우리나라 신대체 요법의 현황

– 인산 민병석 교수 기념 말기 신부전 환자 등록사업 2015 –

Current Renal Replacement Therapy in Korea

-Insan Memorial Dialysis Registry 2015-

대한신장학회 등록위원회

ESRD Registry Committee, Korean Society of Nephrology

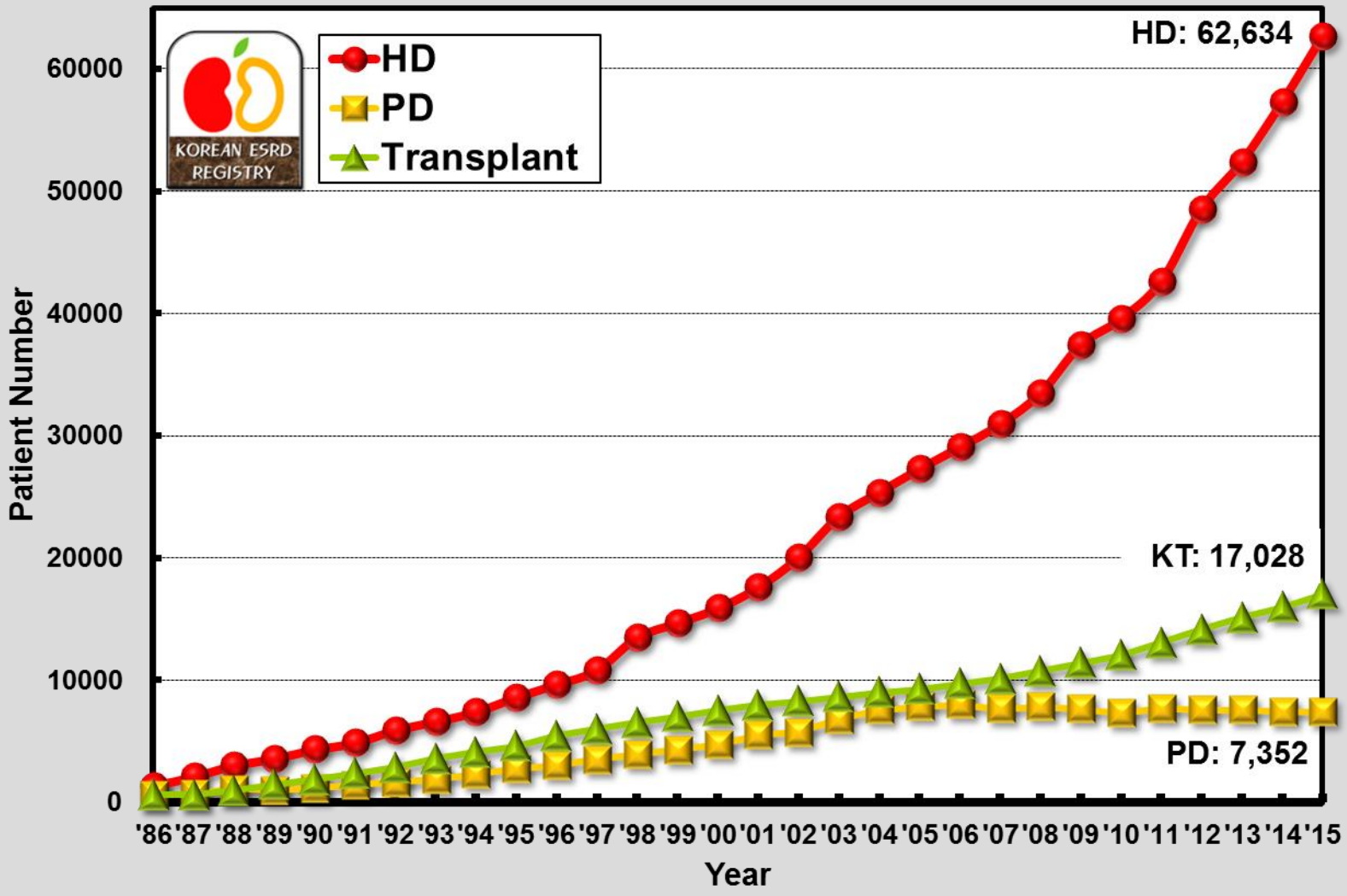
Jun 2016

Prevalence of Renal Replacement Therapy

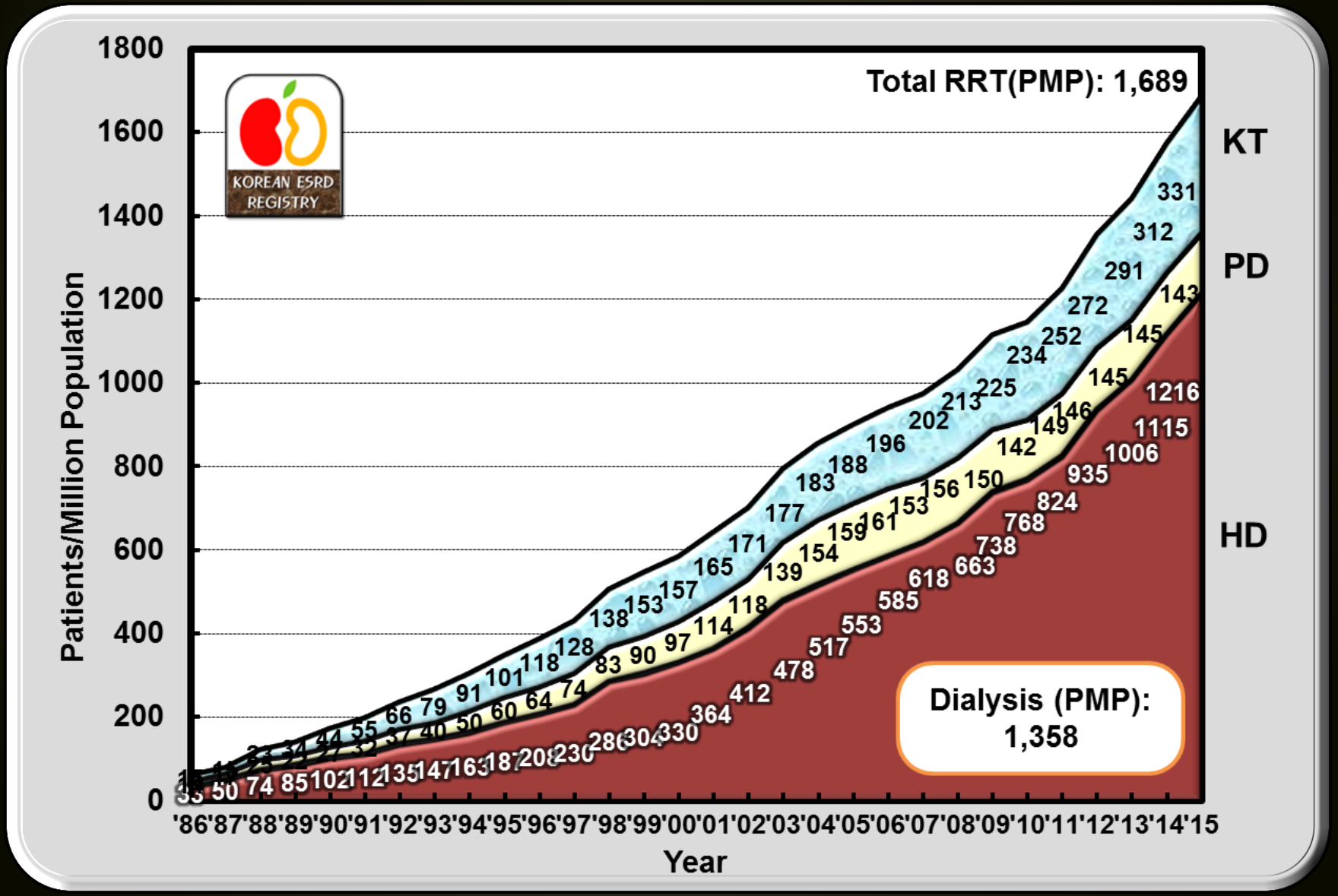
Year	HD		PD		Transplant		Total	
1980	198	(4.9)	30	(0.7)	-	-	228	(6.0)
1986	1,335	(32.6)	573	(13.9)	621	(15.1)	2,534	(61.7)
1988	3,012	(74.0)	1,058	(25.2)	982	(23.4)	5,142	(122.7)
1990	4,311	(101.8)	1,130	(26.7)	1,866	(44.1)	7,307	(172.6)
1992	5,890	(135.3)	1,599	(36.7)	2,862	(65.8)	10,351	(237.8)
1994	7,387	(162.7)	2,284	(50.3)	4,116	(90.6)	13,787	(303.6)
1996	9,635	(207.5)	2,976	(64.1)	5,461	(117.6)	18,072	(389.2)
1998	13,473	(285.6)	3,912	(82.9)	6,515	(138.1)	23,900	(506.7)
2000	15,853	(330.4)	4,671	(97.4)	7,522	(156.8)	28,046	(584.5)
2001	17,568	(363.8)	5,489	(113.7)	7,957	(164.8)	31,014	(642.3)
2002	20,010	(412.4)	5,712	(117.7)	8,271	(170.5)	33,993	(700.6)
2003	23,348	(478.2)	6,807	(139.4)	8,635	(176.9)	38,790	(794.5)
2004	25,335	(516.5)	7,569	(154.3)	8,987	(183.2)	41,891	(854.0)
2005	27,246	(553.0)	7,816	(158.6)	9,271	(188.2)	44,333	(899.8)
2006	29,031	(585.0)	7,990	(161.0)	9,709	(195.7)	46,730	(941.7)
2007	30,907	(617.7)	7,649	(152.9)	10,119	(202.2)	48,675	(972.8)
2008	33,427	(663.3)	7,840	(155.6)	10,722	(212.8)	51,989	(1031.6)
2009	37,391	(738.3)	7,618	(150.4)	11,387	(224.8)	56,396	(1113.6)
2010	39,509	(768.1)	7,309	(142.1)	12,042	(234.1)	58,860	(1144.4)
2011	42,596	(823.6)	7,694	(148.8)	13,051	(252.4)	63,341	(1224.8)
2012	48,531	(935.4)	7,552	(145.6)	14,128	(272.3)	70,211	(1353.3)
2013	52,378	(1006.1)	7,540	(144.8)	15,124	(290.5)	75,042	(1441.5)
2014	57,256	(1115.3)	7,423	(144.6)	15,995	(311.6)	80,674	(1571.5)
2015	62,634	(1215.5)	7,352	(142.7)	17,028	(330.5)	87,014	(1688.6)

( ): Number of patients per million population. Rep. of Korea's population at the end of 2015: 51,529,338.

Patient Number of RRT



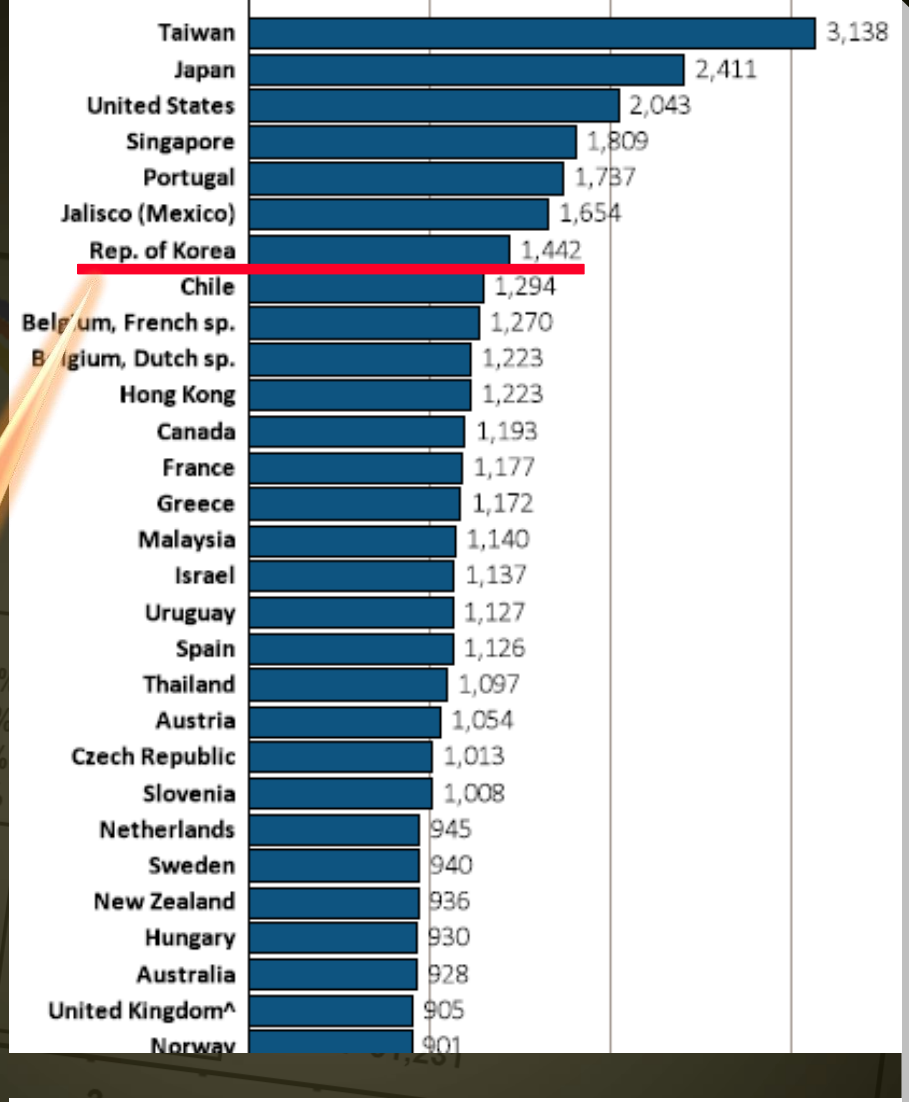
Point Prevalence of RRT

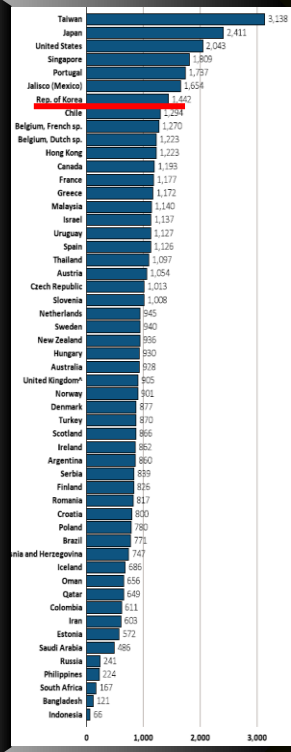


KOREAN ESRD REGISTRY

International comparison of ESRD Prevalence

1,442 PMP End of 2013





USRDS
UNITED STATES RENAL DATA SYSTEM

USRDS Report 2015

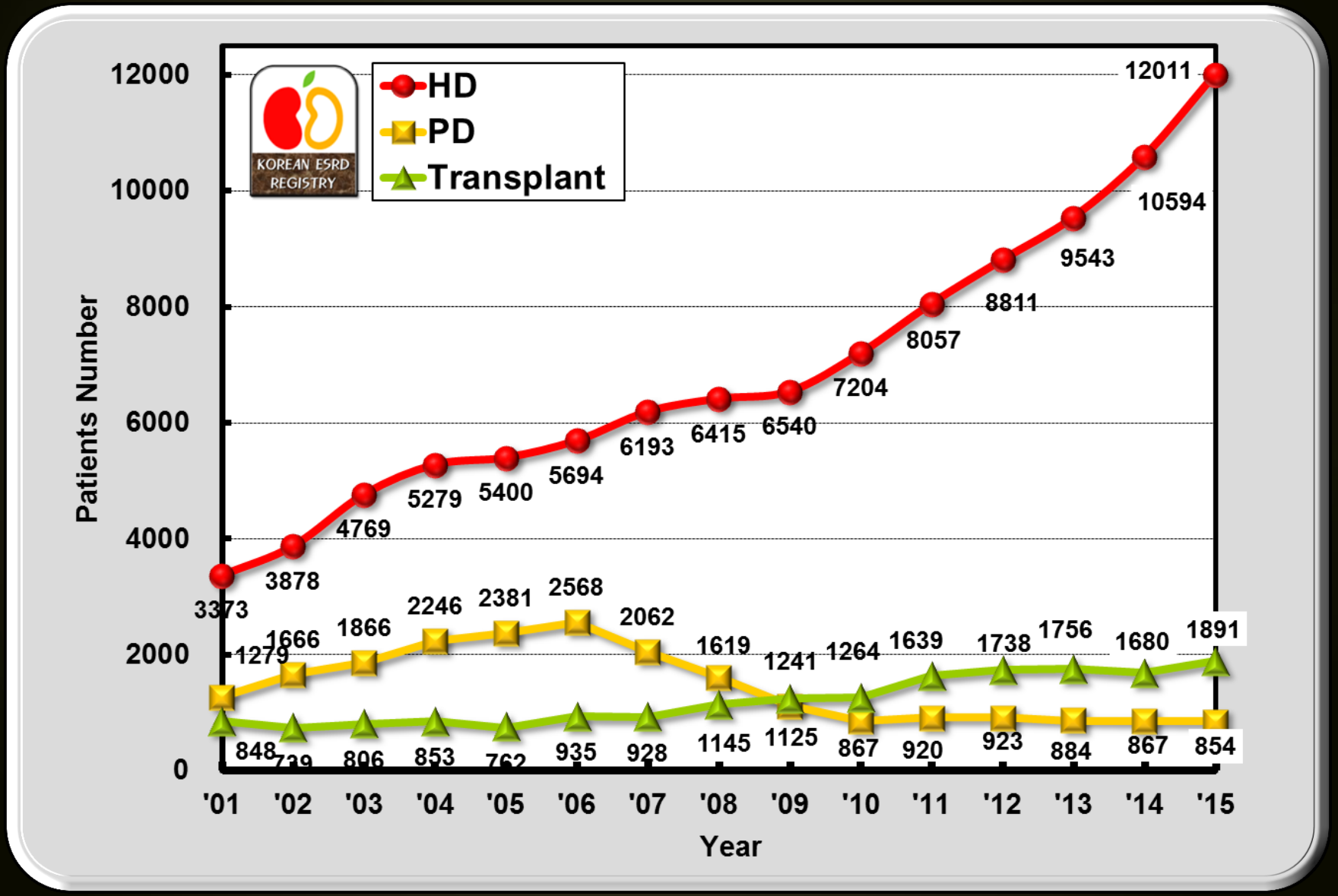
Jun 2016

Number of New RRT Patients

	HD		PD		Transplant		Total	
1986	670	(16.3)	287	(7.0)	221	(5.4)	1,173	(28.7)
1988	1,516	(36.2)	375	(8.9)	428	(10.2)	2,319	(55.3)
1990	2,418	(57.1)	530	(12.5)	624	(14.7)	3,572	(84.3)
1992	3,083	(70.8)	705	(16.2)	765	(17.6)	4,553	(104.6)
1994	2,999	(66.0)	907	(19.9)	685	(15.1)	4,591	(101.1)
1996	3,670	(79.0)	1,388	(29.9)	919	(19.8)	5,977	(128.7)
1998	2,463	(52.2)	753	(15.9)	994	(21.1)	4,210	(89.3)
2000	2,736	(57.0)	1,021	(21.3)	683	(14.2)	4,440	(92.5)
2001	3,373	(69.9)	1,279	(26.5)	848	(17.6)	5,500	(113.9)
2002	3,878	(79.9)	1,666	(34.3)	739	(15.2)	6,283	(129.5)
2003	4,769	(97.7)	1,866	(38.2)	806	(16.5)	7,441	(152.4)
2004	5,279	(107.6)	2,246	(45.8)	853	(17.4)	8,378	(170.8)
2005	5,400	(109.6)	2,381	(48.3)	762	(15.5)	8,543	(173.4)
2006	5,694	(114.7)	2,568	(51.7)	935	(18.8)	9,197	(185.3)
2007	6,193	(123.8)	2,062	(41.2)	928	(18.5)	9,183	(183.5)
2008	6,415	(127.3)	1,619	(32.1)	1,145	(22.7)	9,179	(182.1)
2009	6,540	(129.1)	1,125	(22.2)	1,241	(24.5)	8,906	(175.9)
2010	7,204	(140.1)	867	(16.9)	1,264	(24.6)	9,335	(181.5)
2011	8,057	(155.8)	920	(17.8)	1,639	(31.7)	10,616	(205.3)
2012	8,811	(169.8)	923	(17.8)	1,738	(33.5)	11,472	(221.1)
2013	9,543	(183.3)	884	(17.0)	1,756	(33.7)	12,183	(234.0)
2014	10,594	(206.4)	867	(16.9)	1,680	(32.7)	13,141	(256.0)
2015	12,011	(233.1)	854	(16.6)	1,891	(36.7)	14,756	(286.4)

( ): Number of patients per million population. Rep. of Korea's population at the end of 2015: 51,529,338.

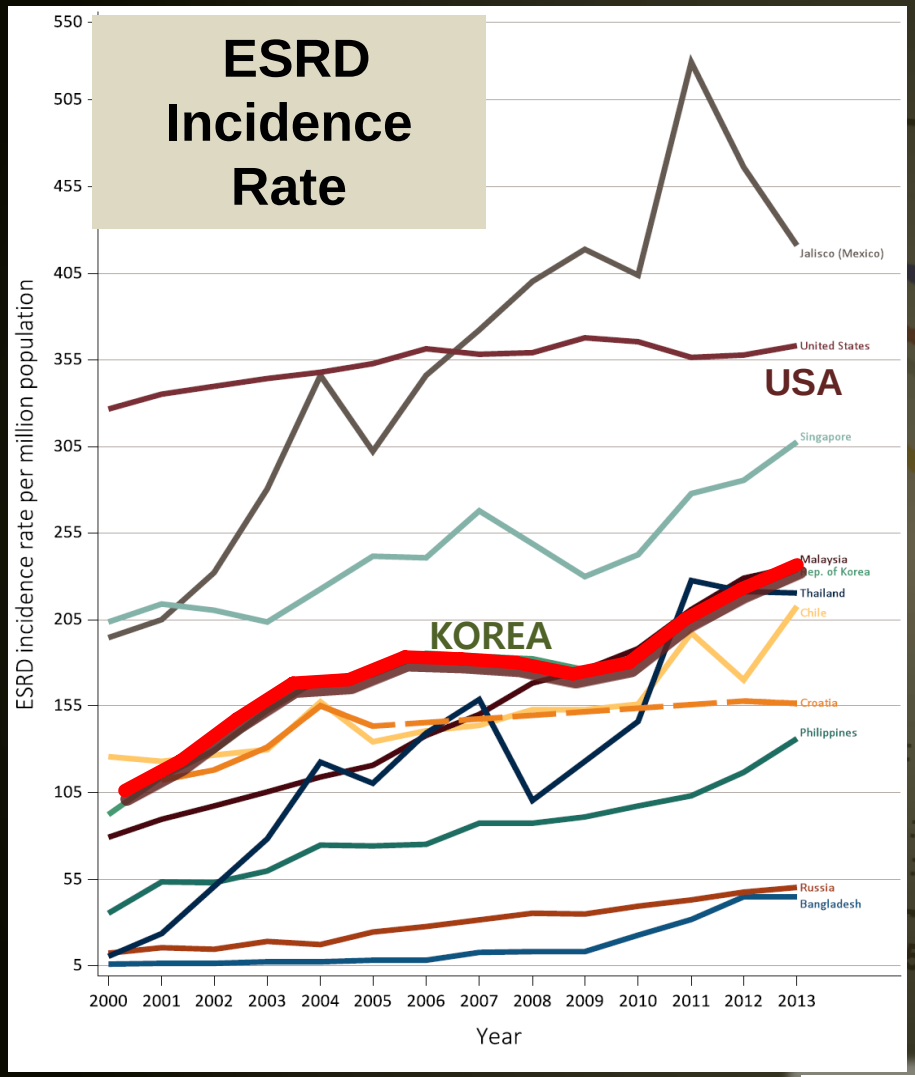
Number of New RRT Patients



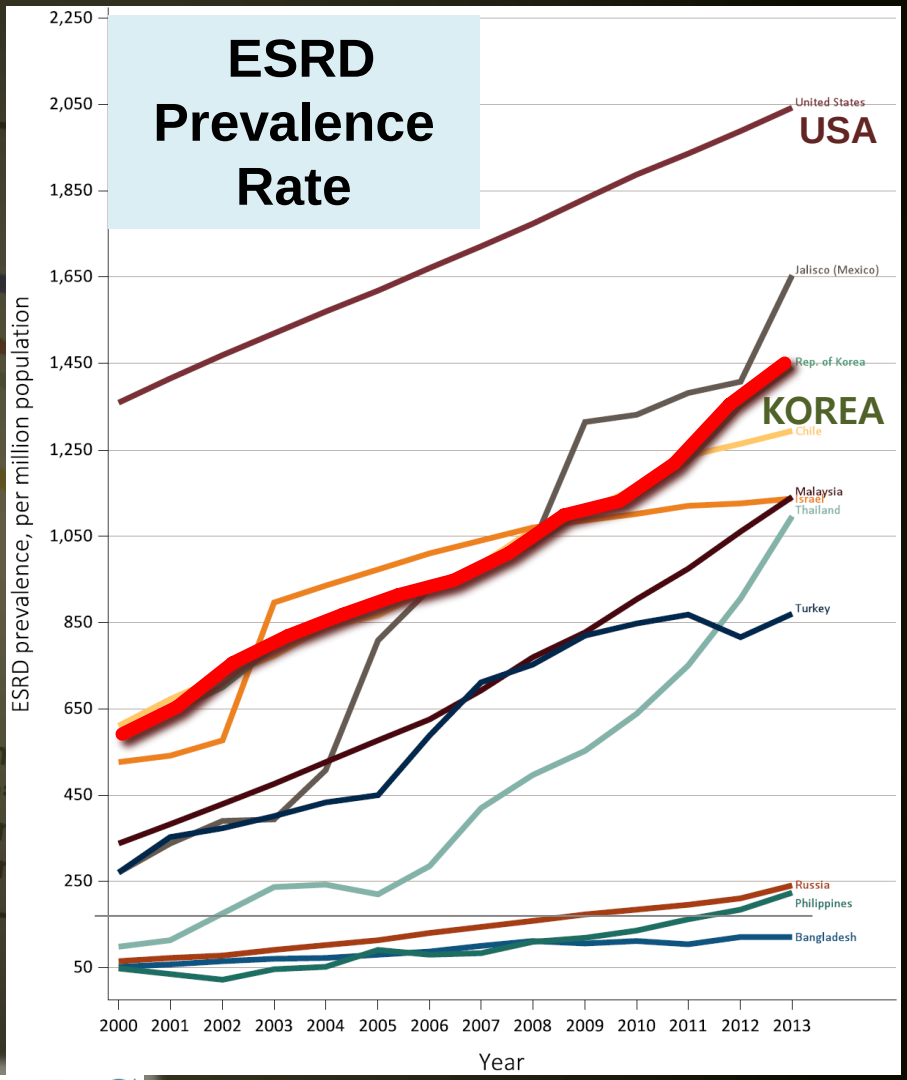
KOREAN ESRD REGISTRY

International Comparison

ESRD Incidence Rate



ESRD Prevalence Rate



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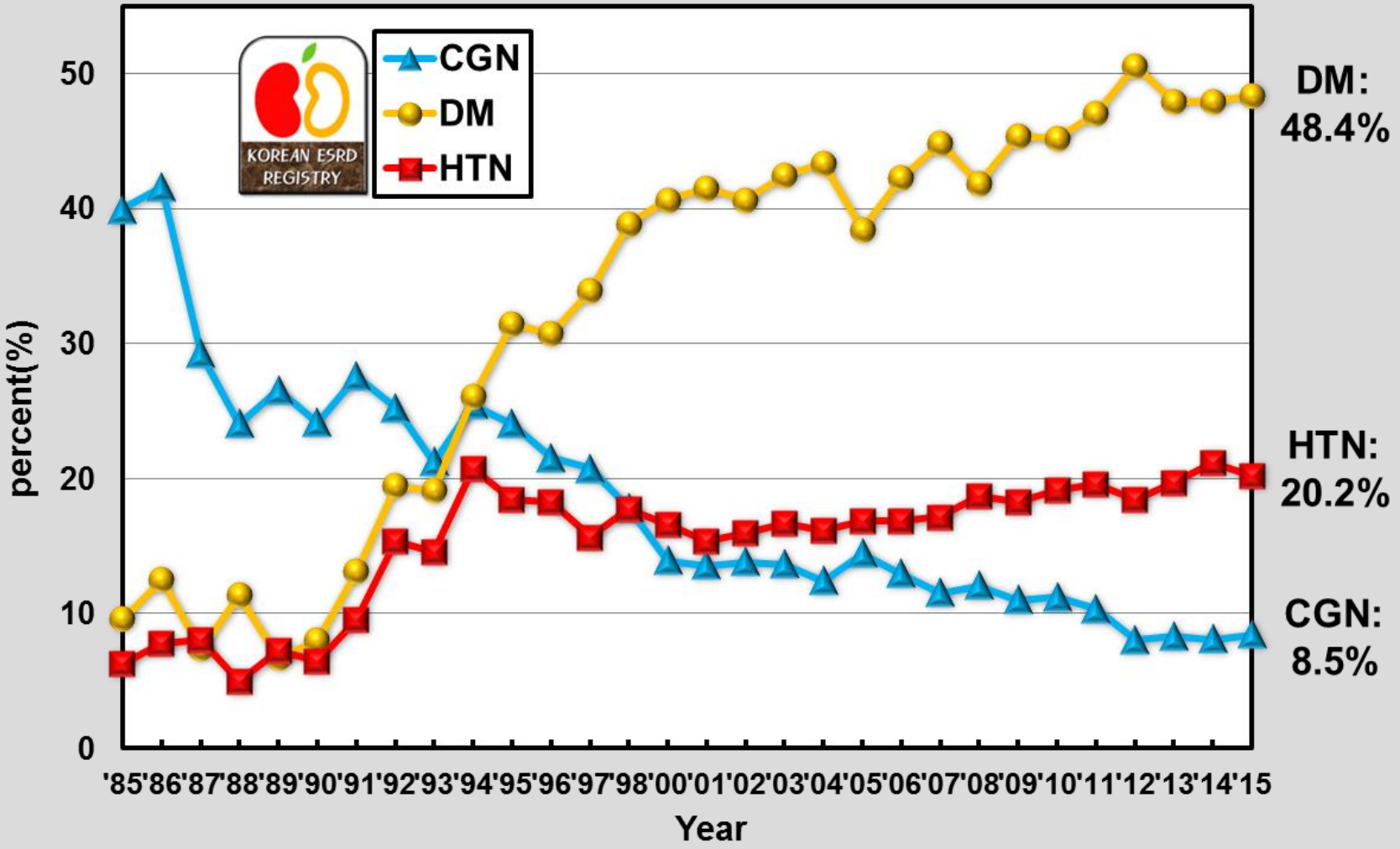
Causes of ESRD in New Patients

Causes	Percent (%)												
	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2015
Chronic Glomerulonephritis	25.3	25.5	21.6	17.9	14	13.9	12.5	13.0	12.1	11.3	8.1	8.2	8.5
Not Histologically confirmed	19.7	20.4	16.7	13.6	10.6	10	8.6	9.0	8.2	7.7	4.5	4.4	4.2
Histologically confirmed	5.6	5	4.9	4.3	3.4	3.9	3.9	3.9	3.8	3.6	3.6	3.8	4.3
Diabetic nephropathy	19.5	26.1	30.8	38.9	40.7	40.7	43.4	42.3	41.9	45.2	50.6	48.0	48.4
Hypertensive nephrosclerosis	15.4	20.8	18.3	17.8	16.6	16	16.2	16.9	18.7	19.2	18.5	21.2	20.2
Cystic kidney disease	2.1	2.2	1.8	1.7	2.2	1.6	1.4	1.7	1.7	1.7	1.8	1.8	1.9
Renal tuberculosis	1.1	1.5	1.2	0.5	0.4	0.5	0.3	0.3	0.2	0.2	0.0	0.1	0.1
Pyelo/interstitial nephritis	1.3	1.1	0.7	1	0.8	0.6	0.6	0.6	0.5	0.4	0.5	0.8	0.3
Drugs or nephrotoxic agents	1.3	0.1	0.6	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.4	0.2	0.6
Lupus nephritis	0.8	0.7	1	0.5	0.9	0.8	0.6	0.6	0.6	0.5	0.6	0.5	0.3
Gouty nephropathy	0.7	0.7	0.6	0.5	0.7	0.4	0.5	0.3	0.3	0.4	0.3	0.3	0.4
Hereditary nephropathy	0.3	0.7	0.4	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.5	0.5	0.4
Kidney tumor	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3
Other	4.1	2.7	2.8	3.9	3	5.6	5.9	6.0	5.8	5.1	6.8	6.1	6.3
Uncertain	28.6	17.8	15.9	16.6	20.2	19	17.8	17.5	17.6	15.3	11.4	12.1	12.3

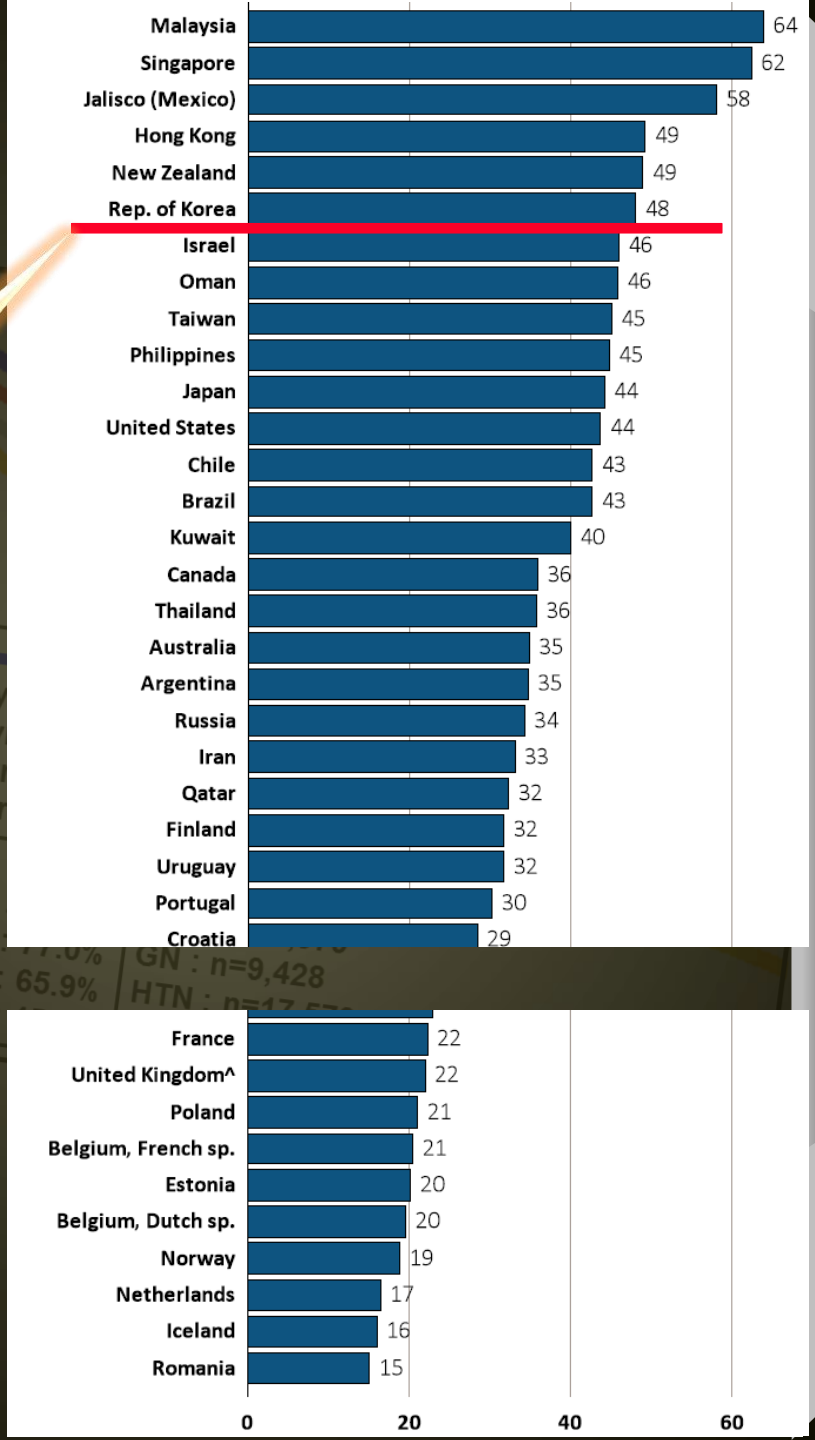
Three Major Causes of ESRD

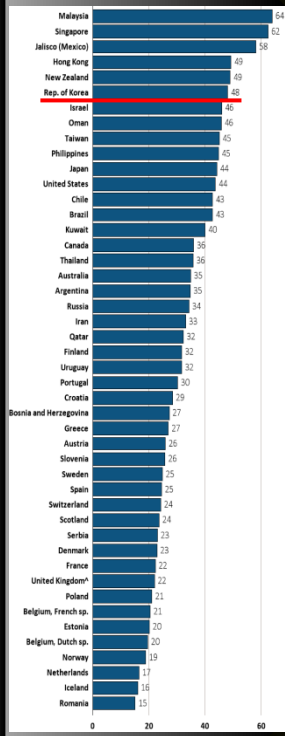


KOREAN ESRD REGISTRY

Diabetic ESRD
International Comparison

Rep. of Korea
48% in 2013





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USRDS Report 2015

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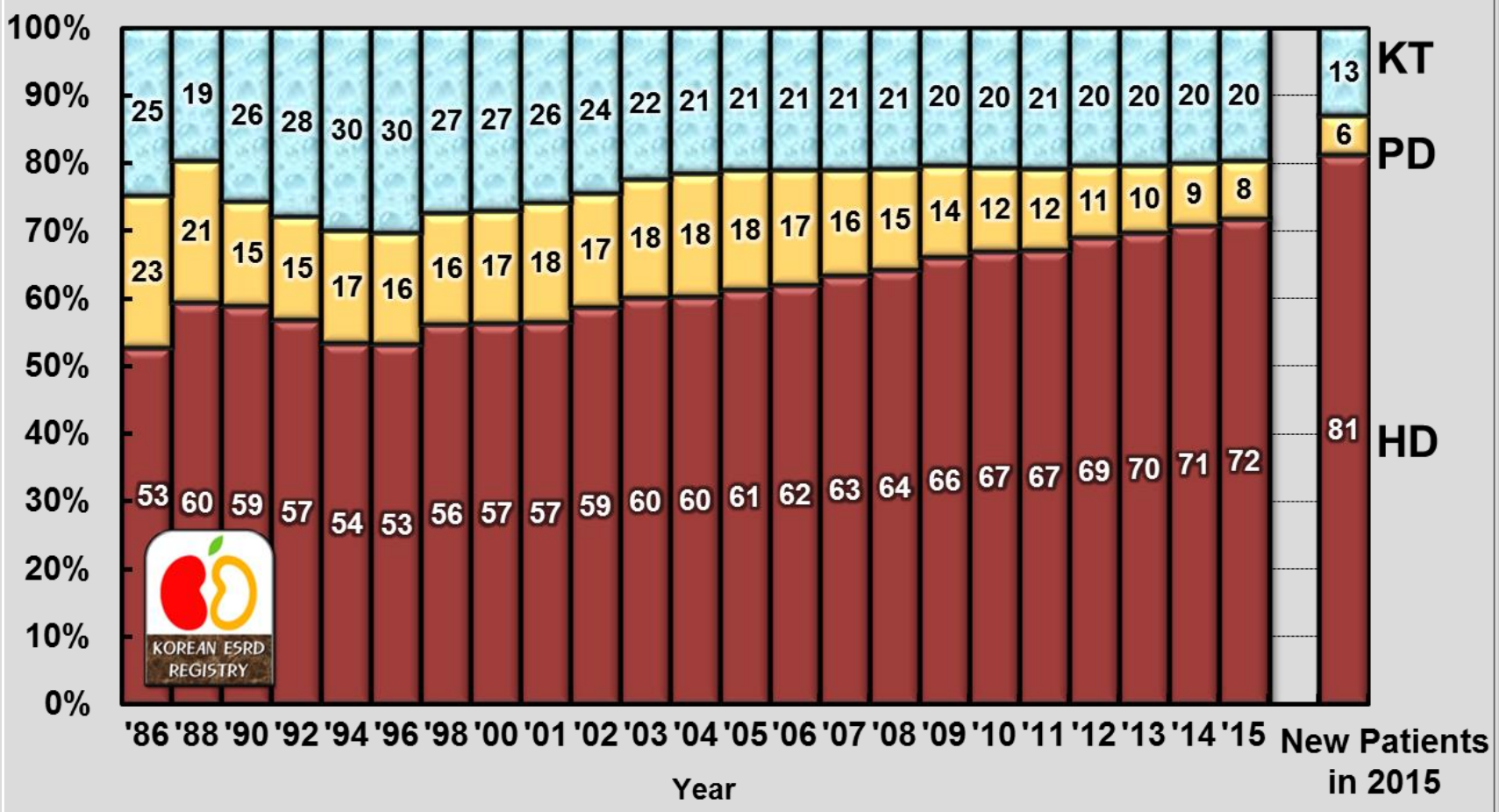
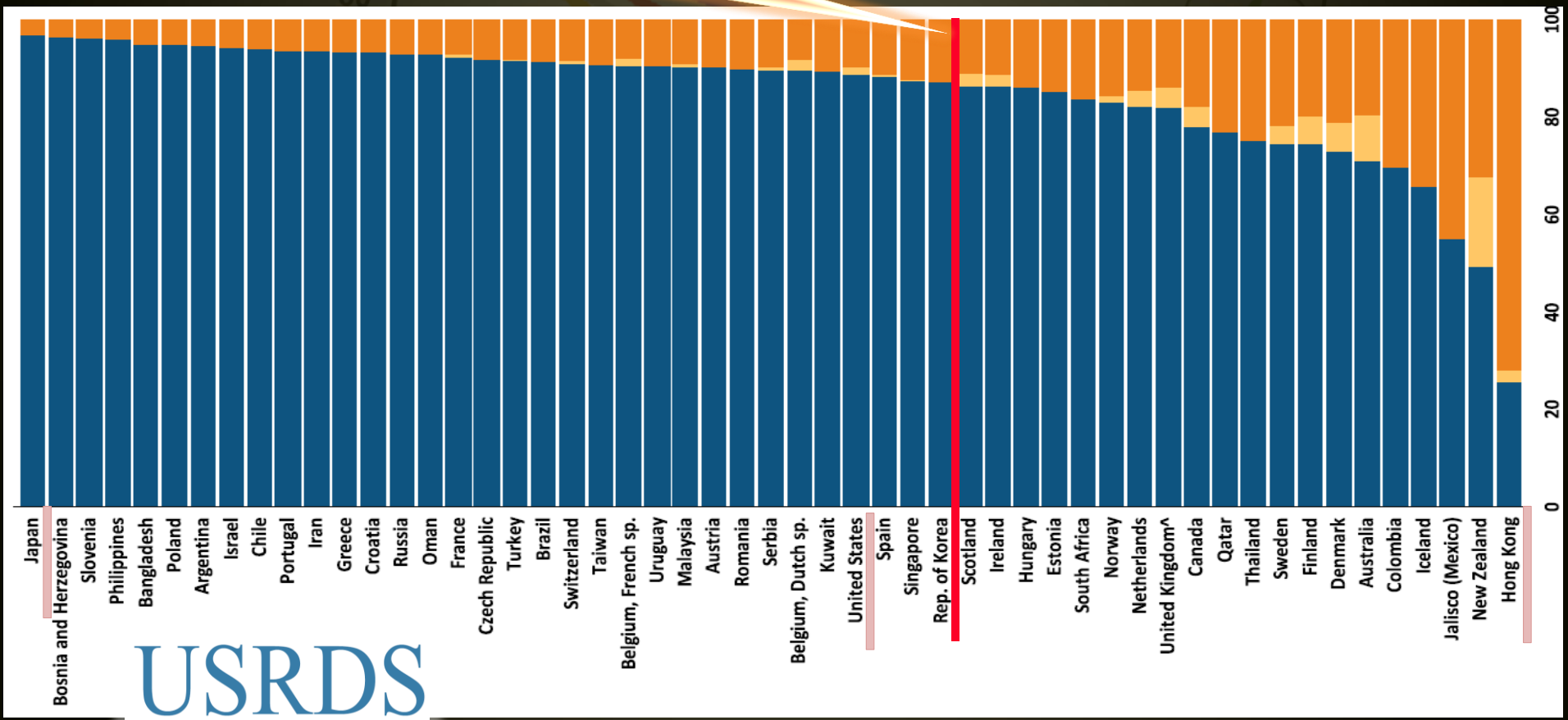
Proportion of RRT Modalities



Percent Distribution of Dialysis Modalities

HD:PD = 87.5% : 15.5%
End of 2013



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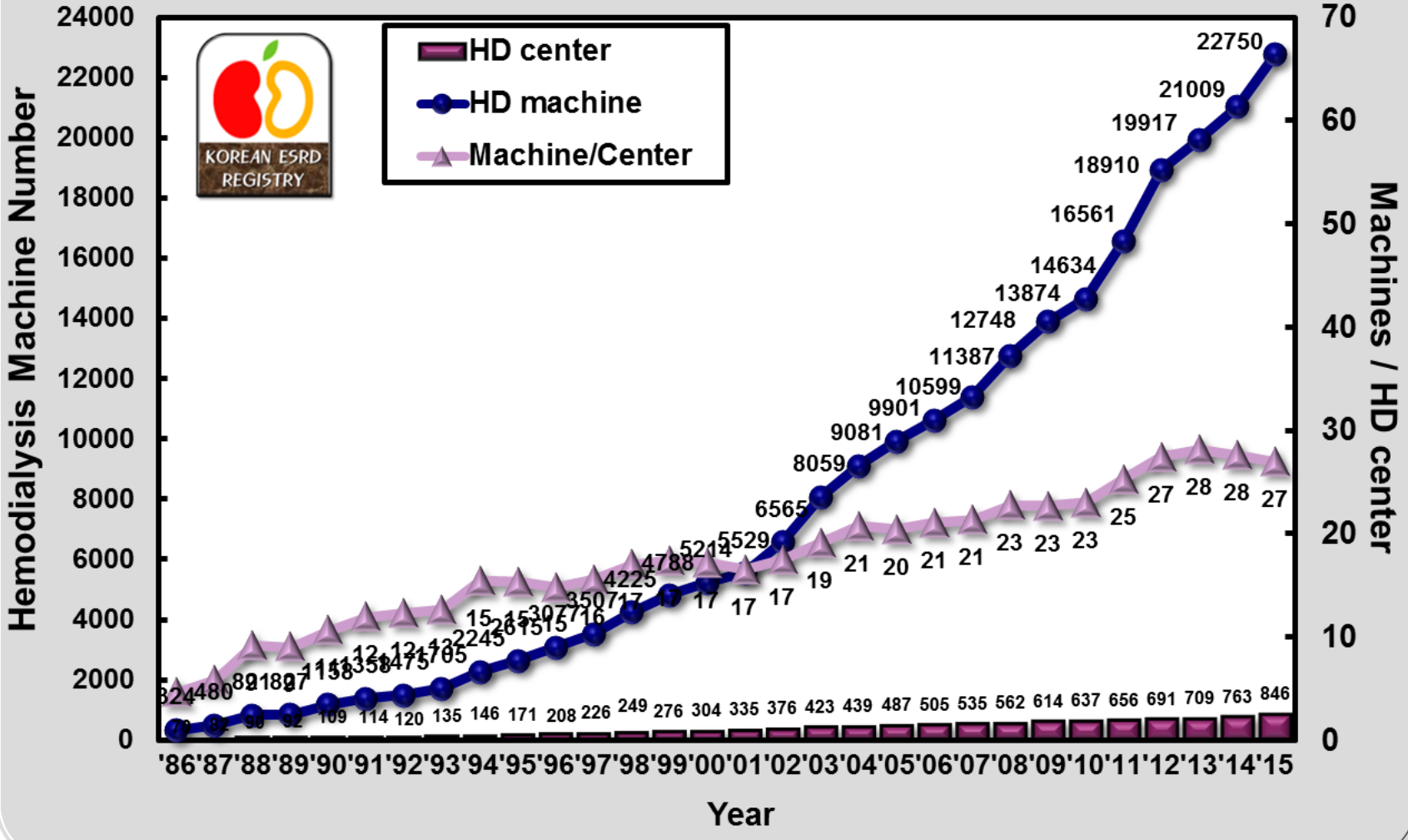
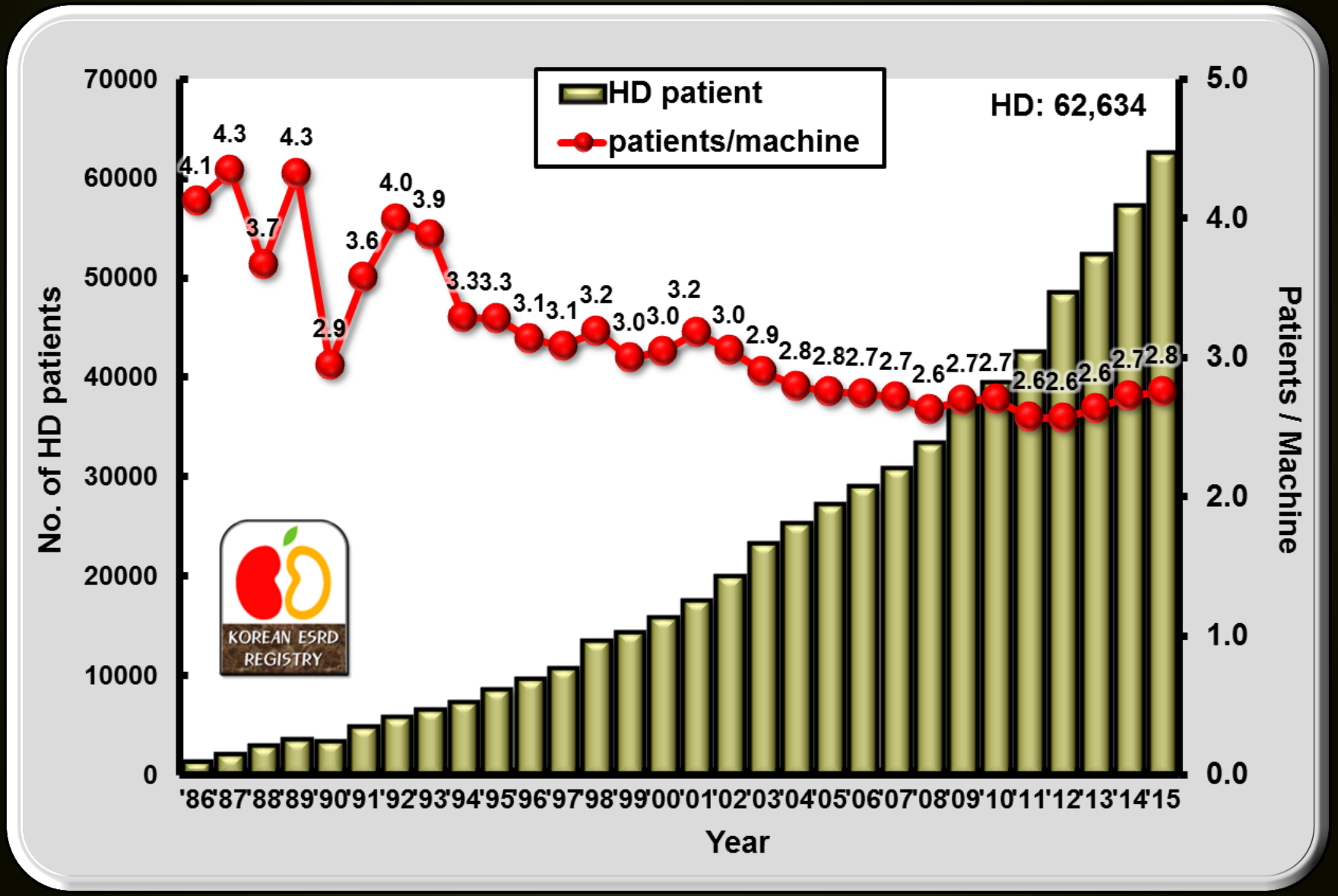
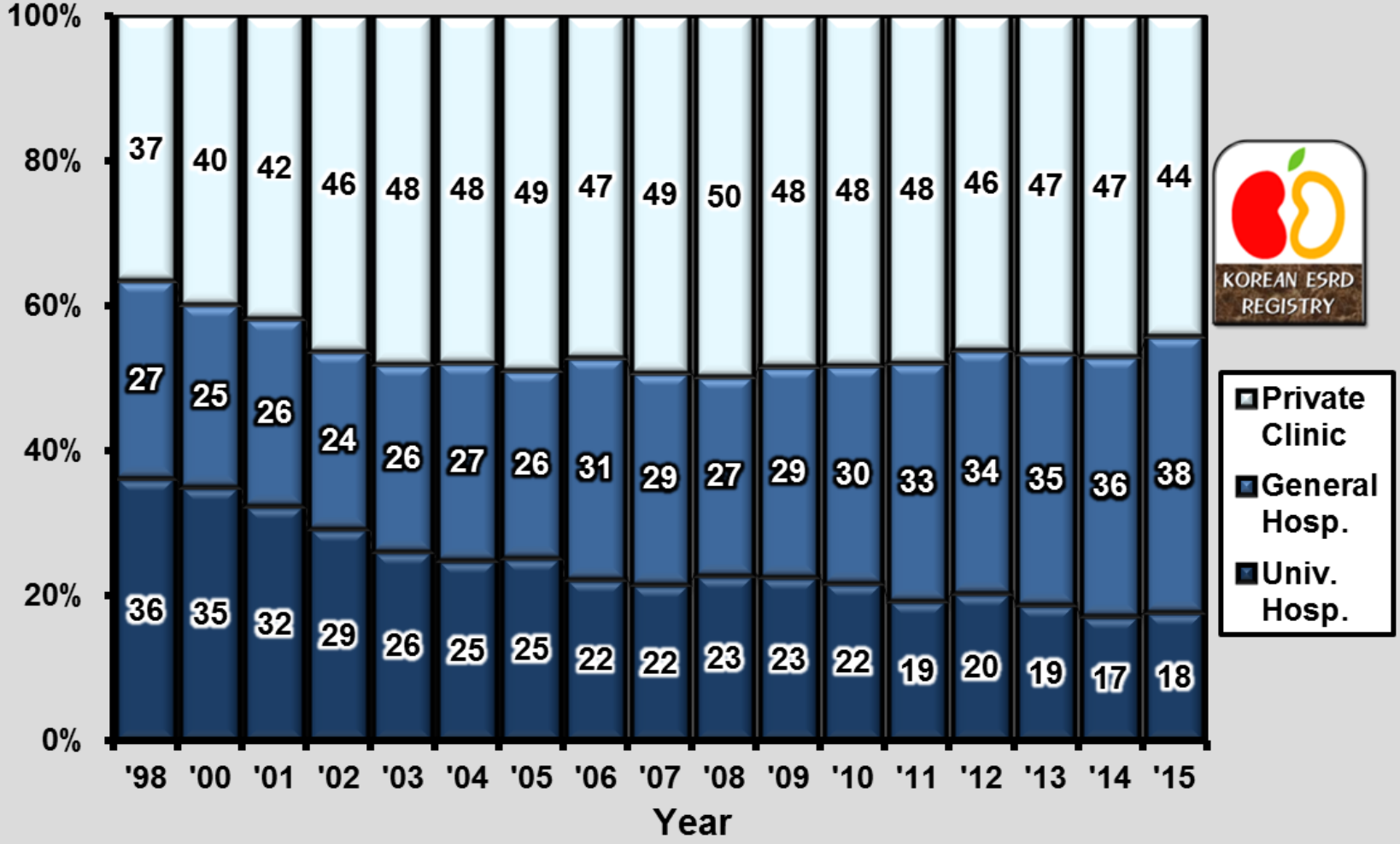
Number of HD Centers & HD Machines



Ratio of HD Machine & HD Patients



HD Pts Proportion by Dialysis Center Type



행정구역별 투석환자 및 혈액투석기 분포

(At the end of Dec. 2015)

	HD pts	PD pts	Total Dialysis pts	Dialysis pts. / Million pop.	Dialysis Centers	HD machines	HD pts./ HD machine
서울 Seoul	13,123	2,119	15,242	1,521	176	5,713	2.3
부산 Busan	4,726	873	5,599	1,593	57	2,061	2.3
대구 Daegu	3,864	713	4,577	1,840	43	1,502	2.6
인천 Incheon	3,335	349	3,684	1,259	41	1,546	2.2
광주 Gwangju	2,079	236	2,315	1,572	35	1,048	2.0
대전 Daejeon	1,119	347	1,466	965	19	601	1.9
울산 Ulsan	1,239	56	1,295	1,104	15	533	2.3
경기 Gyeonggi	12,944	1,345	14,289	1,141	182	5,963	2.2
강원 Gangwon	2,131	376	2,507	1,618	29	874	2.4
충북 Chungbuk	2,134	87	2,221	1,402	30	918	2.3
충남 Chungnam	2,732	90	2,822	1,233	41	1,156	2.4
전북 Jeonbuk	2,604	163	2,767	1,480	28	1,070	2.4
전남 Jeonnam	2,321	161	2,482	1,300	40	1,210	1.9
경북 Gyeongbuk	3,078	146	3,224	1,193	46	1,370	2.2
경남 Gyeongnam	4,245	215	4,460	1,326	53	1,847	2.3
제주 Jeju	960	76	1,036	1,659	11	338	2.8
Total	62,634	7,352	69,986	1,358	846	27,750	2.3

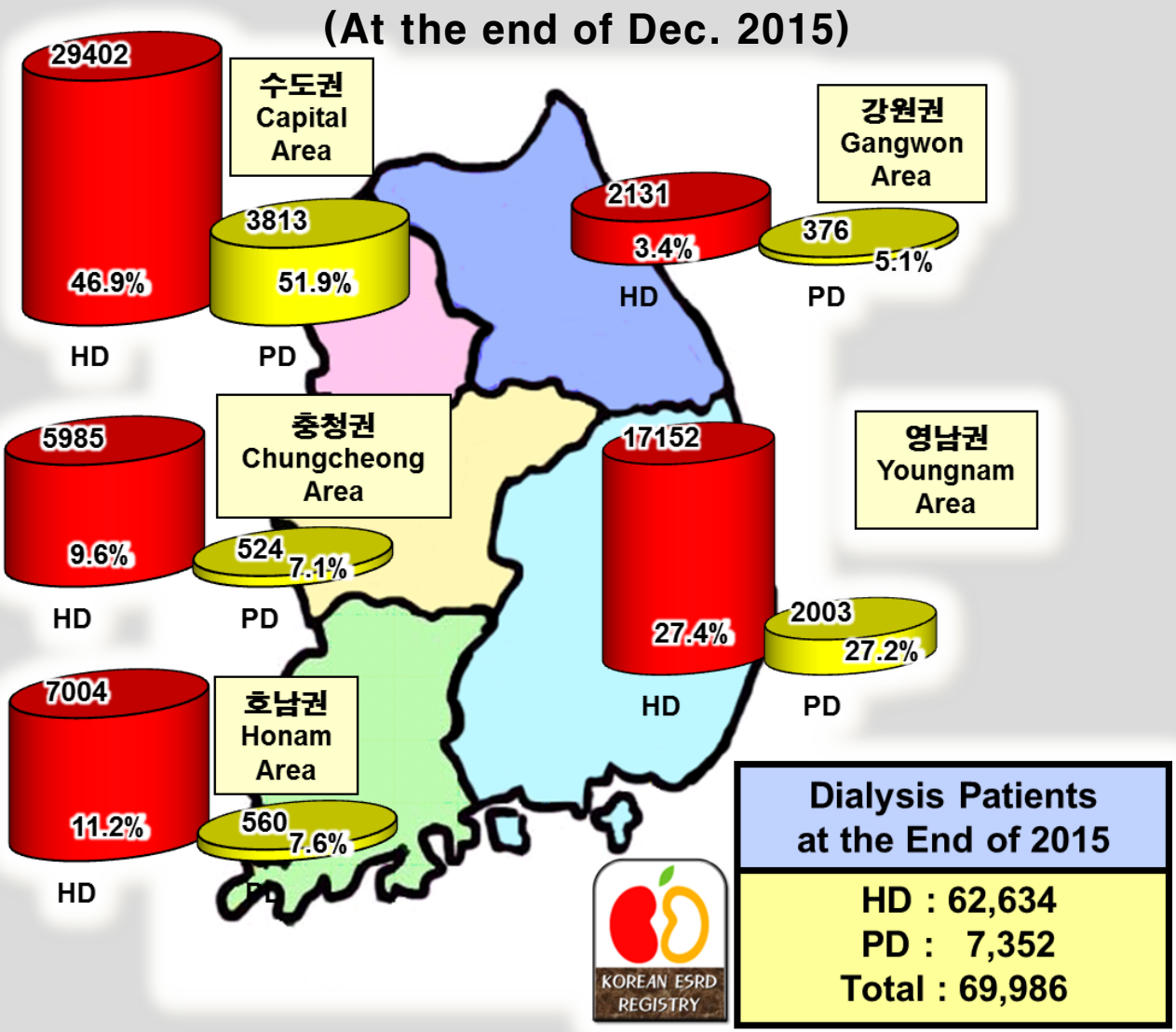
생활권역별 투석환자 및 혈액투석기 분포

(At the end of Dec. 2015)

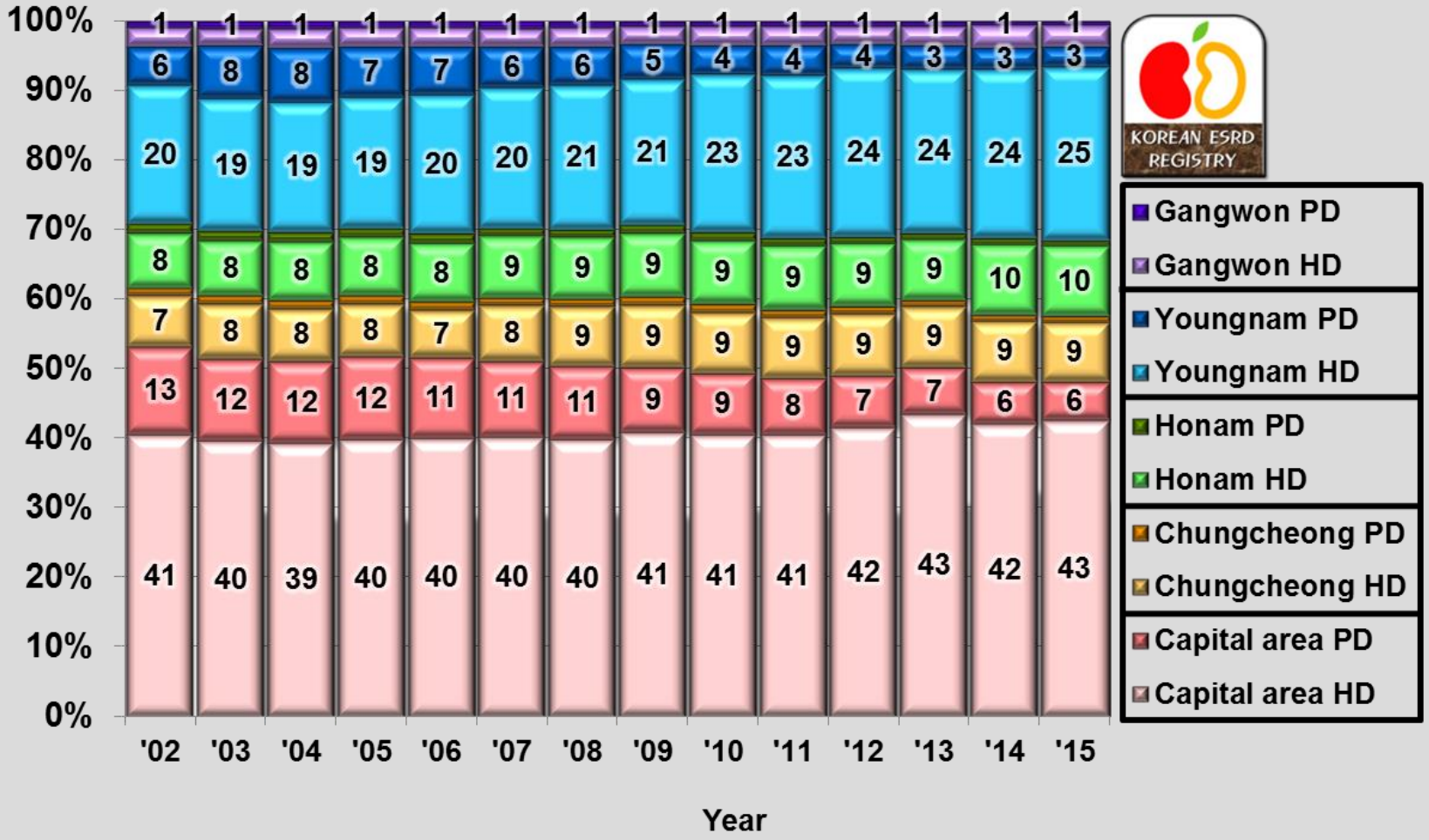
	Population (%)	HD patients	PD patients	Total Dialysis patients	Dialysis pts /Million pop.	Dialysis centers	Dialysis machine	HD pts / HD machine
수도권 Capital Area (Seoul, Incheon, Gyeonggi)	25,470,602 49.4%	29,402 46.9%	3,813 51.9%	33,215 47.5%	1,304	399 47.2%	13,222 47.6%	2.2
충청권 Chungchung (Daejeon, Chungnam, Chungbuk)	5,391,260 10.5%	5,985 9.6%	524 7.1%	6,509 9.3%	1,207	90 10.6%	2,675 9.6%	2.2
호남권 Honam (Gwangju, Jeonnam, Jeonbuk)	5,250,906 10.2%	7,004 11.2%	560 7.6%	7,564 10.8%	1,441	103 12.2%	3,328 12.0%	2.1
영남권 Youngnam (Busan, Daegu, Gyeongnam, Gyeongbuk, Ulsan)	13,242,668 25.7%	17,152 27.4%	2,003 27.2%	19,155 27.4%	1,446	214 25.3%	7,313 26.4%	2.3
강원권 Gangwon	1,549,507 3.0%	2,131 3.4%	376 5.1%	2,507 3.6%	1,618	29 3.4%	874 3.1%	2.4
Total	51,529,338	62,634	7,352	69,986	1,358	846	27,750	2.3

* 제주 표시 제외. Data of Jeju-do is not shown.

생활권역별 투석환자 분포



생활권역별 투석환자 비율의 연도별 변화

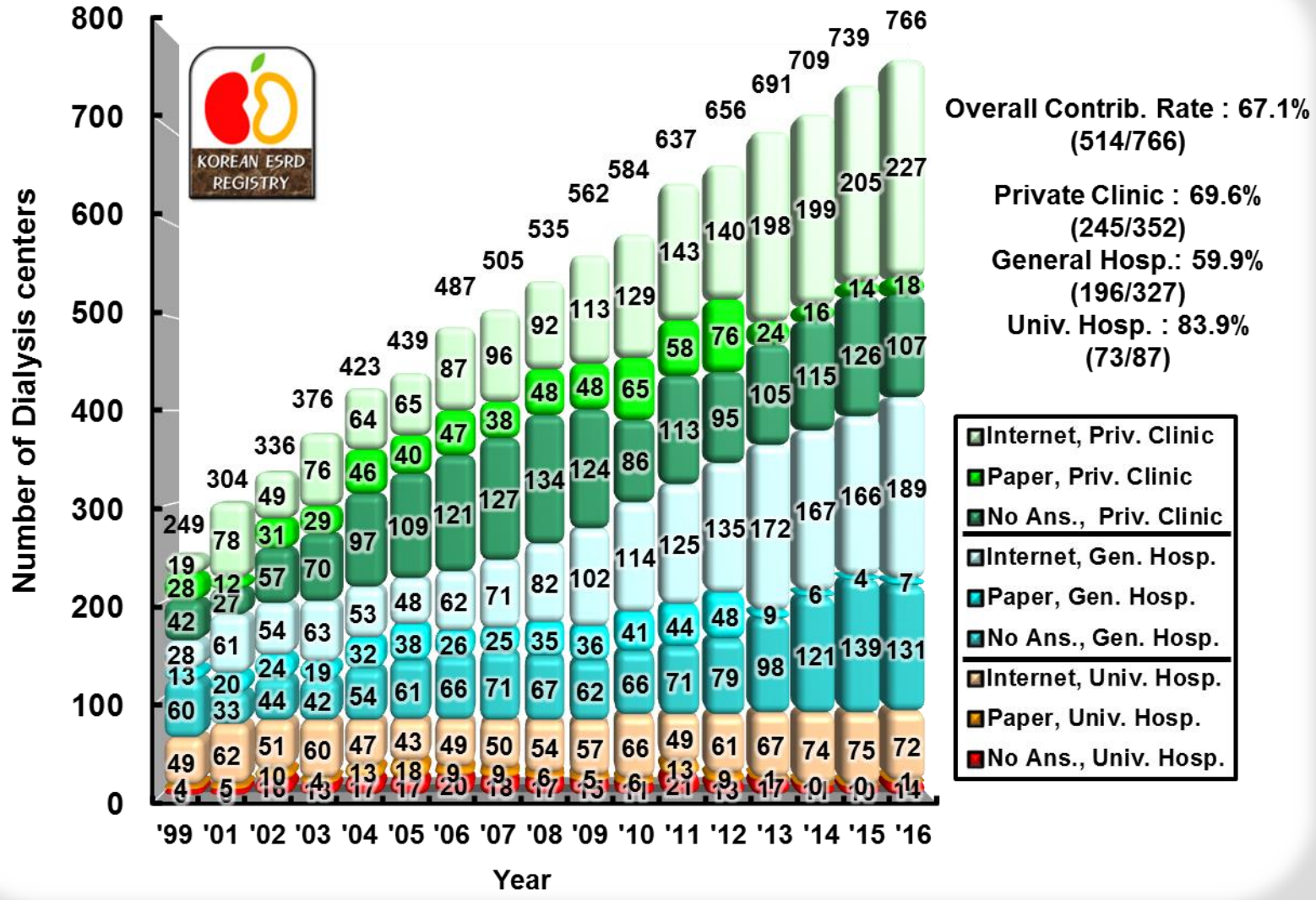


등록사업에 참여한 의료기관 수 및 응답률

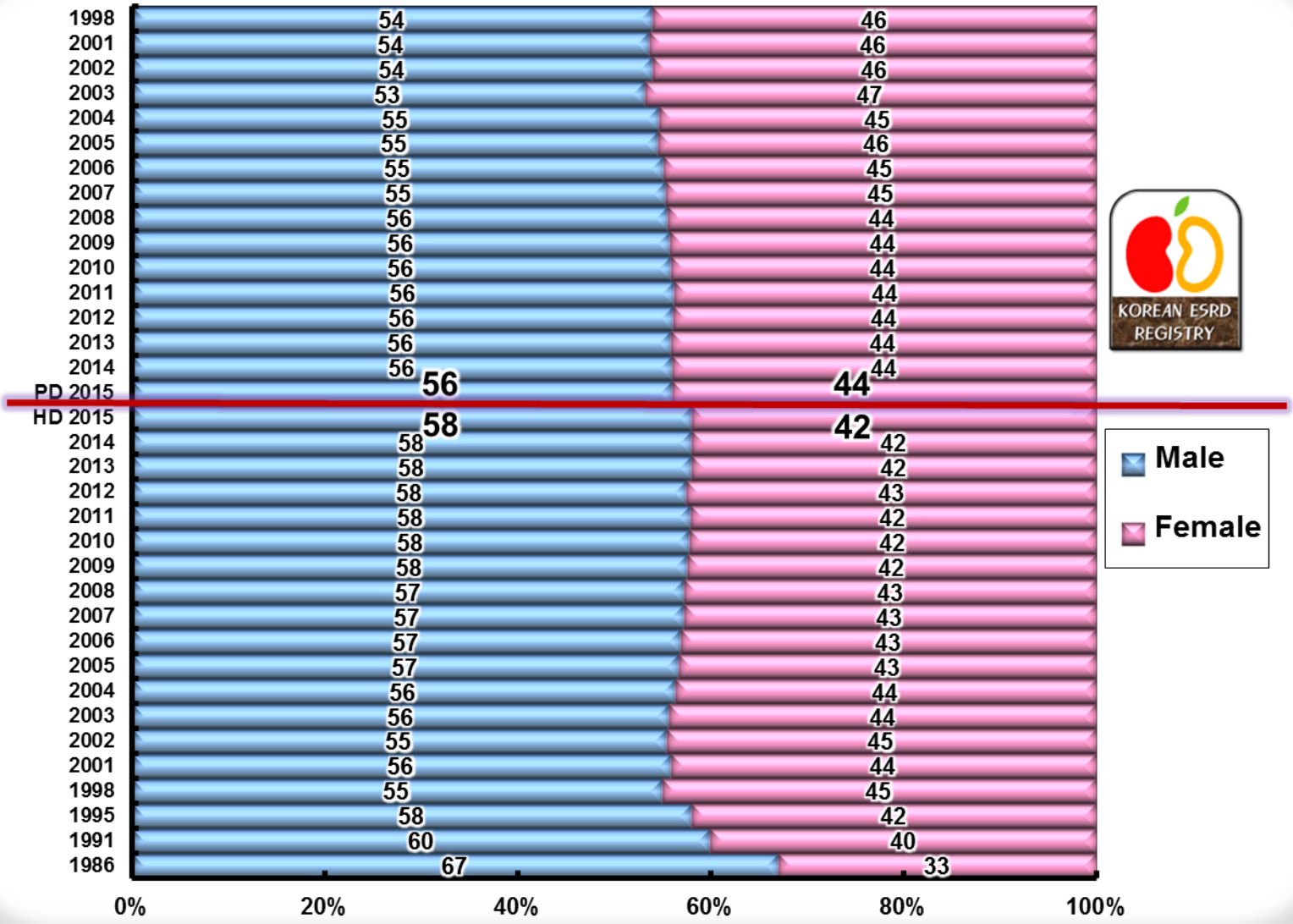
	Dialysis Centers*	Internet Input	Paper Data	Total Contributed Centers	Contributing Rate (%)
서울 Seoul	159	110	6	116	73.0
부산 Busan	52	36	1	37	71.2
대구 Daegu	39	24	1	25	64.1
인천 Incheon	37	22	2	24	64.9
광주 Gwangju	32	18	2	20	62.5
대전 Daejeon	17	8	0	8	47.1
울산 Ulsan	14	8	0	8	57.1
경기 Gyeonggi	165	93	5	98	59.4
강원 Gangwon	26	21	0	21	80.8
충북 Chungbuk	27	16	3	19	70.4
충남 Chungnam	37	26	1	27	73.0
전북 Jeonbuk	25	16	0	16	64.0
전남 Jeonnam	36	20	1	21	58.3
경북 Gyeongbuk	41	32	2	34	82.9
경남 Gyeongnam	49	33	2	35	71.4
제주 Jeju	10	5	0	5	50.0
Total	766	488	26	514	67.1

* 투석의료기관 수에서 비윤리 의료기관 및 소수 환자 의료기관 (약 80개소)은 제외함.

의료기관의 증가와 의료기관별 등록률

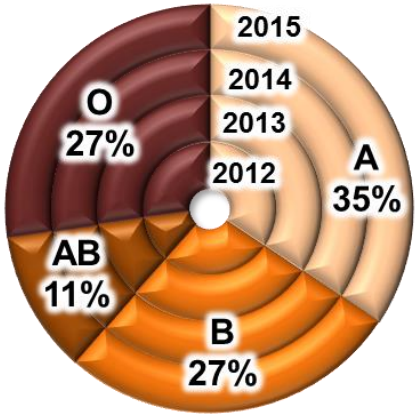


Gender Ratio of Dialysis Patients

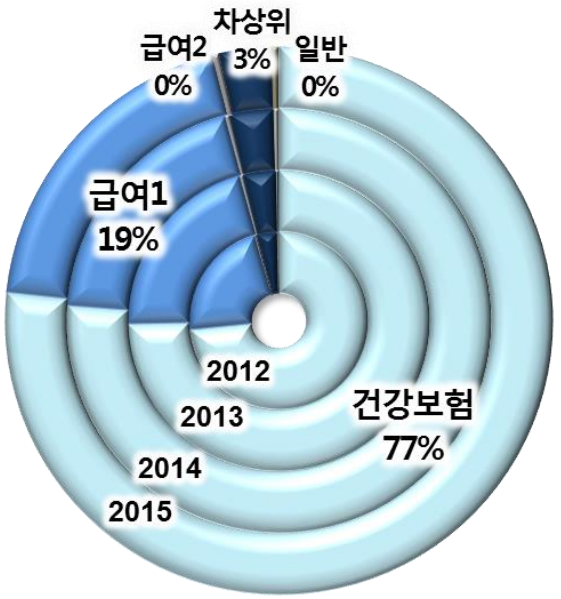


ABO Blood type, Hepatitis virus, Insurance

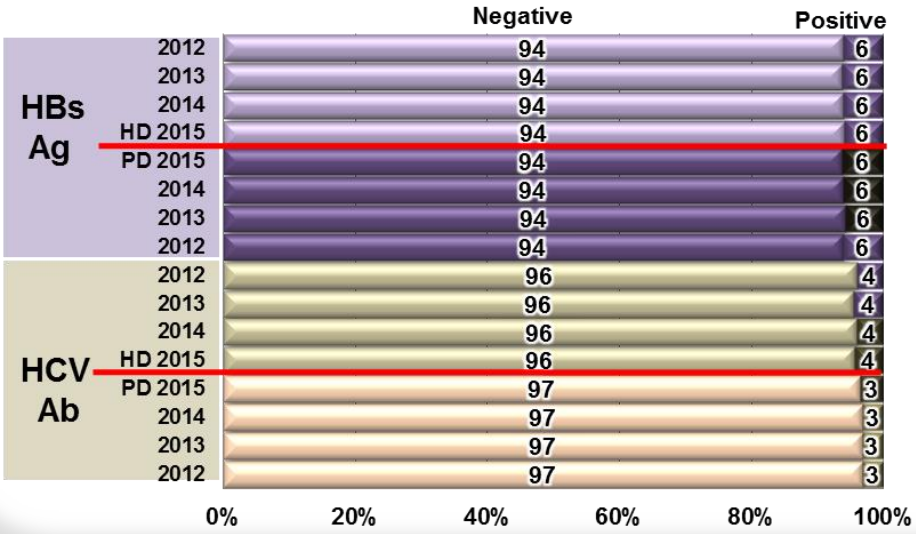
ABO Blood Type



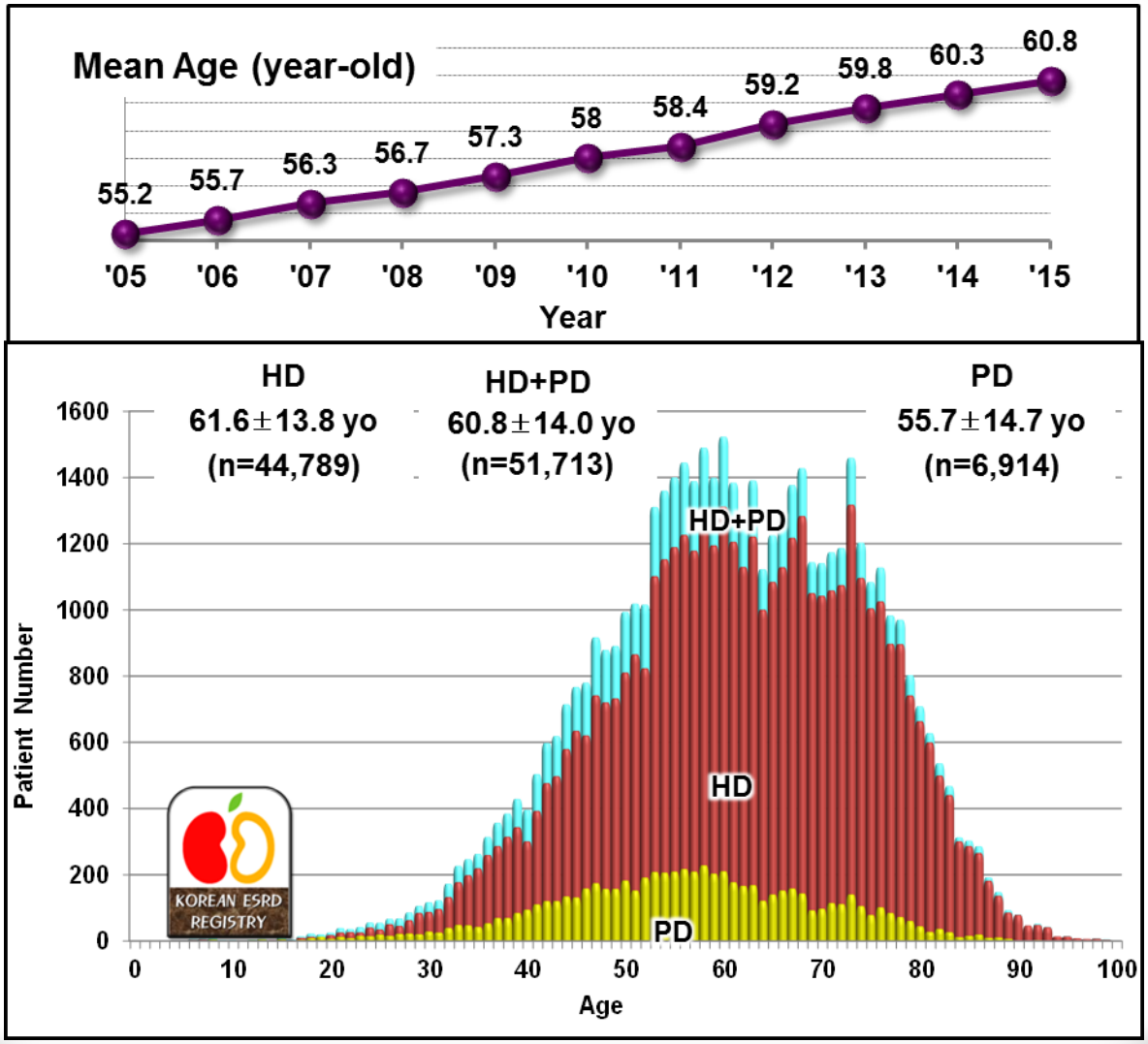
Insurance



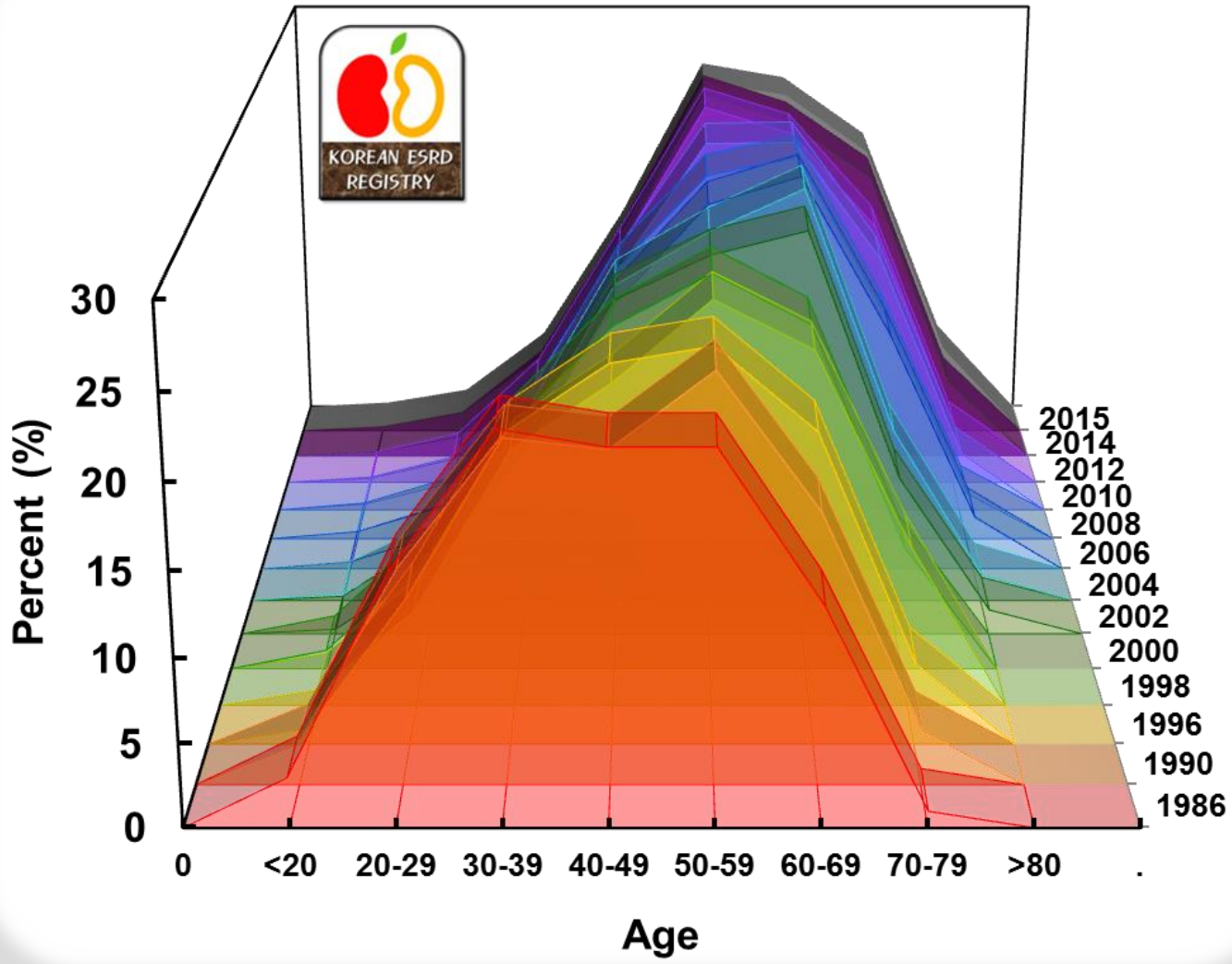
Hepatitis Virus



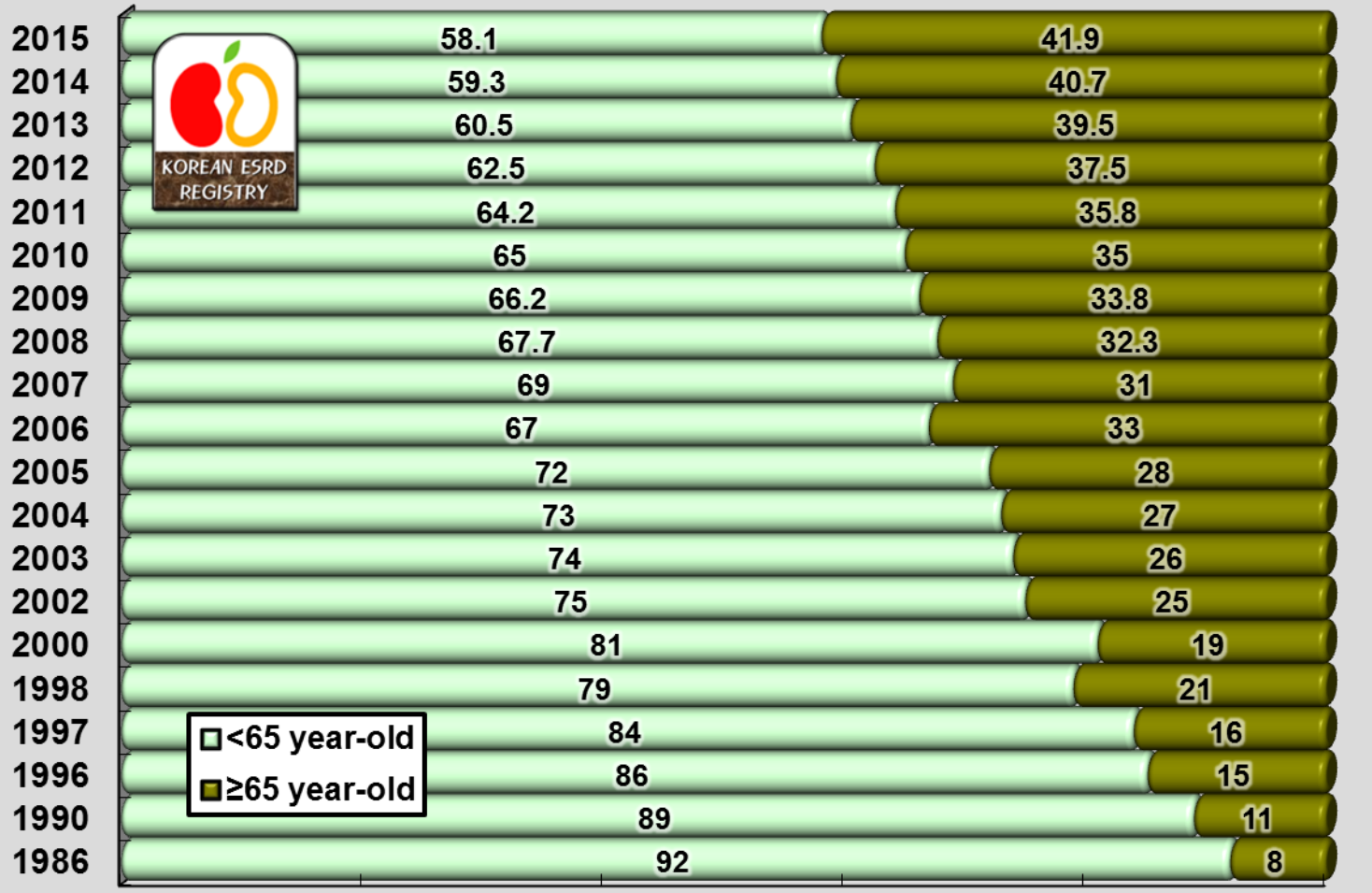
Age Distribution of Dialysis Patients



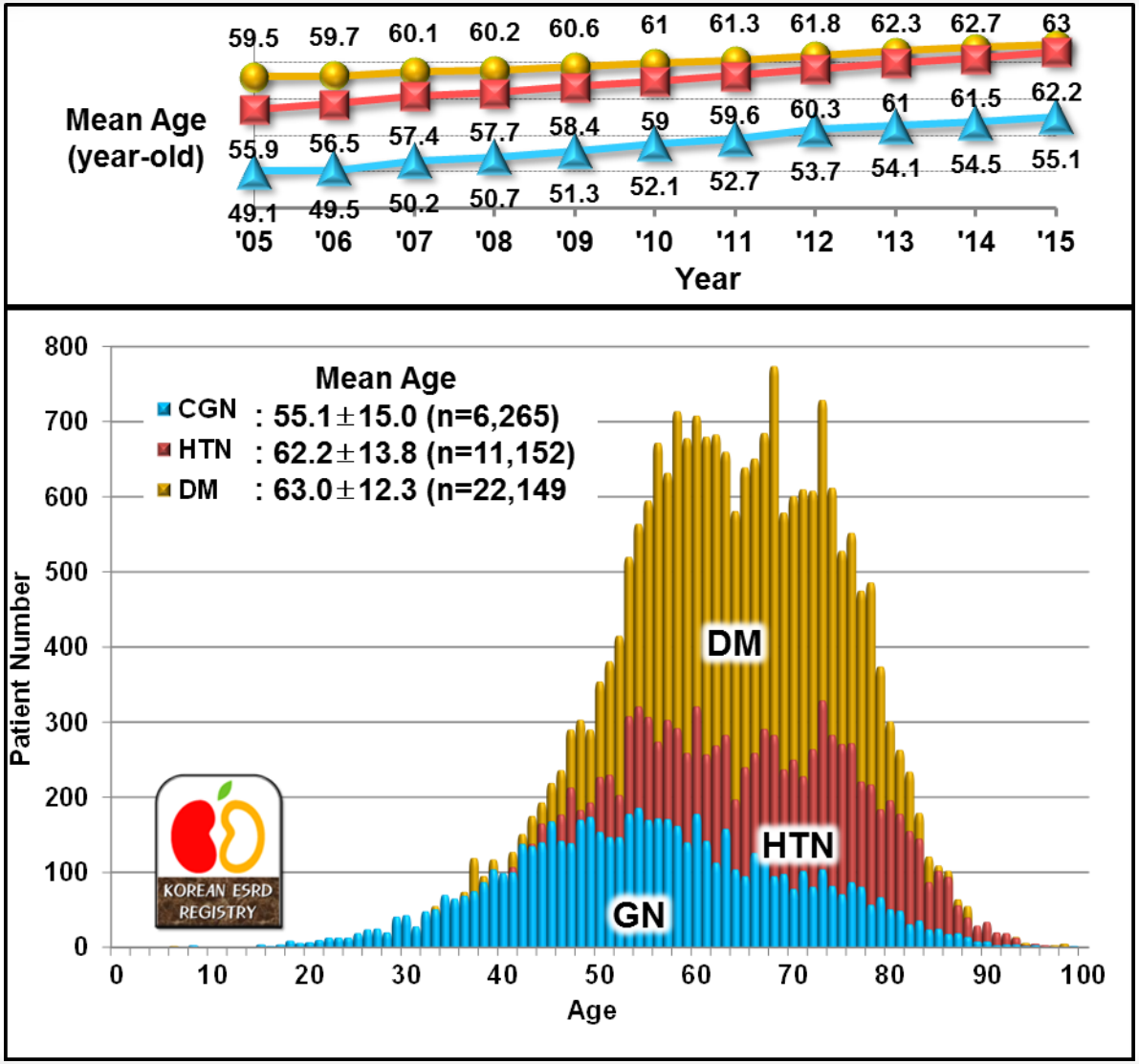
Age Distribution of HD Pts according to Year



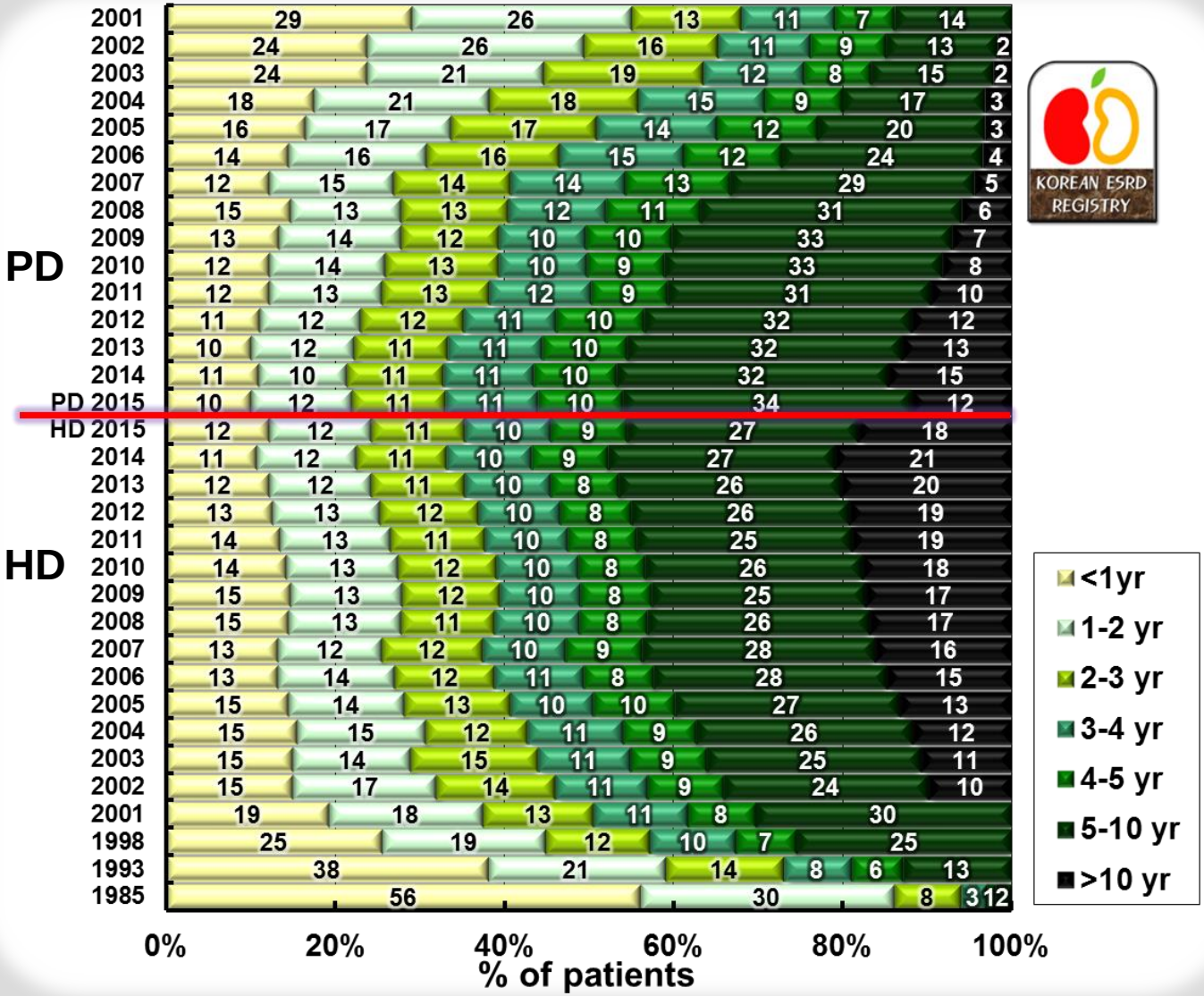
Percent of Elderly Dialysis Patients



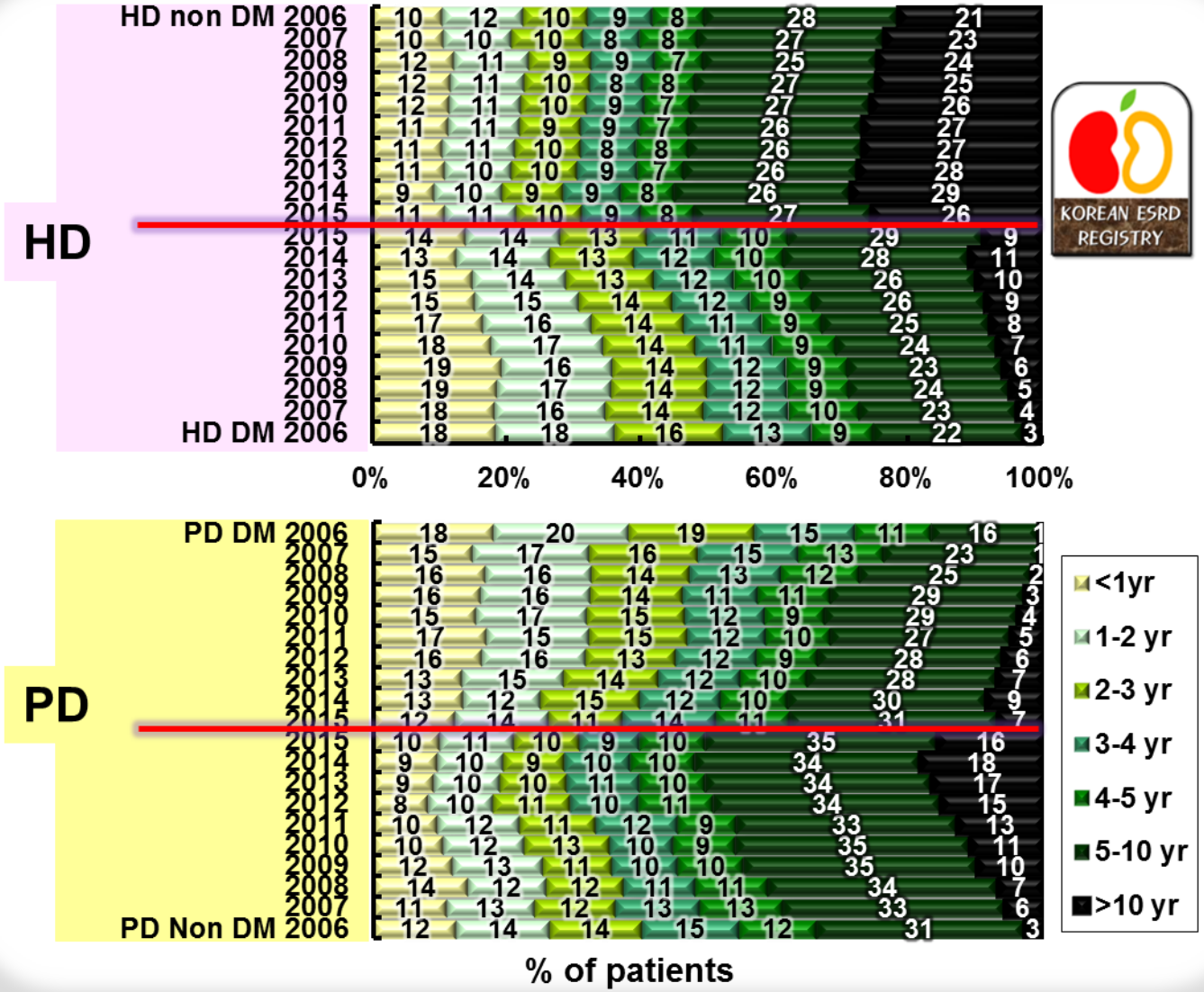
Age Distribution according to ESRD Causes



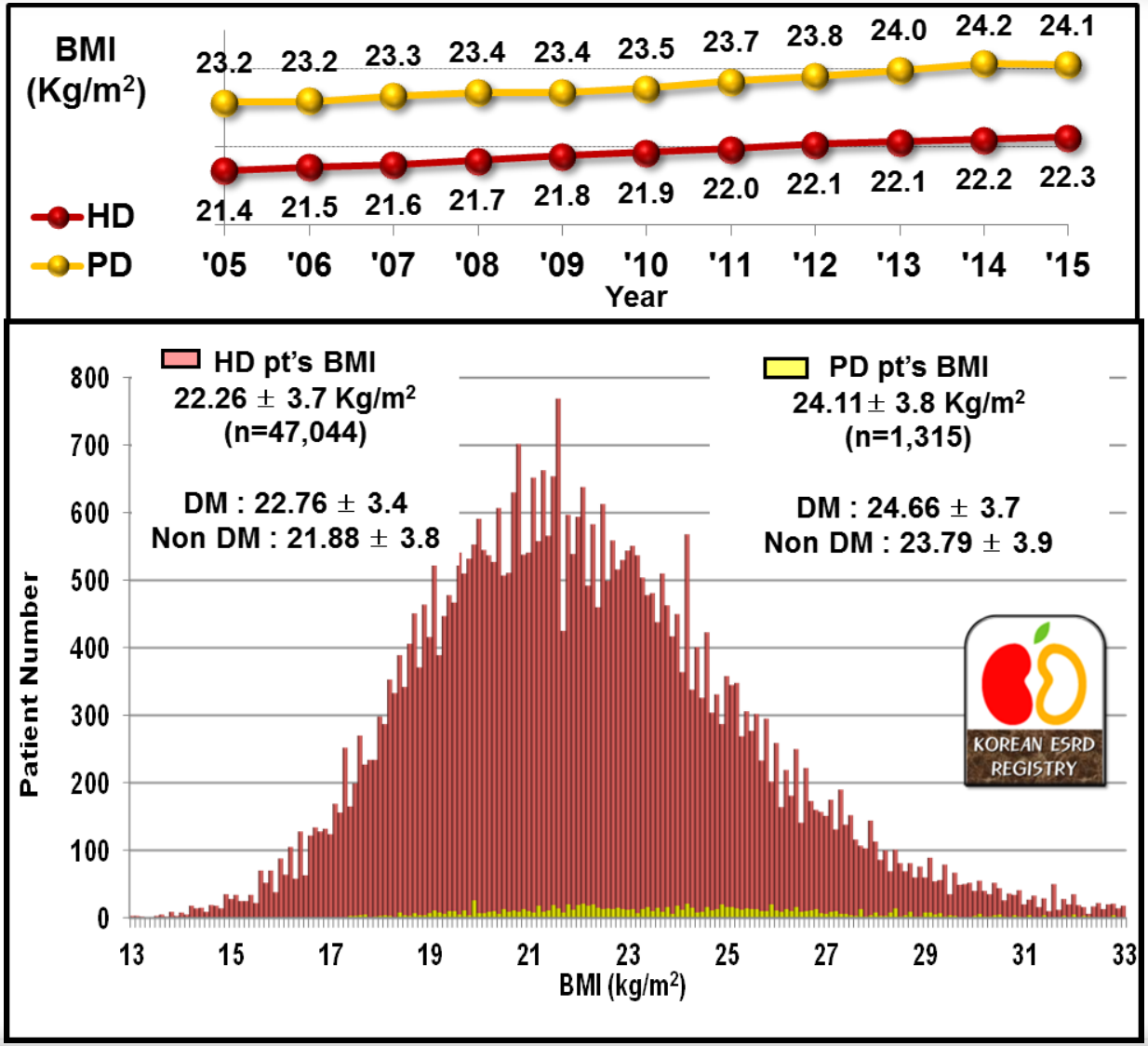
Duration of Dialysis Maintenance



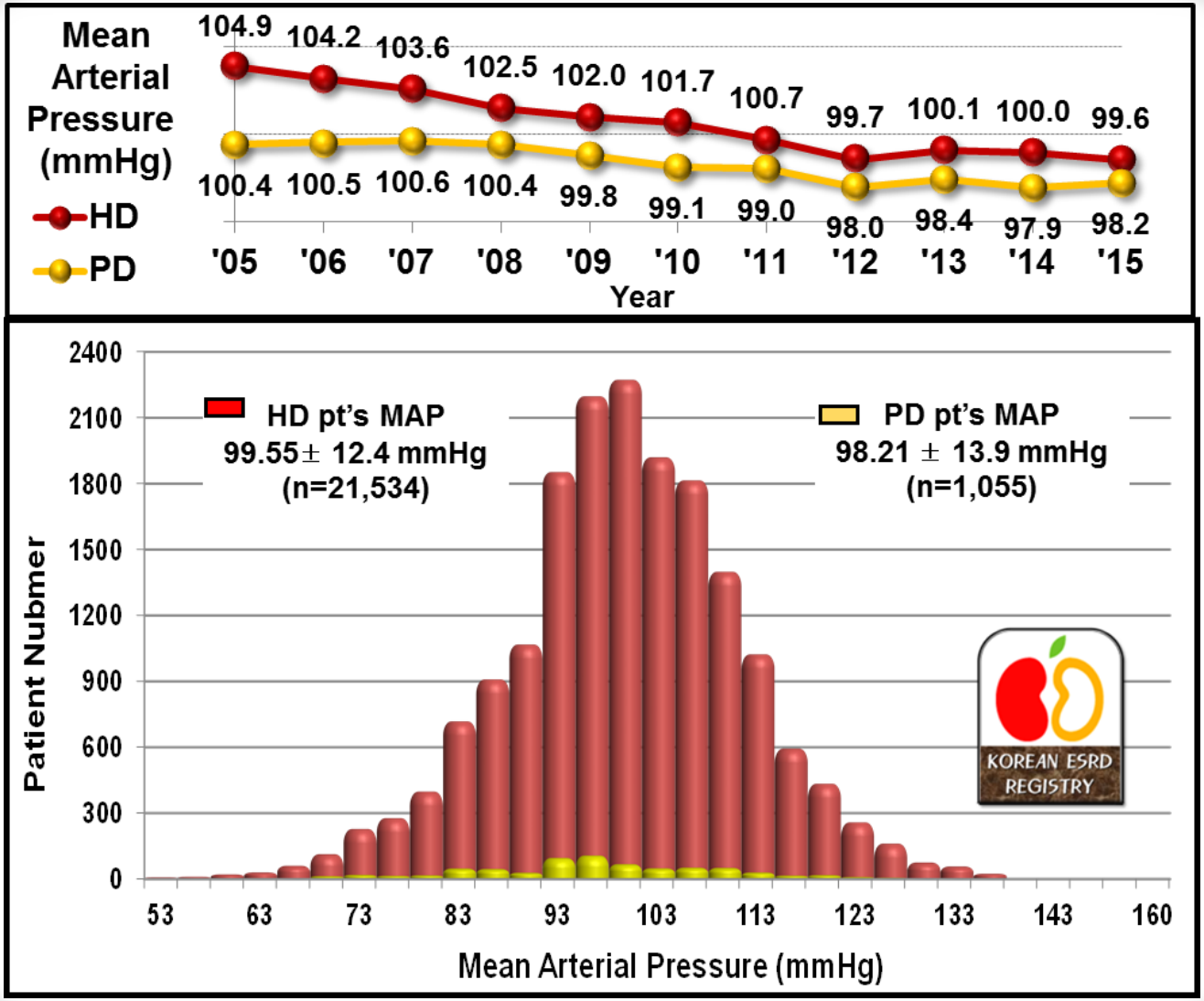
Duration of Dialysis : DM & Non-DM



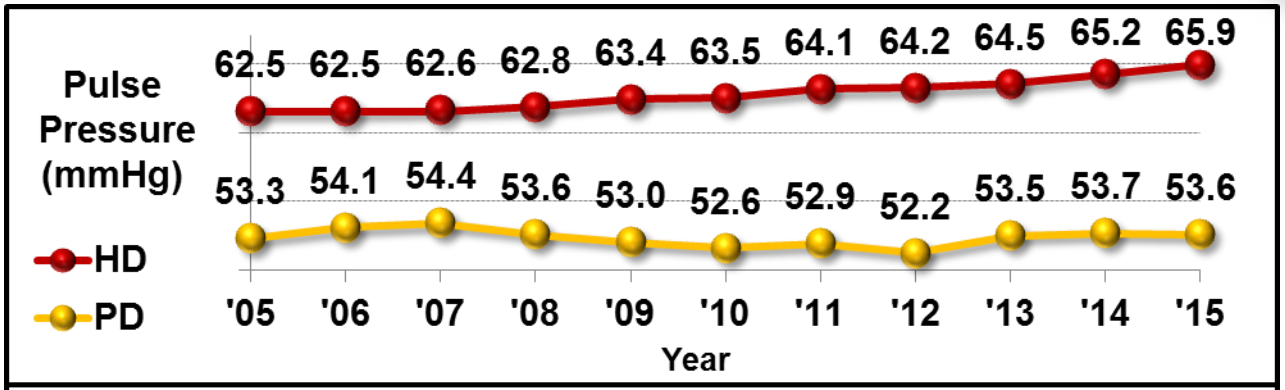
Body Mass Index : HD & PD

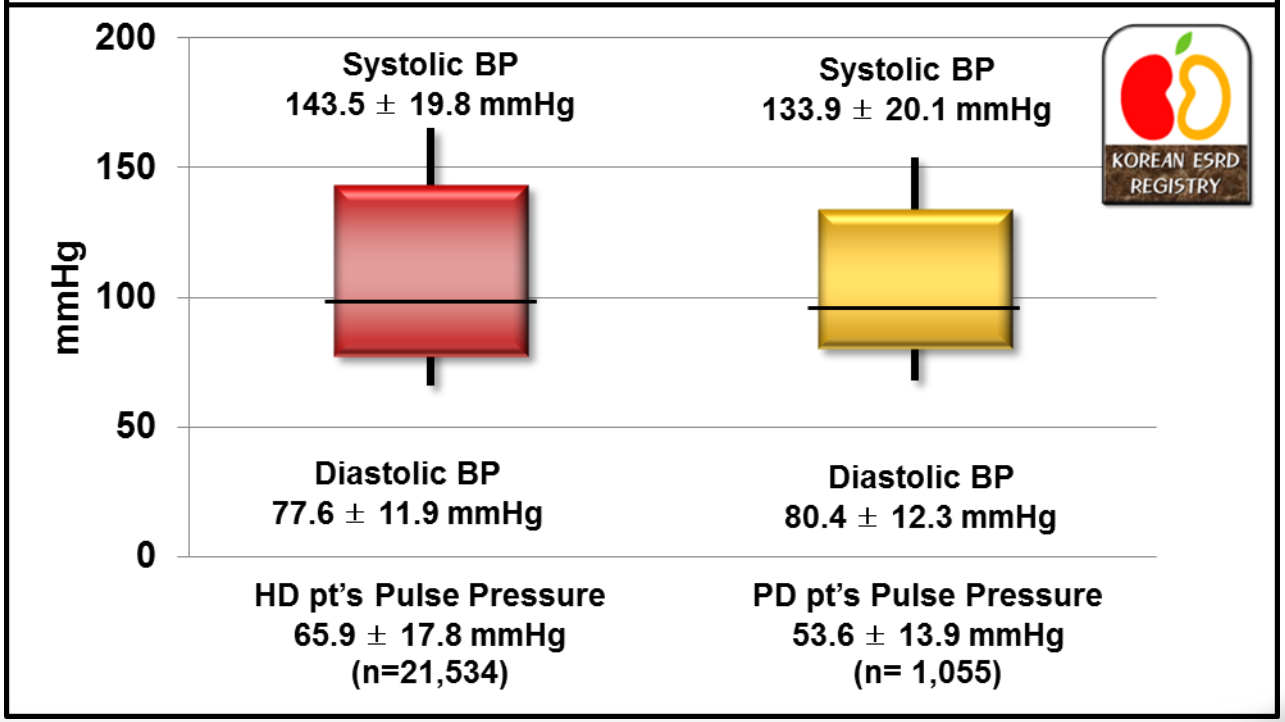


Mean Blood Pressure : HD & PD

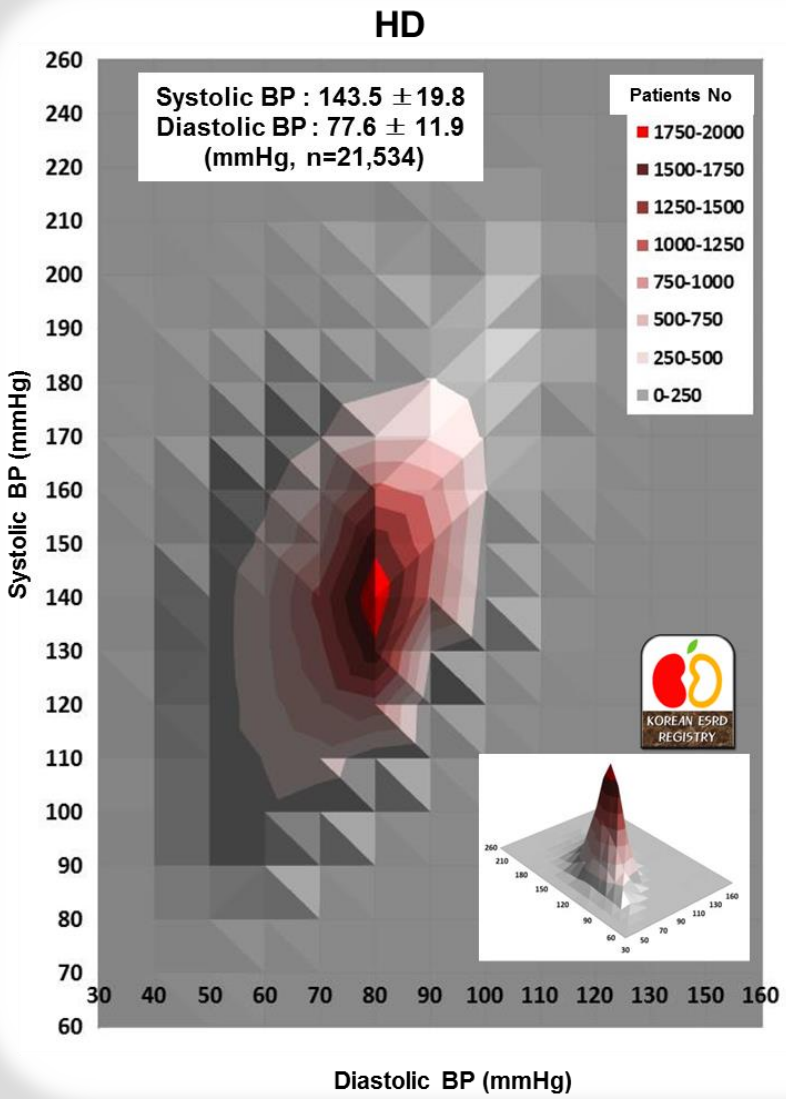


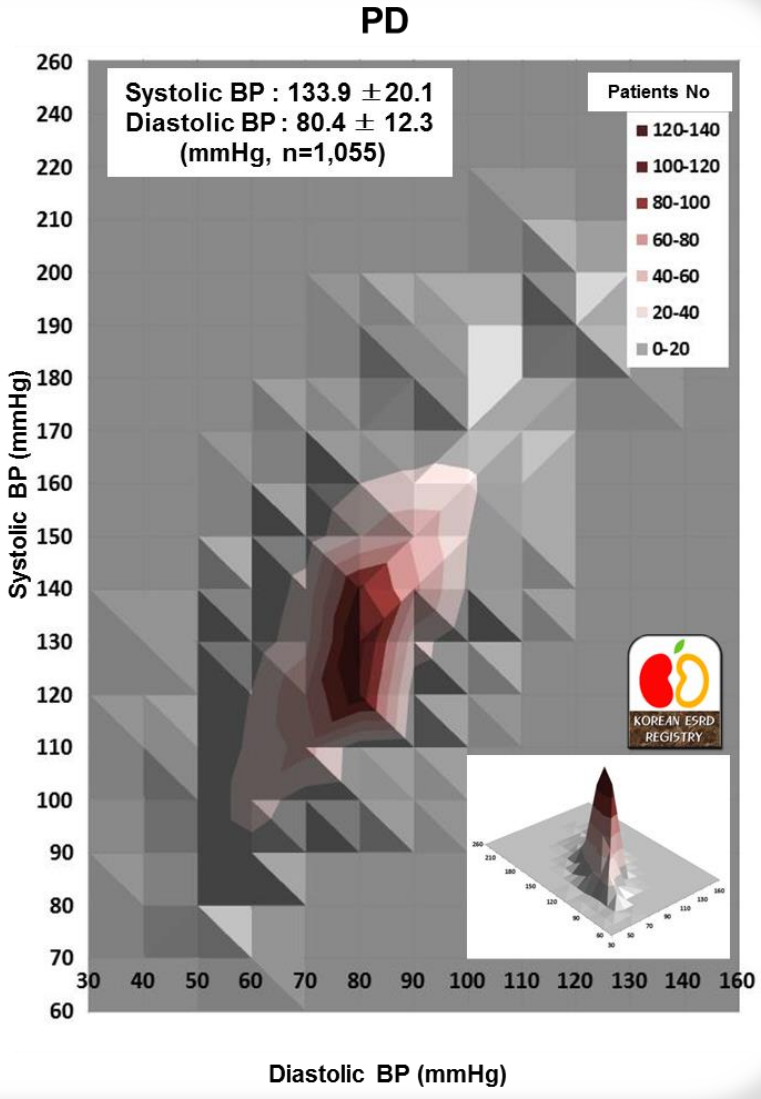
Pulse Pressure : HD & PD



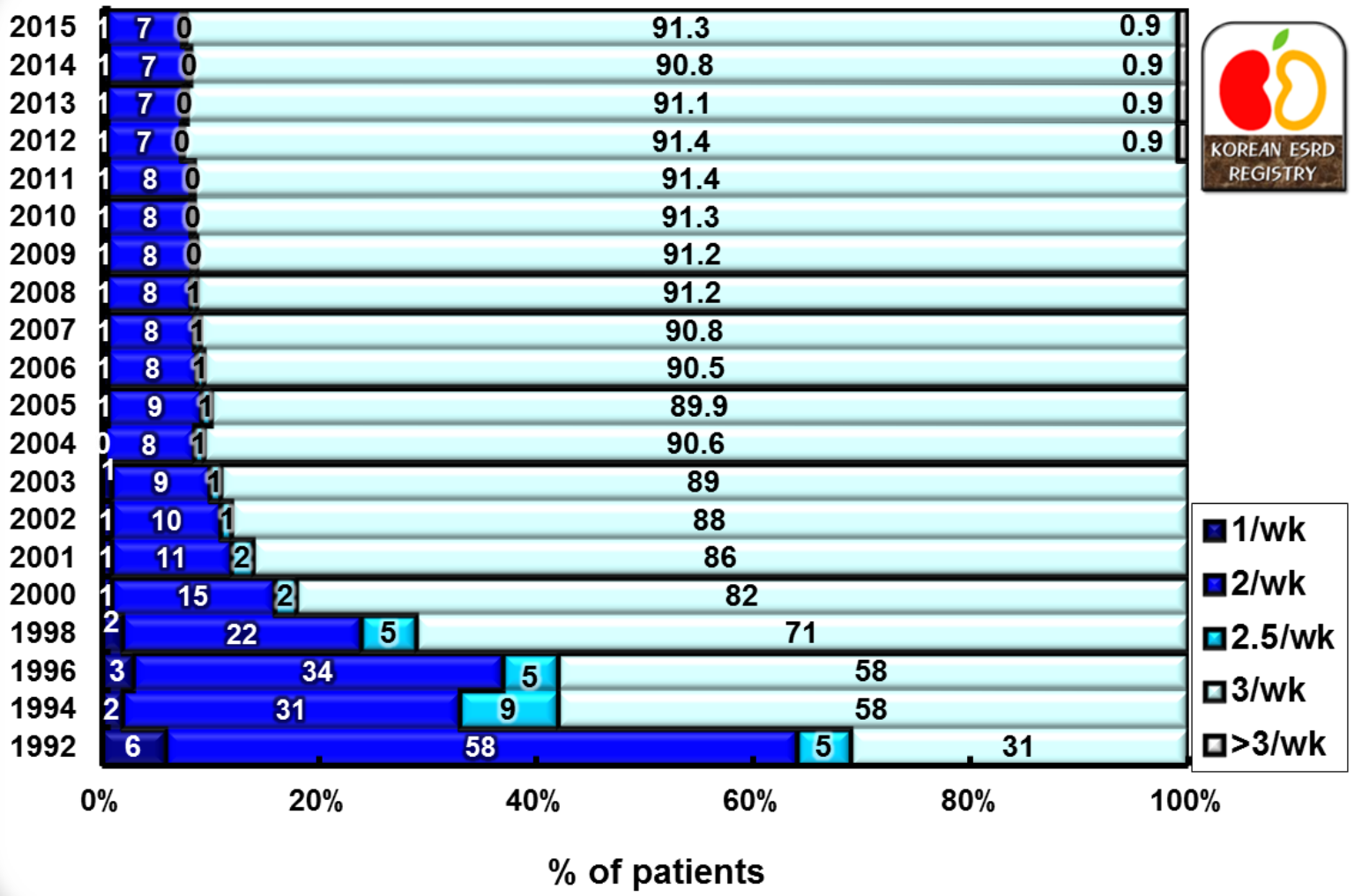


Patients' Distribution according to BP

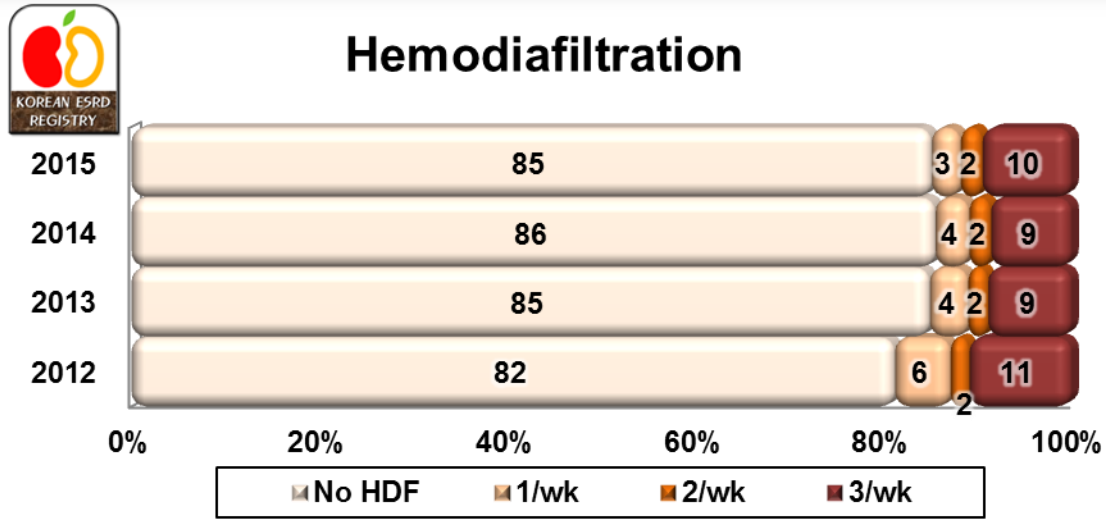


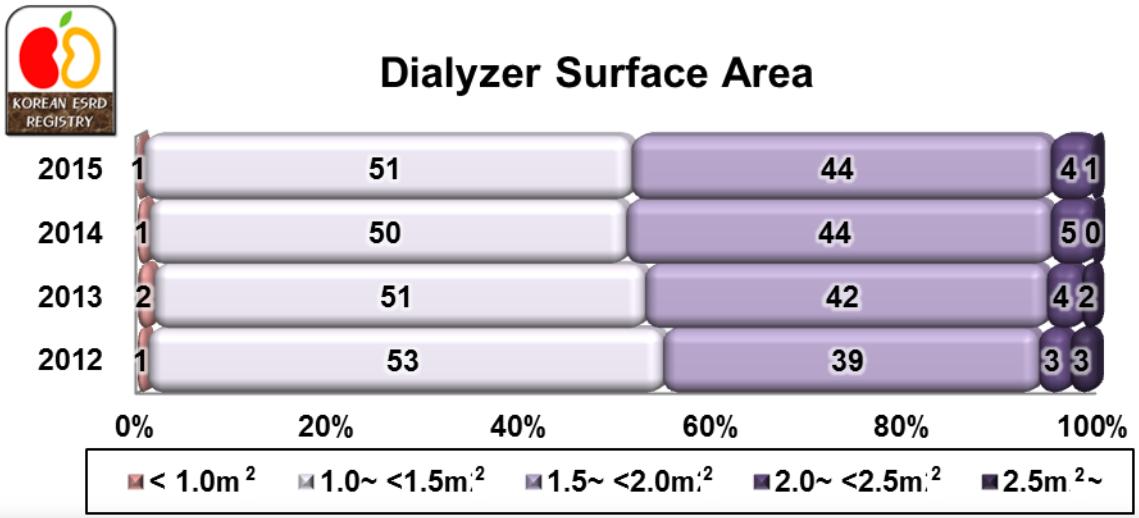


Frequency of HD per Week

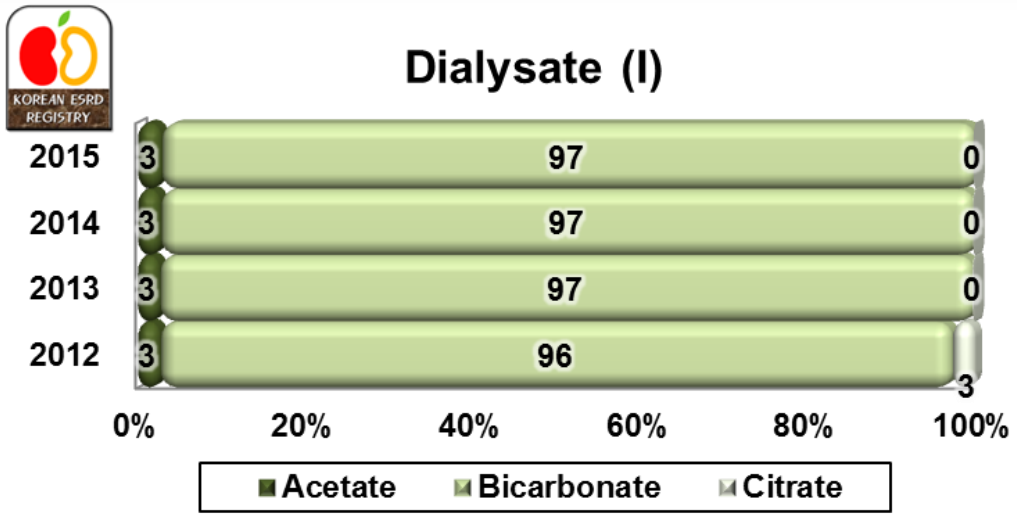


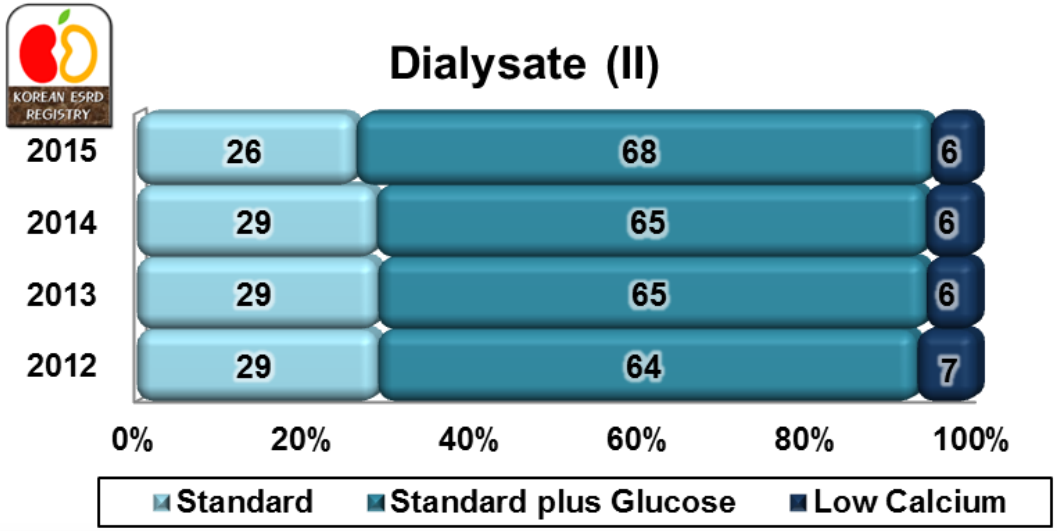
Hemodiafiltration & Dialyzer



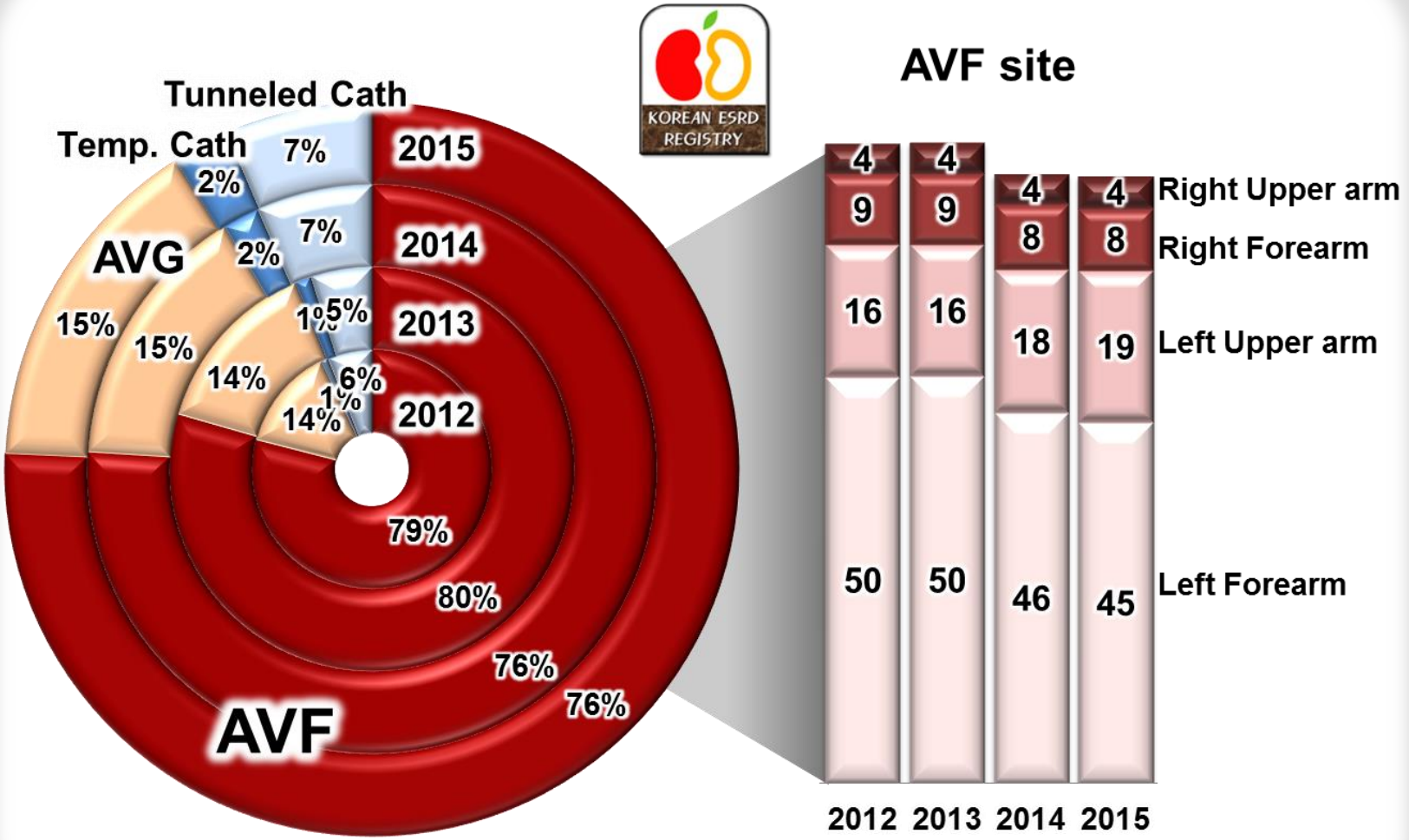


HD Dialysate



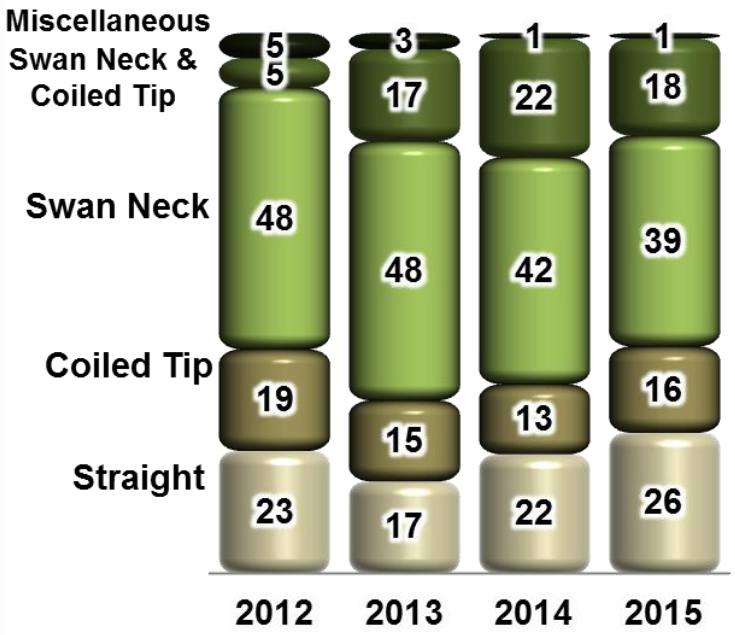


Vascular Access

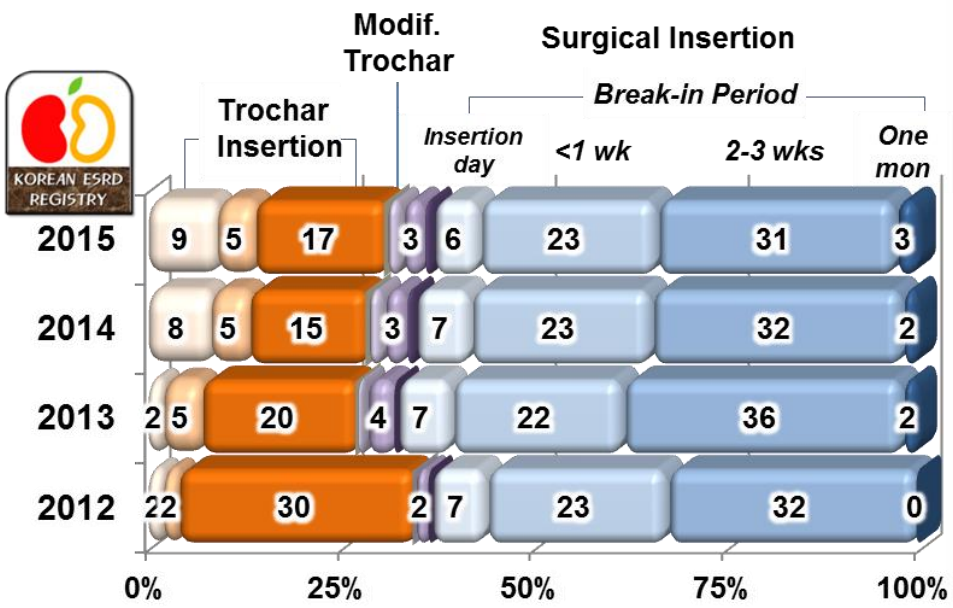


PD Catheter

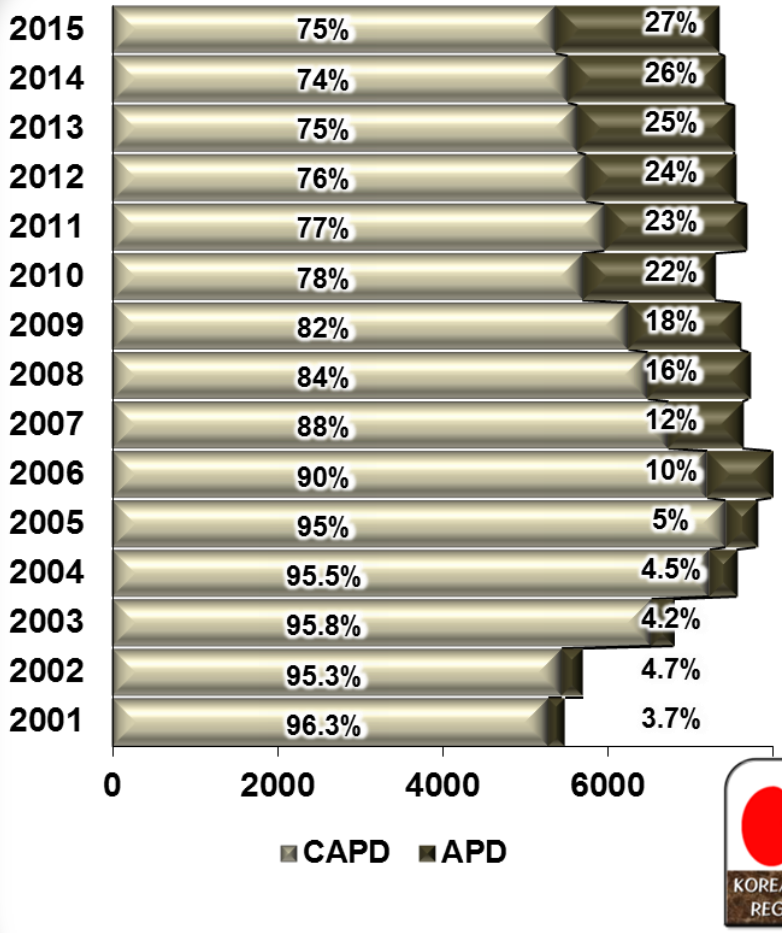
PD Catheter Type

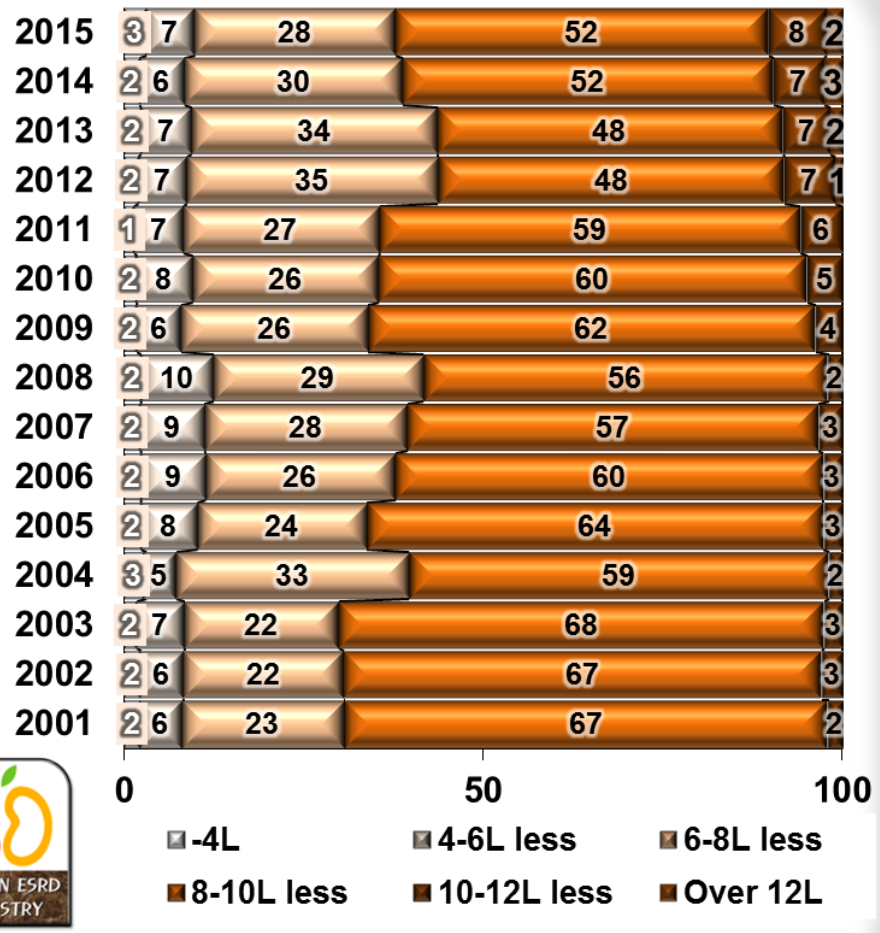


PD Catheter Insertion Method & Break-In Period

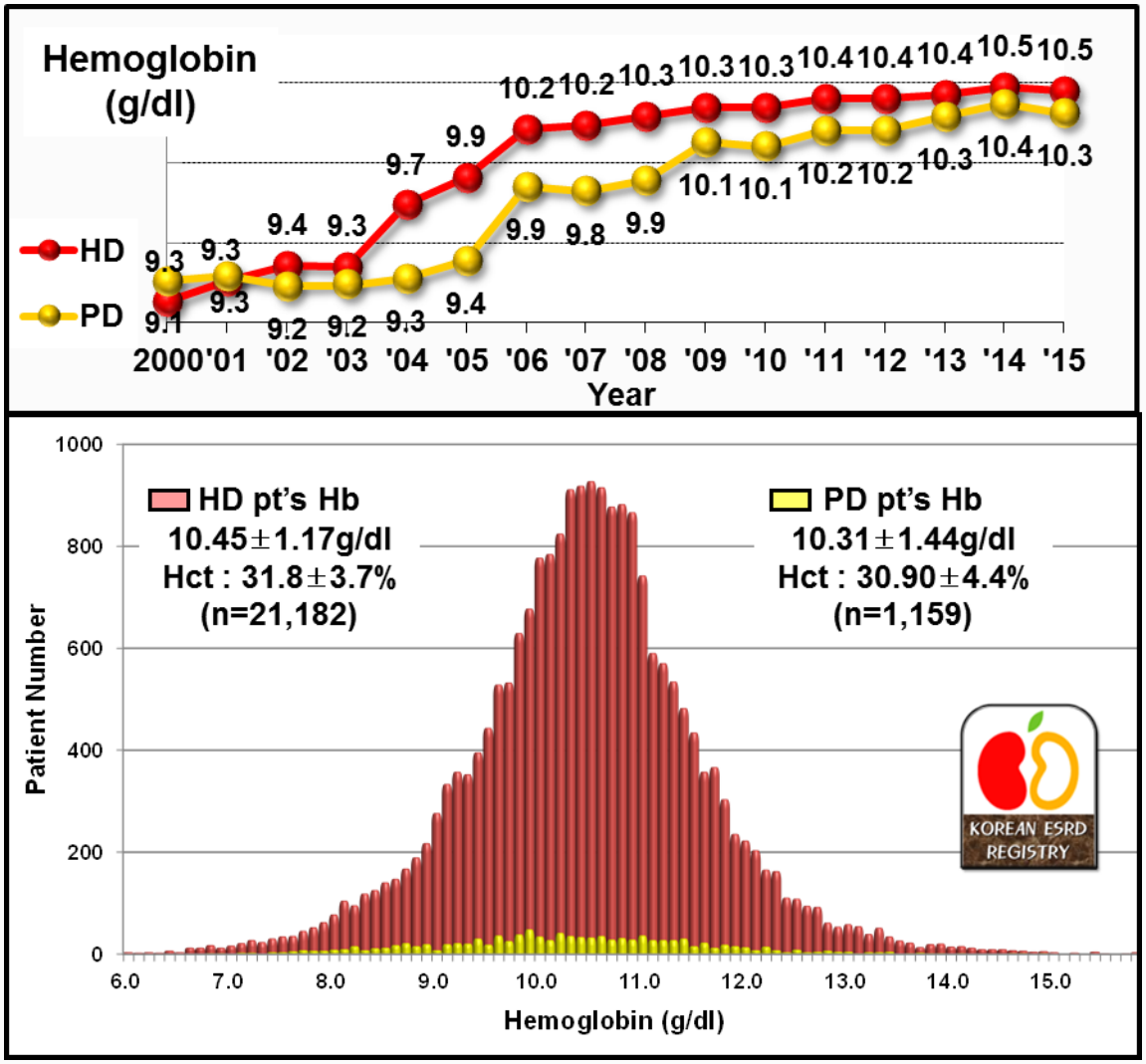


PD Type & Doses

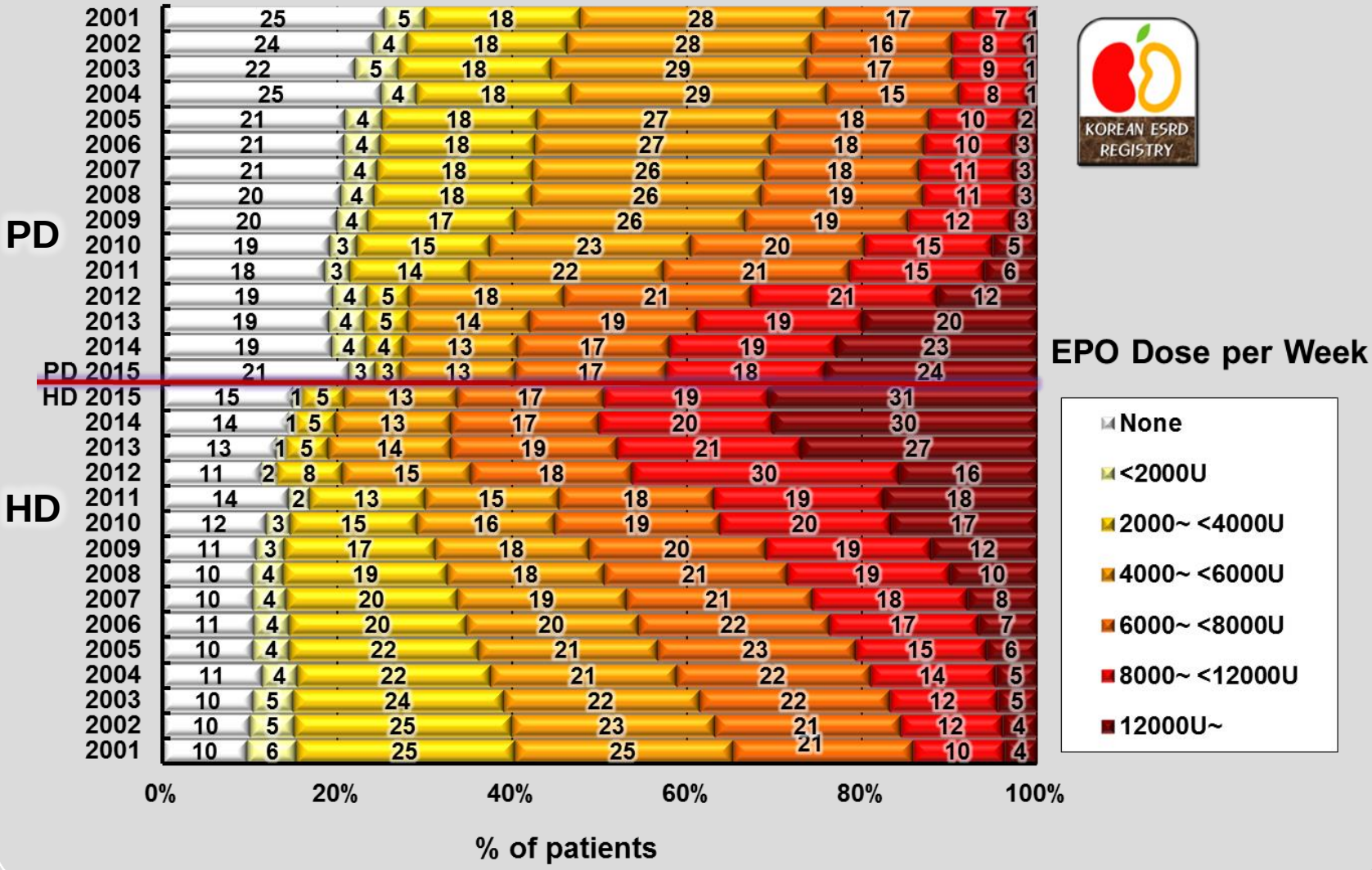




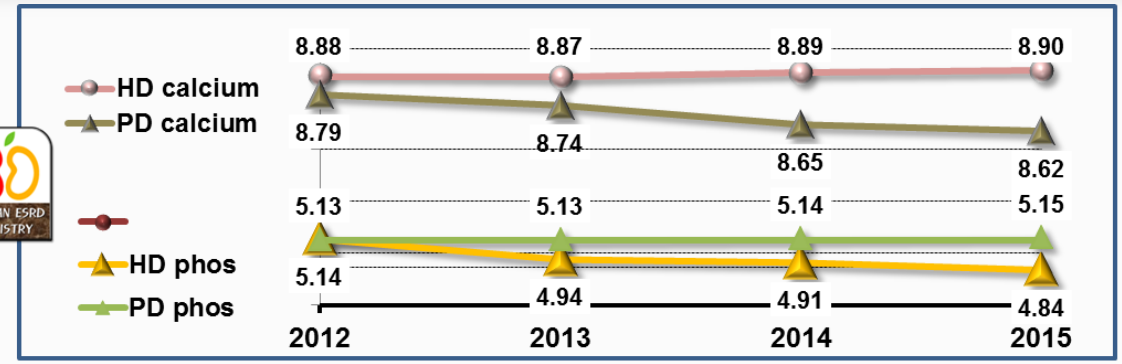
Hemoglobin : HD & PD

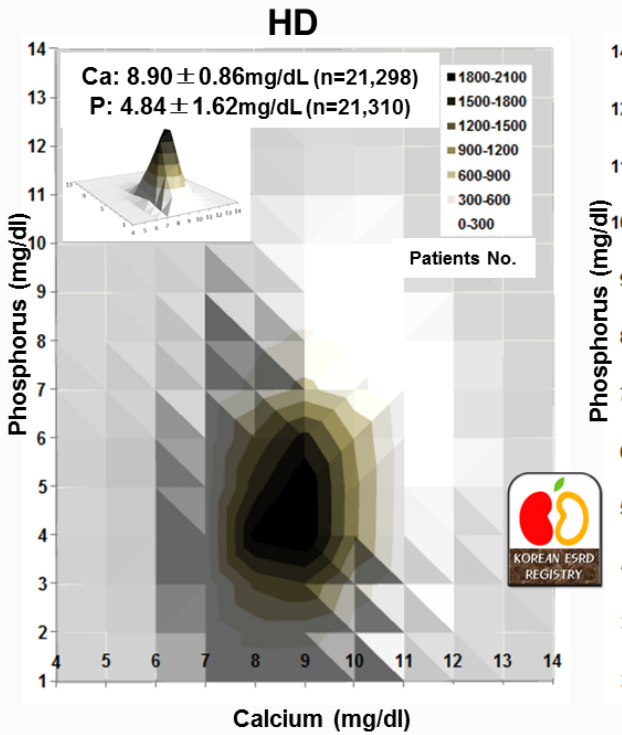


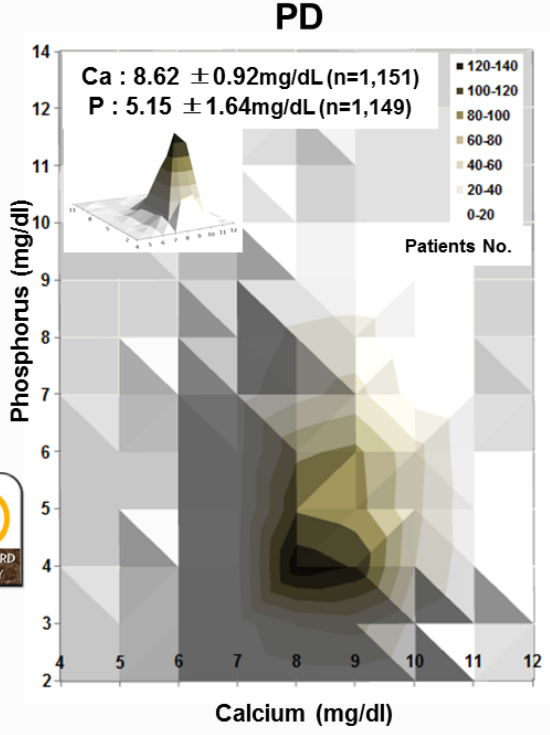
Erythropoietin Doses



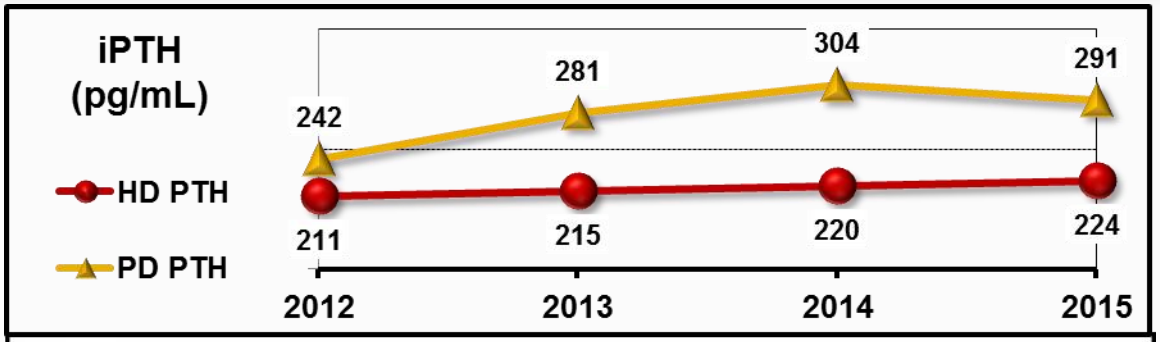
Calcium & Phosphorous

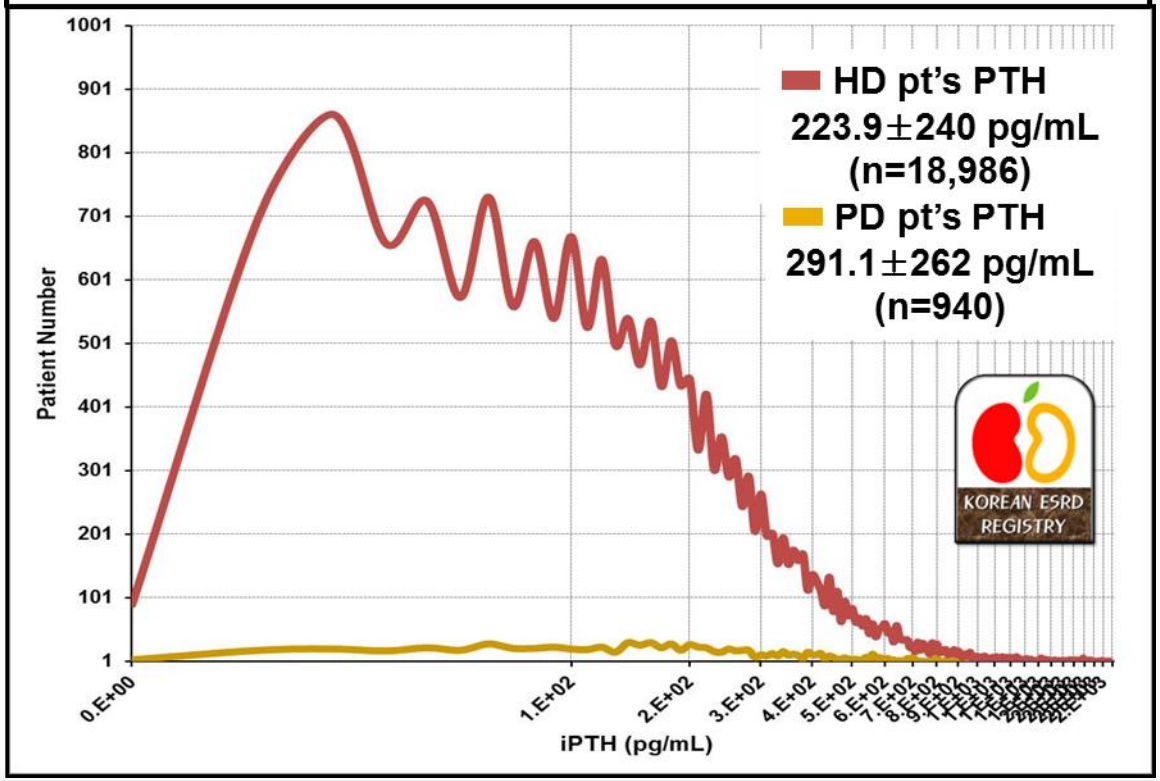




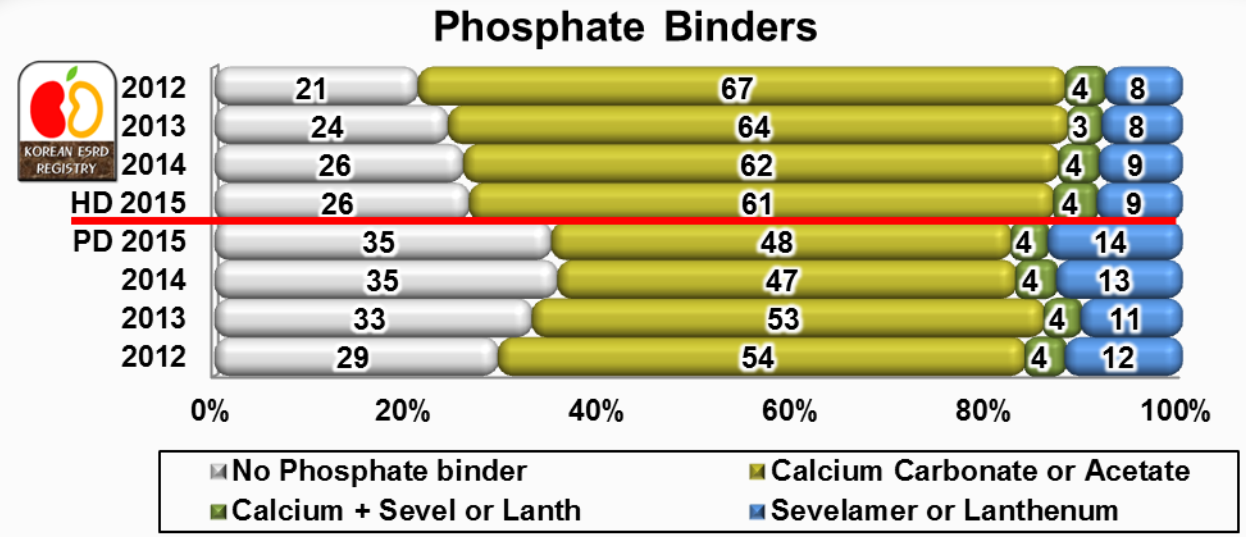


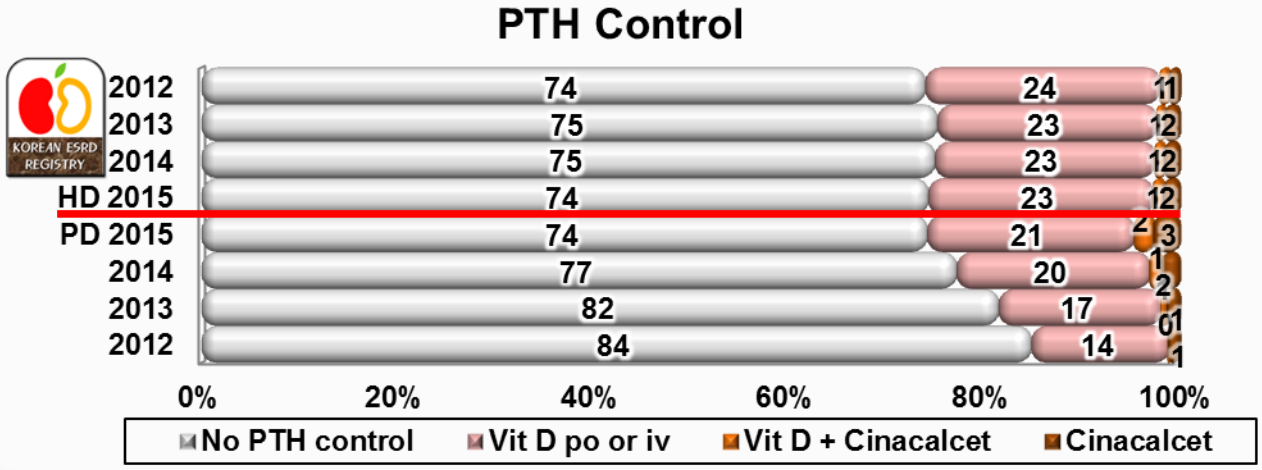
PTH


iPTH
(pg/mL)
HD PTH
PD PTH
242
281
304
291
211
215
220
224
2012
2013
2014
2015

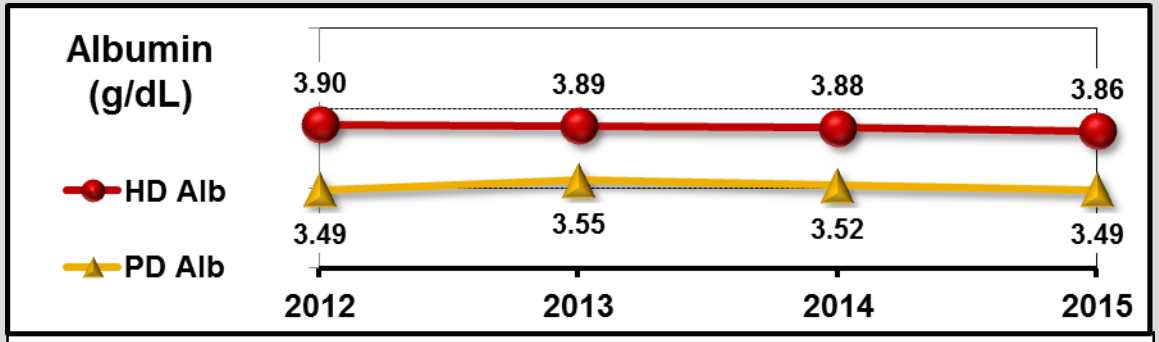

HD pt's PTH
223.9±240 pg/mL
(n=18,986)
PD pt's PTH
291.1±262 pg/mL
(n=940)
Patient Number
iPTH (pg/mL)
1001
901
801
701
601
501
401
301
201
101
1
0.E+00
1.E+02
2.E+02
3.E+02
4.E+02
5.E+02
6.E+02
7.E+02
8.E+02
KOREAN ESRD REGISTRY

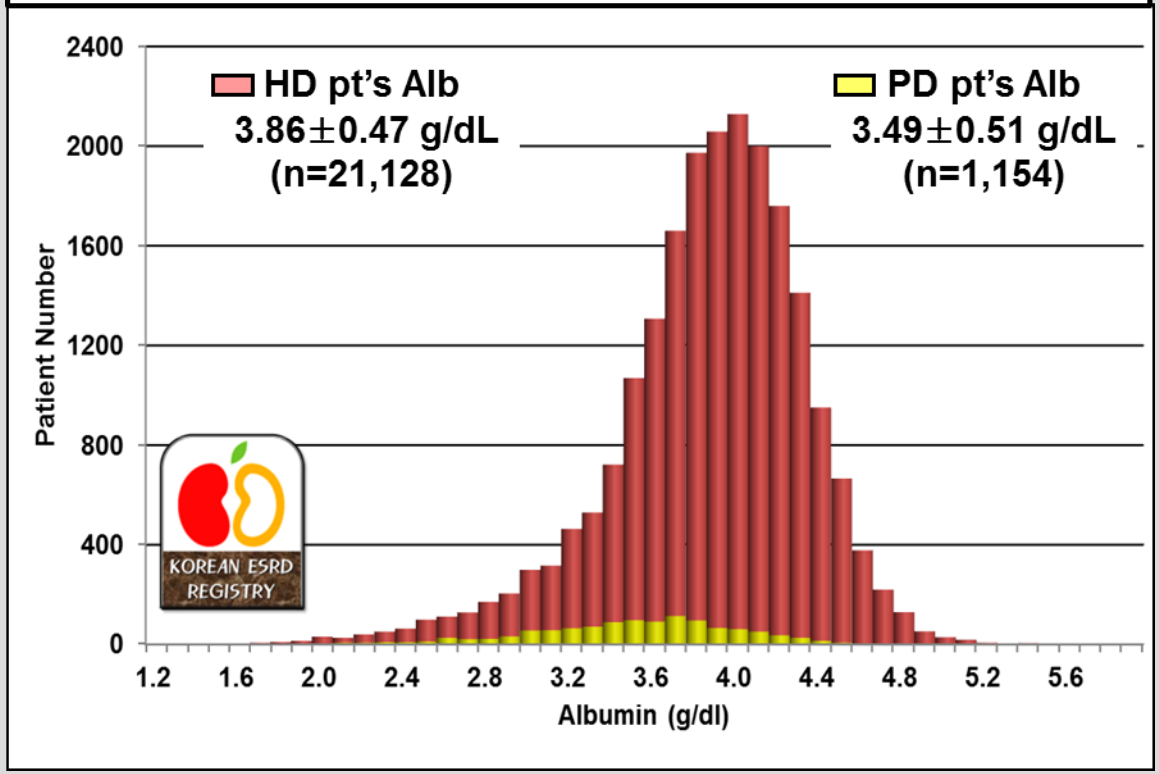
Phosphate Binders & PTH Control



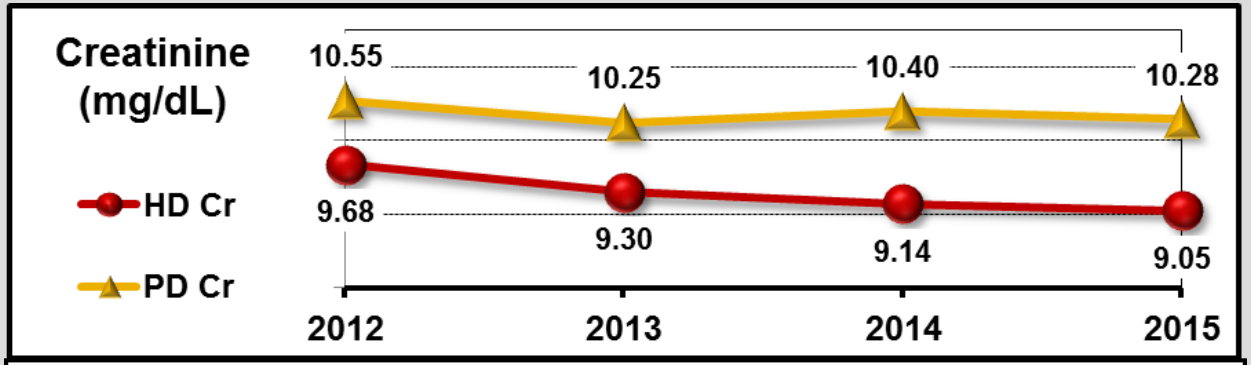


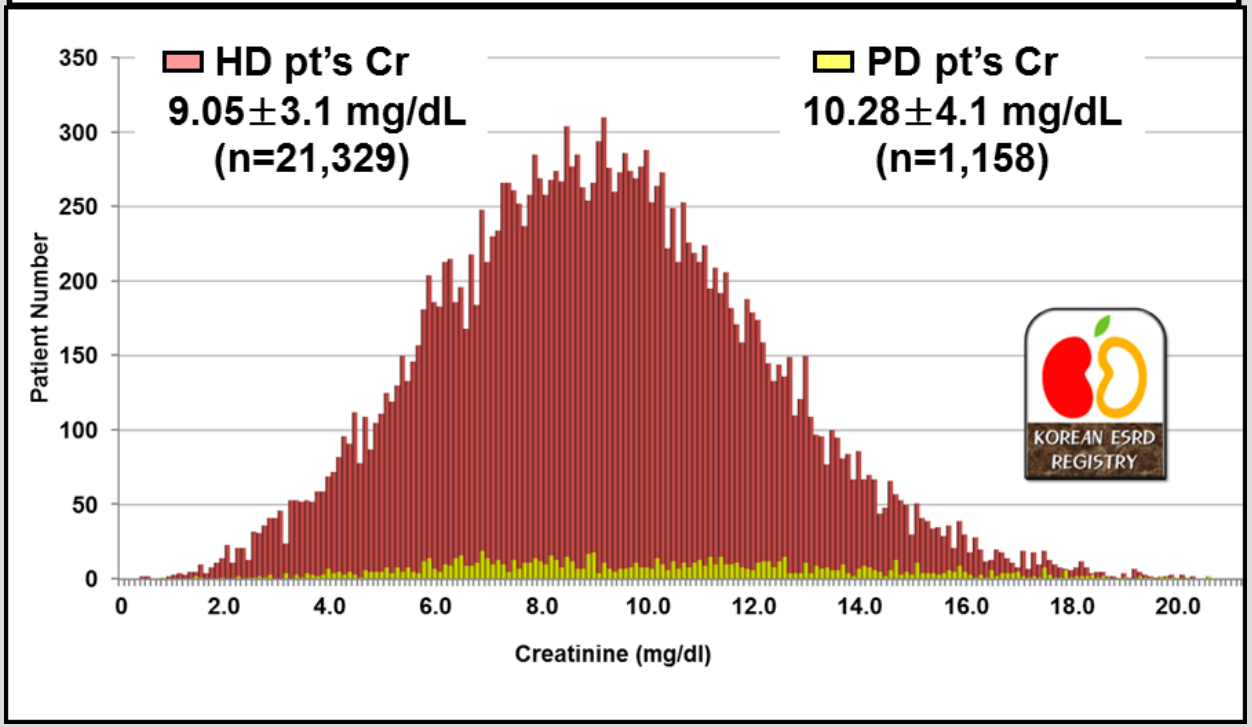
Serum Albumin



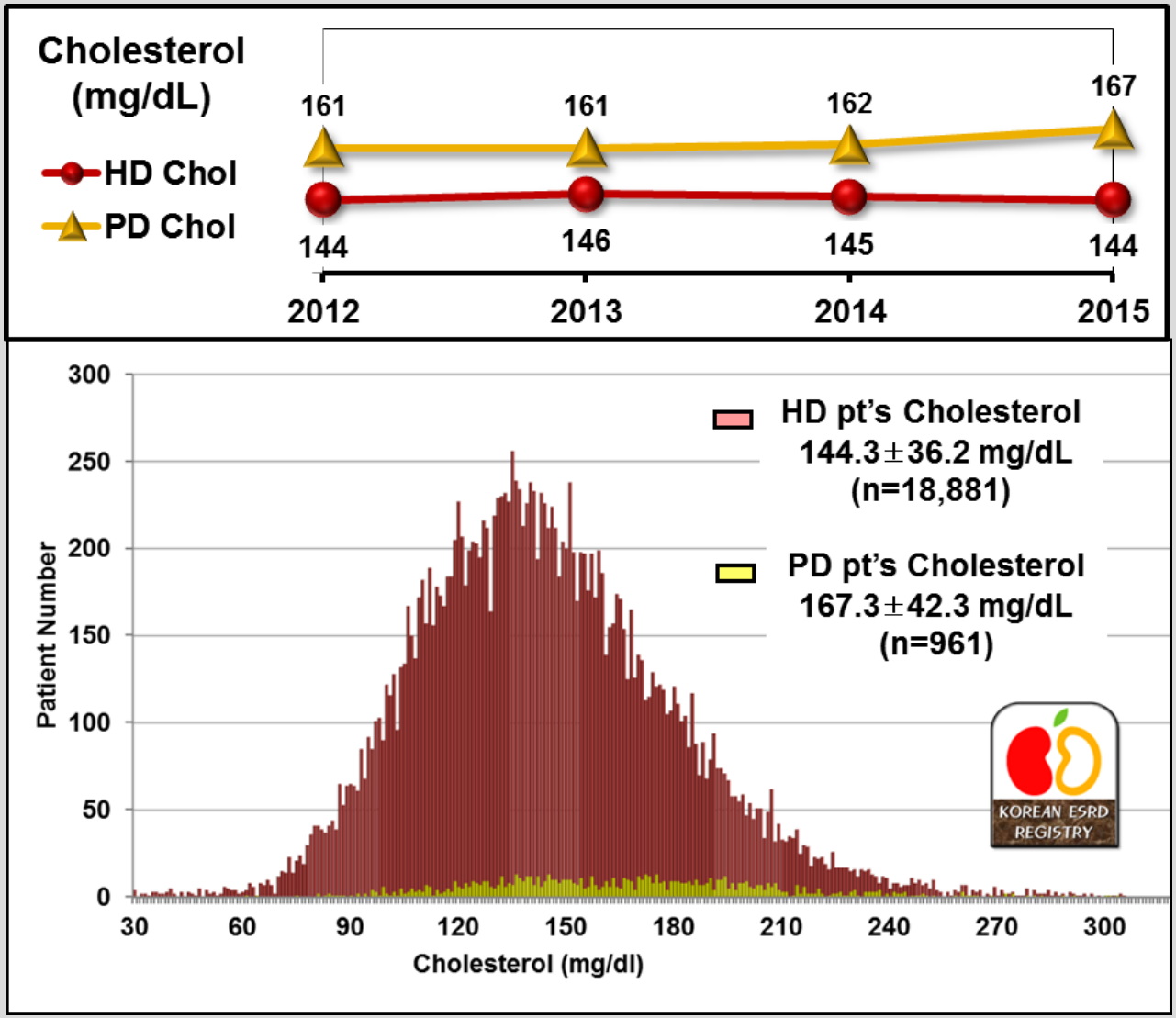


Serum Creatinine

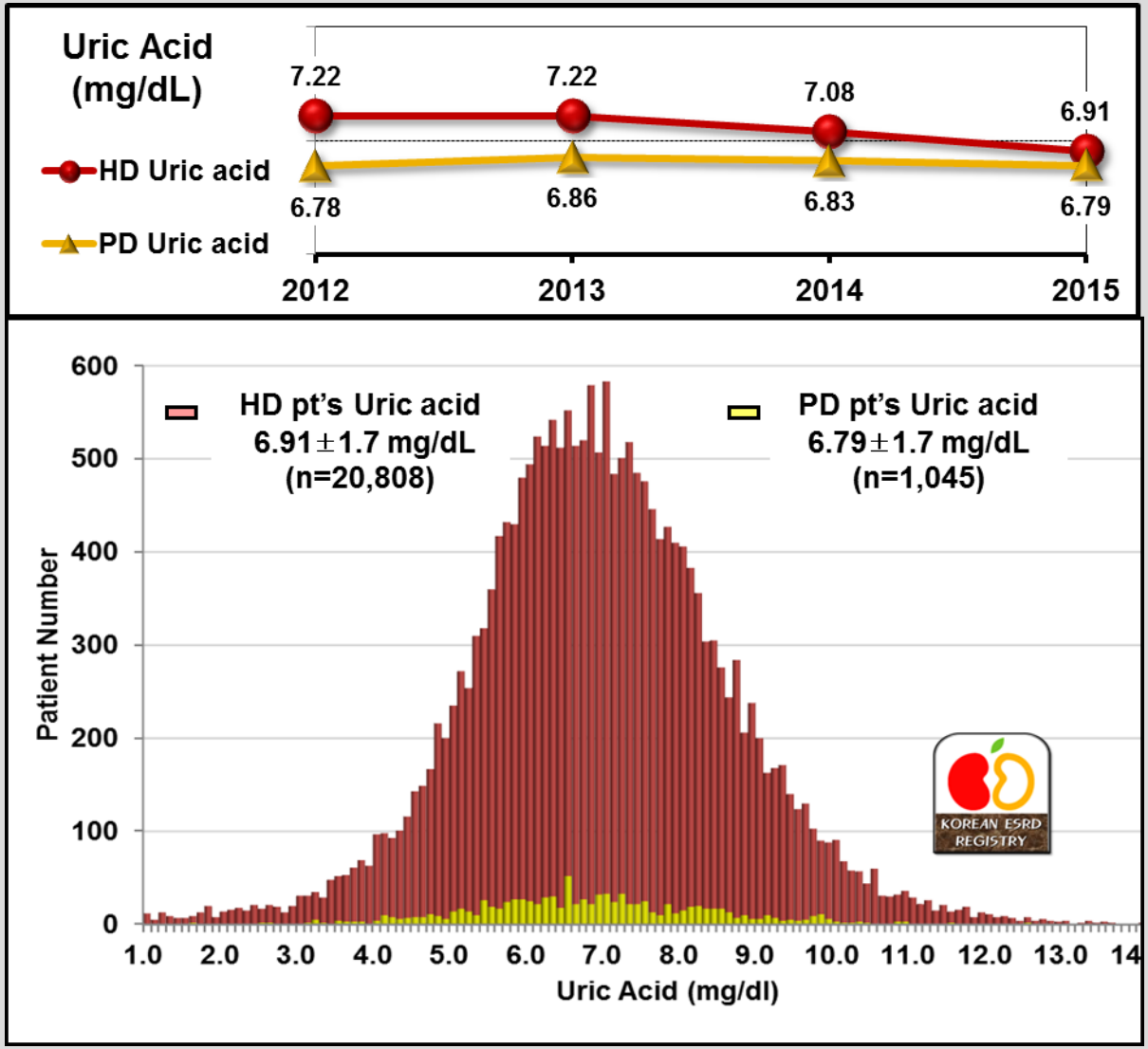




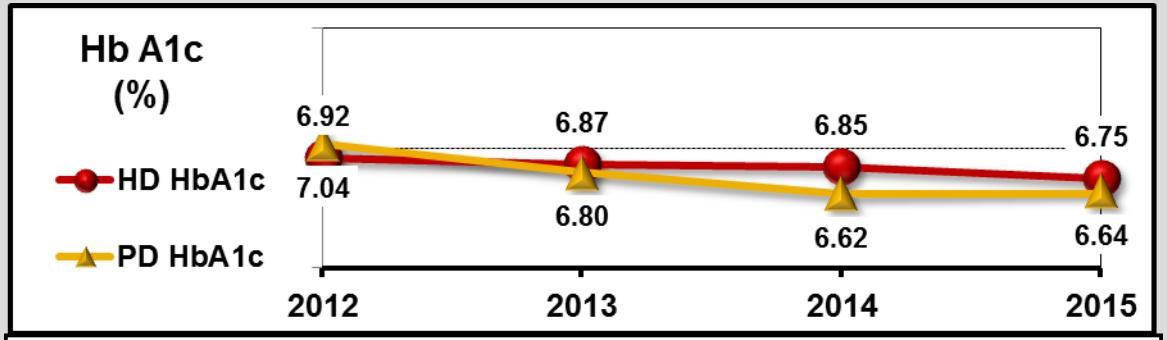
Total Cholesterol

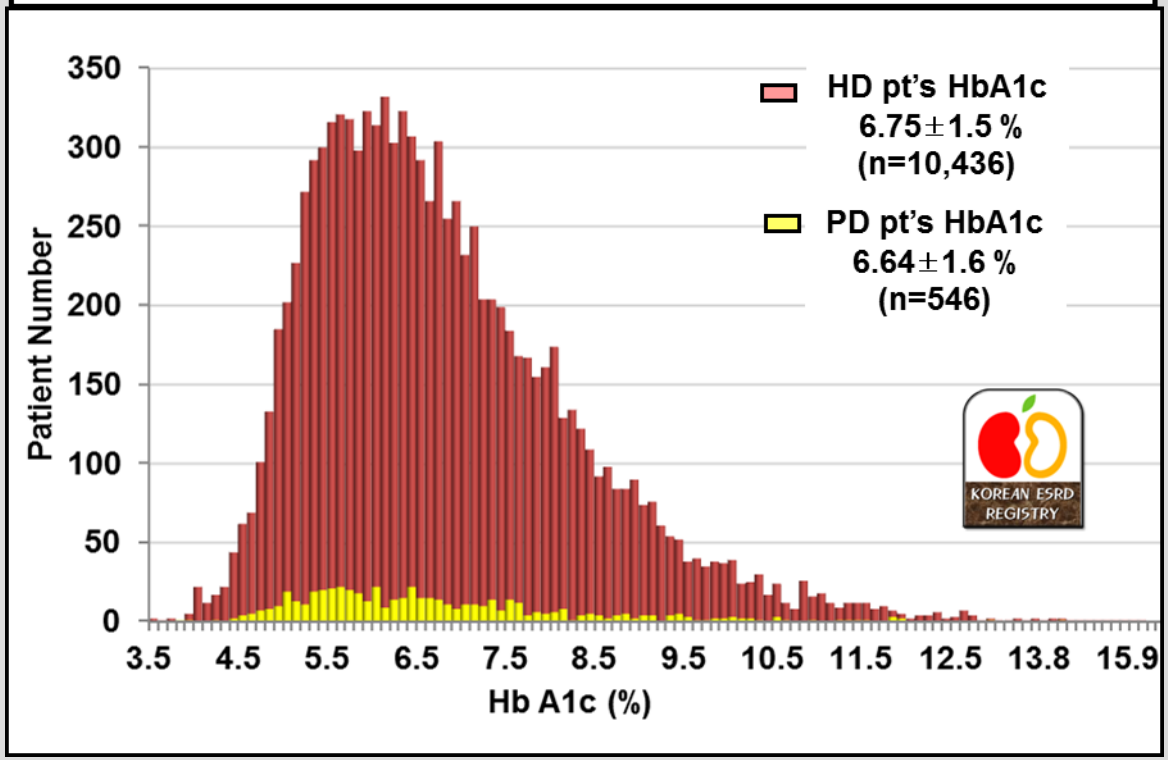


Uric Acid

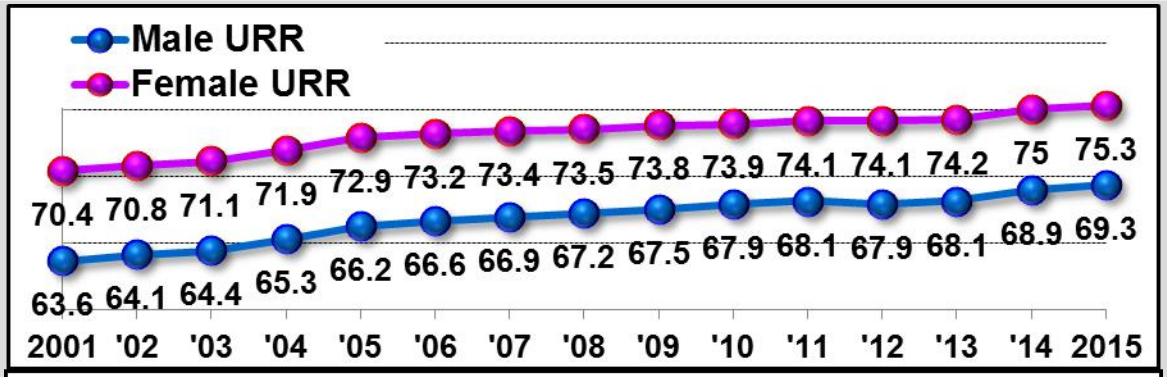

Uric Acid (mg/dL)
HD Uric acid
PD Uric acid
7.22
7.22
7.08
6.91
6.78
6.86
6.83
6.79
2012
2013
2014
2015
HD pt's Uric acid
6.91±1.7 mg/dL
(n=20,808)
PD pt's Uric acid
6.79±1.7 mg/dL
(n=1,045)
Patient Number
600
500
400
300
200
100
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14
Uric Acid (mg/dl)
KOREAN ESRD REGISTRY

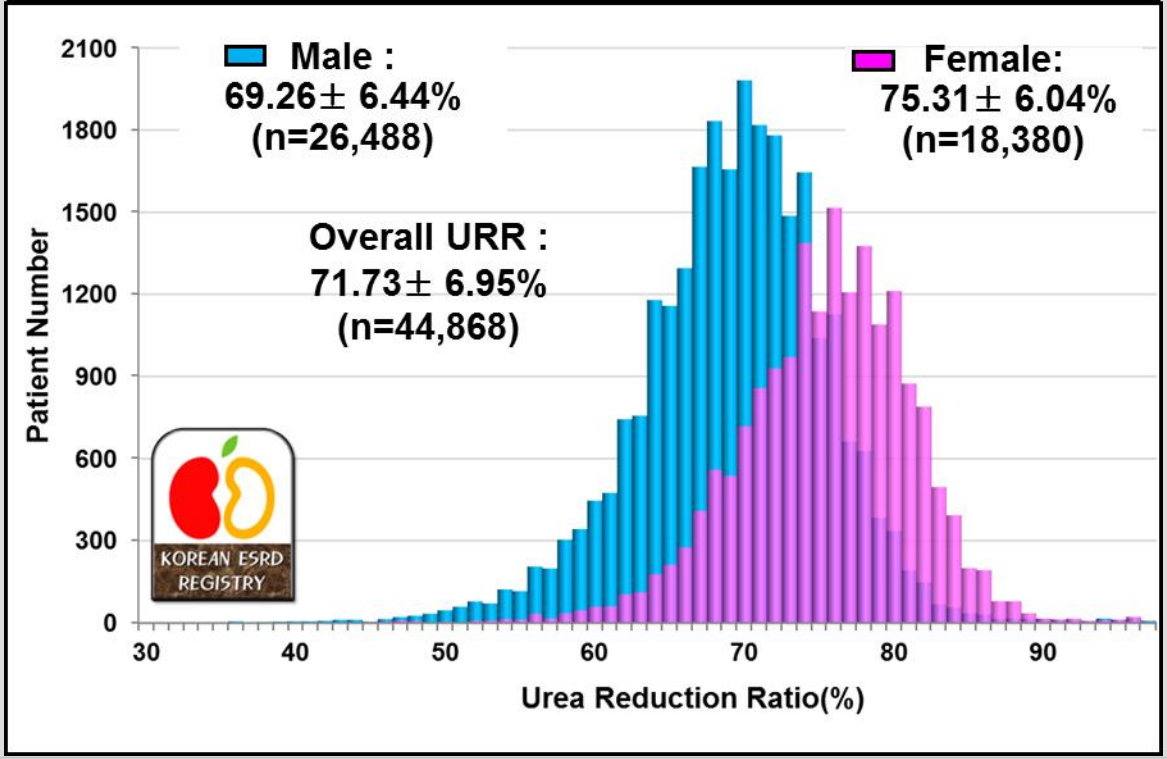
Hb A1c


Hb A1c
(%)
HD HbA1c
PD HbA1c
6.92
6.87
6.85
6.75
7.04
6.80
6.62
6.64
2012
2013
2014
2015

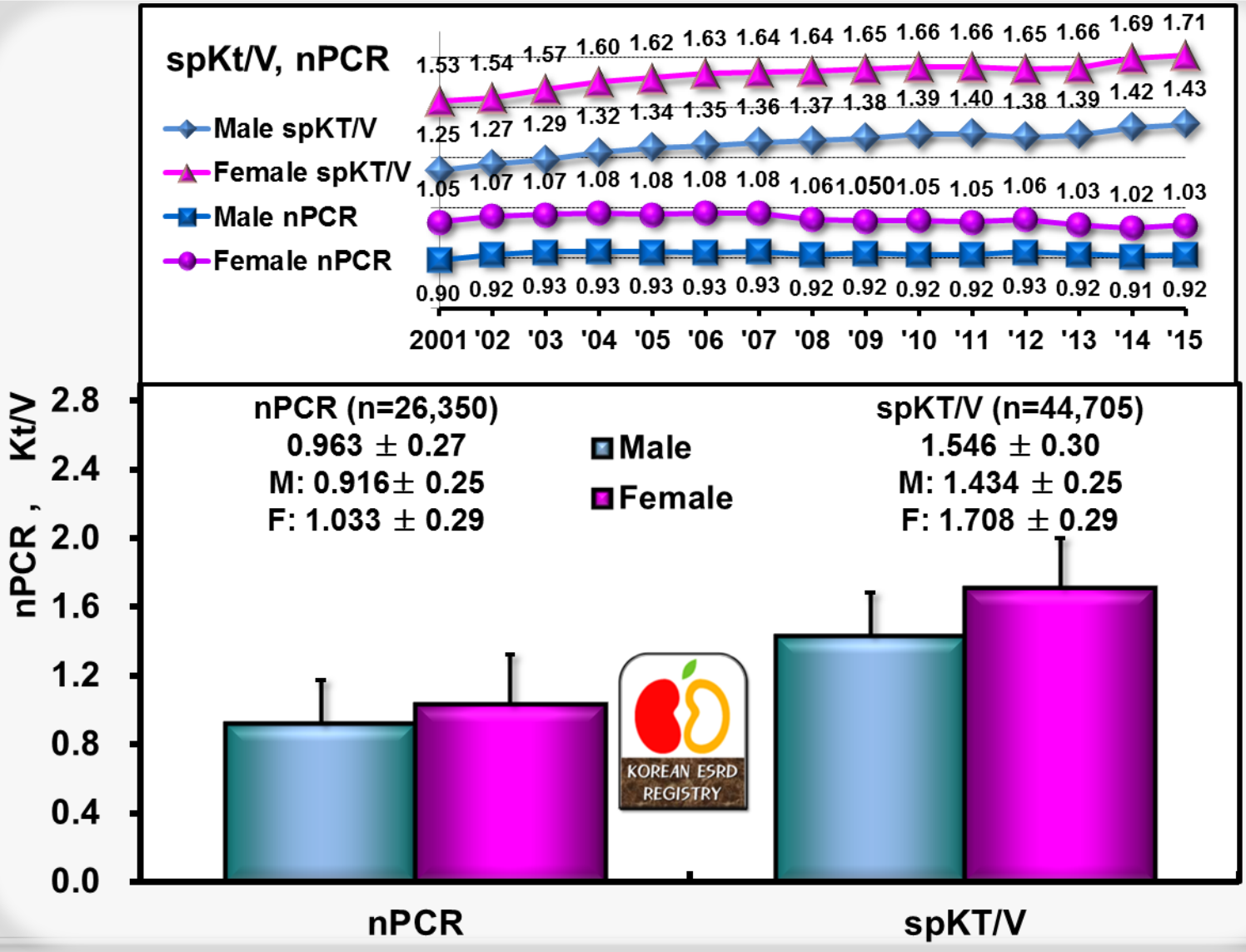

HD pt's HbA1c
6.75±1.5 %
(n=10,436)
PD pt's HbA1c
6.64±1.6 %
(n=546)
Patient Number
350
300
250
200
150
100
50
0
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
12.5
13.8
15.9
Hb A1c (%)
KOREAN ESRD REGISTRY

Urea Reduction Ratio

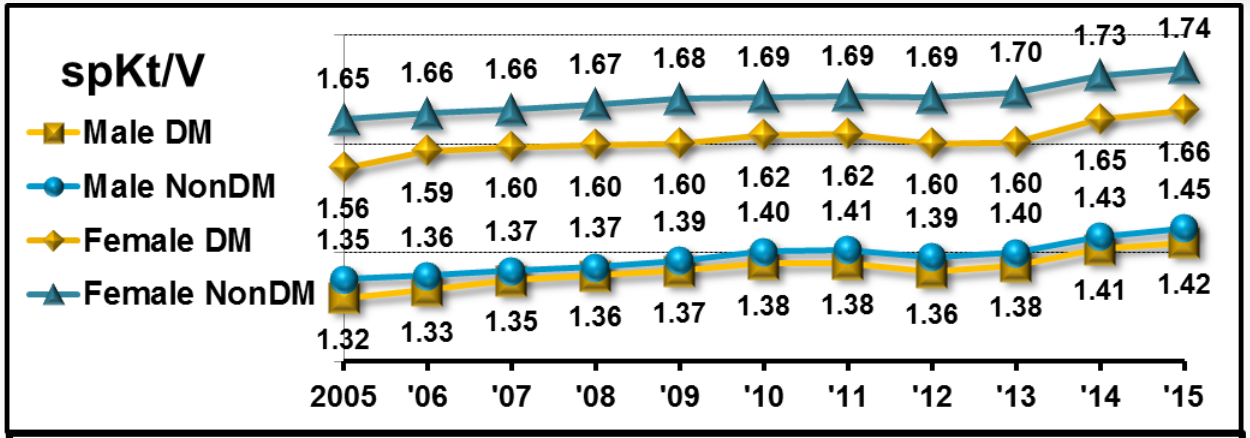


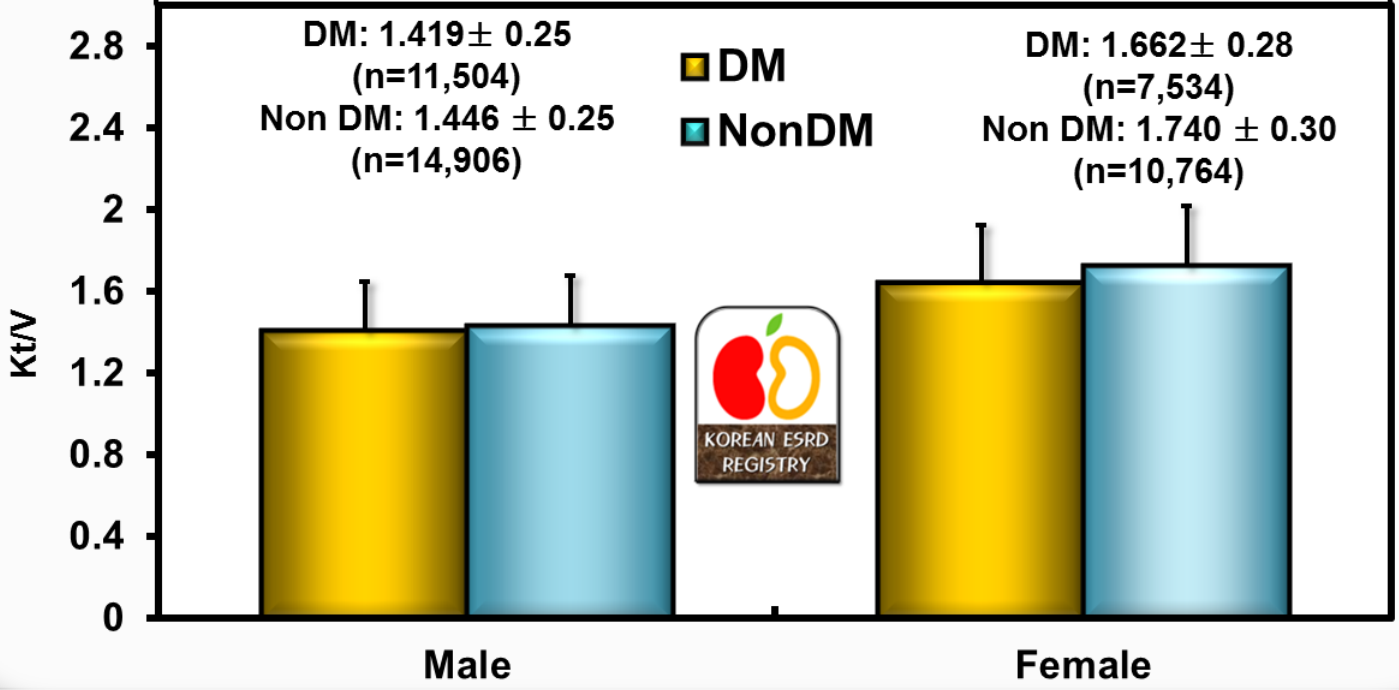


HD Adequacy

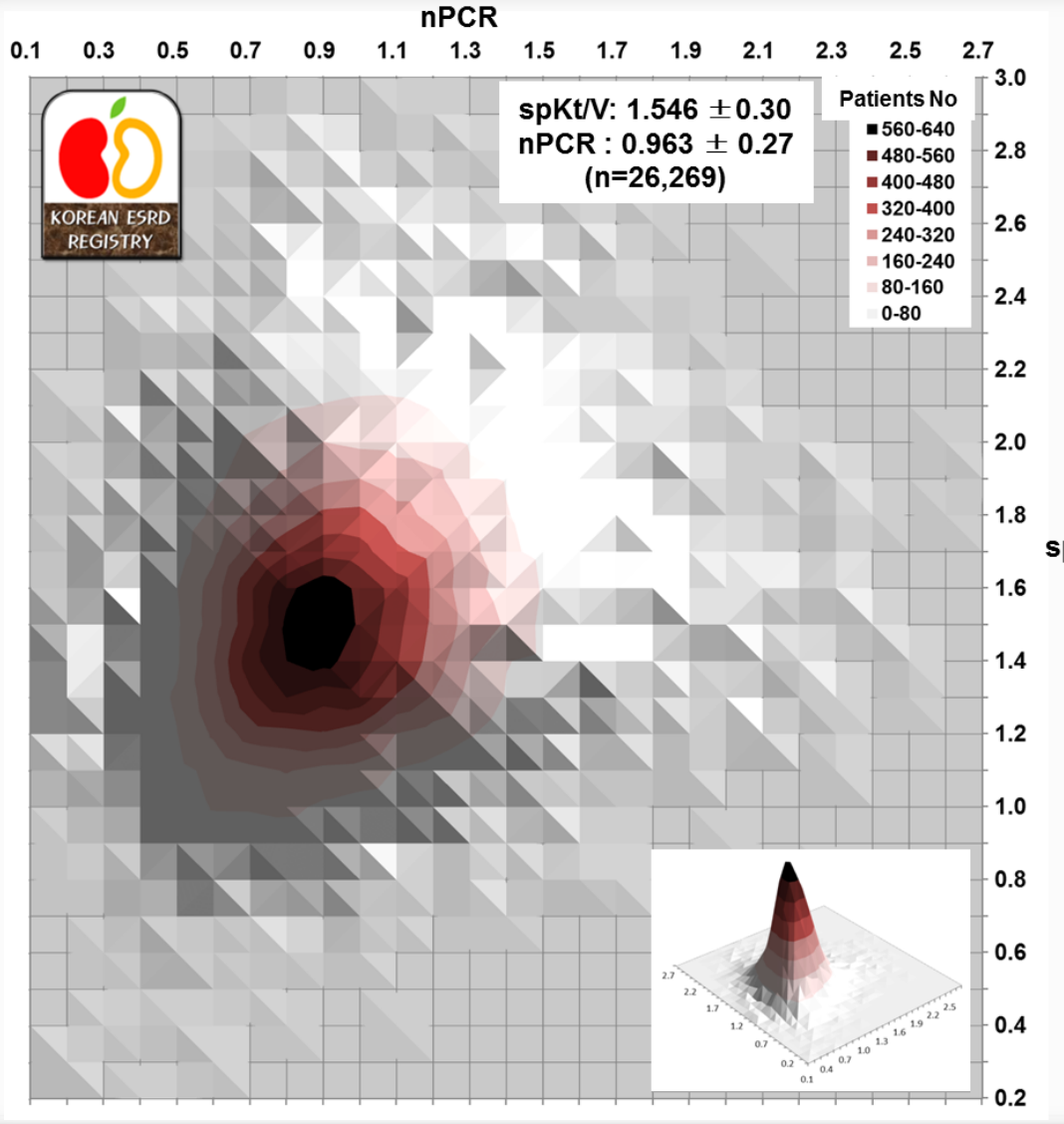

spKt/V, nPCR
Male spKT/V
Female spKT/V
Male nPCR
Female nPCR
1.53 1.54 1.57 1.60 1.62 1.63 1.64 1.64 1.65 1.66 1.66 1.65 1.66 1.69 1.71
1.25 1.27 1.29 1.32 1.34 1.35 1.36 1.37 1.38 1.39 1.40 1.38 1.39 1.42 1.43
1.05 1.07 1.07 1.08 1.08 1.08 1.08 1.06 1.050 1.05 1.05 1.06 1.03 1.02 1.03
0.90 0.92 0.93 0.93 0.93 0.93 0.93 0.92 0.92 0.92 0.92 0.93 0.92 0.91 0.92
2001 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15
nPCR (n=26,350)
0.963 ± 0.27
M: 0.916± 0.25
F: 1.033 ± 0.29
Male
Female
spKT/V (n=44,705)
1.546 ± 0.30
M: 1.434 ± 0.25
F: 1.708 ± 0.29
nPCR , Kt/V
2.8
2.4
2.0
1.6
1.2
0.8
0.4
0.0
KOREAN ESRD REGISTRY
nPCR
spKT/V

HD Adequacy : DM & Non-DM

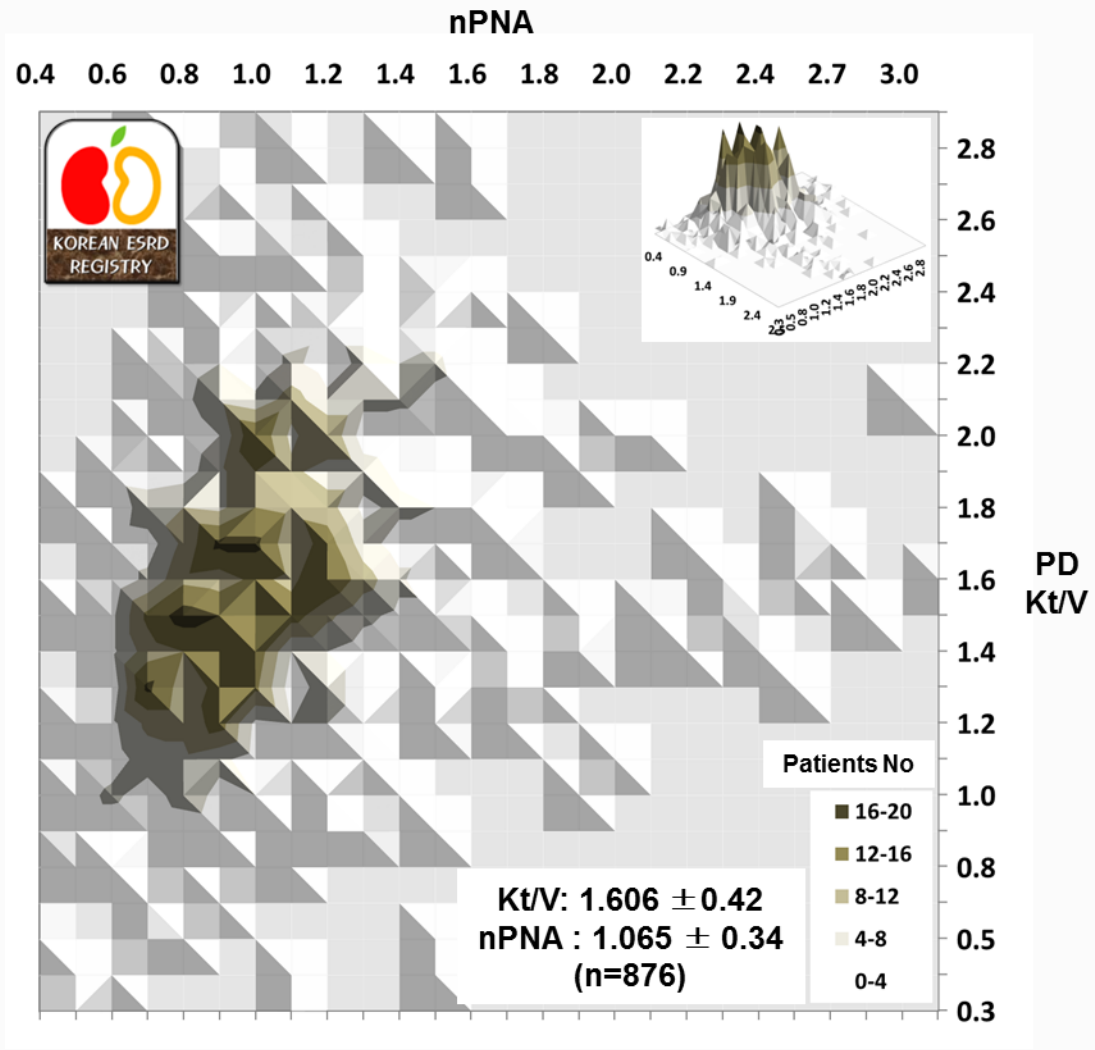




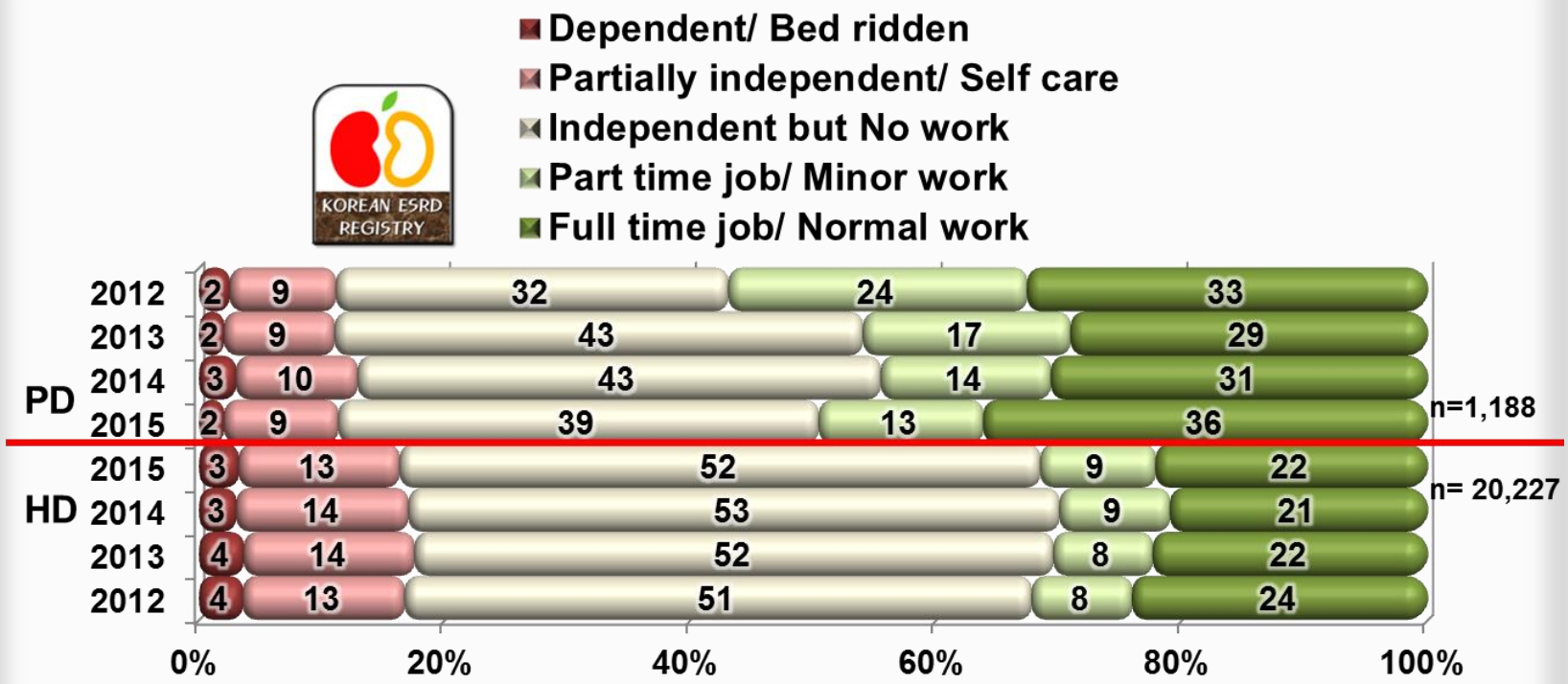
HD Adequacy : spKt/V vs nPCR



PD Adequacy : Kt/V vs nPNA



Rehabilitation of Dialysis Patients



Co-Morbidity of Dialysis Patients

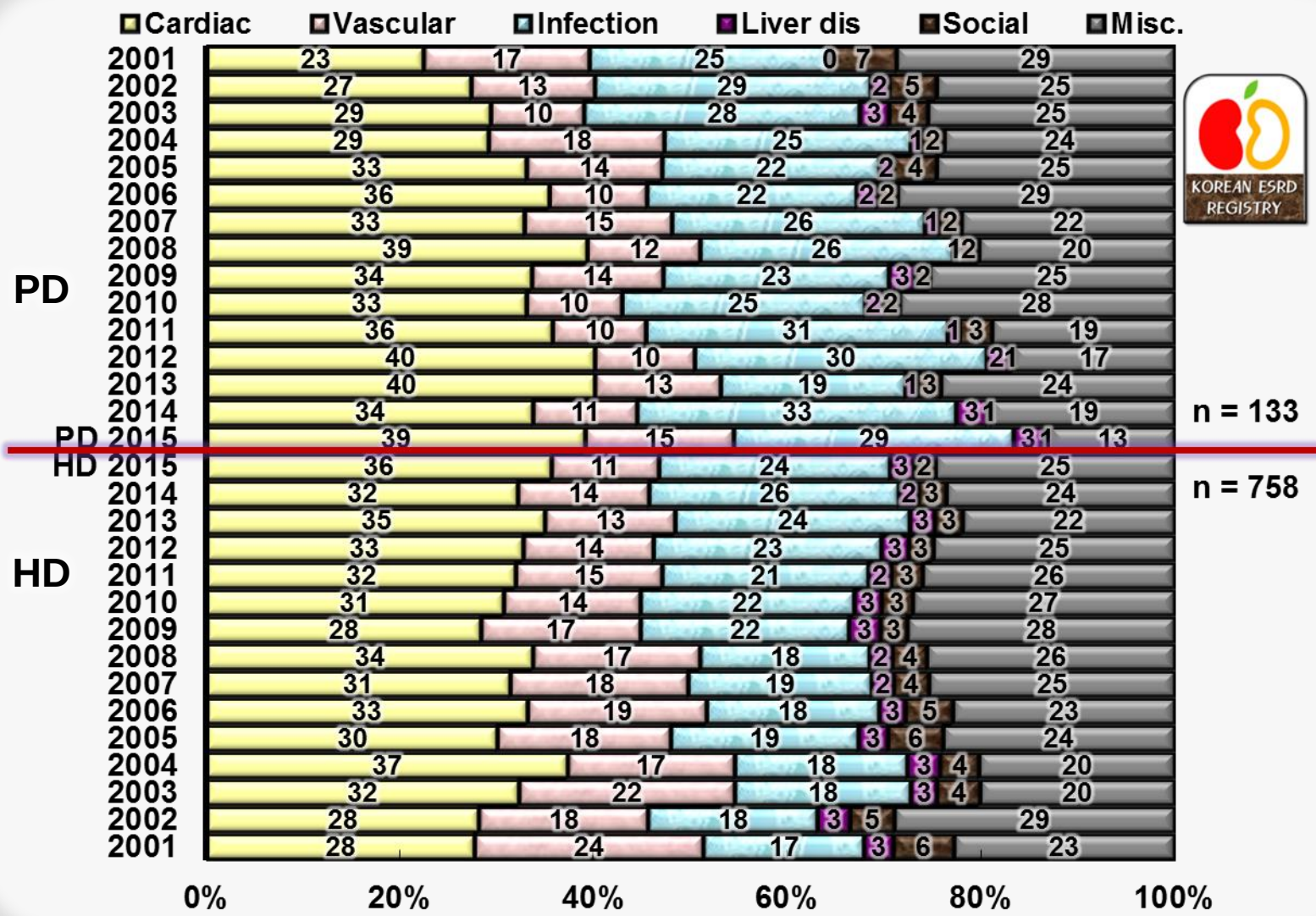
	HD (%, n=30,262)		PD (%, n=2,281)	
Cardiac	**16.7**		**25.0**	
Coronary Artery Disease		9.0		6.8
Congestive Heart Failure		4.3		16.0
Pericardial Effusion		0.3		0.5
Arrythmia		3.1		1.7
Vascular	**48.3**		**54.1**	
Cerebrovascular accident		3.1		4.0
Hypertension		43.4		49.7
Other vascular disease		1.8		0.3
Infection	**5.5**		**8.5**	
Pneumonia		1.4		1.0
Tuberculosis		0.6		1.0
Peritonitis		0.2		4.5
Herpes zoster		0.3		0.2
Access/ exit site infection		0.8		1.0
Other Infection		2.1		0.8
Liver disease	**6.1**		**3.7**	
Hepatitis B		3.5		2.5
Hepatitis C		2.2		1.2
Congestive Liver		0.1		0.0
Hemochromatosis		0.0		0.0
Other liver diseases		0.3		0.0
Gastrointestinal	**16.2**		**4.5**	
Gastric Ulcer		1.5		0.7
Duodenal Ulcer		0.2		0.0
Constipation		5.6		0.8
Other Gastrointestinal Diseases		8.7		3.0
Miscellaneous	**7.3**		**4.2**	
Malnutrition (Alb<2.5g/dl)		0.1		0.5
Malignancy		1.1		0.8
Hypertensive Retinopathy		0.4		0.3
Uremic Dermatitis		1.7		0.7
Uremic Neuritis		0.7		0.2
Uremic Dementia		0.2		0.3
Uremic Ascites / Pleural Effusion		0.3		0.2
Osteodystrophy		0.6		0.2
COPD & other pulm disease		0.4		0.5
Decubitus ulcer/ DM foot		1.8		0.5

Causes of Death (%), 1994-2015

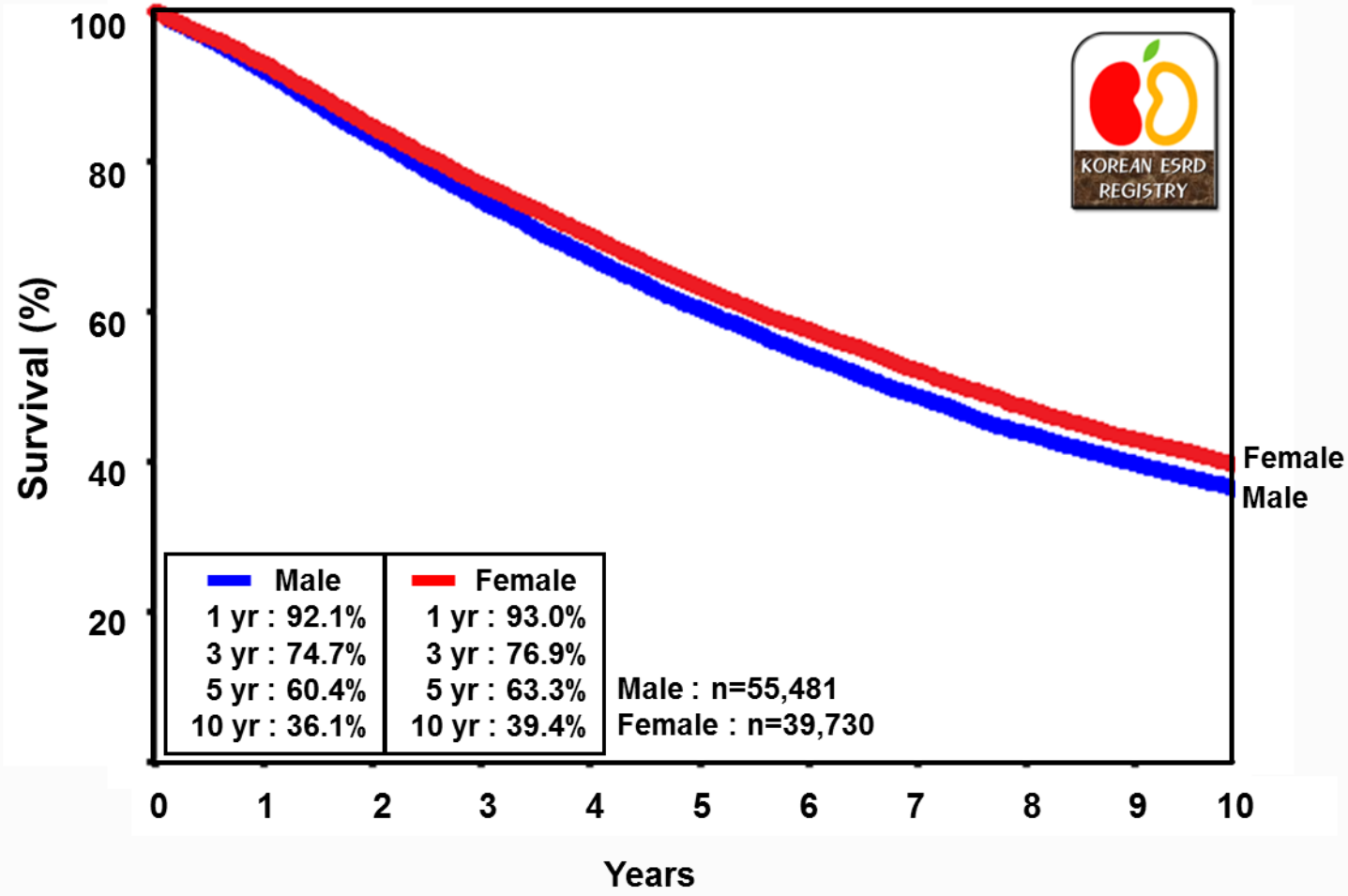
	1994-96	1998	2001	2003	2005	2007	2009	2011	2012	2013	2014	2015
Cardiac	**27.4**	**27.4**	**26.9**	**31.7**	**30.7**	**31.7**	**29.5**	**32.7**	**33.9**	**35.8**	**32.5**	**36.1**
Myocardial infarction	6.4	6.4	7.7	7.4	8	7.5	8.0	6.6	6.8	7.5	5.7	8.0
Cardiac arrest, uremia associated	13.7	13.7	11.2	11.7	10.4	10.8	8.5	11.0	11.1	14.2	14.1	13.1
Cardiac arrest, other cause	7.2	7.2	8.1	12.5	12.4	13.3	13	15.0	16.0	14.2	12.6	15.0
Vascular	**17.2**	**17.2**	**22.7**	**19.5**	**17**	**17.8**	**15.9**	**14.1**	**13.0**	**13.3**	**13.2**	**11.8**
Cerebrovascular accident	14.3	14.3	15.1	14.5	12.3	13	11	8.7	7.9	8.7	8.5	6.5
Pulmonary embolus	0.2	0.2	0.5	0.1	0.6	0.5	0.2	0.2	0.3	0.2	0.2	0.9
Gastrointestinal hemorrhage	1.7	1.7	2.7	3.2	1.7	2.7	2.3	2.2	2.3	1.2	1.7	1.4
Gastrointestinal embolism	0.1	0.1	0.1	0	0.5	0.1	0.5	0.1	0.6	0.2	0.2	0.7
Other vascular disease	0.9	0.9	4.3	1.6	1.9	1.6	1.9	3.0	1.9	3.0	2.6	2.4
Infection	**13.5**	**13.5**	**17.8**	**20.5**	**20.1**	**20.2**	**21.9**	**23.1**	**24.5**	**23.5**	**26.8**	**24.6**
Pulmonary infection	2.5	2.5	4.5	3.6	4.5	4.4	5.9	8.4	10.8	8.4	9.0	8.9
Septicemia	6.6	6.6	6.9	9.7	9.6	11.7	10.4	9.7	8.9	11.9	13.6	11.0
Tuberculosis	0.3	0.3	0.8	0.2	0.3	0.2	0.3	0.1	0.7	0.1	0.1	1.1
Peritonitis	2.1	2.1	1.1	2	1.4	1.1	0.8	1.0	1.0	0.5	0.7	1.1
Other Infection	2	2	4.5	4.9	4.3	2.9	4.5	4.0	3.0	2.7	3.4	2.4
Liver disease	**3.4**	**3.4**	**2.6**	**2.8**	**2.7**	**2.2**	**3.1**	**2.1**	**2.8**	**2.4**	**2.2**	**2.6**
Liver failure due to hepatitis B	1.8	1.8	1.6	1.8	1.5	1.3	2.2	1.0	1.4	1.3	1.0	1.1
Liver failure due to other cause	1.6	1.6	1	1	1.2	0.8	0.9	1.1	1.3	1.1	1.2	1.5
Social	**6.2**	**6.2**	**6.3**	**4.4**	**5.4**	**3.3**	**2.5**	**3.3**	**2.2**	**2.8**	**2.5**	**2.0**
Patient refused further treatment	2.9	2.9	2.1	1	1.1	1.1	0.5	0.4	0.6	0.3	0.3	0.3
Suicide	2.5	2.5	3.3	2.3	3.3	1.5	1.3	1.4	1.4	1.3	1.6	1.0
Therapy ceased for other reason	0.8	0.8	0.9	1	1	0.7	0.8	1.5	0.3	1.2	0.7	0.8
Miscellaneous	**32**	**32**	**23.7**	**21.3**	**24**	**24.8**	**27.1**	**24.7**	**23.6**	**22.2**	**22.9**	**23.0**
Cachexia	2.9	2.9	8.1	6.6	4	4.4	3.3	2.7	2.1	1.6	1.5	1.4
Malignant disease	2.1	2.1	4.4	3.5	6.4	5.7	5.7	6.0	6.7	5.7	6.0	5.8
Accident	1.2	1.2	0.9	1.1	1.4	1.2	1.3	1.6	1.4	1.4	2.0	1.0
Uncertain	25.8	25.8	10.3	10.1	12.3	13.4	16.8	14.5	13.3	13.4	13.4	14.8

*Number of patients :1994-1996=981, 1998=911, 2001=761, 2003=894, 2005=1,256, 2007=1,531, 2009=1,727, 2011=1,828, 2012=1,745, 2013=1,604, 2014=1,534, 2015=891.

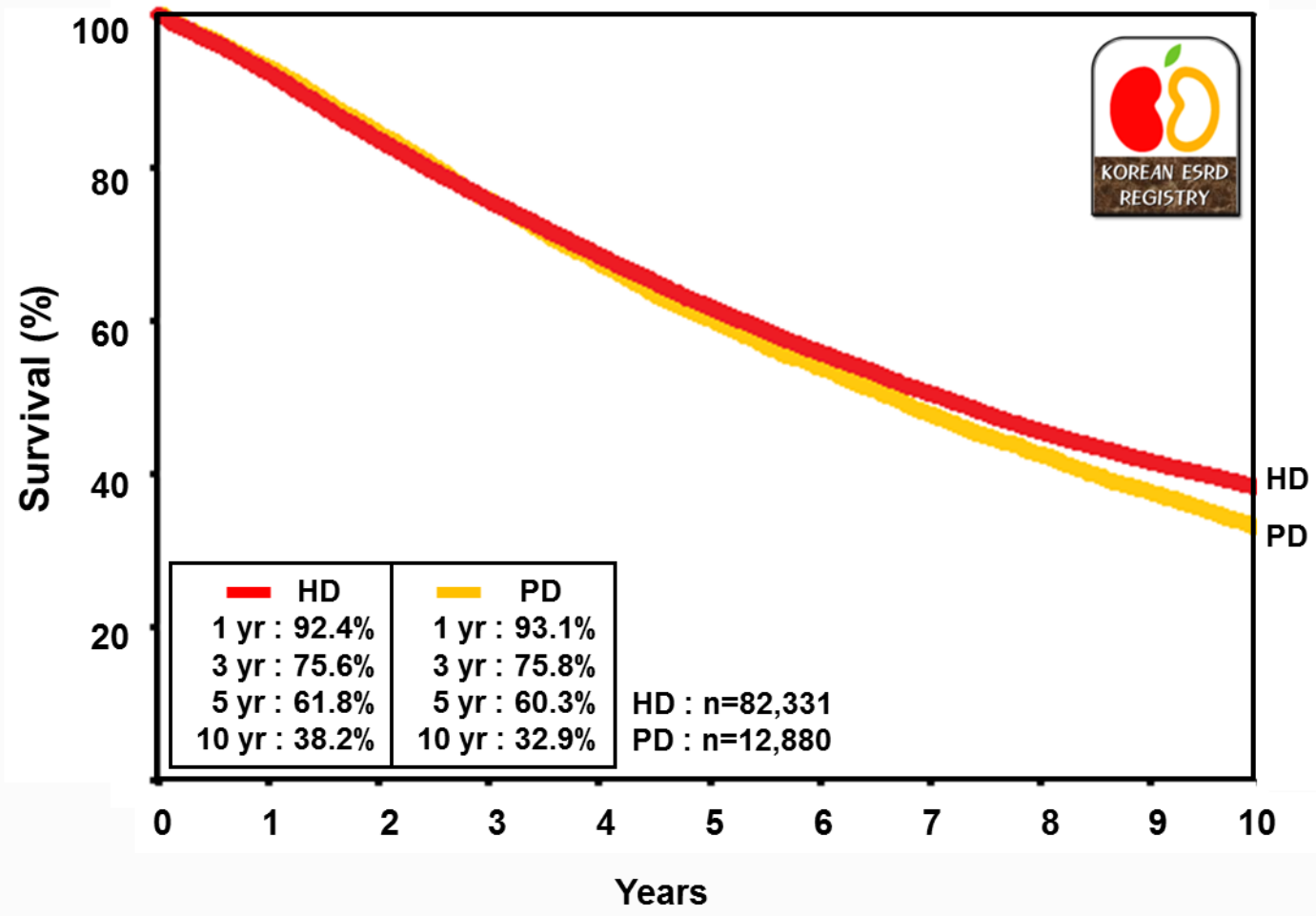
Causes of Death, HD & PD (%)



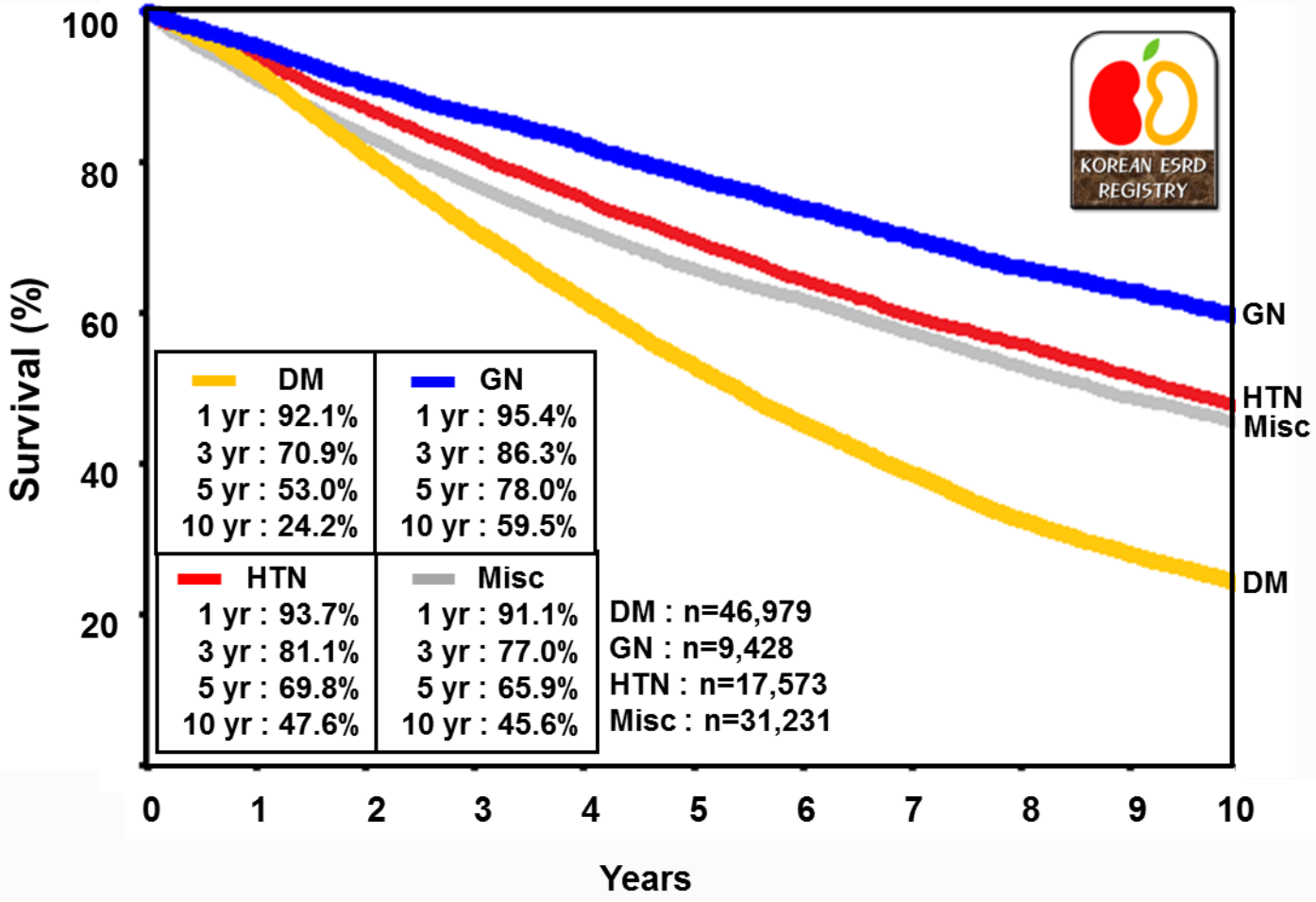
Overall Patient Survival



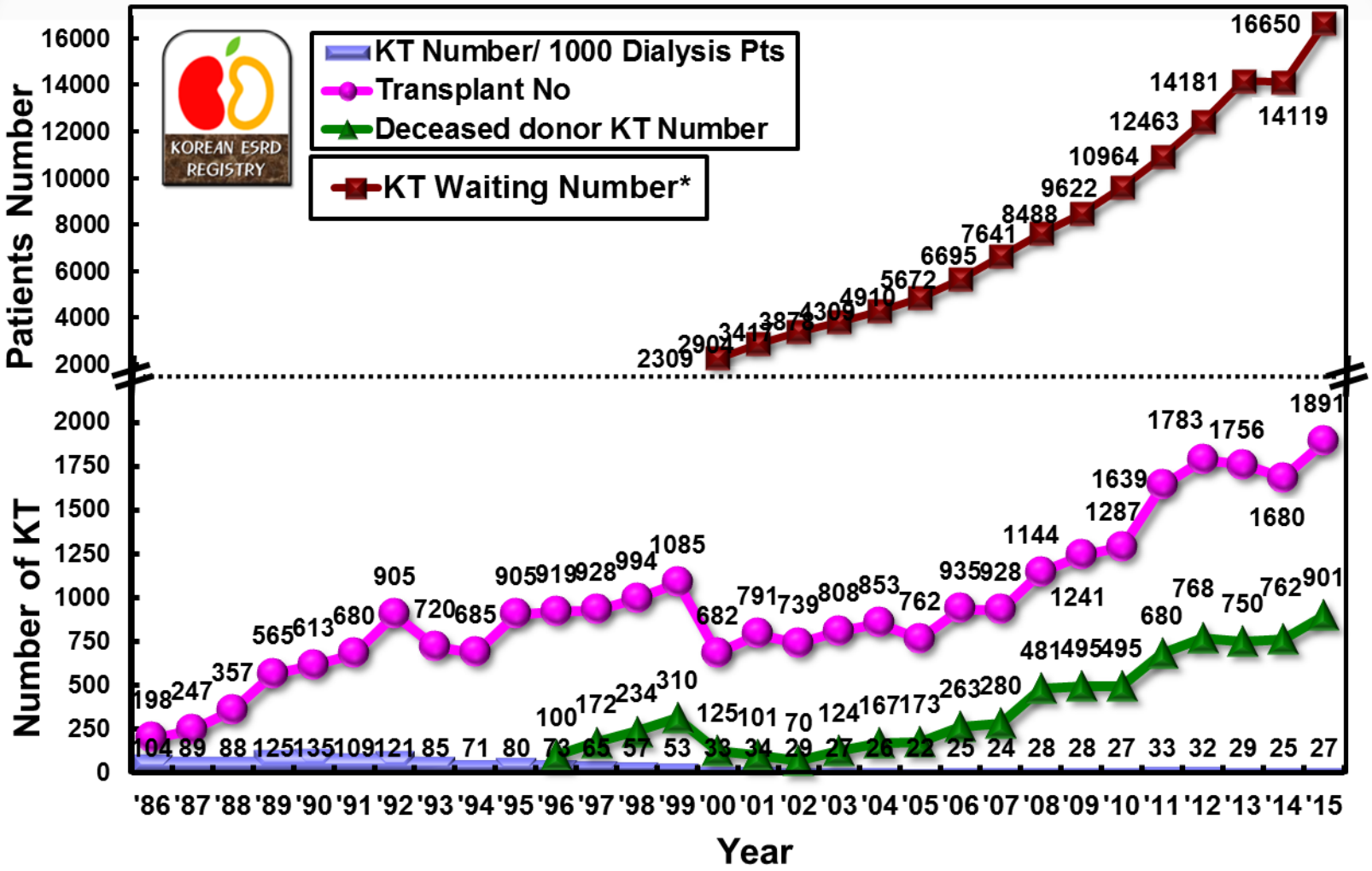
Patient Survival : HD vs PD



Patients Survival : Cause of ESRD

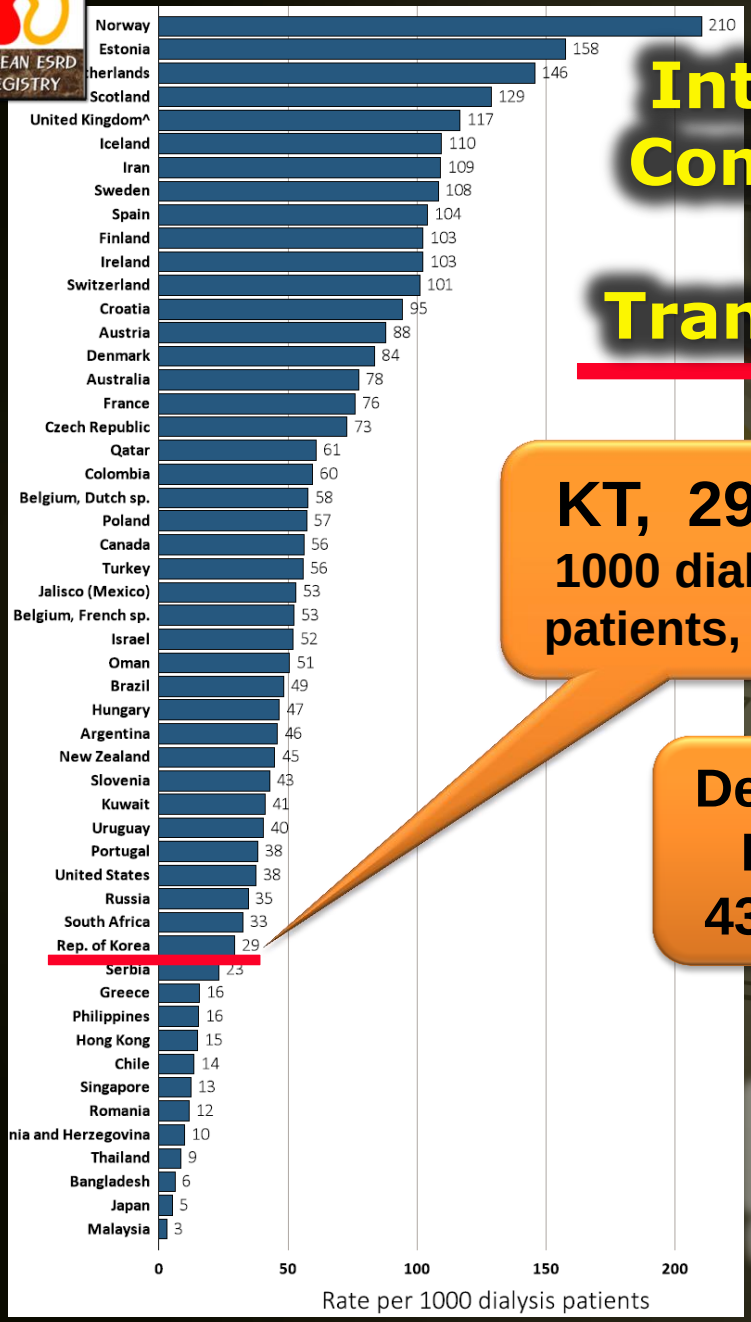


Kidney Transplantation



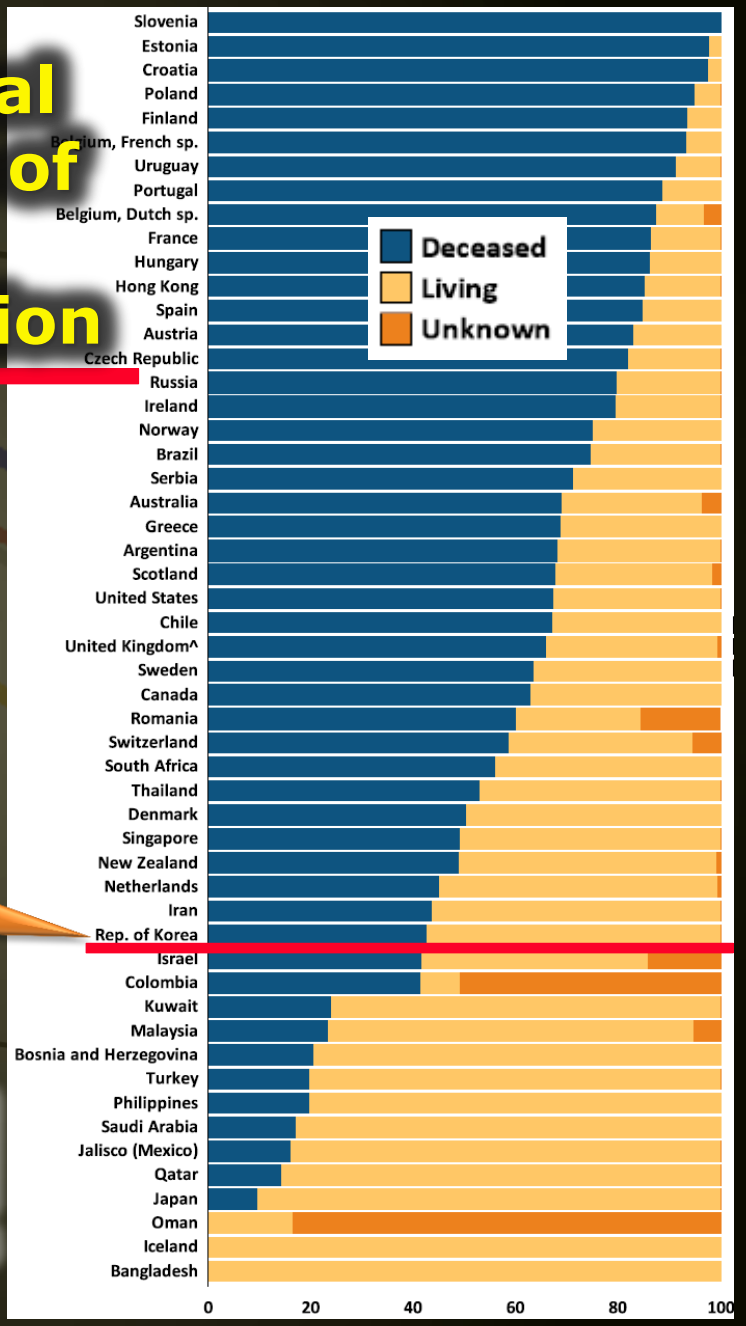
KOREAN ESRD REGISTRY

International Comparison of Kidney Transplantation



KT, 29 Per 1000 dialysis patients, 2013

Deceased Donor 43%, 2013

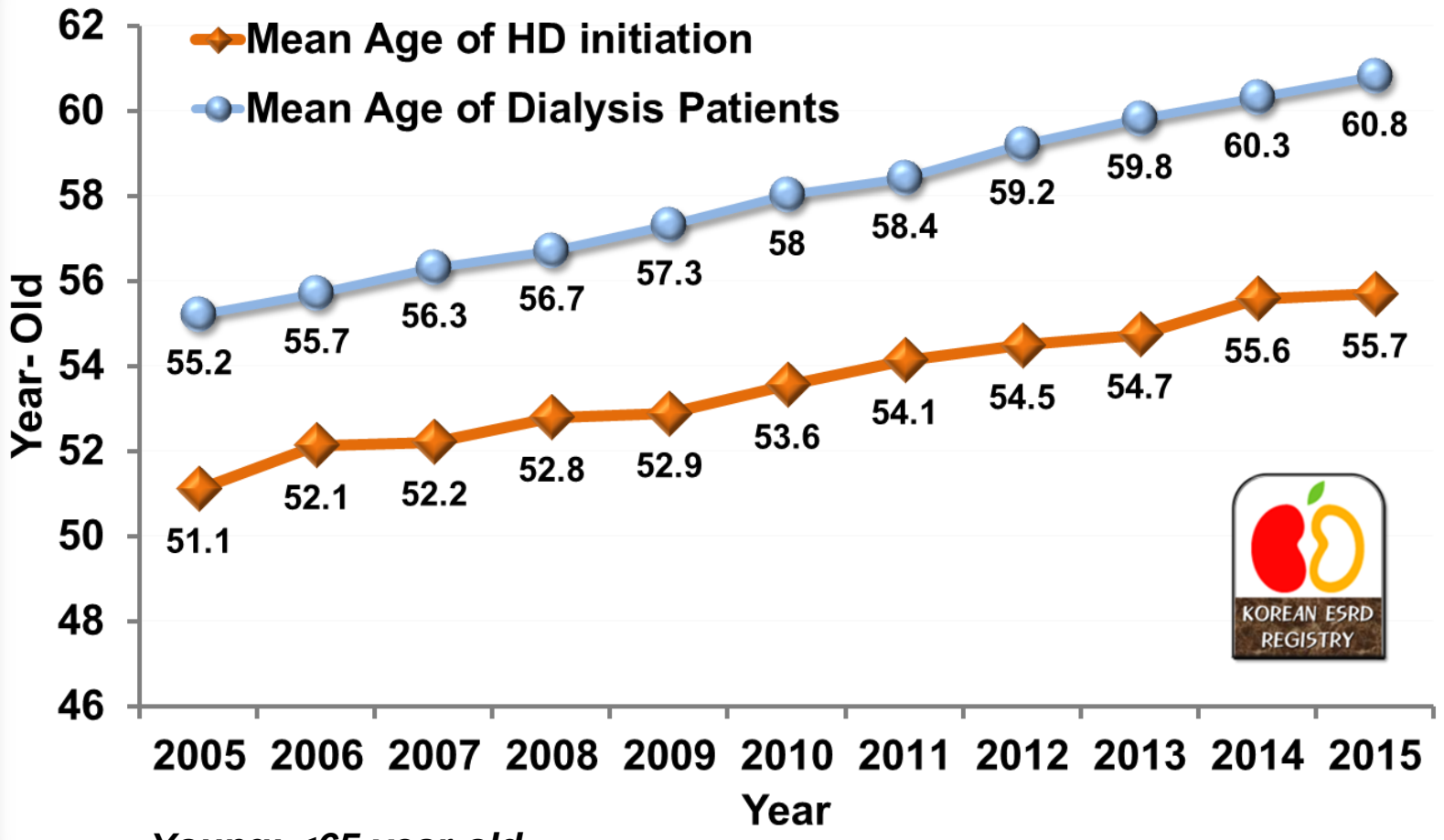


USRDS
UNITED STATES RENAL DATA SYSTEM

USRDS Report 2015

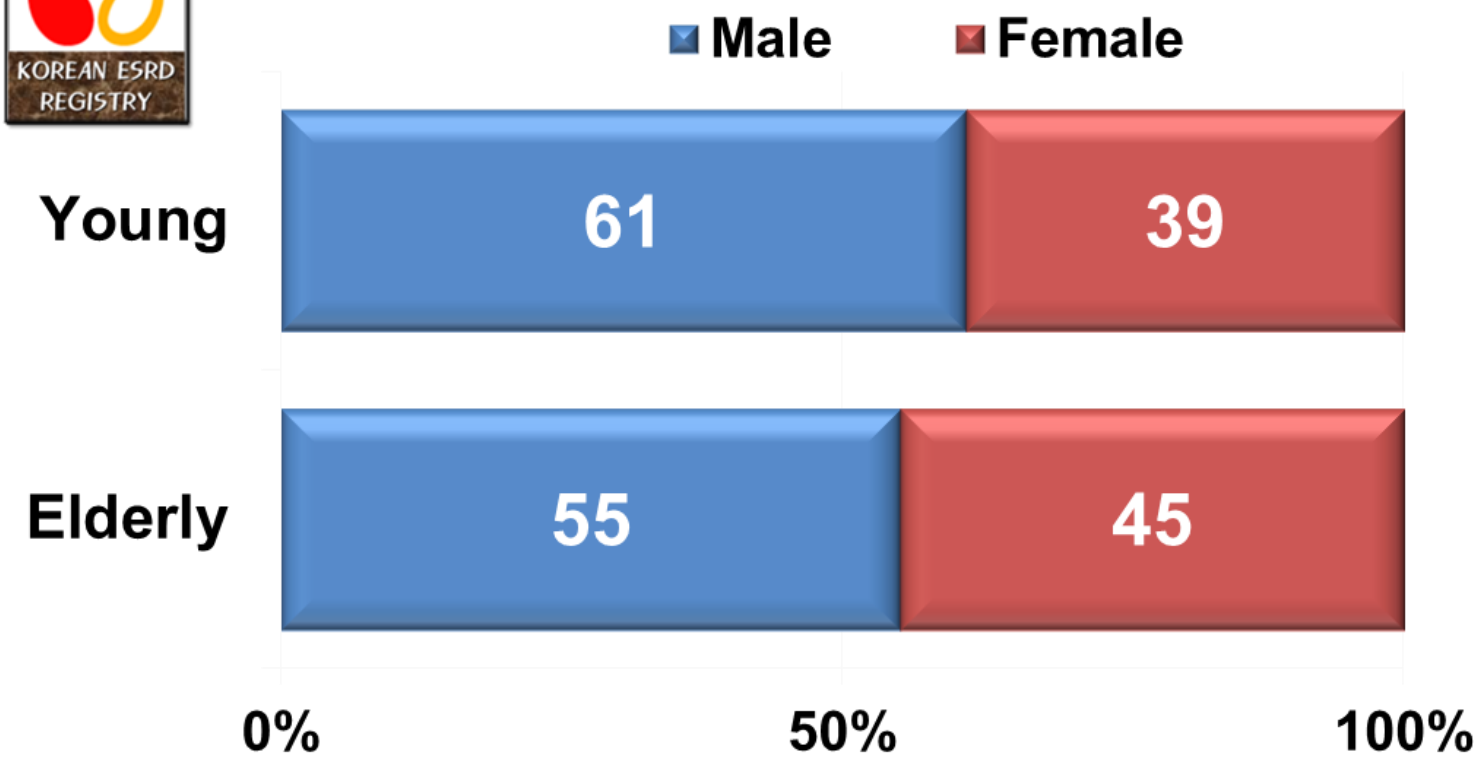
Jun 2016

Mean Age of HD Initiation



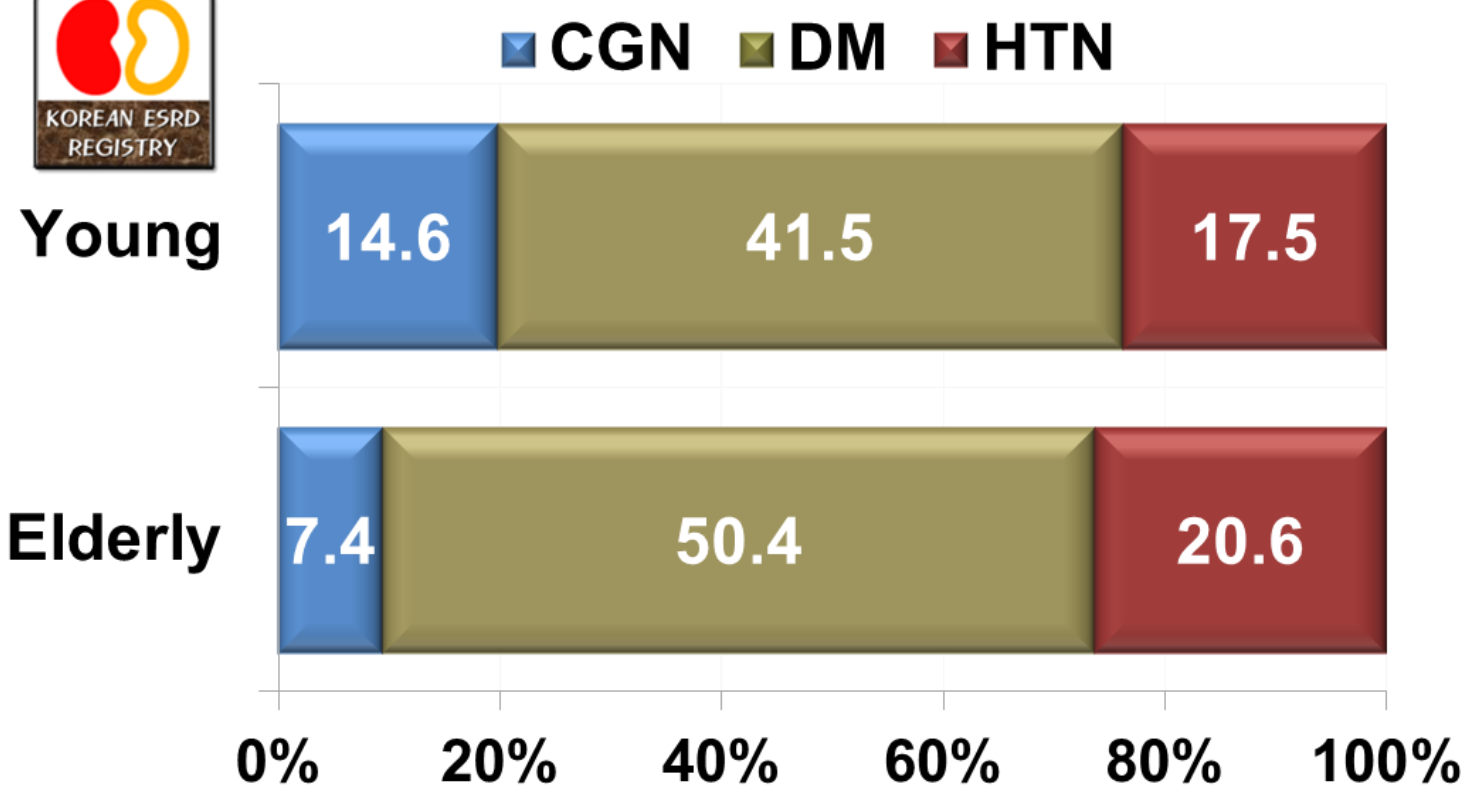
Young; <65 year-old,
Elderly; ≥65 year-old

Gender Ratio (%), Young & Elderly



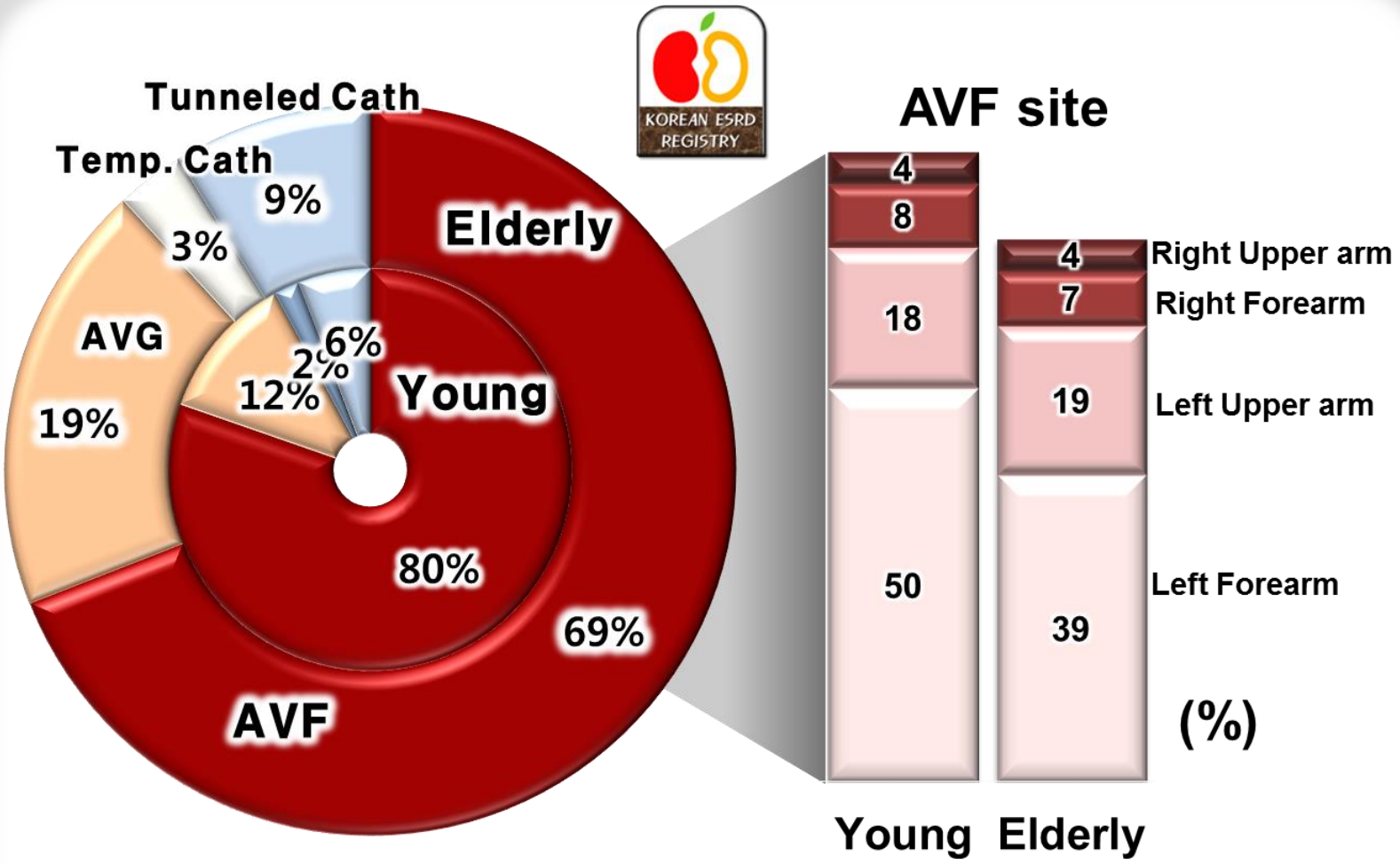
Young; <65 year-old,
Elderly; ≥65 year-old

Causes of ESRD, Young & Elderly

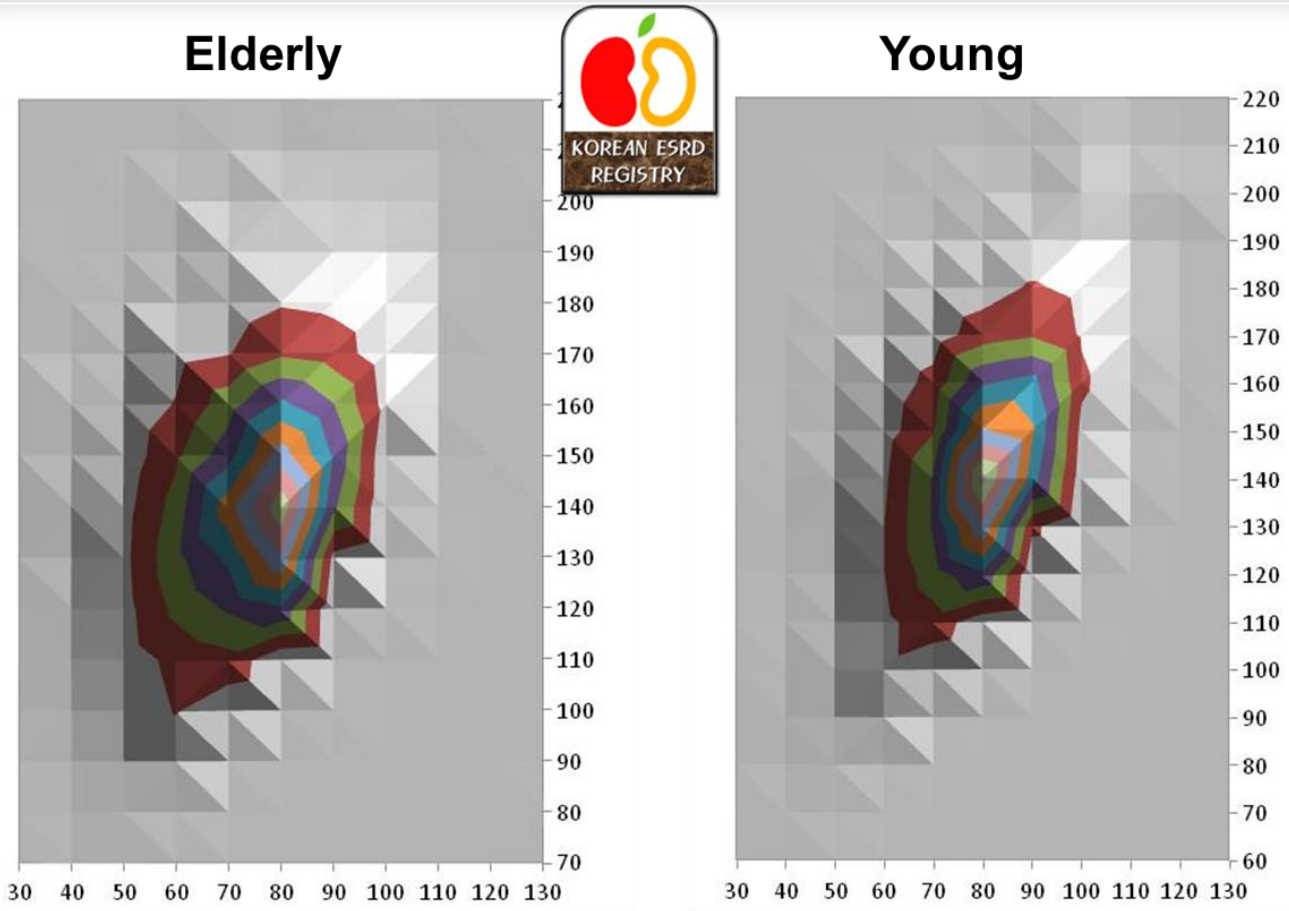


Young; <65 year-old,
Elderly; ≥65 year-old

Vascular Access, Young & Elderly



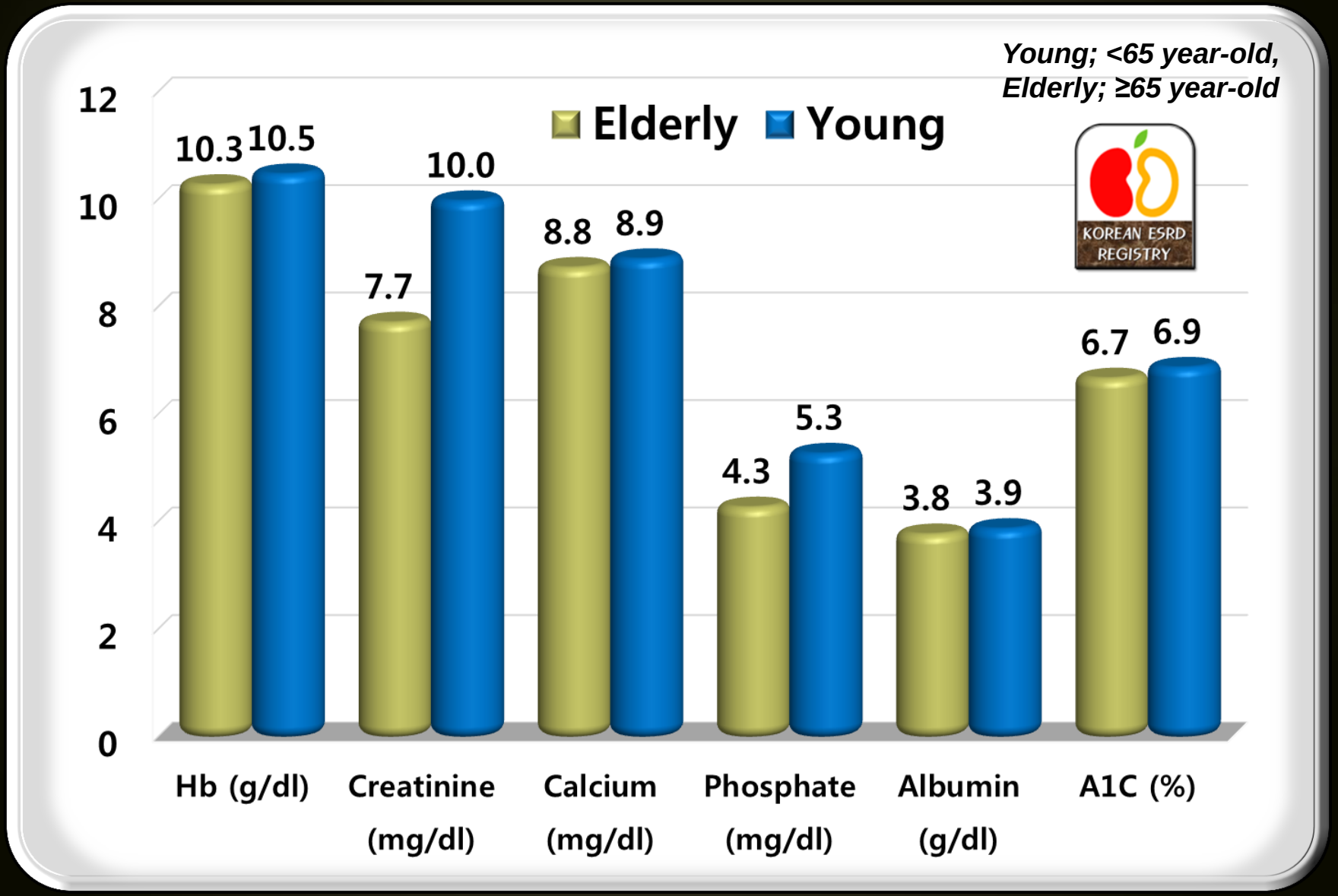
Blood Pressure, Young & Elderly



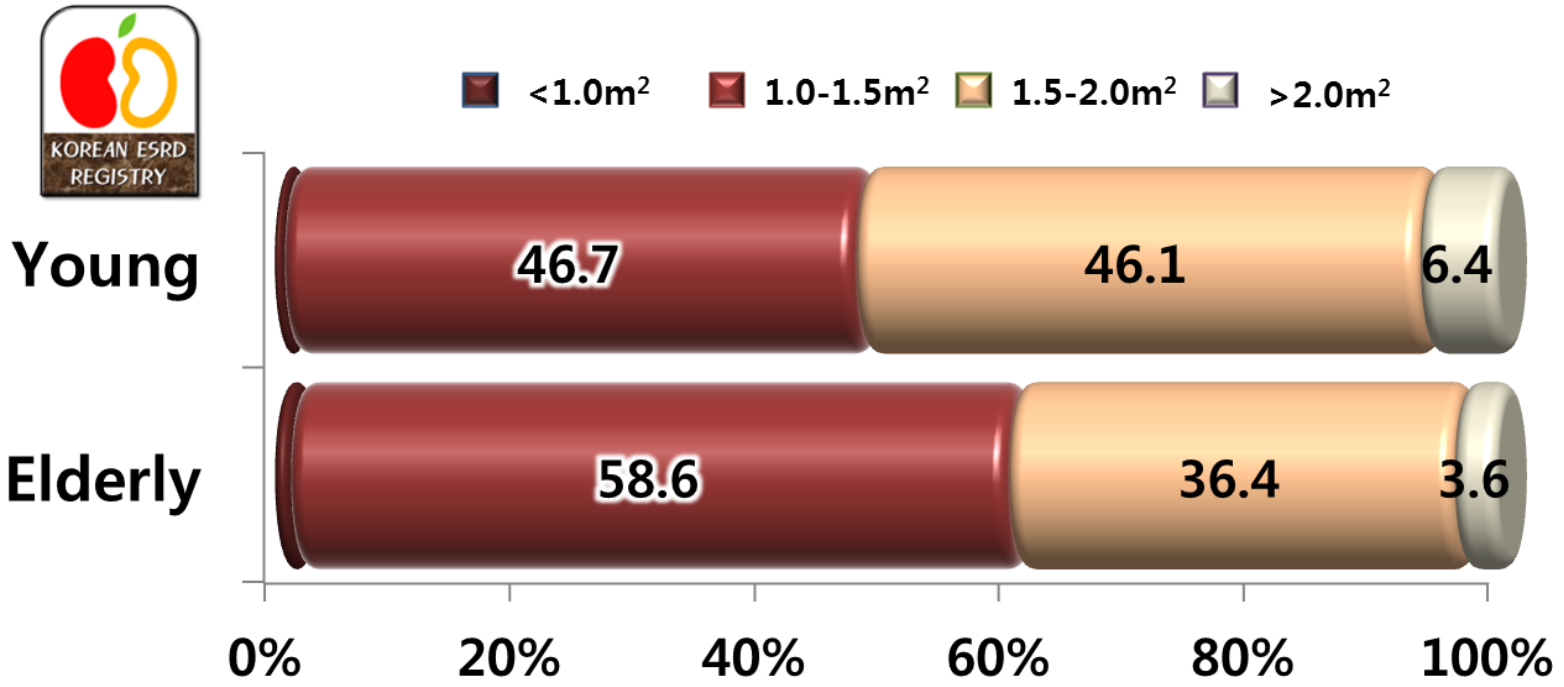
	Elderly	Young
Systolic BP:	142.2 ± 19.3 mmHg	143.6 ± 19.6 mmHg
Mean A. BP:	97.3 ± 11.9 mmHg	101.4 ± 12.2 mmHg
Diastolic BP:	74.8 ± 11.7 mmHg	80.2 ± 11.1 mmHg

Young; <65 year-old, Elderly; ≥65 year-old

Lab. Data, Young & Elderly

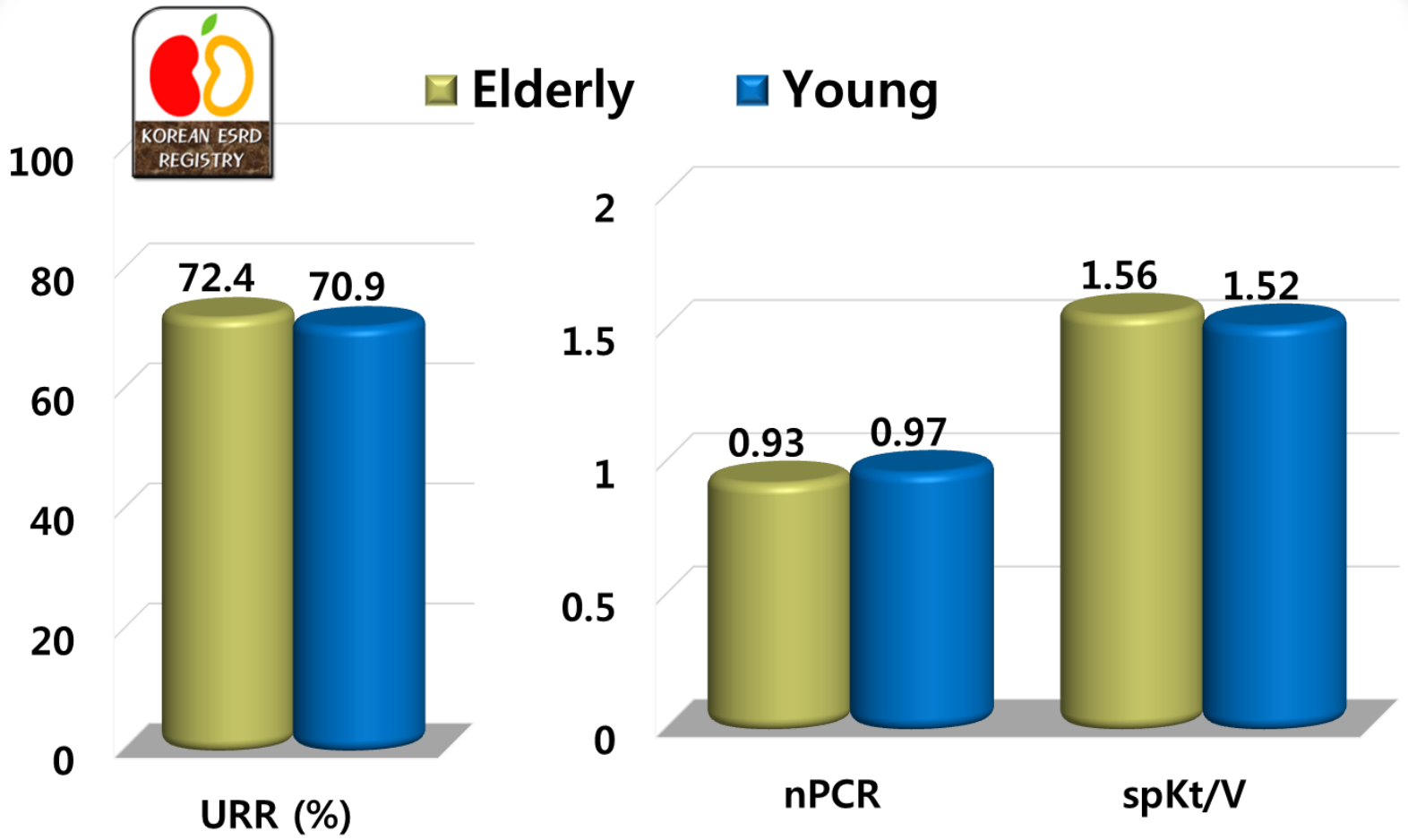


Dialyzer Surface Area, Young & Elderly



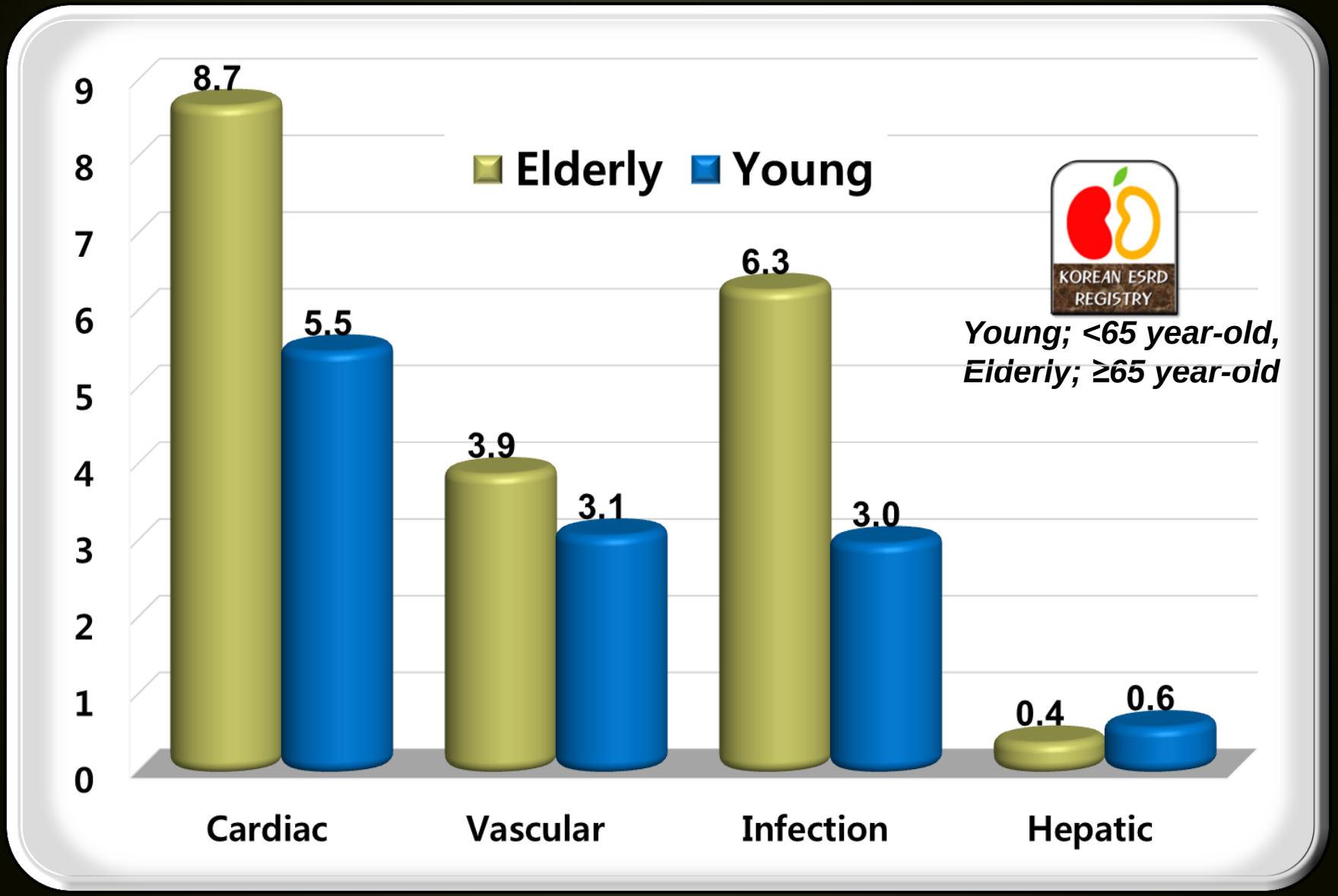
Young; <65 year-old,
Elderly; ≥65 year-old

Dialysis Adequacy, Young & Elderly

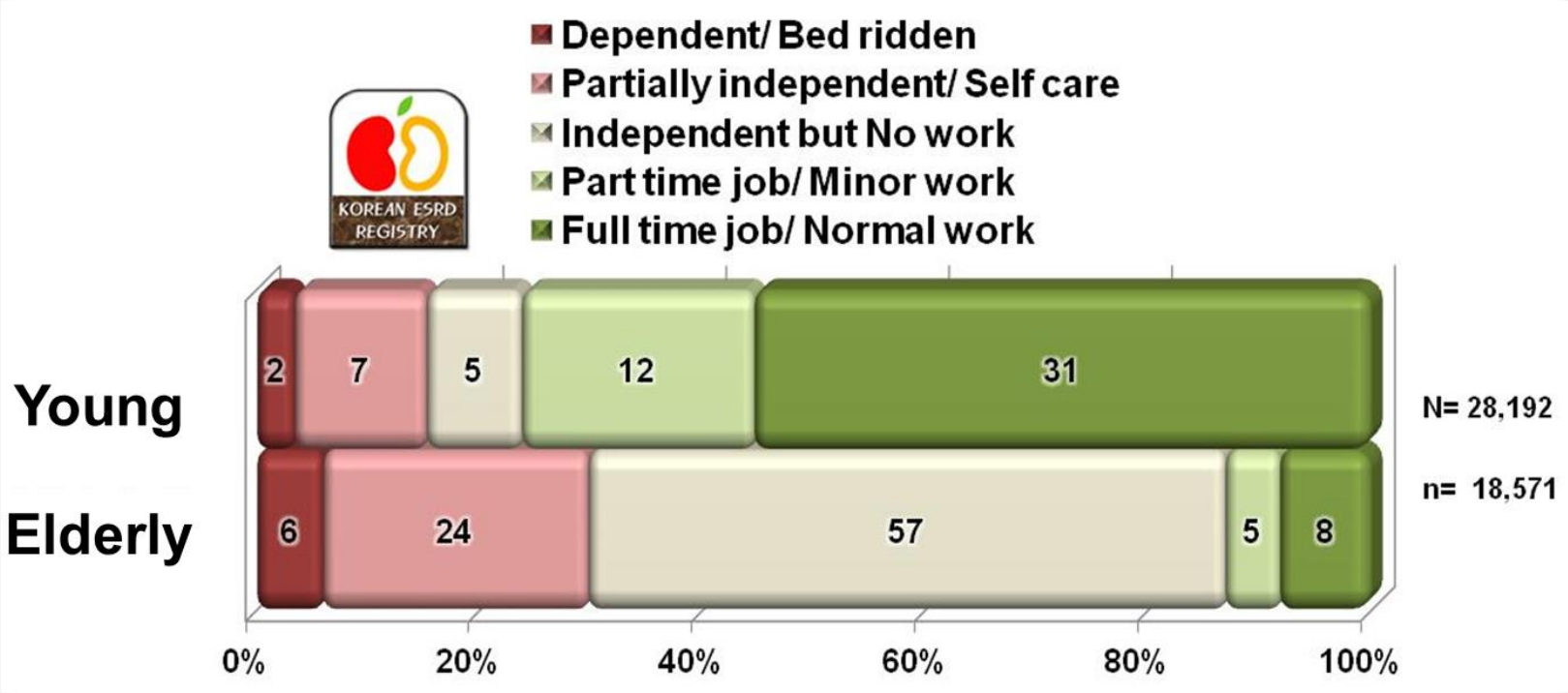


Young; <65 year-old,
Elderly; ≥65 year-old

Co-Morbid Prevalence, Young & Elderly



Rehabilitation, Young & Elderly



Young; <65 year-old,
Elderly; ≥65 year-old

KOREAN ESRD REGISTRY

특 징 요 약

- 투석 방법, 합병증, 검사 수치, 재활상태에 대한 자료누적 보고
- 전체 투석환자 및 혈액투석기관수의 빠른 증가
- 비윤리 의료기관 존재, 요양병원 증가
- 복막투석의 정체 및 상대적 혈액투석 비율의 증가
- 원인 신질환에서 당뇨병성 신증의 비율 높게 유지
- 혈액투석 효율 점진적 향상, 빈혈 개선, 혈압저하
- 의료보험 심사평가원의 적정성 평가, 대한신장학회의 투석기관 인증제와 약제 비용에 따른 투석 치료의 변화 (특히 칼슘,인)
- 노인환자수의 증가가 빠르며 노인 투석환자는 투석 효율이나 전신상태가 나쁘지 않은 편이나 재활도는 낮음.

KOREAN ESRD REGISTRY

감사의 글

- 전국의 인공신장실 담당의료진
- 대한신장학회 사무국
- 투석용 의료물품 공급업체 자료:

  (Baxter Korea, FMC Korea)