

Long-Term Viral Suppression in Masivukeni: A Multimedia ART Initiation and Adherence Intervention for Resource-Limited Settings

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Introduction

- There are a growing number of people initiating ART in South Africa and globally, but long-term ART adherence and retention problems are an ongoing concern
- In resource-constrained settings, there is increasing reliance on lay counselors to provide ART adherence counseling
- There is a desire for standardized and effective ART adherence interventions that can be scaled-up and efficiently delivered by lay counselors

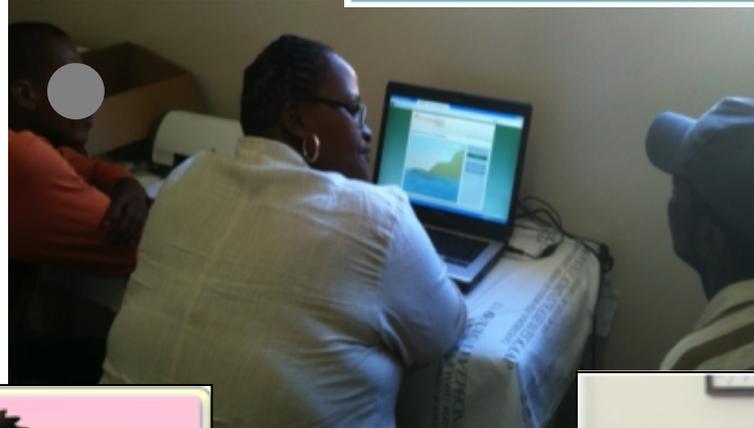
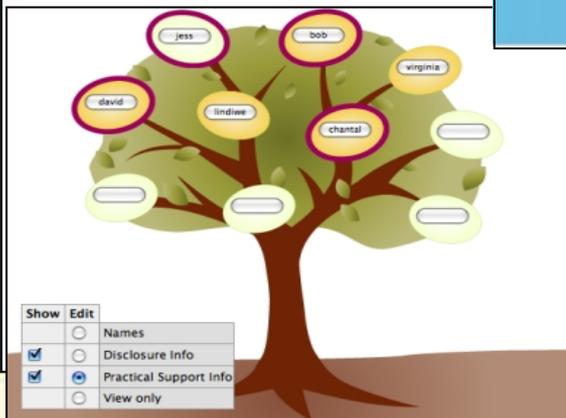
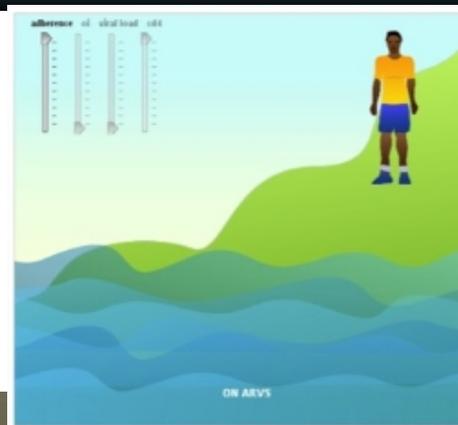
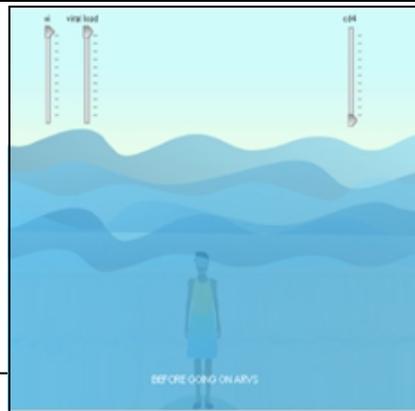
Introduction (cont.)

- Successful ART initiation and long-term adherence with sustained, suppressed viral load (VL) are essential to personal health & ending the global HIV epidemic
 - ▶ Many adherence interventions are either modestly successful in the short-term (i.e., up to one-year follow-up) or have not shown intervention effect at one-year due to “ceiling effect”
 - ▶ Few have demonstrated long-term viral suppression, nor have studied (followed) patients beyond one year

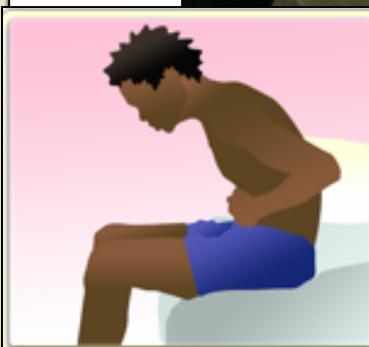
Masivukeni

- Masivukeni is a theoretically-derived, laptop-based multimedia behavioral intervention developed in collaboration with nurses, counselors, physicians, and patients in South Africa (SA)
- Masivukeni is consistent with standard of care counseling (SOC) in SA (3-4 sessions, defaulter follow-up, support partner inclusion)
- Masivukeni helps counselors deliver standardized messages; it tracks what content they have covered with each patient; and it conveys complex medical information in easy to understand ways, with videos, interactive activities, and visual images

The Multimedia Intervention



"Being at the clinic takes too much time, and is too unpleasant"



"The medication makes me feel sick"



"When I drink too much, I forget to take my medications"



[★ Sessions](#)

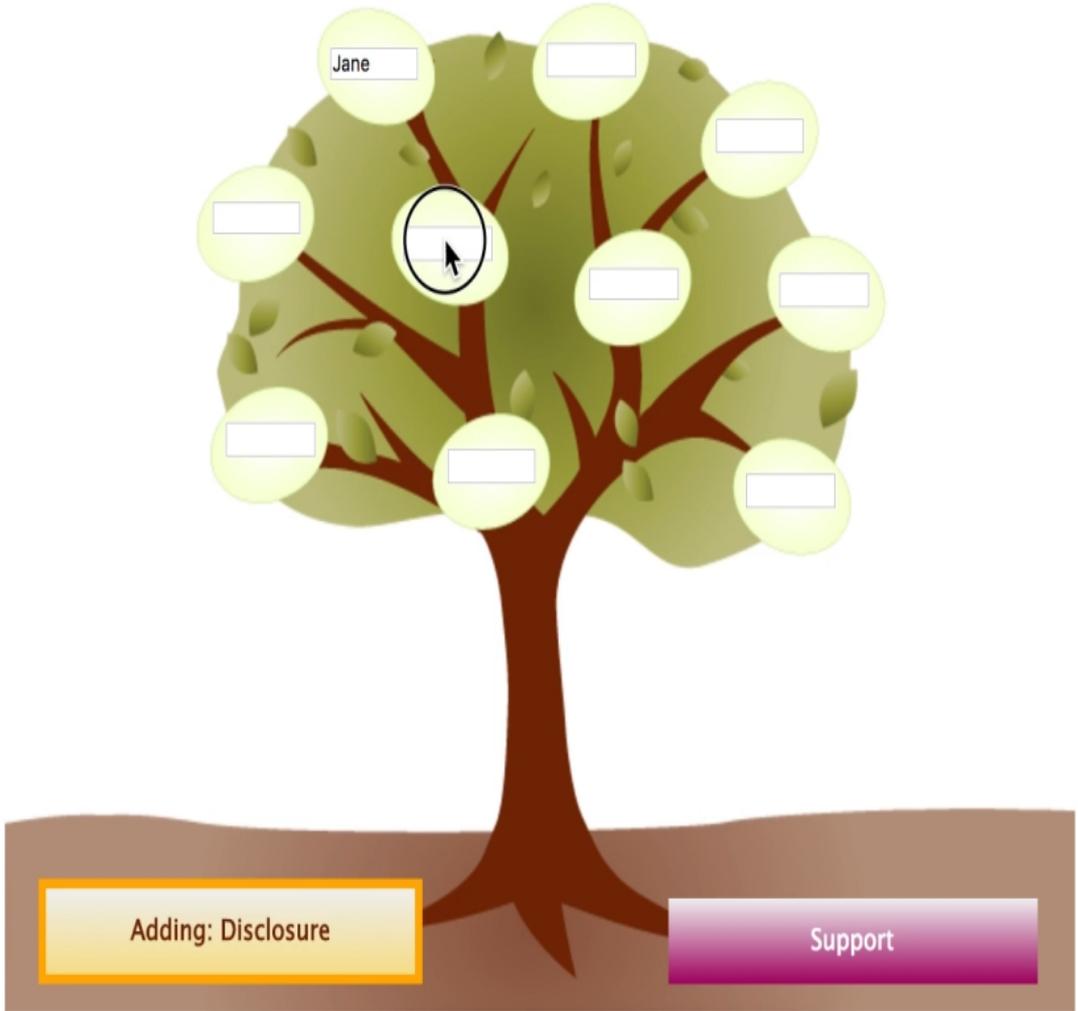
You are in Practice Mode. Changes will not be saved.

Sessions

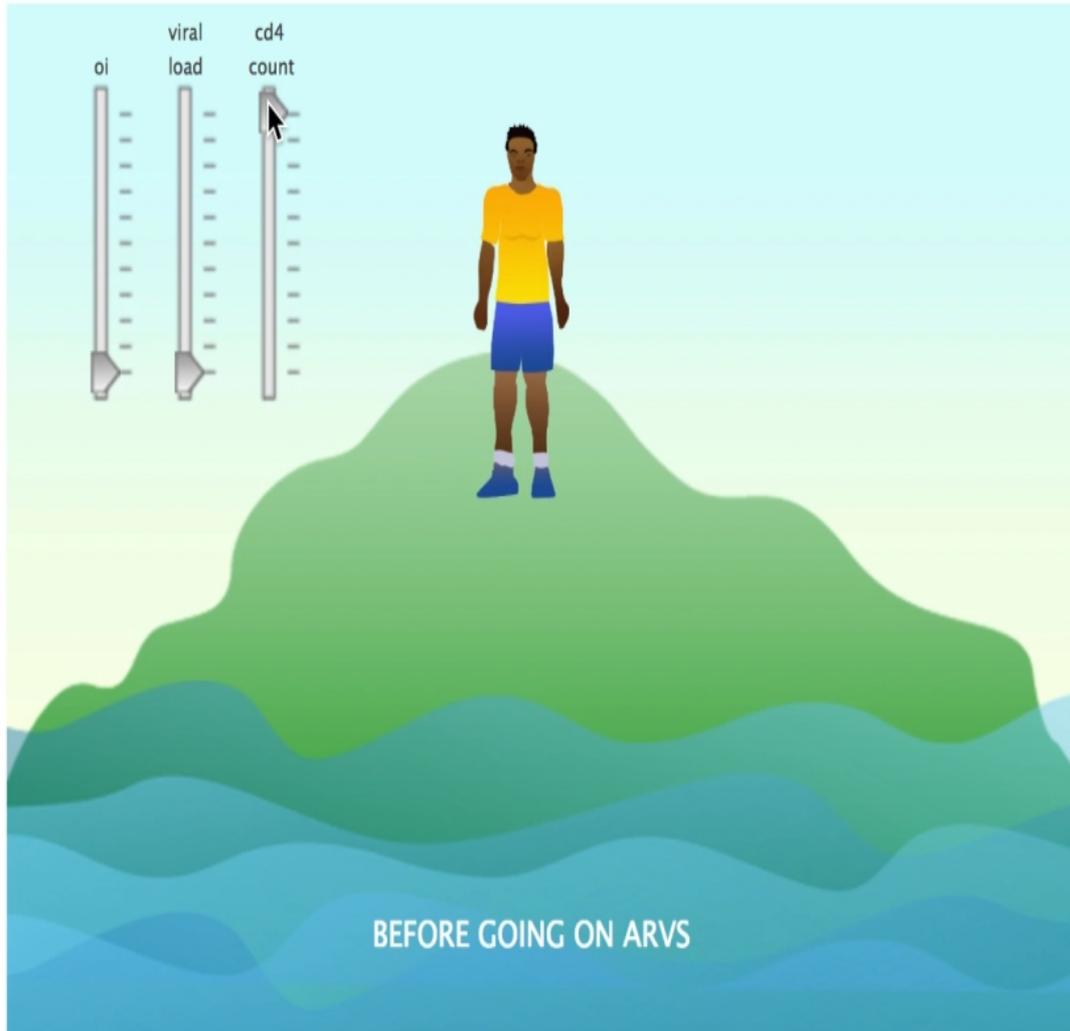
Select a session so Practice Participant can get started!

[★ Session 1: Getting Started](#)[★ Session 2: Learning About HIV Treatment](#)[★ Session 3: Good Adherence and Healthy Living](#)[★ ARV Adherence Follow-up 1](#)[★ ARV Adherence Follow-up 2](#)

Choosing a Buddy



HIV Symptoms



Key elements: video models

- Patients watched models of good/vs bad adherence practice and of problem solving

Adherence Is Crucial



Overcoming Challenges



R01: Intervention Efficacy RCT



- Randomized controlled trial: Participants were randomized to Masivukeni or Standard of Care, at a 2:1 ratio, and followed for 12 months
 - ▶ 3-4 sessions delivered prior to/during ART initiation
 - ▶ Follow-up sessions for defaulters
 - ▶ Treatment support with “buddies”

Baseline Characteristics

Masivukeni study participants at Baseline (N=432)

	N/Mean	%/SD
Female	317	74%
Age (mean, SD)	33	8
Graduated from high school	127	30%
Currently working	184	43%
Income ≤R1500 per month	189	44%
Currently infected with TB	93	22%
CD4 count		
<200	171	40%
200-349	186	43%
≥350	75	17%

Study Outcomes (previously reported)

- ▶ The *Masivukeni* intervention was highly acceptable to counselors and patients in busy SA clinics.
- ▶ 62% of the sample had viral loads in medical charts at 12 months, with very high viral suppression rates (95%), and no difference between study arms in viral load suppression nor in care retention, however:
 - ▶ There was a strong trend in the Masivukeni arm for improved viral suppression when there was >50% participation by “buddy”; and
 - ▶ A strong trend for women in the Masivukeni intervention to be more likely to initiate ART than women in the SOC; this effect was not found for men

What about long-term viral suppression?

■ Routine clinic viral loads (after ART initiation)

- ▶ Approximately 4-months post ART-initiation
- ▶ Approximately 12-months post ART-initiation
- ▶ Then annually, unless otherwise indicated

■ Data Sources

- ▶ Clinic medical records
- ▶ National Reference Laboratory
- ▶ Centralized Electronic Medical Records

Post 12-month Viral Loads

- We collected all available VL data from all available sources, post 12-months
 - ▶ 345 participants had at least 2 VL data points
 - ▶ Mean first VL = 6 months (SD=4.7 months)
 - ▶ Mean last VL = 30 months (SD=9.7 months)
- We then stratified the groups based on initial suppression rates, and
 - ▶ **We examined VL ‘change’: first to last VL**

Data Analysis

- We used exact logistic regression to examine the effect of Masivukeni on VL change among those whose first VL was suppressed (<400 copies/mL) and those whose first VL was unsuppressed (>400 copies/mL), controlling for time between VLs

Findings

Among people who were suppressed at first VL (n=314):
96% remained suppressed at last VL (no difference by treatment arm)

Among participants who were not suppressed at first VL (n=31):

Participants in Masivukeni were **12 times** as likely to be suppressed at last VL compared to SOC

	Overall		Intervention		Control	
	N	%	N	%	N	%
Suppressed at last VL	21	68%	19	79%	2	29%
Not suppressed at last VL	10	32%	5	21%	5	71%

***p* = .003**

Conclusions & Implications

- The majority of patients – who were retained in care, and had VL testing performed – did well in the 1st year after ART initiation, regardless of treatment arm
 - ▶ SOC, in the setting seems to be going relatively well; most patients (who remain in care) do not need extra attention
 - ▶ However, a substantial number of patients are not retained in care – they may or may not be virally suppressed; this remains a challenge in the setting
- There is a need for innovative interventions for care retention (most likely means addressing structural barriers / policy & social determinants of health)

Conclusions & Implications (cont.)

- A subset of patients who struggled to suppress viral load initially, benefited from the Masivukeni intervention - were 12x as likely to have suppressed VL at ~ 2 years post ART-initiation (compared to SOC)
 - ▶ Interestingly, Masivukeni was initially developed for “defaulters”
 - ▶ We think that the depth of learning (with visual imagery) about HIV treatment & importance of adherence, along with enhancing treatment support and problem solving skills, contributed to this positive outcome
 - ▶ It may be that enhanced interventions, like Masivukeni, are needed and most beneficial for patients who struggle early on with adherence

Summary of Masivukeni Outcomes (to date)

- Masivukeni appears to have advantages over SOC in the following ways:
 - ▶ Contributes to increased likelihood for women to initiate ART
 - ▶ Enhances “buddy support” contributing to better adherence and patient health outcomes
 - ▶ **Improves longer-term viral suppression among patients who are unsuccessful in achieving viral suppression in the early phase after ART initiation**
 - ▶ Enhances lay counselor comfort with, and capacity for, delivering adherence counseling to patients and their treatment support partners

Next Steps

- Provincial and City Health Department policy-makers -- and ATICC / People Development Centre personnel -- are interested in scaling up the use of Masivukeni for all counselors in the setting for the following reasons:
 - ▶ It has “some” clinical benefits for patients
 - ▶ Counselors like utilizing the multi-media intervention
 - ▶ The intervention “tool” has the ability to scale-up a standardized adherence counseling platform, with the ability to adapt it with evolving treatment information
 - ▶ The “tool” has the ability to track counseling delivery (with back-end data) for monitoring of service delivery, quality insurance, and providing ongoing support for counselors

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**“Masivukeni: A Multimedia ART Adherence Intervention for
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