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Problematic drug use, ageing and older people: trends in the age of drug users in northwest England

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ABSTRACT
In the United Kingdom (UK) and elsewhere, little is known about problematic drug use among older people (defined here as aged 50–74 years), either because few older drug users exist or because they represent a 'hidden' population. In this paper, we show that the average age of drug users in contact with treatment services and agency-based syringe exchange programmes (SEPs) in the counties of Cheshire and Merseyside in northwest England is rising. Between 1998 and 2004–05, the number of older male drug users in treatment increased from 80 to 310, and the number of older females rose from 46 to 117. Consequently, the median age rose from 30.8 years in 1998 to 34.9 years in 2004–05. Similarly, between 1992 and 2004, the number of older injectors accessing SEPs increased from three to 65 men and from one to nine women. The median age of SEP attenders was 27.0 years in 1992 and 34.9 years in 2004. Drug use amongst older people is associated with poor physical and psychological health and longer hospital stays. The future cost of the ageing of drug users may be considerable. Detailed research is needed to identify the characteristics and health needs of this vulnerable population.

KEY WORDS – drug use, drug treatment, syringe exchange, older people, ageing, injecting, heroin, National Drug Treatment Monitoring System.

Introduction

Drug use is recognised globally as a significant public health concern. In April 1998, the United Kingdom (UK) government published *Tackling Drugs to Build a Better Britain*, a 10-year drugs strategy which was subsequently updated in 2002 (Drugs Strategy Directorate 1998, 2002). Although the strategy sets out various policies, all are set in a framework of four areas of intervention: preventing young people commencing drug use, reducing the impact of drugs on communities (*e.g.* through reducing

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drug-related crime), improving treatment and harm minimisation, and reducing the supply and availability of drugs. There are key performance indicators for all four. Arguably, the main focus of the recent initiatives has been to encourage people into treatment, in the belief that treatment contacts will bring benefits for both individual drug users and the wider community. The main ways of achieving this have been to increase treatment capacity and the availability of services, but they have been coupled with the criminal justice initiatives of the Drug Interventions Programme (DIP) that are designed to encourage drug-using offenders to engage with treatment services. Older drug users are known to commit less crime than their younger counterparts (Gossop *et al.* 2006), possibly because they believe that criminal behaviour is too (physically) demanding, difficult or risky, or that the penalty of incarceration is too great (Levy and Anderson 2005). Older individuals therefore benefit little from criminal justice initiatives, and no programmes or interventions have the specific aim of encouraging older users to participate in treatment. There is still a widespread perception in the UK that older drug users do not exist or are very rare, partly, we argue, because older drug users are a 'hidden' population.

There was escalating drug use in the United Kingdom during the 1980s, with approximately 80 per cent using heroin, and most others being solely smokers of cannabis (Parker, Newcombe and Bakx 1987). A typical drug-using career is perceived to end in middle age, if not sooner, through death, illness, voluntary cessation or for other reasons, but this is not always the case. A study of 40 injecting drug users in a depressed area of Chicago found that some drug-users' careers spanned 25 or more years (Levy and Anderson 2005). Harm-reduction measures and treatment programmes were introduced in the UK during the 1980s in response to the opiate outbreak, most notably substitute methadone prescribing to divert their need for heroin. It is not known if these have prevented the premature deaths of the first wave of drug users. If so, many of those still alive today would be aged 50 or more years. A 1984–85 study of opioid users in Wirral, Merseyside, reported that 276 of the 1,305 known users were aged 35 or more years (Parker, Newcombe and Bakx 1987); any that survived in 2006 would have been at least 57 years of age.

Furthermore, it is has been shown that some people commence drug use in later life. Johnson and Sterk's (2003) community study in the United States found that it was not uncommon for men aged 50 or more years, and women in midlife, to begin to use crack-cocaine, and that whilst some were already using other substances (most often heroin), others had no previous drug experience. While much has been written about the psychosocial correlates of drug abuse among young people (such as early aggressive behaviour, lack of parental supervision, substance abuse, drug

availability and poverty; see National Institute on Drug Abuse 2003), little work has investigated the reasons for drug initiation amongst older people.

The Merseyside region is centred on the City of Liverpool, and Cheshire is to the southeast. The combined area has both rural and high population-density urban areas, and in mid-2005 had an estimated population of 2,047,003. It has been estimated that the prevalence of problematic drug use in the metropolitan centre (*viz.* usually addiction to opiates or crack-cocaine) is as high as 52 per 1,000 males aged 15–44 years (Beynon *et al.* 2001*a*). To date, there has been little local or national investigation of whether the age profile of the drug-using population has changed over time, even though it is well recognised that the British population, as in other affluent countries, is living longer although healthy life expectancy may be increasing more slowly; resulting in more years lived with ill or poor health from chronic conditions (House of Lords 2005). Harm reduction and treatment initiatives might have prevented the premature deaths of drug users who commenced drug use during the 1980s, but it is likely that these individuals currently suffer poorer health and long-term illnesses.

Aims and objectives

This paper first collates and analyses data from two well-established monitoring systems on the age of the clients of Tier 3 and Tier 4 drug-treatment interventions, which are predominantly substitute prescribing services, psycho-therapeutic interventions, structured counselling therapies, community and in-patient detoxification services, and community aftercare and day-care programmes.[1] It secondly examines changes in the age of drug injectors who are in contact with the agency-based syringe exchange programmes (SEPs) that were established in the UK during the 1980s in response to the emergence of the human immunodeficiency virus (HIV); they provide injecting drug users with clean injecting equipment. The first hypothesis was that the population of drug users in Cheshire and Merseyside has aged.

Methods

In 1997, on behalf of the local health services, the Centre for Public Health at Liverpool John Moores University established a bespoke monitoring system to record data on all those who contacted drug treatment services in Cheshire and Merseyside. The data were reported by calendar year until 2001–02, after which, to adhere to new national requirements, the reporting cycle was changed to the financial year (1st April to 31st March) (for an example of the published data, see Beynon, Birtles and Bellis

2001*b*). In 1997, the national monitoring system of drug treatment contacts did not collect prevalence data but only recorded new contacts. In 2001, a new National Drug Treatment Monitoring System (NDTMS), based largely on the Cheshire and Merseyside bespoke system (Beynon *et al.* 2001*a*), was initiated and began to collect annual treatment prevalence data by financial year. Both systems collected data in a pseudo-anonymous form, with each individual being identified by a code derived from their initials, date-of-birth and sex. The use of this 'attributor code' for data matching and duplicate removal has been validated (Crabbe and Domnall 1996). Particular NDTMS data fields, such as date-of-birth, are subject to verification checks (Donmall and Jones 2004). Given the similarities between the two systems, the data have been amalgamated into a single longitudinal database of 26,415 individuals aged 11–74 years who contacted treatment services between 1997 and 2004–05. For this paper, the data for the years 1998 to 2004–05 have been extracted.[2] Multiple records for an individual in one year were aggregated to remove double counting, and each individual's age at the end of the reporting period was calculated.

A system for recording all drug-related contacts at agency-based SEPs across Cheshire and Merseyside was established by the Centre for Public Health in 1991. As with the treatment data, an individual was identified by their attributor code (for an example of published data, see McVeigh, Beynon and Bellis 2003). Data for the years 1992 to 2004 were extracted from the SEP database. People who were steroid injectors were removed, so only 'problematic' injectors remained (usually injectors of opiates and/or stimulants). Multiple records for individuals were aggregated to remove double counting. End-of-reporting-period ages were calculated for each individual. Chi-squared for trend analyses were used to assess changes in the proportion of people aged 11–49 years and 50–74 years in treatment and who attended SEPs.[3] A linear regression model was calibrated to establish whether there was a significant trend over the reporting period (1998 to 2004–05) in the proportion of individuals in drug treatment aged 40–49 years (*i.e.* the potential older drug users of the future).

Results

Drug users in contact with treatment services

While most drug users who are in contact with health services for treatment in Cheshire and Merseyside are aged 11–49 years, between 1998 and 2004–05 the number aged 50–74 years of both genders increased (Table 1). The median age for those in contact with treatment services was 30.8 years (inter-quartile range: 26.8 to 34.9) in 1998, compared to 34.9 years (inter-quartile range: 29.9 to 39.6) in 2004–05. Because it is stipulated that any

TABLE 1. *The age of males and females receiving structured treatment for drug use in Cheshire and Merseyside, 1998 to 2004–05*

	Males				Females			
	11–49 years		50–74 years		11–49 years		50–74 years	
Year	N	%	N	%	N	%	N	%
1998	5,126	98.5	80	1.5	2,357	98.1	46	1.9
1999	4,880	97.9	104	2.1	2,258	98.6	31	1.4
2000–01	5,472	97.5	142	2.5	2,510	98.2	47	1.8
2001–02	5,548	97.7	130	2.3	2,366	98.2	44	1.8
2002–03	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2003–04	6,930	96.9	223	3.1	3,006	97.2	87	2.8
2004–05	8,354	96.4	310	3.6	3,497	96.8	117	3.2

Notes: n.a. data not available for 2002–03 (see text). The chi-squared trend statistics were, for men, 63.73 (5 degrees of freedom (df), $p < 0.001$), and for women, 24.69 (5 df, $p < 0.001$).

records that declare an age outside the range 11 to 74 years are spurious, and so are deleted, it is not known how many who received treatment were aged 75 or more years (Donmall and Jones 2004). Of those aged 50–74 years, the majority of those using drugs and receiving treatment were aged 50–54 years. Between 1998 and 2004–05, however, there was an increasing number of both male and female drug users aged 55–59 years, and of males aged 60–64 years (Table 2). Furthermore, the linear regression model showed a rising trend in the proportion of individuals in contact with treatment services aged 40–49 years ($R^2 = 0.96$, $p = 0.001$, Figure 1); 8.1 per cent of the treatment population were aged 40–49 years in 1998 compared to 19.6 per cent in 2004–05.

Drug users in contact with syringe exchange programmes

Of the drug users that accessed syringe exchange programmes between 1992 and 2004 the majority were aged 11–49 years, the number in this age group increased from 1,865 to 1,962, and they were predominantly male. Those aged 50–74 years were a minority, but the number increased from four (0.2 %) in 1992 to 74 (3.8 %) in 2004. The proportion aged 50–74 years significantly increased among both males and females, and the median age of problematic drug users in contact with syringe exchanges rose from 27.0 years (inter-quartile range: 23.8–30.9), to 34.9 years (inter-quartile range: 30.6–39.5) (Table 3).

Discussion

The population of problematic drug users in contact with structured treatment services and agency-based syringe exchange programmes in

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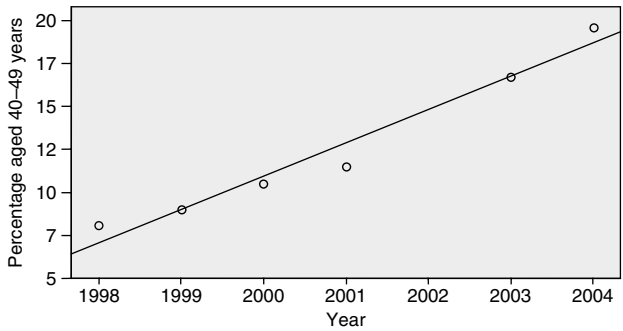
TABLE 2. *The age distribution of males and females aged 50 or more years who received structured treatment for drug use in Cheshire and Merseyside, 1998 to 2004–05*

	Age group (years)									
	50–54		55–59		60–64		65–69		70–74	
Sex and year	N	%	N	%	N	%	N	%	N	%
Males										
1998	57	71.3	14	17.5	5	6.3	1	1.3	3	3.8
1999	80	76.9	17	16.3	3	2.9	2	1.9	2	1.9
2000–01	101	71.1	33	23.2	3	2.1	2	1.4	3	2.1
2001–02	99	76.2	26	20.0	4	3.1	1	0.8	–	–
2002–03	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2003–04	153	68.6	56	25.1	11	4.9	1	0.4	2	0.9
2004–05	196	63.2	81	26.1	24	7.7	7	2.3	2	0.6
Females										
1998	25	54.3	10	21.7	8	17.4	2	4.3	1	2.2
1999	21	67.7	4	12.9	5	16.1	–	–	1	3.2
2000–01	32	68.1	10	21.3	3	6.4	1	2.1	1	2.1
2001–02	27	61.4	13	29.5	4	9.1	–	–	–	–
2002–03	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2003–04	60	69.0	16	18.4	4	4.6	6	6.9	1	1.1
2004–05	70	59.8	31	26.5	5	4.3	9	7.7	2	1.7

Notes: n.a. data not available for 2002–03 (see text).

Cheshire and Merseyside is ageing. The median age of injectors in contact with SEPs, for example, increased by almost eight years between 1992 and 2004, and the proportion of in-treatment drug users aged 40–49 years increased from 8.1 per cent in 1998 to 19.6 per cent in 2004–05. The findings from Cheshire and Merseyside are not particular to the region or indeed to the UK. Whilst the exact UK prevalence of drug use is unknown (because much is covert), the 2004–05 British Crime Survey's representative sample of people living in England and Wales estimated that approximately 3.5 million people had used drugs during the previous year, and that one million had used Class A drugs (those deemed most harmful and associated with the most severe penalties). The age of the recorded respondents was constrained between 16 and 59 years, however, and there was no information on drug use among those aged 60 or more years because of their 'very low prevalence rates for the use of prohibited drugs' (Roe 2005). While the 'last year prevalence' of drug use in the three youngest age groups decreased between 1998 and 2004–05, with those aged 16–19 and 20–24 years exhibiting the largest falls, the prevalence in the three oldest age groups increased; among those aged 35–44 years, from 6.0 to 7.3 per cent; among those aged 45–54 years, from 3.1 to 3.4 per cent; and among those aged 55–59 years, from 1.3 to 1.5 per cent (Roe 2005). Outside the UK, the European Monitoring Centre for Drugs and Drug



Note: The regression equation is y′ = constant + 1.937x, where y′ is the prevalence of drug users, and x the year (entered as 0 to 7).

Figure 1. Percentage of drug treatment population in Cheshire and Merseyside aged 40–49 years, 1998 to 2004–05.

Addiction (EMCDDA) has shown that the average age of opiate users is rising in a number of European countries. In drug treatment centres in The Netherlands, for example, 40 per cent of new opiate clients are aged over 40 years (EMCDDA 2005), and the same rising trend is found among methadone users in the United States (Rosen 2004).

Despite this evidence that the drug users are becoming older, pertinent British government policies are still young-person focused, and particularly emphasise the prevention of their initiation into drug use. While this is sound public-health policy, the health needs of older drug users must not be ignored. It is no longer appropriate for the national monitoring systems to regard as spurious reports of drug use among people aged 75 or more years (Domnall and Jones 2004), or for the age group not to be included in UK surveys of alcohol consumption (Gilhooly 2005).

Whilst cannabis is the predominant drug in the UK, the government's strategy and practice interventions focus on the most problematic drugs – mainly opiates (heroin) and the stimulants, cocaine and crack-cocaine. Contacts with the structured treatment providers (Tier 3 and Tier 4 interventions) and with low threshold, Tier 2 services (which include SEPs), are the major sources of information regarding drug use and drug-user characteristics, but by definition only refer to the service users. As a result, there is a disparity between the number of problematic crack users that present to treatment services and the number identified through the criminal justice system (Sondhi, O'Shea and Williams 2002). The concerns about the barriers to service uptake by minority sub-populations, for example, black and minority ethnic individuals, women and very young adults, may also apply to older people. Detailed interviews of chronic drug users aged 50 or more years in the United States have suggested, for

TABLE 3. *The age of male and female problematic drug users in contact with agency based syringe exchange programmes in Cheshire and Merseyside, 1998 to 2004–05*

	Males				Females			
	Under 50 years		50–74 years		Under 50 years		50–74 years	
Year	N	%	N	%	N	%	N	%
1992	1,487	99.8	3	0.2	378	99.7	1	0.3
1993	1,770	99.5	9	0.5	413	99.5	2	0.5
1994	1,723	99.7	6	0.3	415	99.5	2	0.5
1995	1,784	99.4	11	0.6	396	99.7	1	0.3
1996	2,119	99.4	12	0.6	403	99.5	2	0.5
1997	2,082	99.2	17	0.8	453	99.6	2	0.4
1998	2,054	98.8	24	1.2	439	99.3	3	0.7
1999	1,949	98.6	27	1.4	439	99.1	4	0.9
2000	1,875	98.6	27	1.4	393	97.8	9	2.2
2001	1,964	98.0	41	2.0	378	98.2	7	1.8
2002	2,008	97.4	53	2.6	430	97.1	13	2.9
2003	2,011	97.1	60	2.9	443	97.8	10	2.2
2004	1,616	96.1	65	3.9	346	97.5	9	2.5

Notes: The chi-squared trend statistics for the proportion aged 50–74 years were, for men, 172.02 (12 degrees of freedom (df), $p < 0.001$), and for women, 31.22 (12 df, $p < 0.001$).

example, that they believed that substituting methadone for heroin (the main treatment intervention for opiate addiction) implied moral failure and that it stigmatised them as having insufficient personal willpower (Levy and Anderson 2005). In such circumstances, older drug users may feel ill-at-ease in services full of younger people, and will therefore be largely absent from monitoring data.

Whilst much is known about young adults' drug use (Boys *et al.* 1999), far less is known about older people's drug habits. If older and younger people use different drugs, existing treatment interventions may be unsuitable. From their interviews with US drug injectors aged 50 or more years, Levy and Anderson (2005) found that older injectors changed from 'street drugs' to alcohol and barbiturates when the former became difficult to obtain or were too harsh for their aged bodies to tolerate. Furthermore, the motivations for substance use are likely to vary by age. A recent study of the reasons for methamphetamine use amongst gay and bisexual men in New York found strong contrasts in the reported reasons for drug use between those aged in the twenties and those aged in the forties. Sexual, social and emotional reasons were cited by respectively 38.4, 38.5 and 7.7 per cent of the younger sample, compared to 91.7, zero and 33.3 per cent of the older sample (Halkitis, Fischgrund and Parsons 2005).

Few studies have documented the medical correlates of long-term drug use (Hser *et al.* 2004), possibly from the perception that drug use declines with age. Moreover, cross-sectional studies of drug and alcohol use often fail to account for period and cohort effects, and the possibility is rarely recognised that today's older drug users when younger consumed less than today's young adults, and have continued an accustomed level of consumption into old age (Gilhooly 2005). In other words, the assumption that drug and alcohol use decline with age may be incorrect. An Australian survey of randomly-selected individuals aged 75 or more years reported that 72 per cent of men and 54 per cent of women drank alcohol, and that, of these, 11 per cent of males and six per cent of females consumed at hazardous or harmful levels (Dent *et al.* 2000). There is concern in the United States that, as the 'baby boomers' age, the demand for substance-use treatment will increase substantially (Gfroerer *et al.* 2003).

Yet it is not only the increased demand for drug treatment that should concern us. As drug users age, their morbidity and mortality increase as deaths from chronic conditions are added to overdoses and external causes such as suicides or violence (EMCDDA 2005). Detailed medical examinations of 108 US drug-dependent males (mean age 58.4 years) who had been using heroin for on average 29.4 years, reported considerably higher morbidity than in the general population, most notably abnormal lung and liver function (Hser *et al.* 2004). More specifically, 34 per cent met the criterion for moderate obstructive lung disease (a rate 2.4 times higher than observed in the national population), and more than one-half of the sample had abnormal liver function. Blood tests among these men showed that 94.7 per cent tested positive for hepatitis C, and 85.6 per cent for hepatitis B, compared to 2.5 and 5.7 per cent respectively in the national male population. The combination of viral hepatitis and excessive alcohol use significantly increases the risk of liver failure. It was concluded that these estimates were conservative, because one-half of the sample recruited to the study 33 years previously had already died. The contribution of chronic infections, liver disease, suicides and the like to the mortality of older drug users is being missed in the UK, because deaths from these causes are not classified as 'drug related', *i.e.* they do not accord with the national definition of a drug-related death (Beynon and McVeigh 2007).

While chronic diseases are likely to constitute the major health burden among older drug users, the visual or auditory hallucinations associated with some psychoactive substances may considerably increase the risk of accidents and falls, particularly in combination with prescribed and over-the-counter medications (Ziere *et al.* 2005). The use of psychotropic

medications (for example benzodiazepines) is an established risk factor for hip fractures (Cumming and Le Couter 2003). While in Britain there continues to be a dearth of robust epidemiological data on substance use by elderly drug users, including the non-medical use of prescription drugs, it is impossible to identify the exact risks that these older people face. It is known that a history of alcohol and/or drug use in an older person is associated with high rates of medical treatment and long hospital stays (Weintraub *et al.* 2002). The cost of the ageing population of drug users may therefore be considerable.

In addition to physical problems, there is some evidence that older drug users exhibit relatively high levels of psychological ill health. Chronic drug use over many years can lead to a gradual erosion of a person's ties to non-drug-using family members, friends and acquaintances. As drug-using friends die or cease the habit, older users may be increasingly isolated from current drug users. The options available to a younger drug user, such as starting a family or a new job, may be unattainable for older drug users. A sense of marginalisation from the local 'drug scene' can be exacerbated by physical deterioration and may reduce self-esteem. The socio-emotional context of older drug use may therefore be marked by loneliness, stress and fear of victimisation (Levy and Anderson 2005).

Conclusions

The analyses presented in this paper have shown that the population of problematic drug users in contact with structured treatment services and syringe exchange programmes in Cheshire and Merseyside is ageing. Furthermore, the representation of those aged 40–49 years among those receiving treatment increased from 8.1 per cent in 1998 to 19.6 per cent in 2004–05. It is quite probable that this pattern is evident throughout the UK and beyond; a premise supported by the British Crime Survey, the European Monitoring Centre for Drugs and Drug Addiction, and United States research. In addition to acute drug-related affects, older drug users experience high morbidity and mortality from chronic conditions and reportedly greater levels of psychological ill health. There is a clear need for more research in the UK on the prevalence, circumstances and health-care needs of older drug users. In particular, detailed assessments of drug-taking experiences and histories across the lifecourse are required, along with more information about the impacts on families and social networks. The characteristics and health needs of this potentially vulnerable group of people warrant concerted investigation.

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NOTES

1 For a full explanation of the drug treatment Tiers, see National Treatment Agency for Substance Misuse 2002.
2 The data for 2002–03 are unavailable nationally because the technical infrastructure of the NDTMS was upgraded that year.
3 All chi-squared statistics for trend were conducted using EpiInfo version 6 (Dean *et al.* 1999). The regressions were run using the SPSS statistical package (SPSS 1999).

References

Beynon, C., Bellis, M. A., Millar, T., Meier, P., Thomson, R. and Mackway Jones, K. 2001*a*. Hidden need for drug treatment services: measuring levels of problematic drug use in the North West of England. *Journal of Public Health Medicine*, **23**, 4, 286–91.

Beynon, C., Birtles, R. L. and Bellis, M. A. 2001*b*. *Drug Services in Merseyside and Cheshire 2000/01: Prevalence and Outcomes*. Centre for Public Health, Liverpool John Moores University, Liverpool.

Beynon, C. M. and McVeigh, J. 2007. The role of substance use in non-drug related deaths: a cross-sectional study of drug treatment clients in the North West of England. *Journal of Substance Use*, **12**, 1, 39–47.

Boys, A., Marsden, J., Griffiths, P., Fountain, J., Stillwell, G. and Strang, J. 1999. Substance use amongst young people: the relationship between perceived functions and intentions. *Addiction*, **94**, 7, 1043–50.

Crabbe, T. and Donmall, M. 1996. The optimal size for attributor for use with the University of Manchester Drug Misuse Database. *Addiction*, **91**, 10, 1547–50.

Cumming, R. G. and Le Couteur, D. G. 2003. Benzodiazepines and risk of hip fractures in older people. *CNS Drugs*, **17**, 11, 825–37.

Dean, A. G., Dean, J. A., Burton, A. H. and Dicker R. C. 1999. *EpiInfo, Version 6: A Word Processing, Database and Statistics Program for Epidemiology on Microcomputers*. Centres for Disease Control, Atlanta, Georgia.

Dent, O. F., Grayson, D. A., Waite, L. M., Cullen, J. S., Creasey, H. and Broe, G. A. 2000. Alcohol consumption in a community sample of old people. *Australian and New Zealand Journal of Public Health*, **24**, 3, 323–6.

Donmall, M. and Jones, A. 2004. *Healthcare Commission: Data Quality and Process*. Document 2.01, National Drug Evidence Centre, University of Manchester, Manchester. Available on line at http://www.nta.nhs.uk/programme/national/Data_Quality_Report.pdf [Accessed 11 April 2006].

Drug Strategy Directorate 1998. *Tackling Drugs to Build a Better Britain: The Government's Ten-Year Strategy for Tackling Drugs Misuse*. Stationery Office, London.

Drug Strategy Directorate 2002. *Updated Drug Strategy 2002*. Stationery Office, London.

European Monitoring Centre for Drugs and Drug Addiction 2005. *Annual Report 2005*. Office for Official Publications of the European Communities, Luxembourg.

Gilhooly, M. L. M. 2005. Reduced drinking with age: is it normal? *Addiction Research and Therapy*, **13**, 3, 267–80.
Gossop, M., Trakada, K., Stewart, D. and Witton, J. 2006. *Levels of Conviction Following Drug Treatment: Linking Data from the National Treatment Outcome Research Study and the Offenders' Index*. Findings 275, Home Office, London.
Gfroerer, J., Penne, M., Pemberton, M. and Folsom, R. 2003. Substance abuse treatment need among older adults in 2020: the impact of the aging baby-boom cohort. *Drug and Alcohol Dependence*, **69**, 2, 127–35.
Halkitis, P. N., Fischgrund, B. N. and Parsons, J. T. 2005. Explanations for methamphetamine use among gay and bisexual men in New York City. *Substance Use and Misuse*, **40**, 9–10, 1331–45.
Hser, Y. I., Gelberg, L., Hoffman, V., Grella, C. E., McCarthy, W. and Anglin, M. D. 2004. Health conditions among aging narcotic addicts: medical examination results. *Journal of Behavioural Medicine*, **27**, 6, 607–22.
House of Lords 2005. *Ageing: Scientific Aspects*. 5th Report, Volume I, House of Lords Scientific and Technology Committee, Stationery Office, London.
Johnson, W. A. and Sterk, C. E. 2003. Late-onset crack users: an emergent HIV risk group. *Journal of Acquired Immune Deficiency Syndromes*, **33** (supplement 2), S229–32.
Levy, J. A. and Anderson, T. 2005. The drug career of the older injector. *Addiction Research and Theory*, **13**, 3, 245–58.
McVeigh, J., Beynon, C. and Bellis, M. A. 2003. New challenges for agency based syringe exchange schemes: analysis of 11 years of data (1991–2001) in Merseyside and Cheshire, United Kingdom. *International Journal of Drug Policy*, **14**, 5–6, 399–405.
National Institute on Drug Abuse 2003. *Preventing Drug Use among Children and Adolescents: A Research-Based Guide for Parents, Educators and Community Leaders*. Second edition, National Institute on Drug Abuse, Bethesda, Maryland.
National Treatment Agency for Substance Misuse 2002. *Models of Care for Substance Misuse*. National Treatment Agency for Substance Misuse, London.
Parker, H., Newcombe, R. and Bakx, K. 1987. The new heroin users: prevalence and characteristics in Wirral, Merseyside. *British Journal of Addiction*, **82**, 2, 147–57.
Roe, S. 2005. *Drug Misuse Declared: Findings from the 2004/05 British Crime Survey*. Home Office, London.
Rosen, D. 2004. Factors associated with illegal drug use among older methadone clients. *The Gerontologist*, **44**, 4, 543–7.
Sondhi, A., O'Shea, J. and Williams T. 2002. *Emerging Findings from the National Arrest Referral Monitoring and Evaluation Programme*. DPAS Paper 18, Home Office, London.
SPSS Inc. 1999. *SPSS Base 10.0 for Windows Users' Guide*. SPSS, Chicago.
Weintraub, E., Weintraub, D., Dixon, L., Delahanty, J., Gandhi, D., Cohen, A. and Hirsch, M. 2002. Geriatric patients on a substance abuse consultation service. *American Journal of Geriatric Psychiatry*, **10**, 3, 337–42.
Ziere, G., Dieleman, J. P., Hofman, A., Pols, H. A. P., van der Cammen, T. J. M. and Stricker, B. H. C. H. 2005. Polypharmacy and falls in the middle age and elderly population. *British Journal of Clinical Pharmacology*, **61**, 2, 218–23.

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