

# Can South African patients on antiretroviral therapy for HIV/AIDS resume their normal daily activities?

Sydney Rosen<sup>ab</sup>, Mpefe Kethlapile<sup>b</sup>, Ian Sanne<sup>b</sup>,  
and Mary Bachman DeSilva<sup>a</sup>

<sup>a</sup>Center for International Health and Development  
Boston University, Boston, MA USA



<sup>b</sup>Health Economics Research Office  
Wits Health Consortium, University of the Witwatersrand,  
Johannesburg, South Africa



June 2007

# Background

---

- ART is currently being provided to >300,000 adult South Africans, with more to come.
- Biological (e.g. virological, immunological) indicators of treatment success are well monitored at many (not all) sites.
- Very little is known about non-biological indicators:
  - the characteristics of patients seeking treatment, beyond basic demographics
  - the impact of ART on functional impairment, quality of life, and workforce participation
  - the costs to patients of obtaining treatment
  - the impact of ART on patients' incomes.

# Study Design

---

- Prospective cohort design.
- Enrollment open July 2005-June 2006.
- Enrolled 1,072 adult patients at baseline.
- Subjects interviewed at baseline and then 2-4 times/year during routine clinic visits.
- Clinical and laboratory data for study subjects (e.g. CD4 counts, weights, etc.) collected from clinic records.

# Study Subjects

---

- Subjects enrolled in two groups:
  - HIV+ patients not yet medically eligible for ART (CD4 count  $> 200$  at baseline) (“Pre-ART”)
  - Patients on ART for 0-6 months at baseline (“On ART”).
- Other inclusion criteria were age ( $\geq 18$ ) and provision of written informed consent.
- Subjects selected using nth name sampling from patients in queues or attending wellness or adherence sessions.

# Data Collection and Analysis

---

- Questionnaire designed for this study using some existing questions and some new questions.
- Interviews conducted during routine clinic visits.
- Medical record data extracted from site records.
- Means, medians, odds ratios for main outcomes; multivariate regression to control for site and patient characteristics.
- Baseline analysis completed; longitudinal underway.

# Study Sites

Site	Site 1	Site 2	Site 3
Name	Themba Lethu Clinic, Helen Joseph Hospital (Gauteng DOH)	Witkoppen Health & Welfare Centre (with Gauteng DOH)	ACTS Clinic
Province	Gauteng	Gauteng	Mpumalanga
Setting	Urban	Informal settlements	Rural
Sector	Public	NGO/public	NGO
Facility	Tertiary hospital	Primary care clinic	HIV/AIDS clinic
# patients on ART March 2007	5,700	700	900
# patients in pre-ART monitoring Mar 2007	12,000	3,400	4,600

# Cohort Composition

---

Variable	Site 1 (urban hospital)	Site 2 (informal area clinic)	Site 3 (rural clinic)	All sites
All subjects (n)	606	310	156	1,072
On ART 0-6 months	400 (66%)	100 (32%)	119 (76%)	619 (58%)
Pre-ART	206 (34%)	210 (68%)	37 (24%)	453 (42%)
Starting CD4 count for those on ART (median cells/mm <sup>3</sup> )	99	109	54	96

**Median time on treatment at baseline interview (on-ART subjects only):  
3.0 months.**

# Subject Characteristics

Variable	Site 1 (urban public hosp.)	Site 2 (informal area clinic)	Site 3 (rural clinic)	All sites
<b>Demographic characteristics</b>				
Sex (% female)	78%	82%	78%	79%
Mean age female	33	35	34	34
Mean age male	37	36	41	37
<b>Marital status</b>				
One long term partner	63%	68%	48%	63%
Single, widowed, other	36%	35%	52%	38%
% long term partners in same household	40%	42%	42%	42%
<b>Housing</b>				
Permanent house	46%	25%	92%	46%
Informal dwelling or shack	34%	71%	4%	40%
Other	20%	4%	4%	14%

# Primary Activities of Study Subjects

---

Activity*	Site 1 (urban public hospital) (n=606)	Site 2 (informal area clinic) (n=310)	Site 3 (rural clinic) (n=156)	All sites (n=1072)
Formal employment	24%	28%	30%	26%
Informal work	16%	33%	13%	21%
Unemployed, seeking work	27%	7%	29%	21%
Housework / family care (unpaid)	27%	31%	20%	27%
Other	5%	1%	7%	4%

\*Primary activity when feeling well

# Normal Daily Activities

---

Indicator*	Pre-ART (n=453)	On ART 1-6 mos (n=427) <sup>†</sup>	p-value or adjusted OR [95% CI]
Any functional impairment in previous 5-day work week	53%	32%	1.97 [1.5-2.7]
Mean number of days impaired in previous week (average for entire sample)	1.61	0.87	p<0.0001
Mean number of days impaired in previous week (only those reporting any impairment)	3.04	2.72	p=0.1446

\*Functional impairment = inability to perform primary normal daily activity.

<sup>†</sup>Subjects on ART < 1 month excluded from analysis.

# Normal Daily Activities (Cont)

---

Proportion of subjects reporting any functional impairment in previous week, by primary activity (*preliminary*)

Primary activity	Pre-ART (n=453)	On ART (n=619)	Relative risk* [95%CI]
Formal employment	40%	25%	1.63 [1.15-2.32]
Informal work	61%	26%	2.15 [1.55-2.99]
Unemployed, seeking work	42%	34%	1.25 [0.87-1.80]
Housework / family care	62%	43%	1.45 [1.16-1.82]

\*Relative risk of any functional impairment in previous week, with on ART subjects as reference; unadjusted.

# Quality of Life

Indicator	Pre-ART (n=453)	On ART 1-6 mos (n=427)	Adjusted OR [95% CI]
<b>Prevalence of symptoms last week</b>			
Pain or headache	66%	48%	2.06 [1.53-2.76]
Nausea	27%	18%	1.61 [1.13-2.28]
Fatigue	63%	40%	2.84 [2.10-3.84]
Skin problems	44%	46%	1.05 [0.78-1.40]
<b>Health status yesterday</b>			
Didn't feel well physically	50%	33%	1.71 [1.27-2.32]
Felt sad or depressed	34%	26%	1.42 [1.04-1.95]
Rested, lay down, or slept	47%	43%	1.52 [1.12-2.07]

# Employment

Variable	Pre-ART	On ART 1-6 mos	p-value or adjusted OR [95% CI]
<b>Employment status</b>			
Currently employed (n=877)	40%	28%	1.54 [0.88-2.69]
If job lost in previous year, loss was due to health (n=138)	44%	71%	0.38 [0.15-0.99]
<b>Effect on self-reported job performance</b>			
Health made job difficult often or almost always (n=282)	21%	12%	2.99 [1.39-6.40]
Performance worse than when you are healthy (n=298)	28%	14%	2.50 [1.24-4.86]
<b>Absences from work</b>			
Mean days absent due to health in previous month (n=293)	3.1	2.7	p = 0.0108
Mean # days absent by time on ART (on-ART subjects only)	0-3 months: 4.1 days	3-6 months: 1.6 days	p < 0.05

# Limitations of the Study

---

- Presented cross-sectional results only; need longitudinal data to answer key questions.
- Possible participation bias (not enough men, some refusers).
- Self reported data can be biased and suffer from poor recall.
- Don't have comparable data from a "healthy" population.

# Conclusions

---

- ART is associated with immediate and large gains in ability to perform normal daily activities.
- Some reduction in symptoms of ill health, but prevalence of many symptoms and some functional impairment remains high.
- Subjects on ART are more likely to have lost their jobs due to ill health, but they perform better when they do have jobs.

# Acknowledgements

---

- Participating clinics and their staff and patients:
  - Themba Lethu Clinic of Helen Joseph Hospital (Gauteng Department of Health)
  - Witkoppen Health and Welfare Centre
  - ACTS Clinic
- Right to Care
- USAID/South Africa
- PEPFAR

