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Medicine

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Key findings

- Although there were shifts in the patterns of drugs injected reported by ANSPS participants over the period 1995-2010, participants in all survey years were most likely to report having last injected either heroin or methamphetamine.
- Heroin was the drug most recently injected by more than half of ANSPS respondents throughout the 1990s. From 2001, reports of heroin as the last drug injected declined to approximately one third of respondents.
- Methamphetamine was the drug most recently injected by around one quarter of survey respondents in all survey years, with the exception of the period 2001- 2006 when approximately one third of participants reported having last injected methamphetamine.
- The proportion of participants who most recently injected pharmaceutical opioids remained stable at 3% to 4% during the 1990s, but increased during the 2000s, reaching 16% in 2010.
- Reports of methadone as the last drug injected were highest in 1995 at 19%, but declined to a low of 3% in 1999 and 2000. Prevalence of methadone as the last drug injected ranged from 7% to 10% between 2002 and 2010.
- The proportion of participants who reported last injecting buprenorphine increased from 1% in 2002 (when data collection began) to 5% in 2006, with prevalence stable at 4%-5% since 2006.
- Reports of cocaine or anabolic steroids as the drug last injected remained low at 5% or less in the majority of years between 1995 and 2010.

Drug injection trends among participants in the Australian Needle and Syringe Program Survey (ANSPS), 1995 - 2010

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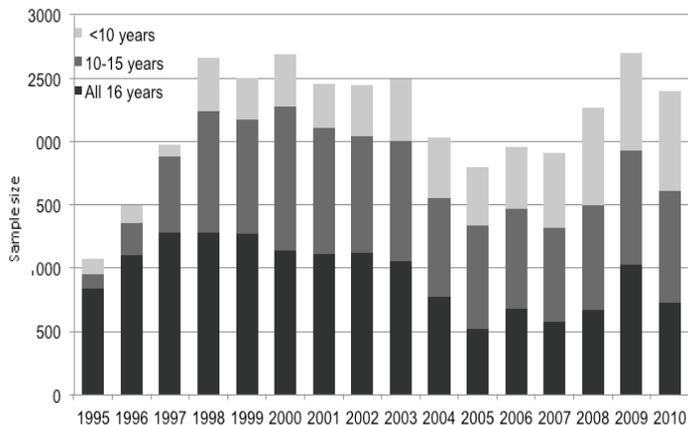
Introduction

The collaboration of Australian Needle and Syringe Programs has conducted annual sentinel surveillance of human immunodeficiency virus (HIV) and hepatitis C virus (HCV) and associated risk behaviours among people who inject drugs since 1995. In October each year, all clients attending selected needle and syringe programs (NSPs) over a one to two week period are invited to participate in the Australian NSP Survey (ANSPS). Participation involves completion of a brief self-administered anonymous questionnaire and the provision of a capillary blood sample which is subsequently tested for HIV and HCV antibodies. This issue of the Drug Trends Bulletin reports national and jurisdictional trends in ANSPS participant characteristics over the period 1995 to 2010.

Twenty NSP services were selected to participate in the 1995 ANSPS. Selection was based on the number of client occasions of service per week, willingness to participate and representation across all jurisdictions. A number of additional NSP services were recruited to participate in subsequent years, with the majority of these participating consistently since commencement. Close to half (44%) of the total number of ANSPS participants were recruited from the 13 sites that participated in all sixteen survey years; a further 36% were recruited from 18 sites that participated in ten or more survey years; and the remaining 20% of respondents were

recruited from sites that participated in less than ten survey years (Figure 1). In 2010, 53 primary NSP services or just over two-thirds of all primary NSPs in Australia (67%) participated in the ANSPS. Sample sizes ranged from 1072 (in 1995) to 2697 (in 2009) and response rates ranged from 38% (2006) to 60% (1997). An examination of the representativeness of ANSPS participants of the broader population of NSP clients demonstrated that these samples are as representative a sample of injectors as it is practical to obtain (Topp et al., 2008).

Figure 1. Sample size by site participation and survey year, 1995 - 2010



National Trends

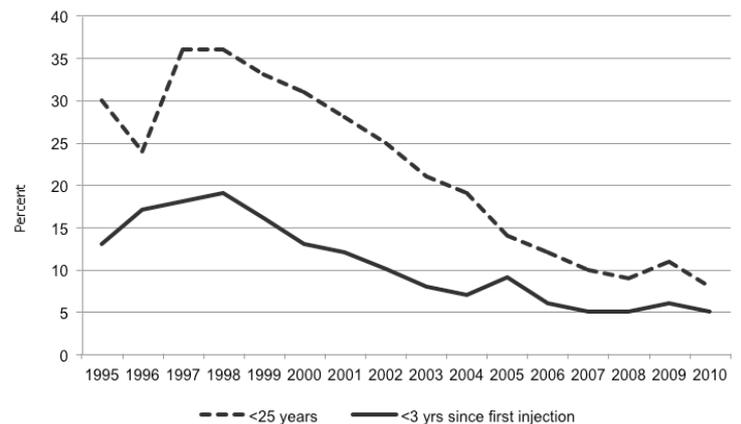
Demographic characteristics

Two thirds of ANSPS respondents were male in all survey years. The majority of respondents identified as heterosexual (76% to 83%), with smaller proportions identifying as bisexual (9% to 12%) and homosexual (3% to 7%). The proportion of Indigenous participants increased from 5% in 1995 to 11% in 2010 (χ^2 trend $p < 0.001$). An equivalent increase occurred among participants from the 13 sites that participated in all survey years, suggesting that this trend is not attributable to variations in participating sites. The majority of participants reported being born in Australia (70% to 88%) and that their parents spoke English at home (67% to 95%).

The proportion of young people (aged younger than 25 years) and new injectors (who initiated injecting less than three years preceding survey participation) increased between 1995 and 1998, but declined in subsequent years (Figure 2). There was a concomitant increase in the median age of participants, from 27 years in 1997 to 37 years in 2010. In 1995 less than 10% of ANSPS participants were aged 40 years or older, whereas this group comprised 40% of participants

in 2010. Median age at first injection remained stable at 18 years across all survey years.

Figure 2. Proportion of young injectors and new initiates, 1995 - 2010



Frequency of injecting

The proportion of survey respondents who reported injecting daily or more frequently ranged from 40% to 58% over the period 1995 to 2010. Prevalence of daily injecting was highest (at between 55% and 58%) during the period 1998 to 2000, but remained stable at between 46% and 50% in all subsequent years (2001 to 2010). A minority of ANSPS respondents (6% to 11%) reported not having injected in the month preceding survey completion.

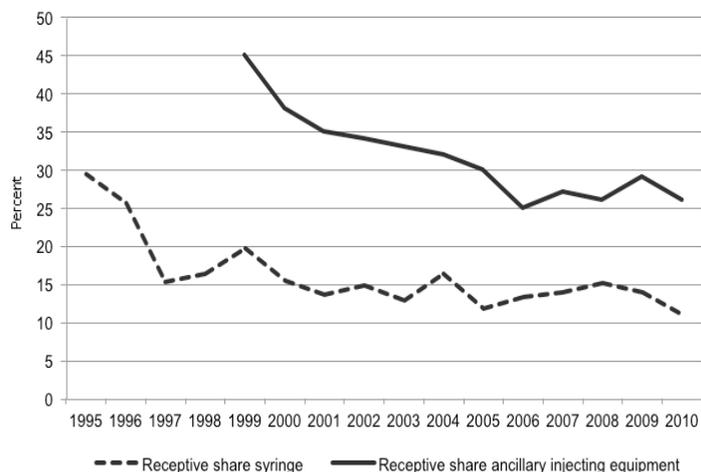
Syringe re-use

The proportion of respondents who reported syringe re-use (including re-use of one's own syringe) declined from 31% in 1997 (when data collection began) to 22% in 2010 (c^2 trend $p < 0.001$). Prevalence of syringe re-use has been relatively stable at between 22% and 28% over the period 2001 to 2010.

Receptive sharing of syringes and ancillary injecting equipment

Prevalence of receptive sharing of syringes and ancillary injecting equipment (spoons, water, filters and drug mix) declined significantly since collection of these data began in 1995 and 1999 respectively (Figure 3). The proportion of respondents that reported receptive sharing of syringes halved from 30% in 1995 to approximately 15% in all years since 2000 (c^2 trend $p < 0.001$). Receptive sharing of ancillary injecting equipment declined from 45% in 1999 to 26% in 2005 (c^2 trend $p < 0.001$) with spoons and water the two most commonly shared ancillary items in all survey years.

Figure 3. Prevalence of receptive sharing of syringes and ancillary injecting equipment, 1995 - 2010



Public injecting

The majority (80% to 90%) of survey participants in all years reported injecting in their own home in the preceding month. The proportion of respondents who reported injecting in at least one public location (street, car, public toilet, beach, park or squat) in the month preceding the survey increased during the late 1990s, to a high of 57% in 2000. Prevalence of public injecting declined in subsequent years and remained relatively stable at between 42% and 46% between 2003 and 2010. Notably, respondents who reported injecting in their own home were significantly less likely to report injecting in a public place ($p < 0.01$ in all years except 2001).

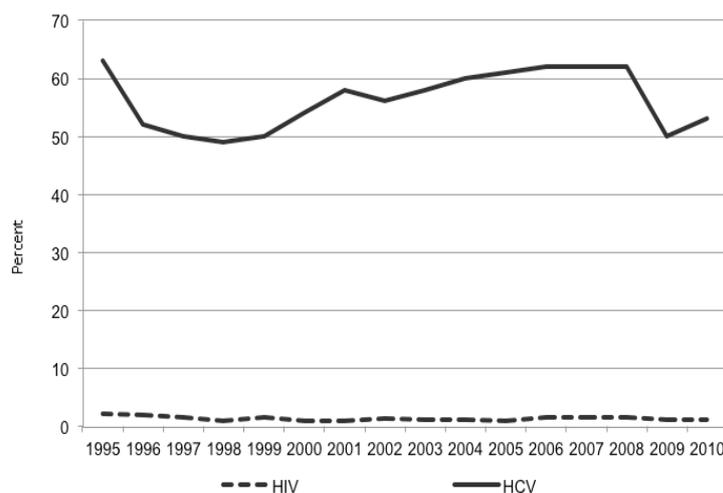
HIV and hepatitis C virus (HCV) antibody prevalence

HIV antibody prevalence has remained low and stable at 2.1% or less in all survey years (Figure 4). The epidemiology of HIV among NSP attendees reflects that of the broader Australian epidemic, with seroprevalence highest among men who have sex with men (Topp et al., 2011). Over the period 1995 - 2010, homosexual men comprised between 5% and 9% of annual survey samples, with HIV antibody prevalence among that sub-population ranging from 14% to 39%.

Notwithstanding some variation over the 16 year period, HCV antibody prevalence was high among ANSPS participants in all survey years (Figure 4). Prevalence was highest at 60% or more in 1995 and between 2004 and 2007, while prevalence of approximately 50% was observed between 1996 and 1999 and in 2009 and 2010. HCV antibody prevalence varied according to the drug injected most recently, with prevalence highest among respondents who reported last injecting heroin (range 53% to 74%) and other opioids (including

methadone, buprenorphine and pharmaceutical opioids, range 51% to 80%). HCV antibody prevalence was lower among respondents who reported last injecting methamphetamine (range 19% to 51%), while the subpopulation of participants who reported last injecting anabolic steroids evidenced markedly lower HCV antibody prevalence (range 0% to 40%; Day et al., 2008).

Figure 4. Prevalence of HIV and HCV antibodies, 1995 - 2010.



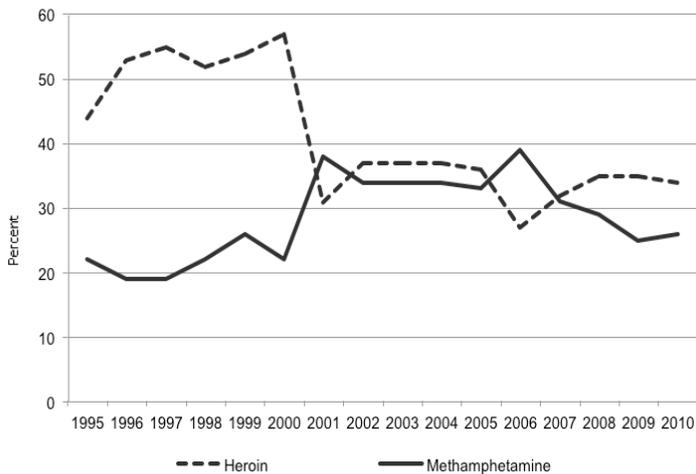
National and jurisdictional trends in last drug injected

Heroin

Nationally, heroin was the drug most commonly reported as last injected by ANSPS respondents in all years except 2001 and 2006 (Figure 5). During the period 1996 to 2000, heroin was the drug most recently injected by more than half of survey respondents. In 2001, coinciding with well-documented changes to Australia's heroin market (Maher et al., 2007, Topp, Day, & Degenhardt, 2003), there was a sudden and dramatic decline in the proportion of respondents who reported heroin as the drug last injected, with approximately one third of ANSPS participants injecting this drug most recently in all years between 2001 and 2010.

At the jurisdictional level, heroin was the most common drug last injected in four of the eight jurisdictions (Australian Capital Territory, New South Wales, Victoria and Western Australia) in almost all survey years. In 2010, prevalence of heroin as the last drug injected was highest in Victoria (60%), and lowest in Tasmania (1%) and the Northern Territory (4%).

Figure 5. Prevalence of heroin and methamphetamine as last drug injected, 1995 - 2010.



Methamphetamine

Methamphetamine was the second most commonly reported last drug injected in all years except 2001 and 2006, when it was reported by the majority of participants. During the period 1995 to 2000, between one fifth and one quarter of respondents reported most recently injecting methamphetamine. There was an increase in prevalence of methamphetamine injection in 2001, which coincided with changes to the heroin market and a decline in heroin injection (Figure 5). Prevalence of methamphetamine as the drug most recently injected was stable at around one third of participants between 2001 and 2007, but subsequently declined, with approximately 25% of participants in 2009 and 2010 reporting most recently injecting methamphetamine.

Methamphetamine was the most commonly reported drug last injected in Queensland and South Australia in all years between 2001 and 2010. In 2010, prevalence of methamphetamine as the last drug injected was highest in South Australia (40%) and lowest in Victoria (13%), with prevalence ranging between 25% and 30% in all other jurisdictions.

Pharmaceutical opioids

Nationally, reports of recent injection of pharmaceutical opioids were relatively uncommon at 5% or less during the period 1995 to 2000, however prevalence of injection of this class of drugs increased significantly over the period 2000 to 2010 (χ^2 trend $p < 0.001$, Figure 6). In 2010, 16% of survey respondents reported most recently injecting pharmaceutical opioids, ranking injection of this class of drugs third after

heroin and methamphetamine at the national level.

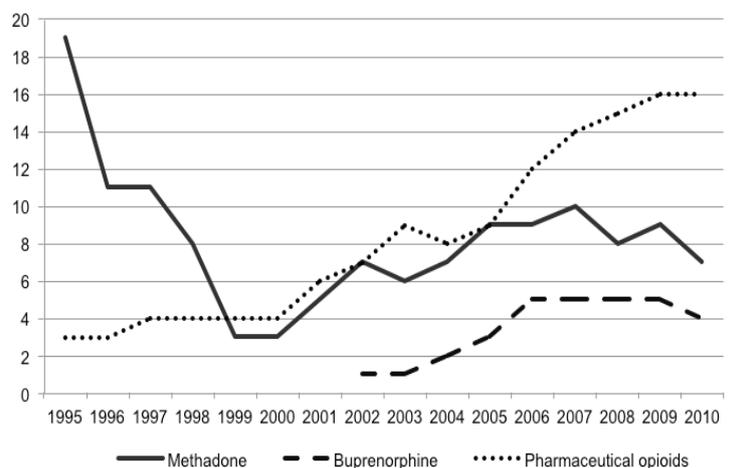
Significant increases (χ^2 trend $p < 0.01$) in the prevalence of injection of pharmaceutical opioids over the period 2000 to 2010 were also observed in New South Wales (1% to 9%), Queensland (2% to 26%), South Australia (7% to 12%), Victoria (2% to 8%) and Western Australia (5% to 14%). Over the same period, the proportion of respondents who reported last injecting a pharmaceutical opioid ranged from 43% to 79% in the Northern Territory, which was significantly higher than any other jurisdiction.

Methadone and buprenorphine

Reports of methadone as the last drug injected were highest in 1995 at 19%, but declined to a low of 3% in 1999 and 2000. Prevalence of methadone as the last drug injected has ranged from 7% to 10% between 2002 and 2010. There were jurisdictional variations in prevalence of methadone injection in 2010. Prevalence was highest in Tasmania where around one in three ANSPS respondents reported methadone as the last drug injected and lowest in Victoria and South Australia at 3%.

The proportion of ANSPS respondents who reported buprenorphine as the last drug injected increased from 1% in 2002 (when data collection began) to 5% in 2006, with prevalence remaining stable at 4%-5% between 2006 and 2010 (Figure 6). Prevalence of buprenorphine injection was highest in Victoria (range 3% to 11%) and Western Australia (range 1% to 11%), and lowest in New South Wales and Tasmania, at 3% or less since 2002.

Figure 6. Prevalence of methadone, buprenorphine and pharmaceutical opioids as last drug injected, 1995 - 2010.



Other drugs

Over the period 1995 to 2010, cocaine was the drug most recently injected among a minority of ANSPS respondents (1% to 3%) in all years except 2001, when prevalence was 7%. The majority (83%) of reports of recent cocaine injection occurred in New South Wales, with cocaine rarely reported in all other jurisdictions.

Likewise, only a small proportion (2% or less) of participants reported most recently injecting anabolic steroids over the period 1995 to 2010. Reports of anabolic steroid injection were particularly uncommon in the Australian Capital Territory, Tasmania and Western Australia where prevalence of 1% or less was observed.

Summary

Although variations in the patterns of drug most recently injected were observed within and between jurisdictions, heroin and methamphetamine dominated as the two most commonly injected drugs among ANSPS participants in all years between 1995 and 2010. Heroin was the most commonly injected, reported by more than half of ANSPS respondents in all years between 1995 and 2000, and by around one third of participants between 2001 and 2010. Methamphetamine was the drug most recently injected by around one quarter of participants in all years except the period between 2001 and 2007, when around a third of respondents reported last injecting methamphetamine. Reports of pharmaceutical opioids as the drug last injected were relatively uncommon during the period 1995 to 2000, however prevalence of injection of this drug class increased significantly over the period 2000 to 2010, with pharmaceutical opioids ranking as the third most common class of drugs last injected in all years since 2006. Prevalence of methadone injection was highest during the period 1995 to 1997, but remained below 10% in all years between 1998 and 2010. With the exception of an increase in the proportion of ANSPS respondents who reported last injecting cocaine in 2001, prevalence of each of buprenorphine, anabolic steroids and cocaine as the last drug injected remained low at less than 5% over the period 1995 to 2010.

References

Day, C.A., Topp, L., Iversen, J., Maher, L. (2008). Blood-borne virus prevalence and risk among steroid injectors: results from the Australian Needle and Syringe Program Survey. *Drug Alcohol Rev* 27, 559-561.

Iversen, J., Topp, L., Maher, L. (2011) Australian NSP Survey National Data Report 1995 - 2010, Prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees. Sydney: Kirby Institute, University of New South Wales.

Maher L, Li J, Jalaludin B, Wand H, Jayasuriya R, Dixon D, Kaldor JM. (2007). Impact of a reduction in heroin availability on patterns of drug use, risk behaviour and incidence of hepatitis C virus infection in injecting drug users in New South Wales, Australia. *Drug and Alcohol Dependence* 89:244-250.

Topp, L., Day, C., Degenhardt, L. (2003). Changes in patterns of drug injection concurrent with a sustained reduction in the availability of heroin in Australia. *Drug Alcohol Depend* 70, 275-286.

Topp, L., Iversen, J., Wand, H., Day, C., Kaldor, J., Maher, L. (2008). Representativeness of injecting drug users who participate in HIV surveillance: results from Australia's Needle and Syringe Program Survey. *J Acquir Immune Defic Syndr* 47, 632-638.

Topp, L., Day, C.A., Iversen, J., Wand, H., Maher, L. (2011). Fifteen years of HIV surveillance among people who inject drugs: the Australian Needle and Syringe Program Survey 1995-2009. *AIDS* 25, 835-842.

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