VIRAL HEPATITIS C INITIATIVE
FOR KEY POPULATIONS IN SOUTH AFRICA

BACKGROUND

Viral hepatitis, on the increase globally since 1990, was a leading cause of death in 2013 (1.46 million deaths worldwide, a toll higher than that from HIV, TB or malaria). It's estimated that, in the absence of any additional efforts or interventions, the world could see 19 million hepatitis-related deaths between 2015 and 2030. More than 90% of the hepatitis burden is due to infection with the hepatitis B virus (HBV) and hepatitis C virus (HCV).

HEPATITIS AND KEY POPULATIONS: MSM, SW, PWID and PWUD

HBV and HCV infections are generally high amongst HIV key populations (KP), but data in South Africa is extremely limited. The World Health Organisation has set a goal of ending viral hepatitis as a major health burden by 2030. Inadequate data on the disease remains a major barrier to achieving this. Accessibility and affordability of effective treatment is another barrier, as is a lack of targeted, community-based services for KP.

Funded by the Bristol-Myers Squibb Foundation, **The viral hepatitis C initiative for key populations in South Africa** was a cross-sectional study led by TB HIV Care (THC) in partnership with the Anova Health Institute (AHI), OUT Well-Being (OUT), the National Institute for Communicable Diseases (NICD) and the Division of Hepatology at the University of Cape Town (UCT).

The study aimed to: i) establish an HCV, HBV and HIV surveillance system for MSM, SWs and PWUD/ID in South Africa; ii) explore a range of HCV diagnostic options; iii) increase access to HBV and HCV prevention, screening and referral services for MSM, SWs and PWUD/ID; and iv) advocate for improved access to HBV and HCV diagnosis, prevention and treatment for MSM, SWs and PWUD/ID and other HCV patients.

Study population: Inclusion criteria

The study planned to recruit 3500 participants at 11 sites in South Africa (figure 1). All participants had to provide informed consent, be 18 years or older and meet criteria for one of the defined population groups. MSM: born male and have had sex with a male partner in the past 12 months. SW: engaged in sex work within the last 12 months. PWID: injected drugs within the last 12 months. PWUD: used heroin, cocaine or methamphetamine (other than injecting) within the last 12 months.

Figure 1: Recruitment targets across four provinces in South Africa

Population	Location	n
Men who have sex with men (MSM)	Cape Town	250
	Johannesburg	250
	Pretoria	250
	Total MSM	**750**
Sex Workers (SWs)	Cape Town	400
	Durban	400
	Pietermaritzburg	250
	Mthatha	250
	Port Elizabeth	250
	Total SW	**1550**
People who use drugs, incl. people who inject drugs (PWUD/ID)	Cape Town	80/320
	Durban	80/320
	Pretoria	80/320
	Total PWUD/ID	**240/960**
Target sample		**3500**

METHODS AND FINDINGS

The study was embedded into existing community based HIV services for KPs. Socio-demographic data was collected and point-of-care testing performed for HBV, HCV and HIV. HCV infections were confirmed by the NICD. HBV vaccination was offered to all individuals who screened negative for HBV. All new diagnoses (HBV, HCV and/or HIV) were referred to relevant treatment services (for example, the Liver Clinic at Groote Schuur Hospital in Cape Town).

Participant demographics are presented in Table 1. A total of 3443 participants were included in the per protocol analysis. Participants were predominantly male (52%), black (61%) and living in private housing (74%). Almost all of the females were recruited from SW with a relatively small proportion of PWID and PWUD being made up of females (13% and 19% respectively). Most PWID (67%) and PWUD (53%) were homeless.

Table 1: Participant socio-demographic characteristics (per protocol analysis)

	SW	MSM	PWID	PWUD	TOTAL
N (%)	1531 (45%)	747 (22%)	941 (27%)	224 (7%)	3443
Age [median (Range)]	29 (18 - 67)	29 (18 - 75)	60 (18 - 61)	29 (18 - 61)	29 (18 - 75)
Gender [n (%]					
Male	48 (3%)	718 (97%)	813 (87%)	181 (81%)	1760 (52%)
Female	1462 (96%)	0	121 (13%)	43 (19%)	1625 (48%)
TransMale	5 (0.3%)	0	0	0	5 (0.1%)
TransFemale	5 (0.3%)	24 (3.2%)	1 (0.1%)	0	30 (0.9%)
Race [n (%)]					
Black	1156 (76%)	417 (56.%)	388 (42%)	120 (54%)	2080 (61%)
Coloured	308 (20%)	65 (9%)	258 (28%)	74 (33%)	705 (21%)
White	40 (3%)	239 (32%)	252 (27%)	24 (11%)	555 (16%)
Indian	11 (0.7%)	10 (1.4%)	36 (3.9%)	5 (2.2%)	62 (1.8%)
Other	0	11 (1.5%)	0	0	11 (0.3%)
Housing [n (%)]					
Homeless	67 (4.4%)	18 (2.4%)	625 (67%)	116 (53%)	826 (24%)
Shelter	6 (0.4%)	5 (0.7%)	49 (5.2%)	19 (8.6%)	79 (2.3%)
Private Housing	1445 (95%)	716 (97%)	261 (28%)	85 (38%)	2506 (74%)

Overall, HBV, HIV and HCV prevalence was 4%, 37% and 13% respectively.

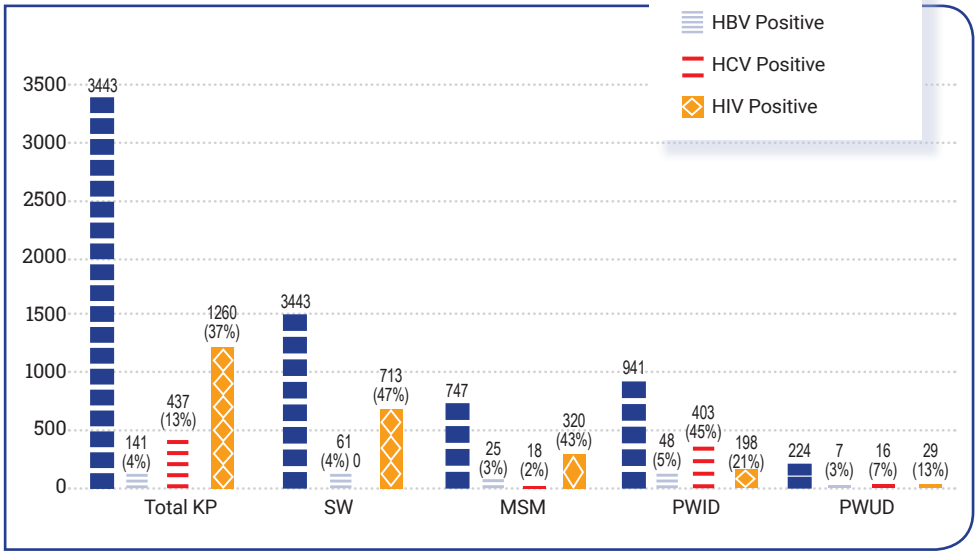
Figure 2 shows the distribution of the three infections within the total study cohort and the breakdown by sub-population.

HBV ranged between 3 and 5% across the four sub-populations, consistent with observed background HBV prevalence in the broader South African population.

HIV prevalence was highest amongst SW and MSM at 47% and 43%, respectively, and lowest in PWUD at 13%. Substantial regional variation in HIV prevalence was observed ranging from 3% amongst PWUD in Cape Town to 80% amongst SW recruited in Pietermaritzburg (data not shown).

HCV prevalence varied considerably between sub-populations. PWID had the highest prevalence of HCV at 45%. This ranged from 29% in Durban to 73% in Pretoria. The prevalence amongst PWUD was also high at 7%. 2% of MSM were found to be HCV positive and many of these individuals also reported having injected drugs in the past.

Figure 2: HBV, HCV and HIV prevalence, by population



Proportion of co-infections reported among key populations.

An **HCV-HBV** co-infection prevalence of 0.7% was observed for the total study group. The prevalence across the individual sub-populations ranged between 0 and 2.4%, with the highest prevalence observed among the PWID group. **HCV-HIV** co-infection prevalence of 3.7% was observed overall, with PWID again having the highest at 12.7%. This was largely driven by the HCV-HIV co-infection prevalence of 29% observed in Pretoria and likely reflects the high proportion of HCV infections in this group and the longer culture of injecting. Few participants tested positive for both **HBV and HIV**, with only a 2.2% overall prevalence which was similar across sub-populations. Co-infection with **HIV-HBV-HCV** was only observed among PWID and was <1%.

QUALITATIVE SUB-STUDY: METHODS AND FINDINGS

Routine progress monitoring revealed that <1% of participants provided with referral letters and appointments at referral centres had actually attended these. A qualitative sub-study was designed to assess facilitators and barriers to treatment to further inform health care and advocacy efforts.

Two sets of interviews were conducted among a sub-set of **HCV infected PWID** in Cape Town and Pretoria. Initial interviews prior to the referral appointment (n = 17, Pretoria = 9, Cape Town = 8) intended to interrogate low referral uptake, explore past experiences and examine perceived facilitators and barriers to hepatitis treatment. Follow-up interviews, conducted after the date of the referral appointment, (n = 10, Pretoria = 4, Cape Town = 6) enquired about facility attendance and explored treatment experience.

95% of participants interviewed (n = 16) reported intention to seek follow-up care despite stigmatisation, extended waiting periods, withdrawal, insufficient funds/finances or lack of accessible treatment services (in Pretoria). Only **25%** of this sub-study group (n = 5) successfully attended a referral visit.

Prior experiences of stigmatisation play a role when individuals decide (or not) to seek follow-up care.

> They're not helping you, they're oppressing you.
>
> Male, Pretoria, 32

> "When [the doctor] heard I was using drugs he went off! ... It was the worst experience I have ever had with a doctor.
>
> Male, Cape Town, 30

Prior negative experiences accessing healthcare, compounded by a low sense of self-worth, often undermine motivation to seek healthcare services.

> Death didn't seem that unappealing.
>
> Male, Cape Town, explaining why he had missed his first appointment.

Insufficient understanding of HCV, particularly around disease progression, morbidity and mortality, limited sense of urgency.

> No-one is speaking about how you will get treatment.
>
> Female, Cape Town, 31

RECOMMENDATIONS AND CONCLUSIONS

High HCV prevalence and low uptake of referrals support the need for expanded, community-based HCV screening, diagnosis and treatment, particularly for PWID. Integrated HIV and HCV prevention services, including needle and syringe programmes, opioid substitution therapy (OST) and harm reduction initiatives, are all critical as HIV and HCV share the same transmission route.

Increased HCV education and awareness is required. There needs to be comprehensive post-test counselling to ensure that all clients understand their HCV status, the risks of not accessing care and the benefits of treatment. Ideally, this should be supplemented with psychosocial support in order to build a sense of self-worth and the desire to access treatment.

Higher than expected HCV prevalence among PWUD (7%) warrants further investigation and implementation of appropriate services.

FUNDED BY:

Bristol-Myers Squibb Foundation

RESEARCH PARTNERS:

TBHIVCARE

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