

Kidney Transplant Activity New Zealand

2016 Calendar Year

Author: Nick Cross, Clinical Director
Dale Gommans, Analyst
National Renal Transplant Service

Data Collection

Data is provided directly to the National Renal Transplantation Service (NRTS) from Clinical Directors at the three Transplanting District Health Boards (DHBs), and from individual units via the Australian and New Zealand Dialysis and Transplantation Registry (ANZDATA).

Kidney Transplants in 2016

There were 172 kidney transplants performed in New Zealand in 2016.

This included 82 living donor and 90 deceased donor kidney transplants. There were two living donor kidney exchange chains (one comprising two transplants and one comprising three transplants).

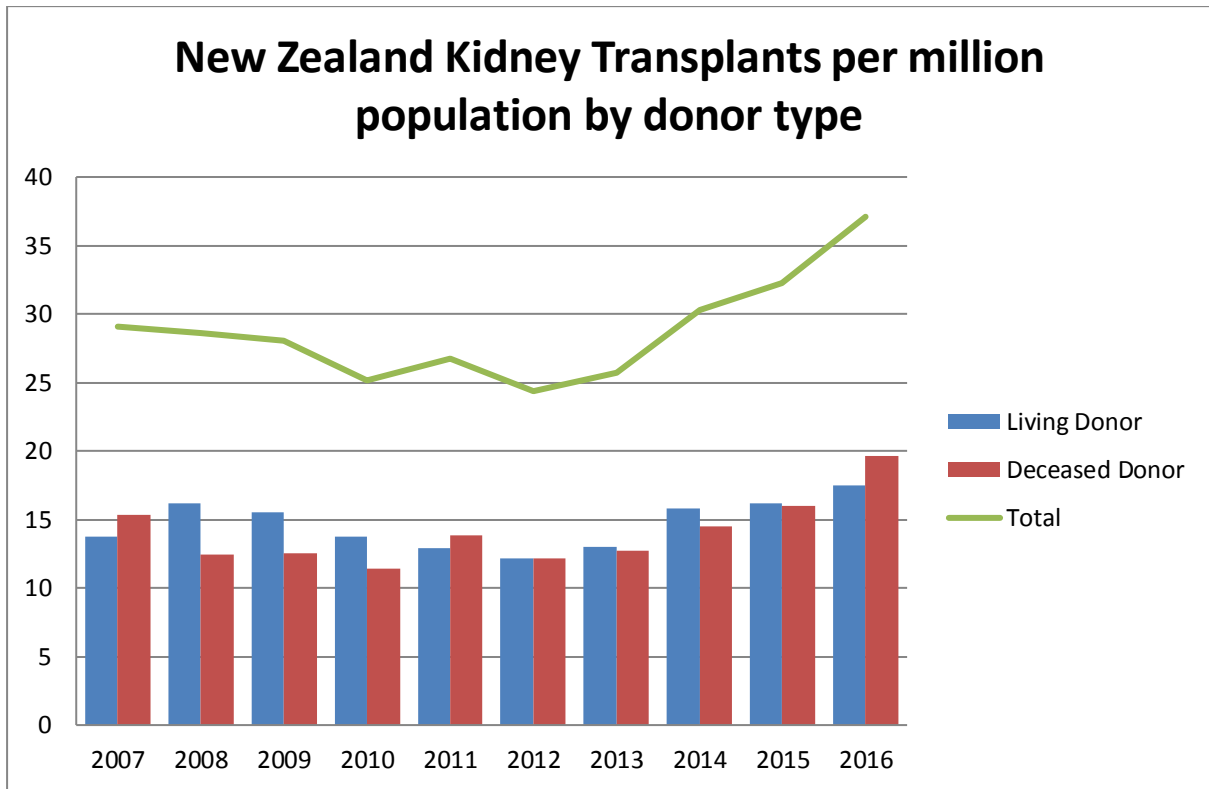
This is the largest total number of kidney transplants performed in New Zealand in a calendar year (previous greatest was 147 in 2015).

At the estimated population of 4.69 million (StatsNZ at 30 June 2016), the transplant rate was 36.7 per million population (pmp). This is the highest total transplant rate pmp (the previous highest was 32.0 in 2015, comprising 16.1 pmp transplants from deceased donors and 15.9 pmp transplants from living donors).

The three DHBs that provide kidney transplant procedures are in Auckland, Wellington and Christchurch. Services are arranged geographically around the transplant centres, with client DHBs referring most patients to their nearest transplant centre (see appendix). Numbers of transplants performed in each centre are provided in table 1.

Table 1: Transplant Characteristics by Transplant Centre

	Auckland	Wellington	Christchurch	Overall	Pmp
Kidney Transplants	107	36	29	172	36.7
Deceased donor, n (%)	58 (54)	20 (56)	12 (41)	90 (52)	17.5
Living donor, n (%)	49 (46)	16 (44)	17 (59)	82 (48)	19.2



There has been a steady increase in the numbers of kidney transplants pmp from live and deceased donors in the last 3 calendar years.

Annual Target Progress

The target for the National Renal Transplant Service is to “increase the volume of live donor transplantation by 10 per annum from a base of approximately 110 live and deceased donor transplants per annum to 160 per annum in 2018/19”

Table 2: Target and Observed Kidney Transplantation in NZ, by Donor Source and Year

Year	Target		Observed	
	Live Donor	Total	Live Donor	Total
2004			48	105
2005			46	93
2006			49	90
2007			58	123
2008			69	122
2009			67	121
2010			60	110
2011			57	118
2012			54	108
2013			59	116
2014	70	120	72	138
2015	80	130	74	147
2016	90	140	82	172
2017	100	150		
2018	110	160		

Notes:

- 1) NRTS was established in September 2014. Data from 10 years prior presented for context.
- 2) Total transplants = numbers of recipients of live donor + deceased donor kidney transplants, including recipients of kidneys with or without other organs at the same operation.

Transplants per 100 Dialysis Patients, by dialysis unit and DHB of domicile

Overall, there were 6.4 kidney transplants per 100 dialysis patients in New Zealand in 2016. This has been steadily increasing in the last four calendar years (table 3). Dialysis numbers have also been increasing, although they were steady for the last 12 months.

Table 3: NZ Numbers of transplants per 100 Dialysis Patients, 2012-2016

Year	Prevalent Dialysis Pts (31 Dec year prior)	Transplants per 100 dialysis patients
2012	2381	4.4
2013	2467	4.6
2014	2584	5.3
2015	2678	5.5
2016	2674	6.4

Compared to the average rate over the period 2012-2015, there was an improvement in the rate of transplants per 100 dialysis patients at 10 of 11 DHBs with comprehensive dialysis services (including their client DHBs, Table 4).

It should be noted that no attempt is made to adjust for case-mix at different DHBs, so comparisons between DHBs may be confounded. Also, due to small numbers at individual DHBs, random variability may be responsible for year to year changes in transplantation rate.

Table 4: Transplants by DHB of Domicile and Donor Type, 2016 compared to 2012-2015

	Deceased Donor	Living Donor	Total	Dialysis Prevalent Numbers	Transplants per 100 Dialysis Patients	
					2016	Annual Mean 2012-2015
Starship	1	5	6	6	100	76
Auckland Region DHBs	53	43	96	1944	4.9	3.6
Northland	6	2	8	171	4.7	4.4
Waitemata	9	12	21	279	7.5	5.2
Auckland	16	8	24	334	7.2	3.7
Counties Manukau	12	10	22	611	3.6	3.3
Waikato (includes BOP, Lakes, Tairāwhiti)	8	11	19	496	3.8	2.8
Taranaki	2	0	2	53	3.8	4.6
Wellington Region DHBs	22	17	39	485	8.0	6.5
Hawke's Bay	3	6	9	84	10.7	5.3
MidCentral (includes Whanganui)	5	4	9	139	6.5	4.8
Capital & Coast (includes Wairarapa, Hutt, Nelson/Marlborough)	14	7	21	262	8.0	7.9
Christchurch Region DHBs	14	17	31	239	13.0	9.3
Canterbury (includes West Coast, South Canterbury)	8	12	20	144	13.9	11.3
Southern	6	5	11	95	11.6	6.8
Total	90	82	172	2674	6.4	4.9

Notes on table 4:

1. DHB of domicile is the recipients, at discharge from hospital. Living donors may come from different DHBs to their recipients.
2. Transplants per 100 prevalent dialysis patients at 31 December the year prior, per ANZDATA.
3. Paediatric patients <=16 years, managed via Starship and transplanted in Auckland, are reported separately.

Multi-organ Transplantation (all performed in Auckland)

In 2016, there were four pancreas-kidney transplants performed (DHB of Domicile: 2 x Counties Manukau, 1 x Northland and 1 x Wairarapa), one liver-kidney transplant performed (DHB of Domicile: Canterbury) and one heart-kidney transplant (DHB of Domicile: Southern). These are included in table 2.

ABO Incompatible Kidney Transplants (ABOi)

ABOi are performed at Auckland and Christchurch, using a similar protocol, developed in Auckland. All ABOi are living donor transplants. ABOi is an important programme that enables additional directed donations where there is no option for an ABO compatible donor, including kidney exchange.

There were six ABOi in 2016 (four in Auckland, two in Christchurch) which included one paediatric recipient cared for by Starship Hospital. Of the adult recipients, one each came from Canterbury, Counties Manukau, Hawke's Bay, Southern and Waikato DHBs.

Kidney Exchange

Where a willing, acceptable kidney donor is incompatible with their recipient, the pair are encouraged to enter the NZ Kidney Exchange. This facilitates additional live donor transplants by providing exchanges between compatible pairs within the exchange. Exchange transplants may take place within or between transplant centres.

In 2016, there were two exchanges, one of two kidneys and one of three, providing five kidney transplants. Exchanges involved Christchurch and Auckland Transplant Teams, and adult recipients cared for at Counties Manukau, Midcentral, Southern, and Waitemata DHBs, and one paediatric recipient cared for at Starship Hospital.

Dual Kidney Transplants

In 2016 there were a total of five dual kidney transplants, four undertaken in Auckland and one in Wellington. Recipients were from Auckland (2), Waitemata (2) and Capital and Coast DHBs.

Appendix: Transplantation Service Arrangement in New Zealand

Within New Zealand there are three types of district health boards (DHBs), with respect to provision of transplantation services:

- 1) Transplanting DHBs – these DHBs provide kidney transplantation services for their local population and several other DHBs. These DHBs also have comprehensive dialysis services. There are three of these.
- 2) Referring DHBs with “comprehensive” dialysis services. These DHBs provide their own dialysis services without any involvement from other DHBs. There are eight of these.
- 3) Referring DHBs without comprehensive dialysis services. These DHBs are dependent on referring or transplanting DHBs for at least part of their dialysis service. There are nine of these.

Please note that “comprehensive” is an arbitrary distinction. For example, Nelson/Marlborough provides many dialysis services, with support from Wellington for some elements only, but is included in Capital and Coast DHB’s figures.

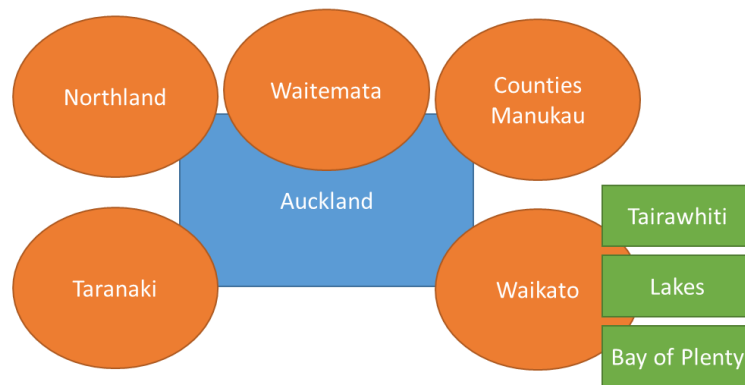
Three district health boards (Auckland, Capital and Coast and Canterbury) provide kidney transplantation procedures (living and deceased donor transplants) regionally (labelled “Auckland”, “Wellington” and “Christchurch”). Assessment of recipients and potential living donors is complex and is, at least partially, provided by referring DHBs in many cases. Referring DHBs send patients to a single transplant centre for routine transplants. Auckland DHB provides multi-organ transplants (kidney plus another organ) and paediatric transplantation for the entire country. ABO incompatible transplantation is provided in Auckland and Christchurch only.

The arrangements of DHBs into three regional transplantation services is shown in Figure 1. Some patients are, therefore, dependent on services provided via three DHBs for access to transplantation.

Transplanting DHBs provide the immediate after care following transplantation, with recipients and donors returning to their DHB of domicile for long term care.

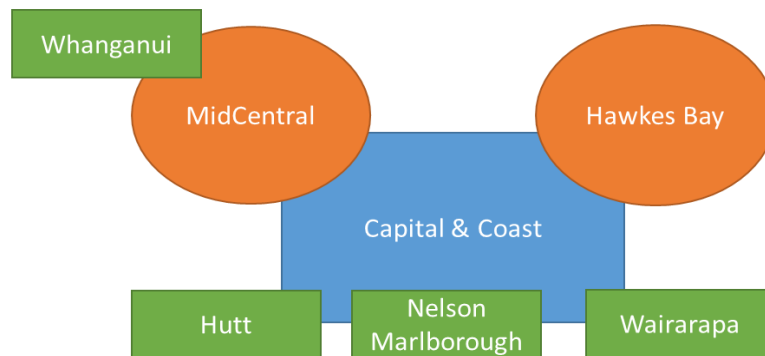
Figure 1: Arrangement of DHBs for Provision of Kidney Transplantation Services

Auckland Renal Transplant Group

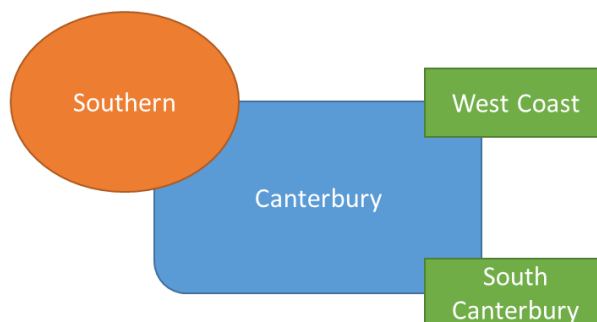


Auckland provide national kidney transplantation services for all other DHBs: Kidney-Pancreas, ABO incompatible (except Canterbury) and paediatric transplantation

Wellington Renal Transplant Service



South Island Kidney Transplant Committee



Legend:

- Transplanting DHBS
- DHBs with comprehensive dialysis services
- DHBs without comprehensive dialysis services