2015 Annual Report of Organ Transplantation in Thailand

- Heart and Lung Transplantation
- Kidney Transplantation
- Kidney Transplantation in recipients under 18 years old

Thai Transplantation Society

Message from President of Thai Transplantation Society

The organ transplant information has been collected as a report and purposed in developing organ transplant system in Thailand. As we are aware that organ transplantation is important in medical professionadvancement which has ability to have their lives improve dramatically from the chronic disease patients such as chronic kidney disease,cirrhosis, andlast stage of heart failure to perform their activities like normal people once again. Nowadays, the transplant knowledge has fast evaluation in both width and depth related to basic sciences, immunology and new immunosuppressive medication for organ transplant recipients. It is very necessary that physicians who work in transplantation should follow up with the updated knowledge.

Even though, there are a lot of advantages in organ transplant but the main problem is the shortage of organ donors which make its limit when compare with recipients (5,018 of organ recipients and 4,748 of kidney recipients as at December 31, 2015) and the large difference amountof waiting lists every year when compare between recipients.

As we are aware that the shortage of kidney and other organs donation are a major problem in transplant process. The last stage renal disease is important to the public health's problem because the patients have higher risk to death and waste ofmedical expenses. However, the treatment which is suitable for the long-term quality of the patient life is kidney transplantation. To honor the Celebrations on the Auspicious Occasion of HRH Princess Maha Chakri Sirindhorn's 60th Birthday Anniversary in 2015, Kidney Foundation of Thailand, Thai Transplantaion Society and cooperated parties organizing "the kidney transplant give a royal charity 60 years, HRH Princess Maha Chakri Sirindhorn" during April 2, 2015 – April 1, 2016 which covers the cost of special medication for kidney transplant patients,also help increasing in donors and caring for patients compare to the previous year.

On behalf of President and committee of Thai Transplant Society, would like to thank you, the registration subcommittee for reporting organ transplantation of 2015and hope that this report will be useful for physicians, nurses and medical staffs for future references.

Associate Professor Kriengsak Vareesangthip, M.D.

President of Thai Transplantation Society

Preface

This Annual Report of Transplantation in 2015 is continuing part from last year's report of heart and lung transplantation, kidney transplant including recipients aged less than 18 years old. All the information has been supported by transplant coordinator nurses together with surgeons, nephrologist and pediatric nephrologist from organ transplantation centers in order to analyze and aware of transplant situation in Thailand. Also, it can be the reference information for both national and international.

For heart- lung transplant information, Assistant Professor Pat Ongcharit and his colleagues has been collected the patients' information who received the surgery in 2015 to be aware of the advancement and challenging factor in heart- lung transplantation nowadays. For annual report of kidney transplantation, Dr. Kajornsak Noppakun and his colleagues has been brought out the information from all fields to analyze in several dimensions continuously from previous year. For those kidney recipients less than 18 years old were taken care of by pediatric nephrologists and some part will be taking care by nephrologists. We also received an honor from Dr. Pornpimol Rianthavorn in collecting and analyzing the stated patient's group progressively.

The registration subcommittee would like to thank Thai Transplantation Society's organizing committee for supporting in establish annual report of organ transplantation, transplant coordinator nurses for sending patients' information from each institutes, Assistant Professor Pat Ongcharit, Dr. Kajornsak Noppakun, Dr. Pornpimol Rianthavorn and their colleagues for gathering and analyzing information Ms. Nongnuch Khatiya and Ms. Pharita Kilee for general coordination, including staffs, doctors and nurses from each kidney institutions which make success in completing this report for liver and pancreas transplant information in Thailand and expected that it will be presented in the future.

The registration subcommittee expects that annual report of organ transplantation in 2014 will be useful for physicians, nurses, staffs and anyone interested in this report for their reference in other field such as academic, public health economic, including strategic management in future kidney transplantation.

The registration subcommittee of organ transplantation

Thai Transplantation Society

Year 2015-2017

Executive Committee, Thai Transplantation Society
Year 2015-2017

Kriengsak Vareesangthip, M.D., Ph.D.	President
Surazee Prommool,M.D.	Vice-President
Attapong Vongwiwatna, M.D.	Secretary General
Prajej Ruangkanchanasetr, M.D.	Treasurer
Adis Tasanarong, M.D., Ph.D.	Scientific Chairman
Adisorn Lumpaopong, M.D.	Registration & Information
Natavudh Townamchai,M.D.	Social Co-ordinator
Atiporn Ingsathit,M.D.,Ph.D.	International Liaison
Yingyos Avihingsanon, M.D.	Research Chairman
Thanom Supaporn, LTG., M.D.	Policy Planning
Sakarn Bunnag, M.D.	Organ Transplantation Expansion
Pat Ongcharit, M.D.	Heart and Lung Transplantation Expansion
Dusit Lumlertgul, M.D.	Committee
Supanit Nivatvongs, M.D.	Committee
Somchai Limsrichamrern, M.D.	Committee
Sukit Tassanasunthornwong, M.D.	Committee

Organ Transplant registration subcommittee
Year 2015-2017

Thanom Supaporn, LTG.,M.D.	Advisory
Kowit Danviriyasup, M.D.	Advisory
Visit Dhitavaj, M.D.	Advisory
Yingyos Avihingsanon, M.D	Advisory
Adisorn Lumpaopong, M.D.	Registration Chairman
Supanit Nivatvongs, M.D.	Committee
Pat Ongcharit, M.D.	Committee
Attapong Vongwiwatana, M.D.	Committee
Atiporn Insathit, M.D.,Ph.D.	Committee
Cholatip Pongskul, M.D.	Committee
Nalinee Premasathian, M.D.	Committee
Kajohnsak Noppakun, M.D.	Committee
Adis Tasanarong, M.D.,Ph.D.	Committee
Sakarn Bunnag, M.D.	Committee
Sathit Kurathong, M.D.	Committee
Pornpimol Rianthavorn, M.D.	Committee
Nutavudh Townamchai, M.D.	Committee
Krit Pongpirul, M.D.	Committee
Nopanit Pattanachaiwit, M.D.	Committee
Aroonee Juengsa-ngasom	Committee
Pawinee Kupatawintu	Committee

Organ transplant Coordinator nurses

Thararat Phudpart	Bangkok
Napaporn Boonnaj	Chulalongkorn
Salin Watanatorn	Chulalongkorn
Naraporn Wongkaew	Chonburi
Supan Chunhanant	Police
Orawan Thongnil	Police
Sasipim Pirojkittrakul	Thammasat
Natnicha Nie	Bumrungrad
Suwapee Chantornjetsada	Phyathai1
Benjawan Sookreun	Phyathai1
Kanokporn Ratanatraisri	Buddhachinaraj
Siriluk Liewseng	Phramongkutklao
Kanchai Pipatpanwong	Praram9
Panatchana Aroonrojsiri	Bhumibol Adulyadej
Anchalee Saikam	Maharajnakornchiangmai
Jugkree Korsakul	Maharaj Nakhonratchasima
Panida Opakawinkul	Rajavithi
Chutima Charoenthanakit	Ramathibodi
Sununta Ariyakulnimit	Vajira
Jongruk Pongskul	Srinagarind
Pavinee Sukhontavich	Siriraj
Wilaiwan Saenhom	Khon kaen
Budsaya Dandacha	Songklanagarind
Wanida Ratanasuwan	Samitivej Srinakarin
Pisinee Namprom	Samitivej Sukhumvit

Phataraporn Jit-im	Sappasitthiprasong
Tasana Nilapat	Surat Thani
Kingkarn Sirikarin	Hatyai
Sasipin Mongkolchai	Udonthani

Contents

Heart and lung Transplantation

Heart and lung Transplantation

Intrathoracic organ transplantation

From 2008-2014, 97 patients have received heart transplantation from 4 hospitals e.g. Chulalongkorn, Siriraj, Rajavidhi, Central Chest Institute of Thailand and Bumrungrad Hospital.

	Year							
	2008	2009	2010	2011	2012	2013	2014	2015
Chulalongkorn	3	5	3	7	8	6	14	12
Siriraj		1	2	1	4	4	4	7
Rajavidhi	1					2	5	5
Central Chest Institute of Thailand		2						
Bumrungrad	1							
Total	**5**	**8**	**5**	**8**	**12**	**12**	**23**	**24**

Table 1.1 Number of heart transplant recipients, separated by year and hospital.

By 2015, 24 patients were received heart transplantation which increase from 2014 by 1 patient as shown in table 1.1.The average waiting time for heart-kidney transplantation of that patient is equivalent to 89 days (range from 2-323 days)

The graft survival rate at the first month equal to 88% (22/25 patients) for heart and heart-lung transplantation. In 2014,1 patient (Siriraj) has been received heart-lung transplantation and did not receive single lung transplantation. The waiting time for heart-lung transplantation is 292 days. There are 24 patients waiting for heart transplantation, 5 patients waiting for lung transplantation and 21 patients waiting for heart-lung transplantation.

Information of Kidney Transplantation

Information of kidney recipients

Number of Kidney Transplant Recipients in 2015

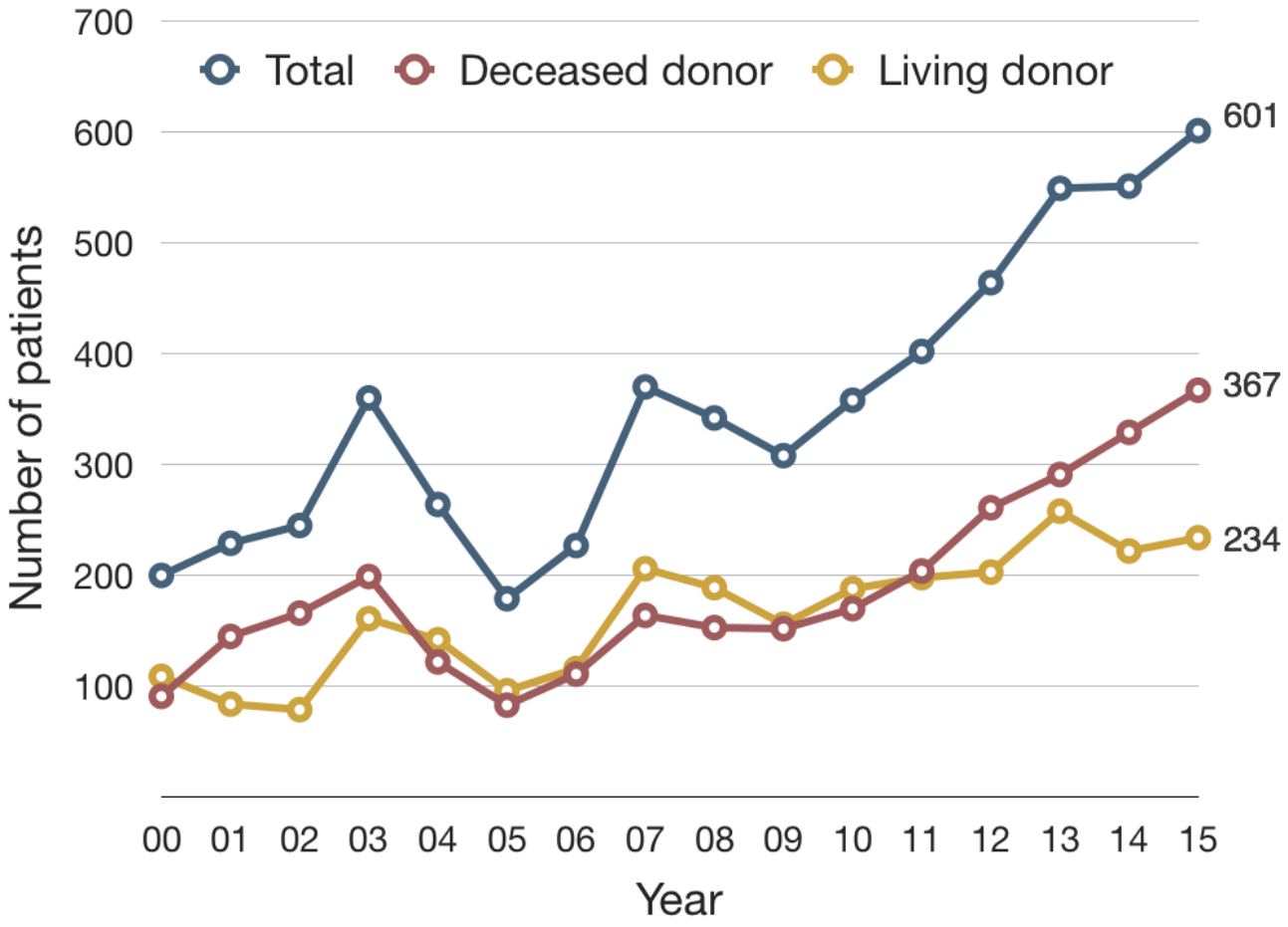
During 2015 (January 1, 2015 – December 31, 2015), 601 patients have received kidney transplantation from 30 hospitals, by 234 of living donors and 367 of deceased donors, separated by hospitalas shown in table 2.1.

Table 2.1 Number of Recipients in 2015, separated by hospital.

	Kidney Transplant Recipients from Deceased donors	Kidney Transplant Recipients from Living donors	Total
Siriraj	38	31	69
Chulalongkorn	27	19	46
Ramathibodi	71	67	138
Phramongkutklao	13	6	19
Praram 9	31	13	44
Bhumibol Adulyadej	13	4	17
Maharaj Nakorn			
Chiang Mai	34	16	50
Rajavidhi	23	7	30
Vachira	2	11	13
Chonburi	0	0	0
Sapphasitprasong	24	1	25
Srinagarind	60	3	63
Smithivej Sukhumvit	5	1	6
Bangkok	0	1	1
Phayathai 1	0	0	0
Bumrungrad International	9	14	23
Buddhachinnaraj	0	4	4

Police General	5	1	6
Maharaj Nakornrachasima	0	2	2
Songklanakarin	3	3	6
Smithivej Srinakarin	1	1	2
Thammasat	4	4	8
Suratthani	0	2	2
Khon Kaen	0	1	1
Hat Yai	2	0	2
Udontani	2	2	4
Vejthani	0	16	16
Bhumirajanagarindra	0	1	1
Srinakharinwirot Ongkharak	0	3	3
Total	**367**	**234**	**601**

Compare to 2015, found that previous kidney transplant recipients from living donors wereincreased by 5.4% (from 222 to 234) and from deceased donors were increased 11.6% (from 329 to 367).

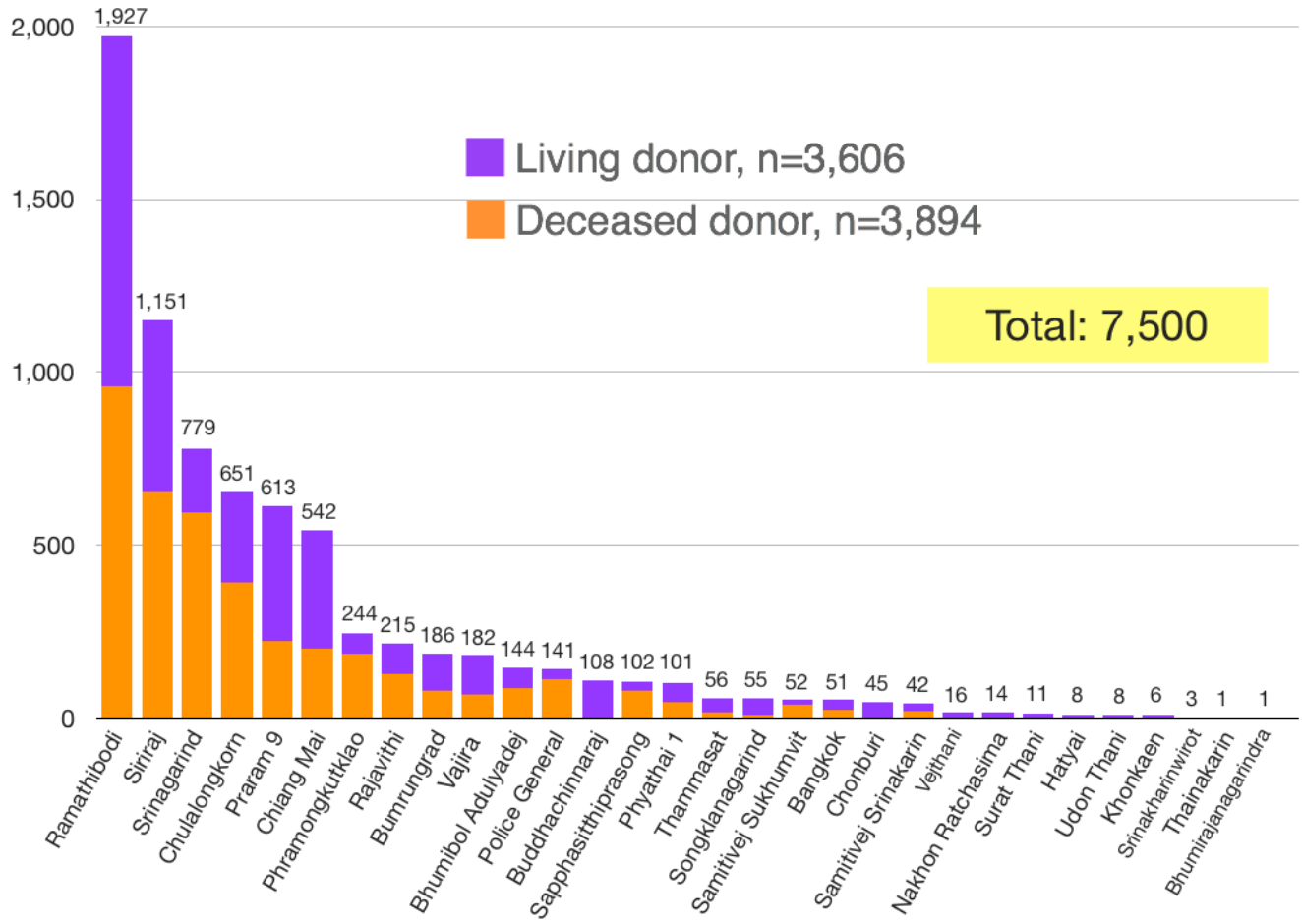


Picture 2.1 Number of kidney transplantation each year since 2000, separated by kidney transplant category.

From picture 2.1 shown the information of kidney transplantation since 2000 who registered officially for kidney transplantation in Thailand. There are a lot of kidney transplant recipients who received kidney transplantation in 2003 and 2007. The Kidney Foundation of Thailand established the occasion to give a royal charity dedicated to HRH Princess Galyani Vadhana Kromma Luang Naradhiwas Rajanagarindra for her 80th Birthday and in 2007, established "The kidney is the charity dedicated 80/ 84 years"to give a royal charity dedicated on the occasion of 80th Birthday Anniversary for His MajestyThe King Bhumibol Adulyadej and HRH Princess Galyani Vadhana Kromma Luang Naradhiwas Rajanagarindra on the occasion of 84th Birthday Anniversary which cause the increasing of kidney transplant recipients until today.

In 2004, Social Security Office implemented kidney transplant coverage for employee and in 2008, National Health Security Officeapproved to add the kidney transplant in the universal health care coverage. In addition, Ministry of Public Health has decreased donor campaign and establishes Donor Hospital which shown that there are more deceased donors than living donors since 2011.

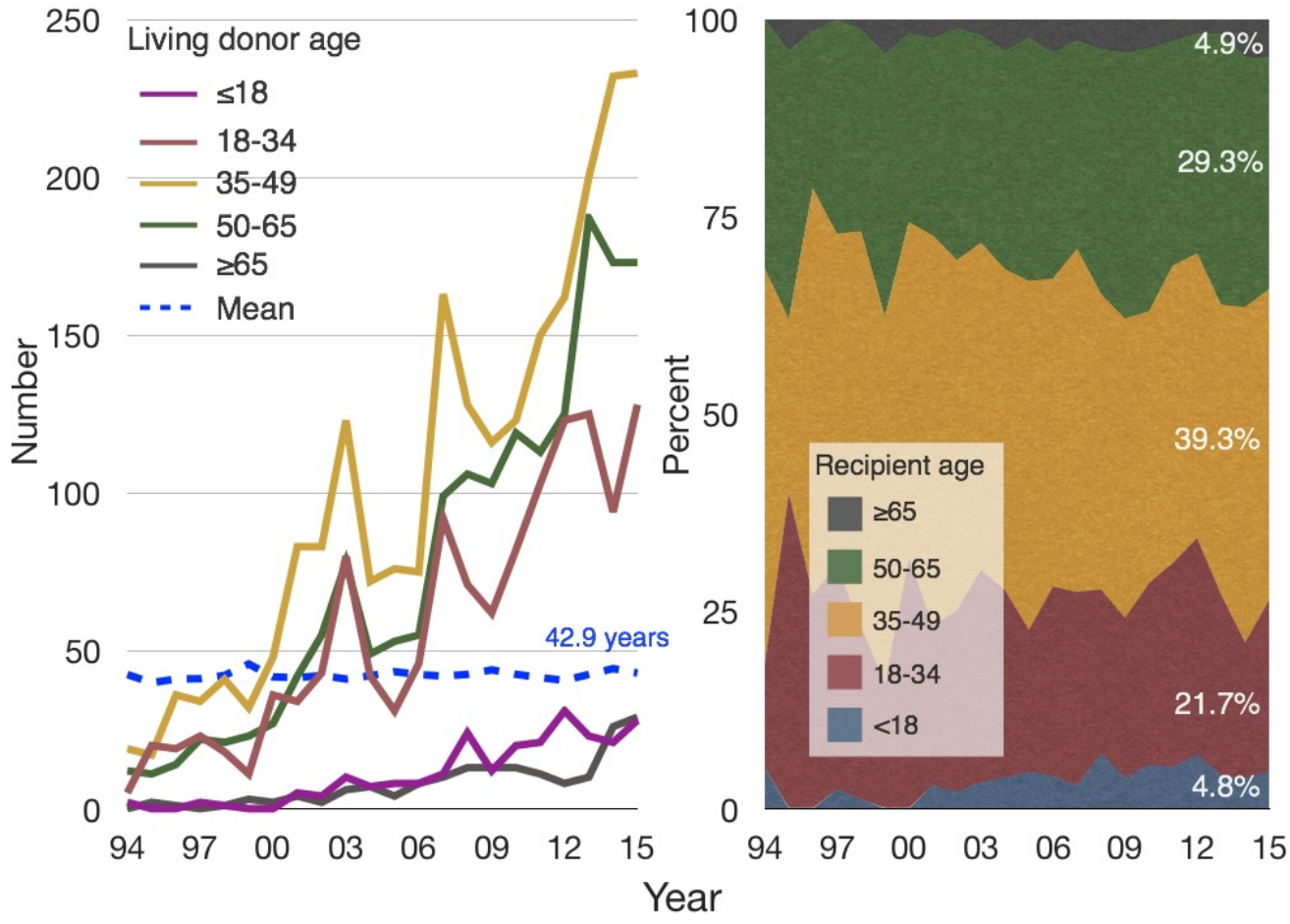
There were 7,500 kidney transplant recipients in Thailand, 3,606 of living donors and 3,894 of deceased donors as shown in picture 2.2.



Picture 2.2 Number of all kidney transplant recipients in Thailand, separated by hospital.

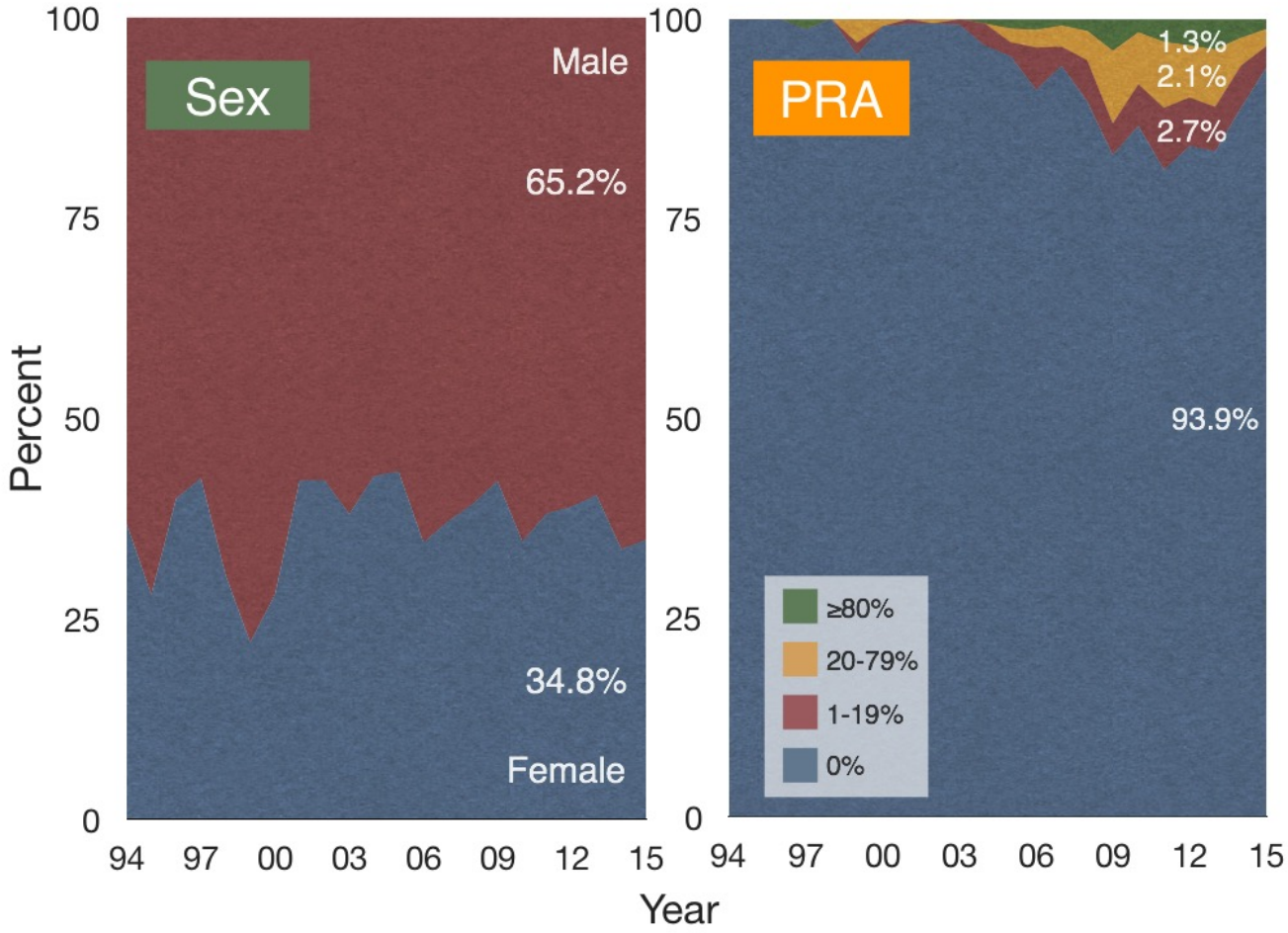
Information of kidney transplantation in 2015

The average age of kidney transplant in 2015 equal to 42.9 years old, which increases during age of 35-49. The proportion of kidney transplant in 2015 by span of age, found that 4.8% were recipients under 18 years old, 21.7% were recipients aged 18-34 years old and 39.3% were recipients aged 35-49 years old, 29.3% were recipients aged 50-65 years old and 4.9% were recipients over 65 years old as shown in picture 2.3.



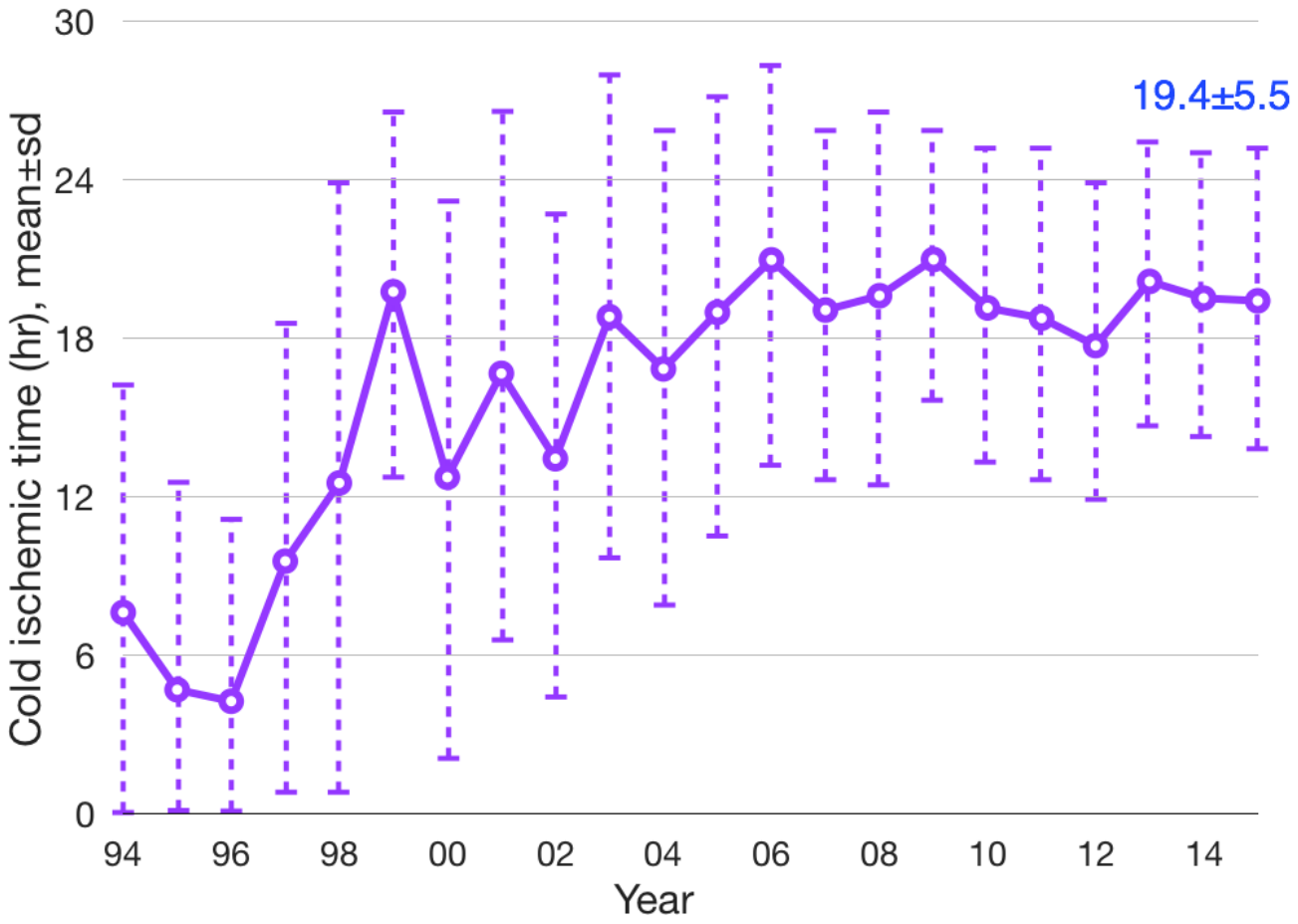
Picture 2.3 Number and proportion of kidney transplant recipients, separated by life span.

When separated by sex, found that there were more male than female kidney transplant recipients and the kidney transplant recipients of 93.9% has PRA equal to 0, 2.7% has PRA between 1-19, 2.1% has PRA between 20-79 and 1.3% has PRA more than 80 as shown in picture 2.4.



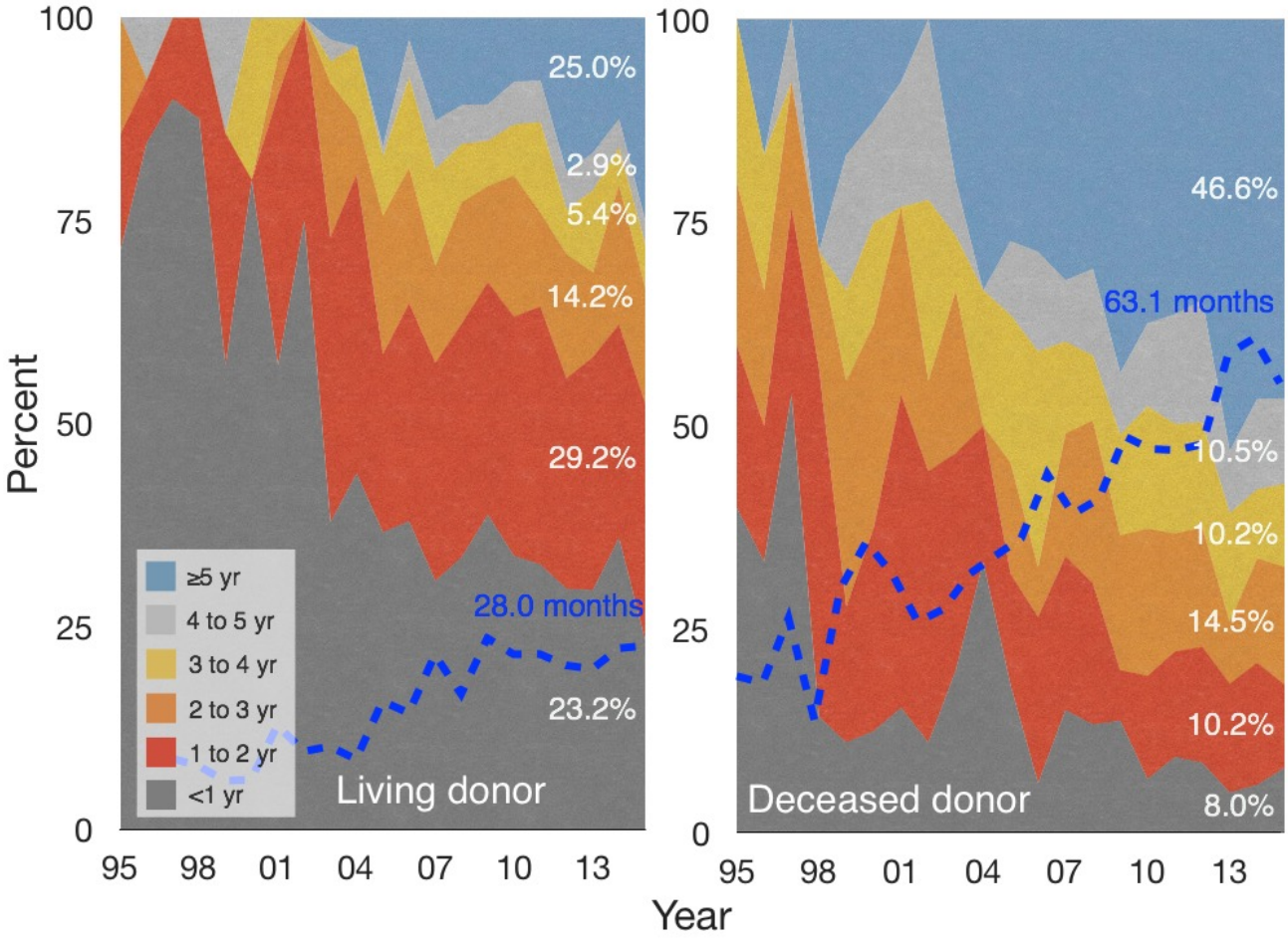
Picture 2.4 Sex and PRA of kidney transplant recipients

For deceased donor group, found that the period of cold ischemic time in 2015 equal to 19.4 +/- 5.5 hours as shown in picture 2.5.



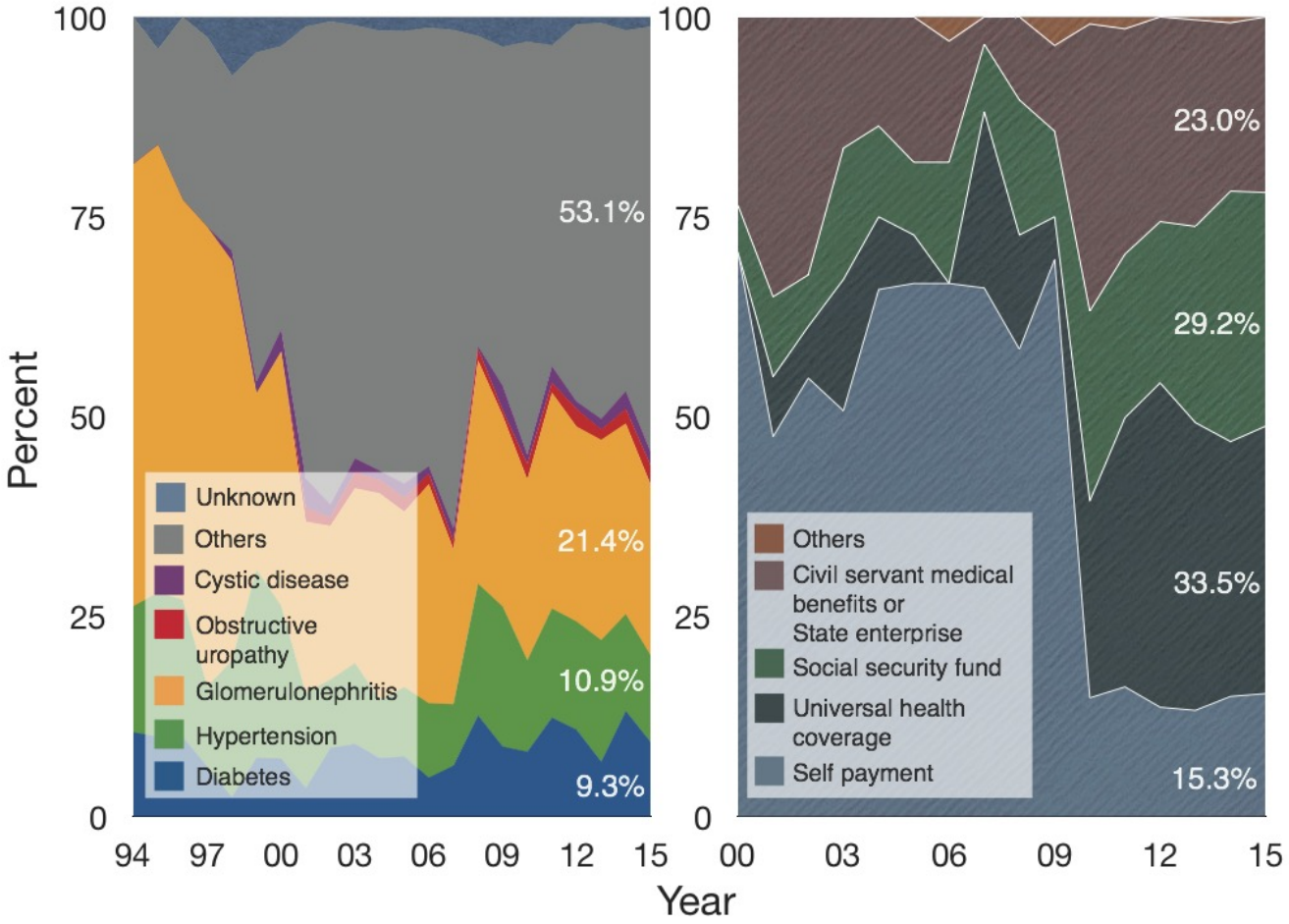
Picture 2.5 Period of Cold Ischemic Time of kidney transplant of deceased donors.

The waiting time for kidney transplant in 2015 of living donors equal to 28.0 months and deceased donors equal to 63.1 months as shown in picture 2.6.



Picture 2.6 The waiting time of kidney transplant recipients of living donor and deceased donor.

The main cause of end-stage renal disease by kidney transplant categories, as shown in picture 2.7 are chronic glomerulonephritis, hypertension and diabetes. When consider from health care schemes, found that33.5% use universal coverage scheme, 29.3 use social security scheme and 23.0% use government and state enterprise healthcare coverage as shown in picture 2.7.



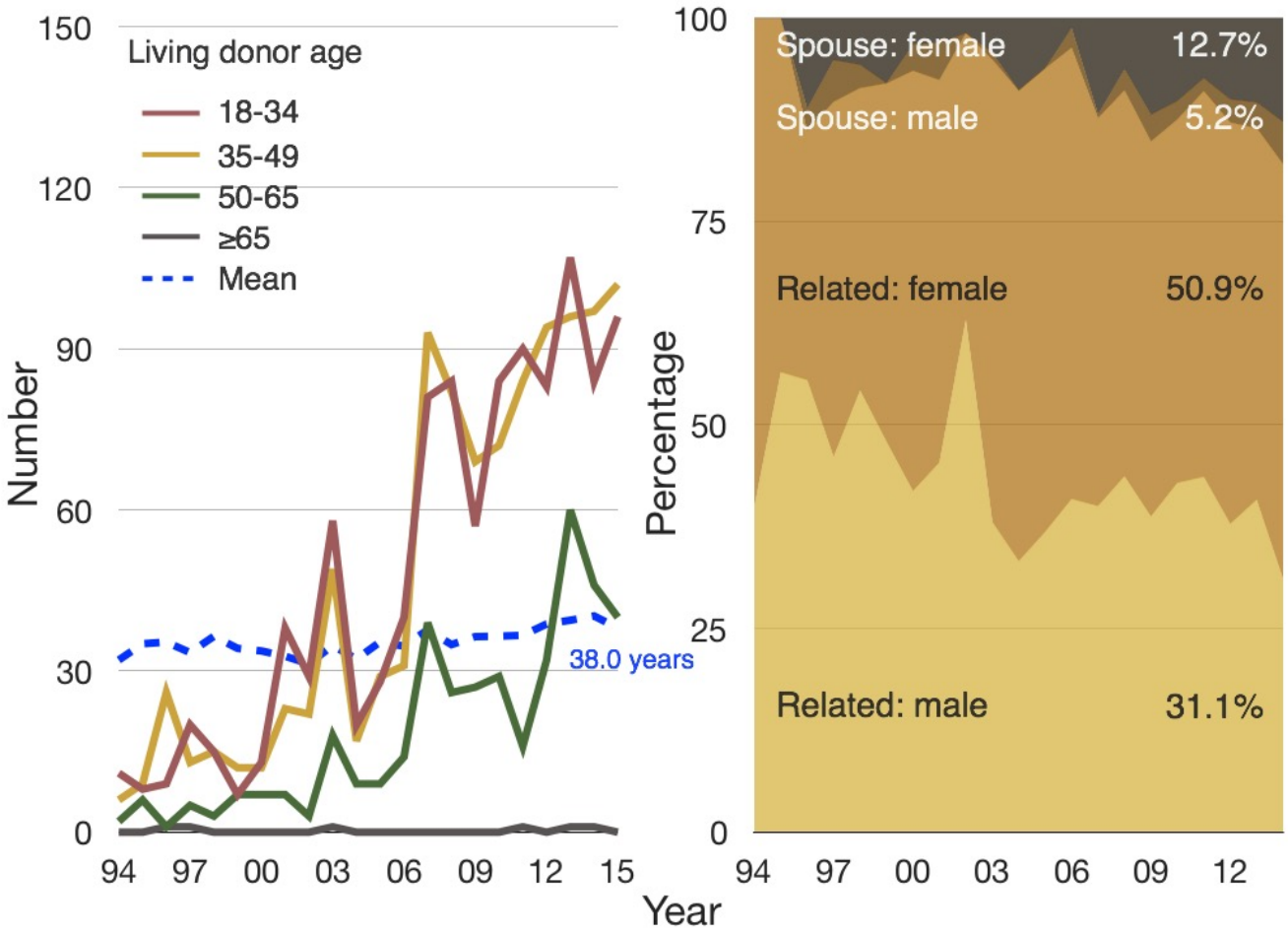
Picture 2.7 The causes of end-stage renal disease and Healthcare schemes

In Summary of year 2015

- The amount of kidney transplantation in 2015 increased from 549 to 601as the proportion of living donors decreased by 5.4% and deceased donors increased by 11.6% when compare with 2014.
- The main age of kidney transplant recipientsis between 35-49 and 50-65 years old.
- The major causes of end-stage renal disease are chronic glomerulonephritis, hypertension and diabetes respectively.
- The major healthcare coverage schemes in kidney transplant recipients are universal coverage scheme, social security scheme and government/ state enterprise healthcare coverage respectively.

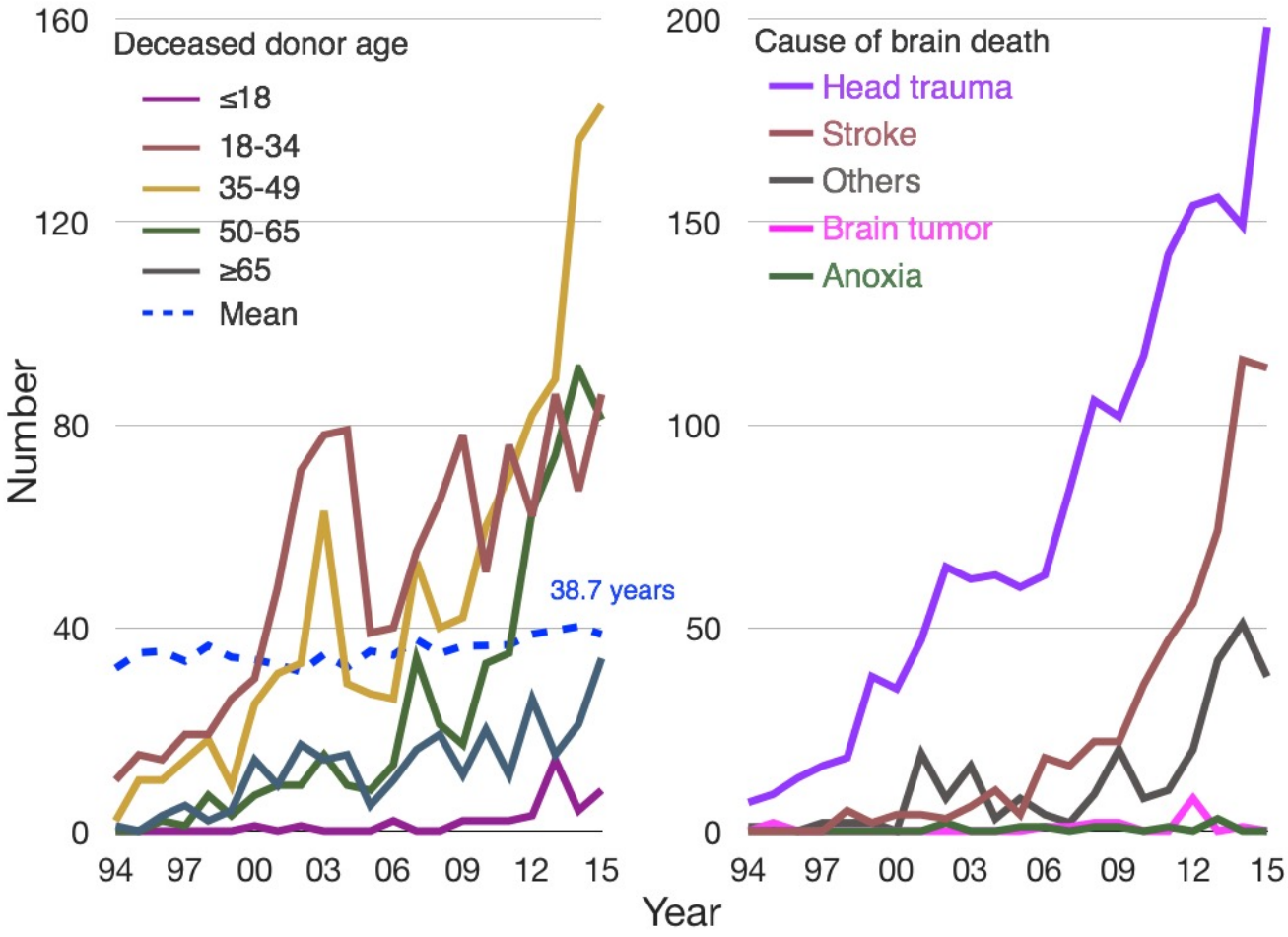
Information of kidney transplant donors

In 2015, the average age of living donors equal to 40.3 years old which aged between 35-49 years old as shown in table 2.8. The main donors are 50.9% from female blood relations and 31.1% from male by 12.7% wife donated to husband and 5.2% husband donated to wife.



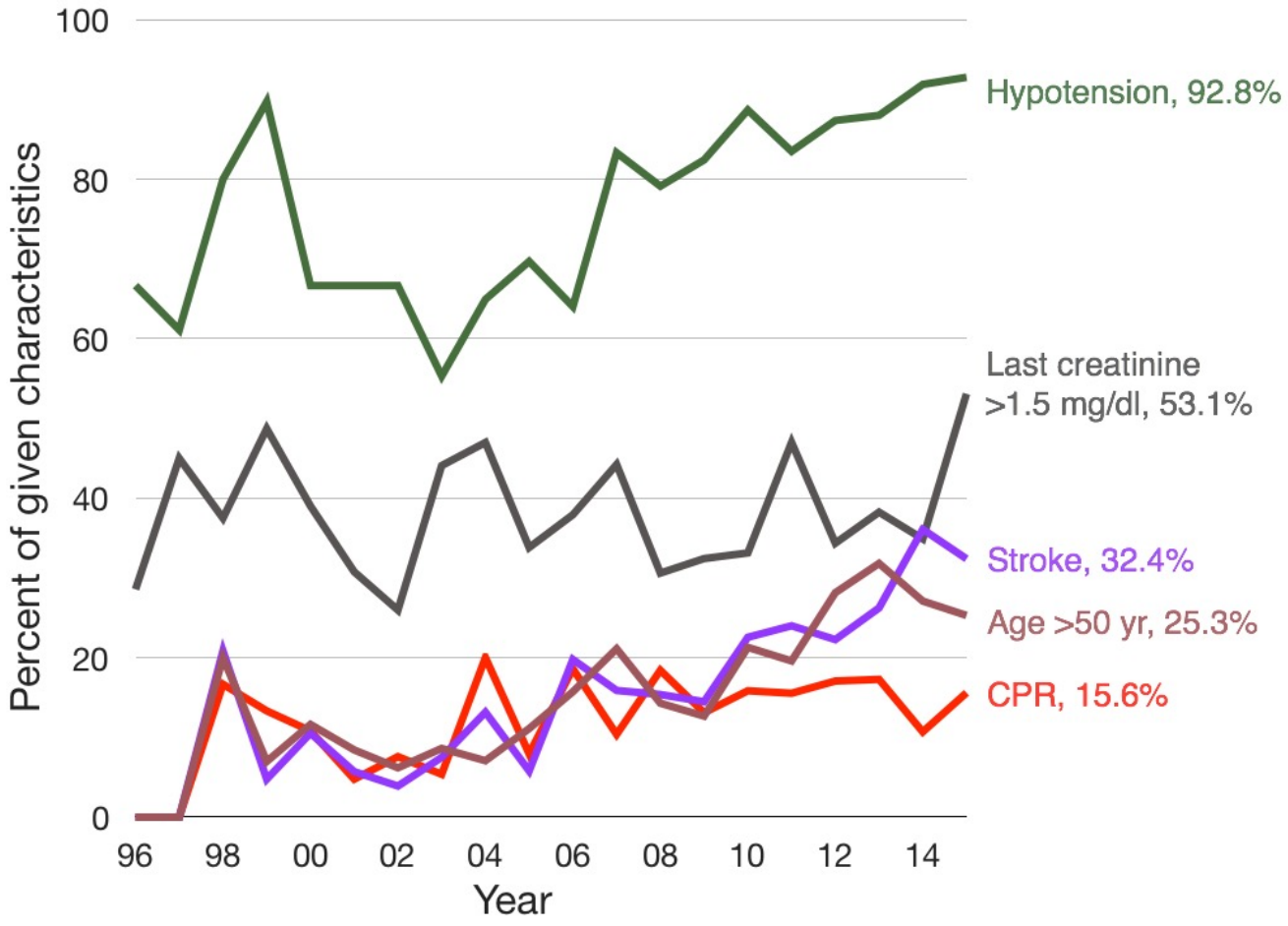
Picture 2.8 Age of living donor and recipient relationship.

The average rate of deceased donor is 38.7 years old and the causes of brain death were head injury and stroke as shown in Picture 2.9.



Picture 2.9 Age span and cause of brain death in deceased donor.

There were 92.8% of deceased donors had hypotension, 15.6% had been performed the cardiopulmonary resusitation (CPR). 53.1% had the serum creatinine morethan 1.5 mg/dL, 25.3% were age older than 50 years old and 32.4% were caused by stroke as shown in Picture 2.10.



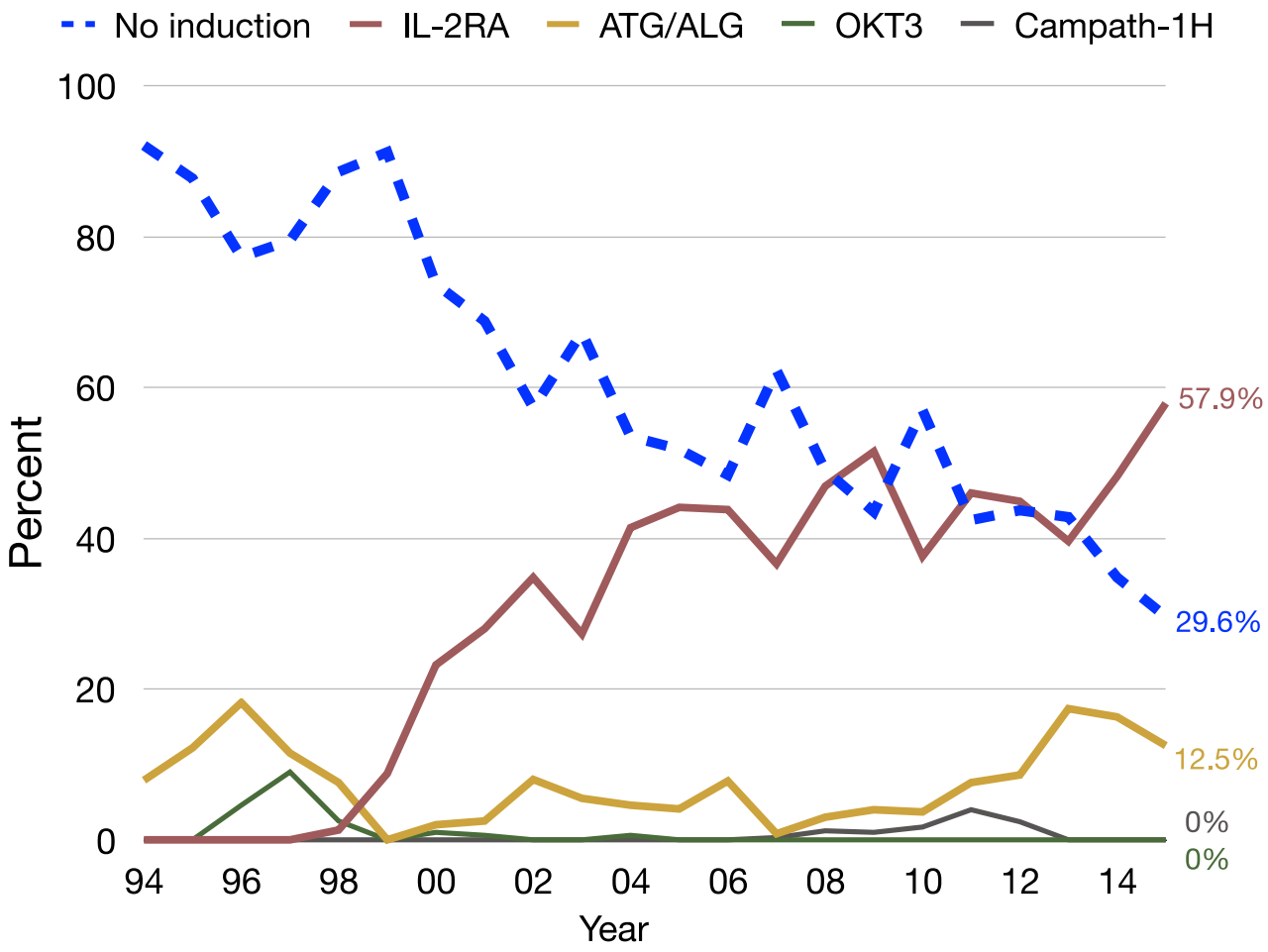
Picture 2.10 The Qualification of deceased donors.

In Summary of kidney transplant in year 2015

- The average age of living donor and deceased donor are 30 years old.
- The main kidney recipient has blood relations with donor and husband-wife donor which female is the the major living donor
- In deceased donor, demonstrated that
    - The major causes of brain death were head injury and stroke respectively.
    - The rate of deceased donors who had hypotension symptoms was increased by 2014

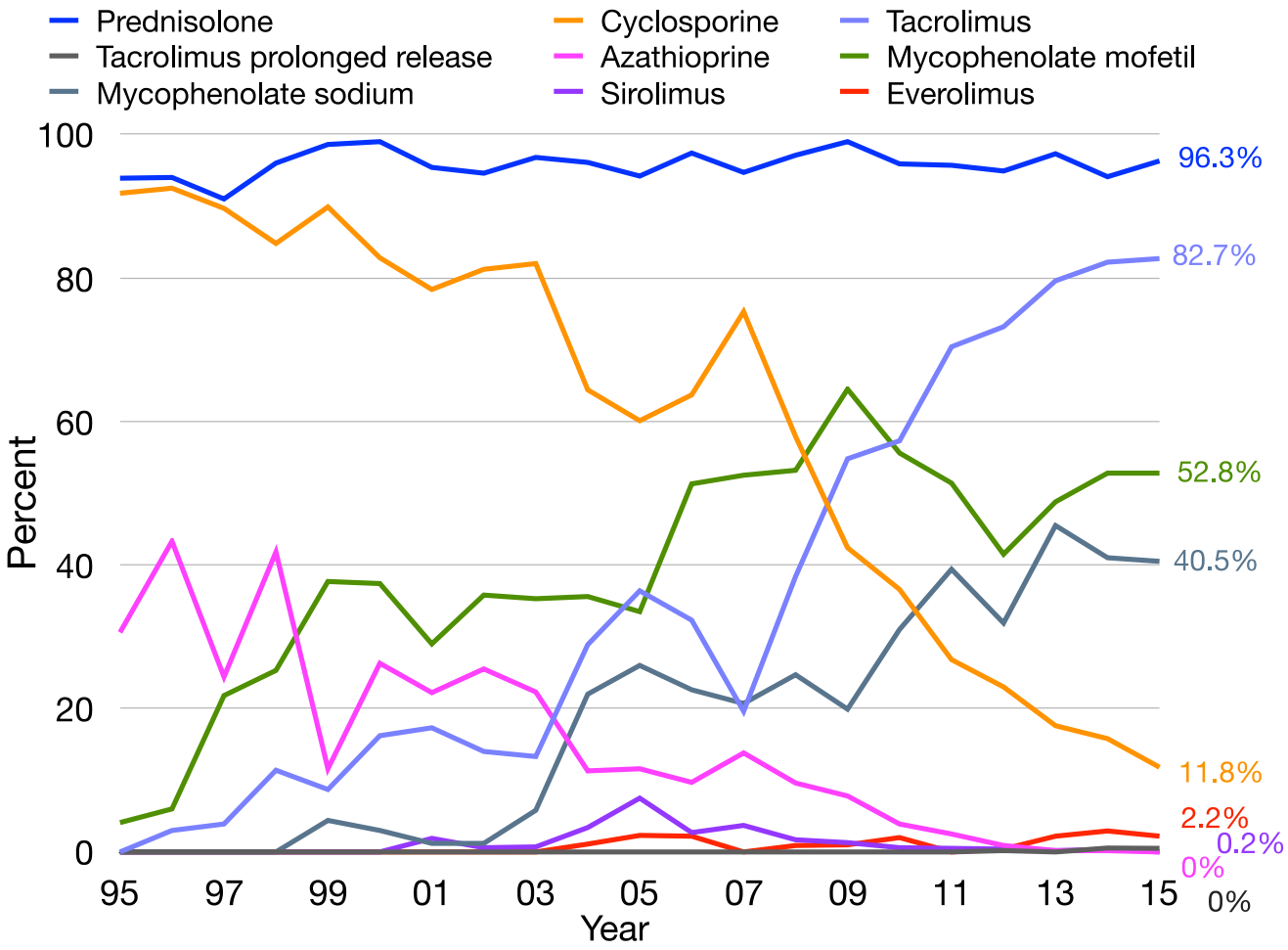
Immunoosuppressive medication

In 2015, 70.4% of antibody induction therapy was used which divided into 57.9% of interleukin-2 receptor antagonist (IL-2 RA), 12.5% of anti-thymocyteglobulin (ATG)/anti-lymphocyte globulin (ALG) as shown in Picture 2.11.



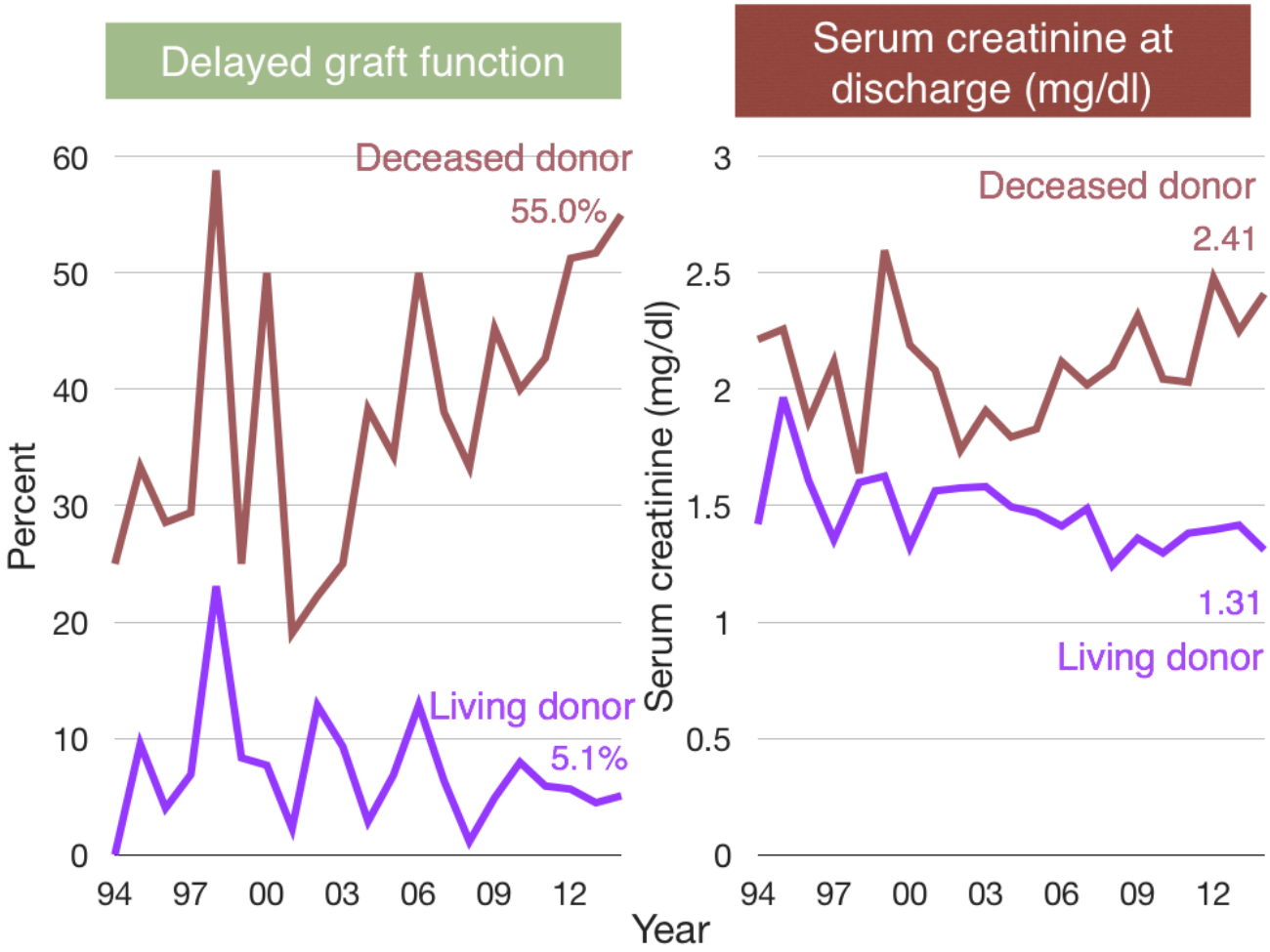
Picture 2.11 The proportion of recipients who received antibody induction therapy, separated by year of transplantation.

The proportion and tendency of immunosuppressive medication use on discharge date was shown in picture 2.12. In 2015, patients received prednisolone, tacrolimus, mycophenolate mofetil, mycophenolate sodium, and cyclosporine at 96.3%, 82.7%, 52.8%, 40.5%, 11.8% respectively. Less than 5% of the patients received azathioprine, sirolimus or everolimus on discharge date.



Picture 2.12 The proportion of immunosuppressive treatment on discharge date, separated by year of kidney transplantation.

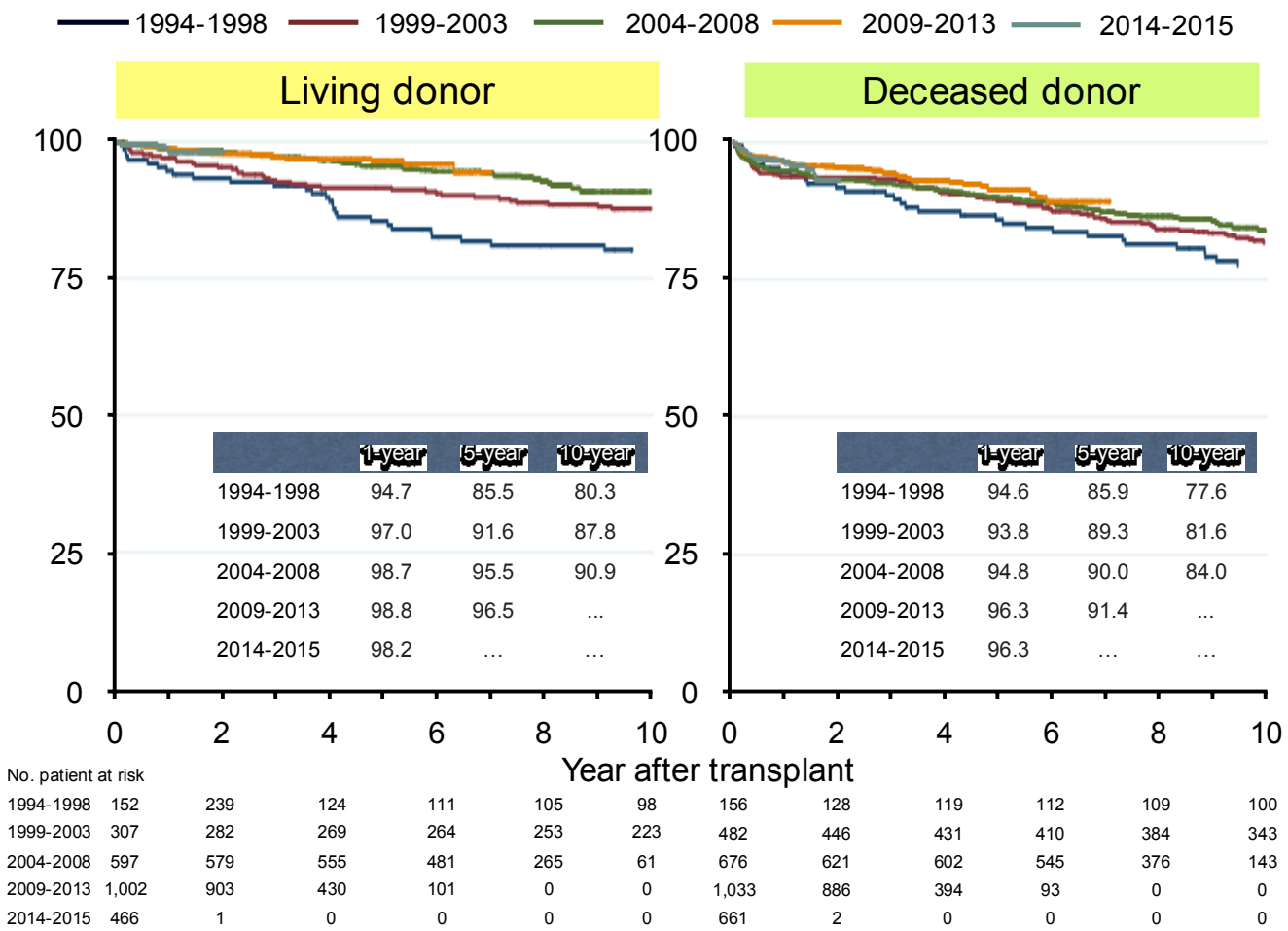
The comparison between proportion of delayed graft function (DGF) after kidney transplantation and serum creatinine level on discharge date of the recipients from the living donor and deceased donor as shown in Picture 2.13.



Picture 2.13 Delayed graft function and serum creatinine on discharge date, separated by transplant types.

Patient survival rate

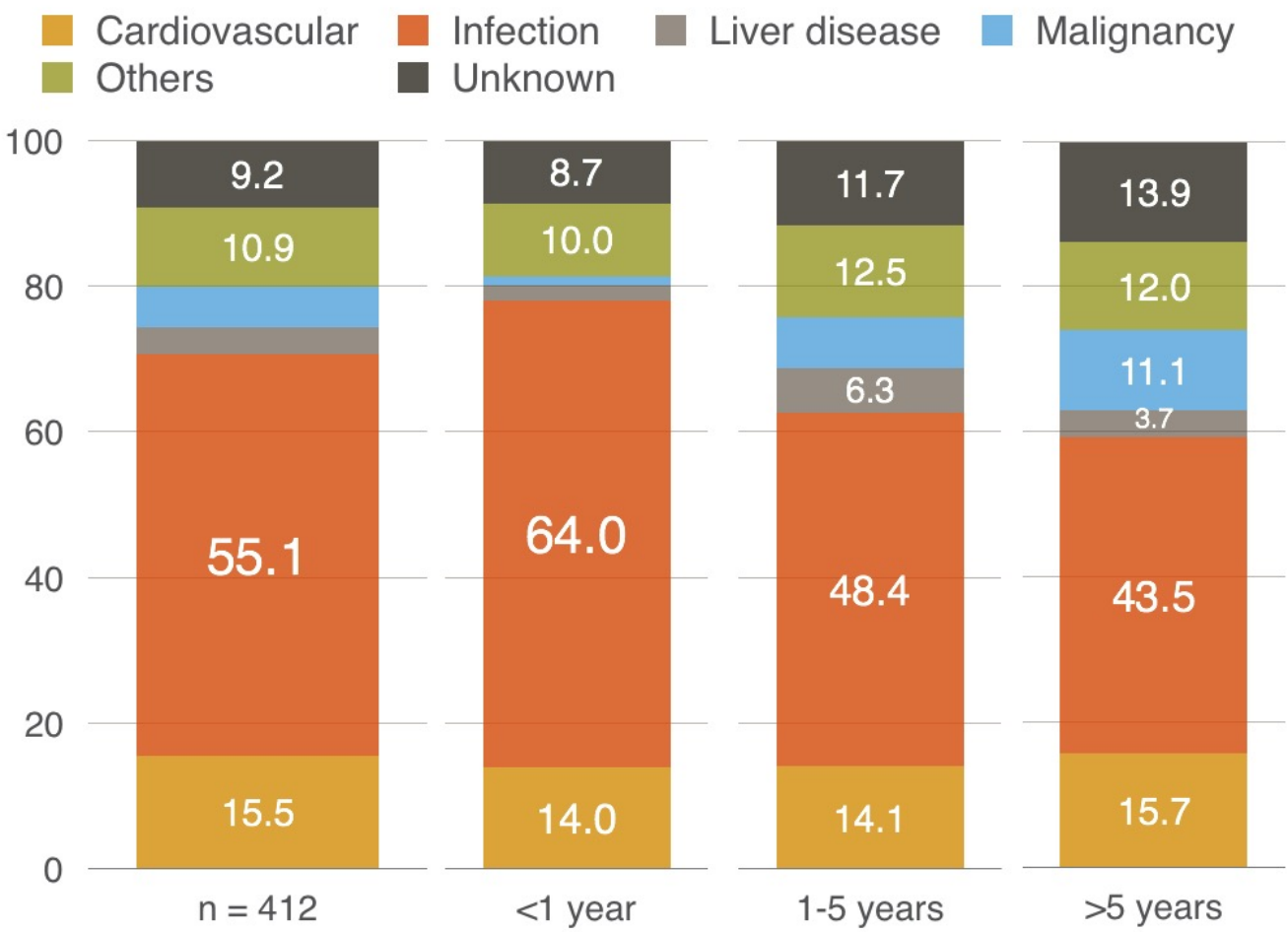
The patient survival rate after kidney transplantation has significantly increased from the recipients of the living donors and deceased donors in various period of time as shown in picture 2.14.



Picture 2.14 Patient survival rate separated by types of kidney transplantation.

Cause of death

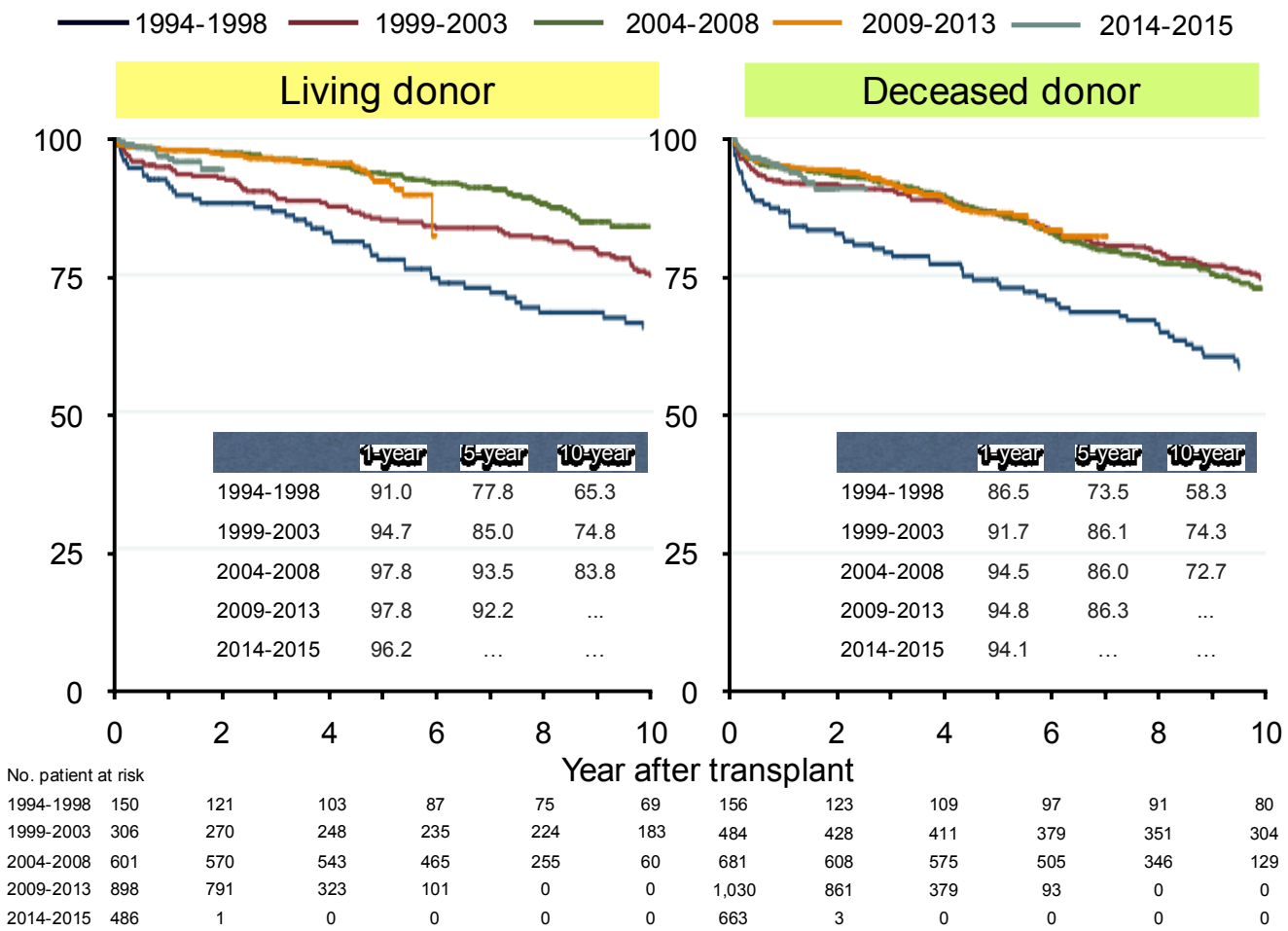
The cause of death after kidney transplantation within the first year, during 1-5 years and after 5 years of transplantation was infection as shown in picture 2.15.



Picture 2.15 The cause of patients' death in various period of time.

Graft Survival

The graft survival rate after 2001 of kidney transplantation for the living donors and deceased donors were shown in picture 2.16.

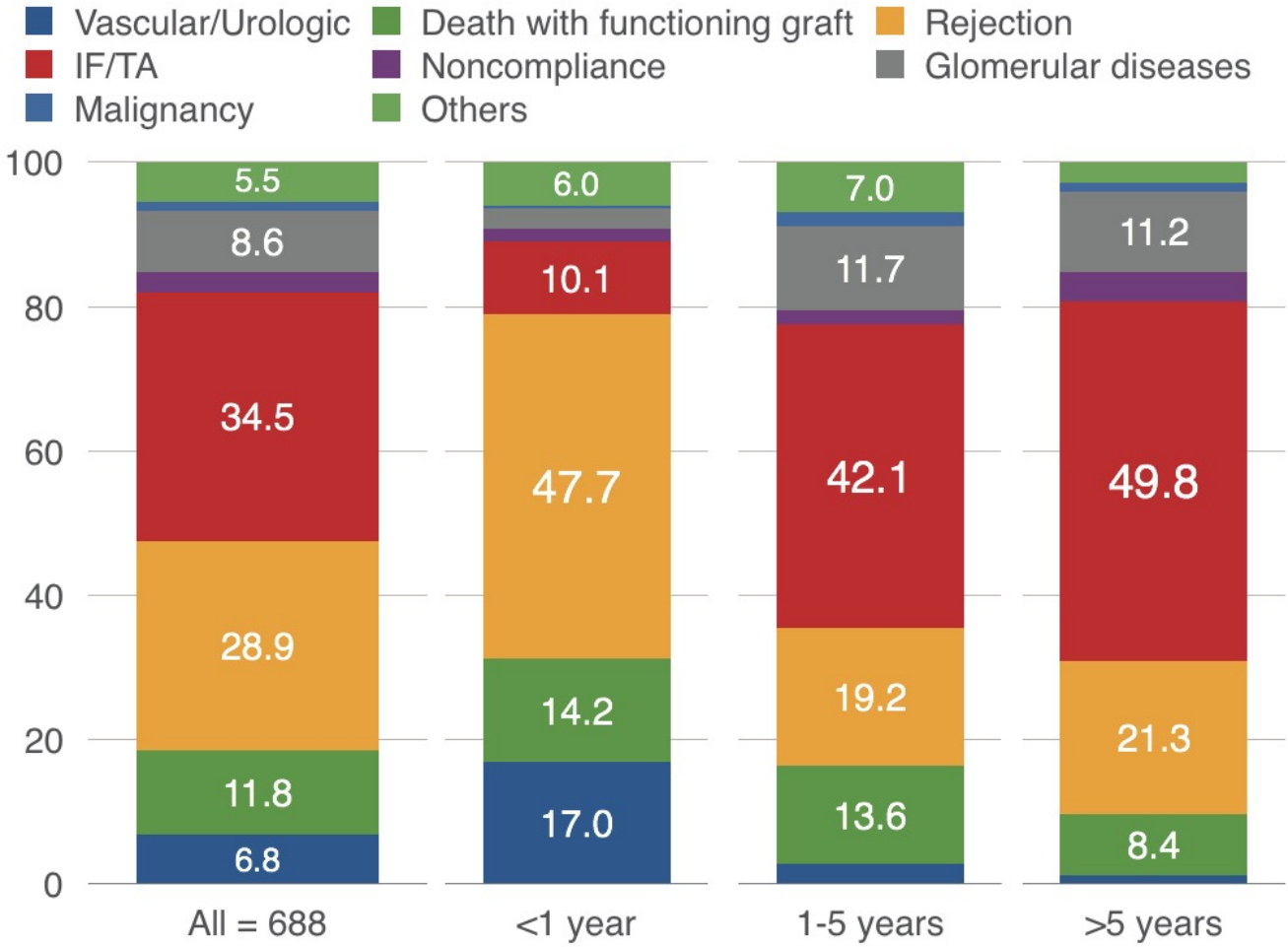


No. patient at risk

1994-1998	150	121	103	87	75	69	156	123	109	97	91	80
1999-2003	306	270	248	235	224	183	484	428	411	379	351	304
2004-2008	601	570	543	465	255	60	681	608	575	505	346	129
2009-2013	898	791	323	101	0	0	1,030	861	379	93	0	0
2014-2015	486	1	0	0	0	0	663	3	0	0	0	0

Table 2.16 The graft survival rate separated by types of kidney transplantation.

Graft loss in various period of time after kidney transplantation as shown in picture 2.17.



Picture 2.17 Graft loss of recipients in various period of time.

Kidney transplant 2015 Summary

- Comparing to the past, 70.4% antibody induction therapy was significantly increased.
- Immunosuppressive medication used on discharge date, 82.7% of tacrolimus was used by calcineurin inhibitor group. 52.8% of mycophenolate mofetil was used by antiproliferative and 40.5% of mycophenolate sodium.
- There are 55% of delayed graft function in recipients who received kidney transplant from deceased donors.
- Infection was the major cause of death.
- The major cause of graft loss was IF/TA and rejection.
- The tendency of patient's survival rate and graft survival rate is increasing compare to the past, especially from living donors.

Information of Kidney Transplantation in patients under 18 years old

Kidney Transplantation in patients under 18 years old

Number of kidney transplant recipients under 18 years old in 2015

From January 1 to December 31, 2015, there were 32 patients of kidney transplant recipients under 18 years old,10 recipients from living donors and 22 recipients from deceased donors, separated by hospitals as shown in table 3.1.

Table 3.1 Number of kidney transplant recipients under 18 years old in 2015, separated by hospital.

Hospital	Kidney transplant recipients of living donor	Kidney transplant recipients of deceased donor	Total
Srinagarind Khonkhen	0	8	8
Ramathibodhi	1	5	6
Siriraj	3	2	5
Phramongkutklao	0	5	5
Chiang Mai	3	1	4
Phraram 9	1	1	2
Chulalongkorn	1	0	1
Udonthani	1	0	1
Total	10	22	32

The comparison between 2014 and 2015, the kidney transplantation for children recipients have increased by 52% which was 2.3 times (picture 3.1).

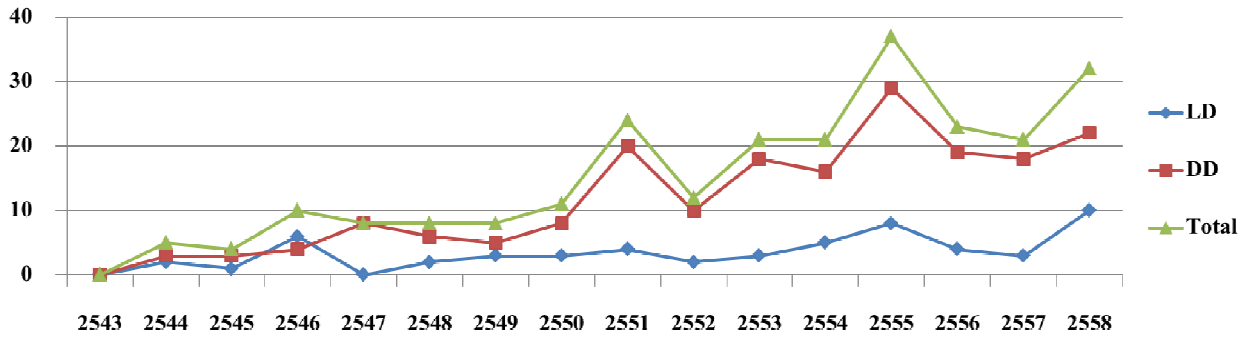


Table 3.1 Numberof the kidney transplantation for children recipients each year since 2000, separated by transplantation types.

Information of kidney transplant recipients and donors under 18 years old in 2015

In 2015, from 32 of kidney transplant recipients under 18 years old, there were 10 recipients from living donors which 70% of recipients were male. The information provided for living donors 70% were female. The average age of donor equal to 37.4 ± 8.7 years old. The average age of recipients who received the first kidney transplant equal to 14.3 ± 2.8 years old and 50% received hemodialysis before transplantation (Table 3.2).

Table 3.2 Information of kidney transplant recipients under 18 years old received from living donors.

	Recipient	Donor
Male gender, %	70	30
Age (mean ± SD), years (range)	14.3 ±2.8 (7 – 17)	37.4 ± 8.7 (24 – 51)
Number of transplant, % 1	100.0	
Mode of renal replacement therapy, %		
Preemptive	20	
Hemodialysis	50	
Peritoneal dialysis	30	

SD: standard deviation

The 22 recipients of deceased donors, as shown in table 3.3, found that 50% were male, 82% were male deceased donors. The average age of donor equal to 31.0± 13.1 years old. The average age of recipients equal to 13.2 ± 3.9 years old. All recipients received first kidney transplantation and 81.8% of recipients who received hemodialysis before transplantation.

Table 3.3 Information of kidney transplant recipients under 18 years old received from deceased donors.

	Recipient	Donor
Male gender, %	50	82
Age (mean ± SD), years	13.2 ± 3.9	31.0 ± 13.1
(range)	(9 – 17)	(14 – 52)
Number of transplant, %		
1	100.0	
Mode of renal replacement therapy, %		
Hemodialysis	18.2	
Peritoneal dialysis	81.8	

SD: standard deviation

Immunosuppressive medication usage and kidney transplant recipients under 18 years old outcomes for year 2015

In 2015, 32 kidney transplant recipients have information of induction therapy and immunosuppressive medication on the discharge date, as shown in Table 3.4 and 3.5 respectively and indicated that 75% received induction therapy which is the most formula used on discharge date were tacrolimus, mycophenolate mofetil and prednisolone and 1 patient did not have information of the immunosuppressive medication formula.

Table 3.4 Kidney transplant recipients under 18 separated by induction therapy.

Induction therapy	N (%)
No induction	4 (12.5)
Basiliximab	24 (75.0)
Antithymocyte globulin	4 (12.5)
Total	**32 (100)**

Table 3.5 Information of Immunosuppressive regimen on discharge date.

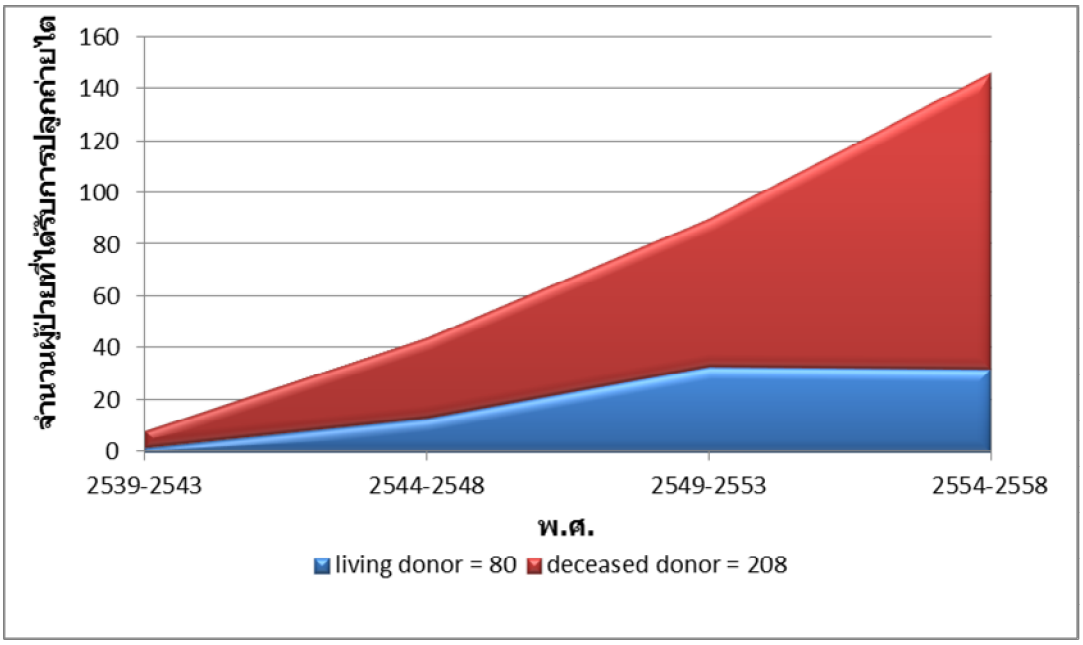
Immunosuppressive regimen	N (%)
prednisolone + tacrolimus + mycophenolate sodium	13 (42)
Prednisolone + tacrolimus + mycophenolate mofetil	17 (55)
Prednisolone + tacrolimus	1 (3)
Total	**31 (100)**

In 2015, the survival rate of living donor transplant and deceased donor transplant patients at 1 year after kidney transplantation were 100.0% and 100.0% respectively. The graft survival rate in the first year were 100.0% and 100.0% respectively.

Information of kidney transplant recipients under 18 years old during 1996-2015

Number of kidney transplant recipients under 18 years old by year of transplantation

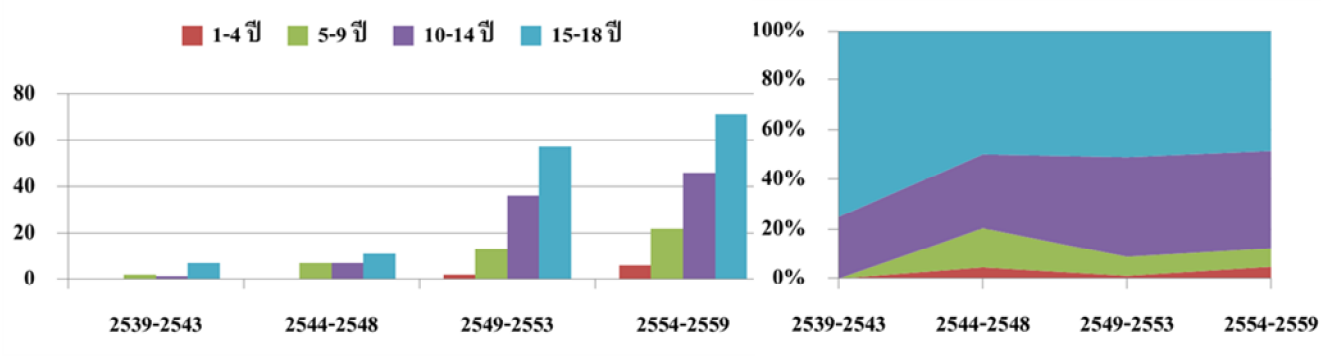
From kidney transplant database by Thai Transplantation Society, there were 288 recipients under 18 years old, which divided into 80 recipients from living donor and 208 recipients from deceased donor. (Picture 3.2).



Picture 3.2 Number of kidney transplant recipients under 18 years old per year since 1996 and kidney transplant types.

Analysis of kidney transplant information from 1996 – 2015

The report based on the data, there were 288 recipients under 18 years old, 55.9% were male. The average of age of transplant occurrence was 13.7 ± 4.1 years old. The number and proportion of recipients under 18 years old as shown in Picture 3.3. 99.7% of recipients were received first transplantation and 52.1% received hemodialysis before transplantation. On the donor side, 67% were male. The average age at the donation were 33.8 ± 12.5 years old, as shown in table 3.6.



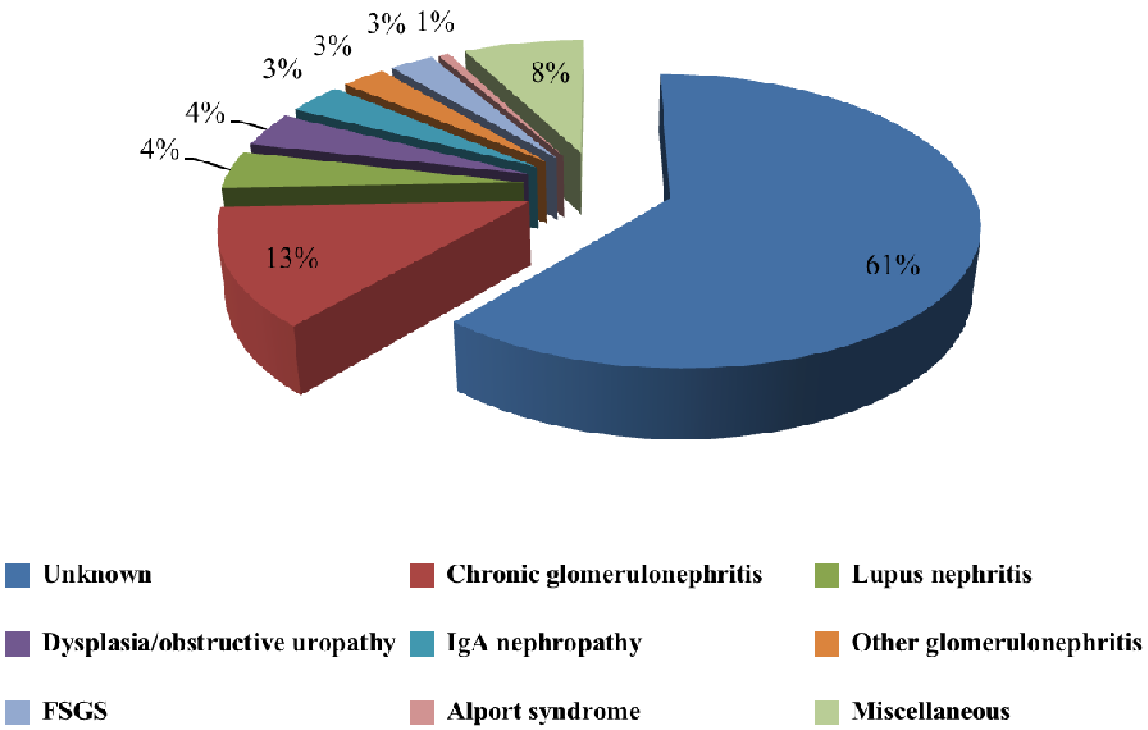
Picture 3.3 Number and proportion of recipients under 18 years old, separated by age.

Table 3.6 Information of transplant kidney recipients and donors under 18 years old.

	Recipient	Donor
Male gender, %	55.9	67.0
Age (mean ± SD), years (range)	13.7±4.1 (1 – 17)	33.8 ± 12.5 (3 – 58)
Number of transplant, %		
1	99.7	
Mode of renal replacement therapy, %		
Preemptive	3.5	
Hemodialysis	38.2	
Peritoneal dialysis	52.1	
Missing	5.9	

SD: standard deviation

The major causes of chronic kidney disease were 13% of chronic glomerulonephritis, 4% of lupus nephritis, 4% of obstructive uropathy, 3% of IgA nephropathy and FSGS and 61% of unidentified causes (Picture 3.4).



Picture 3.4 Causes of chronic kidney disease in children recipients.

The comparison between the living donors and deceased donors were shown in Table 3.7. With reference to that information, totaling 288 cases, there were 80 cases of living donor and 208 cases of deceased donor.

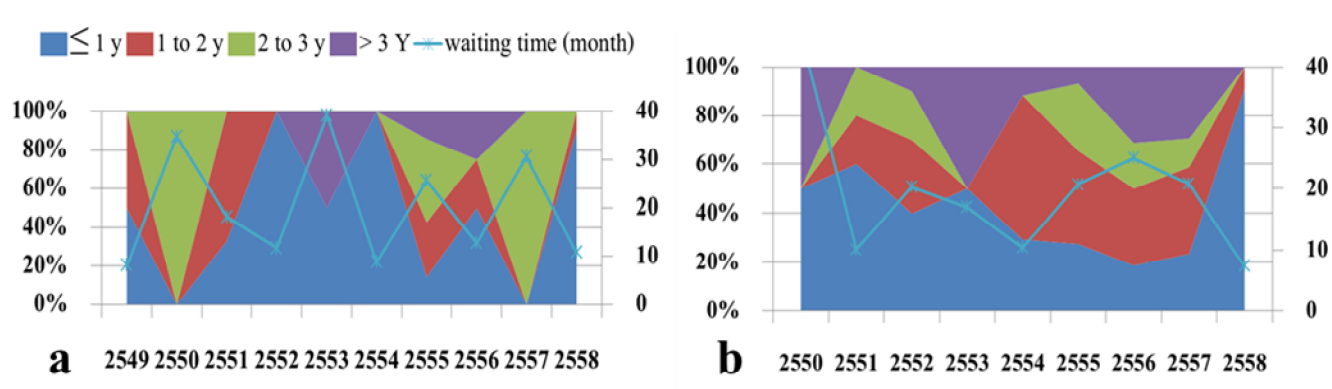
Table 3.7 Information of recipients from living donor and deceased donor.

	Kidney transplant of Living donor	Kidney transplant of Deceased donor
Number	80	208
Recipient age, year	14.2 ± 3.8	13.5 ± 4.2
Donor age, year	37.4 ±10.2	32.4 ± 13.0
Waiting time, month (IQR)	13.8 (3.7 – 80.9)	19.6 (2.2 – 127.2)
Median HLA mismatch (IQR)	3 (2 – 3)	3 (2 – 4)
Median PRA (P_5-P_{95}), %	0 (0 – 0)	0 (0 – 0)
Payment type, %		
Governmental	10	5.3
Social Security	0	1.0

National Health Security	33.8	58.7
Original Affiliation	1.3	0
State Enterprise	1.3	1.9
Self-affordability	7.5	2.9
อื่นๆ	46.3	30.3

HLA, human leukocyte antigen; IQR, interquartile range; PRA, panel reactive antibody; P_5, 5^{th} percentile; P_{95}, 95^{th} percentile

Since 2009, found that there is tendency of longer waiting time when consider from renal replacement therapy before kidney transplantation(picture 3.5) which the recipients from deceased donor has longer waiting time than living donor (table 3.7). In 2015, the renal replacement therapy duration of recipients from deceased donor and living donor were 10.8 and 7.4 months respectively.



Picture 3.5 The duration of renal replacement therapy before kidney transplantation, separated by donor types, recipients from living donor (a), recipients from deceased donors (b)

Information of Donor

From 80 living donors, 42.5% were male. 11 cases were unidentified relationship between donors and recipients as shown in Table 3.9.

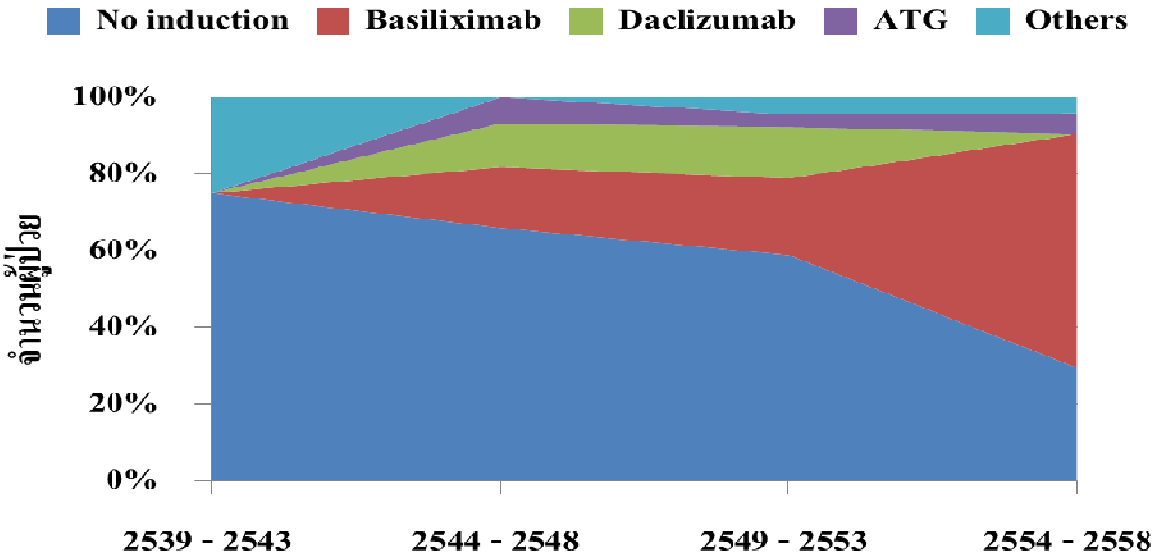
Table 3.9 Relationship between living donor and recipient.

Relationship between recipients	Number of living donor (%)		
	Male	Female	Total
Parents	12 (48)	37 (84)	49 (71)
Siblings	9 (36)	4 (9)	13 (19)
Others e.g. twins , cousins etc.	4 (16)	3 (7)	7 (10)
Total	25	44	69

From 208 deceased donors, 76.4% were male. The causes of brain death were car accident, cerebrovascular accident, and others; for example; falling accident, gun accident. The percentage of which were 61%, 16%, and 13%, respectively, while the remaining 10% could not identify the causes. 71.6% of deceased donors had hypotension symptom before transplant, 11.1% of them had been performed the cardiopulmonary resuscitation (CPR).

Immunosuppressive medication used and kidney transplant outcome.

Antibody induction therapy tendency has been used in young patient cases has significantly increased and non-antibody induction therapy has been decreased. (Picture 3.6)



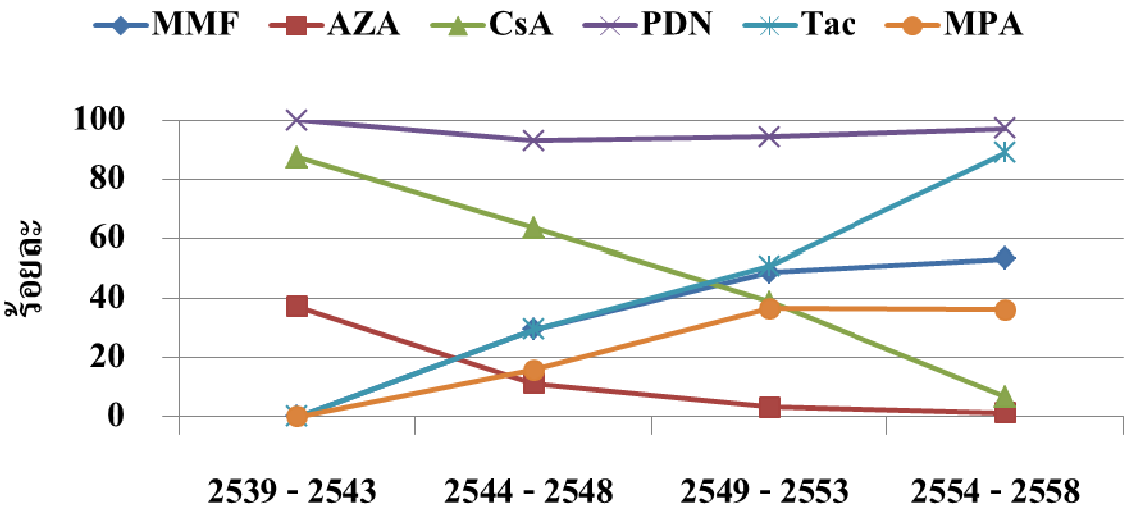
Picture 3.6 The proportion of recipients who received antibody induction therapy, by year of transplantation.

The Proportion of antibody induction therapy from 1996 – 2015, which separated by types of kidney transplant were shown in table 3.10. The data was from 80 recipients of living donors and 208 recipients of deceased donors.

Table 3.10 The proportion of antibody induction therapy, by types of kidney transplantation.

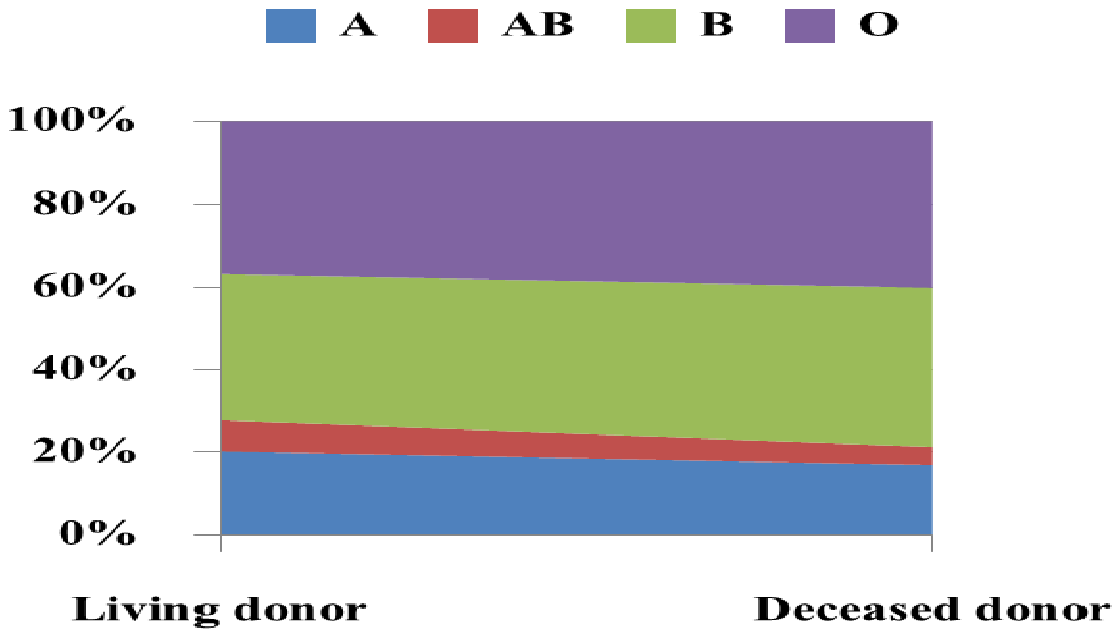
	Number of kidney transplant recipients(%)	
	Living donor (N=80)	Deceased donor (N=208)
No induction	38 (47.5)	93 (44.7)
OKT3	0 (0)	2 (1.0)
ATG	7 (8.8)	7 (3.4)
IL-2R antagonist	30 (37.5)	101 (48.6)
Others	5 (6.2)	5 (2.4)

Proportion and tendency of immunosuppressive medication use on discharge date was shown in picture 3.7. The patients under 18 received prednisolone, tacrolimus, mycophenolate, mofetil, mycophenolate sodium has significantly increased.



Picture 3.7 The proportion of immunosuppressive treatment on discharge date, separated by years.

For blood types of recipients from living donors, type O, B, A and AB which represented 36.7%, 35.4%, 20.3% and 7.6% respectively. On the other hand, blood types of recipients from deceased donors, the percentage were 40.1%, 38.7%, 16.9% and 4.3% respectively (Picture 3.8).



Picture 3.8 The proportion of kidney transplant recipients, separated by blood types.

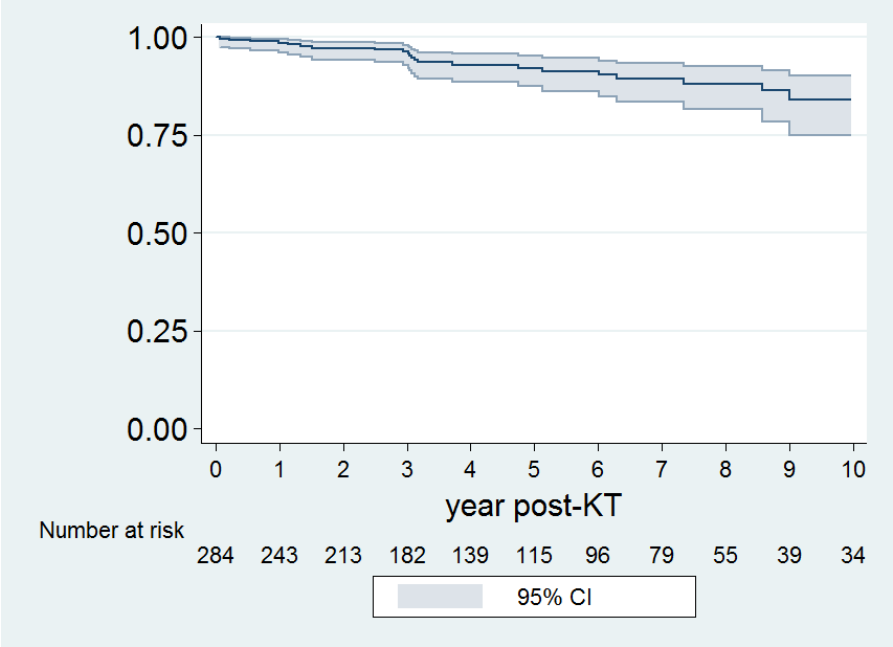
The table 3.11 was shown the comparison between proportion of delayed graft function after transplantation and serum creatinine level on discharge date of the recipients from living donors and deceased donors.

Table 3.11 The proportion of delayed graft function and serum creatinine level on discharge date of the recipients, separated by transplant types.

	Kidney transplant of Living donor	Kidney transplant of Deceased donor
Delayed graft function, %	7.5	20.2
Serum creatinine at discharge, mg/dL	1.28 ± 1.39	1.38 ± 1.14

Patient survival rate

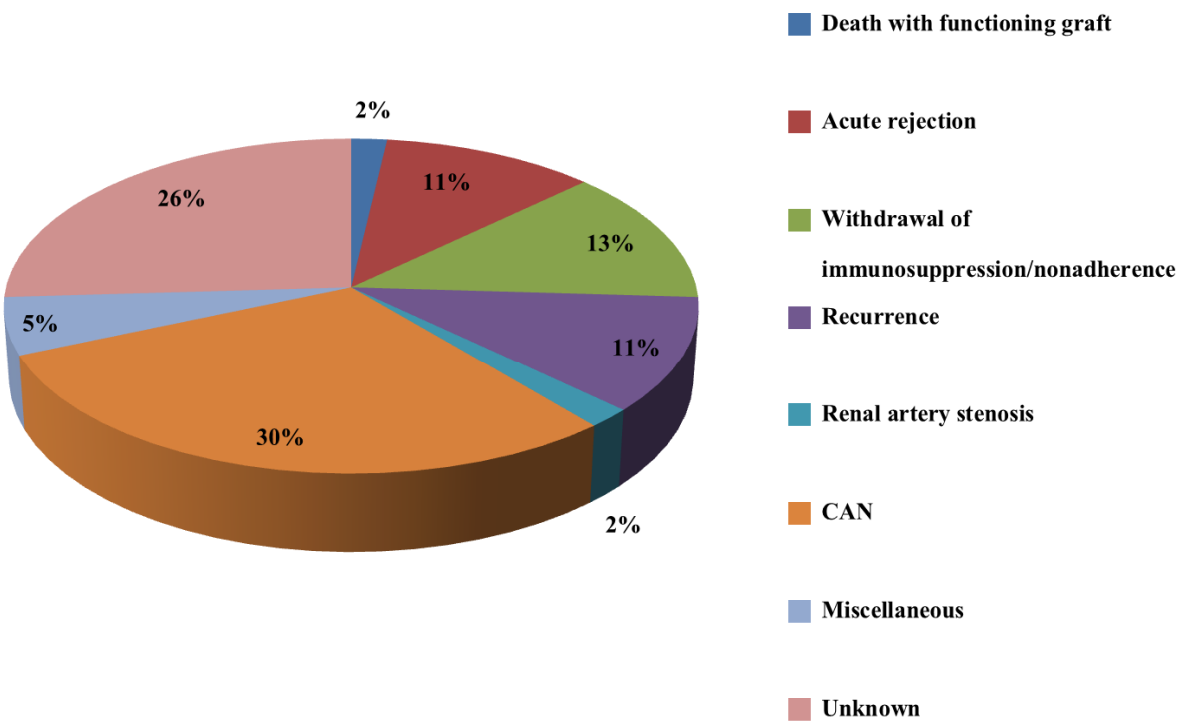
In the past 20 years, the survival rate after kidney transplant has significantly increased. During 1996 – 2015, 22 patients died after kidney transplantation which was 7.7%. The causes of death were 7 cases of septicemia which divided into 1 case of pulmonary infection (virus) and 1 case of pulmonary infection (fungus), 2 cases of heart failure, 3 others cases and 8 unidentified caused cases. The patient survival rate at the 1,5 and 10 years were 98.5% ,92.1% and 85.0% respectively (Picture 3.9).



Picture 3.9 Patient survival rate of children kidney transplant recipients.

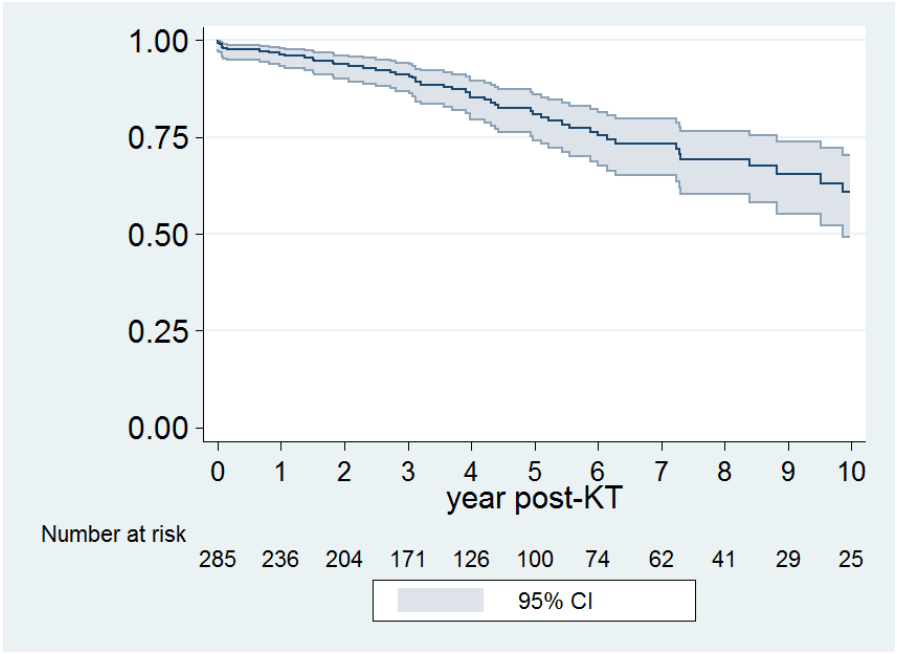
Graft survival

During 1996 – 2015, there were 53 cases which lost kidneys, the causes were chronic renal allograft dysfunction, recurrent of primary disease, acute rejection, withdrawal immunosuppression nonadherance, renal artery stenosis and others which represented 16, 7, 6, 6, 1, 3 cases respectively and 14 unidentified caused cases (Picture 3.10).



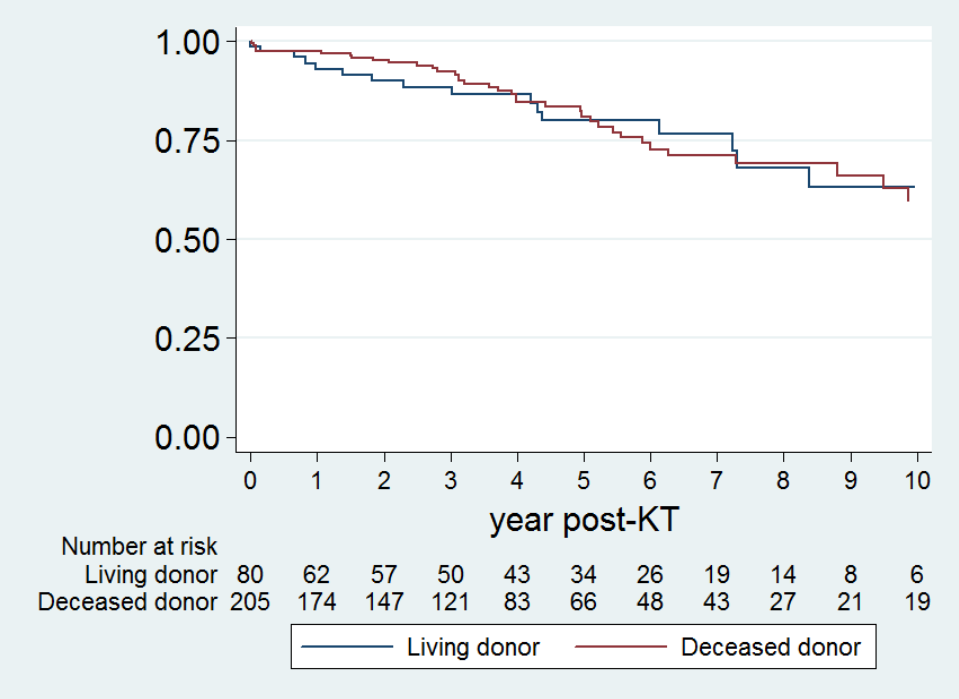
Picture 3.10 Causes of children kidney transplant recipients who lost kidneys.

The graft survival rate at the 1,5 and 10 years were 96.2% ,81.9% and 64.4% respectively (Picture 3.11).



Picture 3.11 The graft survival rate of children kidney transplant recipients.

The comparison between the graft survival rate from living donors and deceased donors were not significantly different statistically (picture 3.12).



Picture 3.12 The graft survival rate of children kidney transplant recipients from living donor compare to deceased donor.

Index

	Everolimus	
G		
	Graft survival	
H		
	Head injury	
	Heart transplantation	
	Heart-Lung transplantation	
	Hemodialysis	
	HLA – A mismatch	
	HLA – B	
	HLA - DR mismatch	
	HLA mismatch	
	Human leukocyte antigen	
	Hypotension	
I		
	Idiopathic pulmonary fibrosis	
	IgA nephropathy	
	IL-2R antagonist	
	Immunosuppressive regimen	
	Induction therapy	
	Interleukin-2 receptor antagonist (IL-2RA)	
L		
	Living donor	
	Lung transplantation	
	Lupus nephritis	
M		
	Male gender	
	Median HLA mismatch (IQR)	

Median PRA Mode of renal replacement therapy Month (IQR) Mycophenolate mofetil Mycophenolate sodium	
N Number of transplant	
O Obstructive uropathy OKT3 Other infections	
P Panel reactive antibody (PRA) Parents Patient survival Payment type Peritoneal dialysis Postchemotherapy myocarditis PRA Prednisolone Preemptive Pulmonary infection (bacteria) Pulmonary infection (fungus) Pulmonary infection (virus) Pulmonary tuberculosis	
R Recipient Recipient age Recurrent of primary disease	

Rejection Renal artery stenosis Retransplantation	
S Septicemia Serum creatinine Serum creatinine at discharge, mg/dl Siblings Single Lung transplantation Sirolimus Stroke	
T Tacrolimus	
U Underlying disease	
V Ventricular assist device	
W Waiting time Withdrawal immunosuppression/ nonadherance	

2015 Annual report of kidney transplant

Third printed October 2015

Amount 500 copies

Printed by:

Thai Transplantation Society

Office: ChalermPraBaramee 50 years Bldg.

4th floor, No. 2, SoiSoonvijai, New Petchburi Road,

Bangkapi, Huaykwang, Bangkok 10310, Thailand.

Tel. 0-2716-6181, 0-2716-6184, 0-2716-6661 ext. 4001

Fax. 0-2716-6183

E-mail: Webmaster@transplantthai.org

Website: www.transplantthai.org

Designed and Printed at:

Bangkok Wetchasan Printing House

3/3 Soi Sukhumwit 49, Klongtonnua, Watthana

Bangkkok 10110

Tel. 02-258-7954

Fax. 02-258-7954