

# Anal HPV genotype distribution among HIV positive women reporting for routine cervical cancer screening in Harare, Zimbabwe.

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# Research team



- **Racheal S. Dube Mandishora**
- PhD candidate at the University of Zimbabwe (UZ).
- A fellow under the MEPI junior faculty training program
- HPV diversity and molecular characterization



- **Prof. Joel Palefsky (MD)**, Medicine and Laboratory medicine University of California, San Francisco (UCSF).
- Biology of HPV infection, HPV infection in HIV-positive men and women



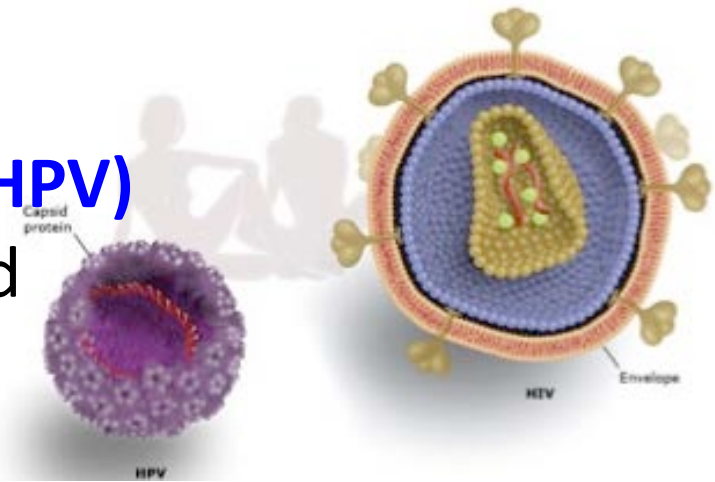
- **Prof. Zvavahera Mike Chirenje (MD, Obs & Gyn)**
- UZ-UCSF Collaborative Research Programme in Women's Health.
- Cervical Cancer screening and treatment of pre-cancer lesions in low resource settings. HPV in HIV infected women.



- **Dr Trine B. Rounge (Molecular biologist and Bioinformatician)**
- Cancer Registry of Norway
- Next generation sequencing, Bioinformatics

# Background

## Human papilloma virus (HPV)



- Most common sexually transmitted infection
- 206 HPV types, 60 infect mucosal epithelia & 13 have oncogenic potential
  - High-risk (HR)-include 16, 18, 31, 33, 45, 52, 58
  - Low-risk (LR)-6, 11, 40, 42, 70
    - Cause ~70% of cervical cancers
    - Cause ~90% of anogenital warts
- Persistent infections higher in HIV positives

# Background

- Women with a history of cervical cancer are at increased risk of anal cancer.
- Most anal cancer studies have focused on men-who-have-sex-with-men (MSM).
- 88% of anal cancers are associated with HPV yet there is paucity of data on anal HPV infection among women.

# Aim of the study

To determine the type specific prevalence of HPV in the anal canal of HIV positive women reporting for routine cervical cancer screening.

# METHODS

**Ethical approvals:** JREC (UZ & study site), MRCZ (Zimbabwe) & RCZ (shipping samples from Zimbabwe).

**Study design:** Cross sectional (Parirenyatwa VIA clinic).  
PhD study 2014-2018, recruited 300 women reporting for routine cervical cancer screening.

Recruiting nurse was trained on anal sample collection by

*Prof. J. Palefsky (UCSF)- anal HPV expert*

# Methods

## Recruitment

- All HIV positive women reporting for CaCx screening (from Phd study samples)
  - Informed consent, Screening tool and Questionnaire
  - HIV counseling and testing (Alere Determine™ HIV-1/2)

HIV negative

HIV positive

## Sample collection

Clinician collected anal swabs-CCAS

## DNA extraction

ammonium acetate/ethanol method

## HPV genotyping

Betaglobin RT-PCR  
Illumina sequencing-450bp region of the L1 gene

## Analysis

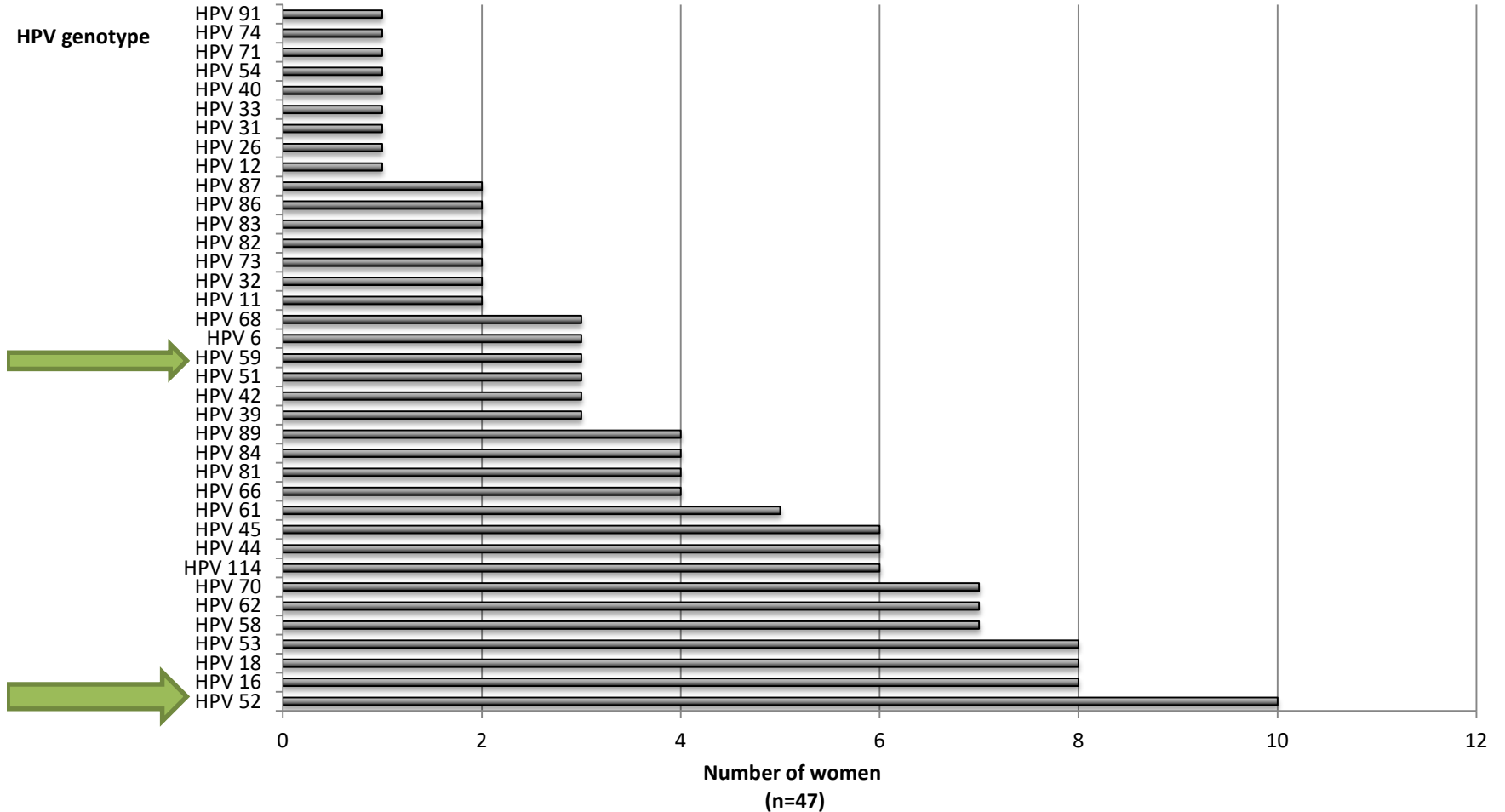
Data cleaning &  
Bioinformatics on R-studio

# Results

- 151 HIV positive women
- 47 (31%) were HPV positive
- 37 HPV genotypes were detected in this group of women.
- The most common genotypes were
  - **HPV 52** (21%), **HPV 16** (17%), **HPV 18** (17%) & HPV 53 (17%).
  - Twenty-four (51%) women had multiple HPV infections.



# Anal HPV genotypes in HIV positive women



# Summary/Discussion

- The distribution of HPV genotypes in the anus of these women was **diverse**.
- The three most common genotypes were **high-risk** (HPV 16, 18 & 52).
- A high proportion of the women had **multiple infections**, which puts them at risk of persistent infection.



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