Feedback of HIV Medication Adherence Data to Patients: Assessment of Presentation Formats

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Infectious Diseases

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CCEB

Disclosure

- Pfizer
  - DSMB member for trial of drug unrelated to HIV
  - During time of these studies
  - Ongoing

Background

- Feedback of adherence data to patients central to communication
  - Frames expectations
  - Opens discussion of barriers
- Many ways to describe adherence
  - Percent of doses taken
  - Days late for refill
  - Length of maximal gap
  - Coefficient of variation (CV)
  - Many others
- May be difficult to understand

Hypotheses

- Low numeracy ~ lower ability to understand MPR
- Different formats easier or harder to comprehend
- Formats preferred by patients may not be best understood by them

Study Design

- **Cross sectional**
  - **Knowledge assessment re: adherence**
- **Target population**
  - **HIV infected adults age ≥18 years**
  - **On ARVs >3months**
  - **Any CD4**

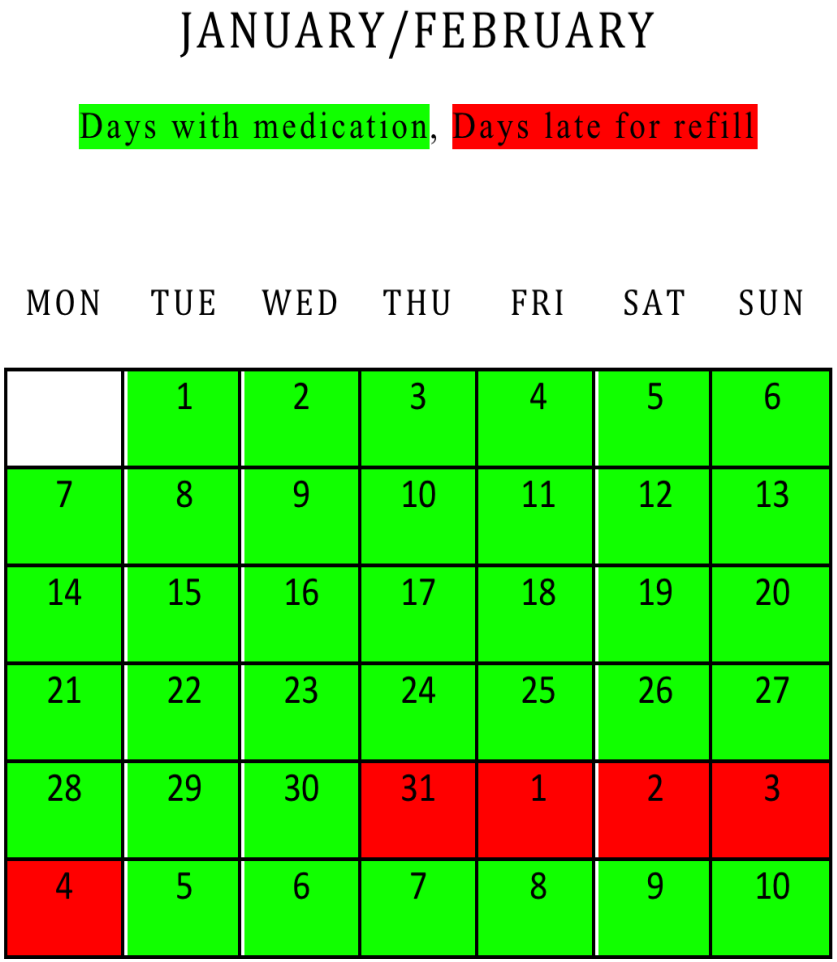
Variables Assessed

- **Dependent variable**
  - understanding adherence information
  - "Exposures": different formats, favorite format
- **Independent variables**
  - Subjective Numeracy Scale
  - Education level: ≤HS vs >HS
  - Actual Adherence over prior 90 days as MPR
  - HIV Viral Load

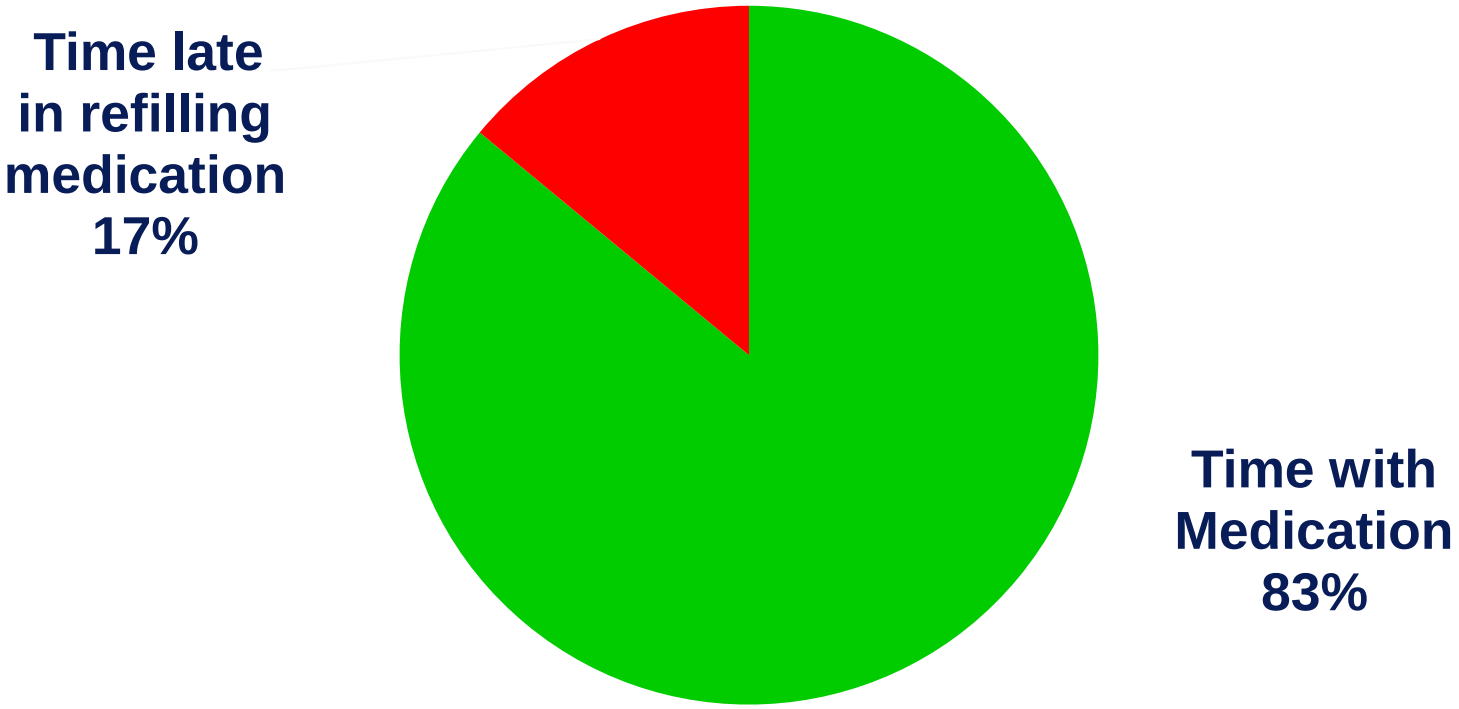
Methods

- MPR "understanding" was first assessed
  - 10 scenarios rated from Excellent to Poor
- Other formats used for 5 identical scenarios (all of which were also in MPR format)
- Classification scheme
  - Excellent (>95%): min to no improvement needed
  - Very good (90-95%): small improvement needed
  - Good (80-90%): some improvement needed
  - Fair (70-80%): much improvement needed
  - Poor (<70%): major improvement needed
- "Correct" if answer ≥ defined level

Visual Format: Calendar Plot

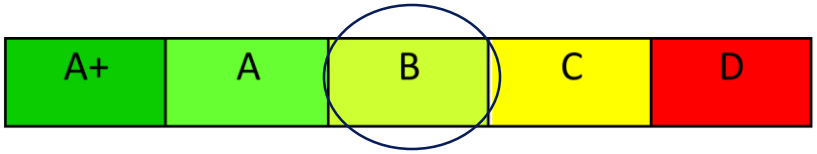


Visual Format: Pie Chart



Visual Format: Color Coded Grade

Adherence score for last month



Analysis

- Good understanding≥80% correct on initial MPR assessment
  - Univariate: chi-square and rank sum
  - Multivariate: logistic regression
- Formats compared on accuracy
  - Base case: days late
  - Logistic regression
  - Potential effect modifier: education

Characteristic	Good Understanding n=53	Poor Understanding n=71	p value
Median age (IQR)	50 (41-55) y	47 (40-55) y	>0.5
Sex			
Male	39 (74%)	49 (69%)	>0.5
Female	14 (26%)	22 (31%)	
Race			<0.001
Black	25 (47%)	56 (79%)	
White	27 (51%)	15 (21%)	
Other	1 (2%)	0	
Hispanic Ethnicity	3 (6%)	2 (3%)	0.43
Undetectable VL	35 (66%)	53 (75%)	0.3
CD4 Count (IQR)	540 (370-759)	585 (363-816)	>0.5
SNS Score (IQR)	38 (30-43)	29 (25-40)	0.04
HS Only Education	16 (31%)	44 (62%)	0.001
MPR	93.8 (75-100)	75 (50-92.8)	0.002

Multivariable Analyses

	OR of good understanding (unadjusted) (95% CI)	OR of good understanding (adjusted)* (95% CI)
African American Race	0.24 (0 .11-0.52)	0.39 (0.16-0.92)
≤12 years education	0.27 (0.13-0.58)	0.44 (0.19-1.01)
SNS score (per 10 unit increase)	1.49 (1.01-2.18)	1.06 (0.67-1.66)
Adherence (per one category increase)	1.42 (1.14-1.77)	1.28 (1.01-1.62)

Proportion 100% and 80% Correct

- Calendar: 70 (56%), 24 (19%)
- Pie chart: 68 (55%), 19 (15%)
- Days late 65 (54%), 24 (19%)
- Letter grade: 43 (35%), 40 (32%)
- MPR: 36 (29%), 23 (19%)

Format and Understanding

Presentation Format	Education ≤ 12th grade (N=60)	Education >12th grade (N= 63)
Number days late (base case)	1.0	1.0
Percentage (MPR)	0.3 (0.2-0.4)	0.4 (0.2-0.7)
Calendar Plot	0.9 (0.6-1.3)	1.8 (1.3-2.6)
Pie Chart	0.6 (0.4-0.9)	2.2 (1.3-3.6)
Letter Grade	0.5 (0.4-0.8)	1.3 (0.9-2.0)

Limitations

- Cross sectional
- Small sample size

Conclusions

- Lower education risks misunderstanding adherence data
- Formats differ w.r.t. communication
  - Most understood format: calendar plot
  - Least understood: MPR
- Depends on education
  - Calendar and pie better if educated
  - Calendar and days late if not

Thanks to the study participants!