# Texas 2009 Medical Monitoring Project: Antiretroviral data reliability and source agreement

Douglas Schuster, MPH; Sharon K Melville, MD, MPH; Praveen Pannala, MD, MPH; Sylvia Odem, MPH
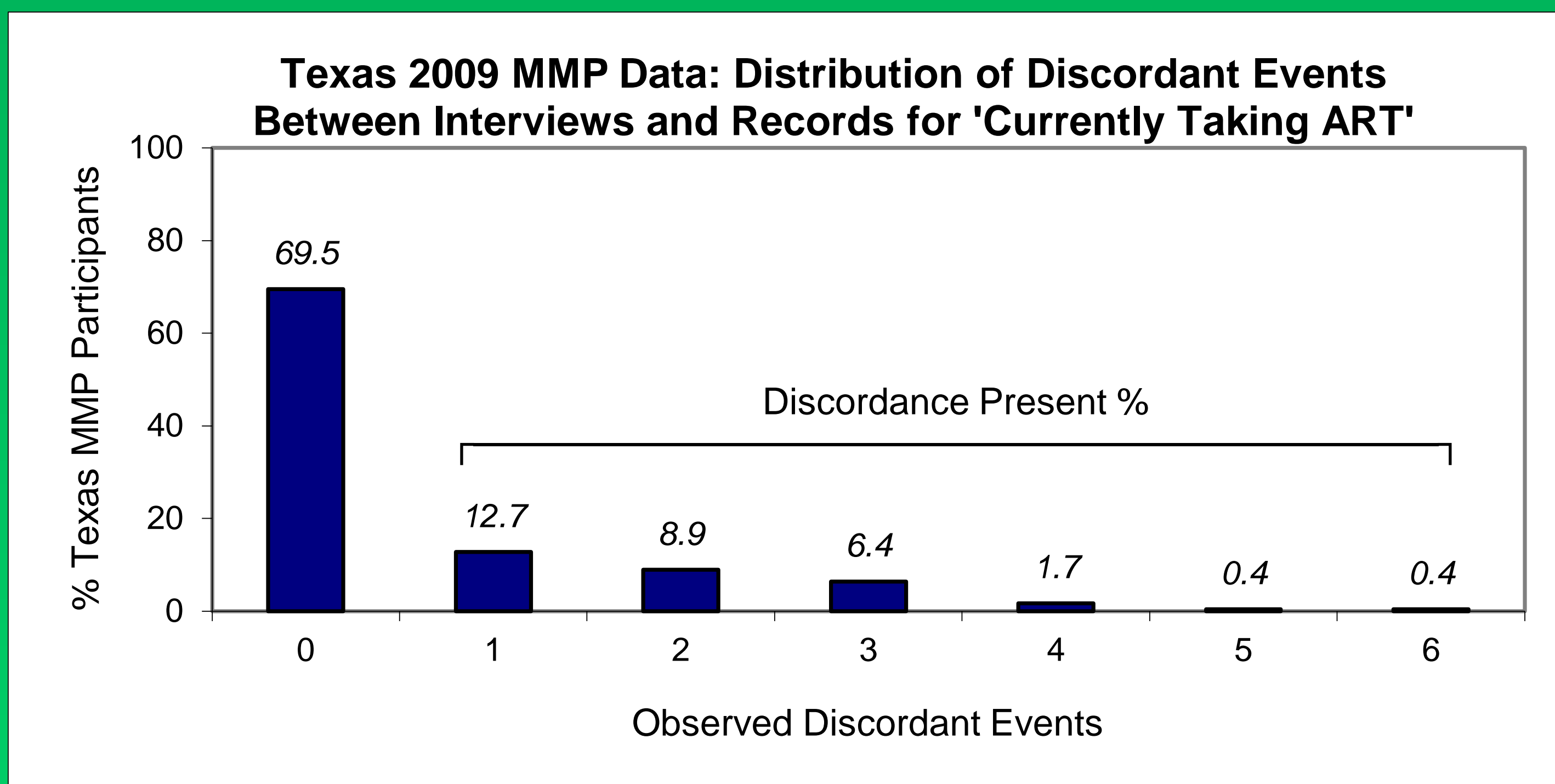
Texas Department of State Health Services, TB/HIV/STD Information and Projects Group

## Introduction

• The Medical Monitoring Project (MMP) is a nationwide surveillance project that assesses the unmet needs and quality of health services among HIV(+) persons receiving care.[1]

• 2009 MMP data for Texas was collected from both medical records and from patient interviews at 29 facilities across the State, excluding Houston, which is a separate MMP site.

• The 2009 Texas data was 76% male, 23% female, and 1% transgendered; 40% described their race/ ethnicity as White, 27% as African American, 26% as Hispanic, and 2% as Asian, Native American, or Multiracial.

• This analysis used the 2009 Texas MMP data on antiretroviral (ART) usage to assess agreement between the interviews and medical records.
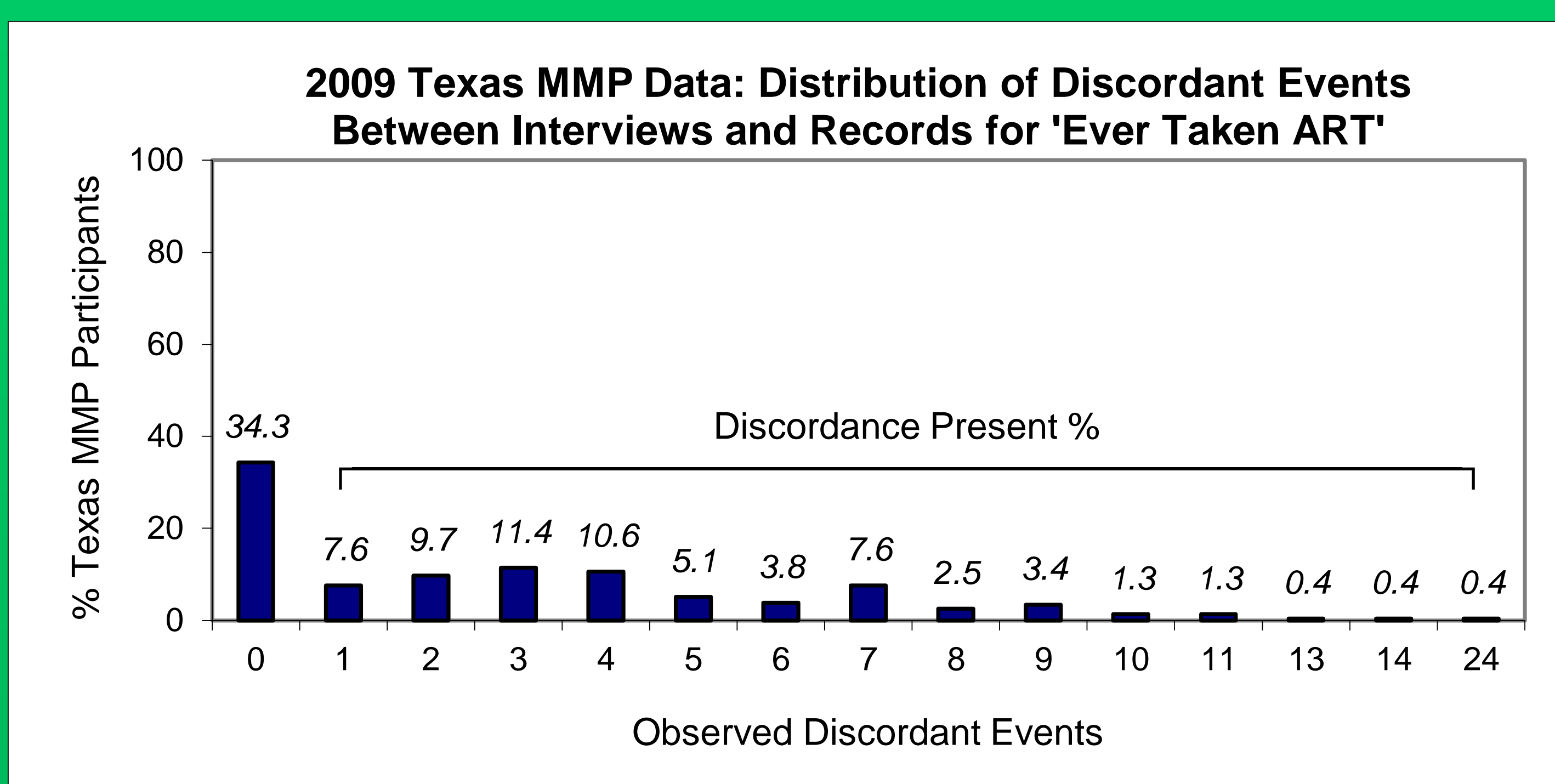
## Methods

• 237 interviews were completed, along with record abstractions documenting 2,748 individual clinical visits during the surveillance period (12 months prior to the interview date).

• The multiple visit records were condensed into individual observations by patient ID and linked to the interview data. Records and interviews were then compared for ART usage.

• For each of 32 evaluated ARTs a distinction was made between 'Currently Taking' (record data captures restricted to the last clinical visit prior to interview) and 'Ever Taken' (any usage at any time evident in the medical history up to the interview date).

• An adjusted Kappa statistic controlled for any downward bias resulting from unevenly-distributed concordant events.[2,3]
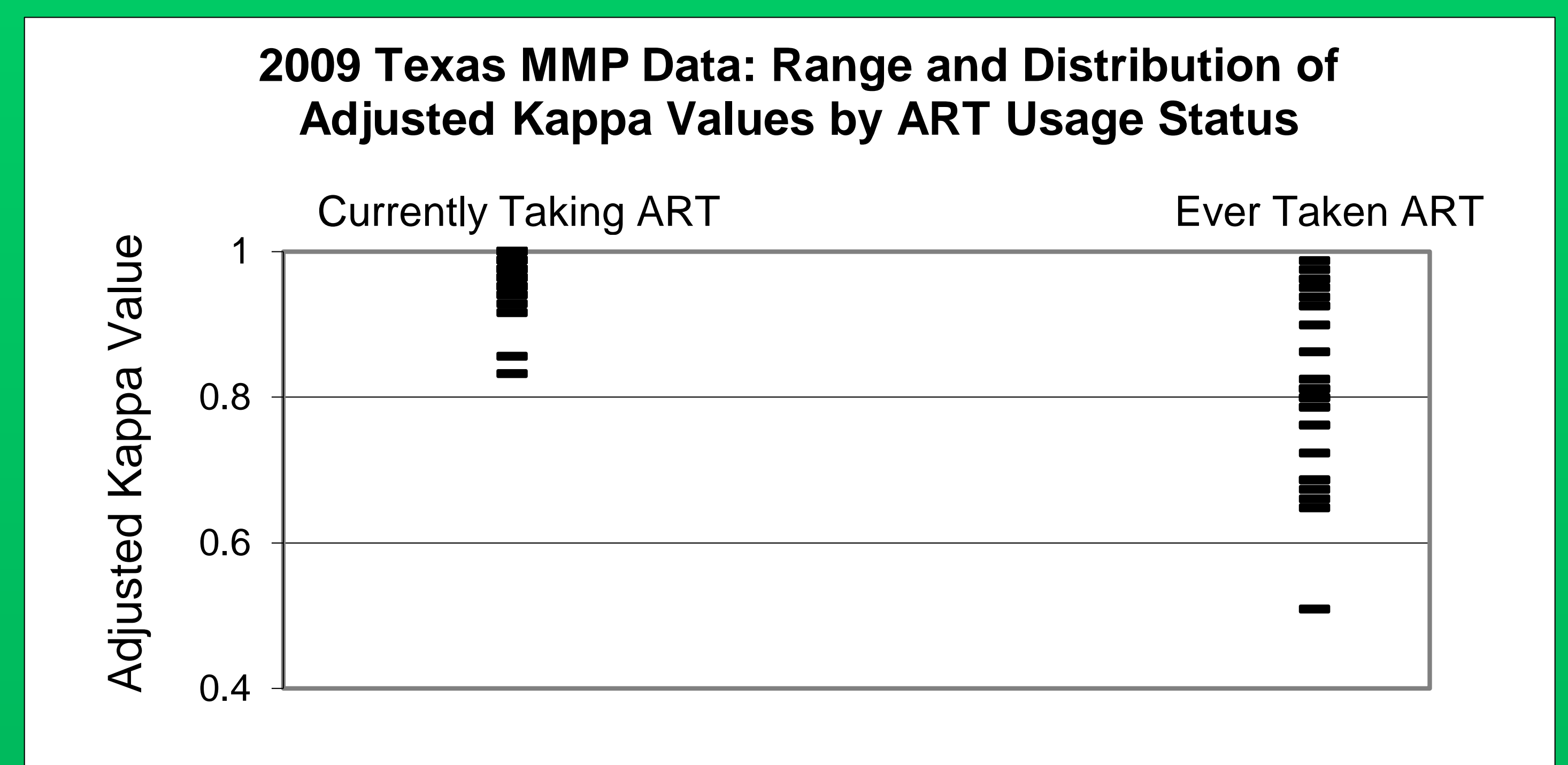


**Texas 2009 MMP Data: Distribution of Discordant Events Between Interviews and Records for 'Currently Taking ART'**

Source: Texas Department of State Health Services; 2009 Texas Medical Monitoring Project Data.

**2009 Texas MMP Data: Interpretation and Distribution of Kappa Values**

| Kappa Value | Level of Concordance | # Individual ARTs (Currently Taking) | # Individual ARTs (Ever Taken) |
|---|---|---|---|
| 1.0 | Perfect | 6 | 0 |
| 0.8 – <1.0 | Almost Perfect | 22 | 15 |
| 0.6 – <0.8 | Substantial | 0 | 15 |
| 0.4 – <0.6 | Moderate | 0 | 1 |
| 0.2 – <0.4 | Fair | 0 | 0 |
| 0.0 – <0.2 | Slight | 0 | 0 |
| -1.0 – <0.0 | Poor | 0 | 0 |
| Insufficient Discordance for Calculation | | 4 | 1 |

Source: Texas Department of State Health Services; 2009 Texas Medical Monitoring Project Data.



**2009 Texas MMP Data: Distribution of Discordant Events Between Interviews and Records for 'Ever Taken ART'**

Source: Texas Department of State Health Services; 2009 Texas Medical Monitoring Project Data.



**2009 Texas MMP Data: Range and Distribution of Adjusted Kappa Values by ART Usage Status**

Source: Texas Department of State Health Services; 2009 Texas Medical Monitoring Project Data.

## Results

• 69.5% of the linked records had completely concordant data for 'Currently Taking' ART status and 34.3% were completely concordant for 'Ever Taken' ART status.

• Average percent agreement was 98.2% for 'Currently Taking' status and 90.5% for 'Ever Taken', which had a significant mean difference of 6.9% (95% CI for the mean: 4.63% – 9.2%, p<0.0001).

• 'Currently Taking' ART status had a mean adjusted Kappa value of 0.961, a median of 0.976, and a standard deviation of 0.042. 'Ever Taken' ART status had a mean adjusted Kappa value 0.810, a median of 0.805, and a standard deviation of 0.121.

• Adjusted Kappa values for 'Currently Taking' ART status were high, with low variation, indicating a strong level of agreement between the sources, whereas values for 'Ever Taken' had a wider distribution and were significantly lower, though agreement was still relatively high, based on the standard Landis and Koch scale.

## Conclusions

• High reliability between patient-reported and medical record ART usage was observed, particularly for current ART usage.

• Concordance analyses of patient-reported medication usage have generally associated accurate recall with extended usage; however, in the 2009 Texas MMP data, greater concordance was observed for more-recently prescribed ARTs.[4,5]

• The observed outcome is likely due to the special nature of HIV clinical management, which can include frequent changes in medication regimens over many years of treatment.

• Linking data from multiple event records per individual (e.g., clinical visits over time) to a single record per individual provides an opportunity for retrospective analysis of MMP data.

• A high level of data reliability can be expected in national and local studies involving MMP data for ART usage.

References
(1) www.cdc.gov/ hiv/ topics/ treatment/ mmp/ index.htm (Accessed 2012, May 24).
(2) Langenbucher J, Labouvie E, et al. Measuring diagnostic Agreement. Journal of Consulting and Clinical Psychology 1996; 64.6: 1285-1289.
(3) Sim J, Wright CC. The Kappa statistic in reliability studies: use, interpretation, and sample size requirements. Journal of the American Physical Therapy Association 2005; 85:257-268.
(4) Boudreau DM, Daling JR, et al. A validation study of patient interview data and pharmacy records for antihypertensive, statin, and antidepressant medication use among older women. American Journal of Epidemiology 2004; 159(3): 308-317.
(5) Lubeck DP, Hubert HB. Self-report was a viable method for obtaining health care utilization data in community-dwelling seniors. Journal of Clinical Epidemiology 2004; 58: 286-290.

**Presented at AIDS 2012 – Washington, D.C., USA**