

Antiretroviral prescription delivery for persons living with HIV/AIDS in Alabama:

**Do Mailed Medications with
Enhanced Pharmacy
Services affect biologic
outcomes?**

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Adherence

*“Treatment adherence” is a fancy phrase that means taking your HIV drugs **when and how** you are supposed to. – **AIDS.gov***



Adherence

As we will discuss herein, we know that “**taking your drugs** when and how you are supposed to” is **critically important**, but it is **not** always easy.

- Accordingly, we looked at mailed medications program, Curant Health, to see if Curant’s “enhanced pharmacy services” might positively affect adherence and, ultimately, biologic outcomes.
- Focusing on 652 patients at UAB’s 1917 Clinic, we looked for a potential increase in the percentage of patients achieving viral load suppression, pre- and post-enrollment in Curant’s program.



Adherence Barriers³

- **Depression and other mental illnesses^{4,5,7}**
- Neurocognitive impairment
- **Low health literacy⁶**
- **Low levels of social support⁶**
- Stressful life events
- High levels of alcohol consumption
- Active substance use
- Homelessness
- **Poverty⁶**
- Nondisclosure
- Denial
- Stigma
- **Inconsistent access to medications**



Optimization

Knowing that:

- (1) Adherence leads to better biologic outcomes, but
- (2) Our consumers face significant barriers to Adherence, we wondered . . .

what might work to optimize outcomes?



So we asked the question:

Do Mailed Medications
with Enhanced Pharmacy
Services affect biologic
outcomes?



What are Enhanced Pharmacy Services:

“Curant’s innovative medication management model focuses on improved medication adherence which translates to improved health outcomes.”

Patient services	Pharmacy services	Clinical services
<ul style="list-style-type: none">• Dedicated care teams• Co-pay assistance• Patient education• Refill reminder calls	<ul style="list-style-type: none">• Medication review• Medication synchronization• Custom adherence packaging• Free home delivery• Prior authorization assistance	<ul style="list-style-type: none">• Pharmacist support• Medication Therapy Management (MTM)• Healthcare provider communication• Innovative software and analytics platform for data collection and reporting

Methodology:

Approach

Ambispective pre-post (paired design) study at UAB 1917 Clinic

Population

All patients who enrolled in Curant who had been prescribed ART for at least 6 continuous months

Observation period

January 2013-January 2015 plus 1yr “pre” data

Variables of Interest: Viral Load (VL)

Baseline “Pre” VL

lab VL closest to Curant enrollment (up to 1year),

Post VL

at least six weeks after Curant (up to 1year).

Note: VL suppression is defined as <200 copies/mL, used as dichotomous “suppressed: yes/no” variable

Hypothesis: for this population, the VL suppression will improve significantly after Curant enrollment



The Population:

Table 1. Characteristics of patients prescribed ART and enrolled in Curant, Jan 2013-Jan 2015 (n=652)

Characteristic	N, (%)
Average Age, years +/-SD	46.9 +/- 10.7
Gender	
Male	498 (76.9)
Female	150 (23.2)
Race	
White	260 (40.1)
Black	378 (58.3)
Other/Unreported	10 (1.5)
HIV risk factors	
MSM	340 (55.2)
Heterosexual	243 (39.5)
IV Drug Use	33 (5.4)
Health insurance	
Private	366 (56.7)
Uninsured	49 (7.6)
Public	230 (35.7)
Baseline plasma HIV RNA (copies/ml)	
<200	452 (73.3)
≥200	165 (26.7)

Missing data as follows: Gender 4, Race 4, Risk Factor 36, Insurance 7, VL 35



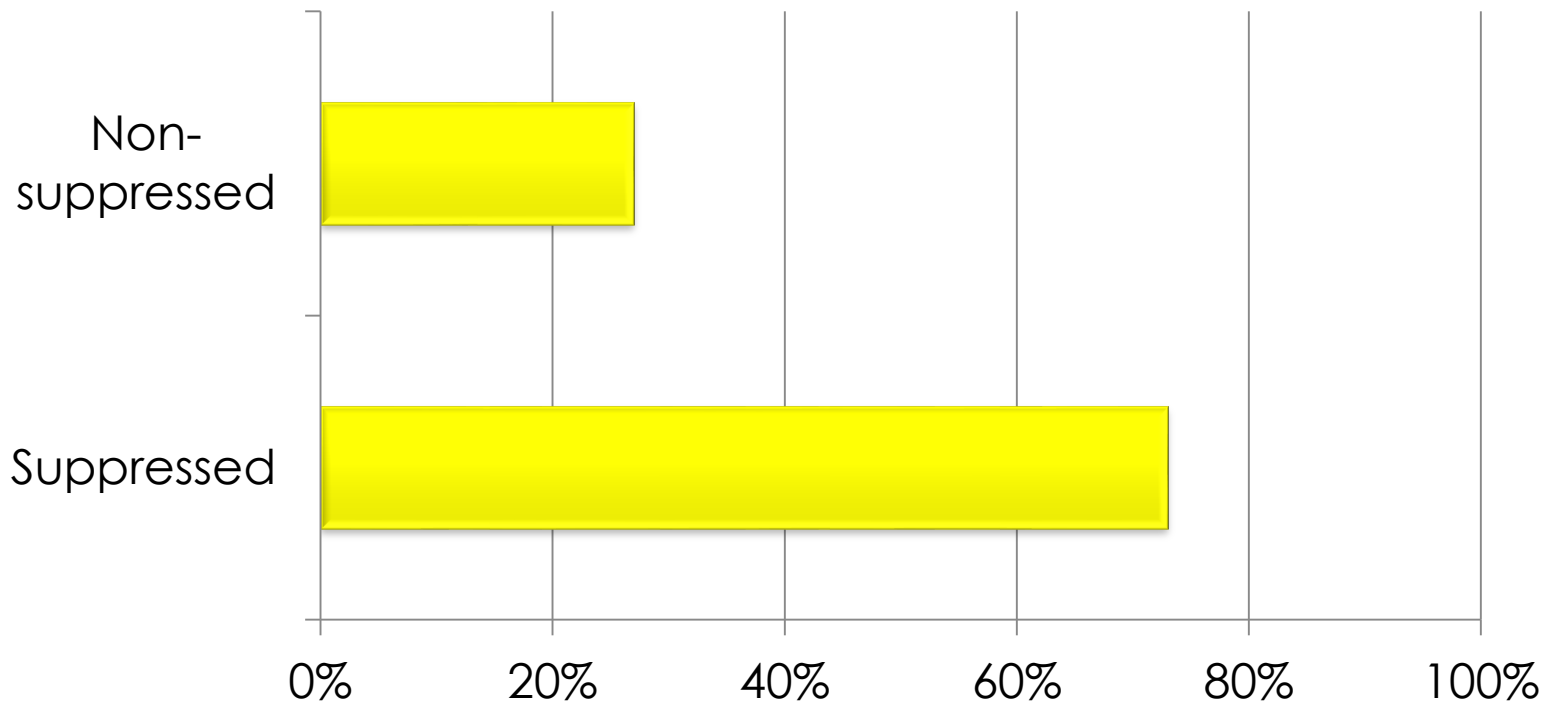
So . . .

Do Mailed Medications
with Enhanced Pharmacy
Services affect biologic
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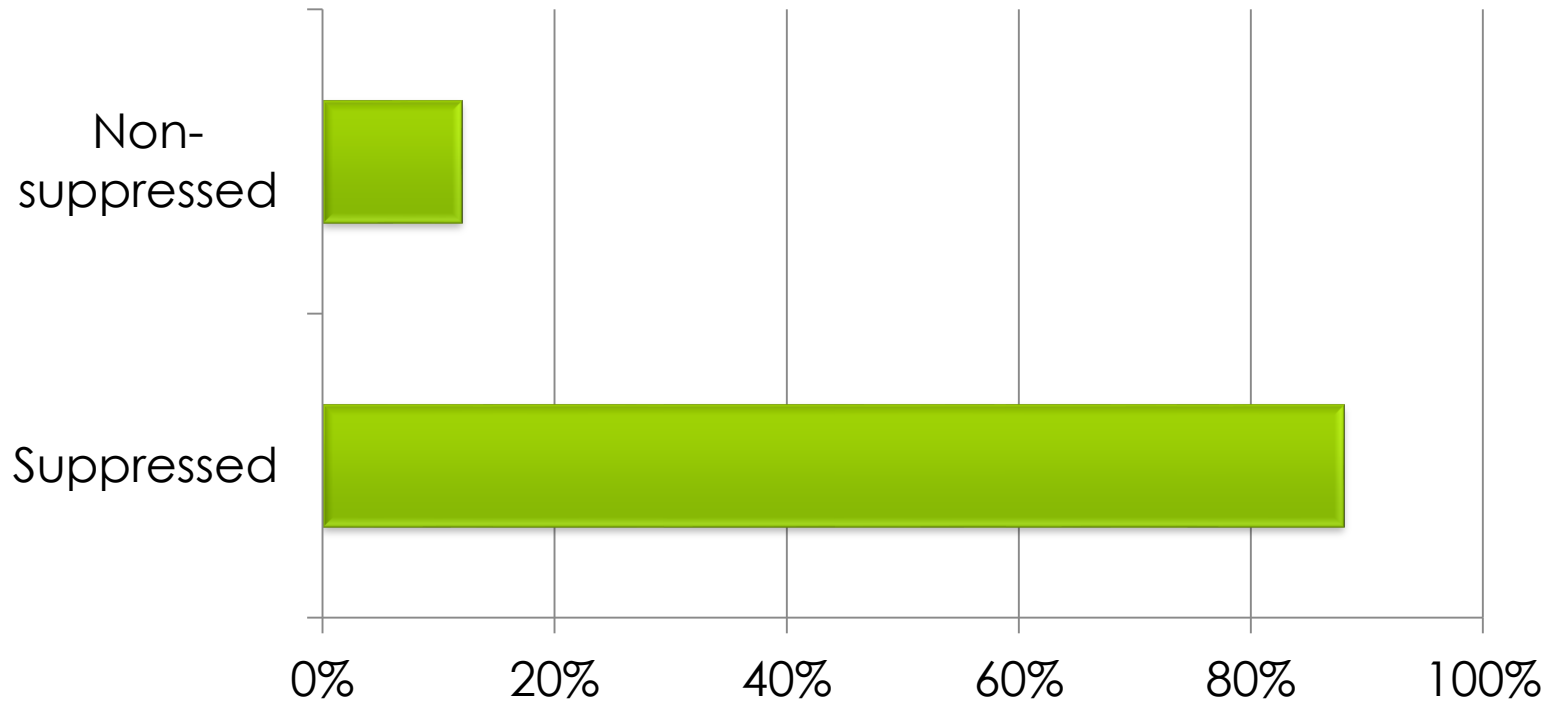
Pre- and Post-Curant Results

Pre-Curant Viral Load Suppression



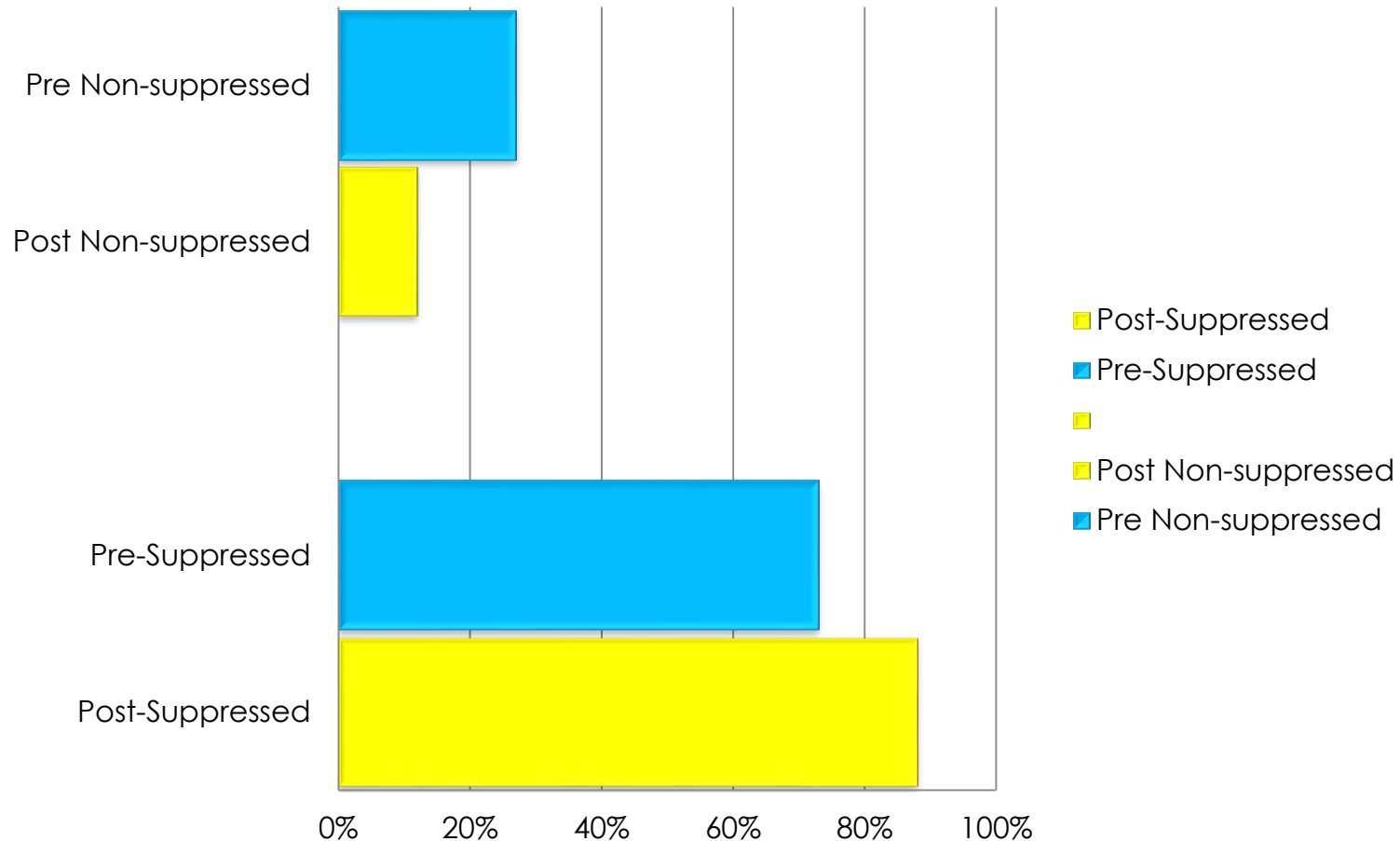
Pre- and Post-Curant Results

Post-Curant Viral Load Suppression



Results

Viral Load Suppression



Suppressed VL increased significantly, from 73% to 88% overall ($p < 0.001$).

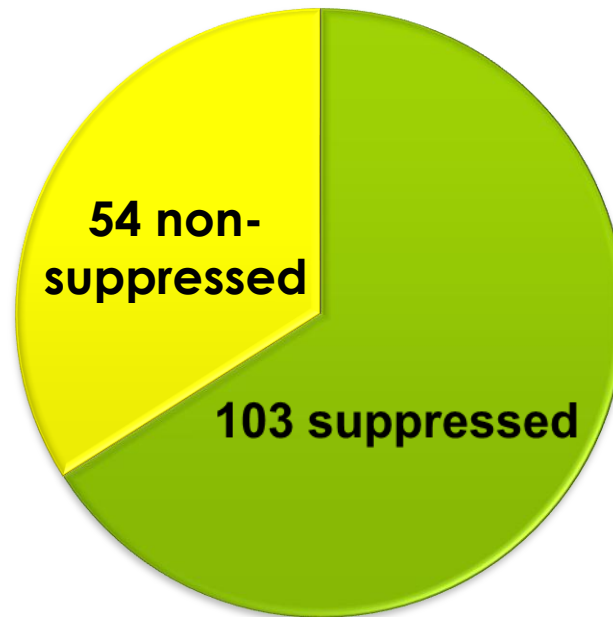
Pre- and Post-Curant Results

Pre-Curant Individual Viral Load Suppression



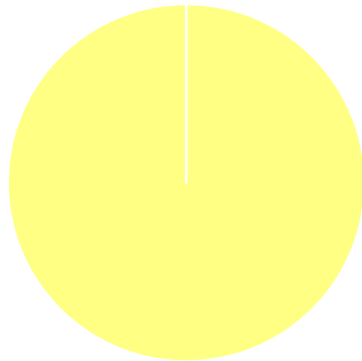
Pre- and Post-Curant Results

Post-Curant Individual Viral Load Suppression



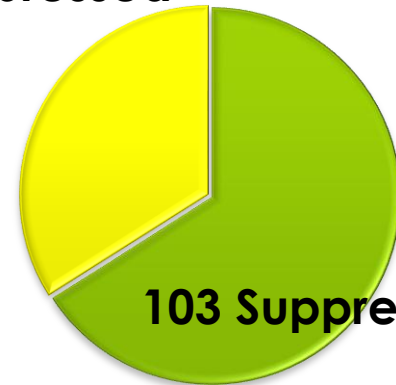
Pre- and Post-Curant Results

157 Non-suppressed



Pre-Curant Individual Viral Load Suppression

54 Non-suppressed



Post-Curant Individual Viral Load Suppression

Of the 157 patients who were not suppressed ($VL \geq 200$) at enrollment, 103 (66%) were virally suppressed at follow up



What does this mean?

Despite a high rate of baseline viral suppression, these findings indicate significantly improved virologic control following enrollment in a Mailed Medications program with Enhanced Pharmacy Services.

Widespread implementation of such programs may meaningfully impact both individual and community viral loads with implications for individual health outcomes and HIV prevention.

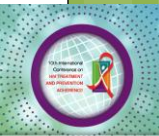
We look forward to repeated measures forming the foundation of a longitudinal evaluation of Mailed Medications programs with Enhanced Pharmacy Services



Acknowledgments

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Citations

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- (2) Machtiger, Edward L., MD, Bangsberg, David R., MD, Adherence to HIV Antiretroviral Therapy, HIV InSite Knowledge Base Chapter May 2005. University of California San Francisco
- (3) Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents - Limitations to Treatment Safety and Efficacy - Adherence to Antiretroviral Therapy. (Last updated: May 1, 2014; last reviewed: May 1, 2014). Available at: <http://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv-guidelines/30/adherence-to-art>
- (4) Pence BW, Gaynes BN, Williams Q, Modi R, Adams J, Quinlivan EB, Heine A, Thielman N, Mugavero MJ. *Assessing the effect of Measurement-Based Care depression treatment on HIV medication adherence and health outcomes: Rationale and design of the SLAM DUNC Study*. Contemporary Clinical Trials, 2012 Jul;33(4):828-38. PMID: PMC3361555.
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Missing Data

Frequency Percent Row % Col %	VLLT200_6wk	VLLT200 1. <200	VLLT200 2. >=200	VLLT200 Unknown	VLLT200 Total
1. <200	418 64.11 76.56 92.48	103 15.80 18.86 62.42	25 3.83 4.58 71.43	546 83.74	
2. >=200	15 2.30 20.83 3.32	54 8.28 75.00 32.73	3 0.46 4.17 8.57	72 11.04	
Unknown	19 2.91 55.88 4.20	8 1.23 23.53 4.85	7 1.07 20.59 20.00	34 5.21	
Total	452 69.33	165 25.31	35 5.37	652 100.00	

OR=3.0 (95% CI: 2.0 - 4.5); p <0.001...point estimate also calculated using 2X2 tabl as $103/34=6.9$ (19 patients who had BL VL as <200 were assumed to have post-4wk VI as >=200...worst case scenario)

