Methods. We identified dispensed outpatient oral antibiotics using pharmacy claims in 2011–2016 IBM® MarketScan® Commercial Databases for individuals <65 years old. Using enrollment data, we calculated mean annual membership with drug coverage. Annual rates of outpatient oral antibiotic use were calculated for Rx/1000, DDD/1000, and DOT/1000 persons. Prescriptions written with a ratio of DDD to days supplied >10 were considered biologically implausible and excluded from DDD calculations. We examined trends for each metric from 2011 to 2016 using negative binomial regression.

Results. Annual numbers of outpatient oral antibiotic prescriptions ranged from 18.6 million to 30.0 million (mean 24.3 million). Overall, Rx/1000 decreased by 7% from 892 in 2011 to 829 in 2016 (Figure 1). From 2011 to 2016, DDD/1000 increased 2% from 23.8 to 24.2 while DOT/1000 decreased 9% from 25.4 to 23.1. Significant per-year decreases were found from 2011 to 2016 for Rx/1000 (−1.1%) and for DOT/1000 (−1.6%), while no significant per-year change was seen with DDD/1000 (table). DDD/1000 underestimate use in pediatrics under the age of 10 (Figure 1). Prolonged duration is seen in adolescents and reflected by DOT/1000.

Conclusion. Trends in DDD/1000 for population aged <65 years do not mirror trends in Rx/1000 and DOT/1000. These differences may reflect that Rx/1000 and DOT/1000 more accurately capture antibiotic prescriptions in children than DDD/1000. As DDD/1000 underestimate antibiotic use in children, DDD/1000 underestimates reduction in antibiotic use over time and may not accurately reflect changes in use over time.

Disclosures. All Authors: No reported Disclosures.

Background. Technology has changed the way men-who-have-sex-with-men (MSM) seek sex; ≥60% of MSM in the United States use the internet to find sex partners, primarily via Grindr™ which is the most used dating app among MSM. Studies to date have mostly evaluated Grindr™ use as a dichotomous variable and found inconsistent results regarding associations with increased HIV risk behavior. Importantly, Grindr™ “on-screen” activity is monitored by phones and can provide an objective measure of app usage. Here we aimed to assess Grindr™ “on-screen” activity in MSM undergoing community-based HIV and sexually transmitted infection (STI) screening in San Diego, and to correlate activity with sexual risk behavior and substance use.

Methods. This nested cohort study was conducted between December 2018 and April 2019 and leveraged our “Good to Go” (AI106039) screening program for participant recruitment. During their testing encounter participants not on HIV PrEP were provided with surveys on demographics, substance use and risk behavior during previous 3 months, and Grindr™ usage. Participants with iPhones were instructed on how to assess Grindr™ “on-screen” activity (i.e., time on-screen during last 7 days) on their phones (Figure 1). Risk behavior was classified using the validated San Diego Early Test (SDET) Score (Figure 2).

Results. Overall 378/784 (48%) MSM participants indicated that they had opened Grindr™ during the previous 7 days. Grindr™ users had higher SDET scores than those not using Grindr™ (median SDET 2, IQR 0–5; mean 2.29) while there was no difference in proportion of substance users (alcohol and marijuana excluded, 21% vs. 17%; P = 0.14). Of 231 MSM who indicated recent Grindr™ use (61%) had iPhones; median on-screen activity during the previous 7 days was 144 minutes (range 1–2,640 minutes). Participants with high Grindr™ utilization (>80th percentile of time on screen corresponding to >480 minutes), had significantly higher SDET scores (median 5 vs. 2; mean 4.02 vs. 3.26; P < 0.001) and a tendency toward a higher proportion of substance users (29% vs. 20%) than those with lower Grindr™ utilization.

Conclusion. This study introduces Grindr™ on-screen activity as an objective measure that can help identify MSM at high risk for HIV.

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1961. Grindr™ on Screen Activity on iPhones Correlates with HIV Risk and Substance Use in Men Who Have Sex with Men, San Diego
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Session: 229. The End of AIDS Starts with Prevention
Saturday, October 5, 2019: 10:30 AM
1962. Renal Outcomes for Participants Taking F/TAF vs. F/TDF for HIV PreP in the DISCOVER Trial

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Background. In the DISCOVER PreP trial, emtricitabine/tenofovir alafenamide (F/TAF) was noninferior to emtricitabine/tenofovir disoproxil fumarate (F/TDF) for HIV prevention. Here, we report on the renal outcomes of F/TAF and F/TDF among all DISCOVER participants and in those on baseline F/TDF and PrEP and those randomized to F/TAF.

Methods. In total, 5387 men who have sex with men (MSM) and transgender women (TGW) at risk for HIV were randomized 1:1 to receive blinded F/TDF or F/TAF taken once daily (full cohort). Of these, 905 were on F/TDF PrEP at enrollment; of whom, 465 were randomized to F/TAF. Renal function and safety assessments included urinalysis (UA), estimated glomerular filtration rate (eGFRcr), urine protein:creatinine (Cr) ratio (UPCR), markers of proximal tubular function (β2-microglobulin/Cr ratio (β2MCr)) and renal binding protein:Cr ratio (RBP:Cr) and investigator-reported renal adverse events (AEs). Week 48 data are presented.

Results. In the full cohort, F/TAF was associated with more favorable changes in eGFRcr, β2MCr, and RBP:Cr compared with F/TDF (Table 1). Treatment-emergent proteinuria by UA was more common with F/TDF than F/TAF (24.3% vs. 21.3%, P = 0.005). Compared with F/TDF, participants taking F/TAF had a numerically significant increase in eGFRcr (95% CI 1.5% vs. 16 [0.7%], P = 0.005). Compared with F/TDF, treatment-related changes in UPCR >200 mg/g were reported by 35 [1.5%] vs. 16 [0.7%], P = 0.005. Compared with F/TDF, participants taking F/TAF had a numerically significant increase in eGFRcr, β2MCr, and RBP:Cr, and investigator-reported renal adverse events (AEs). Week 48 data are presented.

Conclusion. Through 48 weeks, MSM and TGW taking F/TAF for PreP had significantly better measures of renal function and fewer study-drug-related renal AEs compared with those taking F/TDF; switching from F/TDF to F/TAF was associated with improvements in eGFRcr and tubular function biomarkers. F/TAF for PreP is effective and has a superior renal safety profile compared with F/TDF.

Table 1. Renal biomarker changes at week 48 compared to baseline.

| Full Cohort | N | F/TAF | F/TDF | p value |
|-------------|---|-------|-------|---------|
| eGFR median change (C1, C3) | 4737 | 1.8 (-7.2, 11.1) | -2.3 (-10.8, 7.2) | <0.001 |
| β2MCr median % change (C1, C3) | 4688 | -10.7 (-12.6, 8.9) | 13.6 (-25.9, 57.3) | <0.001 |
| RBP:Cr median % change (C1, C3) | 4716 | 0.2 (-24.9, 35.4) | 19.9 (-33.8, 62.2) | <0.001 |

Baseline F/TDF vs F/TAF

| Study drug-related renal AE | N | F/TAF | F/TDF |
|-----------------------------|---|-------|-------|
| Any | 14 (0.5%) | 20 (1.0%) |
| Grade 3 | 2 (0.1%) | 3 (0.1%) |
| Grade 4 | 0 | 1 (0.1%) |

*Acute kidney injury (2)

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1963. PreP Significantly Reduces the Rate of New HIV Diagnoses in US Metropolitan Statistical Areas Independent of Treatment as Prevention (2012–2017)

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Background. Tenofovir/Emtricitabine (TVD) was approved for a Pre-exposure Prophylaxis (PrEP) indication in the United States in July 2012. Biomedical HIV prevention tools can impact the rate of new HIV diagnoses but their relative contributions have not been described.

Methods. The analysis utilized CDC published data on HIV diagnoses in 155 US metropolitan statistical areas (MSAs), a Treatment as Prevention (TasP) proxy of HIV suppressed individuals from 38 US states and DC, and a national pharmacy and medical claims databases to track TVD PreP use from 2012 to 2017. The calculation of person time at risk excluded time of those taking PreP as well as those who became HIV positive. TVD PreP use was categorized in quintiles. A multilevel Poisson regression model which considers changes over time of each MSA was utilized. Rates and rate ratios plus corresponding 95% confidence intervals were obtained for quintiles of PreP utilization after adjusting for the effect of treatment as prevention and calendar time.

Results. The US MSA rate of HIV diagnoses decreased significantly at a rate of 5.1% (95% CI −4.8 to −5.3%) per year in the period 2012–2017. PreP use increased from an average of 1.64±1.3 per 100 subjects with a PrEP indication in 2012 to 15.4 + 3.2 in 2017. HIV viral suppression also increased by 1.3% per year (95% CI 1.1 to 1.6%) during the period among HIV treated subjects. A multivariate model showed that PrEP use was significantly associated with the decline in the rate of new HIV cases, independent of a significant TasP effect. During the period of observation, the lowest quintile of PrEP utilization showed a statistically significant decline of −4.24% (95% CI −3.9−8.0) per year. Treatment as prevention had a significant and independent effect of −1.56% (−1.1−2.1%) per each percent increase of the proportion of HIV suppressed individuals from 38 US states and DC.

Conclusion. From 2012 to 2017, HIV diagnoses declined most steeply in MSAs where PreP use was the highest. The effect of PreP use was significantly associated with this decline and was independent of treatment as prevention.

Disclosures. All Authors: No reported Disclosures.

Figure 1. Longitudinal change in eGFRcr in the full cohort (solid markers) and in the baseline PreP cohort (open markers) through Week 48. Asterisks indicate p<0.01 compared to the corresponding F/TDF group (F/TAF vs F/TDF, and F/TDF→F/TAF switch vs. F/TDF→F/TDF).

Disclosures. All Authors: No reported Disclosures.