The effect of an HIV pharmacist on cardiovascular risk assessment in a regional HIV clinic: a cohort study

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Background

- **Barwon Reproductive and Sexual Health (BRaSH) Clinic:** provides care to people living with HIV (PLHIV) in Western Victoria.
- **HIV pharmacist**: commenced at the clinic as part of the multidisciplinary team in April 2019.
- **Cardiovascular disease (CVD) guidelines:** Australian and European HIV management guidelines provide screening and monitoring recommendations.
- **BRaSH clinic adherence to CVD guidelines was unknown.**

Aim

- To asses adherence to CVD guidelines for PLHIV by BRaSH clinicians before and after the introduction of the HIV pharmacist to the clinic.

Methods

- Adherence to CVD guidelines was assessed during:
- Study period 1, **without pharmacist** (April 1 2018 – March 31 2019)
- Study period 2, **with pharmacist** (April 1 2019 – March 31 2020)
- **Inclusion criteria:**
- PLHIV attending BRaSH (defined as 2 or more visits over study period) and were 40 years or older as at April 1 2018.
- Annual monitoring of blood pressure (BP) and lipids were assessed for PLHIV **with and without** established CVD
- For PLHIV **without** established CVD, compliance to annual CVD risk *screening* were assessed[1,2], including the parameters: documented CVD risk calculation, BP, lipids (total cholesterol AND high-density lipoprotein), diabetes status and smoking status.
- Statistical analysis using STATA. Chi-squared used to compare compliance between study periods.

Results

- 73 PLHIV attended the clinic:
- Mean age 47.7 years, 37 were 40 years or older, 89.2% were male and 28 did not have established CVD.
- Overall, there was no statistically significant increase in compliance with monitoring parameters between the two study periods.

Table 1. Screening of CVD Risk in study period 1 (without pharmacist) and study period 2 (with pharmacist)

Monitoring parameter	Study Period 1 (All ≥40yrs, N=32)	Study Period 2 (All ≥40yrs, N=37)	*p*, IRR
BP documented	24 (75.0%)	26 (72.2%)	*p* = 0.782, IRR = .96 (CI 95%, 0.73 – 1.26)
Any lipids (at least TChol) available?	23 (71.9%)	31 (86.1%)	*p* = 0.076, IRR = 1.25 (CI 95%, 0.97 – 1.60)
HDL included in lipid set	14 (43.8%)	18 (50.0%)	*p* = 0.354, IRR = 1.31 (CI 95% 0.74 – 2.31)
	Study Period 1 (≥40yrs WITHOUT CVD, n=24)	**Study Period 2 (≥40yrs WITHOUT CVD, n=27)**	
CVD risk calculated (documented)?	2 (8.3%)	7 (25.9%)	*p* = 0.113, IRR = 3.11 (CI 95%, 0.766 – 12.64)
BP documented	16 (66.7%)	20 (74%)	*p* = 0.517, IRR = 1.11 (CI 95%, 0.81 – 1.53)
Any lipids (at least TChol) available?	16 (66.7%)	23 (85.2%)	*p* = 0.091, IRR = 1.28 (CI 95%, 0.96 – 1.69)
HDL included in lipid set	10 (41.7%)	12 (44.4%)	*p* = 0.844, IRR = 1.07 (CI 95%, 0.56 – 2.02)
Smoking status documented	16 (66.7%)	23 (85.2%)	*p* = 0.099, IRR = 1.28 (CI 95%, 0.95 – 1.71)
Diabetes status documented	11 (45.8%)	17 (63%)	*p* = 0.189, IRR = 1.37 (CI 95%, 0.86 – 2.21)

*CVD risk calculator= either cvdcheck.org.au or Framingham.
Diabetes status documented: includes diabetes status documented in the notes or blood glucose result taken

References

1. Whiting S, Trevillyan J, Hoy J, HIV Service Algorithms: Screening and Management of HIV related Co-Morbidities https://ashm.blob.core.windows.net/ashmpublic/HIV-comorbidity-algorithm%20Version%202%20May%202018.pdf
2. Australian absolute cardiovascular disease risk calculator. (2022). www.cvdcheck.org.au
3. Kakar S et al, 2017. Screening and management of risk factors for cardiovascular disease in HIV-positive patients attending an Australian urban sexual health clinic. *Sexual Health*, 14(2), p.198.
4. Trevillyan J et al, 2015. Management guidelines for non-AIDS morbidity result in increased screening but no change in primary prevention implementation. *AIDS*, 29(6), pp.748-750.

Results

- **CVD risk documentation:** 8 (33%) clinic attendees in study period 1 and 7 (26%) clinic attendees in study period 2 had enough information to calculate their CVD risk but did not have a risk score documented.

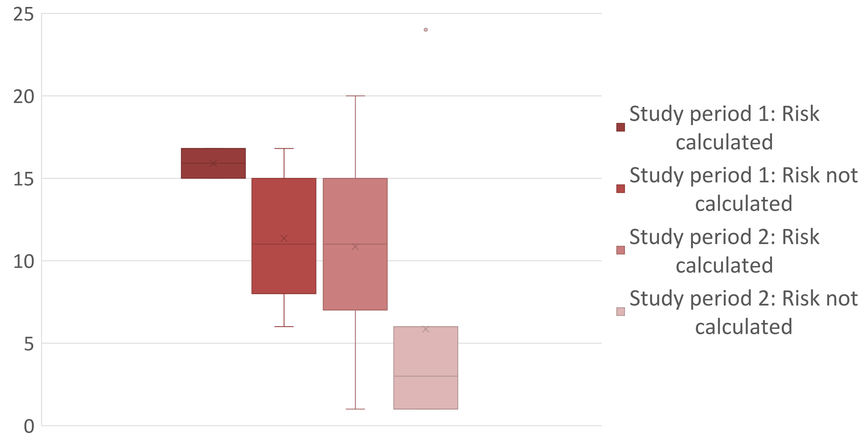

Figure 1 – 5 year CVD risk calculation between study groups

Table 2 – 5 Year CVD risk calculation between study groups

	Study period 1	Study period 2
CVD risk calculated n, mean CVD risk% [range]	2 15.9 [15-16.8]	7 10.9 [1-20]
CVD risk not calculated but data available n, mean CVD risk% [range]	8 11.4 [6-15]	7 5.9 [1-24]
Not enough data to be able to calculate risk (n)	14	13

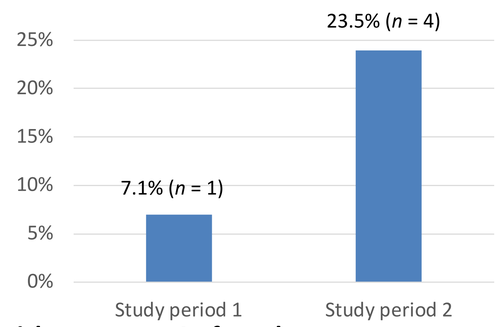

Figure 2 - CVD risk assessment of smokers

Discussion

- The trend to lower average CVD risk for patients who did not have their risk documented suggests clinicians were potentially not calculating CVD risk for clients who appeared to be at a lower risk for cardiovascular disease; however, sample size too small to show statistical significance.
- Smokers and non-smokers had CVD risk assessed at similar rates

Common factors leading to incomplete CVD screening included

- Incomplete lipid profiles being reported on by the pathology provider.
- Clients not having pathology done before clinic appointment
- Limitations on physical examination when consulting patient on phone/telehealth (eg. BP)
- Clinicians not documenting monitoring parameters such as smoking or diabetes status in notes. Lack of IT infrastructure to prompt this.

Limitations:

- Limited audit period of only first year of pharmacist introduction. Initial priorities for pharmacist time directed towards complex polypharmacy patients, before this less complex cohort.
- Evaluation of pharmacist interventions (eg smoking cessation advice, lipid management, diet/exercise counselling) as a result of CVD risk factors identified was not included in this study.

-This is the first study to assess the pharmacist's involvement in this aspect of preventative care for PLHIV.
- As seen in Australian *urban* PLHIV cohorts[3,4], this study of a *regional* clinic setting also demonstrates the room for improvement in CVD screening, but didn't assess interventions made as a result of screening.

Conclusion

- There was a trend towards improvement of documentation of CVD risk screening in PLHIV by the clinic.
- Lack of annual BP and full lipid panel are common downfalls (lack of onsite pathology, patient and clinician factors all at play).
- The pharmacist's role in meeting comorbidity screening and monitoring guidelines is just one component of overall medication management of our aging PLHIV cohort in ambulatory care.