

Gender Effect on Transplantation Access and Outcomes

Mona Alrukhaimi

B.Sc,MBBCh,MRCP(UK),FRCP,FRCPE

Professor of Medicine

Consultant Physician & Nephrologist

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At a glance

120,094

people need a lifesaving organ transplant
(total waiting list candidates). Of those,
77,316 people are active waiting list
candidates. Totals as of today 4:02am EDT

16,445

transplants performed this year
Total Transplants January - June 2016 as
of 07/15/2016

7,764

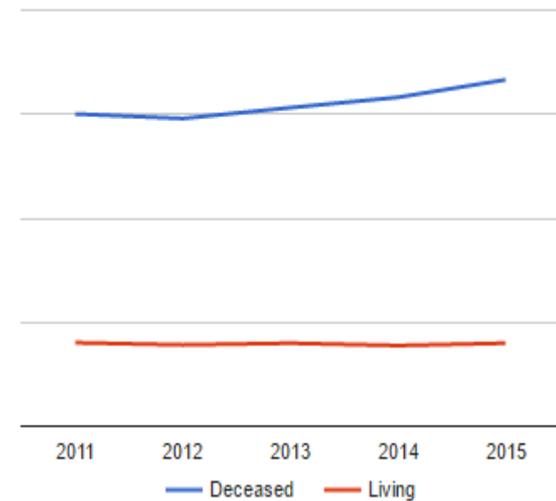
donors
Total Donors January - June 2016 as of
07/15/2016

Transplants By Donor Type - All Organs

January 1, 2011 - December 31, 2015

Based on OPTN data as of July 15, 2016

Year	Deceased Donor Transplants	Living Donor Transplants
2011	22,518	6,021
2012	22,187	5,866
2013	22,967	5,987
2014	23,715	5,818
2015	24,980	5,989
Total	116,367	29,681

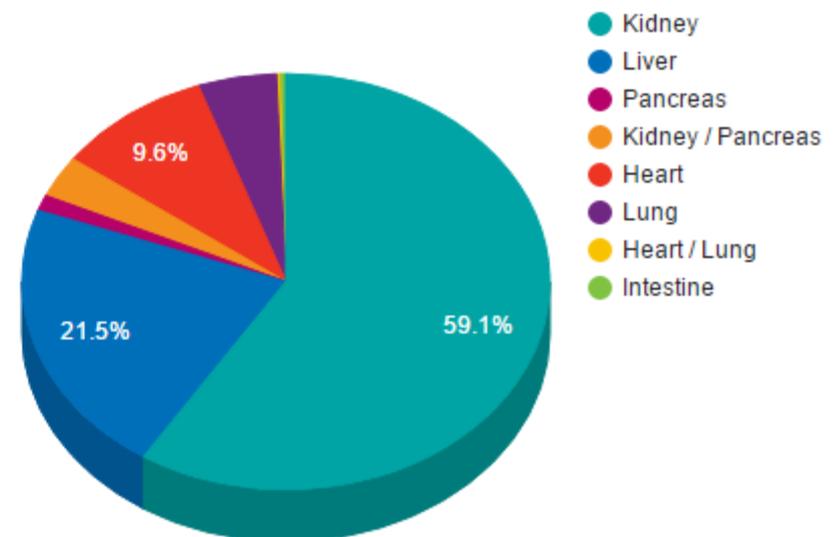


National data

Transplants By Organ Type January 1, 1988 - June 30, 2016

Based on OPTN data as of July 15, 2016

Organ	Transplants
Kidney	395,510
Liver	143,856
Pancreas	8,235
Kidney / Pancreas	21,727
Heart	64,085
Lung	32,224
Heart / Lung	1,186
Intestine	2,733
Total	669,556



Outline

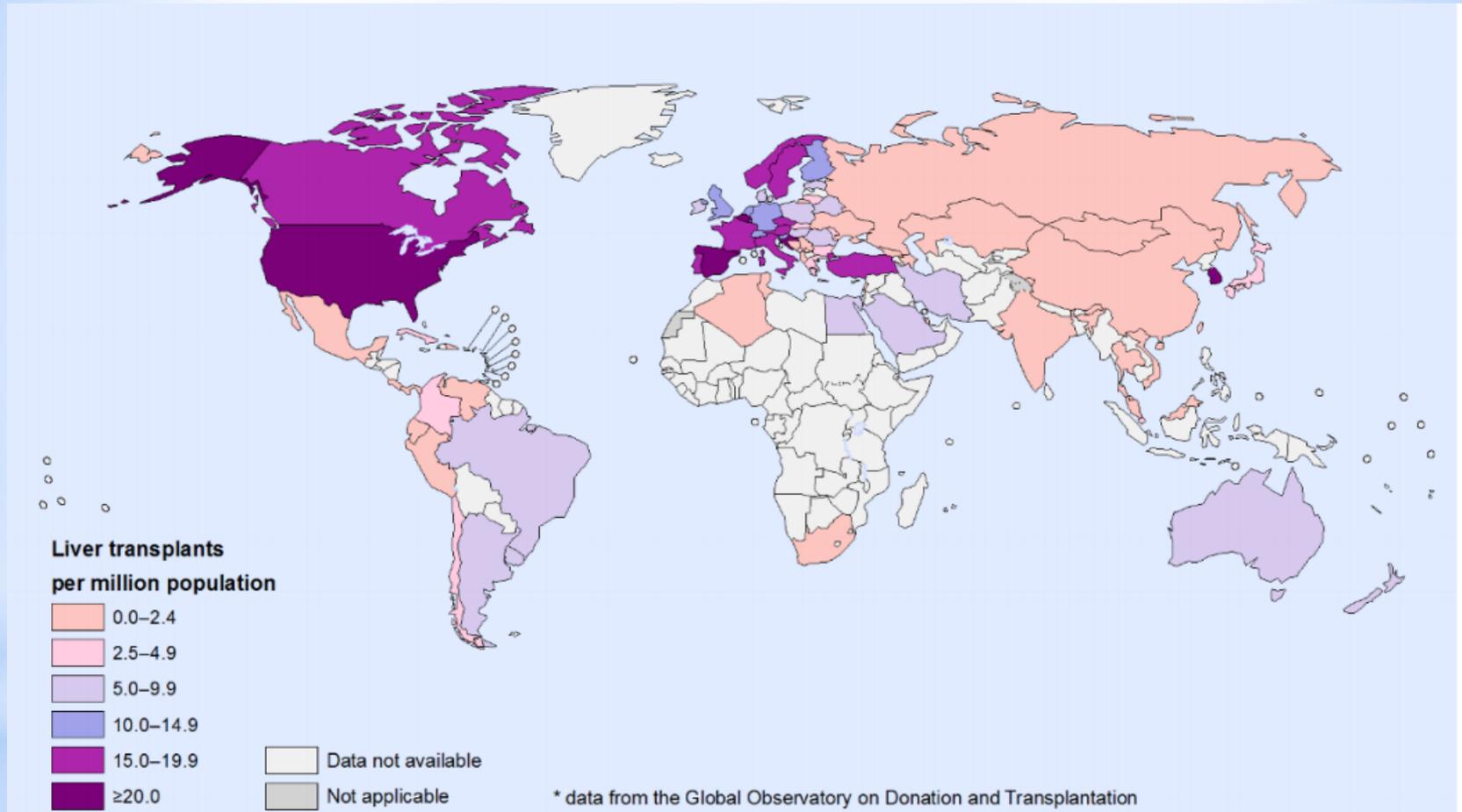
Gender-based disparities in access to and outcomes of

- *Liver transplant
- *Kidney transplant

Gender-based disparities in access to and outcomes of liver transplantation

- *Some data registry
- *Disparities in liver disease prevalence.
- *Access to liver transplant centers and transplant waiting list.
- *Receipt of liver transplantation once listed.
- *Disparities in post-liver transplantation outcomes.

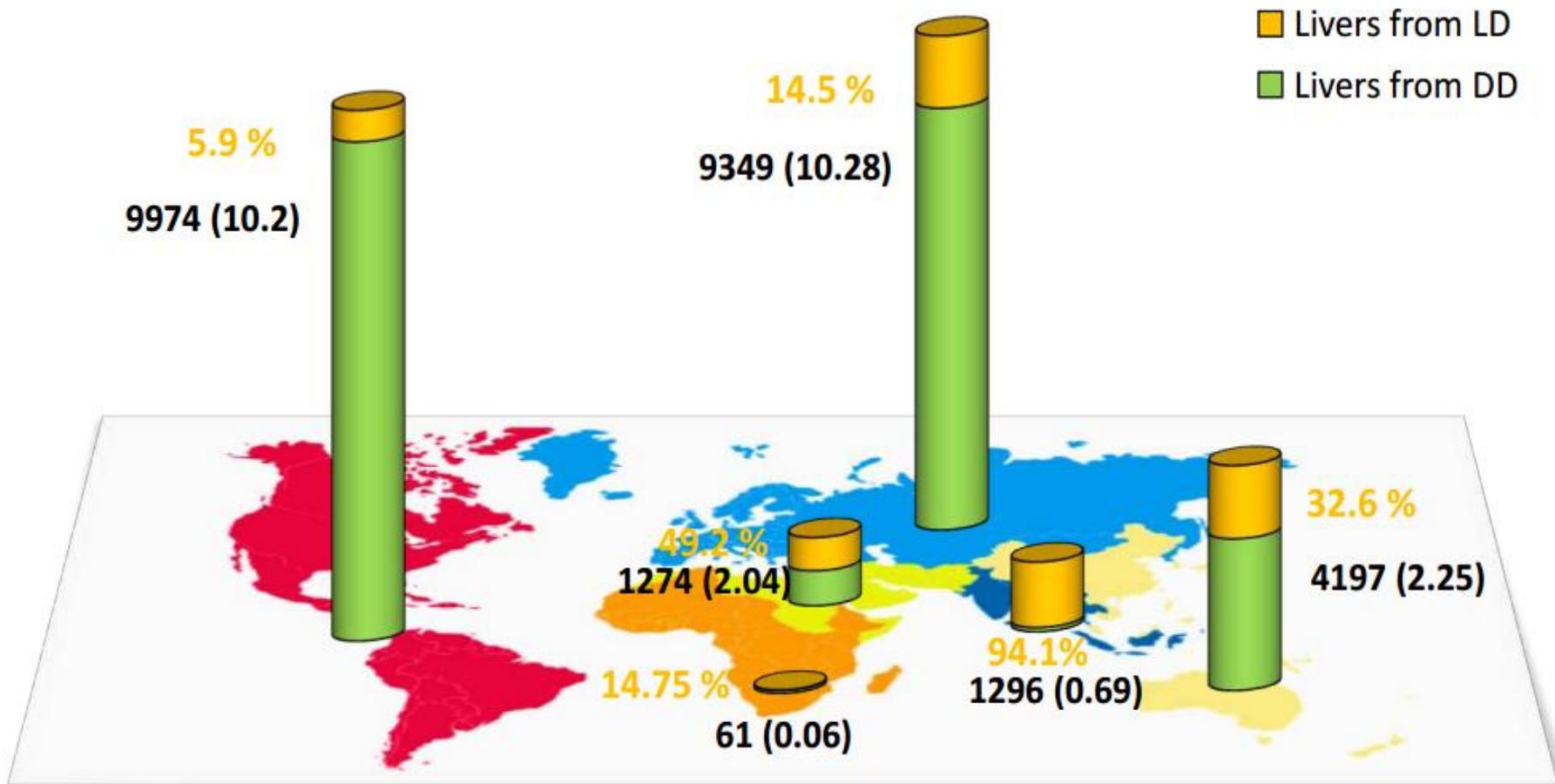
Global Liver Transplantation Activity by Country , pmp, 2014



Source: WHO, Global Observatory on Donation and Transplantation

Liver Transplantations per Region

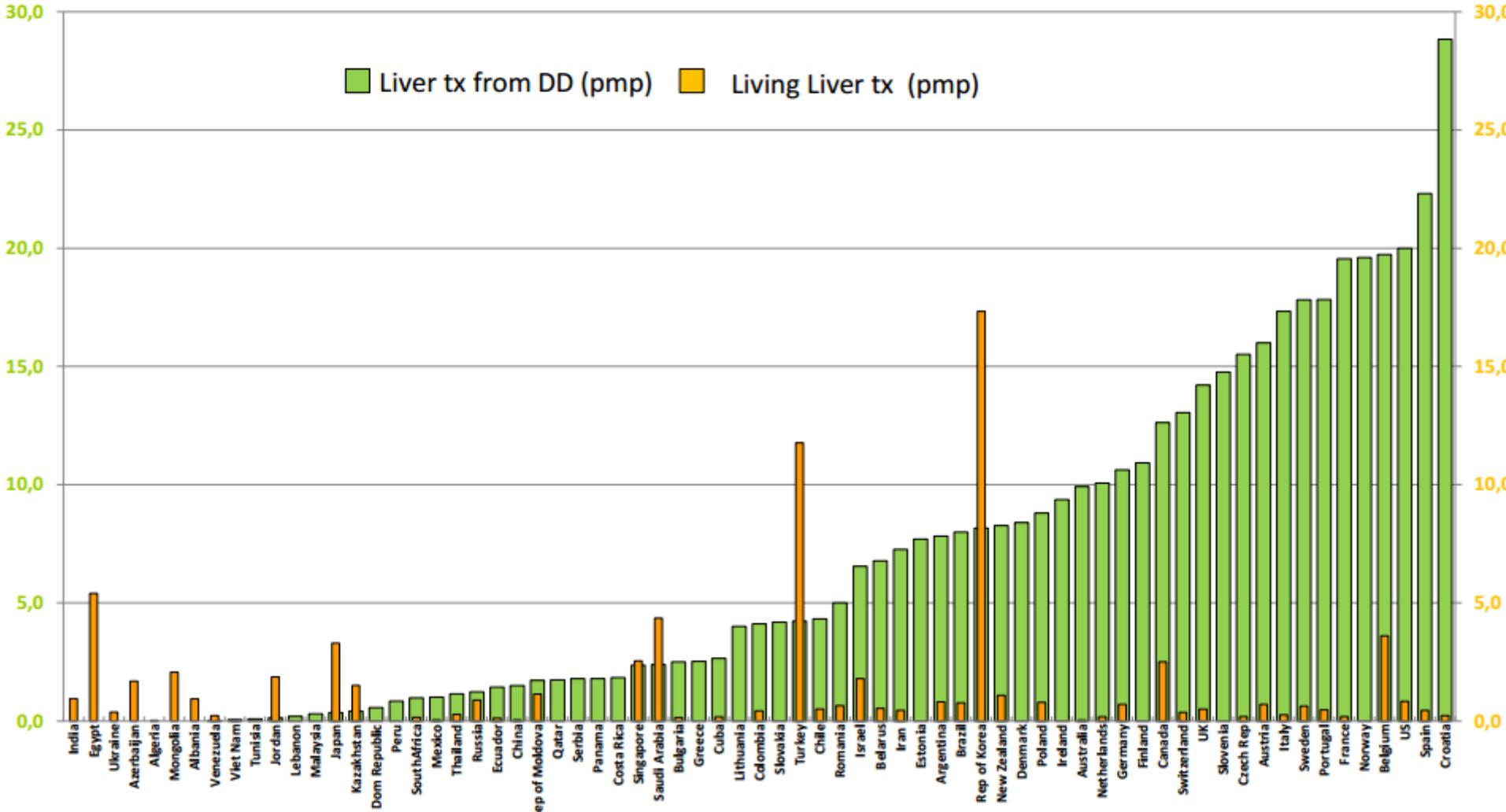
Livers from Live Donors (%); Absolute number; Liver Tx (pmp)





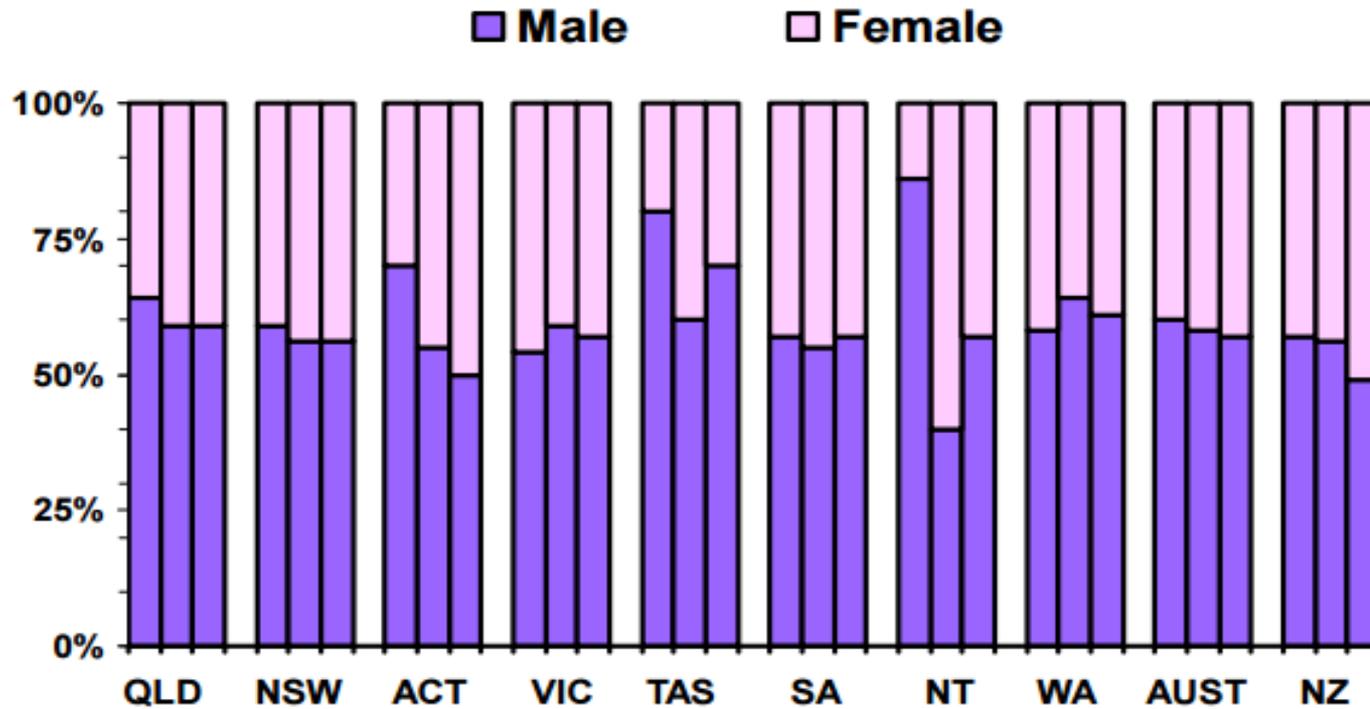
GODT 2014

Liver Transplantations from deceased and living donors Per million population (pmp)



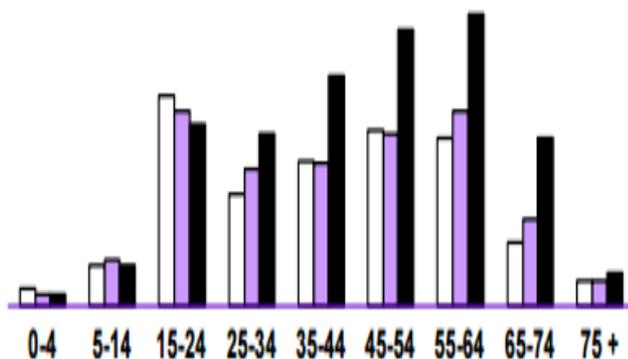
Donor Gender – States, Australia, New Zealand

1997 - 2001 2002 - 2006 2007 - 2011



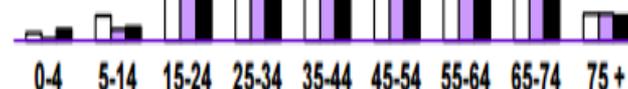
Australia and New Zealand Organ Donation
Registry, 2012 report

Age and Gender Distribution of Donors



2003-2005	6	15	77	41	53	64	61	23	9
2006-2008	4	17	71	50	52	63	71	32	9
2009-2011	4	15	66	63	84	101	106	61	12

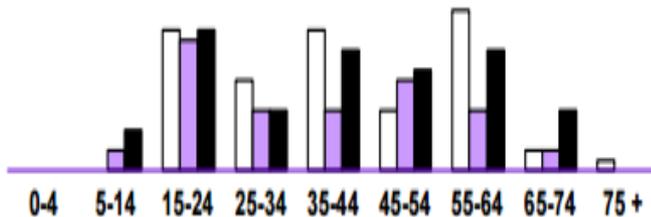
Age and Gender Distribution of Donors



2003-2005	3	9	24	28	34	82	41	21	10
2006-2008	1	4	37	38	47	57	67	29	10
2009-2011	4	5	29	42	53	89	98	52	9

Age and Gender Distribution of Donors

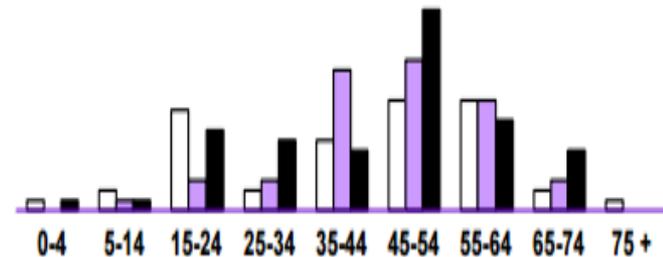
2003-2005 (62) **Males** **New Zealand**
 2006-2008 (44)
 2009-2011 (64)



	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 +
2003-2005	0	0	14	9	14	6	16	2	1
2006-2008	0	2	13	6	6	9	6	2	0
2009-2011	0	4	14	6	12	10	12	6	0

Age and Gender Distribution of Donors

2003-2005 (47) **Females** **New Zealand**
 2006-2008 (50)
 2009-2011 (58)



	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 +
2003-2005	1	2	10	2	7	11	11	2	1
2006-2008	0	1	3	3	14	15	11	3	0
2009-2011	1	1	8	7	6	20	9	6	0

Living Donor liver Transplantation

Living Donor Transplantation

N = 82



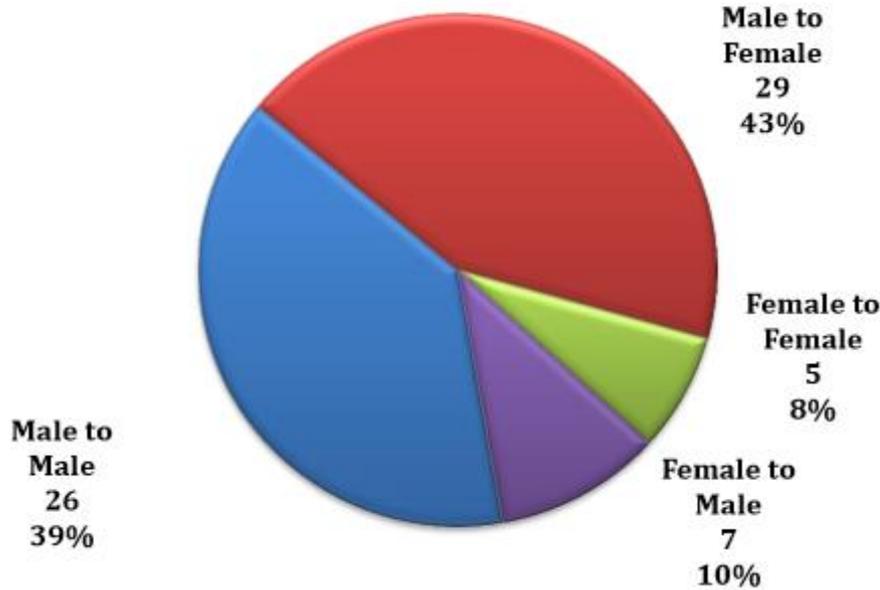
	Recipient Age Group		
	Child [n=67]	Adult [n=15]	All [n=82]
Donor gender	-	-	-
<i>Male</i>	40	9	49
<i>Female</i>	27	6	33
Donor age	-	-	-
<i>Median</i>	35y	30.4y	33.4y
<i>Range</i>	20.1 - 54.5y	22.8 - 54.3y	20.1 - 54.5y
Donor relationship	-	-	-
<i>Mother</i>	15	-	15
<i>Father</i>	32	-	32
<i>Son</i>	-	4	4
<i>Daughter</i>	-	1	1
<i>Grandmother</i>	1	-	1
<i>Grandfather</i>	1	-	1
<i>Sister</i>	-	3	3
<i>Brother</i>	2	3	5
<i>Aunt</i>	6	-	6
<i>Uncle</i>	1	-	1
<i>Family friend</i>	6	1	7
<i>Cousin</i>	3	-	3
<i>Spouse</i>	-	1	1

ALL PATIENTS TRANSPLANTED

	Children [<16y]	Adults	Total
Patients	756	3488	4244
Age			
<i>Mean ± SD</i>	4.5 ± 4.5y	48.7 ± 11.6y	40.8 ± 20.0y
<i>Median</i>	2.4y	50.8y	47.9y
<i>Range</i>	24d -15.9y	16.0 - 73.1y	24d - 73.1y
Gender			
<i>Female</i>	399 (53%)	1210 (35%)	1609 (38%)
<i>Male</i>	357 (47%)	2278 (65%)	2635 (62%)
Surviving	607 (80%)	2451 (70%)	3058 (72%)

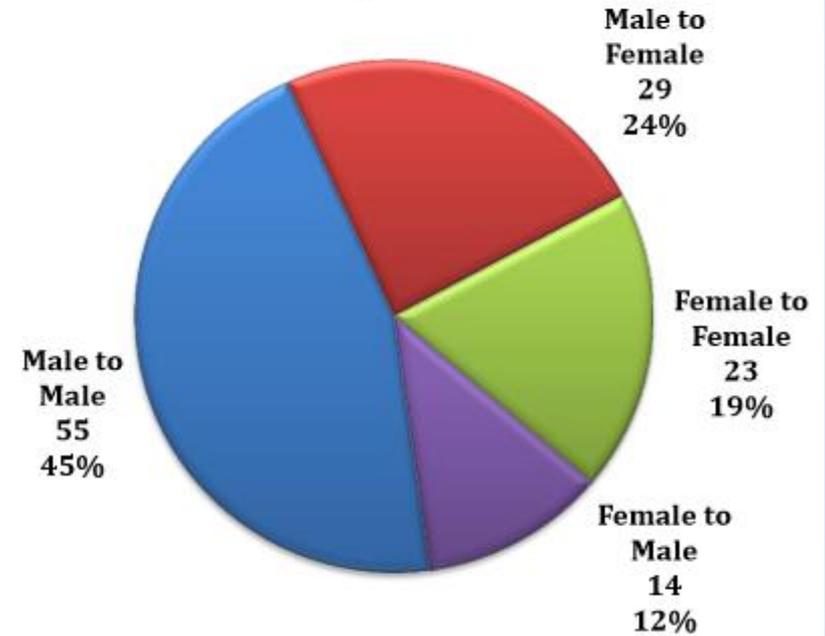
Gender Ratio amongst Transplanted Organs in KSA 2015

Deceased Liver Tx.



Total: 67

Living Liver Tx.



Total: 121

Male donor 82% Female donor 18%

male recipient 49.3%

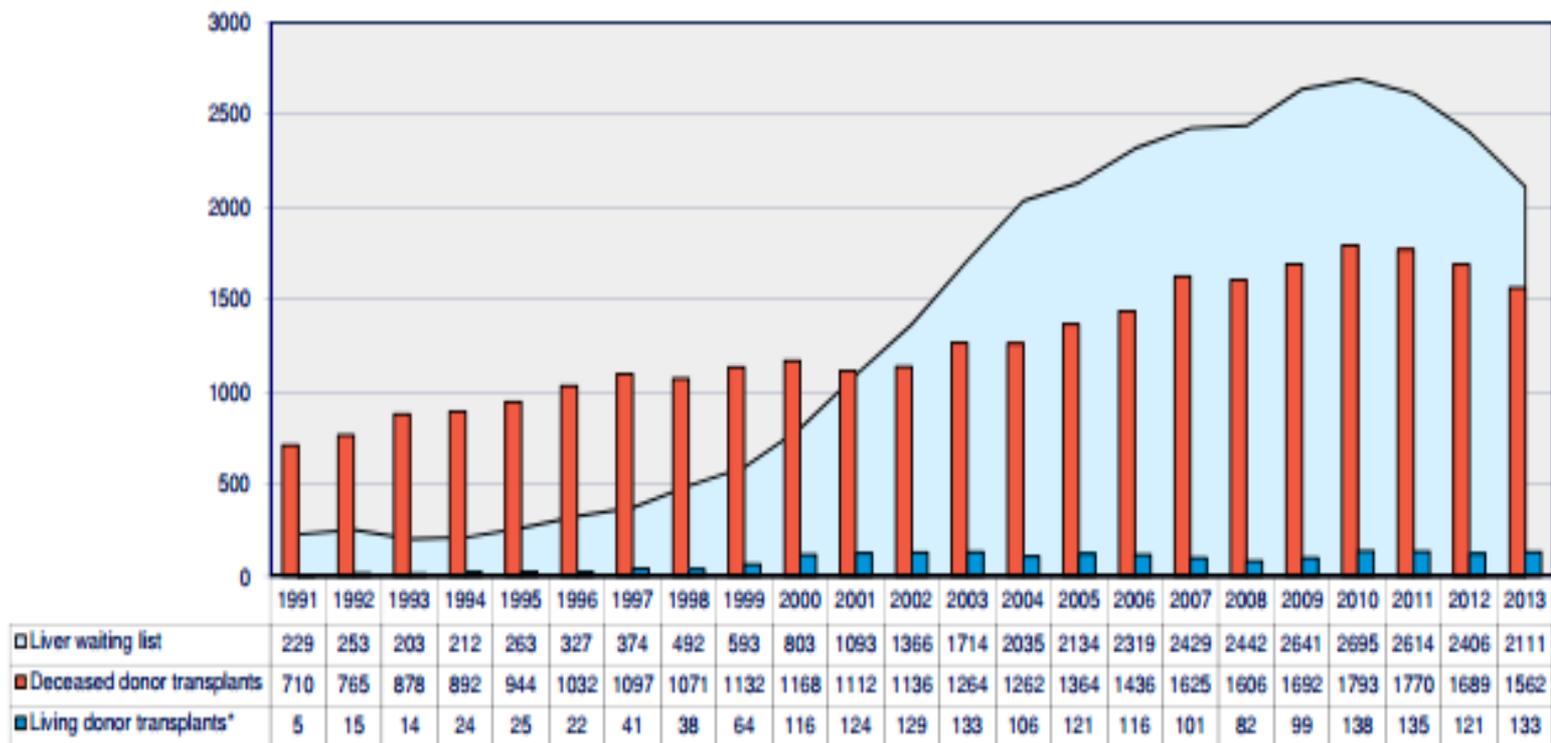
female recipient 50.7%

Male donor 69% Female donor 31%

male recipient 57%

female recipient 43%

Dynamics of the Eurotransplant liver waiting list and liver transplants between 1991 and 2013



Living donor liver transplants from 2009 to 2013

Liver-only	2009	2010	2011	2012	2013	2012/2013
Domino	3	6	16	5	3	-40.0 %
Related	83	114	107	104	117	12.5 %
Non-related	13	18	12	12	13	8.3 %
Total	99	138	135	121	133	9.9 %

Related	2009	2010	2011	2012	2013	2012/2013
Brother / sister	9	8	6	11	12	9.1 %
Father	29	30	40	26	35	34.6 %
Mother	25	48	42	36	46	27.8 %
Son / daughter	11	15	11	13	12	-7.7 %
Grandfather / -mother	4	1	5	1	5	400.0 %
Uncle / aunt	4	8	1	12	6	-50.0 %
Nephew / niece	1	3	2	2	1	-50.0 %
Cousin	0	1	0	3	0	-100.0 %
Total	83	114	107	104	117	12.5 %

Non-related	2009	2010	2011	2012	2013	2012/2013
Spouse / partner	8	12	7	7	7	0.0 %
Not blood related family	3	3	5	5	5	0.0 %
Friend	1	2	0	0	1	--
Not blood related: NOS*	1	1	0	0	0	0.0 %
Total	13	18	12	12	13	8.3 %

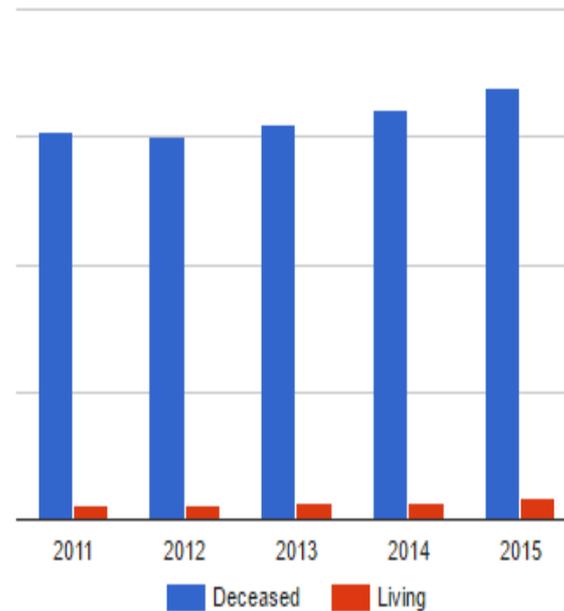
*NOS Not otherwise specified

Transplants By Donor Type - Liver

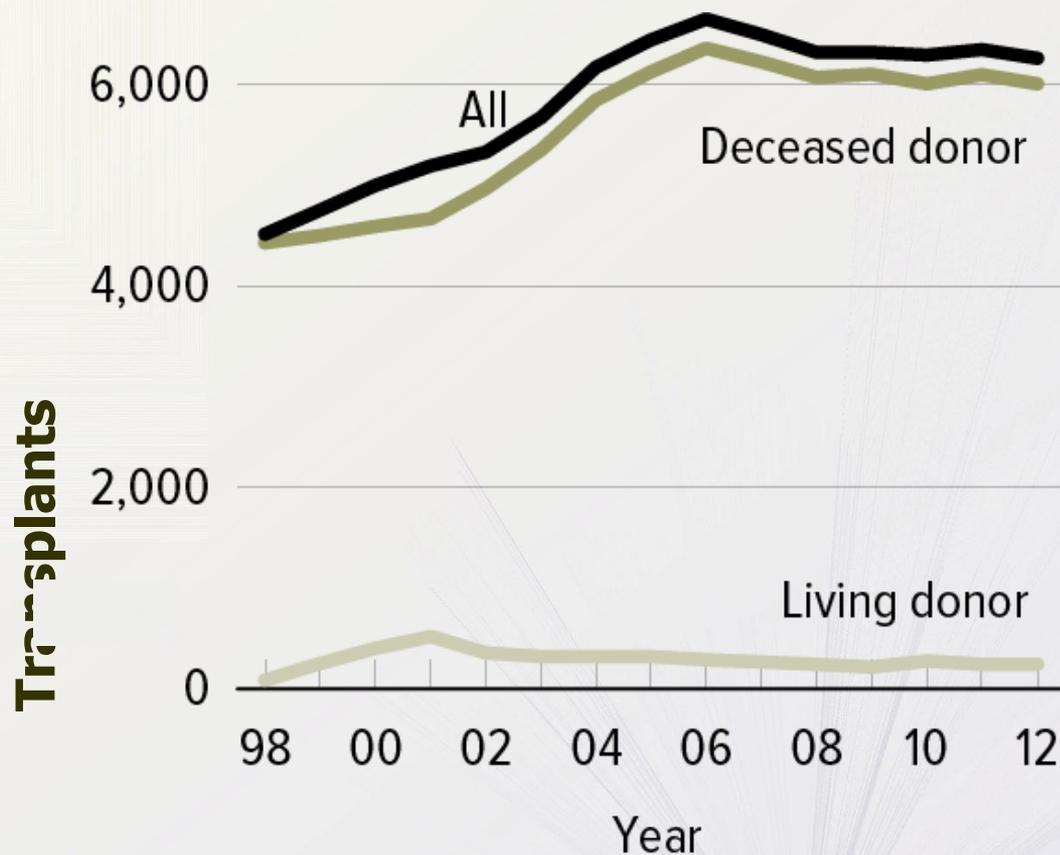
January 1, 2011 - December 31, 2015

Based on OPTN data as of July 15, 2016

Year	Deceased Donor Transplants	Living Donor Transplants
2011	6,095	247
2012	6,010	246
2013	6,203	252
2014	6,449	280
2015	6,768	359
Total	31,525	1,384



LI 4.1 Total liver transplants



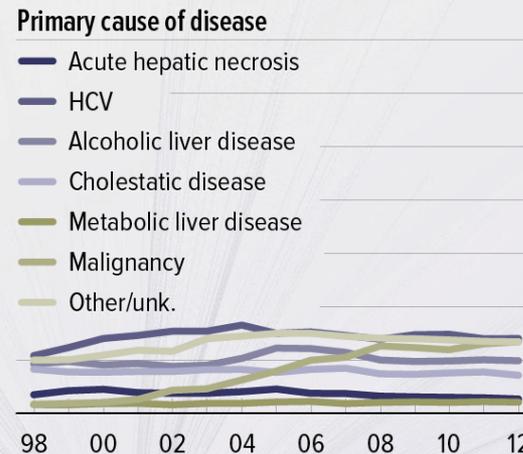
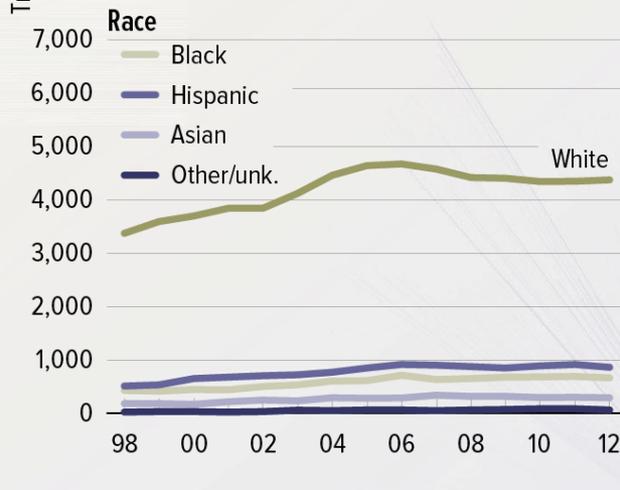
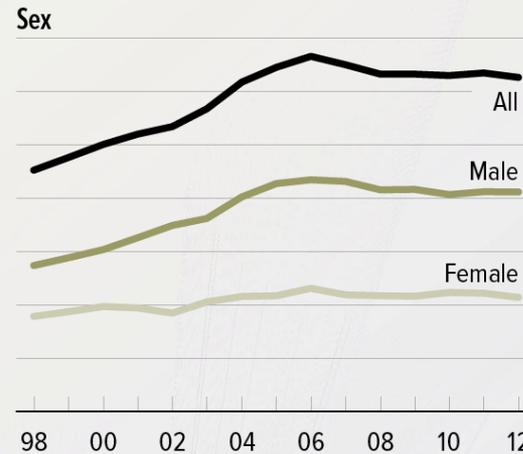
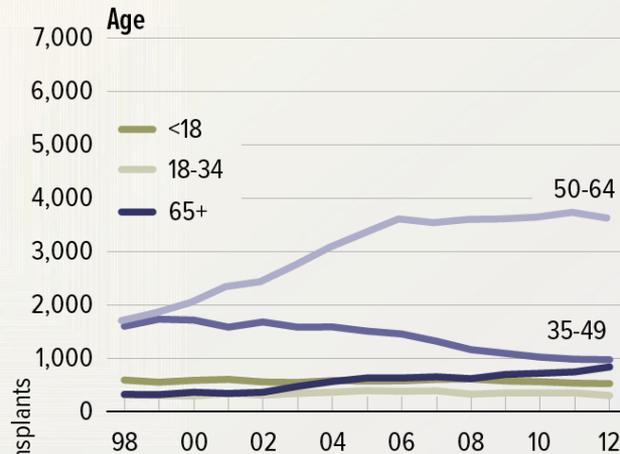
LI 1.3 Characteristics of adult patients on the liver transplant waiting list on December 31, 2002 & December 31, 2012

	Level	2002		2012	
		N	%	N	%
Age	18-34	724	4.7	611	4.0
	35-49	4,817	31.0	2,248	14.7
	50-64	8,414	54.2	9,748	63.7
	65+	1,577	10.2	2,701	17.6
Sex	Male	8,986	57.9	9,485	62.0
	Female	6,546	42.1	5,823	38.0
Race	White	11,533	74.3	10,754	70.3
	Black	1,012	6.5	1,081	7.1
	Hispanic	2,207	14.2	2,593	16.9
	Asian	678	4.4	745	4.9
	Other/unk.	102	0.7	135	0.9
Primary cause of disease	Acute hep. nec.	733	4.7	321	2.1
	HBV	572	3.7	427	2.8
	HCV	4,796	30.9	4,612	30.1
	Alcoholic liver dis.	3,519	22.7	3,657	23.9
	Cholestatic disease	1,784	11.5	1,307	8.5
	Malignancy	289	1.9	1,052	6.9
	Other/unk.	3,839	24.7	3,932	25.7
Tx history	Listed for first tx	14,557	93.7	14,903	97.4
	Listed for subseq. tx	975	6.3	405	2.6

LI 4.7 Characteristics of adult liver transplant recipients, 2002 & 2012

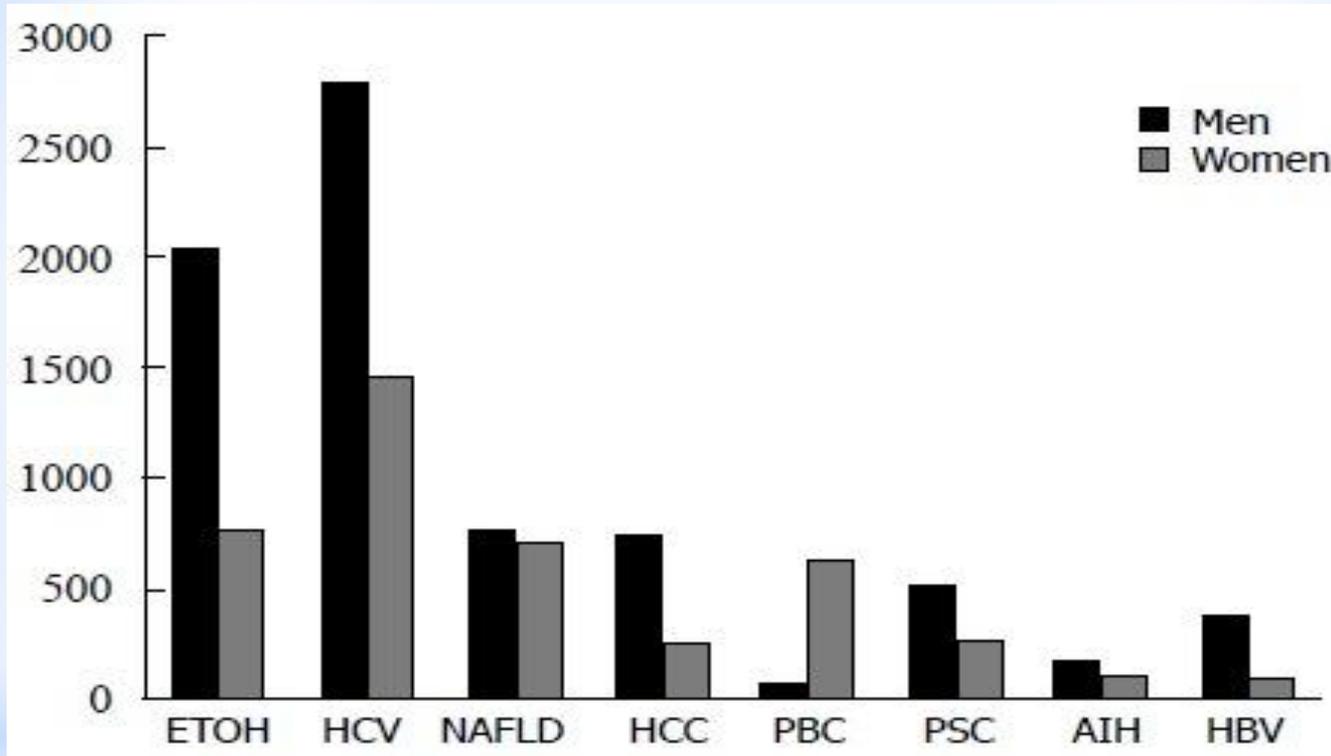
	Level	2002 N	%	2012 N	%
Age	18-34	306	6.4	303	5.3
	35-49	1,675	35.1	970	16.9
	50-64	2,433	50.9	3,623	63.2
	65+	363	7.6	835	14.6
Sex	Female	1,556	32.6	1,862	32.5
	Male	3,221	67.4	3,869	67.5
Race	White	3,536	74.0	4,088	71.3
	Black	400	8.4	576	10.1
	Hispanic	589	12.3	752	13.1
	Asian	225	4.7	260	4.5
	Other/unknown	27	0.6	55	1.0
Primary cause of disease	Acute hepatic necrosis	307	6.4	210	3.7
	HCV	1,531	32.0	1,402	24.5
	Alcoholic liver disease	883	18.5	986	17.2
	Cholestatic disease	535	11.2	458	8.0
	Metabolic liver disease	114	2.4	135	2.4
	Malignancy	369	7.7	1,281	22.4
	All others	1,038	21.7	1,259	22.0
Blood type	A	1,895	39.7	2,155	37.6
	B	610	12.8	796	13.9
	AB	262	5.5	277	4.8
	O	2,010	42.1	2,503	43.7
Time on waiting list	<30 days	1,308	27.4	1,723	30.1
	31-60 days	508	10.6	577	10.1
	61-90 days	334	7.0	394	6.9
	3-<6 months	694	14.5	899	15.7
	6-<12 months	786	16.5	906	15.8
	1-<2 years	680	14.2	706	12.3
	2-<3 years	265	5.5	213	3.7
	3+ years	195	4.1	313	5.5
	Missing/unknown	7	0.1	0	0.0

LI 4.2 Liver transplants



Disparities in liver disease prevalence

- * Etiologies & progression of liver disease differ by gender
- * Women are 10 times more likely to have primary biliary cirrhosis than men
- * Women are 4 times as likely to have autoimmune hepatitis.
- * Women are also more likely to present with alcohol and drug induced hepatotoxicity and acute liver failure as compared to men.
- * Men found to be significantly more likely to be chronically infected with hep C virus than women and male sex is considered as a risk factor for progression to cirrhosis by over 2.5 folds in pt with chronic hep C.
- * Younossi et al using data from NASH(CRN), reported that patients with biopsy proven NASH were more likely to be female than male while those using liver enzyme data or ultrasound to diagnose NAFLD report higher prevalence in men



Primary cause of liver disease by gender, adult LT wait list candidates (2014).
Based on Organ Procurement and Transplantation Network data as of July 1, 2014

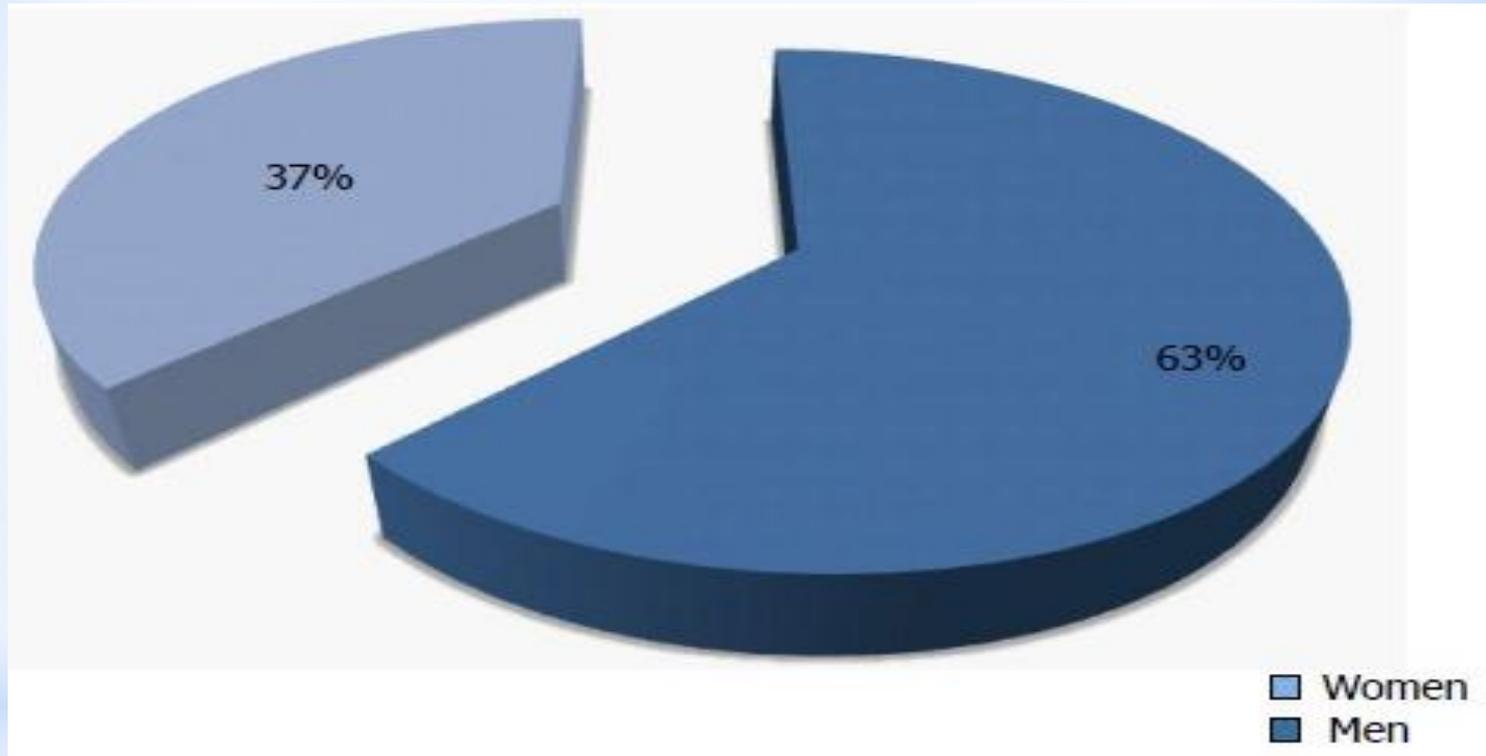
Cont...

- *The dominant mechanisms behind gender differences in the prevalence, natural history and outcomes of CLD remains incompletely understood. Possible explanation include :
 - *Lifestyle choices e.g the prevalence of alcohol abuse and alcohol dependence is 2-3 times higher in men vs women.
 - *Biological differences.e.g women experience shorter time intervals between the onset of alcohol use and alcohol related complications.

Access to liver transplant centers and transplant waiting list

- *information regarding LT referral patterns are limited.
- * In one study from Pennsylvania, Bryce and colleagues found that with the exception of acute liver failure, the probability of being evaluated and listed for liver transplant was consistently lower for women.

Access to liver transplant centers and transplant waiting list



Adult Liver Transplantation Waiting List Candidates (2014).
Based on Organ Procurement and Transplantation Network data as of November 28, 2014.

Cont...

- *Referral practice patterns are difficult to accurately assess in general and those of community physicians to liver transplant centers represent an even more troublesome and poorly studied area.
- * Given the probable influence of physician variability in preferences and attitudes towards patient referral, screening and eligibility for LT, **comprehensive evaluation of referral patterns are urgently needed to inform policies aimed at improving access to transplant center for women.**

LIVER TRANSPLANT RATES ONCE LISTED

- * Prior to 2002, patients with end-stage liver disease awaiting DDLT were stratified based on subjective assessments of disease severity as well as their hospital status and accumulated time on the waiting list.
- * Following the adoption of the (MELD) score in 2002, many improvements in liver organ allocation has been achieved. However, the proportion of female liver transplant recipients has continued to decline. Data suggest that this proportion of women is also less likely to undergo liver transplantation once listed and have a greater probability of dying or becoming too sick to undergo liver transplantation compared to men.
- * it was speculated that **the use of creatinine as a marker of renal function**, **donor recipient size mismatch** and **geographic disparities** could all contribute to women receiving less liver transplants than men.

Disparities in post-liver transplantation outcomes

- * Many factors contribute to outcomes after LT.
- * Female gender has been associated with advanced fibrosis and graft loss after LT for chronic HCV and this was increased with older donor age.
- * One-year survival rates are similar between men and women with deceased donor liver transplantation, whereas they are increased compared to men in living donor liver transplantation.
- * Long-term, women are reported to have improved survival than men . In a small 20-year follow up study of LT recipients, women had improved survival over men.
- * The mechanisms behind these different survival rates by gender remain unclear.

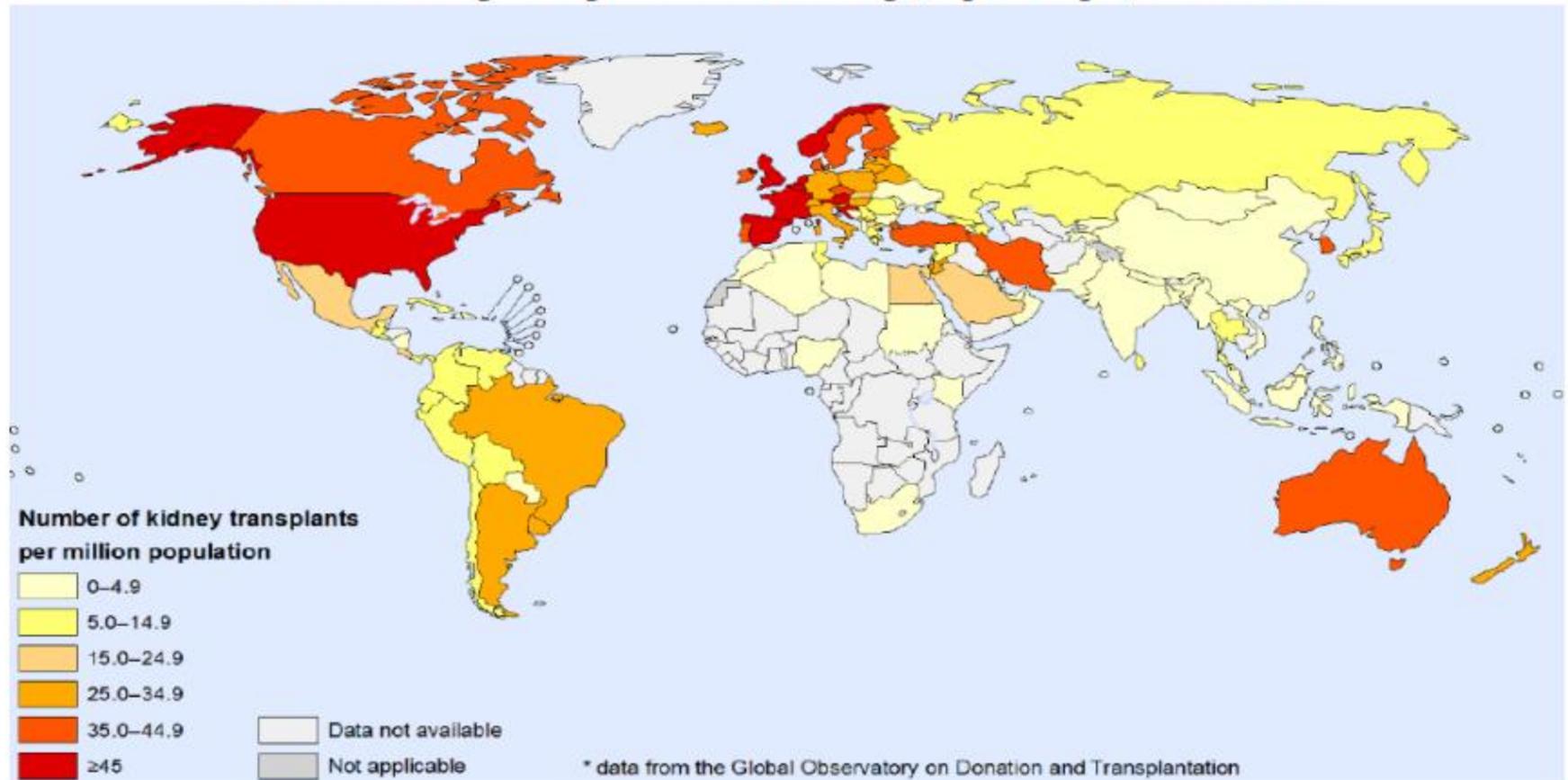
Cont....

- * The rates of re-transplantation continue to decrease.
- * Women, however, continue to have slightly higher rates of re-transplantation compared to men as shown in one analysis of the 2009 Scientific Registry of Transplant Recipients. This speculated to be associated with the number of female candidates whose primary liver transplant was for diseases known to recur such as primary biliary cirrhosis, autoimmune hepatitis and NASH post-LT.
- * Female liver transplant recipients had 24% greater adjusted odds of receiving a low-quality liver allograft compared to their male counterparts which may affect both survival and re-transplantation rates.
- * The etiology of the difference in quality of allografts for women recipients is unclear but felt possibly to relate to selection of shorter and older donors more often for women than men

Kidney Transplant

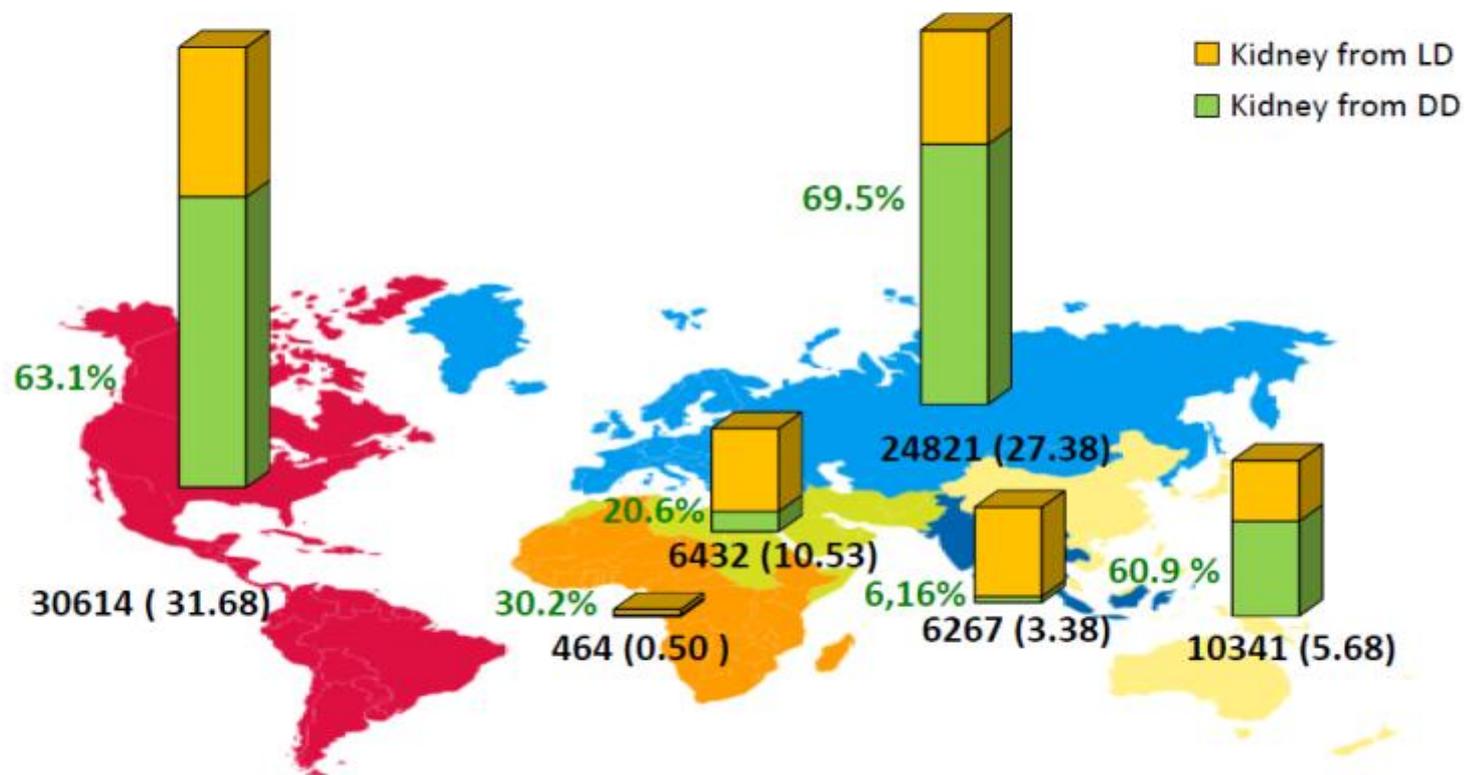
- *Some data registry
- *Disparities in incidence/care of ESRD.
- *Preferences and Perspectives of Nephrologists on Patients' Access to Kidney Transplantation.
- *Disparities in Kidney Transplant Outcomes.

Global Kidney Transplantation Activity by country, pmp, 2013



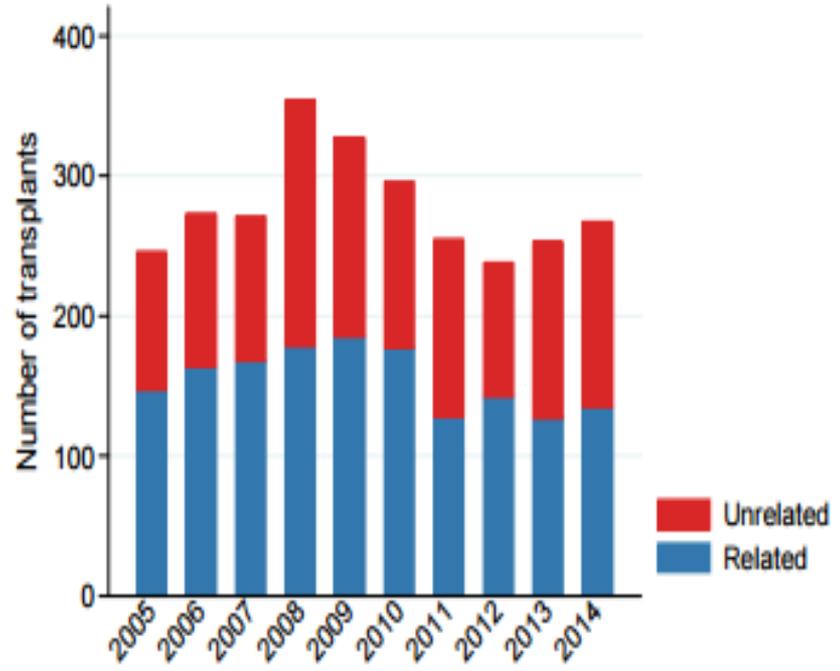
Source: WHO, Global Observatory on Donation and Transplantation

Type of kidney transplantation by region, %, 2013

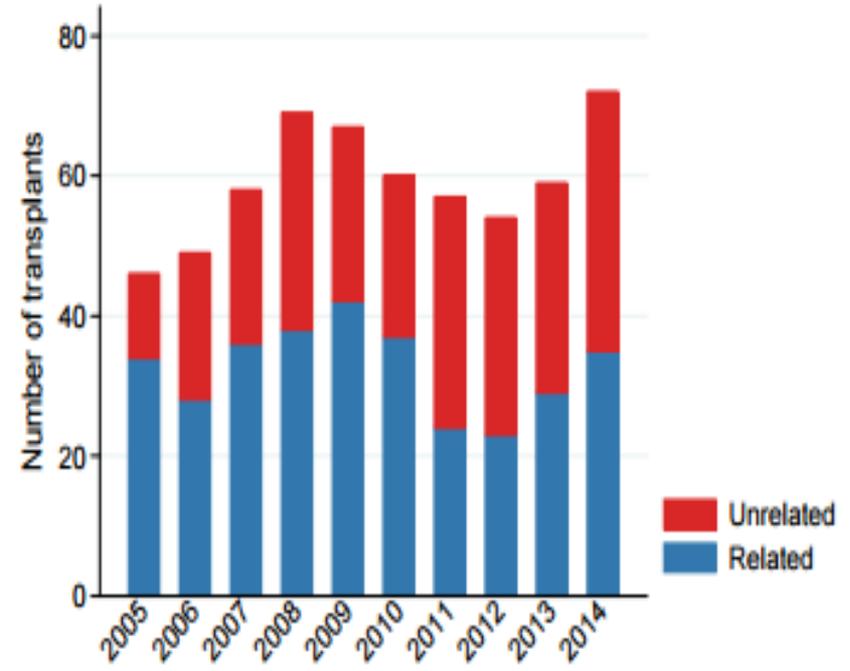


Source: WHO, Global Observatory on Donation and transplantation

Source of Living Kidney Donor
Australia 2005-2014



Source of Living Kidney Donor
New Zealand 2005-2014



Living Kidney Donor Relationship to Recipient 2010-2014, Australia

Country	Source	2010	2011	2012	2013	2014
Australia	Total	296	255	238	253	267
	Related	177	128	142	127	135
	Mother	48	38	40	29	43
	Father	37	33	35	28	22
	Sister	35	22	26	24	29
	Brother	26	18	20	24	23
	Identical twin sister	1	0	0	0	0
	Identical twin brother	0	1	0	0	0
	Non-identical twin sister	0	1	0	1	1
	Non-identical twin brother	2	0	0	0	0
	Daughter	4	5	3	2	3
	Son	7	1	3	6	5
	Grandmother	3	0	3	1	3
	Grandfather	1	1	0	1	1
	Cousin	4	2	4	6	1
	Niece	1	1	0	0	0
	Aunt	7	3	4	1	3
	Uncle	1	2	4	3	1
	Other related	0	0	0	1	0
	Unrelated	119	127	96	126	132
	Wife	47	47	32	42	31
	Husband	21	20	15	19	18
	Mother-in-law	1	0	1	0	2
	Father-in-law	1	0	1	1	0
	Stepfather	0	0	1	0	0
	Sister-in-law	0	2	1	1	1
	Brother-in-law	1	0	2	4	3
	Daughter-in-law	1	0	0	0	2
	Son-in-law	0	0	0	0	0
	Stepson	1	1	0	0	0
Partner	6	6	5	5	5	
Friend	16	12	7	14	19	
Non-directed	1	4	5	2	5	
Pathological	11	9	12	3	4	
Paired kidney exchange	8	26	11	31	38	
Other unrelated	4	0	3	4	4	

Living Kidney Donor Relationship to Recipient 2010-2014, New Zealand

Country	Source	2010	2011	2012	2013	2014
New Zealand	Total	60	57	54	59	72
	Related	37	24	23	29	35
	Mother	3	0	4	6	7
	Father	5	3	6	2	5
	Sister	6	9	3	5	7
	Brother	10	5	1	9	6
	Identical twin sister	0	0	0	0	0
	Identical twin brother	0	1	0	0	0
	Non-identical twin sister	0	0	0	0	0
	Non-identical twin brother	0	0	0	0	0
	Daughter	2	2	4	2	3
	Son	3	2	4	3	4
	Grandmother	0	0	0	0	0
	Grandfather	0	0	0	0	0
	Cousin	3	1	0	1	2
	Niece	1	0	1	0	1
	Aunt	2	0	0	1	0
	Uncle	2	1	0	0	0
	Other related	0	0	0	0	0
	Unrelated	23	33	31	30	37
	Wife	5	10	8	7	12
	Husband	2	4	1	3	0
	Mother-in-law	0	0	0	1	0
	Father-in-law	0	0	0	0	0
	Stepfather	1	0	0	0	0
	Sister-in-law	0	0	0	1	1
	Brother-in-law	1	1	0	0	0
	Daughter-in-law	0	0	0	0	0
	Son-in-law	0	1	0	1	0
	Stepson	0	0	0	0	0
	Partner	2	4	1	2	0
Friend	7	5	14	5	9	
Non-directed	4	3	4	8	6	
Pathological	0	0	0	0	0	
Paired kidney exchange	0	2	2	1	4	
Other unrelated	1	3	1	1	5	

Sex Distribution of Living Donors by Relation to Recipient, State and Country 2010-2014

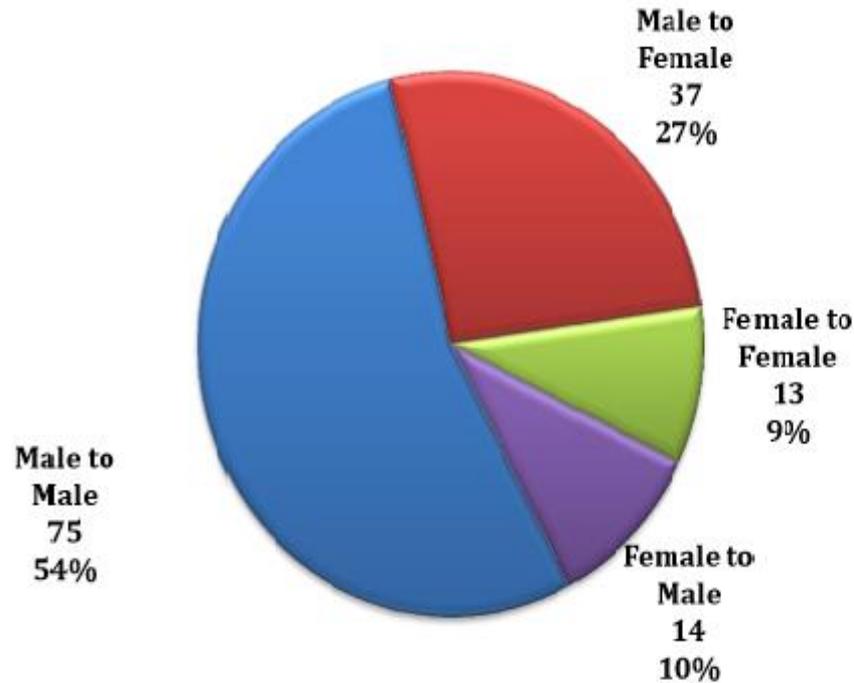
Donor source	Year	2010			2011			2012			2013			2014		
	Tx state	M	F	Total												
Related	NSW/ACT	37%	63%	46	41%	59%	46	43%	57%	46	40%	60%	58	36%	64%	58
	VIC/TAS	42%	58%	66	50%	50%	44	40%	60%	50	65%	35%	34	39%	61%	44
	QLD	57%	43%	21	45%	55%	20	38%	62%	21	44%	56%	18	40%	60%	15
	SA/NT	40%	60%	20	30%	70%	10	57%	43%	14	60%	40%	5	44%	56%	9
	WA	42%	58%	24	50%	50%	8	55%	45%	11	83%	17%	12	55%	45%	11
	Aust.	42%	58%	177	45%	55%	128	44%	56%	142	52%	48%	127	39%	61%	135
	NZ	57%	43%	37	50%	50%	24	48%	52%	23	48%	52%	29	43%	57%	35
Unrelated	NSW/ACT	41%	59%	37	43%	57%	42	41%	59%	27	32%	68%	50	33%	67%	54
	VIC/TAS	41%	59%	39	43%	58%	40	47%	53%	36	49%	51%	49	53%	47%	45
	QLD	36%	64%	22	25%	75%	16	30%	70%	10	50%	50%	10	73%	27%	11
	SA/NT	38%	63%	8	50%	50%	6	33%	67%	9	43%	57%	7	50%	50%	8
	WA	23%	77%	13	43%	57%	23	36%	64%	14	60%	40%	10	36%	64%	14
	Aust.	38%	62%	119	41%	59%	127	41%	59%	96	43%	57%	126	45%	55%	132
	NZ	43%	57%	23	42%	58%	33	26%	74%	31	33%	67%	30	24%	76%	37

Demographics of the Australian Kidney Transplant Waiting List 2009-2014 continued

Factor	2009	2010	2011	2012	2013	2014
Age (years)						
0-44	380 (30.0%)	363 (30.6%)	363 (33.4%)	347 (32.3%)	363 (33.9%)	351 (31.3%)
45-54	374 (29.5%)	320 (27.0%)	288 (26.5%)	280 (26.0%)	275 (25.7%)	299 (26.6%)
55-64	365 (28.8%)	371 (31.3%)	319 (29.3%)	303 (28.2%)	293 (27.4%)	301 (26.8%)
65+	147 (11.6%)	131 (11.1%)	117 (10.8%)	145 (13.5%)	140 (13.1%)	172 (15.3%)
Male	749 (59.2%)	680 (57.4%)	632 (58.1%)	628 (58.4%)	650 (60.7%)	696 (62.0%)
Race						
Caucasian	954 (75.4%)	864 (72.9%)	770 (70.8%)	758 (70.5%)	755 (70.5%)	750 (66.8%)
Aboriginal/TSI	45 (3.6%)	49 (4.1%)	33 (3.0%)	34 (3.2%)	35 (3.3%)	32 (2.8%)
Asian	194 (15.3%)	193 (16.3%)	200 (18.4%)	202 (18.8%)	193 (18.0%)	222 (19.8%)
Māori	11 (0.9%)	16 (1.4%)	19 (1.7%)	14 (1.3%)	13 (1.2%)	8 (0.7%)
Pacific	25 (2.0%)	28 (2.4%)	25 (2.3%)	26 (2.4%)	29 (2.7%)	32 (2.8%)
Other	37 (2.9%)	35 (3.0%)	39 (3.6%)	40 (3.7%)	43 (4.0%)	63 (5.6%)
Not reported	0 (0.0%)	0 (0.0%)	1 (0.1%)	1 (0.1%)	3 (0.3%)	16 (1.4%)
Primary Renal Disease						
Glomerulonephritis	606 (47.9%)	536 (45.2%)	503 (46.3%)	471 (43.8%)	437 (40.8%)	473 (42.1%)
Analgesic	13 (1.0%)	9 (0.8%)	5 (0.5%)	3 (0.3%)	5 (0.5%)	5 (0.4%)
Polycystic	165 (13.0%)	171 (14.4%)	144 (13.2%)	149 (13.9%)	140 (13.1%)	138 (12.3%)
Reflux	108 (8.5%)	103 (8.7%)	85 (7.8%)	79 (7.3%)	85 (7.9%)	89 (7.9%)
Hypertension	94 (7.4%)	76 (6.4%)	66 (6.1%)	89 (8.3%)	86 (8.0%)	78 (6.9%)
Diabetic nephropathy	121 (9.6%)	131 (11.1%)	123 (11.3%)	131 (12.2%)	145 (13.5%)	145 (12.9%)
Other	112 (8.8%)	110 (9.3%)	111 (10.2%)	111 (10.3%)	130 (12.1%)	140 (12.5%)
Uncertain	47 (3.7%)	49 (4.1%)	49 (4.5%)	42 (3.9%)	41 (3.8%)	45 (4.0%)
Not reported	0 (0.0%)	0 (0.0%)	1 (0.1%)	0 (0.0%)	2 (0.2%)	10 (0.9%)
Diabetes	188 (14.9%)	196 (16.6%)	199 (18.4%)	208 (19.4%)	226 (21.2%)	234 (21.0%)
Coronary artery disease	250 (19.8%)	241 (20.4%)	227 (20.9%)	220 (20.5%)	225 (21.1%)	208 (18.6%)
Peripheral vascular disease	133 (10.5%)	119 (10.1%)	118 (10.9%)	108 (10.1%)	121 (11.4%)	130 (11.6%)
Cerebrovascular disease	77 (6.1%)	74 (6.3%)	61 (5.6%)	69 (6.4%)	62 (5.8%)	76 (6.8%)
Chronic lung disease	107 (8.5%)	89 (7.5%)	88 (8.1%)	101 (9.4%)	110 (10.3%)	108 (9.7%)

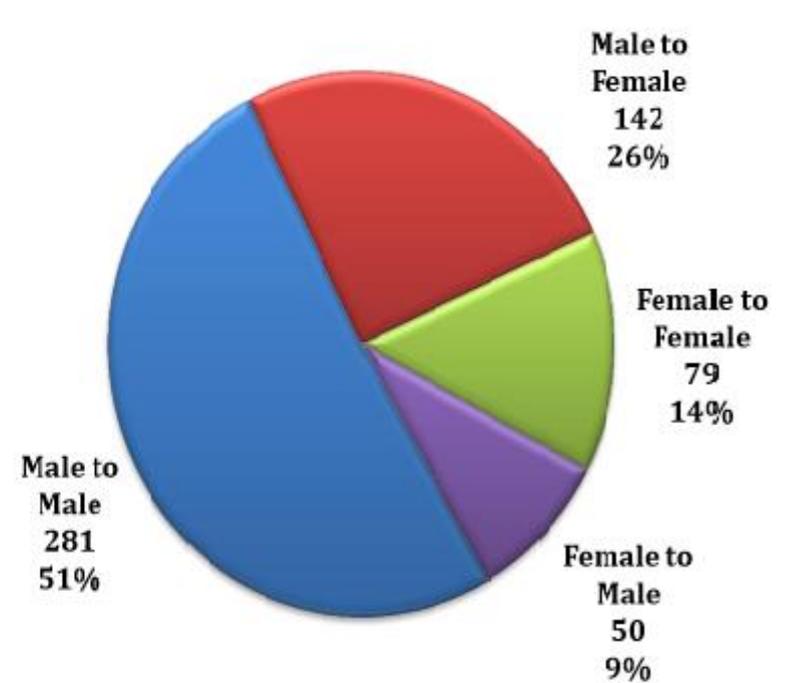
Gender Ratio amongst Transplanted Organs in KSA 2015

Deceased Kidney Tx.



Total: 139

Living Kidney Tx.



Total: 552

Male donor 80% Female donor 20%

Male recipient 64%

Female recipient 36%

Male donor 77% Female donor 23%

Male recipient 60%

Female recipient 40%

Incidence Rates Per Million Population, unadjusted, accepted for RRT in 2013 at day 91 in ERA_EDTA registry

	All		
	All Pmp	Men Pmp	Women Pmp
Austria †	132.1	174.4	91.8
Belgium, Dutch-speaking *	168.4	210.2	127.6
Belgium, French-speaking *	164.9	230.2	103.0
Bosnia and Herzegovina	110.0	136.7	84.4
Denmark	109.7	151.0	69.0
Estonia	59.9	79.6	42.7
Finland	85.7	116.7	55.7
France	145.9	188.5	105.9
Greece	194.4	249.5	142.1
Iceland	74.1	104.7	43.4
Norway	96.1	127.4	64.5
Romania	130.5	149.3	112.5
Serbia	136.9	177.2	98.7
Slovenia	114.6	135.3	94.2
Spain, Andalusia	122.2	154.8	90.1
Spain, Aragon	125.1	171.8	78.9
Spain, Asturias †	149.2	220.1	84.0
Spain, Basque country	114.6	162.8	69.0
Spain, Cantabria *	83.2	125.0	43.2
Spain, Castile and León *	106.5	157.9	56.1
Spain, Castile-La Mancha *	103.6	129.5	77.3
Spain, Catalonia †	139.3	186.2	93.7
Spain, Extremadura †	119.6	174.6	65.4
Spain, Galicia	139.8	192.9	90.0
Spain, Community of Madrid	117.3	157.8	79.8
Spain, Region of Murcia	103.9	137.9	69.7
Spain, Valencian region	130.0	168.9	91.9
Sweden	104.2	142.2	66.3
The Netherlands	108.4	129.8	87.5
United Kingdom, All countries * †	101.7	131.1	73.3
United Kingdom, England * †	103.3	133.6	73.8
United Kingdom, Northern Ireland * †	86.4	116.3	57.5
United Kingdom, Scotland	91.2	104.0	79.2
United Kingdom, Wales * †	103.7	145.6	63.2

Gender, mean age, and median age of incident patients at day 91

	All				Men				Women			
	%	Mean (years)	SD	Median (years)	%	Mean (years)	SD	Median (years)	%	Mean (years)	SD	Median (years)
Austria †	100	64.8	15.0	67.6	64.4	64.5	14.5	67.1	35.6	65.4	15.9	69.8
Belgium, Dutch-speaking *	100	69.6	14.4	73.2	61.7	69.4	14.1	72.9	38.3	70.1	14.9	73.9
Belgium, French-speaking *	100	67.4	14.8	68.9	67.9	67.0	14.1	68.3	32.1	68.1	16.1	69.9
Bosnia and Herzegovina	100	61.0	15.8	64.0	60.9	61.5	15.5	64.7	39.1	60.4	16.3	63.5
Denmark	100	63.1	16.7	66.7	68.3	63.1	16.2	66.6	31.7	63.1	17.8	67.8
Estonia	100	62.0	13.7	64.7	62.0	61.9	14.1	64.0	38.0	62.2	13.2	64.9
Finland	100	60.3	16.9	64.0	67.0	59.8	17.4	63.6	33.0	61.2	15.8	64.8
France	100	66.9	16.3	69.6	62.6	67.1	16.0	69.6	37.4	66.6	16.9	69.5
Greece	100	69.1	14.1	72.4	62.5	68.6	13.9	71.6	37.5	69.8	14.5	73.8
Iceland	100	56.3	20.8	60.0	70.8	57.2	21.9	62.5	29.2	53.9	19.4	46.9
Norway	100	63.3	16.9	66.6	66.6	63.7	16.7	66.3	33.4	62.5	17.2	66.9
Romania	100	60.0	14.7	62.0	55.9	60.0	14.5	61.5	44.1	60.0	15.0	62.4
Serbia	100	61.7	13.7	63.4	63.0	62.2	12.9	63.4	37.0	60.8	15.0	63.5
Slovenia	100	65.3	16.3	67.7	58.5	63.8	16.1	66.1	41.5	67.5	16.4	71.9
Spain, Andalusia	100	62.1	16.2	64.7	62.7	61.6	16.2	64.0	37.3	62.8	16.1	65.5
Spain, Aragon	100	67.5	14.5	71.8	68.3	68.0	13.0	71.5	31.7	66.4	17.5	72.7
Spain, Asturias †	100	66.1	14.6	67.7	70.7	66.7	13.6	67.7	29.3	64.6	16.7	66.3
Spain, Basque country	100	63.6	16.2	67.7	69.1	63.7	15.8	67.5	30.9	63.2	17.3	68.2
Spain, Cantabria *	100	62.9	13.8	66.3	73.5	63.9	12.5	67.6	26.5	60.1	17.2	59.2
Spain, Castile and León *	100	67.3	14.0	69.4	73.4	67.0	14.0	69.0	26.6	68.0	14.2	70.7
Spain, Castile-La Mancha *	100	64.8	15.0	67.3	63.0	63.6	14.9	66.0	37.0	66.8	15.1	73.3
Spain, Catalonia †	100	65.4	16.7	68.8	65.9	65.0	16.5	68.1	34.1	66.2	17.0	70.5
Spain, Extremadura †	100	63.7	15.0	65.1	72.5	64.2	13.9	63.7	27.5	62.4	17.6	66.9
Spain, Galicia	100	64.5	15.1	67.3	66.8	64.8	14.7	67.2	33.2	63.9	15.9	67.4
Spain, Community of Madrid	100	63.2	16.5	66.2	64.7	64.0	15.8	66.6	35.3	61.7	17.7	65.2
Spain, Region of Murcia	100	62.3	15.5	65.0	66.7	61.7	14.6	64.3	33.3	63.5	17.1	69.1
Spain, Valencian region	100	65.7	15.1	68.6	64.4	65.8	15.1	68.0	35.6	65.6	15.0	69.2
Sweden	100	63.5	15.9	66.7	68.1	64.1	15.5	66.9	31.9	62.3	16.8	65.3
The Netherlands	100	63.6	16.2	66.8	59.3	64.5	15.9	67.9	40.7	62.2	16.5	65.4
United Kingdom, All countries * †	100	61.7	15.6	63.7	63.4	62.1	15.7	64.7	36.6	61.0	15.4	62.8
United Kingdom, England * †	100	61.7	15.6	63.6	63.7	62.1	15.6	64.4	36.3	60.9	15.5	62.6
United Kingdom, Northern Ireland * †	100	61.6	16.0	65.6	66.0	62.1	15.8	66.6	34.0	60.5	16.5	61.2
United Kingdom, Scotland	100	60.2	16.5	62.8	55.3	59.5	17.3	62.8	44.7	61.1	15.6	62.8
United Kingdom, Wales * †	100	65.2	15.0	68.6	69.0	65.2	15.4	69.0	31.0	65.3	14.3	66.7

Gender, mean age, and median age prevalent patients on December 31

	All				Men				Women			
	%	Mean (years)	SD	Median (years)	%	Mean (years)	SD	Median (years)	%	Mean (years)	SD	Median (years)
Austria	100	60.6	15.4	62.3	63.0	60.5	15.1	62.4	37.0	60.6	16.0	62.1
Belgium, Dutch-speaking *	100	65.4	15.3	67.1	59.5	65.0	15.0	66.7	40.5	66.0	15.6	67.9
Belgium, French-speaking *	100	64.4	15.4	65.7	63.1	64.3	15.3	65.8	36.9	64.6	15.6	65.6
Bosnia and Herzegovina	100	59.1	15.3	61.0	57.8	58.2	15.3	60.1	42.2	60.2	15.3	62.7
Denmark	100	58.2	16.5	59.9	62.1	58.5	16.3	60.2	37.9	57.7	16.8	59.5
Estonia	100	56.7	15.1	57.4	56.6	56.1	14.6	55.4	43.4	57.4	15.9	58.7
Finland	100	58.6	16.2	61.1	63.5	58.9	16.1	61.6	36.5	58.1	16.4	60.2
France	100	61.8	16.6	63.3	60.7	61.7	16.4	63.2	39.3	62.0	16.8	63.4
Greece	100	63.6	15.7	65.8	63.7	63.3	15.6	65.3	36.3	64.1	16.0	66.6
Iceland	100	55.8	18.2	57.3	57.7	56.4	18.3	60.4	42.3	54.9	18.1	56.0
Norway	100	58.9	16.1	60.7	65.1	59.2	16.0	61.2	34.9	58.2	16.2	60.0
Romania []	100	59.1	15.2	60.8	56.0	58.6	15.1	60.3	44.0	59.9	15.2	61.6
Serbia	100	58.1	14.3	60.0	59.7	58.2	14.2	60.1	40.3	57.9	14.5	59.8
Slovenia	100	61.8	15.1	62.8	59.8	61.1	14.8	62.1	40.2	62.7	15.4	63.8
Spain, Andalusia	100	59.7	15.8	61.1	60.6	59.0	15.6	60.1	39.4	60.7	16.1	62.6
Spain, Aragon	100	62.2	15.4	63.6	64.8	62.5	14.9	63.6	35.2	61.8	16.4	63.5
Spain, Asturias	100	62.3	14.9	63.2	64.7	62.4	14.7	63.0	35.3	62.3	15.3	63.9
Spain, Basque country	100	60.9	15.8	63.1	63.7	61.4	15.6	63.4	36.3	60.2	16.0	62.5
Spain, Cantabria *	100	60.9	14.8	61.8	68.9	61.6	14.6	63.0	31.1	59.3	15.2	59.5
Spain, Castile and León *	100	63.6	15.2	64.4	65.1	63.2	15.0	64.3	34.9	64.3	15.7	65.0
Spain, Castile-La Mancha *	100	61.6	15.0	63.0	61.6	61.0	14.8	61.5	38.4	62.7	15.2	64.8
Spain, Catalonia	100	62.0	15.9	64.0	62.7	61.7	15.7	63.7	37.3	62.3	16.2	64.3
Spain, Extremadura	100	60.7	15.4	61.2	61.6	60.2	14.9	60.3	38.4	61.7	16.1	62.8
Spain, Galicia	100	61.6	15.1	63.1	62.7	61.6	14.7	63.0	37.3	61.6	15.7	63.3
Spain, Community of Madrid	100	60.9	15.8	62.3	61.5	61.0	15.5	62.4	38.5	60.8	16.4	62.0
Spain, Region of Murcia	100	61.3	15.6	62.8	62.9	61.1	15.4	62.7	37.1	61.8	16.0	62.9
Spain, Valencian region	100	62.2	15.9	64.2	61.8	61.9	15.8	64.0	38.2	62.7	16.0	64.4
Sweden	100	59.5	16.1	61.5	64.3	60.0	15.9	62.1	35.7	58.6	16.4	60.4
The Netherlands	100	59.6	16.1	61.5	59.8	59.6	16.1	61.6	40.2	59.6	16.2	61.5
United Kingdom, All countries *	100	58.1	15.6	58.5	60.9	58.4	15.6	58.8	39.1	57.7	15.5	58.0
United Kingdom, England *	100	58.1	15.6	58.6	60.9	58.4	15.7	58.8	39.1	57.7	15.5	58.1
United Kingdom, Northern Ireland *	100	57.9	15.9	58.0	62.1	58.0	15.5	58.0	37.9	57.7	16.4	57.9
United Kingdom, Scotland	100	56.5	16.0	56.8	58.5	56.4	16.1	57.3	41.5	56.6	16.0	56.5
United Kingdom, Wales *	100	59.3	15.7	60.4	63.1	59.6	15.9	60.7	36.9	58.7	15.4	59.7

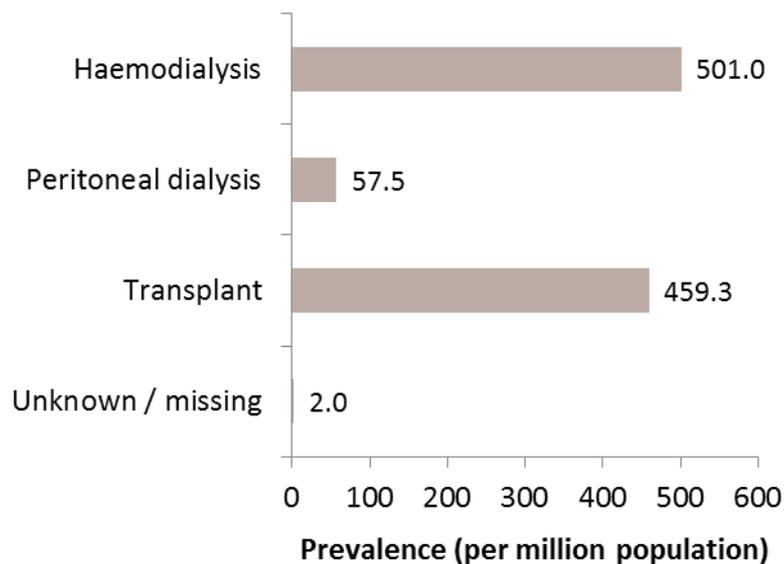
Prevalent patients on RRT in 2013

by established modality



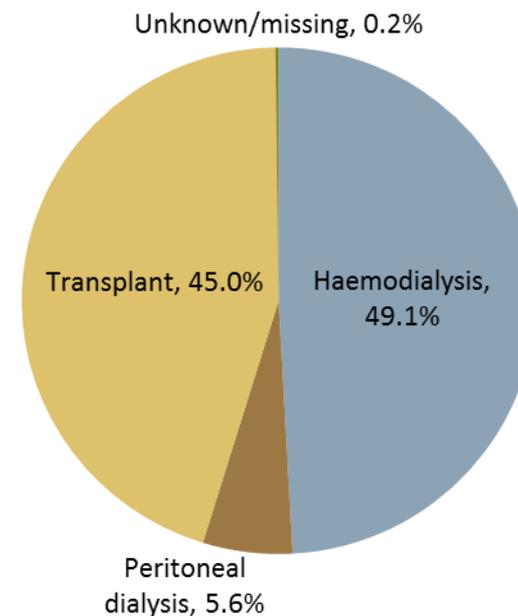
Prevalence, by established modality

all patients on RRT in 2013



Prevalence, by established modality

all patients on RRT in 2013



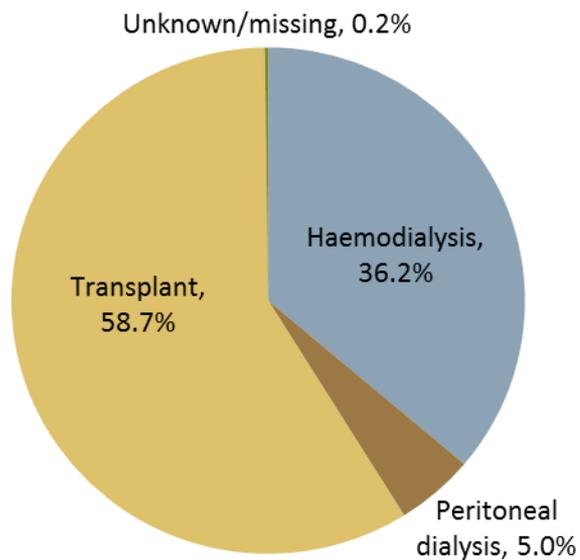
Prevalent patients on RRT in 2013

by established modality and age category



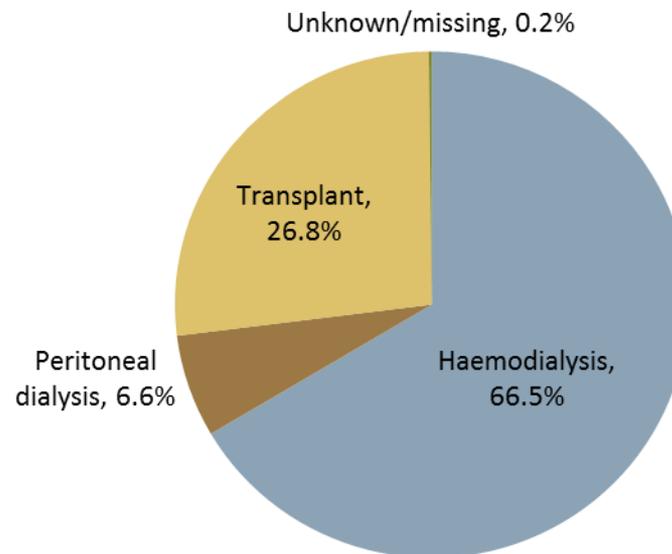
Prevalence, by established modality

patients younger than 65 years in 2013



Prevalence, by established modality

patients older than 65 years of age in 2013



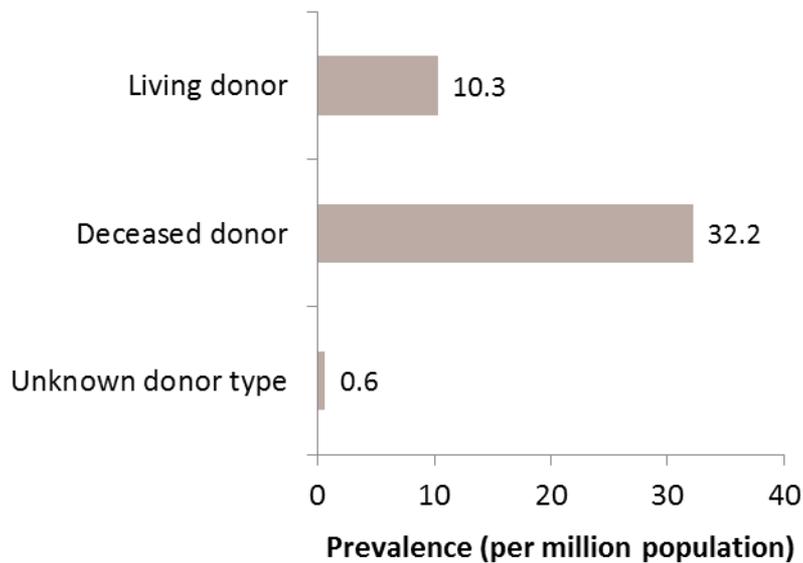
Renal transplants performed in 2013

by donor type



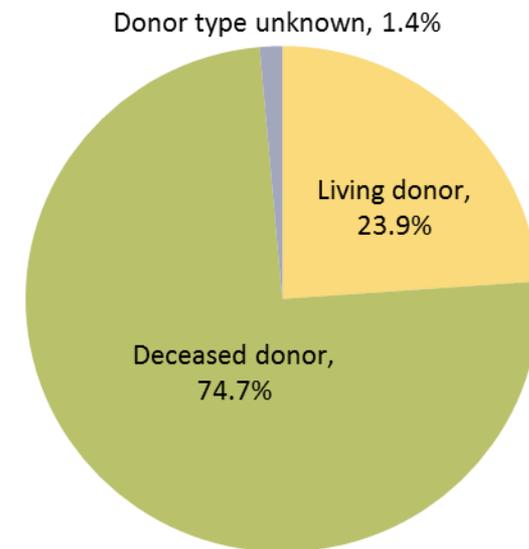
Transplantation activity, by donor type

all patients transplanted in 2013



Transplantation activity, by donor type

all patients transplanted in 2013



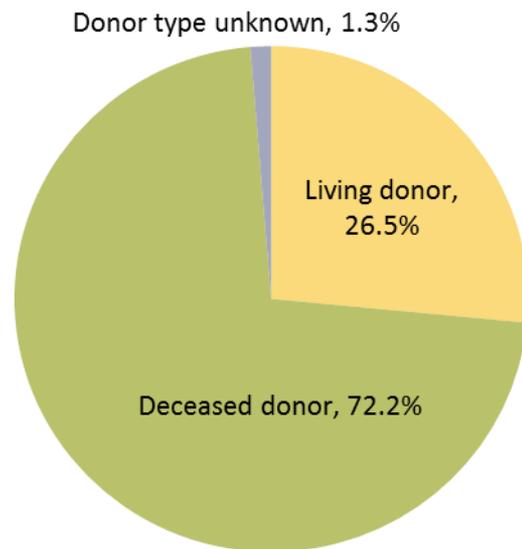
Renal transplants performed in 2013

by donor type and age category



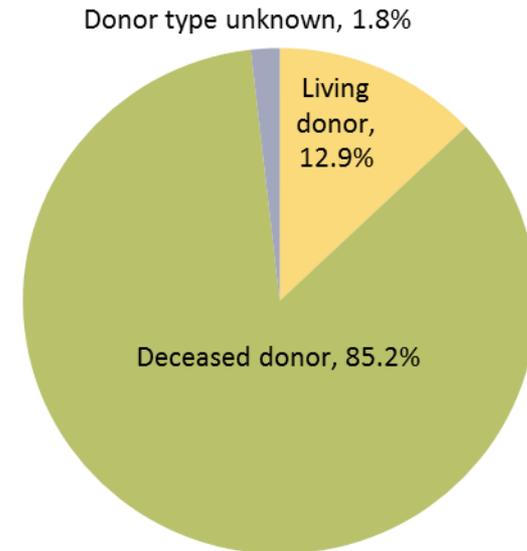
Transplantation activity, by donor type

patients younger than 65 years of age at transplantation



Transplantation activity, by donor type

patients older than 65 years of age at transplantation

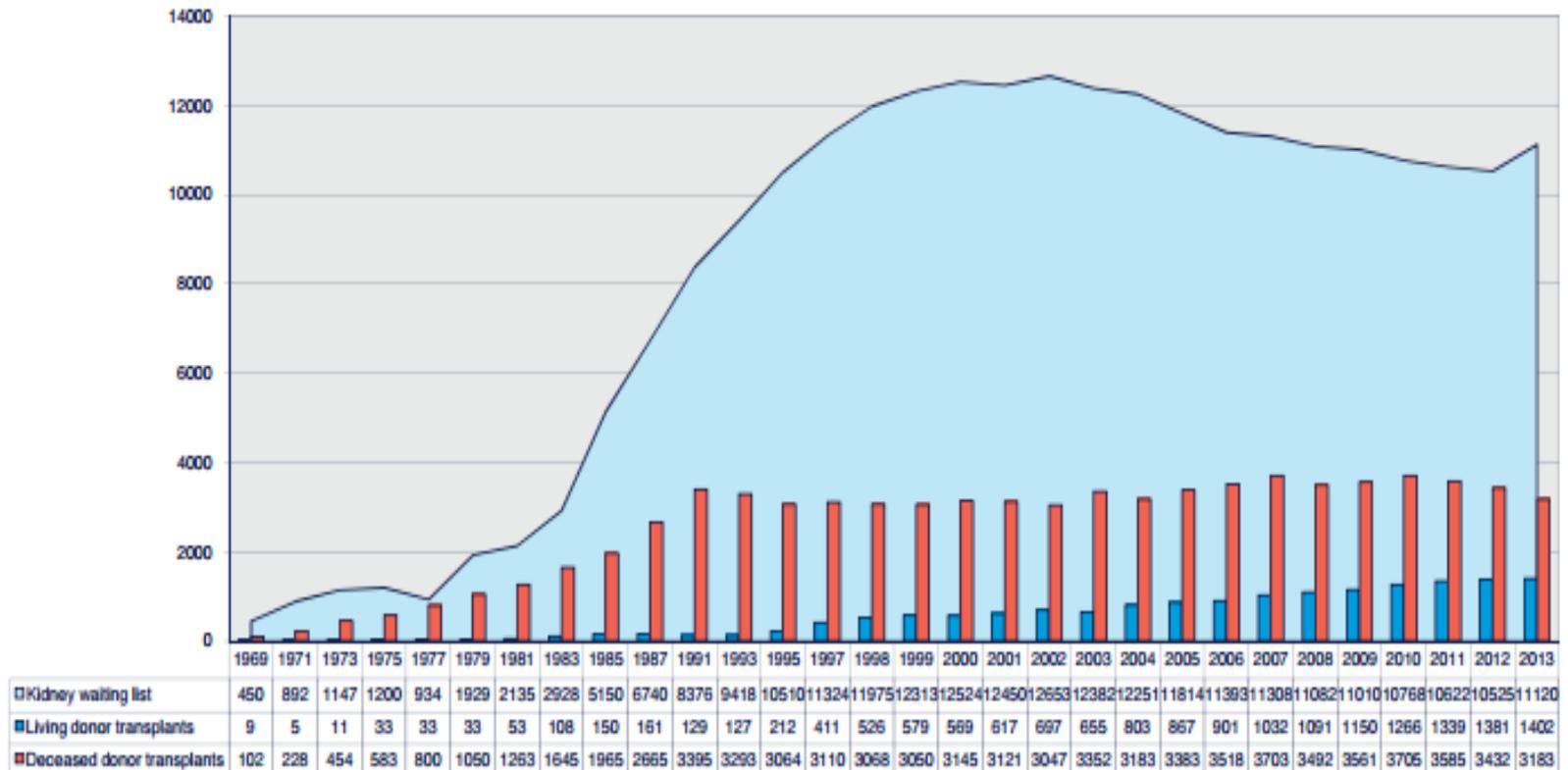


Percentages of established therapy, unadjusted

prevalent patients on December 31, by age, gender, and primary diagnosis

	Total				0-19				20-44				45-64				65-74				75+				Men				Women				DM				Non DM			
	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth	HD	PD	Tx	Oth
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Austria	34	5	51	11	9	8	81	3	20	4	66	9	25	5	60	10	39	5	46	10	63	5	19	14	33	5	51	11	36	5	50	9	46	4	36	14	31	5	54	10
Belgium, Dutch-speaking *	33	5	42	20					18	8	65	9	19	5	63	13	32	4	44	20	53	4	11	32	31	5	43	21	35	4	41	9	42	4	25	29	31	5	46	18
Belgium, French-speaking *	40	5	42	14					23	6	63	8	29	4	57	10	38	5	42	15	62	5	14	19	39	4	41	15	41	5	43	11	53	5	23	18	37	4	46	13
Bosnia and Herzegovina	80	3	8	9	54	12	31	4	57	6	23	14	79	3	6	12	92	2	2	5	95	1	0	4	78	3	9	10	83	4	5	8	87	5	3	5	79	3	8	10
Denmark	40	11	48	0	9	4	87	0	23	6	71	0	32	8	59	0	48	16	35	0	74	17	8	0	41	12	48	0	40	10	50	0	54	13	33	0	38	10	52	0
Estonia	32	6	60	1	29	14	57	0	17	5	77	1	23	4	72	1	45	7	46	2	72	13	12	3	31	5	63	1	34	6	57	2	24	10	64	1	34	5	60	1
Finland	24	8	59	9	9	7	84	0	15	8	70	8	17	8	68	8	27	8	54	11	49	9	29	13	24	8	58	10	23	8	62	7	28	10	50	12	22	7	63	8
France	40	4	44	12	12	5	78	5	25	3	66	6	31	3	58	9	41	4	42	14	63	7	10	20	39	4	45	12	41	4	43	2	55	5	22	19	37	4	49	11
Greece	58	5	20	16	25	25	48	1	31	5	46	19	44	5	30	21	64	5	14	17	84	5	2	10	56	5	20	19	61	6	21	3	72	7	4	17	55	5	24	16
Iceland	22	11	67	0	17	0	83	0	9	4	88	0	18	7	75	0	19	13	67	0	56	34	9	0	23	13	64	0	20	9	71	0	29	13	58	0	21	11	68	0
Norway	24	4	72	0	3	3	95	0	17	2	82	0	16	3	81	0	26	4	71	0	49	13	38	0	24	4	72	0	24	5	72	0	34	4	63	0	22	4	73	0
Romania	82	9	8	0	60	24	16	0	69	8	23	1	83	9	8	1	89	10	1	0	88	12	0	0	82	9	9	1	83	10	6	0	85	11	3	1	82	9	8	0
Serbia	65	8	14	12	24	11	61	5	39	7	40	14	65	8	13	14	80	9	2	9	81	11	0	8	65	7	15	14	65	11	14	0	69	16	7	9	64	7	16	13
Slovenia	27	3	33	38	24	12	53	12	15	3	56	25	21	2	44	33	28	3	24	45	46	1	3	50	26	3	32	39	28	2	34	16	38	3	11	47	25	2	37	36
Spain, Andalusia	45	4	51	0	13	4	83	0	27	4	69	0	32	4	63	0	50	4	46	0	83	5	13	0	44	4	52	0	46	5	50	0	63	6	31	0	41	4	55	0
Spain, Aragon	36	5	58	1	9	0	91	0	14	7	79	0	24	4	71	1	37	5	57	1	67	4	28	1	35	5	59	1	37	4	58	1	56	6	37	1	32	4	63	1
Spain, Asturias	35	9	55	0	13	13	75	0	22	6	72	0	25	9	65	0	33	10	56	0	61	11	27	1	35	10	55	0	36	8	55	1	46	18	36	0	33	8	59	0
Spain, Basque country	32	8	61	0	3	3	93	0	19	6	75	0	22	8	70	0	31	7	61	0	62	8	29	0	34	8	59	0	29	8	64	0	56	12	32	0	29	7	64	0
Spain, Cantabria *	34	6	60	0					20	2	77	0	21	5	74	0	32	7	61	0	74	10	16	0	36	6	58	0	30	5	66	0	50	6	44	0	31	6	63	0
Spain, Castile and León *	43	7	50	0					26	6	68	0	26	6	68	0	42	7	51	0	76	8	17	0	44	6	50	0	41	7	52	0	60	7	32	0	40	6	54	0
Spain, Castile-La Mancha *	38	6	56	0					18	10	72	0	28	6	66	0	35	4	61	0	72	4	24	0	40	6	54	0	36	5	59	0	57	7	35	0	35	5	60	0
Spain, Catalonia	21	4	54	21	9	6	85	0	9	4	76	11	14	4	67	15	21	5	51	22	39	3	20	37	21	5	53	22	22	4	55	10	32	6	31	31	19	4	57	20
Spain, Extremadura	49	6	45	0	33	0	67	0	30	9	61	0	36	7	57	0	54	4	42	0	84	4	12	0	48	7	45	0	50	5	44	0	76	7	17	0	44	6	50	0
Spain, Galicia	44	8	48	0	17	11	72	0	25	7	67	0	31	9	60	0	46	8	46	0	80	7	13	0	44	8	48	0	44	9	47	0	63	11	26	0	40	8	52	0
Spain, Community of Madrid	39	5	56	0	17	5	78	0	23	7	70	0	28	6	65	0	39	6	55	0	71	3	27	0	40	5	55	0	37	6	45	0	57	7	36	0	35	5	60	0
Spain, Region of Murcia	51	5	44	0	8	23	69	0	31	7	62	0	34	6	61	0	55	6	40	0	91	3	7	0	51	6	43	0	50	5	45	0	71	6	23	0	48	5	47	0
Spain, Valencian region	53	6	41	0	15	8	77	0	30	8	61	0	40	7	53	0	53	6	40	0	87	4	9	0	53	6	41	0	53	6	41	0	71	7	22	0	50	6	43	0
Sweden	33	9	57	0	7	7	86	0	19	6	76	0	25	7	68	0	36	11	53	0	67	16	17	0	34	9	56	0	32	9	59	0	45	12	43	0	31	9	61	0
The Netherlands	35	6	59	0	10	5	85	0	19	3	78	0	24	5	71	0	38	7	54	0	73	8	18	0	35	6	60	0	36	6	58	0	55	7	38	0	32	6	62	0
United Kingdom, All countries *	39	6	52	3					22	5	71	2	30	6	62	2	47	8	41	4	73	9	12	6	39	6	52	3	39	6	52	3	54	8	33	4	36	6	55	3
United Kingdom, England *	38	7	51	4					22	5	71	2	30	6	62	3	46	8	42	4	72	9	12	7	38	7	51	4	38	7	52	4	54	9	32	5	35	6	55	3
United Kingdom, Northern Ireland *	41	5	53	1					18	5	76	1	30	3	66	1	57	7	34	2	78	8	13	2	40	5	53	1	42	5	52	1	65	6	28	0	36	5	57	1
United Kingdom, Scotland	40	5	54	0	12	10	78	0	23	3	74	0	32	4	64	0	55	7	38	0	78	8	14	0	40	4	56	0	41	6	53	0	59	6	35	0	37	5	58	0
United Kingdom, Wales *	39	6	54	1					21	4	75	0	27	6	66	1	44	9	47	1	78	8	14	1	39	7	54	0	38	6	55	1	53	7	39	1	35	6	58	1

Dynamics of the Eurotransplant kidney transplant waiting list and transplants between 1969 and 2013



Living donor kidney transplants from 2009 to 2013

Kidney-only	2009	2010	2011	2012	2013	2012/2013
Related	613	690	687	728	714	-1.9 %
Non-related	537	576	652	653	688	5.4 %
Total	1150	1266	1339	1381	1402	1.5 %

Related	2009	2010	2011	2012	2013	2012/2013
Brother / sister	194	221	216	258	248	-3.9 %
Father	110	144	153	146	136	-6.8 %
Mother	225	232	231	216	236	9.3 %
Son / daughter	32	43	40	59	43	-27.1 %
Grandfather / -mother	9	4	7	5	5	0.0 %
Uncle / aunt	17	23	18	21	19	-9.5 %
Nephew / niece	15	11	14	14	12	-14.3 %
Cousin	9	12	8	7	14	100.0 %
Blood related: NOS*	2	0	0	2	1	-50.0 %
Total	613	690	687	728	714	-1.9 %

Non-related	2009	2010	2011	2012	2013	2012/2013
Spouse / partner	384	420	464	481	474	-1.5 %
Not blood related family	44	27	50	60	67	11.7 %
Friend	42	48	57	45	56	24.4 %
Not blood related: NOS*	67	81	81	67	91	35.8 %
Total	537	576	652	653	688	5.4 %

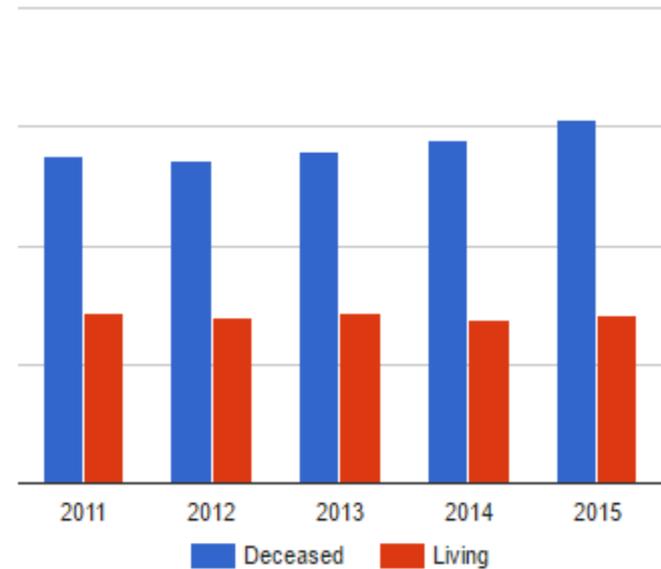
* NOS - Not otherwise specified

Transplants By Donor Type - Kidney

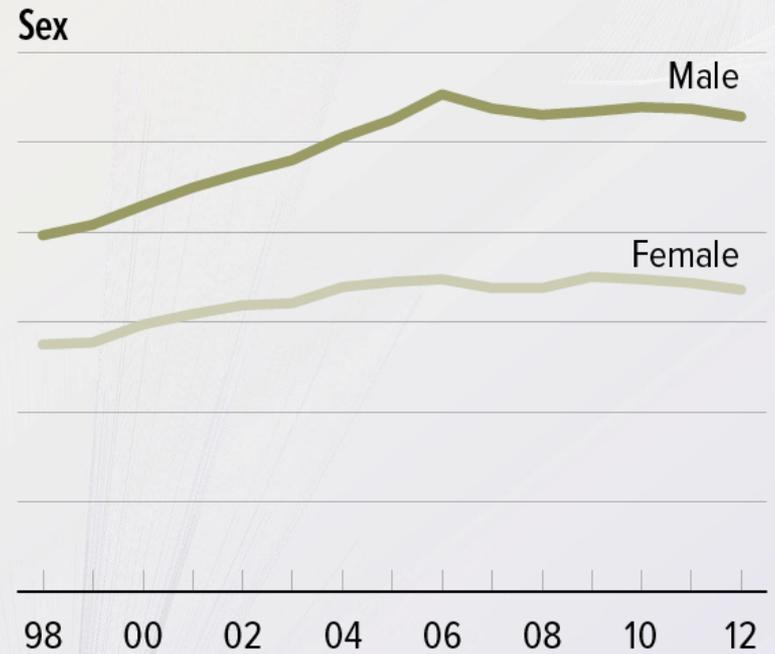
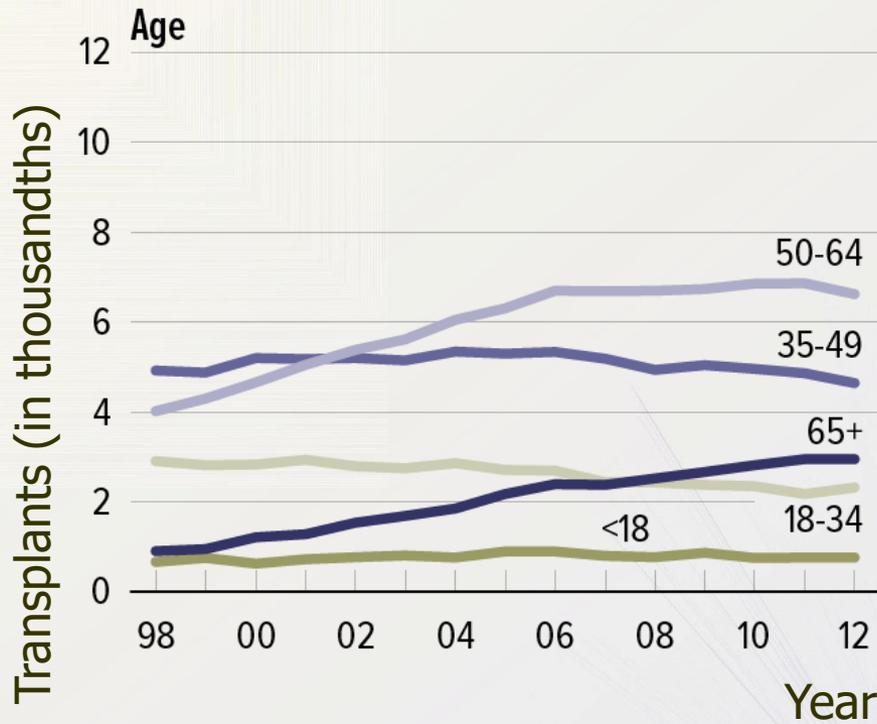
January 1, 2011 - December 31, 2015

Based on OPTN data as of July 15, 2016

Year	Deceased Donor Transplants	Living Donor Transplants
2011	11,043	5,772
2012	10,868	5,619
2013	11,163	5,732
2014	11,570	5,537
2015	12,250	5,628
Total	56,894	28,288



KI 4.2 Kidney transplants



KI 4.6 Characteristics of adult kidney transplant recipients, 2002 & 2012

	Level	2002		Deceased		Living	
		All N	%	N	%	N	%
Age	18-34	2,793	18.7	1,443	15.8	1,350	23.3
	35-49	5,205	34.9	3,193	35.0	2,012	34.7
	50-64	5,382	36.1	3,463	38.0	1,919	33.1
	65+	1,536	10.3	1,019	11.2	517	8.9
Sex	Female	6,075	40.7	3,660	40.1	2,415	41.7
	Male	8,841	59.3	5,458	59.9	3,383	58.3
Race	White	8,959	60.1	4,957	54.4	4,002	69.0
	Black	3,388	22.7	2,539	27.8	849	14.6
	Hispanic	1,771	11.9	1,096	12.0	675	11.6
	Asian	651	4.4	436	4.8	215	3.7
	Other/unknown	147	1.0	90	1.0	57	1.0
Primary cause of disease	Diabetes	4,117	27.6	2,741	30.1	1,376	23.7
	Hypertension	2,975	19.9	2,070	22.7	905	15.6
	Glomerulonephritis	3,107	20.8	1,647	18.1	1,460	25.2
	Cystic kidney disease	1,721	11.5	954	10.5	767	13.2
	Other/unknown	2,996	20.1	1,706	18.7	1,290	22.2
Blood type	A	5,707	38.3	3,532	38.7	2,175	37.5
	B	1,865	12.5	1,105	12.1	760	13.1
	AB	695	4.7	475	5.2	220	3.8
	O	6,649	44.6	4,006	43.9	2,643	45.6
PRA/cPRA	<20%	11,959	80.2	6,981	76.6	4,978	85.9
	20%-<80%	1,815	12.2	1,248	13.7	567	9.8
	≥80%	1,019	6.8	858	9.4	161	2.8
	Unknown	123	0.8	31	0.3	92	1.6
History of renal replacement therapy	Preemptive transplant	1,809	12.1	573	6.3	1,236	21.3
	<1 year	2,642	17.7	897	9.8	1,745	30.1
	<3 years	4,593	30.8	2,937	32.2	1,656	28.6
	<5 years	2,553	17.1	2,135	23.4	418	7.2
	5+ years/unknown	3,319	22.3	2,576	28.3	743	12.8

Disparities in incidence/care of ESRD

- * DM & HT have been found to be the most common cause of kidney failure in both developed & developing countries.
- * In countries of the European Union, considerable regional disparities in the incidence of ESRD have been observed:
 - * The incidence of patients with new-onset ESRD follows a clear north to south/west gradient (lowest in Ireland, highest in Italy and Germany).
 - * The incidence of ESRD deaths is lowest in Ireland and highest in Germany.

Cont...

- *The % of women with 1ry Dx of DM was higher than that of males but male with a 1ry Dx of HT continued to outnumber females (KHC,2004).
- * With respect to gender inequities, the higher incidence of ESRD among men and the slight predominance of women in the general population do not adequately explain gender disparities in transplantation.

Preferences and Perspectives of Nephrologists on Patients' Access to Kidney Transplantation

- * multiple studies have found that female sex is associated with a lower likelihood of inclusion on the transplant waiting list and suggest that gender disparity is not due to fewer women seeking health care or transplantation.
- * Thamer et al, in a national survey of nephrologists, found that men were more likely to be recommended for kidney transplant.
- * Kucirka et al, found that women were more likely to be reported as unsuitable for kidney transplantation because of age or being medically unfit compared to their male counterparts.
- * Disparities in access to transplant may be partially explained by disparities in provision of transplant information and hence, dialysis center should insure that this critical intervention is offered equitably.

Transplantation. 2001;71:281-8.

Am J Transplant 2012;12:351-357

Am J Public Health. 2002;92:811-7.

Cont...

- *The most striking component of the gender inequity in kidney transplantation is the disproportionately **higher female donation rate**, with an **overall higher female-to-male** and **lower male-to-female kidney donations** in some regions.

Cont...

In a study of 1319 living donations in Norway,

- * the majority of the **donors were women**, while the majority of the **recipients were men**.
- * In parental donations, for recipients younger than 30 years of age, both parents were similarly likely to be donors. However, for recipients older than 30 years, mothers were more likely to be donors.
- * In spousal kidney donations, women were more likely to be donors.

Cont...

In another study of 30 258 living donor transplants,

- * women comprised 68% of spousal and 56% of related and unrelated nonspousal donors.
- * There were more often female to-male donations among all three categories of living related, unrelated nonspousal, and spousal pairs.
- * The most favorable graft survival has been observed among male recipients of male donor kidneys

Cont...

- * When spousal pairs are excluded from the analysis, there is a higher proportion of male to-male donations and a lower proportion of male-to-female and female-to-female transplants in the living unrelated donor group.
- * In contrast, studies in Iran shows that 78%-81% of unrelated donors are men and the same was shown from SA registry.

Transplantation. 2002;73:248-52.

Transplant Proc. 2003;35:2559-60.

Transplant Proc. 2003;35:2605-6.

Disparities in Kidney Transplant Outcomes

- *Worse *graft survival* has been associated with patients who are male, age over 61, being single (unmarried), have less education, and being unemployed.
- *Worse *patient survival* has been associated with older age, less education, unemployment and being female.

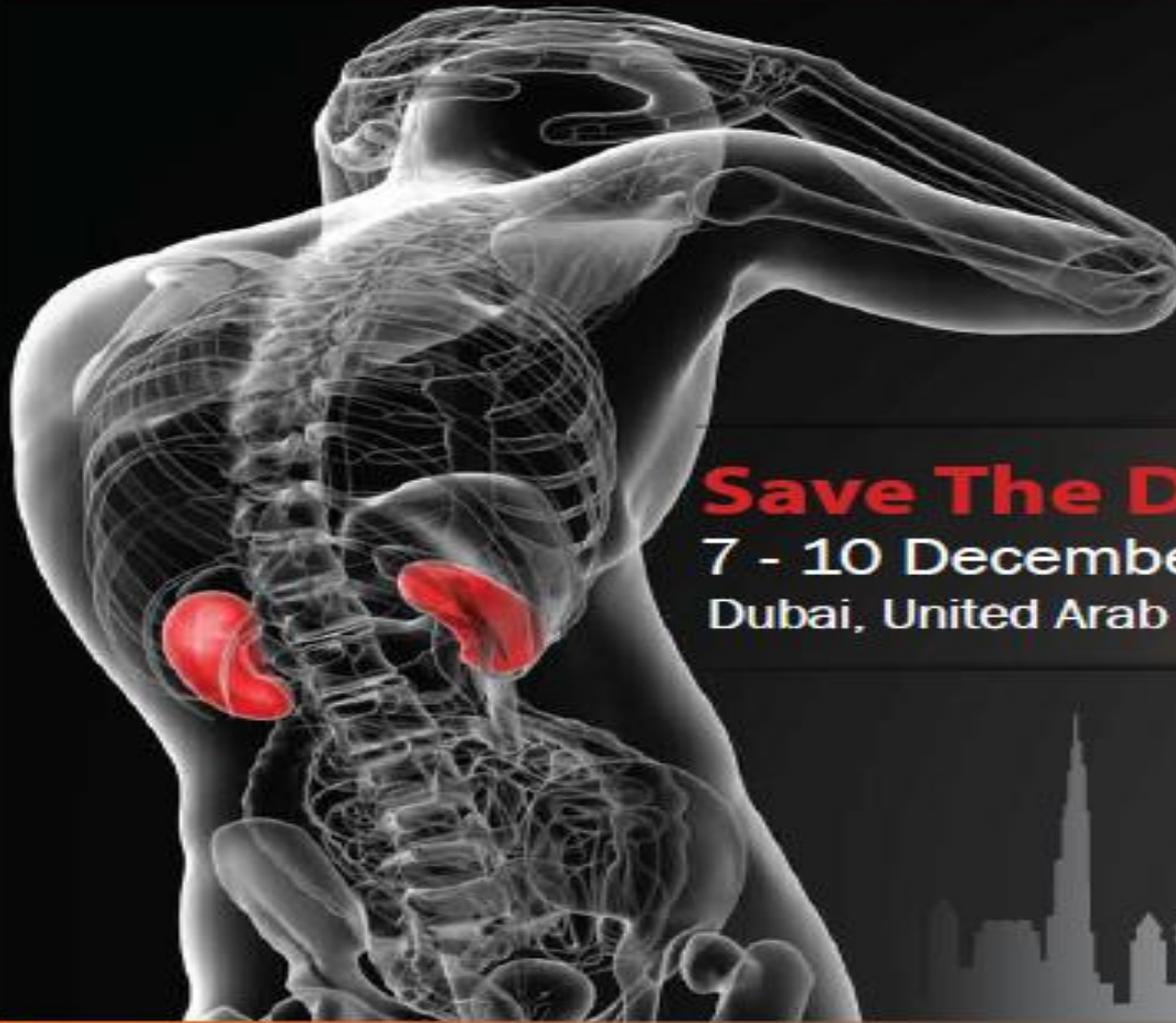
CONCLUSION

- * Organ shortage exacerbates disparities in access to transplantation and outcomes.
- * Disparities in transplant outcomes can threaten public trust in transplantation, and can thereby reduce the public's willingness to donate organs, which leads to a reduced number of available organs for transplantation.
- * The elimination of health disparities is a national healthcare priority.
- * Each country ,at national level, should form a task force to study disparities and to provide insight into the means of correcting them.
- * Each country has to invest in research aimed at detecting and remedying any inequalities in the provision of equivalent and just care for patients with end organ damage.

*THANK
YOU*



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