**Introduction**

Since the 1990s, hepatitis C virus infection has become a concern for gay and bisexual men internationally and in Australia (Danta et al., 2007, Jin et al, 2010). In particular, men living with HIV are vulnerable to hepatitis C infection. To date, many studies of hepatitis C infection, and HIV and hepatitis C co-infection, have been in the fields of epidemiology and clinical research (Bradshaw et al, 2013, Lea, Lee et al., 2013, Matthews & Dore, 2008). Very few studies have explored the psychosocial and cultural dynamics of hepatitis C, including HIV and hepatitis C co-infection, among gay and bisexual men (e.g. Brener et al., 2013).

From August to December 2013, a national, online, cross-sectional survey of hepatitis C was conducted among Australian gay and bisexual men. Respondents for this study were recruited via advertisements on Facebook (51%, n = 242), advertisements on gay-themed websites (21%, n = 100), the e-mail lists of community-based HIV and hepatitis organisations (5%, n = 26), and via word of mouth (3%, n = 16). Nineteen percent of respondents (n = 90) did not indicate where they had heard about the survey. The survey explored a broad range of social issues including men's sense of connection to a gay community, disclosure of hepatitis C infection, knowledge and beliefs about hepatitis C, barriers to hepatitis C treatment, unmet information needs, and the need for gay-specific hepatitis C support services. The findings presented here are a description of the main results.

**Sample characteristics**

In all, 474 Australian gay and bisexual men completed the online survey. The majority of respondents came from New South Wales (38%, n = 179), Victoria (28%, n = 135) and Queensland (16%, n = 77). The mean age of men in this study was 38 years. Most men lived in a capital city (73%, n = 344) and around 20% (n = 96) lived in a regional town or centre. Seventy-four percent of men (n = 352) were born in Australia and 26% (n = 122) were born overseas. Ten men identified as Aboriginal (2%), three men identified as Torres Strait Islander (0.6%) and one man identified as both Aboriginal and Torres Strait Islander (0.2%). Forty-three percent of respondents (n = 204) had a university degree, 26% (n = 123) had a trade or TAFE qualification.
and 15% of respondents \( (n = 73) \) reported their highest level of education as Year 10 (or equivalent) or less. Fifty-five percent of respondents \( (n = 261) \) were employed full-time, 18% \( (n = 87) \) were employed part-time or casual, and 4% \( (n = 21) \) were unemployed.

Most respondents identified as gay \( (90\%, n = 425) \), or bisexual \( (9\%, n = 44) \), with the remainder identifying as heterosexual, gay with bisexual leanings, post-gay, or non-sexual \( (n = 1 \text{ each}) \). Ninety-one percent \( (n = 430) \) of respondents described their health as either excellent, very good or good. When asked whether or not respondents felt connected to a gay community in their everyday life, 38% \( (n = 179) \) of men said they felt somewhat connected to a gay community, and almost 30% \( (n = 138) \) of men reported being mostly or very connected to a gay community. Twenty-nine percent of respondents \( (n = 138) \) said that most of their friends were gay or bisexual men with fewer than 8% \( (n = 36) \) reporting that none of their friends were gay or bisexual men.

**Summary**

This study comprised mainly older (i.e., over 35 years), urban gay men who lived in Australia’s most populous eastern states; New South Wales, Victoria and Queensland. Generally, these men were well educated, employed and felt connected to a gay community. Around one in four were born overseas. This demographic profile is similar to the profiles reported for men who participated in the 2013 Sydney Gay Community Periodic Survey (Hull et al., 2013), the 2013 Queensland Gay Community Periodic Survey (Lee et al., 2013) and the 2014 Melbourne Gay Community Periodic Survey (Lee et al., 2014).

### HIV: testing and treatment

In regards to HIV testing, 88% \( (n = 419) \) of all respondents had ever been tested, with 62% \( (n = 177) \) of non-HIV-positive men reporting an HIV test in the previous 12 months. According to self-report, 40% \( (n = 190) \) of respondents were HIV-positive, 48% \( (n = 227) \) were HIV-negative and 12% \( (n = 57) \) were unsure of their HIV status. Eighty-five percent \( (n = 162) \) of HIV-positive men were currently on HIV antiretroviral treatment.

**Summary**

In this study, there were high rates of having ever been tested for HIV, and having been tested for HIV in the previous 12 months; these rates are similar to those reported in the recent Sydney, Queensland and Melbourne Gay Community Periodic Surveys. Likewise, the proportion of HIV-positive men in this study who were on HIV antiretroviral treatment is high and mirrors rates reported in these periodic surveys. A greater proportion of men in this study were HIV-positive compared to the Gay Community Periodic Survey samples. This is because we deliberately over-sampled HIV-positive men in order to recruit sufficient numbers of men with hepatitis C.

### Hepatitis C: testing and treatment

In regards to hepatitis C testing, 80% \( (n = 380) \) of men reported ever being tested, with 58% \( (n = 273) \) being tested in the 12 months preceding this survey. Five percent \( (n = 23) \) were unsure whether or not they had been tested for hepatitis C and a further 15% \( (n = 71) \) said they had never been tested for hepatitis C. Among men who had not been tested for hepatitis C, the most common reason for not testing was because they had never been offered a test \( (60\%, n = 56) \). Some respondents also said they had not been tested because they did not think they were at risk \( (37\%, n = 35) \), they did not know what a test involved \( (26\%, n = 24) \) or they did not know where to go to have a test \( (22\%, n = 21) \).
Twelve percent of men (n = 55) reported currently being hepatitis C-positive, with an additional 6% (n = 28) indicating they had cleared the virus, either spontaneously (2%, n = 8) or as a result of treatment (4%, n = 20). Eight percent of men (n = 39) reported being co-infected with HIV and hepatitis C. When men with a previous or current hepatitis C infection were asked how they thought they had acquired hepatitis C, the most common reason given was using non-sterile injecting equipment (n = 35), with the next most common reason being sex with a male partner (n = 28). One person each reported acquiring hepatitis C from blood products or blood transfusion, unsterile tattooing, and dentistry. One man was told by his doctor that he had acquired hepatitis C via fisting. In all, 18 men did not know how they had acquired hepatitis C.

Summary

Four out of five men in this study had ever been tested for hepatitis C and over half of the men reported being tested for hepatitis C in the 12 months prior to the survey. These rates represent high levels of hepatitis C testing, which is encouraging given the benefits associated with knowing one’s hepatitis C-positive status. Most men reported acquiring hepatitis C from injecting drug use, with sexually acquired hepatitis C infection also commonly reported. Nearly three out of four men with hepatitis C in this study said they were HIV-positive. Hepatitis C and HIV co-infection can hasten the progression of liver disease in affected people and alter responses to HIV antiretroviral treatment (Matthews & Dore, 2008). Co-infection can also reduce the efficacy of hepatitis C treatments.

Living with hepatitis C: information access and treatment

The following three sections of this report refer to a sub-sample of 48 men in this study with hepatitis C, or HIV and hepatitis C co-infection, who responded to questions about hepatitis C information access, hepatitis C treatment, support needs and disclosure. The majority of these respondents were aged over 40 years (n = 32), identified as gay (n = 45), were born in Australia (n = 38), were in paid employment (n = 28), and lived in a state capital city (n = 39). Most of the sub-sample of men reported being co-infected with HIV and hepatitis C (n = 36). Respondents had on average been diagnosed with hepatitis C nine years earlier, and half were treatment naive (n = 24). While almost half of the men with hepatitis C reported that most or all of their friends were gay men (n = 23), the majority did not report a strong sense of attachment to a gay community (n = 32).

Multiple strategies, involving a variety of gay and mainstream health-related organisations, are needed to meet the information requirements of gay and bisexual men regarding hepatitis C.

Most of this sub-sample of men nominated their general practitioner (GP) or specialist (n = 41), or the Internet (n = 33), as their primary sources of hepatitis C information; fewer men said they had accessed information via hepatitis organisations (n = 19), other healthcare workers (n = 18), and friends (n = 11). The majority of respondents (n = 39) indicated at least one unmet need related to hepatitis C information. The topics respondents most commonly indicated that they would like information about were how to avoid sexually transmitting hepatitis C to sexual partners (n = 22), complementary therapies for hepatitis C (n = 20), how co-infection with HIV affects health (n = 20), and how HIV and hepatitis C treatments affect each other (n = 19).

Half of these respondents had been treated for hepatitis C (n = 24). Of the 24 respondents who had not been treated for hepatitis C, 21 had discussed treatment with a doctor or other health professional, and 15 indicated that they were willing to attempt hepatitis C treatment. Reasons most commonly reported by respondents’ for not commencing treatment were concerns about the side effects of hepatitis C treatment, and having heard ‘bad things’ about treatment.

Summary

These findings suggest there is an important role for GPs in educating gay and bisexual men about hepatitis C and in encouraging affected men to have treatment. The men in this study wanted information about how to prevent the sexual transmission of hepatitis C. However currently, specific evidence-based recommendations for ways to reduce the likelihood of transmitting hepatitis C during sex between men have not been determined. Presently, to prevent hepatitis C transmission during sex, men are advised to avoid any sexual practice that leads to bleeding (Schmidt et al., 2011).

Hepatitis C-related support service needs

Of the 48 gay and bisexual men with hepatitis C, or HIV and hepatitis C co-infection, who responded to questions about hepatitis C-related support service needs, 32 respondents reported that they would like gay-specific hepatitis C services such as support groups, a telephone helpline, and referral to treatment services. Similar numbers of men indicated that they would like hepatitis C services delivered by a hepatitis organisation (n = 23); a lesbian, gay, bisexual, transgender and intersex (LGBTI) organisation (n = 21); and an HIV organisation (n = 19). Respondents who were on antiretroviral treatments for HIV were most likely to report a desire for hepatitis C services to be provided by LGBTI and HIV organisations. Some men also indicated a desire for gay-friendly hepatitis C services to be provided by mainstream health organisations (n = 16).

Summary

The findings indicate that multiple strategies, involving a variety of gay and mainstream health-related organisations, are needed to meet the information requirements of gay and bisexual men regarding hepatitis C. Men in this study requested gay-specific information about hepatitis C from organisations such as state-based hepatitis councils, LGBTI and HIV organisations, and a range of other health and information outlets, such as general hospital and primary healthcare services.

Disclosing a hepatitis C-positive status

Of the 48 men in this survey who responded to questions about hepatitis C disclosure, two-thirds (n = 32) said that they had not disclosed their infection to their employer and a similar number had not disclosed infection to their work colleagues (n = 33). Around one in four men with hepatitis C had not told their friends about their infection (n = 11), and over a third had not told family members that they had hepatitis C (n = 18). Similarly, more than a third of men had not disclosed an hepatitis C infection to their partner or boyfriend (n = 19). On the other hand, almost all of the men with hepatitis C had disclosed their infection to their doctor (n = 44) and more than half had told another health professional such as a nurse, dentist or therapist (n = 29).

Of the 29 men in this study who had told their partner or boyfriend that they have or have had hepatitis C, almost all said their partner or boyfriend was supportive following disclosure (n = 27). Similarly, of the 37 men who had disclosed
their infection to friends, almost all friends were reportedly supportive (n = 33), and 24 of 30 respondents who had disclosed their hepatitis C infection to their family said that family members were supportive following disclosure. Reportedly, a third of men had their hepatitis C-positive status told to other people without their permission (n = 16), and respondents’ friends were the people who most often passed this information on to others.

Less than half of the men with hepatitis C in this study said they were comfortable about disclosing their infection to casual sexual partners (n = 19), with a further 18 men saying they were not comfortable disclosing their infection to casual sexual partners. The remaining 11 men said they were neither comfortable nor uncomfortable about disclosing their hepatitis C-positive status to casual sexual partners. Almost half of respondents with hepatitis C were uncomfortable disclosing their hepatitis C infection to new friends and around three-quarters reported that they would not disclose their infection to some people in their local gay community.

Of the 48 men in this survey who responded to questions about hepatitis C discrimination, almost half (n = 22) reported ever experiencing discrimination from a gay and bisexual man because of their infection. Five respondents said that a doctor or other health professional had discriminated against them in the previous 12 months because of their hepatitis C infection. Finally, most men with hepatitis C (n = 37) said that their regular partner had not refused to have sex with them because of their hepatitis C infection; however, 19 respondents reported that a casual partner had refused to have sex with them for this reason.

Summary

These findings suggest that hepatitis C disclosure is largely context-specific and that care is needed when disclosing hepatitis C infection. Most men chose not to disclose at work, but were more likely to tell their partner, friends and family they had hepatitis C. Levels of comfort with disclosing hepatitis C infection to casual sexual partners were mixed, indicating that hepatitis C-negative men are not to assume that casual sexual partners with hepatitis C will disclose their infection.

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Hepatitis C knowledge

This survey contained seven basic knowledge questions about acute and chronic hepatitis C infections and their treatment (see Table 1). Overall, knowledge of hepatitis C was moderate. There was some uncertainty about important aspects of hepatitis C.

Hepatitis C information and education should be targeted at gay and bisexual men, particularly those reporting high risk practices.

As Table 1 shows, while most gay and bisexual men knew about treatment for chronic hepatitis C infection, many were unsure about whether hepatitis C treatments can cure the infection. Also, many men did not know the answer to, or incorrectly answered a question about the spontaneous clearance of acute hepatitis C infection. Most men correctly reported that there is no vaccine available to prevent hepatitis C infection. Finally, many were unsure whether or not men co-infected with HIV and hepatitis C are able to access hepatitis C treatment, and a similar proportion of men were unsure about whether or not a person could reacquire hepatitis C after clearing the infection spontaneously or through treatment.

Summary

While gay and bisexual men in this study had a moderate knowledge about hepatitis C, the relatively high proportion of ‘don’t know’ responses for each question indicates that further dissemination of information is needed. Gay and bisexual men may need more information about issues related to HIV and hepatitis C co-infection, hepatitis C symptoms in general and re-infection with hepatitis C. Similarly, further health promotion information is needed to highlight that, unlike for hepatitis A and hepatitis B infections, there is no vaccine against hepatitis C infection.

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct (%)</th>
<th>Incorrect (%)</th>
<th>Don’t Know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a treatment for hepatitis C infection?</td>
<td>56.9</td>
<td>13.9</td>
<td>29.2</td>
</tr>
<tr>
<td>Is there a treatment that can cure hepatitis C infection?</td>
<td>35.5</td>
<td>34.8</td>
<td>29.7</td>
</tr>
<tr>
<td>Does hepatitis C always cause symptoms (e.g. feeling tired, body aches)?</td>
<td>48.2</td>
<td>18.0</td>
<td>33.8</td>
</tr>
<tr>
<td>Once you’re infected with hepatitis C, can your body get rid of the virus on its own without treatment?</td>
<td>22.6</td>
<td>47.7</td>
<td>29.7</td>
</tr>
<tr>
<td>Can people who are co-infected with HIV and hepatitis C access hepatitis C treatment?</td>
<td>48.7</td>
<td>5.1</td>
<td>46.2</td>
</tr>
<tr>
<td>If you clear hepatitis C, either via treatment or spontaneously, can you get infected with hepatitis C again?</td>
<td>51.6</td>
<td>5.1</td>
<td>43.3</td>
</tr>
<tr>
<td>Is there a vaccine to prevent hepatitis C infection?</td>
<td>52.1</td>
<td>14.8</td>
<td>33.1</td>
</tr>
</tbody>
</table>
Eleven percent of respondents (n = 54) said they did not drink alcohol. Forty-eight percent of respondents (n = 229) consumed alcohol less than weekly, 21% (n = 98) two to three times a week and 16% (n = 78) four or more times a week. Regarding respondents’ use of other licit and illicit drugs in the previous six months, amyl nitrate was the drug most commonly used (36%, n = 173), followed by cannabis (32%, n = 152), erectile dysfunction medications (EDM) such as Viagra (24%, n = 112), and crystal methamphetamine (i.e., crystal or ice) (23%, n = 110) (see Table 2).

Sixty-six percent of men (n = 312) reported using drugs before or during sex with another man in the previous six months. The drugs most commonly used before or during sex were amyl nitrate (34% of all respondents, n = 160), EDM (22%, n = 105), crystal (20%, n = 98) and cannabis (19%, n = 89) (see Table 2). For some drugs, a very high proportion of respondents’ use was in sexual contexts. For example, 87% of men who used crystal in the previous six months reported using it in a sexual context. Similarly, 94% of men who used EDM, 92% of men who used amyl nitrite, and 81% of men who used GHB, reported using these drugs in sexual contexts (see Table 2).

A high proportion of men reported injecting drug use in our study. This is likely to be an artefact of sampling. The study’s recruitment strategy, which was aimed at websites for ‘sexually adventurous men’ or HIV-positive men, among whom injecting rates are generally higher than in other sections of gay communities, might account for the large proportion of men in this study who said that they had injected. The rates of injecting reported in this study are generally three times as high as those found in the recent Sydney, Melbourne and Queensland Gay Community Periodic Surveys.

Almost 30% (n = 138) of respondents in this study reported having ever injected a drug, and just over half of these men reported injecting within the previous six months (n = 71). Of respondents who had ever injected, the most commonly injected drugs were crystal (75%, n = 103), speed (51%, n = 71), cocaine (25%, n = 35) and heroin (25%, n = 34).

Of 70 respondents who answered questions about injecting drug use in the previous six months, crystal was the drug that the majority of these respondents reported injecting most often (76%, n = 53). Similarly, of 63 respondents who answered questions regarding injecting drug use before or during sex, the most commonly injected drug for sex was crystal (95%, n = 60). Caverject (an injectable EDM) was used by 18 men before sex (29%) and speed was injected before or during sex by 15 men (24%).

Of 69 respondents who answered questions about reusing needles and syringes after someone else had used them (even if they had been cleaned), around a quarter (n = 17) reported having ever reused needles and syringes after someone else had used them, and six people (9%) reported reusing needles and syringes in the previous six months after someone else had used them. Similarly, around one in five respondents (n = 14) reported having ever passed their used needles and syringes on for other people to use (even if it was cleaned), and nine respondents (13%) said they had passed their used needles and syringes on for other people to use, in the previous six months.

Injecting drug use among gay and bisexual men often occurs within sexual contexts.

Around half of these 69 respondents had ever reused injecting equipment (i.e., spoons, filters, swabs, drug mix, tourniquet, water) after someone else had used it, and almost 40% (n = 27) of respondents had done so in the previous six months. Just over 40% of these respondents (n = 29) had ever passed on their used injecting equipment for others to use, and 35% (n = 24) had done so in the previous six months.

Finally, of 379 respondents who had not injected drugs in the previous six months and who answered questions about being offered drugs to inject, 26 men (7%) said they had been offered drugs to inject in sexual situations, 11 men (3%) said they had been offered drugs to inject in social situations, and 12 men (3%) reported being offered drugs to inject in both sexual and social situations in the previous six months.

### Table 2: Respondents’ use of illicit drugs in the previous 6 months, and use of illicit drugs in sexual contexts in the previous 6 months (N = 474)

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Used (%)</th>
<th>Used in sexual context (%)</th>
<th>Used in sexual context as proportion of those who used that drug (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amyl nitrite</td>
<td>36.5</td>
<td>33.8</td>
<td>92.5</td>
</tr>
<tr>
<td>Cannabis</td>
<td>32.1</td>
<td>18.8</td>
<td>58.6</td>
</tr>
<tr>
<td>EDM (e.g. Viagra, Caverject)</td>
<td>23.6</td>
<td>22.2</td>
<td>93.8</td>
</tr>
<tr>
<td>Crystal</td>
<td>23.2</td>
<td>20.3</td>
<td>87.3</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>15.6</td>
<td>8.2</td>
<td>52.7</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>12.9</td>
<td>3.4</td>
<td>26.2</td>
</tr>
<tr>
<td>Speed</td>
<td>10.3</td>
<td>6.5</td>
<td>63.3</td>
</tr>
<tr>
<td>Cocaine</td>
<td>9.9</td>
<td>5.3</td>
<td>53.2</td>
</tr>
<tr>
<td>GHB</td>
<td>8.9</td>
<td>7.2</td>
<td>81.0</td>
</tr>
<tr>
<td>Prescription opioids</td>
<td>8.6</td>
<td>3.0</td>
<td>34.1</td>
</tr>
<tr>
<td>Ketamine</td>
<td>6.1</td>
<td>4.0</td>
<td>65.5</td>
</tr>
<tr>
<td>LSD</td>
<td>5.3</td>
<td>1.7</td>
<td>32.0</td>
</tr>
<tr>
<td>New synthetic drugs</td>
<td>4.0</td>
<td>1.9</td>
<td>47.4</td>
</tr>
<tr>
<td>Steroids</td>
<td>2.7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Heroin</td>
<td>1.7</td>
<td>0.6</td>
<td>37.5</td>
</tr>
</tbody>
</table>

EDM, erectile dysfunction medications; GHB, gamma-hydroxybutyrate
Summary

These findings show that a majority of respondents either did not use alcohol or they used alcohol infrequently. The other drugs in this study which were most commonly used (i.e., amyl nitrite, cannabis, EDMs and crystal) were also among the most commonly used drugs reported in the recent Sydney, Melbourne and Queensland Gay Community Periodic Surveys. On the other hand, the rates of injecting among HIV-positive men in these periodic surveys were generally half the rate reported in this study. Crystal was the drug most commonly injected by gay and bisexual men in this study, and was usually injected before or during sex. A high proportion of men reported reusing and passing on injecting equipment in the six months prior to the study. Some of the sharing practices may be occurring among men in regular relationships who have the same HIV and/or hepatitis C status. However, further research is needed to better understand equipment sharing. The sharing of any injecting equipment remains a primary risk factor for hepatitis C transmission.

Conclusion

The sample characteristics, the rates of HIV testing and the proportion of men on HIV antiretroviral treatment in this online study were very similar to those reported in the Sydney, Melbourne and Queensland Gay Community Periodic Surveys over recent years. This suggests that online recruitment of Australian gay and bisexual men can result in a sample which is comparable to stable, face-to-face samples recruited off-line. The results of this study indicate that gay and bisexual men throughout Australia are becoming aware of hepatitis C infection. The rate of testing for hepatitis C in this study was high, as was the proportion of men who have had hepatitis C treatment. This study found a moderate level of knowledge about hepatitis C among gay and bisexual men. Gay and bisexual men need further information about the sexual transmission of hepatitis C, as well as information about hepatitis C treatments, their side effects, and the impact of hepatitis C treatment when also prescribed HIV antiretrovirals. Our results indicate that access to information about hepatitis C needs to be broad-based, with a variety of HIV, LGBTI and mainstream organisations involved in producing gay-specific hepatitis C-related information.

The men in this study were careful about disclosing hepatitis C infection. Some men had experienced bad reactions following disclosure, but in general partners, families and friends were reportedly supportive following disclosure of hepatitis C. The study found high rates of licit and illicit drug use among gay and bisexual men. Crystal was the drug most commonly used after alcohol, amyl nitrite, cannabis and erectile dysfunction medications, and crystal was most commonly injected, often in sexual contexts. Similar findings have been previously reported among gay and bisexual men in Sydney (Lea, Prestage et al., 2013). Finally, the results of this study suggest a need for continued dissemination of harm reduction information about the risk of acquiring hepatitis C (and HIV infections) from sharing and reusing any injecting equipment.