THE IMPACT OF HIV AND HEPATITIS B VIRUS ON HEPATIC STELLATE CELL ACTIVATION USING A NOVEL *IN VITRO* SYSTEM

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Background: HIV accelerates HBV associated liver disease, however the mechanisms are unknown. Hepatic stellate cells (HSC) produce collagen leading to liver fibrogenesis. We hypothesized that increased microbial translocation from HIV-associated gastrointestinal tract damage, HIV and HBV alone or in combination increase HSC activation, accelerating fibrosis.

Methods: Primary HSC (pHSC) isolated from healthy human liver from resections for metastases were cryopreserved. Thawed aliquots were cultured and stimulated overnight *in vitro* with lipopolysaccharide (LPS)-EB, HIV gp120, purified HBV surface (HBsAg) and core (HBcAg) antigens, conditioned media from hepatocyte cell lines, and sera from HBV infected individuals on/off treatment and healthy controls. We used conditioned media from HBV replicating HepG2 2.215 and parent HepG2 cell lines, with/without an enhanced TNF-related apoptosis-inducing ligand (TRAIL) 'superkiller TRAIL™', (increases hepatocyte apoptosis). pHSC activation markers were quantified by flow cytometry, including intercellular adhesion molecule 1 (ICAM1) and CC chemokine ligand 2 (CCL2), and hepatocyte apoptosis (caspase3+).

Results: A statistically significant increase in pHSC ICAM1/CCL2 resulted after stimulation with LPS-EB and HIV gp120 ($p<0.05$), but not HBsAg/HBcAg. There was no difference in pHSC activation with HBV-infected versus uninfected hepatocyte media. Addition of superkiller TRAIL™ to hepatocyte cultures resulted in increased caspase3+ hepatocytes. Stimulation with this media led to a statistically significant increase in pHSC ICAM1/CCL2 ($p<0.05$). pHSC ICAM1/CCL2 correlated with the proportion of apoptotic hepatocytes in conditioned media (ICAM1 R squared=0.72, p=0.033, CCL2 R squared=0.76, p=0.023). Incubation with serum from untreated HBV-infected patients (n=5) led to a statistically significant increase in pHSC ICAM1 greater than that after incubation with serum from HBV uninfected (n=6) or treated HBV infected patients (n=6) ($p<0.05$).

Conclusions: pHSC are activated *in vitro* by LPS-EB,HIV gp120 and hepatocyte apoptosis. Given these parameters are elevated in both treated and untreated HIV-HBV co-infection, they could each contribute to the accelerated fibrogenesis seen in HIV-HBV coinfection.

SURVIVAL TRENDS FOR HIV+ PATIENTS RECEIVING FIRST LINE ART FROM THE TREAT ASIA HIV OBSERVATIONAL DATABASE (TAHOD-LITE)

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Background: Antiretroviral treatment (ART) for HIV-positive patients has scaled up rapidly in Asia over the last ten years. The study aim is to describe the time trends in, and risk factors for, overall survival for HIV-infected patients receiving first line ART in Asia.

Methods: We included HIV-infected adult patients from the TREAT Asia HIV Observational Database (TAHOD-LITE) who initiated an ART regimen with ≥3 antiretroviral drugs from 2003 to 2013 (n=16 546). Seven sites contributed data from 6 countries, patient follow up was to May 2014. We compared survival for each country and overall by time period of ART initiation using Kaplan-Meier curves. Patients were censored at most recent clinic visit. Factors associated with mortality were assessed (Cox regression models), stratified by site. Variables included year of ART initiation, age, sex, mode of HIV exposure, pre-ART viral load, pre-ART CD4 count, first ART regimen, previous mono/duo exposure, hepatitis B and C co-infection.

Results: There were 880 deaths observed over 54 531.8 person years, a crude rate of 1.61 (1.51, 1.72) per 100 person-years. Overall, survival significantly improved in more recent time periods of ART initiation ($p < 0.001$), with survival probability at 4 years for those initiating ART in 2003-05 of 92.1%, in 2006-09 of 94.3% and in 2010-2013 of 94.5%. Factors associated with a higher risk of mortality included initiating ART in earlier time periods, older age, male sex, injecting drug use as mode of HIV exposure and lower pre-ART CD4 count. Concurrent with improved survival has been a move to earlier ART initiation, more tenofovir use, and greater routine monitoring of CD4 and especially viral load.

Conclusion: These results confirm that HIV+ patients from resource limited settings have improved survival in more recent time periods. This is likely a consequence of a combination of treatment and monitoring changes over time.

SEXUAL BEHAVIOUR, CONDOM USE AND HIV PREVALENCE IN REMOTE AREAS OF PAPUA NEW GUINEA

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Background: Data on sexual behaviour can help shape local HIV prevention interventions. This audit reports data captured from two universal indicator questions that has been included in HIV testing logbooks since late 2012.

Methods: Data on sexual behaviour was recorded in HIV testing log books for all clients presenting in 54 clinics across Southern Highlands, Hela and Gulf provinces. Due to high illiteracy amongst the local population (>70%), clients were verbally questioned by the healthcare staff using the standardised questions “How many sexual partners (SP) have you had in the last 12 months” and “Did you use a condom at your last sexual intercourse (LSI)”.

Results: 37,036 clients aged >15 years presented for HIV testing in 2013 & 2014; 69% female and 31% male. Of those having more than one sexual partner in the last 12 months, 13.3% (990/7,447) reported condom use at LSI. Men reported higher condom use than women; 16.8% (692/4,123) versus 9% (n=298/3,324). Condom use increased as the number of partners in the last 12 months increased. Condom use was marginally lower in clients with more than one partner who tested HIV positive 12.4% (22/178) compared with those testing HIV negative 13.4% (968/7,237).

Conclusion: The results show an overall low rate of condom use at LSI. However, as the number of sexual partners in the last 12 months increased, so did condom use. The analysis further identified a higher percentage of men using condoms than women. This might be due to the higher number of SPs amongst men compared to women and the greater degree of social acceptability for men to carry condoms compared to women. Reported condom use at LSI amongst clients with more than one SP tested for HIV had a marginal effect HIV positivity rate. The main limitation of this analysis includes social desirability bias that may result from healthcare workers eliciting sexual behaviour of individuals.

INTEGRATING COUPLE HIV COUNSELING AND TESTING (CHCT) ON ANTE NATAL CARE (ANC) SERVICE IN BALI - INDONESIA

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Introduction: Number of HIV and AIDS cases in Bali in 2012 was approximately 26.000. Since several years the mode of HIV transmission in Bali is mainly from heterosexual intercourses. Data shows that more than 17% HIV infected people in Bali are housewives which belief transmitted by their husband/partner. Couple HIV counseling and testing (CHCT) aims to prevent HIV through sexual transmission and build support environment for partners who found to be HIV+. There is no CHCT program available in Indonesia or In Bali. The objective of this study is to know the feasibility of CHCT program s if CHCT conducted during ANC visit at Primary Health Centre (PHC).

Methods: A qualitative study was conducted in Denpasar and Badung Regency, Bali-Indonesia from July to December 2013. Eight couples (pregnant women and partners), 8 ANC staffs were participated in in-depth interviews regarding the feasibility study on CHCT in ANC setting. Six focus group discussions were also performed. The FGDs were each groups among pregnant women, pregnant women's partners, midwives, VCT counselors the Head of PHC, and Decision Makers related to HIV program.

Results: In-depth interviews resulting that integrating CHCT into ANC services is a good program to deliver. Pregnant women and partners are willing to join the program if conducted. However, partners groups seem reluctant when to accept their partners' reactive status. Opposite views from pregnant women who will accept their partners if he found to be HIV+. Midwives stated that it is a good program but they couldn't handle it. Need more staff to deliver the program. Budgeting also one of the obstacles of the program

Conclusion: Integrating CHCT into ANC services is a good idea to prevent HIV transmission in couples; however, in order to maximize the objectives of CHCT program, several actions need to be taken.

Disclosure of interests' statement: This study has been funded by HIV Cooperation Program for Indonesia (HCPI) and Indonesia National AIDS Commission.

EVOLUTION OF HIV-1 DRUG RESISTANCE MUTATIONS IN NSW OVER 10 YEARS

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Introduction: NSW has the greatest burden of HIV in Australia, with the last two years recording the highest rates of new diagnoses in twenty years. Concurrently, change in treatment and testing paradigms as well as in antiretroviral usage has occurred. We compiled a statewide resistance database to characterize changes in HIV-1 resistance mutations over time.

Methods: Genotypic antiretroviral resistance testing (GART) was performed on request at three reference laboratories using commercial (Trugene, Viroseq) and in house methods. All HIV-1 polymerase sequences obtained from GART between 2004-2013 were retrospectively collated, reformatted, de-identified and analysed using Stanford HIVdb program 7.0 using the 2009 WHO Surveillance Drug Resistance Mutations (SDRM). Analyses were performed on subgroups of known treatment naïves, treatment experienced and seroconverters.

Results: 7629 sequences were included. There has been a decrease in overall rates of prevalent drug resistance mutations from 57.8% in 2004 to 22.2% in 2013. Dual and triple class resistance mutations have decreased from 32.7% in 2004 to 5.8% in 2013 and 16.4% to 1.2% respectively. In treatment naïve individuals (n=346), the frequency of protease inhibitor (PI) mutations remains low at 2.9%, L90M being the most common and for NNRTIs, K103N remains the most prevalent 5.5% (16/73) with G190AES increasing from 1.7% to 4.1%, 2011-2013. In seroconverters 2004-2013, rates of transmitted drug resistance (TDR) are 8.0%, 1.8%, 4.0%, 2.5% for overall, PI, NRTI, and NNRTI respectively. In treatment experienced, rates remain stable with 35.4%, 6.2%, 28.5%, 17.7% for overall, PR, NRTI, NNRTI mutations. The most common mutations in treatment experienced: M184V, T215 YFISCDVE (NRTI); K103NS (NNRTI); I54VLMATS(PI). There were no significant clusters of TDR identified.

Conclusion: Apparent decreases in prevalent SDRMs can be attributed to changes in GART testing indications over time. In treatment naïve and experienced subgroups, rates have been stable with low rates of TDR in seroconverters.

Disclosure of Interest Statement: Angie Pinto is partially funded by the NHMRC postgraduate research scholarship. No pharmaceutical grants were received in the development of this study.

PLHIV IN SERO-DISCORDANT RELATIONSHIPS: CHANGES IN VIRAL LOAD AND SEXUAL PRACTICES FROM 1997 TO 2012

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Introduction: Improvements in treatment technology have increased options for people to manage the risk of HIV transmission within sero-discordant relationships. In this paper, attitudes toward sero-discordant relationships among PLHIV and use of condoms in these relationships are examined in two cohorts: 1997 and 2012.

Methods: The HIV Futures study is a national, cross-sectional survey of PLHIV conducted every two-three years since 1997. The most recent survey (HIV Futures 7) was conducted in 2012. The surveys were widely advertised through relevant mailing lists and media, including online networks in 2012. Descriptive analysis was used to explore attitudes among PLHIV toward relationships and condom use. There were 925 responses from PLHIV in 1997 and 1058 in 2012.

Results: The proportion of respondents who were in a regular, sero-discordant relationship was 38% in 1997 and 23% in 2012. Among these respondents, a greater proportion of the 2012 cohort reported undetectable viral load (42% in 1997; 76% in 2012) and fewer reported always using condoms with their partner (72% in 1997; 45% in 2012). In each cohort, a similar proportion reported fear of infecting their partner (74% in 1997; 73% in 2012). In both cohorts, gay/bisexual men were more likely than women or heterosexual men to indicate a preference to be with an HIV-positive partner.

Conclusion: As expected, the number of PLHIV with an undetectable viral load was higher in 2012 than 1997. It is likely that this, in part, explains a much lower use of condoms in 2012 by PLHIV in sero-discordant relationships. However, fear among PLHIV of infecting their partner was equally strong in 2012 as 1997 and gay/bisexual men indicated a strong preference for ‘sero-sorting’ in both cohorts. Further research is needed to explore social factors that influence relationship decisions among PLHIV and current patterns of safe-sex practice within sero-discordant couples.

Disclosure of Interest Statement: The HIV Futures Study was funded by the Australian Department of Health as part of a range of Australian Government funded HIV social research programs conducted at the Australian Research Centre in Sex, Health and Society, La Trobe University.

SPITTING AND MANDATORY BBV TESTING – DRAGGING US BACK TO THE 80s

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[1] Or other bodily/biological fluid has come in contact with a police officer.

Introduction: The SA and WA governments recently introduced legislation providing for forced BBV testing of individuals. Although the specifics of the legislation differ, in both states the legislation provides for forced testing of a person who has spat[1] at a police officer. In both states introduction of the legislation followed concerted Police Association advocacy.

Presented as protecting police, these laws will in fact serve to fuel officers' unfounded fears regarding HIV transmission risk. The legislation:

- ignores carefully framed National HIV Strategy and HIV Testing Policy limitations on compulsory testing
- is likely to be arbitrarily applied.

There is an important role for the Commonwealth to play in identifying and responding to jurisdictional issues of national significance. The SA and WA legislation clearly flouts national policies but the Commonwealth has taken a hands-off approach, arguing that these are jurisdictional issues.

This perspective ignores the potential for policy replication across the jurisdictions – particularly given the political expediency of responding Police Association pressure regarding what is painted as a law and order issue. The legislation has been presented as workforce protection without regard to actual BBV transmission risks and perpetuates the common misconception that HIV can be transmitted through contact with saliva. It will serve to heighten police officers' fears when what is needed is accurate information regarding risk.

It could be argued that in 2015 we are seeing the introduction of laws based on 1984 notions of HIV transmission risk. The National HIV Strategy notes the importance of entering into "a respectful dialogue with other sectors to discuss impacts of wider decisions on the health of priority groups". It's time for the Commonwealth establish "a respectful dialogue" with WA, SA and the Police Association and work to prevent their replication around the country.

Disclosure of Interest Statement: AFAO declares no conflict of interest

CRIMINALISATION AND RESPONSIBILISATION: A CASE STUDY OF VICTORIAN RESPONSES TO INTENTIONAL HIV TRANSMISSION

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Background: Victoria remains the only Australian state or territory to retain legislation criminalising the deliberate and/or reckless transmission of HIV under section 19a of the Crimes Act. While the government has mooted the repeal of section 19a, in the Victorian response to HIV prevention, this criminalising legislation has come to operate in tandem with public health models to manage the deliberate and/or reckless transmission of HIV.

Methods: Based on an in-depth case study analysis of prosecutions involving the intentional transmission of HIV in Victoria, this paper explores the confluence of these two frameworks for responding to the deliberate and/or reckless HIV transmission in Victoria.

Results: Through examining the implementation of criminal justice and public health frameworks the study identifies some of the issues surrounding the violation of the human rights and civil liberties of those prosecuted for intentional HIV transmission, the lack of accountability and transparency in the application of sanctions and politicisation of the process. The paper also discusses the gendered nature of the application of sanctions, and in particular the intersection of race and gender in cases brought against heterosexual men by the State and attempts to control non-normative sexual practices by the mass media, health care authorities and criminal justice system.

Conclusion: The paper shows how, despite the best of intentions, Victoria's response raises serious questions about the rights of the accused and issues concerning transparency and accountability. Ultimately, it asks whether the fusing of public health frameworks and criminalising legislation is an ideal vehicle through which to respond to cases of deliberate or reckless exposure of HIV, and suggests the need to consider issues surrounding greater protections for accessed people and alternative ways for promoting long-term behavioural change among this group in Victoria.

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THE PREVALENCE AND CORRELATES OF UNDIAGNOSED HIV INFECTION AMONG AUSTRALIAN GAY AND BISEXUAL MEN

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Background

In Australia, undiagnosed HIV among gay and bisexual men is believed to have a disproportionate impact on HIV transmission. Two previous anonymous prevalence studies found that 20-30% of HIV infections in this population were undiagnosed. We set out to measure national estimates of undiagnosed HIV among gay and bisexual men.

Methods

Oral fluid was collected from men during routine behavioural surveillance at gay venues and events in six Australian cities during November 2013-November 2014. Samples were tested for HIV at the National Serology Reference Laboratory and results linked with questionnaire data. Participants could opt to receive their results. We calculated the prevalence of HIV and undiagnosed infection and used logistic regression to identify associations with undiagnosed infection.

Results

A total of 3,071 men participated (mean age 35.6 years; 89.1% identified as gay). Two hundred and thirteen men tested HIV-positive (6.9%, 95% confidence interval [CI] 6.0-7.8%). Of these men, 19 had previously undiagnosed HIV (8.9%, 95% CI 5.8-13.5%). The prevalence of undiagnosed infection ranged from 0% in Canberra to 19.0% in Perth. Compared to HIV-negative men, those with previously undiagnosed HIV were more likely to report condomless anal intercourse with casual male partners (odds ratio [OR]=3.27), using party drugs for sex (OR=3.32), amyl nitrite (OR=3.02), crystal methamphetamine (OR=3.25), GHB (OR=5.61) or injecting drug use (OR=8.39). Undiagnosed infection was unrelated to demographic variables, number of male sex partners or HIV testing frequency.

Conclusion

The level of undiagnosed HIV we have found is lower than in previous studies. This may be due to differences in method (offering test results and recruiting from a

broader range of sites). Undiagnosed HIV remains concentrated among Australian gay and bisexual men who engage in higher-risk practices. Our results suggest that the proportion of new infections attributable to undiagnosed infection may be lower than previously estimated through modelling.

A TALE OF TWO STUDIES – ASSESSING RESULTS FROM TWO STUDIES OF UNDIAGNOSED HIV AMONG GAY AND BISEXUAL MEN IN MELBOURNE IN 2008 AND 2014

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Background

Reducing undiagnosed HIV infection is a key aim of the Seventh National HIV Strategy. Melbourne represents one of two Australian jurisdictions where undiagnosed HIV infections have been assessed twice among gay and bisexual men (GBM): with the 2008 Suck It & See study and the 2014 COUNT study. We examined changes in undiagnosed HIV among GBM over this period.

Methods

Oral fluid was collected from men in 2008 and 2014 and HIV tested at the National Serology Reference Laboratory, using a validated confirmatory testing strategy; results were linked to survey data. Suck It & See was a stand-alone, anonymous bio-behavioural survey recruited through social and sex venues; participants could not receive test results. COUNT recruited through Gay Community Periodic Surveys at community events and venues and participants could opt to receive their results.

Results

In 2008, among 639 men recruited, HIV prevalence was 9.6% (95%CI=7.5-12.0), with 31.1% (95%CI=19.9-44.3) undiagnosed. In 2014, among 933 men, HIV prevalence was 7.0% (95%CI=5.6-8.8), with 7.1% (95%CI=3.1-15.7) undiagnosed. Anonymous participation and recruitment at social and sex venues in both studies appeared biased towards higher risk men, with greater proportions reporting condomless anal intercourse with casual partners and past 12 months HIV testing. However, small numbers of undiagnosed infections detected in COUNT limited comparative analyses of the impact of study methods on undiagnosed HIV.

Conclusion

Results suggest that lower undiagnosed HIV prevalence in 2014 may be related to methodological differences between the studies rather than a reduction in the frequency of undiagnosed HIV alone. The lack of changes in HIV testing frequency among GBM in Melbourne supports this. Given the importance of undiagnosed HIV as a national prevention indicator, standardising sampling, target population definition and surveillance approaches are required to ensure accurate periodic measurement of undiagnosed HIV and assess progress towards HIV prevention targets in Australia.

COMPARING BEHAVIOURAL AND DEMOGRAPHIC CHARACTERISTICS OF GAY AND BISEXUAL MEN IN AUSTRALIA WITH UNDIAGNOSED HIV INFECTION WITH THOSE RECENTLY DIAGNOSED

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Background

In Australia, undiagnosed HIV among gay and bisexual men is believed to disproportionately affect HIV transmission. Identifying differences between undiagnosed men and those recently diagnosed with HIV can help tailor interventions promoting HIV testing.

Methods

A study of HIV prevalence and undiagnosed infection (COUNT) was conducted alongside, and as part of, the Australian Gay Community Periodic Survey (GCPS) during 2013-2014. We compared men with undiagnosed HIV infection in COUNT with men likely to have been infected within the same time period; those diagnosed between 2010-2014 in the GCPS, the HIV Seroconversion Study (SCS), and national surveillance data (NSD).

Results

Of the 3,071 men in COUNT, 19 had previously undiagnosed HIV, while among all 7,291 men in the total GCPS sample, 185 were diagnosed HIV-positive since 2010. 323 men in SCS received their diagnosis between 2010-2014, while NSD identified 3,172 men diagnosed with HIV following homosexual exposure since 2010. Mean age among undiagnosed men was 32.6 years, younger than among men diagnosed since 2010 in GCPS (37.9 years), SCS (35.6), and NSD (37.2). There were no differences between undiagnosed and recently diagnosed men regarding country of birth, or time since previous HIV test; most had previously tested within two years. Ten (52.6%) undiagnosed men and 64.2% of recently diagnosed men in SCS reported recent receptive condomless anal intercourse (no significant difference).

Conclusion

Little difference was found between undiagnosed and recently diagnosed men, though undiagnosed men were somewhat younger. Their risk behaviour prior to infection was also similar, though it would be important to consider how often previously undiagnosed men practice risk reduction (if at all), whether they were subsequently diagnosed or not. To achieve earlier diagnosis of new HIV infections, increased HIV testing frequency is needed among men who engage in the highest-risk behaviours with little or no evidence of any form of risk reduction.

ESTIMATED CONTRIBUTION OF UNDIAGNOSED HIV INFECTIONS AMONG GAY AND BISEXUAL MEN TO NEW HIV INFECTIONS IN AUSTRALIA

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Background

People with undiagnosed HIV infection are believed to contribute disproportionately to HIV transmission compared with people who are aware of their infection, in particular when taking suppressive antiretroviral therapy. We estimate the proportion of new infections among men who have sex with men (MSM) in Australia occurring from undiagnosed HIV-positive men.

Methods

We conducted a constrained regression analysis between the estimated number of MSM with HIV infection in Australia at consecutive stages of the HIV care and treatment cascade, and the annual number of diagnoses among this population (as a surrogate of incidence). The cascade stages include: undiagnosed, diagnosed but not on ART, on ART with detectable virus, and on ART with undetectable virus. The COUNT study was used to estimate the number of gay and bisexual men with undiagnosed HIV (8.9%; 95% CI 5.8-13.5%). We used estimates of proportions of men in the other stages as presented in the 2014 Australian Annual Surveillance Report HIV Supplement. The regression analysis estimated the average number of infections per man in each cascade stage and the total number of new infections associated with the total number of people in each stage.

Results

We estimate that 15-30% of new HIV infections among Australian MSM are due to transmissions from men with undiagnosed HIV. Around 40-60% of infections are due to transmission from diagnosed men who are not on treatment. The majority of gay and bisexual men living with HIV are receiving antiretroviral treatment and we estimate that they contribute 5-20% to new infections.

Conclusion

While <10% of MSM living with HIV in Australia are undiagnosed, they contribute disproportionately to new infections. This analysis suggests that the largest gains in

reducing new infections could be achieved through the uptake of treatment by diagnosed men who are not yet receiving antiretrovirals.

HIV ORAL FLUID CONFIRMATORY TESTING ALGORITHM, ASSAY DEVELOPMENT , VALIDATION AND EPIDEMIOLOGICAL APPLICATIONS

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Introduction: In Australia the number of HIV diagnoses has significantly increased in recent years, with the majority of cases in MSM. Studies have been undertaken to estimate the prevalence of HIV infection and the proportion of these infections that were actually undiagnosed in the MSM community. The studies have recruited volunteers from gay social venues and requested them to complete a questionnaire and provide a oral fluid sample for subsequent testing. Oral fluid specimens were tested using in-house assays developed and validated to quantify total IgG and detect the presence of antibodies to HIV-1 by an IgG capture EIA (GACELISA) and confirmed by an in-house oral fluid based Western blot (WB).

Methods: As the concentration of IgG in oral fluid is 1000 fold lower than that in plasma, commercial immunoassays for the detection of antibodies to HIV demonstrate low sensitivity when performed on oral fluid specimens. To ensure that the oral fluid specimens collected were of adequate quality to enable the detection of anti-HIV antibodies, the total IgG concentration in each saliva sample was quantified.

An in-house GACELISA was validated using samples from 100 individuals known to be negative for antibodies to HIV-1 and 100 samples from individuals known to be positive for antibodies to HIV-1. This assay was then used to determine the HIV-1 antibody status of samples collected in several epidemiological surveys.

Samples that were repeatedly reactive on the GACELISA were subjected to confirmatory WB.

Results: The HIV saliva testing algorithm developed demonstrated a sensitivity and specificity of 100%. (95% CI; 95.4 – 99.9%)

Conclusion: Oral fluid collection was well received within the MSM community, making these assays an excellent tool for future HIV surveillance studies. We have currently conducted several epidemiological surveys and found excellent agreement between the saliva assays and the results of participant questionnaires and laboratory based serology assays.

Disclosure of Interest Statement: The authors and their affiliated organizations have no conflicts of interests. This work has been funded through the NHMRC.

CLINIC NETWORK COLLABORATION AND PATIENT TRACING TO MAXIMIZE RETENTION IN HIV CARE

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Background: Understanding retention in HIV care, care transfer and loss to follow up (LTFU) are critical to maximising the individual and population-level benefits of antiretroviral therapy. We report these outcomes using individual level data across a statewide network of sites for people living with HIV (PLHIV), combined with an intervention to trace lost patients.

Methods: PLHIV with an HIV viral load test at one of 6 HIV care sites between February 2011 and June 2014, without viral load testing in the 9 months from July 2014 to March 2015 were considered individuals with unknown outcomes. For this group with unknown outcomes an intervention that combined cross-referencing of clinical data between sites and phone tracing was performed. Reasons for disengagement were also determined by: surveying contactable patients and examining baseline clinical factors. Bivariate analysis compared outcomes pre- and post-intervention and predictors of disengagement.

Results: 4966 people were in care in the network and before the intervention. Estimates of retention ranged from 85.9-95.8% and the proportion with unknown outcomes ranged from 1.3-5.5%. After the intervention retention increased to 91.4-98.8% and unknown outcomes decreased to 0.1-2.4%. ($p<.01$ for all sites for both outcomes) Most common reasons for disengagement from care were being too busy to attend or feeling well. For those with unknown outcomes prior to the intervention documented active psychiatric illness at last visit was associated with not re-entering care ($p=0.04$)

Conclusions: The network demonstrated low numbers of people with unknown outcomes and high retention in care. Increased retention and a reduction in unknown outcomes after the intervention largely reflected confirmations of clinic transfers while a smaller number were successfully re-engaged in care. Factors associated with disengagement from care were identified. Systems to monitor patient retention, care transfer and minimize disengagement will maximise individual and population-level outcomes for populations with HIV.

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PATIENT RETENTION IN HIV MEDICAL CARE IN A PRIMARY CARE PRACTICE IN SYDNEY, AUSTRALIA

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Background: Continuity of care is relevant both for optimal treatment outcomes and for reducing HIV transmission in the community. We aimed to evaluate linkage and retention in care for HIV-infected adults in a primary care setting in Australia.

Methods: A retrospective audit of case records of HIV-infected patients attending a large caseload community HIV practice was performed. Patients included were considered "linked to care" (at least two visits 3-12 months apart, with measured virological or immunological markers from 1st January 2009 to 31st March 2014. Patients with incomplete or inaccessible records were excluded. Reasons for not being retained in care (RiC) were assessed in those lost to follow up (LTFU). Predictors for RiC were assessed using binary regression modelling.

Results: Patient records of 870 PLWH were assessed and 624 found eligible for inclusion. Mean age was 43.0±10.2 years; 99.5% male; 84.3% VL <50 copies/mL; mean CD4=674±283 cells/μL; 89.9% Caucasian. Regular practice attendance for the recommended ≥2 visits annually occurred in 90.5% of patients. RiC at the end of the data collection period was 78.0%. Of the 22.0% LTFU, reasons included death (5.9%), moved to another NSW site (32.3%), moved interstate (23.4%), moved overseas (5.8%), institutionalisation (0.7%); with 31.4% lost to care. Caucasian patients were more likely than those of other ethnicities to be RiC (OR=2.9, p=0.003). Patients adherent to antiretroviral therapy (ART) were more likely to be RiC compared to those with adherence issues specified (OR=2.1; p=0.007). Participation in clinical research over the course of the collection period was associated with increased retention rates (OR=2.5, p<0.0005).

Conclusions: LTFU most commonly involved relocation within NSW or loss to care. Predictors for patients being RiC in this cohort were ethnicity, adherence to ART and clinical research participation. Identification and consideration of these factors could allow for improved RiC of PLWH in future.

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FACTORS ASSOCIATED WITH ADHERENCE TO ANTIRETROVIRAL THERAPY IN HIV-INFECTED AUSTRALIAN ADULTS: THE PAART STUDY

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Background: Despite the proven benefits of antiretroviral therapy (ART), some patients have difficulty maintaining ART adherence. Reasons for this in Australian patients are not well understood.

Methods: We developed a national, 2-year cohort study of HIV-positive adults on ART with an undetectable viral load. Participants complete an annual, 90-item questionnaire regarding demographics, physical health, life stressors, social supports, HIV disclosure, stigma / discrimination, healthcare access, treatment adherence and side effects, health / treatment perceptions, and financial / employment status. Neurocognitive functions were assessed using Cogstate brief computerized battery. Pharmacy ART dispensing data are collected annually; clinical and virological outcomes bi-annually.

Results: We present baseline data for the first 350 participants: 332 (94.9%) male, mean age 50.6 years, mean HIV duration 14 years. Participants were recruited at 11 sites: 144 (41%) at sexual health clinics, 114 (33%) at hospital clinics, and 92 (26%) at general practices. Forty-three participants (12.3%) reported missing ≥1 ART dose in the last week; 42 participants (12.0%) missed ≥1 dose / month over the previous 3 months. Thirty-one variables were associated with incomplete ART adherence over the past week in univariate analyses, including taking >1 ART pill per day, and methamphetamine use, but not neurocognitive impairment (GDS≥0.5, in 27.1%) or pharmacy copayments. In a forward logistic regression model, increased odds for non-adherence independently associated with: being born outside Australia (OR=4.9 [95%CI 1.5-15.7], p=0.007); prior AIDS-defining illness (OR 3.6 [95%CI 1.5-8.6], p=0.004); having delayed/interrupted ART in the previous 12 months (OR=13.3 [95%CI 3.0-58.8], p=0.001); currently living alone (OR=3.8 [95%CI 1.5-9.6], p=0.004); and current depression (PHQ-9 summary score >10) (OR 2.7 [95%CI 1.1-7.1], p=0.038).

Conclusions: In HIV-positive adults on suppressive ART, 12% report suboptimal short-term adherence at a level that has been associated with ART failure. Non-adherence was mostly associated with psychosocial factors rather than ART or medical parameters.

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EFFECTS OF HIV TREATMENT INTERRUPTION IN THE ASIA-PACIFIC REGION – RESULTS FROM TAHOD

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Background: Treatment interruptions (TI) of combination antiretroviral therapy (cART) are known to be associated with unfavourable outcomes. We investigated the effects of TI associated with adverse events (AEs) and non-AE-related reasons, as well as the duration of TI, on treatment failure after resumption of cART in HIV-infected individuals in a regional observational cohort in Asia.

Methods: Patients initiating cART between 2006-2013 were included. TI was defined as the absence of cART for >1 day. Treatment failure was the earliest date of virological, immunological or clinical failure. Time to treatment failure was analysed using Cox regression, stratified by site. Time periods while off treatment were not included in the analysis.

Results: Of 4549 patients included, 111 (2.4%) had at least one TI related to AEs and 135 (3.0%) had TI related to other reasons. A total of 730 patients (16.0%) had treatment failure. Median interruption times were 22 days for AE TIs and 148 days for non-AE TIs. Adjusted for age, sex, pre-cART CD4, and mode of HIV exposure, longer TI durations were found to be associated with increased risk of treatment failure (31-180 days HR=2.63, 95% CI [1.68-4.11]; 181-365 days HR=6.16, 95% CI

[3.23-11.75]; >365 days HR=9.04, 95% CI [4.24-19.25], all p<0.001, compared to 0-30 days). The HR for non-AE TI was almost doubled (HR=1.86, 95% CI [1.09-3.15], p=0.022), whereas the HR for AE TI was not elevated (1.05, 95% CI [0.62-1.78], p=0.853), compared to the group with no previous TI. Initial cART regimen was not associated with treatment failure (p=0.209).

Conclusions: In our analyses, shorter TIs and those related to AEs were not associated with a large increase in subsequent risk of treatment failure. If TI is unavoidable, their durations should be minimised to reduce the risk of failure after treatment resumption.

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PRIMARY RESULTS OF THE POSITIVE OUTLOOK STUDY: A RANDOMISED CONTROLLED TRIAL OF ONLINE SELF-MANAGEMENT FOR GAY MEN WITH HIV

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Introduction: Online environments offer opportunities for people with HIV to anonymously find information, interact with peers and build skills. Online delivery is increasingly employed in HIV programming, but little high quality data are available evaluating the efficacy of these programs.

Methods: The Positive Outlook Study was a randomised controlled trial of a 7-week online self-management program, which aimed to enhance participants' skills, confidence and ability to manage the psychosocial issues associated with HIV in daily life. The program was based on self-efficacy theory and comprised information modules, action-planning activities, moderated discussion boards, and weekly peer-facilitated online discussions. Primary outcomes were evaluated at baseline, post-intervention and 12-week's post-intervention follow-up and included HIV-related quality of life (PROQOL-HIV), outcomes of health education (HeiQ) and HIV specific self-efficacy (Positive Outlook Self-Efficacy Scale).

Results: A total of 132 gay men living with HIV in Australia were randomised to the intervention (n=68) or usual care groups (n=64). Maximum likelihood marginal-linear modelling indicated significant improvement in the intervention group on the PROQOL-HIV subscales of body change ($p = 0.036$), social relationships ($p = 0.035$) and emotional distress ($p = 0.031$); the HeiQ subscales of health-directed activity ($p = 0.048$); constructive attitudes and approaches ($p = 0.015$); skill and technique acquisition ($p = 0.046$) and health service navigation ($p = 0.008$); and the Positive Outlook Self Efficacy scale on the subscales of relationships ($p = 0.019$); social participation ($p = 0.006$); and emotions ($p = 0.041$).

Conclusion: The program led to significant improvements in the quality of life of gay men with HIV, particularly in domains associated with social relationships, emotional well being and health concerns. Online delivery is an effective approach to self-management support, enabling people with HIV to build confidence and skills to manage psychosocial issues associated with HIV and facilitating participant engagement while maintaining anonymity.

Disclosure of Interest Statement: Nothing to disclose.

SELF-MANAGEMENT FOR PEOPLE LIVING WITH HIV: A PILOT OF THE FLINDERS PROGRAM™ IN HIV CLINICAL SERVICES

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Introduction: The move from acute HIV health management to a chronic disease model requires a shift in thinking about how to support people living with HIV. Promoting self-management for people living with chronic diseases is emphasised in the NSW Ministry of Health's Integrated Care Demonstrators, which are designed to progress system-wide approaches for integrating care at the local level. Self-management engages clients in activities to protect and promote their health and represents a significant shift from traditional clinician patient roles. A pilot of the Flinders Program™ was undertaken in two multidisciplinary HIV clinical services in Sydney as an initial step in re-orienting the HIV sector towards self-management.

Methods: Training was provided to 14 clinicians from a range of disciplines. Clinicians competent in the Flinders Program™ were encouraged to use it with their clients. A written process evaluation was undertaken with both clients and clinicians during the pilot. At the end of the pilot, clinicians were surveyed anonymously to ascertain their experience of, and attitude towards, working with the Flinders Program™, including what helped or hindered their efforts to integrate it clinically.

Results: 24 clients engaged in the pilot and completed the process evaluation. Their feedback was overwhelmingly positive about the experience and the usefulness of the Flinders Program™. Interestingly, there was disparity between clinician and client perceptions of the Flinders Program™. Clinician feedback provided insights into both systemic and professional factors that supported and challenged them. The inconsistency in clinician implementation suggests that further support for staff is required in delivering the Flinders Program™ to ensure clients receive the evidence-based benefits.

Conclusion: The Flinders Program™ Pilot provided invaluable evidence to support the ongoing reorientation of services towards self-management approaches in the HIV clinical teams. The findings have implications for other services embarking on such significant change.

Disclosure of Interest Statement: Nothing to declare

NARCOTICS ARE CHEAPER THAN FOOD IN PAKISTAN: OUR PWIDS ARE DYING FROM AIDS

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It is estimated that worldwide there are nearly 12.7million people who inject drugs. The UNODC estimates that Pakistan has 6.7million drug users, of whom 4 million are addicts, giving us one of the highest number in the world. The UNAIDS Pakistan estimates 68,000 people are living with HIV.

Our Society provides NSP, condoms, medical care and is linked to Government Victoria Hospital for rehabilitation PWIDs in Bahawalpur, Pakistan.

In 2014, we visited 6 drug hotspots and recruited 60 PWIDs. We examined their drug use, sexual risk behaviour, attitudes, HCV and HIV testing experience. Most were males (80%) with a mean age of 30 yrs (R: 15 - 54 yr), Muslim (92%) and illiterate (55%). All were local Bahawalpur PWIDs, many slept on the streets (83%) and their source of income was scavenging from garbage (88%). PWIDs thought their parents (53%) and the community (56%) hated them. They first used drugs at a mean age 18 yrs (R: 15 - 54 yrs). Most injected Morphine tablets, Pheniramine and Diazepam liquid (90%), many shared syringes (85%) and want to quit drugs (66%). Most have had sexual intercourse (95%), with sex workers (38%), had a sexual preference for females (73%), but few used condoms (18%) or knew about safe sex (21%), or STIs (33%). Over half had genital itch (58%). Disturbingly few PWIDs knew about HCV (10%), just one person had been tested for HCV (1.7%), yet many were interested in being tested for HCV (85%). Most had been tested for HIV (73%) and many were living with HIV (52%).

Pakistani PWIDs suffer many problems, lack access to harm reduction services and are dying from inaction. We recommend urgent action to address this catastrophe in the making.

Disclosure of interest statement: Nothing to declare.

DRUG-RELATED HOSPITAL ADMISSIONS IN HIV-INFECTED AND UNINFECTED GAY AND BISEXUAL MEN

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Introduction: Despite evidence that recreational drug use is more prevalent among gay and bisexual men (GBM) globally compared with their heterosexual counterparts, to-date rates of non-HIV associated harms in this population have not been investigated. We aimed to examine drug-related morbidity in two Australian cohorts of HIV-positive (HIV+ve) and HIV-negative (HIV-ve) GBM.

Methods: Data from HIV-ve (*n*=1325) and HIV+ve (*n*=557) GBM in Sydney, Australia were linked to hospital data from 1st July, 2000- 30th June, 2012. Age-standardised rates of drug-related hospitalisation were compared with rates in the Australian male population and summarized as standardised hospitalisation ratios (SHRs). The relationship between self-reported drug use at cohort entry and drug-related and all-cause hospital attendance were assessed using random-effects Poisson.

Results: Age-adjusted rates for drug-related hospitalisations were over four-fold higher in the HIV-ve cohort [SHR:4.48 (95%CI:3.60-6.09)] and over five-fold higher in the HIV+ve cohort [SHR:5.28 (95%CI:2.11-12.98)] compared with the general population. There was no difference in drug-related hospital admissions between the two cohorts [IRR 1.47 (95% CI 0.67-3.22); p-value=0.33]. Hospitalisations for mental and behavioural disorders due to the use of stimulants, poisoning by anaesthetics and therapeutic gases and poisoning by benzodiazepines were higher than the general population in both cohorts. In the HIV-ve cohort, self-reported injecting drug use or polydrug use were associated with drug-related and all-cause hospitalisation (Table 1). In the HIV+ve cohort, a small positive association was seen between increasing use of amyl nitrates and drug-related hospitalisation; while using non-injecting drugs was protective against all-cause hospitalisations.

Conclusion: HIV+ve and HIV-ve GBM experienced higher rates of drug-related hospitalisation than the general population. Our study suggests that those at greatest risk for drug-related harm are HIV-ve GBM who self-report injecting drug use or poly-substance use and HIV-ve and HIV+ve GBM who use stimulants, anaesthetics and therapeutic gases and benzodiazepine.

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Table 1. Self-reported drug use as a predictor of drug-related and all-cause hospitalisation in 1325 HIV-ve and 557 HIV+ve gay and bisexual men recruited in Sydney, Australia, 2000-2012

		HIV-ve				HIV+ve			
		Drug-related Hospitalisations		All-cause Hospitalisations		Drug-related Hospitalisations		All-cause Hospitalisations	
		IRR (95%CI)[o]	P-value[#]	IRR (95%CI)[o]	P-value[#]	IRR (95%CI)[o]	P-value[#]	IRR (95%CI)[o]	P-value[#]
Use of Amyl Nitrate [x]	**No**	1		1		1		1	
	No, uses other drugs	0.46 (0.09-2.25)		0.63 (0.45-0.87)		3.32 (0.46-23.97)		0.91 (0.55-1.5)	
	Yes, once or twice	0.63 (0.14-2.91)		0.87 (0.63-1.2)		0.47 (0.05-4.5)		0.49 (0.29-0.83)	
	Yes, about 1/month	0.18 (0.03-1.09)		1.19 (0.84-1.68)		1.44 (0.15-13.54)		0.49 (0.28-0.86)	
	Yes, about 1/week or more	0.33 (0.07-1.72)	0.14	0.85 (0.61-1.19)	0.74	5.95 (0.77-45.76)	0.04+	0.47 (0.27-0.8)	0.01+
Polydrug Use [x%]	**0**	1		1		1		1	
	1	0.4 (0.08-1.99)		0.69 (0.5-0.94)		1.31 (0.34-5.14)		1.17 (0.77-1.77)	
	2	2.02 (0.51-8.04)		0.79 (0.56-1.12)		1.21 (0.2-7.41)		0.53 (0.28-1.00)	
	3+	6.88 (1.83-25.83)	<0.01+	1.69 (1.17-2.42)	<0.01*	-	0.99	0.35 (0.16-0.76)	<0.01+
Highest Level of Drug Use [x%]	**No Use**	1		1		1		1	
	Once or Twice	0.34 (0.09-1.32)		0.73 (0.56-0.94)		0.59 (0.16-2.1)		0.55 (0.38-0.8)	
	Monthly use	0.79 (0.21-3.01)		0.58 (0.44-0.77)		0.20 (0.03-1.46)		0.58 (0.34-0.98)	
	Weekly Use	3.18 (0.66-15.42)		0.75 (0.51-1.11)		0.28 (0.02-4.63)		0.62 (0.3-1.3)	
	Injecting Drug Use	4.28 (0.46-39.46)	0.03*	3.23 (1.89-5.53)	<0.01*	1.62 (0.43-6.06)	0.03*	0.66 (0.42-1.03)	0.08*

x All measurements reported for the previous 6 months at baseline; + Linear trend; *Quadratic trend p-value; # p-value is for trend excludes missing category (which is not shown) and 'No, uses other drugs' category; % excludes cannabis, amyl nitrate and Viagra/other erection pills; o adjusted for age

THE HIGHS AND LOWS OF METHAMPHETAMINE USE AMONG GAY AND BISEXUAL MEN

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Introduction: Methamphetamine use among gay and bisexual men (GBM) is higher than most other populations and has been associated with HIV infection. We investigated actual and perceived consequences of methamphetamine use among GBM.

Methods: Flux is a cohort study of drug use among Australian GBM. A total of 1,551 GBM had completed the baseline survey by March 2015.

Results: Over a quarter (29%) indicated having ever used methamphetamine; 15% used it in the previous six months. Most (83%) recent use of methamphetamine was on only a few occasions, but 17% had used it at least weekly and a further 30% used it about once a month.
While 58% of those who had used methamphetamine reported feeling not at all addicted, 20% felt at least somewhat addicted. 7% of methamphetamine users reported ever overdosing on it. 27% showed evidence of dependence according to the Severity of Dependence Scale.
Most common reasons for recent methamphetamine use were: fun (74%), curiosity (68%), and to enhance sex (67%). A minority of recent methamphetamine users reported harmful consequences of drug use, including: accidental self-injury (18%), broken friendships (16%) and late bill payment (18%). The majority reported positive consequences, such as helping them: have better sex (61%), gain confidence (55%), and meet new friends (55%).

Conclusion: While rates of methamphetamine dependence and overdose appeared high, the majority of methamphetamine users did so infrequently and did not themselves feel addicted. They more often reported positive than negative consequences of drug use. Although the potential harms from methamphetamine use among GBM represent a significant issue, not all their methamphetamine use may be problematic, and so, they may not feel at risk by using it. Interventions seeking to reduce risks from methamphetamine use among GBM need to take account of these very different experiences of its use.

Disclosure of Interest Statement: The Kirby Institute, the Centre for Social Research in Health, and the Australian Research Centre in Sex, Health and Society (ARCSHS) receive funding from the Australian Government Department of Health and Ageing. The Kirby Institute and the National Drug and Alcohol Research Centre are affiliated with the Faculty of Medicine, University of New South Wales, and the Centre for Social Research in Health is associated with the Faculty of Arts and Social Sciences, University of New South Wales. ARCSHS is affiliated with La Trobe University. The NSW Sex Worker Outreach Project receives funding from NSW Health. No pharmaceutical grants were received in the development of this study.

GAY AND BISEXUAL MEN ALTERNATE WAYS OF OBTAINING ERECTILE DYSFUNCTION MEDICATION AND THEIR REASONS FOR USE

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Introduction: Recreational use of erectile dysfunction medication (EDM) among gay and bisexual men (GBM) has been associated with HIV risk behaviours and transmission; especially during intensive sex partying. We investigated use of EDM among GBM.

Methods: Flux is a cohort study of drug use among Australian GBM. A total of 1,551 GBM had completed the baseline survey by March 2015.

Results: One third (34%) of participants had used EDM in the previous six months. While they most commonly obtained EDM through a doctor (41%), the majority did so by other means: 26% obtained EDM online, and many obtained them through casual (21%) or regular (13%) sexual partners.
Men commonly used EDM to: stay erect longer (44%), make it easier to become erect (40%), and to counter the effects of other drugs (32%). Only 28% cited difficulties keeping an erection and 13% indicated they needed EDM to take the insertive role during intercourse. 54% of men using EDM also engaged in group sex and 43% used crystal.

Conclusion: The majority of GBM who use EDM do so mainly to enhance sexual pleasure rather than just therapeutic purposes. During intensive sex partying sessions, maintaining erections sometimes requires the assistance of EDM.
EDM were more commonly obtained outside the health system than through a doctor. Other regulated medication and products, such as pre-exposure prophylaxis and HIV home testing kits are currently unavailable for use in Australia, but importation for personal use is permitted. Given that so many men are already accessing EDM outside the health system, the knowledge and capacity of many GBM to similarly do so for other products is demonstrably available. Information and resources are required to ensure individuals can safely access these products. Interventions to reduce risk during intensive sex partying need greater consideration of the role of EDM

Disclosure of Interest Statement: The Kirby Institute, the Centre for Social Research in Health, and the Australian Research Centre in Sex, Health and Society (ARCSHS) receive funding from the Australian Government Department of Health and Ageing. The Kirby Institute is affiliated with the Faculty of Medicine, University of New South Wales, and the Centre for Social Research in Health is associated with the Faculty of Arts and Social Sciences, University of New South Wales. ARCSHS is affiliated with La Trobe University. The NSW Sex Worker Outreach Project receives funding from NSW Health. No pharmaceutical grants were received in the development of this study.

CRYSTAL METHAMPHETAMINE USE AMONG GAY AND BISEXUAL MEN IN AUSTRALIA: PATTERNS OF USE AND HARM REDUCTION RESPONSES

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Introduction: Gay and bisexual men (GBM) in Australia report high rates of crystal methamphetamine ('crystal') use. Among other practices, GBM use crystal to enhance sexual pleasure, and crystal use is an important feature of some GBM's sexual sociality. This paper aims to examine crystal use practices among GBM in Australia and the implications for policy and service delivery.

Methods: Data were gathered in two Australian cross-sectional surveys. Trends in crystal use were identified from the Gay Community Periodic Surveys, which are routine behavioural surveillance surveys of Australian GBM (>6000 participants annually). Patterns and context of crystal use, and injecting risk practices, were examined using data from the national, online 2013 GBM Hepatitis C Survey (n=474).

Results: In the 2014 Gay Community Periodic Surveys (n=7215), 11.7% of men reported crystal use in the previous 6 months (up from 9.5% in 2010, $p<.001$). Rates of use were highest among HIV-positive men (27.8% in past six months; up from 22.8% in 2010, $p<.05$). In the GBM Hepatitis C Survey, 87% of men who used crystal in the previous 6 months did so in sexual contexts, and among men who reported injecting drugs, 86% injected crystal in sexual contexts (41% had shared injecting equipment in the previous six months).

Conclusion: Rates of crystal use are high among GBM in Australia, particularly among HIV-positive men. Previous research suggests that approximately half of people who report recent crystal use meet the criteria for a stimulant use disorder. However, it remains unclear what level of drug-related harm is experienced by GBM who use crystal as these data are not routinely collected. Increasing rates of crystal use among GBM underscore the need for community-based drug education and harm reduction, increased treatment capacity, and focused research on the level of drug-related harm experienced by GBM who use crystal.

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TREATMENT OUTCOMES FROM ACON'S SUBSTANCE SUPPORT SERVICE: WORKING WITH HIV POSITIVE AND AT RISK CLIENTS

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Introduction: Lesbian, gay, bisexual, transgender and intersex (LGBT) people and people living with HIV, report disproportionately higher rates of alcohol and other drug (AOD) use and misuse compared to the general population. ACON's Substance Support Service provides short term counselling to LGBTI people experiencing problematic substance use; nearly half of these clients are HIV positive. This presentation will highlight the treatment outcomes and needs addressed by this service with a particular focus on HIV positive clients.

Methods: Treatment outcome data from ACON's Substance Support Service during 2012-14 were de-identified and analysed. Clients were assessed at intake, and re-assessed after a mean of 2 months. Clients completed measures on drug use history, mental health and psychosocial functioning.

Results: From preliminary data (2012-13), the mean age of clients was 39 years, most were gay men (91%), and almost half were HIV-positive (42%). Methamphetamine was the most common principal drug of concern (65%) followed by alcohol (23%). Clients seeking treatment for methamphetamine showed a significant reduction in past month days of use at 2 months (6.1 vs 2.8 days, $p=.03$), while there was a non-significant reduction in use among those seeking treatment for alcohol (11.9 vs 9.7 days, $p=.09$). Clients reported a significant improvement in psychological distress ($p<.001$) and quality of life ($p<.001$) at 2 months.

Conclusion: Clients of ACON's Substance Support Service showed significant reductions in problematic drug use and improvements in psychosocial functioning.

Disclosure of Interest Statement: The Centre for Social Research in Health receives funding from the Australian Government Department of Health. ACON Substance Support Service is funded by the Australia Government Department of Health. There are no conflicts of interest to declare.

THE SOCIAL AND SEXUAL DYNAMIC BETWEEN GAY MEN/TRANSGENDER PEOPLE AND THEIR STRAIGHT-IDENTIFYING MALE PARTNERS IN TIMOR-LESTE

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Introduction: Previous studies in Timor-Leste suggested a unique social and sexual dynamic between self-identifying men who have sex with men (MSM) and their straight-identifying male partners. As part of a national size estimation of key populations at risk, this qualitative study interrogated the dimensions of this dynamic to better inform HIV/STI-related services.

Methods: Drawing on ethnographic approaches, semi-structured interviews were undertaken using field notes, including recording of verbatim quotes, with 27 self-identifying MSM, transgender people, straight-identifying MSM and relevant secondary informants across Timor-Leste. Interviews covered gender identity, intra-community social interaction and sexual practices. Data were analysed with involvement of author three (a local researcher who is well-connected to the populations) using an inductive thematic analysis approach where common themes and discrepant cases were coded with attention to the individuals' reported experiences and key events.

Results: Three identities among MSM/TG were most commonly reported: self-identifying MSM; transgender; and mane forte (lit.: 'strong man'), or straight-identifying MSM. Self-identifying MSM and transgender-identifying people typically engaged only in sexual activity with straight-identifying MSM. Sex was often reported to have a transactional element, most commonly with MSM or transgender-identifying people providing low-value goods or pocket money to either their casual or long-term straight-identifying male partner/s. An imbalanced power dynamic was often reported between the two parties, with straight-identifying partners generally 'calling the shots' in decisions such as condom use. Straight-identifying men were less likely to interact with MSM HIV/STI services, typically tailored for those identifying as MSM or transgender.

Conclusion: The degree to which financial/other incentives play a role in MSM/TG sexual practice is greater than previously reported. The reported power of straight-identifying MSM in sexual decision-making has implications for HIV/STI prevention initiatives, particularly given existing MSM services may not adequately serve straight-identifying MSM.

Disclosure of Interest Statement: This project received funding from the Ministry of Health Timor-Leste under a grant from the Global Fund to fight AIDS, Tuberculosis and Malaria. No pharmaceutical grants were received in the development of this study.

SHIFTING IDENTITY AMONG YOUNG SAME SEX ATTRACTED MEN AND WHAT IT MEANS FOR HIV RISK: BUILDING AN EVIDENCE BASE FOR EFFECTIVE PREVENTION

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Background: Young same sex attracted (SSA) men are living very different lives from their counterparts a generation ago. Without an AIDS crisis, HIV has lost currency and for many, HIV is peripheral: an outdated concept with little obvious application. 'Gay' too is no longer a comfortable or consistent fit for many. The standard sites of HIV health promotion are shifting. Young SSA men are not 'seeing' HIV health promotion messaging and they are being infected with HIV.

Methods: A multi-stage project by the Australian Federation of AIDS Organisations considered innovative HIV health promotion strategies targeting SSA young men. Scoping of AIDS Councils, and youth and mental health agencies investigated SSA young men's HIV risk. Compilation of current HIV health promotion enabled analyses of current gaps. A workshop involving AIDS Council, youth and mental health educators working with young SSA men drew on Cultural Probes technique to maximise innovation. Simultaneously, groups of SSA young men completed their own Cultural Probes exercise to provide direct input and points of comparison.

Results: The project identified numerous issues related to sites of HIV intervention: the poor performance of school based sex/sexuality education; the increasing importance of Queer, mental health, and youth spaces; the loss of gay social spaces amid the rise of the internet and 'dating' Apps; and the complexity of diverse ICT platforms.

Conclusion: Effective HIV prevention messaging to young SSA men requires a sociologically informed pedagogy linked to the priorities of their everyday lives. The ways in which sexual identity and sexual practice evolve suggests key points at which interventions may be maximised**.** Greater effort is required to make space for 'youth ownership' so that things may be done differently: to meet young SSA men where and how they live their lives.

Disclosure of interest statement: None

DEVELOPMENT AND EVALUATION OF A SIMPLE, FILTER PAPER-BASED METHOD OF PLASMA SEPARATION AND STORAGE TO ENHANCE ACCURATE VIROLOGICAL MONITORING OF HIV PATIENTS IN RLS

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Introduction: Dried blood spots (DBS) have potential to improve access to HIV-1 viral load assays in resource limited-settings (RLS). However, when used in most RT-PCR assays such as the Cobas AmpliPrep/Cobas TaqMan (CAP/CTM) system, DBS over-quantifies plasma VL results due to co-amplification of white blood cell-associated RNA and proviral-DNA. As a result, ART patients with undetectable or low viraemia are misclassified as treatment failure using DBS. We have developed a simple method of cell-free plasma separation and collection [referred as Filtered and Dried Plasma (FDP)] using filter papers and evaluated its' performance against gold standard (plasma) and DBS.

Methods: A prototype plasma separation device (FDP) was developed by incorporating three types of membranes to collect and dry cell-free plasma for subsequent HIV-1 VL testing. A prospective study was conducted on 100 paired plasma/DBS/FDP samples to assess performance of FDP for quantifying VL using CAP/CTM assay.

Results: 71% (71/100) of the samples had undetectable plasma VL; 46 of these were incorrectly classified as >400 copies/ml, and 30 as >1000 copies/ml using DBS. In contrast, all 71 were correctly classified as undetectable using FDP. DBS showed weak overall correlation to plasma (R^2= 0.39, p< 0.0001) and strong bias (-1.7log 10 copies/ml [SD:1.3]), whereas FDP showed good correlation (R^2 =0.80, p< 0.0001) and relatively low bias (0.38log copies/ml [SD: 0.76]). DBS and FDP both showed 100% sensitivity (95% CI: 78-100%) for detecting treatment failure at a cutoff of 1000 copies/ml, but DBS had poor specificity of only 52% compared to 100% for FDP, resulting in a low positive predictive value of 27% for DBS versus 100% for FDP.

Conclusion: FDP improves specificity and positive predictive value of RT-PCR in determination of HIV-1 VL treatment failure compared to DBS. Thus, it has potential utility for expanding access to VL monitoring in RLS.

THE HUMAN T LYMPHOTROPIC VIRUS TYPE 1 SUBTYPE C: A MAJOR CAUSE OF MORBIDITY AND MORTALITY FOR THE ABORIGINAL PEOPLE IN CENTRAL AUSTRALIA

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The Human T-Lymphotropic Virus type 1 (HTLV-1c) subtype c is endemic to central Australia. Published epidemiological data are limited, but adult prevalence rates approached 50% in a recent community survey. A high burden of clinical disease has been reported, including Adult T cell leukaemia/lymphoma (ATLL), HTLV-1 associated myelopathy and bronchiectasis. Nevertheless, less than 10% of HTLV-1 infected people develop ATLL or inflammatory diseases in developed countries and HTLV-1 seropositivity is not an independent predictor of death. This may not be the case in resource poor areas in which infectious diseases, such as strongyloidiasis, add to the burden of HTLV-1 associated diseases.

HTLV-1 infection is therefore associated with three major categories of disease; i) malignancy, ii) inflammatory diseases and iii) infections. The risk of each is substantially increased among individuals who are unable to control viral replication. Any analysis of disease outcomes therefore requires stratification according to HTLV-1 proviral load (PVL).

In this presentation, recent epidemiological data will be reviewed and mortality data described for a prospective hospital-based cohort of 887 Aboriginal adults of known HTLV-1 serostatus. HTLV-1 PVL were determined for all HTLV-1 seropositive subjects (314/887, 35.4%) and these were categorized as low or high if < or ≥1000/100,000 peripheral buffy coat cells, respectively. In an adjusted multivariable model of all cause mortality the hazard ratio for death was 1.61 (95% CI, 1.04-2.47) among subjects with high HTLV-1 PVL. In an adjusted model of cause-specific mortality, subjects with high HTLV-1 PVL were significantly more likely to die from complications of bronchiectasis (HR, 3.53; 95% CI, 1.31, 9.54) and sepsis (2.47; 95% CI, 1.10, 5.55).

Aboriginal people of central Australia have a high burden of HTLV-1 infection and related diseases. Mortality rates are high among those who are unable to control viral replication.

IMPROVING THE TREATMENT CASCADE FOR HIV POSITIVE ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE AT CAIRNS SEXUAL HEALTH

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Introduction: In the 2014 calendar year, our service saw 5 new diagnoses of HIV among Aboriginal and Torres Strait Islander people. The service usually has an average of 16 new diagnoses per year and 5 new cases in Aboriginal and Torres Strait Island people represented a large proportion of our total. On review of the service caseload of Aboriginal and Torres Strait Islander people with HIV, it was found that of the 28, 25 were on HIV antiretroviral treatment. However, of the 25 on treatment, only 16 (64%) had undetectable viral load. The aim of HIV treatment is for 90% of those on antiretroviral therapy to have undetectable viral load (WHO, 2014).

It is accepted that for people to benefit from antiretroviral treatment they need to be engaged in the "treatment cascade".

We sought to improve engagement of this small group of HIV positive people, in order to improve their health status, reduce community viral load and therefore new transmissions of HIV.

Methods: Review of service caseload and informal interviews were conducted with clients asking them about the barriers to engaging in care with our service and adherence to treatment.

Results: Initially we found that some clients had not been seen at the clinic for over a year, and some appeared to be disengaged from any health care. On review of pharmacy records others appeared to be taking anti-retroviral treatment irregularly. Some reported barriers were layout of clinic entrance, transport and housing. Other identified barriers were lack of family awareness and therefore support, HIV literacy, recreational drug use and the hidden nature of taking the ARVs.

Conclusion: We will report on what we did to overcome the reported and observed barriers and the changes in regard to commencing treatment, undetectable viral load and appointment attendance.

Disclosure of Interest Statement: Cairns Sexual Health is funded by Queensland Health. No pharmaceutical grants were received in the development of this study.

PD-1 IDENTIFIES LATENTLY HIV-INFECTED NON-PROLIFERATING AND PROLIFERATING CD4$^+$ T-CELLS

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Introduction: CD4$^+$ T-cells from HIV-infected individuals on antiretroviral therapy (ART) expressing the Immune Checkpoint marker (ICM) of T-cell activation PD-1, are preferentially infected [Chomont Nat Med 2009]. Characterizing the role of PD-1 and other ICM in HIV persistence during ART may identify potential targets for eliminating latently infected T-cells. Using an in vitro model of latency, we aimed to define the mechanism of how PD-1 and other ICM contribute to the establishment and maintenance of latent infection of both proliferating and non-proliferating T-cells.

Methods: Blood isolated resting CD4$^+$ T-cells were labelled with the proliferation dye eFluor670 and cultured alone, with autologous myeloid dendritic cells (mDC) or monocytes for 24h with staphyloccocal enterotoxin B (SEB) and infected with CCR5-tropic eGFP-reporter virus. Expression of ICM ligands including PD-L1/PD-L2, CD80/CD86, Galectin-9 and HVEM on mDC and monocytes were measured at baseline and 24h post-infection. Non-productively-infected, non-proliferating (eGFP$^-$ eFluor670^{hi}) and proliferating (eGFP$^-$eFluor670^{lo}) T-cells were sorted by flow cytometry day 5 post-infection and further sorted on the basis of ICM expression. Inducible latent infection was quantified by measuring eGFP expression in sorted subsets after αCD3/CD28+IL-7+IL-2 activation and integrase inhibitor L8.

Results: Ligands for all IC were expressed on mDC and monocytes. Post integration latency in **non-proliferating CD4$^+$ T-cells** was significantly enriched in cells positive for PD-1 (mean fold change in eGFP expression compared to PD-1 negative/low (MFC)=39, p=0.02, n=5), Tim-3 (MFC=3.4, p=0.04, n=6), CTLA-4 (MFC=4.4, p=0.01, n=4) or BTLA (MFC=4.2, p=0.004, n=6) but not TIGIT (MFC=2.9, p=0.24, n=5) or LAG-3 (MFC=2.9, p=0.67, n=3). Post integration latency in **proliferating T-cells** was significantly enriched in cells expressing PD-1 (MFC=2.8, p=0.04, n=5).

Conclusion: This in vitro model of HIV latency shows PD-1 to be preferentially expressed on both non-proliferating and proliferating latently infected T-cells. Interventions that alter expression or function of PD-1 should be explored to eliminate latency.

Disclosure of Interest Statement: The authors have nothing to declare

ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY AGAINST CELLS LATENTLY INFECTED WITH HIV

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Introduction: Current treatments for HIV infection are life-long as they do not diminish latent replication-competent HIV in long-lived resting $CD4^+$ T cells. A major approach to an HIV cure is to reactivate the integrated HIV genome from latency and subsequently eliminate the cells harbouring reactivated HIV. We hypothesised that antibody-dependent cellular cytotoxicity (ADCC) could be a possible immune response to kill reactivated latently infected cells.

Methods: We established in vitro assays to measure antibody-mediated killing by modifying the LDH-release cytotoxicity assay and the primary NK cell activation assay. The latently infected ACH-2 T cell line was reactivated using phytohaemagglutinin (PHA) and phorbol 12-myristate 13-acetate (PMA). HIV reactivation was confirmed via intracellular p24 staining.

Results: A $CD4^+$ T cell line (CEM.NKr-CCR5 cells) pulsed with the HIV envelope glycoprotein gp120 and a chronically infected T cell line (8E5/LAV cells) elicited high levels of antibody-mediated NK cell activation and were highly susceptible to ADCC-mediated killing. However, we found that reactivated latently infected ACH-2 cells, though eliciting higher background levels of natural killing and NK cell activation, were not susceptible to ADCC-mediated killing and did not elicit HIV-specific antibody-mediated NK cell activation. The reactivated cells expressed high levels of gp120 (as high as or higher than gp120-pulsed cells), but did not express CD4, likely due to down-modulation by the HIV accessory proteins Vpu and Nef.

Conclusion: Our studies suggest that reduction in CD4-induced antibody epitopes at least partially protects reactivated latently infected cells from ADCC antibody recognition. These studies need to be confirmed in primary cell models of latency and in in vivo studies. Future studies have to assess whether inhibition of Vpu and/or Nef can render reactivated latently infected cells susceptible to ADCC-killing. Our results highlight a previously under-appreciated problem for the proposition that ADCC antibodies can assist in an HIV cure.

Disclosure of Interest Statement: The above authors declare that they have no conflicts of interest.

DISCOVERY OF NOVEL LATENCY REVERSING AGENTS (LRAS) THAT SPECIFICALLY REACTIVATE HIV-1

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Introduction: The persistent reservoir of cells latently infected with HIV-1 necessitates lifelong suppressive therapy. Epigenetic modifying drugs have shown promise as potential latency reversing agents (LRAs) by reactivating the expression of latent virus, however, many existing LRAs also show undesired off-target effects and lack specificity for HIV. We have used high throughput chemical screening (HTCS) to find novel LRAs that reactivate HIV-1 in a highly specific manner.

Methods: We developed HEK293 dual reporter cell lines that allowed for LRA discovery through reactivation of a proviral *LTR-Click-Beetle-Luciferase#1* reporter, relative to a non-specific *CMV-Click-Beetle-Luciferase#2* reporter. We counter-screened HTCS "hit" compounds in a modified J.Lat-CMV-dsRed latency model, and have begun using latently infected CCL19-treated primary T cells to compare activity to known LRA epigenetic modifiers such as Vorinostat, Panabinostat and Romidepsin.

Results: Known LRAs and ~114,000 lead-like compounds were evaluated in HTCS, quantifying HIV-specific reactivation relative to the non-specific reporter in the HEK293 reporter cell lines. Known LRAs undergoing clinical investigation Vorinostat, Panabinostat and Romidepsin, demonstrated LTR reactivation at robust levels ($LogEC_{50}$= 2.7uM, 100nM, 2nM respectively). This however, was associated with proportionally high increases in non-specific cell-associated gene activation (LTR/CMV specificity ratio = 1.6, 1.9, 1.1 respectively), indicating poor HIV specificity. Non-specific reactivation was also observed in the J.Lat-CMV-dsRed model. HTCS identified several molecular families that are likewise capable of LTR-reactivation ($LogEC_{50}$ ~10uM), but show minimal levels of non-specific activation (LTR/CMV specificity ratios between 4-11). Similar LTR activation was achieved in the J.Lat latently infected cell line model ($LogEC_{50}$ between 4.9uM-10uM).

Conclusion: We have developed a pair of novel cell lines for screening compounds that reactivate HIV provirus in a highly specific manner. We have identified several new classes of drugs that are potent and specific LRAs and these are now being evaluated in primary models of HIV latency.

Disclosure of Interest Statement: No conflicts of interest.

CONSISTENCY OF DOLUTEGRAVIR TREATMENT DIFFERENCE IN HIV+ TREATMENT NAIVES AT WEEK 96

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Background: DTG 50mg QD plus two N(t)RTIs has been compared to 3 preferred regimens in pivotal studies up to 96 weeks (SPRING2 and FLAMINGO) or 144 weeks (SINGLE) in treatment naïve patients. Consistency of the treatment difference was explored within key subgroups.

Methods: SPRING-2 randomized participants to DTG 50mg QD or RAL 400 mg BID, FLAMINGO randomized participants to DTG 50mg or DRV/r QD. In both studies, investigator selected NRTIs (TDF/FTC or ABC/3TC). SINGLE randomized participants to DTG 50 mg + ABC/3TC QD or TDF/FTC/EFV QD. Snapshot response rates were analysed by NRTI backbone, baseline viral load and baseline CD4. Also, time to efficacy related failure (ERDF), where withdrawals unrelated to efficacy are censored, were used for the week 96 pooled analyses and were summarised by NRTI backbone and baseline viral load.

Results: The three studies randomized and treated a total of 2139 subjects. Overall, there was no evidence of compromised efficacy in individuals on DTG with high viral load or low CD4s. Subgroup analysis revealed interactions that were not consistent across time points; for e.g., in Single in the high VL subgroup, at weeks 48, 96 and 144 respectively, response rates for DTG were 6.5%, -0.90% and 7.6% higher than for EFV. Exploratory analyses examining time to ERDF showed no difference in response rates between background NRTIs pooled across the studies irrespective of baseline viral load. Additionally, there was no suggestion of a difference in ERDF between DTG vs comparator agents at high or low viral load.

Conclusions: In three large treatment-naïve studies, DTG was effective up to week 96 with both ABC/3TC and TDF/FTC, in subjects with high and low viral load and across CD4 strata. DTG is a once daily, unboosted INI that can be used effectively with either TDF/FTC or ABC/3TC backbone in treatment-naive, HIV-infected individuals.

TENOFOVIR ALAFENAMIDE VS TENOFOVIR DISOPROXIL FUMARATE, EACH CO-FORMULATED WITH ELVITEGRAVIR, COBICISTAT, AND EMTRICITABINE, FOR INITIAL TREATMENT OF HIV-1 INFECTION: TWO RANDOMISED, DOUBLE-BLIND, PHASE 3, NON-INFERIORITY TRIALS

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Introduction: Tenofovir disoproxil fumarate (TDF) may cause clinical renal and bone toxicity; tenofovir alafenamide (TAF) is a novel tenofovir (TFV) prodrug with a 90% reduction in plasma TFV levels. Single tablet regimens containing elvitegravir, cobicistat, emtricitabine and TAF or TDF (E/C/F/TAF, E/C/F/TDF) were tested as initial therapy for HIV-1 infection.

Methods: In two identical, randomized, controlled Phase 3, studies, treatment-naive patients were randomized (1:1) to once daily E/C/F/TAF or E/C/F/TDF. The primary endpoint was HIV-1 < 50 copies/ mL at 48 weeks. These trials are registered with ClinicalTrials.gov, numbers NCT01780506 and NCT01797445.

Results: 1733 patients were treated (E/C/F/TAF, 866; E/C/F/TDF, 867). E/C/F/TAF was non-inferior to E/C/F/TDF, with 92.4% and 90.4% having HIV RNA < 50, respectively (adjusted difference 2.0%, 95% CI –0.7% to 4.7%). Eight (0.9%) patients on E/C/F/TAF and 13 (1.5%) on E/C/F/TDF had adverse event-related discontinuations. Mean serum creatinine increases were smaller in the E/C/F/TAF arm (0.08 vs 0.12 mg/dL, p<0.001). Urine protein loss (median % change) was significantly less in patients on E/C/F/TAF: total proteinuria (-3 vs +20, p<0.001), albuminuria (-5 vs +7, p=0.001), retinol binding protein (+9 vs +51, p<0.001), beta-2-microglobulin (-32 vs +24, p<0.001). Mean % decrease in BMD was significantly less in the E/C/F/TAF arm at spine (-1.30 vs -2.86, p<0.001) and hip (-0.66 vs -2.95, p<0.001). Fasting lipid levels increased more in the E/C/F/TAF arm while total cholesterol:HDL was the same.

Conclusion: Through 48 weeks, >90% of patients on E/C/F/TAF or E/C/F/TDF had virologic success. Patients on E/C/F/TAF had significantly less kidney and bone effects; lipid data favored TDF. These results suggest the potential for long-term renal and bone safety benefits for patients on E/C/F/TAF.

Disclosure of Interest Statement: These studies were funded by Gilead Sciences.

MORTALITY AMONG HIV PATIENTS ON ANTIRETROVIRAL (ARV) TREATMENT IN BALI, INDONESIA 2006-2014: INCIDENCE AND PREDICTORS

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Introduction: Mortality among HIV patients remains a global health problem. Of the approximately 190,000 HIV-positive diagnosed in Indonesia, almost one fifth are on antiretroviral (ARV) treatment. Longitudinal study mortality data among this group are limited in Indonesia, with its predictors inconsistently identified. In order to further understand the mortality rate and identify possible strategies to improve survival, we explored incidence and predictors of mortality among HIV-positive patients on ARV treatment attending a large district hospital in Bali.

Methods: We conducted a retrospective cohort study using secondary data collected from medical records of HIV-positive patients on ARV treatment between January 2006 and July 2014 attending Badung General Hospital (BGH), Bali, which accepts referrals of men who have sex with men (MSM) from Bali Medica Clinic (BMC). Kaplan-Meier analysis was used to describe incidence rate and median time to mortality. Cox Proportional Hazard Model was used to identify predictors of mortality, including socio-demographic factors, clinical parameters, type of ARV service, and ARV treatment policy.

Results: In total, 575 patients were included in the analysis; the majority were male (80.9%). More than half of the patients (59.3%) were from BGH, with the remainder (40.7%), referrals from BMC. The overall mortality rate was 10.1/100 person-years (95%CI:8.0-12.6), with median time-to-death 0.28 years (IQR:0.07-1.09). Multivariate analysis demonstrated that being male (aHR:3.8; 95%CI:1.8-8.1), having a lower education (aHR:1.9; 95%CI:1.2-3.3), absence of treatment adherence support (aHR:4.4; 95%CI:2.7-7.3), and at clinical stage III/IV (aHR:4.6; 95%CI:1.7-12.4) were associated with higher risk of mortality. Patients from BGH (aHR:3.5; 95%CI:1.1-11.0) had higher risk of mortality than those referred from BMC.

Conclusion: The high mortality rate and short time to death after commencing ARV therapy highlights the importance of early HIV diagnosis, prompt treatment, and also ongoing monitoring. Strategies to provide access to adherence support could also be considered to improve survival.

Disclosure of Interest Statement: This study is supported by The Kirby Institute, University of New South Wales, Sydney, Australia.

WHO'S COMING AND WHO'S COMING BACK? CHARACTERISTICS OF RAPID TESTERS AND RETURN TESTERS AT THE PRONTO! COMMUNITY-BASED HIV TESTING SERVICE

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Introduction: In Australia, all sexually active gay, bisexual and other men who have sex with men (GBM) are recommended to test for HIV annually and GBM classified as high risk recommended to test up to four times per year. PRONTO!, a community based rapid point-of-care testing service established in 2013 as a 24 month trial, aims to increase testing frequency among GBM. We report the characteristics of GBM testing at PRONTO! in the first year, including among those re-testing.

Methods: Using pre-test survey data from PRONTO! clients, we describe characteristics of GBM testing at PRONTO! in the first year and compare the characteristics of six and three-month return-testers with less frequent testers using logistic regression.

Results: In the first year, 1200 GBM tested least once for HIV at PRONTO! (median age=30 years; 60% Australian born; 17% naïve to HIV testing). At their first PRONTO! test, 823 (68.6%) GBM were classified as high risk; 199 (24.2%) returned to test within six months and 120 (14.6%) within three months. Among 377 GBM not classified as high risk, 72 (19.1%) returned within six months and 36 (9.6%) returned within three months. Six-month (OR=2.7, 95%CI: 1.93-3.81) and three-month (OR=2.4, 95%CI: 1.6-3.7) high risk return testers were more likely to report frequent (≤6 monthly) testing prior to testing at PRONTO!. Three-month return testers were also more likely to report recent condomless anal intercourse with casual partners (OR=1.5, 95%CI: 1.04-2.16).

Conclusion: Based on the first 12 months of the trial, testing frequency at PRONTO! remains sub-optimal and comparable or lower than recently reported at high caseload clinics in Melbourne. High service acceptability and convenience reported by clients may be insufficient to drive frequent HIV testing at PRONTO!; proactive follow-up test booking has been implemented and integration of comprehensive STI screening is planned to enhance frequent testing.

Disclosure of Interest Statement: All authors have no conflicts to declare. The Victorian Department of Health funds the PRONTO! service which is operated by the Victorian AIDS Council, and the evaluation of HIV prevention campaigns by the Burnet Institute. The authors would like to acknowledge the NHMRC who provide funding to Margaret Hellard as a senior research fellow, Kathleen Ryan and Anna Wilkinson as a public health scholarship recipient, Mark Stoové through a Career Development Fellowship and Alisa Pedrana through a Sidney Sax Post-Doctoral Fellowship. The authors gratefully acknowledge the contribution to this work of Victorian Operational Infrastructure Support Program received by the Burnet Institute.

WHAT IS THE COST OF PERFORMING PARALLEL CONVENTIONAL HIV SEROLOGY WITH RAPID HIV TESTING WHEN DELIVERING SEXUAL HEALTH SCREENING FOR GAY AND BISEXUAL MEN?

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Introduction: An implementation study incorporating rapid HIV testing (RHT) into sexual health screening for gay and bisexual men in Sydney found RHT was more acceptable to men than conventional HIV serology testing (CHT) and attracted many men who have never tested before. However, due to lower sensitivity in early infection, screening with RHT may fail to detect HIV if parallel CHT is not performed in all men (as it was during the study). We assessed delivery costs of screening via RHT with parallel CHT in all cases (option 1) versus RHT with CHT only in RHT reactive cases (option 2).

Methods: Costs to the health system were collated at four sites (two sexual health clinics, one general practice and one community-based site) from June 2013-December 2014, including: consult length, staff salary, Medicare rebates, Alere Determine Combo RHT kits, laboratory-based CHT (4th generation HIV immunoassay plus confirmatory tests) and sexually transmitted infection testing. We calculated average costs for sexual health screening per patient via both options and (using total number of rapid tests performed, confirmed HIV-positive cases and RHT sensitivity) the number of HIV cases missed via option 2.

Results: Using option 1, 7227 men were screened, 55 men tested HIV-positive, total screening costs were $1,049,247 and cost/patient tested was $145. Using option 2, total screening costs would have been $955,585 with cost/patient tested of $132, but

7 of 55 HIV cases would have been missed (RHT sensitivity 87.2%). So, option 2 would ‘save’ $93,661 at the four sites, but miss 7 HIV cases ($13304/missed case).

Conclusion: For an extra $13/patient, adding parallel CHT to RHT is a small proportion of overall screening costs. Service providers should consider performing parallel CHT in all men in this population to avoid the risk of missed cases of early infection and any inadvertent HIV transmissions arising from that.

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MISSED OPPORTUNITIES FOR STI TESTING: A MIXED METHODS STUDY OF THE IMPACT OF A STAND-ALONE HIV TESTING SERVICE

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Introduction: Australian guidelines recommend all gay, bisexual and other men who have sex with men (GBM) test annually for HIV and other STIs, with GBM classified as high risk men recommended to test up to four times annually. A community-based, peer-led HIV point-of care testing (POCT) service, PRONTO!, opened in Melbourne in 2013 offering free testing. While syphilis POCT was introduced in June 2014, service model constraints have restricted gonorrhea and chlamydia testing to a pilot period between November-December 2014. We explore the potential impact of not integrating of STI testing at PRONTO!.

Methods: We surveyed clients attending PRONTO! between May-October 2014, in addition to conducting focus groups with survey participants. We describe HIV/STI testing history and service preferences from survey data alongside thematic analysis of focus group discussions.

Results: The characteristics of 297 survey respondents and 16 focus groups participants were generally consistent with men testing at PRONTO!. 250 survey respondents (84%) had tested for HIV prior to first testing at PRONTO!; 90% reported usually testing for STIs when receiving a HIV test. Approximately half (52%) of all respondents said they planned to seek STI testing elsewhere and 20% cited that not offering comprehensive STI screening at PRONTO! as a reason not to return to PRONTO! for HIV testing. Focus group participants emphasised the importance of convenience when deciding the timing, location and range of STI tests sought. In the presence of STI symptoms, participants expressed preference for involving medical professionals in HIV/STI screening.

Conclusion: An exclusive HIV POC testing service introduces barriers to comprehensive sexual health screening for MSM in Melbourne, reducing service convenience and potentially the frequency with which clients test for STIs. The service design may also dissuade other men from accessing HIV testing at a service found to be highly acceptable among clients.

Disclosure of Interest Statement: All authors have no conflicts to declare. The Victorian Department of Health funds the PRONTO! service which is run by the Victorian AIDS Council. The authors would like to acknowledge the NHMRC who provide funding to Margaret Hellard as a senior research fellow, Kathleen Ryan and Anna Wilkinson as a public health scholarship recipient, Mark Stoové through a Career Development Fellowship and Alisa Pedrana through a Sidney Sax Post-Doctoral Fellowship. The authors gratefully acknowledge the contribution to this work of Victorian Operational Infrastructure Support Program received by the Burnet Institute.

HIV TESTING SELF-EFFICACY IS ASSOCIATED WITH HIGHER HIV TESTING FREQUENCY AND PERCEIVED LIKELIHOOD TO SELF-TEST AMONG GAY AND BISEXUAL MEN

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Introduction: Regular testing of individuals at high risk of HIV is central to current prevention strategies, and crucial to decrease the time-to-diagnosis. Little research has been conducted on 'self-efficacy': the perceived ability to undertake HIV testing among gay and bisexual men (GBM). We examined self-efficacy in relation to HIV testing frequency and likelihood to self-test among GBM.

Methods: Participants were HIV-negative GBM at increased risk of HIV (>5 partners or any condomless anal intercourse in previous 3 months) in a randomised controlled trial of HIV self-testing (FORTH). Participants completed a baseline survey at enrolment. We constructed a HIV Testing Self-Efficacy (HTSE) scale measuring confidence in one's perceived ability to undertake HIV testing comprising 8 items ('not at all confident'=0 to 'completely confident'=4; Cronbach's α=0.81). Total HTSE score consisted of the sum of scores for all items. We determined the factors associated with HIV testing frequency in the past 12 months and perceived likelihood to self-test in the future using logistic regression.

Results: A total of 355 GBM were included. Median age was 33 years (inter-quartile range [IQR]=26-41), and 63% were Australian-born. Overall, 95% reported having previously tested for HIV, and 65% reported being 'very likely' to self-test for HIV. The median HTSE score was 26 (IQR=23-29,range=8-32). In multivariate analysis, factors independently associated with ≥3 HIV tests in past 12 months were: HTSE score (adjusted odds ratio [AOR]=1.07 for one unit increase,95%CI=1.02-1.13,p=0.011); and >10 partners in past 6 months (AOR=1.85,95%CI=1.10-3.12,p=0.020). Only HTSE score was associated with being ‘very likely’ to self-test (OR=1.08, 95%CI=1.03-1.13, p=0.001).

Conclusion: HIV testing self-efficacy is independently associated with testing frequency and likelihood to self-test. Improving GBM's confidence in HIV testing, by improving their knowledge and experience may lead to higher testing frequency. Future longitudinal analysis will provide information about the causal pathways between HTSE, testing frequency and actual self-testing measured in the trial.

Disclosure of Interest Statement: The research is funded through a NHMRC Program grant from the NHMRC and self-test kits were purchased from OraSure Technologies Inc. (Bethlehem, PA, USA). The Kirby Institute and the Centre for Social Research in Health receive funding from the Australian Government Department of Health.

SEXUAL RISK BEHAVIOUR PREDICTS MORE FREQUENT USE OF HIV SELF-TESTING: EARLY FINDINGS FROM THE FORTH TRIAL

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Background: Most HIV diagnoses in Australia are among gay and bisexual men (GBM), yet less than a quarter of higher-risk GBM are testing at the recommended frequency (3-6 monthly). In the context of a randomised trial of HIV self-testing (FORTH), we examined the predictors of more frequent use of HIV self-testing among higher-risk GBM.

Methods: Participants in FORTH trial included higher-risk GBM (>5 sexual partners or condomless anal intercourse in the past 3 months). The trial is being conducted over 12 months, and men in the intervention arm receive 4 self-tests (OraSure's OraQuick home test) at baseline and additional self-tests on request. Using data from the baseline and 6 month surveys, we used logistic regression to examine predictors of using >2 self-tests over 6 months among participants in the intervention arm.

Results: Of the GBM (n=154) in the intervention arm, 59% reported in the baseline survey they had condomless anal intercourse with casual partners (CLAIC) in the past 6 months and 56% had a HIV test every six months. Men who reported CLAIC in the past 6 months were more likely to use >2 HIV self-tests in the first 6 months of the trial (odds ratio:2.8,95%CI:1.2-6.7). No other baseline survey factors were associated with >2 self-tests, including; demographics, testing frequency, likelihood to self-test in the future, and reported testing barriers (the process of getting tested is too much hassle, I don't like having to return for results, I don't want to go to a clinic/ doctor to get tested).

Conclusion: These findings indicate men who report sexual risk behaviour are more likely to increase their testing frequency through self-tests, which is a key HIV prevention goal. However there is also a need to ensure the longer window period of the OraQuick self-test is understood to avoid infections being missed.

Disclosure of Interest Statement: The research is funded through a NHMRC Program grant from the NHMRC and self-test kits were purchased from OraSure Technologies Inc. (Bethlehem, PA, USA). The Kirby Institute and the Centre for Social Research in Health receive funding from the Australian Government Department of Health.

A GENITAL BUMP

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Abstract: Dermatological conditions are more common and can present atypically in HIV infected individuals. This case report describes a 22 year old HIV positive Caucasian female who presented with a vulval lesion 8 weeks after starting antiretroviral treatment (ART). Clinical examination revealed a 2 cm well demarcated plaque on the outer aspect of the left labia minora. The lesion was tender, no contact bleeding, and no ulceration present. She was presumptively treated for Chancroid and Herpes Simplex with 500mg Ceftriaxone IM stat, 1g Azithromycin PO stat, and Valacyclovir 500mg BD for 5 days. The lesion persisted despite treatment and during follow up a punch biopsy was carried out. She was diagnosed with Pseudoepitheliomatous Hyperplasia of the Epidermis (PEH); cause not identified. In addition to highlighting this condition that has been reported in HIV/HSV co-infection, this case demonstrates that unusual skin presentations must be considered in HIV infected individuals and illustrates the importance of biopsy for any non-healing lesions.

Disclosure of Interest Statement: None

MULTIPLE INTRACEREBRAL LESIONS IN A YOUNG MALE

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As incidence of HIV infection has increased neurological complications of HIV are being encountered more in our clinical practice. Cerebral toxoplasmosis is still the commonest cerebral opportunistic infection in HIV-infected patients even though the incidence has declined with the use of antiretroviral therapy. A 20 year old gentleman was referred to our institute as a case of stroke in young. Magnetic resonance imaging (MRI) of his brain showed multiple ill-defined and nodular enhancing lesions in bilateral supratentorial and infratentorial neuroparenchyma. Test for HIV-1 was reactive. Toxoplasma serology revealed raised IgG antibody levels. Based on the MRI features and positive toxoplasma serology, diagnosis of cerebral toxoplasmosis was made. He was treated with trimethoprim/sulfamethoxazole and pyrimethamine/ Sulfadoxine for 3 weeks. After 2 weeks of treatment, repeat MRI of brain was done which showed significant resolution of the lesions. We are presenting this case to highlight the fact that cerebral toxoplasmosis should be considered in the differential diagnosis of multiple neuroparenchymal lesions in young individuals who present with neurological deficits. We have also discussed about common intracranial mass lesions in HIV patients.

Disclosure of Interest: None

SARCOIDOSIS IN A HUMAN IMMUNODEFICIENCY VIRUS (HIV)-INFECTED PATIENT: THE PARADOX OF AUTOIMMUNITY IN IMMUNODEFICIENCY

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Sarcoidosis is an inflammatory multi-system disorder of indeterminate origin, characterised histologically by the presence of epithelioid non-caseating granulomas in affected organs. It has been rarely reported in HIV infection

We describe the case of a 30-year-old Australian-born man with HIV who presented in 2012 with severe hypercalcaemia. He had been diagnosed with HIV in 2008 and commenced on combination Anti-Retroviral Treatment (cART) Virologic suppression and immune recovery were achieved within 3 months and sustained. His history is also remarkable for Type 1 Diabetes Mellitus and Psoriasis.

The patient presented with intractable nausea and vomiting. Initial investigations revealed a serum corrected calcium of 3.3 mmol/L, associated with both renal and hepatic impairment. His CD4 count was 595 cells/L and HIV viral load was suppressed. Computerised Tomography demonstrated nodular pulmonary infiltrates, widespread lymphadenopathy and hepato-splenomegaly, with evidence of increased metabolic uptake at these sites on Positron Emission Tomography.

Lymph node and liver biopsies revealed non-caseating granulomas, with no evidence of an infective or neoplastic process on histology or cultures, leading to the diagnosis of sarcoidosis. His anti-retroviral regimen was altered in anticipation of potential interactions and he was commenced on steroids with good symptomatic effect. Follow up tests demonstrate a low-level hypercalcaemia and liver enzyme abnormalities that are suggestive of a persistent granulomatous process, and he continues on low dose steroid treatment.

Cases of sarcoidosis in the setting of HIV infection have been predominantly reported during immune reconstitution or shortly thereafter, and rarely at CD4 counts less than 200 cells/µL T helper 1 (Th1) CD4 cell-driven cytokine responses are linked to the formation of granulomas, the pathologic hallmark of the disorder. Steroids remain the mainstay of treatment.

This case highlights complexities in both the diagnosis and management of sarcoidosis in the setting of HIV.

DEVELOPMENT OF A NEW QUANTITATIVE INTRACELLULAR HIV-1 MRNA ASSAY (*SPLICED-TAT*) FOR THE DETECTION OF ACTIVE VIRUS PRODUCTION WITHIN HIV-1 RESERVOIRS

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Introduction: Combined antiretroviral therapy reduces HIV-1 plasma viral load (VL) to under limit of detection. This limits the utility of commercially available assays in the evaluation of treatment out-comes. We focused on the intracellular analysis of spliced-*tat* RNA as it plays a critical role facilitating HIV-1 transcription. We investigated whether levels of spliced-*tat* might be an early marker for the detection of viral rebound.

Methods: A Taqman probe based spliced-*tat* real-time PCR assay was evaluated using various sample sets. The assay has an estimated detection level of 2 RNA copies/ 5 x 10^5 cells, with a dynamic range spanning 6 orders of magnitude. We initially used HIV-1 infection models in both PM1-ccr5 cells and PBMCs obtained from healthy donors. We then extended the evaluation to the latently infected U1 cell line. Further analysis was conducted using cryopreserved PBMCs from treatment failure patients (AZT mono-therapy) and samples pre and post treatment interruption in the PULSE study.

Results: The assay readily detected cell-associated viral RNA in both infected PM1-ccr5 cells and PBMCs. It detected high levels of spliced-*tat* in U1 cells upon activation by the various stimuli. The analysis of PBMC from patients failing AZT mono-therapy (n=18) showed high levels of spliced-*tat* (range: 20 -100 copies/5x10^5). The analysis of PBMC from PULSE patients after 48-weeks of cART (n=15) showed low-levels of spliced-*tat* (range: 2 - 8 copies/ 5x10^5) indicating ongoing low levels of viral transcriptional activity within the HIV-1 reservoir. After stopping the therapy, VL was drastically elevated within weeks.

Conclusion: Low levels of spliced-*tat* were detected in PBMCs obtained from virally suppressed patients treated from early in Primary infection, suggesting viral rebound upon stopping the therapy might be coming from the reservoir with residual level of spliced-tat producing cells. Intracellular RNA analysis will be an essential method in the assessments of “functional cure” strategies.

Disclosure of Interest Statement: We have no conflict of interest in this abstract.

NULLBASIC INHIBITS HIV REPLICATION THROUGH A LATENCY-LIKE SUPPRESSION OF HIV-1 GENE EXPRESSION IN JURKAT CELLS

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Introduction: Nullbasic is a derivative of the HIV-1 transcriptional activator protein, Tat. Previously we have shown that Nullbasic is a nontoxic first-in-class antiviral agent that inhibits HIV production and viral spread in human T cells. From this we hypothesised that the stable expression of Nullbasic can not only inhibit HIV production in Jurkat cells but also supresses HIV-1 production in chronically infected Jurkat cells.

Methods: 1) Nullbasic.Zsgreen (NB.ZsG) was delivered to Jurkat cells with a lentiviral vector pSicoR-EF1a that expresses NB.ZsG from a constitutively driven EF1a promoter. Positive Jurkat.NB.ZsG cells were sorted then infected with HIV-1 at 20 ng/10^5 cells, then stimulated with 1 nM PMA. 2) Co-culturing experiments were performed to check if any progeny virus made by Jurkat.NB.ZsG cells can spread to other cells. 3) NB.ZsG VLPs were used to treat HIV-1 chronically infected Jurkat cells. NB.ZsG expression was monitored by FACS and Western blot. HIV-I level was measured by p24 ELISA assay, and HIV gene expression was measured by RT-PCR.

Results: 1) HIV-1 replication was not detected in the infected Jurkat.NB.ZsG cells however, HIV-1 DNA was detected suggesting that the cells harboured proviral DNA. The proviral DNA could not be stimulated by PMA (1nM). 2) Co-culture of infected Jukat.NB.ZsG cells with uninfected Jurkat cells failed to rescue HIV-1 replication. 3) NB can strongly suppress HIV-1 production in the HIV-1 chronically infected Jurkat cells. RT-PCR revealed that HIV mRNA level in NB.ZsG-treated cells dropped by 150-800 folds compared to the control cells. Interestingly, PMA could not fully reactivated the HIV-1 production in the treated cells, suggesting that the activity of the HIV-1 promoter was strongly attenuated.

Conclusion: The results suggest that Nullbasic induces a latency-like effect, which could not be fully reactivated with PMA. Therefore, Nullbasic is a potent candidate for anti-HIV-1 therapy.

Disclosure of Interest Statement: This project has been funded by NHMRC

THE INTERACTION OF EEF1A AND HIV RT IS CRITICAL FOR HIV-1 REVERSE TRANSCRIPTION AND A POTENTIAL ANTI-HIV TARGET

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Background: HIV uses host cellular machinery for replication and their identification can provide new anti-viral targets and strategies. We have reported that the components of the eukaryotic translation elongation 1 complex (eEF1) associate with the reverse transcriptional complex (RTC) and have important roles in RTC activity and stability. The study aimed to further characterize the interaction of EF1 components with the RTC and assess whether the interaction can be an anti-viral target.

Methods: Protein-protein interactions were examined using *in vitro* and in cell systems including Bio-Layer Interferometry, co-immunoprecipitation, mammalian two hybrid and Duolink Proximity Ligation assays. The significance of the interaction was determined by introducing the mutation into viral RT protein or an eEF1A inhibitor to disrupt the corresponding interaction.

Results: Protein-protein interaction analysis showed that the eEF1 component eEF1A strongly interacts with HIV-RT with an apparent Kd of ~5 nM. The thumb and connection domains of HIV RT are responsible for the interaction with eEF1A. Mutational screening of thumb domain has identified that RT 252 tryptophan (252W) is important for eEF1A-RT interaction. A single A252W mutation in HIV RT sharply reduced reverse transcription and virus replication. An eEF1A inhibitor, didemnin B was shown to affect the RTC stability, resulted in sharply reduce reverse transcription efficiency.

Conclusion: The canonical role of eEF1A is to bind and deliver aminoacylated tRNAs to the elongating ribosome. eEF1A is a unique cellular protein with many "moonlighting" biological activities. Our results demonstrated that eEF1A interacts with HIV RT and the interaction is important for RTC stability and the efficiency of reverse transcription. Blocking the interaction of eEF1A and HIV RT is a potential anti-HIV target.

Disclosure of Interest Statement: The project was funded by NHMRC.

BINDING OF THE EUKARYOTIC TRANSLATION ELONGATION FACTOR 1A WITH THE 5'UTR OF HIV-1 GENOMIC RNA IS IMPORTANT FOR REVERSE TRANSCRIPTION

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Background: The cellular protein eukaryotic translation elongation factor 1A (eEF1A) binds to aminoacylated transfer RNAs and delivers them to the ribosome during translation. eEF1A also binds to RNA secondary structures present in genomes of several RNA viruses and plays important roles in their replication. As a RNA binding protein, whether eEF1A can bind with HIV-1 genomic RNA has not been investigated and was the aim of the study.

Methods: RNA-protein interaction was determined by reversible crosslink co-immunoprecipitation (RC-Co-IP) and biolayer Interferometry assay (BLI). eEF1A binding region within RNA was mapped by deletion and mutation analysis. Virus harboured genomic RNA mutation was examined for eEF1A-RT interaction by proximity ligation assay, for reverse transcription by qPCR and for replication by CAp24 ELISA in cells**.**

Results: The interaction of eEF1A with 5'UTR of HIV-1genomic RNA was detected in cells and in vitro. Truncations and mutations of the 5'UTR RNA demonstrated that a stem-loop formed by nucleotides 142 to 170, which encompass a reported tRNA anticodon-like-element, binds to eEF1A. Mutations that altered the stem-loop structure by changing two highly conserved sequence clusters in the stem-loop region result in reduction of the interaction with eEF1A in vitro. HIV-1 virus harbouring the same 5'UTR mutations significantly reduced the interaction of eEF1A with HIV-1 reverse transcription complex (RTC), reverse transcription and replication.

Conclusion: eEF1A interacts with 5'UTR of HIV-1 genomic RNA and the interaction is important for late DNA synthesis in reverse transcription.

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A NOVEL ASSAY TO EVALUATE THE RESPONSE OF PATIENT-DERIVED VIRUS TO LATENCY REVERSING AGENTS *EX VIVO*

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Introduction: Despite anti-retroviral therapy (ART), HIV latency is a major barrier to cure. One strategy to eliminate latently infected cells is to stimulate virus production from latency. Latency reversing agents (LRAs) have been shown to be highly potent *in vitro*, however their efficacy in activating latent HIV is highly variable *ex vivo* and *in vivo*. We developed a novel model of HIV latency to test the efficacy of LRAs on patient-derived viruses.

Methods: Integrated HIV long terminal repeats (LTRs) isolated from $CD4^+$ T-cells of 4 ART-treated patients were cloned into a modified HIV lentiviral vector, pGBFM-nefFluc. Vesicular stomatitis virus G glycoprotein pseudotyped viruses were generated for infection of activated primary $CD4^+$ T-cells. Cells were cultured for 10-12 days post-infection and then sorted by flow cytometry based on size and expression of the activation marker CD69. The activity of LRAs on HIV transcription was measured by quantification of luciferase activity.

Results: After prolonged culture of infected cells, we identified 3 populations of cells based on size and CD69 expression. In the large (blast) $CD69^+$ T-cells, luciferase expression persisted but in the $CD69^-$ blasts, luciferase activity was downregulated. There was minimal luciferase expression from the small (non-blast) cells. Following mitogen stimulation, luciferase expression increased maximally in the $CD69^-$ blasts, consistent with the establishment of latency in these cells.

Following infection with pseudotyped viruses containing either wild-type NL4-3 or patient-derived LTRs, we showed that the LRA romidepsin had the most potent effect on LTR reactivation. Finally, there was no difference in the response to the LRAs following infection with pseudotyped viruses containing either NL4-3 or patient-derived LTRs.

Conclusion: We have generated a new model of post activation HIV latency to screen LRAs using patient-derived LTR-viruses. In these patients, the LTR sequence alone did not determine the potency of response to an LRA.

Disclosure of Interest Statement: *No pharmaceutical grants were received in the development of this study.*

CHANGES IN RENAL LABORATORY PARAMETERS AND BONE MINERAL DENSITY IN TREATMENT-NAÏVE HIV-1-INFECTED ADOLESCENTS INITIATING THERAPY WITH INSTI-BASED SINGLE-TABLET REGIMENS CONTAINING TENOFOVIR ALAFENAMIDE (TAF) OR TENOFOVIR DISOPROXIL FUMARATE (TDF)

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Introduction: EVG/COBI/FTC/TAF [E/C/F/TAF] and EVG/COBI/FTC/TDF [Stribild, STB] are integrase inhibitor (INSTI)-based single-tablet regimens (STRs) in clinical development for HIV-1-infected adolescents. Preliminary comparative safety data through 24 weeks are reported.

Methods: Treatment-naïve 12 to <18 year-olds ≥35 kg with HIV-1 RNA ≥1000 copies/mL, CD4 >100 cells/μL and eGFR ≥90 mL/min/1.73m^2 received E/C/F/TAF or STB once daily in two ongoing 48-week, single-arm, open-label trials. Adverse events (AE), laboratory tests, bone mineral density (BMD) by dual X-ray absorptiometry and height-age adjusted (HA) Z-scores were assessed through Week 24.

Results: The E/C/F/TAF and STB trials enrolled 50 and 33 adolescents, respectively (median age 15 vs 16 years, 56% vs 30% female, 88% vs 76% Black, 22% vs 27% with baseline HIV-1 RNA > 100,000 copies/mL, median CD4 count 456 vs 407 cells/μL, median eGFR 156 vs 143 mL/min/1.73m^2). Most AEs in both trials were mild and unrelated to treatment, with no deaths or AEs leading to treatment discontinuation. Median serum creatinine increased by +0.08 mg/dL in E/C/F/TAF participants and +0.10 mg/dL in STB participants, and median eGFR decreased by -17.0 and -18.0 mL/min/1.73m^2, respectively, consistent with COBI's inhibition of renal tubular creatinine secretion Grade 2 or higher proteinuria occurred in 4% vs 21% of participants, respectively. Of participants with Week 24 BMD measurements, median increase in spine BMD was +1.98% in E/C/F/TAF participants, with a decrease ≥4% in 3/41 (7%), versus a median decrease of -1.29% in STB participants, with a decrease ≥4% in 6/20 (30%). Spine HA Z-scores decreased by -0.02 and -0.21 respectively.

Conclusions: Compared with STB, E/C/F/TAF exhibited similar effects on eGFR, a lower incidence of proteinuria, and a median increase in spine mineralization. Both STRs were well-tolerated. These findings support INSTI-based STRs as initial HIV-1 treatment in adolescents and suggest that TAF could offer safety advantages in pediatric populations.

Disclosure of Interest Statement: These studies were funded by Gilead Sciences.

MANAGEMENT GUIDELINES FOR HIV-RELATED CO-MORBIDITIES RESULT IN INCREASED SCREENING BUT NO CHANGE IN PRIMARY PREVENTION IMPLEMENTATION

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Introduction: The adequacy of prevention and management of serious non-AIDS events, in particular cardiovascular disease, is of increasing importance to HIV positive patients in the modern era.

Methods: An audit of compliance with recommendations for the screening and management of cardiovascular risk (CVR) was performed prior to and one year after the implementation of locally developed education tools and guidelines for CVR management in HIV positive patients. Two unique groups of one hundred consecutive HIV positive outpatients who attend the Department of Infectious Diseases, Alfred Hospital, for routine HIV care were compared. Data was collected retrospectively from the electronic medical record and pathology systems; results from previous two years included.

Results: 90.5% male; median age 49. Prior to the intervention high numbers of patients had not had blood pressure (35%) or smoking status (33%) recorded. The intervention led to a significant improvement in screening for diabetes (64% pre; 86% post; p <0.001), hypertension (65% pre; 88% post; p<0.001) and cigarette smoking (67% pre; 90% post; p <0.001) but this did not translate into increases in antihypertensive prescriptions. Twelve participants pre- and 19 post-intervention had a systolic blood pressure ≥ 140mmHg, of whom 5 (41.6%) and 13 (68.0%) respectively were not receiving antihypertensives (p=0.151). Compliance with guidelines for statin use was high in both periods (94% and 92% respectively) and there was no change in the number of patients receiving a statin (24% in both periods) or the type of statin prescribed. Of patients receiving a statin only 8 (17%) had a total cholesterol <4.0mmol/l (the target currently recommended by Australian guidelines)

Conclusion: Improvements in screening for CVR can be achieved with education tools but these alone are not sufficient to improve implementation or optimisation of primary prevention therapies. Changes in the models of HIV care provision may be what's needed.

Disclosure of Interest Statement: No industry funding was received in the conduct of this study

PREVALENCE AND CORRELATES OF HIV-ASSOCIATED DEMENTIA IN HIV OUTPATIENTS IN HO CHI MINH CITY, VIETNAM

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Background: HIV-associated dementia (HAD) is the most severe manifestation of HIV-associated neurocognitive disorder among people living with HIV/AIDS (PLHIV). HAD impacts on treatment adherence, and is associated with decreased quality of life and increased mortality risk. This study estimated HAD prevalence and identified factors associated with presence of HAD among PLHIV in Vietnam.

Methods: A cross-sectional study was conducted with 400 PLHIV (63.5% male, mean age 34.8yrs) at two outpatient clinics in Ho Chi Minh City, Vietnam in 2013. Participants completed a self-report questionnaire and were interviewed by a trained researcher to assess HAD using The International HIV Dementia Scale (IHDS). The IHDS evaluates motor speed, psychomotor speed and memory recall. The total IHDS score ≤10 was used as a possible indicator of HAD. Clinical information concerning HIV treatment was also extracted from medical records.

Results: HAD prevalence was 39.8% (95% CI 35.0%-44.5%) and there were no significant differences between those with and without HAD in the demographic characteristics (gender, employment status, marital status, parental status, religion, and economic status) or the clinical factors (body mass index, general health status, time since HIV infection and time since antiretroviral (ARV) initiation, CD4 cell count, ARV penetration effectiveness score, comorbidity status, history of opportunistic disease, HIV stage) or self-reported alcohol and drug use. However, PLHIV with HAD were less likely to report sexual transmission or drug use as sources of infection and more likely to disclose or report as other sources of infection than those without HAD, p=0.001. Additionally, participants with HAD were significantly older (M=36.1yrs, SD=7.4yrs) than those without HAD (M=34.0yrs, SD=6.3yrs, p=0.003).

Conclusion: HAD was prevalent among Vietnamese PLHIV and was associated with older age and source of HIV infection. It is likely that early screening for HAD would lead to appropriate referral for further assessment and management among PLHIV.

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AUSTRALIAN HIV/HEPATITIS C CO-INFECTED PATIENTS FALL BEHIND HIV MONO-INFECTED PATIENTS IN MOVE TOWARDS EARLY HIV TREATMENT INITIATION

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Introduction: One in eight people living with HIV (PLHIV) in Australia are estimated to be co-infected with Hepatitis C (HCV). In the light of clinical guideline changes with regard to antiretroviral therapy (ART) initiation, we examine the impact of co-infection status on uptake of treatment, and highlight population-specific differences relative to HIV mono-infected patients.

Methods: Ipsos Healthcare's HIV Therapy Monitor is a patient chart audit study, which monitors trends in the treatment of PLHIV in Australia. Demographic and treatment data are collected bi-annually from a panel of 25+ HIV-treating clinicians. The data in this report is based on a sample of 4331 patient records collected between 2008- 2014, of which 412 were co-infected with HCV.

Results: While the proportion of HIV mono-infected patients receiving ART has steadily increased from 67% in 2008 to 84% in 2014 ($p<0.0001$), the opposite trend is observed in the HIV/HCV co-infected population. The rate of treatment in the co-infected cohort has dropped from 84% in 2010/2011 to 66% in 2014 ($p=0.003$), with co-infected patients experiencing an average delay of 42 months between HIV diagnosis and initiation of ART, compared with 25 months for mono-infected patients ($p=0.013$). Patient's lack of support network was most frequently cited by clinicians as the reason for delaying treatment for co-infected patients, followed by patient choice and expected non-compliance.

Conclusion: Increasing evidence is now available to support early initiation of ART, both in terms of clinical benefits as well as in preventing disease transmission. However, despite encouraging results among HIV mono-infected patients, outcomes for the HIV/HCV co-infected population reveal a growing disparity between these groups in Australia. The increasing delay to treatment supports the need to consider this patient group a priority population, and indicates that further action is required to address the complications involved in treating these patients.

Disclosure of Interest Statement: There are no conflicts of interest to declare.

NEGOTIATING CHANGE IN RELATIONSHIP AGREEMENTS

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Introduction: Among gay and bisexual men (GBM), about one-third of HIV transmissions occur within regular sexual relationships. While many GBM construct sexual agreements for their relationships, these are not static. We investigated how and why these agreements change, and its potential impact on HIV prevention.

Methods: This paper is based on a thematic analysis of the free-text responses from the Monopoly Study survey, an online survey about relationships among 4215 Australian GBM.

Results: Two thirds of respondents (64.6%) had a 'primary partner', among whom 37.6% had a monogamous agreement, and 62.4% had a non-monogamous agreement. Some relationships started as friendships or casual hookups, and developed into relationships overtime. Others had previously been regular relationships and evolved into a friendship where sex still occurred. Some relationships were monogamous at the outset, and became non-monogamous over time. Others changed to one where they only had sex together with an external partner (threesome only). A few men described transition from non-monogamy to monogamy. Some reasons for these changes included: mismatched sexual desires, geographical distance, and sexual exploration. A few men also reported a lack of communication to their partner about sexual desires, and sometimes, a resultant break in agreement. HIV was rarely mentioned as a factor in changes to agreements.

Conclusion: Relationships and sexual agreements are fluid. These data highlight how and why many relationships and sexual agreements transition overtime. Communication between partners is vital to ensuring relationships and agreements transition comfortably, and safely, for both partners. That HIV was rarely mentioned indicates it was not a primary consideration in framing agreements. Nonetheless, GBM in different relationship transitions are likely to adopt different sexual behaviours. HIV-prevention strategies need to consider how risk might consequently vary and how to ensure HIV transmission can be avoided in these situations.

Disclosure of Interest Statement: The Kirby Institute and the Australian Research Centre in Sex, Health and Society (ARCSHS) receive funding from the Australian Government Department of Health and Ageing. The Kirby Institute is affiliated with the Faculty of Medicine, University of New South Wales. ARCSHS is affiliated with La Trobe University. No pharmaceutical grants were received in the development of this study.

BOYFRIENDS AND FUCKBUDDIES: DEFINING PARTNERS

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Background: One third of new infections among gay men are in the context of regular sexual partnerships, and a majority of these appear to be fuckbuddy-style arrangements. However, such arrangements remain under-researched and rarely feature in HIV-prevention.

Methods: Monopoly was a national online anonymous survey about relationships between men. 4215 men provided useable responses. 54.5% were recruited through gay cruise sites.

Results: Mean age was 37.1 years; 81.0% identified as gay. 73.2% had been tested for HIV; 5.1% were HIV-positive. 69.3% had a regular male partner: 36.8% being a 'boyfriend' and 31.1% a 'fuckbuddy'; 25.1% had more than one regular partner. 65.9% identified a primary partner, among whom: 55.5% described themselves as being in a relationship with him; 41.9% lived together; and 27.9% were monogamous. Men who regarded themselves to be in a relationship were more likely to be monogamous (46.9% vs 4.2%; $p<0.001$) and to live with their partner (72.6% vs 3.4%). Although less than was found among those recruited through cruise sites, 21.5% of men with a regular partner recruited elsewhere had more than one regular partner, and 45.7% were not monogamous. They were also more likely to regard themselves as being in a relationship (70.4% vs 45.0%; $p<0.001$).

Conclusion: Gay men's relationships are diverse and complex. The extent of fuckbuddy-style arrangements was far greater than had previously been assumed from less detailed data. Neither negotiated safety advice nor assumptions about casual sex are easily applied to men with these kinds of regular partnerships. HIV-prevention and research needs to take greater account of these kinds of partnerships.

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MAKING RELATIONSHIPS WORK: HOW MUCH IS AGE A FACTOR?

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Background: Negotiated safety arrangements within gay men's relationships have been key to HIV prevention in Australia for nearly twenty years. Does age affect how gay men communicate within their relationships?

Methods: Monopoly was a national online anonymous survey about relationships between men. Of 4215 useable responses, 2087 described their relationship agreement negotiations with their primary regular partners (PRP). 51.8% were recruited through gay cruise sites.

Results: Mean age among men with a PRP was 38.6 years; 87.1% identified as gay. 85.0% had been tested for HIV; 6.4% were HIV-positive. Men aged less than 30 were more likely than their older counterparts to have been with their PRP for less than six months (33.9% vs 14.0%; $p<0.001$). They were also more likely to regard their relationship with their PRP as monogamous (48.9% vs 32.5%; $p<0.001$) but were less likely to have discussed this with their PRP (54.7% vs 60.9%) or to discuss it regularly (23.5% vs 39.6%). Among men with agreements, wanting to discontinue condom use within the relationship was a factor in making their agreements for 16.9%, regardless of age. Men under 30 were less likely to have discussed HIV-prevention in formulating their agreements (65.4% vs 71.6%). 37.7% of younger men with agreements had agreed to practice risk reduction with other men compared with 51.9% of older men ($p<0.001$). Younger men were slightly less likely to have engaged in condomless sex with their PRP than were older men (51.0% vs 56.1). Nonetheless, 40.7% of young men who had no spoken agreements reported engaging in condomless sex with their PRP.

Conclusion: While the majority of gay men with a regular partner have negotiated agreements about sex and risk-reduction, this is less true of younger men who appear more likely to rely on assumptions of monogamy, and communicate less, with their partners.

Disclosure of Interest Statement: The Kirby Institute and the Australian Research Centre in Sex, Health and Society (ARCSHS) receive funding from the Australian Government Department of Health and Ageing. The Kirby Institute is affiliated with the Faculty of Medicine, University of New South Wales. ARCSHS is affiliated with La Trobe University. No pharmaceutical grants were received in the development of this study.

AGREEMENTS AND COMMUNICATION ABOUT VIRAL LOAD AND CONDOMLESS ANAL INTERCOURSE WITHIN HOMOSEXUAL MALE SERODISCORDANT COUPLES: IMPLICATIONS FOR 'TREATMENT AS PREVENTION'

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Introduction: Within serodiscordant couples (SDCs), HIV risk can be reduced if condomless anal intercourse (CLAI) is only practiced when the HIV-positive partner's viral load (VL) is undetectable. However, little research exists on communication and agreements about VL within homosexual male SDCs.

Methods: Opposites Attract is an ongoing international cohort study of homosexual SDCs. At baseline, HIV-negative partners (HNPs) self-reported on sexual behaviour, relationship agreements, communication and VL perceptions.

Results: At April 2015, 255 couples were enrolled (Australia=140, Brazil=62, Thailand=53). 80.0% of HNPs knew their partner's last VL test result (Australia=90.0%, Brazil=79.0%, Thailand=54.7%; p<0.001) and 61.2% perceived it to be undetectable. Perceived VL was mostly in accordance with actual viral load. 76.1% were told the result by their partner, while 16.1% saw the result. Very few simply assumed (1.6%) or believed it based on previous results (2.4%). More HNPs knew the result in couples with explicit agreements for VL results to be communicated (82.2% vs 73.9%; p=0.015). Overall, 72.6% had such an agreement (Australia=65.7%, Brazil=83.9%, Thailand=77.4%; p=0.018). Only half 'took VL into account' when making agreements about sex with each other. 45.1% had agreements allowing CLAI when the HPP's VL was undetectable (Australia=57.1%, Brazil=25.8%, Thailand=35.9%; p<0.001), compared to 20.4% when detectable and 18.4% when unknown. CLAI was more likely among couples who had agreements allowing CLAI when VL was undetectable (84.4% vs 15.7%; p<0.001). 87.8% found it easy to discuss VL results with partners; communication was easier in couples with perceived undetectable VL (93.0% vs 79.8%; p<0.002).

Conclusion: Reducing risk in SDCs relies on decisions about CLAI in relation to VL, while accurate knowledge of partners' recent VL relies on clear communication within couples. Relationship agreements largely reflected practice, and HNPs typically discovered VL results in explicit ways. There were marked differences between the three countries in communication, agreements and behaviour.

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IMPACT OF A PHARMACIST REVIEW DURING ANNUAL HEALTH CHECKS IN HIV PATIENTS TAKING COMBINATION ANTIRETROVIRAL THERAPY

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Introduction: Patients attending a HIV clinic in Melbourne undergo Annual Health Checks (AHCs) to monitor for complications associated with HIV infection. It was hypothesised that Pharmacist attendance at AHCs would identify and address drug-related problems (DRPs) that were not being picked up during standard combination antiretroviral therapy (cART) dispensing. DRPs are events/circumstances involving a patient's drug treatment that actually or potentially interfere with the desired outcome e.g drug interactions. The study aimed to investigate the impact of a Pharmacist review during AHCs in HIV patients taking cART.

Methods: A Pharmacist interviewed patients during AHCs and conducted a clinical review. DRPs identified were documented and communicated to the doctor with a suggested management plan. The total number of DRPs identified, proportion of DRPs present at the time of last cART dispensing, proportion followed up and the total Pharmacist review time were documented.

Results: A total of 93 DRPs were identified out of 41 AHCs with a median of 2 DRPs per patient (CI 1.7-2.9). 87% were present at the time of last cART dispensing and 84% of DRPs were followed by a Doctor or Pharmacist. 40% of Pharmacist recommendations resulted in a change in patient management. The most commonly occurring DRPs related to under-treatment (e.g. hyperlipidaemia requiring therapy) (27), drug-interactions (23) and monitoring (19). The Pharmacist spent a mean 10 min interviewing each patient and a mean total clinical review time of 46 min.

Conclusion: Pharmacist attendance at AHCs is considered a valuable innovation. There is a plan to continue the service and report on the findings, including identification of patient groups more likely to have DRPs. A review of the cART dispensing process to assist in identification of DRPs during cART dispensing would also be of value.

Disclosure of Interest Statement: The authors declare no competing financial interests.

SAFETY OF TENOFOVIR ALAFENAMIDE IN RENAL IMPAIRMENT

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Introduction: Tenofovir alafenamide (TAF) is a novel prodrug of tenofovir (TFV) that is not renally eliminated and at clinical doses results in 90% lower plasma TFV levels as compared to TDF. The safety and efficacy of a once-daily single tablet regimen of elvitegravir, cobicistat, emtricitabine, and TAF (E/C/F/TAF) was assessed in HIV-1 infected patients with mild to moderate renal impairment.

Methods: Virologically suppressed adults with stable $eGFR_{CG}$ (Cockroft-Gault) of 30-69 mL/min switched from TDF/non-TDF-containing regimens to E/C/F/TAF.

Results: Of 242 subjects enrolled and dosed, mean age was 58 years (24–82), 18% Black, 39% hypertension, and 14% diabetes. 65% were taking TDF-containing regimens. At baseline, median $eGFR_{CG}$ was 55.6 mL/min (33% $eGFR_{CG}$ 30-49 mL/min). 95% of subjects maintained HIV-1RNA <50 c/mL at W24. At W24, median (Q1, Q3) change from baseline $eGFR_{CG}$ was -0.4 (-4.7, 4.5) mL/min, eGFR-Cystatin C 3.8 (-4.8, 11.2) mL/min/1.73m2, and aGFR (n=32, 68.8% TDF at baseline) 0.1 (-4.3, 4.4) mL/min. Two subjects discontinued study drug for decreased GFR by $eGFR_{CG}$ and eGFR-Cystatin C, neither with evidence of renal tubulopathy. Proteinuria (UPCR >200 mg/g) and albuminuria (UACR≥30 mg/g) decreased from 42% to 21% and 49% to 27%. Significant decreases in urine retinol binding protein to creatinine ratio, beta-2-microglobulin to creatinine ratio, and fractional excretion of uric acid were observed ($p<0.001$ for all). Hip and spine BMD change from baseline to W24 was 0.74% (-0.71, 2.03) and 1.27% (-0.44, 3.83) (median, IQR)

Conclusion: These 24 week data support the virologic efficacy and renal and bone safety of once daily single-tablet E/C/F/TAF for use in HIV+ patients with mild and moderate renal impairment (eGFR 30 to 69 mL/min). Switch to E/C/F/TAF was associated with no change in aGFR and with reductions in proteinuria.

Disclosure of Interest Statement: These studies were funded by Gilead Sciences.

UTILISATION OF DRIED BLOOD SPOTS (DBS) FOR ASSESSING EFAVIRENZ PHARMACOKINETICS IN ENCORE1

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Introduction: Measurement of plasma concentrations is used for characterising the pharmacokinetics of antiretroviral drugs. In resource-limited settings plasma collection is limited by lack of access to specialised laboratory facilities and cold storage and transport. We compared the utility of dried blood spots (DBS) with conventional plasma methods for characterising efavirenz (EFV) pharmacokinetics in ENCORE1, a randomised, non-inferiority trial conducted at 38 sites in 13 countries.

Methods: Participants had single matched whole blood DBS and plasma samples (mid-dose) collected at weeks 4 and 12 of the main study. A sub-group underwent additional intensive DBS and plasma sampling over 24 hours. EFV concentrations were determined by validated LC-MS methods at a central laboratory. A DBS-predicted plasma concentration was derived and linear regression and Bland-Altman plots used to compare DBS-predicted plasma concentrations with measured plasma concentrations.

Results: 1094 paired mid-dose plasma and DBS samples were collected at weeks 4 (n=561) and 12 (n=533) of the main study. 320 additional paired plasma and DBS samples were collected (n=46) during intensive sampling. DBS and plasma concentrations were significantly correlated (r^2=0.904, p<0.001; n=1094). DBS concentrations were on average 53% (SD±9.5) lower than those in plasma (p<0.0001). In the main study, DBS-predicted plasma concentrations underestimated measured plasma concentrations (mean difference -451 ng/mL [95% confidence intervals {CI} -504 to -398] at week 4; and -431 ng/mL [-483 to -379] at week 12). In the intensive sampling, the mean difference between DBS-predicted and measured concentrations was 86.3 ng/mL (95% CI -5.7 to 178) at 12 hours post-dose.

Conclusion: DBS are a useful sampling tool in small pharmacokinetic studies. However, their widespread utilisation as a stand-alone method in multi-national trials requires further investigation.

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IS HIV ASSOCIATED COGNITIVE IMPAIRMENT A CONCERN FOR PLHIV?

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Introduction: At the 2014 International AIDS Society Conference in Melbourne a workshop "Recognition of signs and symptoms of HIV associated Neurocognitive Disorder (HAND) and practical strategies for resource poor settings" was facilitated. This presentation is the evaluation of the workshop and concerns which unfolded from Australians who attended the workshop and the whether HAND is a concern for PLHIV.

Methods: A pre workshop survey was distributed to general delegates and workshop attendees, a workshop evaluation and a 3 month follow up was completed. Comments from group discussion were noted including general comments by participants at the end of the workshop. Information from these avenues lead to meeting: "HAND Think tank" with key stakeholders based in Sydney, NSW, to discuss next steps focusing on the local Australian context.

Results: 78 surveys were completed by general delegates and workshop participants to ascertain characteristics of experience with HAND (24% to 85% noticing specific signs and symptoms in their patients, with 62% stating they provide support in the absence of an informal caregiver).

52 of 70 completed a workshop evaluation, of these 54% from Australia.
75% stated information would change how they worked in future, with 64% noting education on HAND would be useful. Many stated the group discussions were focused on the Australian setting. Some participants after obtaining information at the workshop discussed concern as they reflected on S&S they had noticed in themselves or others.

The HAND Think Tank discussed the issue of HAND from both a patient perspective and from service delivery perspective. Development of strategies to explore and address the issue further were discussed at the meeting.

Conclusion: Evidence from the surveys, workshop evaluations and 'HAND Think tank' notes more information and knowledge needs to be gained from key populations to improve awareness and develop strategies for PLHIV.

PLHIV SELF ASSESSMENTTOOL FOR RECOGNISING SIGNS AND SYMPTOMS OF HIV COGNITIVE IMPAIRMENT

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Introduction: HIV is known seen as a chronic disease but many people living with HIV (PLHIV) may experience cognitive impairment which can impact on activities of daily living and medication adherence. HIV associated Minor Neurocognitive Disorder (MND) may be difficult to identify as key signs and symptoms (S&S) may be due to other clinical conditions and individuals may assume S&S are attributable to other issues.

Methods: A nurse led prospective observational multi-site study aimed to evaluate the usefulness of a self-assessment tool used by patients and informal caregivers to identify S&S of MND. Participants were recruited from 3 sites in Sydney, NSW, with a one year follow up. Booklets were distributed and participants were asked to reflect on changes over last 12 months. Responses were transcribed and paced in clinical notes for discussion with doctor at next medical appointment. Routine care was monitored.

Results: 121 participants and 43 caregivers were recruited from 3 sites. The mean age was 49 years old. 96% male. 39% noticed behaviour change in themselves and 23% were concerned these changes. 61% participants and 57% of caregivers selected more than 4 symptoms from the booklet. Those with current or untreated depression tended to had more symptoms (P=0.056). Co-morbid medical conditions which may increase risk of cognitive impairment were reviewed. 7 declined neuropsychological tests, 14 were completed: 1 had depression and 1 had sleep apnea diagnosed, 4 had normal results, 4 had slight decline thus ongoing monitoring; 4 had deficits, who were treated with optimal ARVs and showed improvement.

Conclusion: PLHIV and caregivers are instrumental in noticing signs and symptoms of MND. Knowledge of what to observe for is essential. Using the booklet as a guide assists this process and has also helps start the conversation between themselves and their doctor regarding this issue.

PREDICTORS OF INCREASED IMMUNOLOGICAL RESPONSE WITHIN 24 MONTHS OF ART AMONG ART NAÏVE PATIENTS IN YOGYAKARTA, INDONESIA

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Introduction: The number of people living with Human Immunodeficiency Virus (PLHIV) is increasing every year in Indonesia, increasing the number of people requiring Anti Retroviral Treatment (ART). CD4+ T-cell count is used to monitor treatment response in Indonesia. Information about factors associated with increase of CD4+ T-cell count in people on ART is limited in the Indonesian context. This study aimed to identify factors predicting successful response to ART in PLHIV in Indonesia.

Methods: A retrospective observational cohort study was conducted among ART-naïve patients aged ≥18yrs who started treatment during January 2008-December 2012 in Dr. Sardjito referral Hospital, Yogyakarta. Data including age, sex, education level, marital status, risk group, clinical stage, TB co-infection, baseline CD4+ T-cell count and hemoglobin level were extracted from ARV register and medical record. Kaplan Meier survival analysis and Cox Proportional hazard model were performed to identify factors associated with time to achieve CD4+ count >350 cells/mm^3 within 24 months of initiating ART.

Results: Of 312 patients, 64.42% were male with the average age of 34.5 years. Median CD4+ T-cell at baseline was 52.5 cells/mm^3 and 50% had stage III and IV infection. Twenty five percent of the patients reached CD4+ T-cell >350 cells/mm^3 by month 14. Median time could not be estimated due to small numbers of patients reaching the event (32.37%). CD4+ T-cell count at baseline was significantly associated with CD4+ T-cell increase to >350 cells/mm^3 (CD4+ T-cell count 50-<200 cells/mm^3, aHR=2.19[1.29-3.71], CD4+ T-cell count 200-≤350 cells/mm^3, aHR=8.98[4.93-16.34]).

Conclusion: We found that higher CD4+ T-cell count at baseline is associated with increases in CD4+ T-cell increase after initiating ART. Programs to improve early diagnosis and early ART should be initiated with HIV-related providers involved in HIV control in Indonesia to improve outcomes for HIV infected patients.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.

USE OF CONCOMITANT MEDICATIONS IN HIV-1 INFECTED PATIENTS IN A LARGE COMMUNITY PRACTICE IN SYDNEY, AUSTRALIA

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Background: The aging HIV cohort with increased co-morbidities in Australia may result in polypharmacy, and lead to adverse drug-to-drug interactions (DDIs). We determined the use of concomitant medications in HIV and potential DDIs with co-formulated elvitegravir/cobicistat/emtricitabine/tenofovir (Stribild)(E/C/F/TDF).

Methods: A retrospective audit of HIV-infected patients attending a high HIV-caseload community practice was performed. HIV-infected patients were included if "linked to care" (≥ two visits 3–12 months apart, with measured virological and/or immunological markers, from 1st January 2005 to 30th November 2014). Patients with incomplete or inaccessible records were excluded from the data extraction. Basic demographics, HIV laboratory markers, co-morbidites, antiretrovirals (ARVs) and concomitant medication use were collected. DDIs were assessed using the TGA Stribild® product information and the University of Liverpool HIV DDI database.

Results: Of 1377 patient records examined, 1104 were analysed, with mean age 47.5±10.3years; 99.2% male; 86.1% VL <50copies/mL; mean CD4 = 681±291cells/μL. Mean daily ARV pill burden was 3.2±2.2. A total of 292 different medications were co-prescribed to patients, with mean daily pill burden of 1.9±1.5. Patients ≥50 years were found to have a significantly greater daily pill burden of non-ARV medications compared to those <50 years (4.1±4.7 vs. 2.7±4.0, respectively; p<0.0005). Of non-ARV medications co-prescribed, 0.14% were contraindicated with E/C/F/TDF (triazolam (0.10%); rifampicin (0.02%); midazolam (0.02%). Of the nine medications with > 2% co-prescription, four require close clinical monitoring (CCM) when co-administered with E/C/F/TDF - cephalexin (3.81%), diazepam (3.85%), sildenafil (2.81%) and zolpidem tartrate (2.04%). Five widely prescribed concomitant medications did not require CCM: amoxycillin (4.96%), paracetamol combinations (3.85%), temazepam (3.83%), valaciclovir (3.24%) and azithromycin (2.85%).

Conclusion: In HIV-infected patients ≥50 years attending a large caseload practice, concomitant medications resulted in a significant pill burden. Medications contraindicated to E/C/F/TDF were rarely co-prescribed. However, commonly co-prescribed require CCM, highlighting the importance of DDI awareness and monitoring.

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PREDICTORS OF MORTALITY AMONG HIV PATIENTS ON ANTIRETROVIRAL TREATMENT IN DR. SARDJITO HOSPITAL YOGYAKARTA

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Introduction: The mortality of people with Human immunodeficiency Virus (HIV) infection is still high, although antiretroviral therapy (ART) has been widely used in Indonesia. However, information about the impact of ART related mortality is limited particularly in Yogyakarta. The aim of this study was to determine the level of mortality and identify its predictors among HIV patients on ART in Dr. Sardjito hospital, Yogyakarta.

Methods: A retrospective cohort study was conducted among patients who initiated ART between January 2008 to December 2012. Patients were followed up for 2 years. Data of age, sex, education level, WHO stage, CD4 counts, hemoglobin level, Tb infection, cotrimoxazole prophylaxis therapy (CPT), and district were extracted from ART register, medical record and information from peers. Kaplan Meier survival and Cox proportional hazard model were performed to identify the predictors of mortality among HIV patients.

Results: A total of 524 patients were included in the analysis. The mean age of patients was 34 years with 66.03% were male. A total of 86 (16.4%) deaths were observed giving an overall mortality rate of 12.6 per 100 person-years. In multivariate analysis the predictors of mortality were; WHO stage III or IV (aHR1.88; 95% CI 1.04 – 3.39; p = 0.037), CD4 count <200 cells (aHR 4.66; 95% CI 1.12 – 19.41; p = 0.034), Hemoglobin level <11 mg/dl (aHR 1.78; 95% CI 1.11 – 2.84; p = 0.022) and presence of TB infection (aHR 2.31; 95% CI 1.41 – 3.79; p = 0.001).

Conclusion: The mortality of adult patients with 2 years of ART was high. Early diagnosis and ART initiation are important to reduce mortality of patients on ART. Late clinical presentations were significantly affect the outcome of patients.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.

A MIXED METHOD STUDY OF INFLUENCE OF SOCIOCULTURAL FACTORS ON WOMEN LIVING WITH HIV/ AIDS IN DELHI INDIA

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Introduction: Women constitute almost 50% of the population but the HIV which was centred around male population is gradually affecting women despite their non-risky behaviour. There is a need to look into sociocultural interplay on the vulnerability of women and their coping, post infection, in the highly stigmatising, discriminating environment of patriarchal Indian society.

Method: As a larger mixed method research, in-depth interview with 105 consenting HIV positive adults were held to understand their sexual behaviour, discrimination faced and coping. 60(57%) were males 40(38%) were females and 5(5%) were transgender. 84(80%) were heterosexual, 14(13.3%) homo-sexual and 07(6.7%) reported to be bi- sexual. Focus group discussions were held with women, and sexual minorities to understand the underlying issue of living with HIV. 40 women were HIV positive all were diagnosed post marriage. 08 were sex workers. 10 had delivered post diagnosis.

Results: Gender affected the Sexual contact (p^2=.05), condom usage (p^2=.01), participation in commercial sex activity (p^2=.01) and substance abuse (p^2=.01). HIV diagnosis due to reason of partner's positive status was also affected by gender (p^2=.01).52.5% of the women respondents got tested before their husband. 15% respondents said that husband knew that he was HIV positive, 52.5% responded that their husbands did not know of their HIV status. HIV diagnosis due to risk behavior was affected by gender (p2=.01) Diagnosis due to consistent illness was affected by gender (p^2=.01). Adherence to (Anti-Retroviral Treatment) ART was also found more in men 91.9% and TG 100%- as compared to 85% women.

Conclusion: Combined results of men's behavior and women's behavior reflect cultural factors playing a role in increased vulnerability resulting in increasing number of women getting infected with marriage being the only risk. This bias is further accentuated post infection as the paper has explored through case studies and FGD.

Disclosure of Interest Statement: There is no disclosure of interest to be made.

CREATING OPPORTUNITIES FOR CHANGE IN HIV POLICY – A CASE STUDY OF ELECTION ADVOCACY IN NSW

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Introduction: In the lead up to the NSW 2015 election, ACON, Positive Life NSW and the Gay and Lesbian Rights Lobby worked in partnership to advance issues related to HIV with key politicians from across the political spectrum. Politicians were engaged using a variety of methods to make commitments to people living with HIV (PLHIV) and Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) communities.

This engagement strategy with electoral politics was undertaken in a similar fashion in the lead up to previous NSW Elections. This work required different strategies to those undertaken to achieve advocacy outcomes at other stages of the electoral cycle. Through the development of an issues paper, meetings with key decision makers and allies, and a survey of the parties, a number of key commitments were sought and attained. These commitments have been subsequently communicated to our communities and will guide advocacy work over the upcoming political cycle.

While the response to HIV has benefited from a bipartisan approach in NSW, LGBTI health issues, sex worker needs, and drug use are often contentious. Working in partnership provides strength to this model and to the advocacy asks which as a result become more broadly relevant to a wider constituency.

In this presentation we will discuss the methodology used to engage with politicians in NSW around the 2015 election. This community based model, driven by key affected populations, demonstrates that advocacy on HIV can be effective in advancing access to new technologies, and more equitable access to treatment. This HIV advocacy methodology could be applied in other jurisdictions to assist key affected populations engage with politicians on key issues.

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For Abstract Submission - Short biography of presenter (maximum 50 words)
Dean Price is the Policy Advisor at ACON, with a background in policy, advocacy and campaigning on disability rights and cancer. Lance Feeney is the Policy Analyst at Positive Life NSW, and member of the NAPWHA PozAction Leaders Group.

HOW DO WE GET THE RESEARCH POLICY-MAKERS NEED IN HIV AND STIS?

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Introduction: A challenge for policy-makers and researchers alike has been to conduct research that can be directly used to inform, improve and monitor government policy.

In 2013, NSW Health changed its approach to commissioning research in HIV, sexually transmissible infections (STIs) and viral hepatitis by commissioning a 5-year research program for HIV, STIs and viral hepatitis through a single provider.

The research program provides NSW Health with a coherent and integrated program of high quality policy relevant research, strategic advice, capacity building and communications to support the NSW population health response to HIV, STIs and viral hepatitis. Continued consultation with the partners in the NSW response, including clinicians, researchers, non-government organisations and policy-makers, is a critical component of ensuring relevancy and engagement with the program and its outputs.

The program deliverables are tailored annually through a work plan. This approach provides the necessary flexibility to support the current and emerging policy needs of NSW Health, with a particular focus on achieving the goals and targets for the NSW Strategies/Plans for HIV, STIs and viral hepatitis.

Investment has been largely streamlined, supporting improved management and efficiency in purchasing by NSW Health. The work plan includes a breadth and depth of projects that directly support Strategy priority areas of prevention, testing and treatment and care and include policy, program and practice development, implementation and monitoring. The development of the program and negotiation of the first annual work plan for 2014/15 provide valuable lessons for policy makers, the community and researchers to ensure that the research that is commissioned and conducted is mutually beneficial and can be translated directly to policy and practice.

Disclosure of Interest Statement: No interests disclosed.

BARRIERS TO PROVIDING ANTI-RETROVIRAL TREATMENT (ART) AT THE COMMUNITY HEALTH CENTRE IN BADUNG REGENCY, BALI PROVINCE – INDONESIA

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Introduction: Treatment as prevention has been documented to have positive associations to better health outcomes. This strategy has been adopted by Indonesian Government thus providing accessible ARV treatment is crucial to improve adherence towards HIV treatment. The implementation of primary care-based ART in developing countries have revealed numerous advantages such as improving access, adherence and potentially reducing HIV and AIDS-related stigma. Very little information are available regarding barriers to providing ART services at the community health centre within the contexts of Indonesian health systems.

Methods: A qualitative study using phenomenology approach was conducted. Data were collected using in-depth interviews (39 informants from policy makers, health providers, head of community health centre, VCT and CST clinics, non-government sectors and CST clients), one focus group discussion (8 informants from community/religious leaders) and direct observation to 13 community health centre in Badung Regency. Data were then analysed using thematic approach.

Results: There is a substantial supports from policy makers, community leaders and non-government sectors to develop ART satellite at the community health centre on the basis of improving access to treatment. In contrast, health providers and head of community health centre were reluctant to this idea due to increased workload and the lack of involvement in the HIV program previously. The main barrier from CST clients is related to self-stigma and experiences of being discriminated by health providers. Several health systems barriers were include lack of skilled and competent human resources, no standard operational procedures, laboratory capacity, a complex logistic system, and in-efficient reporting systems.

Conclusion: Findings from this study can be used to inform the implementation of strategic use of ARV in Bali Province. Initiating CST satellite at the primary care remains not feasible in the current context however developing ARV satellite at the community health centre is feasible.

Disclosure of Interest
No conflict of interest

Keywords
HIV/AIDS; community health centre; primary care; ARV; HIV treatment; Bali; Indonesia; health system