New Zealand Needle Exchange Programme

Availability Report

2020

NEEDLE EXCHANGE SERVICES TRUST | July 2021

Authors: Dr Geoff Noller — Research Coordinator
Philippa Jones — National Operations Manager
Susan Yu – Management Reporting Coordinator

Contents

Tables and Figures

Acronyms and Glossary

ADIO — Auckland Drug Information Outreach
- East Street
- South Auckland
- Wellsford
- NINE Whangārei

DAA — Direct Acting Antiviral

DHDP — Drugs, Health and Development Project Trust
- Wellington
- Palmerston North
- Napier
- Whanganui
- Wairarapa

DISC — Drug Injecting Services in Canterbury
- Christchurch
- New Brighton
- Nelson
- Dunedin
- Invercargill
- West Coast Mobile

MIDLANDS —
- Hamilton
- New Plymouth
- Rotorua
- Mount Maunganui

TNET — Timaru Needle Exchange Trust
- Timaru
- Ashburton

NEST — Needle Exchange Services Trust

NEX — Needle Exchange

NZNEP — New Zealand Needle Exchange Programme

Regional Trusts — ADIO, DHDP, DISC, MIDLANDS, TNET

Introduction

This report provides information on the distribution of injecting equipment — needles, syringes and wheel filters — by the New Zealand Needle Exchange Programme (NZNEP), for the 2020 calendar year.

The NZNEP provides Harm Reduction services across New Zealand through a network currently consisting of 20 dedicated exchanges, 2 mobile services, 1 online shop, 192 pharmacies and 8 alternative outlets. Established in 1987, the NZNEP has grown during the last 30 years with over 3.8 million needles now distributed annually. The programme is predominantly funded by the Ministry of Health.

As part of our broader harm reduction services, the NEP distributes two broad categories of equipment: 1) free equipment known as one-for-one (141); and 2) other equipment purchased by clients at a retail price.

In 2004 the Ministry of Health policy changed and a range of equipment was provided free to clients through the NZNEP programme. The free equipment includes 3ml syringes and 27 types of needles. This equipment in the report will be referred to as "free". The list of free equipment approved by the Ministry has not been updated since 2004 despite drug use changing over this period.

Other equipment covered in this report and not available under this free scheme must be purchased by clients from NZNEP outlets and so will be referred to as "purchased" equipment. This includes filters, butterfly needles and syringes with fixed needles, and a range of syringes (other than the 3ml syringe).

NZNEP outlets are also of two general types. These include: 1) NZNEP dedicated needle exchanges (NEXs) providing harm reduction equipment and advice; and 2) participating pharmacies and alternate outlets who provide equipment. Alternate outlets include sexual health clinics and services run by the Aotearoa Sex Workers' Collective .

1. Overview of total distribution - needles only

Table 1 describes national 2020 distribution figures for free and purchased needles for both NEXs and pharmacy/alternate outlets. The percentages in the two far right columns describe the 2020 total number of all needles distributed, for NEX and pharmacy / alternate outlets. For example, 504,000 free needles distributed by pharmacies/alternate outlets comprise 13% of all distributed needles. Similarly, 493,738 needles purchased from NEXs comprise 12.8% of all needles distributed in 2020. Overall, NEXs distributed 84.1% of all needles in 2020.

Table 1: 2020 combined total distribution of needles by outlet and equipment type (free or purchased)

Year		Pharm / Alt		NEX		**Total**	Pharm/Alt	NEX
2020	Free (1-4-1)	504,000	15.4%	2,759,031	84.6%	**3,263,031**	13.0%	71.4%
		82.2%		84.8%		84.4%		
2020	Purchased	109,325	18.1%	493,738	81.9%	**603,063**	2.8%	12.8%
		17.8%		15.2%		15.6%		
		613,325	15.9%	**3,252,769**	84.1%	**3,866,094**		

1.1 Distribution Totals

In 2020 distribution of needles from all outlets increased to 3,866,094 units representing an increase of 2.22% compared with 2019.

In 2020 3.8 million needles were distributed which represents an increase of 2.2% compared with 2019.

In 2020 the bulk of all equipment (84.4%) was distributed by NZNEP NEXs (*Table 1*). This represents a 3.3% increase for NEX distribution compared with 2019. By contrast, pharmacy/alternate distribution (613,325 needles) was down by 3.3% compared with 2019.

1.2 Equipment types — free and purchased needles

Free Needles

Of the total needles distributed 3,866,094, 84.6% (3.26 million) were distributed free. These 3.26 million free needles distributed in 2020 represent a 3.3% increase in free distribution compared with 2019.

In 2020 3.2 million needles were distributed by Needle Exchanges alone, representing an increase of 3.3% compared with 2019.

Purchased Needles

By contrast, in 2020 there was a reduction (3.2%) in the distribution of purchased needles, with this category of equipment comprising 15.6% of all needles distributed.

In 2020 there was a reduction in purchased needles of 3.25% compared with 2019

1.3 Interactions between outlet and equipment types

A more nuanced understanding of national distribution trends is obtained by analysing distribution by outlet type. For example, in 2020 pharmacy/alternate distribution of free equipment (*table* 1; 504,000) dropped by 6.8% while for NEXs (2,759,031) this increased by 5.35%. However, for purchased equipment the opposite trend was evident, with pharmacy/alternate distribution (109,325) increasing by 16.8% and decreasing for NEXs (493,738) by 6.8%. To put this into perspective, the 16.8% increase for pharmacies represents a further 15,795 needles compared with 2019.

Free needles distributed by NEXs increased by 5.35%, whilst those distributed by pharmacies and alternate outlets decreased by 6.8%

Purchased needles distributed by NEXs reduced by 6.8%, whilst those distributed by pharmacies and alternate outlets increased by 16.8%

1.4 Reasons for 2020 distribution trends and variations compared with 2019

In terms of overall numbers, changes in distribution of needles are driven by both the uptake of free equipment and the significance of NEXs as the programme's most popular point of access. Thus, while pharmacies/alternate outlets saw a proportionately large increase (16.8%) in purchased needles during 2020 and NEXs saw purchased needles reduce by 6.8%, because purchased needles comprise a relatively small proportion of all needles (603,063 or 15.6% of all needles; *table 1*), these represent fluctuations rather than significant changes in distribution.

Rather, the programme's total overall increase for 2020 (2.22%) is explained by NEXs dominating needle distribution (84.4%) and free needles accounting for 84.6% of all distributed needles (*table 1*). This trend has been evident for some years and reflects the fact that clients value the safe, non-judgemental and stigma-free setting created by the NZNEP peer-based service (see *figure. 1* below).

NEXs distribute 84.4% of all needles

Free needles make up 84.6% of total equipment distributed

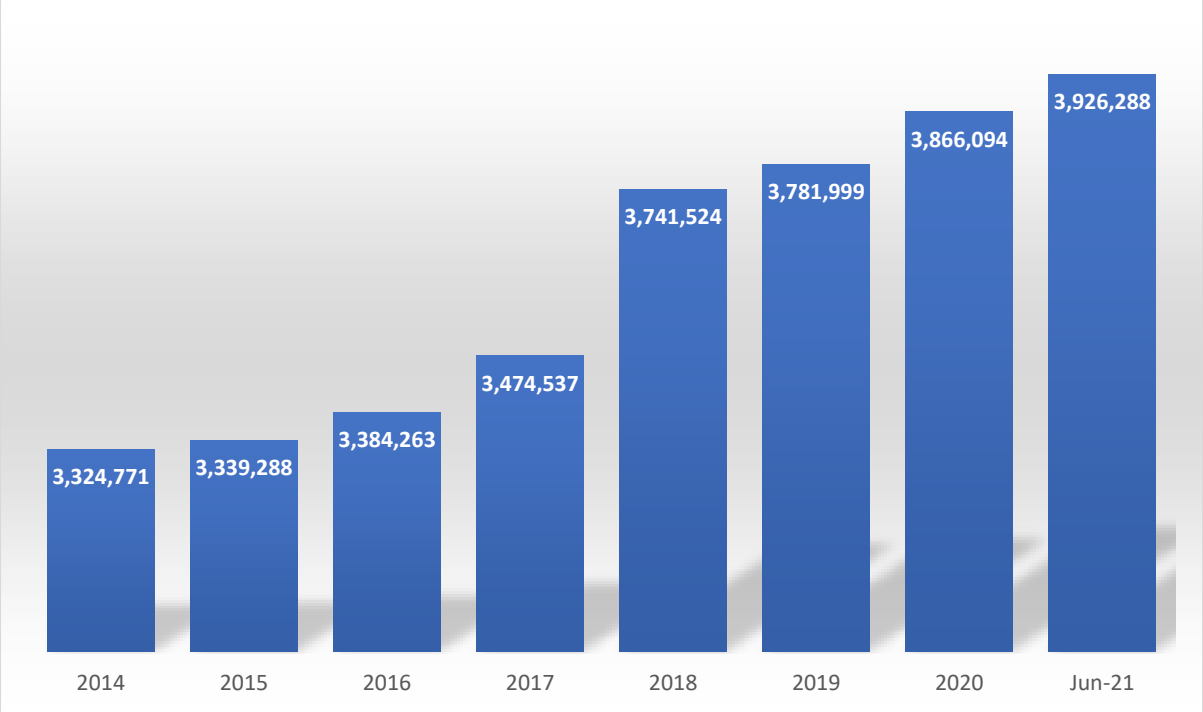

Fig. 1: Annual increases of free and purchased needles across all NEP outlets, 2014-2020

In summary the 2.22% increase in needle distribution across the country for 2020 continues the programme's recent trend in modest but consistent annual increases (*Figure 1*).

2. Distribution of needles by dedicated needle exchanges (NEXs)

This section details the distribution of needles from the NZNEP's 21 dedicated needle exchange services (NEXs).[1] The NEXs, including the West Coast Mobile service, are clustered by Regions with one NEX in each Region acting as the regional hub. The clusters exist as five independent 'regional trusts' and are located in the same respective geographical areas as the four Health Regions. The latter divide the country into the Northern, Midlands, Central, and Southern (the South Island) Regions. The five trusts follow this distribution, respectively: ADIO, MIDLANDS, DHDP and DISC. TNET (comprising the Timaru and Ashburton NEXs) is also in the Southern Region.

Distribution of needles in 2020 by each of the five regional trusts is shown below in *Figure* 2 and in *Table 2*. Pharmacies and alternate outlets are excluded. Data in *Table 2* show individual NEX distribution, as well as clustered per regional trust. In *Table 2* the percentage figures show each trust's needles distributed by the NZNEP'S dedicated NEX services (including mobile), which is also represented in *Figure 2*. The bulk of distribution is shared by the four larger trusts, in order: DISC 39.6%; ADIO and DHDP both 21.7%; MIDLANDS 13.2%. TNET, the smaller Timaru-based trust comprising the Timaru and Ashburton NEXs proportion accounts for 3.8% of total needle distribution. DISC's Rodger Wright Centre in Christchurch is the largest distributor (675,420), while ADIO's WELLSFORD NEX is the smallest NEX outlet in terms of distributed needles (21,274).

[1] Distribution from DHDP Masterton's mobile service is not described separately in this report. Similarly, needles distribution from the NEST online shop (≈ 9000), which commenced operation in May 2020, is not described separately and is excluded from the overall total of all needles.

2.1 Distribution of needles by regional trust and respective NEXs

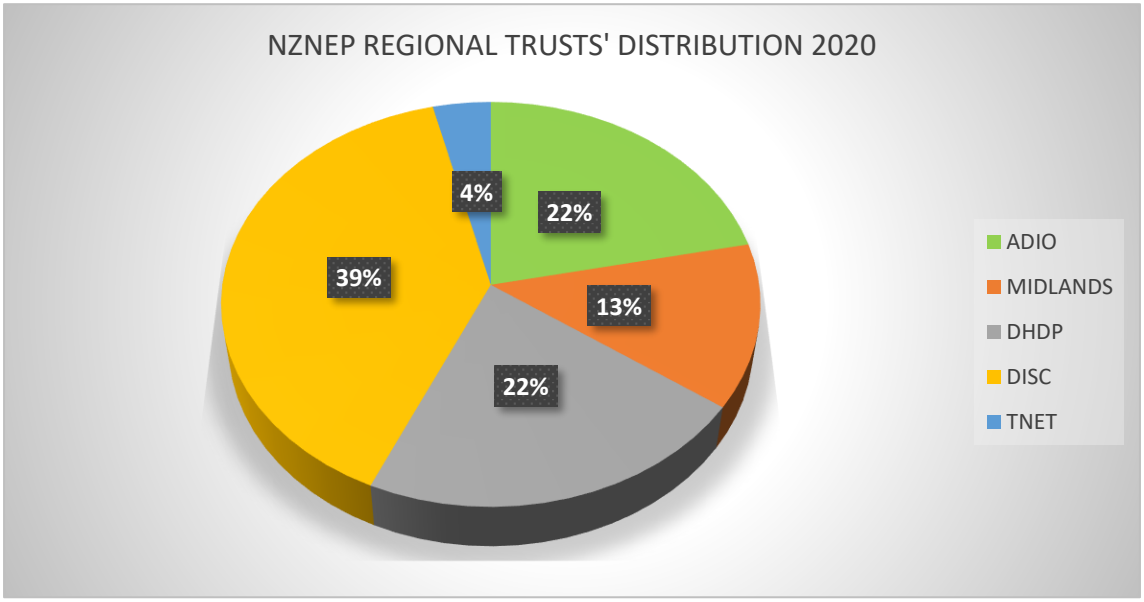

Fig. 2: Regional Trusts' distribution as % of total trusts' needles, 2020

Table 2: Distribution of free and purchased needles by NZNEP regional trusts, with percentage per region, 2020

DHB Regions	Regions and Trust	2020 Distribution Needles	Combined NEX total and as % of all trusts
Northern Auckland, Northland	**Northern - ADIO**		**705,485 (21.7%)**
	East St.	523767	
	South Auckland	102554	
	Wellsford	21274	
	Whāngarei	57890	
Midlands Bay of Plenty, Gisborne, Rotorua, Ruapehu, Taranaki, Taupo, Tauranga, Waikato	**Midlands**		**427,960 (13.2%)**
	Hamilton	174483	
	New Plymouth	146739	
	Mount Maunganui	51485	
	Rotorua	55253	
Central Hawkes Bay, Hutt Valley, Manawatu, Wairarapa, Whanganui, Wellington	**Central – DHDP**		**702,593 (21.7%)**
	Wellington	235824	
	Palmerston North	211455	
	Napier	144618	
	Whanganui	67101	
	Wairarapa	43595	
Southern 1 Nelson/Marlborough, Canterbury, Otago, Southland, West Coast	**Southern 1 – DISC**		**1,285,512 (39.4%)**
	Nelson	127291	
	West Coast	52249	
	Christchurch	675420	
	New Brighton	130479	
	Dunedin	208973	
	Invercargill	91100	
Southern 2 Canterbury, South Canterbury	**Southern 2 — TNET**		**122,537 (3.8%)**
	Timaru	96,179	
	Ashburton	26,358	
Total of all NZNEP trusts' needles			**3,244,087 (100%)**

2.2 Variation in NEX distribution between 2020 and 2019

In *Figure 3* the variation in NEX distribution of needles between 2020 and 2019 is described, with a percentage difference shown as a distribution increase or decrease. For example, Auckland (ADIO East St) recorded a decrease of 1% in overall distribution compared with 2019, while South Auckland (ADIO STH) showed an increase of 9.5% compared with 2019.

Consequently, *Figure 3* shows 4 NEXs recorded reductions in distribution of needles for 2020 compared with 2019.

By contrast, for 2020, the greatest decrease was a relatively small 5.3% at Nelson, with the remaining 3 decreases being minor and ranging from -1% and -2.73% (Whanganui). These fewer negative variances for 2020, compared with 2019, reflect the overall upward trend in distribution recorded by the programme in 2020 (e.g. *Figure 1* and *Table 1*).

2.3 Commentary on NEX distribution variances

Multiple NEXs saw increased needle distribution in 2020, with Wellsford recording an over 45% increase over its distribution in 2019, though in real terms this latter increase (6630 needles) is a small number for the service that opened in June 2018. This was driven by both a 33% increase in free needles and a significant increase in purchased needles, likely due to the 2019 figure being based on NEST's limited distribution to Wellsford, rather than actual sales. This emphasises the importance of best practice in reporting, in this instance the advantage of receiving data directly from NEXs rather than relying on estimated distribution through NEST distribution *to* NEXs, as was previously the case.

Elsewhere, several NEXs from the remaining trusts reported increases in 2020 compared to 2019. These included Midland's Mt Maunganui (17.53%) and Rotorua (14.09%), Napier (18.08%), the South Island's mobile service on the West Coast (18.33%) and the Timaru NEX (23.05%). A comparison of distribution for these services with 2019 data indicates the 2020 increases are attributed to increases in distribution of free needles, as opposed to purchased needles.

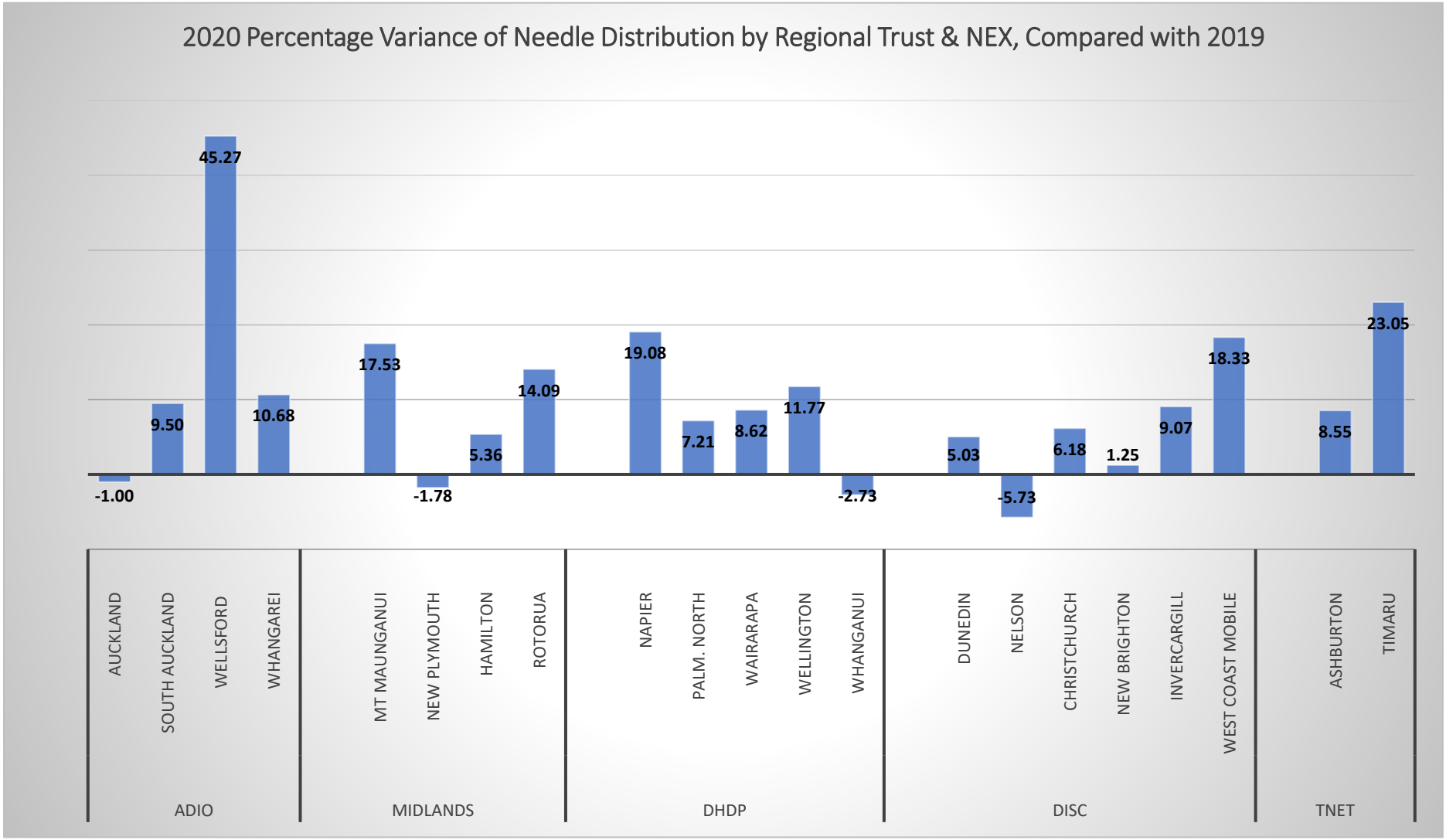

Fig. 3: Showing the 2020 percentage of variance for needle distribution, by Regional Trust and NEXs, compared with 2019

3. Pharmacies and alternate outlets

This section of the report describes pharmacy and alternate outlet distribution data. Despite these outlets consistently distributing approximately only 15% of all needles, they nonetheless represent an important component of the programme, particularly in areas where there is no access to dedicated NZNEP outlets.

3.1 Numbers of pharmacies and alternate outlets

Trends from previous years continued. There was a net increase in 2020 of 3 pharmacies, compared with 3 (2017), 7 (2018) and 7 (2019). 2020 details are shown below in *Table 3*, with a total of 200 non-NEX outlets overall.

Table 3: Numbers, types and variances of pharmacy and alternate outlets, 2020

Outlet type	Numbers	Joined NZNEP	Left NZNEP
Pharmacy	192	6	3
NZPC	3		
Sexual Health Clinic	4		
Hospital dispensary	1		

3.2 Pharmacy and alternate outlets serving regional trusts' areas

Figure 4 shows the distribution of the programme's 200 non-NEX outlets by regional trust. The largest proportion and number of these outlets (i.e. 70 outlets or 35% of all pharmacies and alternates) is located in the Northland / Auckland regions, covered by the four ADIO NEXs. The regions covered by the four Midlands (23%/n=46 outlets) and six DISC (23.5%/n=47 outlets) NEXs are also served by almost identical numbers of these pharmacies and alternate outlets, while that covered by the TNET dedicated NEXS (Timaru and Ashburton) is additionally served by only three pharmacies comprising, 1.5% of the total non-NEX outlets.

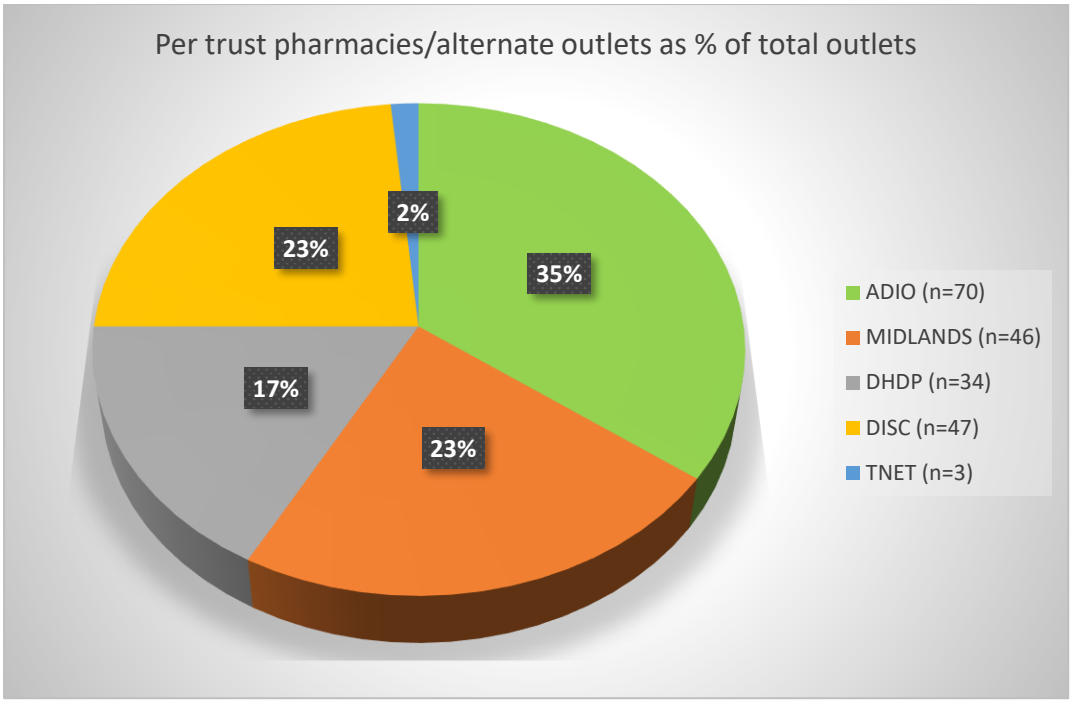

Fig. 4: Numbers of pharmacy/alternate outlets per trust region at 2020, as a percentage of all non-NEX outlets

3.3 Top 10 pharmacies and alternate outlets

Table 4 below lists the programme's top 10 pharmacies and alternate outlets for needle distribution for 2020, showing comparisons with 2019.

Table 4: Top 10 non-NEX outlets 2020 ranked; purchased, free and total (combined) needle distribution compared with 2019

Top 10 pharmacies based on distribution – 2020									
Rank 2020	Rank 2019	Region	Name	Outlet type	141	WHS	Combined 2020	Combined 2019	Variance %
1	3	Canterbury	Ferry Road Pharmacy	Level 2	44000	1300	45300	26950	63.26
2	1	Canterbury	Eastgate Unichem Pharmacy	Level 2	31757	2450	34207	33853	1.04
3	5	Otago	Oamaru Pharmacy	Level 2	20999	8200	29199	22910	27.45
4	2	BOP	Aotearoa Sex Workers' Tauranga	Level A2	15326	6700	22026	36698	-60.01
5	4	Auckland	Roskill Healthcare Pharmacy	Level 1	18830	3150	21980	24793	-11.35
6	n/a*	Wellington	Avalon Pharmacy	Level 2	19840	650	20490	n/a*	n/a*
7	7	BOP	Pharmacy 53	Level 2	20120	0	20120	19200	4.79
8	-	Hawkes Bay	Parkvale Pharmacy	Level 1	15730	0	15730	14330	9.76
9	-	Marlborough	Poswillo Pharmacy	Level 2	14372	400	14772	12364	19.47
10	9	Auckland	Panmure Unichem Chemists	Level 2	10285	4170	14455	17131	-15.63
Totals					211259	27020	238279	223781	3.72

* Avalon Pharmacy, Lower Hutt, joined the programme in April 2020 and therefore 2020 distribution data are incomplete

Four of the top ten sites listed in *Table 4* are in the South Island region also covered by DISC NEXs, including the country's top two distributing pharmacies located in Christchurch. The region covered by

the Midlands' NEXs is served by one of the top ten pharmacies, as well as Aotearoa Sex Workers' Collective's Tauranga outlet. The latter is the only alternate outlet in the top ten non-NEX outlets nationally. Completing this list are two Auckland pharmacies (in the region also served by 2 ADIO NEXs) and two pharmacies in the Central region also served by DHDP).

The top five ranked pharmacies in 2020 are the same for 2019, with slight variation in order, while three of the five lower ranked pharmacies (one each from the Midlands, DISC and DHDP-serviced regions) were not among the top ten in 2019. This suggests both relative stability for the most popular pharmacies but also the potential for significant changes in client need in some areas, e.g. where a change in an area's client base may promote an increase or decrease in distribution, or where changes in drug trends in terms of availability or price may alter the practices of current clients. Nonetheless, anecdote suggests that while some pharmacies may distribute significant amounts of equipment, it should not be assumed that this implies clients are completely satisfied with that outlet's service. Instead, this may be due to limited access, where the pharmacy may be the sole outlet in a given area, thereby offering little client choice despite indifferent service (Personal communication between GN and Dr Jim Ross, GP (including at DIVO) and researcher, Department of General Practice and Rural Health, Dunedin School of Medicine; 18th June 2021.)

3.4 Non-NEX outlet free and purchased needles

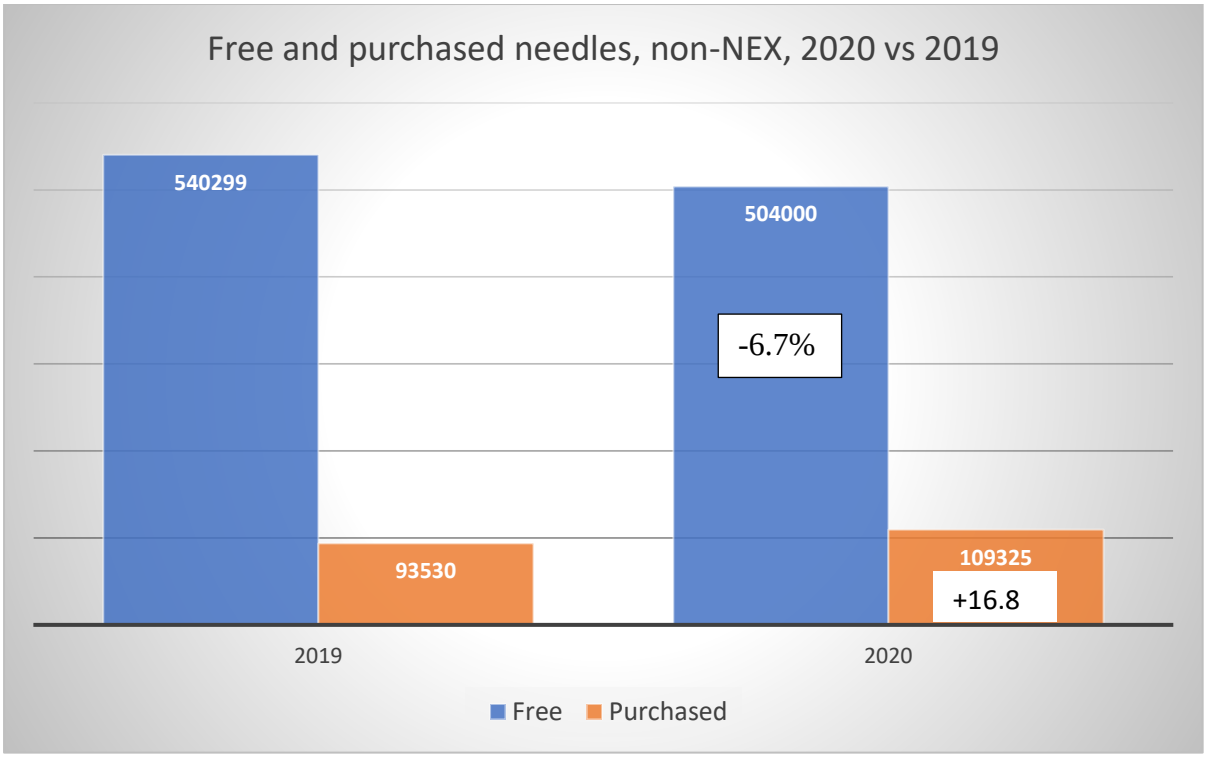

Fig. 5: Comparing distribution of needles by all non-NEX outlets, 2020 vs 2019

As with the programme's NEXs, the majority of needles distributed by non-NEX outlets are free (82.2%), although by volume this was down 36,299 units or 6.7% compared with 2019. By contrast, equipment purchased from pharmacies and alternate outlets increased in 2020 by 16.8% (15,795 units) compared with 2019 (*Figure 5*). Overall this represents a 20,000-unit reduction for all needles distributed via pharmacies/alternate outlets compared with 2019.

4. Combined (free and purchased) NEX and non-NEX needle distribution for 2020

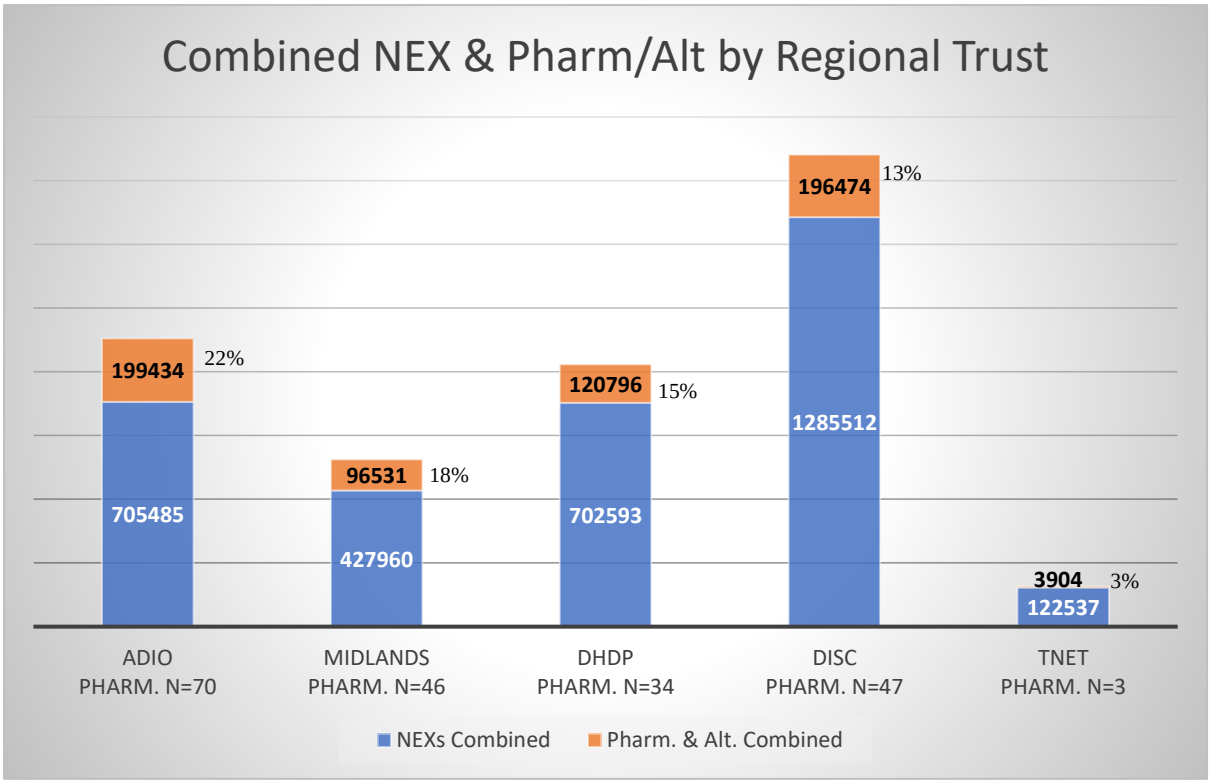

Fig. 6: Combined NEX/Pharm/Alt needle distribution by regional trust area for 2020

In *Figure 6* above, needle distribution for all outlets by regional trust area is shown. Pharmacy and Alternate outlet needle distribution is also described as a percentage of the total needle distribution for each region serviced by the five trusts.

4.1 Interactions between NEX and non-NEX (pharmacies and alternate) outlets regarding needle distribution

The number of pharmacies and alternate outlets also servicing clients in each area covered by regional trusts could impact on equipment distributed by dedicated exchanges (NEXs). Comparing NEX and non-NEX outlet numbers per trust region showed that the more non-NEX outlets there were per region relative to dedicated NEX's, the greater share of distribution these outlets had. This difference was statistically significant (matched paired t-test; p=0.025).

While this relationship may be obvious (i.e. more non-NEX per region = less NEX distribution per region), confirming it statistically, allows us to avoid speculation over varying patterns of distribution. For instance, this evidence is one challenge to the argument for population-based funding, whereby a regional trust would receive a greater share of the funding pool due solely to being located in an area with a proportionately larger population than other trust regions. The most obvious example in this regard is ADIO trust in relation to servicing the Auckland region, which is also serviced by almost 70 NEP pharmacies and alternate outlets. The implication here is that the two ADIO NEXs in the Auckland region have their service burden offset by multiple other outlets. Additionally, it also underscores the importance of pharmacy and alternate outlets to the programme, for example, where these may be available in areas where clients do not have ready access to dedicated exchanges.

Notwithstanding the Auckland region's pharmacy / alternate outlet offset, as discussed in section 6.1 (Estimated needle coverage for New Zealand PWID), there are also alternative explanations supporting the argument *against* population-based funding per se. These relate to two aspects of population characteristics, where by certain traits of a region's population may mediate the prevalence of injecting specific to that region, in comparison to other regions. In the case of Auckland, it relates to ethnicity (i.e. higher proportions of populations with lower prevalence of injecting, such as Asian and Pacifika) and drug use behaviour (i.e. a documented population preference for oral as opposed to venous administration of drugs). These issues are taken up in greater detail in section 6.1.

However, as desirable as ready access to other outlets may be, where there are no dedicated NEXs it is the latter that go beyond simply distributing injecting equipment, to instead providing clients with important harm reduction information as well as better equipment selection for a lower price. The advantages of dedicated NEXs servicing as many clients as possible are underscored with the possibility that other health services may be extended to more NEXs in the future (currently only three — Auckland, East St.; the Community Clinic associated with Christchurch's Rodger Wright Centre; and the Dunedin NEX (DIVO), having a one-day a week health clinic staffed by the programme's only medical doctor — provide direct access to clinical staff).

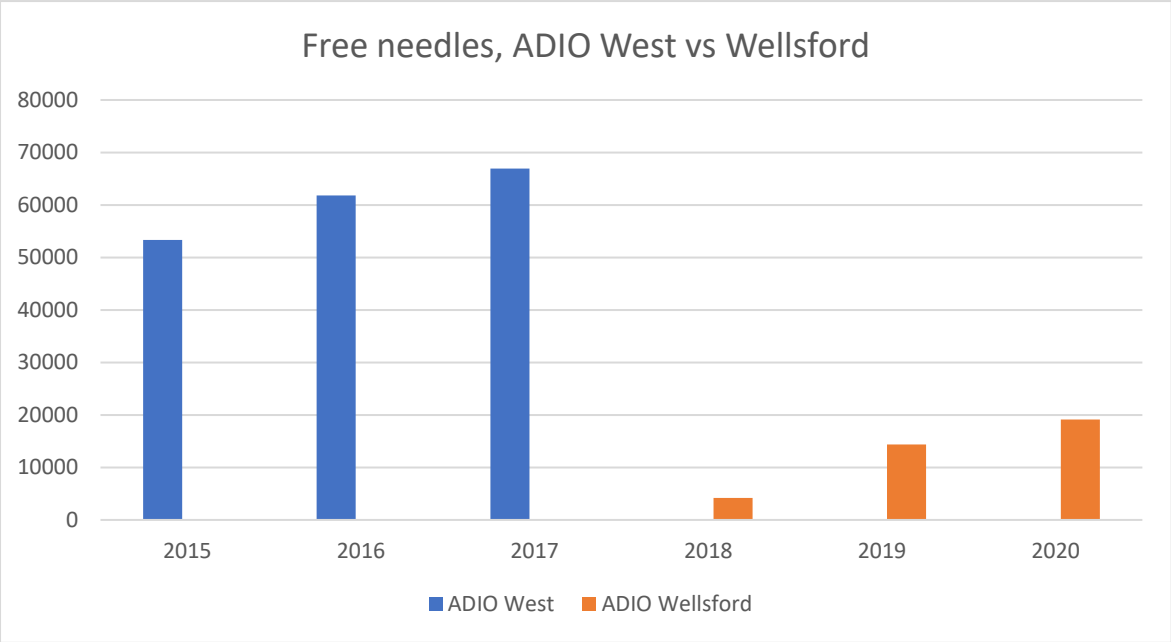

Fig. 7: Comparing distribution of free needles, ADIO West vs Wellsford (2015-2020)

For this reason, ensuring that NZ's PWID have the greatest access possible to dedicated NEXs should be considered a central strategy of the NZNEP. In the case of Auckland, following the disestablishment of the ADIO West NEX in Henderson, there are effectively only two NEXs for the Auckland city and suburbs' population. Moreover, while the Wellsford NEX has been established for two full years, as the data in *Figure 7* demonstrate,[2] due to it being some distance from Auckland itself, it is unlikely to ever service the same number of clients. Consequently, it is not unreasonable to suggest that at present Auckland is underserved by dedicated NEX access in the areas captured by Auckland city and suburbs. Given the preference that PWID consistently demonstrate for their needs being met by dedicated NEXs, consideration should perhaps be given to establishing or reestablishing a third NEX in the Auckland city area.

[2] In Figure 7 data for ADIO West and Wellsford are partial for 2017 and 2018, with the former closed in September 2017 and the latter opened in June 2018

4.2 Breakdown of needle distribution by regional trust areas

In *section 4.2* data for needle distribution by regional trusts are displayed. *Figures 8-12* show distribution for NEXs and non-NEX outlets (pharmacies and alternate outlets) by free and purchased equipment. Data are generally self-explanatory and require little interepretation, offering a snapshot of distribution per-trust region for all outlets.

4.2.1 ADIO NEXs and Pharmacy / Alternate outlets

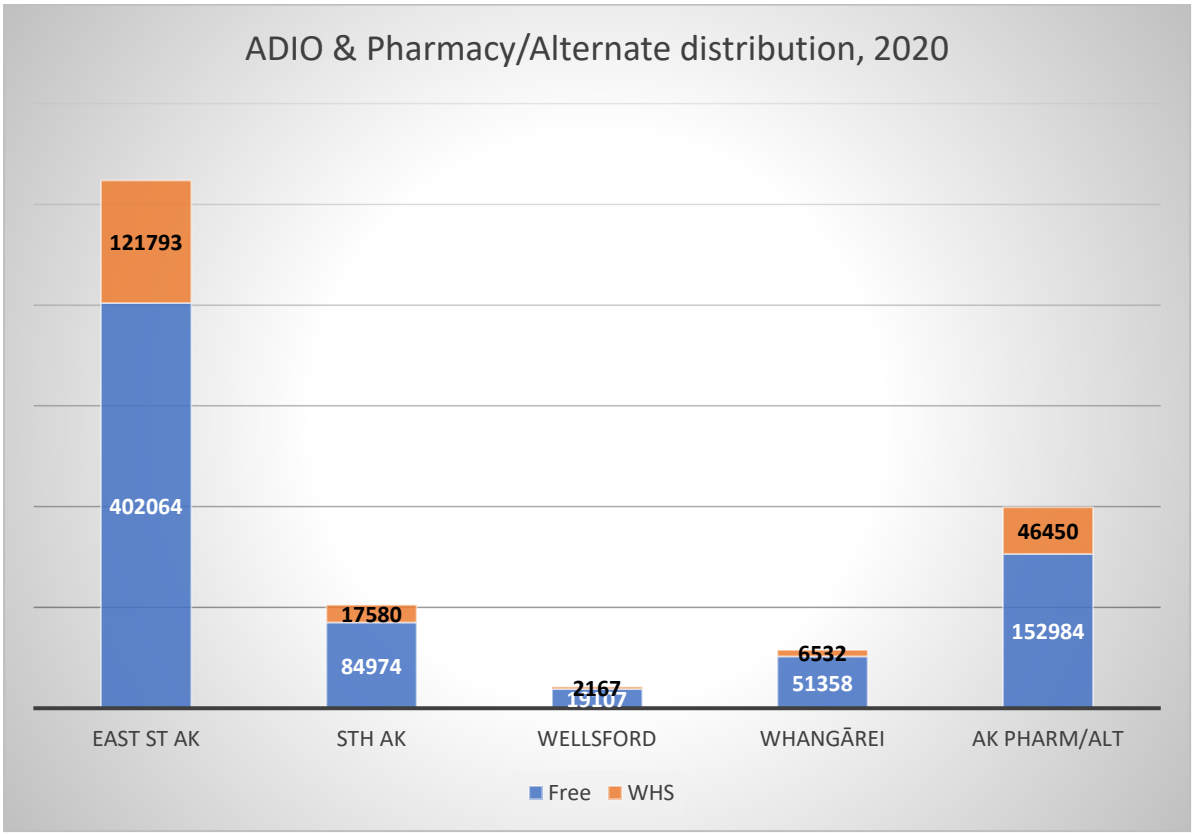

Fig. 8: ADIO and related pharmacy / alternative outlets' combined distribution, 2020

4.2.2 *Midlands NEXs and Pharmacy / Alternate outlets*

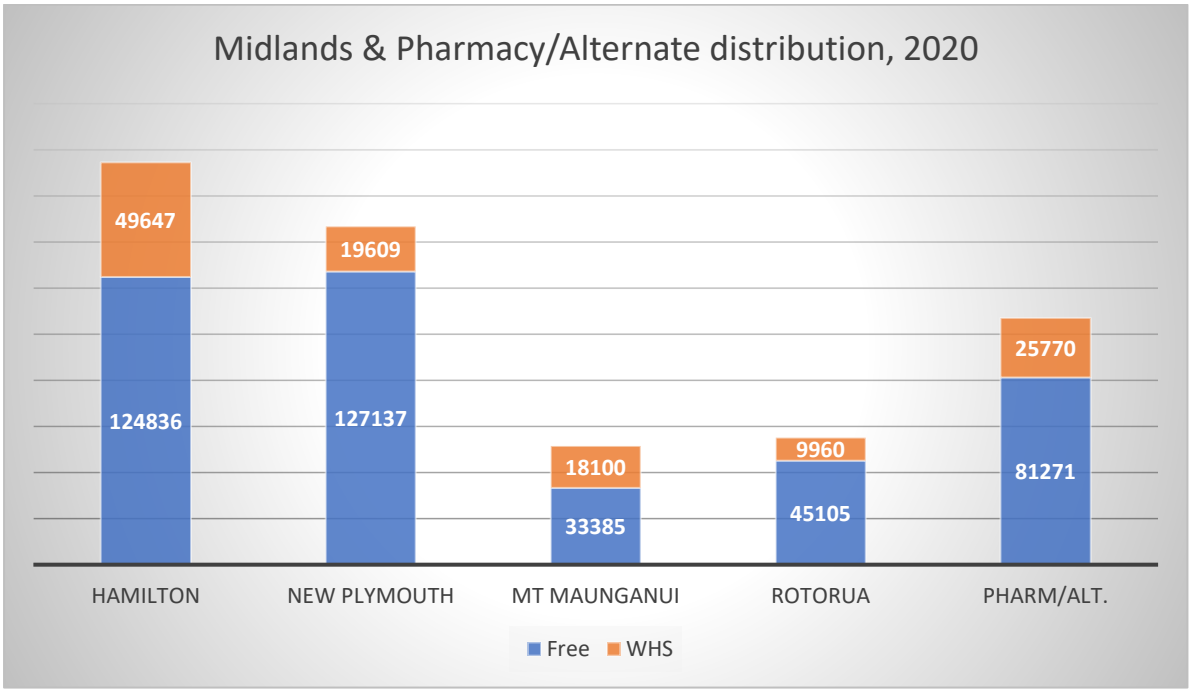

Fig. 9: Midlands and related pharmacy / alternative outlets' combined distribution, 2020

4.2.3 *DHDP NEXs and Pharmacy / Alternate outlets*

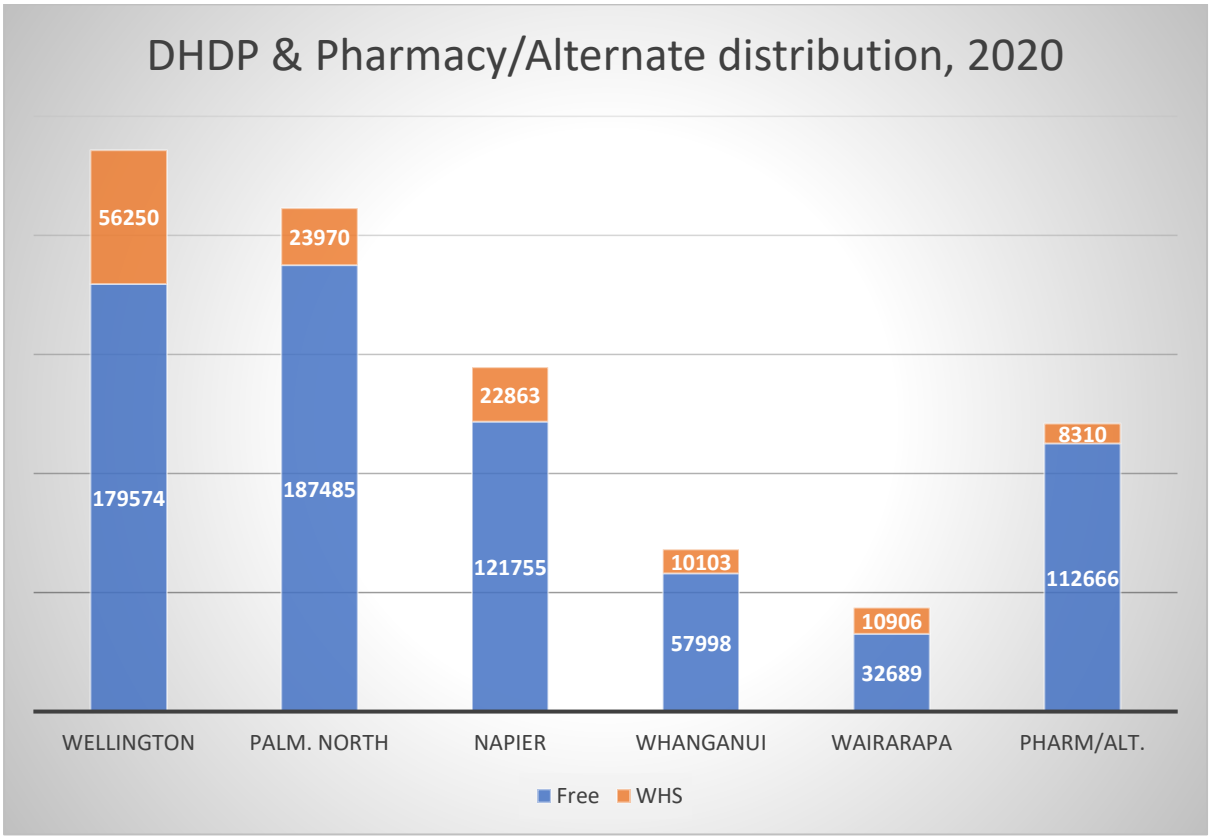

Fig. 10: DHDP and related pharmacy / alternative outlets' combined distribution, 2020

4.2.4 *DISC NEXs and Pharmacy / Alternate outlets*

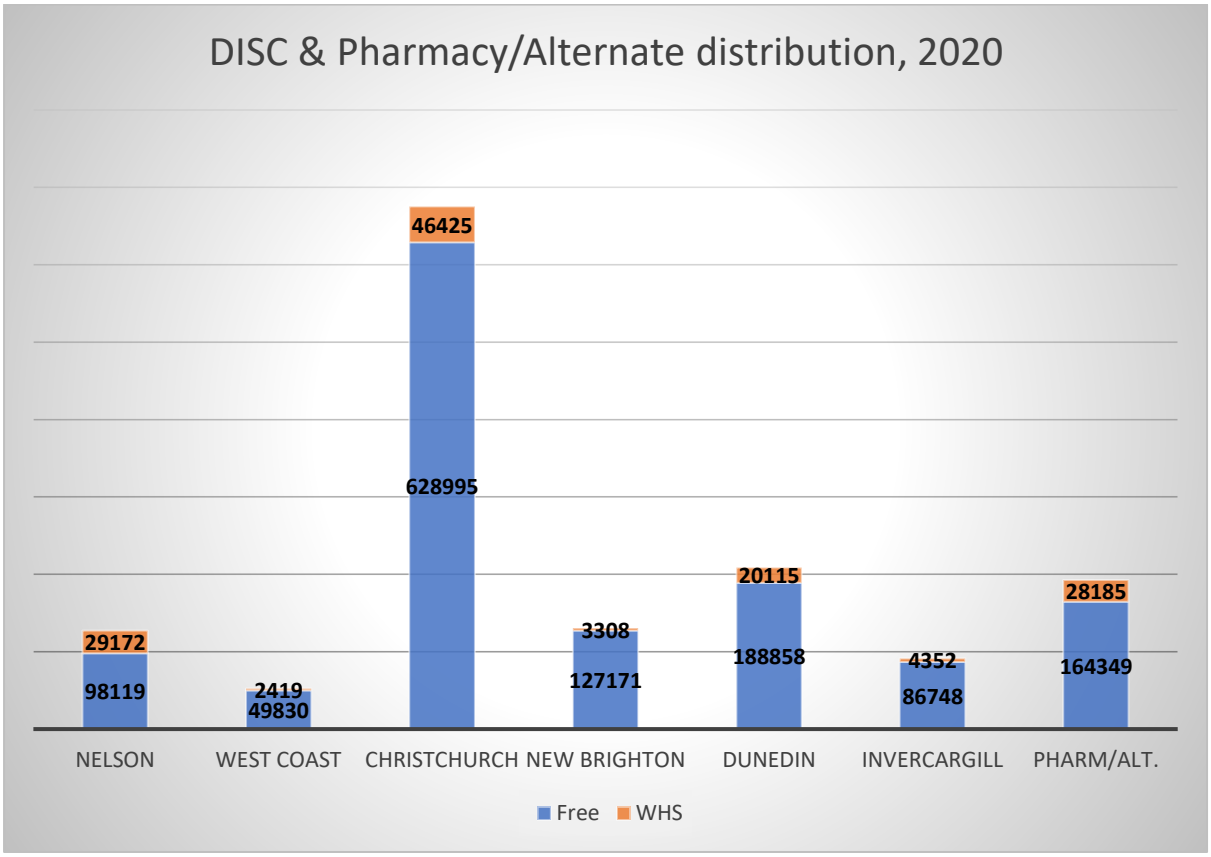

Fig. 11: DISC and related pharmacy / alternative outlets' combined distribution, 2020

4.2.5 *Timaru NEXs and Pharmacy / Alternate outlets*

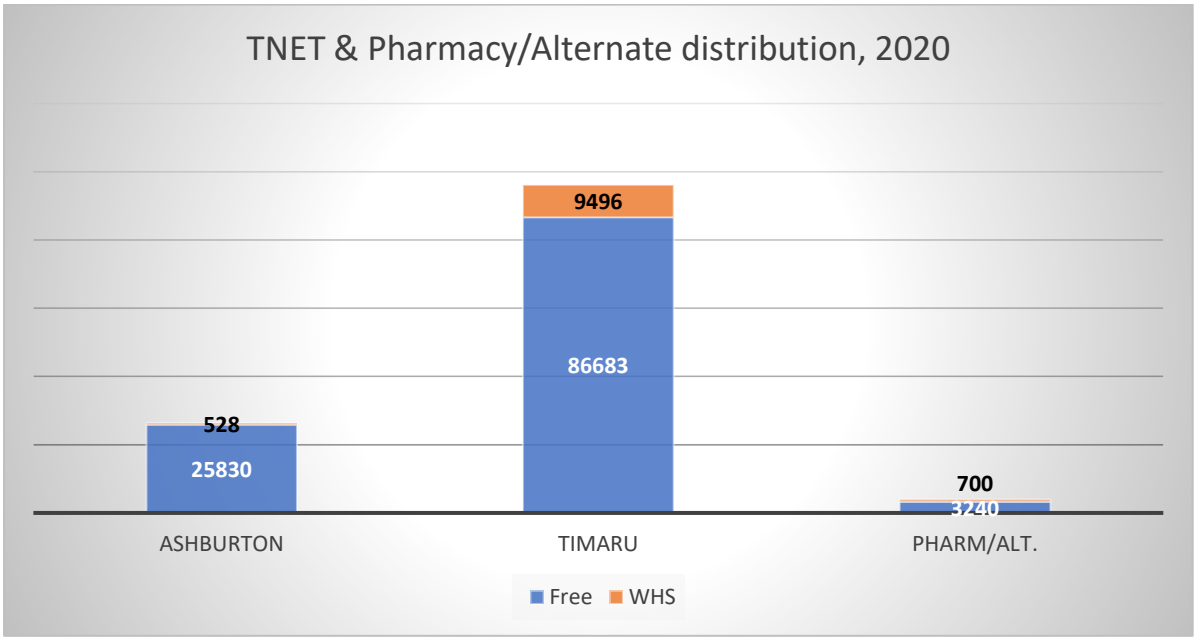

Fig. 12: TNET (Timaru and Ashburton) and related pharmacy / alternative outlets' combined distribution, 2020

5. Distribution of needles by electronic dispenser (ED)

NEXs supplied data on the contents of their ED packs, which may vary from year to year. This allowed a more accurate assessment of total purchased equipment data.

Slightly over half (n=14) of the 20 stand-alone NEXs have EDs, although these are not equally distributed across the regional trust areas, i.e. ADIO (1), MIDLANDS (3), DHDP (5), DISC (4) and Timaru (1). For the present reporting period the ED at DISC's Invercargill NEX (SHRP), had not been functional.

Additionally, all equipment available by ED must be purchased, including equipment normally available free from staffed outlets.

5.1 Comparing ED needle distribution with overall purchased needles

Table 5: ED distribution of needles (disaggregated packs) including as % of NEXs' total distribution, for 2020

NEXS	ALL PURCHASED NEEDLES	ED NEEDLES	ED NEEDLES AS % OF ALL PURCHASED	WEEKLY HOURS
ROTORUA-MIDLANDS	10148	7386	72.8	29
NAPIER-DHDP	22863	13382	58.5	45
NELSON-DISC	29172	12612	43.2	41.5
WAIRARAPA-DHDP	10906	4629	42.4	45
HAMILTON-MIDLANDS	49647	20131	40.5	49
ADIO-EAST ST AUCKLAND	121703	46861	38.5	66
TIMARU	9496	3302	34.8	44.5
PALMERSTON NORTH-DHDP	23970	8163	34.1	49
WELLINGTON-DHDP	56250	21380	38.0	56.5
WHANGANUI-DHDP	9103	2559	28.1	44
DUNEDIN-DISC	20115	5532	27.5	53.5
CHRISTCHURCH-DISC	46425	7382	15.9	84
NEW PLYMOUTH-MIDLANDS	19602	1649	8.4	47
TOTALS	**429400**	**154968**	36%	
MEDIAN			38	47
AVERAGE			37.1	50.3

Table 5 lists needles purchased (excludes free needles) from the 13 functioning EDs, along with their proportion of all purchased needles from their respective NEXs, as well as the hours each NEX is open.

- Overall, over a third (36% or 154,968) of purchased needles from these NEXs are purchased via their EDs.

- The purchase of needles through EDs represents 31% of all needles purchased across the counter or through EDs from all NEXs and 25% of all purchased needles, i.e. including from non-NEX outlets.

Finally, ED-purchased needles comprise 4% of all distributed needles (NEXs and Pharmacies/alternate outlets) and represent 6% of all needles distributed by NEXs with EDs.

5.2 Sale of needles by ED and hours of operation

As *Table 5* shows, there is considerable variation in percentages of needles purchased at each ED machine (i.e. 8.4 - 72.2%) and in the hours that NEXs with ED machines are open, i.e. 29 hours (Rotorua) to 84 hours (Christchurch). One possible explanation is that NEX opening hours impact on ED sales. This was tested statistically (Spearman's R; p=0.09) revealing a non-significant trend in the direction of this hypothesis. In other words, while we cannot definitely state that opening hours influence ED distribution, they probably have some association with it.

6. Availability of needles per PWID

One important indicator of the efficacy of needle and syringe programmes is the level of equipment coverage, particularly for sterile needles. An accepted measure of this is the number of needles used by individual PWID per year. Coverage is defined as 'high' by UNAIDS if distribution exceeds 200 needles/syringes per PWID per year, although WHO has set a target of 300/PWID/year by 2030 (UNAIDS, 2020).

6.1 Estimated needle coverage for New Zealand PWID

Table 6: Annual needles distribution per PWID clients, per DHB region, 2020

Regions	DHB Regions	Resident population ≥15 years (% of NZ population)	Estimated injecting population (0.3-0.45%)[3]	Needles/PWID/year (% national distribution) 2020
		1	2	3
Northern	Auckland, Northland	1,488,521 (37.6%)	4465-6698	135-203 (23.5%)
Midlands	Bay of Plenty, Gisborne, Rotorua, Ruapehu, Taranaki, Taupo, Tauranga, Waikato	760,095 (19.2%)	2280-3420	153-229 (13.5%)
Central	Hawkes Bay, Hutt Valley, Manawatu, Wairarapa, Whanganui, Wellington	783,848 (19.8%)	2351-3527	236-354 (21.5%)
Southern	Nelson/Marlborough, Canterbury, South Canterbury, Otago, Southland, West Coast	926,366 (23.4%)	2779-4168	384-577 (41.5%)
Totals or medians		3,958,830 (100%)	11876-17814	217-325

Providing an accurate estimate of needle coverage is a difficult exercise due to the illegality of injecting drug use. Producing a NZ estimate is further complicated by the lack of reliable data on numbers of NZ

[3] A recent more rigorous analysis by Kwon et al., (2019) suggest a point estimate of 0.39% of the Australian population would inject drugs. We have employed the previous NZ estimated range of 0.3-0.45% to capture this Australian estimate, which may be similar to NZ.

PWID accessing NZNEP outlets, which protects clients' anonymity, currently relying on national survey data from 2013 (Noller & Henderson, 2014) and a more recent on-going scoping exercise (Noller, 2020).

Consequently, the estimates listed in *Table 6* and *Figure 13* below (shows 200 and 400 level coverage) rely in part on a previously used NZ estimated range of 0.3-0.45% of those aged 15 years and over. *Table 6* figures are derived from dividing estimated injecting numbers in each region into that region's total population (e.g. the Northern Region's 4465-6698 PWID average 135-203 needles each, per annum). This gives an estimated range of PWID numbers for the four NZ DHB regions, which generally map onto regional trust areas, with the exception of the NEXT/NEAR cluster, which in *Figure 12* is subsumed in the Southern region for the purpose of this analysis.

While the calculation is not optimal, it does indicate some interesting patterns. There is a range of estimated coverage, e.g. the low range is from 135 needles/PWID/year (Northern) to 384 in the Southern region. Given that significant actual differences in access across regions would be unlikely, other explanations are required.

Two interacting variables potentially explaining these variances are differing population make-up across regions and differing routes of drug administration. Regarding population, while Auckland is clearly the most populous region its proportionately large Asian (28% in 2018) and Pacifika (15.5% in 2018) populations (RIMU, 2020) will have a significant impact on PWID numbers as both these ethnicities have lower rates of injecting than NZ Europeans (Ministry of Health, 2010).

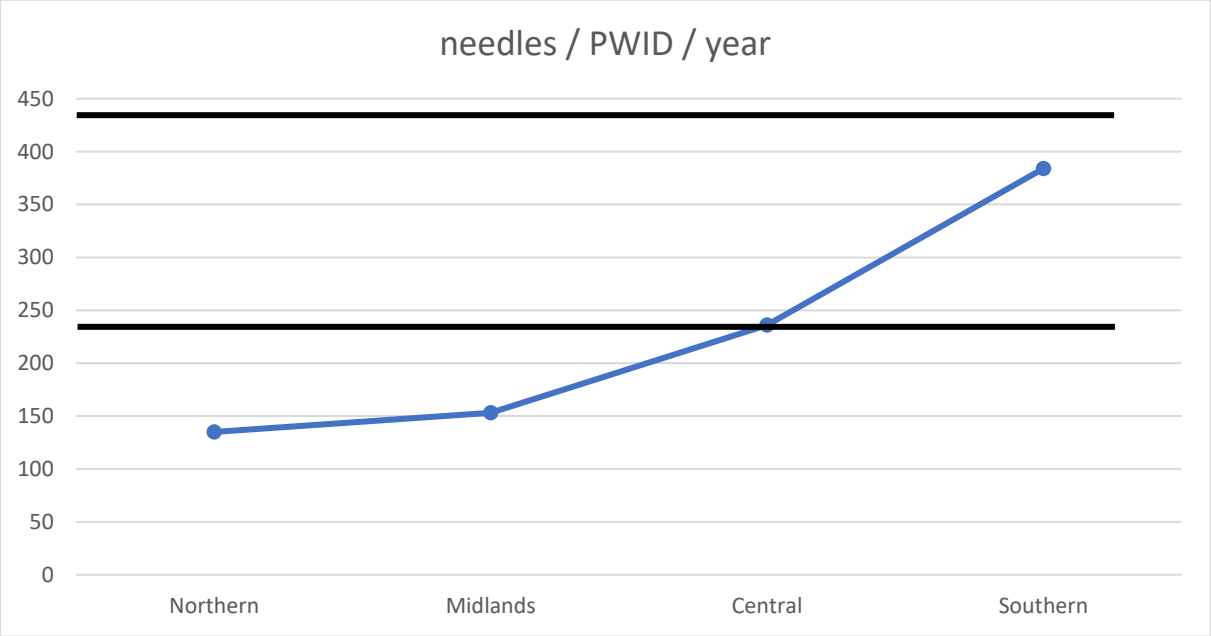

Fig. 13: Benchmarking NZ annual needle consumption per PWID against international levels, by DHB Region, 2020

Similarly, regarding Auckland, use of potentially injectable drugs and their actual route of administration, where anecdotal reports suggest that there may be a higher incidence of the oral use of injectables, including over-the-counter (OTC) and prescribed drugs (Personal communication between GN and Emma Schwartz [Psychiatrist at Waitemata District Health Board]; October 2018).

Collectively these explanations point to a situation whereby the Northern and especially the Auckland population may have proportionately less PWID than other regions of the country. As with earlier observations (e.g. section 4.1), taking such factors into consideration is important in informing the validity of population-based funding.

7. Other equipment: syringes and filters

While needle distribution remains the primary focus of this report and a benchmark for programme efficacy, the significance of other equipment, notably syringes and filters, should not be ignored.

7.1 Syringe size, types and uses

While the programme provides multiple syringes types, i.e. 1ml, 3ml, 5ml, 10ml, 20ml, 30ml and 50ml, currently only the 3ml syringes are provided free through the '141' scheme.

Different sized syringes may be used for different purposes including injecting different drugs, particularly where these may be small volumes, e.g. the 1ml syringe and needle or 1ml insulin syringe which comes with needle attached. These are often preferred by methamphetamine injectors, due to the smaller volumes of prepared drugs that are injected. Larger syringes, particularly the 10ml to 50ml sizes may be used for injecting methadone as the volume injected is greater, especially in regions where OST pharmacies are encouraged to dilute methadone doses.

During 2020, in partnership with Auckland University-based researcher, Dr. Rhys Ponton, NEST undertook a study of injecting practices (Ponton et al., 2020). Along with safety issues, equipment use was also examined. *Figure 14* displays proportions of those injecting various drugs (n=101), who reported using specific equipment. It will be seen, for example, that 1ml syringes (22%) and insulin syringes (29%), were used exclusively by methamphetamine injectors. However, over a third of meth injectors (37%) also reported using 3ml syringes, perhaps because these are available free and likely also as a matter of preference. Equipment being available free was an important factor determining equipment choice that was frequently identified by participants in the study, across drug types. By contrast, however, although methadone is a commonly injected drug, most (79%) of the study's methadone injectors preferred purchasing larger syringes (5-20ml) rather than using the free 3ml syringes (15%).

The choice of syringe and the reasons mediating this, for instance the cost of non-subsidised syringes, differential volume of injected drugs (e.g. methadone is a liquid and requires a larger syringe, commonly accompanied by the use of a butterfly to physically manage handling the larger syringe), has implications for harm reduction. For example, NEP clients commonly report significant reuse of larger syringes, which are relatively expensive. This practice is acknowledged anecdotally, with NEP staff describing receiving returned larger syringes with barely visible dosage markings, due to constant reuse (Personal communication between GN and Belinda Read, Regional Manager, TNET, October 2019).

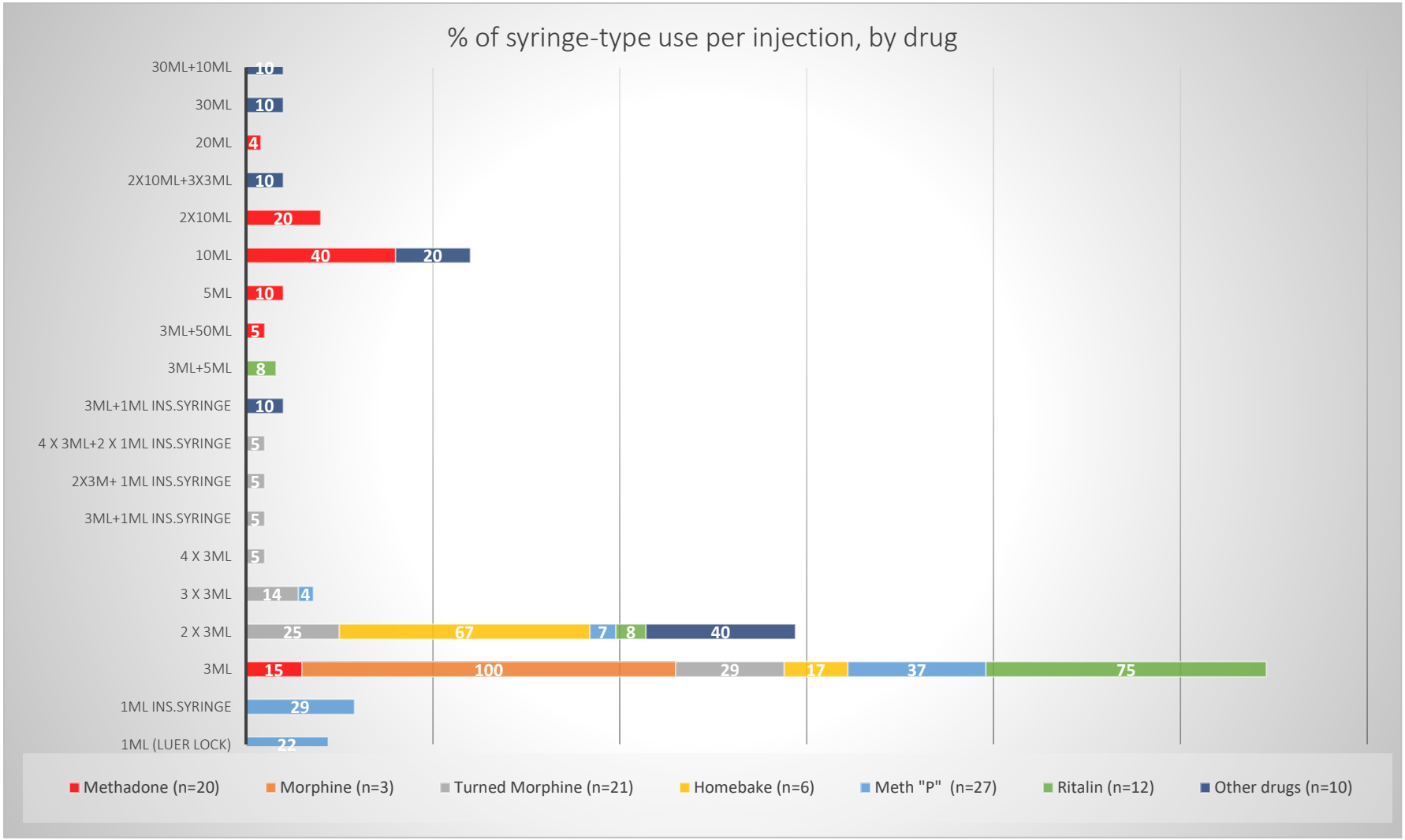

Fig. 14: Percentage of PWID injecting various drugs, reporting use of specific syringes per drug type (Ponton et al., 2020)

7.2 Distribution of syringes during 2020

Table 7: Distribution of all syringes by outlet type and size in 2020

	0.5ml	1ml*	3ml Free	3ml Purchased	5ml	10ml	20ml	30ml	50ml	Total
NEXs	7353	242754	1761141	91423	20767	64333	7448	4293	1431	2200943
Pharm./Alt.	0	26165	519740	46260	7700	20410	2501	1097	96	623969
Online	359	2686	0	2160	101	139	38	21	11	5515
	7712	271605	2280881	139843	28568	84882	9987	5411	1538	2830427

*1ml and 1ml insulin syringes combined

Table 7 lists distribution figures of all syringe sizes provided by the NZNEP. These are tabulated by outlet type and syringe size.

An obvious point is that the number of syringes distributed by the programme is far fewer than the number of needles (*Table 1*), respectively 2,830,427 vs 3,866,094, i.e. distributed syringes comprise only 58.5% of distributed needles. The most likely (and recognised by the programme) explanation for this is that PWID may require more than one needle to successfully inject their drugs ("get their shot away"), as well as using multiple needles to prepare their injections. While a portion of injections involve multiple syringes (e.g. for mixing drugs), it is likely that syringe numbers more closely correlate with injection episodes.

2.83 million Syringes vs 3.86 million Needles

7.3 Syringe distribution by regional trust

On the following page *Table 8* reports syringe distribution by size, across regional trusts. In all cases it is clear that the free 3ml syringes distributed free under the 141-scheme are the largest distributed item. Additionally, in most cases the purchased 1ml syringes are the second most commonly distributed syringes. This is most obviously the case for the ADIO NEXs, with that trust distributing over 142,000 1ml syringes in 2020, over 100,000 units more than the next regional trust, Midlands (42,426 units in 2020). The only trust not following this pattern is the TNET NEXs (Timaru and Ashburton), whose second most 'popular' syringe was the 5ml. For all trusts, the 10ml syringe was the third most commonly distributed size. Perhaps not surprisingly, the 50ml syringe was the least distributed across all trusts.

As an adjunct to this discussion of syringe distribution, it should be noted that the NZNEP has recently proposed the upscaling of free equipment. Harm reduction potential informs the choice of proposed products, augmented by a combination of currently most commonly purchased items within the NZNEP, data from the above noted Safer Injecting Study (Ponton et al., 2020), data from previous NZNEP research (Noller & Henderson, 2014), international literature (Stein et al., 2020; Public Health England, 2021) and first-hand knowledge of injecting drug use in NZ. Prioritised products include: all syringes, butterflies (23g, 25g, 27g), sterile water (10ml), Maxi-cup cooker (larger size - Steri-cup), wheel filters (0.2, 0.45. 0.8, 1.2, & 5.0 micron) and latex tourniquets.

Table 8: 2020 distribution of all syringe sizes, for NEXs, grouped by regional trusts

	0.5ml	1ml*	3ml Free	3ml Purchased	5ml	10ml	20ml	30ml	50ml	Total
EAST ST	3,166	113,870	225,444	9,619	2,344	8,145	422	278	477	363,765
SOUTH AK	1,423	21,340	30,136	1,410	508	1,516	83	73	15	56,504
WELLSFORD	195	2,039	10,783	76	14	325	7	7	11	13,457
WHANGAREI	-	5,365	26,551	-	491	1,386	271	210	21	34,295
	4,784	142,614	292,914	11,105	3,357	11,372	783	568	524	468,021
NAPIER	-	7,378	92,398	9,102	1,026	2,772	133	391	6	113,206
PALM. NORHT	4	6,226	114,915	3,258	1,344	6,967	796	512	27	134,049
WAIRARAPA	-	778	29,138	1,908	1,690	2,351	46	34	25	35,970
WELLINGTON	40	11,815	126,047	20,466	3,127	9,274	221	877	81	171,948
WHANGANUI	1	1,085	54,991	784	603	1,819	99	39	8	59,429
	45	27,282	417,489	35,518	7,790	23,183	1,295	1,853	147	514,602
MT. MAUNGANUI	-	7,261	21,420	3,277	783	1,636	307	20	24	34,728
NEW PLYMOUTH	-	5,273	98,496	2,165	857	3,671	891	125	-	111,478
HAMILTON	1,585	23,374	77,759	8,963	1,545	4,739	1,176	364	169	119,674
ROTORUA	606	6,618	32,582	1,661	232	1,709	43	-	-	43,451
	2,191	42,526	230,257	16,066	3,417	11,755	2,417	509	193	309,331
NELSON	332	2,789	55,183	5,021	1,382	4,964	995	265	35	70,966
CHRISTCHURCH	-	19,963	399,422	12,316	1,494	2,500	648	496	291	437,130
NEW BRIGHTION	1	1,193	85,560	548	175	517	173	71	50	88,288
INVERCARGILL	-	3,024	62,986	220	393	770	86	59	-	67,538
DUNEDIN	-	2,149	113,308	7,684	1,049	6,184	480	176	169	131,199
WEST COAST MOBILE	-	260	20,394	-	486	2,306	268	24	2	23,740
	333	29,378	736,853	25,789	4,979	17,241	2,650	1,091	547	818,861
TIMARU	-	889	66,617	2,915	1,222	664	278	141	19	72,745
ASHBURTON	-	65	17,011	30	2	118	25	131	1	17,383
	-	954	83,628	2,945	1,224	782	303	272	20	90,128

*1ml and 1ml insulin syringes combined

7.3.1 Distribution of purchased 1ml syringes

Below, *Table 9* shows the purchases of 1ml insulin syringe (fix needle attached) and 1ml syringes (no needle). The table shows the 1ml insulin syringes as a percentage of all 1 ml syringes.

As was noted previously (i.e. section 7.1 and *Figure 14*), 1ml syringes generally and the insulin syringe in particular are commonly used by PWID for injecting methamphetamine. Corrolating equipment with drug types is one means of estimating numbers of clients injecting specific drugs. This data can then be compared across regions and individual NEXs.

Understanding the 'popularity' of specific equipment also facilitates the reviewing of equipment supply, e.g. where a particular item may be so popular that supplying other versions of it could be considered redundant.

It is evident from *Table 9's* data that 1ml insulin syringes are a popular type of 1m syringe, with clients from multiple NEXs (Napier, Wairarapa, New Plymouth, Hamilton, Rotorua, both the TNET NEXs, Dunedin, West Coast Mobile 100%) preferring these exclusively.

Overall, the distribution of 1ml insulin syringes ranged from 78% of all 1m syringes from ADIO NEXs to 100% of the TNET NEXs. Total distribution of insulin syringes from NEXs amounted to 147302 or 60.7% of the 242,544 1m syringes distributed by NEXs.

Additionally, pharmacies and alternate outlets were supplied with a further 20,800 insulin syringes (all 1ml), comprising 79.4% of the total of 26,165 1ml syringes they received from NEST. The latter represents 9.7% of all 1ml syringes distributed by the programme.

Finally, as *Table* 9 indicates, over its eight months of operation during 2020, NEST's Online Store sold 2,686 1ml syringes, of which 2,114 (79%) were insulin syringes.

Table 9: 2020 distribution of 1ml Insulin syringes as a percentage of all 1ml syringes

	1ml Insulin	1ml	%
AUCKLAND	96,114	113,870	84.4%
SOUTH AKLD	11,042	21,340	51.7%
WELLSFORD	1,533	2,039	75.2%
WHANGĀREI	3,393	5,365	63.2%
ADIO	**112,082**	**142,614**	**78.6%**
NAPIER	7,378	7,378	100.0%
PALM. NORTH	6,122	6,226	98.3%
WAIRARAPA	778	778	100.0%
WELLINGTON	11,198	11,815	94.8%
WHANGANUI	1,047	1,085	96.5%
DHDP	**26,523**	**27,282**	**97.2%**
DUNEDIN	2,149	2,149	100.0%
NELSON	2,766	2,789	99.2%
CHRISTCHURCH	19,452	19,963	97.4%
NEW BRIGHTON	1,193	1,193	100.0%
INVERCARGILL	3,010	3,024	99.5%
WEST COAST MOBILE	260	260	100.0%
DISC	**28,830**	**29,378**	**98.1%**
MT. MAUNGANUI	7,236	7,261	99.7%
NEW PLYMOUTH	5,273	5,273	100.0%
HAMILTON	23,374	23,374	100.0%
ROTORUA	6,618	6,618	100.0%
Midlands	**42,501**	**42,526**	**99.9%**
ASHBURTON	65	65	100.0%
TIMARU	889	889	100.0%
NEXT	**954**	**954**	**100.0%**
Online Shop	2,114	2,686	78.7%

In 2020 NEXs distributed over 95% of insulin syringes and 90% of 1ml syringes overall.

8. Wheel Filters

Table 10: 2020 filter distribution, all outlets

Outlets	Filters	% of national total
AUCKLAND EAST ST.	8342	17.0%
AK SOUTH	615	1.3%
WELLSFORD	107	0.2%
WHANGĀREI	1423	2.9%
ADIO	**10487**	**21.4%**
NAPIER	1457	3.0%
PALM. NORTH	3680	7.5%
WAIRARAPA	104	0.2%
WELLINGTON	4562	9.3%
WHANGANUI	289	0.6%
DHDP	**10092**	**20.6%**
DUNEDIN	4013	8.2%
NELSON	1340	2.7%
CHRISTCHURCH	7360	15.0%
NEW BRIGHTION	2991	6.1%
INVERCARGILL	756	1.5%
WEST COAST MOBILE	790	1.6%
DISC	**17250**	**35.2%**
MT. MAUNGANUI	1447	3.0%
NEW PLYMOUTH	930	1.9%
HAMILTON	3815	7.8%
ROTORUA	372	0.8%
Midlands	**6564**	**13.4%**
ASHBURTON	46	0.1%
TIMARU	2507	5.1%
TNET	**2553**	**5.2%**
Online Shop	94	0.2%
Pharmacy	1913	3.9%
National Total	**48953**	**100%**

Wheel filters (*Table 10*) are a key harm reduction utensil which have the potential to impact significantly on the health of PWID, primarily due to their filtration of particulate matter from prepared drugs. Wheel filters are not available to clients free which creates a barrier to harm reduction. This is particularly relevant in New Zealand due to the injectable drug market being dominated by pharmaceutical drugs, with the result that drugs prepared for injection commonly contain impurities (including residue from drug substrates) which have the potential to contribute to a range of injection related injuries and diseases (IRIDs). There is limited knowledge about the prevalence and incidence of IRIDs among New Zealand PWID, although the 2014 seroprevalence survey (Noller and Henderson, 2014) and the safer injecting study (Ponton et al., 2020) collected a small amount of data on these. The former reported that 61% of clients surveyed in 2013 had experienced at least one IRID, while the latter noted that 48.5% of participants (n=101) had attended a health service due to an IRID at least once, with the injection of methadone and turned morphine implicated in 33 of 77 (42.8%) of reported events.

As already noted, along with most items of equipment currently available via the NZNEP, filters are not part of the free schedule of equipment and must therefore be purchased. Their cost varies across NEP outlets, with the base cost being $1.50 per filter. However, three trusts – DISC, DHDP and TIMARU – subsidise filters, reducing the cost per unit to $0.80. Filters are available in five sizes: 0.2, 0.45, 0.8, 1.2 and 5.0 microns. Cigarette filters are also available at no cost but provide much less adequate filtration. For the purposes of the present report filters will not be differentiated by size and cigarette filter data will not be reported.

8.1 Filter distribution for 2020

Overall 48,953 filters were purchased by clients during 2020, with 95.8% of these accessed via dedicated NEXs (*Table 10*). This skew against pharmacies and alternate outlets (i.e. only 1913 units purchased from these outlets) likely represents the impact of a significant price mark-up by these outlets. Anecdotal reports suggest pharmacies sell filters for between $2 and $4 per unit (Personal communication between GN and Jason George, NEST Harm Reduction Lead, 10 June 2021).

Table 10 reports filter sales for the five regional trusts and pharmacies / alternate outlets, including the outlet percentage relative to the national total. These data are interesting for at least two reasons. First and most obviously, compared with the number of injections occurring annually, filter use is minimal. For example, comparing filter distribution with that of needles (i.e. 49,000 vs 3.86 million) suggests that only 1.26% of injections are filtered. A potentially more accurate comparison between filters and syringes (the latter 2.83 million) still only increases filtering per injection to 1.7%, effectively less than 1 in 50 injections. Filtering injections, or rather the lack of doing this, is clearly a major issue in New Zealand, not the least because of our unique injecting drug use landscape which relies significantly on pharmaceutical drugs, most of which contain considerable particulate matter requiring filtration.

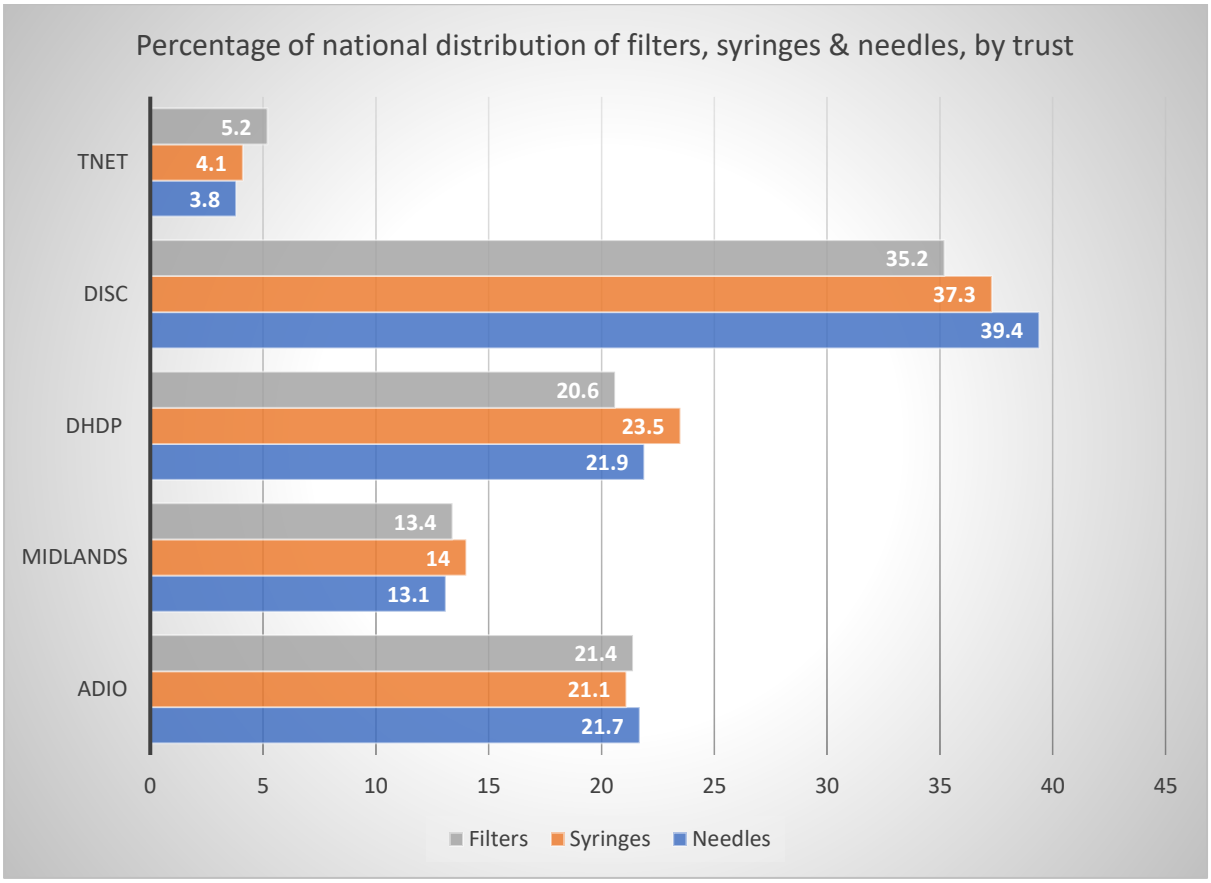

Fig. 15: Percentage comparison of filter, syringe and needle distribution across regional trusts, 2020

Of further interest is that the higher price of filters charged by some trusts does not translate into proportionately reduced uptake, i.e. where filters are not subsidised. This is demonstrated in *Figure 15*, which compares trusts' proportions of the national distribution of filters, syringes and needles. For example, data from two trusts, ADIO (unsubsidised) and TNET (subsidised), indicate an equivalent or higher proportion of their respective national share for filters vs syringes or needles. Additionally, while

TNET's data show a greater disparity, i.e. a higher proportion of filter distribution than for syringes and needles, that trust is the smallest in the country and data are therefore likely to be easily skewed by outliers. By contrast ADIO is NZ's second equal (with DHDP) distributing trust in terms of both needles and syringes but does not subsidise filter cost. Nonetheless, it distributes proportionately slightly more filters than DHDP.

Explaining the above disparities will likely require further investigation, although some explanations may be speculated on. NEP clients in Auckland city, for instance, are served by proportionately the greatest number of pharmacies and have only two dedicated NEXs. Given that filters are relatively expensive when purchased from pharmacies, it could be that those clients wishing to filter their drugs favour ADIO's East Street NEX, thereby concentrating their purchasing of filters. An examination of filter purchases from ADIO East Street suggests these are proportionately greater than percentages of national distribution for syringes and needles, respectively 17% vs 16.4% and 16%. Further, there may be a variance in economic deprivation across areas that favour some over others. As noted above, however, further investigation is required.

The data described above and those preceding, regarding syringe use and sale, add further impetus to the recently proposed product upscale outlined above (Section 7.3).

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Appendix — Top 20 outlets by distribution

Table 11: The 2020 top 20 outlets compared with 2019

TOP 20 OUTLETS BASED ON DISTRIBUTION, comparing 2019 and 2020								
Rank 2020	**Rank 2019**	**Health Regions**	**Outlet Location**	**Purchased 2020**	**Free 2020**	**Combined 2020**	**Combined 2019**	**Variance % 2020 v 2019**
1	1	Southern	Christchurch	46415	628995	675420	693404	6.18
2	2	Northern	East St, Akld	121793	402064	523767	528743	-1.00
3	3	Central	Wellington	66630	179574	235824	237642	11.70
4	5	Central	Palmerston. North	23518	187485	211455	197231	7.21
5	4	Southern	Dunedin	19952	188858	208973	198962	5.03
6	6	Midlands	Hamilton	49647	124836	174483	165595	5.36
7	7	Midlands	New Plymouth	19609	127137	146739	149248	-1.78
8	10	Central	Napier	22671	121755	144618	121444	19.08
9	9	Southern	New Brighton Chch	3308	127171	130479	128868	1.25
10	8	Southern	Nelson	29013	98119	127291	135021	-5.73
11	11	Northern	South Akld	17580	84974	102554	93601	9.50
12	13	Southern	Timaru	6194	86683	96179	78159	23.05
13	12	Southern	Invercargill	4352	86748	91100	83522	9.07
14	14	Central	Whanganui	9085	57998	67101	68984	-2.73
15	15	Northern	Whāngarei	6532	51358	57890	52300	10.68
16	16	Midlands	Rotorua	9960	45105	55253	48429	14.09
17	17	Southern	West Coast Mobile	2419	49830	52249	44155	18.33
18	18	Midlands	Mt. Maunganui	18100	33385	51485	43805	17.53
19	–	Southern	Ferry Road Pharmacy	1300	44000	45300	26950	67.96
20	19	Central	Wairarapa	10882	26748	43595	40133	8.62
		Totals for the top 20		**488960**	**2752823**	**3241755**	**3136196**	**3.33**
		Totals for all outlets nationally		**612195**	**3263701**	**3866094**	**3781999**	**2.22**