PA-072 **GP41 DIVERSITY IN ANTIRETROVIRAL THERAPY NAÏVE AND EXPERIENCED HIV-1 SUBTYPE C-INFECTED PATIENTS IN BOTSWANA: IMPLICATIONS FOR ENFUVIRTIDE (T-20) USE**

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10.1136/bmjgh-2016-000260.104

Background With the expansion of HIV treatment programs in sub-Saharan Africa, there are increased cases of HIV drug resistance. In Botswana where the national HIV treatment program has been in place since 2002, patients with HIV strains resistant to the core antiretroviral classes are a reality. There is need to investigate how some of the less frequently used antiretroviral classes such as enfuvirtide (T-20) and its derivatives would fair in this population.

Methods A total of 164 samples from 129 patients initiating combination antiretroviral therapy (cART) and 35 patients failing NRTI – and NNRTI-based cART in studies conducted in Botswana were available for analysis. Viral RNA was isolated from plasma and RT-PCR targeting HIV-1 gp41 was run and the product sequenced. Sequences were edited using Sequencher and alignments were made using Clustal-X. A

search on the Los Alamos HIV database yielded 106 gp41 sequences from unique Botswana patients and these were included in the analysis. The IAS-USA, 2015 Resistance Mutations update report was used to define the T-20 drug resistance mutations.

Results A total of 154 samples were successfully sequenced, 126 from treatment naïve patients and 28 from virologic failure patients. Additionally, 106 gp41 sequences from previous studies conducted in Botswana were included in the analysis. No major T-20 was detected in any of the 260 sequences. The N42S mutation which is associated with T-20 hypersensitivity was found in (87.3%) and this is consistent with published data from HIV-1C studies. The I69V mutation (95.6%) was the most common detected HR1 polymorphism. The most common HR2 polymorphism detected was I135L (98.4%) followed by E151A (92.3%).

Conclusions These results provide invaluable data on gp41 diversity in Botswana and show that there is no background resistance to T-20 or its derivatives. T-20 would be an alternative drug for patients failing cART in Botswana.