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Harm reduction knowledge and information exchange among secondary distributors in Sydney, Australia

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Aims: Secondary syringe distribution involves the acquisition of injecting equipment by people who inject drugs (PWID) from authorized or ‘safe’ sources to be distributed to their peers. This article describes the characteristics of those who regularly engage in secondary distribution in Sydney, Australia, and their levels of knowledge about harm reduction.

Methods: Data were collected through a cross-sectional study using surveys collected from PWID recruited from 35 pharmacies in metropolitan and regional Sydney. A two-page self-complete survey was distributed by pharmacy staff to each person buying or exchanging needles and syringes.

Findings: Of the 602 participants in this study, 114 (18.9%) responded that they regularly engaged in secondary distribution. Despite no significant difference in knowledge about hepatitis C (HCV) transmission, secondary distributors were more likely than non-distributors to tell others specifically about how to get treatment for drug use (40.4% vs 30.2%, $p=0.04$), and where to get sterile needles (64.0% vs 45.8%, $p=0.001$), alcohol swabs or filters for injecting (41.2% vs 25.9%, $p=0.001$).

Conclusion: While overall secondary distributors were no more likely to pass on harm reduction information, secondary distributors were significantly more likely to tell others about some specific pieces of information, including where to get ancillary injecting equipment, where to get tested for HCV, and how to get treatment for drug use.

(PWID) from authorized or ‘safe’ sources, such as needle and syringe programmes (NSP), to be distributed to their peers by selling, trading or giving them away (Lenton, Bevan, & Lamond, 2006; Tyndall et al., 2002). In Australia, sterile needles and syringes are distributed to PWID for the purposes of limiting the transmission of blood-borne viruses (BBVs) such as hepatitis C (HCV) and HIV. In New South Wales (NSW), sterile needles and syringes are distributed through the public and private sectors. Public sector distribution takes place, usually free of charge, through NSP, hospital emergency wards, community and sexual health centres, mobile programmes and vending machines. Private sector distribution takes place through pharmacies where needles and syringes are distributed on a sales or exchange basis. Beyond these official outlets, secondary distribution provides an informal channel for many PWID to access sterile injecting equipment in the Sydney area (Bryant & Hopwood, 2008). However, there is a lack of information regarding secondary distribution in Australia generally, and specifically a lack of information about the levels of knowledge among secondary distributors and the extent that they engage in information exchange with their peers. This article describes patterns of secondary distribution among a sample of PWID recruited from pharmacies in NSW, Australia. It presents the demographic and drug using profile of those who do and do not regularly engage in secondary distribution, as well as their patterns of equipment acquisition and distribution, their knowledge about HCV transmission, and the extent to which they pass on harm reduction information to others.

The existing literature identifies a number of valuable benefits of secondary distribution. The existing research shows that secondary distribution has the capacity to connect with hard-to-reach populations of

INTRODUCTION

Secondary distribution involves the acquisition of needles and syringes by people who inject drugs

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85 PWID such as young people (Sears, Guydish, Weltzin,
& Lum, 2001), and those who live in geographically
diverse locations (Anderson, Clancy, Flynn, Kral, &
Bluthenthal, 2003) or settings with restrictive and
punitive drug policies (Irwin, Karchevsky, Heimer, &
90 Badrieva, 2006). International research shows that
secondary distribution is common among networks of
PWID. Kuyper et al. (2006) report that 64% of clients
from a needle exchange programme in Vancouver
reported passing on syringes to others, and Lorvick
et al. (2006) indicate that 75% of clients at Californian
95 syringe exchange programmes reported engaging in
secondary distribution in the past 6 months. In
Australia, data from the Australian Needle and
Syringe Programme Survey, which recruits participants
100 from NSP, suggested that between 32% and 38% of
respondents reported the onward supply of syringes
between 2007 and 2010 (Iverson, Topp, & Maher,
2011). A study conducted in south-east Sydney among
PWID who were recruited from pharmacies reported
105 that 40% of respondents distributed sterile needles and
syringes to others in the previous month (Bryant &
Hopwood, 2008). Moreover, this study found that
secondary distribution occurred among small networks
of friends and/or partners, largely for altruistic pur-
110 poses, and did not appear to be highly organized
(Bryant & Hopwood, 2008). Other studies have also
shown that people engage in secondary distribution
with altruistic intentions (Lenton et al., 2006; Snead
et al., 2003; Voytek, Sherman, & Junge, 2003) with the
115 additional purposes of protecting others from infectious
diseases and maintaining the privacy of others (Snead
et al., 2003).
To date, however, there is little research into
secondary distributors' knowledge about BBV trans-
120 mission, or the extent to which they pass on harm
reduction information to others. Secondary distribution
has been described as a 'natural opportunity' for peer
education (Snead et al., 2003). Studies of networks of
gay men who used injecting and non-injecting drugs
125 have identified lay experts or 'network nannies' who
had assumed the role of passing on information about
safer drug use and where to obtain sterile injecting
equipment (Southgate & Hopwood, 2001). However, it
has also been observed that the information passed on
130 was not always accurate (Greenspan et al., 2011;
Southgate & Hopwood, 2001; Treloar & Abelson,
2005), and that individuals' concerns about offending
their peers may shape these discussions. For example,
Treloar, Rance, Laybutt, and Crawford (2010) found
135 that some PWID did not want to talk to others about
safe injecting or BBVs because they did not want to be
perceived as being 'superior' or patronizing because
they held some expertise (Treloar et al., 2010).
Nevertheless, in a randomized controlled trial con-
140 ducted in Baltimore, peer education was shown to be
feasible, efficacious and sustainable within networks of
PWID (Tobin, Kuramoto, Davey-Rothwell, & Latkin,
2010). Furthermore, peer education has been attributed

as being partially responsible for the low prevalence of
HIV/AIDS among PWID in Australia (Feachem, 1995;
145 Loxley, 2000). Given the potential benefit that sec-
ondary distribution has to disseminate harm reduction
messages to PWID (Bryant & Hopwood, 2008; Sears
et al., 2001), it is important to explore how effective
150 secondary distribution is as a medium for passing on
harm reduction information, specifically regarding
BBVs.

METHODS

Data collection

The data used in this article come from a larger project
155 whose main purpose was to ascertain BBVs risk
behaviour among PWID who use pharmacies to
obtain sterile injecting equipment. Consequently, data
about secondary distribution in this article focus on
160 PWID who were recruited through pharmacies, and not
those recruited through NSP or other distribution
points.

The sampling for this project was conducted in two
stages in 2008. First, pharmacies were selected from
165 the five regions in NSW with the highest volume of
distribution of needles and syringes. These encom-
passed nearly all of the metropolitan Sydney, and the
Newcastle/Hunter Valley region located about 200 km
north of Sydney. A list of pharmacies that participate in
the NSW Pharmacy Guild's exchange scheme was
170 provided by the NSW Department of Health. Within
each region, pharmacies were ranked by the volume of
syringe distribution and those in or above the 75th
percentile were invited to facilitate the data collection.
Selected pharmacies were mailed a letter of invitation
175 and telephoned one week later to ascertain their
willingness to participate. To acknowledge their par-
ticipation, pharmacists were offered a nominal fee of
\$50 AUD plus \$2.50 AUD for each survey they
distributed. 180

Thereafter, staff at participating pharmacies distrib-
uted a self-complete survey to each person who bought
or exchanged sterile needles and syringes for one week
in November 2008. This method of distribution was
185 based on a consecutive sampling approach whereby
every person within a given time period was provided
an opportunity to complete the survey. Surveys were
self-administered, and could be returned to the phar-
macy within the study period and reimbursed \$10
190 AUD. To avoid duplication, participants were asked
whether they had previously completed the survey and
those answering yes were removed. Additionally,
duplicate surveys were identified and removed using
the SPSS function that flags duplicate responses.

The survey collected data concerning the partici-
195 pant's demographic profile, drug using practices in the
last month, risk behaviours for the transmission of
BBV in the last month, patterns of acquisition of sterile
needles and syringes, whether participants had been
tested for HCV, and self-reported HCV status. 200

The study had approval from both the Human Research Ethics Committee of the University of NSW and the Pharmacy Guild of Australia.

Measures

205 Survey respondents were asked whether they had given away or sold sterile unused needles and syringes to others that they had obtained from a pharmacy in the previous month. They were also asked whether they 'regularly' distributed needles and syringes to other people. The meaning of regularly was not defined for respondents; they decided for themselves whether they believed they were regular distributors. Respondents were asked how many needles and syringes they obtained from a pharmacy in the last month, how many they gave away, and to whom they had given the needles and syringes. All data about the volume of needles and syringes acquired and distributed relates only to those needles and syringe acquired from pharmacies. The survey did not ask respondents about needles and syringes acquired from NSP or other sources because of the complexity of asking these questions using a self-complete questionnaire.

215 Respondents were asked whether, in the past six months, they had told others about various pieces of harm reduction information. A total of 10 items were used including where to obtain sterile needles and other equipment, where to get tested for HCV, and how to get treatment for drug use. In addition to examining these 10 items separately, we also calculated a score out of 10 that summed the total number of items that the respondent reported they told others about in the past 6 months. The survey also asked four questions to ascertain respondents' knowledge of how hepatitis C is transmitted and the consequences of contracting it.

220 In addition to examining these items separately, a summary score was then calculated that measured respondents' overall knowledge.

Data analysis

240 Bivariate comparisons of survey data were made using Kruskal–Wallis and Pearson's χ^2 tests for categorical data and *t*-tests for continuous data.

FINDINGS

245 A total of 48 pharmacies were invited to participate and 35 (70.8%) agreed. A total of 919 surveys were distributed and 707 were returned (a 76.9% response rate). Due to missing data or cases where respondents indicated that they had previously participated, 105 surveys were removed from the sample leaving 602 valid surveys. A total of 51 respondents did not indicate whether they had engaged in secondary distribution and were excluded from the analysis, leaving 551 respondents. A total of 114 of these respondents (18.9%) reported that they 'regularly' engaged in secondary distribution.

Demographic and drug using profile of secondary distributors

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Secondary distributors more commonly reported that they were identified as gay, lesbian or bisexual (20.5% versus 13.2%, $\chi^2 = 3.826$, $p = 0.05$), injected daily or more frequently in the last month (73.6% versus 53.1%, $\chi^2 = 11.318$, $p < 0.01$) and injected in public places in the previous month (64.0% versus 52.9%, $\chi^2 = 4.565$, $p = 0.03$). Secondary distributors less commonly reported that they were Aboriginal (12.5% versus 21.0%, $\chi^2 = 4.152$, $p = 0.04$; Table I).

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Patterns of equipment acquisition and distribution

Secondary distributors obtained a median of 10 syringes at their last visit to a pharmacy, and distributed four of these to others. About half of secondary distributors (50.9%) reported that they regularly distributed needles to between two and four other people, with 21.8% reporting that they had distributed to only one other person, and 27.3% distributing to more than five other people (Table II).

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Of the total sample, 89.3% stated that they gave their needles away for free rather than selling them or exchanging them for other items. Furthermore, few respondents (5.8%) reported that their primary reason for regularly engaging in the secondary distribution was for financial gain. Instead, the majority reported that it was to help others inject and avoid acquiring HCV (49.5%), or to help others who could not travel to a pharmacy or NSP (30.1%). Potential embarrassment for secondary receivers was also noted as a reason for needle distribution, with 14.6% of participants stating that helping others to avoid embarrassment was their primary reason.

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Relationship between characteristics of secondary distributors and their recipients

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Of those who reported that they regularly engaged in secondary distribution ($n = 144$), respondents reported that they most commonly gave their syringes to a friend (45.8%), a regular sexual partner (32.7%) or an acquaintance (11.2%). Those who regularly engaged in secondary distribution commonly reported that they shared needles with the person they gave needles to, with more than a third (33.9%) saying that they had reused a needle after their recipient and 43.3% saying that their recipient had reused a needle after them. Secondary distributors were less likely to inject themselves with a used syringe in the previous month than non-secondary distributors (28.6% versus 36.5%, $\chi^2 = 8.126$, $p = 0.043$), and were also less likely to share a drug solution (8.9% versus 22.8%, $\chi^2 = 16.747$, $p = 0.000$). Secondary distributors were also asked to report whether they had shared ancillary injecting equipment with their recipients, with 49.6% saying that they had in the last month.

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Table I. Demographic profile of the sample.

	Total (<i>n</i> = 602)	Secondary distributors (<i>n</i> = 114)	Non-secondary distributors (<i>n</i> = 437)	<i>p</i> -Value
	\bar{x} (SD)	\bar{x} (SD)	\bar{x} (SD)	
Age (<i>n</i> = 582)	35.5(9.5)	36.1(8.7)	35.6(9.4)	0.17
Years of injecting (<i>n</i> = 569)	16.3(9.6)	16.3(8.9)	16.6(9.9)	0.18
	%	%	%	
Gender (<i>n</i> = 600)				0.36
Male	65.2	62.3	67.2	
Female	34.1	36.8	32.6	
Aboriginal (<i>n</i> = 588)				0.04
Aboriginal	20.4	12.5	21.0	
Neither	79.6	87.5	79.0	
Sexual identity (<i>n</i> = 588)				0.05
Straight/heterosexual	85.3	79.5	86.8	
Gay, lesbian or bisexual	14.7	20.5	13.2	
Last drug used (<i>n</i> = 587)				0.12
Opioids	66.8	58.8	68.9	
Stimulants	27.8	34.2	26.1	
Other	5.4	7.0	5.0	
Injection frequency (last month) (<i>n</i> = 573)				<0.01
Less than daily	42.7	26.4	46.9	
Once a day or more	57.3	73.6	53.1	
Injection places (last month) (<i>n</i> = 558)				0.03
Public	55.2	64.0	52.9	
Private	44.8	36.0	47.1	
Self-report HCV status (<i>n</i> = 420)				0.66
Negative	40.5	42.7	39.8	
Positive	54.5	51.0	55.6	
Do not know result	5.0	6.3	4.6	
Drug treatment (<i>n</i> = 536)				0.61
Never	36.1	34.2	36.5	
Previously	40.1	44.1	39.1	
Currently	23.9	21.6	24.5	

Table II. Syringe collection and distribution practices.

	Total (<i>n</i> = 602)	Secondary distributors (<i>n</i> = 114)	Non-secondary distributors (<i>n</i> = 437)	<i>p</i> -Value ^a
Number of syringes obtained (last time) (median)	5	10	5	0.003
Number of syringes distributed last time (last time) (median)	4	4	–	
Number of people distributed to (<i>n</i> = 110)				
One other person	–	21.8%	–	
2–4 other people	–	50.9%	–	
5 or more other people	–	27.3%	–	

Notes: ^a*p*-Values are estimated using the Kruskal–Wallis test for medians.

310 **Knowledge of HCV and dissemination of information to others**

315 Respondents were asked whether they had passed on any information to others regarding safe injecting, the prevention of HCV, and how to acquire new sterile injecting equipment. Respondents most commonly

passed on information about where to get sterile needles (49.5%), information about safe injecting (43.4%) and where to get treatment for drug use (32.3%; Table III). Conversely, only 8% of respondents passed on information about how to find websites about HCV and safe injecting practices, how to get

Table III. Safe injecting information dissemination.

	Total (n = 602)	Secondary distributors (n = 114)	Non-secondary distributors (n = 437)	p-Value
In the last 6 months, have you told anyone about...	(%)	(%)	(%)	
Information about safe injecting	43.4	47.4	42.3	0.33
Information about HCV	30.5	31.6	30.2	0.77
Where to get sterile needles	49.5	64.0	45.8	0.001
Where to get filters or alcohol swabs for injecting	29.0	41.2	25.9	0.001
Where to get tested for HCV	18.7	18.4	18.8	0.93
Where to see a doctor who is friendly to drug users	22.3	22.8	22.2	0.89
How to find websites and HCV and injecting	8.0	4.4	8.9	0.11
How to get treatment for drug use	32.3	40.4	30.2	0.04
How to get HCV treatment	14.0	14.0	14.0	0.98
Information about preventing overdoses	16.3	18.4	15.8	0.50
Average dissemination score (out of 10) (mean (SD))	2.6(2.7)	3.0(2.6)	2.5(2.7)	0.91
Correctly identified that...	(%)	(%)	(%)	
A person can get HCV from sharing needles	92.5	94.6	92.0	0.34
It is not safe to share other equipment that is used to inject drugs	85.9	85.7	85.9	0.96
There is more than one type of HCV	73.1	79.5	71.5	0.09
Treatment does not always cure HCV	65.4	71.4	63.8	0.13
Average knowledge score (out of 4) (mean (SD))	3.2(1.0)	3.3(1.1)	3.2(1.0)	0.39

HCV treatment (14%) and information about preventing overdoses (16.3%). Overall, participants who were secondary distributors, and those who were not, both provided similar amounts of harm reduction information to other users (3.03 versus 2.54, $p=0.91$). The only significant difference between the two groups was that the secondary distributors were more likely to provide information regarding where to get sterile needles (64.0% versus 45.8%, $p=0.001$), alcohol swabs or filters for injecting (41.2% versus 25.9%, $p=0.001$), and telling others about how to get treatment for drug use (40.4% versus 30.2%, $p=0.04$). Furthermore, knowledge about HCV transmission and its consequences was generally good across the sample, with most respondents knowing that it was not safe to share needles and other equipment. No significant differences were found between the knowledge of those who regularly engaged in secondary distribution and those who did not.

DISCUSSION

This study's findings suggest that secondary distribution happens regularly among a proportion of PWID who obtain needles and syringes from pharmacies in NSW. Compared to respondents who did not distribute equipment to others, secondary distributors tend to be more frequent injectors, more likely to have injected in a public place in the previous month, and were more likely to report their sexual identity as gay, lesbian or bisexual. When secondary distributors distribute equipment, they appear to distribute a small number of needles and syringes (about four) to a small number of

others, usually fewer than five others. Secondary distributors did not display better knowledge about HCV transmission when compared to non-secondary distributors. Overall, they were no more likely to pass on harm reduction information than their non-secondary distributing peers; however, they were significantly more likely to tell others about some specific pieces of information including where to get ancillary injecting equipment, where to get tested for HCV, and how to get treatment for drug use.

There are several key limitations of this study. While careful efforts were made to measure response bias, our sample is not a random sample and it is not known whether it is representative of other PWID who attend pharmacies in the region. All data were self-reported and are subject to recall and social desirability biases, especially when reporting sensitive or illegal behaviours (Latkin & Vlahov, 1998; Latkin, Vlahov, & Anthony, 1993; White, Day, & Maher, 2007). Perhaps most importantly, the respondents were recruited from pharmacies. Previous studies have indicated that in Australia, PWID who are recruited from pharmacies differ in important ways from those recruited from NSP. PWID recruited from pharmacies in Australia tend to report higher levels of risk behaviour (Bryant et al., 2010) and to have smaller injecting networks (Paquette, Bryant, & DeWit, 2011). In relation to secondary distribution, this could mean that they have fewer people to distribute to, and that the findings of our study underreport the extent of extent to which secondary distribution occurs in NSW. Moreover, due to the complexity of collecting data about secondary distribution using a self-complete questionnaire, we did

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not ask about needle collection and distribution from sources other than pharmacies. Again, this means we have likely underreported the extent of secondary distribution in NSW.

390 In this Australian setting, it appears that many individuals collect needles and syringes multiple times per week, for a network of four or fewer other people. However, proportionately fewer respondents (30.2%) reported that they had distributed syringes in the
395 previous month, compared to Bryant and Hopwood's (2008) previous study (40%) that was also conducted in Sydney. When the secondary distributors in our study distributed equipment, they appeared to distribute a small number of needles and syringes (about four) and
400 do so to a small number of others, usually four or fewer. This reinforces Bryant and Hopwood's (2008) finding that secondary distribution among pharmacy recruited PWID takes place within small networks. This finding is different from what has been found in
405 other countries where large volumes of syringes are collected and distributed (Kuyper et al., 2006). In both our study and Kuyper's study, there was a requirement for PWID to exchange the used equipment for new equipment, so the difference in the volume of syringes
410 collected and distributed may be related to the different study settings. The Downtown Eastside of Vancouver is a unique setting where a large number of PWID reside and use drugs. Our data were collected from community pharmacies, many in suburban or regional
415 settings where the networks of PWID tend to be much smaller. This suggests that further research investigating the structure and organization of secondary distribution networks in the Australian setting would be a valuable addition because it may reveal how secondary
420 distribution functions differently according to network size.

The most novel contribution of this study was the finding that respondents who were secondary distributors, and those who were not, both provided harm reduction information to other users. While overall they were no more likely to pass on harm reduction information, secondary distributors were significantly more likely to tell others about some specific pieces of information, including where to get ancillary injecting equipment, where to get tested for HCV, and how to get treatment for drug use. While some types of information were significantly more likely to be passed on to others by secondary distributors, this was only a specific type of information. Across the sample,
425 knowledge about safe injecting was fairly high, with a mean knowledge score of 3.19 out of 4, secondary distributors did not display better knowledge about HCV transmission when compared to non-secondary distributors. This has important implications for any effort to establish a formal secondary distribution
430 programme as it suggests that people engaged to act as formal secondary distributors would require training to improve knowledge about safer injecting and other important harm reduction issues.
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This study reveals important patterns within the practice of secondary distribution that should be considered in the future production of policies that seek to support this practice. Currently, no Australian state has a policy regarding secondary distribution, largely because of its illegal status. If states are going to develop new and innovative needle distribution programmes, such as secondary distribution, these will need to be guided by evidence, such as that presented in this article, which shows that secondary distribution happens regularly, but among a small proportion of PWID and in small networks. Moreover, to assist in the further dissemination of information on safe injecting practices, the data collected by this study indicate that potential secondary distributors should be provided training and information to be passed on to other PWID.

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