Registered nurses improving screening rates for non AIDS related comorbidities in people living with HIV

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ACKNOWLEDGEMENTS

We wish to thank Ms. Sangeetha Eswarappa for assistance with data analysis.

KEY WORDS

HIV, co-morbidities screening, sexual health, registered nurse (RN), nurse-initiated, nurse-led.

ABSTRACT

Objective
To establish whether a nurse-led screening and brief intervention project could improve screening rates for non-AIDS comorbidities in people living with Human Immunodeficiency Virus (HIV).

Design
A pre-post quantitative audit was used to evaluate the intervention of nurse-led comorbidities screening.

Setting
A publicly-funded, metropolitan, outpatient sexual health service in Western Sydney, New South Wales, Australia.

Subjects
One hundred medical records of people living with HIV were reviewed in each of the pre and post audits.

Interventions
A standardised co-morbidities screening tool was developed; education sessions were conducted with the registered nurses (RNs) and written and electronic resources were used as an adjunct in screening and educating clients.

Main outcome measure
To determine if interventions, including development of a structured screening tool and education with the RNs, would improve rates of nurse-led co-morbidities screening in people with HIV attending the service.

Results
All of the co-morbidities screening done in year two was initiated by the sexual health RNs, rather than the medical officers. Improved rates of screening were noted in 20 of the 22 audited items, with 13 of these showing a statistically significant increase in the one year time period from audit one to audit two. Potential and existing co-morbidities were identified and managed according to local protocols.

Conclusion
RN led comorbidities screening for people with HIV can improve rates of screening in this client group. The screening tool has now become part of nurse led standardised annual care for clients with HIV.

INTRODUCTION

In the developed world, life expectancies for HIV positive patients have risen dramatically, and now approach those of the general population (Samji et al 2013). Combination antiretroviral therapy regimens have become more effective, better tolerated, and have simpler dosing requirements (The Antiretroviral Therapy Cohort Collaboration 2008). As a result, people living with HIV (PLHIV) are now faced by challenges associated with ageing (Lewden et al 2008). Non-AIDS associated comorbidities, including cardiovascular, renal and bone disease occur at higher rates among PLHIV, necessitating a broader model of chronic disease management (Deeks and Phillips 2009). To facilitate this, comorbidity screening guidelines for PLHIV, focusing on prevention of comorbidities, have been developed. The guidelines facilitate management of HIV infection as a chronic disease, recommending screening tests and identification of family history and lifestyle risk factors for cardiovascular, renal and bone disease (Foster et al 2011). With the shift to managing HIV as a chronic disease, the future of HIV nursing is likely to occur in a primary health care setting rather than a specific 'AIDS' or infectious disease ward. The Western Sydney Sexual Health Centre (WSSHC), a publicly funded, metropolitan, outpatient sexual health clinic, provides care and management to over 300 HIV positive people. It was identified that rates and consistency of comorbidity screening could be improved in our cohort of PLHIV. This study aimed to establish whether a nurse led screening and brief intervention project could improve screening rates for this population in the sexual health clinic.

Literature Review

The effectiveness of nurse led screening for sexually transmitted infections (STIs), including HIV, in sexual health clinics is well established (Mindel et al 2009; Munday et al 2005; Miles et al 2003). However, the practice of screening people diagnosed with HIV for non AIDS related comorbidities is a recent recommendation, and as such, no relevant literature on implementing and incorporating screening protocols for this population into clinical practice was found in the literature. Lock et al (2006) suggest there is only circumstantial evidence of the effectiveness of nurse led brief interventions in primary care. However, implementing nurse-led interventions in other fields have been found to be successful. Slain et al (2013) evaluated whether screening, brief intervention, and referral to treatment (SBIRT) could be incorporated into the emergency nursing workflow. Although there were problems with execution of SBIRT, largely due to the emergency nurses clinical responsibilities, they found that identification of at-risk alcohol and drug use by emergency department (ED) nurses was feasible (Slain et al 2013). Désy et al (2010) also evaluated the use of SBIRT by emergency nurses, using a brief intervention consisting of 5-10 minutes of motivational counselling, and provision of educational brochures and a list of community resources to patients. They found nurses using SBIRT can impact alcohol consumption and potentially reduce injuries and ED visits (Désy et al 2010). A meta-analysis of interventions that increase use of adult immunisation and cancer screening services conducted by Stone et al (2002) found screening rates are likely to improve where the health care organisation supports performance of these activities through organisational changes in staffing and clinical procedures. These include use of separate clinics, use of planned care visits for prevention or designation of non-physician staff to do specific prevention activities (Stone et al 2002). Anaya et al (2008) conducted a randomised controlled trial to evaluate the effectiveness of three different methods of screening for HIV. They found that nurse initiated screening increased testing rates significantly, compared to physician initiated screening (Anaya et al 2008). Other factors impacting on screening rates include use of a standardised, validated instrument and integration into a clinical setting's existing patient care processes, as identified by Johnson et al (2013).

METHOD

In this study an audit of the medical records of 100 clients with HIV, attending WSSHC in 2011 was conducted, to determine whether recommended screening for non-AIDS comorbidities had been done in the previous 12 months. Audited items included documentation of family medical history; assessment of lifestyle risk factors; mental health/mood assessment; vital signs and other clinical measurements; assessment for cardiovascular and fracture risk with use of online assessment tools if over 40 years; and recommended urine and blood tests. See table 2 for full list of audited items.

Table 1: RN Interventions

Education Sessions provided to RNs
• HIV and Cardiovascular Disease
• HIV and Renal Disease
• Screening for non AIDS comorbidities - rationale for collecting client history - how/what to ask - how to respond
• Use of brief interventions and behaviour modification with clients
• Motivational interviewing
• Online education (Quit Smoking/brief interventions)
Development of Tools
• Development and implementation of comorbidities structured screening tool
• Development of readily accessible prompt question cards for lifestyle assessment (mood assessment, smoking, exercise, nutrition, alcohol and other drugs)
Resources
• Internet access and use of electronic screening tools for cardiovascular (CV) and fracture risk (FRAX) for clients over 40 years
• Use of printed information resources for clients
• Posters in clinic room on maintaining healthy weight
• Tape measures for weight circumference and electronic BMI calculator

Interventions aimed at up-skilling the RNs to lead comorbidities screening were then implemented. These included development of an RN-led structured screening tool and education sessions. The screening tool included an assessment of lifestyle and family history; clinical measurements and both serology markers and urine tests as listed in table 2. It was based on recommendations by Foster et al (2011) and adapted, in consultation with the senior staff specialists, to suit the HIV positive client population attending WSSHC. Educational sessions included presentations outlining rationale for implementation of nurse-led screening, HIV and non AIDS related comorbidities; use of the screening tool and motivational interviewing/brief intervention techniques. Cards with prompt questions were developed to standardise history taking (family medical history, mood assessment, smoking, alcohol and drug use, nutrition and physical activity). Where available, history questions were based on validated tools. For example, the AUDIT Alcohol Consumption Questions (AUDIT-C) screening tool was used for the detection of problem drinking (Bush et al 1998). Access to online tools for assessing cardiovascular and fracture risk was provided and written resources to encourage lifestyle changes were made available for nurses to distribute to clients. The nurses were encouraged to discuss making lifestyle changes with clients who were identified as being at increased risk for comorbidities, either through family history, lifestyle history or measurement of blood pressure or other physical parameters which were outside the normal range. Discussion of lifestyle changes included use of motivational interviewing techniques and brief interventions, such as the 5A's for Smoking Cessation (Australian Government Department of Health

2004), and/or referral to an appropriate service such as Quitline (Australian Government 2012). Existing clinical protocols at WSSHC enabled RNs the opportunity to offer comorbidities screening to clients with HIV at the time of blood collection for routine HIV monitoring. All RN interventions were discussed and approved by the multidisciplinary health care team, and the clinic Medical Director gave delegation to the nurses to order the investigations on the approved screening checklist. The RN interventions are summarised in table 1.

In 2012, following implementation of the nurse led screening, a second medical record audit of comorbidities screening at WSSHC was conducted. Results between audit one and audit two were compared and statistical analysis was performed using SPSS Statistics version 20.0 (IBM SPSS Statistics). The study was approved by the Western Sydney Local Health District Human Research Ethics Committee as a quality assurance project.

Table 2: Results of audit pre and post nurse-led comorbidities screening

Audit Item	Audit 1 Pre-intervention	Audit 2 Post-intervention	p-value
No. of HIV+ clients	100	100	-
Gender	75 M; 24 F; 1 TG	74 M; 26 F	-
Age in years (median)	41	42	-
Clinical Measurements/Assessments			
Blood pressure	94%	94%	1.000
Waist circumference	8%	43%	<0.001
Height	32%	72%	<0.001
Weight	97%	96%	0.702
Body mass index (BMI)	21%	63%	<0.001
STI screen done	42%	45%	0.669
Cardiovascular risk assessment	0%	7%	*
Fracture risk assessment	0%	10%	*
Assessment, documentation of history and brief intervention			
Mental health / mood assessment	57%	69%	0.079
Sexual history	70%	81%	0.071
Family history	34%	43%	0.191
AOD history	38%	63%	<0.001
Smoking history	39%	62%	0.001
Nutrition history	15%	57%	<0.001
Exercise history	7%	48%	<0.001
Clinical Investigations			
Urinalysis	18%	38%	0.002
Urine protein creatinine ratio	45%	68%	0.001
HbA1c / fasting glucose	30%	53%	0.001
Fasting lipids	19%	28%	0.133
Vitamin D	37%	59%	0.002
Parathyroid hormone (PTH)	17%	42%	<0.001
Hepatitis BsAb (measure of immunity)	51%	73%	0.001

* Not included in statistical analysis as no measurement pre-intervention

Findings

The age and gender of clients were similar in the pre and post-intervention audits. Audit 1 results indicated generally low levels of comprehensive comorbidity screening of HIV positive clients. Prior to comorbidity screening being led by the RNs, smoking assessment had been attended for only 39%; alcohol and other drug (AOD) assessment 38%; nutrition assessment 15%; body mass index (BMI) calculation 21%; mental health assessment 57%; and fasting lipids 19% of PLHIV. Following the RN led interventions, there were statistically significant increases in the majority of audited items. Cardiovascular and fracture risk had not been calculated for any of the clients during 2011 and therefore the increase in these assessments in 2012 cannot be considered statistically significant. All of the comorbidities screening done in year two were initiated by the sexual health RNs, rather than the medical officers.

Results are presented under the headings of 'Clinical Measurements/Assessments'; 'Assessment, documentation of history and brief intervention'; and 'Clinical Investigations'. The full list of results is shown in table 2.

Clinical Measurements/Assessments:

Blood pressure and weight were measured consistently both pre and post nurse led screening, as this was part of the existing clinic protocol. However, statistically significant increases occurred for measurement of waist circumference ($p = <0.001$); and BMI calculation ($p = <0.001$). Calculation of cardiovascular and fracture risk for clients over 40 years, using electronic resources, was done for the first time, so not included in statistical analysis. These risk assessments were limited by the fact that all clinical information necessary for the calculation, for example, fasting cholesterol level, may not have been available at the time of consultation with the RN.

Assessment, documentation of history and brief intervention:

There were statistically significant increases for recording of alcohol and drug history ($p = <0.001$); smoking history ($p = 0.001$); nutrition history ($p = <0.001$) and exercise/physical activity history ($p = <0.001$). Other history items (family, sexual history and mood assessment) also recorded increases, although these were not statistically significant.

Clinical Investigations:

There were increases in all recommended clinical investigations for PLHIV. All but one of these was statistically significant. Fasting lipids was often difficult to achieve due to non-awareness or non-compliance of clients to fast before attending.

Limitations

Although the RNs used brief interventions to assist clients to make behaviour modifications, data on use or outcome of the interventions was not recorded in this study. It was also outside the scope of this study to assess the acceptability of comorbidities screening, either with clients or staff.

DISCUSSION

This study provides evidence of the usefulness of nurse led interventions in screening people with HIV for non AIDS related comorbidities. Development of the RN-led HIV comorbidities screening tool, combined with nurse education, and use of written and electronic resources has significantly increased client comorbidity screening at WSSHC. Potential and actual comorbidities have been identified and managed appropriately, either at the clinic or by referral to the client GP, potentially improving client outcomes. Further to increased recording of history, RNs implemented brief interventions and/or referrals to the doctor/social worker or other services, to address lifestyle issues that arose from the discussions.

Wisby and Capell (2005) suggest that workforces should be encouraged to deliver innovative, high quality health care, particularly evident in the area of sexual and reproductive health (p.14). Part of the success of the new model of care can be attributed to the approach to planning the nurse led screening. Presenting the evidence and benefits of change is important. Also necessary is careful planning, having resources and processes in place and consideration of nurses roles and expertise (Hewitt-Taylor 2013). Development of the comorbidities screening tool, which was appropriate to the service and the population, simplified the screening process for the nurses. This has previously been identified by Barnard (2009). Support of the medical officers of the sexual health clinic towards the new approach to care of the HIV clients remains crucial. This is reinforced by Stone et al (2002) who found that organisational support, through changes in staffing and clinical procedures was likely to improve their screening rates. Anecdotal responses from clients attending the service towards this newer model of care has been overwhelmingly positive. The RNs increased scope of practice has potential for increased role satisfaction, and for the physicians, freeing up of their time allows them to manage clients requiring more complex medical intervention. RN led HIV comorbidities screening has now become part of standard care for PLHIV at WSSHC and is being conducted annually for each client.

CONCLUSIONS

A nurse led model of screening people with HIV for non AIDS related comorbidities can significantly improve screening rates. This will potentially improve client outcomes, and increase role satisfaction for nurses and physicians.

RECOMMENDATIONS

Further research is suggested in the following areas:

- to determine the transferability of this nurse-led model into other sexual health or primary care settings and with other populations;
- to assess the success of the nurse led brief interventions in helping clients to modify lifestyle issues, including quitting smoking, weight loss or reducing alcohol and other drug use; and
- to explore the acceptability of comorbidities screening, with both clients and healthcare staff.

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