



Institute  
and Faculty  
of Actuaries

## Products for HIV+ individuals in South Africa

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### Introduction

- During the 1980's HIV and AIDS became an internationally recognised disease
- Insurance industries all over the world had to react to ensure sustainable profitable growth
- The South African insurance industry continually needed to adapt to keep up with the progress of the epidemic and resultant social changes
- This presentation will consider **mortality** products offered to HIV+ lives and how this has changed over time

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## Agenda

### Setting the scene

- Medical terminology
- History of the disease
- Treatment
- Progression of the disease in South Africa

### HIV and the South African Insurance Industry

- HIV Testing in insurance
- Evolution of insurance products
- Insurance products for HIV+ lives
- Pricing and reserving for HIV

### Conclusion

- Concluding remarks
- Questions and comments

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## Setting the scene Medical terminology

### CD4 Count

**Measure of how HIV has affected immune system**

- Number of CD4 cells in the blood stream
- Reduces as the disease progresses
- Used to determine when to start anti-retroviral treatment

### Viral Load

**Measure of how the virus has infected the body**

- Amount of virus in the blood stream
- Increases as disease progresses
- Used to measure effectiveness of anti-retroviral treatment

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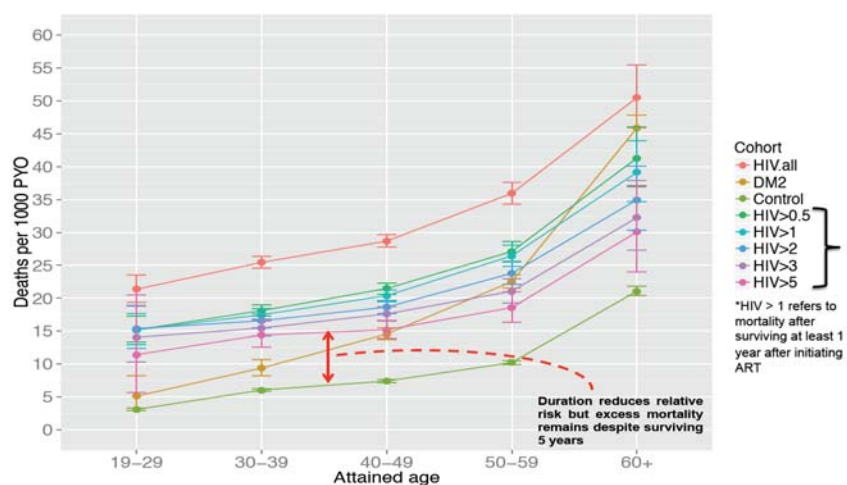
## Setting the scene Treatment

- HIV is incurable, but can be managed by Antiretroviral Therapy (ART)
- ART manages the condition by
  - Suppressing the virus (reduce viral load)
  - Maintaining function of the immune system (increase CD4 count)
- If treated appropriately, life expectancy of those with HIV can be improved to levels of a manageable chronic condition
- Key elements that determine life expectancy are
  - Stage of disease when therapy starts
  - Time since starting therapy
  - Adherence to therapy

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## Setting the scene Treatment – ART duration



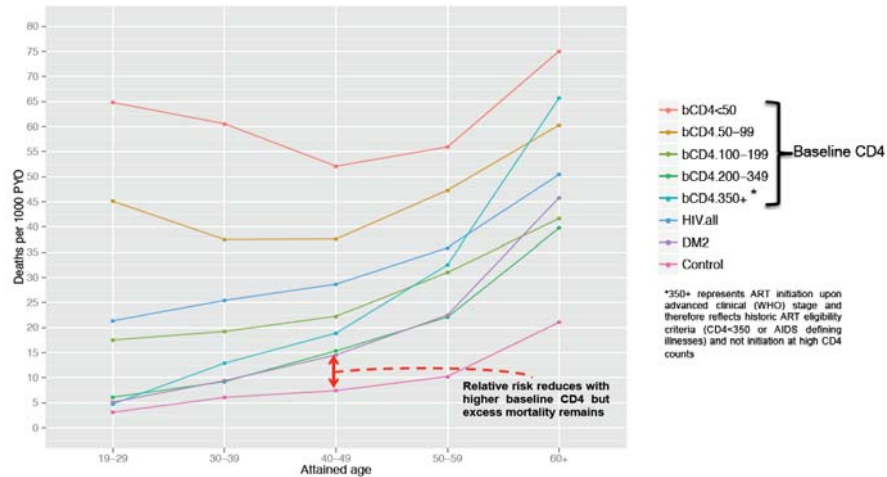
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Lee Sarkin, Dr. Rory Leisegang, et al. Insurability and Survival of Lives Living with HIV and Other Chronic Disease. Presentation at the International Congress of Actuaries 2014, Washington DC

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## Setting the scene

### Treatment – Baseline CD4



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Lee Sarkin, Dr. Rory Laisegang, et al. Insurability and Survival of Lives Living with HIV and Other Chronic Disease. Presentation at the International Congress of Actuaries 2014, Washington DC

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## Setting the scene

### History of the disease

1950's	First cases of HIV identified in Congo	
1980's	HIV/AIDS becomes a recognised disease	
1990's	Many third world countries	Most first world countries
	Rapid increase in prevalence	Moderate increase in prevalence
	Limited availability of treatment	ART readily available
	Low awareness	High awareness
2000's	ART becomes more readily available	Disease remains well controlled and latest treatments readily available
	Awareness increases	

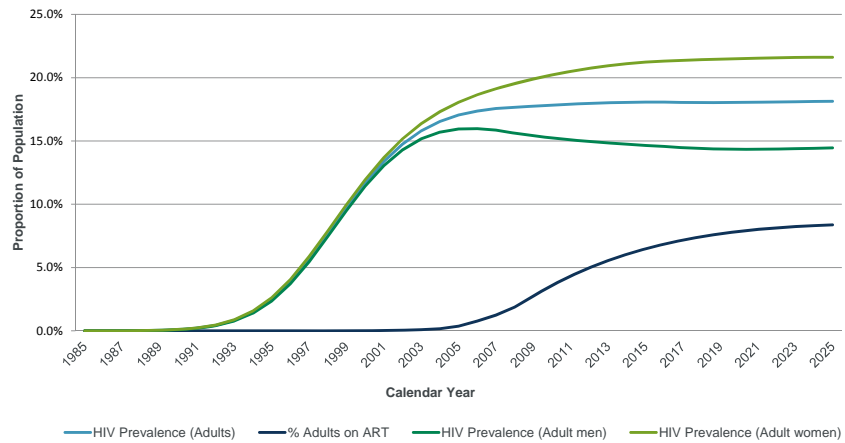
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## Setting the scene

### Progression of epidemic in South Africa

HIV Prevalence and Treatment



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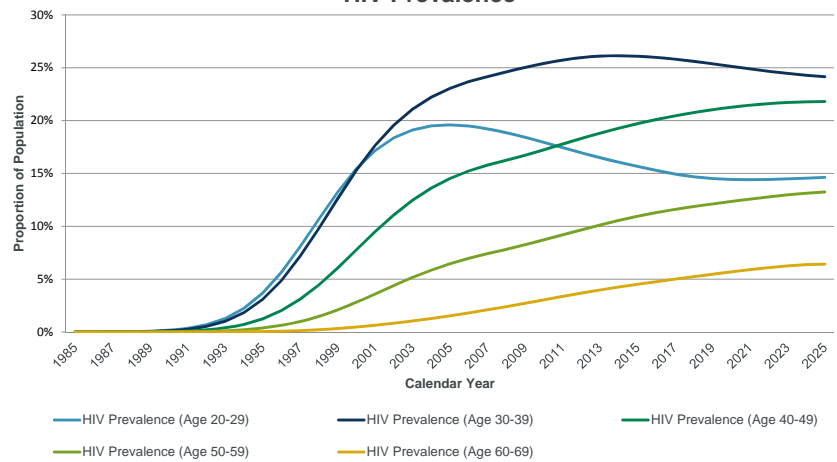
ASSA AIDS Model 2008

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## Setting the scene

### Progression of epidemic in South Africa

HIV Prevalence



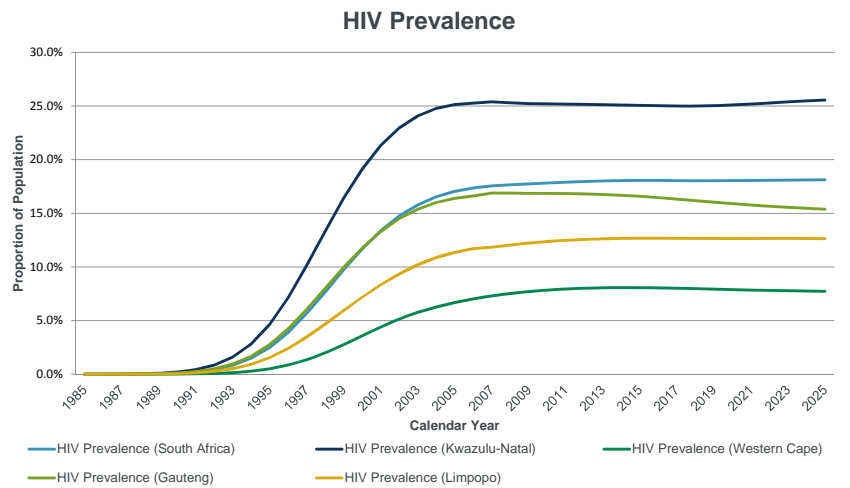
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ASSA AIDS Model 2008

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## Setting the scene

### Progression of epidemic in South Africa



## The South African insurance industry

### HIV testing in insurance

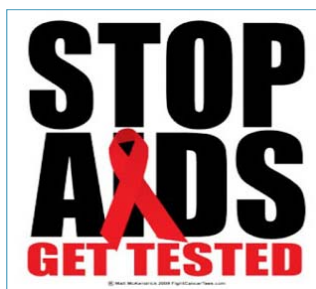
- An HIV test is compulsory when applying for traditional life cover
- However, HIV testing causes strain for insurers

Strain	Explanation
Reduced take-up	<ul style="list-style-type: none"> <li>• Stigma</li> <li>• Inconvenience of / delays caused by test</li> </ul>
Increased acquisition costs	<ul style="list-style-type: none"> <li>• Direct costs of test and nurse (~50% of annual premium)</li> <li>• Indirect costs</li> </ul>
Reputational risks	<ul style="list-style-type: none"> <li>• False negatives/positives</li> <li>• Ethical concerns</li> </ul>

*Mitigated by industry body protocol*

## The South African insurance industry HIV testing in insurance

- In recent years there has been a sharp increase in awareness and opportunities for HIV tests
  - Asymmetry of information
  - Alternative sources of HIV status

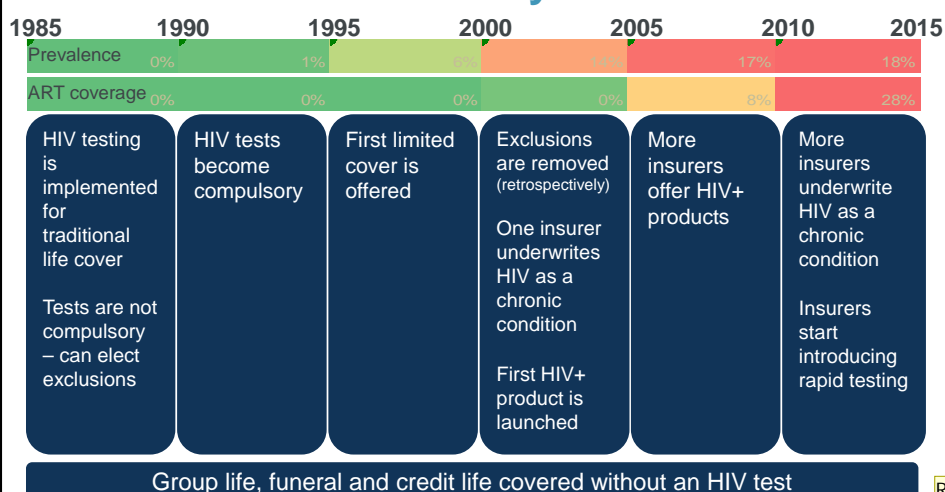


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Brothers for Life; One Campaign

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## The South African insurance industry Evolution of the industry



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## Slide 14

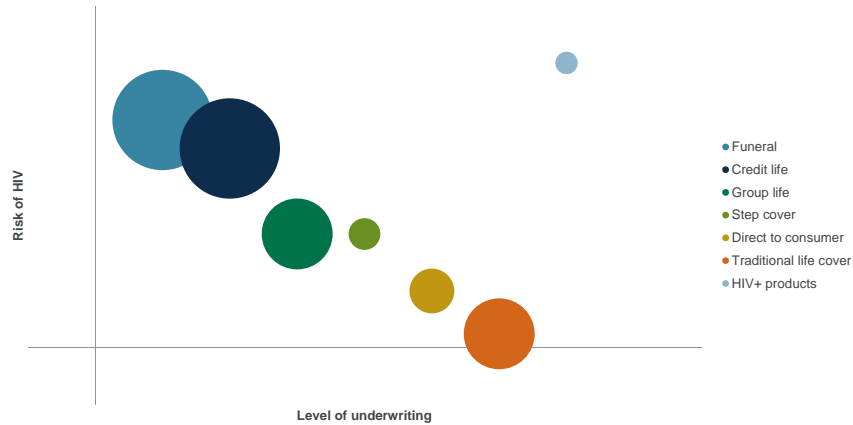
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**RE12** We should try and make the %s the same colour as the text (or just darker)  
Rossouw Etienne, 03/10/2014



## The South African insurance industry Products for HIV+ lives

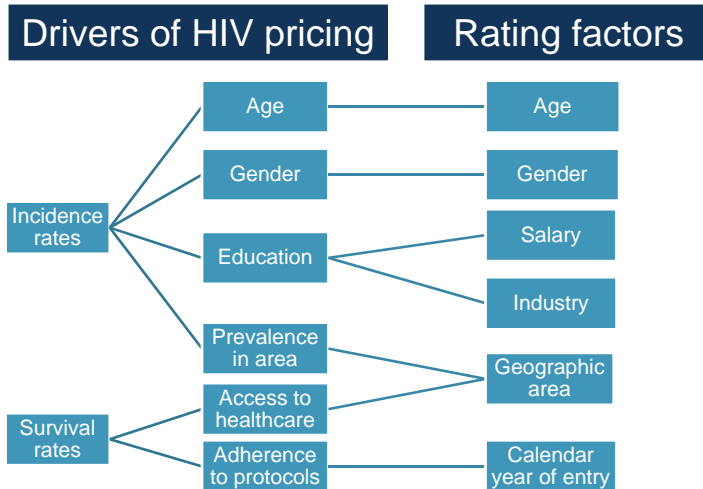
Risk of HIV vs. Level of underwriting



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## The South African insurance industry Rating factors



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## Products for HIV+ lives Funeral

### Product details

- Small sums assured (<£2k)
- Cover could be extended to immediate and extended family
- Rates may be age-banded and/or unisex

### Underwriting

- Automatic acceptance
- **No HIV testing**
- Moratorium periods common
- Possible pre-ex clauses

### Target market

- Lower income, typically less than £300 salary per month
- Add-on to other products (e.g. group cover)

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## Products for HIV+ lives Group life

### Product details

- Sum assured, linked to salary, payable on death of employee

### Underwriting

- Cover mostly compulsory
- Guaranteed acceptance
- **No HIV testing**, except for high sums assured
- Must be employed and actively at work

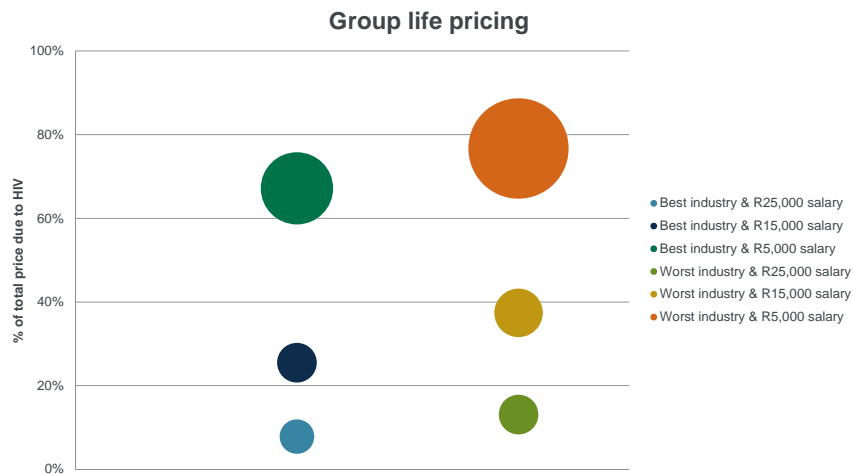
### Target market

- Employed population

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## Rating factors Group life example



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## Products for HIV+ lives Credit life

### Product details

- Covers outstanding loan at time of death (or disability, CI, unemployment, etc.)
- Attached to some form of credit being provided
- Often no rate differentiation by gender or age

### Underwriting

- Cover mostly compulsory
- **No HIV testing**
- Possible pre-ex clauses
- Must qualify for financing

### Target market

- Credit-active population (employed)

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## Products for HIV+ lives

### Step cover (limited underwriting)

#### Product details

- Amount paid out depends on time since inception of the policy and cause of death
- Cover is phased in over a period (e.g. 2 years)
- Limited sum assured

#### Underwriting

- Short list of yes/no questions – some focussed on HIV
- **No HIV testing**

#### Target market

- Lower to middle income
- Some higher income (fear of HIV testing)

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## Products for HIV+ lives

### Direct to consumer (without HIV testing)

#### Product details

- Individual life product

#### Underwriting

- Underwriting dependent on distribution
- Outbound call centres limit anti-selection
- Typically a short list of reflexive questions
- **No HIV testing**

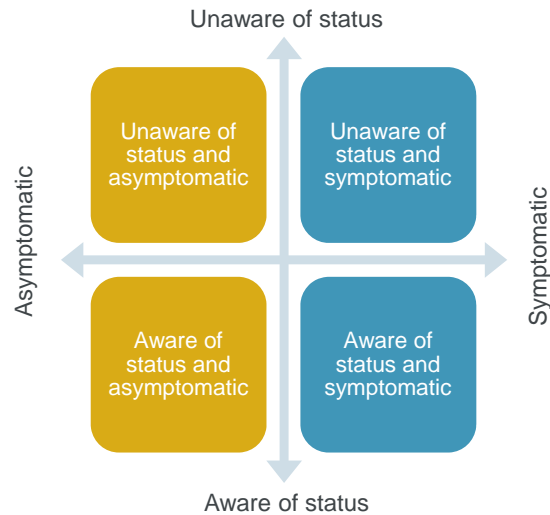
#### Target market

- Middle to higher income

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## Direct to consumer (without HIV testing) Quantifying the additional HIV risk



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## Products for HIV+ lives Traditional life cover

### Product details

- Individual life product

### Underwriting

- In-depth underwriting
- **All applicants undergo HIV testing**
- More recently, some companies treat HIV as a chronic disease

### Target market

- Middle to higher income

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## Products for HIV+ lives

### HIV+ products

#### Product details

- Targeted at HIV+ individuals
- Adherence to an HIV treatment program typical

#### Underwriting

- Adherence checked regularly or at claim stage
- CD4 count and viral load monitored on an ongoing basis
- Term of product might be limited

#### Target market

- HIV+ population

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## Products for HIV+ lives

### Successes and issues

Product	Successes	Issues
Funeral, Credit life, Group life	<ul style="list-style-type: none"> <li>• Large volumes sold</li> <li>• Experience largely in line with or better than expectations</li> </ul>	<ul style="list-style-type: none"> <li>• Anti-selection &amp; multiple policies (Funeral)</li> <li>• Moratorium periods</li> <li>• Changing profiles</li> </ul>
Step cover	<ul style="list-style-type: none"> <li>• Attracting lower risk groups as well</li> <li>• Reduced underwriting costs and time</li> </ul>	<ul style="list-style-type: none"> <li>• Product complexity (TCF)</li> <li>• Anti-selection</li> <li>• Non-disclosure</li> </ul>
Direct to consumer	<ul style="list-style-type: none"> <li>• Reduced underwriting costs and time</li> <li>• More disclosure</li> </ul>	<ul style="list-style-type: none"> <li>• Possible anti-selection</li> <li>• Non-disclosure</li> </ul>

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## Products for HIV+ lives

### Successes and issues

Product	Successes	Issues
Traditional life products	<ul style="list-style-type: none"> <li>Negligible HIV risk</li> <li>No negative surprises</li> </ul>	<ul style="list-style-type: none"> <li>Issues with testing</li> <li>HIV lobby groups fighting to eliminate testing</li> </ul>
HIV+ products	<ul style="list-style-type: none"> <li>HIV+ individuals have access to higher sums assured and more complex products</li> <li>Industry seen to be doing "something" on HIV</li> </ul>	<ul style="list-style-type: none"> <li>Strict adherence requirements</li> <li>Pricing complexities</li> <li>Affordability</li> </ul>

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## Pricing and reserving for HIV

- Complex modelling is required to price and reserve for HIV and AIDS due to
  - Change in prevalence over time
  - Cohort effect from introduction of treatment
- Most insurers use standard models to inform pricing and reserving
  - ASSA AIDS model
  - APN 105 model

*Calibrated using insurer's past experience*

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## Pricing and reserving for HIV

### Project prevalence

1

Population projections  
adjusted for assured lives



### Project HIV/AIDS mortality

2

- Multistate disease model
- HIV Positive, asymptomatic
- HIV Positive, AIDS related complex, pre full blown AIDS
- On ART
- Sick (full blown AIDS / failure of ART)



### Final Pricing

- Use output of strands 1 and 2 to determine extra AIDS mortality
- Add to base mortality

All projections are duration and calendar year specific

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## Concluding remarks

- The South African insurance industry has remained agile in its approach to the HIV/AIDS epidemic
  - Products and underwriting have tracked the development of the epidemic and changes in society
  - Products offered have ensured that society's insurance needs are broadly met without the need for government intervention
- What next
  - Continue to improve life cover offered to HIV positive lives?
  - Increase cover provided for living benefits?
  - Move away from compulsory HIV testing for traditional products?

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# Questions

# Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.