

New Zealand
Dialysis Standards and Audit

2008

**Report for New Zealand Nephrology Services on behalf of
the National Renal Advisory Board**

Grant Pidgeon
Audit and Standards Subcommittee

February 2010

*Establishment of a national quality assurance framework to improve the
delivery of dialysis services to the New Zealand dialysis population.*

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- **Associate Professor John Collins and the staff of the New Zealand Peritoneal Dialysis Registry**
- **Professor Graeme Russ, Dr Stephen McDonald of the Australian and New Zealand Dialysis Registry**
- **Nick Polaschek, Senior Project Manager/Team Leader, New Zealand Ministry of Health**
- **Clinical Directors, data collectors and staff of the Renal Units in New Zealand**
- **Dr Kelvin Lynn, Medical Director, Kidney Health NZ**
- **Peter Dini, Department of Nephrology, Christchurch Hospital**

Introduction

The National Renal Advisory Board (NRAB) presents its fifth annual audit report of the New Zealand dialysis care standards. This data is predominantly derived from the annual return to the Australia and New Zealand Dialysis and Transplantation Registry (ANZDATA), although once again we have been able to report data from the New Zealand Peritoneal Dialysis (NZ PD) Registry, established and maintained by Assoc Prof John Collins at Auckland Hospital.

The Standards and Audit Subcommittee of the NRAB has not made any substantial changes in the data being reported, but it is expected that some of the audit standards will be revised for the 2009 report. The data relating to eGFR at time of surgical referral has stopped being collected as it proved too difficult for most units, and was not easy to interpret as intended, as a marker of pre-dialysis care. The collection and collation of data for this report is critically dependent on the goodwill and hard work of renal units and the staff of the ANZDATA and NZ PD Registries.

The dialysis care standards have been appended to the Tier Two Renal Service Specifications in the Ministry of Health's National Service Framework library. The standards are also available for review by health professionals and the public on the New Zealand Kidney Foundation website <http://www.kidneys.co.nz/>.

The section of the report incorporating data provided directly from renal units to the Subcommittee is again incomplete but some units are making a concerted effort to address this issue. This incomplete data is reported for the first time.

The Renal Service at Wellington Hospital provides support for the production of this report. I once again wish to acknowledge the support of Peter Dini, Systems Manager, Department of Nephrology, Christchurch Hospital and Kelvin Lynn for the very smooth handover of data for the preparation of this report.

The process of data collection

The 2008 Report includes data from the 2008 ANZDATA Registry Report, the NZ PD registry and from some renal units' audit programmes. The timing of data collection and reporting from ANZDATA means that the New Zealand Audit Report cannot be distributed until their work is completed in the second half of the year following original data collection. The last two reports have been greatly delayed due to the late return of some NZ unit data to ANZDATA. It is hoped that the process of individual unit data return can in future be improved upon to fit with the ANZDATA deadline of 31 March each year. This will allow publication of this report towards the end of the year.

The National Renal Advisory Board would appreciate feedback on this report. Comments can be sent to Johan Rosman, Chair of NRAB, JRosman@waitematadhb.govt.nz or Grant Pidgeon grant.pidgeon@ccdhb.org.nz

The audit data is shown in tabular and graphic form in the following pages. You may note minor changes in the data for previous years which result from corrections and updates to the ANZDATA and NZ PD databases. It has been decided to remove the raw data from the various figures but this is available to Heads of Renal departments on request.

Renal Service Demographic Data 2008

	Northland	Auckland	Middlemore	Hamilton	Hawkes Bay	Palm Nth	Taranaki	Wellington	Christchurch	Dunedin	New Zealand
Population*	155,170	964,190	473,270	711,670	153,640	229,330	107,535	601,175	581,545	296,245	4,273,770
% Maori	31.8%	9.0%	16.7%	25.9%	24.5%	20.0%	16.5%	12.1%	7.7%	8.6%	15.1%
% Pacific	1.5%	9.2%	21.3%	2.0%	3.1%	2.1%	0.9%	5.9%	1.9%	1.5%	6.3%
% Asian	1.3%	17.8%	15.9%	3.6%	2.0%	3.1%	1.7%	6.4%	5.1%	3.0%	8.5%
% Other	65.4%	64.0%	46.1%	68.5%	70.4%	74.8%	80.9%	75.6%	85.3%	86.9%	70.2%
Incident numbers	26	110	81	96	16	20	26	51	46	20	492
Incidence rate (pmp)	167.6	114.1	171.1	134.9	104.1	87.2	241.8	84.8	79.1	67.5	115.1
Prevalent numbers	153	502	435	395	60	101	64	184	125	80	2099
Prevalence rate (pmp)	986.0	520.6	919.1	555.0	390.5	440.4	595.2	306.1	214.9	270.0	491.1

* Estimate from 1996 census (Ministry of Health)

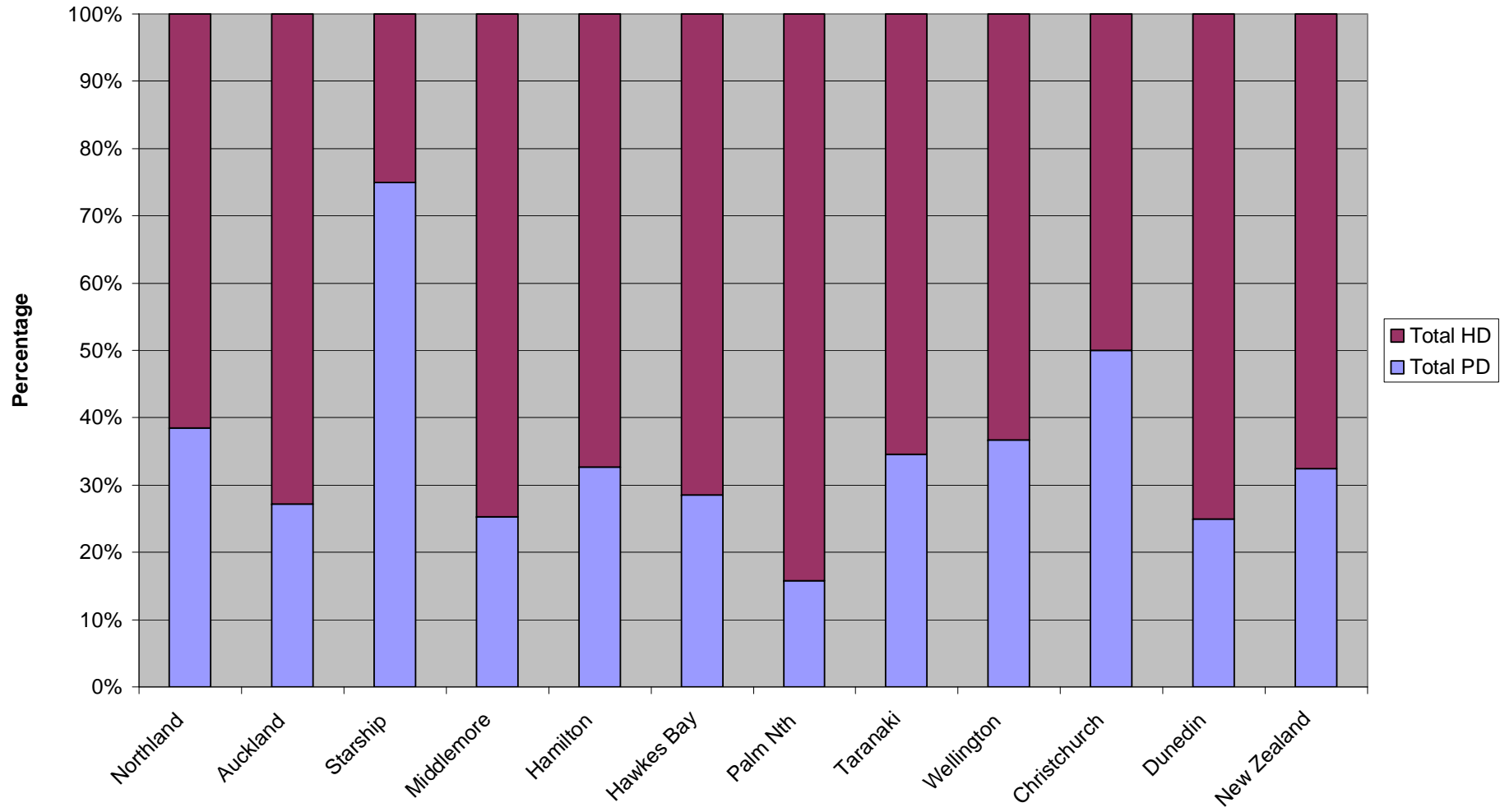
Incidence – number of new patients commencing dialysis treatment during the calendar year – per million population (pmp)

Prevalence – number of patients receiving dialysis treatment at the end of the calendar year ie. 31 December 2008 – per million population (pmp)

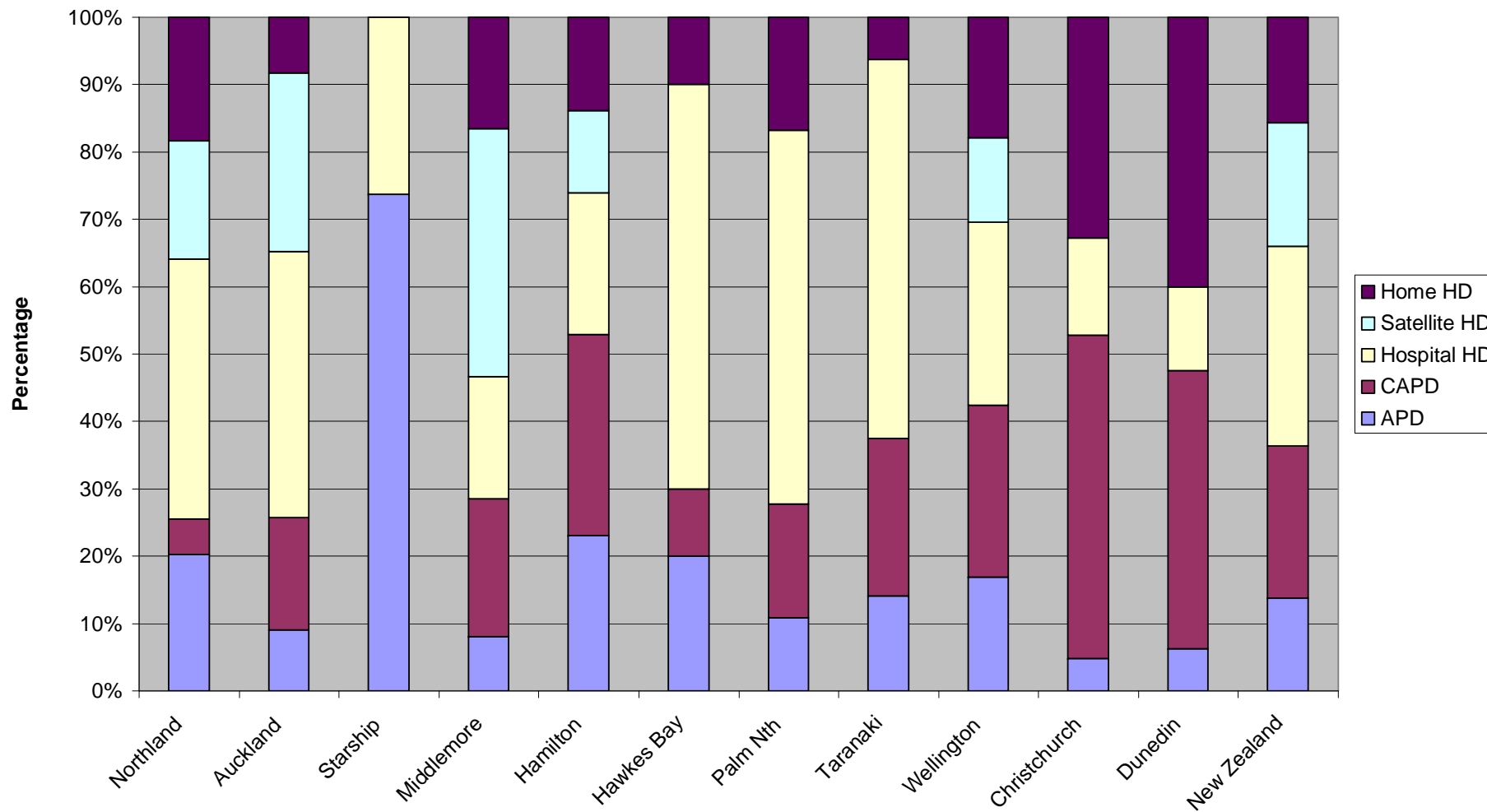
Unit Coverage

Northland	Northland DHB
Auckland	Waitemata and Auckland DHBs
Middlemore	Counties Manakau DHB
Hamilton	Waikato, Bay of Plenty, Lakes and Tarawhiti DHBs
Hawkes Bay	Hawkes Bay DHB
Palmerston North	Whanganui and MidCentral DHBs
Taranaki	Taranaki DHB
Wellington	Capital Coast, Hutt, Wairarapa and Nelson Marlborough DHBs
Christchurch	West Coast, Canterbury and South Canterbury DHBs
Dunedin	Otago and Southland DHBs

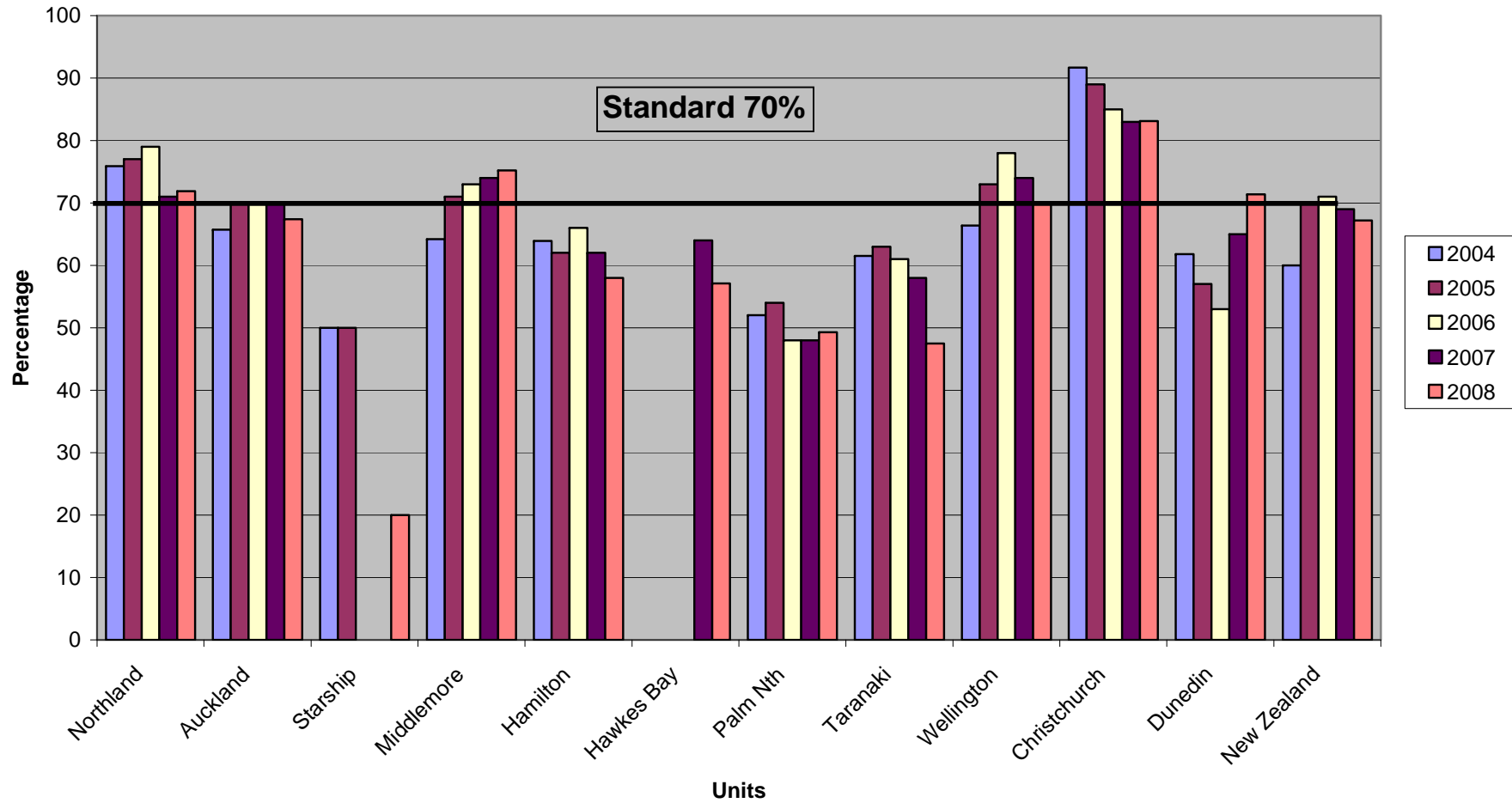
Treatment modality of Incident patients in New Zealand in 2008



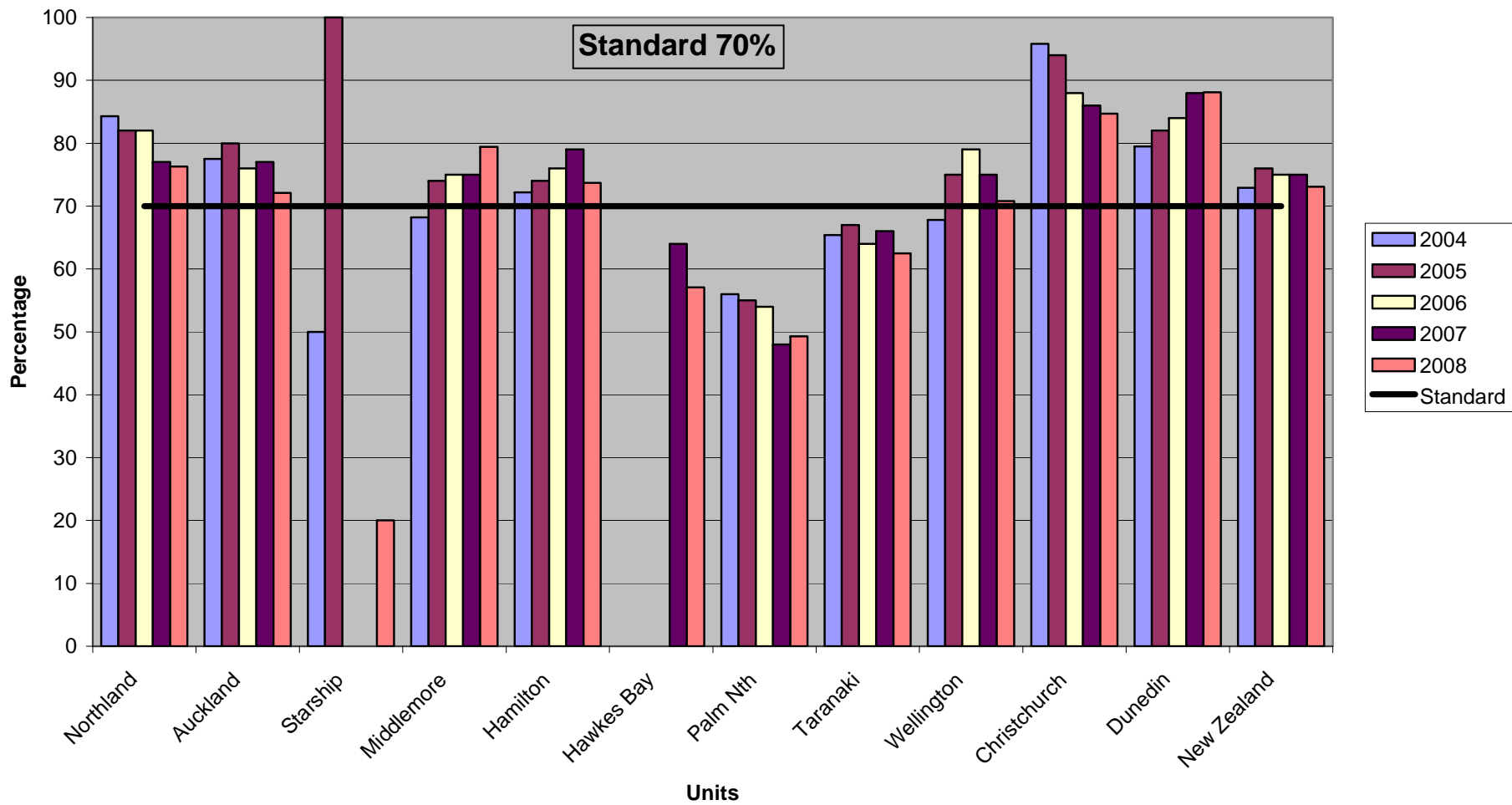
Treatment modality of prevalent patients in New Zealand in 2008



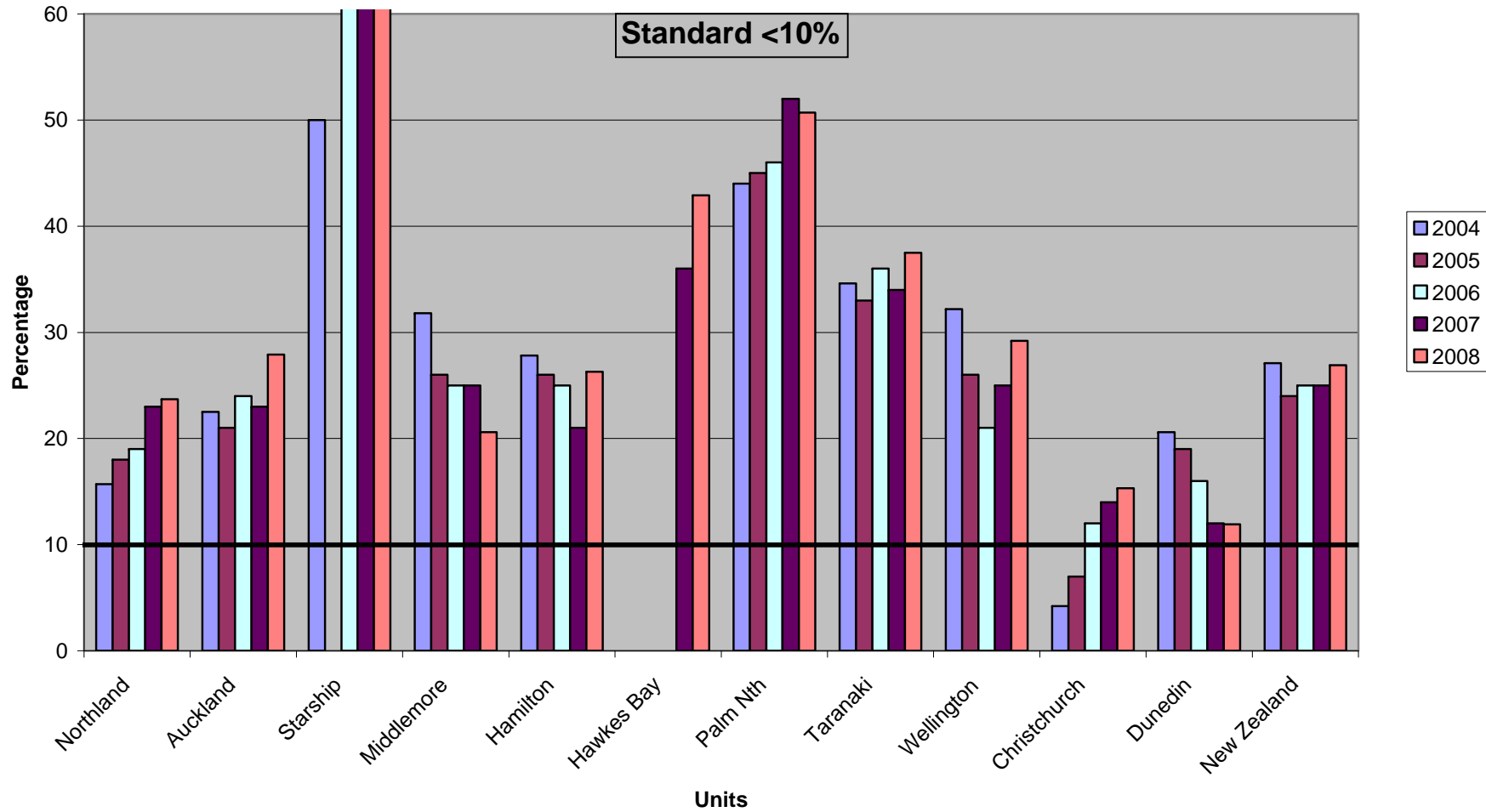
Vascular access of prevalent HD patients in New Zealand at the end of 2004 - 2008
 - percentage of AV fistulae



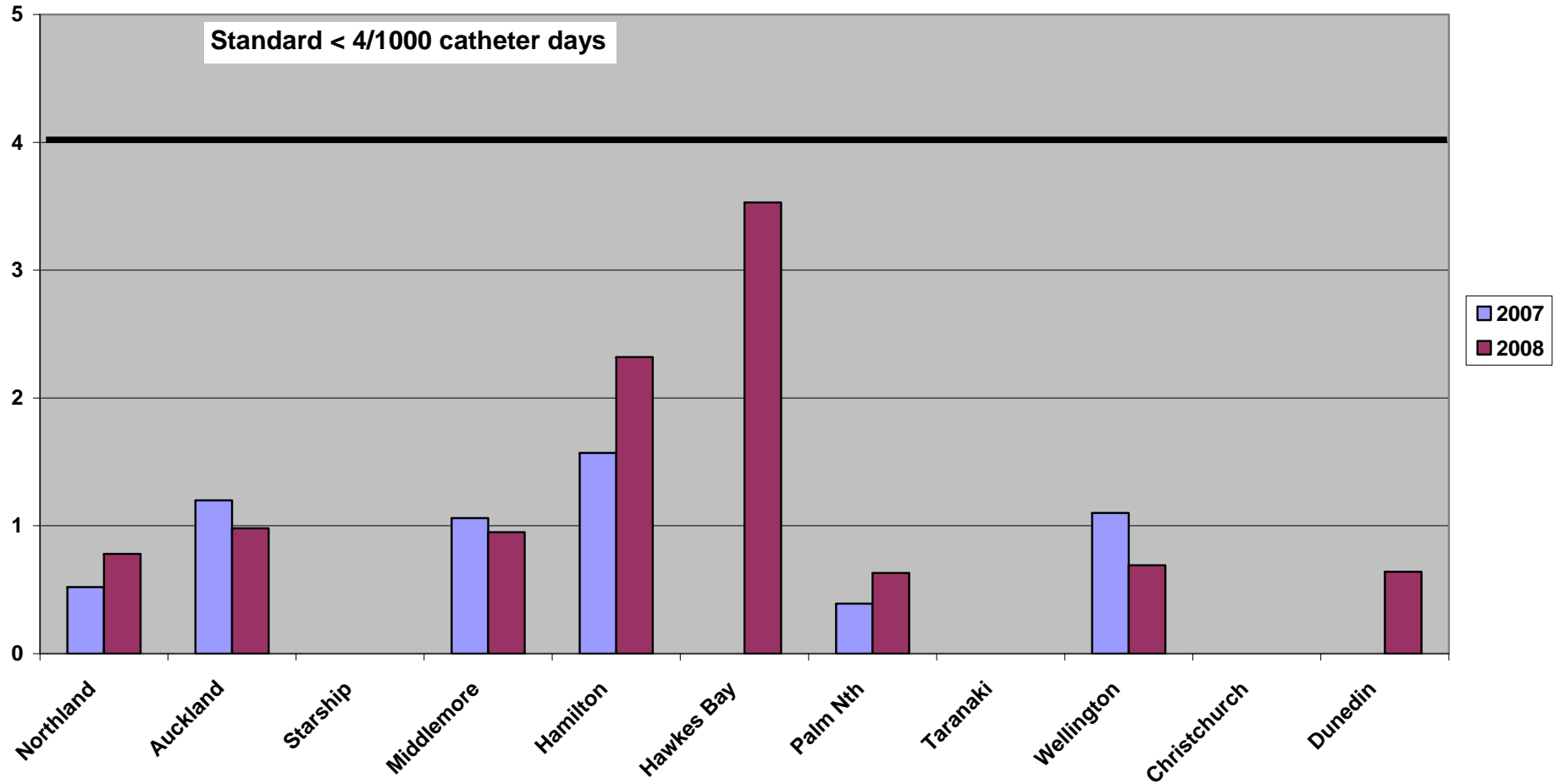
Vascular access of prevalent HD patients in New Zealand at the end of 2004 - 2008
 - percentage of AV grafts and fistulae



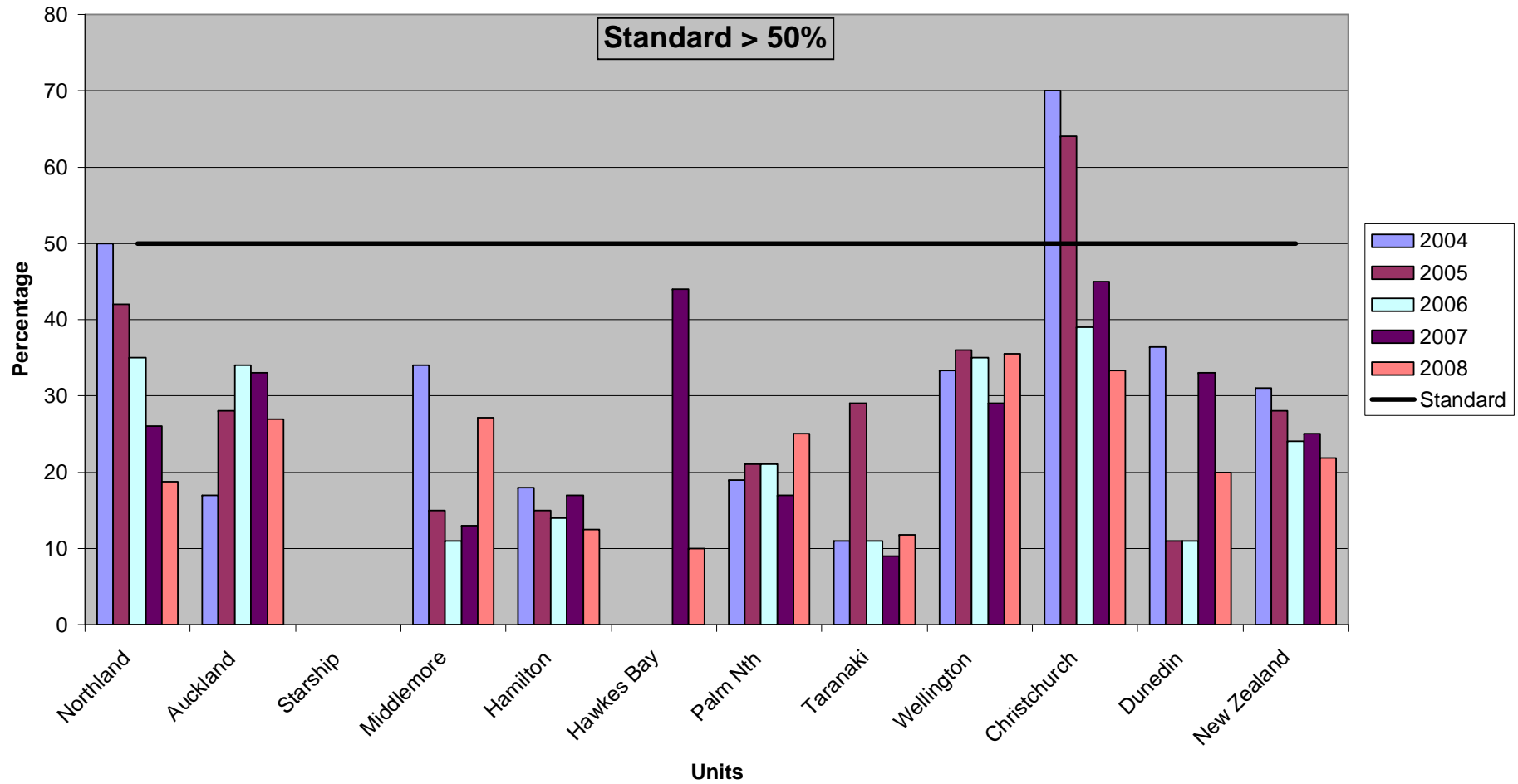
Vascular access in prevalent New Zealand HD patients at the end of 2004 - 2008
 - use of catheters (Includes tunnelled and non-tunnelled catheters)



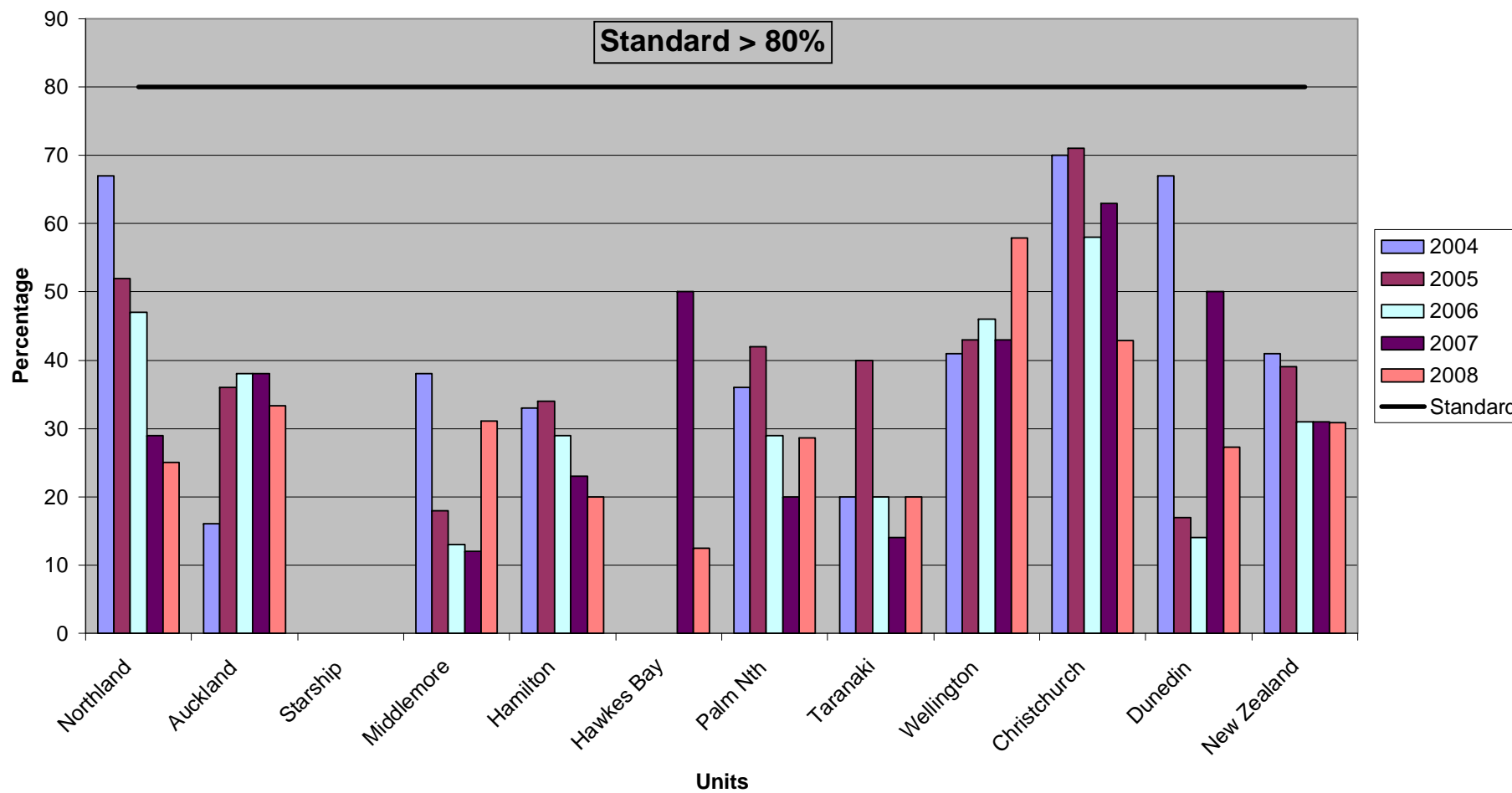
CVC-related bacteraemia rates 2007 and 2008
(/1000 catheter days)



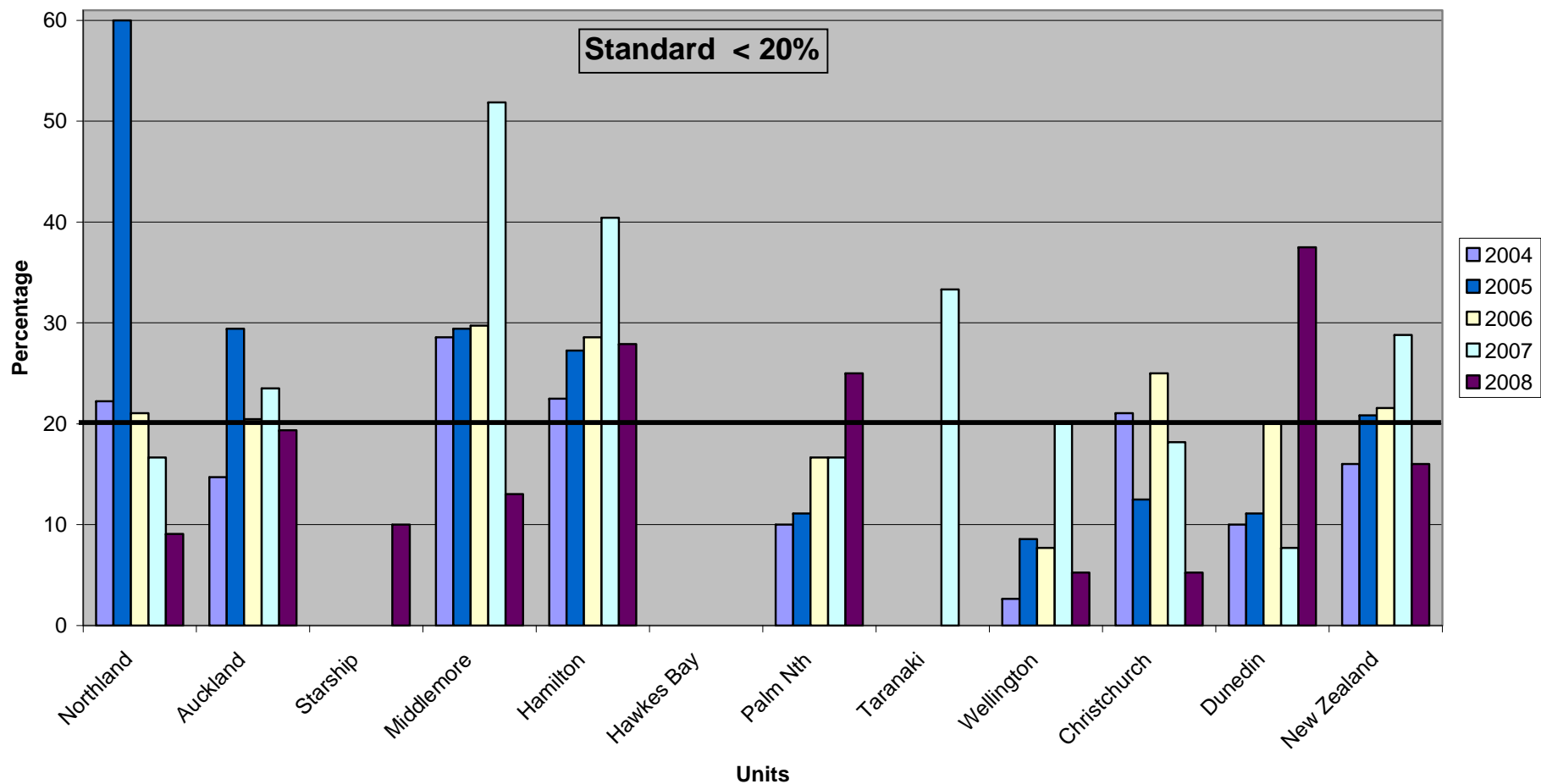
Percentage of incident New Zealand HD patients starting HD with permanent vascular access in
2004 - 2008 - AV fistula or AV graft



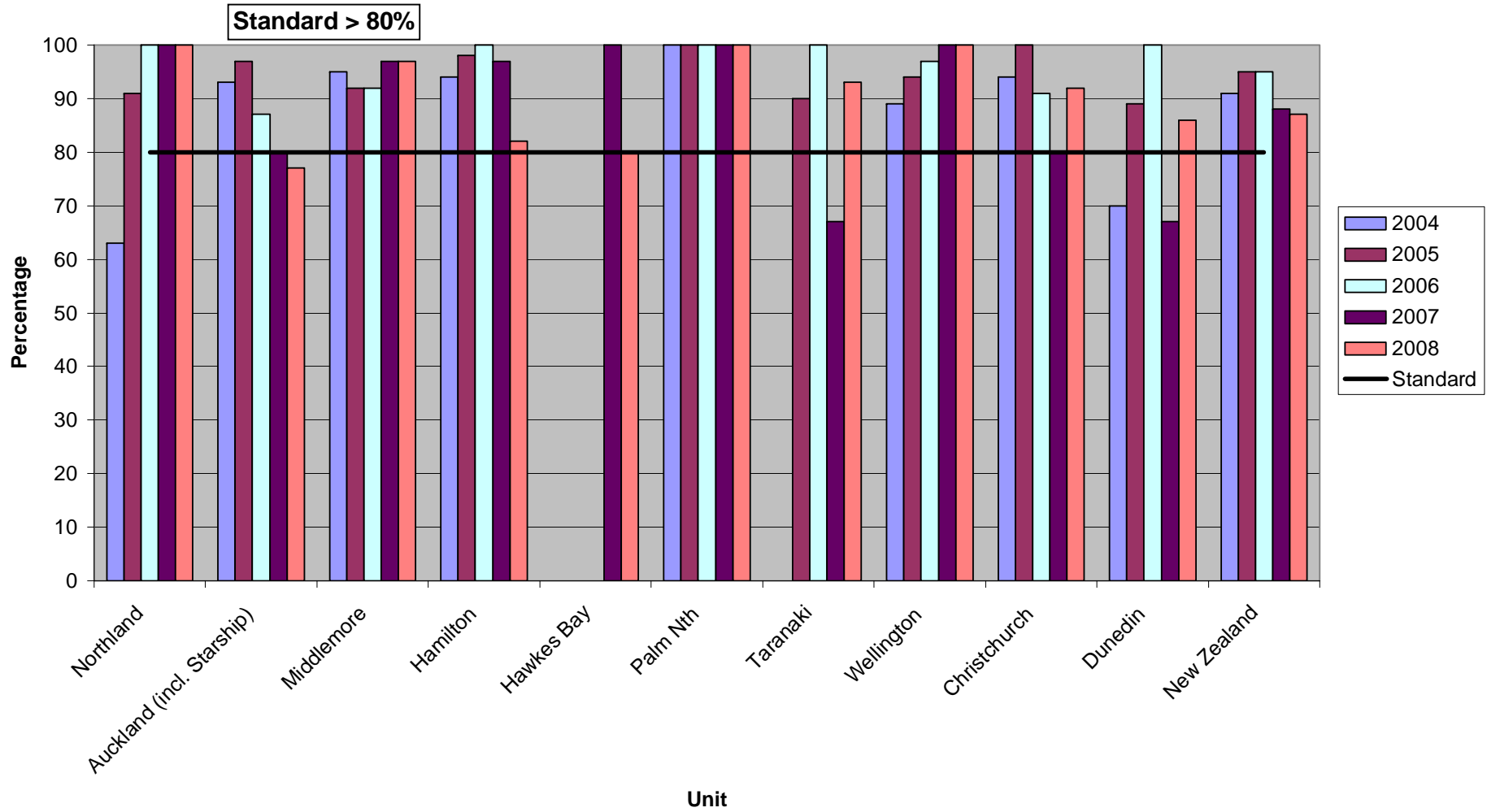
Percentage of non-late referred (>3 months) New Zealand HD patients starting HD with permanent access in 2004 - 2008 - AV fistula or AV graft



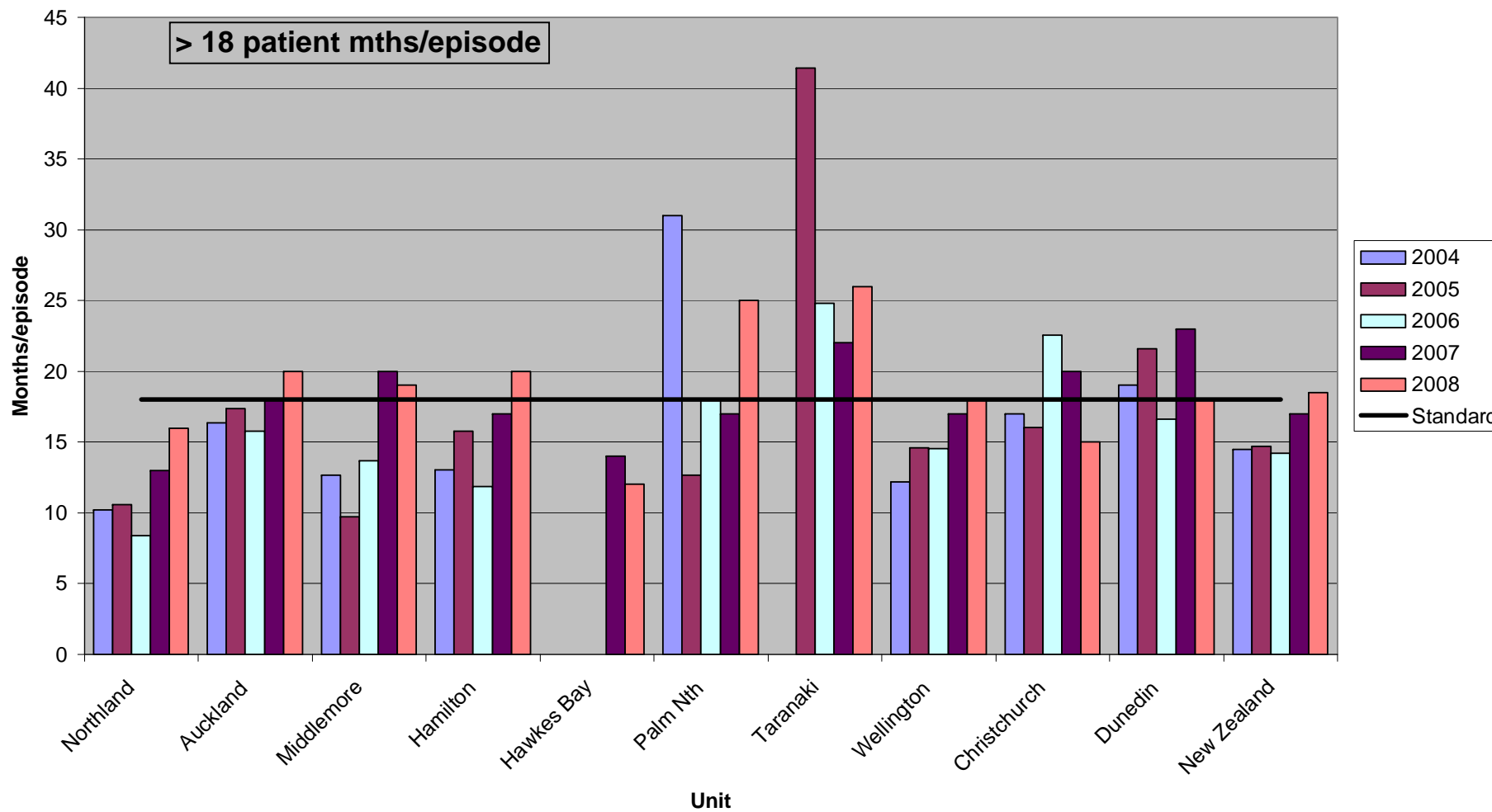
Percentage of incident New Zealand dialysis patients requiring HD for ≤ 90 days via a temporary CVC before starting PD in 2004 - 2008 (non-late start patients)



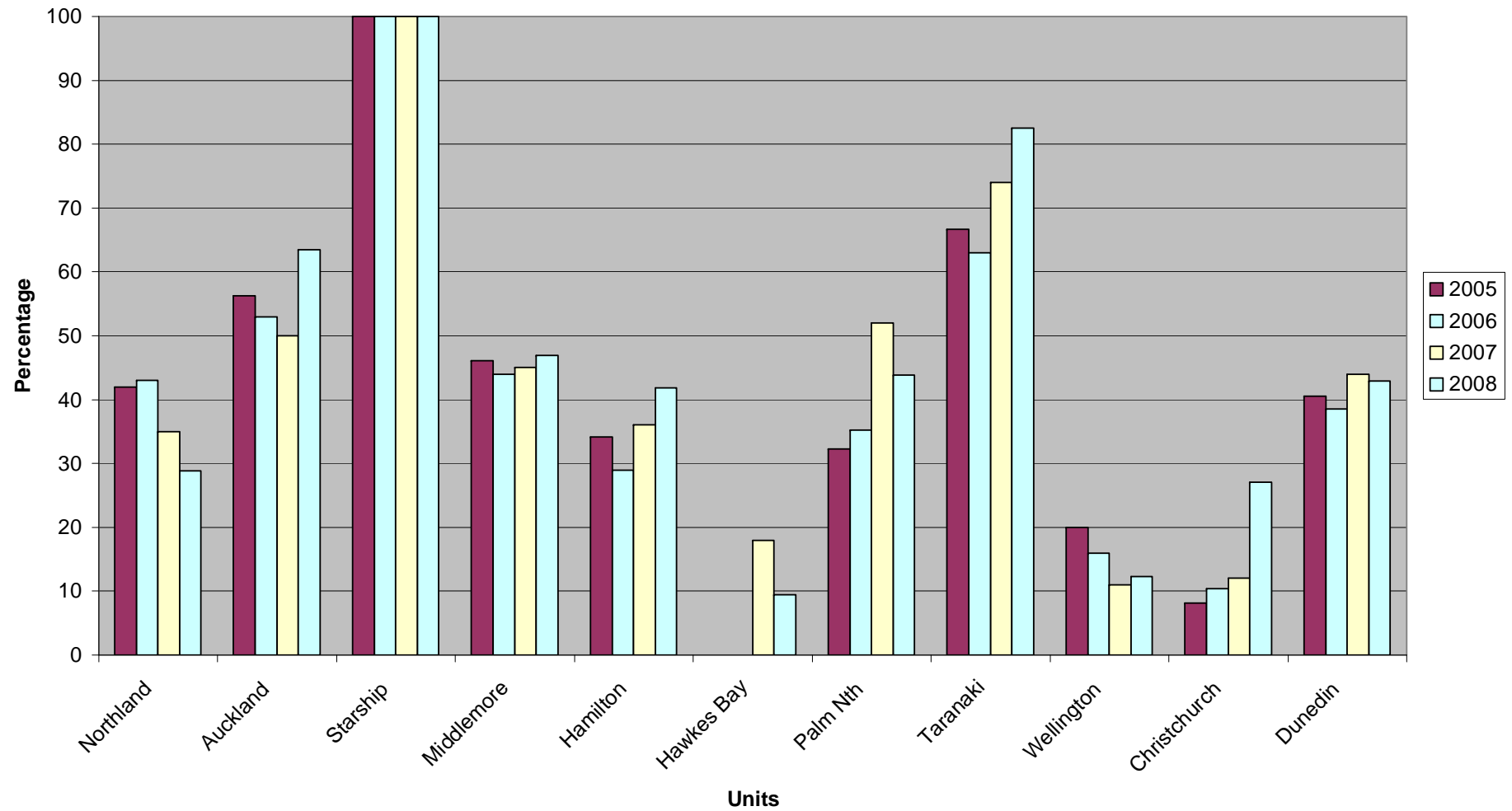
Percentage of first PD catheters in New Zealand PD patients that are functioning at one year for 2004 to 2008



Peritonitis rates in New Zealand PD patients (months/episode) for 2004 to 2008

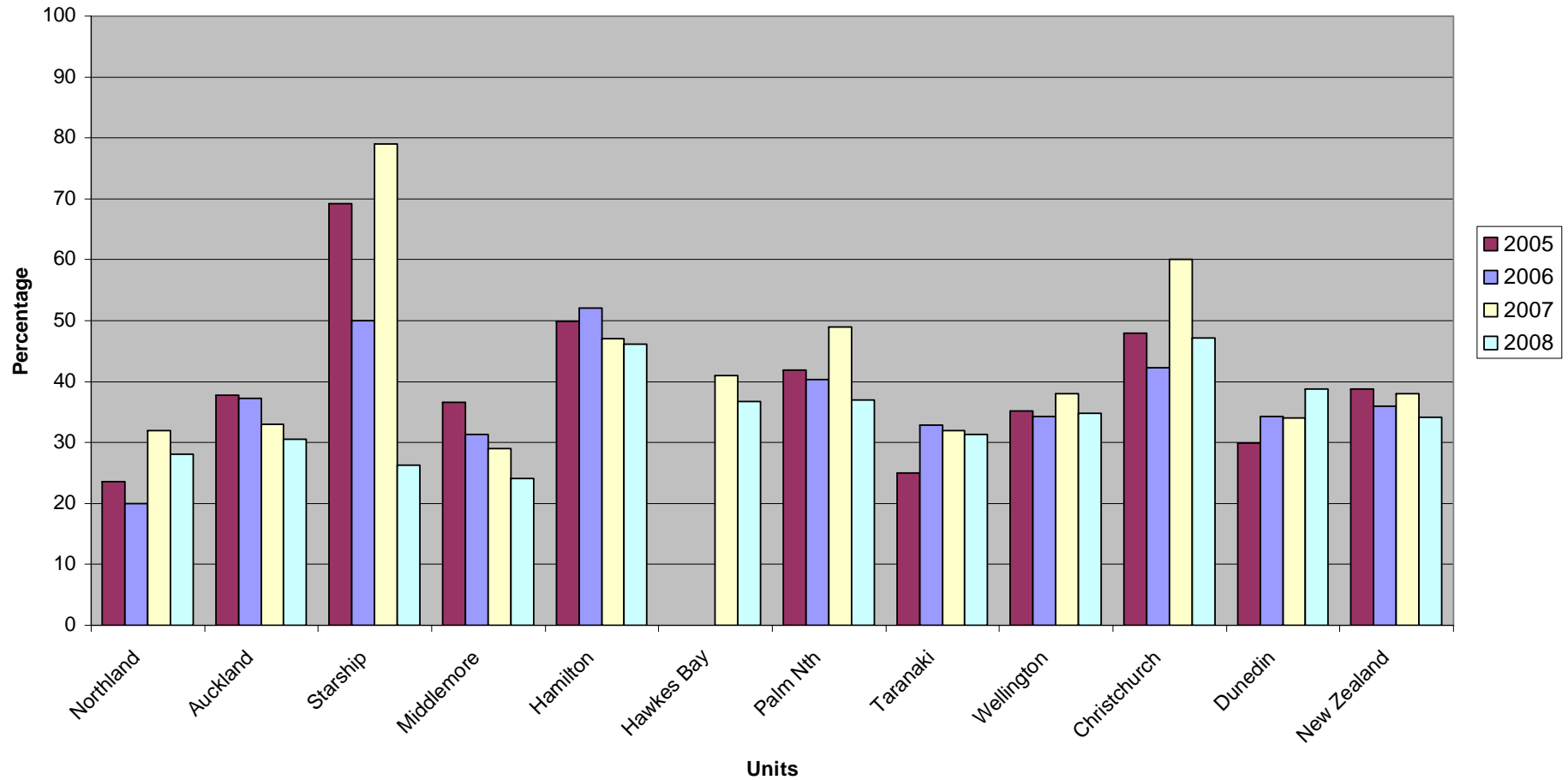


Percentage of HD patients - Session Length (< 4.5h/session) for 2005 - 2008



Dialysis frequency and duration of session 2005 to 2008												
	Duration of dialysis treatment											
Dialysis frequency	< 4 hours				> 4 hours				Total			
	2005	2006	2007	2008	2005	2006	2007	2008	2005	2006	2007	2008
< 3/week	3	3	7	5	18	14	17	18	21	17	24	23
3 x weekly	32	27	33	28	1,010	1,080	1,162	1,155	1,042	1,107	1,195	1,183
> 3/week	16	18	27	22	54	65	77	109	70	83	104	131
Total	51	48	67	55	1,082	1,159	1,256	1,282	1,133	1,207	1,323	1,337

Percentage of dialysis patients with Hb Concentration (< 110g/l) at end of 2005 - 2008



Commentary

Demography

- The number of incident patients increased from 466 (revised figure from ANZDATA) in 2007 to 492 in 2008, and has ranged consistently between 460 and 500 per annum over the last five years.
- 4.9% of incident patients received a pre-emptive renal transplant compared to only 2.6% in 2004. Of patients commencing dialysis in 2008, 68% initially received some form of centre-based haemodialysis.
- There continues to be a substantial variation between units in regard to prevalent dialysis modality. Home haemodialysis ranged between 18% and 33% of total dialysis patients.
- Although peritoneal dialysis prevalence dropped from 42% in 2004 to 36% in 2008, there was substantial variation across units, ranging from 25% to 53%. The proportion of PD patients using APD has increased from 24% in 2004 to 38% in 2008, and varied between 10% and 79% across different renal units.
- The numbers of prevalent haemodialysis patients increased (1278 to 1337) as did numbers of peritoneal dialysis patients (715 to 762) in 2008.

Haemodialysis adequacy, frequency and duration of treatment

- The number of haemodialysis patients receiving less than 4.5 hours dialysis per session has continued to increase from 38% in 2006 to 45% in 2008.
- Fewer patients, however, on thrice weekly dialysis are receiving less than 4 hours dialysis for each treatment session, 28 compared to 33 in 2007.
- Fourteen New Zealand patients (range 0 to 6 patients/unit) receive grossly inadequate dialysis. For the purposes of this audit grossly inadequate dialysis

was defined as “less than four hours per session or less than three times weekly” and Kt/V less than 1.2 or urea reduction ratio (URR) < 65%. These data need to be interpreted with caution in the absence of any other clinical details.

- Absolute numbers of patients dialysing more than three times each week has nearly doubled since 2005, increasing from 70 (6.2%) to 131 (9.8%).

Vascular access for haemodialysis

- **Seven of eleven units** again achieved the standard for optimal vascular access (arteriovenous (AV) fistula + graft) for prevalent patients, but **none** for incident patients or the more stringent standard for non-late presenting patients.
- Although some units have improved their performance the relative ranking of units does not appear to have changed significantly.
- Many units improved their vascular access provision between 2004 and 2006, but in most cases performance has declined over the last two years.
- The proportion of prevalent haemodialysis patients using a central venous catheter (CVC) for dialysis has increased (25% to 27%) and again **no renal unit** has <10% of their patients using this form of vascular access, although units ranged between 12 and 51% (excluding Starship) of haemodialysis patients. The total number of patients using a catheter for haemodialysis access has increased from 336 at the end of 2007 to 359 in 2008.
- A significant proportion of incident patients who received peritoneal dialysis within the first 90 days, commenced dialysis with haemodialysis using a CVC. This remained so even for non-late start patients ie patients known to the renal unit at least three months prior to commencing dialysis. There is no way from the Registry data to know whether there was an intention during the pre-dialysis

phase of care that peritoneal dialysis would be the starting treatment modality. In 2008, there were 58 (71 in 2007) such patients who had up to 90 days haemodialysis before changing to peritoneal dialysis and **all** used a CVC as vascular access.

- The continuing high rates of CVC use in some units are of concern because of the evidence that patient survival is inferior with this form of access when compared with an AV fistula. Although the data are not available from all units, it appears that the rates of blood stream infections related to CVCs are well within the international recommendations.
- Even the best performing units are experiencing difficulty in meeting the vascular access standards, indicating resource issues in providing sufficient vascular access surgical time. Endeavours to establish viable regional vascular surgery services need to be encouraged.

Peritoneal dialysis

- The number of first peritoneal dialysis catheters functioning at year end remains high and above target for most units. Only one unit fails to meet the standard of 80%.
- Peritonitis rates vary considerably. Seven units now achieve the standard of at least 18 patient months/episode of peritonitis. Nationally peritonitis rates have shown continued improvement over the last four years. It should be noted however that many overseas units achieve much lower peritonitis rates with standards set at 24 patient months per episode or higher.

Anaemia management

- Dialysis patients with the anaemia of chronic renal failure and a haemoglobin concentration < 100g/L are entitled to receive subsidised epoietin.
- The proportion of New Zealand dialysis patients with a haemoglobin concentration < 110g/L in 2008 was 34% (716 patients), the lowest percentage over the last four years.

Data provided by renal units

- Eight units are now provided data on dialysis catheter related blood stream infections and all had rates < 4/1000 catheter days.

Appendix A: Circulation list

The National Renal Advisory Board

Standards and Audit Subcommittee

Heads of New Zealand Renal Units

Chief Executive Officers of DHBs with Renal Units

New Zealand Peritoneal Dialysis Registry

Australia and New Zealand Dialysis Registry

New Zealand Ministry of Health (Director General)

Australian and New Zealand Society of Nephrology

Renal Society of Australasia, New Zealand Branch

Kidney Health New Zealand

Board of Nephrology Practice New Zealand

Patient support groups/societies

Appendix B

Members of the Standards and Audit Working Party

Grant Pidgeon, Chair
Kelvin Lynn (resigned 2009)
Anne de Bres (resigned Nov 2003)
Adrian Buttimore
Brenda Clune (resigned Nov 2004)
Mark Marshall
Jenny Walker
Tafale Maddren (resigned 2008)