



Better Rating: AIDS

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Technical Seminar: Improved Risk Rating

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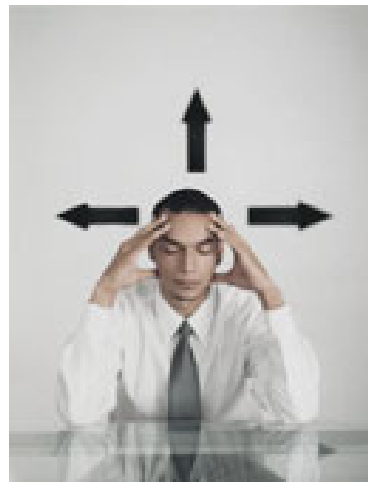
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Agenda

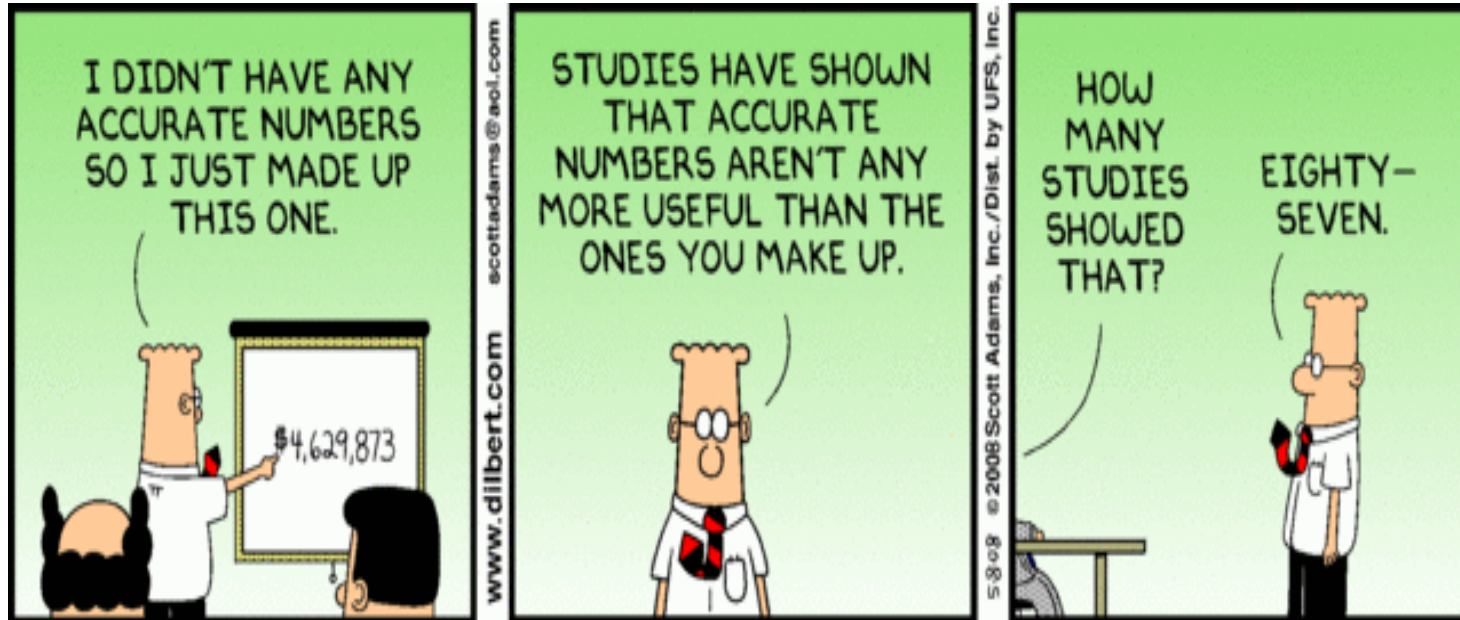
- **Introduction**
- **Modelling the impact of HIV and AIDS on life insurance**
- **Expectations of AIDS rate curves**
- **AIDS rating factors: current and future**



Rating Process



Rating Process



Modelling HIV in SA

ASSA suite of models:

- Developed by the Centre for Actuarial Research (CARE) at UCT
- Calibrated to Antenatal Clinic Prevalence testing results and SA mortality data
- Latest is ASSA 2003

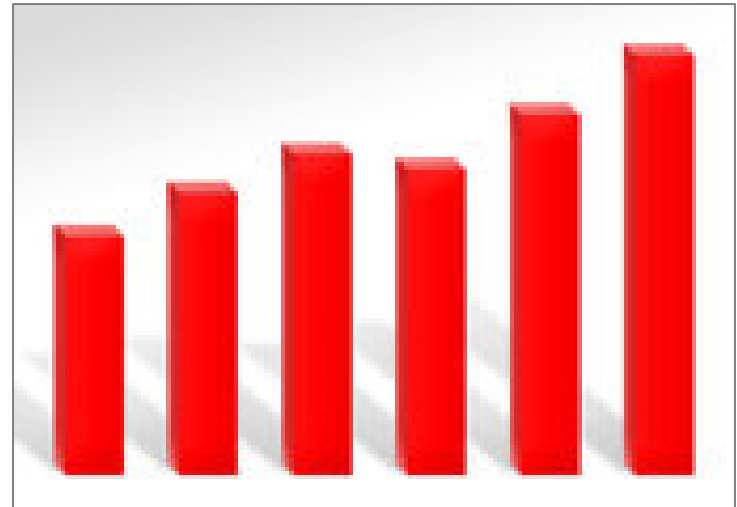
Modelling within the insured population:

- Subpopulation model eg. ASSA Select Model (Group) or PGN 105 (Individual)

ASSA 2003 Model Estimates

2009 Estimates:

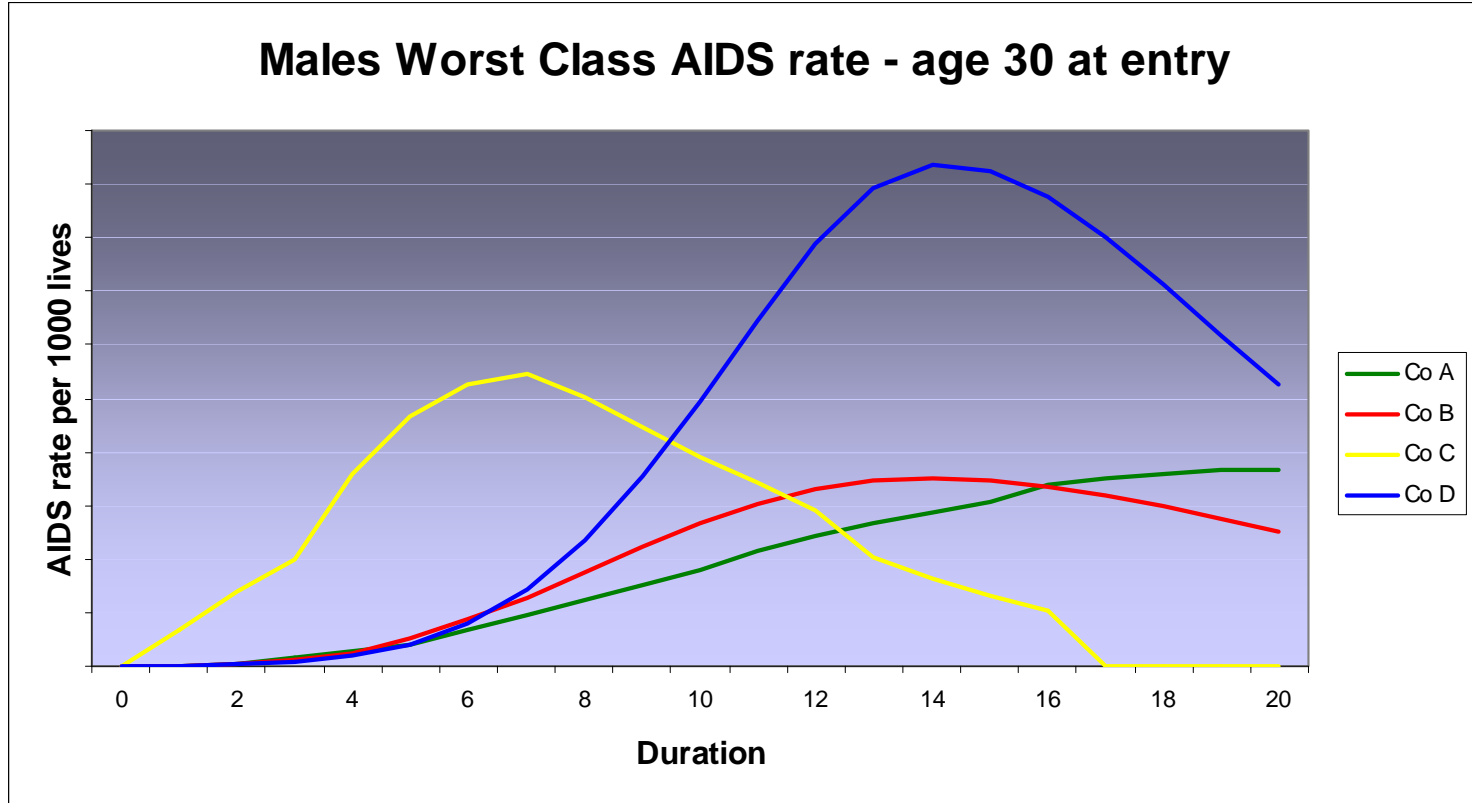
- 5,6 million people living with HIV
- HIV prevalence rate of 11.7%
- Adult HIV prevalence rate of 19.6%
- 370,000 AIDS deaths



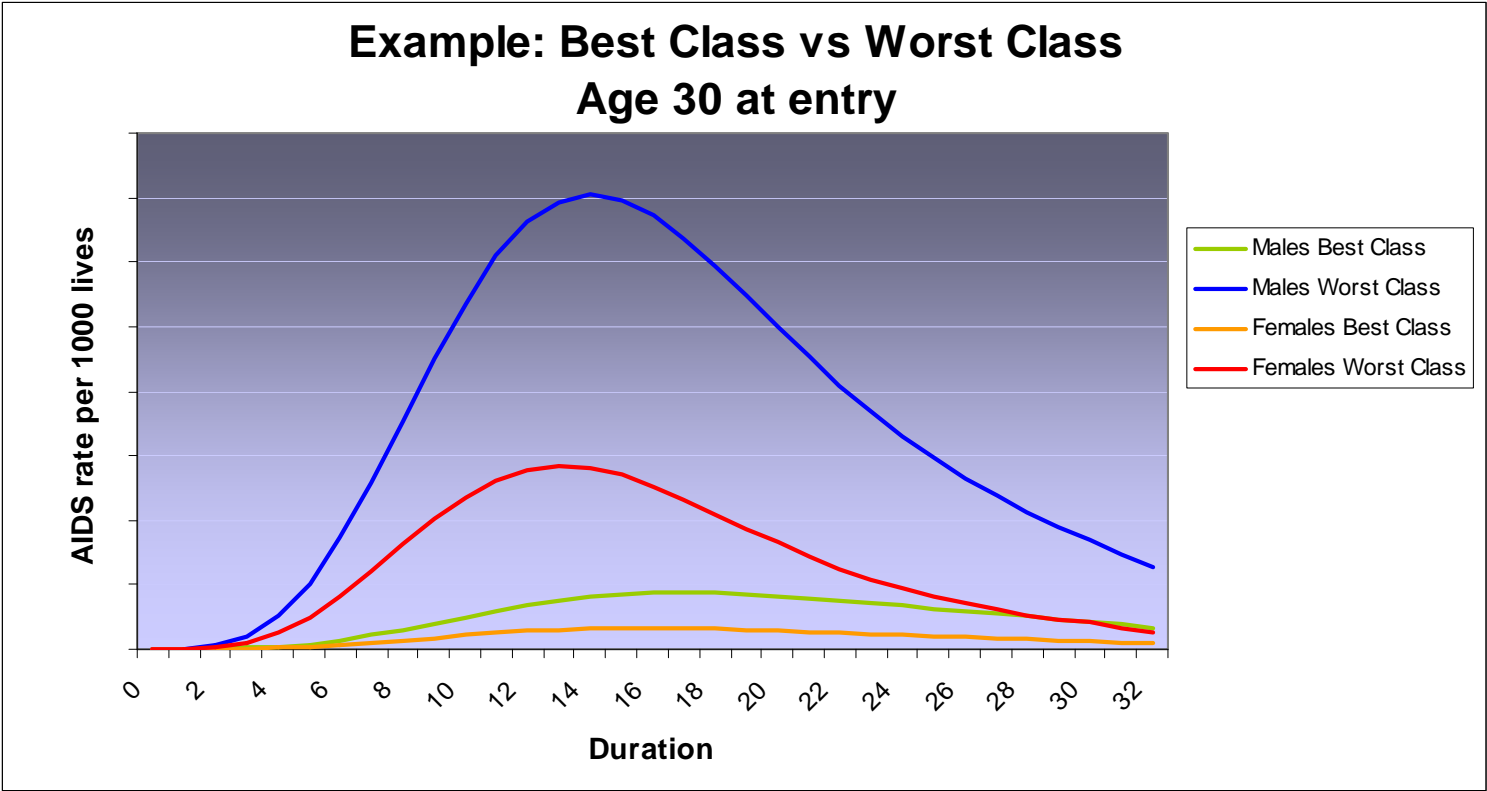
Modelling HIV/AIDS for Insurance Purposes

- A multistate approach to modelling disease progression.
- Adjust parameters in light of credible information
- Calibrate to mortality and prevalence data
- Output – separate rates for each age, sex, calendar year and select period, where appropriate

Curve Comparisons



Expectations of AIDS Rate Curves



An Observation or Two

- Use of short select periods
- Application of linear select factors
- A straight multiple applied to non AIDS rates
- Rates not smoothed



HIV/AIDS and Life Insurance

- In SA, HIV testing at underwriting stage:
 - Individual life policy applications, including conversion options
 - Cover above free cover limit for group business
- Individual Life:
 - Know that entrants are HIV -
 - Are there ways of better assessing risk of individuals subsequently contracting HIV?
 - What proportion of the population is at risk of exposure to HIV infection















Factors affecting HIV transmission

- Exposure
 - **Sexual behaviour**
 - **Socio-economic**
- Likelihood of transmission per exposure
 - **Biomedical**

Risk Factors

Biomedical Factors	Rating Factors	
	Current	Future
Increase risk		
STDs (Ulcerative and non-ulcerative)	?	✓
Hormonal contraceptives	✗	✓
Young and female	✓	
Decrease risk		
Circumcision	✗	✓
Genetic Factors	✗	?

Risk Factors

Sexual Behaviour Factors	Rating Factors	
	Current	Future
Increase risk		
Alcohol Consumption		
High risk forms of sexual intercourse		
Non-disclosure of HIV status		
Intergenerational sex		
Violence in sexual relationships		
Partner concurrency		
Previous non insurance related HIV tests		

Risk Factors

Socio-economic and Demographic Factors	Rating Factors	
	Current	Future
Income	✓	
Occupation	?	✓
Education	✓	
Region	?	✓
Marital status	✗	✓

Thank You!

Questions?



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