The impact of latent/chronic viral infections on aging in people living with HIV

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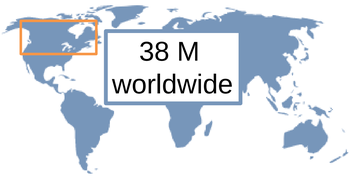
BACKGROUND

HIV epidemiology:



72,000 In Canada

People living with HIV:

Chronic inflammation and immunological aging

?

Other chronic or latent viruses

CMV EBV HHV-8 HSV-1 HSV-2 HCV

Accelerated aging + age-associated diseases earlier in life

6 PERSISTENT VIRUSES

	Chronic or Latent	Prevalence (Adults, North America)	Major Transmission Route	Common Associations	Vaccine Available?
CMV	L	HIV+ : >84% HIV- : 50-85%		Congenital CMV	✗
EBV	L	HIV+ : 90% HIV- : 48%		Mononucleosis, the "kissing virus"	✗
HHV-8	L	HIV+ : 26-57% HIV- : 2-7%		Kaposi's sarcoma	✗
HSV-1	L	HIV+ : 78% HIV- : 55-89%		Oral herpes (cold sores)	✗
HSV-2	L	HIV+ : 55% HIV- : 20-28%		Genital herpes	✗
HCV	C	HIV+ : 18% HIV- : 0.8-1%		Severe liver disease	✗

Associated with immunological aging: HIV, CMV, EBV, HHV-8, HCV

Associated With age-related diseases: HIV, CMV, EBV, HSV-1, HSV-2

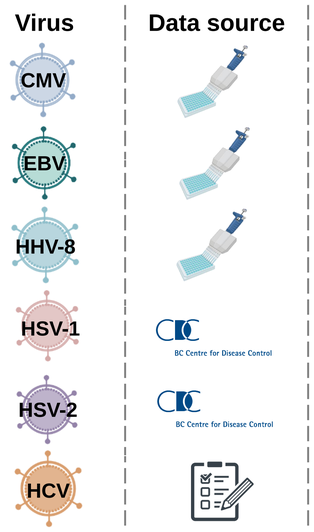
OBJECTIVE

- To **characterize** the number and type of **chronic/latent viral infections** in a cohort of people **living with or without HIV.**

HYPOTHESIS

- **A greater number** of chronic/latent infections will be associated with **older** age and/or **positive HIV status.**

METHODS & STUDY SAMPLE



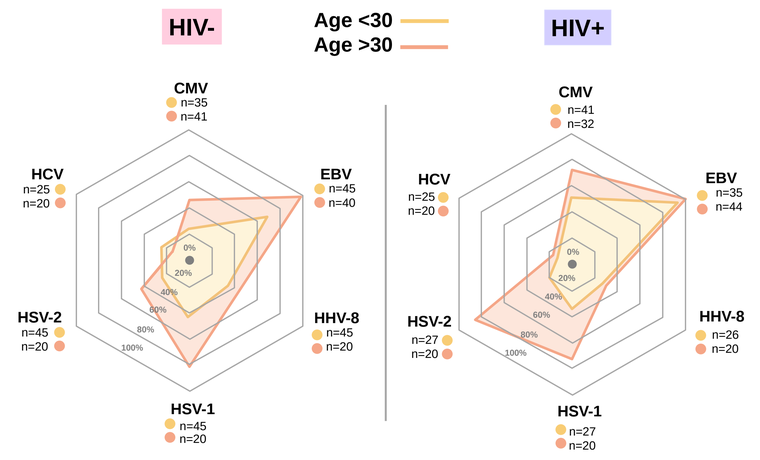
Population of interest: People living with and without HIV

Sample: CARMA Core cohort

Age (years)	HIV negative (n=85) Female (n=57)	HIV negative (n=85) Male (n=28)	HIV positive (n=85) Female (n=59)	HIV positive (n=85) Male (n=26)
>0-10	6	13	5	4
>10-20	6	15	5	15
>20-30	5	0	5	7
>30-40	14	0	15	0
>40-50	15	0	13	0
>50-60	5	0	11	0
>60	6	0	5	0

Table 1. Demographic information of participants in preliminary dataset

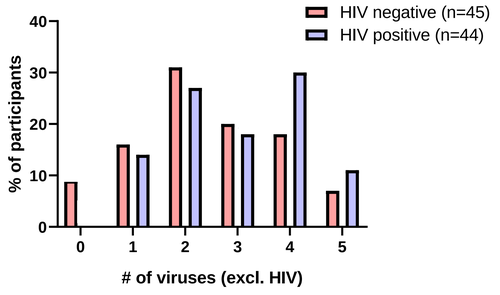
PRELIMINARY DATA



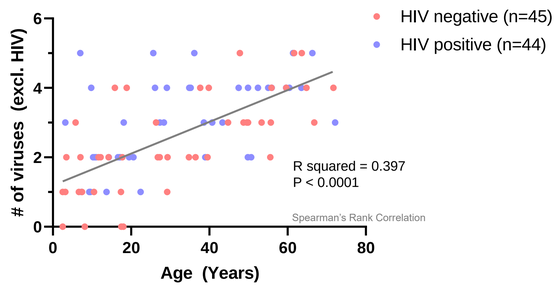
Virus	Prevalence, HIV- (%)	Prevalence, HIV+ (%)	Δ (%)
CMV	39.5	54.5	+15.0
EBV	79.1	95.5	+16.4
HHV-8	34.9	27.3	-7.6
HSV-1	44.2	56.8	+12.6
HSV-2	25.6	45.5	+19.9
HCV	2.3	13.6	+11.3

Table 2. Summary of virus prevalence in HIV- and HIV+ groups

- **All viruses** except HHV-8 are **more prevalent** amongst **HIV+** participants



- All **HIV+** participants have **at least one** other virus
- **HIV+** participants appear to have **more** viruses



- **Older** participants appear to have **more** viruses

FUTURE DIRECTIONS & SIGNIFICANCE

- We will investigate associations between chronic/latent viral infections and **markers of immune aging**.
- Understanding how the burden of multiple **persistent viruses** may affect **aging** can inform future treatment or prevention strategies for people living with HIV.

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