

◉ National Centre in HIV Social Research



HIV/AIDS, hepatitis and sexually transmissible infections in Australia
Annual report of trends in behaviour 2012

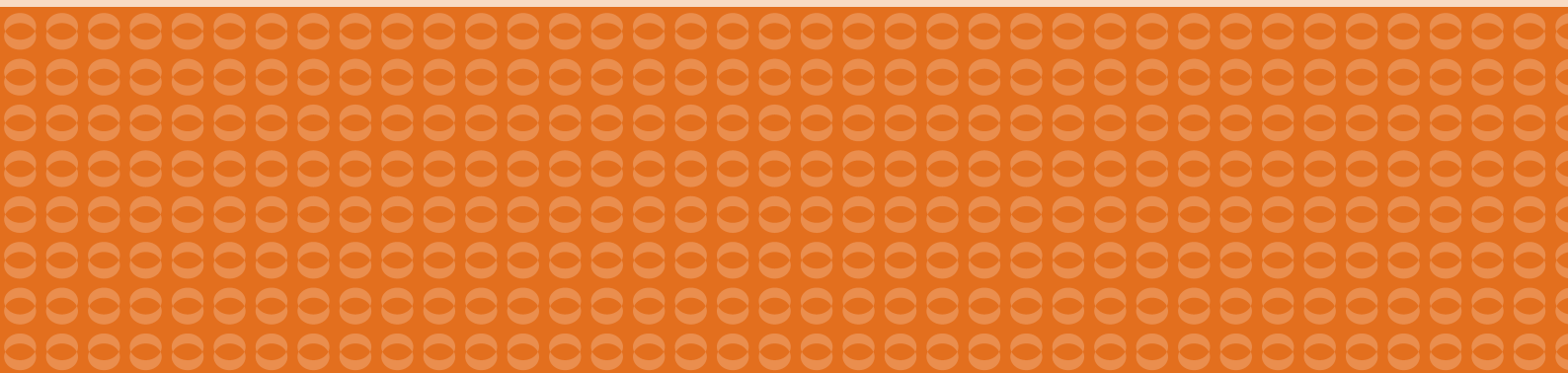
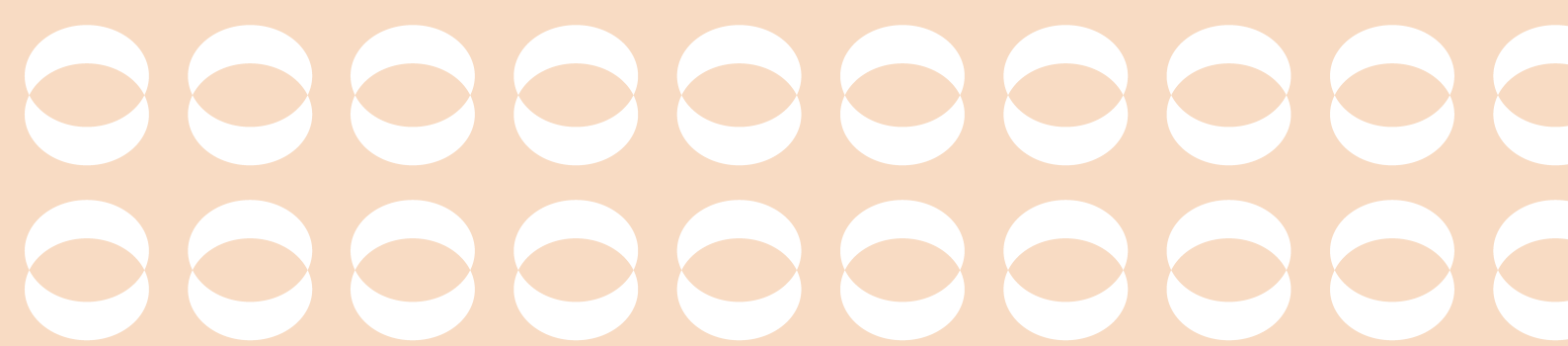
Never Stand Still

Faculty of Arts and Social Sciences

National Centre in HIV Social Research



Edited by
John de Wit
Martin Holt
Carla Treloar



HIV/AIDS, hepatitis and sexually transmissible infections in Australia
Annual report of trends in behaviour 2012

Edited by
John de Wit
Martin Holt
Carla Treloar

National Centre in HIV Social Research

Copies of the full report or any other publications from the Centre may be obtained from our website <http://nchsr.arts.unsw.edu.au/publications/>

National Centre in HIV Social Research

Level 3, John Goodsell Building
University of New South Wales
Sydney NSW 2052 Australia

t +61 2 9385 6776

t +61 2 9385 6455

e nchsr@unsw.edu.au

w <http://nchsr.arts.unsw.edu.au>

© National Centre in HIV Social Research 2012

ISSN 2201-1943

Monograph 6/2012

Cover photograph © iStockphoto.com/RTimages

Photograph on page 1 © iStockphoto.com/Bliznetsov++

Photograph on page 7 © iStockphoto.com/Jonathan Downey ++

Photograph on page 15 © iStockphoto.com/KLH49++

Photograph on page 21 © iStockphoto.com/heidijpax++

Photograph on page 24 © iStockphoto.com/RapidEye

Photograph on page 30 © iStockphoto.com/Jimmy Anderson

Photograph on page 35 © iStockphoto.com/Janulla++

Photograph on page 39 © IPSR/Philippe Adam

The National Centre in HIV Social Research (NCHSR) is located in the Faculty of Arts and Social Sciences, The University of New South Wales. NCHSR is funded by the Australian Government Department of Health and Ageing. The production of this report was also funded by the New South Wales Ministry of Health

Copyedited by Judi Rainbow

Layout by Judi Rainbow

Suggested citation:

de Wit, J., Holt, M., & Treloar, C. (Eds.) (2012). *HIV/AIDS, hepatitis and sexually transmissible infections in Australia: Annual report of trends in behaviour 2012* (Monograph 6/2012). Sydney: National Centre in HIV Social Research, The University of New South Wales.

Contents

Glossary	vi
Executive summary	ix
1 Introduction	1
1.1 About the report	1
1.2 Progress indicators	3
1.3 Gay Community Periodic Surveys	3
Approach to data analyses	3
Sample characteristics	4
2 Sexual practices and risk in gay men	7
2.1 Male partners and safe sex	7
Number of male partners	7
No unprotected anal intercourse with male partners	9
2.2 Risk and risk reduction with regular male partners	9
Unprotected anal intercourse with regular male partners	9
Unprotected anal intercourse with serodiscordant or serononconcordant regular male partners	10
Negotiated safety agreements with regular male partners	10
2.3 Risk and risk reduction with casual male partners	11
Unprotected anal intercourse with casual male partners	11
HIV status disclosure to casual male partners	12
2.4 Condom- and non-condom-based risk-reduction strategies among gay men in Australia	13
Spotlight Covariates of HCV testing among gay men	14
2.5 Future developments	14
Managing HIV, sex, and risk among serodiscordant couples in a changing epidemic	14
3 HIV and STI testing among gay men	15
3.1 Trends in testing for HIV in Gay Community Periodic Surveys	15
Spotlight Differences in expectations and practices regarding HIV-status disclosure between HIV-negative and HIV-positive gay men: the disclosure dilemma	17
3.2 Trends in testing for STIs in Gay Community Periodic Surveys	18
3.3 HIV and STI testing routines among gay men in New South Wales	18
3.4 Barriers to, and facilitators of, HIV and STI testing among gay men in New South Wales	19
3.5 Future developments	20
Delivering HIV testing and identifying undiagnosed HIV infection through Gay Community Periodic Surveys	20

4 Sexual health of young people	21
4.1 Understanding barriers to STI testing among young people in New South Wales	21
4.2 Sexual health needs of young gay men: increasing the coverage of sexual health programs	22
4.3 Future developments	23
Periodic surveys of levels of condom use among young people and hepatitis C prevention knowledge among young people exposed to injecting	23
Spotlight Researching young people, sex and risk in Australia	23
5 Living with HIV	24
5.1 Antiretroviral treatment and viral load among HIV-positive gay men in Gay Community Periodic Surveys	24
5.2 Prescribers' attitudes and practices regarding the initiation of antiretroviral treatment	26
5.3 HIV General Practice Workforce Project	27
5.4 Stigma, well-being and resilience among people living with HIV	28
5.5 Future developments	28
Uptake of antiretroviral treatment and treatment decision-making	28
Spotlight HIV-positive children transitioning to adolescence and adulthood	29
6 Drug use, risks, and harm reduction	30
6.1 Drug use and injection by participants in Gay Community Periodic Surveys	30
6.2 Drug use and treatment among same-sex-attracted young men and women	32
6.3 Exposure and transition to injecting drug use among young people	32
6.4 Future developments	33
Understanding and preventing hepatitis C in sexual partnerships	33
Spotlight Exploring the relationship between implicit self-representation, drug use and drug treatment outcomes	34
7 Prevention and treatment of viral hepatitis	35
7.1 Evaluating hepatitis C treatment in opiate pharmacotherapy settings	35
7.2 Evaluation of the pilot program of hepatitis C treatment initiation in general practice	36
7.3 Evaluation of needle and syringe program service delivery modes	37
7.4 Evaluation of the NUAA needle and syringe program	37
Spotlight Staying safe: How do people who inject drugs avoid hepatitis C infection?	38

7.5 Future developments	38
Self-reported health status among people living with hepatitis C	38
8 Current climate	39
What do Australian gay men think about HIV pre-exposure prophylaxis and treatment as prevention?	39
References	41

List of figures

Figure 1: Men who are extensively socially engaged with other gay men: GCPS, 2002–2011	5
Figure 2: Men who reported more than ten sex partners in the six months prior to the survey: GCPS, 2002–2011	8
Figure 3: Men who reported no UAI with sex partners in the six months prior to the survey: GCPS, 2002–2011	8
Figure 4: Men with regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011	9
Figure 5: Men with serononconcordant or serodiscordant regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011	10
Figure 6: Negotiated safety agreements among HIV-negative men with HIV-negative regular partners: GCPS, 2002–2011	11
Figure 7: Men with casual partners who reported any UAIC in the six months prior to the survey: GCPS, 2002–2011	12
Figure 8: Men with casual partners who reported disclosing their HIV status to all casual partners, by HIV status of participant: GCPS, 2002–2011	13
Figure 9: Men who have ever been tested for HIV: GCPS, 2002–2011	16
Figure 10: Non-HIV-positive men tested for HIV in the 12 months prior to the survey: GCPS, 2002–2011	16
Figure 11: Men who reported having at least four different STI tests in the 12 months prior to the survey: GCPS, 2003–2011	18
Figure 12: Men who are HIV-positive: GCPS, 2002–2011	25
Figure 13: HIV-positive men on antiretroviral treatment: GCPS, 2002–2011	25
Figure 14: HIV-positive men who reported an undetectable viral load: GCPS, 2003–2011	26
Figure 15: Men who reported any use of selected recreational drugs in the six months prior to the survey: GCPS, 2003–2011	31
Figure 16: Men who reported any injecting drug use in the six months prior to the survey: GCPS, 2002–2011	31

List of tables

Table 1: Recruitment summary by state or territory: GCPS, 2002–2011	4
Table 2: Recruitment summary by type of venue or event: GCPS, 2002–2011	4
Table 3: Characteristics of men recruited into the GCPS, 2002–2011	4
Table 4: Men who are extensively socially engaged with other gay men: GCPS, 2002–2011	5
Table 5: Men who reported more than ten sex partners in the six months prior to the survey: GCPS, 2002–2011	7
Table 6: Men who reported no UAI with sex partners in the six months prior to the survey: GCPS, 2002–2011	8
Table 7: Men with regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011	9
Table 8: Men with serononconcordant or serodiscordant regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011	10
Table 9: Negotiated safety agreements among HIV-negative men with HIV-negative regular partners: GCPS, 2002–2011	11
Table 10: Men with casual partners who reported any UAIC in the six months prior to the survey: GCPS, 2002–2011	12
Table 11: Men with casual partners who reported disclosing their HIV status to all casual partners, by HIV status of participant: GCPS, 2002–2011	12
Table 12: Men who have ever been tested for HIV: GCPS, 2002–2011	15
Table 13: Non-HIV-positive men tested for HIV in the 12 months prior to the survey: GCPS, 2002–2011	16
Table 14: Men who reported having at least four different STI tests in the 12 months prior to the survey: GCPS, 2003–2011	18
Table 15: Men who are HIV-positive: GCPS, 2002–2011	24
Table 16: HIV-positive men on antiretroviral treatment, GCPS 2002–2011	25
Table 17: HIV-positive men who reported an undetectable viral load: GCPS, 2003–2011	26
Table 18: Men who reported any use of selected recreational drugs in the six months prior to the survey: GCPS, 2002–2011	30
Table 19: Men who reported any injecting drug use in the six months prior to the survey: GCPS, 2002–2011	31

Glossary

HCV hepatitis C virus

HIV human immunodeficiency virus

HIV-seroconcordant relationship a relationship in which both partners are of the same HIV status, either HIV-positive or HIV-negative

HIV seroconversion the process of becoming HIV-positive (confirmed by antibody testing); the appearance of HIV antibodies in the blood serum

HIV seroconverter someone who is in the process of seroconverting to HIV (becoming antibody-positive to HIV)

HIV-serodiscordant relationship a relationship in which both partners are known (as a result of testing) to be of different HIV serostatus (e.g., HIV-positive and HIV-negative)

HIV-serononconcordant relationship a relationship in which the HIV status of at least one partner in the relationship is not known (e.g., HIV-positive and untested, HIV-negative and untested or both untested)

HIV (sero)status a person's antibody status established by HIV testing (e.g. HIV-negative, HIV-positive, or unknown [untested])

MSM men who have sex with men

n denotes the frequency of responses or classifications.

N denotes the denominator in each quantitative analysis of proportions.

ns non-significant

negotiated safety agreement an agreement between a **seroconcordant** couple to have unprotected sex with each other, but not to have sex (or unprotected sex) with other people

post-exposure prophylaxis a drug or procedure used to reduce the risk of infection after exposure has occurred (e.g., antiretroviral drugs administered to reduce the risk of HIV transmission after a condom has broken during sex)

serosorting there are multiple definitions of serosorting; for the purposes of this report we define it as selecting sexual partners on the basis of a common or shared HIV **serostatus** confirmed by HIV testing.

SD standard deviation

STI sexually transmissible infection

UAI unprotected anal intercourse

UAIC unprotected anal intercourse with casual partners

UAIR unprotected anal intercourse with regular partners

ACT Australian Capital Territory

NSW New South Wales

SA South Australia

WA Western Australia

Acknowledgments

We thank our funders, the participants in our studies and the many collaborating organisations and their staff for their invaluable contributions to and support of the surveillance and research presented in this report.

Aboriginal Health and Medical Research Council of NSW
ACON
ACT Health
Aftercare
AIDS Action Council of the ACT
AIDS Council of South Australia
Alfred Hospital, Melbourne
Australasian Society for HIV Medicine (ASHM)
Australian Federation of AIDS Organisations (AFAO)
Australian Government Department of Health and Ageing
Australian Injecting and Illicit Drug Users League (AIVL)
Australian Research Centre in Sex, Health and Society (ARCSHS), La Trobe University
beyondblue: the national depression initiative
Centre for Population Health, Burnet Institute
Centre for Research on Drugs and Health Research, London School of Hygiene and Tropical Medicine, University of London
Centre for Women's Studies and Gender Research, Monash University
Department of Modern History, Politics and International Relations, Macquarie University
Department of Sociology, Goldsmiths, University of London
Don Bosco House, Youth Off the Streets
Dunlea Adolescent Alcohol and Other Drug Program, Youth Off the Streets
East Sydney Doctors
Faculty of Health Sciences, Flinders University, Adelaide
FYRST Fairfield, The Salvation Army
FYRST Parramatta, The Salvation Army
Glebe Youth Service
Gender Centre
Hepatitis Australia
Hepatitis NSW
Heterosexual HIV/AIDS Service (Pozhet)
High Street Youth Health Service, NSW Association for Youth Health
HIV and Related Programs Unit, South Eastern Sydney Local Health District
Holdsworth House General Practice
Hunter New England Local Health District
Key College, Youth Off the Streets
The Kirby Institute for infection and immunity in society, The University of New South Wales

Kirketon Road Centre
Multicultural HIV and Hepatitis Service
National Aboriginal Community Controlled Health Organisation (NACCHO)
National Association of People Living with HIV/AIDS (NAPWA)
National Development and Research Institutes (NDRI)
National Drug and Alcohol Research Centre (NDARC), The University of New South Wales
National Health and Medical Research Council (NHMRC)
Nepean Blue Mountains Local Health District
New Zealand Needle Exchange Programme
NSW Health
NSW STI Programs Unit, NSW Health
NSW Users and AIDS Association (NUAA)
Oasis Youth Support Network, The Salvation Army
Open Family Australia
Paediatric HIV Service, Sydney Children's Hospital
PCYC Glebe Leichhardt
People Living with HIV/AIDS (PLWHA) Victoria
Positive Life NSW
Positive Life SA
Prince of Wales Clinical School, The University of New South Wales
Queensland Association for Healthy Communities (QAHC)
Queensland Health
Queensland Positive People
Royal Australian College of General Practitioners (RACGP)
SA Health
School of Psychology, University of Queensland
School of Social Sciences, The University of New South Wales
Social Policy Research Centre, The University of New South Wales
Street University, Ted Noffs Foundation
Taylor Square Private Clinic
Victorian AIDS Council/Gay Men's Health Centre
Victorian Department of Health
WA Health
Western Australian AIDS Council
Western Australian Centre for Health Promotion Research (WACHPR), Curtin University
Western Sydney Local Health District
YEAH (Youth Empowerment Against HIV), Melbourne
YFoundations

Executive summary

This 2012 Annual Report of Trends in Behaviour presents data from a selection of the behavioural and social research conducted by NCHSR. The report focuses in particular on studies providing assessments of trends over time or addressing emerging issues. This executive summary highlights key findings that are discussed in more detail in the remainder of the report.

Sexual practices and risk among gay men

Many indicators of gay men's sexual practices and risk collected in the Gay Community Periodic Surveys (GCPS) have remained stable in the past ten years, confirming that most HIV prevention practices are well embedded. Over half of gay men avoid any unprotected anal intercourse with their male partners, indicating that safe sex remains the norm for the majority of gay men. Gay men have become less likely to report unprotected anal intercourse with regular partners whose HIV status is unknown or different to their own, reducing the chance of HIV transmission. They have also become less likely to report high numbers of male sex partners over time. Both HIV-negative and HIV-positive men have become more likely to disclose their HIV status to all their casual partners.

However, other trends may increase the risk of HIV transmission. In particular, the gradual increase in unprotected anal intercourse between casual male partners over time may facilitate HIV transmission, even in situations where partners believe they have the same HIV status. There has also been a decline in the proportion of HIV-negative men in relationships who have explicit negotiated safety agreements with their regular partner that allow unprotected sex within the relationship but excludes unprotected sex with other partners.

Male partners and safe sex

Over the past ten years, the proportion of men reporting more than ten male sex partners in the six months prior to survey has fallen across Australia, from 31.8% in 2002 to 26.1% in 2011.

The proportion of men who consistently avoid engaging in unprotected anal intercourse (UAI) with male partners has remained above 50% nationally in the past ten years, stabilising at around 55% in the past three years.

Risk and risk reduction with regular male partners

Unprotected anal intercourse with regular partners (UAIR) is more common than UAI with casual partners (UAIC). Just under half of all men with regular partners report any UAIR. This indicator has been stable over the past decade.

Among men with a serodiscordant or seroconcordant regular partner, the proportion reporting any UAIR has recently declined, from 42.0% in 2009 to 36.9% in 2011.

The proportion of HIV-negative men in seroconcordant relationships who have an explicit negotiated safety agreement has been falling over the past decade, from 37.7% in 2002 to 31.4% in 2011.

Risk and risk reduction with casual male partners

In the past ten years, the proportion of men with casual partners reporting UAIC has been slowly but steadily increasing, although it has been stable over the past three years. In 2011, 34.6% of men with casual partners reported any UAIC.

HIV-negative and HIV-positive gay men have become significantly more likely to disclose their HIV status to casual partners over the past ten years. Consistent disclosure of HIV status to all casual partners was reported by 14.3% of HIV-negative men with casual partners in 2002, increasing to 22.9% in 2011. Among HIV-positive men with casual partners, the proportion reporting consistent HIV disclosure to casual partners increased from 17.1% in 2002 to 31.2% in 2011.

Condom- and non-condom-based risk reduction strategies

A comparison of proportions of GCPS participants engaging in a range of anal intercourse practices shows that condom use remains the most used HIV risk reduction strategy, among HIV negative as well as HIV positive men.

HIV and STI testing among gay men

Regular HIV and STI testing are cornerstones of effective prevention. We are however observing some concerning trends related to HIV testing in the GCPS, as proportions of participants who have ever been tested for HIV and who have been recently tested (within the previous 12

months) decline. However, testing for a range of STIs other than HIV has become more common over time. Our other research shows that many gay men have not yet developed HIV/STI testing routines and experience critical psychosocial barriers to testing that require interventions other than improving access to testing services alone.

Trends in testing for HIV in the Gay Community Periodic Surveys

In the past ten years the proportion of gay men participating in GCPS across Australia who have ever been tested for HIV has declined slightly, from 92.2% in 2002 to 88.9% in 2011. Among those men who have been tested, the proportion who report recent (within the previous 12 months) testing has declined in the past three years, from 66.5% in 2009 to 60.6% in 2011.

Trends in testing for STIs in the Gay Community Periodic Surveys

The proportion of men in the GCPS who report having at least four different tests for STIs in the 12 months prior to survey has increased strongly over time, from 15.5% in 2003 to 38.4% in 2011.

HIV and STI testing routines among gay men

An online survey of gay men in New South Wales found that only 46.1% of participants had established a regular HIV/STI testing routine. While associated with higher numbers of partners, having regular testing was not associated with sexual risk behaviour, underscoring that more sexually active men are testing routinely, not only testing after potential risk.

Barriers to HIV and STI testing among gay men

To effectively address barriers to HIV/STI testing, it is critical to identify and understand these barriers. A comprehensive assessment of potential personal, social and structural barriers to HIV/STI testing was included in the online survey of gay men in New South Wales. Comparing gay men who 1) had never tested for HIV or STIs, 2) had no testing routine, 3) had a moderate testing routine, or 4) had a strong testing routine, this study identified a lack of knowledge, unfavourable beliefs, attitudes and norms, and perceived stigma as particularly important barriers to address in HIV prevention promoting (regular) HIV/STI testing in gay men.

Sexual health of young people

Young people, both heterosexual and same-sex attracted, bear most of the burden of STIs. Our recently initiated and planned research addresses the critical lack of knowledge regarding young people's sexual experiences and sexual health practices and identifies important unmet needs.

Understanding barriers to STI testing among young people in New South Wales

An online survey of 1,100 people aged 16–26 years in NSW found that almost half had ever tested for STIs, the majority of whom had tested in the past year. Testing was related to experiences of risk and symptoms, and young people's STI-related knowledge was limited.

Sexual health needs of young gay men: increasing the coverage of sexual health programs

In the online survey of gay men in New South Wales, younger men (16–26 years) were compared with older men (27 years and over). Findings show that rates of UAIC were similar in different age groups. However, younger gay men had less HIV/STI knowledge, were less likely to have tested and less likely to report exposure to HIV prevention.

Living with HIV

Nationally, the proportion of HIV-positive men recruited into the Gay Community Periodic Surveys has been stable at around 16% between 2002 and 2011. It is possible the GCPS under-recruit HIV-positive gay men (this is discussed in section 3.1 of the full report).

Antiretroviral treatment and viral load among HIV-positive men in the Gay Community Periodic Surveys

In 2011, 71.8% of HIV-positive gay men in the GCPS reported being on combination antiretroviral treatment. The proportion of HIV-positive men on treatment has increased over the past ten years (from 66.2% in 2002). In contrast to the gradual increase in treatment uptake, the proportion of HIV-positive men reporting an undetectable viral load has increased markedly, from 52.6% in 2003 to 72.2% in 2011, suggesting that treatment efficacy and/or appropriate use have increased.

Prescribers' attitudes and practices regarding the initiation of antiretroviral treatment

To gauge potential support for the earlier initiation of HIV treatment, we conducted a survey of the attitudes and practices of accredited cART prescribers across Australia. Currently only a third of prescribers recommend initiation at earlier points in the course of HIV than Australian guidelines.

HIV General Practice Workforce project

To support the continued availability of sufficient and expert HIV healthcare services in the community, this study examines, among others, the motivations to take up and maintain an interest in HIV medicine among GPs. Drawing on in-depth interviews with key informants and clinicians, as well as an analysis of policy, educational and narrative texts, a range of rewards and challenges are identified related to clinical, professional and political aspects of HIV medicine.

Stigma, well-being and resilience among people living with HIV

A number of recent studies conducted by NCHSR show that people living with HIV in Australia, as well as people living with hepatitis C, continue to experience substantial stigma and discrimination. A mixed-method study among people with HIV, conducted in partnership with NAPWA, shows how, among others, the experience of HIV stigma is shaped by sexuality, visible symptoms and psychological resilience.

Substance use, risk and harm reduction

The use of alcohol and/or other drugs is a common and pleasurable experience for many. However, substance use also poses risks for the health and well-being of consumers related to potential dependence and transmission of blood-borne viruses and STIs.

Drug use and injection by participants in Gay Community Periodic Surveys

The proportion of men reporting the use of amyl nitrite, the most commonly used drug by men in the GCPS, has remained stable (37.1% in 2011). The use of

other common drugs, including cannabis, ecstasy and amphetamines, has declined. In contrast, the use of cocaine and erectile dysfunction medication (like Viagra) has increased in the past 10 years. Erectile dysfunction medication was used by over a fifth of men in the six months prior to survey in 2011.

Injecting of any drug is more commonly reported by gay men than in the general population. However, the proportion of men reporting any injecting has gradually been declining over time. Nationally, the proportion of gay men reporting any injecting drug use in the six months prior to survey fell, from 7.5% in 2002 to 5.0% in 2011.

Drug use and treatment among same-sex-attracted young men and women

This study addresses the lack of evidence in Australia regarding differences in patterns of substance use, substance use problems and substance use treatment in same-sex-attracted young people by gender (male/female) and sexuality (gay/bisexuality). Findings show that levels of use of alcohol and illicit drugs are high, as are substance use problems, while treatment seeking is low. Bisexual people may be particularly vulnerable, perhaps reflecting their 'double marginalization'.

Exposure and transition to injecting drug use among young people

This mixed-method study documents substantial illicit drug use, injection and exposure to injection among socially disadvantaged young people, many of whom experience homelessness, mental illness, violence and contact with the police, the juvenile justice system or prison. Knowledge of hepatitis C transmission and prevention was particularly poor with respect to harm reduction services.

Prevention and treatment of viral hepatitis

Robust evaluation is a critical and integral part of quality assurance for health services. NCHSR is involved in a range of evaluations that provide important evidence and insights to ensure the continued appropriateness of services.

Evaluating hepatitis C treatment in opiate pharmacotherapy settings

To support Australian policy ambitions to double hepatitis C treatment uptake, a comprehensive study was initiated to examine the feasibility of hepatitis C treatment and care in opioid substitution treatment settings. A qualitative sub-study conducted by NCHSR examined the attitudes of service users and staff regarding the proposed integrated treatment model, and found positive responses and experiences.

Evaluation of the pilot program of hepatitis C treatment initiation in general practice

In-depth interviews were undertaken with GPs and clients who participated in a pilot project conducted by ASHM, to ascertain their experiences and views regarding hepatitis C treatment delivery through general practice. According to GPs and clients, this is a viable model, albeit that some teething problems were identified, as were recommendations to support implementation.

Evaluation of needle and syringe program delivery modes

This collaborative project critically examines how a range of needle and syringe program (NSP) service delivery modes achieve aims and contribute to broader health outcomes of people who inject drugs. To date, a costing study has been undertaken, showing that cost per needle and syringe distributed are similar for four common delivery modes.

Evaluation of the NUAA needle and syringe program

A consumer survey was conducted to evaluate some of the NSP services provided by NUAA, in particular the fixed-site NSP and the automatic dispensing machine (ADM). Users of the services expressed high levels of satisfaction. A key strength of the NUAA NSP service is its peer-based approach, which allows a unique relationship between consumers and workers.



1.1 About the report

John de Wit

This report is the 14th in our annual series reviewing behavioural and social research data that inform responses to human immunodeficiency virus (HIV), viral hepatitis and other sexually transmissible infections (STIs) in Australia. As before, the report aims to make critical contributions to the development and evaluation of policies, programs and services regarding prevention, treatment, care and support for affected individuals and communities.

This report draws on a selection of research conducted by the National Centre in HIV Social Research (NCHSR), and it concentrates in particular on research providing assessments of trends over time and addressing key emerging

issues. In addition, findings from studies that are of relevance to understanding behavioural trends and the evolving needs and responses of affected individuals and communities are included. The report also highlights new or planned research that will inform the Australian response to blood-borne viruses (BBVs) and STIs.

This Annual Report of Trends in Behaviour 2012 includes a new chapter that reports on our research regarding sexual practices, risk and prevention among young people. Young people continue to carry a substantial burden of disease in relation to STIs. To inform effective prevention and treatment responses, NCHSR is conducting a range of studies into the sexual practices, sexual health testing and sexual health service utilisation of young people. These include planned periodic surveys of, among others, condom use among young people.

National Surveillance and Monitoring Plan Indicators	Addressed in section
Sixth National HIV Strategy 2010–2013	
• Incidence of HIV infection	2.1 – 2.5, 3.1 – 3.5, 4.1
• Proportion of gay men who engaged in UAIC and in serononconcordant UAIC (previous six months)	2.1 – 2.4
• Proportion of people who inject drugs who reused another person's used needle and syringe (last month)	6.1, 6.3, 6.4, 7.3, 7.4, S7
• Proportion of people receiving antiretroviral treatment for HIV infection whose viral load is undetectable	5.1 – 5.5, S5
• Proportion of all PLHIV receiving antiretroviral treatment, including PLHIV with CD4 count less than 500 and less than 250 not receiving antiretroviral treatment	5.1 – 5.5
• Proportion of gay men at higher risk of HIV infection who have not been tested for HIV in the previous 12 months	3.1, 3.1 – 3.5, 4.2
• Proportion of new cases of newly diagnosed HIV infection that are a late diagnosis (CD4 cell count < 200)	3.5
• Proportion of people with HIV who report their general health status and well-being as excellent or good	5.1
Second National STI Strategy 2010–2013	
• Incidence of gonorrhoea, infectious syphilis and chlamydia	3.2 – 3.4, 4.1 – 4.3, S4
• Proportion of 16–25 year olds receiving chlamydia test (previous 12 months)	3.2 – 3.4, 4.1 – 4.3, S4
• Proportion of secondary school students giving correct answers to STI knowledge questions	4.1 – 4.3, S4
• Proportion of 16–25 year olds attending general practice who have a chlamydia test (previous 12 months)	4.1 – 4.3, S4
Third National Hepatitis C Strategy 2010–2013	
• Incidence of hepatitis C	S2, 6.1 – 6.4, S7
• Per capita rates of needles and syringes distributed in the public and pharmacy sector (previous 12 months)	S2, 6.1 – 6.4, 7.3, 7.4, S7
• Proportion of people who inject drugs and who report reusing another person's used needle and syringe (last month)	S2, 6.1 – 6.4, 7.3, 7.4, S7
• Estimated number of people with hepatitis C infection by stage of liver disease (F0/1, F2/3, cirrhosis)	
• Proportion of people with chronic hepatitis C dispensed drugs for their infection through the HSD program (previous 12 months)	7.1 – 7.4, S7
	7.1 – 7.4, S7
• Proportion of people with hepatitis C who report discrimination in healthcare settings	7.1 – 7.5
National Hepatitis B Strategy 2010–2013	
• Incidence of hepatitis B	3.3, 3.4, 4.1, 4.2
• Coverage of hepatitis B vaccination among children and adolescents	
• Estimated proportion of people with chronic hepatitis B who have not been diagnosed	3.3, 3.4, 4.1, 4.2
• Notifications of acute and unspecified hepatitis	
• Proportion of people with chronic hepatitis B who meet the criteria for hepatocellular carcinoma screening who are receiving annual screening	
• Incidence of hepatocellular carcinoma attributed to hepatitis B	
• Proportion of people with chronic hepatitis B dispensed drugs through for hepatitis b infection the HSD program	
Third National ATSI BBV Strategy 2010–2013	
• Coverage of hepatitis B vaccination among ATSI children and adolescents	
• Incidence of infectious syphilis in Aboriginal and Torres Strait Islander people	
• Proportion of newly diagnosed HIV and newly diagnosed hepatitis C caused by injecting drug use in Aboriginal and Torres Strait Islander people	
• Proportion of young Aboriginal and Torres Strait Islander people who report having had an STI test (previous 12 months)	
• Proportion of young Aboriginal and Torres Strait Islander people receiving a chlamydia and gonorrhoea test (previous 12 months)	
• Proportion of Aboriginal and Torres Strait Islander people giving correct answers to knowledge questions on STIs and BBVs	
• Proportion of Aboriginal and Torres Strait Islander people with HIV receiving antiretroviral treatment	
• Proportion of ATSI people with chronic hepatitis C who are dispensed drugs for hepatitis C through the HSD program (previous 12 months)	
• Proportion of ATSI people with chronic hepatitis B who are dispensed drugs for hepatitis B through the HSD program (previous 12 months)	
• Number of ATSI people registered under the National Registration program	

Note: not all relevant research is included in this report.

S followed by a number refers to a Spotlight and the chapter in which it is located.

1.2 Progress indicators

John de Wit

The research presented in this report contributes evidence in relation to the indicators specified in the National Surveillance and Monitoring Plan to track progress in achieving the goals and objectives of the Australian National Strategies 2010–2013 regarding HIV, sexually transmissible infections, hepatitis C, hepatitis B and Aboriginal and Torres Strait Islander blood borne viruses and sexually transmissible infections. The overview opposite specifies where information regarding these indicators can be found in this report.

Importantly, the findings of the research conducted by NCHSR are not limited to reporting against numerical indicators. Our research also encompasses critical knowledge and evidence to aid interpretation of indicator data; provides early indications of emerging practices or factors shaping practices; strengthens understanding of differences and trends, particularly in relation to the individual and social factors that shape experiences, practices and policies; and speaks to the efficacy of novel and innovative interventions. These broader research findings are vital to inform effective services, programs and policies in relation to a range of priorities in the National Strategies that are based in sound social and behavioural theory and research evidence.

1.3 Gay Community Periodic Surveys

Martin Holt and Limin Mao

Many of the analyses contained in this report focus on trends in behaviour among gay and other homosexually active men based on data collected in the Gay Community Periodic Surveys (GCPS); the background to which is presented below.

Approach to data analyses

Initiated in 1996, the GCPS are conducted in the most densely populated metropolitan areas of Australia where gay men congregate: Adelaide, Canberra, Melbourne, Perth, Queensland (Brisbane, Cairns and the Gold Coast) and Sydney. In this year's report, wherever possible, we report data from a ten-year period (2002–2011). We have tested for linear trends over the full ten-year period and the most recent three-year period (2009–2011), where data are available. When there is a statistically significant change over time (at the $p < .05$ level of significance), the direction of the change is indicated by an up (↑) or down (↓) symbol. When there is no significant change over time, this is described as nonsignificant (ns). When statistical tests have not been performed this is indicated by a dash (–).

In the 2010 Annual Report of Trends in Behaviour, we introduced age standardisation with reference to population data published by the Australian Bureau of Statistics and weighting of the data by recruitment source to allow for variations in recruitment and sampling (Hopwood et al., 2010). These adjustments allow us to be more confident in analysing trends over time and in comparing trends between states and territories. In general, we have also calculated a national trend for the key indicators presented below, so each state and territory can be compared to the 'national average'. All further data presented from the GCPS have been adjusted for age and recruitment source, except when noted.

Readers should bear in mind that historically there has been some variation between states and territories in the phrasing of survey questions. While most key indicators have been assessed using the same questions for some time, for other indicators there may have been some variability in the data due to differences in measurement. Since 2010, the same questionnaires have been used in each participating state and territory, reducing the likelihood that any observed differences between states and territories are due to differences in measurement.

Sample characteristics

Table 1 shows the unadjusted total number of men who participated each year between 2002 and 2011, the proportion recruited from each state or territory by year and the total number of men recruited from each state or territory over the ten year period. The Sydney survey typically attracts the largest number of participants, and the Canberra survey the smallest.

The GCPS deliberately target men who participate in gay communities by recruiting participants at gay venues and events when large gay festivals are being held (such as Adelaide's Feast Festival, Melbourne's Midsumma Festival and Sydney's Gay and Lesbian Mardi Gras). Table 2 shows the unadjusted proportions of men recruited from different

venues and events during the 2002–2011 reporting period. The majority of men (over half) are recruited from gay community events and just over a quarter from social venues such as gay bars, clubs and gyms. Smaller proportions of men are recruited from sex-on-premises venues (gay saunas and sex clubs), sexual health clinics and general practices that have a substantial gay clientele.

In 2011, the majority of men recruited into the GCPS identified as gay (over 85%) and had an Anglo–Australian background (over 65%)(see Table 3). Over the past ten years, the proportion of gay-identified participants has declined somewhat. The age profile of the participants in the GCPS has also changed over the past decade, with a gradual increase in the proportion of men aged under 25 or

Table 1: Recruitment summary by state or territory: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Total n (%)
Adelaide		12.8		10.4		8.3		13.7	11.8	9.1	4 705 (6.8)
Canberra		3.9			4.0			4.4		3.5	1 117 (1.6)
Melbourne	28.9	31.7	30.0	29.8	28.1	32.3	32.6	30.2	27.8	24.8	20 280 (29.4)
Perth	12.2		15.5		13.1		12.0		10.5		4 398 (6.4)
Queensland ¹	27.5	23.2	25.5	22.9	18.1	22.4	19.9	18.5	18.9	21.5	14 918 (21.7)
Sydney ²	31.5	28.4	29.1	36.9	36.7	37.0	35.6	33.2	31.0	41.1	23 459 (34.1)
Total n	6504	6518	6551	6045	7067	6329	6251	7067	8771	7774	68 877 (100)

1 Includes men recruited from Brisbane, Cairns and the Gold Coast.

2 Only includes the February round of recruitment.

Table 2: Recruitment summary by type of venue or event: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Total n (%)
Gay community events/festivals	54.2	49.1	57.8	51.1	57.3	55.8	57.7	51.8	56.1	50.0	37 253 (54.1)
Gay social venues ¹	24.9	29.2	23.6	29.1	25.4	27.0	23.3	29.9	27.9	34.0	18 985 (27.6)
Sex-on-premises venues	15.6	16.2	13.2	14.7	12.4	10.6	13.0	12.5	11.2	10.3	8 851 (12.8)
Clinics and general practices	5.3	5.4	5.4	5.2	4.9	6.6	5.9	5.9	4.8	5.7	3 788 (5.5)
Total n	6504	6518	6551	6045	7067	6329	6251	7067	8771	7774	68 877 (100)

1 Includes bars, cafes, gyms and small events.

Table 3: Characteristics of men recruited into the GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Gay or homosexual	88.3	88.4	88.0	88.0	89.3	88.8	88.3	86.6	86.8	87.5	↓	ns
Anglo-Australian	68.2	68.1	66.4	65.9	65.4	68.2	67.5	66.6	69.4	67.7	ns	ns
< 25 years old	16.9	16.1	18.3	17.7	18.7	17.9	18.5	18.8	20.9	17.2	↑	↓
30–39 years old	39.0	40.6	37.5	36.6	34.3	32.1	31.4	32.1	26.7	28.2	↓	↓
> 50 years old	9.7	9.4	9.1	9.2	10.4	11.7	12.2	12.3	13.4	14.0	↑	↑
Mean age	34.9	35.0	34.7	34.8	35.0	35.6	35.8	35.5	35.5	36.2	–	–
(+ SD)	(10.4)	(10.2)	(10.5)	(10.4)	(10.9)	(11.2)	(11.4)	(11.5)	(12.0)	(11.9)	–	–

over 50 years and a decline in the proportion of men in their thirties. The mean age of men recruited into the surveys has, however, remained relatively steady at around 35 years.

Men recruited into the GCPS are often referred to as 'gay-community-attached'. We assess involvement with other gay men using a brief measure, asking participants to report the amount of time they spend with gay men and the proportion of their friends who are gay. This shorthand indicator more accurately refers to social engagement with gay men, rather than gay-community attachment (see Holt, 2011; Kippax, Connell, Dowsett, & Crawford, 1993; Rawstorne et al., 2009).

Table 4 and Figure 1 show trends in social engagement with gay men during the past ten years, focusing on men who are extensively engaged with gay men. Extensive social engagement is defined as reporting that most or all of one's friends are gay or spending a lot of free time with gay men. Men in Sydney are consistently more likely (while men in Adelaide and Perth are less likely) to be extensively socially engaged with gay men. This difference

in social engagement probably reflects the relative sizes of the gay populations in each state (Prestage et al., 2008). The proportion of men who would be regarded as extensively socially engaged with gay men has significantly declined in most states during the reporting period, although it appears to have stabilised in most states in the past three years. Gay social engagement appears to have increased in Adelaide and Canberra in the past three years. In 2011, just under half of all men in the GCPS would be regarded as highly socially engaged with gay men.

The idea that gay men are spending less time with each other and are less reliant on predominantly gay social networks has been observed and discussed elsewhere (e.g. Holt, 2011; Rawstorne et al., 2009; Reynolds, 2007; Rowe & Dowsett, 2008; Zablotska, Holt, & Prestage, 2012). The primary reasons for this change appear to be the greater social acceptance of homosexuality, particularly in metropolitan areas, and an increased likelihood that gay men will have social networks that are socially and sexually mixed.

Table 4: Men who are extensively socially engaged with other gay men: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		49.2		41.8		35.8		38.5	42.8	45.5	ns	↑
Canberra		53.4			50.4			42.2		53.6	ns	↑
Melbourne	52.9	59.7	58.2	53.8	53.9	44.3	48.5	48.7	49.4	51.2	↓	ns
Perth	51.0		43.9		44.1		45.2		40.6		↓	–
Queensland	51.1	55.5	58.8	52.7					42.8	42.8	↓	ns
Sydney	64.1	63.9	64.6	61.7	59.3	60.7	60.0	59.8	53.8	53.6	↓	↓
All six states/ territories	55.9	58.2	57.5	54.7	55.5	50.8	53.4	51.0	48.3	49.6	↓	ns

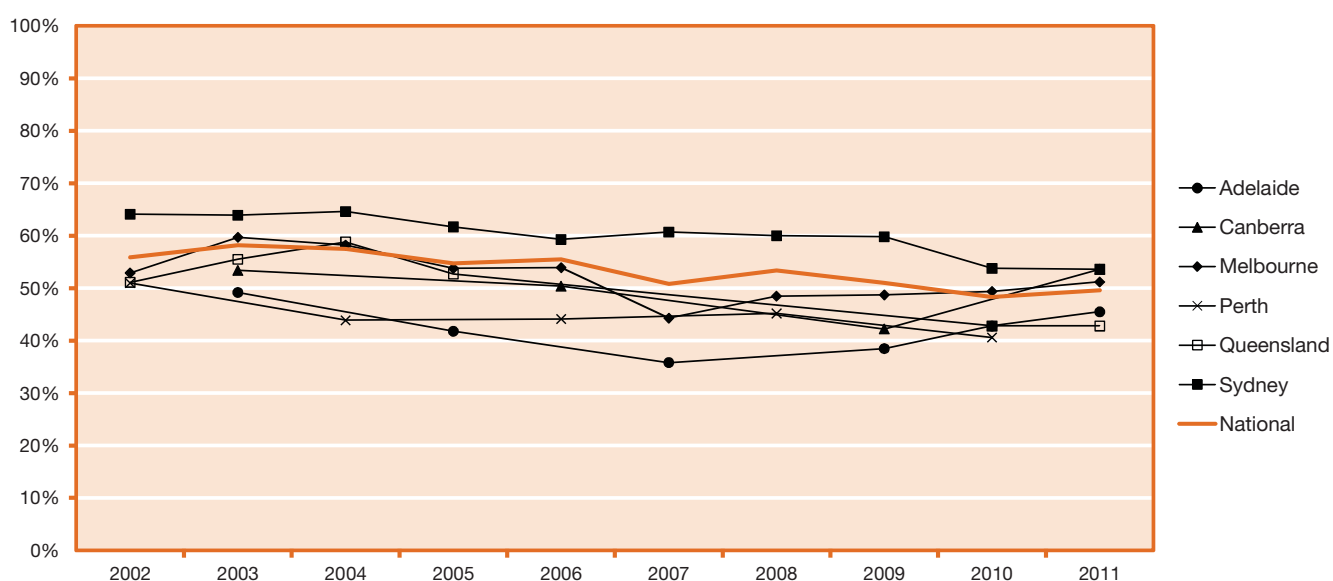


Figure 1: Men who are extensively socially engaged with other gay men: GCPS, 2002–2011

As gay men become less likely to socialise exclusively with each other, there is a perception that they are becoming a less cohesive group and more difficult to reach in education and health promotion activities. This is seen by some as a threat to HIV prevention (Coates, 2008; Rowe & Dowsett, 2008; Wohlfeiler, 2002). However, while participation at physical gay venues (such as bars and sex venues) has significantly declined over time, the use of alternative platforms for interaction, notably gay websites, has increased markedly in the past decade (Zablotska et al., 2012). In the past few years we have also observed

a rapid uptake of mobile phone applications by gay men to facilitate meeting each other (e.g. Lee et al., 2012). These 'apps', notable examples of which are Grindr and Scruff, make use of global positioning system (GPS) technology so that users can see their proximity from each other and initiate contact by instant messaging, if they so wish. These developments suggest that gay men remain accessible for education and health promotion activities, even if the means by which they seek sex partners and socialise with each other have changed (Holt, 2011).

Sexual practices and risk in gay men



2.1 Male partners and safe sex

Martin Holt and Limin Mao

Number of male partners

Over the past ten years, there has been a significant reduction across Australia in the proportion of men participating in the GCPS reporting more than ten male sex partners in the six months prior to the survey (see Table 5 and Figure 2). Nationally, this proportion has significantly declined from

31.8% in 2002 to 26.1% in 2011, but has been relatively stable in the past three years. There has been considerable variation in this indicator between states and territories. In the past three years, men in Canberra have become significantly less likely (while men in Adelaide and Melbourne significantly more likely) to report more than ten male sex partners. Men in Melbourne and Sydney have generally been the most likely to report more than ten male sex partners during the reporting period.

Table 5: Men who reported more than ten sex partners in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		24.4		25.4		18.8		18.8	15.0	24.7	↓	↑
Canberra		27.9				23.6		44.9		22.4	ns	↓
Melbourne	33.9	32.9	33.9	35.1	31.4	29.4	31.0	27.6	30.5	31.8	↓	↑
Perth	27.7		25.1		24.2		24.1		26.8		ns	–
Queensland	27.3	27.2	27.6	25.0	26.4	25.1	23.0	22.2	20.2	22.7	↓	ns
Sydney	34.6	31.9	37.7	34.9	28.9	27.6	28.6	31.9	32.0	24.7	↓	ns
All six states/ territories	31.8	29.5	31.5	31.8	28.3	26.8	27.6	27.1	26.3	26.1	↓	ns

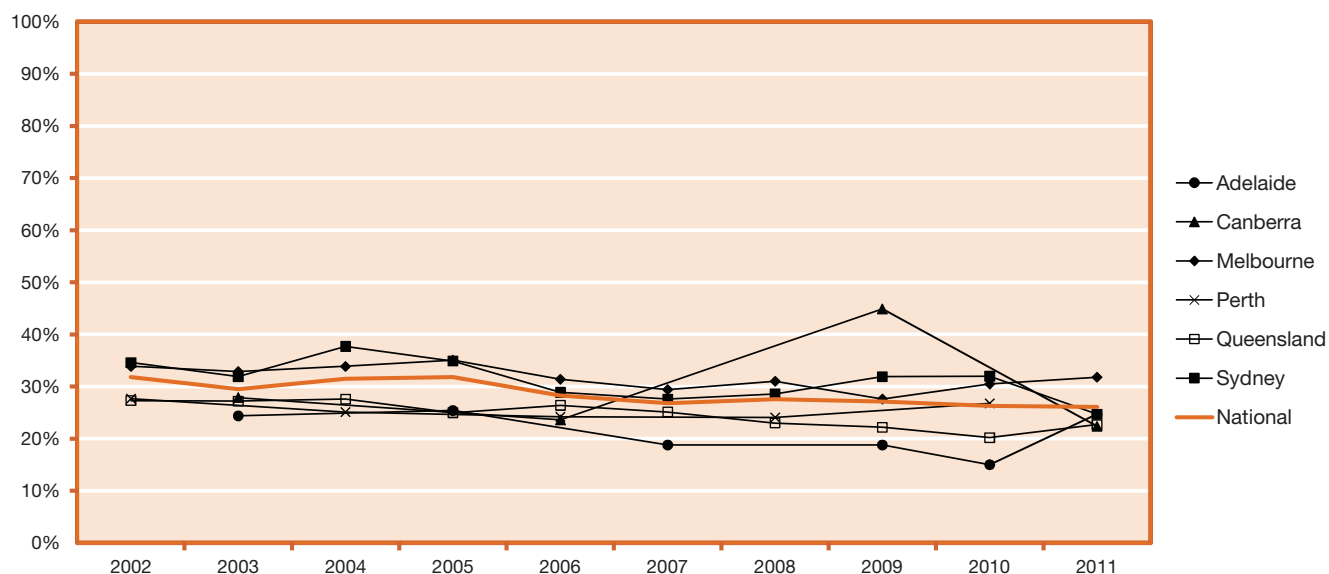


Figure 2: Men who reported more than ten sex partners in the six months prior to the survey: GCPS, 2002–2011

Table 6: Men who reported no UAI with sex partners in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		54.8		54.6		53.4		58.8	58.2	57.4	↑	ns
Canberra		57.6			53.0			50.1		44.3	↓	↓
Melbourne	50.7	56.4	58.3	59.7	53.1	62.7	53.4	55.3	52.1	52.5	ns	ns
Perth	56.6		59.2		52.8		52.9		47.7		↓	–
Queensland	55.5	55.2	56.8	47.3	57.3	52.7	54.0	55.3	58.7	59.9	↑	↑
Sydney	49.5	54.8	55.1	53.4	56.3	54.9	55.9	53.5	50.4	58.2	ns	↑
All six states/territories	52.4	55.7	56.9	54.4	55.1	56.5	54.3	54.9	53.5	56.4	ns	ns

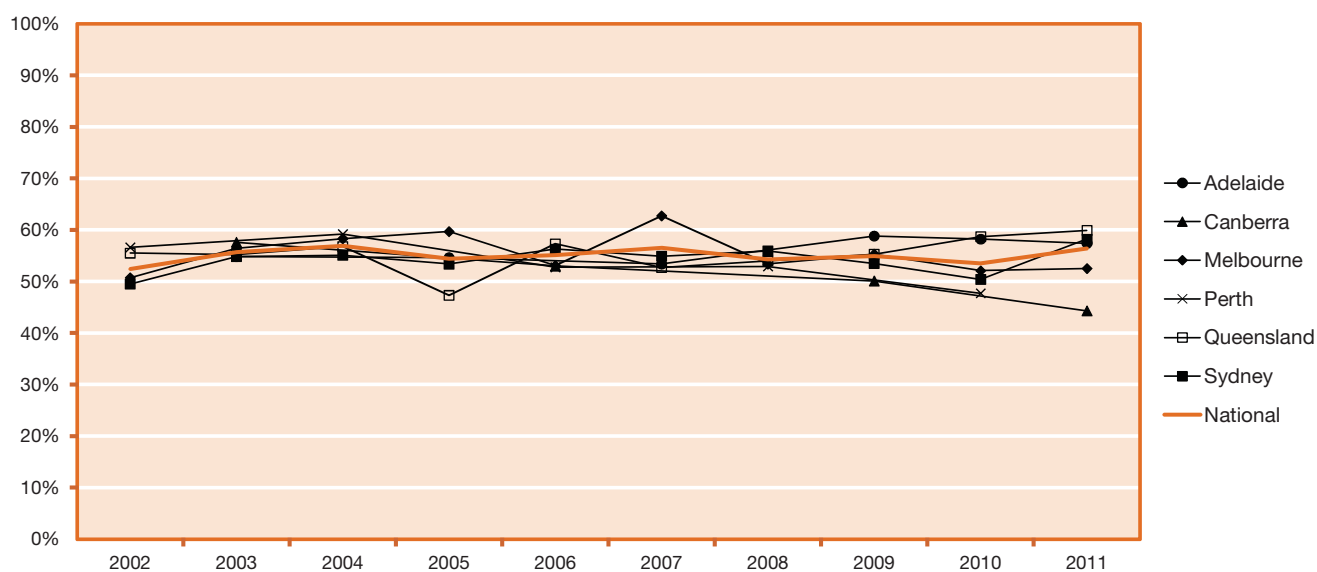


Figure 3: Men who reported no UAI with sex partners in the six months prior to the survey: GCPS, 2002–2011

No unprotected anal intercourse with male partners

Table 6 and Figure 3 show the proportions of men not reporting any unprotected anal intercourse (UAI) with a male sex partner in the six months prior to the survey. Men who do not engage in UAI are presumed to be at little or no risk for HIV infection from sex with men. Nationally, the proportion of men who did not report any UAI has been relatively stable during the past ten years at over half of all GCPS participants. The proportion of men not reporting any UAI has increased in Adelaide and Queensland over the past decade, but has declined in Canberra and Perth. In the past three years, the proportion of men not reporting any UAI has increased in Queensland and Sydney, and has declined in Canberra.

2.2 Risk and risk reduction with regular male partners

Martin Holt and Limin Mao

Unprotected anal intercourse with regular male partners

Unprotected anal intercourse is more likely to occur with regular partners (UAIR) than with casual partners (UAIC). Approximately 55–60% of gay men participating in the GCPS have a regular male partner. Looking at the national trend in Table 7 and Figure 4, we can see that the proportion of participants reporting any UAIR has been stable for the past ten years at around half of men with regular partners. Looking at the states and territories separately, we see some variability; over the past ten years the rate of UAIR has risen in Canberra, Melbourne and Perth, and has been stable in the other states. For the past three years, men in Canberra have been the most likely to report UAIR.

Table 7: Men with regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		47.3		47.9		47.0		47.3	48.8	47.8	ns	ns
Canberra		45.3			47.4			61.8		66.6	↑	↑
Melbourne	51.7	45.3	50.3	48.9	47.6	41.5	48.9	48.5	54.3	54.5	↑	↑
Perth	45.0		45.7		53.4		49.9		53.0		↑	–
Queensland	48.9	48.2	44.8	48.4	38.9	46.9	51.6	51.1	50.7	46.0	ns	↓
Sydney	51.5	45.2	51.5	48.0	46.4	47.7	48.0	50.5	55.8	45.1	ns	↓
All six states/ territories	50.0	45.9	48.3	48.1	45.6	46.1	49.3	50.0	53.4	48.8	ns	ns



Figure 4: Men with regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011

Unprotected anal intercourse with serodiscordant or seroconcordant regular male partners

UAIR presents a risk of HIV transmission to regular partners when the partners have different HIV status (serodiscordance) or when either or both partners have an unknown HIV status (seroconcordance). Around 25–30% of gay men in the GCPS who have a regular partner report that their partner is serodiscordant or seroconcordant; having a partner whose HIV status is unknown is much more common than having a known serodiscordant partner. Table 8 and Figure 5 show the rates of UAIR reported by men in serodiscordant or seroconcordant relationships during the reporting period. Please note that the surveys among smaller samples (i.e., in Adelaide, Canberra and Perth) have been omitted from analyses of trends in jurisdictions, as the relatively small numbers of men in serodiscordant or seroconcordant relationships in these jurisdictions may affect the robustness of analyses. Data from these jurisdictions are, however, included in the national data. The extent to which UAIR is reported by men in serodiscordant or seroconcordant relationships has remained relatively stable during the past ten years, at around 40% of men in such relationships. The rate of serodiscordant or seroconcordant UAIR has

declined in Queensland and Sydney in the past three years, but has remained stable in Melbourne.

Negotiated safety agreements with regular male partners

A negotiated safety agreement is defined as an explicit agreement between HIV-negative regular partners to allow UAIR within the relationship but to avoid UAIR with casual partners outside the relationship (Crawford, Rodden, Kippax, & Van de Ven, 2001). Negotiated safety agreements, if consistently enacted by men in seroconcordant HIV-negative relationships, have been found to be no more risky for HIV infection than not engaging in UAIR (Jin et al., 2009). For the analysis presented in Table 9 and Figure 6, participants were regarded as having a negotiated safety agreement if they met the following conditions: 1) they were HIV-negative, 2) they had a HIV-negative regular partner, 3) they reported an agreement with that partner to allow UAIR with each other and to have no UAIR with partners outside the relationship (this included men who had an agreement to have no sex outside their relationship or no anal intercourse outside their relationship).

Table 8: Men with seroconcordant or serodiscordant regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Melbourne	46.1	36.2	46.1	49.2	33.2	30.8	38.7	37.6	47.1	41.3	ns	ns
Queensland	38.4	40.4	34.1	41.6	35.1	41.0	40.9	45.8	37.3	36.4	ns	↓
Sydney	39.0	39.0	40.8	45.9	36.2	42.1	37.9	43.7	45.2	32.5	ns	↓
Six states/ territories	40.3	37.1	40.8	44.2	36.0	38.2	39.7	42.0	45.3	36.9	ns	↓

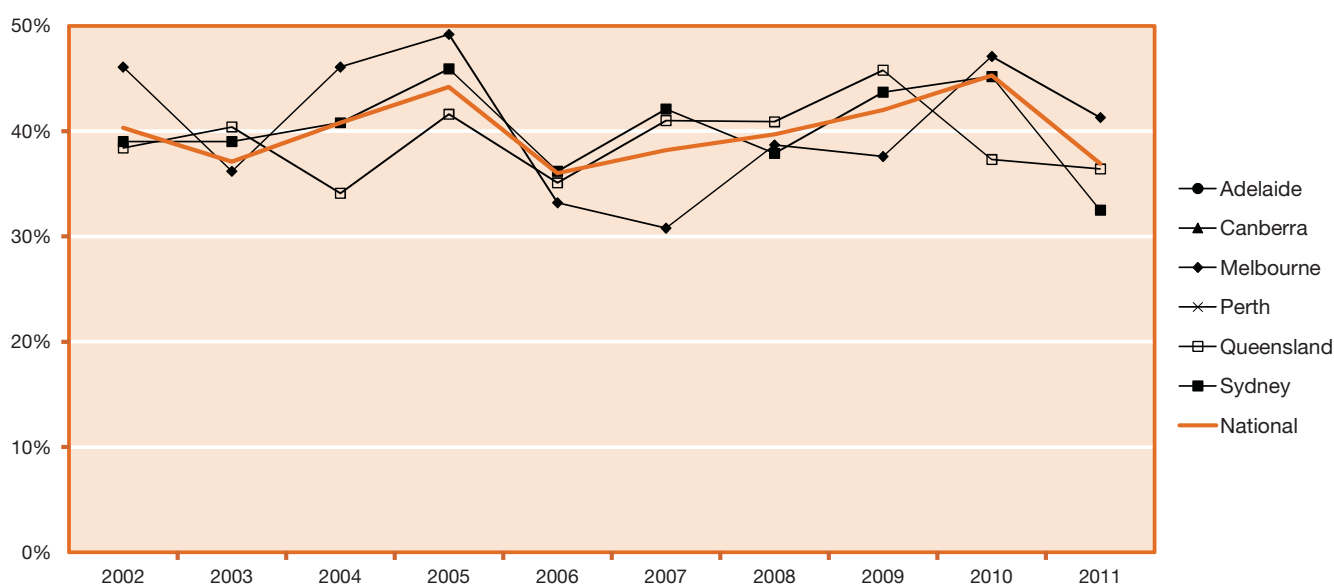
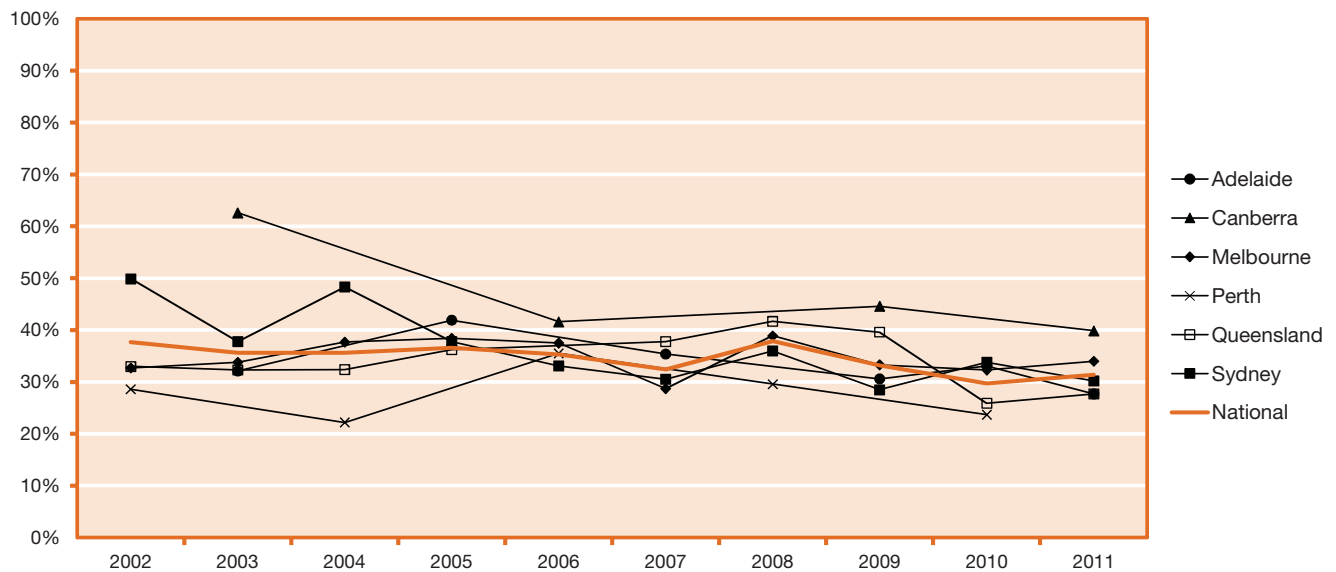


Figure 5: Men with seroconcordant or serodiscordant regular partners who reported any UAIR in the six months prior to the survey: GCPS, 2002–2011

Table 9: Negotiated safety agreements among HIV-negative men with HIV-negative regular partners: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		32.1		41.9		35.4		30.6	33.1	27.7	↓	ns
Canberra		62.6			41.6			44.6		38.7	↓	↓
Melbourne	32.7	33.8	37.7	38.4	37.5	28.7	38.9	33.3	32.3	34.0	ns	ns
Perth	28.6		22.2		35.5		29.6		23.7		ns	↓
Queensland	33.0	32.3	32.4	36.2		37.8	41.7	39.6	25.9	27.7	ns	↓
Sydney	49.9	37.8	48.3	31.8	33.1	30.5	36.0	28.5	33.8	30.2	↓	ns
All six states/ territories	37.7	35.6	35.6	36.6	35.3	32.4	37.9	33.2	29.7	31.4	↓	ns

**Figure 6: Negotiated safety agreements among HIV-negative men with HIV-negative regular partners: GCPS, 2002–2011**

Nationally, the proportion of HIV-negative men with a negotiated safety agreement has been declining over the past decade, and fell below 30% of HIV-negative men in seroconcordant relationships in 2010 (see Table 9 and Figure 6). The proportion with an agreement appears to have stabilised in the past three years. The decline in agreements is apparent in all states and territories except Melbourne. Men in Canberra and Melbourne appear to be more likely than those from other states to practise negotiated safety, with over one in three HIV-negative men in seroconcordant relationships in those locations reporting such an agreement. The proportion of HIV-negative men with a negotiated safety agreement has fallen to a particularly low level in Adelaide and Queensland in the past three years.

This decline in negotiated safety agreements among HIV-negative men suggests a need to support gay men in negotiating effective agreements with their regular partners, given that negotiated safety is one of the few non-condom-based risk-reduction strategies that appears to be relatively effective in preventing HIV transmission.

2.3 Risk and risk reduction with casual male partners

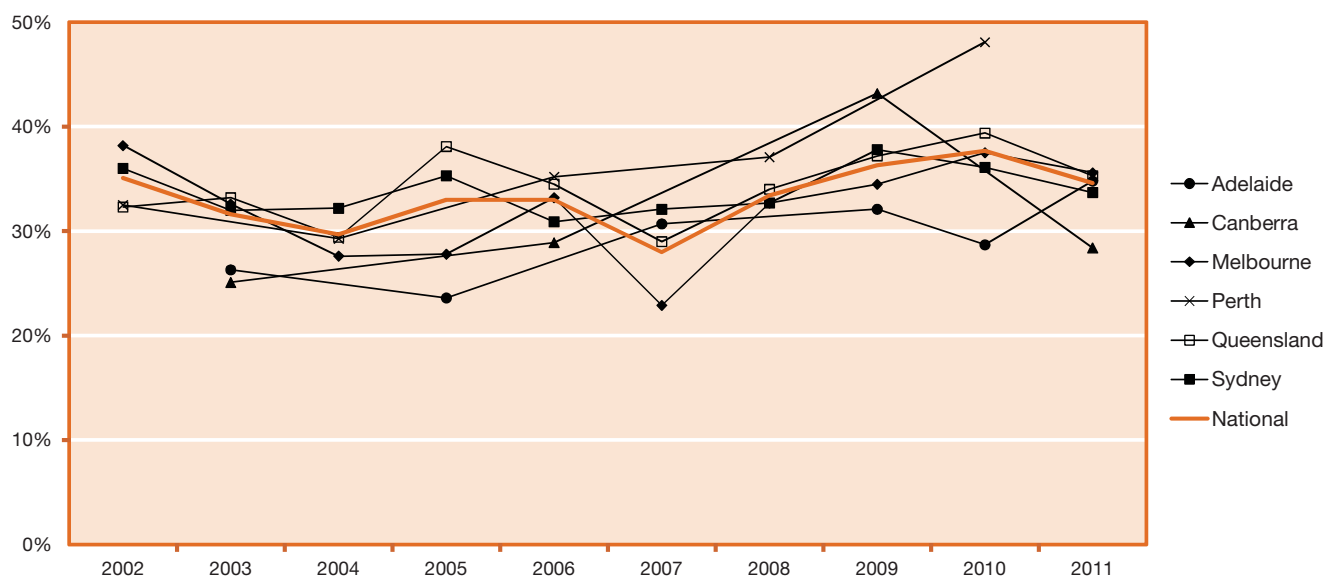
Martin Holt and Limin Mao

Unprotected anal intercourse with casual male partners

Unprotected anal intercourse with casual partners remains one of the key drivers of HIV transmission between gay men. Table 10 and Figure 7 show the rates of UAIC reported by men with casual partners in the GCPS. The national rate of UAIC has fluctuated but gradually increased over the past ten years, reaching 34.6% in 2011 among gay men with casual partners. It is worth noting that the national UAIC rate in 2002 (35.1%) was one of the highest figures we had seen for this indicator up until that time; the past ten years has therefore been a period in which we have observed higher proportions of men reporting UAIC across the country than before. The national rate of UAIC has been stable over the past three years, but has increased in most states and territories, except Melbourne and Sydney. The UAIC rate was particularly high in Perth in 2010.

Table 10: Men with casual partners who reported any UAIC in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		26.3		23.6		30.7		32.1	28.7	34.8	↑	ns
Canberra		25.1				28.9		43.2		28.4	↑	↓
Melbourne	38.2	32.6	27.6	27.8	33.2	22.9	32.7	34.5	37.5	35.6	ns	ns
Perth	32.5		29.3		35.2		37.1		48.1		↑	–
Queensland	32.3	33.2	29.4	38.1	34.5	29.0	34.0	37.2	39.4	35.3	↑	ns
Sydney	36.0	32.0	32.2	35.3	30.9	32.1	32.7	37.8	36.1	33.7	ns	ns
All six states/ territories	35.1	31.6	29.7	33.0	33.0	28.0	33.4	36.3	37.7	34.6	↑	ns

**Figure 7: Men with casual partners who reported any UAIC in the six months prior to the survey: GCPS, 2002–2011**

HIV status disclosure to casual male partners

The GCPS collect data on men's disclosure of their HIV status to their casual male partners. HIV-status disclosure is increasingly of interest because non-condom-based risk-reduction strategies, when practised, are reliant on accurate knowledge of HIV status (Jin et al., 2009; Mao et al., 2011).

Table 11 and Figure 8 show the proportions of HIV-negative and HIV-positive men who consistently disclosed their HIV status to all casual male partners. Some caution should be exercised in interpreting these data, as it is only since 2007 that all six states and territories have used the same questions to measure HIV-status disclosure to casual partners. For this reason, the trend analysis for the past three years is likely to be more robust than that for the

Table 11: Men with casual partners who reported disclosing their HIV status to all casual partners, by HIV status of participant: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
HIV-negative men												
Adelaide		17.2		16.6		10.7		17.6	27.5	27.7	↑	↑
Canberra		21.4				25.2		21.4		23.5	ns	ns
Melbourne	14.4	22.0	12.9	17.1	18.9	13.9	22.0	20.9	20.9	17.7	↑	ns
Perth	17.8		16.7		20.9		22.3		29.1		↑	–
Queensland	15.4	18.0	19.9	17.4	14.6	19.9	20.2	26.9	26.6	27.2	↑	ns
Sydney	12.0	16.8	16.8	21.1	19.4	20.6	19.2	20.4	21.0	22.3	↑	ns
All six states/ territories	14.3	18.3	16.9	18.0	18.4	17.5	20.5	21.8	23.9	22.9	↑	ns
HIV-positive men												
All six states/ territories	17.1	16.1	18.4	21.4	27.9	20.1	29.6	32.7	28.6	31.2	↑	ns

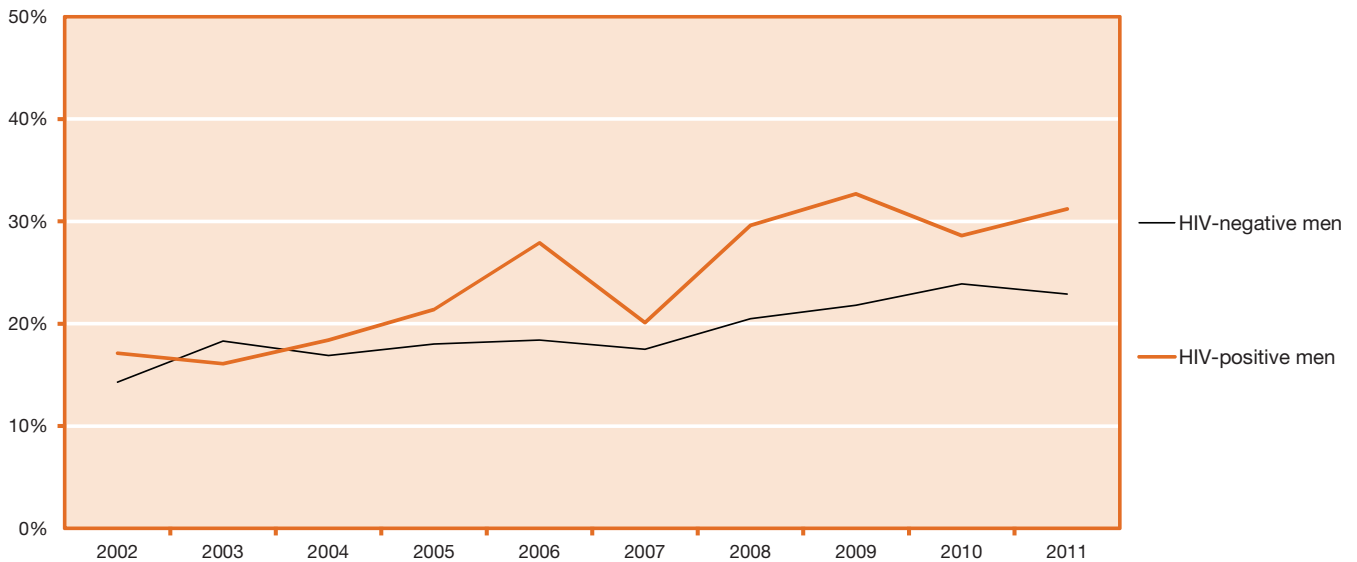


Figure 8: Men with casual partners who reported disclosing their HIV status to all casual partners, by HIV status of participant: GCPS, 2002–2011

ten-year period. In addition, we only present the national trend in disclosure of an HIV-positive status in Table 11, as the numbers of HIV-positive men reporting consistent HIV-status disclosure in each of the state and territory surveys are relatively small.

Looking at the national trends shown in Table 11 and Figure 8, it appears that the likelihood of consistent HIV-status disclosure to casual partners has increased significantly among HIV-negative and HIV-positive men over the past decade. In 2002, less than one in five HIV-negative and HIV-positive men disclosed their HIV status to all their casual partners. That proportion has increased to around one in four men, with HIV-positive men slightly more likely than HIV-negative men to consistently disclose their HIV status. Looking at the specific jurisdictions, it can be seen that consistent HIV-status disclosure by HIV-negative men has generally been less likely in Melbourne and Sydney than in the other jurisdictions. This probably reflects historical practices and norms of nondisclosure in larger gay cities, particularly those with a greater availability of places allowing men to meet for anonymous sex, such as sex-on-premises venues and beats (see Holt, Rawstorne, et al., 2011).

2.4 Condom- and non-condom-based risk-reduction strategies among gay men in Australia

Limin Mao, Susan Kippax, Martin Holt, Garrett Prestage, Iryna Zablotska, and John de Wit

Three decades into the HIV epidemic and with the advancement of HIV treatments, the use of condom- and non-condom-based anal intercourse among gay men in resource-rich countries needs to be re-assessed. This study focuses on the prevalence of a range of condom- and non-condom-based anal intercourse practices among

homosexually active men in Australia (for the full report, see Mao, Kippax, Holt, Prestage, Zablotska, & de Wit, 2011). Proportions of men engaging in a range of anal intercourse practices were estimated from the ongoing cross-sectional GCPS conducted in six jurisdictions in Australia from 2007 to 2009. Comparisons were made between HIV-negative men, HIV-positive men with an undetectable viral load and those with a detectable viral load.

Findings show that condoms continue to play a key role in gay men's anal intercourse practices with a third of HIV-negative men, a quarter of HIV-positive men with an undetectable viral load, and one-fifth of those with a detectable viral load, reporting consistent condom use with all male partners in the six months prior to survey. Among HIV-negative men, the second largest group consisted of men who had unprotected anal intercourse (UAI) only in the context of HIV-negative, seroconcordant regular relationships. Among HIV-positive men, the second largest group consisted of men who had UAI in casual encounters, preceded by HIV status disclosure to some, but not all, casual partners. This paper contributes to the ongoing debate whether some instances of UAI among gay men should be viewed as deliberate HIV risk-reduction strategies or as opportunistic acts (see also Snowden, Raymond, & McFarland, 2009, 2011). According to our study, a sizeable minority of gay men consistently engaged in a number of UAI practices in specific contexts, suggesting they have adopted deliberate HIV risk-reduction strategies.

Findings highlight that, while 100% condom use for anal intercourse remains the most common HIV prevention strategy for both HIV-negative and HIV-positive gay men, it is important that HIV behavioural prevention continues to reinforce condom use. HIV prevention also needs to address both the challenges and opportunities related to the uptake of non-condom-based risk-reduction strategies by substantial numbers of gay men.

Spotlight Covariates of HCV testing among gay men

Loren Brener, Jeanne Ellard, Dean Murphy and Denton Callander

Current research suggests that the incidence of hepatitis C (HCV) is increasing among HIV-positive men who have sex with men (MSM) (Van de Laar, Matthews, Prins, & Danta, 2010). While injecting drug use is the predominant mode of HCV transmission in the developed world (Aceijas & Rhodes, 2007), there is increasing evidence that the transmission of HCV among MSM is related to sexual practices. A number of studies from Europe, the United States and Australia have identified outbreaks of HCV among HIV-positive MSM who do not engage in injecting drug use (Danta et al., 2007; Gamage et al., 2011; Luetkemeyer et al., 2006; Matthews, Hellard, Kaldor, Lloyd, & Dore, 2007; Serpaggi et al., 2006; Van de Laar et al., 2007). HCV prevalence is relatively low among HIV-negative men and comparable to rates found among the general population (Myers et al., 2009; Jin et al., 2010). HCV transmission among HIV-positive MSM has been posited to result from sexual practices (Gamage et al., 2011; Urbanus et al., 2009), and the possibility of a new HCV epidemic among MSM already infected with HIV has been suggested by some researchers (van der Laar et al., 2010).

Factors other than behaviour may also play a role in increasing the risk of HCV transmission. HCV is highly stigmatised because of its association with injecting drug use (Day, Ross, & Dolan, 2003; Treloar & Hopwood, 2004), and the related view that drug users are criminal and morally reprehensible (Paterson, Backmund, Hirsch, & Yim, 2007; Fife & Wright, 2000). In a qualitative study conducted in the UK based on interviews with a small sample of men with HCV and HIV co-infection, Owen (2008) explored the stigma associated with HCV. His research suggested that HCV is experienced as more stigmatising than HIV among gay men and pointed to a culture of silence that exists around HCV status in the gay community (Owen, 2008). Stigma associated with HCV has been shown to negatively impact health seeking behaviours, treatment outcomes and HCV testing—all of which could contribute to an increased risk of HCV transmission or acquisition. There is currently little social research into attitudes to, and risk factors associated with, HCV among this population. To address this gap, the current study focused on HCV testing with the aim of assessing both behavioural and attitudinal factors associated with HCV testing among gay men. Six hundred and ninety participants responded to an online survey, which encompassed questions assessing HCV-related knowledge, attitudes, sexual practices and testing.

Findings illustrate that it is attitudinal factors related to HCV rather than behavioural factors or perceptions of HCV risk that are associated with HCV testing. More specifically, it is how gay men feel about people who inject drugs and people with HCV that is associated with whether they themselves have been tested for HCV. The more negative they feel towards people with HCV or people who inject drugs, the less likely they are to be tested for HCV. Aside from the association between HIV-positive status and HCV testing, the only behavioural variable related to HCV testing was whether respondents had ever injected drugs. This supports the notion that the participants in this sample are aware of the association between injecting drug use and HCV. Variables measuring sex-related risk practices and condom use with regular and casual partners were unrelated to HCV testing. Further, participants' perceptions of their own sexual behaviour did not appear to influence whether they had ever had an HCV test. There was also no association between participants' greater agreement that they do everything they can to prevent getting HCV and having had an HCV test. This suggests a disconnect between testing for and prevention of HCV infection.

Findings from this study indicate that gay community attitudes towards HCV and, more specifically, towards people who inject drugs, are negative, mirroring those of society more generally. This supports other research that has found similarly negative attitudes (Owen, 2008). The data also suggest that these negative attitudes, coupled with a lack of knowledge of the increased risk of sexual transmission of HCV among HIV-positive gay men, may prevent HCV testing. This research highlights the need for education and public health campaigns that are designed specifically for the target community. Based on the data from this study, future research should focus on how to best address the limited knowledge around the sexual transmission of HCV, as well as the negative attitudes in the gay community towards HCV, which could be a potent barrier to HCV testing and may also present a barrier to disclosure of diagnosis, help seeking and treatment for HCV.

2.5 Future developments

Managing HIV, sex, and risk among serodiscordant couples in a changing epidemic

Asha Persson and Jeanne Ellard

This study responds to the need to 'improve understanding of the experiences and HIV prevention needs of people in serodiscordant relationships', which is outlined as a social research priority in the 2006–2010 NSW HIV/AIDS Strategy. Past research has indicated that HIV-negative partners in couples with mixed HIV status are at greater risk of HIV infection and that one-third of new infections in Australia occurs within a regular relationship. This qualitative study will address a significant research gap by producing new knowledge of the management of HIV, sex, and risk among gay and heterosexual serodiscordant relationships in metropolitan and regional NSW. It

will investigate the needs and challenges presented by serodiscordance in a changing epidemic, with a specific focus on generating detailed empirical data on (1) how sociocultural contexts and relationship factors influence HIV transmission risk among couples, and (2) how couples understand and use medical technologies as risk-reduction strategies including condoms, viral load testing, HIV testing, treatment-as-prevention, and post- and pre-exposure prophylaxis (PEP and PrEP). The study has been developed in partnership with key community HIV organisations whose expertise and collaboration will remain central throughout the study to ensure that the research and its outcomes are informed and relevant for affected communities, have a direct impact on future health promotion programs and policy for serodiscordant couples, and promote and support the well-being of individuals infected and affected by HIV. The study will run for three years and is scheduled to commence in late 2012 or early 2013.

HIV and STI testing among gay men



3.1 Trends in testing for HIV in Gay Community Periodic Surveys

Martin Holt and Limin Mao

The proportion of men in the GCPS that have ever been tested for HIV is very high, with around nine out of ten men nationally reporting that they have had at least one HIV test (see Table 12 and Figure 9).

However, after a long period of stability (Holt & Mao, 2010), we now see a gradual

downward trend in the proportion of men in the GCPS who have ever been tested, although it remains at 89% nationally. The fall in the proportion of these men has been observed in the Adelaide, Melbourne, Queensland and Sydney surveys over the past ten years. Conversely, the proportions of men tested for HIV have traditionally been lower in Canberra and Perth, but appear to have increased during the reporting period.

Table 13 and Figure 10 show the proportions of non-HIV-positive men in

Table 12: Men who have ever been tested for HIV: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		92.7		89.4		91.2		85.2	83.9	86.8	↓	ns
Canberra		83.5			83.1			94.1		86.7	↑	↓
Melbourne	93.5	89.6	89.2	92.6	89.2	90.6	90.7	90.3	87.0	89.1	↓	ns
Perth	82.7		81.9		83.0		89.2		84.2		↑	–
Queensland	91.1	90.6	91.2	92.1	90.9	90.2	94.6	91.2	86.5	89.9	↓	ns
Sydney	95.6	92.7	93.6	93.5	94.8	92.6	93.3	92.3	92.6	88.6	↓	↓
All six states/ territories	92.2	90.8	89.9	92.4	90.6	91.2	92.3	90.4	87.3	88.9	↓	ns

the GCPS reporting HIV testing in the 12 months prior to the survey (testing in the past 12 months is often referred to as recent HIV testing). Up until 2009, there was a gradual increase nationally in the proportion of men reporting recent HIV testing, climbing to two-thirds of non-HIV-positive men in 2009. Gradual increases in recent HIV testing rates have also been observed in

Canberra, Melbourne and Perth over the past ten years. However, in the past three years, the proportion of non-HIV-positive men nationally reporting recent HIV testing has fallen to 61%, and declines in recent HIV testing have been observed in Adelaide, Melbourne and Sydney. Only Canberra and Perth appear to be maintaining increases in their recent HIV testing rates.

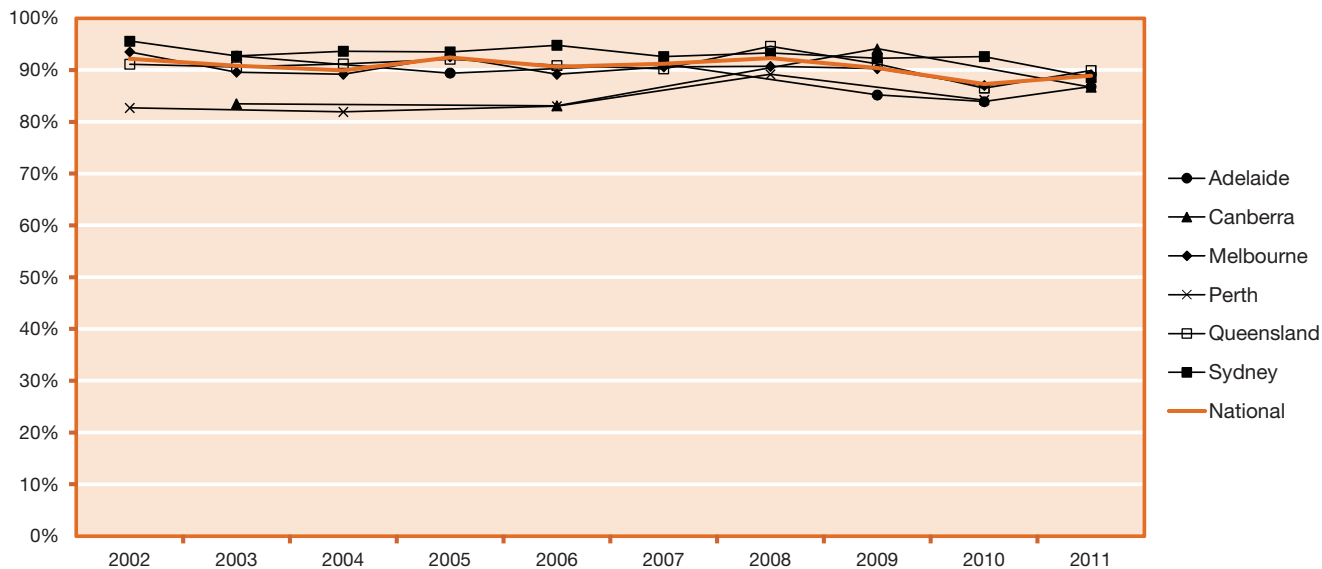


Figure 9: Men who have ever been tested for HIV: GCPS, 2002–2011

Table 13: Non-HIV-positive men tested for HIV in the 12 months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide		63.7		64.7		64.3		66.3	50.5	51.9	↓	↓
Canberra		50.1			56.1			67.1		67.3	↑	ns
Melbourne	56.6	59.4	59.8	64.9	62.0	62.4	63.9	67.8	62.4	61.5	↑	↓
Perth	54.4		49.8		52.8		57.3		62.9		↑	–
Queensland	61.7	57.5	65.4	60.1	59.9	62.1	65.8	59.9	58.0	58.5	ns	ns
Sydney	60.6	65.7	64.7	67.8	68.1	71.3	71.0	70.4	59.3	62.3	ns	↓
All six states/territories	59.5	60.5	61.4	65.5	62.5	65.6	66.0	66.5	58.9	60.6	ns	↓

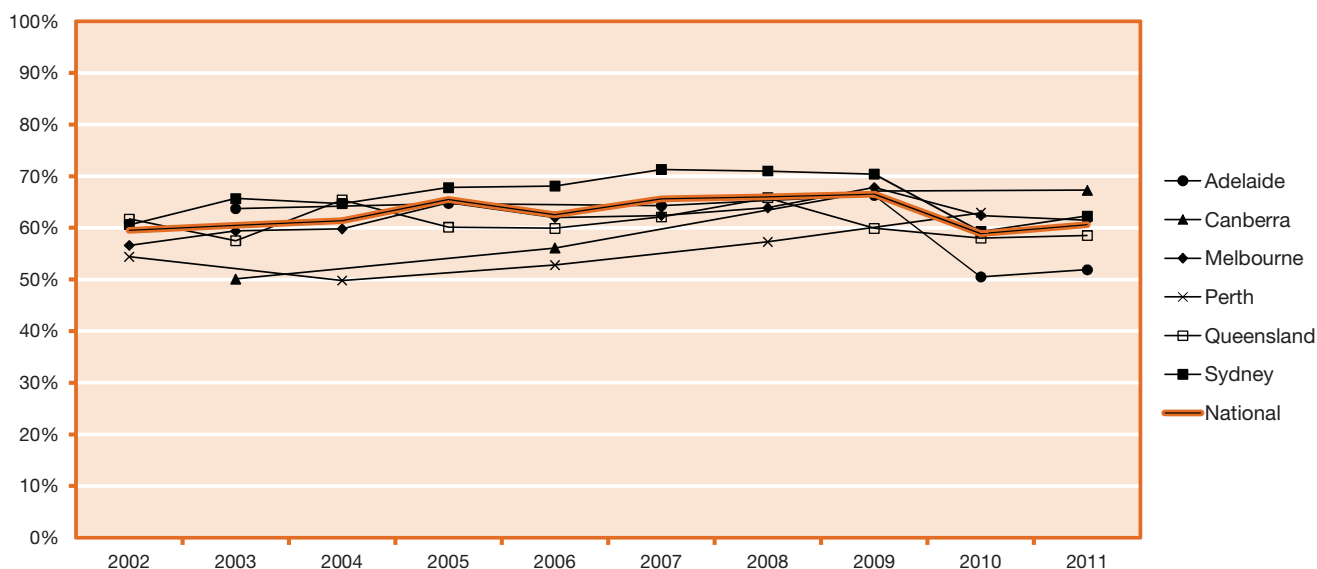


Figure 10: Non-HIV-positive men tested for HIV in the 12 months prior to the survey: GCPS, 2002–2011

Spotlight Differences in expectations and practices regarding HIV-status disclosure between HIV-negative and HIV-positive gay men: the disclosure dilemma

John de Wit and Dean Murphy

Previous research in Australia indicates that a majority of HIV-negative men who have sex with men (MSM) avoid sex with HIV-positive partners (Van de Ven, Rawstorne, Crawford, & Kippax, 2001). Similarly, approximately three-quarters of HIV-negative and untested German MSM reported that it was important for them that all sexual partners were HIV-negative (Drewes, Kraschl, Langer, & Kleiber, 2010). It has also been found that HIV-negative men hold high expectations of disclosure by HIV-positive men, with 79.3% reporting that they expected HIV-positive men to disclose prior to having sex (Van de Ven et al., 2001). In a more recent study, most participants were equivocal on this issue, but HIV-negative men were more likely than HIV-positive men to report that they expected HIV-positive men to disclose before sex (Holt, Rawstorne, et al., 2011).

In an analysis of data from a national online survey of 1,258 MSM in Australia we further explored the issue of disclosure. We focused on three aspects of disclosure assessed in the survey: disclosure expectations (three items), for example, 'I'd expect an HIV-positive man to tell me he was HIV-positive before we had sex'; disclosure practices (two items), for example, 'I always tell my sex partner what my HIV status is before we have sex'; and serostatus preferences (two items), for example, 'I only have sex with someone whose HIV status is similar to mine'. A reliability test determined that these seven items formed an internally consistent scale ($\alpha = .89$), which we refer to as the 'reliance on disclosure' scale.

Overall, participants scored moderately on the 'reliance on disclosure' scale (mean = 3.1; range 1–5), indicating that they were not overly reliant on serostatus disclosure in sexual settings. However, reliance on serostatus disclosure by HIV-negative men (mean = 3.1) was greater than among unknown status men (mean = 2.8) or HIV-positive men (mean = 2.4). Among HIV-negative men, higher mean scores on the 'reliance on disclosure' scale were associated with younger age, lower education and living outside the capital cities.

Expectations

The majority of men of unknown HIV status (83.9%) and HIV-negative men (75.2%) agreed with the statement 'I'd expect an HIV-positive man to tell me he was HIV-positive before we had sex.' Less than a third of HIV-positive men (30.8%) agreed with this statement. In contrast, 42.9% of HIV-negative men and 32.8% of men of unknown HIV status agreed with the statement 'I'd expect an HIV-negative man to tell me he was HIV-negative before we had sex.' Only a quarter of HIV-positive men (24.8%) agreed with this statement.

Practices

Of HIV-negative men, 42.1% agreed with the statement 'I always tell my sex partner what my HIV status is before we have sex.' Only 31.1% of HIV-positive men and 23.7% of men of unknown HIV status agreed with this statement. Almost a third (29.4%) of HIV-negative men agreed with the statement 'I always know my sex partners' HIV status before we have sex.' This compared to 19.2% of HIV-positive men and 14.5% of men of unknown HIV status; there was no significant difference between HIV-positive men and men of unknown HIV status.

Preferences

HIV-negative men (27.7%) were also more likely to agree with the statement 'I only have sex with someone whose HIV status I know,' than either HIV-positive men (16.8%) or men of unknown HIV status (12.2%). Only one-fifth of HIV-positive men (18.6%) agreed with the statement 'I only have sex with someone whose HIV status is similar to mine', compared to 37.9% of HIV-negative men and 32.0% of men of unknown HIV status; there was no significant difference between HIV-positive men and men of unknown HIV status.

Discussion

Overall these findings show that participants relied only moderately on serostatus disclosure, but expectations of disclosure by HIV-positive men were particularly high among HIV-negative and HIV-status-unknown men. This level of expectation of HIV-positive men to disclose is similar to that reported over a decade ago in Australia. Findings however suggest lower levels of sexual avoidance of PLHIV as sexual partners by non-HIV-positive men than this earlier national study of MSM (Van de Ven et al. 2001), in which between a half and two-thirds of non-HIV-positive men reported that they always avoided sex with people they think have HIV.

Among HIV-negative men there was a noticeable lack of correspondence between practices of disclosure of their own status and knowledge of their sexual partners' status. This was unexpected because we anticipated that disclosure of serostatus between sexual partners would in general be reciprocal. The fact that men were more likely to disclose their own serostatus to sexual partners than they were to know the serostatus of their partners could therefore suggest either social desirability responding or recall bias to these questions, or could suggest a lack of confidence in the accuracy of the disclosed serostatus by partners. An alternative explanation may be that disclosure is increasingly being conveyed implicitly through the textual and sorting practices of gay sexual media.

3.2 Trends in testing for STIs in Gay Community Periodic Surveys

Martin Holt and Limin Mao

Since 2003 the GCPS have asked participants to specify which tests for STIs they have had in the 12 months prior to the survey. Table 14 and Figure 11 show the proportions of men reporting at least four different tests for STIs in the previous 12 months, based on the type of sample that was taken (anal swab, blood test other than for HIV, throat swab and urine sample). We regard having at least four different tests/samples as an indicator of comprehensive STI testing (being tested for a range of STIs at different anatomical sites), as recommended in testing guidelines (Sexually Transmissible Infections in Gay Men Action Group [STIGMA], 2010). However, it should be noted that we cannot tell from GCPS survey data whether these tests were conducted at the same time or over multiple visits.

Nationally, since 2003 there has been a significant increase in the proportion of men in the GCPS reporting four or more STI tests in the previous year from 16% in 2003 to 38% in 2011. This increase has been observed in every

jurisdiction, although the proportion of men reporting four or more STI tests has stabilised in the past three years in all locations except Melbourne. Given that typically at least 80% of men in the GCPS are sexually active, and guidelines suggest that all sexually active gay men should have a sexual health check-up at least annually (STIGMA, 2010), there remains considerable room for improvement in comprehensive STI testing among gay men.

3.3 HIV and STI testing routines among gay men in New South Wales

Philippe Adam, John de Wit, Christopher Bourne, Douglas Knox, Yves Calmette and Julia Purchas

Timely diagnosis of HIV infection is critical to fully benefit from antiretroviral treatment for prevention. Sexual health guidelines for gay men therefore emphasise the importance of regular HIV testing, in particular for men at higher risk. This study assesses the extent to which HIV/STI testing is a sexual health routine for gay men and explores characteristics of regular and non-regular testers to guide the promotion of regular testing.

Table 14: Men who reported having at least four different STI tests in the 12 months prior to the survey: GCPS, 2003–2011

	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Adelaide	21.3		29.0		31.1		43.4	29.2	35.5	↑	ns
Canberra	11.6			25.4			47.3		48.0	↑	ns
Melbourne	17.5	21.1	30.8	28.8	34.4	34.0	32.4	38.5	44.4	↑	↑
Perth		13.3		16.8		27.5		41.6		↑	–
Queensland	10.2	13.3	17.8	22.7	26.8	25.7	29.9	30.3	31.7	↑	ns
Sydney	16.7	21.2	26.0	27.6	33.3	34.0	39.8	38.2	38.3	↑	ns
All six states/ territories	15.5	17.8	25.7	25.6	31.7	31.2	36.6	35.7	38.4	↑	ns

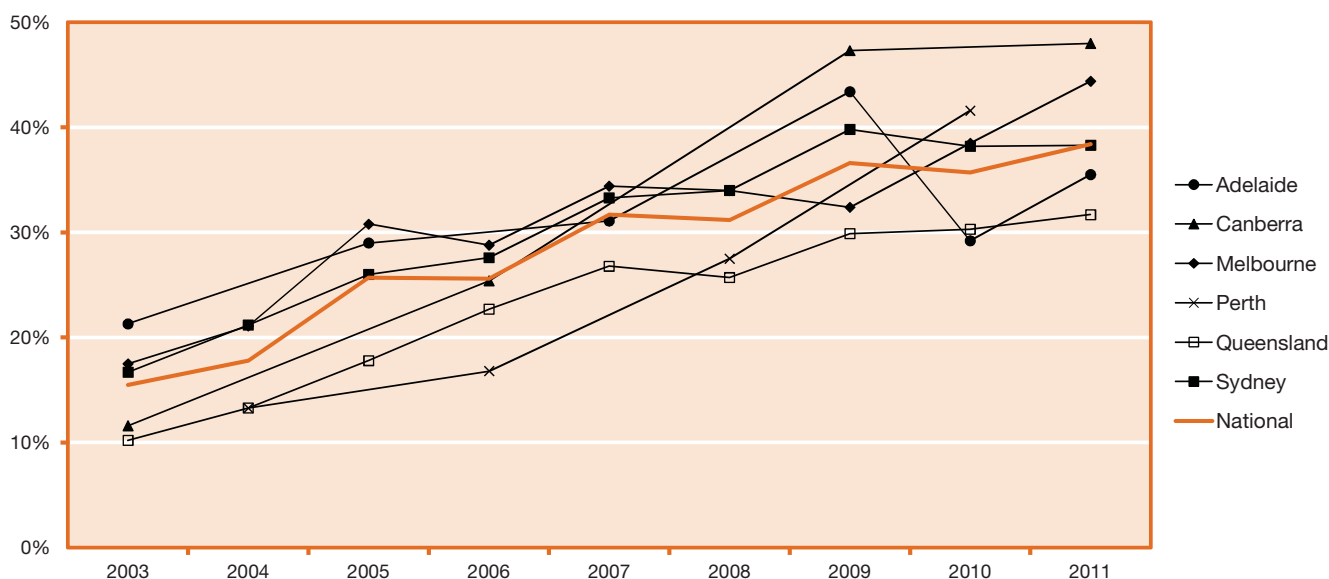


Figure 11: Men who reported having at least four different STI tests in the 12 months prior to the survey: GCPS, 2003–2011

Between April and October 2011, an online survey recruited 920 sexually active, HIV-negative or status-unknown gay men from New South Wales, Australia (64% lived in Sydney; mean age 27 years). The sample was divided into 'younger' men (459 participants aged 16–26 years) and 'older' men (461 participants aged 27 years and older). Three self-report questions assessed whether men regularly tested for HIV and STIs and whether they had established a routine of regular sexual health check-ups.

Almost half of the participants indicated that they tested for HIV and STIs on a regular basis and had routine sexual health check-ups. These regular testers were significantly more likely than non-regular testers to have been tested in the past six and 12 months and to have tested more frequently. In a multivariate logistic regression analysis, regular testing was significantly associated with older age, having a non-Anglo-Australian background, having regular or casual sexual partners, and having a higher number of partners. Regular testing was not associated with unprotected anal intercourse with regular or casual partners. It was also not associated with sexual identity, education or living inside or outside of capital cities.

Australian guidelines recommend testing for HIV/STI every 3–6 months for gay men with higher numbers of partners and for men who have unprotected anal sex. However, while more sexually active men were found more likely to report regular HIV/STI testing, no association was found between regular testing and sexual risk. Supportive programs are in particular required for the many gay men for whom regular testing is recommended but who have not established such a sexual health routine.

3.4 Barriers to, and facilitators of, HIV and STI testing among gay men in New South Wales

Philippe Adam, John de Wit, Christopher Bourne, Douglas Knox, Yves Calmette and Julia Purchas

Australian HIV and STI testing guidelines recommend that sexually active MSM test at least annually for HIV and STIs. MSM who have had episodes of unprotected sex or high numbers of partners should test 3–6 monthly. Available behavioural data however indicate that sexual health testing among MSM in Australia does not yet occur as frequently as recommended. Moreover, a minority of men have never tested and notable proportions have not tested recently. To inform sexual health promotion programs, we conducted a study to investigate individual and social barriers to regular testing for HIV and STIs in MSM who 1) have never been tested, 2) have no testing routine or 3) are tested with only moderate regularity.

An online survey was conducted among MSM in NSW. To reduce study burden, participants were randomised to answer questions on either barriers to testing for HIV or STIs. Multinomial logistic regression analyses were

conducted to assess associations between patterns of testing and key potential barriers or facilitators. Men who had never been tested, had no testing routine or had been tested with only moderate regularity, according to self-report, were compared to men reporting a very regular testing routine. These comparisons encompassed HIV/STI-related knowledge, perceived vulnerability/severity regarding HIV/STIs, attitudes and perceived pros and cons of HIV/STI testing, social norms regarding HIV/STI testing and perceived stigma related to HIV/STIs. Analyses were restricted to 580 non-HIV-positive men who completed all relevant questions; participants' mean age was 29 years.

In terms of patterns of HIV testing, one in five participants had never been tested, over a quarter had no testing routine, over one in five had been tested with moderate regularity and almost one in three had a very regular testing routine. A similar distribution across categories of testing routine was observed for patterns of STI testing. The most important barriers to (regular) HIV testing included less HIV-related knowledge, lower perception of the pros associated with HIV testing, less favourable attitudes towards HIV testing, and more perceived stigma related to HIV. The most important barriers to (regular) STI testing encompassed lower STI-related knowledge, less perceived pros of STI testing, more perceived cons of STI testing, less favourable attitudes towards STI testing, and less positive subjective norms regarding testing for STIs. While most barriers were similar for both HIV and STI testing, the association with stigma and perceived social norms was more specific to either HIV or STI testing. HIV stigma in particular appeared to be a barrier to more regular HIV testing among non-routine testers, while less supportive social norms were a barrier to more regular STI testing among non-routine testers, as well as a barrier to initiating STI testing among non-testers.

A current, critical challenge for sexual health promotion programs is to understand and effectively address the complex individual and social barriers that prevent MSM from testing with appropriate regularity. Based on knowledge of strategies that are effective in influencing the observed barriers to regular HIV/STI testing, some suggestions for interventions include: promoting relevant HIV and STI-related knowledge, addressing MSM's evaluation of the possible pros and cons associated with HIV and STI testing, promoting positive attitudes towards HIV and STI testing, reducing the (perceived) stigma attached to HIV and strengthening positive social norms regarding STI testing. Barriers that operate across subgroups of MSM can be addressed in campaigns for the MSM community as a whole. In addition to such general campaigns, complementary, tailored interventions would be required that address specific barriers (such as stigma and social norms) among men who have either never been tested or have no testing routine. Addressing barriers to testing using both general campaigns and tailored interventions could considerably increase the impact and efficiency of programs to promote (regular) sexual health testing among MSM.

3.5 Future developments

Delivering HIV testing and identifying undiagnosed HIV infection through Gay Community Periodic Surveys

Martin Holt

Gay men account for around 70% of new HIV diagnoses every year in Australia (The Kirby Institute, 2011), with undiagnosed HIV infections contributing disproportionately to HIV transmission in Australia. It is estimated that 31% of new HIV infections are transmitted by gay men who are unaware that they are infected (Wilson, Hoare, Regan, & Law, 2009). Anonymous prevalence studies of gay men in Brisbane and Melbourne suggest that 20–30% of HIV-infected gay men may be unaware of their infection (Birrell et al., 2010; Pedrana, Hellard, Wilson, Guy, & Stoové, 2012). Decreasing the time between infection and diagnosis, and reducing the impact of undiagnosed

infection have therefore been identified as priorities in Australia's Sixth National HIV Strategy (Commonwealth of Australia, 2010b).

A group of researchers, led by NCHSR, has proposed a study to tackle the issue of undiagnosed HIV infection among Australian gay men. We propose to offer HIV testing to all participants of the GGPS. These studies recruit around 7000–8000 men nationally each year from community events, gay venues and clinics. Men would be asked to provide an oral fluid sample which would be sent to a reference laboratory for testing. Most results would be delivered by phone; men with reactive results would be asked to attend a local clinic for confirmatory testing. The study, if funded, would provide good estimates of HIV prevalence and undiagnosed infection among gay men and identify the correlates of undiagnosed infection to guide prevention programs. It is estimated that the study would identify 150 cases of previously undiagnosed HIV infection, representing over 15% of the annual HIV diagnoses in Australia.

Sexual health of young people



4.1 Understanding barriers to STI testing among young people in New South Wales

Philippe Adam, John de Wit, Liz Story, Barry Edwards, Carolyn Murray and Christopher Bourne

Sexually active young people in Australia are at a relatively high risk of contracting STIs, but testing still remains low in this population group. An online study was conducted to strengthen a comprehensive understanding of the reasons why some young people do not test for STIs. Beyond the role of information and awareness, the study aimed to increase understanding of the complex psychological and social barriers to STI testing that operate at individual and group levels and that can be addressed by innovative interventions.

A cross-sectional, quantitative online study was conducted between May and October 2010 through the Internet-based research platform *www.gettingdowntoit.net*. A comprehensive questionnaire was developed to assess the sexual health needs of young people, STI testing practices and the prevalence and contribution of a wide range of sociodemographic, behavioural and psychosocial factors potentially influencing young people's STI testing. The survey recruited 1,658 eligible, sexually active young respondents living in NSW, of whom 1,100 provided complete data. Participants were on average 20.6 years old (range 16–26); 60% were female and 40% were male; 71% reported being heterosexual and 29% non-heterosexual.

Half of the 1,100 sexually active participants had ever tested for STIs and/

or HIV. Most of these participants (67%) had tested for both STIs and HIV and had tested in the past year (74%). Testing for STIs was more likely in older, female and non-heterosexual participants. STI testing was also related to having experienced STI-related symptoms and having had unprotected intercourse, reported by 42% and 66% of the participants, respectively. Participants' STI-related knowledge was moderate. Furthermore, while participants perceived STIs as severe, their perceived vulnerability to STIs was low. Participants perceived substantial positive aspects (pros) of STI testing. Beyond benefits of treatment, pros of STI testing that were important from the young people's perspective included taking responsibility for their health and starting a new relationship safely. Participants also ascribed a range of negative aspects (cons) to STI testing, in particular that STI testing costs money and that STI testing facilities are not easy to locate. Various fears and worries related to STI testing were found, including fear of medical procedures, fear of negative staff attitudes and fear of parents' reactions. Furthermore, while a substantial proportion of participants reported that they would feel ashamed if they had an STI, many thought that the important people in their lives would support their decision to test for STIs. Further analyses indicate that key psychosocial determinants of STI testing in young people include perceived cons of STI testing, fears and worries regarding testing for STIs and subjective norms relating to STI testing. Perceived vulnerability to STIs, attitudes to STI testing, perceived pros of STI testing, STI-related shame and STI-related knowledge were found to be less associated with the decision to seek STI testing.

The current challenge for sexual health promotion is to effectively address the complex individual and social barriers that limit the uptake of testing for STIs among young people. Suggestions for future interventions include using lay arguments to address young people's perceived pros and cons of STI testing, addressing fears and worries that prevent some young people testing for STIs and strengthening norms relating to STI testing. Building on empirical evidence and appropriate theories of behaviour, sexual health promotion programs are needed that use innovative social marketing campaigns and behavioural change interventions tailored at individual, social and structural levels.

4.2 Sexual health needs of young gay men: increasing the coverage of sexual health programs

Philippe Adam, John de Wit, Jorlijn Hermans, Christopher Bourne, Douglas Knox, Yves Calmette and Julia Purchas

Sexually active gay men aged 30–45 years have been the main target group of sexual health programs in Australia. However, current surveillance data raise concerns about a possible increase in HIV notifications among younger gay men. Gathering information on age-related differences in sexual health needs among gay men is pivotal to

understanding differences in risks and prevention, and informing sexual health programs. This study compares sexual risk-taking, testing for HIV/STIs, HIV/STI knowledge, and exposure to sexual health campaigns in younger and older gay men.

Between April and October 2011, an online survey recruited 920 sexually active HIV-negative men (95% gay identified; 95% originated from the state of New South Wales). The sample was divided into 'younger' men (459 participants aged 16–26 years) and 'older' men (461 participants aged 27 years and over). All participants answered questions on unprotected anal sex with regular (UAIR) and casual (UAIC) partners in the previous six months, testing for HIV/STIs, HIV/STI knowledge (40-item scale, score range 0–10), and exposure to sexual health campaigns.

Younger and older men did not significantly differ in UAIR (40.1% vs. 38.0%) or UAIC (22.7% vs. 25.4%), but younger men were less likely to be tested for HIV/STIs (71.7% vs. 95.0%, $p < .001$) and reported lower HIV/STI knowledge ($M = 5.00$ vs. 5.71 , $p < .001$). Men who were less knowledgeable were also less likely to have tested ($OR = .72$, $p < .001$). Knowledge was lower among men less exposed to campaigns promoting either HIV testing ($r = .24$, $p < .001$), STI testing ($r = .24$, $p < .001$) or condom use ($r = .16$, $p < .05$). Importantly, almost a quarter of younger men had not been exposed to campaigns promoting HIV (23.5%) or STI testing (20.5%) compared to lower proportions in older men (15.1% and 14.1% respectively).

Results show that, while younger gay men reported similar rates of unprotected anal intercourse as older gay men, their HIV/STI knowledge was lower and almost three out of ten had never been tested for HIV/STIs. Poor knowledge and low testing rates among younger gay men seem to be related to less exposure to HIV campaigns. These findings provide new insights into the sexual health needs of younger gay men and suggest that increasing the coverage of sexual health promotion among younger gay men is an urgent priority.

The findings also have implications for the development and diversity of sexual health programs in the future. Recent sexual health promotion campaigns have certainly not deliberately excluded young gay men, but often they have not directly targeted them either. This may explain why a significant number of young men in the survey reported no exposure to sexual health campaigns. Additionally, the style, iconography and topics in most recent campaigns were perhaps more in line with the sexual health needs of more mature, sexually active gay men who are often referred to as 'sexually adventurous gay men'. The survey results indicate that focussing sexual health promotion efforts on these men alone is not sufficient. Clearly a new generation of campaigns needs to be created to meet the sexual health needs of a new generation of younger gay men and to capture their attention in novel and imaginative ways. It is important that young gay men see themselves reflected in these campaigns if these campaigns are to have the desired impact.

4.3 Future developments

Periodic surveys of levels of condom use among young people and hepatitis C prevention knowledge among young people exposed to injecting

Carla Treloar, Joanne Bryant and Philippe Adam

The goals of this planned, initially one-year, project are to conduct a pilot study of an online survey of 1) young people exposed to injecting in order to examine their levels of knowledge regarding hepatitis C prevention/transmission and factors associated with high/low levels of knowledge, and 2) condom use among young people and their level of knowledge regarding STI transmission and prevention. This project will be developed as a precursor to a periodic survey that responds to NSW and national strategic priorities. Notably, young people are a priority group for the prevention of STIs and promoting general STI awareness is a priority issue, requiring evaluation of changes in knowledge over time.

The very brief window of opportunity for hepatitis C prevention means that innovative strategies are needed

to reach people before or around the time that they start injecting. The initiation of injecting typically occurs in a social context and is facilitated by an offer of drugs to inject provided by friends or acquaintances. Our previous research at the Big Day Out music festival developed and implemented the notion of having been 'exposed to injecting' i.e., whether young people had a boyfriend/girlfriend/friend who injected and/or whether they had been offered drugs to inject. Facilitating the acquisition of knowledge specific to hepatitis C prevention before or at the time of initiation is a key priority for hepatitis C prevention.

In this project we will recruit young people (age range 16–24 years) to an online survey to assess the level of condom use with regular and casual partners, examine the level of knowledge regarding STI prevention and transmission, and explore the factors associated with condom use and STI knowledge. In addition, we will include questions for a sub-sample of participants who have been exposed to injecting, to assess their level of knowledge of hepatitis C prevention and transmission and to explore factors associated with hepatitis C prevention and transmission knowledge.

Spotlight Researching young people, sex and risk in Australia

Elena Cama, John de Wit, Carla Treloar and Philippe Adam

Sexually transmissible infections are prevalent among young Australians, with 80% of annual STI notifications occurring in people aged 15–29 years (The Kirby Institute, 2011). The goals of the Second National Sexually Transmissible Infections Strategy 2010–2013 are to reduce the transmission of, and morbidity and mortality caused by, STIs and to minimise personal and social impact (Commonwealth of Australia, 2010^a). To monitor progress in achieving these goals, several objectives and indicators have been developed. The aim of this overview is to identify recent, current and ongoing research regarding the sexual health of young people in Australia to inform the assessment of progress against indicators.

Published research was identified using multiple databases and search engines, notably Pubmed, PsychInfo, and Social Science Citation Index. Search terms used included 'STI' or 'STD', 'Young' or 'Youth' and 'Australia', and variations thereof. To identify further research, in particular non-published studies, annual reports of the Australian Research Centre for Sex, Health and Society and The Kirby Institute were also searched. We also included eligible studies recently conducted by NCHSR (Adam et al., 2011), as well as studies identified through a previous literature review conducted by NCHSR (Adam, de Wit, Bourne, Story, & Edwards, 2009). Studies were eligible if they were conducted in Australia, specifically targeted young people, examined sexual behaviours, and reported data collected after 1996, the year in which cART became widely available in high-income countries, including Australia. In total, 46 eligible publications were identified and further examined for key information. Data extracted included bibliographic details, location where the study was conducted, type and number of participants, recruitment methods, sexual behaviours assessed and a summary of key findings.

In brief, this body of research finds that significant proportions of young people in Australia are sexually active, with increases found over time in the proportion of students reporting having had sexual intercourse (e.g., Smith, Agius, Mitchell, Barrett, & Pitts, 2009). Rates of experience with behaviours such as kissing and genital touching were higher than for oral, vaginal and anal intercourse (e.g., Hillier, Turner, & Mitchell, 2005). There was also a progression in the ages that participants engaged in these behaviours; year 12 students were more likely to have had sexual intercourse than year 10 participants (e.g., Smith, Agius, Dyson, Mitchell, & Pitts, 2003). Findings further indicate that a significant proportion of young people engage in potentially risky sexual behaviour, such as having multiple and new sexual partners in the past 12 months and inconsistently using contraception. For example, Lim, Hellard, Aitken, and Hocking (2007) reported that a substantial proportion of young people in their study had multiple and new partners in the previous 3 and 12 months.

While self-reported condom use was generally high across studies, a considerable number of young people reported inconsistently using condoms (e.g., Sturrock et al., 2007); condom use was generally lower for sex with a regular partner than with a casual partner. Lim et al. (2007) also found that a substantial proportion of young people who ever had sexual intercourse reported inconsistent condom use. However, only a few of these participants perceived themselves as at risk of contracting an STI. Young people typically reported using condoms for contraception rather than protection from infection (e.g., Khan, Hussain, & Schofield, 2005). Commonly reported barriers to condom use included trust in one's sexual partner, lack of a condom at the time and 'heat of the moment' (Fagan & McDonnell, 2010; Lim et al., 2007).

5

Living with HIV



5.1 Antiretroviral treatment and viral load among HIV-positive gay men in Gay Community Periodic Surveys

Martin Holt and Limin Mao

Nationally, the proportion of HIV-positive men recruited into the GCPS has been in the range of 14–18% between 2002 and 2011 (see Table 15 and Figure 12). The Sydney survey generally recruits the largest proportion of HIV-positive men, followed by Melbourne and Queensland. This appears to reflect the size of the gay male and HIV-positive populations in these jurisdictions (Prestage et al., 2008).

The surveys with smaller sample sizes (i.e., Adelaide, Canberra and Perth) have been omitted from this section, as the relatively small numbers of HIV-positive men recruited in these locations may make analyses unreliable.

The proportion of HIV-positive men recruited into the GCPS appears to be relatively stable over time. National estimates, on the other hand, suggest that the number of people living with HIV has increased substantially during the reporting period, with the majority of infections continuing to occur among gay and other homosexually active men (The Kirby Institute, 2011). We therefore would have expected the proportion of HIV-positive

Table 15: Men who are HIV-positive: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Melbourne	15.4	19.5	12.1	15.9	16.5	15.2	16.1	14.9	16.9	19.5	ns	↑
Queensland	14.2	14.2	14.2	24.8	13.6	10.2	11.0	11.6	14.6	14.2	↓	ns
Sydney	25.5	16.5	21.1	18.8	23.2	17.2	25.5	19.9	18.2	17.9	↓	ns
Six states/ territories	16.6	14.7	14.3	17.9	17.5	14.9	17.4	14.4	15.5	16.9	ns	ns

men in the GCPS to have gradually increased. However, because no such increase in prevalence has been observed, this suggests that the social and demographic profile of HIV-positive gay men may have changed over time, and that HIV-positive men are now less likely to be recruited into the GCPS. A recent retrospective analysis of HIV-positive men in the GCPS did indeed find that their social and behavioural profile had changed over time (Holt, Lee, et al., 2012). The analysis indicated in particular that HIV-positive gay men are an ageing cohort. This might explain why we

do not see an increasing proportion of HIV-positive men in the GCPS: as HIV-positive men become older, they may be less likely to participate in gay community events and make less use of the social and sexual venues targeted for GCPS recruitment.

Use of combination antiretroviral treatment (cART) by HIV-positive men participating in the GCPS is shown in Table 16 and Figure 13. The surveys with smaller sample sizes (i.e., Adelaide, Canberra and Perth) are reported separately,

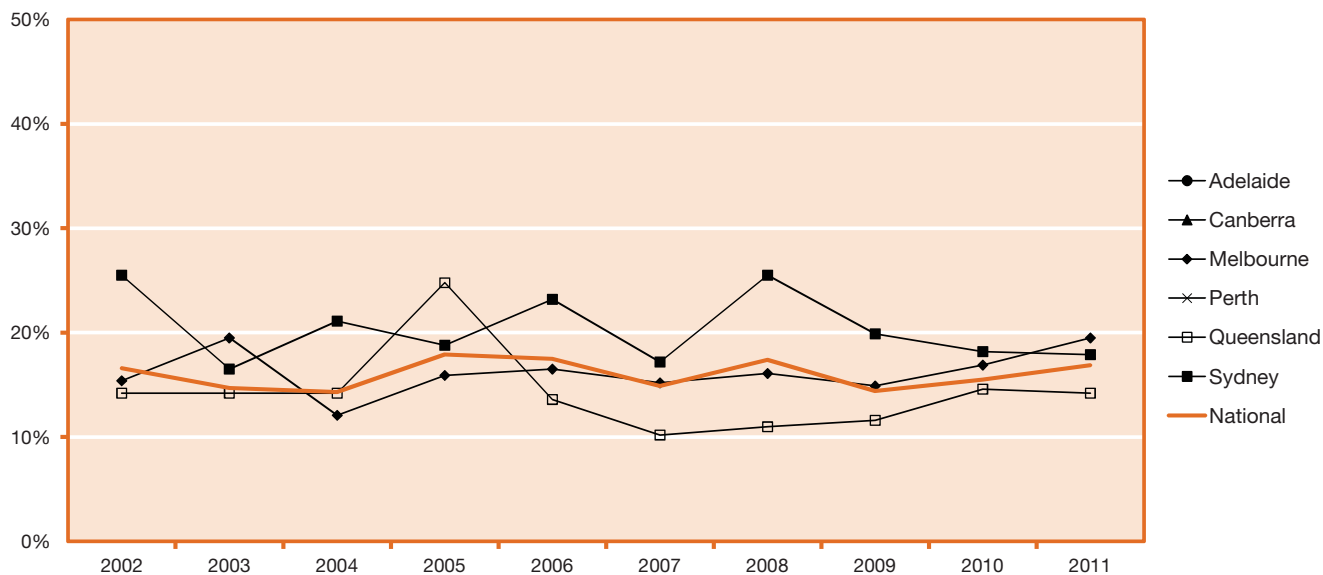


Figure 12: Men who are HIV-positive: GCPS, 2002–2011

Table 16: HIV-positive men on antiretroviral treatment, GCPS 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Melbourne	75.3	60.6	63.8	56.5	55.3	51.5	63.3	61.3	69.7	72.6	ns	↑
Queensland	53.3	54.6	63.5	55.3	71.9	64.4	66.1	61.5	68.5	69.7	↑	↑
Sydney	64.2	70.9	54.9	64.4	54.7	53.2	70.6	73.5	68.9	70.6	↑	ns
Six states/territories	66.2	63.5	61.9	60.3	60.1	57.2	68.0	67.4	69.5	71.8	↑	↑

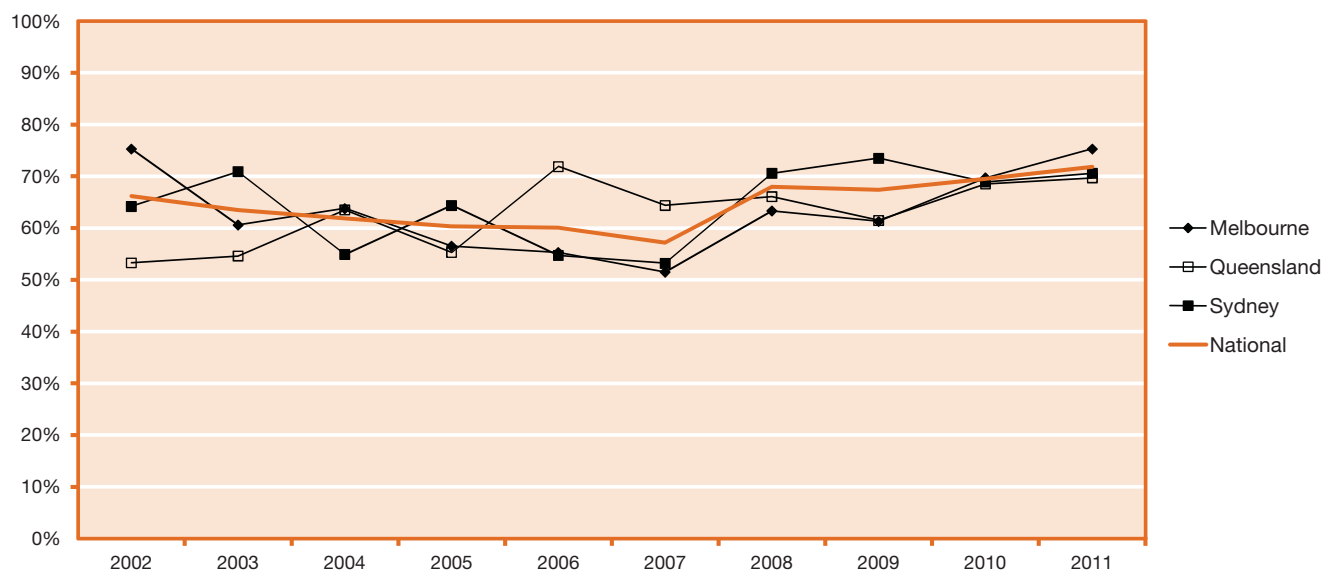


Figure 13: HIV-positive men on antiretroviral treatment: GCPS, 2002–2011

because of the relatively small numbers of HIV-positive men recruited in these locations. HIV-positive men from Adelaide, Canberra and Perth are however included in the calculation of the national trend across the six states/territories where GCPS are conducted. This national trend indicates that generally over 60% of HIV-positive men in the GCPS reported being on cART between 2002 and 2011, with a significant increase in the proportion on treatment during the reporting period, particularly since 2007.

In 2011, over two-thirds of HIV-positive men in the Melbourne, Queensland and Sydney surveys reported being on treatment. Treatment uptake has increased most noticeably in Queensland during the past few years. While the national trend indicates that the proportion of HIV-positive men on treatment is increasing over time, and is now at its highest level for ten years, there has been substantial fluctuation during the reporting period.

Since 2003, all HIV-positive men in the GCPS have been asked to report their last HIV viral load test result. Table 17 and Figure 14 show the proportions of HIV-positive men reporting an undetectable viral load; having an undetectable viral load is an indicator of successful viral suppression as a result of treatment. This analysis includes all HIV-positive men, regardless of whether they are receiving treatment or not. The surveys with smaller sample sizes (i.e., Adelaide, Canberra and Perth) have been omitted from this section because of the very small numbers of HIV-positive men. They are also excluded from calculations of the overall trend, which only includes data from the three eastern states.

There have been significant increases in the proportions of HIV-positive men reporting an undetectable viral load in all three eastern states since 2003. In 2011, over two-thirds of HIV-positive men in Melbourne and Queensland and three-quarters of HIV-positive men in Sydney reported an undetectable viral load. This probably reflects ongoing improvements in the targeting and delivery of cART so that more people who need treatment are receiving it and the treatment they receive is more effective in achieving viral suppression.

5.2 Prescribers' attitudes and practices regarding the initiation of antiretroviral treatment

Limin Mao and John de Wit

More than a decade after cART became widely accessible in Australia, people living with HIV (PLHIV) are surviving longer and staying healthier than in the past. However, morbidity and mortality is still high among PLHIV, particularly among those who are not on cART. Australian guidelines continue to recommend commencing cART for asymptomatic patients before their CD4+ lymphocyte cell count drops below 350 cells/mm³. However, nationally and internationally, recommendations regarding treatment initiation are currently subject to much debate, informed by emerging evidence of the risks and benefits of earlier initiation of cART (i.e., at CD4+ cell counts above 350 cells/mm³). Two considerations inform calls for earlier

Table 17: HIV-positive men who reported an undetectable viral load: GCPS, 2003–2011

	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Melbourne	54.7	50.2	37.8	53.4	45.0	66.6	60.1	72.4	69.2	↑	↑
Queensland	42.9	65.7	55.9	62.1	57.6	71.6	59.3	67.7	69.3	↑	↑
Sydney	57.5	51.9	60.3	54.4	56.6	64.7	70.1	72.3	74.7	↑	↑
All 3 eastern states	52.6	56.5	51.2	56.1	53.9	66.6	65.2	70.9	72.2	↑	↑

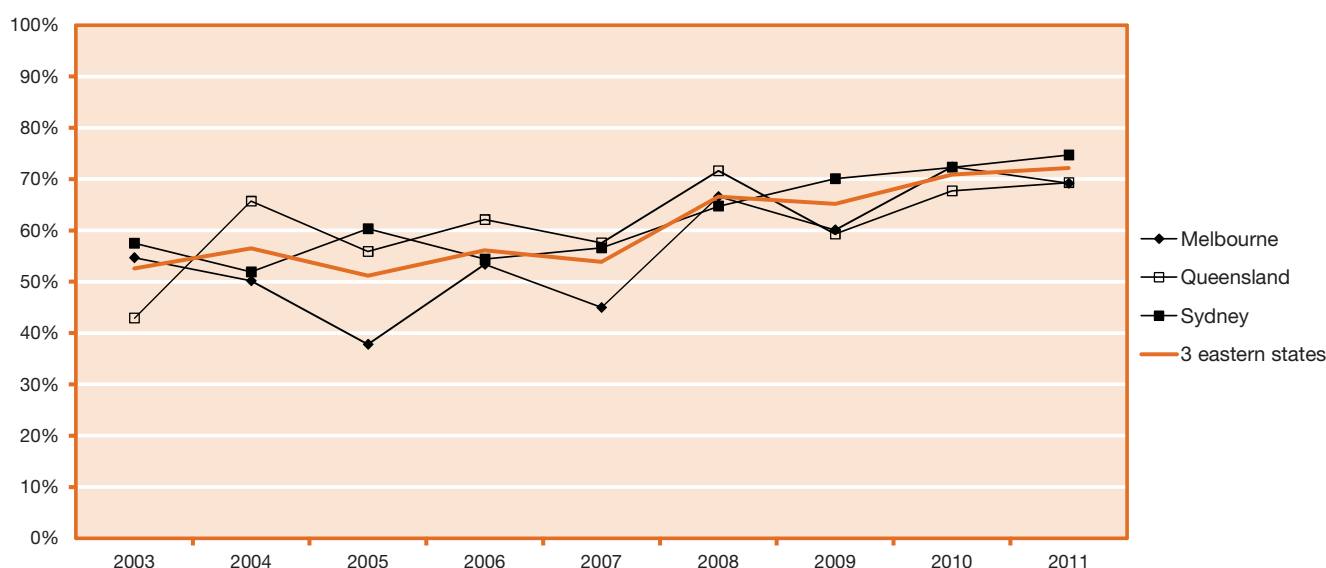


Figure 14: HIV-positive men who reported an undetectable viral load: GCPS, 2003–2011

initiation of cART: 1) the possibility of better clinical outcomes for individual patients, notably the likelihood of reduced mortality, decreased morbidity, and improved quality of life; and 2) the public health benefit of timely initiation of cART, resulting from possible reductions in secondary HIV transmission to those uninfected in the population, referred to as the “treatment as prevention” approach). Guidelines developed in the United States now recommend cART for all treatment-naïve people after an HIV diagnosis. Elsewhere, including in Australia, guidelines are more cautious.

In the context of potential benefits of a ‘treatment as prevention’ approach, and accumulating observational evidence of the benefits of earlier initiation of cART, this study explored the attitudes and practices regarding cART initiation among accredited cART prescribers in Australia (known as s100 prescribers). From April to May 2012, a brief, anonymous online survey was conducted nationally among all cART prescribers who were registered in the email list of the Australasian Society for HIV Medicine (ASHM). The survey investigated prescribers’ attitudes towards cART initiation at various CD4+ cell count levels or immediately after an HIV diagnosis, their current cART prescription practices, and their primary considerations to recommend the initiation of cART. Prescribers did not receive any reimbursement, in cash or in kind, for their participation.

The sample was broadly representative of cART prescribers in Australia, comprising mainly general practitioners, followed by sexual health physicians, and hospital-based infectious disease specialists. Over half of cART prescribers had been treating HIV-positive patients for more than ten years. In line with current guidelines, over two-thirds of respondents very strongly recommended initiation of cART before CD4+ cell count drops below 350 cells/mm³. One-fifth of respondents very strongly recommended cART initiation before CD4+ cell count drops below 500 cells/mm³. Further data analyses are underway and key findings were presented at the 2012 Australasian HIV/AIDS Conference, Melbourne. A manuscript has been submitted for publication in an international peer-reviewed journal.

5.3 HIV General Practice Workforce Project

Christy Newman and John de Wit

The number of people living with HIV in Australia is increasing and ageing, requiring an expert primary care workforce to provide HIV clinical care around the country and into the future. Funded by the National Health and Medical Research Council, the National Centre in HIV Social Research is leading a three-year qualitative study to provide critical evidence for why and how general practitioners (GPs) pursue or continue careers in HIV in different caseload and geographical settings across Australia. The study also aims to build new knowledge on the role of GPs in maintaining and enhancing the health of people living with HIV in Australia.

In the first, completed, phase of this project, semi-structured interviews were conducted with 24 individuals holding senior positions in government, non-government and professional or educational organisations that shape HIV care policy and practice in Australia. These interviews aimed to scope the key issues relating to the HIV GP workforce and to inform our approach to interviewing clinicians. Participants included 17 men and 7 women working in non-government ($n = 10$), government ($n = 7$), and professional/educational ($n = 7$) settings.

Two papers have been published from the first stage of this project. The first paper explores how key informants characterised GPs as being ‘moved’ to take up and maintain a special interest in HIV medicine by the clinical, professional and political dimensions of the role of HIV doctor, with the political dimensions often described as the most distinctive compared to other areas of general practice medicine (Newman et al., 2011). The second paper was an invited contribution to a special issue of the journal *Sexually Transmitted Infections on health systems for HIV care and treatment*. The paper contributed an Australian perspective on HIV health services, and was noted for being one of only two contributions to focus on current experiences and challenges in developed countries (Newman et al., 2012).

In the second, ongoing phase of the study, semi-structured interviews were conducted with 47 clinicians who were or had been involved in providing HIV care in general practice settings in Australia. These interviews aimed to gather first-person accounts of the diverse career trajectories, motivations, aspirations and experiences of the HIV general practice workforce around the country. Participants included 25 men and 22 women. As a group, clinicians had worked across all of the Australian states and territories, but mainly in New South Wales, Victoria, Queensland and South Australia. A large majority were based at the time of interview in urban metropolitan settings ($n = 37$), with the other 10 providing the quite different perspective of working in regional and remote Australia. The most common professional role was ‘active prescriber’ ($n = 31$), but we also interviewed several ‘ex-prescribers’ ($n = 8$), that is, GPs who had let their HIV prescribing rights lapse, as well as some ‘non-prescribers’ ($n = 5$), that is, clinicians who provided care to people with HIV but did not prescribe medications. Three participants were nurses working in high HIV caseload general practice clinics.

We also collected published materials relevant to general practice and HIV medicine, focusing on: 1) Policy representations of the role of the GP in the six national HIV strategies that have been enacted in Australia; 2) Educational representations of HIV and related concepts in the 2011 Curriculum for Australian General Practice from the Royal Australian College of General Practitioners and the 3rd edition of the Primary Curriculum for General Practice from the Australian College for Rural and Remote Medicine; 3) Narrative representations or ‘first person accounts’ of the experience of providing HIV care in Australian general practice, as published in medical journals which are indexed in online scholarly databases.

Clinician interviews and archival data are being analysed and results will be published in a peer-reviewed paper focusing on a range of issues of relevance to the contemporary and future HIV GP workforce in Australia and beyond.

5.4 Stigma, well-being and resilience among people living with HIV

Loren Brener, John de Wit and Sean Slavin

People living with HIV (PLHIV) continue to experience stigma. Working in close collaboration with the National Association of People Living with HIV/AIDS (NAPWA), this online survey with PLHIV documents adverse experiences associated with HIV stigma to strengthen understanding of its social, psychological and health effects. This survey was part of a larger project, which also included a qualitative component led by NAPWA, consisting of in-depth interviews with PLHIV. Furthermore, the project encompasses a research-into-practice component, translating the findings of the quantitative and qualitative studies into program and policy outcomes.

An online survey was completed by 697 PLHIV in Australia. The survey used a range of validated scales to measure, among others, HIV status disclosure, perceived social reactions, experienced stigma, psychological resilience, distress, depression, anxiety and self-esteem, as well as health satisfaction and quality of life. The survey also asked participants to indicate how they thought they were infected, how long they had been living with HIV, whether they were on cART (and for how long) and if they currently experienced any visible symptoms associated with HIV infection or its treatment.

Data analysis is still underway. The survey's rich data produce a wide range of findings that contribute to a better understanding of the nature and impact of PLHIV's experiences of stigma. Data in particular show that the health and well-being consequences of stigma are different and more severe for people with visible symptoms related to their HIV infection or its treatment, while also illustrating that attachment to an HIV-positive community can act as a buffer against these negative consequences for PLHIV with visible symptoms. This survey further highlights the layered nature of stigma through the exploration of the experiences of stigma of straight and gay people, with straight people appearing more marginalised and more stigmatised in the context of HIV in Australia. Further, the study finds psychological resilience to be a mediator of the impact of experiences of stigma on PLHIV's health and well-being. This suggests that experiences of stigma not only affect health and well-being outcomes, but can also deplete critical coping resources, further compounding the deleterious impact of HIV stigma in affected individuals and communities.

While a great number of studies have been conducted regarding HIV-related stigma, in particular in the US, and have identified the negative consequences of stigma on health and well-being, our research extends these findings

by providing direct evidence that HIV-related stigma is multifaceted, or 'layered', and may be experienced differently by different PLHIV. Furthermore, our research also highlights buffering variables that may protect PLHIV from the negative consequences of stigma, at least to some extent. These variables have been identified as both external (e.g., HIV-positive community attachment) and internal (e.g., resilience) to the individual and form appropriate targets for novel interventions. Interventions should also continue to address stigmatising attitudes in the wider as well as the gay community, for which our broader program of research also provides innovative suggestions.

5.5 Future developments

Uptake of antiretroviral treatment, and treatment decision-making

Limin Mao and John de Wit

This NHMRC-funded project encompasses several components. In addition to an exploration of the treatment-related attitudes and practices of cART prescribers in Australia (see section 5.2, above), these include 1) generating robust estimates of the cART status (current use, past use, and cART-naïve) of PLHIV in Australia; 2) modelling the potential population effects of cART coverage at different levels on reducing HIV incidence; and identifying cART naïve PLHIV's key clinical, personal, social and structural barriers to treatment uptake and reasons for non-use.

In addition to assembling data to generate estimates of PLHIV's cART status and guide mathematical modelling, in the next phase of this project in-depth interviews will be conducted with PLHIV who have been diagnosed with HIV, are living in Australia and are not currently receiving cART. The aim of these interviews is to strengthen understanding of the reasons for deferring or avoiding cART and the one-on-one, in-depth interviews will cover major domains of living with HIV and attitudes towards cART, including participants' knowledge and beliefs about HIV and cART, concerns about and barriers to cART use, their relationships with doctors and involvement in decision making about HIV treatment.

Furthermore, the views and experiences of HIV treatment officers will be collected through face-to-face, group discussions. Treatment officers are peers that provide information and support for PLHIV regarding treatment decisions, particularly for those newly diagnosed with HIV. The semi-structured discussions will be driven by the treatment officers, with the facilitator prompting, following up, and keeping the discussion on track and on time. It is expected that the key informant discussions will cover main areas of concern for PLHIV such as the consequences of HIV infection and impacts on lifestyle; beliefs, feelings and attitudes about HIV; engagement with HIV-positive support groups and services; relationships with doctors; and incentives and barriers related to cART.

Spotlight HIV-positive children transitioning to adolescence and adulthood

Asha Persson and Christy Newman

In Australia, there is a cohort of perinatally-infected HIV-positive children who are currently growing up, yet we know little about their needs and experiences; no published research exists on this population in Australia to date. While this is a relatively small population, they are important in terms of priorities for both HIV prevention and the delivery of care, and in terms of the broader aim of promoting the health and well-being of people living with HIV in Australia.

To inform this study, we conducted a critical discourse analysis of the international literature, primarily from the US (Persson & Newman, 2012). The most consistent message in this literature was that the transition of children with HIV to adolescence and adulthood brings with it a unique and complex set of challenges and risks, for which clinicians and the children themselves are ill prepared. Two issues were singled out as particularly challenging, namely transition to adolescent sexuality and transition into adult clinical care. Our analysis found that young people with HIV were commonly positioned in this literature as uniquely vulnerable and inadequately equipped to manage these transitions without comprehensive interventions, partly due to challenges associated with adolescence itself, partly due to multiple neurocognitive and psychosocial dysfunctions frequently attributed to these children. Yet we also found that little evidence was provided for these conclusions, particularly given the quite recent emergence of this population in the epidemic.

There is no doubt that growing up with a stigmatised, chronic and sexually transmissible disease can pose numerous and complex challenges, or that substantial support might be required to help young people navigate this process. However, the existing transition literature includes some key gaps and limitations. Firstly, the literature tends to uncritically reproduce a limited repertoire of assumed facts about children with HIV; secondly, it rarely considers the possibility that these young people might have developed, for instance, resilience, foresight, coping strategies, expertise, or life skills as a result of their illness; and, thirdly, it rarely includes the views and experiences of the young people themselves, thus hampering the objective of gaining a better understanding of how this population manages issues such as treatment, healthcare and sex. Paying more deliberate attention to these young people as a vital source of knowledge and information about what it means to grow up with HIV could offer invaluable insights into how clinical and psychosocial care services can most appropriately support them as they move into adulthood.

In response to these gaps in the research literature, the NCHSR commenced a qualitative study that aims to produce the first empirical exploration of this cohort in Australia by gathering in-depth information both from children and young people with HIV in NSW and from clinicians who provide direct care to this population across Australia. Through this, the study will provide timely insights into the key issues associated with transition for this largely hidden group in the epidemic, particularly issues associated with becoming sexually active and remaining engaged with HIV treatment and care during a time of life that typically features considerable change. In contrast to much of the international literature, this study will include the voices of HIV-positive children and young people themselves to gain a better understanding of how they address the challenges of growing up with HIV, and to provide them with a unique opportunity to tell their stories and contribute to the knowledge base to inform future models of care.

Specifically, the study aims to 1) investigate the needs and challenges faced by children with HIV as they transition to adolescence and adulthood, and the implications of these for health and well-being, HIV prevention and clinical care; 2) provide the core evidence required at this point in time to support children's transition from paediatric to adult HIV care services, and to strengthen their skills in negotiating sexual practices and other aspects of adolescence and early adulthood; 3) develop practical and transferable recommendations in relation to the processes associated with transition, which can enhance future models of care for children and young people with HIV and other health conditions in Australia and beyond.

The study is conducted in collaboration with the Paediatric HIV Service at Sydney Children's Hospital, and in close consultation with several partner organisations, including ASHM, NAPWA, Positive Life NSW, and YEAH (Youth Empowerment Against AIDS). The research findings will be workshopped with academic, clinical and community stakeholders to identify opportunities for translation into policy and practice. Short summaries of key findings will be prepared for clinicians and affected communities, along with other community-accessible feedback, presentations at relevant stakeholder forums and conferences, and preparation of articles for peer-reviewed journals.

6

Drug use, risks, and harm reduction



6.1 Drug use and injection by participants in Gay Community Periodic Surveys

Martin Holt and Limin Mao

The GCPS include questions about the use of a range of drugs. Table 18 and Figure 15 show the use of selected recreational drugs by men from every participating state and territory in the six months prior to the survey, providing an

indication of trends in commonly used drugs among gay men across the country.

From Table 18 and Figure 15 it can be seen that amyl nitrite ('poppers') is the most commonly reported drug by participants in the GCPS. Amyl nitrite is an inhaled drug that is popular among gay men as both a euphoric and muscle relaxant; it is therefore used as both a 'party' drug for dancing and in sexual settings. Poppers use is reported by over a third of men in the GCPS and its use has remained stable since 2003.

Table 18: Men who reported any use of selected recreational drugs in the six months prior to the survey: GCPS, 2002–2011

	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Amyl nitrite	35.1	37.7	39.4	38.1	36.3	39.2	35.1	38.4	37.1	ns	ns
Cannabis	37.6	39.3	38.0	36.4	31.3	32.9	29.7	32.8	29.4	↓	ns
Cocaine	9.0	8.4	10.5	13.0	12.8	11.3	11.4	13.0	10.9	↑	ns
Ecstasy, 'speed' or crystal methamphetamine	–	30.5	32.9	35.4	31.5	30.5	28.6	27.8	23.1	↓	↓
Erectile dysfunction medication (e.g. Viagra, Cialis)	15.4	15.6	20.1	21.2	19.6	20.6	22.6	21.8	22.2	↑	ns

Cannabis is the second most commonly reported drug, although its use has declined since 2003, mirroring national trends that show generally declining levels of drug use by gay men over the past decade (analysis not shown here; see Lea et al., 2012). The use of ecstasy and amphetamines ('speed' powder and crystal methamphetamine) has also declined during the reporting period.

Bucking the general trend of declining drug use, the use of cocaine and erectile dysfunction medication like Viagra

and Cialis has increased during the reporting period, although the use of these drugs has stabilised in the past three years. We include erectile dysfunction medication because research indicates it is used recreationally by gay men to facilitate sex. Erectile dysfunction medication can, of course, facilitate both safe and unsafe sex (Holt, 2009).

Injection of any drug remains relatively rare among gay men, although it is much more common than among the general population (Lea et al., 2012). Table 19 and

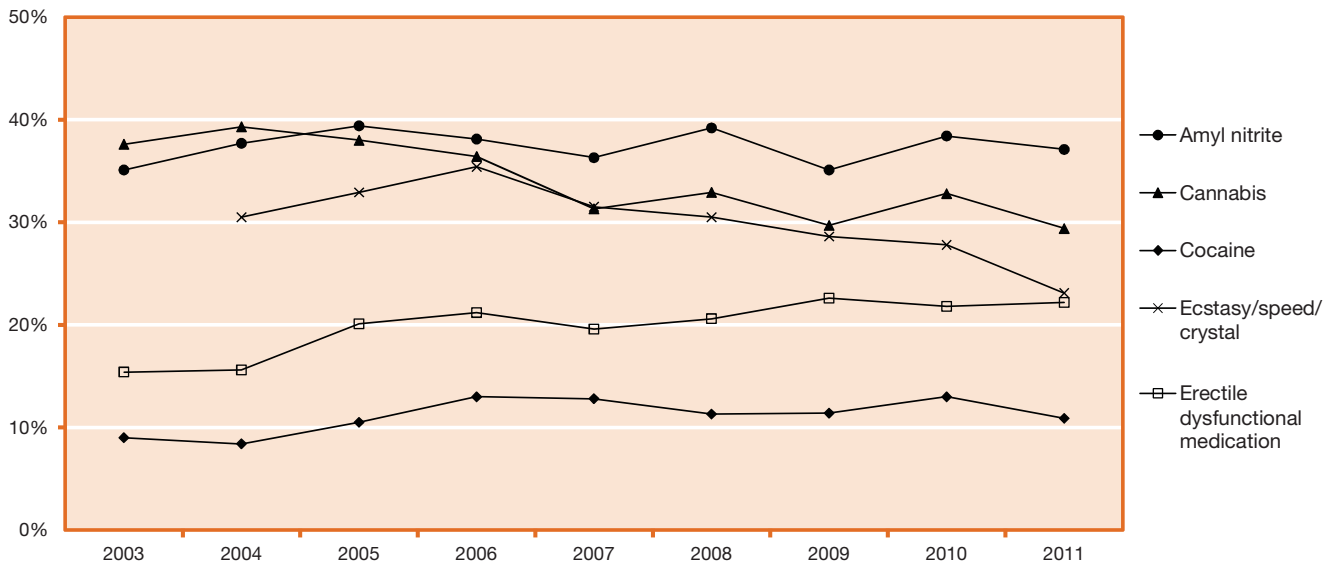


Figure 15: Men who reported any use of selected recreational drugs in the six months prior to the survey: GCPS, 2003–2011

Table 19: Men who reported any injecting drug use in the six months prior to the survey: GCPS, 2002–2011

	2002 %	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %	Overall trend	Trend in last 3 years
Melbourne	8.0	6.0	5.4	6.2	8.0	4.9	6.2	6.7	4.5	4.9	↓	ns
Queensland	10.2	8.5	7.7	4.0	8.0	2.9	5.1	6.1	5.3	5.9	↓	ns
Sydney	5.1	8.6	10.2	6.7	6.5	8.4	8.1	7.8	6.9	5.2	ns	↓
All six states/territories	7.5	7.6	7.5	5.7	7.2	5.6	6.6	6.5	5.4	5.0	↓	ns

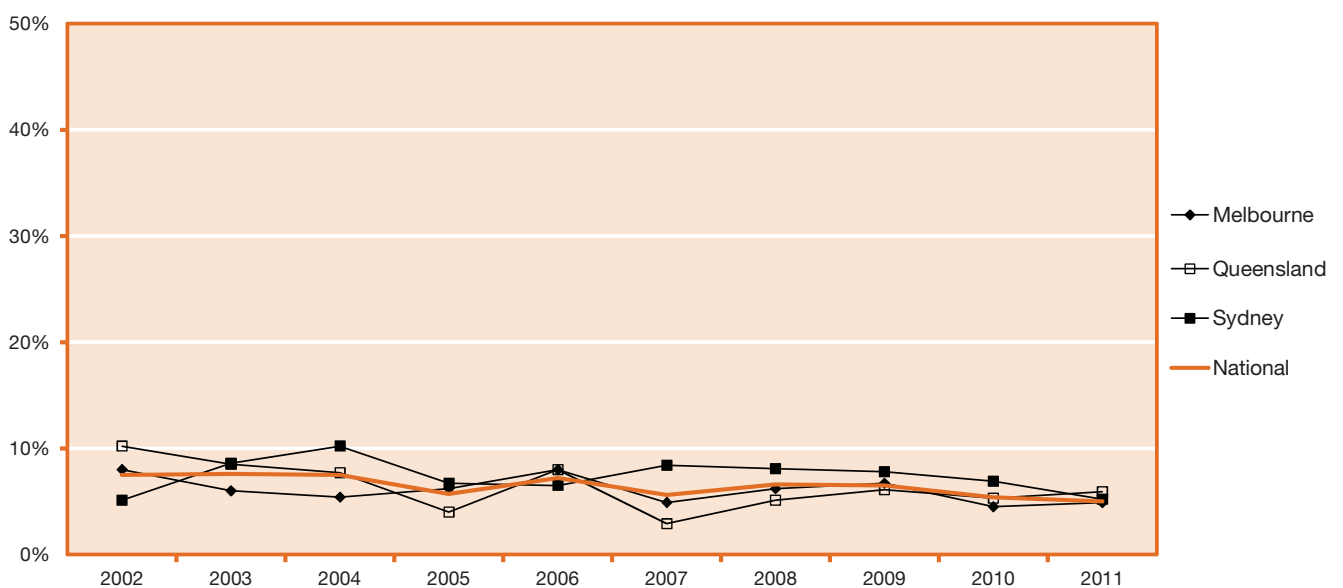


Figure 16: Men who reported any injecting drug use in the six months prior to the survey: GCPS, 2002–2011

Figure 16 show the proportions of men from Melbourne, Queensland and Sydney who report any injecting drug use (IDU) in the six months prior to the survey, as well as a national trend. Because it is infrequently reported, data regarding the rates of IDU by gay men in Adelaide, Canberra and Perth have been omitted, although data from these locations are included in the national rate.

Nationally, the proportion of men reporting any IDU in the six months prior to survey has declined from around 8% in 2002 to 5% in 2011. Rates of IDU by gay men are generally somewhat higher in Sydney compared to Melbourne and Queensland, although the rates of IDU in these locations appear to have converged in the past three years. Although not shown here, we note that rates of IDU among HIV-positive men are disproportionately high compared with HIV-negative men, with IDU being reported by up to one in six HIV-positive men in the eastern states (Lea et al., 2012). IDU also appears to be higher among men who identify as bisexual rather than gay, and among men aged 30–39 compared to other age groups (Lea et al., 2012).

6.2 Drug use and treatment among same-sex-attracted young men and women

Toby Lea, John de Wit and Robert Reynolds

Substance use and substance use problems are more commonly reported in same-sex attracted young people compared to their heterosexual peers. However, to date little research has been published about substance use and problems in this population in Australia. To address this research gap, an online, cross-sectional survey was conducted with 572 same-sex attracted young women and men in Sydney, who were aged 18–25 years. While the project had several objectives, a main aim was to characterise patterns of alcohol use, club drug use and dependence, injecting drug use, and engagement with drug treatment services for lesbians ($n = 146$), gay men ($n = 301$), bisexual women ($n = 108$) and bisexual men ($n = 17$).

Seventy percent of respondents reported consumption of alcohol at hazardous levels, as assessed using the Alcohol Use Disorder Identification Test–Consumption questions (AUDIT-C). Young women were more likely to report hazardous alcohol use compared to young men. Twenty-nine percent of respondents reported use of any ‘club drugs’ in the previous six months (inclusive of speed, cocaine, ecstasy, crystal methamphetamine, GHB, and ketamine), and club drug use was more common in gay men than in other respondents. Seven percent of respondents had scores on the Severity of Dependence Scale (SDS) indicative of dependence on at least one of cocaine, crystal, ecstasy or GHB, with 24% of respondents using any of these drugs in the previous six months classified as dependent. Among respondents who had used crystal methamphetamine in the previous six months,

50% of bisexual women and 48% of gay men had SDS scores indicative of dependence. Regarding treatment seeking for problems with alcohol or other drug use, 12% of respondents had thought about treatment, and 6% had sought treatment. In addition, 10% of respondents had attended a hospital emergency department because of use of alcohol or other drugs. Compared to other respondents, bisexual women were more likely to have thought about or sought treatment, or had attended an emergency department for problems with substance use.

This study reports high levels of alcohol use and illicit drug use in a sample of same-sex attracted young adults in Sydney. Their low levels of treatment seeking may indicate an underutilisation of services. Future research may benefit from understanding unmet treatment needs in this group and assessing whether tailored treatment services are needed for same-sex attracted young people experiencing problems with alcohol and other drug use. In addition, more attention should be focused on the needs of bisexual young people, who may experience a double marginalisation from other same-sex attracted people as well the wider community.

6.3 Exposure and transition to injecting drug use among young people

Joanne Bryant, Jeanne Ellard, Daren Fisher and Carla Treloar

This study explored socially vulnerable young people’s experiences with exposure to injecting, including the context in which exposure to injecting happens, their understandings of the risks of injecting drug use and acquiring hepatitis C, and their knowledge and opinions about BBV and drug-related health services. Data were collected from 261 survey participants and 26 in-depth interview participants in New South Wales. The study was funded by NSW Health and data were collected between August 2010 and August 2011.

Participants reported significant recent and past social disadvantage, with 33% having experienced recent homelessness, about 40% having a diagnosis of mental illness, many having recent experiences with violence as either victims (40%) or witnesses (44%), and most (70%) reporting some contact with juvenile justice, prison and the police. Illicit drug use was highly prevalent compared to similarly aged peers in other Australian data such as the National Drug Strategy Household Survey, and tended to start at an earlier age.

While injecting was much more prevalent than has been found among similarly aged peers, it was not highly prevalent in our sample, with about 16% saying they had ever injected. However, all participants knew others who injected, and for most injecting was a common but hidden practice in their peer networks. Methamphetamine featured prominently in the drug-using and injecting experiences of study participants. It was the most common first drug injected by those who had injected, and was

more likely to be used by those with high exposure to injecting. This may be because methamphetamine is more easily accessible to young people or, as anecdotal evidence suggests, because young people see methamphetamine as a more modern and fashionable drug in comparison to other drugs, like heroin. Because methamphetamine is an injectable drug, its prominence among young people has significant implications for hepatitis C prevention efforts in this group.

Volatile family connections appear to play a significantly more important role in participants' injecting experiences, and in their knowledge about and interaction with harm reduction services, than any other form of support, such as peer support, or strength of connections to schools and workplaces. Even though peer support does not appear to be directly related to injecting or exposure to injecting, the most common source of exposure to injecting was through peer networks, with 60% of survey participants indicating many or all of their friends had injected.

Knowledge about how hepatitis C is transmitted was good with respect to the risks associated with injecting and tattooing, but poor in other areas, in particular in relation to sexual transmission. Knowledge was generally no better than that of similarly aged peers in other Australian surveys, which identifies a need to improve knowledge among our population of study because of their increased vulnerability to acquiring hepatitis C. Participants had especially poor knowledge about harm reduction services, in particular needle and syringe programs. Most (70%) did not know where to get sterile needles and syringes, and those who could correctly identify places to get them tended to identify secondary outlets, such as pharmacies, hospitals and vending machines. Dependence on secondary outlets suggests the need to improve knowledge about primary outlets where staff may be more knowledgeable about and sympathetic towards young injectors, and/or to improve knowledge and training of secondary outlet staff.

When asked where they might seek help for drug use or harm reduction, participants expressed a high level of dependence upon youth services, usually the service they were recruited from. For example, they identified their youth service as a source of help for drug use, rather than any specific drug and alcohol treatment services. The dependence on youth services suggests a need for better linkage between harm reduction and drug services and youth services.

Most survey participants reported neither accepting nor disapproving views of injecting, and did not see injecting or hepatitis C as relevant to them. Interview participants laboured to articulate anything about hepatitis C, often not knowing what it was and how it affected the body. This general silence about hepatitis C has important implications for hepatitis C prevention in this group. The participants live their lives in a context where, for many, the opportunities for injecting are prominent, and injecting may materialise without any sense of planning. Thus, their lack of knowledge or concern about hepatitis C

becomes problematic. Here, we need to consider new and innovative ways to prioritise hepatitis C in the lives of vulnerable young people, and develop health promotion initiatives that help them to see why hepatitis C matters in their lives.

6.4 Future developments

Understanding and preventing hepatitis C in sexual partnerships

Carla Treloar, Suzanne Fraser and Joanne Bryant

Approximately 200,000 Australians are thought to be chronically infected with hepatitis C. An estimated 9,700 new hepatitis C infections occur each year, with approximately 90% occurring among people who inject drugs (PWID). Most transmission of hepatitis C occurs through the sharing of equipment used for injecting drugs (i.e., needles and syringes and other equipment, such as spoons, filters, waters, swabs and tourniquets). The majority of equipment sharing occurs between sexual partners. Despite this, very little research to date has focused on sexual partnerships as a site of hepatitis C prevention or transmission.

In response to this key gap in knowledge, this NHMRC-funded study aims to:

- investigate obstacles in discussing and acting on hepatitis C prevention advice in sexual partnerships, with attention paid to differences between serodiscordant, negative seroconcordant and positive seroconcordant partnerships;
- identify and document effective modes of negotiation and strategies employed around hepatitis C prevention in sexual partnerships where they occur;
- explore current practices among health workers involved in promoting hepatitis C prevention to people in sexual partnerships;
- consult with affected community, health workers, industry stakeholders and policy makers to make recommendations in four areas: 1) prevention education for people who inject drugs; 2) health promotion strategies employed by front-line health workers; 3) packaging and design of equipment and; 4) policy regarding distribution of sterile injecting equipment, and;
- advance Australian and international illicit drug research and prevention education regarding the implicit public health concepts of intimacy and agency as they apply to injection-related risk.

Spotlight Exploring the relationship between implicit self-representation, drug use and drug treatment outcomes

Loren Brener, William von Hippel and Courtney von Hippel

Research in implicit social cognition suggests that people's attitudes and beliefs need not be available to conscious awareness to have an influence on behaviour (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). As a consequence, assessment of implicit attitudes has become an important feature of both attitude and addiction research (Wiers & Stacy, 2006), and implicit attitudes have been shown to reliably correlate with substance use (Rooke, Hine, & Thorsteinsson, 2008). Measuring implicit associations with drug use may be an important complement to self-report measures in efforts to explain inconsistencies between conscious and unconscious behaviours, associations and motivations (Rooke et al., 2008; Wiers & Stacy, 2006). For example, in a study of cocaine users, Wiers, Houben and Kraker (2007) found that the cocaine using participants showed implicit associations between cocaine and positive valence while, surprisingly, also implicitly associating cocaine and sedation. Neither of these implicit associations was found in the matched control group. The study reported here extended this research on implicit cognition and illicit drug use by assessing implicit associations between self and drug use. This line of inquiry is based on evidence suggesting that unconscious aspects of people's identities can predict future behaviour, independent of their conscious attitudes and beliefs (Greenwald et al., 2009; Nock et al., 2010).

Sociological theory stresses the link between drug use and identity and the need to reconstitute this identity as separate from drug use for successful recovery. Research into this area addresses the central need for people addicted to illicit drugs to develop a 'non-addict' identity as integral to the process of recovery (McIntosh & McKeganey, 2000). According to these authors, this non-addict identity is developed through a process that reconstructs the drug user and reinterprets their lifestyle as no longer related to drugs. As noted, research in implicit social cognition suggests that people's attitudes need not be available to conscious awareness to have an influence on behaviour. Combining these two ideas, this exploratory study aimed to assess the association between an individual's implicit self-representation and their drug of choice, on the assumption that this relationship may be pivotal in understanding drug use, drug dependency, and ultimately recovery from drug use (Brener, von Hippel, & von Hippel, 2012). This study assessed the implicit associations between self and heroin among 30 heroin users in residential rehabilitation and compared these to implicit associations of self with heroin of 41 people attending the same residential rehabilitation facility, but for their alcohol use. Results show that people in treatment for heroin use had stronger implicit associations between the self and heroin than people who were in treatment for alcohol use. Greater severity of heroin use was also associated with stronger implicit associations between the self and heroin. These findings demonstrate a link between heroin and implicit self-representations and may aid our understanding of drug dependency, severity of use, and recovery from drug use, while also helping to predict differential treatment success. This research is part of a larger program of research at NCHSR on implicit social cognition and health-related outcomes for people with stigmatised illnesses.

Prevention and treatment of viral hepatitis



7.1 Evaluating hepatitis C treatment in opiate pharmacotherapy settings

Jake Rance and Carla Treloar

With an estimated 217,000 Australians living with chronic hepatitis C (HCV) and the burden of disease increasing (Dore & Jauncey, 2009), national health policy currently aims for a doubling of treatment uptake to ameliorate the looming healthcare burden of end-stage liver disease and transplantation. Although treatment has improved substantially in recent years, it remains a physically and psychologically arduous, exacting regime, and rates of treatment uptake remain low. Until recently, treatment has typically been delivered via a hospital-based specialist working in a dedicated multidisciplinary team. However, low rates of uptake have led to a growing interest worldwide in the

provision of care and treatment in opiate substitution treatment (OST) programs, which provide services to a high proportion of people known to be living with chronic hepatitis C. For example, of the over 46,000 people currently receiving OST Australia-wide, it is estimated that over 27,000 have HCV antibodies and over 21,000 live with chronic HCV infection (Day & Haber, 2009), yet less than 5% have commenced treatment (Dore & Jauncey, 2009).

Researchers at NCHSR have been collaborating on the ETHOS study (Enhancing the Treatment of Hepatitis C in Opiate Substitution therapy), led by The Kirby Institute, to examine the feasibility of introducing care and treatment for hepatitis C in OST settings in NSW. The ETHOS study was established with two aims: firstly, to develop a collaborative network of OST clinics and community health centres

piloting the introduction of hepatitis C care and treatment in NSW; and, secondly, to facilitate an evaluation of the implementation process, the uptake of care, and the outcomes of treatment, among the OST service-user population. Nine clinics across NSW are involved in the ETHOS study, with each site integrating hepatitis C care and treatment according to the particularities of their location and the resources available.

As part of the broader ETHOS study, NCHSR researchers have been working on a qualitative sub-study investigating the attitudes of service users and staff towards the proposed integrated treatment model. For this sub-study, we interviewed 76 service users and staff from four 'pilot' sites established across NSW; two sites also included interviews with peer support workers, trained and managed by NUAA, whose introduction was part of the study. Overall, participants reported positive experiences regarding the provision of HCV care and treatment within OST settings. Service users consistently lauded the logical and appropriate co-location of treatment in settings where the high prevalence of HCV is common knowledge. They reported that having HCV care in your face—that is, onsite—served as a welcome reminder that treatment was an available and viable option. Staff also welcomed the increased availability of tangible and effective assistance for service users, describing the introduction of HCV care as better enabling them to meet their duty of care. Both service users and clinicians noted positive changes in the atmosphere of OST clinics as a result of the initiative, particularly in those sites providing peer support programs.

Across the four pilot sites participants identified a range of positive experiences emerging from the trial. For clinicians, the opportunity to proactively engage in the care and treatment of OST clients living with HCV was central. For clients, the introduction of HCV treatment was noteworthy as both a practical, clinical intervention and as a 'gesture' of care—a sense of being listened and responded to. These perceptions were significant for both groups, given the historical limitations and frustrations associated with both the traditional tertiary hospital HCV treatment pathway and OST programs.

Earlier work by NCHSR researchers (Rance, Newland, Hopwood, & Treloar, 2012) described some of shared, troubling aspects of OST culture and practice, with particular reference to the potential implications this held for the introduction of HCV care and treatment. While the initial qualitative data emerging from ETHOS pilot sites suggest cause for cautious optimism, they do not negate the need for sustained attention to be paid to the stigmatisation embedded in the everyday institutional practices and culture of OST services (Rance & Treloar, 2012). Nonetheless, one initial and encouraging finding emerging from the ETHOS study is that the introduction of HCV care and treatment into OST settings has the potential to challenge, and even change, problematic aspects of OST culture and care (Rance & Treloar, 2012).

7.2 Evaluation of the pilot program of hepatitis C treatment initiation in general practice

Max Hopwood and Carla Treloar

The initiation of hepatitis C treatment by qualified prescribers through general practice is a model of treatment delivery that could lead to improvements in treatment access, uptake, adherence, completion rates and follow-up support. Over the past few years, ASHM has funded a pilot program of HCV treatment initiation in general practice. By the time the pilot concluded in June 2012, 38 people with hepatitis C had been treated through one of seven metropolitan and regional general practices in New South Wales.

A qualitative evaluation of the pilot program was undertaken by NCHSR between September 2010 and November 2011. Two structured interview schedules, each comprising nine open-ended questions, were used to explore 1) the perspectives of GPs ($n=7$) regarding their experience of shared care and the confidence and skills they felt they had gained as a result of participating in the pilot program; and 2) the views of patients ($n=9$) who were involved in the pilot. Telephone interviews were conducted with all participants, taking between 10 and 50 minutes.

All GPs who were involved in the pilot program worked in opiate substitution treatment settings or treated patients with alcohol and other drug problems. The GPs' reasons for becoming involved in HCV treatment prescribing included a desire to target those people who needed HCV treatment. GPs believed they could provide a treatment service that was responsive to patients' needs. In general, GPs reported that the shared care arrangements they had with liver clinics during the pilot program worked well. However, there were several minor problems discussed, like responsibility for PCR testing. Some patients had difficulty in travelling the lengthy distances to access drug dispensing points. This evaluation also found that patients valued the trust and rapport they had built with their GPs and they appreciated the convenience of reduced waiting time and not having to travel long distances to access HCV treatment. According to participating GPs and their patients, the delivery of HCV treatment through general practice is a viable model. While teething problems were cited throughout the pilot, GPs and their patients were on the whole happy with the model.

The outcome of the evaluation is that ASHM and designers of similar future programs consider ongoing training for GPs as new HCV treatments emerge. There also is a need to advocate for changes to the regulations surrounding the dispensing of HCV treatment medications via community pharmacies and a requirement to help GPs to access support from allied health professionals for shared care. Future programs should retain the shared care arrangements for GPs as a stepped approach to gaining accreditation for initiation of hepatitis C treatment, and support GPs in maintaining care for their patients in shared care arrangements when they do not initiate treatment. The

evaluation further suggests a need to facilitate GPs' access to fibro-scan services to complement the assessment of patients prior to starting HCV treatment.

7.3 Evaluation of needle and syringe program service delivery modes

Carla Treloar and Limin Mao

This is a partnership project involving NCHSR working with a former area health service in NSW. The overall aim is to conduct a three-year multi-faceted research partnership project to critically examine a broad range of needle and syringe program (NSP) service delivery modes, as currently practised within the NSP services of this area. In particular, the research project will identify how the broad range of NSP service delivery modes achieve the stated aims of the NSW NSP and how they contribute to broader health outcomes in relation to the health and well-being of injecting drug users. Furthermore, the research project will enable recommendations to be made in relation to which elements and combinations of NSP service delivery modes are most able to influence the health and well-being of people who inject drugs, with specific reference to hepatitis C.

To date, we have recruited a PhD student to work on the project and conducted a literature review regarding the operations of NSPs, with a particular focus on primary healthcare offered through NSP services. We have also conducted a costing study in which the average cost per needle and syringe distributed was calculated for each of four modes of NSP delivery, including primary NSP (i.e., stand-alone services, and with additional primary healthcare services), secondary NSP, vending machine (accounting for income received from clients), and outreach. When income from clients is not included in costing, the average costs of each needle are similar across the modes of delivery.

We have also developed a framework to consider how NSP services can be better targeted to address the varying needs of clients. To further understanding of this framework, a survey of NSP clients will be conducted in 2012 with follow-up interviews of a selection of clients. In-depth interviews with NSP staff will also be conducted.

7.4 Evaluation of the NUAA needle and syringe program

Loren Brener, Joanne Bryant and Elena Cama

Needle and syringe programs are widely recognised as a significant public health measure to reduce harms associated with injecting drug use, especially in reducing the risks of transmission of BBVs. Australia's Third National Hepatitis C Strategy 2010–2013 identifies the establishment of NSPs as a key objective with respect to the goal of reducing the rates of hepatitis virus infections. The New South Wales Users' and AIDS Association (NUAA) began providing NSP services from their premises in Surry

Hills in 2003, and this service forms part of a suite of NSP services delivered throughout the inner Sydney area. What differentiates the NUAA NSP is that it is a community-controlled, and peer-led and -delivered service. NCHSR was commissioned to evaluate some of the NSP services provided by NUAA, including the fixed-site NSP and the automatic dispensing machine (ADM).

A total of 189 consumers participated in surveys of the NUAA NSP services, including either the ADM or the fixed-site NSP; 98 (51.9%) completed the fixed-site NSP survey and 91 (48.1%) completed the ADM survey. Participants were aged between 19–73 years ($M = 40.38$ years). Mean age of first reported injection was 20.6 years (range = 8–43). A minority of participants reported that they engaged in unsafe injecting practice in the previous month, such as sharing needles and syringes (Fixed site sample: 21.2%, ADM sample: 21.4%). Users of the fixed site and ADM services expressed a high level of satisfaction with NUAA services (> 90% fixed site sample and > 80% ADM sample). The ADM was most accessed from Thursday to Saturday, with highest activity being between 8pm and 4am, which is outside the opening hours of the NUAA fixed site NSP. The location of the fixed site NSP was considered convenient, however participants disliked the restricted opening hours of the service. The location of the ADM was also considered convenient, and ADM participants liked the anonymity provided by the ADM, but they disliked paying for needles and the machine not providing change. The most common reason for not being able to access equipment through the ADM was that the machine was empty. Participants reported that in these instances they usually reused one of their own needles or accessed equipment from another vending machine.

Staff and stakeholders perceived that the NUAA NSP service is well situated, and forms part of the local jigsaw of NSP services in the inner Sydney area. The organisation was praised for maintaining a focus on relationship building and public relations, which was seen to increase the credibility of the service in the community. In particular, sharps disposal as part of the ADM management plan was described as leading to an increased awareness and appreciation of the public health benefits of NUAA services among the local community. For staff and stakeholders the key strength of the NSP service is the peer-based approach, which allows a unique relationship to develop between consumers and peer workers. The ADM was perceived as a complementary service to the fixed site NSP, in circumstances where this is closed. The service was described as essential given that injecting occurs on a 24 hours basis, and consumers require constant access to clean equipment. Stakeholders perceived that limitations of the service were broadly around how available budget and resources limit the capabilities of NUAA services, such as restricting opening hours and limiting the extent of outreach outside inner Sydney. Key recommendations for improvement include expansion of the opening hours and late night services at the fixed site NSP, expansion of the peer education and health promotion programs, and alleviating the cost of accessing equipment through the ADM.

7.5 Future developments

Self-reported health status among people living with hepatitis C

Max Hopwood

In Australia there is currently no systematic assessment of the general health and well-being of people with hepatitis C. If available, this information would improve Australian governments' and non-government organisations' capacity to develop appropriately tailored healthcare and social support services for people with hepatitis C. To fill this critical gap, NCHSR is planning to conduct a periodic, cross-sectional survey of health and well-being among people with hepatitis C. The study will collect data regarding the physical and psychological symptoms that people with hepatitis C self-report and their perceptions of how these symptoms impact on quality of life. Initially, the study will focus on residents of NSW; enabled by

the proposed online data collection method there is good scope for the study to become a national periodic survey.

Participants will be recruited over a one-month period, either annually or biennially, and data will be obtained via a brief online survey and an identical pen and paper questionnaire. The survey instrument will comprise the SF-36 Health Survey, with additional items that capture hepatitis C-specific symptoms. This will enable our data to be directly comparable to the findings of previous international studies of affected people's health and well-being. In addition, the survey will provide an opportunity to collect data on affected people's experiences of hepatitis C and/or injecting-related stigma and discrimination via the inclusion of extra items. Data will also be collected about participants' history of injecting, including current injecting practice, and questions will be asked about co-infection with hepatitis B and/or HIV. The survey will also collect participants' demographic data, including residence to enable state-by-state and national comparative analyses.

Spotlight Staying safe: How do people who inject drugs avoid hepatitis C infection?

Carla Treloar and Jake Rance

In Australia, approximately 70% of people who have injected drugs for over eight years have been exposed to hepatitis C. 'Staying Safe' is an innovative social research project that aims to learn from long-term injectors and to use their experiences to inform a new generation of hepatitis C prevention strategies. To develop innovative intervention strategies, the project in particular explores the strategies used by people who have injected for long periods but have not been exposed to hepatitis C infection.

Originally designed by Sam Friedman at the National Drug Research Institute, New York, work based on the Staying Safe approach has been done in many sites around the world, including St. Petersburg, Valencia, Prague, London, Sydney and Melbourne. In New York funding has recently been provided for a prevention trial to enhance the skills of people who inject drugs to avoid exposure to HIV/hepatitis C. The Staying Safe project is unique in that the traditional focus on people who have acquired infection as "cases" is reversed, so that those who remain hepatitis C negative over the long term are the focus of enquiry.

Eligible participants in our study had been injecting drugs for 8–15 years and had their hepatitis C negative status confirmed through serology. An equal number of long term injectors who had been exposed to hepatitis C were recruited through drug user organisations. Detailed life history interviews were conducted with each participant, from which timelines were generated that were used to facilitate a second in-depth interview to explore injecting practices and social networks over time.

Findings illustrate a considerable degree of agency enacted by long-term injectors to avoid hepatitis C exposure. A number of participants described the strategies they employed to maintain safe injecting practices in situations of potential risk. However, for many participants the factors that may have helped them to 'stay safe' were not directly related to health promotion messages or hepatitis C transmission avoidance. Rather, these included the ability and inclination to maintain social and family supports, to 'present well' in social networks, to maintain control over the injecting situation and to maintain vein care. The findings also illustrate how drug injecting practices and hepatitis C prevention tactics are embedded in individual, social, cultural, environmental and drug market contexts. New generations of hepatitis C health promotion may need to engage with the multiple priorities of people who inject drugs to help them develop strategies to remain hepatitis C free and engage with the pleasures and pragmatics of injecting drug use that are indirectly associated with hepatitis C infection.



What do Australian gay men think about HIV pre-exposure prophylaxis and treatment as prevention?

Martin Holt and John de Wit

In last year's Annual Report of Trends in Behaviour, we outlined a case for social and behavioural research on biomedical prevention technologies such as PrEP and the use of cART as prevention (Holt, Ellard & de Wit, 2011). Debate about these issues has intensified over the past 12 months, particularly since Australian stakeholders started to digest and discuss the bold targets outlined in the 2011 United Nations Political Declaration on HIV/AIDS, such as reducing the sexual transmission of HIV by 50% by 2015. Bill Whittaker, a special representative of the National Association of People Living With HIV/AIDS, fired up the discussion by arguing that Australia could

and should aim to exceed the targets in the UN Declaration, revolutionising its response to HIV (Whittaker, 2011). To achieve this dramatic impact, Whittaker called for Australia to adopt a combination approach that liberalises access to HIV testing, promotes the benefits of early HIV treatment to people living with HIV, removes prescribing restrictions for HIV-positive people with CD4 counts over 500, and makes PrEP available to those most at risk of HIV. While some of these suggestions remain hotly contested, there have been calls for strategic research on the acceptability of these approaches within Australia. We were lucky to have already initiated relevant research that could inform this debate as it unfolds.

Early in 2011, we started a project on gay and bisexual men's attitudes to biomedical prevention technologies (the PrEPARE Project), which had a particular focus on the acceptability of PrEP as a prevention technology. The project also assessed

attitudes to HIV treatment and treatment as prevention, and therefore has been able to shed light on the opportunities and challenges in developing new responses to HIV.

Our first set of analyses, published in early 2012, examined which gay and bisexual men were most interested in using PrEP, and the likelihood of decreased condom use among men who were willing to use PrEP (Holt et al., 2012b). These data were gathered in a national online survey of gay and bisexual men. We developed a conservative measure of willingness to use PrEP, which took into account readiness to take a pill every day (or before and after sex), the individual's perceived need for PrEP, willingness to pay for the drug and interest in using PrEP even if it wasn't 100% effective. Based on this measure, just over a quarter (28%) of the HIV-negative and untested men we surveyed were classified as willing to use PrEP. Younger men, those who had unprotected anal intercourse with casual partners (UAIC), men who had fewer concerns about side effects and, perhaps most tellingly, men who perceived themselves to be at risk of HIV infection were significantly more likely to be interested in using PrEP.

One of the problems in making PrEP available in Australia is its potential cost. However, if PrEP is targeted at those who would most benefit from it (i.e., gay men whose sexual practices put them at risk of HIV infection), then its deployment may be manageable. For example, only 2% of men in the PrEPARE Project survey met all of the following criteria: HIV-negative, willing to use PrEP, engaged in unprotected anal intercourse with casual male partners, and, perceiving themselves to be at risk of HIV infection (Holt et al., 2012b). This suggests a very small target group of gay men who would both benefit from PrEP and be willing to come forward to use it.

Another critical question, of course, is whether making PrEP available will result in decreased condom use among gay and bisexual men, what is sometimes referred to as 'risk compensation' (Eaton & Kalichman, 2007). Still using the PrEPARE Project survey data, we found that only 8% of the men willing to use PrEP indicated that they would use condoms less often if they were taking PrEP. Older men, those who perceived themselves to be at risk of HIV, and those who had engaged in UAIC were more likely to indicate that they would use condoms less

often if they were taking PrEP. These findings suggest that the likelihood of risk compensation is limited among Australian gay men willing to take PrEP, although we note that condom use was already fairly inconsistent among these men, with 39% reporting UAIC and 50% reporting unprotected anal intercourse with regular partners. This suggests that men who are interested in using PrEP want to use it in situations in which they already practise unprotected sex (see Holt et al., 2012b for further discussion).

A second set of analyses that we recently completed compared the attitudes of HIV-positive and HIV-negative gay men towards PrEP and HIV treatments, including the use of treatment as prevention (Holt et al., 2012a). We decided to look at these attitudes in the PrEPARE Project data because, arguably, all of these prevention strategies require broad community support in order to be effective (Adam, 2011). We found that HIV-negative and HIV-positive men had similar attitudes to PrEP and treatment as prevention. Notably, both HIV-positive and HIV-negative participants were cautious about PrEP, but believed it should be made available in Australia. Participants understood the benefits of HIV treatment for HIV-positive people, but HIV-negative men were more likely than HIV-positive men to think that taking treatments can be difficult.

Perhaps the most interesting finding was that most participants, whether HIV-positive or HIV-negative, were sceptical about the preventative effects of HIV treatment, indicating that they didn't believe that HIV treatment or an undetectable viral load prevented an HIV-positive person from passing on HIV. This scepticism about the beneficial effects of treatment in reducing the chance of transmission has remained largely unchanged for about 15 years (Van de Ven, Crawford, Kippax, Knox, & Prestage, 2000). The support for PrEP, but scepticism about treatment as prevention, suggests a bias towards prevention tools that are employed by HIV-negative men, or a hesitation about accepting the idea that someone might be HIV-positive but not infectious while on treatment (Holt et al., 2012a). Whatever the interpretation, it suggests a need for community engagement and debate, not least to reassure HIV-positive men and their partners that successful and stable treatment dramatically reduces the chance of onward transmission.

References

- Aceijas, C., & Rhodes, T. (2007). Global estimates of prevalence of HCV infection among injecting drug users. *International Journal of Drug Policy*, 18, 352–258. <http://dx.doi.org/10.1016/j.drugpo.2007.04.004>
- Adam, B. (2011). Epistemic fault lines in biomedical and social approaches to HIV prevention. *Journal of the International AIDS Society*, 14(Suppl 2). <http://dx.doi.org/10.1186/1758-2652-14-S2-S2>
- Adam, P. C. G., de Wit, J. B. F., Bourne, C., Story, L., & Edwards, B. (2009). *Does research on STIs provide keys to prevention?* (Social Research Briefs No. 14). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Birrell, F., Staunton, S., Debattista, J., Roudenko, N., Rutkin, W., & Davis, C. (2010). Pilot of non-invasive (oral fluid) testing for HIV within a community setting. *Sexual Health*, 7, 11–16. <http://dx.doi.org/10.1071/SH09029>
- Brener, L., Von Hippel, W., & von Hippel, C. (2012). Exploring the relationship between explicit self-representation and drug use. *Addiction: Research & Theory*, 20(2), 133–137. <http://dx.doi.org/10.3109/16066359.2011.580067>
- Coates, T. J. (2008). What is to be done? *AIDS*, 22, 1079–1080. <http://dx.doi.org/10.1097/QAD.0b013e3282f8afb0>
- Commonwealth of Australia (2010a). *Second National Sexually Transmissible Infections Strategy 2010–2013*. Canberra: Author.
- Commonwealth of Australia (2010b). *Sixth National HIV Strategy 2010–2013*. Canberra: Author.
- Crawford, J. M., Rodden, P., Kippax, S., & Van de Ven, P. (2001). Negotiated safety and other agreements between men in relationships: risk practice redefined. *International Journal of STD and AIDS*, 12, 164–170. <http://dx.doi.org/10.1258/0956462011916965>
- Danta, M., Brown, D., Bhagani, S., Pybus, O. G., Sabin, C. A., Nelson, M., ... Dusheiko, G.M. for the HIV and Acute HCV (HAAC) group (2007). Recent epidemic of acute hepatitis C virus in HIV-positive men who have sex with men linked to high-risk sexual behaviours. *AIDS*, 21, 983–991. <http://dx.doi.org/10.1097/QAD.0b013e3281053a0c>
- Day, C., & Haber, P. (2009). Managing drug dependence in people with hepatitis C. In G. Dore, & M. Jauncey (Eds.), *Hepatitis C clinical management in opiate pharmacotherapy settings* (pp. 35–42). Sydney: Australasian Society for HIV Medicine.
- Day, C., Ross, J., & Dolan, K. (2003). Hepatitis C-related discrimination among heroin users in Sydney: drug user or hepatitis C discrimination? *Drug and Alcohol Review*, 22, 317–321. <http://dx.doi.org/10.1080/0959523031000154463>
- Dore, G., & Jauncey, M. (2009). An overview of hepatitis C clinical management in opiate pharmacotherapy settings. In G. Dore, & M. Jauncey (Eds.), *Hepatitis C clinical management in opiate pharmacotherapy settings* (pp. 7–14). Sydney: Australasian Society for HIV Medicine.
- Drewes, J., Kraschl, C., Langer, P. C., & Kleiber, D. (2010, July). *Stigmatizing attitudes against people living with HIV and AIDS among MSM. Results from a nationwide survey of MSM in Germany*. Poster presentation at the XVIII International AIDS Conference, Vienna (Abstract no. TUPE0561).
- Eaton, L. A., & Kalichman, S. C. (2007). Risk compensation in HIV prevention: implications for vaccines, microbicides, and other biomedical HIV prevention technologies. *Current HIV/AIDS Reports*, 4, 165–172. <http://dx.doi.org/10.1007/s11904-007-0024-7>
- Fagan, P., & McDonell, P. (2010). Knowledge, attitudes and behaviours in relation to safe sex, sexually transmitted infections (STI) and HIV/AIDS among remote living north Queensland youth. *Australian and New Zealand Journal of Public Health*, 34(Supplement 1), S52–S56. <http://dx.doi.org/10.1111/j.1753-6405.2010.00554.x>
- Fife, B. L., & Wright, E. R. (2000). The dimensionality of stigma: a comparison of its impact on the self of persons with HIV/AIDS and cancer. *Journal of Health and Social Behavior*, 41, 50–67. Retrieved from <http://www.jstor.org/stable/2676360>
- Gamage, D. G., Read, T. R. H., Bradshaw, C. S., Hocking J. S., Howley, K., Chen, M. Y., & Fairley, C. K. (2011). *BMC Infectious Diseases*, 11, 39–44. <http://dx.doi.org/10.1186/1471-2334-11-39>
- Greenwald, A. G., Poehlman, T. A., Uhlmann, E., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology*, 97, 17–41. <http://dx.doi.org/10.1037/a0015575>
- Hillier, L., Turner, A., & Mitchell, A. (2005). *Writing themselves in again: 6 years on. The 2nd national report on the sexuality, health and well-being of same sex attracted young people in Australia* (Monograph Series no. 50). Melbourne: Australian Research Centre in Sex, Health and Society, La Trobe University.

- Holt, M. (2009). 'Just take Viagra': erectile insurance, prophylactic certainty and deficit correction in gay men's accounts of sexuopharmaceutical use. *Sexualities*, 12, 746–764. <http://dx.doi.org/10.1177/1363460709346112>
- Holt, M. (2011). Gay men and ambivalence about 'gay community': from gay community attachment to personal communities. *Culture, Health and Sexuality*, 13, 857–871. <http://dx.doi.org/10.1080/13691058.2011.581390>
- Holt, M., & Mao, L. (2010). Trends in testing for HIV among gay and other homosexually active men. In M. Hopwood, M. Holt, C. Treloar & J. de Wit (Eds.), *HIV/AIDS hepatitis and sexually transmissible infections in Australia: Annual Report of Trends in Behaviour 2010* (pp. 15–17). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Holt, M., Ellard, J., & de Wit, J. (2011). Preparing for biomedical prevention. In J. de Wit, M. Holt, M. Hopwood & C. Treloar (Eds.), *HIV/AIDS, hepatitis and sexually transmissible infections in Australia: Annual Report of Trends in Behaviour 2011* (pp. 39–40). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Holt, M., Lee, E., Prestage, G. P., Zablotska, I., de Wit, J., & Mao, L. (2012). The converging and diverging characteristics of HIV-positive and HIV-negative gay men in the Australian Gay Community Periodic Surveys, 2000–2009. *AIDS Care*. Advance online publication. <http://dx.doi.org/10.1080/09540121.2012.686598>
- Holt, M., Murphy, D. A., Callander, D. J., Ellard, J., Rosengarten, M., Kippax, S. C., & de Wit, J. (2012a). HIV-negative and HIV-positive gay men's attitudes to medicines, HIV treatments and antiretroviral-based prevention. *AIDS and Behavior*. Advance online publication. <http://dx.doi.org/10.1007/s10461-012-0313-z>
- Holt, M., Murphy, D. A., Callander, D. J., Ellard, J., Rosengarten, M., Kippax, S. C., & de Wit, J. (2012b). Willingness to use HIV pre-exposure prophylaxis and the likelihood of decreased condom use are both associated with unprotected anal intercourse and the perceived likelihood of becoming HIV-positive among Australian gay and bisexual men. *Sexually Transmitted Infections*, 88, 258–263. <http://dx.doi.org/10.1136/sextrans-2011-050312>
- Holt, M., Rawstorne, P., Worth, H., Bittman, M., Wilkinson, J., & Kippax, S. (2011). Predictors of HIV disclosure among untested, HIV-negative and HIV-positive Australian men who had anal intercourse with their most recent casual male sex partner. *AIDS and Behavior*, 15, 1128–1139. <http://dx.doi.org/10.1007/s10461-009-9645-8>
- Hopwood, M., Holt, M., Treloar, C., & de Wit, J. (Eds.) (2010). *HIV/AIDS, hepatitis and sexually transmissible infections in Australia: annual report of trends in behaviour 2010* (Monograph 4/2010). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Jin, F., Crawford, J., Prestage, G. P., Zablotska, I., Imrie, J. C., Kippax, S. C., ... Grulich, A.E. (2009). Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. *AIDS*, 23, 243–252. <http://dx.doi.org/10.1097/QAD.0b013e32831fb51a>
- Jin, F., Prestage, G. P., Matthews, G., Zablotska, I., Rawstorne, P., Kippax, S., ... Grulich, A. E. (2010). Prevalence, incidence and risk factors for hepatitis C in homosexual men: data from two cohorts of HIV-negative and HIV-positive men in Sydney, Australia. *Sexually Transmitted Infections*, 86, 25–28. <http://dx.doi.org/10.1136/sti.2009.038182>
- Khan, A., Hussain, R., & Schofield, M. (2005). Correlates of sexually transmitted infections in young Australian women. *International Journal of STD and AIDS*, 16, 482–487. <http://dx.doi.org/10.1258/0956462054308459>
- Kippax, S., Connell, R. W., Dowsett, G. W., & Crawford, J. (1993). *Sustaining safe sex: gay communities respond to AIDS*. London: The Falmer Press.
- The Kirby Institute (2011). *HIV, viral hepatitis and sexually transmissible infections in Australia: Annual Surveillance Report 2011*. Sydney: Author.
- Lea, T., Prestage, G., Mao, L., Zablotska, I., de Wit, J., & Holt, M. (2012). Trends in drug use among gay and bisexual men in Sydney, Melbourne and Queensland, Australia. *Drug and Alcohol Review*. Advance online publication. <http://dx.doi.org/10.1111/j.1465-3362.2012.00494.x>
- Lee, E., Mao, L., McKenzie, T., Batrouney, C., West, M., Prestage, G., ... Holt, M. (2012). *Gay Community Periodic Survey: Melbourne 2012*. Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Lim, M. S., Hellard, M. E., Aitken, C. K., & Hocking, J. S. (2007). Sexual-risk behaviour, self-perceived risk and knowledge of sexually transmissible infections among young Australians attending a music festival. *Sexual Health*, 4, 51–56. <http://dx.doi.org/10.1071/SH06031>
- Luetkemeyer, A., Hare, C. B., Stansell, J., Tien, P. C., Charlesbois, E., Lum, P., ... Peters, M. (2006). Clinical presentation and course of acute hepatitis C infection

- in HIV-infected patients. *Journal of Acquired Immune Deficiency Syndromes*, 41, 31–36. Retrieved from http://journals.lww.com/jaids/Fulltext/2006/01010/Clinical_Presentation_and_Course_of_Acute.5.aspx
- Mao, L., Kippax, S., Holt, M., Prestage, G., Zablotska, I., & de Wit, J. (2011). Rates of condom and non-condom based anal intercourse practices among homosexually active men in Australia: deliberate HIV risk reduction? *Sexually Transmitted Infections*, 87, 489–493. <http://dx.doi.org/10.1136/sextrans-2011-050041>
- Matthews, G. V., Hellard, M., Kaldor, J., Lloyd, A., & Dore, G. (2007). Further evidence of HCV sexual transmission among HIV-positive men who have sex with men: response to Danta et al. [Correspondence]. *AIDS*, 21, 2112–2113. <http://dx.doi.org/10.1097/QAD.0b013e3282ef3873>
- McIntosh, J., & McKeganey, N. (2000). Addicts' recovery from drug use: constructing a non-addict identity. *Social Science and Medicine*, 50, 1501–1510. [http://dx.doi.org/10.1016/S0277-9536\(99\)00409-8](http://dx.doi.org/10.1016/S0277-9536(99)00409-8)
- Myers, T., Allman, D., Xu, D., Remis, R.S., Aguinaldo, J., Burchell, A., ... Swantee, C. (2009). The prevalence and correlates of hepatitis C virus (HCV) infection and HCV–HIV co-infection in a community sample of gay and bisexual men. *International Journal of Infectious Diseases*, 13, 730–729. <http://dx.doi.org/10.1016/j.ijid.2008.11.015>
- Newman, C. E., de Wit, J. B., Kippax, S. C., Reynolds, R. H., Canavan, P. G., & Kidd, M. R. (2012). The role of the general practitioner in the Australian approach to HIV care: Interviews with 'key informants' from government, non-government and professional organisations. *Sexually Transmitted Infections*, 88, 132–135. <http://dx.doi.org/10.1136/sextrans-2011-050130>
- Newman, C. E., Kidd, M. R., de Wit, J. B., Reynolds, R. H., Canavan, P. G., & Kippax, S. C. (2011). What moves a family doctor to specialise in HIV? Interviews with Australian policy key informants. *Culture, Health and Sexuality*, 13, 1151–1164. <http://dx.doi.org/10.1080/13691058.2011.607904>
- Nock, M. K., Park, J. M., Finn, C. T., Deliberto, T. L., Dour, H. J., & Banaji, M. R. (2010). Measuring the suicidal mind: implicit cognition predicts suicidal behaviour. *Psychological Science*, 21, 511–517. <http://dx.doi.org/10.1177/0956797610364762>
- Owen, G. (2008). An 'elephant in the room'? Stigma and hepatitis C transmission among HIV-positive 'serosorting' gay men. *Culture, Health and Sexuality*, 10, 601–610. <http://dx.doi.org/10.1080/1369105802061673>
- Paterson, B.L., Backmund, M., Hirsch, G., & Yim, C. (2007). The depiction of stigmatisation in research about hepatitis C. *International Journal of Drug Policy*, 18, 364–373. <http://dx.doi.org/10.1016/j.drugpo.2007.02.004>
- Pedrana, A. E., Hellard, M. E., Wilson, K., Guy, R., & Stoové, M. (2012). High rates of undiagnosed HIV infections in a community sample of gay men in Melbourne, Australia. *Journal of Acquired Immune Deficiency Syndromes*, 59, 94–99. <http://dx.doi.org/10.1097/QAI.0b013e3182396869>
- Persson, A., & Newman, C. (2012). When HIV-positive children grow up: A critical analysis of the transition literature in developed countries. *Qualitative Health Research*, 22, 656–667. <http://dx.doi.org/10.1177/1049732311431445>
- Prestage, G., Ferris, J., Grierson, J., Thorpe, R., Zablotska, I., Imrie, J., ... Grulich, A. E. (2008). Homosexual men in Australia: population, distribution and HIV prevalence. *Sexual Health*, 5, 97–102. <http://dx.doi.org/10.1071/SH07080>
- Rance, J., & Treloar, C. (2012). *Integrating treatment: key findings from a qualitative evaluation of the Enhancing Treatment of Hepatitis C in Opiate Substitution Settings (ETHOS) study* (Monograph 1/2012). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Rance, J., Newland, J., Hopwood, M., & Treloar, C. (2012). The politics of place(ment): providing hepatitis C treatment within opiate substitution. *Social Science and Medicine*, 74, 245–253. <http://dx.doi.org/10.1016/j.socscimed.2011.10.003>
- Rawstorne, P., Holt, M., Kippax, S., Worth, H., Wilkinson, J., & Bittman, M. (2009). *e-male survey 2008: key findings from a national online survey of men who have sex with men in Australia* (Monograph 3/2009). Sydney: National Centre in HIV Social Research, The University of New South Wales.
- Reynolds, R. (2007). *What happened to gay life?* Sydney: New South.
- Rooke, S. E., Hine, D. W., & Thorsteinsson, E. B. (2008). Implicit cognition and substance use: A meta-analysis. *Addictive Behaviors*, 33, 1314–1328. <http://dx.doi.org/10.1016/j.addbeh.2008.06.009>

- Rowe, M. S., & Dowsett, G. W. (2008). Sex, love, friendship, belonging and place: is there a role for 'gay community' in HIV prevention today? *Culture, Health and Sexuality*, 10, 329–344. <http://dx.doi.org/10.1080/13691050701843098>
- Serpaggi, J., Chaix, M. L., Batisse, D., Dupont, C., Vallet-Prichard, A., Fontaine, H. ... Pol, S. (2006). Sexually transmitted acute infection with a clustered genotype 4 hepatitis C virus in HIV-1 infected men and inefficacy of early antiviral therapy. *AIDS*, 20, 233–240. Retrieved from http://journals.lww.com/aidsonline/Fulltext/2006/01090/Sexually_transmitted_acute_infection_with_a.11.aspx#P18
- Sexually Transmissible Infections in Gay Men Action Group (STIGMA). (2010). *Sexually transmitted infection testing guidelines for men who have sex with men 2010*. Sydney: Author.
- Smith A., Agius, P., Dyson, S., Mitchell, A., & Pitts, M. (2003). *Secondary students and sexual health 2002: Results of the 3rd National Survey of Australian Secondary Students, HIV/AIDS and Sexual Health* (Monograph Series no. 47). Melbourne: Australian Research Centre in Sex, Health & Society, La Trobe University.
- Smith A., Agius P., Mitchell A., Barrett C., & Pitts M. (2009). *Secondary students and sexual health 2008: Results of the 4th National Survey of Australian Secondary Students, HIV/AIDS and Sexual Health* (Monograph Series no. 70). Melbourne: Australian Research Centre in Sex, Health & Society, La Trobe University.
- Snowden, J. M., Raymond, H. F., & McFarland, W. (2009). Prevalence of seroadaptive behaviours of men who have sex with men, San Francisco, 2004. *Sexually Transmitted Infections*, 85, 469–476. <http://dx.doi.org/10.1136/sti.2009.036269>
- Snowden, J. M., Raymond, H. F., & McFarland, W. (2011). Seroadaptive behaviours among men who have sex with men in San Francisco: the situation in 2008. *Sexually Transmitted Infections*, 87, 162–164. <http://dx.doi.org/10.1136/sti.2010.042986>
- Sturrock, C. J., Currie, M. J., Vally, H., O'Keefe, E. J., Primrose, R., Habel, P., ... Bowden, F. J. (2007). Community-based sexual health care works: a review of the ACT outreach program. *Sexual Health*, 4, 201–204. <http://dx.doi.org/10.1071/SH07003>
- Treloar, C., & Hopwood, M. (2004). Infection control in the context of hepatitis C disclosure: implications for education of healthcare professionals. *Education for health*, 17, 183–191. http://www.educationforhealth.net/EfHArticleArchive/1357-6283_v17n2s7_713660520.pdf
- Urbanus, A. T., van der Laar, T. J., Stolte, I. G., Schinkel, J., Heijman, T., Coutinho, R. A., & Prins, M. (2009). Hepatitis C virus infections among HIV-infected men who have sex with men: an expanding epidemic. *AIDS*, 23, F1-F7. <http://dx.doi.org/10.1097/QAD.0b013e32832e5631>
- Van de Laar, Matthews, G., Prins, M. & Danta, M. (2010). Acute hepatitis C in HIV-infected men who have sex with men: an emerging sexually transmitted infection. *AIDS*, 24, 1799–1812. <http://dx.doi.org/10.1097/QAD.0b013e32833c11a5>
- Van de Ven, P., Crawford, J., Kippax, S., Knox, S., & Prestage, G. (2000). A scale of optimism–scepticism in the context of HIV treatments. *AIDS Care*, 12, 171–176. <http://dx.doi.org/10.1080/09540120050001841>
- Van de Ven, P., Rawstone, P., Crawford, J., & Kippax, S. (2001). *Facts & Figures: 2000 Male Out Survey* (Monograph 2/2001). Sydney, National Centre in HIV Social Research, The University of New South Wales.
- Whittaker, B. (2011). *Australia should lead a global HIV prevention revolution*. *HIV Australia*, 9(3), 7–8.
- Wiers, R. W., & Stacy, A. W. (Eds.) (2006). *Handbook on implicit cognition and addiction*. Thousand Oaks, CA: Sage.
- Wiers, R. W., Houben, K., & de Kraker, J. (2007). Implicit cocaine associations in active cocaine users and controls. *Addictive Behaviors*, 32, 1284–1289. <http://dx.doi.org/10.1016/j.addbeh.2006.07.009>
- Wilson, D. P., Hoare, A., Regan, D. G., & Law, M. G. (2009). Importance of promoting HIV testing for preventing secondary transmissions: modelling the Australian HIV epidemic among men who have sex with men. *Sexual Health*, 6, 19–33. <http://dx.doi.org/10.1071/SH08081>
- Wohlfeiler, D. (2002). From community to clients: the professionalisation of HIV prevention among gay men and its implications for intervention selection. *Sexually Transmitted Infections*, 78(Suppl. 1), i176–i182. http://dx.doi.org/10.1136/sti.78.suppl_1.i176
- Zablotska, I. B., Holt, M., & Prestage, G. (2012). Changes in gay men's participation in gay community life: implications for HIV surveillance and research. *AIDS and Behavior*, 16, 669–675. <http://dx.doi.org/10.1007/s10461-011-9919-9>