on average**
  - **average annual cost** per HIV positive employee is **9% less**
- **Cost savings accrue from first year of ART on and at the lowest coverage levels,** as each employee on ART saves absenteeism, healthcare, and turnover costs that are greater than the per employee cost of ART.

# Findings

- In sensitivity analysis, **ART remains cost saving even if**
  - Absenteeism reduced by 50%
  - Same ART outcomes and cost as public sector
  - In- or outpatient cost +/-50%
  - Benefit payments: 1 or 2 annual salaries paid
  - HIV-dependent separation rates +/-20%
  - HIV incidence +/-50%
  - HIV incidence to 0.0001 and lower prevalence in starting population and recruits
  - **Universal test and treat and Family treatment scenarios**
- Only not cost saving if
  - same absenteeism on ART as not on ART
  - no benefits paid out

# Findings

Annual cost and savings (in millions USD)	Without ART	With ART	% change	% of total savings
Healthcare costs (in-& outpatient)	3.6	3.0	15%	27%
Absenteeism	2.2	1.9	11%	12%
Training and Recruitment	1.2	1.0	15%	9%
Benefits	7.8	6.8	13%	52%
ART programme cost	-	1.1	-	-
<b>Total cost</b>	<b>14.8</b>	<b>13.9</b>	<b>14%</b>	

- **Benefits payments** and **absenteeism costs** make up 59% of HIV costs without ART
- **ART** only makes up 7% of costs of ART scenario
- Savings under ART are mainly due to reductions in **benefit payments** (52% of total savings) and **inpatient costs** (27%)
  - The cost of both items is reduced by 13-19% under ART

# Conclusions

- Scaling up ART provision to workforce can **reduce the total cost** of HIV-positive employees, while **increasing their survival**
- Savings are in large parts due to a **reduction in benefit and inpatient costs**
- **ART is cost saving even in low incidence settings**, as long as HIV leads to *some* absenteeism and *some* health benefits are paid
- Workplace-based provision of ART could be an **economically viable alternative to scaling up public-sector programmes**