



Provision of Chronic Disease Preventive Care in Community Substance Use Services: Client and Clinician Report



Danika Tremain, B.Psyc.(Hons IIa) ^{a,b,c,*}, Megan Freund, Ph.D. ^{a,b,c}, Paula Wye, Ph.D. ^{a,c,e}, Luke Wolfenden, Ph.D. ^{a,b,c}, Jenny Bowman, Ph.D. ^{c,e}, Adrian Dunlop, Ph.D. ^{b,d,f}, Karen Gillham, M.Soc.Sc. ^{a,c}, Kate Bartlem, Ph.D. ^{a,c,e}, Kathleen McElwaine, Ph.D. ^{a,b,c}, Emma Doherty, B.Psyc.(Hons I) ^{a,c}, John Wiggers, Ph.D. ^{a,b,c}

^a Population Health, Hunter New England Local Health District, Wallsend, Australia

^b Faculty of Health, The University of Newcastle, Callaghan, Australia

^c Hunter Medical Research Institute, New Lambton Heights, Australia

^d Drug and Alcohol Clinical Services, Hunter New England Local Health District, Newcastle, Australia

^e Faculty of Science and Information Technology, The University of Newcastle, Callaghan, Australia

^f Centre for Translational Neuroscience and Mental Health, Waratah, Australia

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ABSTRACT

Introduction: People with substance use problems have a higher prevalence of modifiable health risk behaviors. Routine clinician provision of preventive care may be effective in reducing such health behaviors. This study aimed to examine clinician provision of preventive care to clients of community substance use treatment services. **Methods:** A cross-sectional survey was undertaken with 386 clients and 54 clinicians of community substance use treatment services in one health district in New South Wales, Australia. Client- and clinician-reported provision of three elements of care (assessment, brief advice and referral) for three health risk behaviors (tobacco smoking, insufficient fruit and/or vegetable consumption and insufficient physical activity) was assessed, with associations with client characteristics examined.

Results: Provision was highest for tobacco smoking assessment (90% client reported, 87% clinician reported) and brief advice (79% client reported, 80% clinician reported) and lowest for fruit and vegetable consumption (assessment 23%, brief advice 25%). Few clients reported being offered a referral (<10%). Assessment of physical activity and brief advice for all behaviors was higher for clients residing in rural/remote areas.

Conclusion: Assessment and brief advice were provided to the majority of clients for smoking, but sub-optimally for the other behaviors. Further investigation of barriers to the provision of preventive care within substance use treatment settings is required, particularly for referral to ongoing support.

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1. Introduction

People with substance use problems experience a life expectancy up to 20 to 23 years less than the general population (Chang et al., 2011; Lawrence, Hancock, & Kisely, 2013; Nordentoft et al., 2013) due largely to preventable chronic diseases such as heart disease, respiratory disease and cancer (Alba, Samet, & Saitz, 2004; Hurt et al., 1996; Islam, Taylor, Smyth, & Day, 2013; Lawrence et al., 2013; Stenbacka, Leifman, & Romelsjö, 2010). Modifiable health risk behaviors such as tobacco smoking, insufficient nutrition and insufficient physical activity are key determinants for chronic disease (Australian Institute of Health and Welfare, 2005; World Health Organization, 2002, 2011). The prevalence

of health risk behaviors is higher for people with substance use problems compared to the general population in Australia and elsewhere (Baca & Yahne, 2009; Barbadoro et al., 2011; Kalman, 1998; Kelly et al., 2012; Prochaska, Delucchi, & Hall, 2004; Prochaska et al., 2014).

Routine clinician-delivered preventive care is an effective approach to reduce health risk behaviors among clients of general health care settings (Hillsdon, Foster, & Thorogood, 2005; Rees, Dyakova, Ward, Thorogood, & Brunner, 2013; Rice, Hartmann-Boyce, & Stead, 2013; Rigotti, Munafo, & Stead, 2007), and clinical practice guidelines recommend that such care be provided (Glasgow, Goldstein, Ockene, & Pronk, 2004; Ministry of Health, 2007; The Royal Australian College of General Practitioners, 2009). Substance use treatment services also provide an opportunity for preventive care delivery (Baker, Callister, Kelly, & Kypri, 2012; Bowman & Walsh, 2003; Walsh, Bowman, Tzelepis, & Lecathelinais, 2005). Such services reach a variety of people seeking treatment for substance use, and often involves multiple episodes of treatment, delivered by

* Corresponding author at: Locked Bag 10, Wallsend, NSW, 2287, Australia. Tel.: +61 2 4924 6477; fax: +61 2 4924 6490.

E-mail address: danika.tremain@hnehealth.nsw.gov.au (D. Tremain).

multidisciplinary teams, and regular monitoring (National Institute on Drug Abuse, 2012; New South Wales Health, 2007).

A literature search undertaken by the authors identified seven studies regarding the extent to which substance use services provide preventive care; all of which focused on tobacco smoking only (Currie, Nesbitt, Wood, & Lawson, 2003; Hahn, Warnick, & Plemmons, 1999; Joseph, Nelson, Nugent, & Willenbring, 2003; Olsen, Alford, Horton, & Saitz, 2005; Richter, Choi, McCool, Harris, & Ahluwalia, 2004; Rothrauff & Eby, 2011; Walsh et al., 2005) and only one was undertaken in Australia (Walsh et al., 2005). The prevalence of smoking status assessment reported ranged from 44–88% (Hahn et al., 1999; Olsen et al., 2005; Richter et al., 2004; Rothrauff & Eby, 2011), the prevalence of brief advice ranged from 31–73% (Currie et al., 2003; Hahn et al., 1999; Joseph et al., 2003; Olsen et al., 2005; Richter et al., 2004; Rothrauff & Eby, 2011; Walsh et al., 2005), and the prevalence of referral to further support ranged from 10–54% (Currie et al., 2003; Hahn et al., 1999; Richter et al., 2004; Rothrauff & Eby, 2011). One study used both client and clinician self-report data (Olsen et al., 2005), one used client report only (Joseph et al., 2003) and five used clinician report only (Currie et al., 2003; Hahn et al., 1999; Richter et al., 2004; Rothrauff & Eby, 2011; Walsh et al., 2005). The reported prevalence of preventive care was higher for clinician report compared to client report, however as only one study reported both, further examination of clinician and client report is warranted.

In addition to the varying prevalence of care reported within a particular healthcare setting, it has been suggested that preventive care may be preferentially provided to specific patient groups. For example, studies in general community health care settings have reported that the following client characteristics may be associated with lower provision of preventive care: younger age (Pollak, Yarnall, Rimer, Lipkus, & Lyna, 2002), lower socioeconomic status (Laws et al., 2009), and initial consultation (compared to follow-up consultation) (Laws et al., 2009). No studies have reported whether the provision of preventive care in substance use treatment settings is associated with client characteristics.

Given the limitations of the existing evidence, a study was undertaken to assess the prevalence of recommended elements of preventive care (assessment, brief advice and referral/follow-up) for three chronic disease health risk behaviors (tobacco smoking, insufficient fruit and/or vegetable consumption, and insufficient physical activity) as reported by clients of and clinicians in community substance use treatment services. Additionally, the study assessed client characteristics associated with the provision of such care.

2. Methods

2.1. Design and setting

Cross-sectional surveys of both clients and clinicians of community substance use services in one local health district in New South Wales (NSW), Australia were undertaken. The district includes 19 community-based substance use services, providing approximately 96,000 appointments each year. Ethics approval was granted by the Hunter New England and the University of Newcastle Human Research Ethics Committees (No. 09/06/17/4.03, No. H-2010-1116).

2.1.1. Substance use treatment services

Fifteen services that were eligible for data collection included substance use counseling, ambulatory withdrawal, methadone and buprenorphine maintenance and court diversion programs. Services are typically co-located with other community based government health services. Services included single site specific services in larger metropolitan areas as well as multi-purpose services in rural areas. Hospital based services or residential treatment services were not included in the study. Inpatient or intake-only services, and services that

primarily saw clients under the age of 18, or only provided care to clients in a group setting were ineligible.

2.2. Participants and recruitment

2.2.1. Clients

Clients attending any of the 15 community substance use services were eligible for participation if they were: over 18 years of age, had a face-to-face appointment within the previous two weeks, and had not been identified as inappropriate for contact by their clinician (e.g. placed the client at risk).

Each week, for six months, 45 clients attending the substance use services were randomly selected from the electronic medical record system. Selected clients were mailed an information letter and, two weeks later, telephoned by a trained interviewer to confirm further eligibility criteria (i.e. physically and mentally capable of completing a telephone survey). If eligible, the interviewer conducted the survey at that time or arranged a later date.

2.2.2. Clinicians

All clinicians (e.g. psychologists, counselors, nurses, case workers) of the eligible services were able to participate in the study if they had seen at least one new client in the past two months, and primarily provided care to clients over the age of 18. Clinicians were identified using the electronic medical record system and mailed an information letter describing the study. Two weeks later, clinicians were telephoned by a trained interviewer to confirm eligibility and arrange participation in the survey.

2.3. Data collection procedures

The client survey was conducted from May to October 2012 and the clinician survey was conducted from October to November 2012, utilizing computer assisted telephone interviews (CATIs).

2.4. Measures

2.4.1. Client demographic and health risk behavior characteristics

Age, gender, postcode, and number of substance use service appointments in the previous 12 months were obtained from the clients' electronic medical records. During the CATI, clients were asked their: employment status, marital status, and highest level of education attainment. Aboriginal and/or Torres Strait Islander status was obtained from both the clients' electronic medical record and the CATI.

Clients were asked to report, for the month prior to seeing the service: whether they were a smoker of any tobacco products (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991), how many serves of fruit they usually consumed each day (Australian Bureau of Statistics, 1997), how many serves of vegetables they usually consumed each day (Australian Bureau of Statistics, 1997) and how many days a week they usually undertook 30 minutes or more of physical activity (Marshall, Hunt, & Jenkins, 2008). Following Australian national guidelines (Department of Health and Aged Care, 1999; Ministerial Council on Drug Strategy, 2004; National Health and Medical Research Council, 2013) clients were defined as being 'at risk' if they: smoked any tobacco products (Ministerial Council on Drug Strategy, 2004), consumed less than two serves of fruit per day, consumed less than five serves of vegetables per day (National Health and Medical Research Council, 2013), or participated in less than 30 minutes of physical activity at least five times a week (Department of Health and Aged Care, 1999).

2.4.2. Clinician demographic and professional characteristics

Clinicians were asked to report their age, Aboriginal and/or Torres Strait Islander status, years working in community health, their current employment status (full time, part-time, casual) and discipline type (nurse, counselor, psychologist, case worker, Aboriginal health officer).

The electronic medical record was used to obtain clinician gender and service team (counseling, pharmacotherapy and court diversion programs).

2.4.3. Prevalence of preventive care

2.4.3.1. Client report. Clients reported whether they were provided with each of three elements of care (assessment, brief advice, and referral) for each of three health risk behaviors (tobacco smoking, insufficient fruit and/or vegetable consumption, and insufficient physical activity) during their appointment with the substance use treatment service (yes, no, do not know).

For assessment of health risk behaviors, all participating clients were asked to report if their clinician asked about their tobacco smoking status, fruit and vegetable consumption, and levels of physical activity (yes, no, do not know).

For provision of brief advice, clients who reported that they were 'at risk' for a health risk behavior were asked to report if their clinician advised them to: quit smoking and/or use nicotine replacement therapy (NRT); increase their fruit and vegetable consumption; and to participate in more physical activity (yes, no, do not know).

For provision of referral/follow-up, clients who reported that they were 'at risk' were asked to report if their clinician offered them a referral to the NSW Quitline (for tobacco smoking) (Australian Government, 1997) or the NSW Get Healthy Information and Coaching Service (for insufficient fruit and/or vegetable consumption and/or insufficient physical activity) (yes, no, do not know) (New South Wales Health). Clients also reported if their clinician recommended they use any supports to modify their health risk behaviors (for example a general practitioner (GP), Aboriginal medical service (AMS), dietician, physical activity classes) (yes, no, do not know).

2.4.3.2. Clinician report. Clinicians were asked to report, on a scale of 0% to 100% or 'do not know', the proportion of new adult clients in the previous two months they assessed for each health risk behavior; and, for clients they identified as being 'at risk', the proportions to whom they provided brief advice to eat more fruit or vegetables, increase physical activity levels, quit smoking, or use nicotine replacement therapy (NRT); and the proportion they advised referral/follow-up (0% to 100% or 'do not know'). Referral/follow-up options asked about were the same as that indicated for the client report survey.

2.5. Statistical analysis

Statistical analyses were undertaken using SAS (version 9.3).

2.5.1. Participant characteristics

Descriptive statistics were used to report client and clinician characteristics.

An overall 'insufficient fruit and/or vegetable consumption' variable was calculated where the client was not meeting the recommended guidelines for fruit consumption (<2 serves per day) and/or vegetable consumption (<5 serves per day). Client residential postcodes were used to determine disadvantage (Socio-Economic Indexes for Areas [SEIFA]) and geographic location (Access/Remoteness Index of Australia [ARIA]). SEIFA codes were then collapsed into higher [>991] and lower [<991] disadvantage, and geographic location collapsed into major cities versus regional/remote towns (Australian Bureau of Statistics, 2008; Department of Health and Aged Care, 2001). Aboriginal or Torres Strait Islander status was defined using client reported CATI data for all analyses except comparison between participant and non-participants which utilized electronic medical record data. Participant and non-participant characteristics were compared using chi-square analysis.

2.5.2. Prevalence of preventive care

Descriptive statistics were used to report client reported provision of preventive care and clinician reported provision of preventive care. For

client reported provision of each element of care, a dichotomous variable ('yes' and 'no' [no, do not know]) was created. An additional variable, provision of 'care for all risks', was calculated as the proportion of clients who: were assessed for all risk behaviors (assessment); given brief advice for all behaviors that they were 'at risk' for (brief advice); and offered a referral for all behaviors that they were 'at risk' for (offer to arrange referral to telephone helplines). A variable for overall clinician provision of brief advice for tobacco smoking was created through incorporating responses from two separate items, one regarding provision of advice to quit and one regarding provision of advice to use NRT. A clinician who advised 80% or more of quit smoking and/or use NRT was regarded as providing optimal care (80–100% of clients). A clinician who advised 0% of clients quit smoking and/or use NRT was regarded as providing no care (0% of clients).

Consistent with previous studies (Bartlem et al., 2014; McElwaine et al., 2014), clinician reported care was grouped as follows: providing care to 0% (including 'do not know'), 1–49%, 50–79% or 80–100% of new adult clients. An 'optimal care' variable, defined as providing care to 80% or more of clients, was created for each element of care (assessment, brief advice, speaking about telephone service, arranging referral to telephone service, advise GP/AMS, advise other support) for all behaviors combined (Bartlem et al., 2014; Freund, Campbell, Paul, Sakrouge, & Wiggers, 2005; McElwaine et al., 2014). 'Optimal care' was grouped as follows; 'no care' (0% of clients) where clinicians reported providing care to 0% of their clients for each of the three health risk behaviors, and 'optimal care' (80–100% of clients) where clinicians reported providing 80% or more of their clients with care for each of the three health risk behaviors.

2.5.3. Client characteristics associated with client reported provision of preventive care

Chi-square analyses were used initially to examine associations between all client characteristics and client reported provision of care (assessment, brief advice and referral/follow-up for all risks individually and combined). For modeling purposes interest in increasing fruit consumption and in increasing vegetable consumption was examined separately. Such bivariate associations were reported as un-adjusted odds ratios. Backward stepwise multivariate regression analyses were subsequently undertaken for assessment, brief advice (for clients at risk) and offer to arrange referral to helplines (for clients at risk) for each of the three health risk behaviors separately and combined (12 models). Variables identified in the chi-square analyses with a p value of 0.2 or less were included in each multivariate regression model (Hosmer & Lemeshow, 2004). The final multivariate regression models were those all remaining variables had a p value of <0.01. Alpha values were adjusted to 0.01 to account for multiple significance testing.

3. Results

3.1. Client sample

Of the 1087 clients randomly selected to participate, 485 were unable to be located or had a disconnected/incorrect telephone number (44.6%). Of the 602 contactable clients, 545 (90.5%) were eligible and 386 (70.8%) agreed to participate. Compared to non-participants, participants were less likely to be of Aboriginal and/or Torres Strait Islander origin (14.0% vs. 20.2%, $p = .01$) and less likely to be under 40 years of age (50.8% vs. 64.4%, $p < .001$). The participating client description is provided in Table 1. The proportions of clients at risk for each behavior were: insufficient fruit and/or vegetable consumption (88.9%); tobacco smoking (80.3%) and insufficient physical activity (31.3%).

3.2. Clinician sample

Of the 89 eligible clinicians, 54 (60.7%) agreed to participate in the study. The majority of clinicians were; female (74.1%), over the age of

Table 1
Participant demographics.

Demographic	Client, n (%)
Male	253 (65.6)
Aboriginal and/or Torres Strait Islander	71 (18.4) ^a
Age	
Mean (SD)	40 (11.0)
18–34	133 (34.5)
35–54	215 (55.7)
55+	38 (9.8)
Employment status	
Employed	86 (22.3)
Not employed	300 (77.7)
Marital status	
Living with partner	106 (27.5)
Not living with partner	280 (72.5)
Highest education level completed	
Some high school or less	248 (64.3)
Completed high school	41 (10.6)
Trade certificate, university degree or higher	97 (25.1)
Geographic location	
Major cities	154 (40.1)
Regional/Remote	230 (59.9)
Index of disadvantage	
Lowest (<991)	287 (74.7)
Highest (≥991)	97 (25.3)
Times client has seen service in last 12 months	
1	119 (30.8)
2–4	106 (27.5)
5–11	95 (24.6)
12+	66 (17.1)
Service team	
Stimulant treatment	14 (3.6)
Counseling	182 (47.2)
Court diversion services	29 (7.5)
Pharmacotherapy	161 (41.7)
Risk factor	
Smoking	310 (80.3)
Insufficient fruit and/or vegetable consumption	343 (88.9)
Insufficient physical activity	121 (31.3)

^a Client self-report data from the CATI.

40 (77.8%), employed full-time (68.5%), and worked within a counseling service (61.1%). The most commonly reported discipline was nursing (42.4%) and clinicians most frequently had worked in their discipline (61.1%), and in community health (38.9%) for more than 10 years. Clinician demographics (gender and service type) did not differ between participants and non-participants ($p = 0.52$ and $p = 0.82$, respectively).

3.3. Prevalence of preventive care

3.3.1. Client report

Assessment of health risk behaviors was most frequently reported for smoking (89.9%) and least frequently for insufficient fruit and/or vegetable consumption (22.5%). Brief advice was most frequently provided to clients at risk for tobacco smoking (79.4%) and least frequently for insufficient fruit and/or vegetable consumption (24.8%). Across all

health risk behaviors, offer to arrange referral was less than 10% (Table 2).

3.3.2. Clinician report

Clinicians assessed more than 80% of new adult clients most frequently for smoking (87.0%) and least often for insufficient fruit and/or vegetable consumption (22.2%), with 40.7% of clinicians reporting never asking clients about their fruit and vegetable consumption. Clinicians provided brief advice to 80% or more of at risk clients most frequently for tobacco smoking (79.6%) and least frequently for insufficient fruit and/or vegetable consumption (48.2%). Less than 4% of clinicians provided referrals to 80% or more of clients across all health risk behaviors. No clinicians arranged a referral to the NSW Quitline and few clinicians arranged a referral to the NSW Get Healthy Information and Coaching Service for insufficient fruit or vegetable consumption, or insufficient physical activity (3.7% and 1.8% respectively) (Table 3).

Optimal provision of care for all health risk behaviors was reported most frequently for brief advice (62.3%) and least frequently for arranging the NSW Quitline or the NSW Get Healthy Information and Coaching Service to call the client (0%).

3.4. Client characteristics associated with provision of preventive care

Outcomes of the chi-square analyses are presented as supplementary material. For the 'offer of referral' variable, chi-square analyses and subsequent multivariate regression analyses could not be undertaken due to the sample size, and as such there were only seven regression models. Two variables from the chi-square analyses were entered into each of the regression models for smoking assessment (gender, age), smoking brief advice (appointments in the last 12 months, service type) and insufficient fruit and vegetable brief advice (gender, remoteness). Three variables were entered for insufficient fruit and vegetable assessment (gender, disadvantage, Aboriginality), assessment for all risks (gender, remoteness, Aboriginality) and brief advice for all risks (disadvantage, remoteness, Aboriginality). Five variables were entered for insufficient physical activity assessment (gender, age, remoteness, appointments in the last 12 months, service type). Models were not run for insufficient physical activity brief advice as only one variable was eligible. From the multivariate regression analyses, remoteness was the only characteristic associated with the provision of care. Clients who lived in major cities were less likely to be assessed for physical activity (OR 0.5 [0.3–0.7], $p < .001$) or provided brief advice for all risk behaviors (OR 0.5 [0.3–0.8], $p = 0.008$), compared to clients in regional and remote areas. For insufficient physical activity brief advice was more likely to occur in the second to fourth appointment compared to the first appointment (OR 4.2 [1.4–12.4], $p = 0.04$).

4. Discussion

This is the first study to investigate the prevalence of the provision of preventive care, inclusive of assessment, brief advice and referral/follow-up, for multiple health risk behaviors by community substance use services. The study found a high prevalence of assessment and

Table 2
Client reported provision of preventive care.

Risk factor	Assessment, n (%)	Brief advice, n (%)	Offer to arrange referral, n (%)	Recommended other support, n (%) ^b
Smoking ^a	347 (89.9)	246 (79.4)	27 (8.7)	91 (29.4)
Insufficient fruit and/or vegetable consumption ^a	87 (22.5)	85 (24.8)	4 (1.1)	35 (10.2)
Insufficient physical activity ^a	196 (50.8)	59 (48.8)	2 (1.7)	22 (18.2)
All health risk behaviors	66 (17.1)	95 (25.2)	8 (2.1)	NA

^a Sample sizes for brief advice, offer to arrange referral and accept offer to arrange only included participants identified at risk: smoking ($n = 310$), inadequate fruit and/or vegetable consumption ($n = 343$), inadequate physical activity ($n = 121$).

^b Other support recommended included: general practitioner, Aboriginal medical service, dietician, pharmacist, physiotherapist, support group, and internet website.

Table 3
Clinician reported provision of preventive care.

Element of preventive care	0% of clients, n (%)	1–49% of clients, n (%)	50–79% of clients, n (%)	80–100% of clients, n (%)
Assessment				
Smoking	4 (7.4)	1 (1.9)	2 (3.7)	47 (87.0)
Insufficient fruit and/or vegetable consumption	22 (40.7)	12 (22.2)	8 (14.8)	12 (22.2)
Insufficient physical activity	12 (22.2)	8 (14.8)	10 (18.5)	24 (44.4)
All behaviors	0 (0.0) ^a	–	–	8 (14.8) ^b
Brief Advice (for ‘at risk’ clients)				
Smoking (advice to quit/NRT)	3 (5.5) ^c	–	–	43 (79.6) ^d
Insufficient fruit and/or vegetable consumption	23 (42.6)	4 (7.4)	1 (1.9)	26 (48.2)
Insufficient physical activity	20 (37.0)	2 (3.7)	4 (7.4)	28 (51.9)
All behaviors	0 (0.0) ^a	–	–	33 (62.3) ^b
Referral				
Spoke to clients about telephone service				
Smoking (Quitline)	19 (35.2)	8 (14.8)	5 (9.3)	22 (40.7)
Insufficient fruit and/or vegetable consumption (get healthy)	45 (83.3)	2 (3.7)	1 (1.9)	6 (11.1)
Insufficient physical activity (get healthy)	49 (90.7)	0 (0)	0 (0)	5 (9.3)
All behaviors	18 (33.3) ^a	–	–	3 (5.9) ^b
Arrange telephone service to call client				
Smoking (Quitline)	51 (94.4)	3 (5.6)	0 (0)	0 (0)
Insufficient fruit and/or vegetable consumption (get healthy)	51 (94.4)	1 (1.9)	0 (0)	2 (3.7)
Insufficient physical activity (get healthy)	53 (98.2)	0 (0)	0 (0)	1 (1.8)
All behaviors	5 (9.2) ^a	–	–	0 (0) ^b
Advise clients to talk to GP/AMS				
Smoking	21 (38.9)	7 (13.0)	5 (9.3)	21 (38.9)
Insufficient fruit and/or vegetable consumption	44 (81.5)	1 (1.9)	3 (5.6)	6 (11.1)
Insufficient physical activity	44 (81.5)	3 (5.6)	3 (5.6)	4 (7.4)
All behaviors	18 (33.3) ^a	–	–	3 (5.9) ^b
Advise clients to use other types of support ^e				
Smoking	25 (46.3)	6 (11.1)	5 (9.3)	18 (33.3)
Insufficient fruit and/or vegetable consumption	39 (72.2)	5 (9.3)	3 (5.6)	7 (13.0)
Insufficient physical activity	32 (59.3)	7 (13.0)	4 (7.4)	11 (20.4)
All behaviors	17 (31.5) ^a	–	–	4 (8.0) ^b

^a Clinicians who provided care to 0% of clients for ALL three health risk behaviors.

^b Clinicians who provided care to 80% or more of clients for ALL three health risk behaviors.

^c Clinicians who advised 0% of clients at risk of smoking to quit and 0% of clients to use NRT.

^d Clinicians who advised 80% or more of clients at risk of smoking to quit OR to use NRT.

^e Other support advised included: dietitian, physiotherapist, pharmacist, support group, internet website, booklet/pamphlet, quit kit, personalized client information.

brief advice for smoking, but lower levels of care for other health risk behaviors, and negligible levels of referral. Such findings were consistent across client and clinician report measures.

A higher prevalence of tobacco smoking assessment and brief advice was reported compared to previous studies (Currie et al., 2003; Hahn et al., 1999; Joseph et al., 2003; Olsen et al., 2005; Richter et al., 2004; Rothrauff & Eby, 2011; Walsh et al., 2005). All such previous studies were conducted prior to 2004 and only one was conducted in Australia (Walsh et al., 2005). The higher prevalence may be a result of different smoking treatment practices across countries as well as reflecting increasing awareness of the need to address tobacco smoking within routine substance use treatment (Bowman et al., 2012; Walsh et al., 2005; Ziedonis et al., 2007). In contrast with the previous literature the prevalence of care reported was similar between client and clinician report.

Although assessment and brief advice was high for tobacco smoking, less than 10% of clients were offered a referral to the Quitline. The low provision of referral may be due to known barriers to preventive care delivery in substance use settings such as, lack of clinician skills and knowledge, lack of client interest and competing clinical priorities (Guydish, Passalacqua, Tajima, & Manser, 2007). Clinicians did report more frequent referral to other supports such as pharmacists, support groups and information pamphlets. It is possible that community substance use services have existing referral pathways other than to the Quitline service. Further investigation is required to determine how continuing assistance for behavior change is managed within this setting.

Preventive care provision regarding fruit and vegetable consumption, and physical activity was low. No previous studies have examined preventive care for these risk behaviors in community substance use settings. However, the prevalence of care reported for insufficient fruit

and/or vegetable consumption and insufficient physical activity was similar to that reported for clients from general community health services (McElwaine et al., 2013; McElwaine et al., 2014) and mental health services (Bartlem et al., 2014; Bartlem et al., 2015) within the same health district.

Almost no referrals to the NSW Get Healthy Information and Coaching Service were offered, with a potential barrier being a lack of knowledge of the service (O'Hara, Phongsavan, Banovic, & Bauman, 2012). This service commenced in 2009 (O'Hara et al., 2012), and therefore may not have been widely known when data collection for this study occurred. This supposition is supported by clinicians reporting more frequent referral to other support services or the clients' GP or AMS. The provision of referral to telephone helplines is an important element of care as it allows ongoing support to be provided to the client while also acknowledging the brevity of clinician contact and competing clinical priorities. Telephone helplines have been shown to be effective in the general population (Eakin, Lawler, Vandelanotte, & Owen, 2007; Stead, Perera, & Lancaster, 2006) and for people with substance use problems (Schroeder & Morris, 2010). Such helplines may also address barriers to treatment experienced by people with substance use problems, such as transportation and cost (Griffin, Segal, & Nahvi, 2015). As such, greater use of both services may be valuable in the management of modifiable health risk behaviors in substance use treatment settings. In addition, electronic medical records provide a promising way to increase referral rates through integrating automated referrals and electronic prompts to refer (Boyle, Solberg, & Fiore, 2014; Greenwood et al., 2012).

Clients living in rural and remote towns were more likely to be assessed for physical activity and provided brief advice for all risk behaviors than clients in major cities. This is consistent with previous research by Laws et al. (Laws et al., 2009) in general community health

settings, who suggested that this may reflect the differences between rural and metropolitan health teams in terms of workload and hence opportunities to provide preventive care. In addition, the lack of a complete range of health services available in rural and regional settings may have resulted in clinicians providing such additional care themselves (Paliadelis, Parmenter, Parker, Giles, & Higgins, 2012). The absence of other characteristics being associated with provision of care may indicate that care is being provided similarly across all clients rather than selectively. Further research is required to investigate such conclusions.

The findings of this study should be considered in light of its strengths and limitations. A strength of the study is the use of both clinician and client report as it is important to understand the level of care the clinician believes they are providing, and client reported prevalence of care indicates the likelihood of the client being aware of, and hence acting on, the care provided (Conroy et al., 2005). A limitation of this method is that differences in survey items meant individual client and individual clinician report could not be directly compared. The accuracy of reported preventive care provision may have been improved by the inclusion of an audit of the electronic medical record as it would provide an objective measure of care provision. However, electronic medical records have been found to underestimate preventive care provision due to clinician inconsistency in recording care (Conroy et al., 2005). The modest response rate for both the clinician and client sample may have resulted in bias. For example, the clinicians responding may be more interested in providing care regarding one or more of the modifiable health risk behaviors examined compared to non-participants. Although clinician self-report data may overestimate care provision (Conroy et al., 2005; Nicholson, Hennrikus, Lando, McCarty, & Vessey, 2000; Ward & Sanson-Fisher, 1996), this further emphasizes the observed low levels of preventive care reported. In addition, client recall bias may impact the accuracy of the responses, as the survey did not specify which appointment the clients were asked to respond regarding. However, further analysis found that 60% of clients were referring to an appointment within the previous two weeks and 92% reported that they were confident in their responses. A further strength of the study is the relatively large client sample compared to similar studies within substance use settings (Kelly et al., 2012). Lastly, the generalizability of findings to other Australian and international substance use services is unknown.

5. Conclusion

The results of this study indicated that the provision of preventive care to community substance use treatment clients varies across element of care and health risk behavior. Future research could further investigate barriers to the provision of preventive care within substance use settings, with a specific focus on care for insufficient fruit and vegetable consumption and insufficient physical activity, and referral/follow-up for all health risk behaviors. Further research should also investigate interventions to increase the provision of preventive care within community substance use settings.

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Conflict of interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.jsat.2016.05.006>.

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