Results BALB/c mice that received the IL-13Ra2 and IL-4R antagonist vaccines showed significantly reduced IL-13 expression by ILC2 at the lung mucosae compared to the BALB/c that received the unadjuvanted vaccine ($p < 0.001$). Interestingly, the IL-13Ra2 adjuvanted vaccinated group showed significantly elevated ILC1-like cells expressing IFN-g compared to the IL-4R antagonist vaccine ($p < 0.0001$) or BALB/c mice given the FPV-HIV unadjuvanted vaccination ($p < 0.001$). Furthermore, IL-4 and IL-13 milieu also influenced the dendritic and macrophage cell subsets (i.e. CD11b+ CD103- DC, plasmacytoid DC, alveolar macrophages) recruited to the lung mucosae 24 h post vaccination.

Conclusion Our findings suggest that i) the outcome of a vaccine is determined within the first 24 h of vaccination, ii) ILC1-like cells most likely play a role in B cell immunity and iii) ILC2 are the major source of IL-13 that dampens CD8 T cell avidity by altering DC/macrophage recruitment to the vaccination site.

Disclosure of interest statement Authors have no conflicts of Interests. Work was supported by NHMRC and ACH2 EOI grants.

O17.4 DEVELOPMENT AND VALIDATION OF A HUMAN T-CELL LYMPHOTROPIC VIRUS TYPE-1 PROVIRAL LOAD ASSAY

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Introduction Human T-cell lymphotropic virus (HTLV-I) infects approximately 20 million people world-wide. Transmission requires cell to cell contact and infection can be acquired through breast milk, exposure to HTLV-1 contaminated blood products or sexual contact with an infected person. The HTLV-I proviral load (PVL) is a strong predictor of the risk of transmission and may also serve as an indicator of those most at risk of acquiring significant complications following infection.

The Australo-Melanesian variant (HTLV-I subtype c) is endemic amongst indigenous communities in Central Australia and demonstrates a highly divergent sequence from other known HTLV-I subtypes. Currently, there are no commercially available HTLV PVL assays and published methods fail to reliably detect HTLV-1c.

Methods We developed and validated a quantitative, real time PCR (qPCR) assay, specific for the current circulating strains of HTLV-I. Primers and probes were designed by sequencing the *gag gene* from HTLV-1c samples. A highly conserved region of the *gag gene* which did not cross-react with HTLV-II was chosen.

A dilution series of SP cells which contain 1 copy of the HTLV-I genome, was used for quantification. The standards and specimens were run in parallel throughout the entire extraction and qPCR process, allowing us to eliminate variations due to extraction efficiency, PCR amplification and detection. The albumin gene, was used to determine the number of cells/sample and the PVL expressed as HTLV-I copies/cell.

Results We have now fully validated this assay using both clinical specimens and cultured cell lines. Clinical specimens consisting of buffy coats, whole blood specimens and dry blood spots have been tested on the HTLV-I PVL assay and demonstrated good concordance with results obtained using gold standard serology assays.

Conclusion We have developed and validated an assay that can reliably quantify the HTLV PVL which may serve as a predictor of the risk of transmission and disease progression.

Disclosure of interest statement The authors and their affiliated organisations have no conflicts of interests. This work has been funded through the NHMRC.

O17.5 INCREASED HERPES SIMPLEX VIRUS-2 SHEDDING IN HIV-1 INFECTED PERSONS IS DUE TO POOR IMMUNOLOGIC CONTROL IN BOTH GANGLIA AND GENITAL MUCOSA

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Introduction A signature feature of HIV infection is poor control of herpesvirus infections, which reactivate from latency and lead to opportunistic infections. While the general mechanism underlying this observation is deficient $CD4^+$T-cell function, it is unknown whether increased severity of herpes virus infections is due primarily to poor immune control in latent or lytic sites of infection, or whether $CD4^+$ immunodeficiency leads to more critical downstream deficits in humoral or cell-mediated immunologic responses.

Methods Here we compare genital shedding patterns of herpes simplex virus-2 (HSV-2) in 98 HIV infected and 98 HIV uninfected men matched on length of infection, HSV-1 serostatus and nationality.

Results We demonstrate that high copy HSV-2 shedding is more frequent in HIV positive men, particularly in participants with $CD4^+$ T-cell count <200/μL. Genital shedding is more frequent due to higher rate of shedding episodes, as well as a higher proportion of prolonged shedding episodes. Peak episode viral load was not found to differ between HIV infected and uninfected participants regardless of $CD4^+$ T-cell count. We simulated a mathematical model which recapitulated these findings and identified that rate of HSV-2 release from neural tissue increases, duration of mucosal cytolytic immune protection decreases, and cell-free viral lifespan increases in HIV infected participants.

Conclusion These results suggest that increased HSV-2 shedding is due to impaired immune function in both latent and lytic tissue compartments, with deficits in both humoral and cell-mediated HSV-2 clearance.

Disclosure of interest statement No commercial contributions were received that are relevant to this work.

O18 - HIV and women's health

O18.1 PREVALENCE AND FACTORS ASSOCIATED WITH MODERN CONTRACEPTIVE USE AMONG HIV- POSITIVE WOMEN AGED 15–49 YEARS IN KILIMANJARO REGION, NORTHERN TANZANIA

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Background Of 270,000 new HIV infections in children, 90% are in Sub-Saharan Africa. High fertility levels and high number of women infected with HIV results in high rates of Mother-to-Child-Transmission (MTCT) in SSA. To date, most efforts to prevent MTCT of HIV have focused on the third prong, a strategy that offers ARV drugs to HIV infected pregnant women and their exposed infants. However, the effective use of contraceptives to prevent unwanted pregnancies among HIV-positive women has the ability to reduce the rates of MTCT of HIV at a lower cost compared to the third prong. There is limited information on the levels of contraceptive use and associated factors among HIV positive women in Northern Tanzania.
Methods This was a cross-sectional study conducted in February–May 2014 in three randomly selected districts of Kilimanjaro region. Univariate and multivariate logistic regression analysis were used to describe data and determine independent predictors of modern contraceptives use respectively.
Results Of the 672 HIV-positive women participated in this study, 93% were aware of modern contraceptive methods, 54% were current modern contraceptives users and 21% were using dual contraceptive methods. Commonly modern contraceptives method used included male condom (41%), Depo-Provera (13%) and oral contraceptive pills (10%). Modern contraceptive use was significantly higher among HIV-positive women with; secondary education (aOR = 3.6, 95% CI 1.4–9.5), who do not plan to have more children (aOR = 2.2, 95% CI 1.5–3.2), counselled on contraceptives at CTC (aOR = 3.7, 95% CI 2.7–5.1), disclosed their HIV status to their partner (aOR = 2.5, 95% CI 1.8–3.4).
Conclusions Prevalence of modern contraceptive use was higher than the national level. 46% of HIV-positive women are not using any method of contraception despite being sexually active. Strategies are required to increase use of long-term contraceptive methods to those who do not want more children and strengthening counselling to target non-users.

O18.2 INJECTABLE PROGESTIN CONTRACEPTION AND ACQUISITION OF HSV-2 INFECTION AMONG SOUTH AFRICAN WOMEN PARTICIPATING IN THE VOICE TRIAL

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Introduction Observational data suggest HIV-1 acquisition differs between users of two common injectable progestin-only contraceptives (IPC), depot medroxyprogesterone acetate (DMPA) and norethisterone enanthate (NET-EN). Data are limited on the potential impact of both IPC types on herpes simplex virus type 2 (HSV-2) acquisition.
Methods We conducted a secondary analysis among IPC users enrolled at South African sites in VOICE, a multi-centre randomised trial of topical and oral HIV-1 chemoprophylaxis. Contraceptive use assessment was conducted monthly. HSV-2 was diagnosed by Focus HerpeSelect EIA at enrollment and repeat EIA at study exit in all participants (seroconversion cutoff value ≥3.5); quarterly EIA was available for a subset to assess seroconversion timing. Using Cox proportional hazards regression, we assessed the association between IPC type and HSV-2 acquisition with adjustment for potential confounders (age, marriage/cohabitation, education, condom use, number of partners, VOICE study arm).
Results Among 1776 IPC users who were HSV-2-seronegative at enrollment, 922 (51.9%) used DMPA, 716 (40.3%) used NET-EN, and 138 (7.8%) used both IPC types at different times during follow-up. Among the 1638 IPC users who did not switch IPC type during follow-up, 1506 (91.9%) had baseline and exit HSV-2 serology available. Over 1534.1 person-years (py) of follow-up, 178 incident HSV-2 cases occurred: 107 in DMPA users (crude incidence rate [IR] 11.3/100 py) and 71 in NET-EN users (crude IR 12.1/100 py). Among 640 participants with quarterly HSV-2 serology, 45 cases occurred among DMPA users over 350.4 py and 31 among NET-EN users over 231.1 py (HR = 0.97; 95% CI 0.61–1.53; aHR = 1.02; 95% CI 0.64–1.62).
Conclusion HSV-2 risk did not differ by DMPA versus NET-EN use. These results are consistent with our findings that DMPA users in VOICE did not have higher risk of genital tract infection (gonorrhoea, chlamydia or trichomoniasis) compared to NET-EN users, despite having higher risk for HIV-1 infection.
Disclosure of interest statement The authors report no conflicts of interest.

O18.3 ADOLESCENTS IN SOUTH AFRICA AND ASSESSMENT OF HIV RISK: KNOWING WHO WE ARE TRYING TO PROTECT

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Introduction South African adolescent females are at high risk of HIV acquisition, disproportionate to their sexual behaviour. We hypothesised that biological changes associated with puberty may influence this susceptibility.
Methods This study was conducted in two South African sites, the Desmond Tutu Youth Centre, Masiphumele, Cape Town and the Perinatal HIV Research Centre, Soweto, Johannesburg. Cytokines were measured by Luminex. Sexual risk behaviour, contraceptive use and the prevalence of sexually transmitted infections (STIs) [*C. trachomatis* (CT), *N. gonorrhoeae* (NG), *T. vaginalis*,