CONTROLLING THE HIV EPIDEMIC WITH ANTIRETROVIRALS

Avoiding the Cost of Inaction

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Plenary #9
Return on Investment Scenarios:
Implications of Making Small-, Mid-, and Large-Scale Investments

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Return on Investment (ROI)

• The ROI metric measures per period, rates of return on money invested to decide whether to invest

\[ \text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}} \]

• But…over what period do we do this?
  – ROI is not Net Present Value adjusted and it is generally “Year 0” investment and two to three years income
Discounted Cash Flows

\[
DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n}
\]

\[
FV = DCF \cdot (1+r)^n
\]
Cost-Benefit Analysis (CBA)

• A means of evaluating all of the potential costs and benefits that may be generated if the project is undertaken

• The outcome of the analysis will determine whether the project is financially feasible, or if another project should be pursued
Cost-Effectiveness Analysis (CEA)

• A form of economic analysis that compares the relative costs and outcomes of two or more courses of action
• Cost-effectiveness analysis is often used in the field of health services, where it may be inappropriate to monetize health effects
Other Buzz Words

• Efficiency
• Effectiveness
• Value for money (VFM)
• Sustainability
"I think you should be more explicit here in step two."
Understanding Curves: New Infections and Deaths

- New Infections
- Deaths of HIV Positive People

Number of people vs. Time
People Requiring Treatment

![Graph showing number of people requiring treatment over time. The graph indicates a peak in treatment needs during a certain time period.](image-url)
Treatment Requirements

- **Incidence**
  - People living with HIV (needing treatment)

- **Attrition**
  - Initiation on ART
  - People currently receiving treatment

- **Death**
  - People living with HIV (needing treatment)
  - People currently receiving treatment
Economic Transition

New Infections  
Deaths of HIV Positive People

Number of people  
Time

Economic Transition
Credit Mead Over
Epidemiologic Transition

- New Infections
- Deaths of HIV Positive People
- Treatment
- New people needing treatment

An Advocacy and Epidemiological Transition

Number of people

Time
ASSA 2008 – Comparing the estimates to the latest HSRC data:

• Prevalence is higher than ASSA estimates for 2012
• There were fewer AIDS deaths than predicted in 2012, possibly due to drug improvements
• Incidence rates are in 2012 were higher than ASSA estimates
• In 2008, the benefits from treatment as prevention were not fully understood
Real Data from South Africa

- HIV infections
- AIDS cases
- AIDS deaths
Real Data from South Africa

No Economic Transition on the horizon

New infections (Incidence)

AIDS deaths
Real Data from South Africa

New infections (Incidence)

- X-axis: Year (1985 to 2025)
- Y-axis: Number of infections (0 to 700,000)

- The graph shows an increase in new infections from 1985 to 2005, reaching a peak around 2000.
- After 2005, there is a decline in new infections until around 2015.
- From 2015 onwards, the number of new infections appears to stabilize.
Real Data from South Africa

- **New infections (Incidence)**
- **New HIV infections minus AIDS deaths**

The graph shows the trends of new HIV infections and the difference between new HIV infections and AIDS deaths from 1985 to 2025.
Real Data from South Africa

- **New infections (Incidence)**
- **New patients on ART (over the past year)**
- **New HIV infections minus AIDS deaths**
Real Data from South Africa

Sustained financial and political commitment means we will catch up

Epidemiological Transition

Programmatic Transition

Total new infections (Incidence)

New patients on ART (over the past year)

New HIV infections minus AIDS deaths

New HIV infections minus AIDS deaths plus ART attrition (70% retention 3yrs)
Scenarios: Small, Medium, Large

• Dependent on:
  – Politics
  – Budget
  – Priorities
  – Human Rights
Things We Need to Think About

• Treatment as prevention only works if it is done on a large enough scale
• There needs to be a clear time horizon
• Advocacy must get smarter
• Where is the money coming from?
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