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ORGAN  
DONATION  
NEW  
ZEALAND

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ANNUAL  
REPORT  
2009





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## INTRODUCTION

Organ Donation New Zealand (ODNZ) would sincerely like to thank the families who agreed to organ and tissue donation in the midst of their own personal tragedies. The generosity of the donors and their families has enabled many recipients to benefit from organ or tissue transplantation.

ODNZ is grateful for the commitment of the Link Teams and the many other health professionals in hospitals throughout New Zealand – from the small rural hospitals to the large tertiary ones – who were involved. Strong relationships between the team at ODNZ and hospital staff have been nurtured and in 2009 there were more referrals to ODNZ from intensive care doctors and nurses.

Due to increased resources, the ODNZ team was able to spend more time travelling to hospitals throughout the country to provide education for health professionals.

We would like to thank our colleagues at ODNZ who contributed to this report – Dr James Judson, Melanie Selby, Cecilia Westmacott, Rachel Josephson and Margaret Kent.

For their input into this report we also gratefully acknowledge Lee Excell, editor of the Australia and New Zealand Organ Donation Registry; Rosalie Gow from the Department of Forensic Pathology, Auckland City Hospital; Louise Moffatt and Helen Twohill from the New Zealand National Eye Bank; Jill Faulkner, Lorraine Craighead and Darren Welch from the New Zealand Heart Valve Laboratory; and Vladimir Slyshkov from the New Zealand Tissue Bank at the New Zealand Blood Service.

We appreciate the support and encouragement we receive from the ODNZ Advisory Committee, the Ministry of Health, the Australian and New Zealand Intensive Care Society and the Australasian Donor Awareness Programme (ADAPT).



**Stephen Streat FRACP**  
Clinical Director, ODNZ



**Janice Langlands**  
Team Leader, ODNZ

Organ Donation New Zealand is the national service for deceased organ and tissue donation in New Zealand. The primary responsibility of ODNZ is to co-ordinate the donation of organs and tissues from deceased donors in New Zealand for transplant units in New Zealand and Australia, and for tissue banks in New Zealand. The Donor Co-ordinators provide information and ongoing support for those families who have generously donated organs or tissues.

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ODNZ works with health professionals throughout New Zealand to ensure that there are nationally consistent and excellent processes for donation in this country. The service also provides education and training for health professionals as well as supplying information to the public.

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ODNZ is managed through the Auckland District Health Board which in turn is funded for ODNZ on behalf of all District Health Boards. The offices of ODNZ are situated at the Greenlane Clinical Centre, in Auckland.

## Staffing

The staff of ODNZ includes three Donor Co-ordinators – Team Leader Janice Langlands, Cecilia Westmacott and Rachel Josephson. Dr Stephen Streat is a Medical Specialist and the Clinical Director and Margaret Kent is the Team Administrator. Melanie Selby was employed in May 2009 as the Communications Advisor and in November Dr James Judson commenced as a Medical Specialist.

## Link Teams:

All donor hospitals in New Zealand have Link Teams consisting of Intensive Care Unit (ICU) Link Nurse(s), Operating Theatre (OT) Link Nurse(s) and an ICU Link Doctor. These health professionals are the local experts on organ donation matters for their hospital and ODNZ is grateful for their commitment and ongoing support.

## Advisory Committee

ODNZ met with its Advisory Committee in May 2009. The committee comprises of representatives from intensive care medicine and nursing, organ and tissue transplantation, Maori and Pacific Health and consumers.

In 2009 Palmerston North Intensivist Dr Gerard McHugh replaced Dr Bruce King as one of the intensive care medicine representatives.

## **Co-ordination of Organ & Tissue Donation**

The Donor Co-ordinators provide a 24-hour service for referrals from NZ ICUs for organ and tissue donation, and for referrals of both hearts and livers from Australia. ICUs are encouraged to consult with ODNZ early about possible donation.

A Medical Specialist is available 24 hours a day to assist with any issues relating to donation, including medical suitability, physiological support, requirements for the determination of brain death, consent and other matters.

In 2009 there was a 46% increase in the number of referrals from ICUs in New Zealand compared with 2008.

When families volunteer donation from deceased relatives whose organs (heart, lungs, liver, kidney and pancreas) cannot be donated, ODNZ facilitates tissue (eyes, heart valves and skin) donation where possible.

## **Donor Family Support**

The Donor Co-ordinators provide support and information for families following donation for as many years as the family wishes. This includes phone calls, letters and emails. Anonymous communication between donor families and recipients is also facilitated by the Donor Co-ordinators.

In 2009 the Donor Co-ordinators began offering donor families hand prints and locks of hair of their loved ones.

ODNZ organises annual Thanksgiving Services. These services respectfully

acknowledge the generosity of families who have donated organs and tissues following the death of a family member. Families of donors, recipients and their families, and health professionals involved in both organ donation and transplantation are invited to these services. Services were held in Auckland and Christchurch in 2009 with approximately 500 attendees at the Auckland service and 250 at Christchurch.

## **Education**

### **Study Days**

ODNZ travels throughout New Zealand to provide organ donation study days for nursing staff from ICUs and OTs, and other health professionals involved in the donation process. In 2009 study days were held in the following hospitals: Whangarei, Auckland, Middlemore, Waikato, Rotorua, Hawke's Bay, Gisborne, Wanganui, Hutt, Christchurch, Timaru and Dunedin.

ODNZ provided an increased number of educational sessions for postgraduate nurses, nursing students and other health professionals throughout the country.

Donor Co-ordinators also speak at public forums and an increase in staffing means this can be facilitated more easily.

### **Australasian Donor Awareness Program Training (ADAPT)**

ADAPT provides health professionals with expertise in the organ and tissue donation process. In 2009 ODNZ held four ADAPT Nursing Modules in Auckland (two), Christchurch and Wellington; and one ADAPT Medical Module in Auckland. ODNZ recognises the commitment of ICU medical staff (including specialists and trainees in intensive care medicine) and nursing staff to the ADAPT workshops.

"Our son Jared was killed by an out-of-control driver as he was walking along the footpath on a sunny afternoon. Arriving at the hospital, we were told Jared had suffered severe head injuries and further tests confirmed he was brain dead. Jared was 22 years old and in the army. He had a beautiful girlfriend and a great future ahead of him. Dealing with this debilitating news was our worst nightmare.

An intensive care doctor asked if we would consider organ donation. We'd never spoken about this but Jared had "donor" on his driver's licence. We respected his wishes and his organs saved six people's lives.

Not once did we feel rushed about donation although we knew there must have been time restrictions. We were able to wait for our daughter to fly back from Scotland. Two days after we received the phone call that would change our lives forever, we said goodbye to our son. We received so much support from the hospital staff, many of whom shed a tear for Jared. We were comforted to know the Donor Co-ordinator was with him every step of the way, including in the operating theatre. Jared was at home for two days before his funeral – donating his organs didn't prevent this from happening.

Nothing can bring back our son but donating his organs and finding out about who had benefited meant his tragic and untimely death wasn't a complete waste."

## Education

(continued)

### Link Workshop

ODNZ provided a two-day workshop for Link Nurses in Auckland in November 2009. These workshops update and upskill the Link Nurses on organ donation processes and the activities of ODNZ. In 2009 the workshop included a day-long simulation on the physiological management of intensive care patients around the time of brain death. ODNZ acknowledges the considerable effort and enthusiasm of the staff of the Advanced Clinical Skills Centre at the University of Auckland who facilitated this day. ODNZ is grateful to Janssen-Cilag and Johnson and Johnson for the educational grant received again in 2009 for the Link Programme.

### Donation After Cardiac Death (DCD)

During 2009 ODNZ completed a detailed education and implementation programme

for DCD in Starship Children's Hospital. A similar programme has commenced in Nelson Hospital and is near completion in Middlemore and Hawke's Bay hospitals.

### Educational Brain Death DVD

A new educational DVD for health professionals is being developed. This will be consistent with the determination of brain death outlined in the updated Australia and New Zealand Intensive Care Society Statement on Death and Organ Donation.

### Bereavement Course

A three-day bereavement course, facilitated by Mal McKissock, is organised annually by ODNZ. This is attended by health professionals who support families following bereavement. In 2009 this was held in Auckland in May.

## ICU Death Audit

ODNZ gratefully acknowledges the ICU Link Nurses who collect and report the data for the Audit. The overall quality of the data is very good and reflects the commitment of the ICU staff to donation and to the audit process. Here are some preliminary results for 2008 and 2009.

	2008	2009
NUMBER OF ICU DEATHS	1,093	1,084
VENTILATED AT THE TIME OF DEATH	868	876
DEATHS WITH 'SEVERE BRAIN DAMAGE'	336	320
DEATHS WITH 'FIXED DILATED PUPILS'	189	171
DEATHS WHERE BRAIN DEATH WAS DETERMINED	48	62
ORGAN DONATION FORMALLY DISCUSSED	63	62
DONORS AFTER BRAIN DEATH	29	41
DCD DONORS	2	2
<b>TOTAL DECEASED DONORS</b>	<b>31</b>	<b>43</b>

## **Public Awareness**

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ODNZ responds to public enquiries from the 24-hour 0800 number (0800 4DONOR) and from the website ([www.donor.co.nz](http://www.donor.co.nz)).

In 2009 a walk was held in Mount Maunganui on 4 October – World Day of Organ Donation and Transplantation. Over 400 people attended the walk up The Mount and the event received coverage by local and national media.

An update of the ODNZ brochures and posters was undertaken during the year and these will be released early in 2010.

Starfish Pictures began filming a seven-part TV series about organ donation and transplantation. The series is to screen on TV2 in late 2010.

## **Attendance at Conferences & Training Workshops**

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Transplant Society Australia and New Zealand Donor Surgeons and Donor Co-ordinators Standing Committee, Sydney 20 March

Janice Langlands attended this meeting which was held to develop consistent practices and guidelines for deceased donor organ procurement in Australia and New Zealand.

Mal McKissock Bereavement Course, Auckland 4–6 May

This course was attended by Rachel Josephson and equipped her with additional skills for providing support to donor families.

Australasian Transplant Co-ordinators Association Conference, Canberra 17–18 June

Janice Langlands attended this meeting which provided her with the opportunity to network with colleagues and to be updated with new initiatives from the recently-formed Australian Organ and Tissue Donation and Transplantation Authority.

Donation After Cardiac Death Forum, Sydney 18–19 June

Dr Streat was invited to present at this Forum about how to institute a nationally consistent protocol and practice for DCD.

Australia and NZ Organ Donation Registry Meeting, Sydney 17 November

This meeting was attended by Janice Langlands to review the data collected for the Australia and New Zealand Organ Donor Registry.

## ORGAN & TISSUE DONATION

In 2009 there were 43 deceased donors from ICUs in 16 donor hospitals who donated organs (and tissues) for transplantation. This does not include those who donated tissues (eyes, heart valves and skin) only. Of the 43 donors, 41 donated following brain death and two were DCD donors.

Table 1:

**Number of  
Organ Donors  
(Deceased)  
in New Zealand**

HOSPITAL	2005	2006	2007	2008	2009
DCCM, AUCKLAND CITY	6	4	9	8 [1]*	12
CHRISTCHURCH	3	3	9	4 [1]*	4
DUNEDIN	3	2	2	3	7
GISBORNE	0	0	0	2	0
GREY BASE	0	0	0	0	1
HAWKE'S BAY	2	2	3	1	3
HUTT	0	1	0	0	0
MIDDLEMORE	1	3	1	1	1
NELSON	0	0	6	1	1
NORTH SHORE	0	0	0	0	1
PALMERSTON NORTH	1	0	1	1	0
ROTORUA	0	0	0	0	1
SOUTHLAND	1	0	2	0	0
STARSHIP CHILDREN'S	0	0	0	1	2
TARANAKI BASE	2	1	1	0	1
TAURANGA	3	2	0	0	0
TIMARU	0	1	1	1	1
WAIKATO	1	1	1	5	2 [1]*
WAIRAU	0	0	1	0	1
WANGANUI	0	1	0	0	0
WELLINGTON	5	3	2	3	4 [1]*
WHANGAREI	1	1	0	0	1
<b>TOTAL</b>	<b>29</b>	<b>25</b>	<b>38</b>	<b>31</b>	<b>43</b>

Note: [\*] DCD donors

Table 2:

**Cause of Donor Death by Year**

	2005	2006	2007	2008	2009
CVA	17	14	25	22	21
TRAUMA (ROAD)	3	8	7	2	9
TRAUMA (OTHER)	3	1	3	2	4
OTHER	6	2	3	5	9
<b>TOTAL</b>	<b>29</b>	<b>25</b>	<b>38</b>	<b>31</b>	<b>43</b>

Table 3:

**Age of Donors by Year**

	2005	2006	2007	2008	2009
MEAN	44.9	36.5	46.7	42.7	43.0
MEDIAN	48	35.4	48.8	44.4	46.9
MINIMUM	17	11.6	11.9	12.0	3.6
MAXIMUM	64	69.4	71.7	67.6	74.6

Table 4:

**Ethnicity of Donors by Year**

	2005	2006	2007	2008	2009
EUROPEAN	25	17	37	27	35
MAORI	0	7	0	3	5
PACIFIC PEOPLE	0	0	0	1	0
OTHER	4	1	1	0	3
<b>TOTAL</b>	<b>29</b>	<b>25</b>	<b>38</b>	<b>31</b>	<b>43</b>

## ORGAN & TISSUE DONATION

Table 5:

**Organs and Tissues Transplanted from Deceased NZ Organ Donors**

	2005	2006	2007	2008	2009
KIDNEYS*	55	41	65	53	56 (4)
HEARTS	16	9	12	10	11
LUNGS*	11	13	13	14	16
LIVER	22	24	32	23	33
PANCREAS	2	6	1	4	2
CORNEAS <sup>#</sup>	11	9	20	15	13
HEART VALVES*	6	7	14	8	8
BONE <sup>#</sup>	1	0	0	0	0
SKIN <sup>#</sup>	0	0	1	3	4

Some organs from New Zealand donors are transplanted to Australian recipients and vice versa in accord with the trans-Tasman organ sharing agreement of the Transplant Society of Australia and New Zealand (TSANZ) which is available at their website:  
<http://www.tsanz.com.au>

Table 6:

**Organs from New Zealand Donors Transplanted in Australia**

	2005	2006	2007	2008	2009
LIVER	4	8	8 (2)	2	5
HEART	3	1	3	2	0
LUNGS	2	3	4	2	8
KIDNEY	4	0	0	0	0

Table 7:

**Organs from Australian Donors Transplanted in New Zealand**

	2005	2006	2007	2008	2009
LIVER	6	12	4	9	3
HEART	0	0	0	0	0
LUNGS	0	0	0	0	0
KIDNEY	0	0	0	0	0

\* Single kidneys

¥ Number of lung recipients

( ) En-Bloc kidneys

# Number of donors of these tissues

"Our son Jack was 12 years old when he died as a result of a sudden bleeding in the brain. It was an arterial malformation in the brain and was like a time bomb waiting to go off – so very sudden. There was no warning or illness leading up to it and it happened within minutes.

The intensive care doctors tried everything they could to get the swelling down in the brain, including brain surgery, but it just didn't work. Jack was on life support for two days and after brain death tests, we were told that he was brain dead. Family and friends gathered at the intensive care unit to say their goodbyes to Jack. The staff were great – we had so many people around his room and there were no complaints, just understanding.

When organ donation was mentioned very subtly, we agreed because we had looked after that body for 12 years and it was a perfect, healthy, fantastic little body.

Jack had written a school speech about organ donation a year before he died asking the question "What if it was you?" It was a gift to be able to give seven people a chance at extra life, extra quality of life. To waste those organs knowing they could potentially save others would have been a worse tragedy. We see it as a gift of life given with love."

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## ORGAN TRANSPLANTATION

Transplantation in New Zealand includes heart, lungs, liver, kidney, pancreas, eyes (corneas and sclera), heart valve, skin and bone (from living donors).

Kidney transplantation, including deceased and live-donor kidney transplantation, is provided at Auckland City Hospital, Starship Children's Hospital, Wellington Hospital and Christchurch Hospital.

Heart, lung, liver and pancreas transplantation is provided at Auckland City Hospital. Paediatric heart, lung and liver transplantation is provided at Starship Children's Hospital.

Table 8:

**Kidney  
Transplantation  
by Year and  
Donor Type**

**Kidney Transplantation**

	2005	2006	2007	2008	2009
RECIPIENTS, DECEASED-DONOR, SINGLE KIDNEY	47	41	65	53	52
RECIPIENTS, DECEASED-DONOR, DOUBLE KIDNEY	0	0	0	0	2
RECIPIENTS, LIVING DONOR	46	47	58	69	67
<b>TOTAL</b>	<b>93</b>	<b>88</b>	<b>123</b>	<b>122</b>	<b>121</b>

Auckland City Hospital began (blood group) ABO-incompatible live-donor kidney transplantation in 2008 and two were performed in 2009.

Table 9:

**Heart and Lung Transplantation by Year****Heart and Lung Transplantation**

	2005	2006	2007	2008	2009
HEART	13	8	9	8	11
LUNG*	8	13	9	12	8

\* Lung recipients

Since heart transplantation began in New Zealand in 1987, there have been 220 heart transplants. Lung transplantation commenced in 1993 and since then there have been 136 lung transplants.

In 2009 a heart recipient celebrated his 21-year anniversary since transplantation and a lung recipient celebrated her 13-year anniversary.

Table 10:

**Liver Transplantation by Year****Liver Transplantation**

	2005	2006	2007	2008	2009
ADULT, DECEASED DONOR	21	27	32	27	28
ADULT, LIVE ADULT DONOR	0	2	1	3	2
CHILD, DECEASED DONOR	3	5	3	4	3
CHILD, LIVE ADULT DONOR	4	2	3	4	6
<b>TOTAL</b>	<b>28</b>	<b>36</b>	<b>39</b>	<b>38</b>	<b>39</b>

There have been 401 liver transplants performed in New Zealand since the first in 1998, including 353 transplants in adult recipients and 48 transplants in children. Live-donor transplantation commenced in 2002 and since then there have been 29 such procedures.

Table 11:

**Pancreas Transplantation by Year****Pancreas Transplantation**

	2005	2006	2007	2008	2009
PANCREAS	2	6	1	4	2

There have been 23 combined kidney and pancreas transplants performed in New Zealand since pancreas transplantation commenced in 1998.

## TISSUE DONATION

Table 12:

**Tissue Only  
Donation  
Facilitated  
by ODNZ**

### Tissue Only Donation Facilitated by ODNZ

REFERRED FROM:	NUMBER OF TISSUE (ONLY) DONORS
HOME	2
WAIKATO HOSPITAL – ICU	1
WELLINGTON HOSPITAL – ICU	1
NELSON HOSPITAL – ICU	1
AUCKLAND CITY HOSPITAL – DCCM	1
AUCKLAND CITY HOSPITAL – CORONARY CARE UNIT	1
NORTH SHORE HOSPITAL – WARD 3	1
DEPT OF FORENSIC PATHOLOGY – AUCKLAND	1
	<b>9</b>

Tissue donation can include eyes (corneas and sclera), heart valves and skin. People who die in the Auckland region who are not able to donate organs for transplantation can be considered for tissue donation. Eye donation can be considered from people who die throughout New Zealand.

In 2009 tissue only donation from nine donors was facilitated by ODNZ.

Table 13:

**Tissue  
Donation for  
Transplantation  
2009**

### Total Tissue Donation in NZ

TISSUE	NUMBER OF DONORS
SKIN	18
HEART VALVES	19
EYES	123

Tissue donation is also facilitated by the Donor Tissue Co-ordinator from the Department of Forensic Pathology, Auckland City Hospital. As well, eye donation is facilitated by the Corneal Co-ordinators from the New Zealand National Eye Bank and the Bereavement Team at Middlemore Hospital. Heart valves are also donated by consenting patients having heart transplantation.

"There was no warning – Ina woke with a terrible headache in the middle of the night, got out of bed and soon after collapsed. I phoned for an ambulance and placed a cold flannel on her head, unaware she was already falling into a deep coma and was not going to survive.

After two brain death examinations, Ina was declared brain dead. My beloved wife Ina died of a brain aneurysm when she was only 62 years old. The intensive care doctor asked if I would consider donation – I told her that I needed time to think about it and talk with our five children who were living all around the world.

Fortunately I knew Ina felt strongly about being a donor and this certainly helped me. It was something we had discussed a few times and she agreed with it wholeheartedly. For this reason I said yes to donating her organs. Our children agreed.

The ongoing support I have received from the Donor Co-ordinator has been invaluable and I have often felt she is the only person I can talk to about this.

Ina would be so pleased that her liver and kidneys went on to save lives and it gives me, and our children, great comfort to know that we were able to follow her wishes."

There have been changes in some of the characteristics of deceased donors in recent years, including in New Zealand. In previous years most deceased donors were young, previously well and died as a result of severe brain injury, often due to a road crash. More commonly now, donors have been older with pre-existing health problems – especially hypertension – and have died of spontaneous intracranial bleeding. Inevitably, it is more common for some organs (e.g. the heart) from such older and comorbid donors to be unsuitable for donation and subsequent transplantation.

## **Introduction**

Physiological support of potential deceased donors preserves the opportunity for donation pending an assessment of medical suitability and discussion with the donor's family. It should be of a standard which preserves the opportunity for donation of as many transplantable organs as possible. Close attention to the details of physiological support is required to prevent, or reverse (extra-cranial), organ dysfunction.

Criteria for classifying donors as either 'expanded criteria donors' (ECD, typically an older donor, see below) or as 'standard criteria donors' (SCD) have recently been developed.<sup>1</sup> Donation after cardiac death (DCD)<sup>2</sup> has brought a third category of deceased donor. Because both ECD and SCD donors are brain-dead, organs are removed while the circulation is intact and they do not have low blood flow before their removal. However, organs are removed from DCD donors after their circulation has stopped and the blood flow to those organs will have been reduced during the (one hour or less) period before death.

In the US, the Health Resources and Services Administration set what they called 'goals' for the number of retrieved organs for these categories of donors, which recognise the differences between the categories.<sup>3</sup> [These 'goals' might be better considered an estimate of the maximum possible average number of organs, for a group of donors of each category of donor, which might be suitable for donation and subsequent transplantation.]

This retrospective review reports trends in the number of deceased donors in these categories in New Zealand and in the number of organs transplanted from those donors.

## Method

Data on all deceased donors in New Zealand between 1 January 1993 and 31 December 2009 and on the organs transplanted from those donors were obtained from the records of Organ Donation New Zealand (ODNZ) and from the Australia and New Zealand Organ Donation Registry (ANZOD) registry.<sup>4</sup>

Donors were classified into three categories:

- 1 Donors after cardiac death (DCD),
- 2 Expanded criteria donors (ECD), and
- 3 Standard criteria donors (SCD).

ECD donors were those who donated after brain death (with intact circulation) and were either aged 60 and above, or 50 to 60 years old with at least two of these features:

- a Pre-existing hypertension (treated or untreated),
- b Cause of death was cerebrovascular accident (all types), or

- c Last serum creatinine before organ removal was >1.5 mg/100 ml (132 micromol/L).

SCD donors were all those other donors after brain death who did not meet ECD criteria.

Any transplanted organ (heart, lungs, liver, kidney or pancreas) was assigned to the donor of that organ. In keeping with ANZOD methodology,<sup>4</sup> when both lungs were transplanted into one recipient, this was classified as a single organ whereas when two separate lungs were transplanted this was classified as two organs. Similarly, split livers were classified as two organs and en-bloc, or double-adult kidneys, were classified as a single organ. The pancreas was classified as a separate organ. Other combined organ transplants (liver-kidney, liver-heart, heart-kidney, heart-lungs) were classified as two separate organs.

## Results

### Organs transplanted

Between 1 January 1993 and 31 December 2009 there were 628 deceased donors, from which 2,025 organs were transplanted – an average of  $3.2 \pm 1.3$  organs per donor.

These 2,025 organs included:

- 146 pairs of lungs transplanted as double-lungs (one combined with heart)
- 32 left lungs and 24 right lungs transplanted singly
- 210 hearts (one combined with lungs)
- 422 whole livers
- 27 left liver lobes
- 15 right liver lobes
- 568 left kidneys and 543 right kidneys transplanted singly
- 4 en-bloc/double-adult kidney pairs
- 34 pancreases.

In all 15 cases where the right lobe of the liver was transplanted, the left lobe was also transplanted. All pancreas transplants were simultaneous pancreas-kidney transplants.

## CHANGING CHARACTERISTICS OF ORGAN DONORS 1993–2009

### Results (continued)

#### Organs transplanted by deceased donor categories

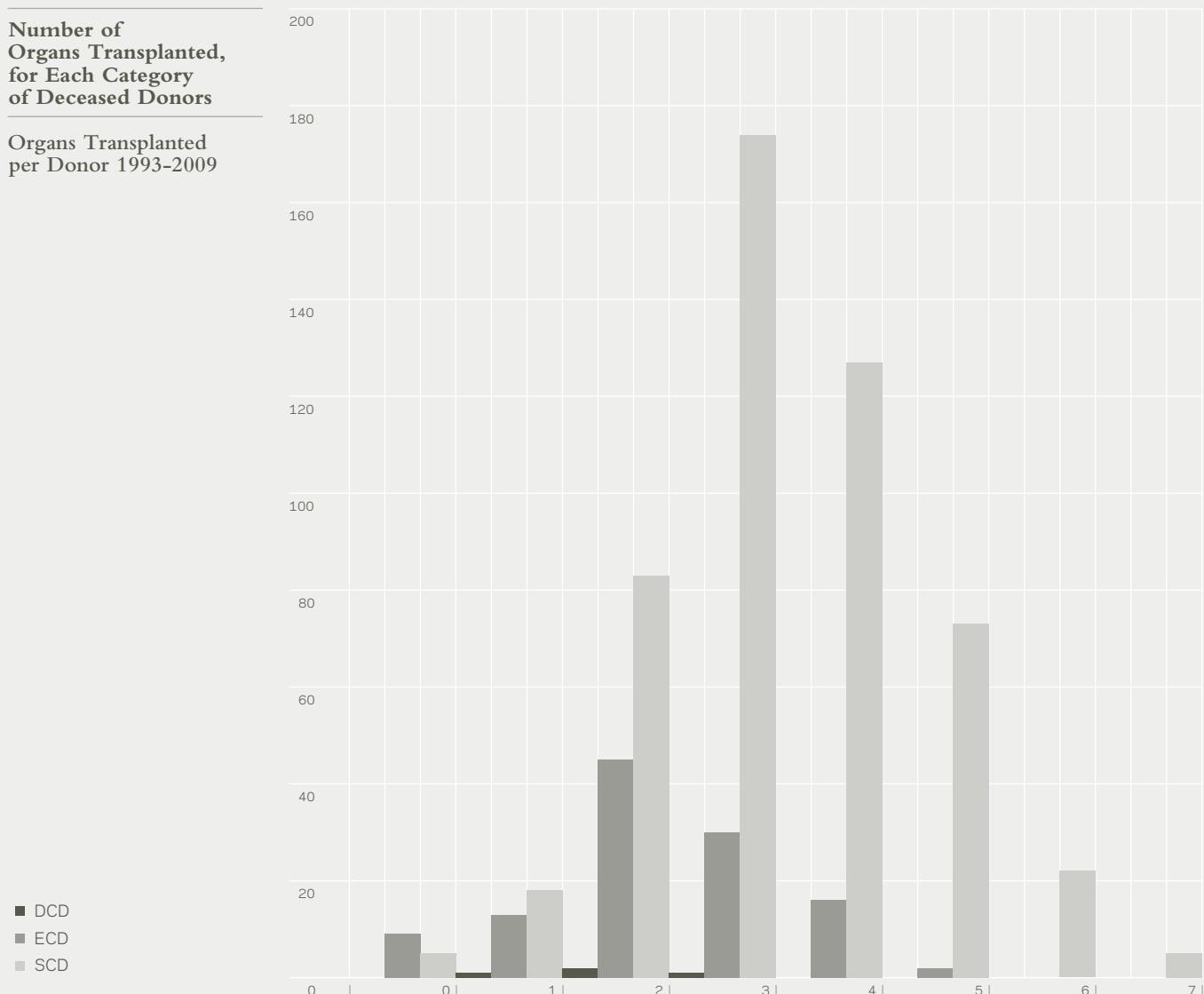
Category of deceased donor	Number of such donors	Average organs/donor	Range organs/donor	Total organs
DCD	6	2.0 ± 0.6	1–3	12
ECD	115	2.3 ± 1.1	0–5	267
SCD	507	3.4 ± 1.3	0–7	1746

No organs were transplanted from nine ECD donors (8%) and five SCD donors (1%). The distribution of number of organs transplanted, for each of the categories of deceased donors, is shown in Figure 1.

Figure 1:

#### Number of Organs Transplanted, for Each Category of Deceased Donors

#### Organs Transplanted per Donor 1993–2009



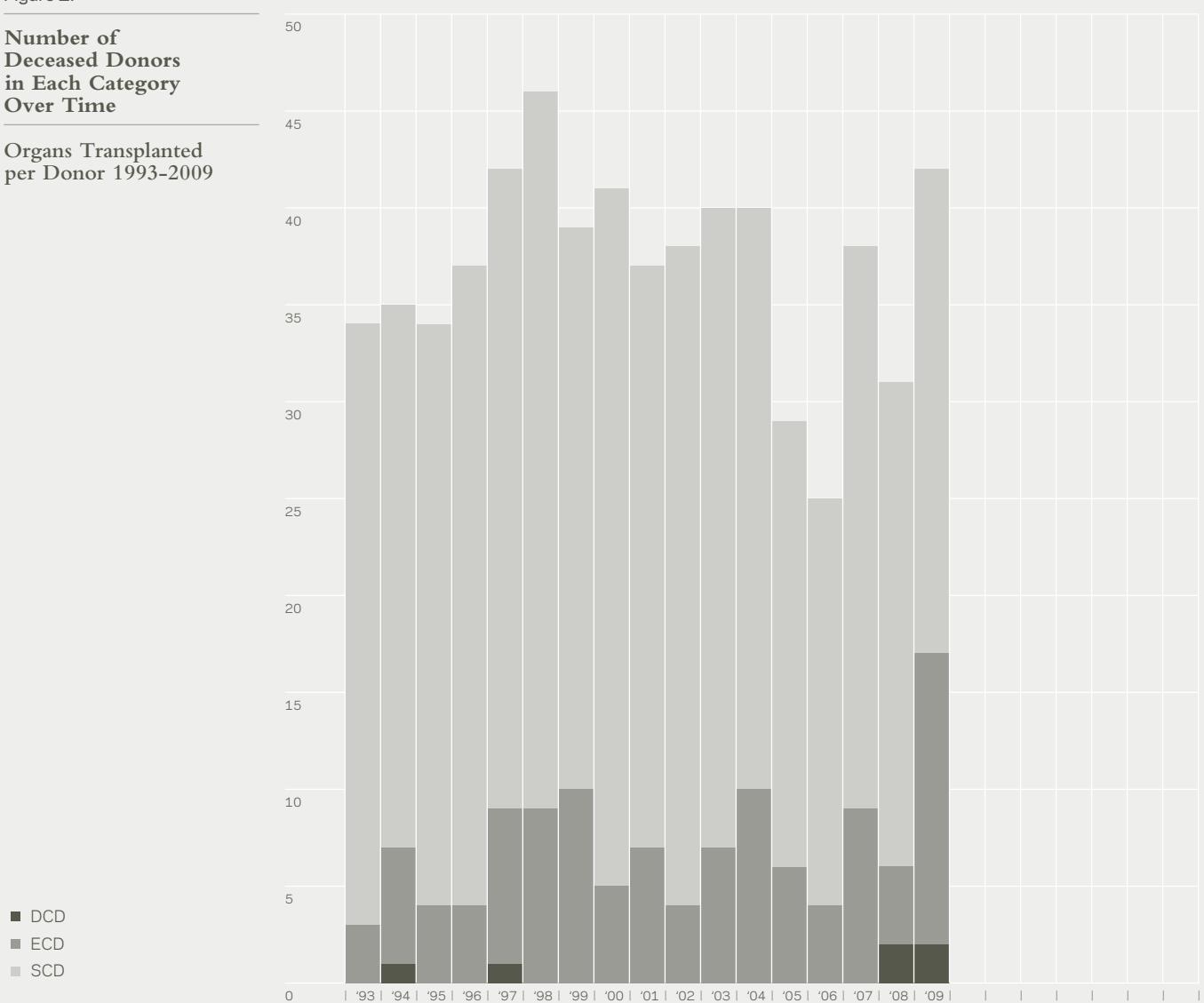
### Changes in deceased donor categories over time

Figure 2 shows the number of deceased donors, in each of the three categories, for the years 1993 to 2009 inclusive.

Figure 2:

**Number of  
Deceased Donors  
in Each Category  
Over Time**

**Organs Transplanted  
per Donor 1993-2009**



## **Discussion**

### **DCD donors**

Current New Zealand practice for DCD donors includes the possibility of donation of only the kidneys and liver, and accordingly the maximum number of organs per DCD donor is three. The liver is more sensitive than the kidneys to damage occurring during the dying process and therefore sometimes unable to be retrieved and transplanted. The suggested US 'benchmark' number of organs per DCD donor is 2.75, compared to 2.0 in the six DCD donors in this report, and 2.2 in a recent report<sup>5</sup> of 772 US donors, including 107 DCD donors.

### **ECD donors**

There was an increase in the number of ECD donors in 2009 compared with all previous years. The mean number of organs transplanted from the 115 ECD donors (2.3 organs per donor) compares to 1.9 organs/donor recently reported by Olson et al.<sup>5</sup> in 118 ECDs and is similar to the US 'benchmark' of 2.5 organs per ECD donor.

### **SCD donors**

The number of SCD donors in New Zealand is not increasing, having fallen somewhat in the last decade. The number of organs transplanted from the 507 SCD donors (mean 3.4 organs per donor) is similar to that reported by Olson<sup>5</sup> in 547 SCD donors (mean 3.6 organs per donor), both below the US 'benchmark' of 4.3 organs per SCD donor.

## **Summary & Conclusion**

The increase in the number of organ donors in New Zealand in 2009 is accounted for by an increase in the number of DCD and ECD donors. In both of these categories of donor it can be anticipated that fewer organs will be suitable for transplantation.

As ECD donors are older and often have co-morbidities, meticulous physiological support of these (and indeed all) potential donors is essential to ensure that organs are supported pending family agreement to donate and during the subsequent period until organ retrieval. The number of organs per donor in New Zealand is in line with other reports, but small increases may be possible in response to improved physiological support.

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