Drug & Alcohol Office & Communicable Disease Control Directorate

Distribution of Needles & Syringes, WA, 1987-2003

Introduction

Needle and syringe programs (NSP) are a major public health measure to reduce the transmission of blood borne viruses (BBV) and are supported by the National Hepatitis C Strategy 1999-2000 to 2003-2004 and the National HIV/AIDS Strategy 1999-2000 to 2003-2004.

Australia has maintained a low rate of HIV transmission amongst people who inject drugs via the provisions of sterile injecting equipment and information since the late 1980s. In Western Australia (WA) the *Poisons Act 1964* was amended in 1994 to enable approved organisations to provide a NSP.

People who inject drugs (PWID) have access to sterile injection equipment and information through the needle and syringe exchange programs (NSEP) operated by the WA AIDS Council (WAAC) and the WA Substance Users' Association (WASUA).

The WAAC provides a mobile service which visits 12 sites each week in the Perth metropolitan area. WASUA provides a fixed site exchange program in the Perth inner metropolitan area in Northbridge, as well as a mobile service in Bunbury, a major regional centre in the South West of the State. Injecting equipment is provided from these NSEP at no cost to clients upon the return of used items, otherwise a cost recovery charge applies.

Sterile injection equipment is also sold by pharmacies in both metropolitan and non metropolitan areas and distributed by a number of non metropolitan hospitals after pharmacy trading hours or where pharmacy provision is

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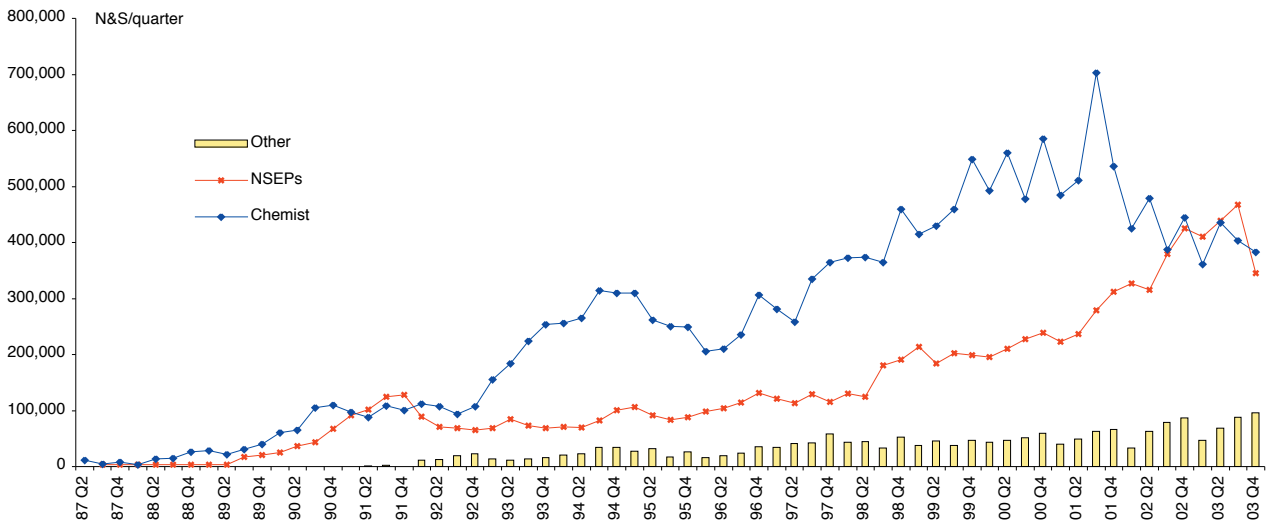
Figure 1
Quarterly totals of needles and syringes distributed by type of outlet, WA, 1987-2003



not available. Needles and syringes (N&S) are also sold from a vending machine based at the Kalgoorlie Regional Hospital which provides an after hours service.

This report provides quarterly and annual trends in the distribution of N&S in WA since 1987 and updates data published in Statistical Bulletin No. 18. This analysis is based on data provided by the Sexual health and Blood Borne Virus Program, operated by the Communicable Disease Control Directorate, Department of Health, which is responsible for the overall administration of NSP in WA. *(See Appendix 3 for details about earlier publications, the philosophy and development of NSP and NSEP, definitions and data limitations.)*

Summary

Annual trends

A total of 28,955,024 sterile N&S were distributed in WA from March 1987 to December 2003 (Table 1). The total number of N&S distributed by type of outlet was:

- pharmacies - 17,681,891 (61.1%);
- NSEP mobile - 6,028,571 (20.8%);
- NSEP fixed site - 3,308,990 (11.4%);
- hospital - 892,905 (3.1%);
- vending machine - 545,651 (1.9%); and
- other outlets (eg community health centres, public health unit and nursing posts) - 497,016 (1.7%).

The annual number of N&S distributed statewide increased from 29,990 in 1987 to 845,190 in 1991, dropped to 779,326 in 1992 and then doubled to 1,580,318 in 1994. There was a small decrease in the annual number distributed over the following two years to 1,502,110 in 1996.

Overall, from 1997 to 2003 there has been a trend of gradual growth of the annual number of N&S distributed, reaching a total of just over 3.5 million in 2003 (Table 1).

A criterion of success of NSP is to facilitate access by PWID to sterile injection equipment. The growth in the annual total of N&S distributed in WA is believed to be closely associated with improved access to sterile injecting equipment, which may be indicative of a decline in risk practices, such as sharing or re-using N&S.

Mean daily trends

Overall, from 1998 (the first full year of operation) to 2002 the mean number of N&S per day distributed in WA increased from 195 in 1988 to 9,706 in 2003.

On a year by year basis the mean number of N&S distributed per day were ***195*** (1988), ***446*** (1989), ***1,402*** (1990), ***2,315*** (1991), ***2,129*** (1992), ***3,196*** (1993), ***4,329*** (1994), ***4,230*** (1995), ***4,104*** (1996), ***5,187*** (1997), ***6,497*** (1998), ***7,723*** (1999), ***8,705*** (2000), ***9,594*** (2001), ***9,440*** (2002) and ***9,706*** (2003).

Quarterly trends

Quarterly trends in the distribution of N&S through the three principal types of outlets are shown in Figure 1 (page 1).

Table 1
Annual totals of needles and syringes distributed by type of outlet, WA, 1987-2003

	Pharmacy	NSEP mobile	NSEP fixed site	Hospital	Vending machine	Other outlet	Total
1987	23,990	6,000	-	-	-	-	29,990
1988	59,380	12,000	-	-	-	-	71,380
1989	120,260	42,648	-	-	-	-	162,908
1990	340,355	171,031	-	-	-	250	511,636
1991	394,820	444,225	-	2,560	2,385	1,200	845,190
1992	420,200	293,236	-	7,400	58,490	-	779,326
1993	817,025	294,423	-	3,570	50,491	1,280	1,166,789
1994	1,144,710	322,983	-	39,985	63,535	9,105	1,580,318
1995	1,071,570	369,671	-	35,940	61,030	5,770	1,543,981
1996	959,105	447,750	-	40,275	45,960	9,020	1,502,110
1997	1,238,540	477,507	1,801	80,180	83,340	12,225	1,893,593
1998	1,571,586	462,317	164,565	82,460	70,960	19,815	2,371,703
1999	1,852,518	477,636	320,820	96,465	37,590	34,225	2,819,254
2000	2,114,994	350,610	519,489	147,145	-	53,830	3,186,068
2001	2,233,492	442,397	608,424	119,235	24,035	74,555	3,502,138
2002	1,735,980	653,266	793,632	107,525	23,680	131,725	3,445,808
2003	1,583,366	760,871	900,259	130,165	24,155	144,016	3,542,832
Total	**17,681,891**	**6,028,571**	**3,308,990**	**892,905**	**545,651**	**497,016**	**28,955,024**

Note: Other includes community health centres, nursing posts, public health units and community drug service teams.

There were relatively few N&S distributed through NSEP from 1987 up to mid 1989, followed by a growth in the quarterly number of N&S distributed up to the December quarter 1991 and then distribution fell to the end of 1994 (Table A1, page 14).

Since the end of 1994 there was a steady growth in N&S distributed each quarter by NSEP to 467,255 in the September quarter 2003 (Table A2, page 15). However, there was a drop of 26.2% in the distribution of N&S from the September quarter to the December quarter 2003.

In relation to chemists there was an upward trend in the quarterly number of N&S distributed from 1987 reaching a peak of 702,553 in the September quarter 2001. From the September quarter 2001 (702,553) to the December quarter 2003 (382,533) there was a decline of 45.6% in the number of N&S distributed through chemists (Table A2, page 15).

Return of used N&S

In relation to the distribution of injecting equipment through NSEP, which accounted for 47% of the total of 3,542,832 N&S distributed in WA in the year 2003, both WAAC and WASUA reported rates of 95% in terms of the number of N&S returned by clients accessing each service (Table 2).

Table 2
Annual return rates (%) of used needles and syringes at NSEPs, WA, 2001/2002 - 2003/2004

	WA AIDS Council	WA Substance Users' Assoc
2001/2002	94	96
2002/2003	95	93
2003/2004	94	98

Source: WA AIDS Council and WA Substance Users' Association

Public Health Benefits of NSP

In 2002 by the National Centre for HIV Epidemiology and Clinical Research auspiced a research project to ascertain the return on the investment in NSP in Australia. The research involved an ecological study of changes in HIV and HCV prevalence among PWID by comparing cities with and without NSP.

"The analysis found that cities that introduced NSP had a mean annual 18.6% decrease in HIV seroprevalence, compared with a mean annual 8.1% increase in HIV seroprevalence in cities that had never introduced NSP ... Overall the results indicated little change in HCV prevalence before NSP were introduced, followed by a decline after the introduction of NSP."[1]

The research also demonstrated the economic effectiveness of NSP in Australia in 2000. The report includes a review of the effectiveness of NSP by analysis of 103 studies in the international literature. This established that cities which had introduced NSP had a mean annual decrease in HIV seroprevalence of 18.6% among PWID, compared to a mean annual increase of 8.1% seroprevalence in cities that had never introduced harm reduction programs.

There is a growing body of scientific knowledge which has identified a number of other important functions provided by NSP, in addition to significantly reducing the sharing and re-using of N&S by PWID. This shows that availability of N&S through NSP reduces the length of time from an average of 23 days to less than 3 days that used N&S are available to the drug using population.[2]

This outcome illustrates the importance of NSP as a cost effective means to prevent BBV transmission via the provision of sterile injecting equipment and information leading to attitudinal change as well as via the removal of used injection equipment from circulation within a relatively short time.

A study of the frequency of use of sterile N&S by nearly 600 active PWID in seven US metropolitan cities found a median of three injections for the most recently used syringe and that one in five PWID had used that syringe only once.[3]

An interview survey of 8,400 PWID in 1998 at 18 different sites in the United States found high rates of re-use of used injection equipment, with one third of the respondents using injection equipment they knew had been previously used, with a mean frequency of transfer of syringes of 7.6 times in the past 30 days.[4]

The *AIVL national injecting equipment disposal study* was published in April 2002, as part of a two year program by the Australian Injecting and Illicit Drug Users League (AIVL) to investigate the disposal of injecting equipment.

This report shows that PWID have a high level of concern about the safe disposal of used injecting equipment and that the small proportion of incidents where inappropriate disposal occurs is frequently due to unplanned use in unfamiliar environments. The study also found that inappropriate disposal is closely related to a lack of acceptable options for disposal, the possibility of threat of police interference or insufficient knowledge of safe disposal options.[6]

Since 1995 NSP throughout Australia have participated in sentinel surveillance of drug injecting and related risk behaviours among PWID. The Australian NSP survey is carried out annually in a one week period in October and include a self administered anonymous questionnaire and a finger prick blood sample for HIV and HCV antibody testing.

The most recent report of the *Australian NSP survey: National Data Report 1999-2003* was published in June 2004. Nationally from 1999 to 2003 the report established

an increasing use of new N&S by PWID and decreasing rates of N&S re-use in the month preceding the survey.

Similar trends were identified in WA where the use of sterile N&S in the past month increased from 43% in 1999 to 62% in 2003 and the use of used N&S in the last month fell from 32% in 1999 to 21% in 2003.[7]

References

[1] Health Outcomes International, National Centre for HIV Epidemiology & Clinical Research, Drummond M. *Return on investment in needle & syringe programs in Australia*. Canberra, Commonwealth Department of Health and Ageing, 2002, 1-2.

[2] *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* 1999; 20: 73-80.

[3] Gleghorn AA, Wright-De Aguero L, Flynn C. "Feasibility of one-time use of sterile syringes: a study of active injection drug users in seven United States metropolitan areas." (1998) 18 (Supplement 1) *Journal of Acquired Immune Deficiency Syndromes and Human Retroviology* S30-S36.

[4] Wang J, Siegal HA, Falck RS, Carlson RG. "Needle transfer among injection drug users: a multilevel analysis." (1998) 24 *American Journal of Drug & Alcohol Abuse* 225-237.

[6] Kelsall J, Lloyd S, Kerger M, Crofts N. *AIVL national injecting equipment disposal study*. Sydney, Australian Intravenous League, 2002.

[7] Thein HH, Maher L, Dore G. Australian NSP Survey. *Prevalence of HIV, HCV and injecting and sexual behaviour among IDUs at needle and syringe programs. National Data Report 1999-2003*. Sydney, National Centre in HIV Epidemiology and Clinical Research, University of New South Wales 2004, 154.

Metropolitan Health Region 2000 - 2003

Mean annual trends

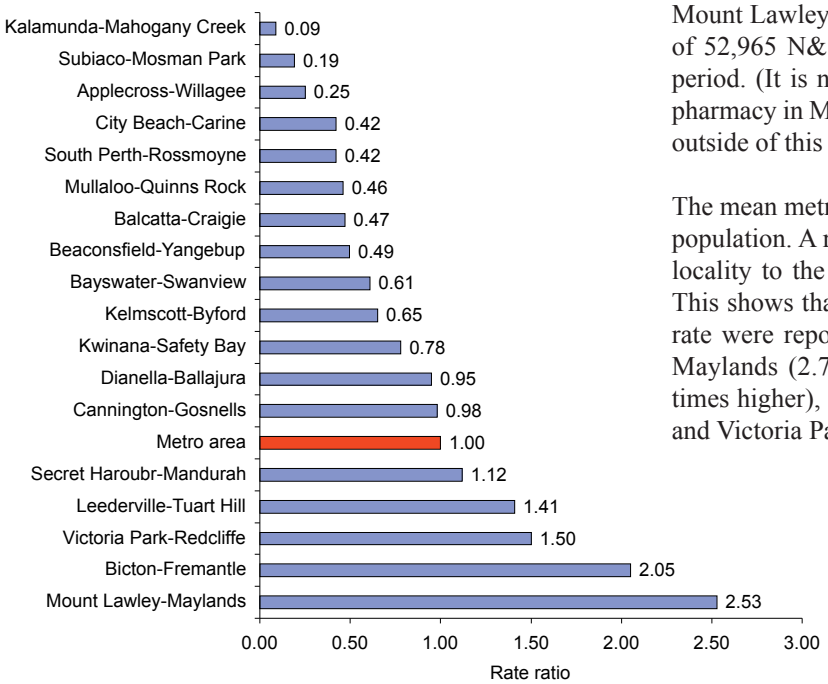
A study was undertaken of metropolitan data for the four year period from 2000 to 2003. This period has been selected as postcode level population data is available from the 2001 Census to calculate the rates of distribution within the metropolitan area according to locality and to obtain an understanding of the trends in the distribution of N&S over this period.

The following analysis excludes data for the Perth inner city area as within this locality there are a number of mobile NSEP sites which distribute high volumes of N&S.

In the Perth metropolitan health region from 2000 to 2003 there were four localities in which there were a mean of more than 150,000 N&S distributed each year - Dianella-Ballajura (265,216), Cannington-Gosnells (206,935), Mount Lawley-Maylands (183,488) and Victoria Park-Redcliffe (166,560).

From 2000 to 2003 there were six localities in which there was a mean of 100,000 to 150,000 N&S distributed each year - Kwinana-Safety Bay (140,962), Bayswater-Swan View (136,798), Leederville-Tuart Hill (130,277), Bicton-Fremantle (117,585), Secret Harbour-Mandurah (116,677) and Balcatta-Craigie (113,717).

Figure 2
Mean rate ratios of distribution of needles & syringes, metropolitan localities, 2000-2003



Mean annual rates

A total of 19 localities were identified by aggregating the total annual number of N&S distributed for postcodes within each of these localities. *(See Appendix 3 Methodology for further details.)*

The mean rate of N&S distributed per 10,000 population has been ranked for the 18 localities excluding the Perth inner city area (Table 3, page 5). It was found that the Mount Lawley-Maylands area had the highest mean rate of 52,965 N&S per 10,000 population in the four year period. (It is not known the extent to which a 24 hour pharmacy in Mount Lawley is accessed by persons living outside of this locality.)

The mean metropolitan rate was 19,597 N&S per 10,000 population. A ranking of mean rate ratios compares each locality to the overall metropolitan rate (see Figure 2). This shows that rates well above the mean metropolitan rate were reported for the localities of Mount Lawley-Maylands (2.71 times higher), Bicton-Fremantle (2.06 times higher), Leederville-Tuart Hill (1.47 times higher) and Victoria Park-Redcliffe (1.29 times higher).

Metropolitan Health Region

Table 3
Distribution of needles & syringes by postcode locality, Perth metropolitan area, 2000-2003

Locality	Postcodes	2000	2001	2002	2003	Mean annual	Mean rate (per 10,000 pop)
Perth inner city	6000, 6003-6005	655,874	762,593	891,297	986,445	824,052	-
Mount Lawley-Maylands	6050-6052	207,986	237,437	164,720	131,658	185,450	53,532
Bicton-Fremantle	6157-6161	121,940	112,795	118,325	142,186	123,812	42,371
Victoria Park-Redcliffe	6100-6106	215,743	217,317	202,992	183,148	204,800	31,112
Leederville-Tuart Hill	6006-6007, 6016-6017, 6060	136,679	143,247	128,464	120,478	132,217	29,159
Secret Harbour-Mandurah	6173-6176, 6202-6210	74,056	121,885	143,967	140,226	120,034	23,114
Cannington-Gosnells	6107-6110, 6147	186,075	223,407	228,642	205,218	210,836	20,167
Dianella-Ballajura	6059, 6061-6064, 6066-6068, 6090	295,594	324,922	275,709	253,669	287,474	19,686
Kwinana-Safety Bay	6167-6172	136,519	138,993	129,277	168,274	143,266	16,080
Kelmscott-Byford	6111-6112, 6201, 6121-6126	80,234	94,584	89,376	80,169	86,091	13,378
Bayswater-Swanview	6053-6058, 6069, 6084	123,020	140,523	149,795	170,584	145,981	12,650
Beaconsfield-Yangebup	6162-6166	95,338	102,441	91,382	90,068	94,807	10,144
Balcatta-Craigie	6021-6026	140,575	127,301	84,583	69,955	105,604	9,751
Mullaloo-Quinns Rock	6027-6028, 6030-6031, 6032-6035, 6037, 6041-6044, 6065	80,283	117,055	116,911	114,584	107,208	9,503
City Beach-Carine	6015, 6018-6020, 6029	79,662	79,280	62,240	50,448	67,908	8,630
South Perth-Rossmoyne	6148, 6151-6152	47,663	46,100	49,028	43,978	46,692	8,617
Applecross-Willagee	6149-6150, 6153-6156	64,464	64,001	54,779	46,608	57,463	5,255
Subiaco-Mosman Park	6008-6012, 6014	36,682	37,056	30,844	26,153	32,684	4,028
Kalamunda-Mahogany Creek	6070-6074, 6076, 6081-6083	11,082	10,623	7,555	6,228	8,872	1,959
Total		**2,789,469**	**3,101,560**	**3,019,886**	**3,030,077**	**2,985,248**	**20,674**

Country Health Regions

Summary

A total of 11 major regional centres have been selected to undertake an analysis of trends and patterns in the distribution of N&S outside the Perth metropolitan area.

The mean rate of N&S distributed per 10,000 population has been ranked for the 11 localities (Table 4). It was found that the Kalgoorlie-Boulder area had the highest mean rate of 38,865 N&S per 10,000 population in the four year period.

The mean country rate was 10,178 N&S per 10,000 population. This rate is just over half of the mean metropolitan rate of 20,674. A ranking of mean rate ratios for the four year period gives a comparison of each selected country locality to the overall country rate (see Figure 3).

This shows that rates well above the mean country rate were reported for the localities of Kalgoorlie-Boulder (3.82 times higher), Karratha (2.18 times higher), Carnarvon (2.1 times higher), Geraldton (1.91 times higher) and Bunbury-Eaton (1.62 times higher).

A breakdown of annual totals of N&S distributed in the 11 country localities for the years 1999 to 2003 is presented in Table A3 (page 16). This data shows variations in the rate of annual growth of N&S between different regions. A more detailed analysis follows of quarterly trends for each locality grouped by Health Region.

Figure 3
Mean rate ratios of distribution of needles & syringes, selected country localities, 2000-2003

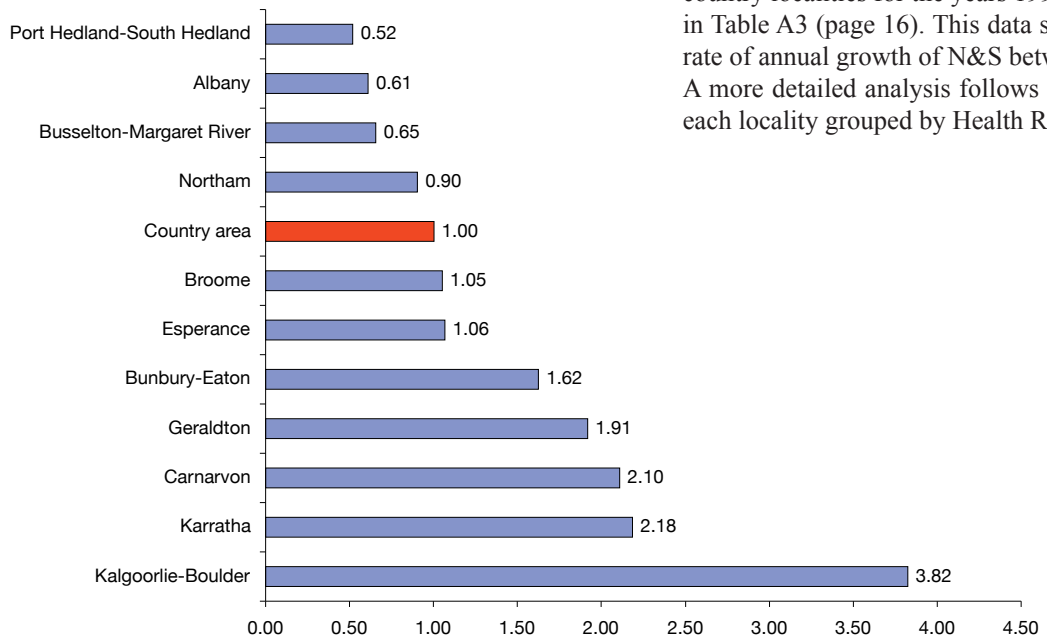


Table 4
Distribution of needles & syringes by selected country localities, 2000-2003

Locality	Postcodes	2000	2001	2002	2003	Mean annual	Mean rate (per 10,000 pop)
Kalgorlie-Boulder	6430-6432	118,256	117,750	108,737	114,782	114,881	38,865
Karratha	6714	25,210	21,174	24,880	22,820	23,521	22,185
Carnarvon	6701	8,945	14,372	18,650	15,100	14,267	21,357
Geraldton	6530	52,254	56,190	58,592	63,712	57,687	19,418
Bunbury-Eaton	6230-6232	42,604	23,634	56,679	136,797	64,929	16,494
Esperance	6450	14,922	15,727	15,812	11,501	14,491	10,782
Broome	6725	11,715	17,000	6,785	3,580	9,770	10,724
Northam	6401	6,510	9,325	7,335	6,697	7,467	9,119
Busselton-Margaret River	6280-6285	17,518	20,447	25,231	18,958	20,539	6,607
Albany	6330	24,019	22,301	13,605	15,692	18,904	6,171
Port Hedland-South Hedland	6721-6722	5,775	6,370	6,225	8,150	6,630	5,231
Total		**398,555**	**442,088**	**484,625**	**556,132**	**470,350**	**10,178**

South West Health Region

Information about the distribution of N&S through pharmacies, hospitals and approved exchange programs within this Health Region is available for the Bunbury-Eaton and Busselton-Margaret River postcode areas (Table A4, page 17).

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

Bunbury

From 1993 to early 1997 about 4,000 to 5,000 N&S were distributed each quarter (Figure 4). Since the June quarter 1997 there was a steady growth in the quarterly total of N&S distributed, reaching 18,820 in the June quarter 2000. In the September quarter 2000 the number of N&S dropped to 3,590.

Since the sharp fall in the September quarter 2000, the number of N&S has steadily increased and reached 40,715 in the December quarter 2003.

Factors that have contributed to the recent growth in utilisation of N&S in the Bunbury area has been the commencement of a mobile NSEP operated by the WA Substance Users' Association (WASUA) in 2001. (By 2003 just over half of all N&S in Bunbury were provided by WASUA.) Also, since 2002 N&S have been provided on an after hours basis from the Bunbury Regional Hospital.

Busselton-Margaret River

There was a steady increase in the number of N&S distributed from 1993 to the December quarter 1998 when 8,520 N&S were distributed (Figure 5). Since early 1999 the number of N&S fluctuated between about 4,000 to 5,000 per quarter, except for peaks in the December quarter 1999, September quarter 2001 and the December quarter 2002.

These peaks are believed to be due to N&S being ordered in large quantities to cover holiday periods when availability of stock is restricted.

Figure 4
Quarterly needles and syringes, Bunbury-Eaton postcode areas, 1993-2003

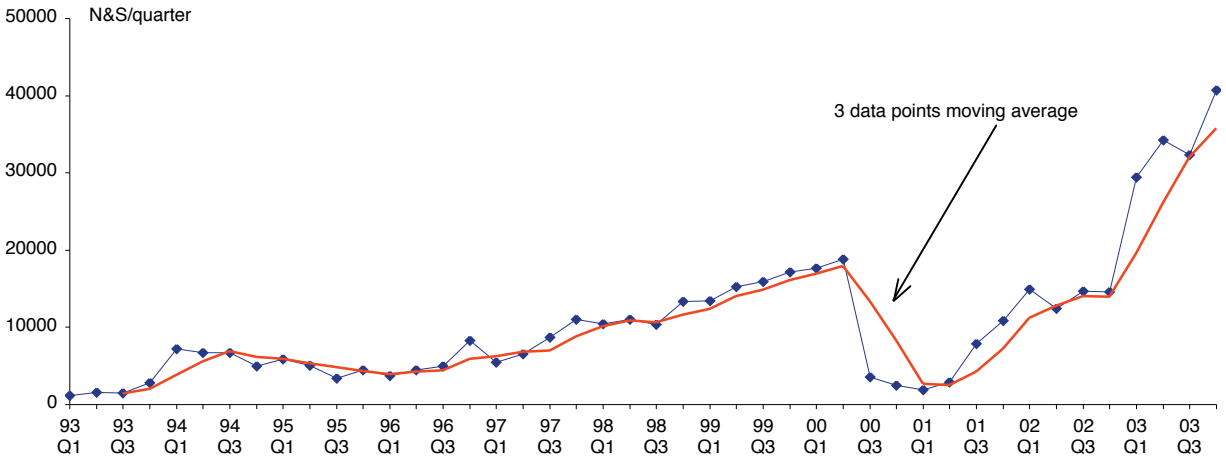
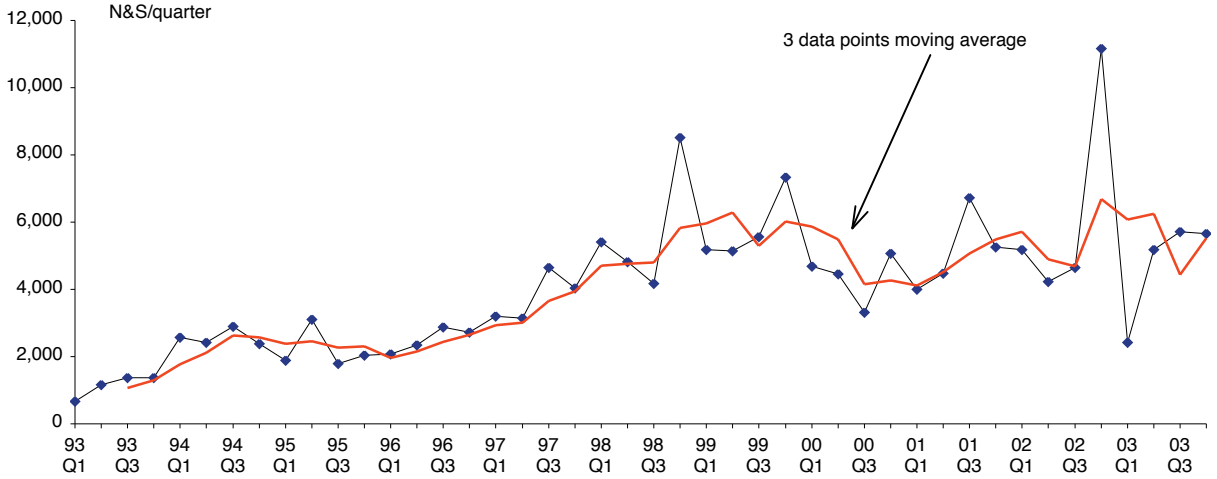


Figure 5
Quarterly needles and syringes, Busselton-Margaret River postcode areas, 1993-2003



Great Southern Health Region

Information about the quarterly distribution of N&S through pharmacies and hospitals within this Health Region is available for the Albany postcode area (Table A4, page 17).

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

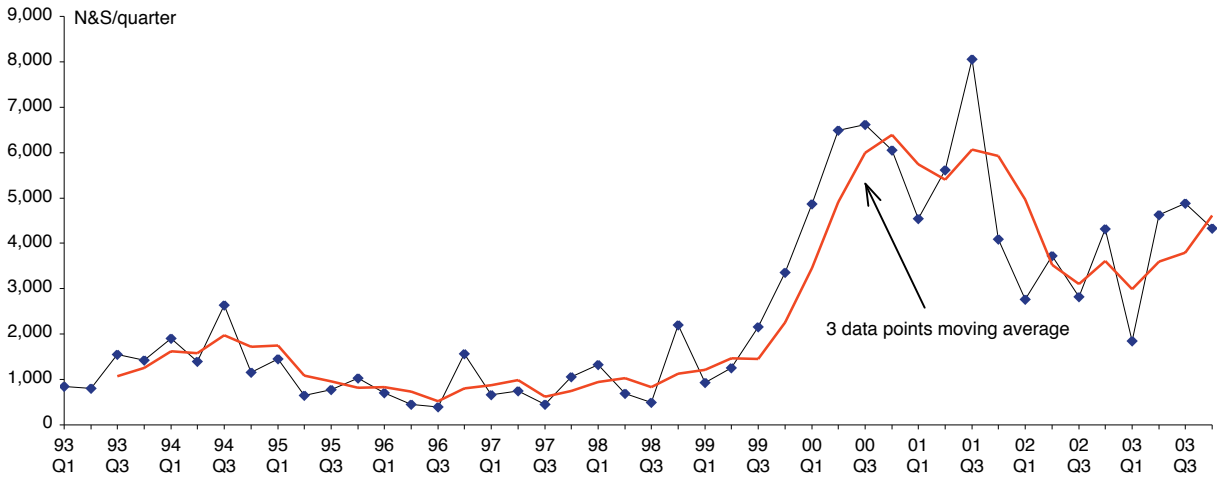
Albany

There were relatively few N&S distributed from 1993 to early 1999, fluctuating around 500 to 600 per quarter (Figure 6).

Since mid 1999 the number of N&S have steadily increased, reaching 8,057 in the September quarter 2001 and then fell to 2,762 in the March quarter 2002.

Since early 2002 the number of N&S has increased to 4,328 by the December quarter 2003 with a number of small drops in the two year period.

Figure 6
Quarterly needles and syringes, Albany postcode area, 1993-2003



Goldfields & South East Coastal Health Region

Information about the quarterly distribution of N&S through pharmacies and hospitals within this Health Region is available for the Kalgoorlie-Boulder (Table A4, page 16) and the Esperance postcodes area (Table A5, page 18).

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

Kalgoorlie-Boulder

The number of N&S distributed increased by nearly five fold from 7,100 in the March quarter 1993 to 32,670 in the December quarter 1997 (Figure 7).

Since 1998 the number of N&S distributed has fluctuated between about 25,000 and 30,000 N&S per quarter (except for the last two quarters in 2002).

A factor in the utilisation of N&S in the Kalgoorlie-Boulder area has been the operation since 2001 of a N&S vending machine on an after hours basis at the Kalgoorlie Regional Hospital. The availability of N&S through the vending machine has reduced the demands for N&S during the day at the emergency department at the hospital. In conjunction with the reduced role of the hospital as a source of N&S there has been a growing demand for N&S provided at no cost through the Public Health Unit during the day.

Esperance

In Esperance very few N&S were distributed from 1993 to mid 1997. The number of N&S distributed increased by nearly four fold, from 1,430 in the June quarter 1997 to 5,412 in the December quarter 2000, then dropped to 2,480 the June quarter 2002 (Figure 8).

From mid 2002 the number of N&S has increased to just under 7,000 in the December quarter 2002 and then fell sharply to 1,500 in the December quarter 2003.

Figure 7
Quarterly needles and syringes, Kalgoorlie-Boulder postcode areas, 1993-2003

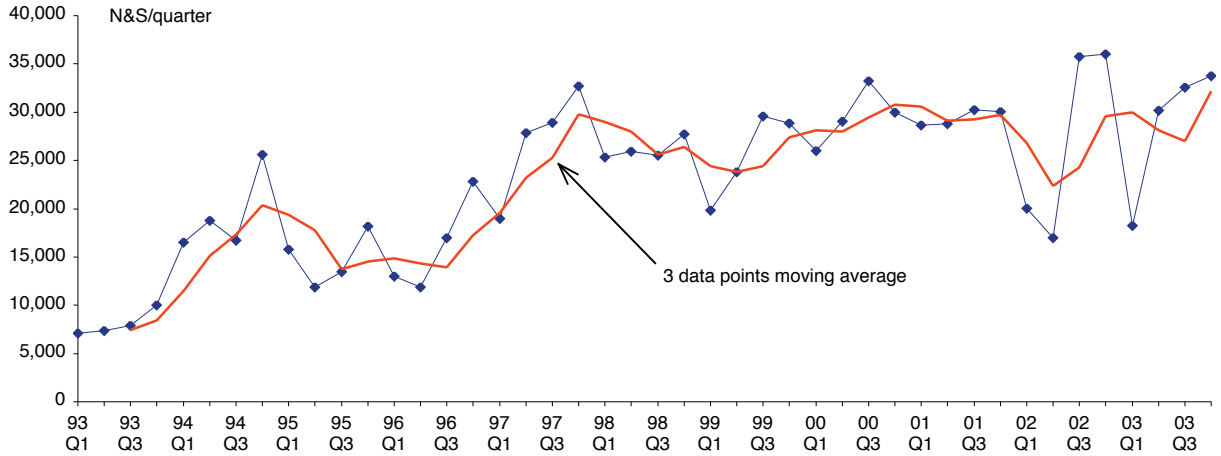
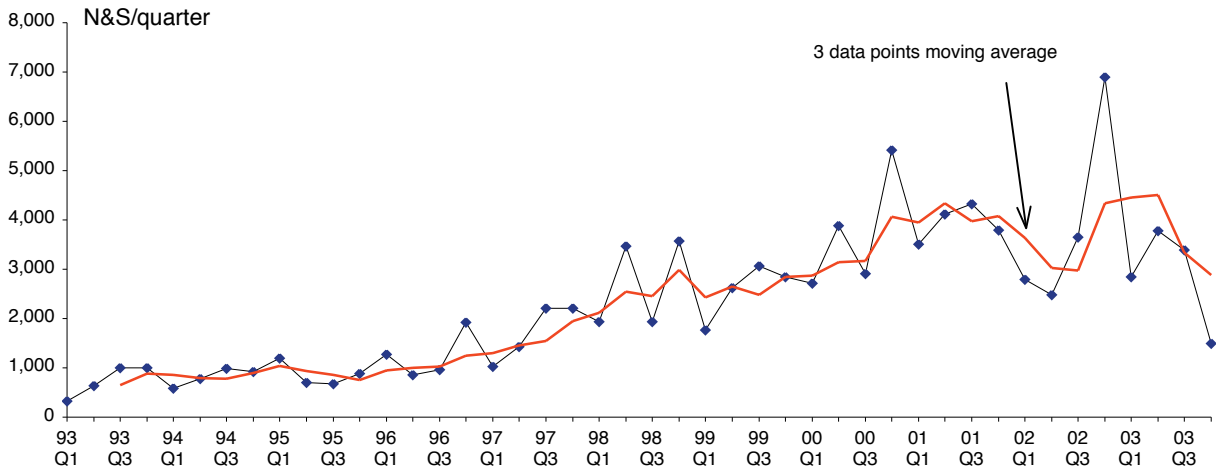


Figure 8
Quarterly needles and syringes, Esperance postcode area, 1993-2003



Midwest & Murchison Health Region

Information about the quarterly distribution of N&S through pharmacies and hospitals within this Health Region is available for the Geraldton postcode area (Table A4, page 17).

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

Geraldton

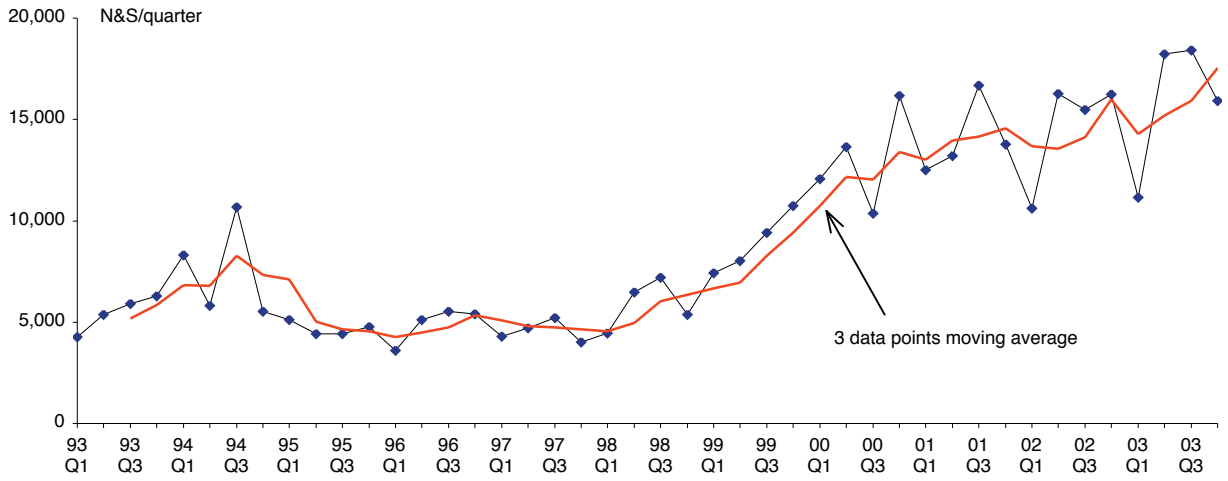
From 1993 to mid 1998 the number of N&S remained relatively constant (apart from a jump to 10,665 in the September quarter 1994), with about 4,000 distributed per quarter (Figure 9).

The number of N&S distributed increased by three fold, from 5,383 in the December quarter 1998 to 15,917 in the December quarter 2003.

The Midwest Public Health Unit commenced distribution of N&S in the March quarter 1999. This means that the growth in N&S data from the beginning of 1999 includes figures for outlets outside the main regional centre. The Geraldton Regional Hospital also commenced distribution of N&S in the June quarter 2003.

The short term peaks in distribution that have occurred from 2000 is due to N&S supplies being ordered in larger quantities to reduce distribution costs.

Figure 9
Quarterly needles and syringes, Geraldton postcode area, 1993-2003



Pilbara & Gascoyne Health Region

Information about the quarterly distribution of N&S through pharmacies, public health units and hospitals within this Health Region is available for the Port Hedland (Table A4, page 17), Karratha and Carnarvon (Table A5, page 18) postcode areas.

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

The short term peaks in distribution that occur in each of these three areas are closely related to N&S supplies being ordered in large quantities to cover demand during the holiday season when availability of stock is restricted.

Port Hedland

Few N&S were distributed from 1993 until mid 1994, then steadily increased from 1,580 in the September quarter 1994 to 4,750 in the December quarter 1999, then dropped sharply to 1,275 in the March quarter 2000 (Figure 10).

Since early 2000 the number of N&S distributed has remained relatively low with some increase occurring since mid 2003, reaching 3,675 in the December quarter 2003.

Karratha

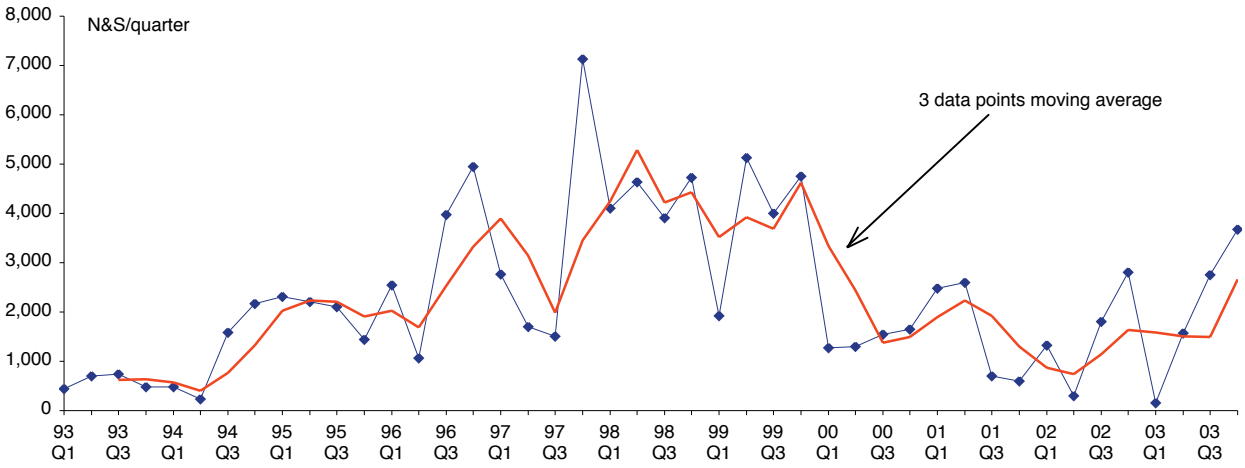
There has been a fluctuating pattern of N&S distributed in Karratha (Figure 11, page 12). Very few N&S were distributed up to the December quarter 1999. However, since the beginning of 2000 the number of N&S fluctuated markedly in some quarters exceeding more than 11,000 per quarter.

Carnarvon

Few N&S were distributed up to late 1997, then grew erratically to 6,860 in the December quarter 2001 (Figure 12, page 12).

Since 2001 there has been sharp short term jumps in N&S distribution which is believed to be related to the need to order stock to cover holiday periods of restricted availability of stock.

Figure 10
Quarterly needles and syringes, Port Hedland postcode area, 1993-2003



Pilbara & Gascoyne Health Region

Figure 11
Quarterly needles and syringes, Karratha postcode area, 1993-2003

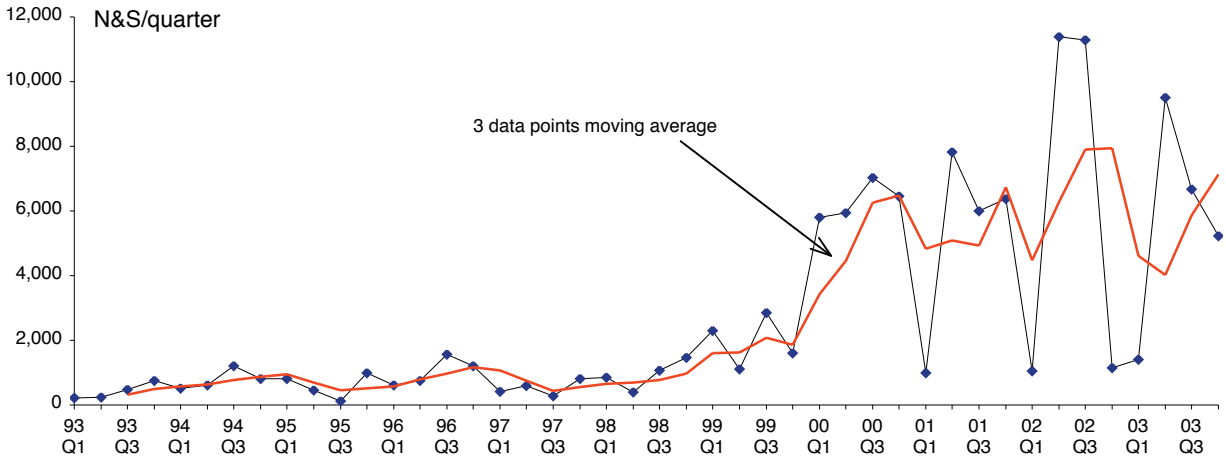
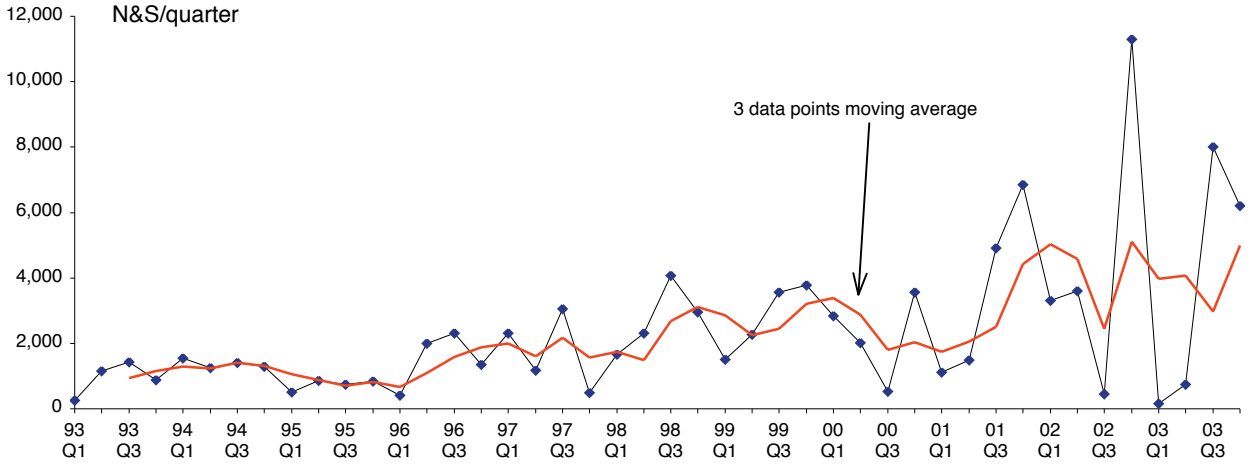


Figure 12
Quarterly needles and syringes, Carnarvon postcode area, 1993-2003



Kimberley Health Region

Information about the quarterly distribution of N&S through pharmacies and hospitals within this Health Region is available for the Broome postcode area (Table A5, page 18).

It should be noted this data may reflect N&S accessed by people living in adjacent areas who may not have local access to N&S.

The short term peaks in distribution that occur in this area are closely related to N&S supplies being ordered in large quantities to cover demand during the holiday season when availability of stock is restricted.

In some regions such as the Kimberley, the N&S distribution figures for the main regional centre include distribution to other outlets located outside of the centre.

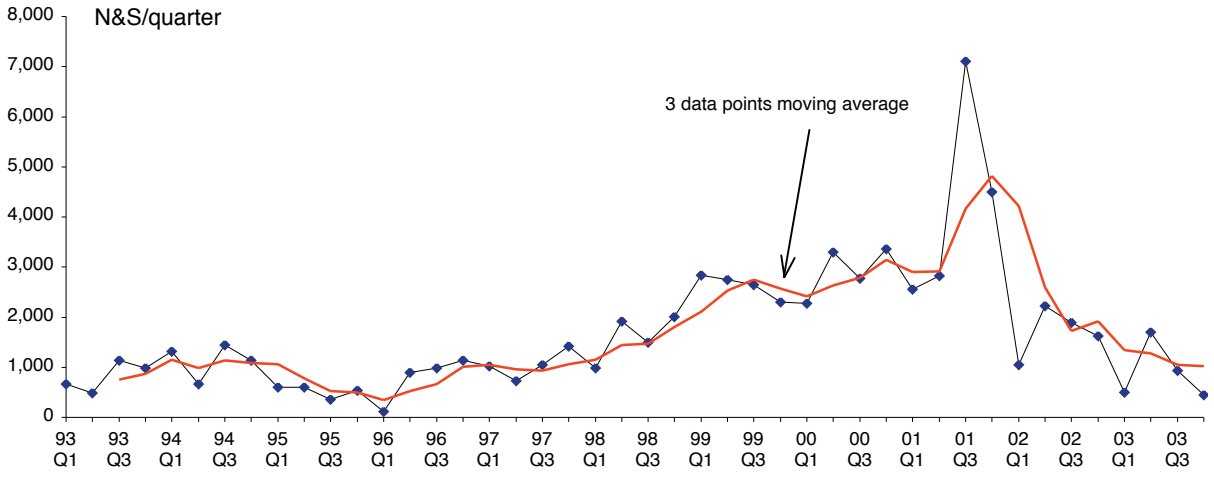
This is because the ordering of supplies for the whole of the region is centralised and managed by the Public Health Unit. Whilst the Public Health Unit is not directly involved in the distribution of N&S, its shift from Derby to Broome in 2002 may be associated with the decline that has recently occurred.

Broome

From 1993 to early 1998 relatively few N&S were distributed in this postcode area. The number of N&S gradually increased from a total of 1,915 in the March quarter 1998 to a total of 2,830 in the March quarter 2001 (Figure 13).

Except for a jump to 7,110 in the September quarter 2001, there has been a gradual decline in the quarterly number of N&S distributed with only 450 recorded for the December quarter 2003.

Figure 13
Quarterly needles and syringes, Broome postcode area, 1993-2003



Appendix 1: Data Tables

Table A1
Quarterly totals of needles and syringes distributed by type of outlet 1987-1994

		NSEPs	Chemist	Other	Total
1987	Qtr 2	-	11,670	-	11,670
	Qtr 3	3,000	4,080	-	7,080
	Qtr 4	3,000	8,240	-	11,240
1988	Qtr 1	3,000	3,430	-	6,430
	Qtr 2	3,000	14,220	-	17,220
	Qtr 3	3,000	15,190	-	18,190
	Qtr 4	3,000	26,540	-	29,540
1989	Qtr 1	3,000	28,210	-	31,210
	Qtr 2	3,000	21,370	-	24,370
	Qtr 3	16,587	30,500	-	47,087
	Qtr 4	20,061	40,180	-	60,241
1990	Qtr 1	24,610	60,975	250	85,835
	Qtr 2	36,117	64,930	-	101,047
	Qtr 3	42,894	104,700	-	147,594
	Qtr 4	67,410	109,750	-	177,160
1991	Qtr 1	91,945	97,530	-	189,475
	Qtr 2	101,970	88,210	1,400	191,580
	Qtr 3	124,677	108,780	1,960	235,417
	Qtr 4	128,018	100,300	400	228,718
1992	Qtr 1	89,581	112,165	11,148	212,894
	Qtr 2	70,363	108,000	13,107	191,470
	Qtr 3	68,152	93,150	19,077	180,379
	Qtr 4	65,140	106,885	22,558	194,583
1993	Qtr 1	68,244	155,945	13,766	237,955
	Qtr 2	84,187	183,705	11,655	279,547
	Qtr 3	73,271	223,545	13,915	310,731
	Qtr 4	68,721	253,830	16,005	338,556
1994	Qtr 1	70,553	256,340	20,905	347,798
	Qtr 2	69,149	264,760	22,395	356,304
	Qtr 3	82,686	314,070	34,485	431,241
	Qtr 4	100,595	309,540	34,840	444,975

Appendix 1: Data Tables

Table A2
Quarterly totals of needles and syringes distributed by type of outlet
WA, 1995-2003

		NSEPs	Chemist	Other	Total
1995	Qtr 1	106,594	309,575	27,820	443,989
	Qtr 2	91,863	261,920	31,630	385,413
	Qtr 3	82,999	250,440	17,555	350,994
	Qtr 4	88,215	249,635	25,735	363,585
1996	Qtr 1	98,318	206,065	16,010	320,393
	Qtr 2	104,007	210,560	19,590	334,157
	Qtr 3	113,875	235,675	24,355	373,885
	Qtr 4	131,550	306,805	35,320	473,675
1997	Qtr 1	121,613	280,590	33,995	436,198
	Qtr 2	113,381	257,875	40,800	412,056
	Qtr 3	128,640	335,200	42,390	506,230
	Qtr 4	115,674	364,875	58,560	539,109
1998	Qtr 1	130,668	372,565	43,365	546,598
	Qtr 2	124,868	374,145	44,310	543,323
	Qtr 3	180,986	365,140	33,105	579,231
	Qtr 4	190,360	459,736	52.455	702,551
1999	Qtr 1	213,810	414,690	37,200	665,700
	Qtr 2	183,874	430,154	46,175	660,203
	Qtr 3	201,826	459,040	37,755	698,621
	Qtr 4	198,946	548,634	47,150	794,730
2000	Qtr 1	195,440	492,302	43,100	730,842
	Qtr 2	209,998	559,689	47,180	815,867
	Qtr 3	226,985	477,760	51,035	755,780
	Qtr 4	238,676	585,243	59,660	883,579
2001	Qtr 1	223,120	484,971	39,895	747,986
	Qtr 2	236,293	510,516	49,375	796,184
	Qtr 3	279,264	702,553	62,700	1,044,517
	Qtr 4	312,144	535,452	65,855	913,451
2002	Qtr 1	326,891	425,423	33,200	785,514
	Qtr 2	315,491	479,414	63,074	857,979
	Qtr 3	379,053	387,005	79,249	845,307
	Qtr 4	425,463	444,138	87,407	957,008
2003	Qtr 1	410,232	360,998	46,331	817,561
	Qtr 2	438,876	435,979	68,732	943,587
	Qtr 3	467,255	403,856	87,653	958,764
	Qtr 4	344,767	382,533	95,620	822,920

Appendix 1: Data Tables

Table A3
Annual totals of needles and syringes distributed by selected country localities, WA, 1993-2003

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Kalgoorlie-Boulder	32,375	77,590	59,310	64,710	108,415	104,630	102,109	118,256	117,750	108,737	114,782
Geraldton	21,830	30,330	18,745	19,635	18,220	23,498	35,625	52,254	56,190	58,592	63,712
Busselton-Margaret River	4,555	10,270	8,820	10,020	15,025	22,920	23,229	17,518	20,447	25,231	18,958
Bunbury-Eaton	7,085	25,610	18,855	21,450	31,840	45,220	61,769	42,604	23,634	56,679	136,797
Carnarvon	3,700	5,500	2,940	6,080	7,020	11,006	11,139	8,945	14,372	18,650	15,100
Broome	3,270	4,560	3,545	3,740	4,220	6,400	10,540	11,715	17,000	6,785	3,580
Esperance	2,955	3,280	4,950	5,010	6,865	10,915	10,298	14,922	15,727	15,812	11,501
Albany	4,625	7,085	3,900	3,120	2,930	4,719	7,700	24,019	22,301	13,605	15,692
Karratha	1,680	3,140	3,510	4,130	2,110	3,780	7,864	25,210	21,174	24,880	22,820
Port Hedland	2,360	4,970	13,615	12,525	13,105	17,375	15,800	5,775	6,370	6,225	8,150
Northam	305	1,515	2,590	1,925	1,620	3,975	5,430	6,510	9,325	7,335	6,697

Appendix 1: Data Tables

Table A4
Quarterly totals of needles and syringes distributed by selected country localities, WA, 1993-2003

		Kalgoorlie-Boulder	Bunbury-Eaton	Geraldton	Busselton-Margaret River	Port Hedland	Albany
1993	Qtr 1	7,100	1,200	4,265	660	440	840
	Qtr 2	7,345	1,555	5,365	1,155	695	810
	Qtr 3	7,885	1,530	5,900	1,375	745	1,555
	Qtr 4	10,045	2,800	6,300	1,365	480	1,420
1994	Qtr 1	16,500	7,230	8,310	2,570	480	1,910
	Qtr 2	18,790	6,695	5,815	2,420	240	1,390
	Qtr 3	16,720	6,705	10,665	2,890	1,580	2,635
	Qtr 4	25,580	4,980	5,540	2,390	2,170	1,150
1995	Qtr 1	15,810	5,875	5,110	1,890	2,310	1,450
	Qtr 2	11,870	5,055	4,420	3,100	2,205	645
	Qtr 3	13,485	3,425	4,430	1,790	2,100	780
	Qtr 4	18,145	4,500	4,785	2,040	1,440	1,025
1996	Qtr 1	12,995	3,715	3,595	2,080	2,540	705
	Qtr 2	11,880	4,440	5,110	2,335	1,070	455
	Qtr 3	16,985	4,970	5,515	2,885	3,970	395
	Qtr 4	22,850	8,325	5,415	2,720	4,945	1,565
1997	Qtr 1	18,970	5,480	4,290	3,200	2,760	670
	Qtr 2	27,850	6,590	4,695	3,135	1,705	745
	Qtr 3	28,925	8,745	5,225	4,655	1,510	450
	Qtr 4	32,670	11,025	4,010	4,035	7,130	1,065
1998	Qtr 1	25,360	10,485	4,440	5,410	4,100	1,330
	Qtr 2	25,960	11,025	6,470	4,815	4,640	685
	Qtr 3	25,560	10,350	7,205	4,175	3,910	500
	Qtr 4	27,750	13,360	5,383	8,520	4,725	2,204
1999	Qtr 1	19,846	13,442	7,421	5,189	1,925	929
	Qtr 2	23,793	15,244	8,038	5,138	5,125	1,260
	Qtr 3	29,585	15,921	9,412	5,570	4,000	2,153
	Qtr 4	28,885	17,162	10,754	7,332	4,750	3,358
2000	Qtr 1	25,998	17,697	12,077	4,692	1,275	4,869
	Qtr 2	29,074	18,820	13,658	4,454	1,300	6,483
	Qtr 3	33,211	3,590	10,349	3,306	1,550	6,621
	Qtr 4	29,973	2,497	16,170	5,066	1,650	6,046
2001	Qtr 1	28,633	1,929	12,519	3,998	2,475	4,541
	Qtr 2	28,806	2,928	13,215	4,484	2,595	5,611
	Qtr 3	30,258	7,906	16,689	6,716	700	8,057
	Qtr 4	30,053	10,871	13,767	5,249	600	4,092
2002	Qtr 1	20,008	14,921	10,613	5,189	1,325	2,762
	Qtr 2	16,969	12,425	16,258	4,225	300	3,718
	Qtr 3	35,766	14,717	15,494	4,647	1,800	2,815
	Qtr 4	35,994	14,616	16,227	11,170	2,800	4,310
2003	Qtr 1	18,236	29,420	11,149	2,415	150	1,846
	Qtr 2	30,167	34,262	18,220	5,173	1,575	4,634
	Qtr 3	32,584	32,346	18,426	5,720	2,750	4,884
	Qtr 4	33,795	40,715	15,917	5,650	3,675	4,328

Appendix 1: Data Tables

Table A5
Quarterly totals of needles and syringes distributed by selected country localities WA, 1993-2003

		Carnarvon	Broome	Esperance	Karratha	Northam
1993	Qtr 1	250	660	320	210	90
	Qtr 2	1,150	480	635	240	10
	Qtr 3	1,425	1,140	995	480	60
	Qtr 4	875	990	1,005	750	145
1994	Qtr 1	1,550	1,320	590	515	150
	Qtr 2	1,250	660	780	610	220
	Qtr 3	1,400	1,440	985	1,205	500
	Qtr 4	1,300	1,140	925	810	645
1995	Qtr 1	500	600	1,190	810	745
	Qtr 2	860	600	700	450	720
	Qtr 3	740	360	680	126	690
	Qtr 4	840	540	880	990	435
1996	Qtr 1	420	120	1,270	605	360
	Qtr 2	2,000	900	860	755	940
	Qtr 3	2,310	980	960	1,560	205
	Qtr 4	1,350	1,140	1,920	1,210	420
1997	Qtr 1	2,310	1,020	1,020	420	165
	Qtr 2	1,170	730	1,430	600	200
	Qtr 3	3,060	1,050	2,205	270	235
	Qtr 4	480	1,420	2,210	820	1,020
1998	Qtr 1	1,660	990	1,940	850	1,370
	Qtr 2	2,310	1,915	3,470	390	1,410
	Qtr 3	4,080	1,490	1,935	1,065	660
	Qtr 4	2,956	2,005	3,570	1,475	535
1999	Qtr 1	1,517	2,840	1,769	2,295	760
	Qtr 2	2,278	2,745	2,624	1,116	945
	Qtr 3	3,572	2,650	3,065	2,852	1,985
	Qtr 4	3,772	2,305	2,840	1,601	1,740
2000	Qtr 1	2,836	2,280	2,713	5,798	1,165
	Qtr 2	2,011	3,300	3,887	5,938	1,745
	Qtr 3	536	2,775	2,910	7,020	1,775
	Qtr 4	3,562	3,360	5,412	6,454	1,825
2001	Qtr 1	1,120	2,560	3,505	993	1,585
	Qtr 2	1,480	2,830	4,115	7,816	2,015
	Qtr 3	4,912	7,110	4,319	5,994	3,115
	Qtr 4	6,860	4,500	3,788	6,371	2,610
2002	Qtr 1	3,300	1,050	2,795	1,059	1,770
	Qtr 2	3,600	2,220	2,480	11,394	2,840
	Qtr 3	450	1,895	3,647	11,278	1,415
	Qtr 4	11,300	1,620	6,890	1,149	1,310
2003	Qtr 1	150	495	2,840	1,408	463
	Qtr 2	750	1,705	3,775	9,506	2,507
	Qtr 3	8,000	930	3,386	6,678	1,984
	Qtr 4	6,200	450	1,500	5,228	1,743

Appendix 2: Metropolitan Postcode Localities

Perth inner city: 6000, 6003-6005
Perth CBD, Northbridge, East Perth, West Perth

Mount Lawley-Maylands: 6050-6052
Mount Lawley, Menora, Coolbinia, Maylands, Inglewood, Bedford

Bicton-Fremantle: 6157-6161
Bicton, Palmyra, East Fremantle, North Fremantle, Fremantle, Rottnest Island

Leederville-Tuart Hill: 6006-6007, 6106-6107, 6060
Leederville, North Perth, Glendalough, Mount Hawthorn, Osborne Park, Tuart Hill, Joondanna, Yokine

Victoria Park-Redcliffe: 6100-6106
Victoria Park, East Victoria Park, Carlisle, Bentley, Rivervale, Belmont, Redcliffe, Cloverdale, Welshpool, Kewdale, St James

Secret Harbour-Mandurah: 6173-6176, 6202-6210
Secret Harbour, Karnup, Golden Bay, Singleton, Madora

Cannington-Gosnells: 6107-6110, 6147
Wilson, Cannington, East Cannington, Kenwick, Wattle Grove, Beckenham, Queens Park, Thornlie, Maddington, Gosnells, Huntingdale, Langford, Lynwood

Dianella-Ballajura: 6061-6064, 6066-6068
Dianella, Nollamara, Mirrabooka, Balga, Westminster, Morley, Embleton, Noranda, Malaga, Beechboro, Girrawheen, Koondoola, Alexander Heights, Marangaroo, Ballajura, Whiteman, Cullacabardee

Kwinana-Safety Bay: 6167-6172
Kwinana, Orelia, Parmelia, Calista, Rockingham, Safety Bay, Waikiki, Warnbro, Port Kennedy, Wellard, Leda, Baldivis

Kelmscott-Byford: 6111-6112, 6201
Kelmscott, Armadale, Forrestdale, Byford, Westfield, Roleystone, Bedfordale, Karragullen, Wungong

Bayswater-Swan View: 6053-6058, 6069, 6084
Bayswater, Bassendean, Lockridge, Ashfield, Guildford, Henley Brook, West Swan, Middle Swan, Midland, Midvale, Stratton, Maida Vale, High Wycombe, Forrestfield, Greenmount, Swan View, Herne Hill, Helena Valley, Boya, Ellenbrook, Jane Brook, Bullsbrook

Beaconsfield-Yangebup: 6162-6166
South Fremantle, Beaconsfield, Hamilton Hill, Hilton, Spearwood, Bibra Lake, Coolbellup, Yangebup, Coogee, Wattleup, Naval Base, Hope Valley, Henderson, Munster, Samson

Balcatta-Craigie: 6021-6026
Balcatta, Stirling, Hamersley, Duncraig, Greenwood, Warwick, Hillarys, Craigie, Kallaroo, Padbury, Kingsley, Woodvale

City Beach-Carine: 6015, 6018-6020, 6029
City Beach, Karrinyup, Doubleview, Scarborough, North Beach, Carine, Trigg, Sorrento, Marmion, Waterman, Innaloo, Gwelup

Mullaloo-Quinns Rock: 6027-6028, 6030-6031, 6035, 6037, 6041-6044, 6065
Joondalup, Currambine, Kinross, Ocean Reef, Heathridge, Edgewater, Beldon, Mullaloo, Iluka, Quinns Rock, Merriwa, Mindarie, Clarkson, Neerabup, Carramar, Wanneroo, Wangara, Landsdale, Yanchep, Two Rocks, Guilderton, Seabird, Ledge Point, Lancelin

South Perth-Rossmoyne: 6148, 6151-6152
Shelley, Rossmoyne, Ferndale, Riverton, South Perth, Kensington, Como, Manning, Karawara, Salter Point, Waterford

Applecross-Willagee: 6149-6150, 6153-6156
Bullcreek, Murdoch, Bateman, Applecross, Ardross, Mt Pleasant, Brentwood, Alfred Cove, Attadale, Booragoon, Myaree, Willetton, Melville, Winthrop, Willagee

Subiaco-Mosman Park: 6008-6012, 6014
Subiaco, Nedlands, Crawley, Dalkeith, Peppermint Grove, Shenton Park, Claremont, Swanbourne, Cottesloe, Mosman Park, Wembley, Floreat

Kalamunda-Mahogany Creek: 6070-6074, 6076, 6081-6083
Kalamunda, Darlington, Glen Forest, Hovea, Mahogany Creek, Mundaring, Sawyers Valley, Walliston, Lesmurdie, Carmel, Bickley, Pickering Brook, Gooseberry Hill, Parkerville, Stoneville, Mount Helena, Gidgegannup

Appendix 3: Methodology

Previous publications

This report updates N&S data previously published in *Statistical Bulletin No. 3* (December 1996), *Statistical Bulletin No. 6* (February 2000), *Statistical Bulletin No. 7* (March 1999), *Statistical Bulletin No. 14* (July 2001) and *Statistical Bulletin No. 18* (December 2003).

Source of data

As monthly records are maintained of the number of N&S ordered by each individual pharmacy, it is possible to collate the number of N&S by outlet and locality for each pharmacy based NSP.

In early 1999 the operator of the mobile NSEP, the WA AIDS Council, introduced separate recording of the number of N&S distributed at each of the sites where the van operates on different days of the week. With the enhancements to the mobile NSEP data, it was possible to undertake an analysis of the total number of N&S distributed in the years 2000 to 2003 in the Perth metropolitan area based on postcode locality for all outlets.

Interpretation of data

The metropolitan area was broken up into 18 localities based on groups of adjacent postcode districts. Each locality contains the total number of N&S distributed in that geographical area. A postcode district may encompass more than one suburb. This does not mean that N&S were distributed from outlets in all the suburbs listed. The suburbs within each locality are listed in Appendix 2.

There are limitations in using postcode data to identify possible differences between localities in the rate of access to NSPs by PWID since, as in some areas, chemists do not retail N&S. Also some areas mayshow higher volume of distribution than other areas because PWIDs have come from adjacent suburbs to access the nearest outlet.

While a local pharmacy may retail N&S as Fitpacks®, SharpzKitz® and Sterafit® packs, costs may be determinant of clients accessing pharmacy based versus other types of NSP.

Caution should be exercised in making inferences about underlying patterns of injecting drug use based on the distribution of N&S by postcode data, as some outlets may be located on major transport routes.

Another possible reason for distortion in data is that a small number of after hours' pharmacies sell N&S, most of whom are located close to the inner metropolitan area. Up to the end of 2004 there was only one 24 hour pharmacy in the metropolitan area, in Mount Lawley.

Furthermore, WASUA's fixed site NSEPs distributes very large numbers of N&S in the Perth inner city area. While this could be misinterpreted as indicating Northbridge is an area in which high levels of injecting drug use occurs, a high volume of N&S distribution does not indicate more prevalent injecting drug use by residents of the area.

Indeed, the contrary may be the case, as Northbridge is the Perth metropolitan area's major late night entertainment district and has a concentration of night clubs and bars. It also contains a number of boarding houses, hostels and overnight shelters which are used by a transient population.

Note: Minor discrepancies occur between annual and quarterly totals in Tables 1, A1 and A2 prior to 2001 due to extensive cleaning of the database. Therefore, information reported in earlier publications may not accurately reflect revised totals published in this report.

Acronyms used

BBVs	Blood borne viruses
N&S	Needles & syringes
NSP	Needle & syringe program
NSEP	Needle & syringe exchange program
PWID	People who inject drugs (previously referred to as IDUS - injecting drug users)
WASUA	WA Substance Users' Association
WA	Western Australia

Edited by

This publication was written by Greg Swensen, Principal Information Officer, Drug and Alcohol Office and Catherine Montigny, Senior Program Officer (NSP), Sexual Health and Blood Borne Virus Program, Communicable Disease Control Directorate, Department of Health.

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