Adherence: where we are and where we are going?
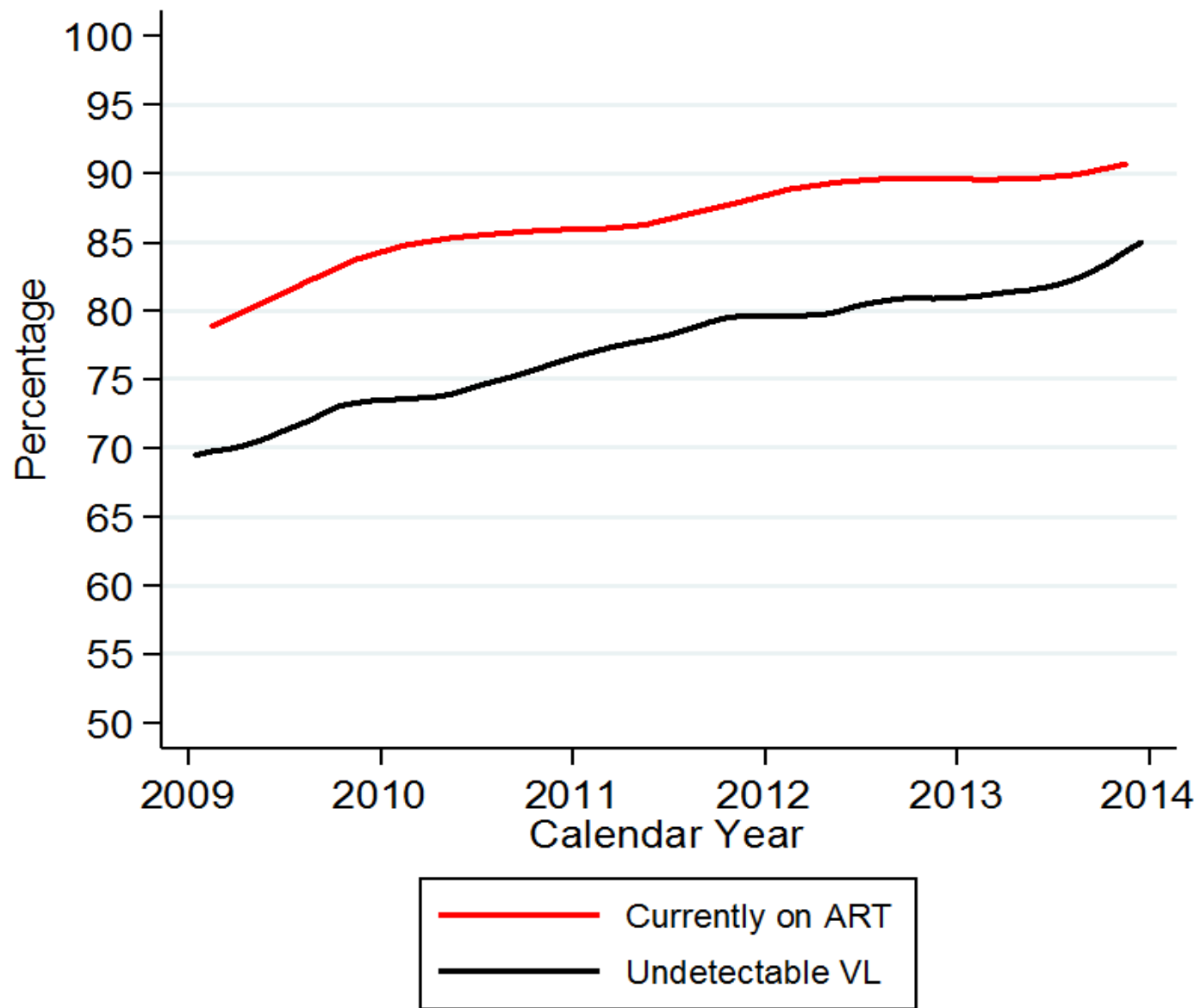
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Adherence: where we are and where we are going?

- We are doing much better at getting PLWH <u>in care</u> undetectable in more recent years than previously, mostly because we do a better job getting them on ART

- Even among those on ART there are improvements in proportion undetectable despite not necessarily doing a better job at adherence in the more recent era

- Important disparities still exist: we are not done

- Future: integrated into clinical care rather than intensive small interventions that are not generalizable, taking advantage of recent advances in EMRs to allow data collected outside the EMR to feed into it in real-time, targeted to those who need it, stepped care approaches, with broad scope, not just focused on adherence

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Consistently High ART Adherence

Percent Adherence by VAS Over Time
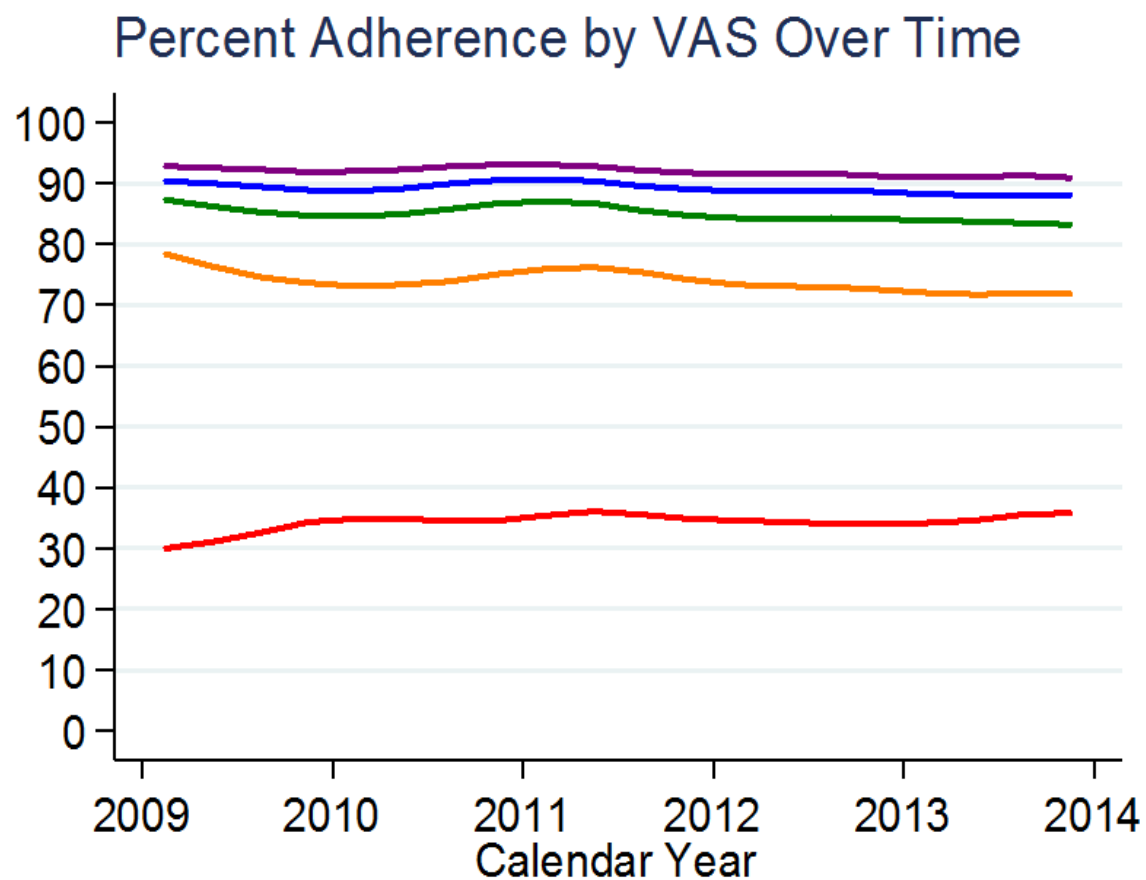
~75% of the population are 95% adherent or above

Legend:
- 80%
- 85%
- 90%
- 95%
- 100%
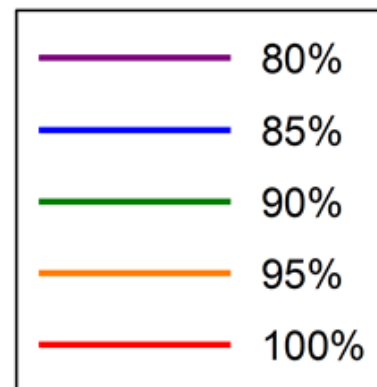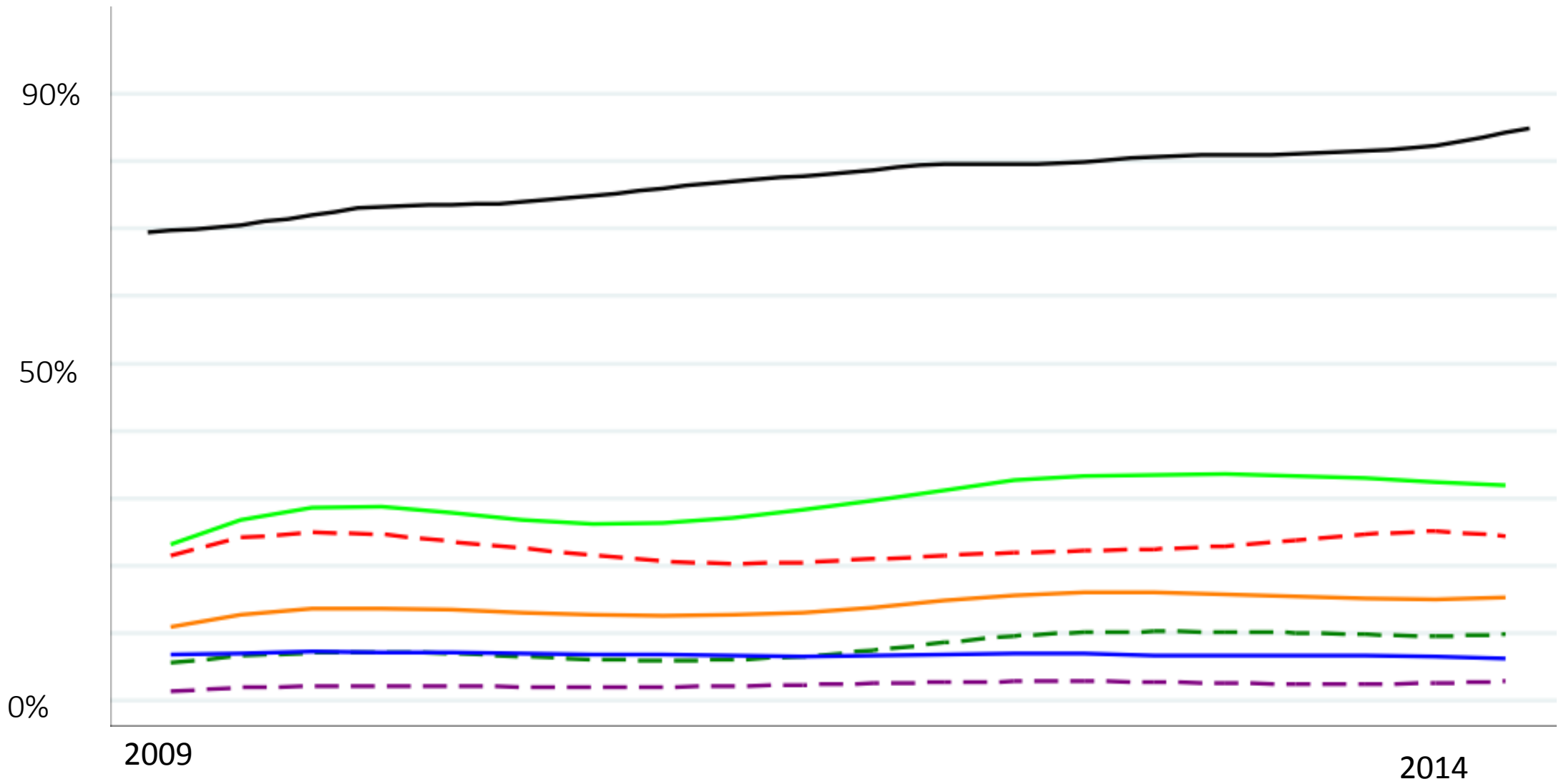
- - - At risk alcohol use	—— Current drug use (amph, coc, opi)
- - - Current amphetamine use	—— Current cocaine use
- - - Current opioid use	—— Current pot use
—— Undetectable VL	

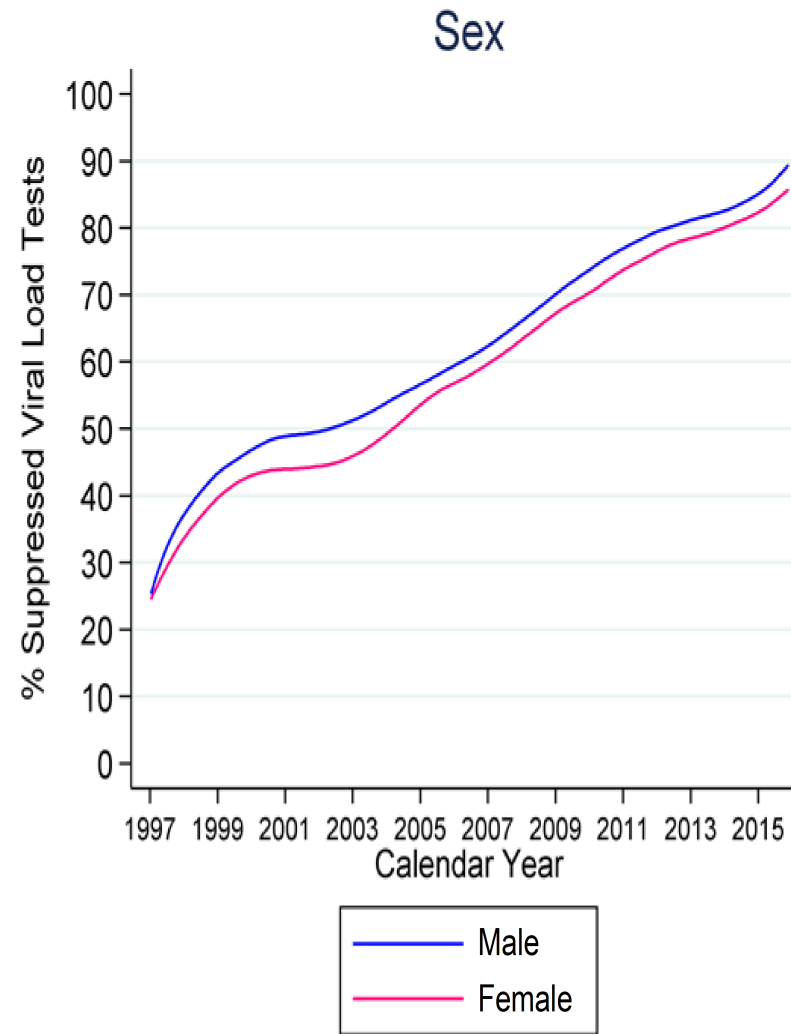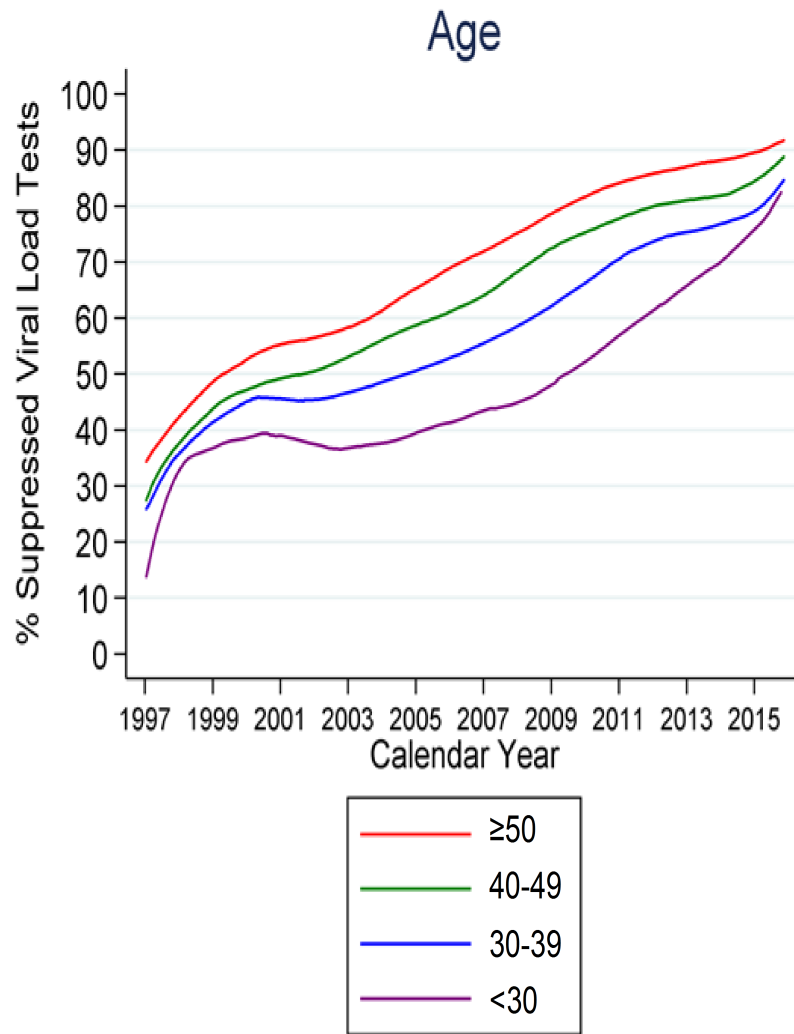| Factors associated with suppressed viral load among persons living with HIV on antiretroviral therapy in clinical care across the US in the CNICS cohort in 2010-2015 in adjusted models			
Covariate	OR	95% CI	P-value
Integrase strand transfer inhibitor use	2.4	2.2-2.6	<0.001
Male	1.3	1.1-1.4	<0.001
Age (per decade)	1.9	1.8-2.0	<0.001
Race (Black=ref)			
White	2.4	2.1-2.6	<0.001
Hispanic	2.5	2.1-2.9	<0.001
Other	2.5	2.0-3.1	<0.001
Years from 2010	1.4	1.3-1.4	<0.001

GAM plots of undetectable VL vs. adherence by drug class
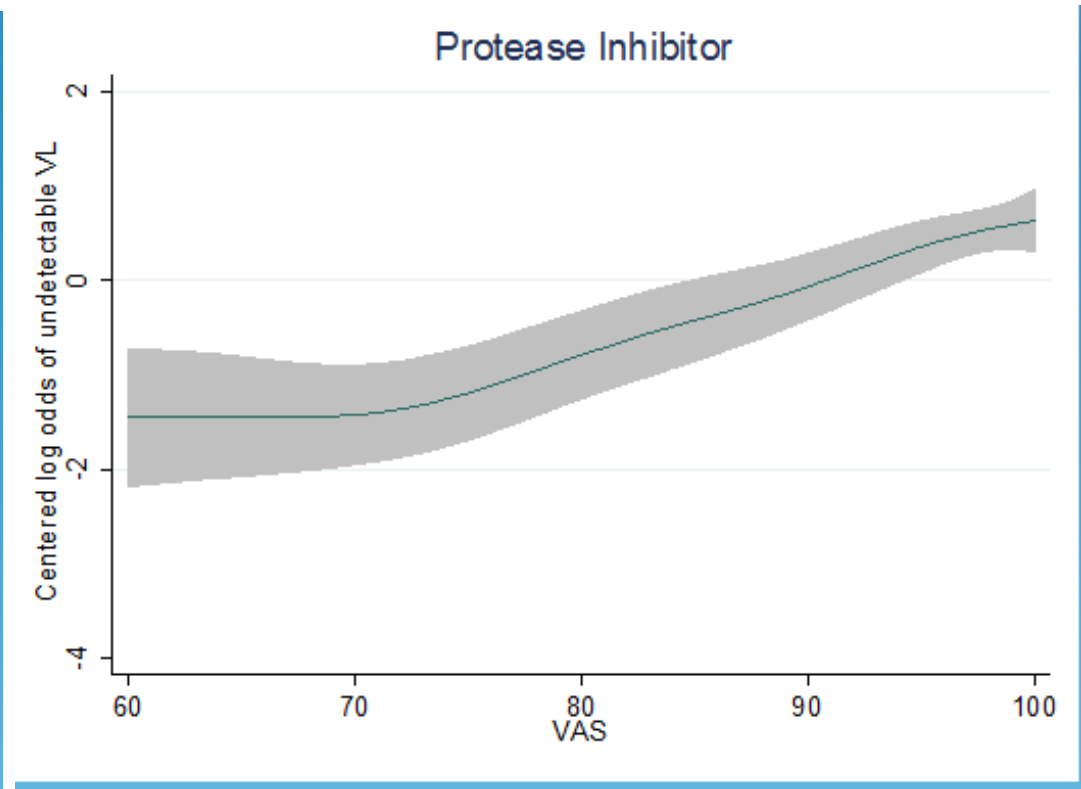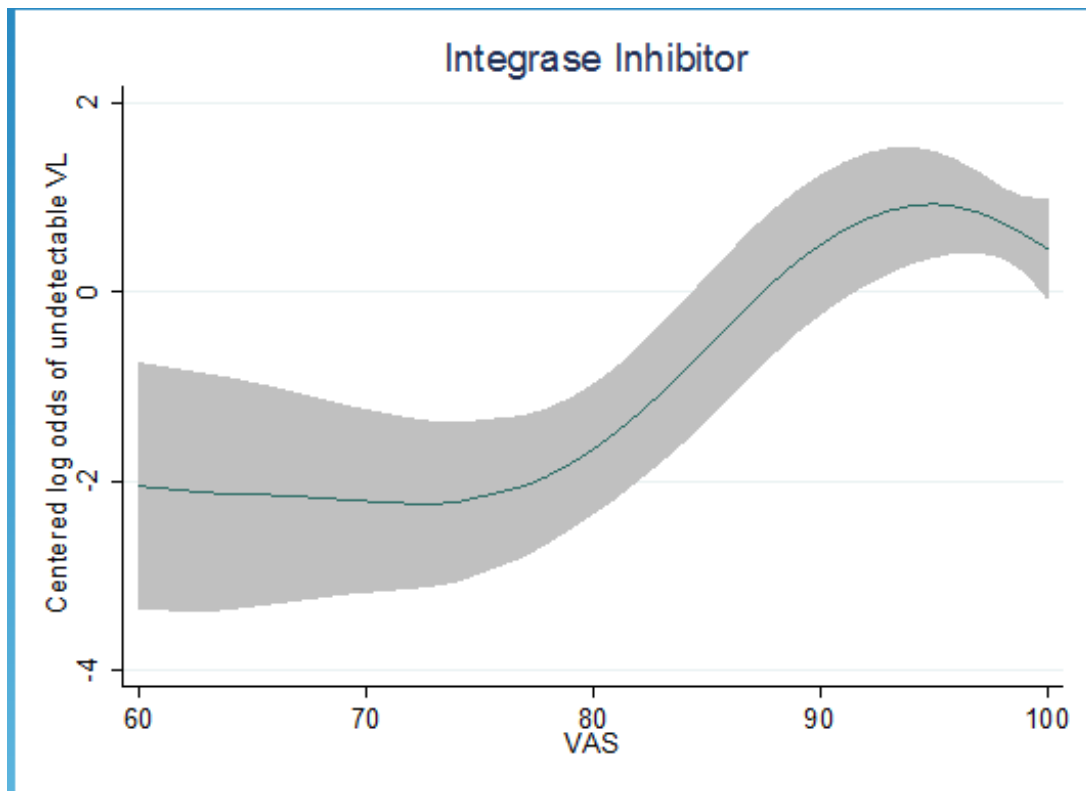
Different classes of antiretroviral medications demonstrated different best fitting break points for classifying participants as adherent

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Age

% Suppressed Viral Load Tests vs. Calendar Year (1997–2015)

Legend:
- ≥50 (red)
- 40-49 (green)
- 30-39 (blue)
- <30 (purple)

Sex

% Suppressed Viral Load Tests vs. Calendar Year (1997–2015)

Legend:
- Male (blue)
- Female (pink)

Age: 9% higher per older age category

Sex: 3% higher in males

Race: 8% lower in blacks compared to whites

Risk Factor: 3% lower in heterosexual compared to MSM, 6% lower in IDU compared to MSM

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Figure 1A. Common situation in routine clinical care
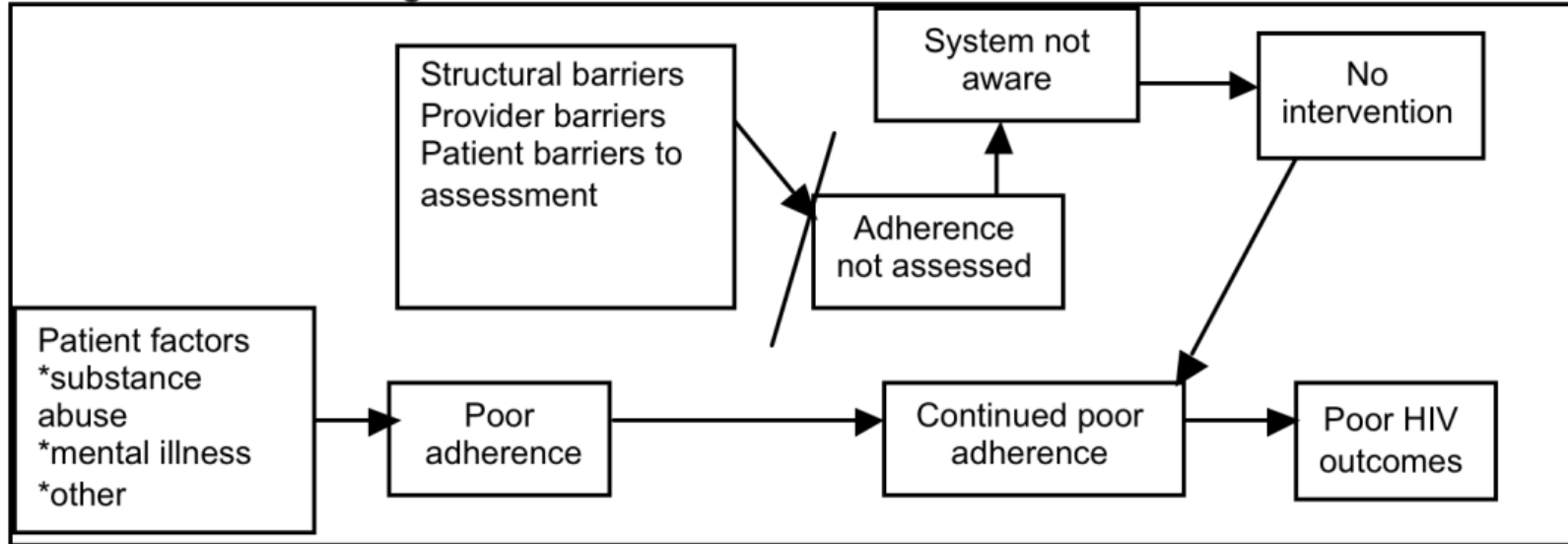
Figure 1B. Situation with valid adherence measurement incorporated into clinical care
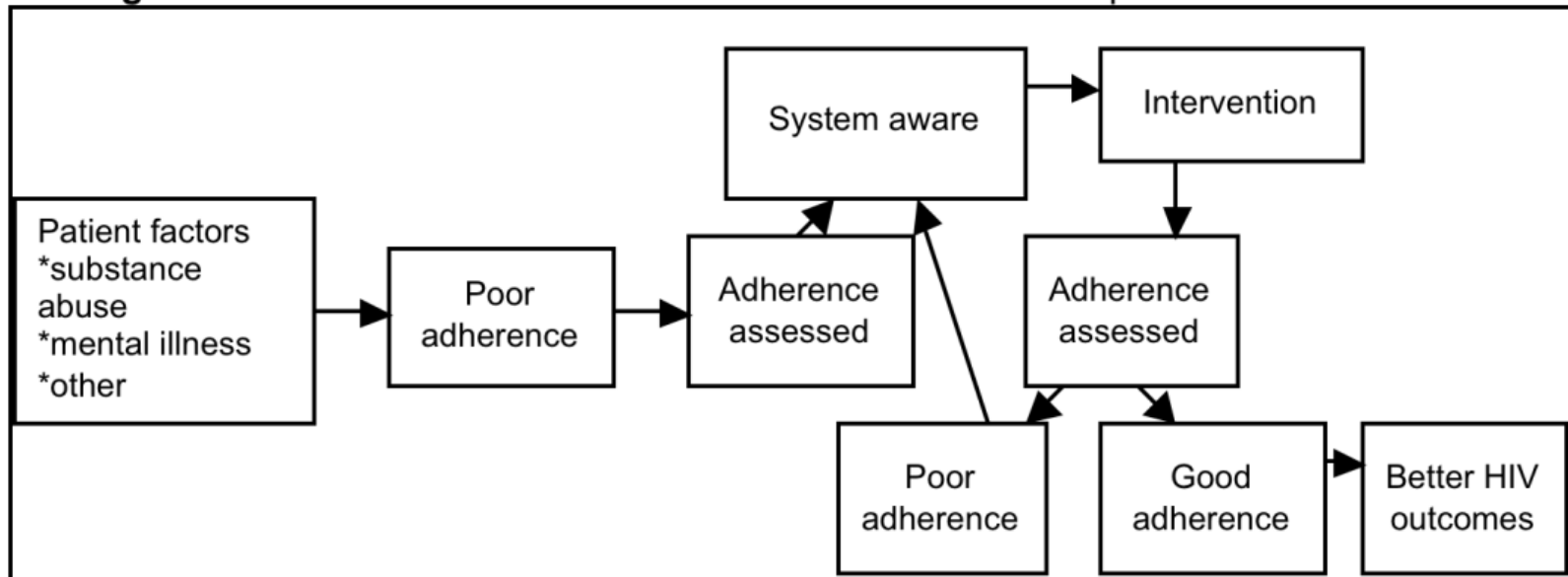
Selected Findings FROM CNICS: >70,000 Assessments To Date

Characteristic	%
Moderate to severe depression	22%
Anxiety	25%
Unsafe sex	29%
Any illicit drug use	70%
Current illicit drug use inc. marij.	34%
Current illicit drug use excl. marij.	20%
At-risk alcohol use	24%
Current smoker	36%

Top chart categories: Depression*, Adherence, Inaccurate adherence*, At-risk alcohol*, Substance use*, At-risk sexual behavior

Bottom chart categories: Depression, Adherence, At-risk alcohol, Substance use, At-risk sexual behavior

Legend: Before feedback, During feedback
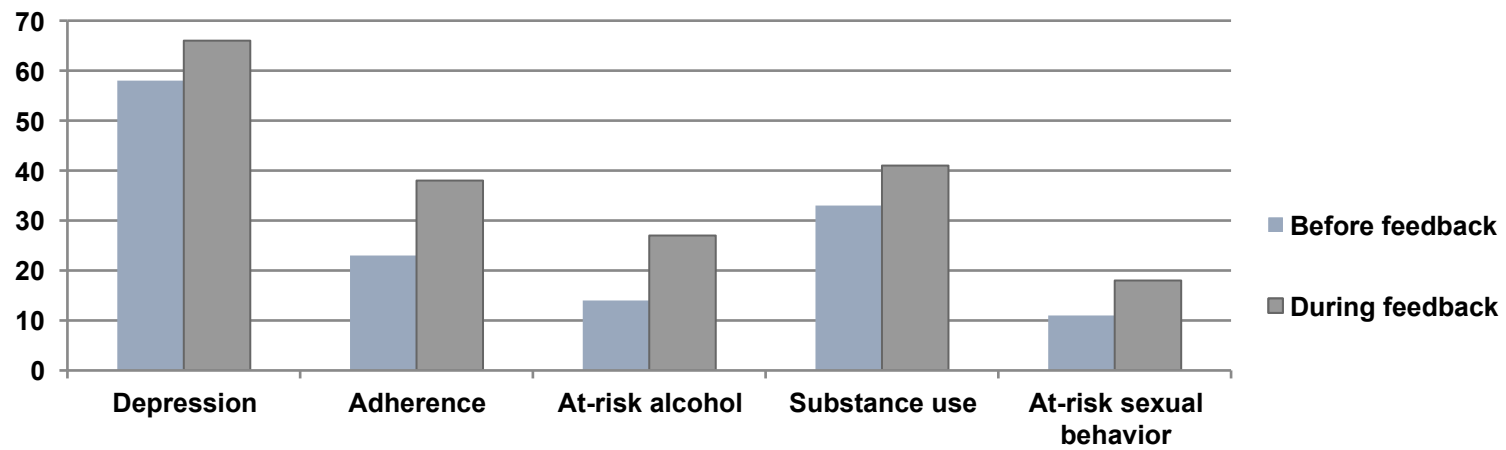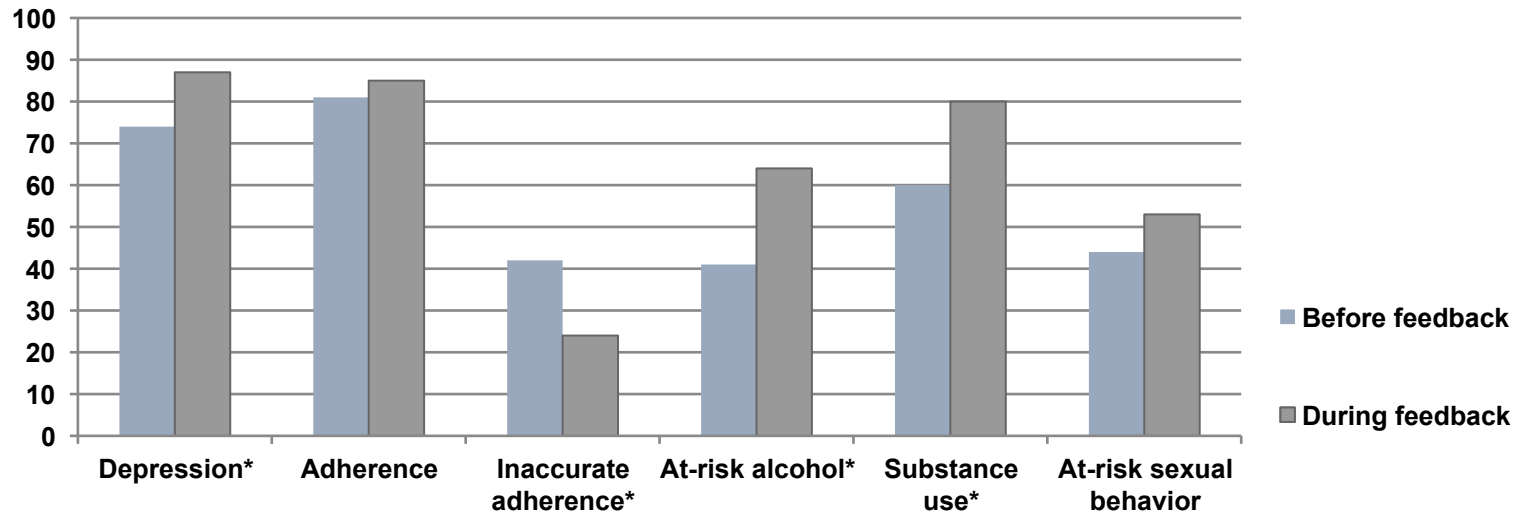
Patient-Based Measures Provider Feedback

Name:

Date Completed: 2013-08-14 10:56

Instrument	Interpretation
PHQ-9 Overall depression score last 2 weeks	
15	Moderate depression (10-19)
PHQ-9 Suicidal ideation score last 2 weeks	
1	Not at all
Tobacco use	
No	

Much easier to collect PRO data such as adherence using tablets outside the EMR (avoiding the patient portel, language, password and numerous other issues) and still feed data back in real time to providers.

-Our first interface for provider reports with Fenway (Centricity) was via HL7 version 2.5 message (a PDF)

-Then we could do discrete data

-More recently, an interface was deployed from the Fenway Admission-Discharge-Transfer (ADT) system and the Consolidated-Clinical Document Architecture to enable automated real-time modification of the assessment instruments based on clinical information.

Can develop template pending recommended orders for providers to sign or reject

Can automate feedback messages to not just provider but case managers and other team measures to ensure appropriate multi-disciplinary team members

Document View: All

	Date	Summary
	06/05/2014 11:46 AM	Chrt Maint
	06/05/2014 9:58 AM	Pt En Data: (P) Patient Summary Report
	06/05/2014 9:58 AM	Pt En Data
	06/05/2014 9:58 AM	Pt En Data: (P) Patient Summary Report
	06/05/2014 9:58 AM	Pt En Data
	06/05/2014 9:57 AM	Ofc Visit
	06/05/2014 9:55 AM	Pt En Data: (P) Patient Summary Report
	06/05/2014 9:55 AM	Pt En Data
	06/05/2014 9:51 AM	Pt En Data: (P) Patient Summary Report
	06/05/2014 9:51 AM	Pt En Data

Doc ID: 235   Properties: Patient Entered Data at FENWAY on 06/05/2014 9:58 AM by Brian Bakofen DO

Patient:
ID: CNICS
Note: All result statuses are Final unless otherwise noted.

Tests: (1) ()
```
  phq9                        10                      "Range Below..."
    RANGE:  Moderate depression (10-19)
  phq9_suicidal_ideation
                             0                       Not at all
  phq9_q1                    Several days            1
  phq9_q2                    Several days            1
  phq9_q3                    Several days            1
  phq9_q4                    Several days            1
  phq9_q5                    Several days            1
  phq9_q6                    Several days            1
  phq9_q7                    Several days            1
  phq9_q8                    Nearly every day        3
  phq9_q9                    Not at all              0
  phq9_q10                   "Result Below..."       1
    RESULT: Somewhat difficult
! ipv_1                      "Result Below..."       1
    RESULT: Declined to Answer
  ipv_2                      "Result Below..."
    RESULT: Declined to Answer
  ipv_3                      "Result Below..."
    RESULT: Declined to Answer
  ipv_4                      "Result Below..."
    RESULT: Declined to Answer
```

Summary

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- The future looks bright as incredible young researchers can build on the successes to date, the improved medications, and the advancements in EMRs, platforms, etc. to continue to improve care

Acknowledgements

- Data presented here from CNICS:
  - Fenway
  - UAB
  - UCSD
  - UCSF
  - UNC
  - UW
  - JHU
- The smarter ideas from Drs. Mugavero, Simoni, Fredericksen, and other colleagues (the weaker ones are mine!)
- Too many lovely colleagues to name them all
- Funders include NIMH and NIAID
- If questions: my email is hcrane@uw.edu