

# Co-calibration of two validated, self-reported measures of ART adherence in the CFAR Network of Integrated Clinical Systems (CNICS) research network and Seek Test Treat Retain (STTR) Consortium

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# Purpose

- Two validated ART adherence measures – AIDS Clinical Trial Group (ACTG; 14 day) and Visual Analogue Scale (VAS; 30 day)
- Put all STTR adherence data on the same scale
- Evaluate how well equation works in disparate populations
- Allow harmonization of data across studies using different instruments
- Improves ability to combine data across studies that use different instruments
- Advances scientific understanding, facilitates combining studies to answer questions that require larger sample sizes than individual studies

# Description of Cohorts

- CNICS is a clinical care cohort with 30,000 HIV+ participants from eight sites across the United States
  - Data are available from 1995-present, this study included data from last 4 years
- STTR is a consortium of 22 studies investigating all aspects of the HIV care continuum (Seek/Test/Treat/Retain)
  - Studies include domestic as well as international studies and focus on criminal justice and vulnerable populations

# Developing the Equation – Part 1

- CNICS asks both ACTG and VAS (N=1,045)
- Developing an equation to generate an estimated VAS
- ACTG question 1- When was the last time you missed any of your medications?
  - In the past week
  - 1-2 weeks ago
  - 2-4 weeks ago
  - 1-3 months ago
  - More than 3 months ago
  - Never skip medications
- **Estimated VAS=100 if missed 1-3 months ago or longer**

# Developing the Equation – Part 2

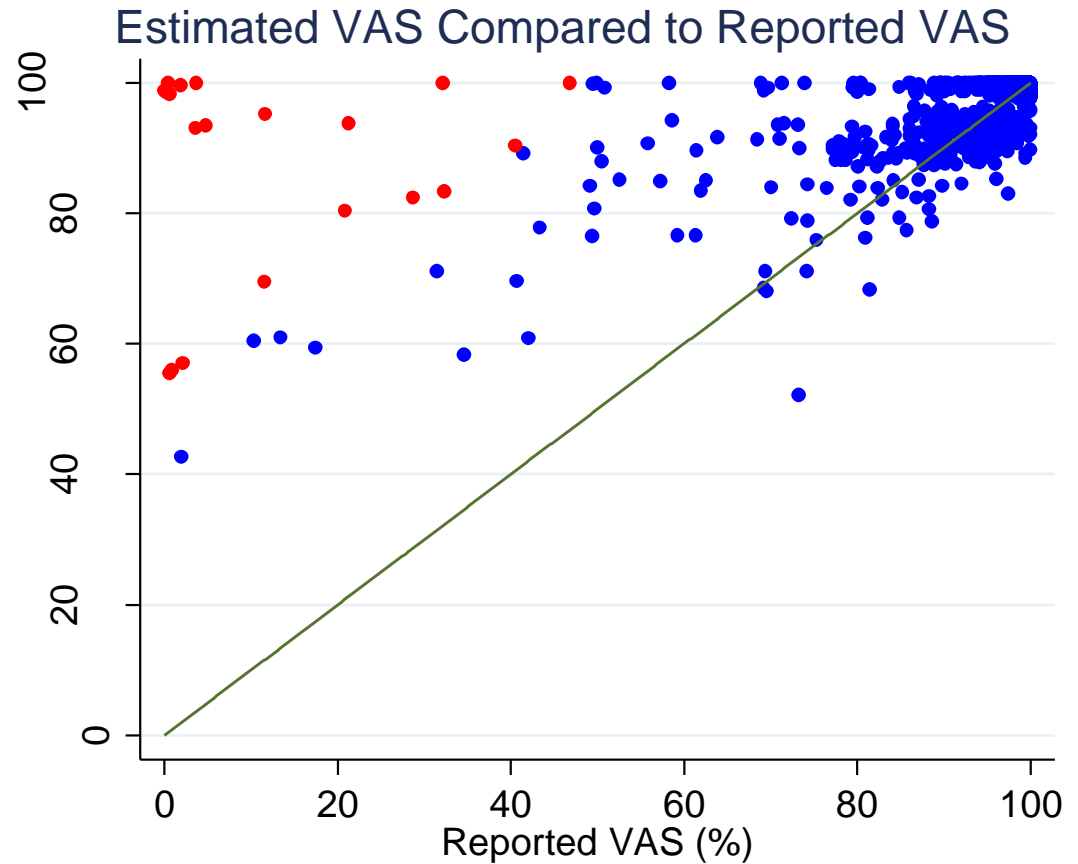
- ACTG question – How many doses of your medication did you miss in the last 14 days?
- **Estimated VAS=100 if doses missed=0**
- Robust linear regression with reported VAS as the outcome and doses missed as predictor among remaining 359
- Doses per day was non-significant

$$\textit{Estimated VAS=96.8\%-(2.9\%*number doses missed)}$$

- **Estimated VAS set to 0 if equation<0**

# Performance in CNICS

- Correlation between reported and estimated VAS=0.61
- Outlier is >50% difference between estimated and reported VAS
- 20 outliers
- Correlation without outliers=0.73



# Five STTR Studies

- All studies asked both the VAS and ACTG of same participants at same time
- Two US criminal justice (CJ) studies (N=441)
- Two international studies (N=268)
- One high-risk study (N=29)

# Demographics

	<b>CNICS</b>	<b>CJ</b>	<b>International</b>	<b>High-Risk</b>
<b>N</b>	1045	441	268	29
<b>Age</b>				
<30	7%	10%	16%	0%
30-39	21%	25%	62%	10%
40-49	39%	40%	20%	53%
≥50	32%	24%	2%	38%
<b>Sex</b>				
Male	87%	77%	71%	66%
Female	13%	21%	29%	34%
Transgender	0%	2%	0%	0%

Abbreviation: CJ = Criminal justice



# Adherence Item Summary

	<b>CNICS</b>	<b>CJ</b>	<b>International</b>	<b>High-Risk</b>
<b>VAS</b>				
<b>&lt;75</b>	6%	11%	6%	31%
<b>75-84</b>	5%	5%	0%	10%
<b>85-94</b>	17%	14%	2%	24%
<b>≥95</b>	71%	70%	92%	34%
<b>Missed Doses (2 weeks)</b>				
<b>0</b>	64%	63%	91%	52%
<b>1 to 5</b>	33%	18%	8%	10%
<b>6 to 10</b>	2%	9%	0%	10%
<b>≥11</b>	1%	10%	1%	28%
<b>When ART last missed</b>				
<b>In the past week</b>	18%	27%	6%	38%
<b>1-2 weeks ago</b>	15%	9%	2%	17%
<b>2-4 weeks ago</b>	11%	6%	4%	3%
<b>1-3 months ago</b>	13%	14%	5%	17%
<b>More than 3 months ago</b>	13%	19%	12 %	10%
<b>Never skip medications</b>	30%	25%	71%	14%

Abbreviations: ART = Antiretroviral adherence; CJ = Criminal justice; VAS = Visual Analogue Scale

# Correlation in STTR

- Correlations between estimated and reported VAS
- Correlations generally high, but inversions of the VAS greatly decrease the correlation

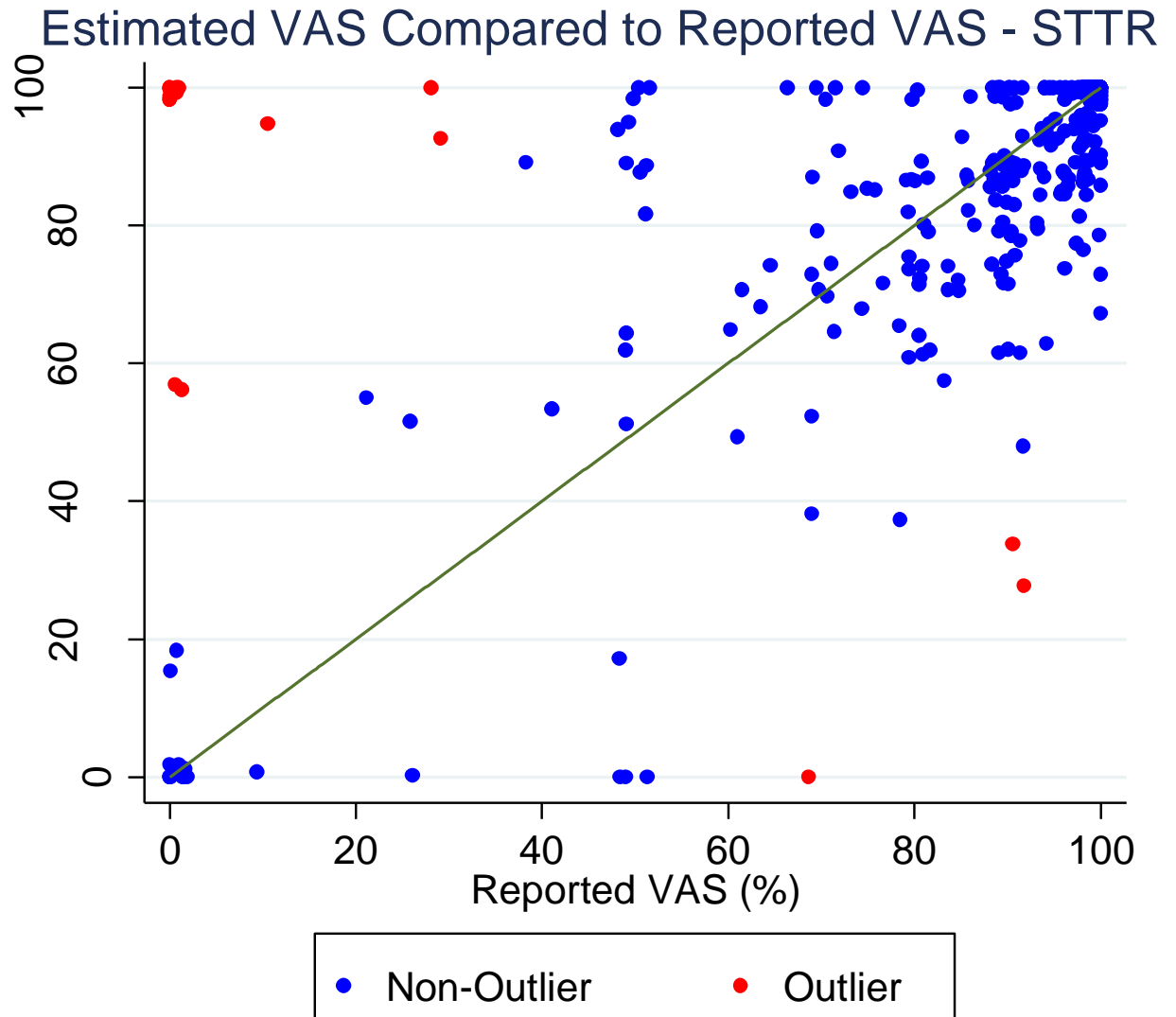
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	<b>Correlation (All)</b>	<b>Number of Outliers (%)</b>	<b>Correlation (Without Outliers)</b>
<b>Overall</b>	0.70	17 (2%)	0.87
<b>CJ</b>	0.81	8 (2%)	0.89
<b>International</b>	0.29	6 (2%)	0.63
<b>High-Risk</b>	0.49	3 (10%)	0.86

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Abbreviation: CJ = Criminal justice

- Scattered around  $y=x$  line
- Outliers on both ends of VAS spectrum



# Conclusions

- Calibration equation works well in different populations from the STTR Initiative
- Equation can be used to put the ACTG adherence measures onto the VAS scale
- Future work: Identify those who flip the VAS via a different question such as self-rating of ability to take ART as prescribed

# Thank you!

- NIDA, NIMH, NIAID
- STTR
- CNICS
- Collaborative Health Studies Coordinating Center

## Questions?