

# Insufficient PrEP monitoring and HIV drug resistance

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# M184V/I and K65R

- M184V/I – Emtricitabine/FTC
- K65R – Tenofovir disoproxil fumarate/TDF
- UK HIV drug resistance database
  - ART-naïve patients = 3.2% NRTI (2014)
  - ART-experienced = 14.7% NRTI (2014)

# PrEP resistance...what we know

Type of resistance found in PrEP studies:

FTC-related

- PROUD/iPrEX

TDF/FTC

- TDF2 (one patient)

## Acute HIV infection at risk

1. McCormack S, Dunn DT, Desai M et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *Lancet* Sept 2015 387(10013):53-60
2. Grant RM, Lama JR, Anderson PL, et al. Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. *N Engl J Med* 2010; 363:2587-2599
3. Thigpen MC, Kebaabetswe PM, Paxton LA, et al. Antiretroviral Preexposure Prophylaxis for Heterosexual HIV Transmission in Botswana. *N Engl J Med* 2012; 367:423-434

# PrEP resistance...what we know

Case report of transmitted resistance

*JAMA review, 2018*

- Resistance doesn't occur in adherent patients
- Resistance occurs <0.1%

1. Cohen SE , Sachdev D , Lee SA , et al. Acquisition of tenofovir-susceptible, emtricitabine-resistant HIV despite high adherence to daily pre-exposure prophylaxis: a case report. *Lancet HIV*. 2018 Nov 29. pii: S2352-3018(18)30288-1
2. Thaden JT , Gandhi M , Okochi H , Hurt CB , McKellar MS . Seroconversion on preexposure prophylaxis: a case report with segmental hair analysis for timed adherence determination. *AIDS*. 2018 Jun 1;32(9):F1-F4.
3. Riddell J , Amico KR , Mayer KH . HIV Preexposure Prophylaxis: A Review. *JAMA*. 2018 Mar 27;319(12):1261-1268.

# CROI Abstract 107

## 2019

- 95 previous PrEP users/ 3721 new diagnoses
- 26% vs 2% had M184I/V/IV/MV ( $p < 0.0001$ )
- 4 pts had K65R – but none in PrEP group

# PrEP at 56 Dean Street



& Monitoring at baseline and during usage

# Aims

- Review of newly Dx HIV
  - baseline resistance of M184V/I or K65R
  - AND pre-PrEP use
- Review patient journeys
- Review management of these patients

# Methodology

- Newly Dx HIV database - July 2015- January 2019
- Retrospectively reviewed case notes

Inclusion criteria	Exclusion criteria
Newly Dx HIV	Transfer of care/previously known
MI84V/I at baseline	HIV diagnosed at PEP f/up
K65R at baseline	<18 yr olds
Documented PrEP use <6/12	



# Results

- 991 new HIV positive patients, 10 patients M184V/I
- 5 patients with M184V and/or I **AND** previous PrEP-use
- 0 = K65R

= 0.5 %

(Nil from IMPACT or PrEP shop)

# Results 2

- All cis male, MSM
- Ages 28-45 years old
- CD4 430-1480
- Duration on PrEP
  - <3/12 x 3
  - <12/12 x2
- Range of months since last negative HIV test
  - = 2-12 months

# Patient journeys

Patient	PrEP source	Dosage	Adherence	Baseline HIV test	RITA	HIV Viral load (cpm)	VRT
1	Online	Event-based	Poor	Unknown	>4/12	2190	M184I
2	Online	Daily	Poor	No	<4/12	<20 *16 days later = 368	MI184VI *16 days later
3	Online	Daily	6/7 pills before UPAI	Failed test	<4/12	2415	M184I
4	Unknown	Unknown	Unknown	No	>4/12	70768	MI184 V/I
5	Online	Daily	Stopped 2/12 prior to Dx	No	<4/12	523	M184V

# Management

- All (n=5) = TDF/FTC
  - + Rezolsta (4)
  - + DTG (1) due to DDI with Seretide
- Number of days from Dx to Rx
  - median 9 days, range 6-50 days
- VL at 3/12
  - 3 x <20
  - 2x LTFUP

# Conclusions

- Patients still became undetectable on treatment
- The importance of 'attending' for a test
- If HIV +, should patients be intensified instead of stopping TDF/FTC

# Limitations

- Retrospective
- Unable to determine time and nature of acquisition
- Small number of patients
- Not yet able to obtain denominator of those taking PrEP
- Missing data

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