Tackling Retention and Adherence: Fixing the Cascade:

Pierre Barker
3 Take-away Concepts

1. 2 “pools” of HIV patients need to be managed – those awaiting ART (initiation), those on ART (retention)

2. South African examples of how these pools can be managed effectively

3. “inflow”, “outflow”, “backlog” have to be managed separately
Time to Immunological Failure

Time to Immunological Failure

- **Weeks**: 0, 3, 6, 9, 12, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
- **Years**: 0, 3, 6, 9, 12
- **Viral Load**: 0, 3, 6, 9, 12
- **CD4 Count**: 500, 350, 200

The graph illustrates the progression of viral load and CD4 count over time, indicating the period leading to immunological failure.
What do we know? Rate of new infections?

~500,000 new infections/year

What do we know? New HAART Initiations, Cumulative patients

New ART initiations each year

Cumulative Patients on ART

~500,000 new infections/year

Understanding current state: inflow, outflow, backlog

1. Rate of those being added to the system
2. Rate of those leaving the system
3. The size of the pool within the system
Initiation of ART – previous state (CD4 < 200 threshold)

1. Rate of those being added to the system: 500,000/year

2. Rate of those leaving the system: 500,000/year (start ART or die)

3. Infected with HIV, not on ART: 8 years x 500,000 = 4 million
Understanding the Backlog: Setting treatment threshold at 350, 500 or no threshold
Understanding the Backlog: Effect of setting treatment threshold at 350

CD4 350

2008
2007

1 million patients added to backlog for ART
Understanding the Backlog: Effect of setting treatment threshold at 500

Another 1.5 million patients added to backlog for ART = total 2.5 million backlog for ART
Health systems view: 3 tasks –

1. Decrease the rate of infection: currently ~450,000/yr

2. Build short term capacity to initiate 2.5 million (when CD4 threshold = 500)

3. Build a long term capacity to manage long term ART care. Backlog patients plus steady state. Currently ~600,000/year
Experience from NW Province

Setting ART initiation targets in response to changing guidelines: The importance of addressing both steady-state and backlog

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Experience from NW Province

- Kenneth Kaunda District population of ~700,000
- HIV prevalence (at ANC clinic) of 32.4%
- Calculated steady-state need for the district:
  - 639 initiations/month (Leydon S Afr Med J 2010;100(7):420-424)
- Calculated backlog (with CD4 = 350 threshold)
  - 15 400 patients (2x annual steady state requirement)
Capacity to address steady state and backlog requirements in xx District

Number of ART initiations

- Actual ART Initiation
- Steady state target

Backlog Target
Number of ART initiations

Months

Capacity to address steady state and backlog requirements in KK District

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Capacity to address steady state and backlog requirements in KK District

[Image: A line graph showing the actual ART initiations, steady state target, and backlog (CD4 200 - 350 cells/µl) over time.

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Moving CD4 threshold from 350 to 500.

Implications at a District level.

- **Backlog w CD4 500**
- **Backlog w CD4 350**


2 baths! Initiation and Chronic Care

- Rate of influx
- Size of treatment pool
- Rate of efflux
2 baths! Initiation and Chronic Care

- ~ 5 - 30 year life expectancy
- Build capacity for 10 million patients on chronic ART

Assume 500k patients added/year

System for managing chronic ART

New Patient Pool

~2 million

Net gain of ~20,000/yr
Steady state need = 16,000
Backlog (CD4,350) = 32,000
MSF Adherence Clubs Model

- Patient-initiated request to clinician for club recruitment.
- Stable ART population
- Meet once a month for basic clinical assessment, medication collection, peer support
- Secure medical backup

30 stable patients on ART in a “club”

Onsite or offsite peer support for ART adherence
after 40 months...

- retention in clinic care 97% for club patients vs 85% in clinic (matched)
- virological rebound - 67% less in club participants

Test of Scale-up of AC in City of Cape Town (2011)

12 facility club teams
- manager
- nurse
- facilitators
- clinic
- pharmacist
- clinic data capturer

Repeated improvement cycles:

Learning Session 1
Learning Session 2
Learning Session 3

Intensive support from QI and content experts

Independent club activity

Partnership between the WCG DoH, City Health (City of Cape Town), MSF and the Institute for Health Improvement (IHI)

June 2014

- 600 clubs
- 27,000 stable ART patients accessing care and treatment

Percentage of RIC patients who receive care in Clubs over time

Data from Beth Harley: City of Cape Town health Department September 2014
Keeping up with inputs and backlog

Growth =
new starts +
restarts + TFI
minus
TFO + RIP + LTF

Data from Beth Harley: City of Cape Town health Department September 2014
Keeping up with inputs and backlog

Data from Beth Harley: City of Cape Town health Department September 2014
How far can you take the model?

Helderberg Hospital

- Stable RIC clubs
- Should be in RIC clubs
- Should be in facility care
- Newly started on ART
Getting to full scale: variation in clinic performance

% ART patients who are followed in Adherence clubs
The Future: ART Adherence Clubs

The future
- Go to full scale
- Determine adherence rates in expanded adherence clubs
- Determine cost effectiveness
- Apply model to other areas of chronic care
Chronic Care Model

Informed activated patient \rightarrow Prepared, effective health team

Community
- Local support systems, community partners etc

Clinics system
- Clinic System design
- Prompts and care pathways
- Self management support
- Data support

Health System
Take-aways

Design your HIV care system through understanding of:

- Rate of entry and exit of patients from pre-treatment and treatment pools, and size of 2 pools
- Backlog and steady state require different health system designs
- Modern QI methods can be used to develop, test and spread innovations that can bring epidemic needs under control
Resources

5. Leyden et al, July 2010, Vol. 100, No. 7 SAMJ
6. Barker PM and Venter F, SAMJ 2007; 97:10: 916-917
7. [www.ihi.org](http://www.ihi.org)
8. Aurum Quality Improvement Tool: Lauren De Kock – LDeKock@auruminstitute.org
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