우리나라 신대체 요법의 현황

– 인산 민병석 교수 기념 말기 신부전 환자 등록사업 2016 –

Current Renal Replacement Therapy in Korea

-Insan Memorial Dialysis Registry 2016-

KOREAN ESRD REGISTRY

대한신장학회 등록위원회

ESRD Registry Committee, Korean Society of Nephrology

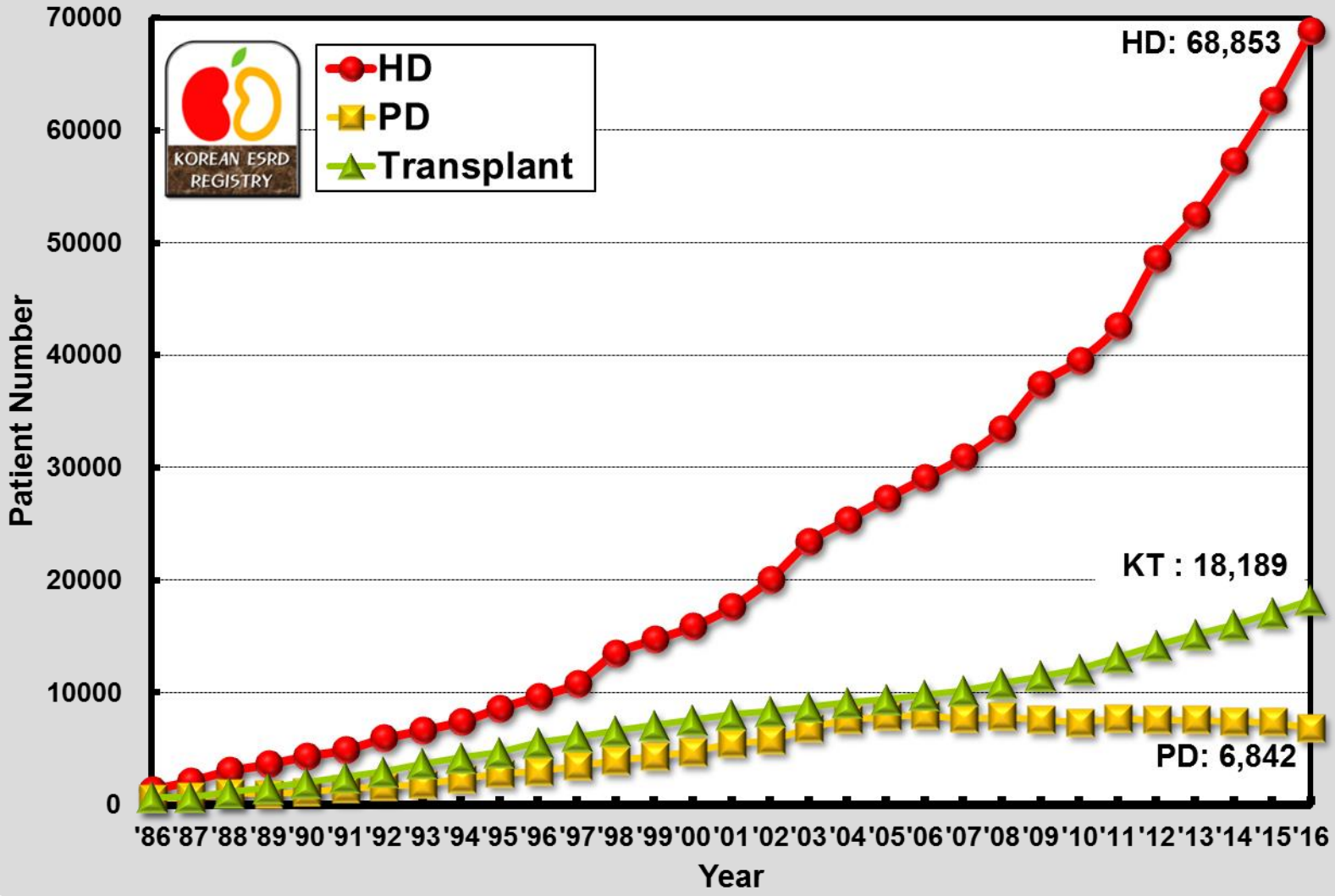
Prevalence of Renal Replacement Therapy

KOREAN ESRD REGISTRY

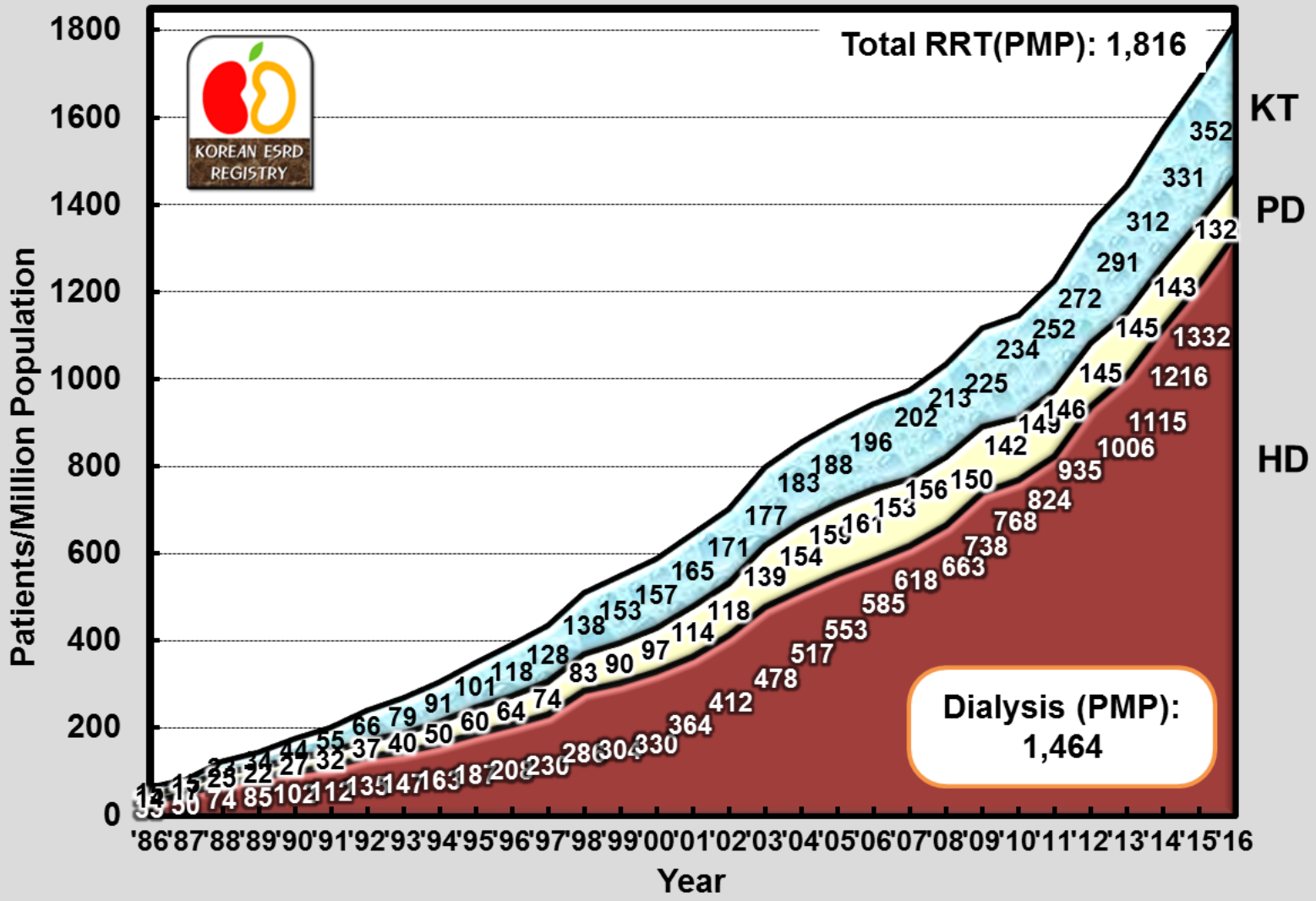
Year	HD		PD		Transplant		Total	
1980	198	(4.9)	30	(0.7)	-	-	228	(6.0)
1986	1,335	(32.6)	573	(13.9)	621	(15.1)	2,534	(61.7)
1988	3,012	(74.0)	1,058	(25.2)	982	(23.4)	5,142	(122.7)
1990	4,311	(101.8)	1,130	(26.7)	1,866	(44.1)	7,307	(172.6)
1992	5,890	(135.3)	1,599	(36.7)	2,862	(65.8)	10,351	(237.8)
1994	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)
2002	20,010	(412.4)	5,712	(117.7)	8,271	(170.5)	33,993	(700.6)
2004	25,335	(516.5)	7,569	(154.3)	8,987	(183.2)	41,891	(854.0)
2006	29,031	(585.0)	7,990	(161.0)	9,709	(195.7)	46,730	(941.7)
2008	33,427	(663.3)	7,840	(155.6)	10,722	(212.8)	51,989	(1031.6)
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)
2016	68,853	(1331.9)	6,842	(132.4)	18,189	(351.8)	93,884	(1816.1)

( ): Number of patients per million population. Rep. of Korea's population at the end of 2016: 51,696,216.

Patient Number of RRT

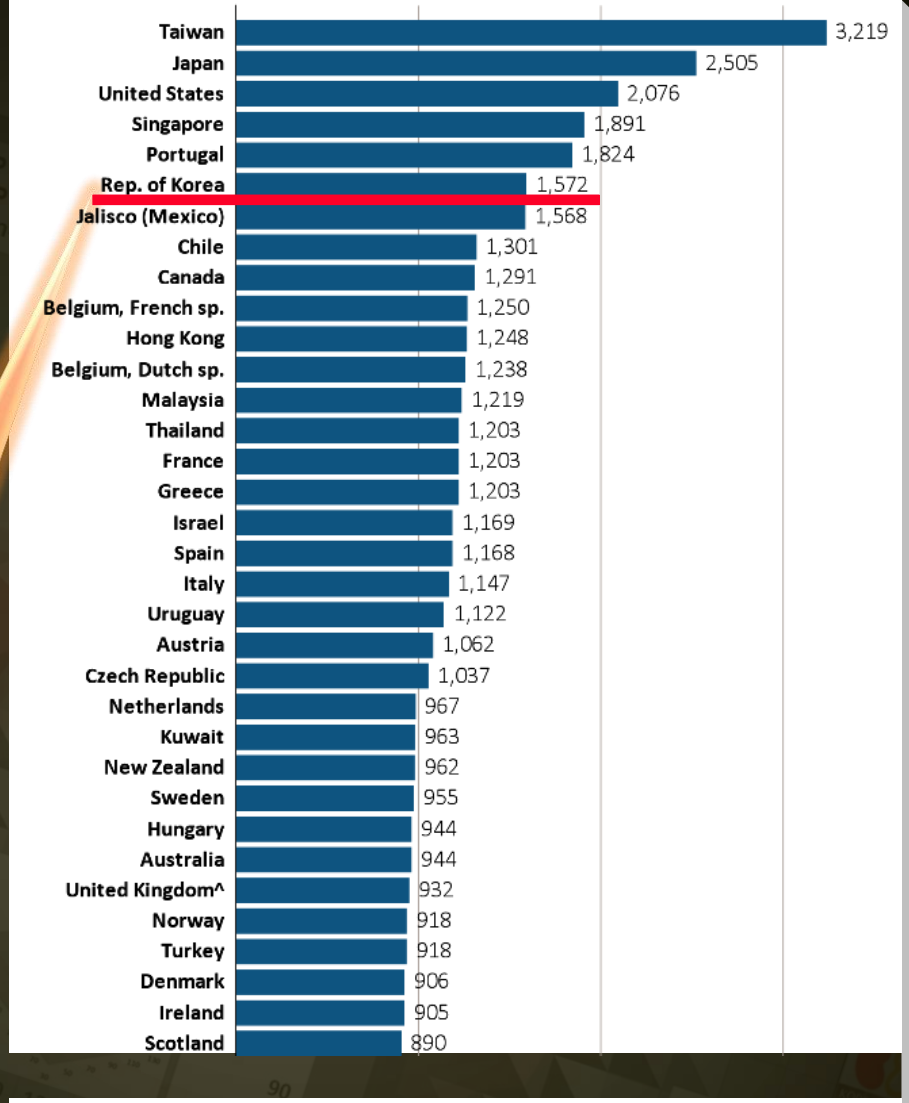


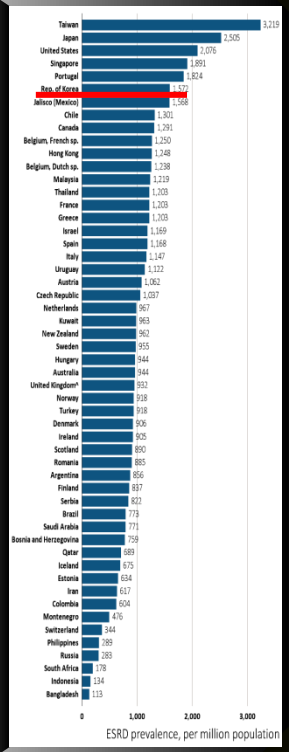
Point Prevalence of RRT



International comparison of ESRD Prevalence

1,572 PMP End of 2014





USRDS
UNITED STATES RENAL DATA SYSTEM

USRDS Report 2016

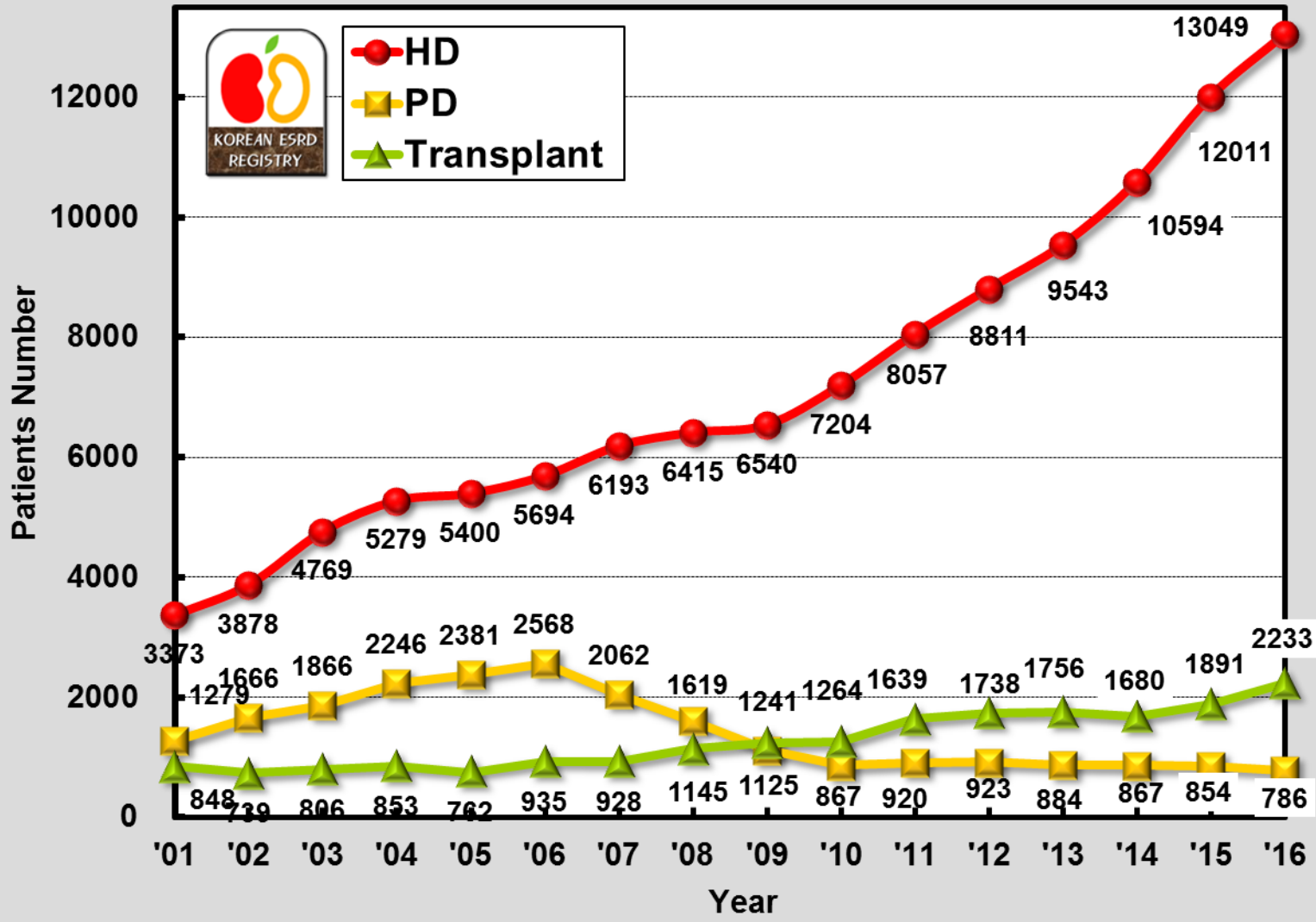
Number of New RRT Patients

KOREAN ESRD REGISTRY

	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)
2002	3,878	(79.9)	1,666	(34.3)	739	(15.2)	6,283	(129.5)
2004	5,279	(107.6)	2,246	(45.8)	853	(17.4)	8,378	(170.8)
2006	5,694	(114.7)	2,568	(51.7)	935	(18.8)	9,197	(185.3)
2008	6,415	(127.3)	1,619	(32.1)	1,145	(22.7)	9,179	(182.1)
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)
2016	13,049	(252.4)	786	(15.2)	2,233	(43.2)	16,068	(310.8)

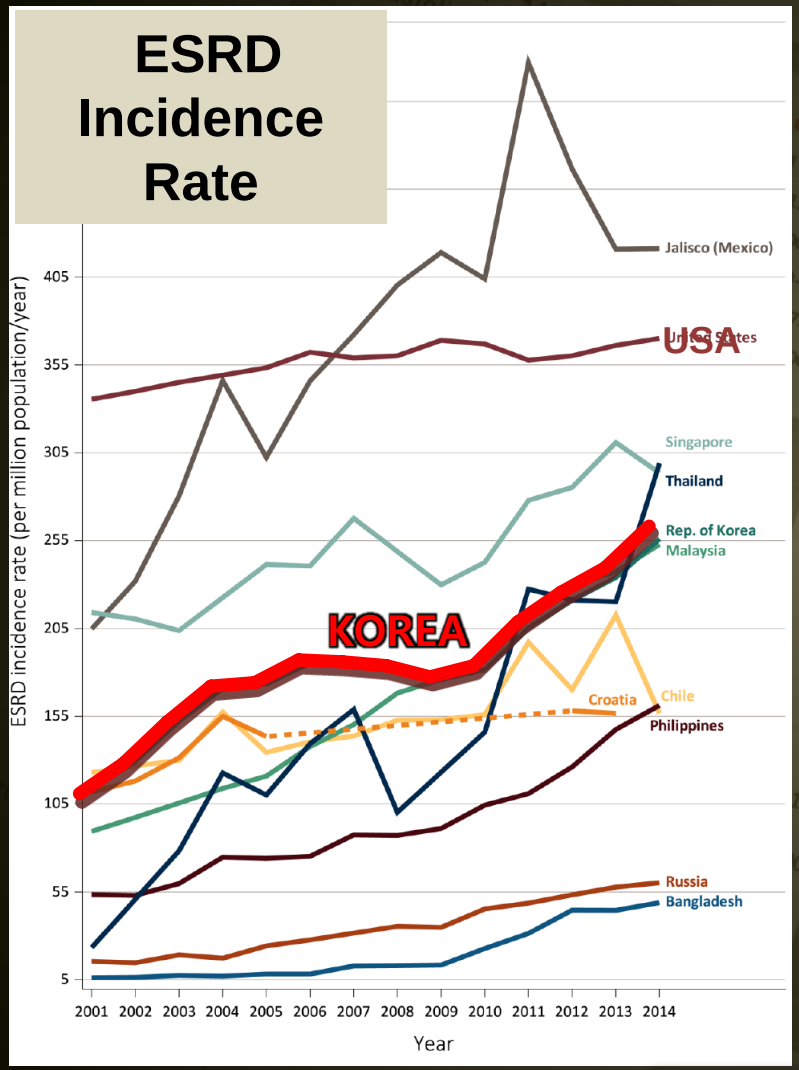
( ): Number of patients per million population. Rep. of Korea's population at the end of 2016: 51,696,216.

Number of New RRT Patients

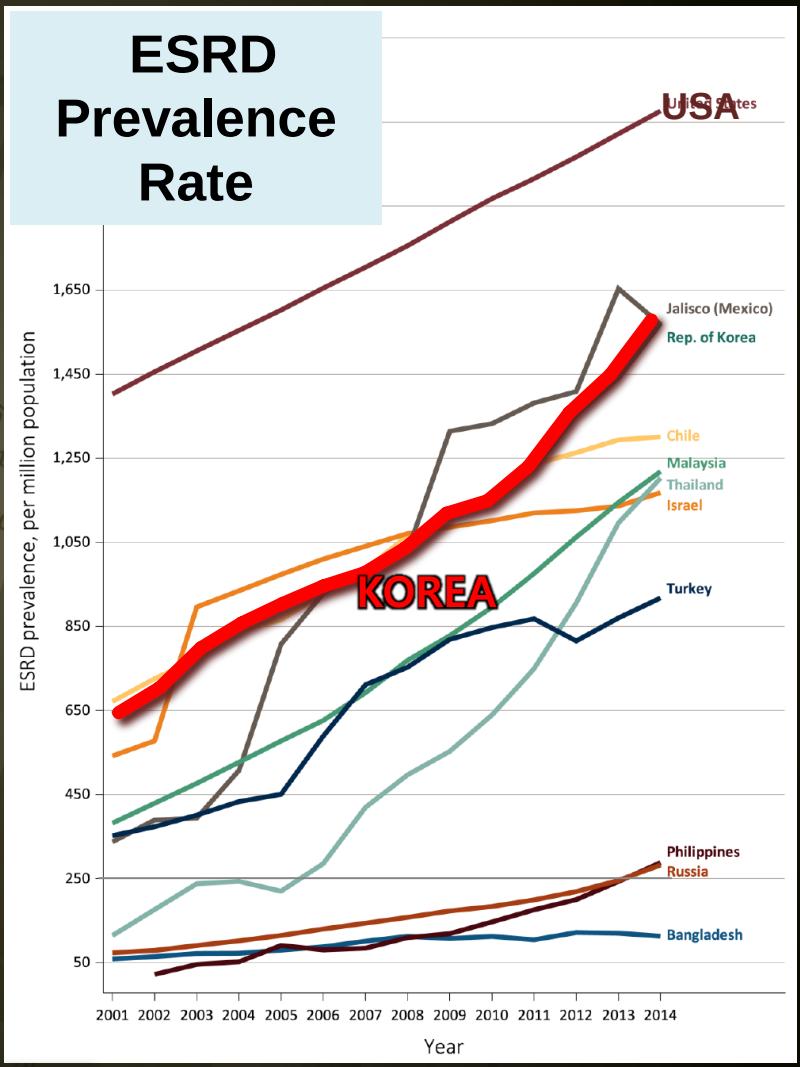


International Comparison

ESRD Incidence Rate



ESRD Prevalence Rate



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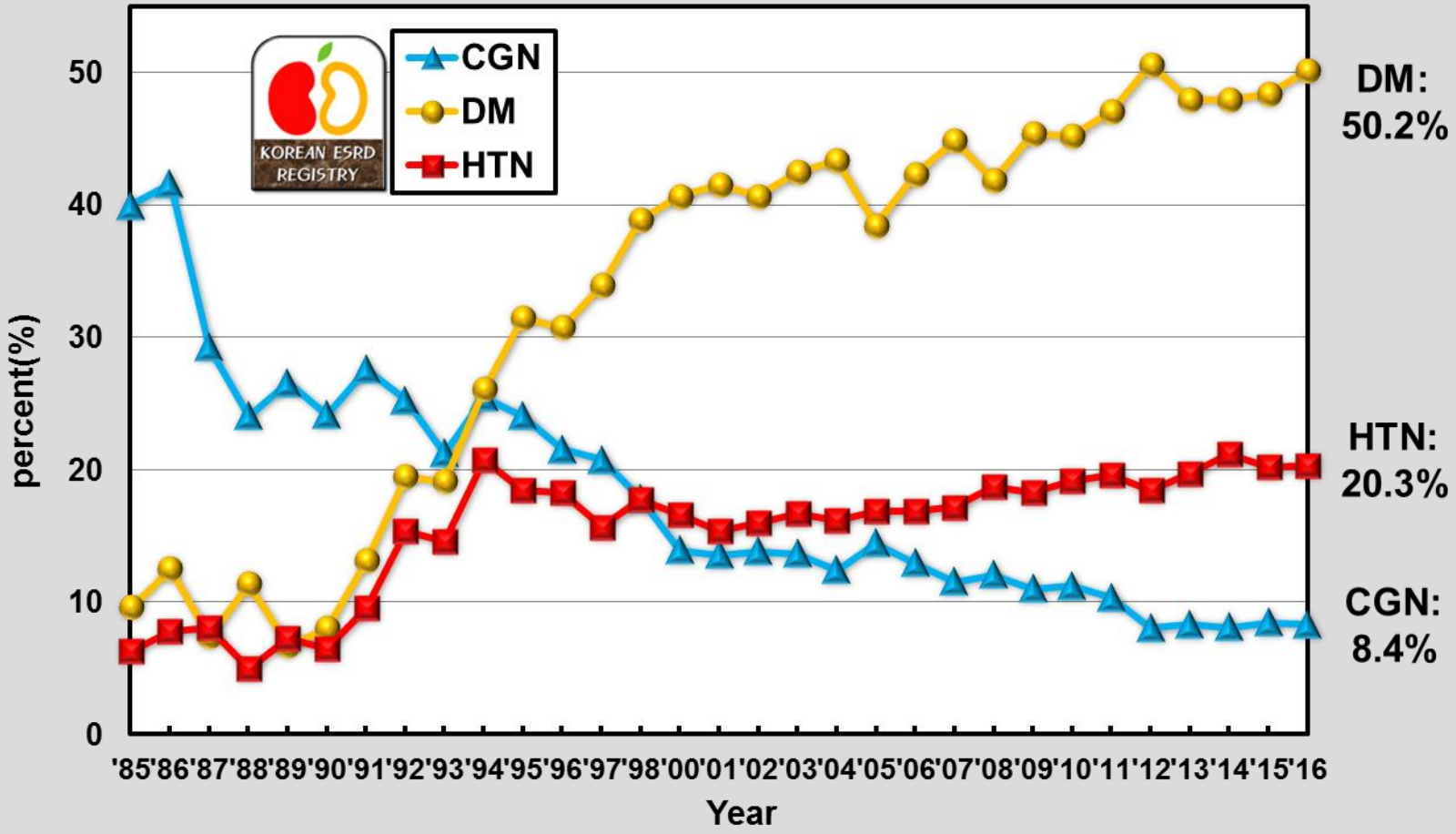
USRDS Report 2016

Causes of ESRD in New Patients

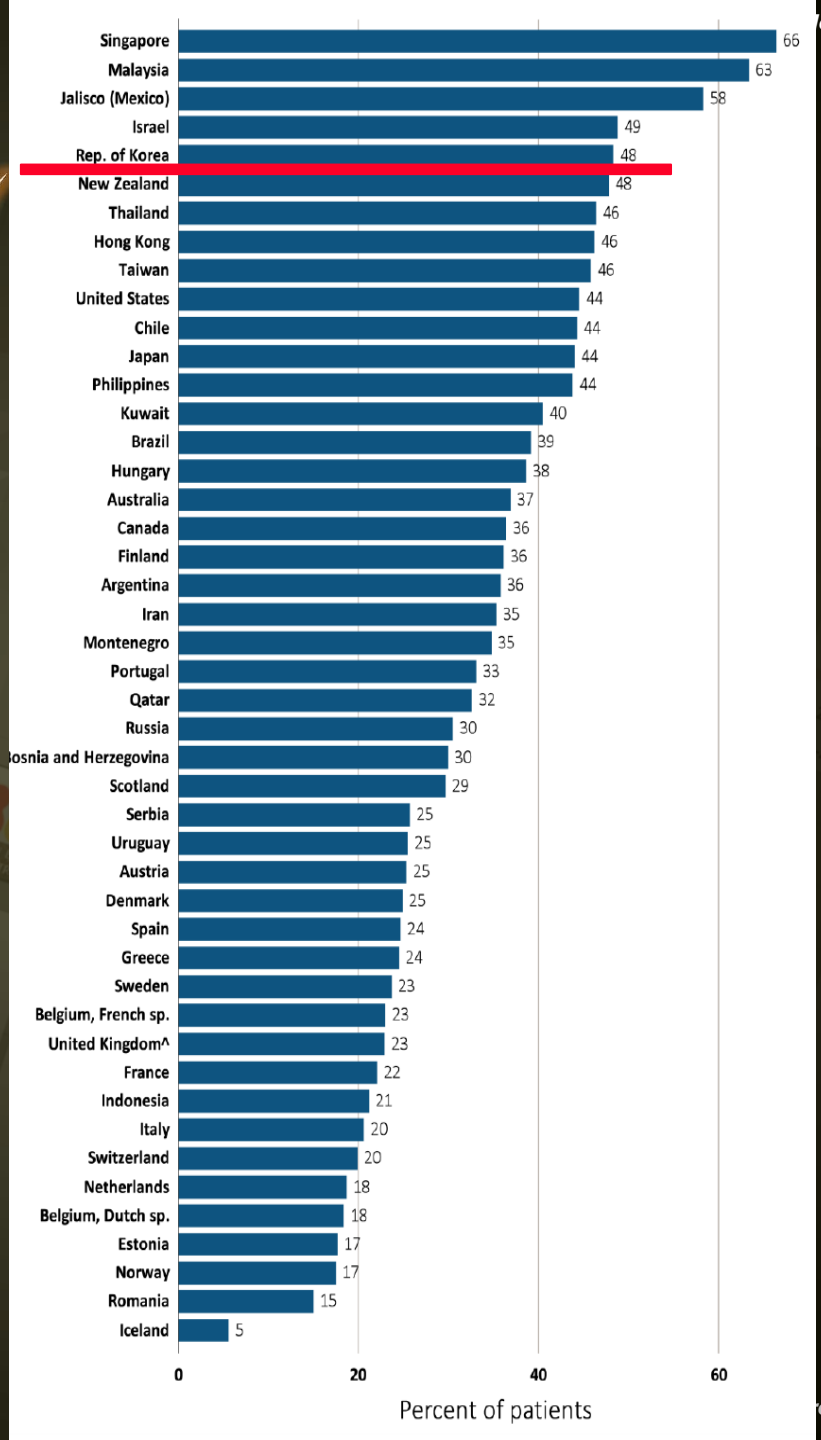
Causes	Percent (%)													
	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2015	2016
Chronic Glomerulonephritis	25.3	25.5	21.6	17.9	14	13.9	12.5	13.0	12.1	11.3	8.1	8.2	8.5	8.4
Not Histologically confirmed	19.7	20.4	16.7	13.6	10.6	10.0	8.6	9.0	8.2	7.7	4.5	4.4	4.2	3.8
Histologically confirmed	5.6	5.0	4.9	4.3	3.4	3.9	3.9	3.9	3.8	3.6	3.6	3.8	4.3	4.5
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	50.2
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	20.3
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	1.5
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	0.1
Pyelo/interstitial nephritis	1.3	1.1	0.7	1.0	0.8	0.6	0.6	0.6	0.5	0.4	0.5	0.8	0.3	0.4
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	0.3
Lupus nephritis	0.8	0.7	1.0	0.5	0.9	0.8	0.6	0.6	0.6	0.5	0.6	0.5	0.3	0.5
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	0.3
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	0.5
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	0.3
Other	4.1	2.7	2.8	3.9	3.0	5.6	5.9	6.0	5.8	5.1	6.8	6.1	6.3	5.5
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	11.7

Three Major Causes of ESRD



Diabetic ESRD
International Comparison

Rep. of Korea
48% in 2014



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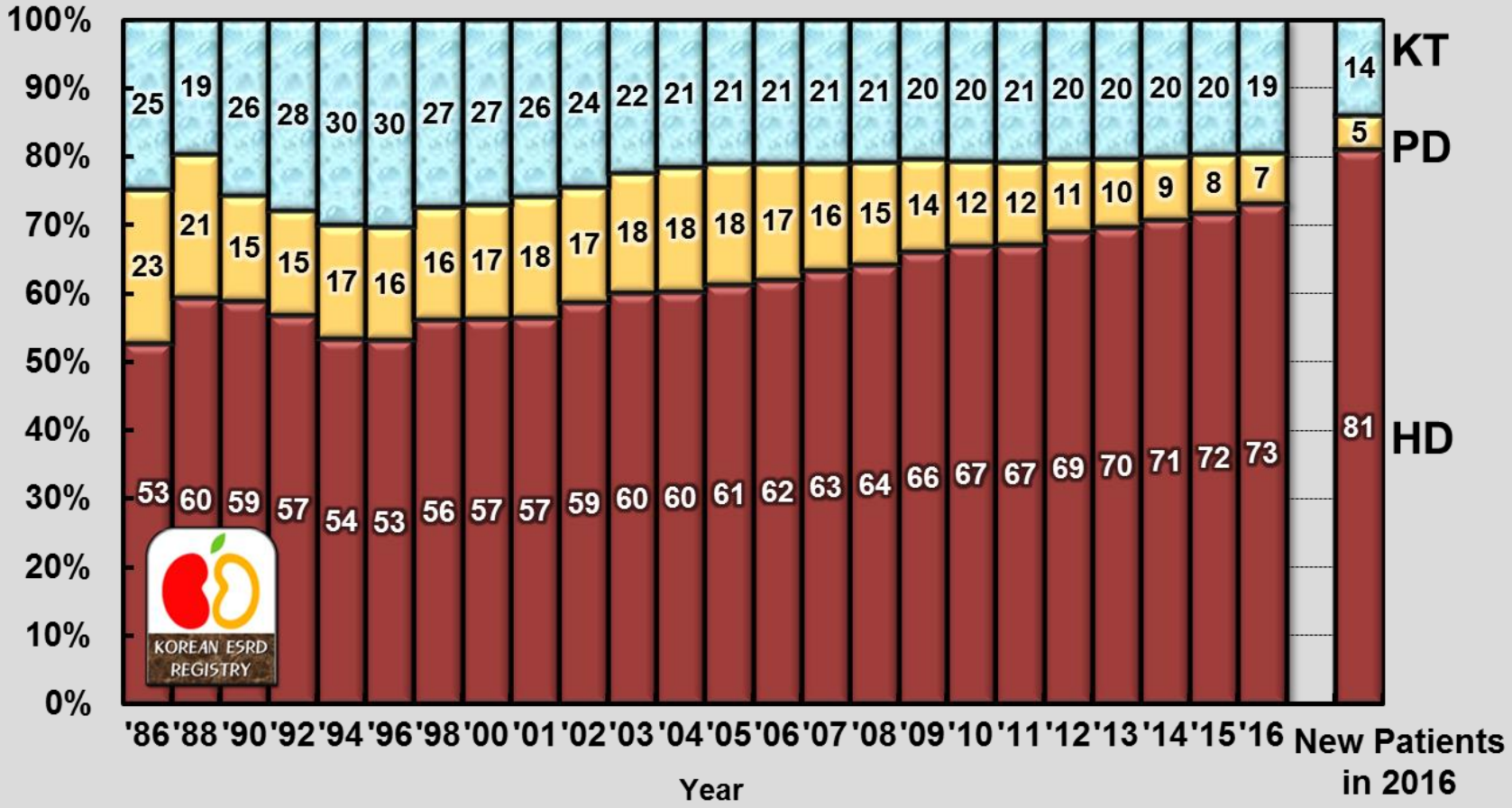
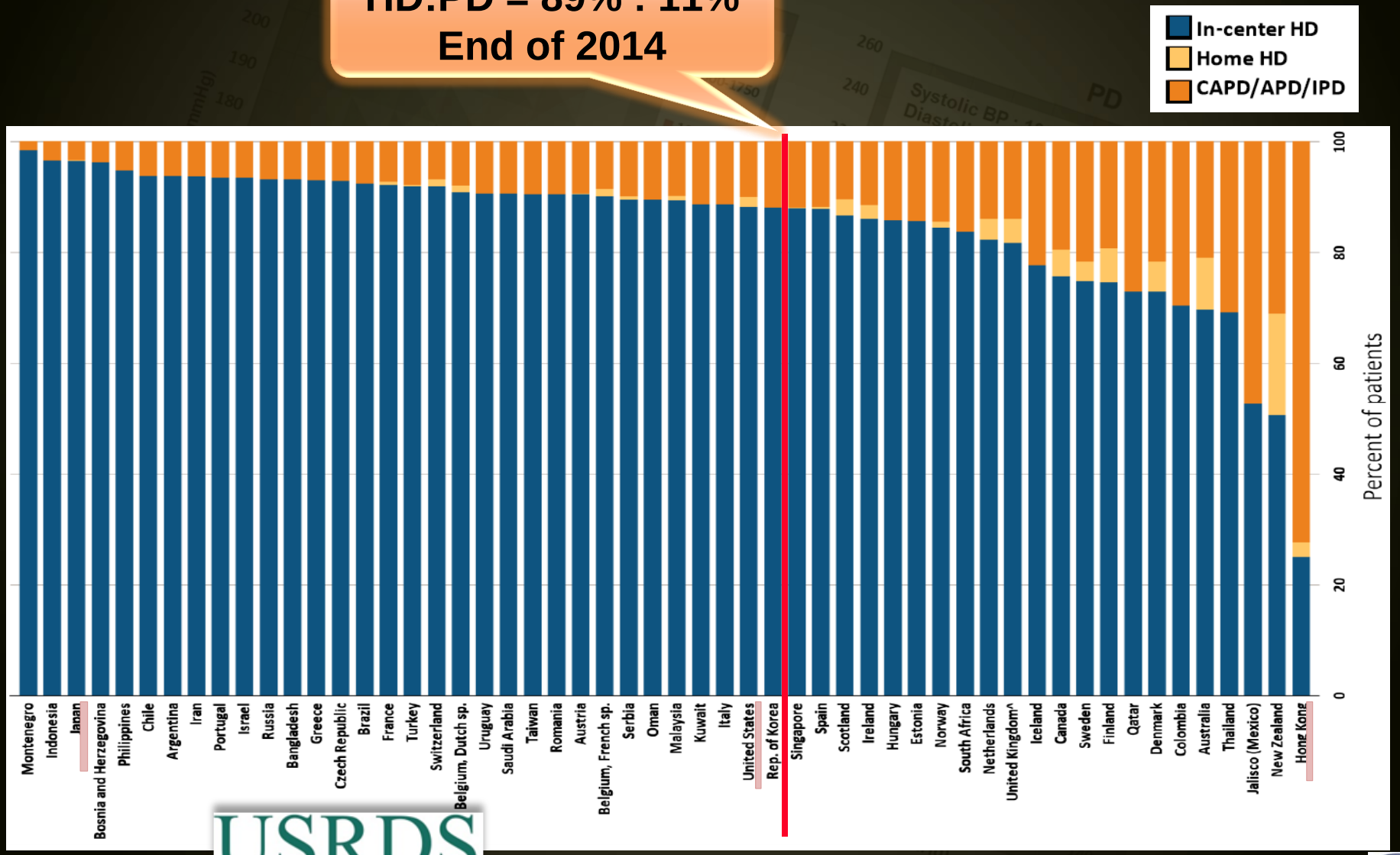
Proportion of RRT Modalities



Percent Distribution of Dialysis Modalities

HD:PD = 89% : 11%
End of 2014



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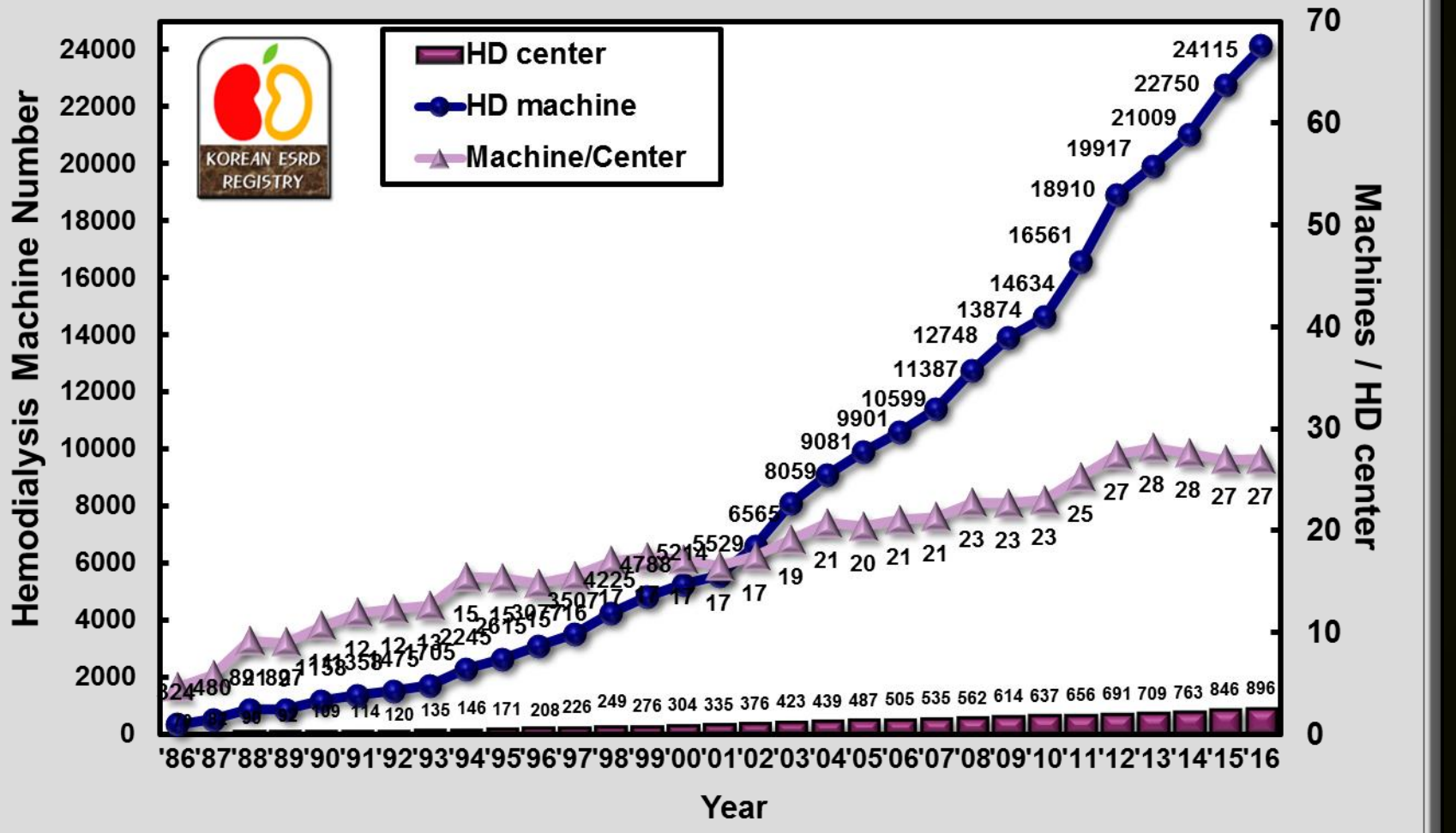
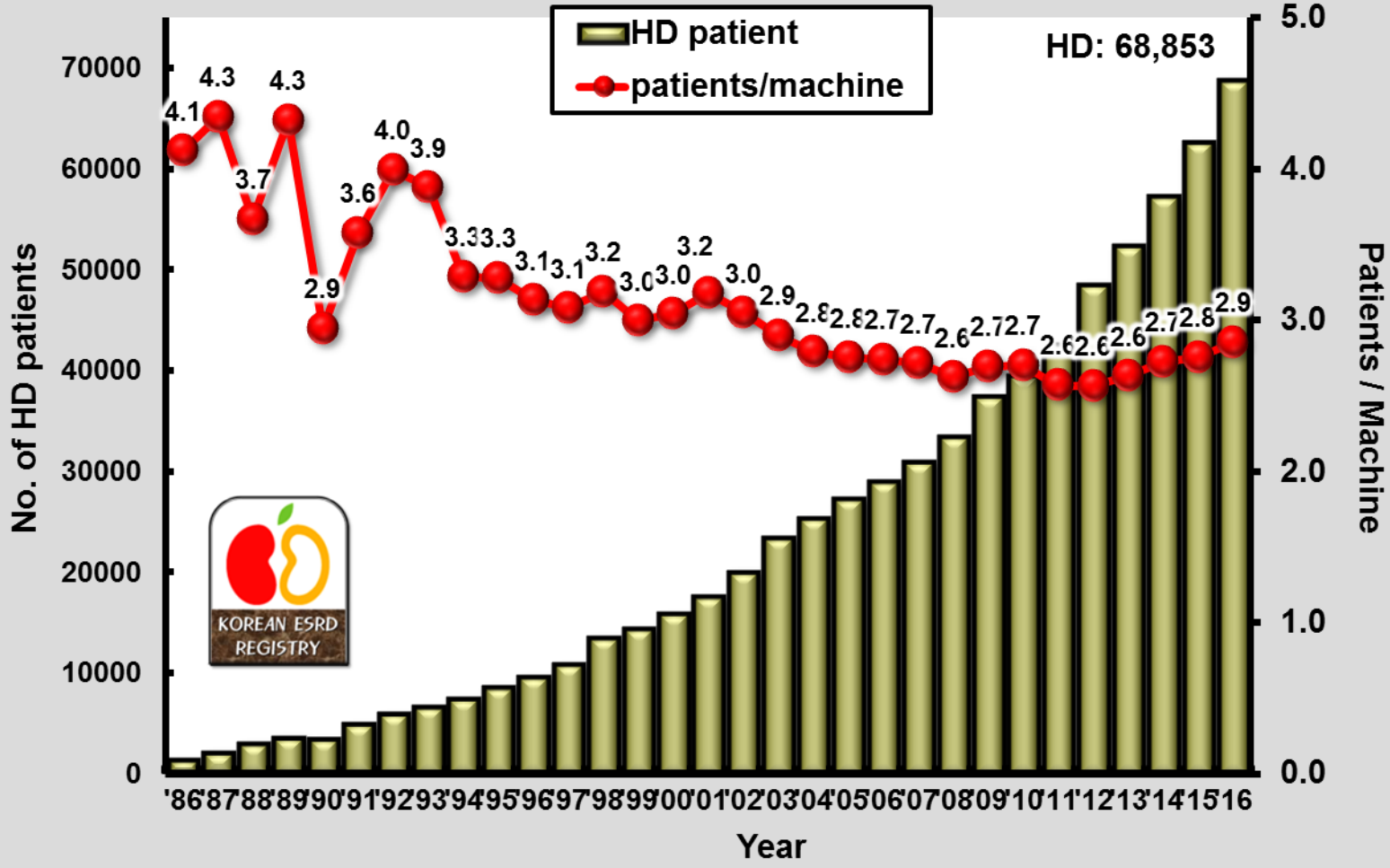
USRDS Report 2016

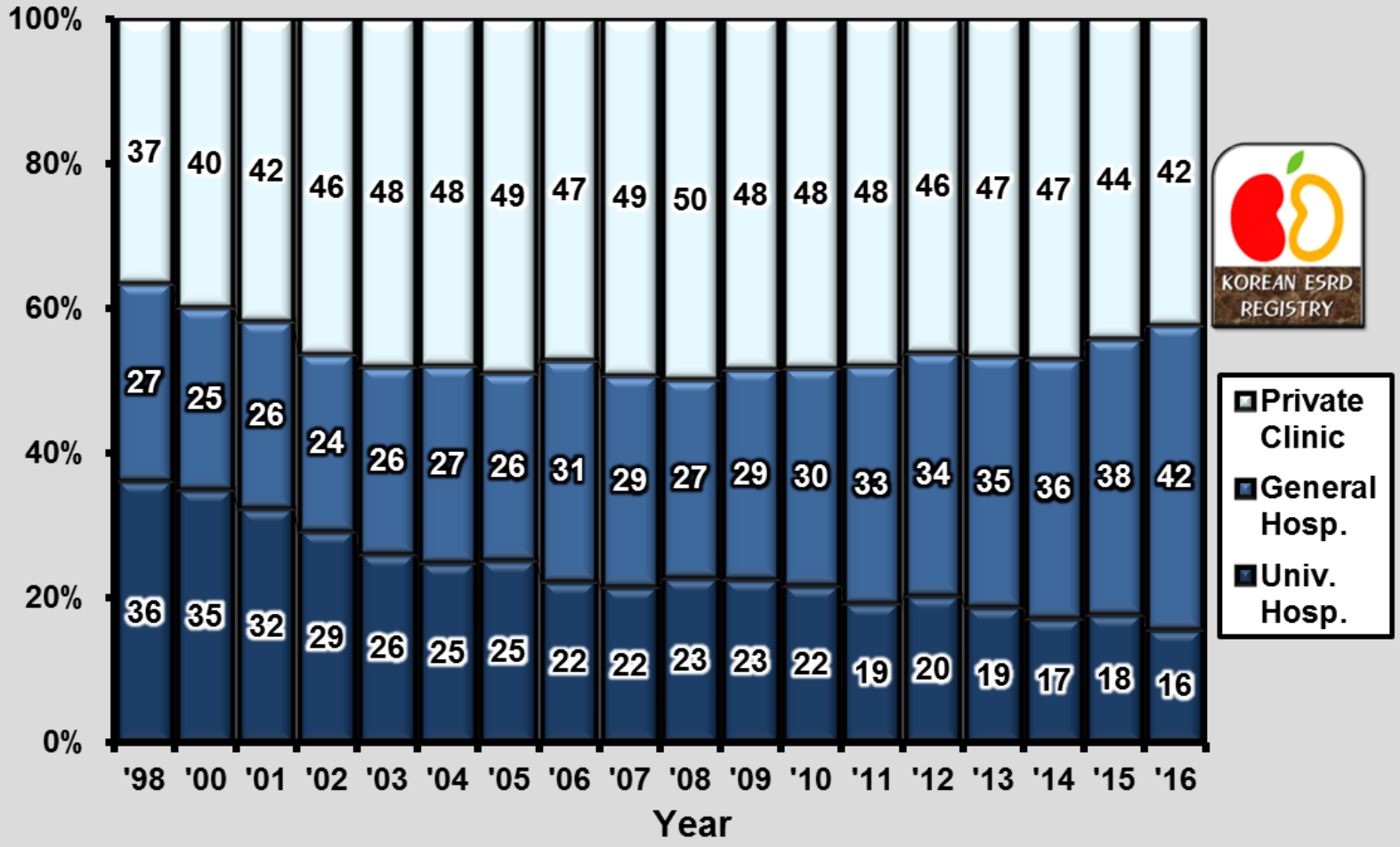
Number of HD Centers & HD Machines



Ratio of HD Machine & HD Patients



HD Pts Proportion by Dialysis Center Type



행정구역별 투석환자 및 혈액투석기 분포

(At the end of Dec. 2016)

	HD pts	PD pts	Total Dialysis pts	Dialysis pts. / Million pop.	Dialysis Centers	HD machines	HD pts./ HD machine
서울 Seoul	15,187	2,003	17,190	1,731	187	4,949	3.1
부산 Busan	5,325	853	6,178	1,766	63	1,767	3.0
대구 Daegu	3,924	577	4,501	1,812	41	1,185	3.3
인천 Incheon	3,653	305	3,958	1,345	42	1,304	2.8
광주 Gwangju	2,348	220	2,568	1,748	40	958	2.5
대전 Daejeon	1,589	276	1,865	1,232	21	616	2.6
울산 Ulsan	1,539	81	1,620	1,382	21	522	2.9
경기 Gyeonggi	14,528	1,322	15,850	1,246	187	5,132	2.8
강원 Gangwon	2,157	352	2,509	1,618	30	750	2.9
충북 Chungbuk	2,295	84	2,379	1,495	31	806	2.8
충남 Chungnam	2,721	127	2,848	1,217	44	1,104	2.5
전북 Jeonbuk	2,248	97	2,345	1,258	30	1,001	2.2
전남 Jeonnam	2,433	140	2,573	1,351	41	1,019	2.4
경북 Gyeongbuk	3,532	111	3,643	1,349	49	1,152	3.1
경남 Gyeongnam	4,277	192	4,469	1,325	55	1,485	2.9
제주 Jeju	1,097	102	1,199	1,869	14	365	3.0
Total	68,853	6,842	75,695	1,464	896	24,115	2.9

생활권역별 투석환자 및 혈액투석기 분포

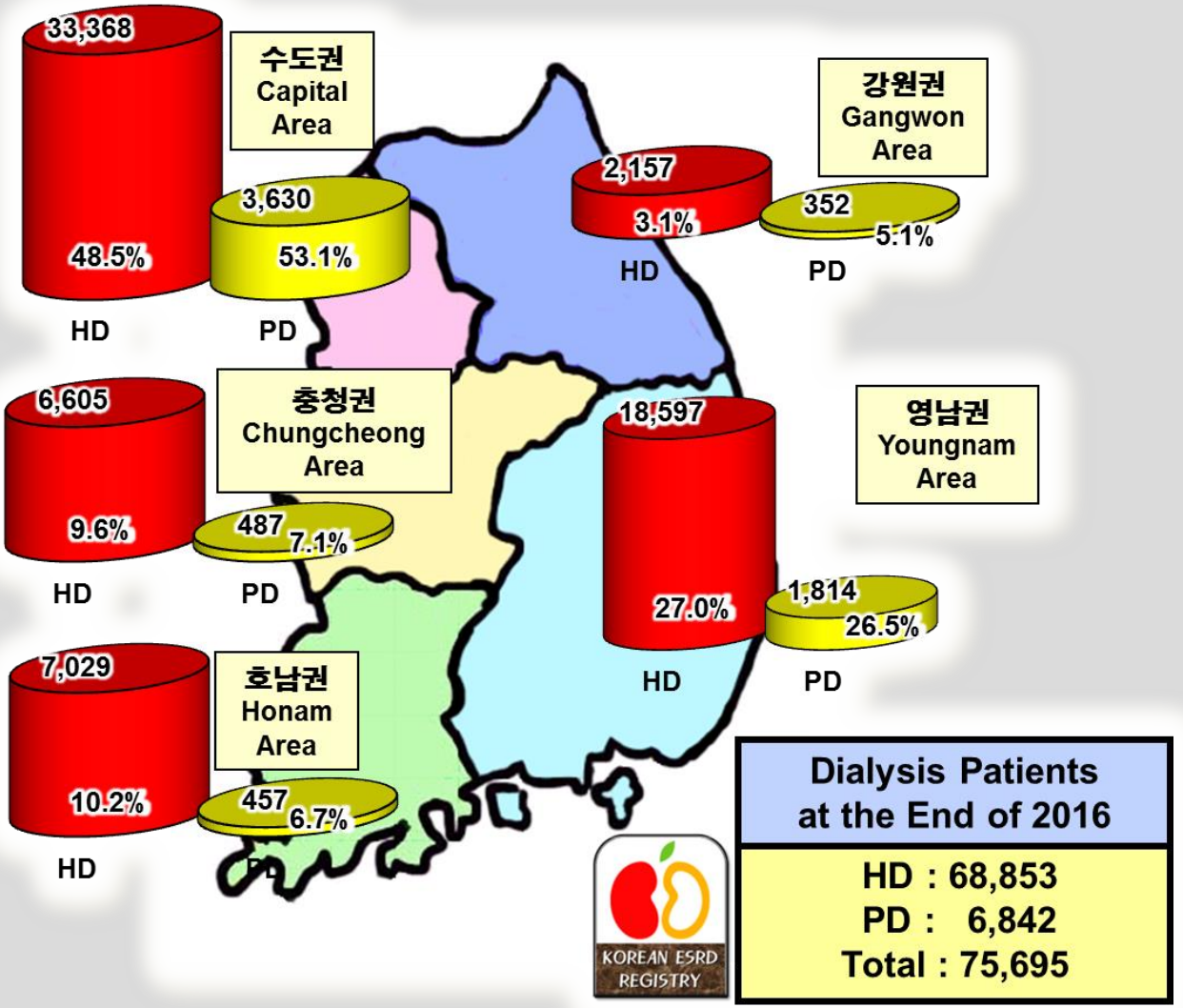
(At the end of Dec. 2016)

	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)	25,590,465 49.5%	33,368 48.5%	3,630 53.1%	36,998 48.9%	1,446	416 46.4%	11,385 47.2%	2.9
충청권 Chungchung (Daejeon, Chungnam, Chungbuk)	5,445,770 10.5%	6,605 9.6%	487 7.1%	7,092 9.4%	1,302	96 10.7%	2,526 10.5%	2.6
호남권 Honam (Gwangju, Jeonnam, Jeonbuk)	5,237,919 10.1%	7,029 10.2%	457 6.7%	7,486 9.9%	1,429	111 12.4%	2,978 12.3%	2.4
영남권 Youngnam (Busan, Daegu, Gyeongnam, Gyeongbuk, Ulsan)	13,229,659 25.6%	18,597 27.0%	1,814 26.5%	20,411 27.0%	1,543	229 25.6%	6,111 25.3%	3.0
강원권 Gangwon	1,550,806 3.0%	2,157 3.1%	352 5.1%	2,509 3.3%	1,618	30 3.3%	750 3.1%	2.9
Total	51,696,216	68,853	6,842	75,695	1,464	896	24,115	2.9

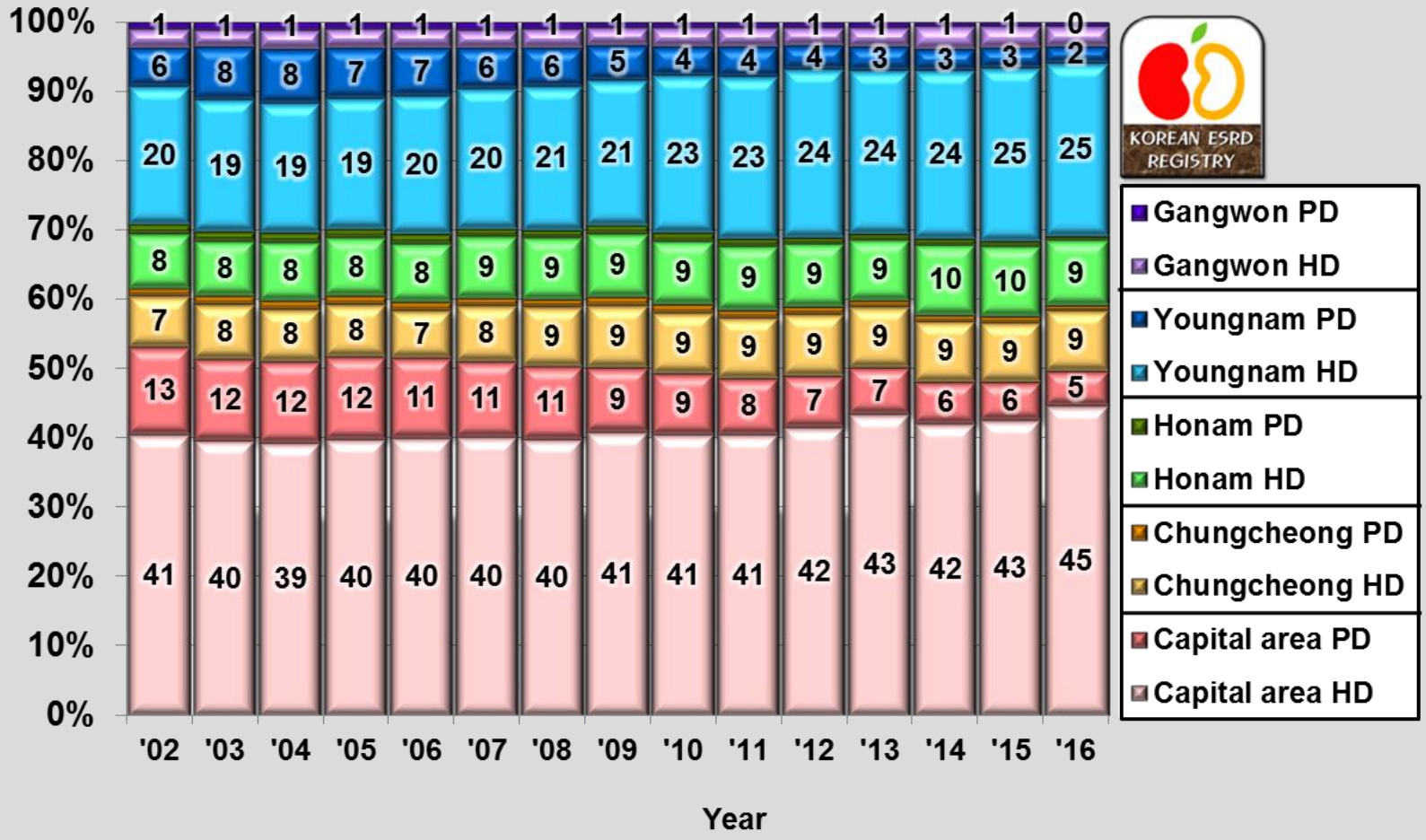
* 제주 표시 제외. Data of Jeju-do is not shown.

생활권역별 투석환자 분포

(At the end of Dec. 2016)



생활권역별 투석환자 비율의 연도별 변화

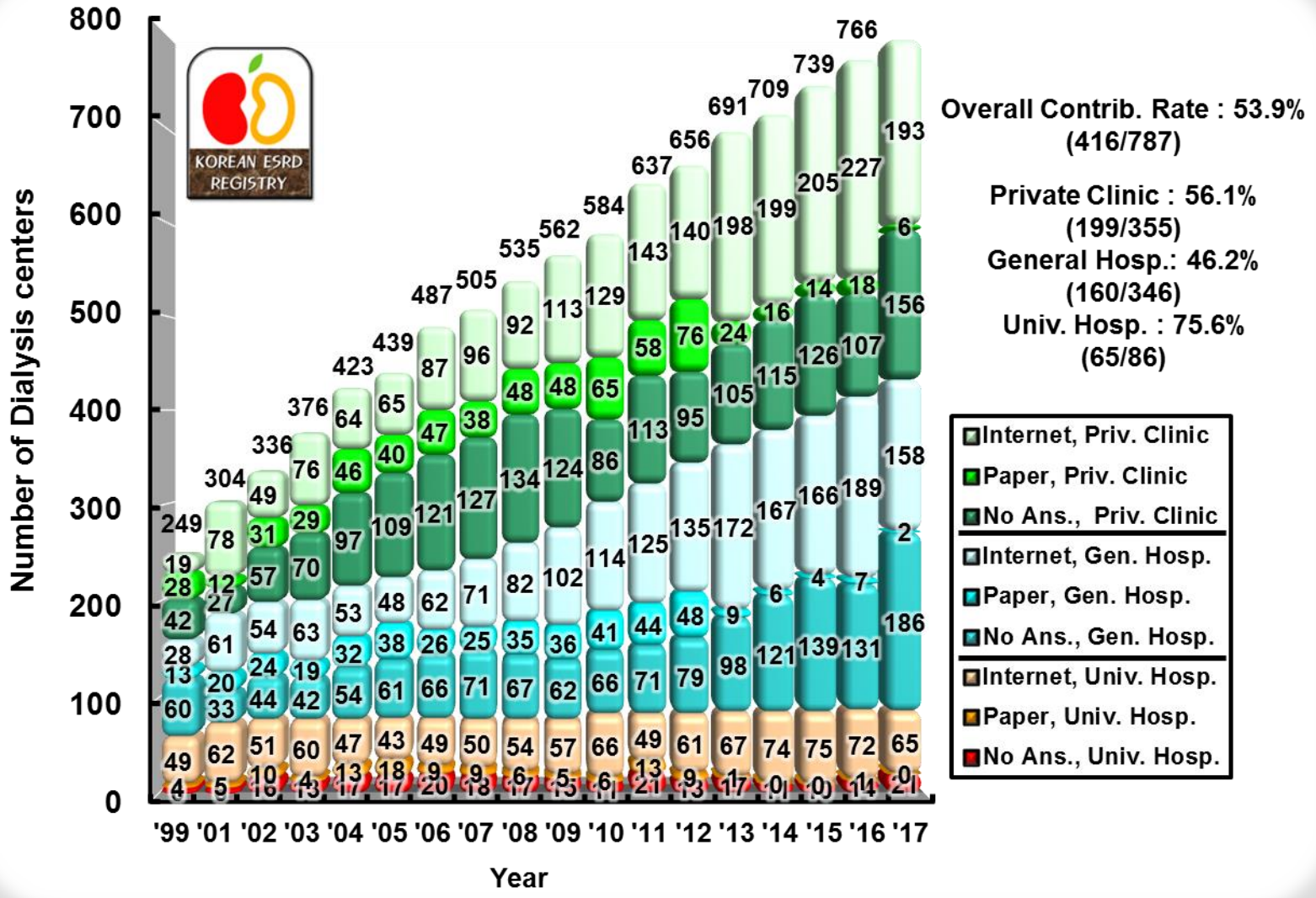


등록사업에 참여한 의료기관 수 및 응답률

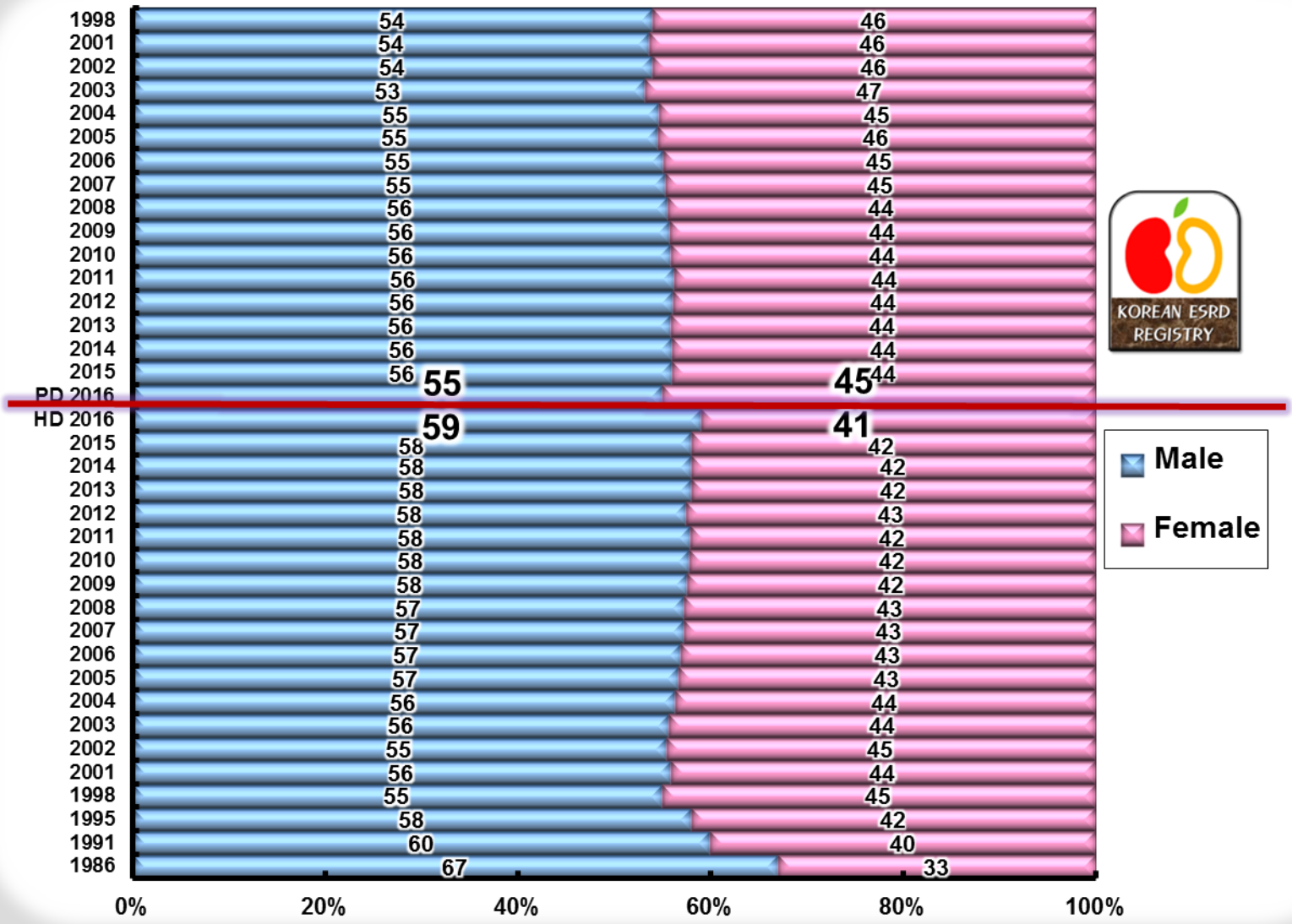
	Dialysis Centers*	Internet Input	Paper Data	Total Contributed Centers	Contributing Rate (%)
서울 Seoul	164	100	0	100	61.0
부산 Busan	55	29	1	30	54.5
대구 Daegu	36	19	0	19	52.8
인천 Incheon	37	22	0	22	59.5
광주 Gwangju	35	14	1	15	42.9
대전 Daejeon	18	7	0	7	38.9
울산 Ulsan	18	9	0	9	50.0
경기 Gyeonggi	166	79	3	82	49.4
강원 Gangwon	26	12	1	13	50.0
충북 Chungbuk	27	13	1	14	51.9
충남 Chungnam	39	19	1	20	51.3
전북 Jeonbuk	26	10	0	10	38.5
전남 Jeonnam	36	19	0	19	52.8
경북 Gyeongbuk	42	25	0	25	59.5
경남 Gyeongnam	49	33	0	33	67.3
제주 Jeju	13	6	0	6	46.2
Total	787	416	8	424	53.9

* 투석의료기관 수에서 비윤리 의료기관 및 소수 환자 의료기관(약 90개소)은 제외함.

의료기관의 증가와 의료기관별 등록률

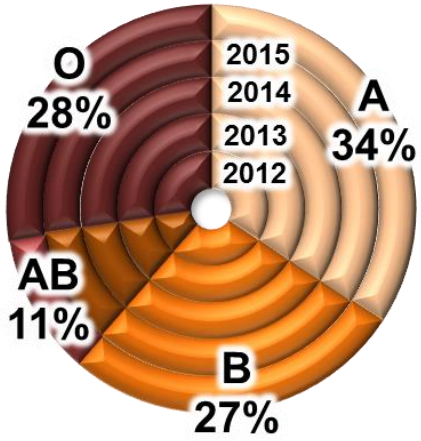


Gender Ratio of Dialysis Patients

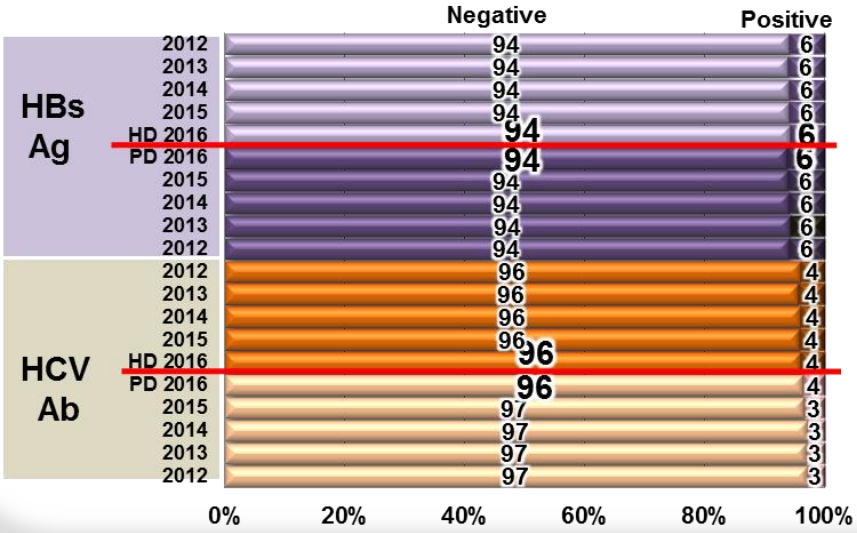


ABO Blood type, Hepatitis virus, Insurance

ABO Blood Type



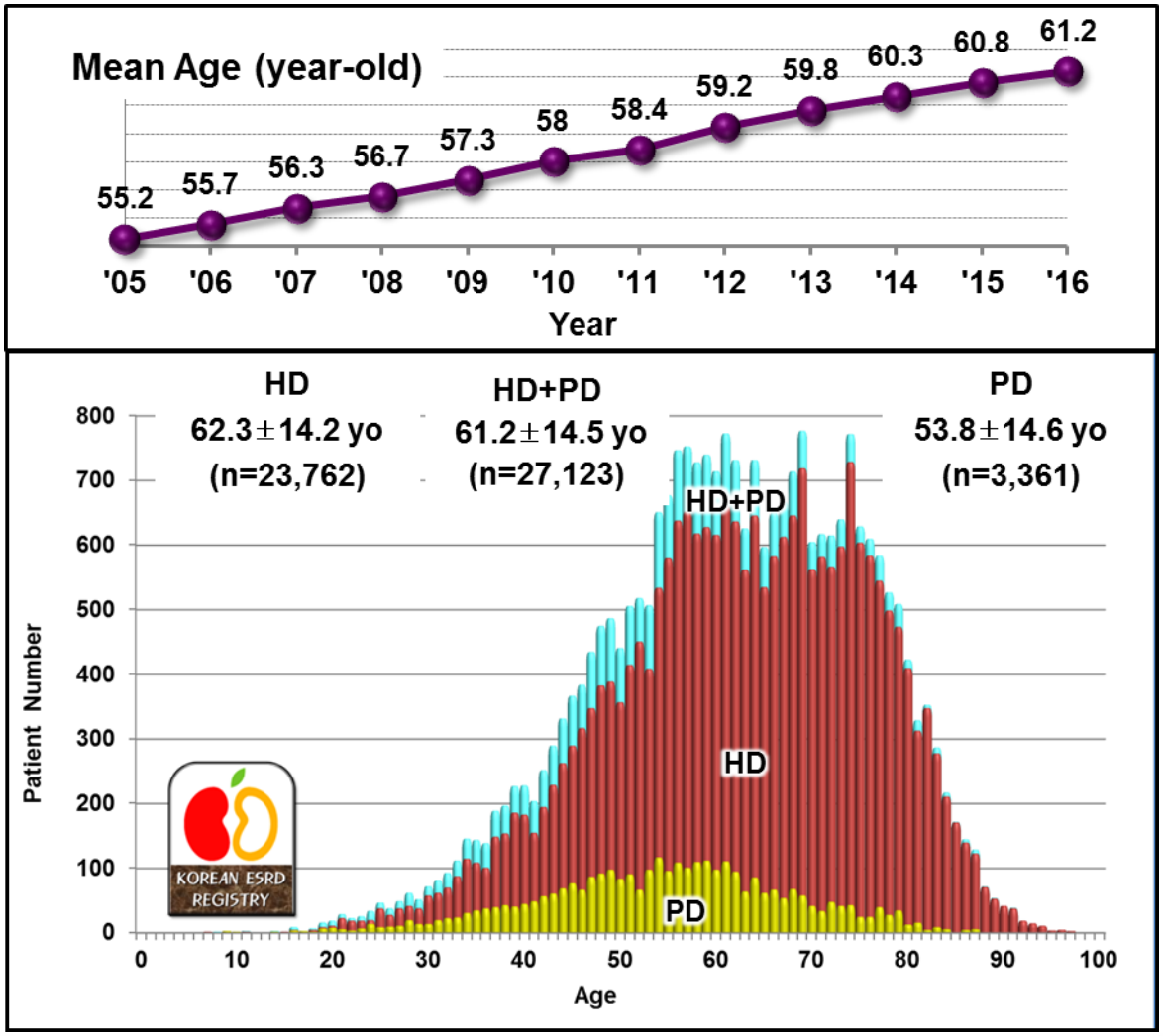
Hepatitis Virus



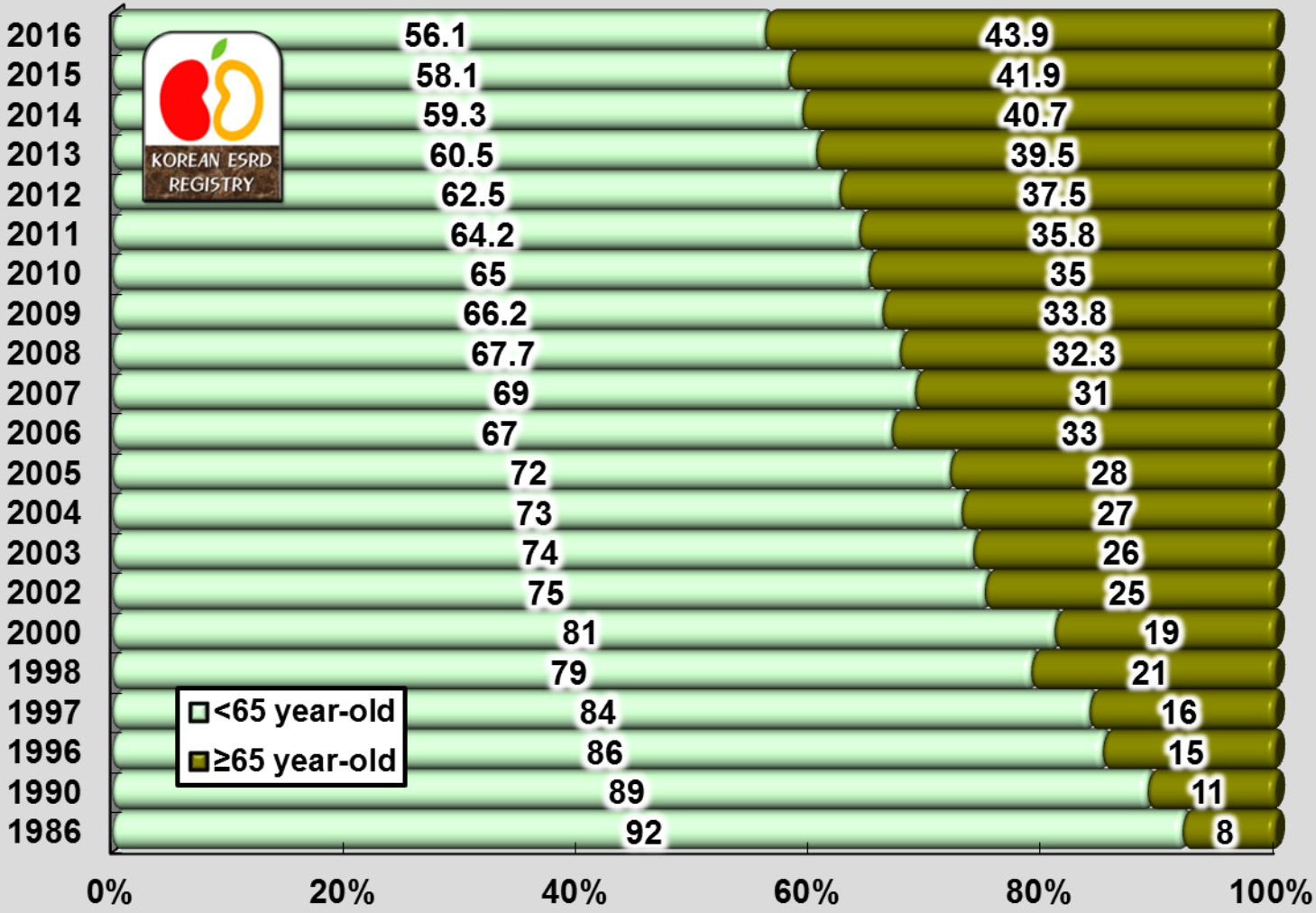
KOREAN ESRD REGISTRY

Insurance

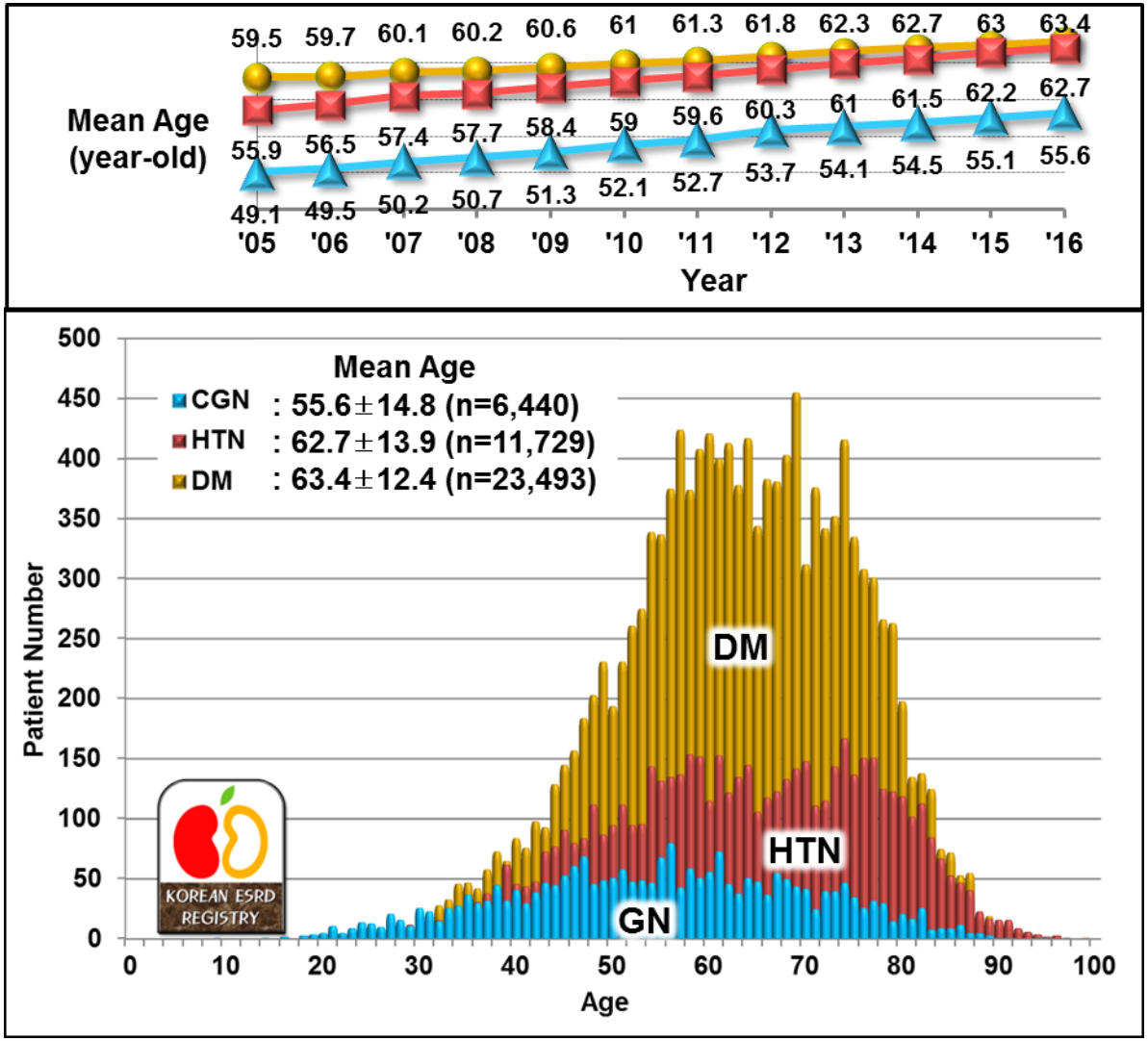
Age Distribution of Dialysis Patients



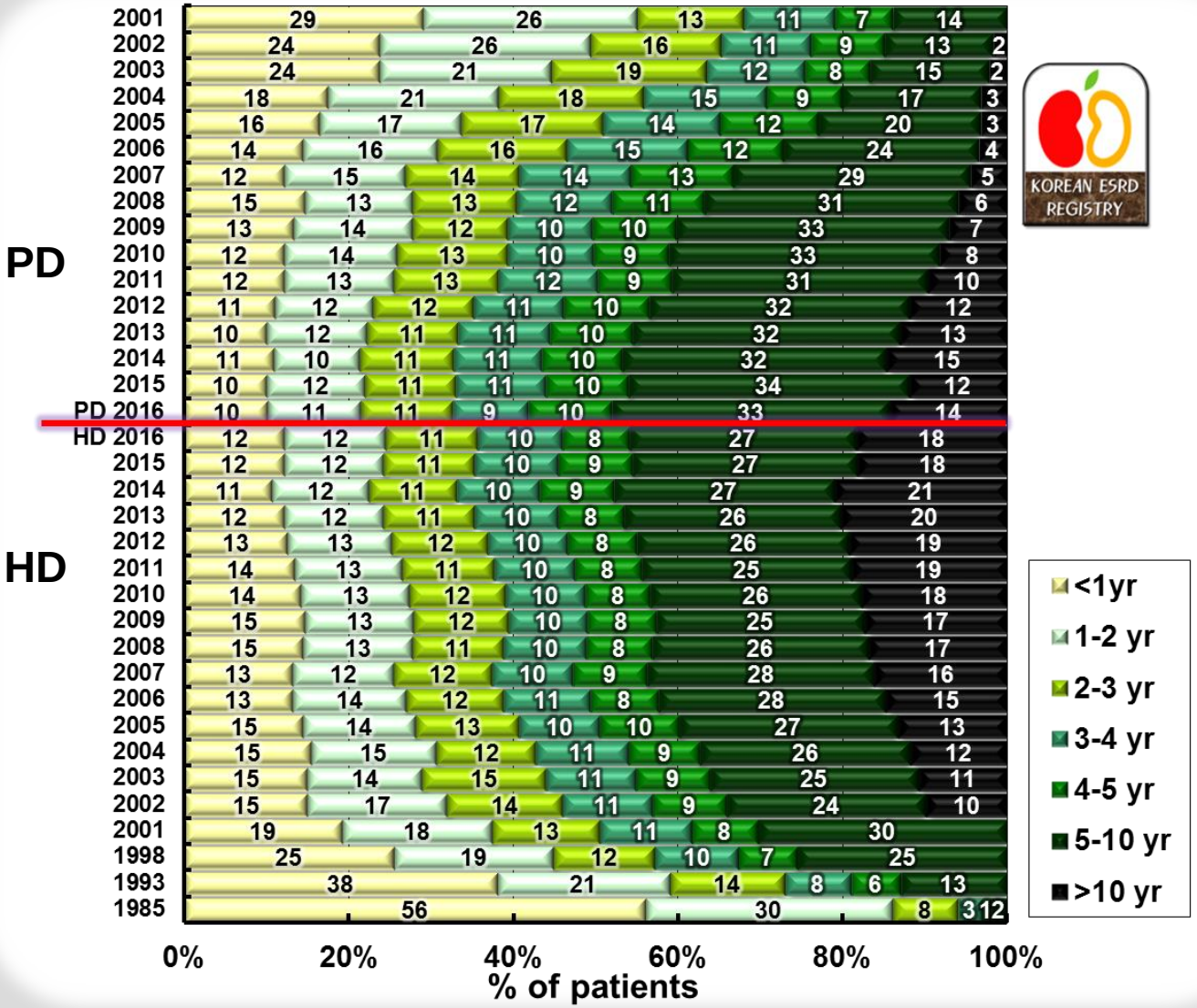
Percent of Elderly Dialysis Patients



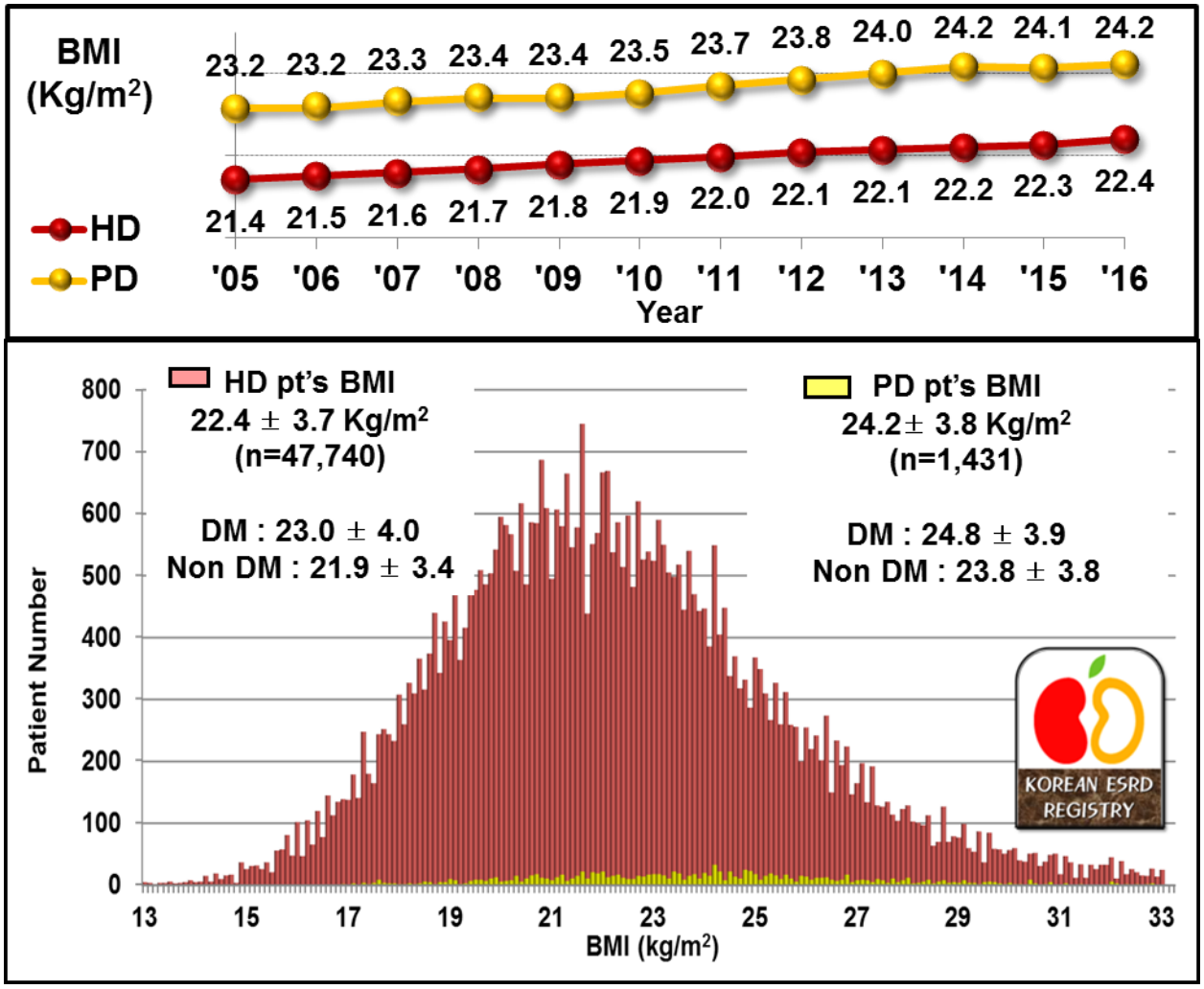
Age Distribution according to ESRD Causes



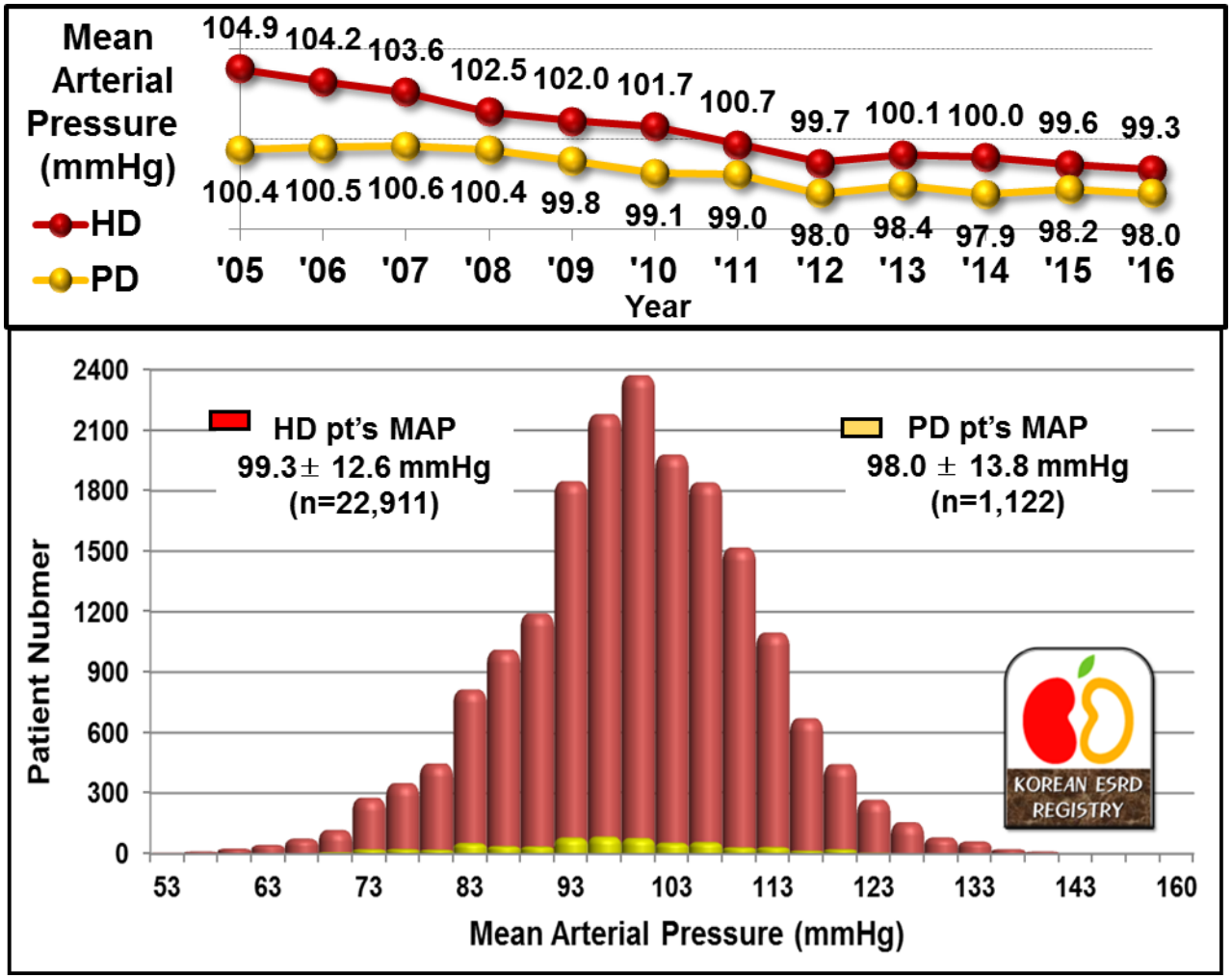
Duration of Dialysis Maintenance



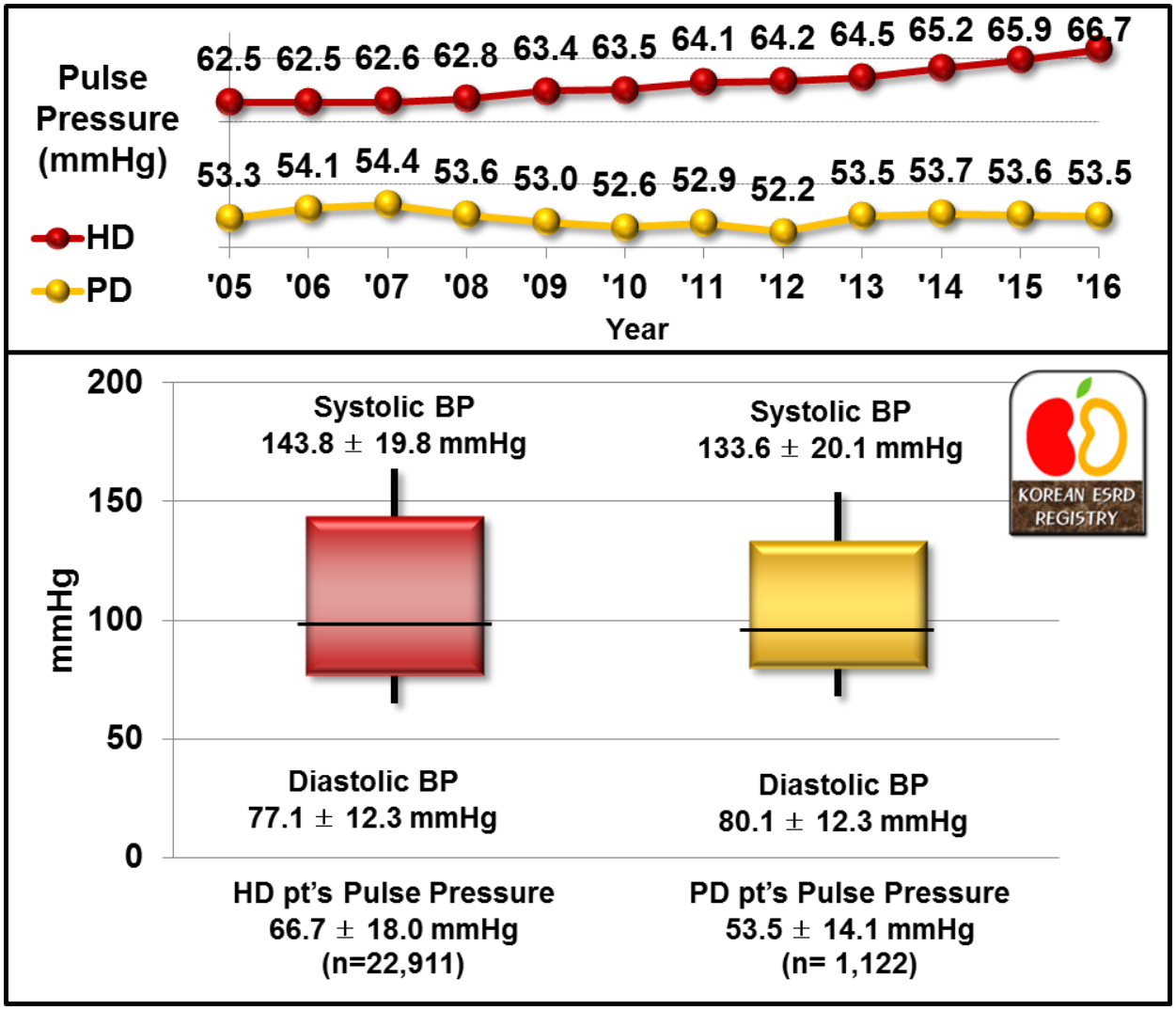
Body Mass Index : HD & PD



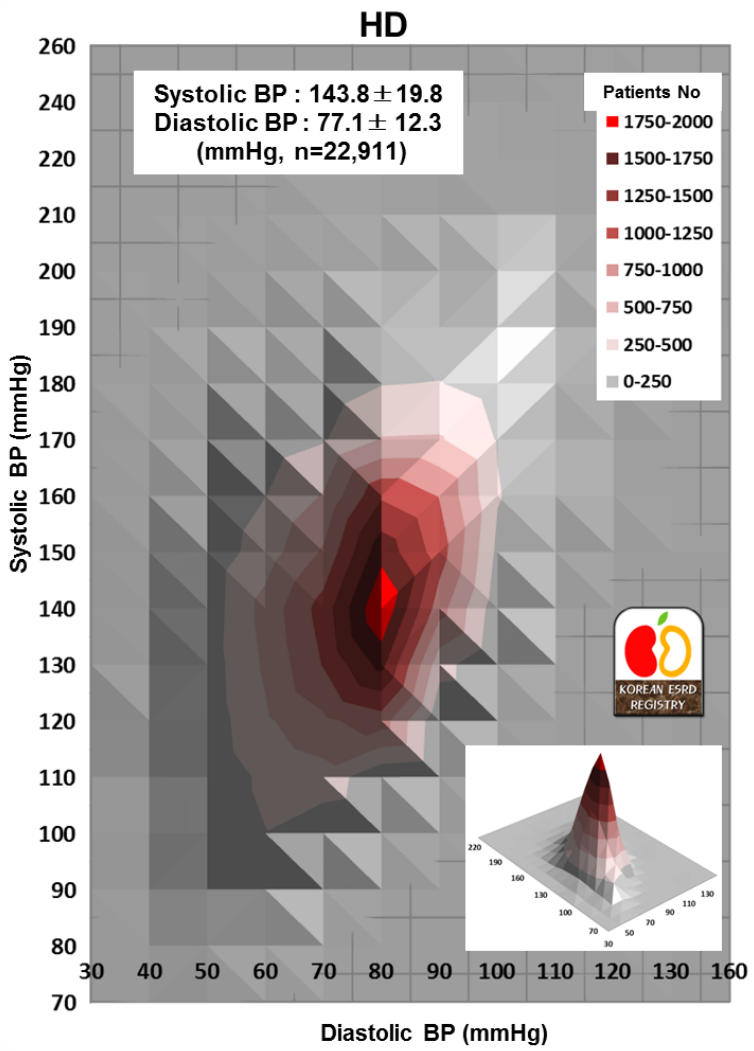
Mean Blood Pressure : HD & PD

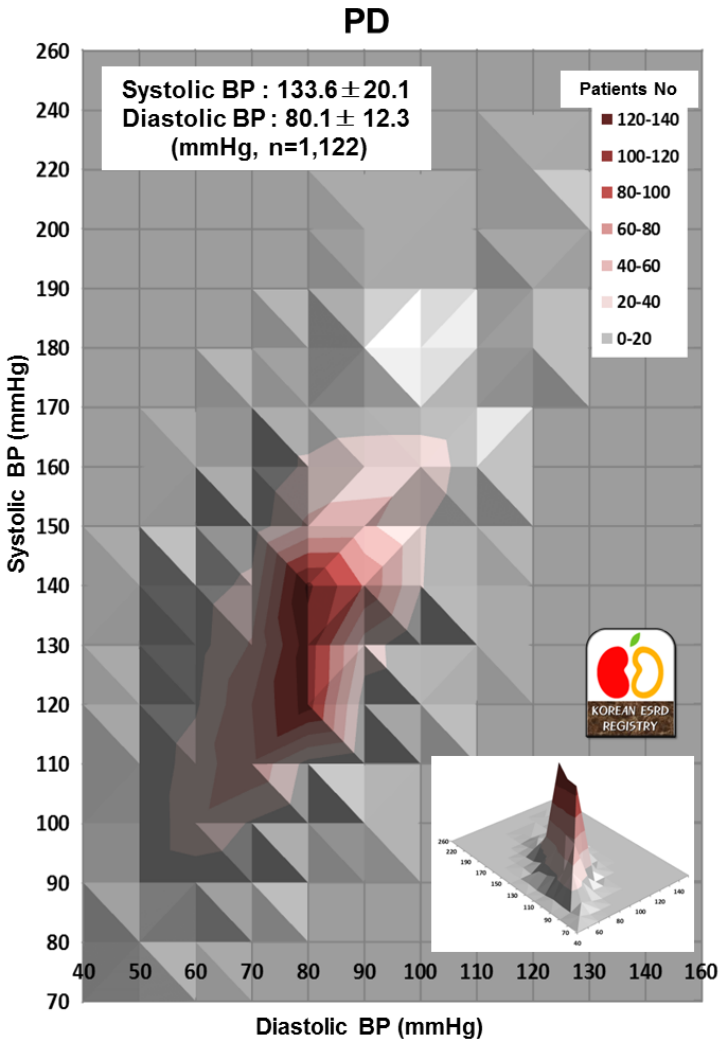


Pulse Pressure : HD & PD

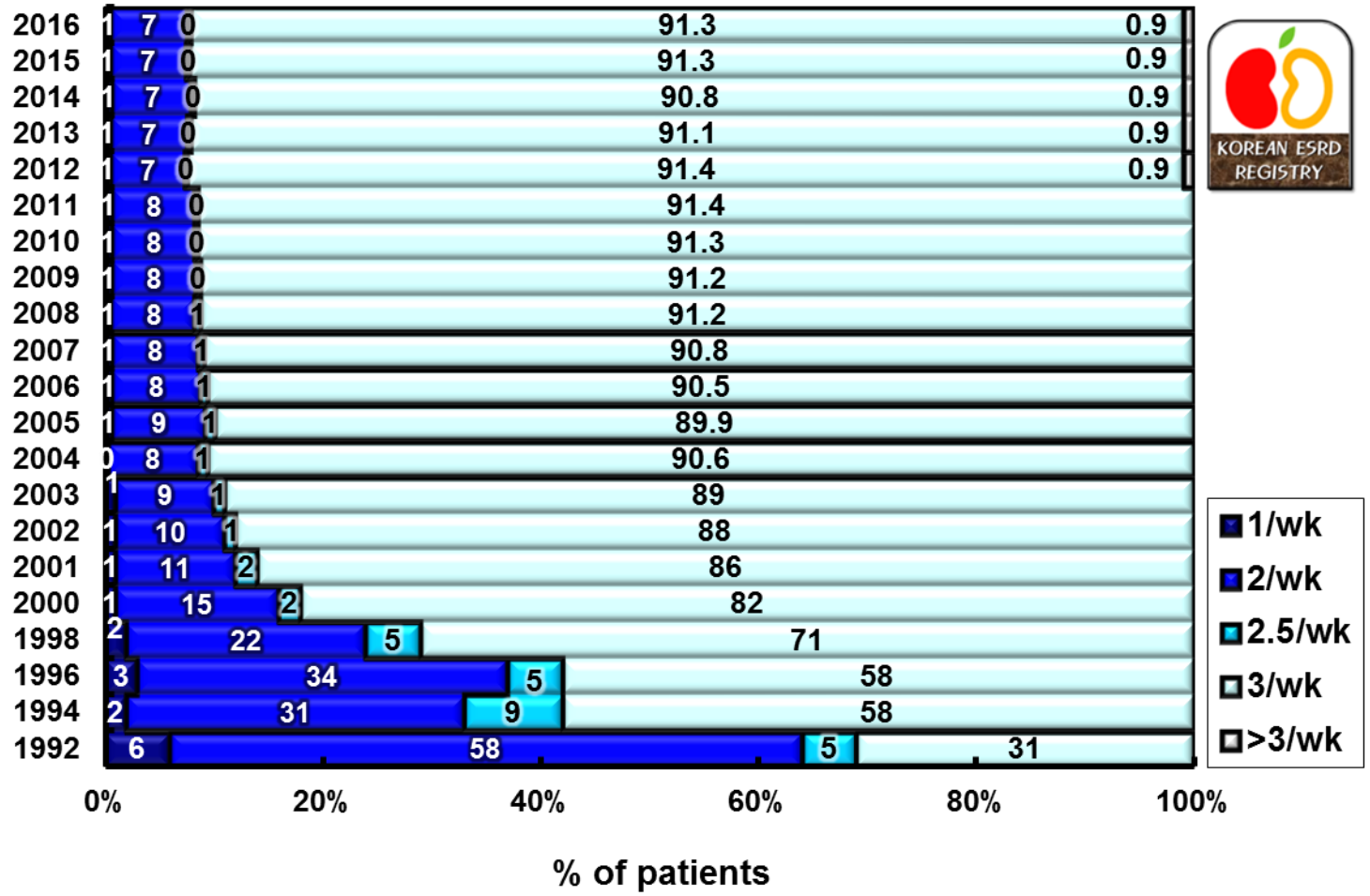


Patients' Distribution according to BP

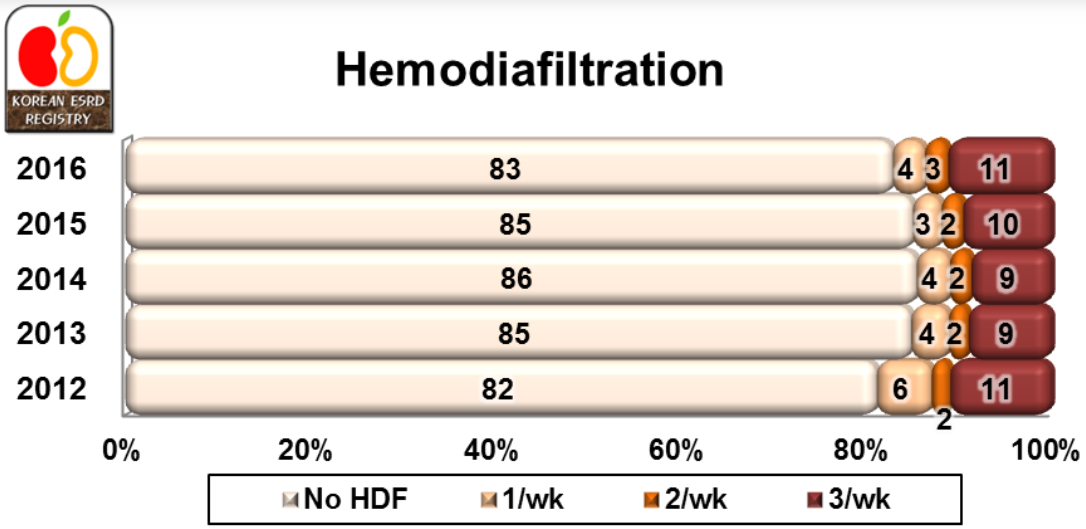


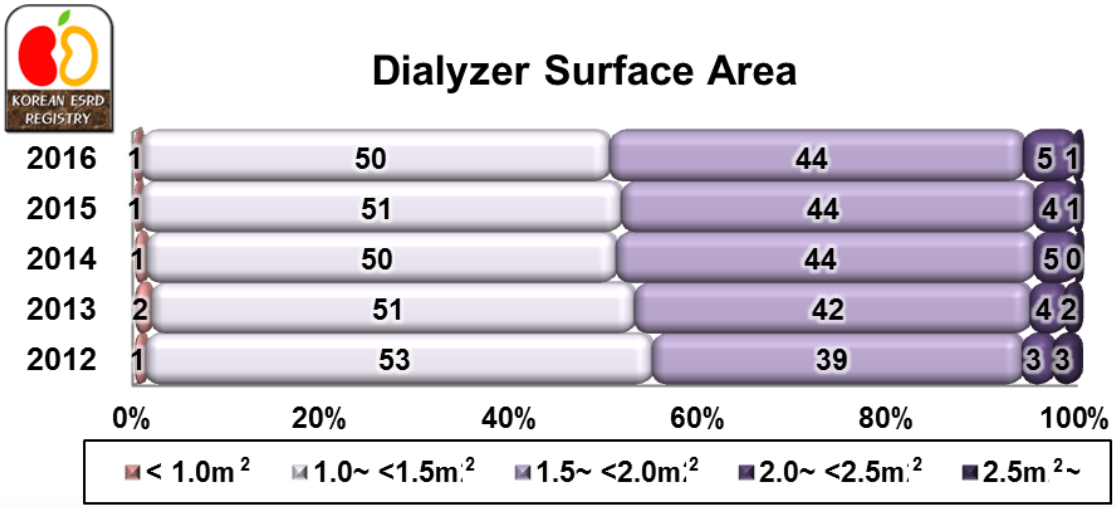


Frequency of HD per Week

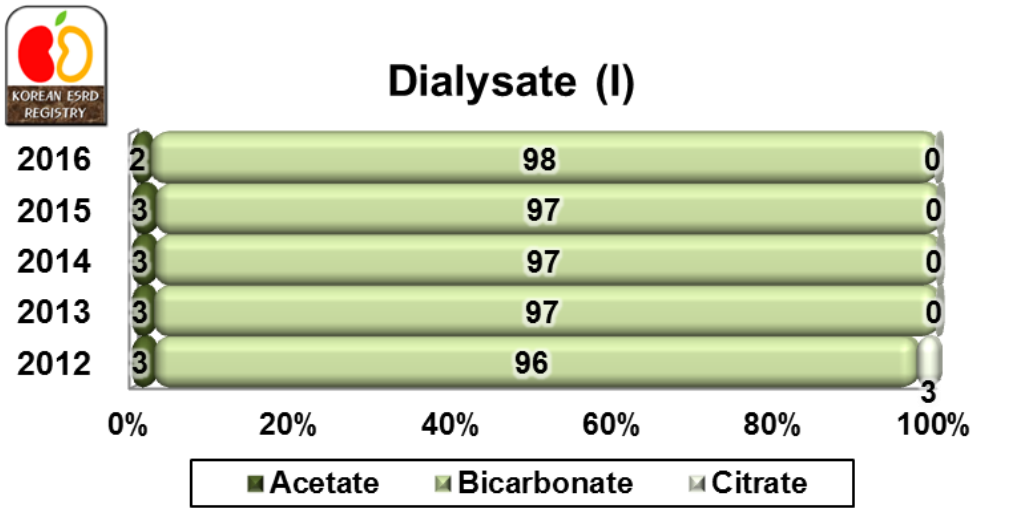


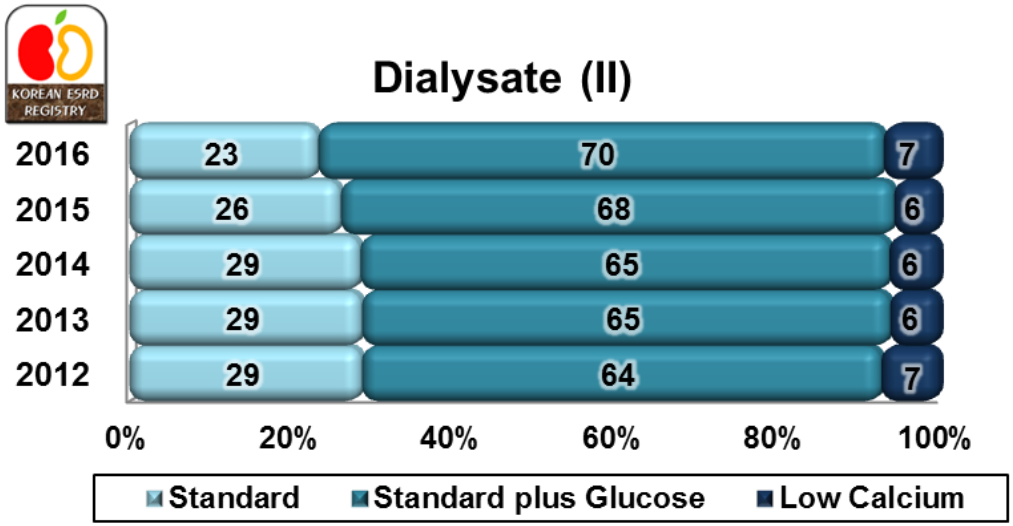
Hemodiafiltration & Dialyzer



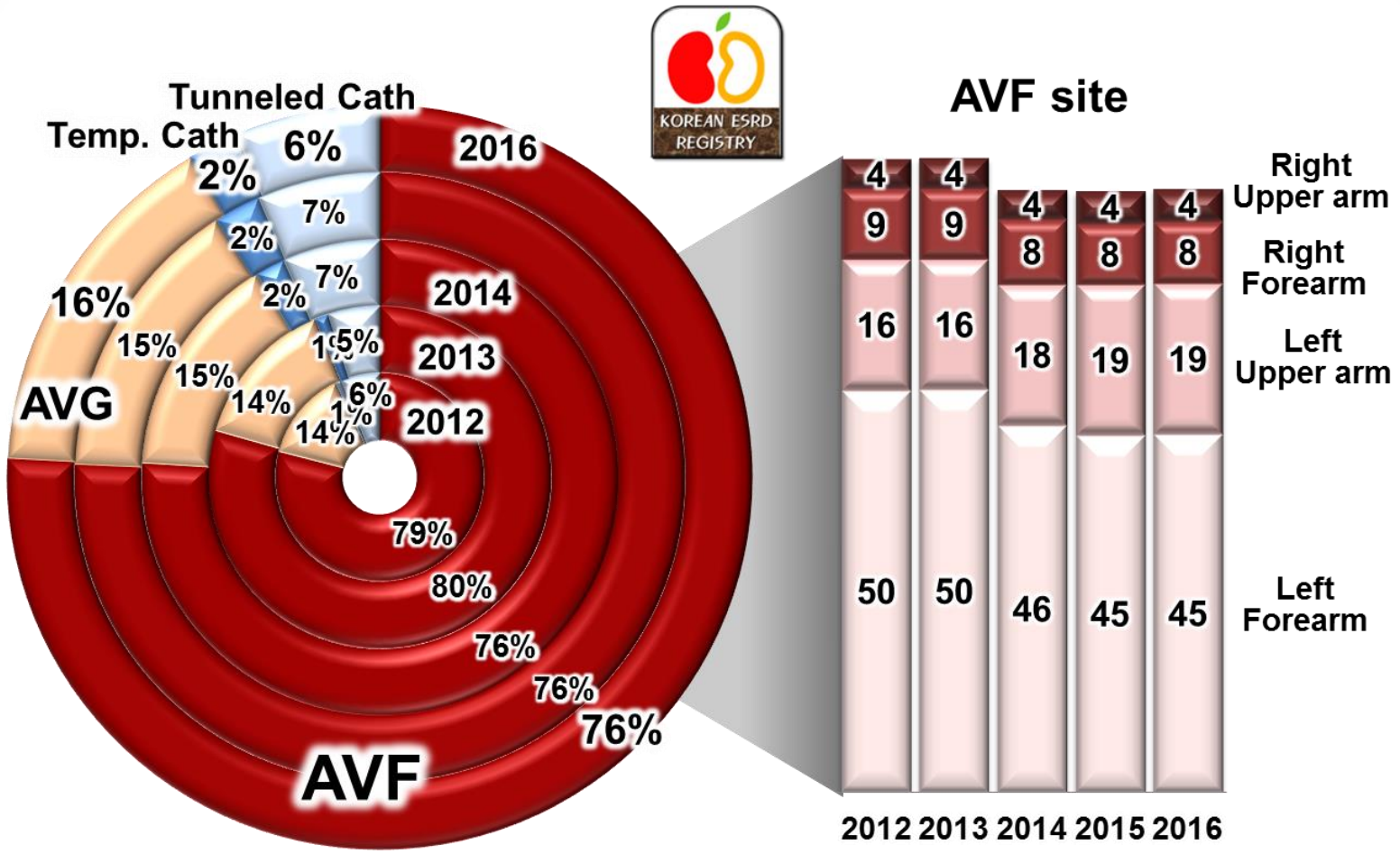


HD Dialysate



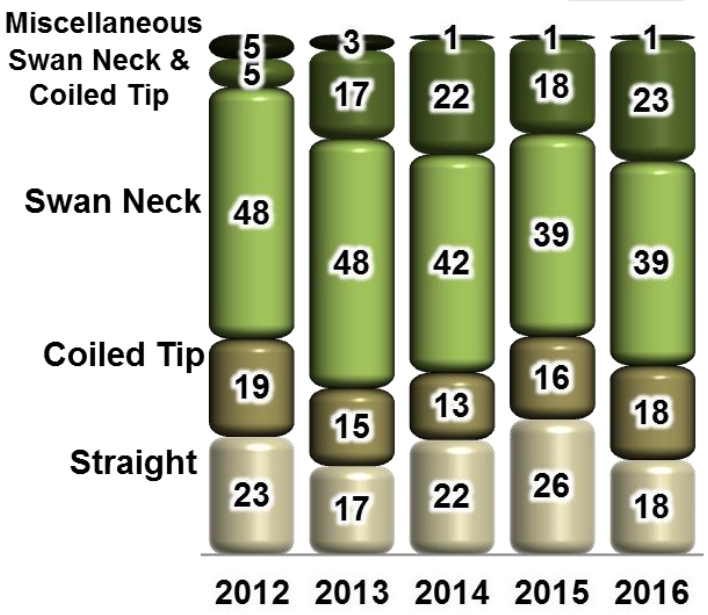


Vascular Access

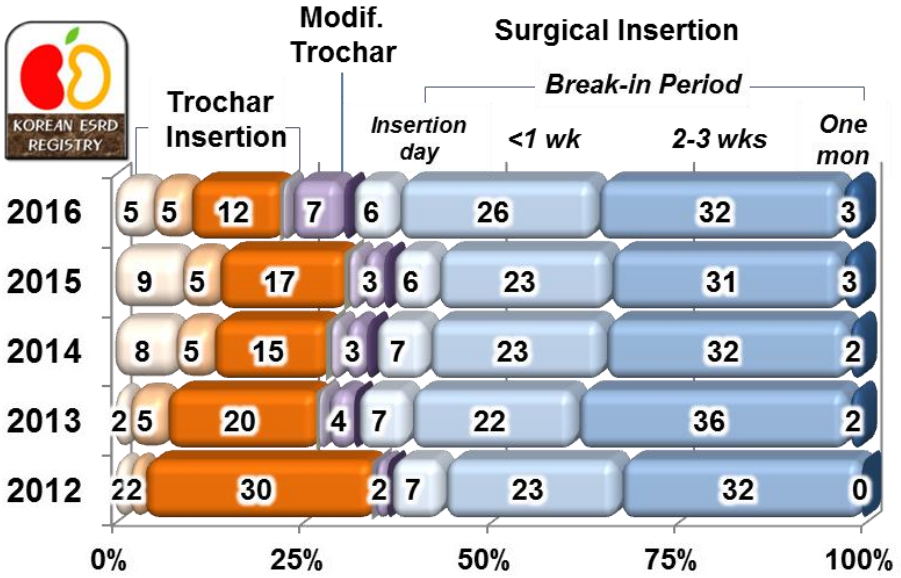


PD Catheter

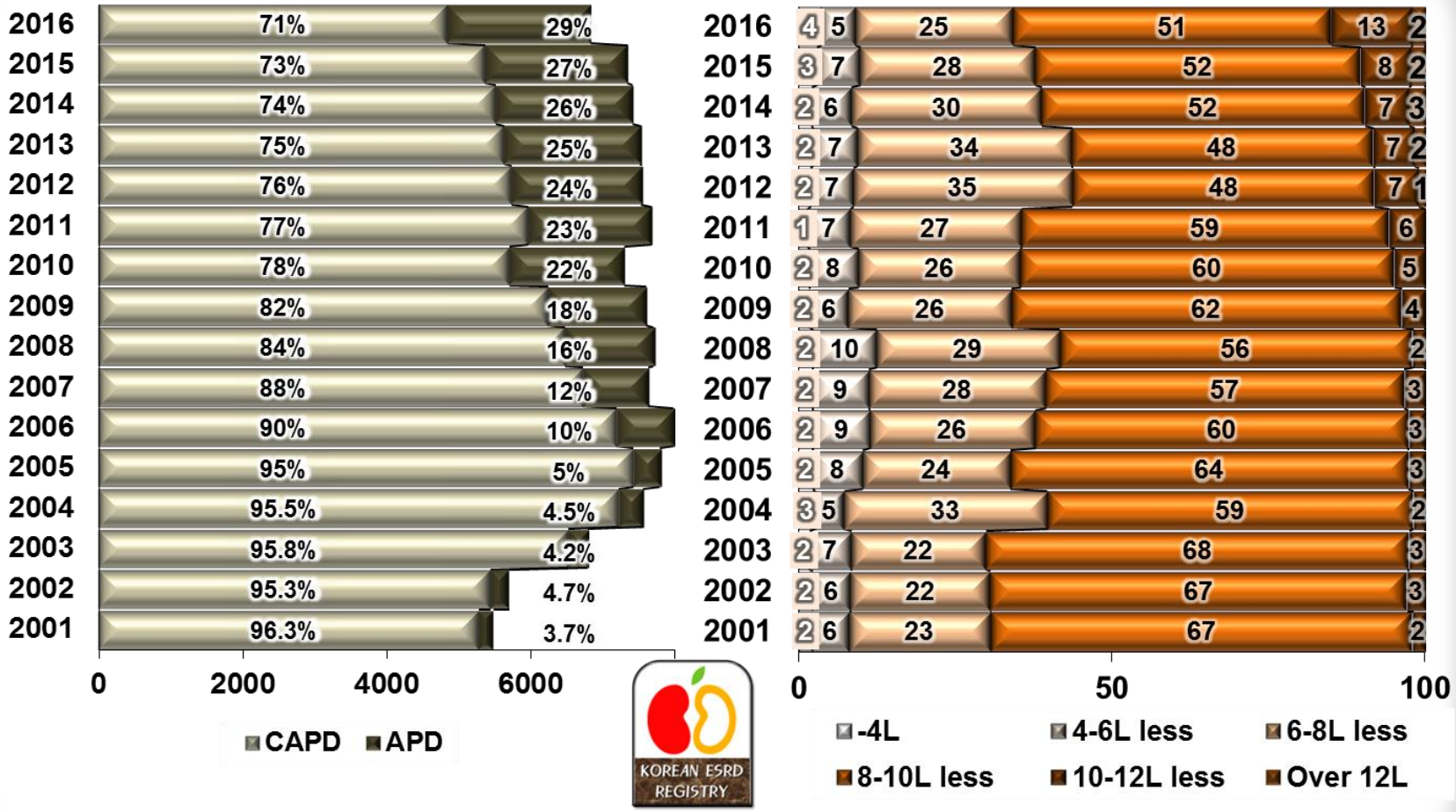
PD Catheter Type



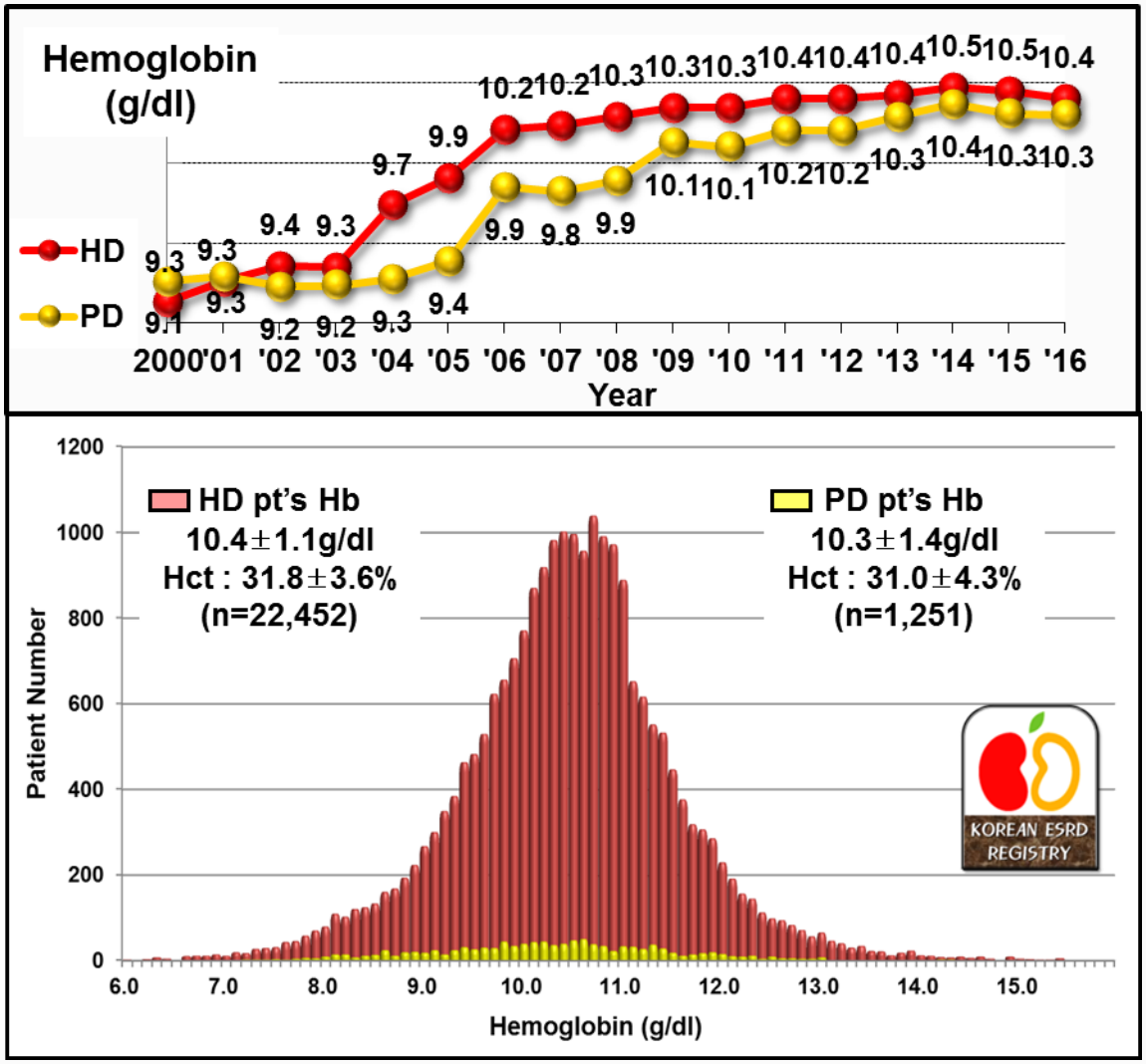
PD Catheter Insertion Method & Break-In Period



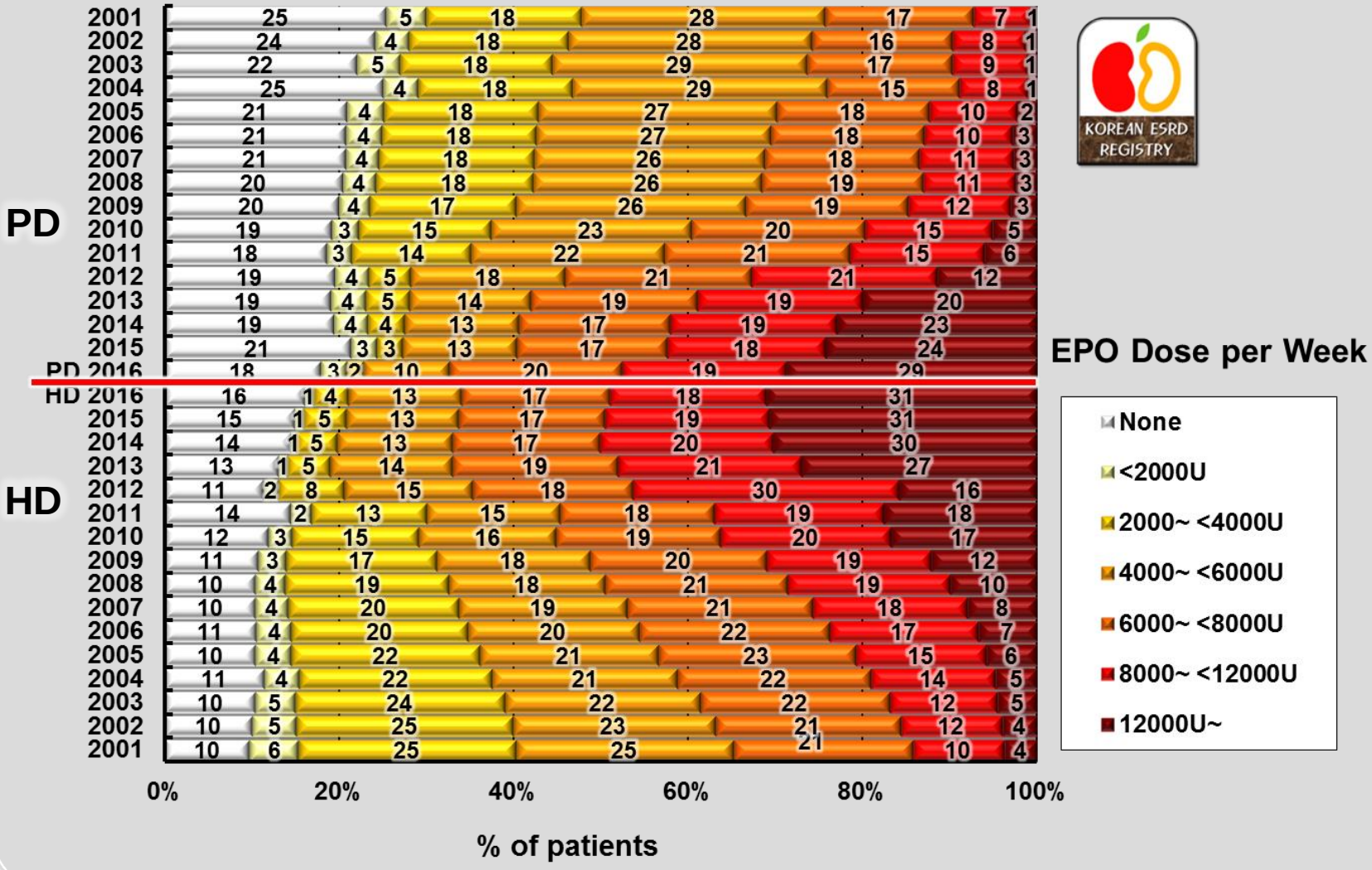
PD Type & Doses



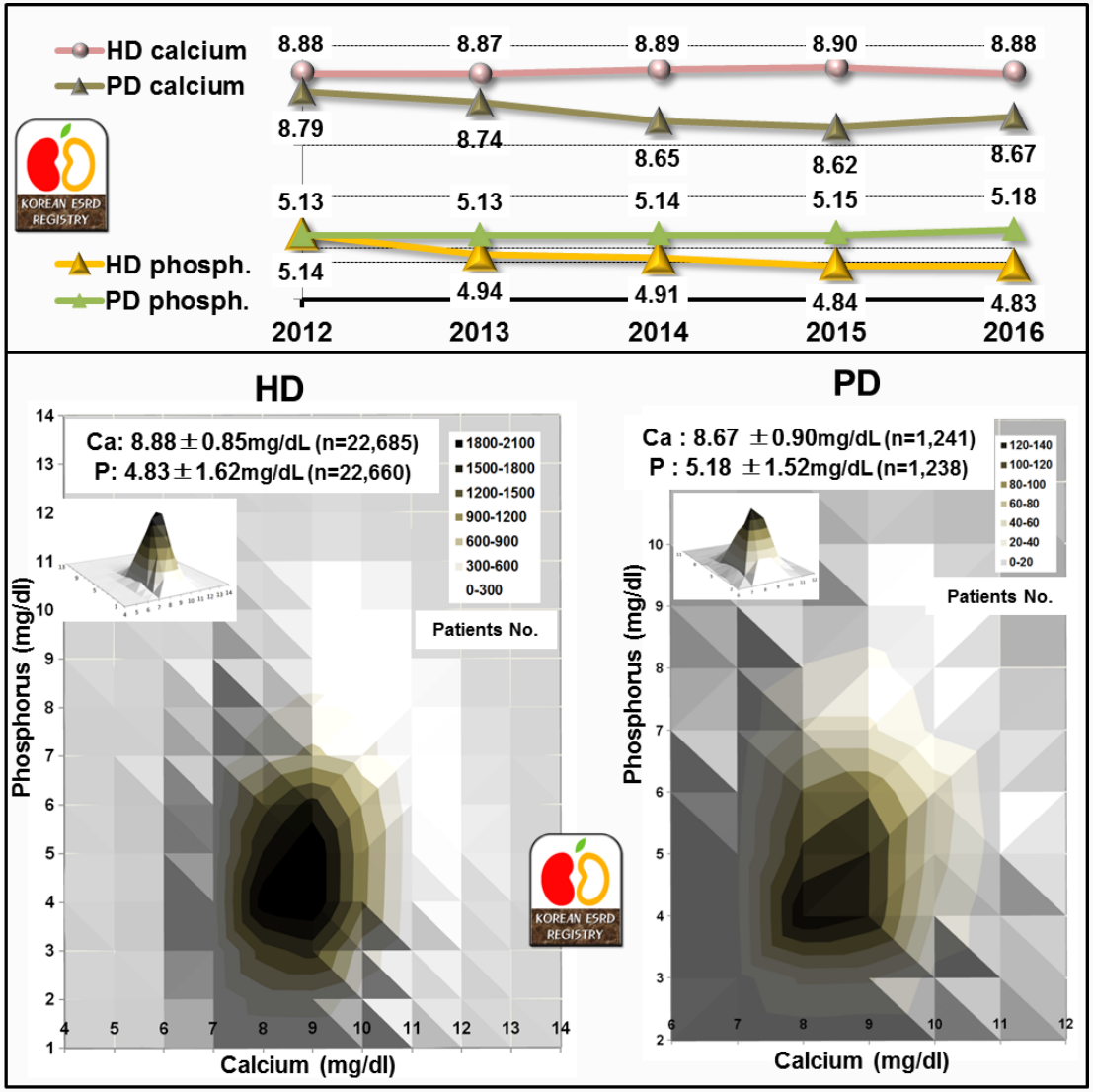
Hemoglobin : HD & PD



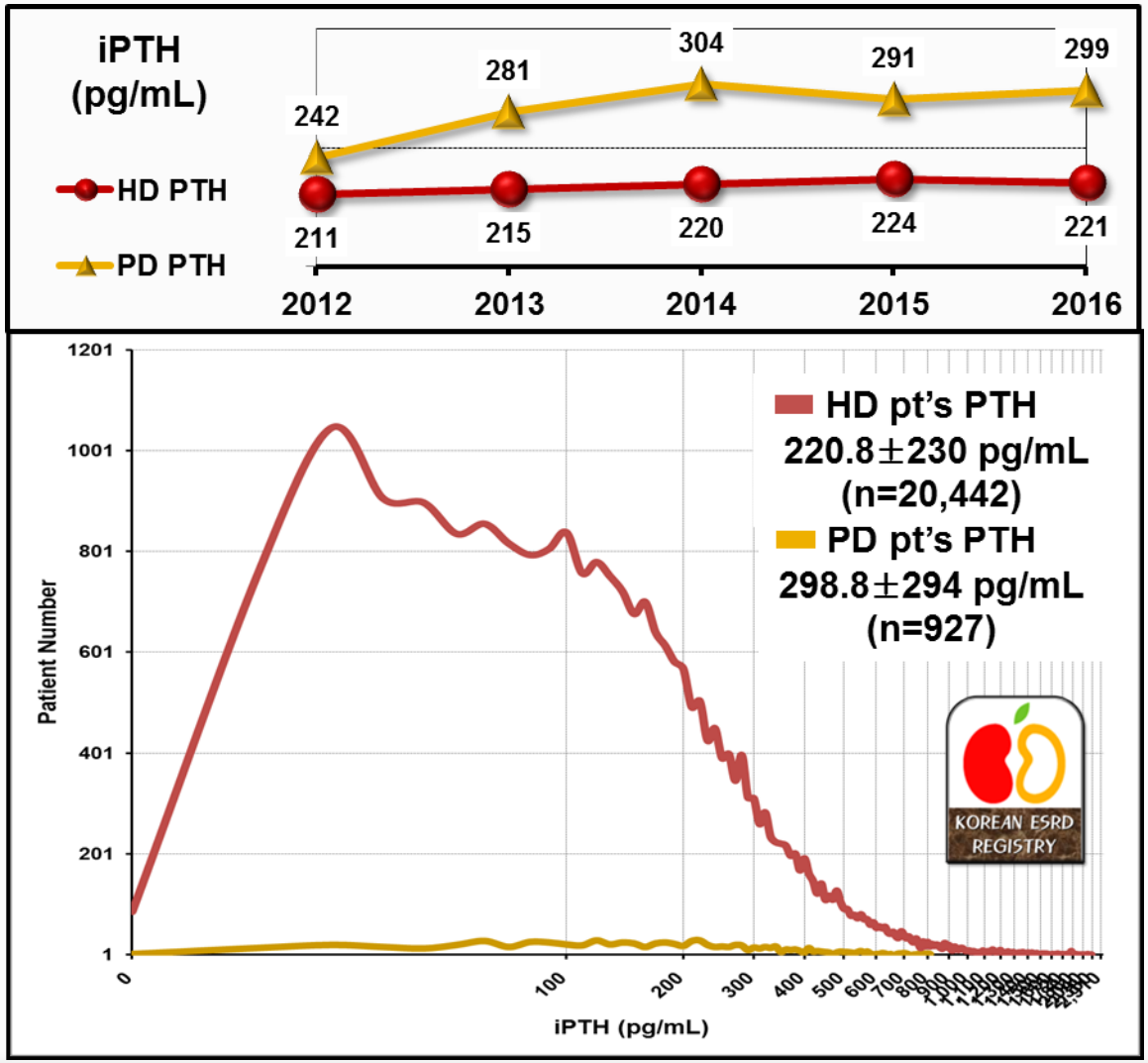
Erythropoietin Doses



Calcium & Phosphorus

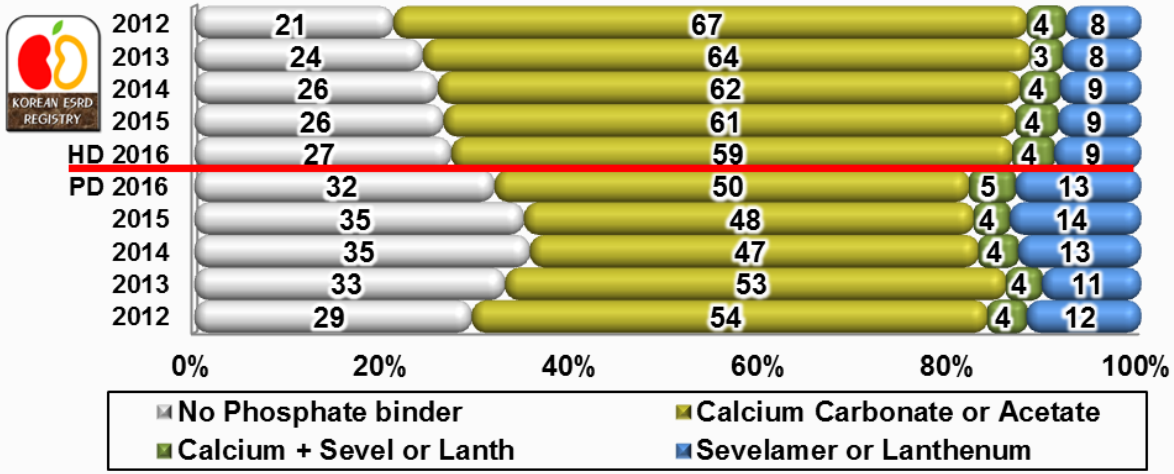


PTH

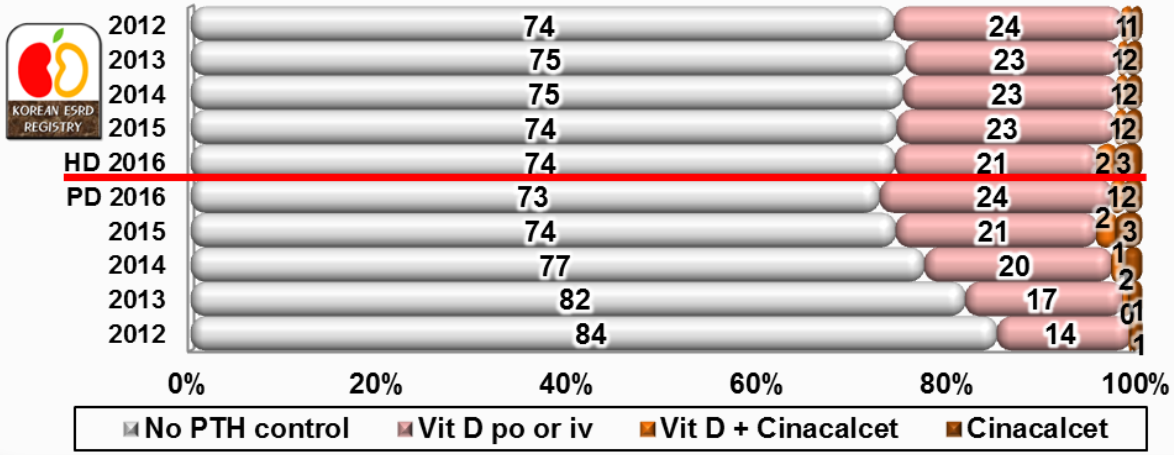

iPTH
(pg/mL)
HD PTH
PD PTH
242
281
304
291
299
211
215
220
224
221
2012
2013
2014
2015
2016
Patient Number
1201
1001
801
601
401
201
1
0
100
200
300
400
500
600
700
iPTH (pg/mL)
HD pt's PTH
220.8±230 pg/mL
(n=20,442)
PD pt's PTH
298.8±294 pg/mL
(n=927)
KOREAN ESRD
REGISTRY

Phosphate Binders & PTH Control

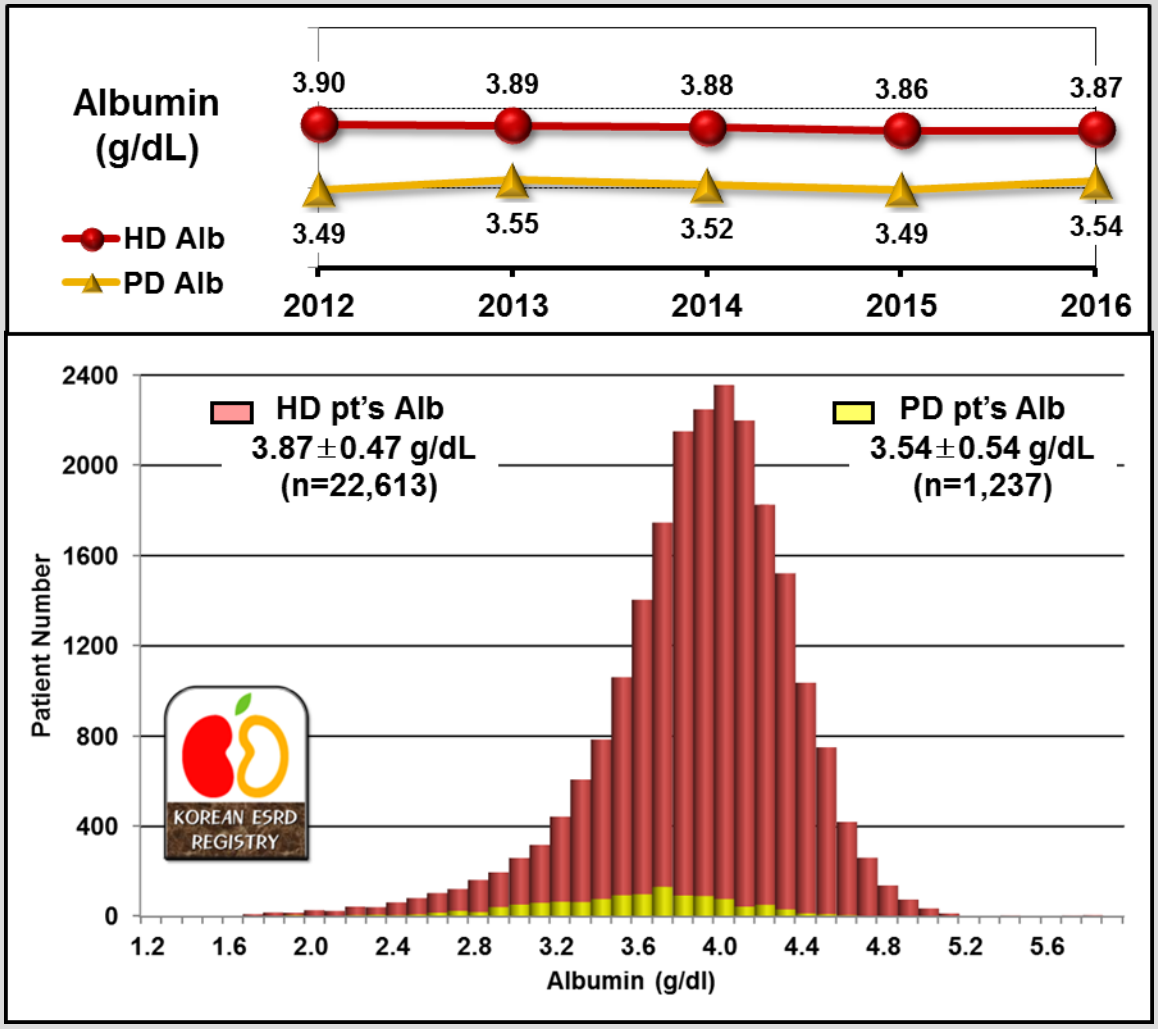
Phosphate Binders



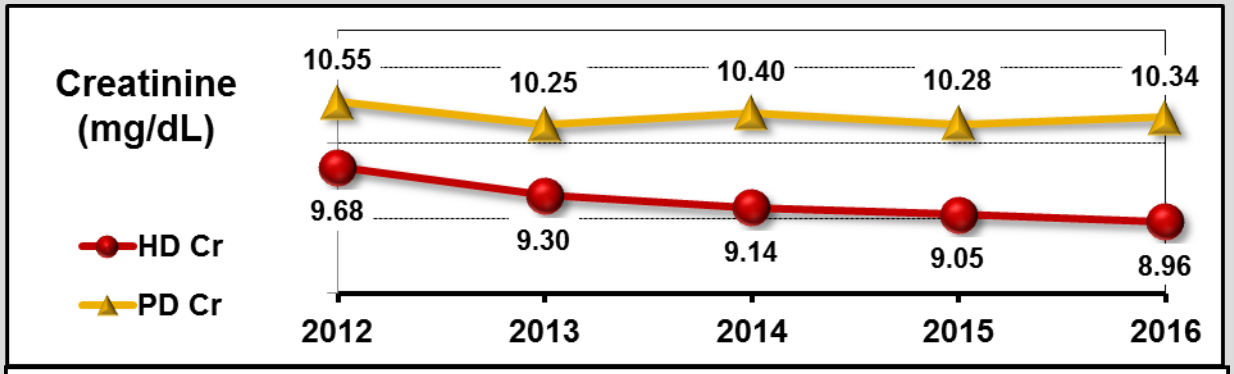
PTH Control

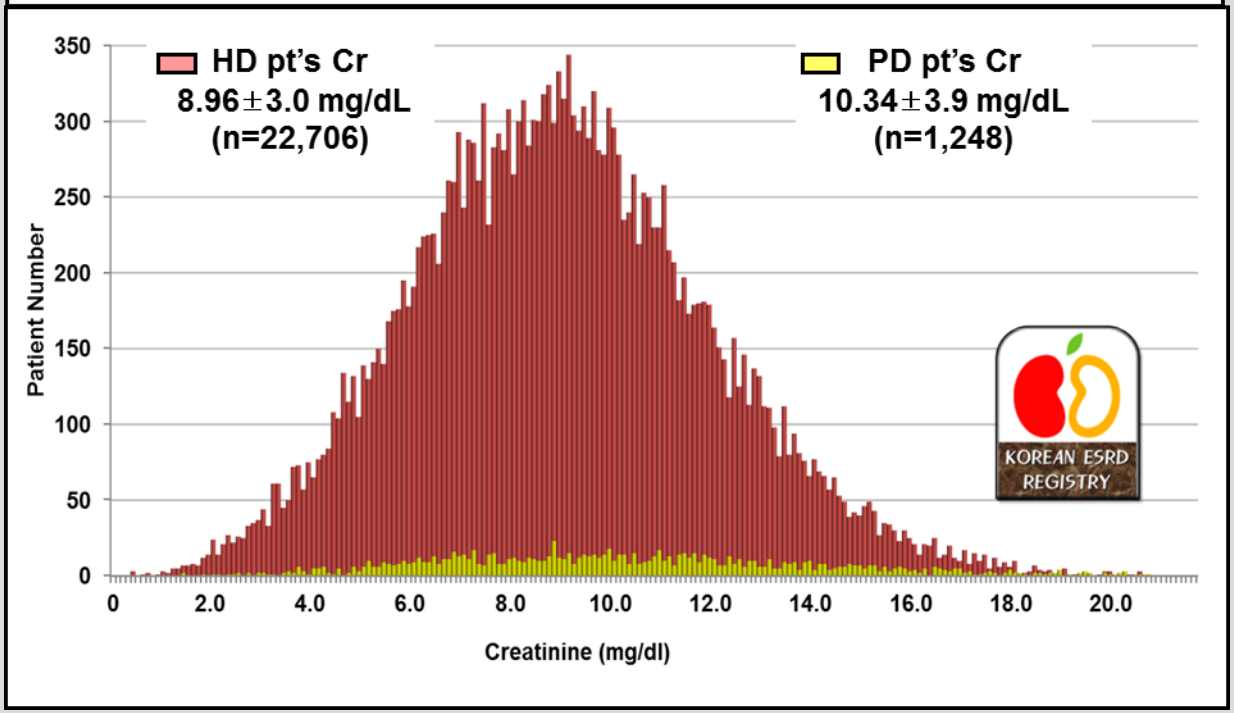


Serum Albumin

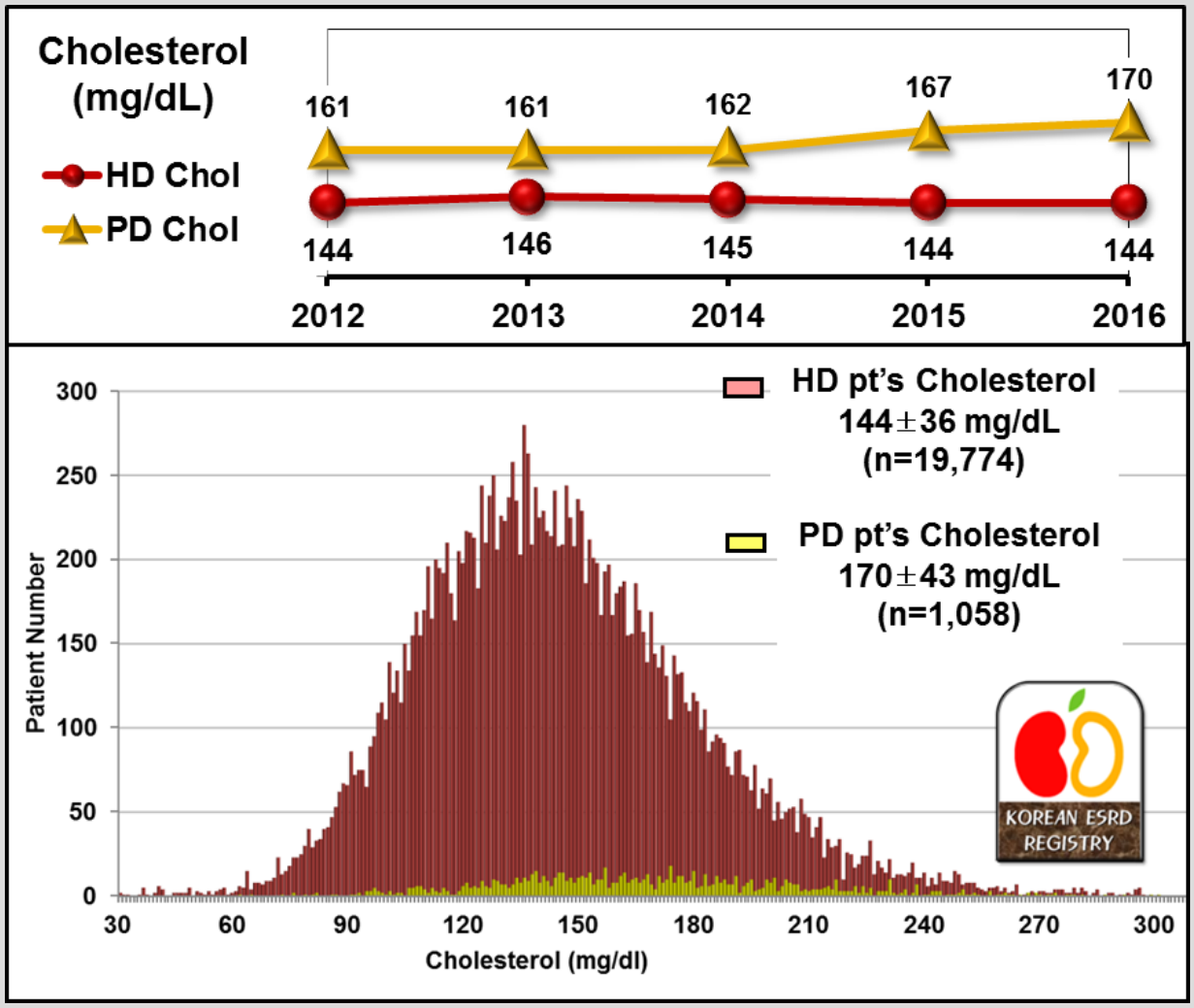


Serum Creatinine

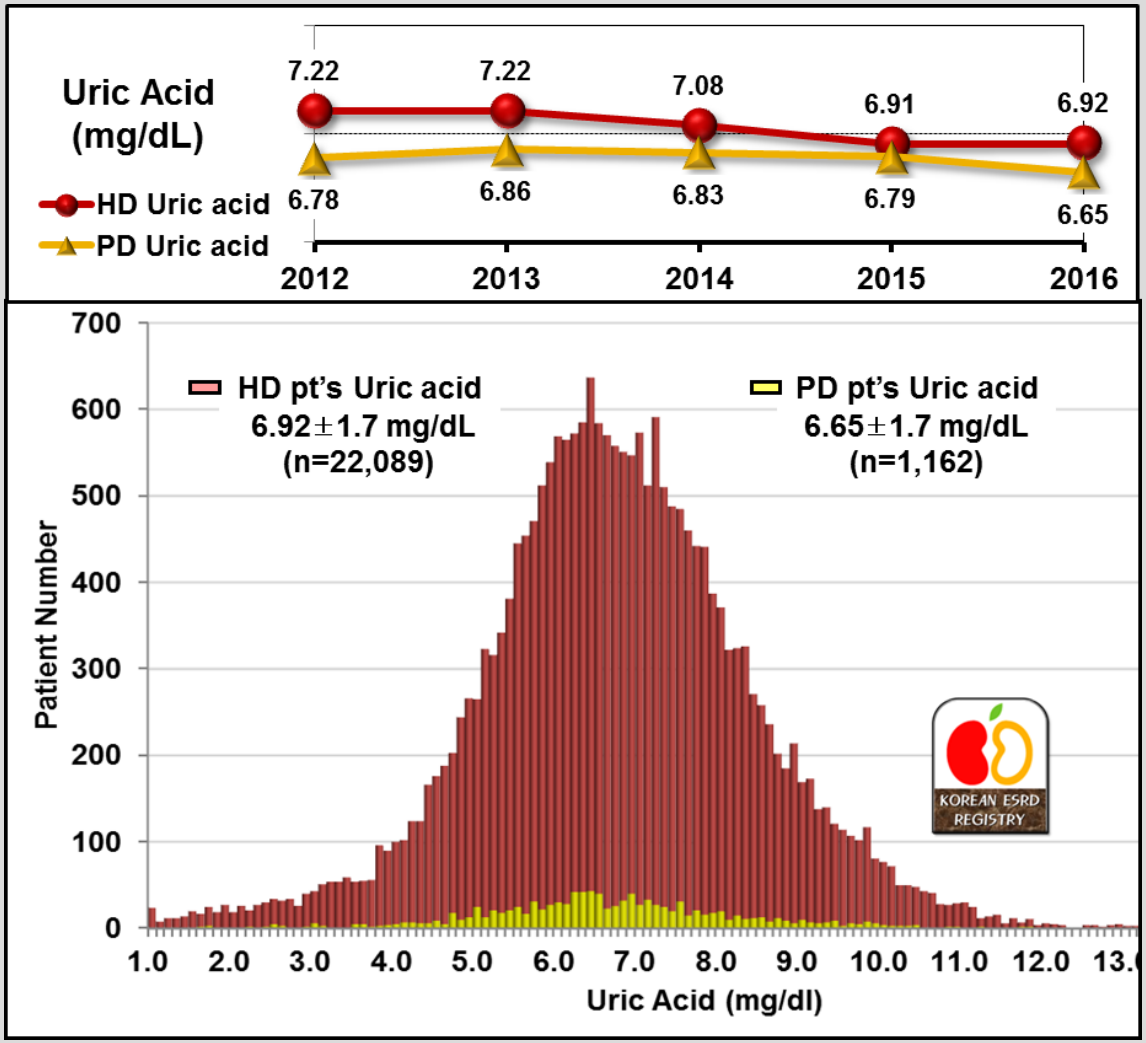




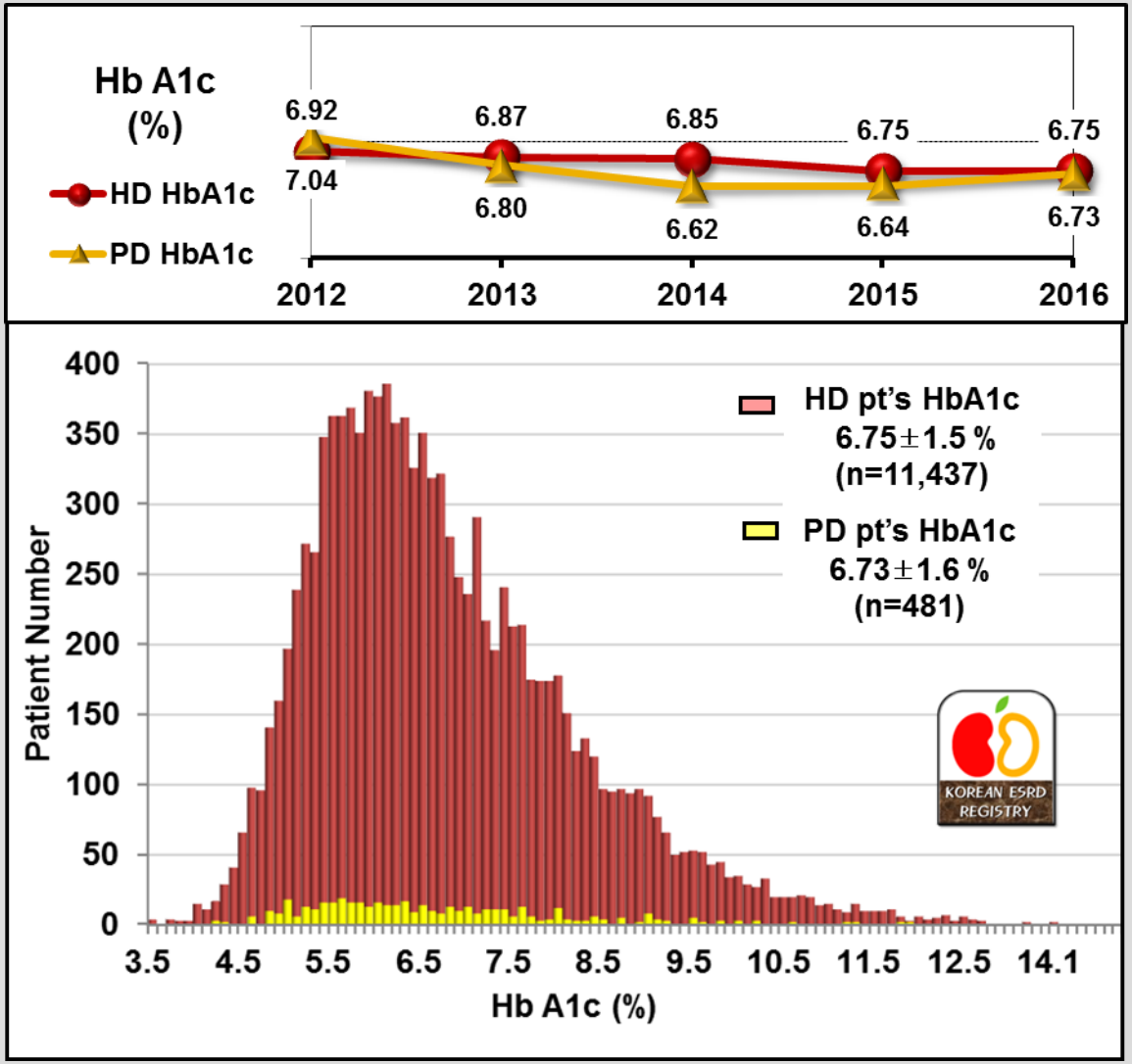
Total Cholesterol



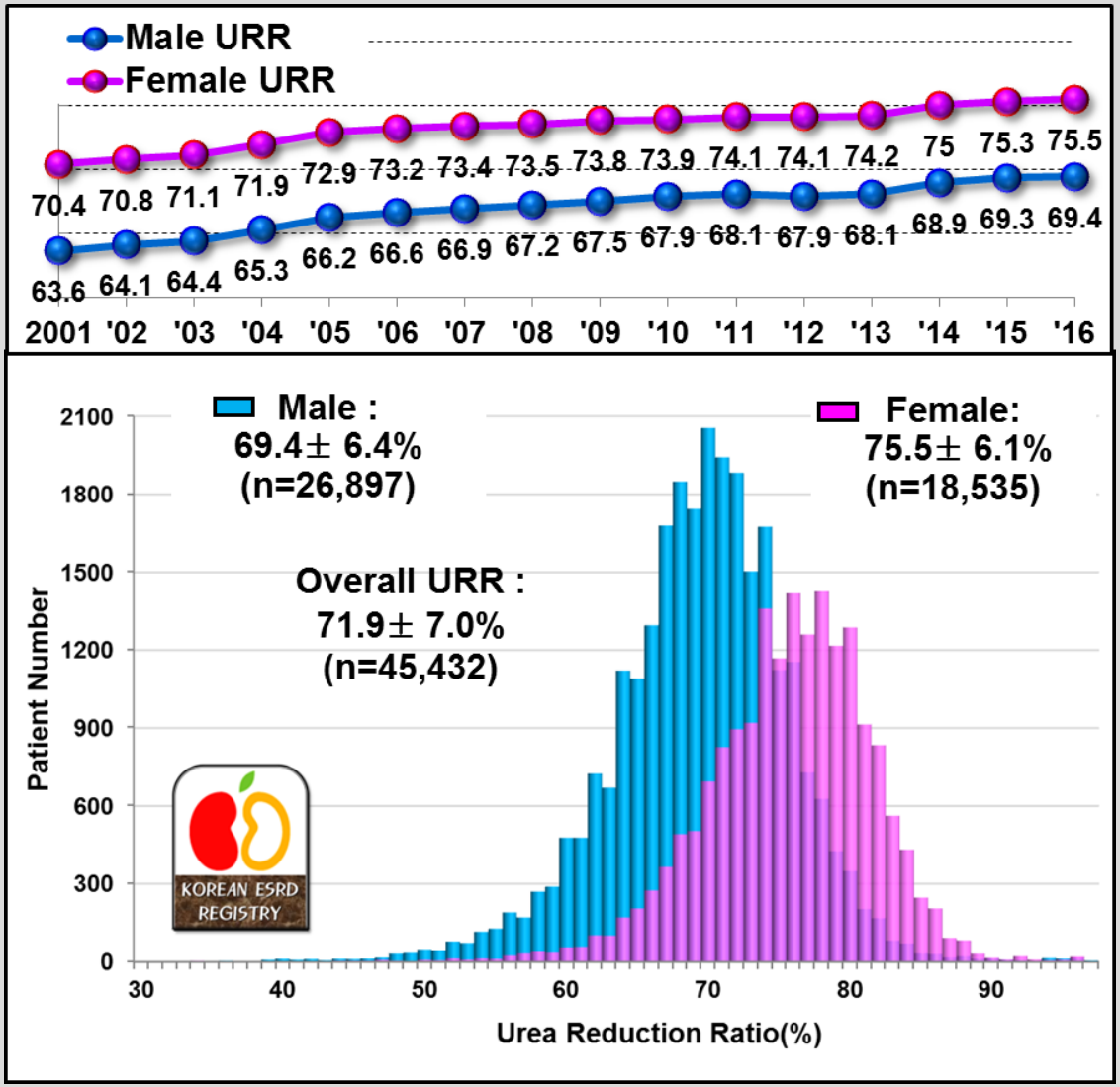
Uric Acid


Uric Acid (mg/dL)
HD Uric acid
PD Uric acid
7.22
7.22
7.08
6.91
6.92
6.78
6.86
6.83
6.79
6.65
2012
2013
2014
2015
2016
HD pt's Uric acid
6.92±1.7 mg/dL
(n=22,089)
PD pt's Uric acid
6.65±1.7 mg/dL
(n=1,162)
Patient Number
700
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
Uric Acid (mg/dl)
KOREAN ESRD REGISTRY

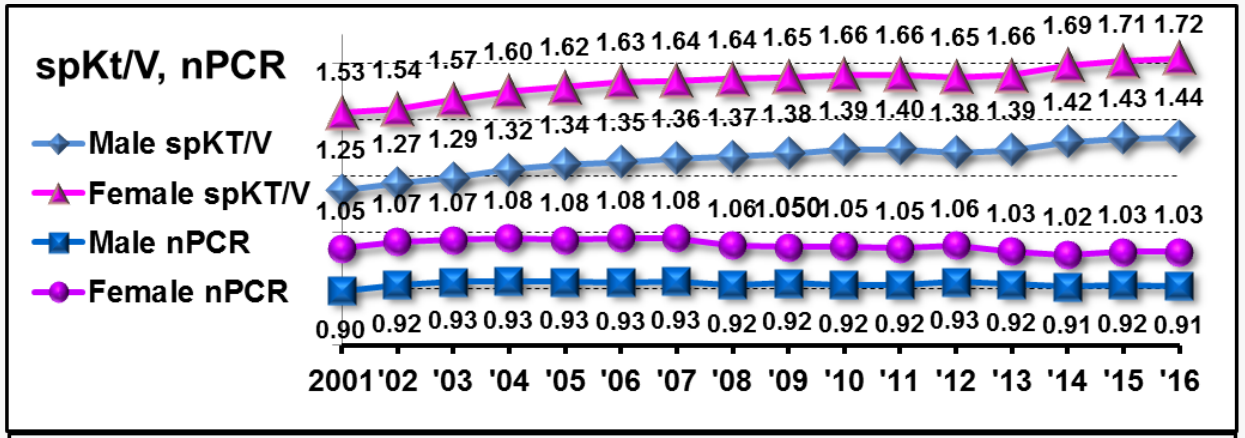
Hb A1c

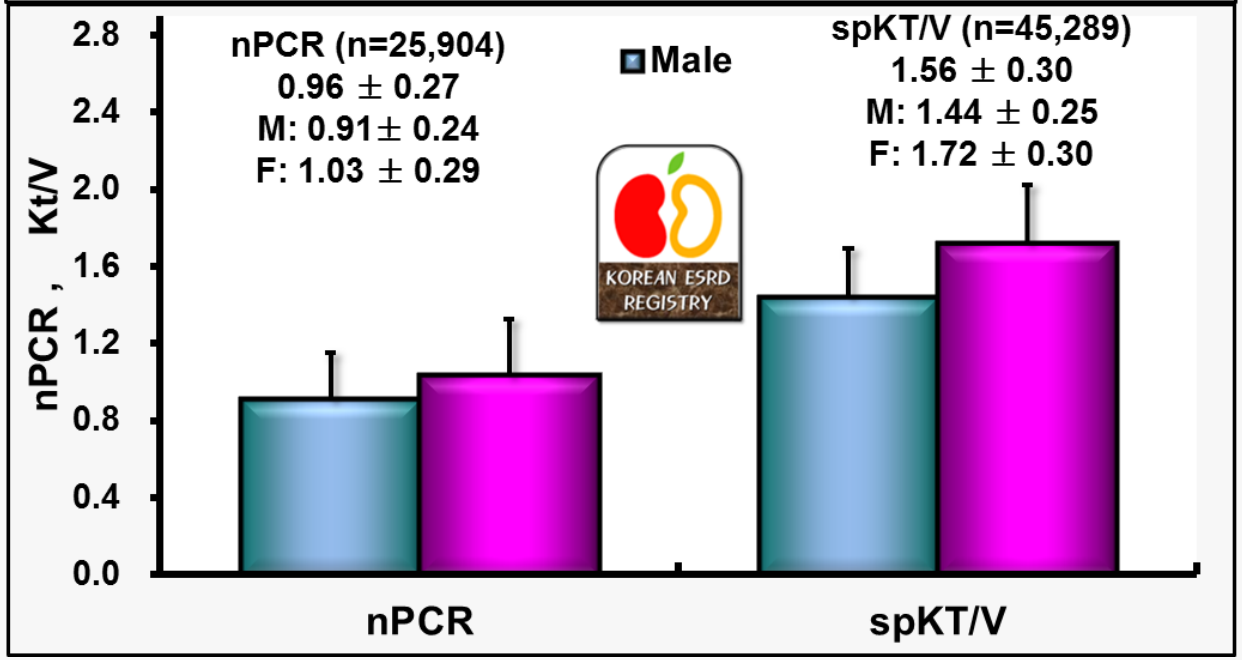

Hb A1c (%)
HD HbA1c
PD HbA1c
6.92
6.87
6.85
6.75
6.75
7.04
6.80
6.62
6.64
6.73
2012
2013
2014
2015
2016
Patient Number
400
350
300
250
200
150
100
50
0
HD pt's HbA1c
6.75±1.5 %
(n=11,437)
PD pt's HbA1c
6.73±1.6 %
(n=481)
KOREAN ESRD REGISTRY
3.5
4.5
5.5
6.5
7.5
8.5
9.5
10.5
11.5
12.5
14.1
Hb A1c (%)

Urea Reduction Ratio

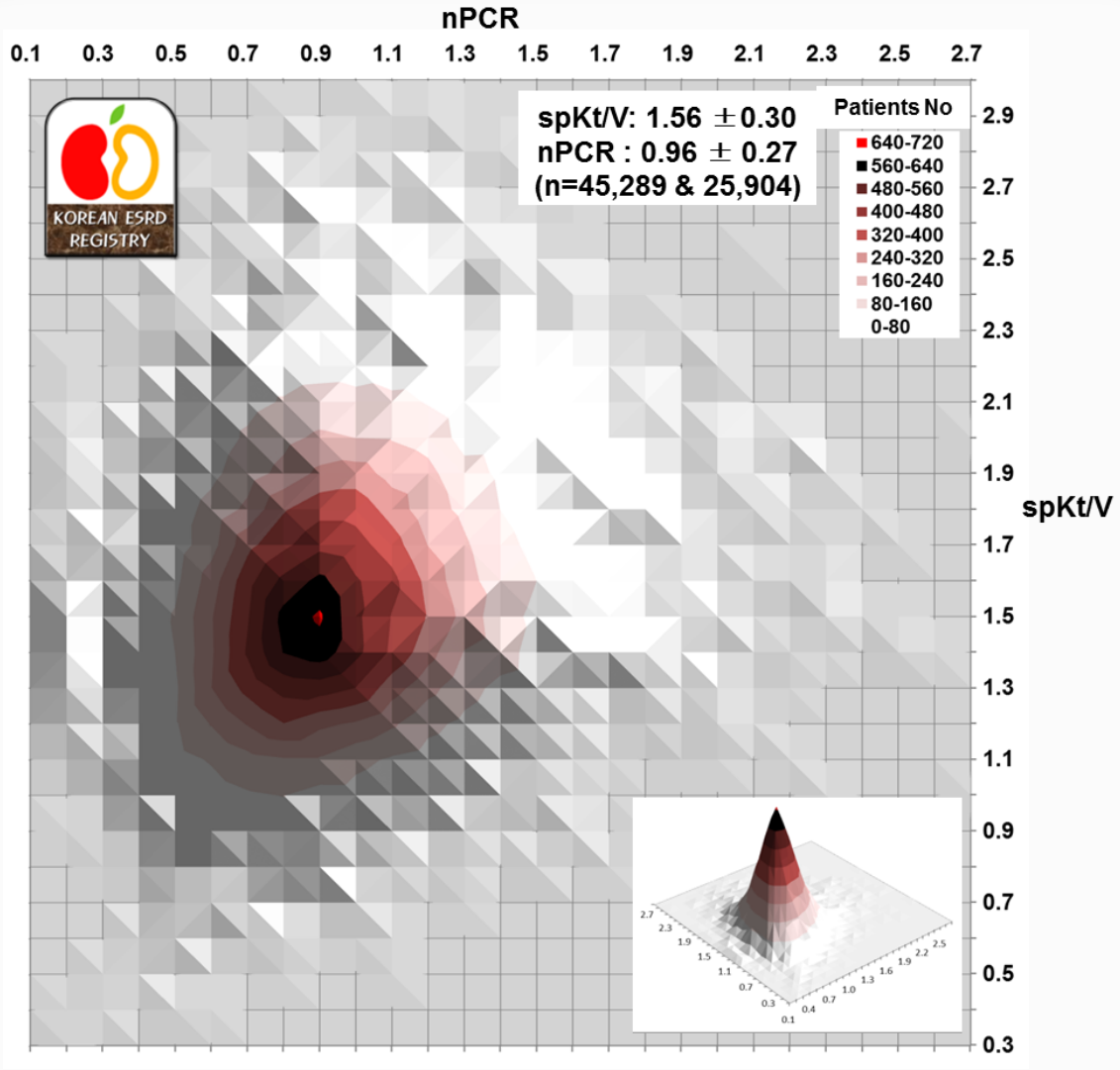


HD Adequacy

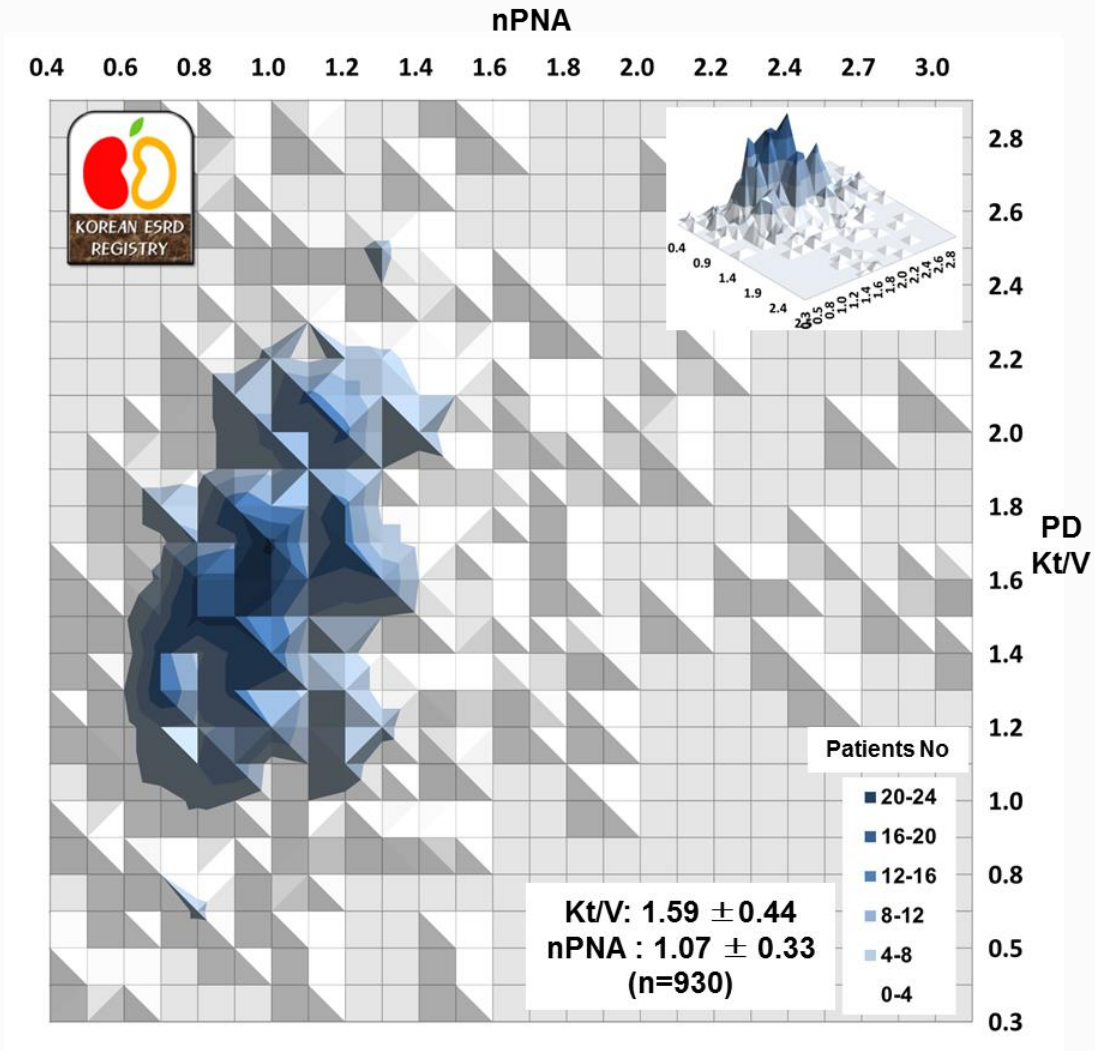

spKt/V, nPCR
Male spKT/V
Female spKT/V
Male nPCR
Female nPCR
1.53 1.54 1.57 1.60 1.62 1.63 1.64 1.64 1.65 1.66 1.66 1.65 1.66 1.69 1.71 1.72
1.25 1.27 1.29 1.32 1.34 1.35 1.36 1.37 1.38 1.39 1.40 1.38 1.39 1.42 1.43 1.44
1.05 1.07 1.07 1.08 1.08 1.08 1.08 1.06 1.05 1.05 1.05 1.06 1.03 1.02 1.03 1.03
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 0.91
2001 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16


nPCR (n=25,904)
0.96 ± 0.27
M: 0.91± 0.24
F: 1.03 ± 0.29
Male
spKT/V (n=45,289)
1.56 ± 0.30
M: 1.44 ± 0.25
F: 1.72 ± 0.30
KOREAN ESRD REGISTRY
nPCR , Kt/V
2.8
2.4
2.0
1.6
1.2
0.8
0.4
0.0
nPCR
spKT/V

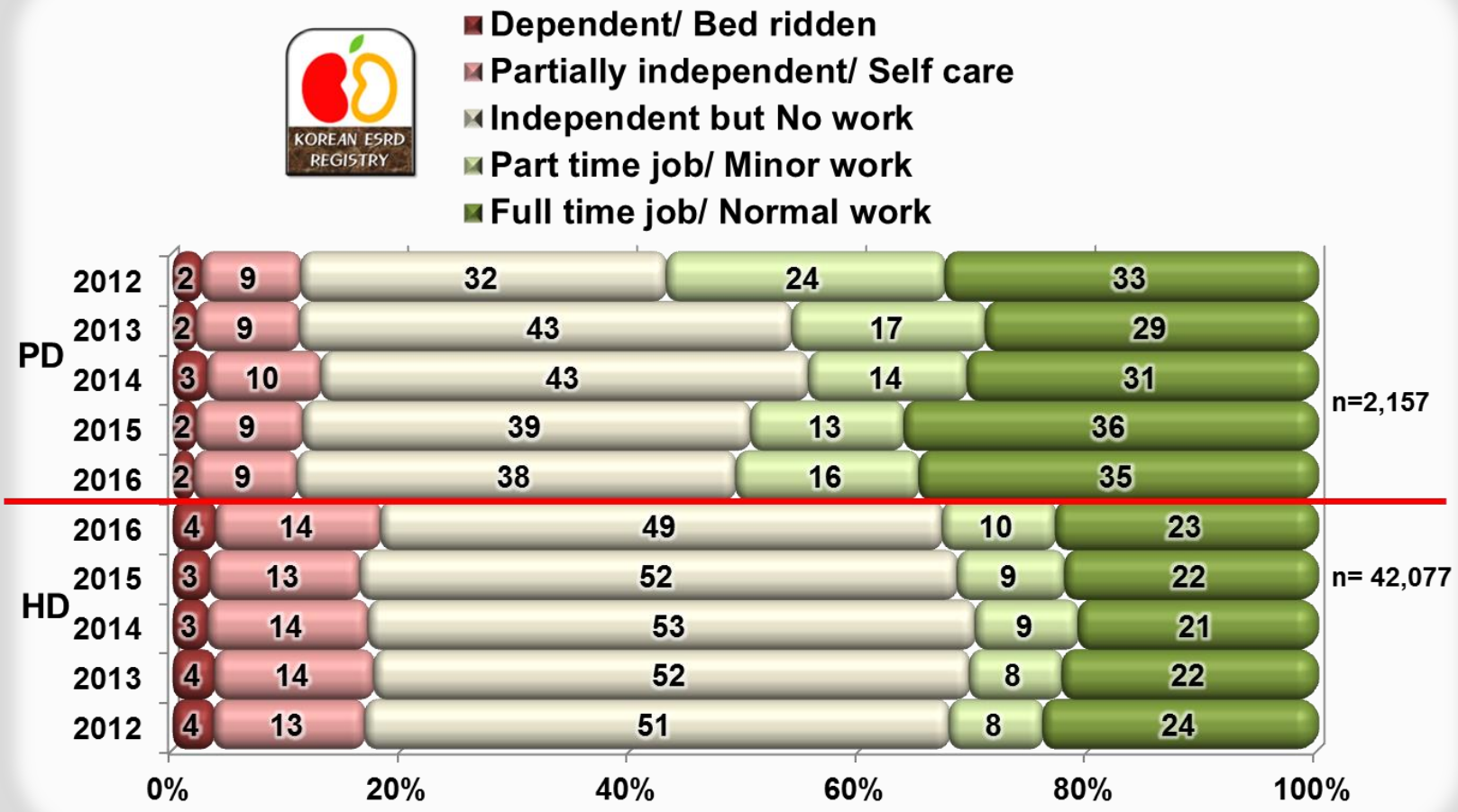
HD Adequacy : spKt/V vs nPCR



PD Adequacy : Kt/V vs nPNA



Rehabilitation of Dialysis Patients



Co-Morbidity of Dialysis Patients

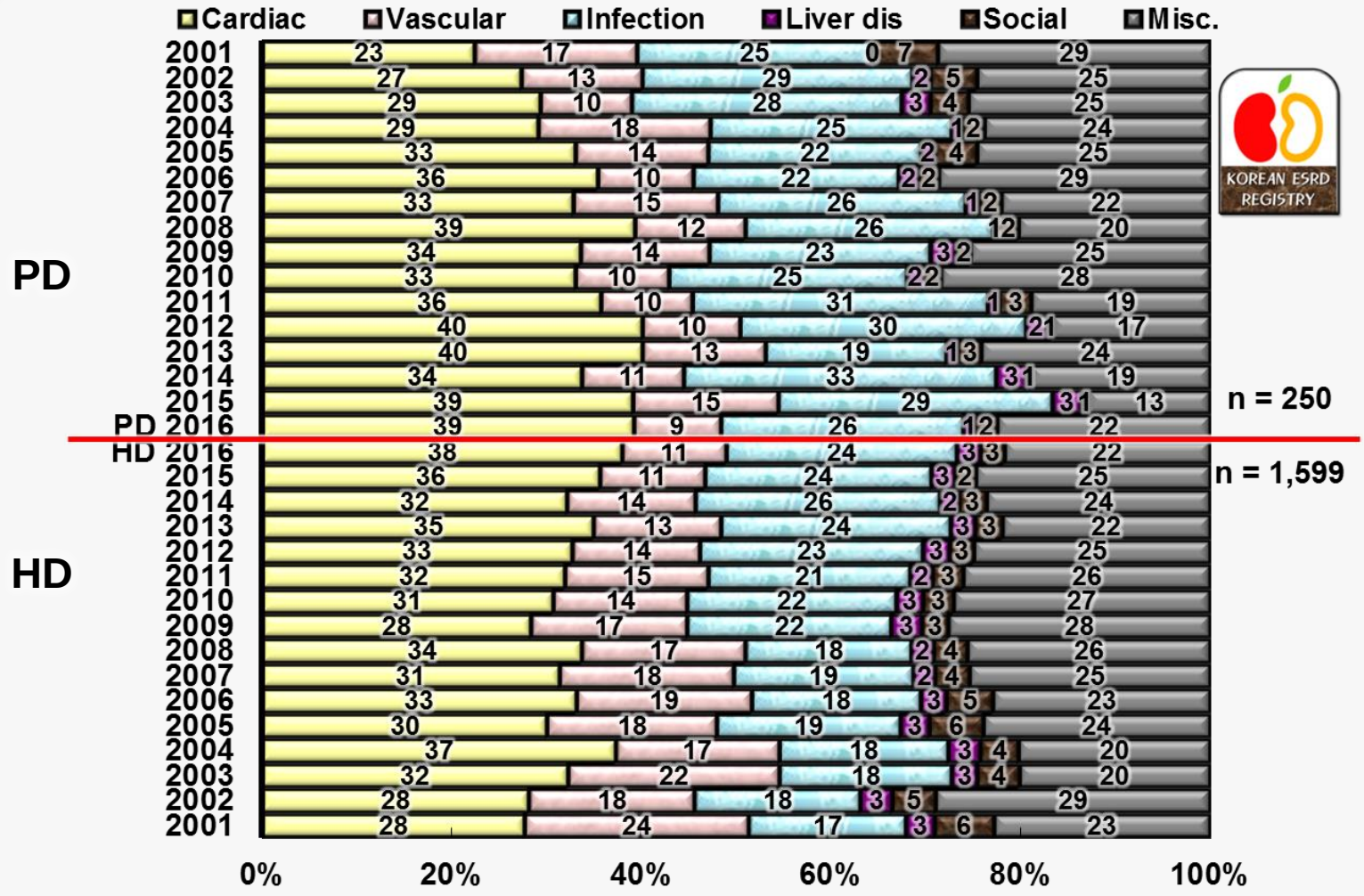
	HD (%, n=38,252)		PD (%, n=1,624)	
Cardiac	**16.0**		**18.6**	
Coronary Artery Disease		8.2		7.7
Congestive Heart Failure		4.2		8.7
Pericardial Effusion		0.3		0.5
Arrythmia		3.3		1.7
Vascular	**50.4**		**52.8**	
Cerebrovascular accident		3.3		3.2
Hypertension		45.0		48.5
Other vascular disease		2.1		1.0
Infection	**5.4**		**12.7**	
Pneumonia		1.6		1.1
Tuberculosis		0.4		0.7
Peritonitis		0.2		7.0
Herpes zoster		0.3		0.2
Access/ exit site infection		0.7		1.5
Other Infection		2.2		2.2
Liver disease	**5.3**		**5.0**	
Hepatitis B		3.2		3.3
Hepatitis C		1.8		1.1
Congestive Liver		0.1		0.1
Hemochromatosis		0.0		0.0
Other liver diseases		0.3		0.4
Gastrointestinal	**15.3**		**6.8**	
Gastric Ulcer		1.9		0.6
Duodenal Ulcer		0.3		0.1
Constipation		5.3		2.5
Other Gastrointestinal Diseases		7.9		3.7
Miscellaneous	**7.5**		**4.1**	
Malnutrition (Alb<2.5g/dl)		0.2		0.7
Malignancy		1.2		0.6
Hypertensive Retinopathy		0.4		0.1
Uremic Dermatitis		1.9		0.6
Uremic Neuritis		0.7		0.0
Uremic Dementia		0.2		0.2
Uremic Ascites / Pleural Effusion		0.2		0.1
Osteodystrophy		0.5		0.2
COPD & other pulm disease		0.5		0.4
Decubitus ulcer/ DM foot		1.9		1.1

Causes of Death (%), 1994-2016

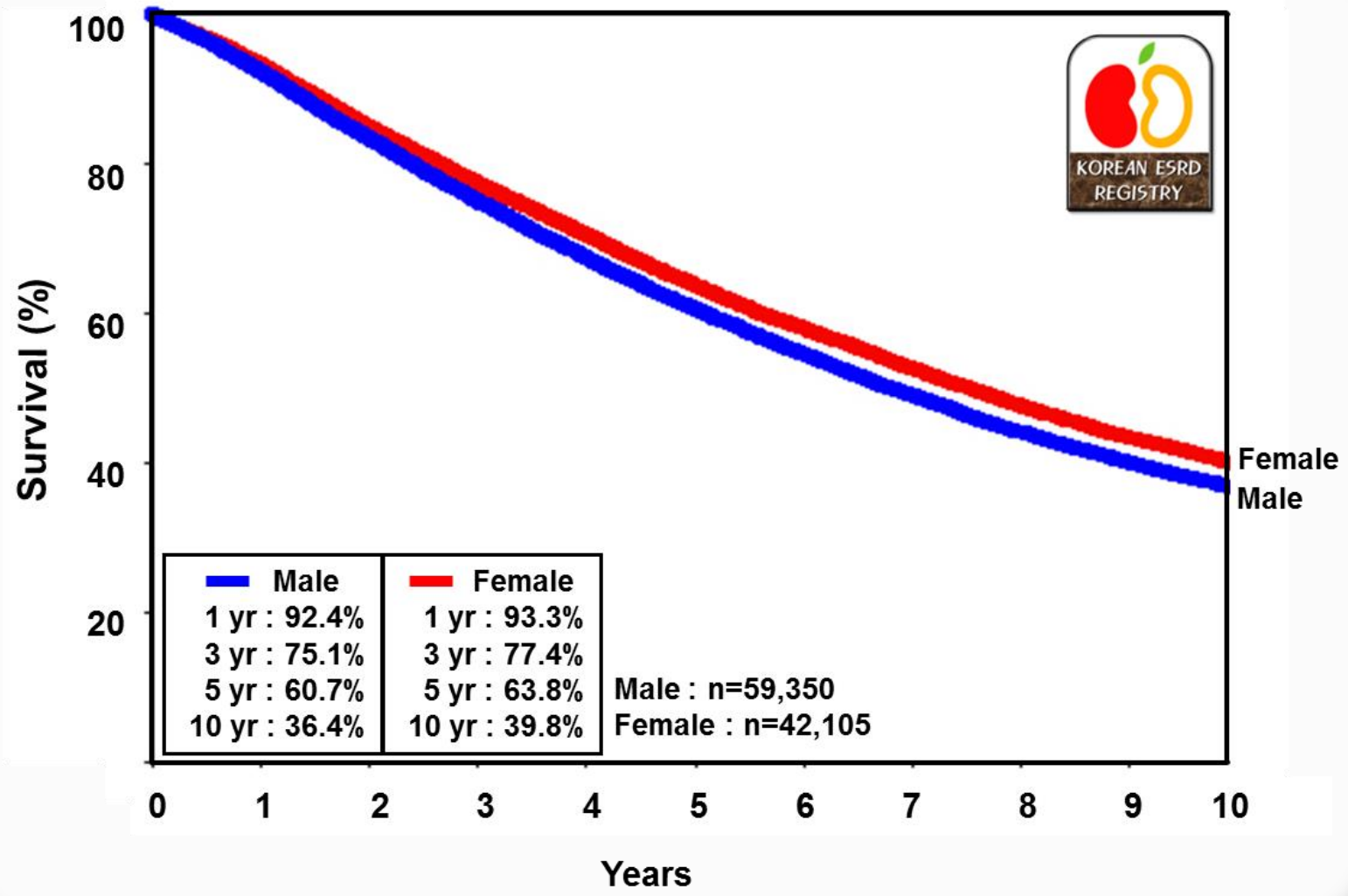
	1994-96	1998	2001	2003	2005	2007	2009	2011	2012	2013	2014	2015	2016
Cardiac	**27.4**	**27.4**	**26.9**	**31.7**	**30.7**	**31.7**	**29.5**	**32.7**	**33.9**	**35.8**	**32.5**	**36.1**	**38.1**
Myocardial infarction	6.4	6.4	7.7	7.4	8	7.5	8.0	6.6	6.8	7.5	5.7	8.0	5.5
Cardiac arrest, uremia associated	13.7	13.7	11.2	11.7	10.4	10.8	8.5	11.0	11.1	14.2	14.1	13.1	13.3
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	19.3
Vascular	**17.2**	**17.2**	**22.7**	**19.5**	**17**	**17.8**	**15.9**	**14.1**	**13.0**	**13.3**	**13.2**	**11.8**	**10.8**
Cerebrovascular accident	14.3	14.3	15.1	14.5	12.3	13	11	8.7	7.9	8.7	8.5	6.5	6.2
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	0.4
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	2.0
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	0.3
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	1.9
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**	**24.5**
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	9.3
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	10.2
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	0.1
Peritonitis	2.1	2.1	1.1	2	1.4	1.1	0.8	1.0	1.0	0.5	0.7	1.1	1.2
Other Infection	2	2	4.5	4.9	4.3	2.9	4.5	4.0	3.0	2.7	3.4	2.4	3.6
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**	**2.3**
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	0.9
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	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**	**2.5**
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	0.5
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	1.5
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	0.5
Miscellaneous	**32**	**32**	**23.7**	**21.3**	**24**	**24.8**	**27.1**	**24.7**	**23.6**	**22.2**	**22.9**	**23.0**	**21.8**
Cachexia	2.9	2.9	8.1	6.6	4	4.4	3.3	2.7	2.1	1.6	1.5	1.4	0.9
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	6.5
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	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	13.4

*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, 2016=1,849

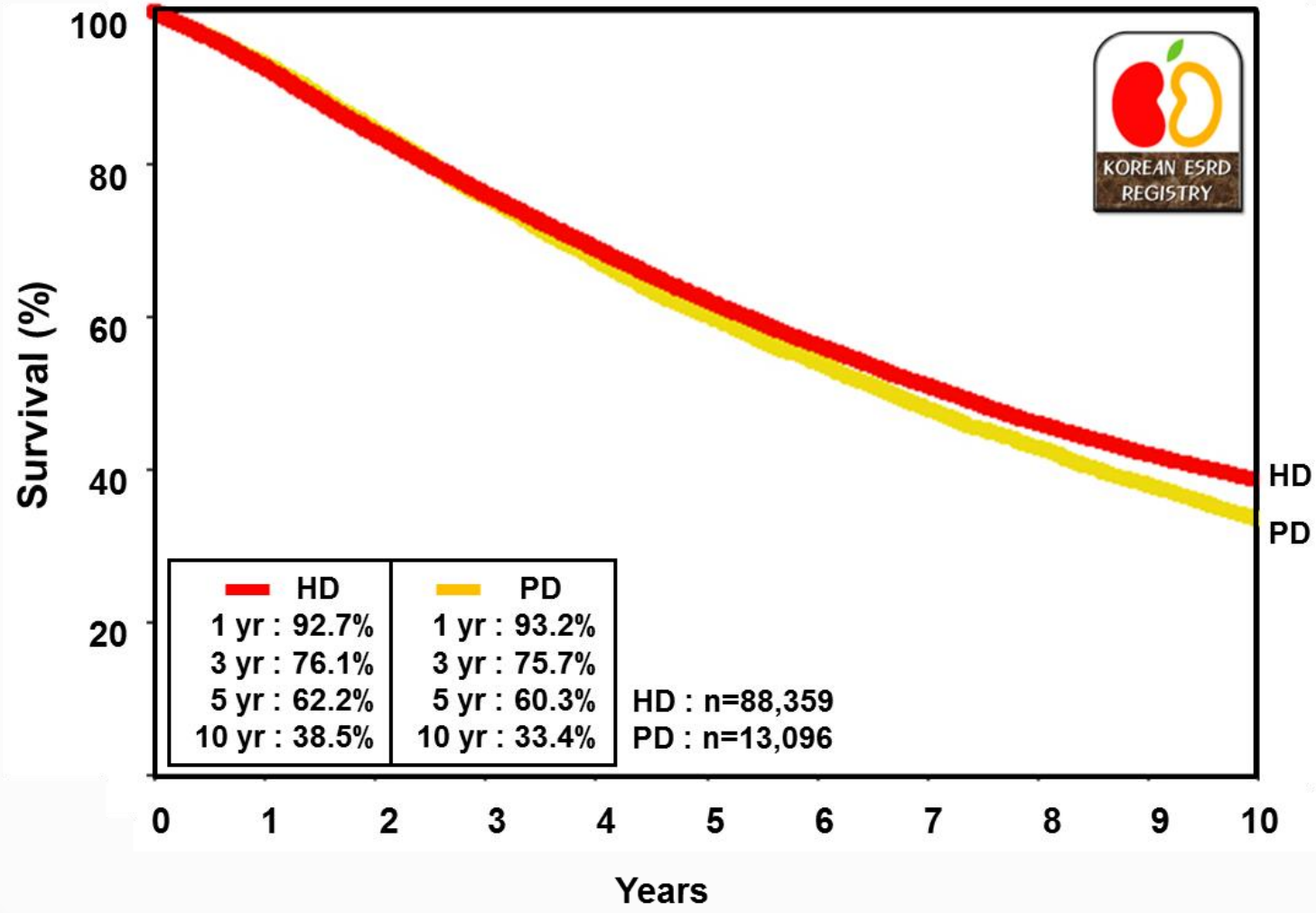
Causes of Death, HD & PD (%)



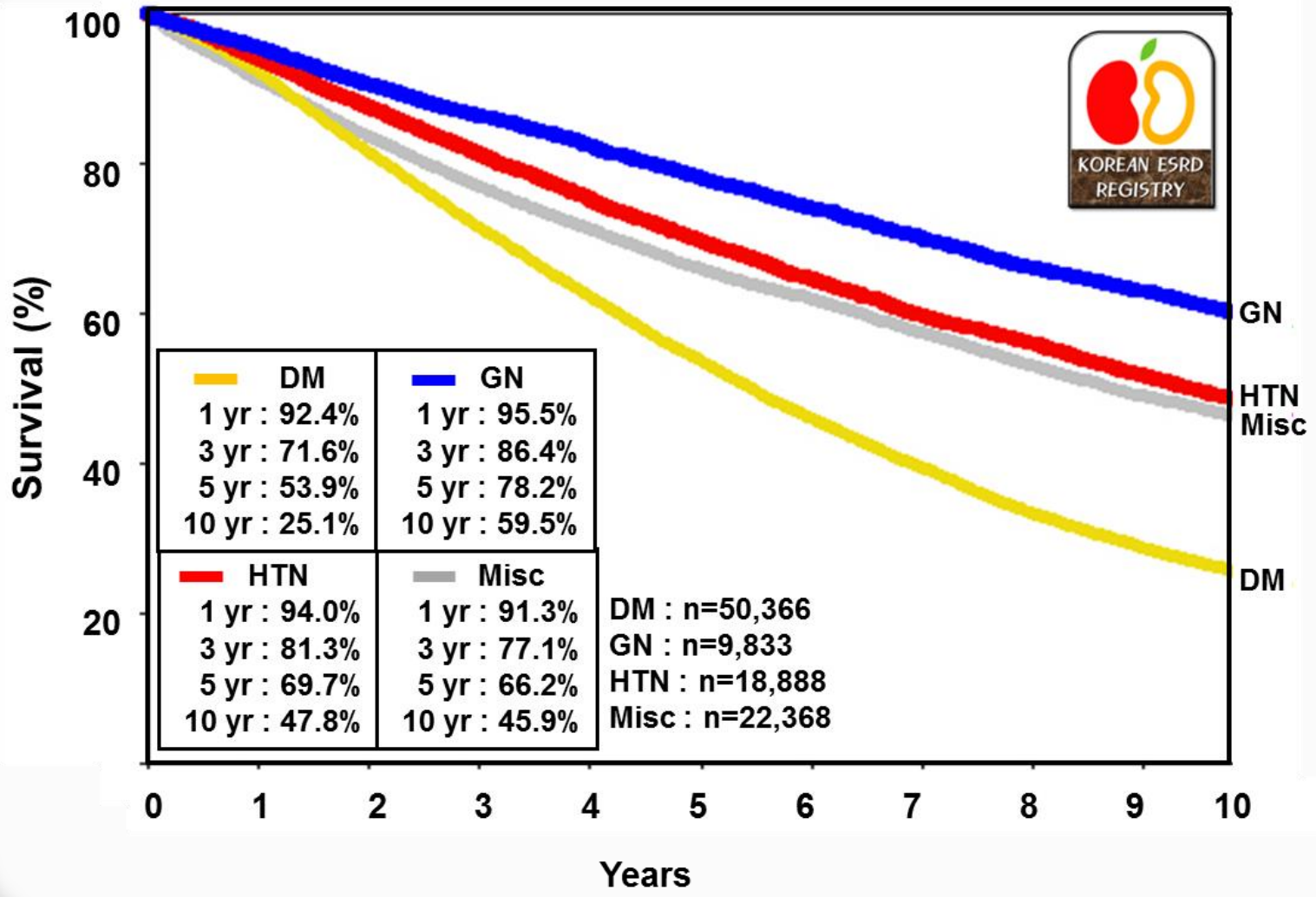
Overall Patient Survival



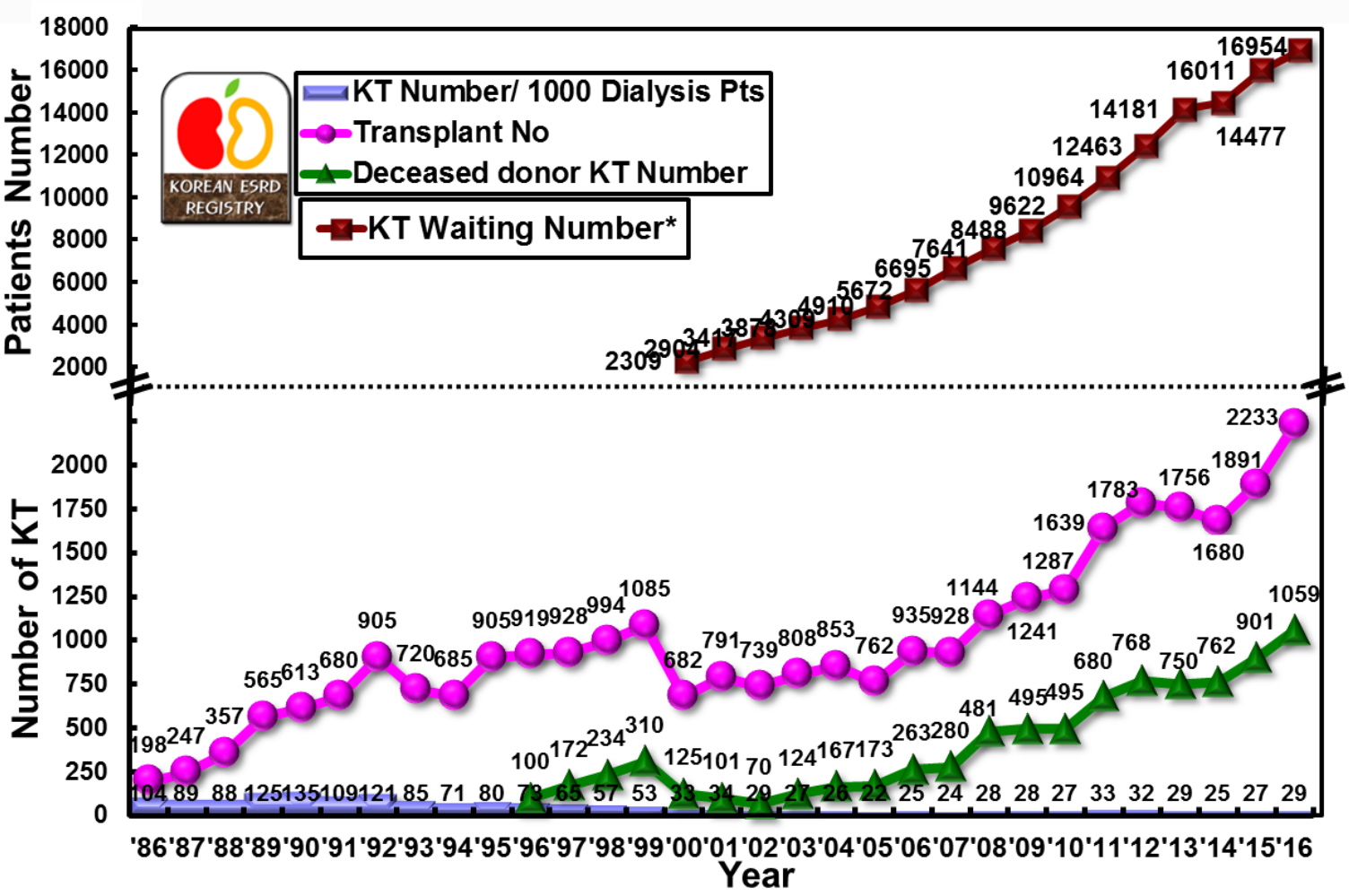
Patient Survival : HD vs PD



Patients Survival : Cause of ESRD

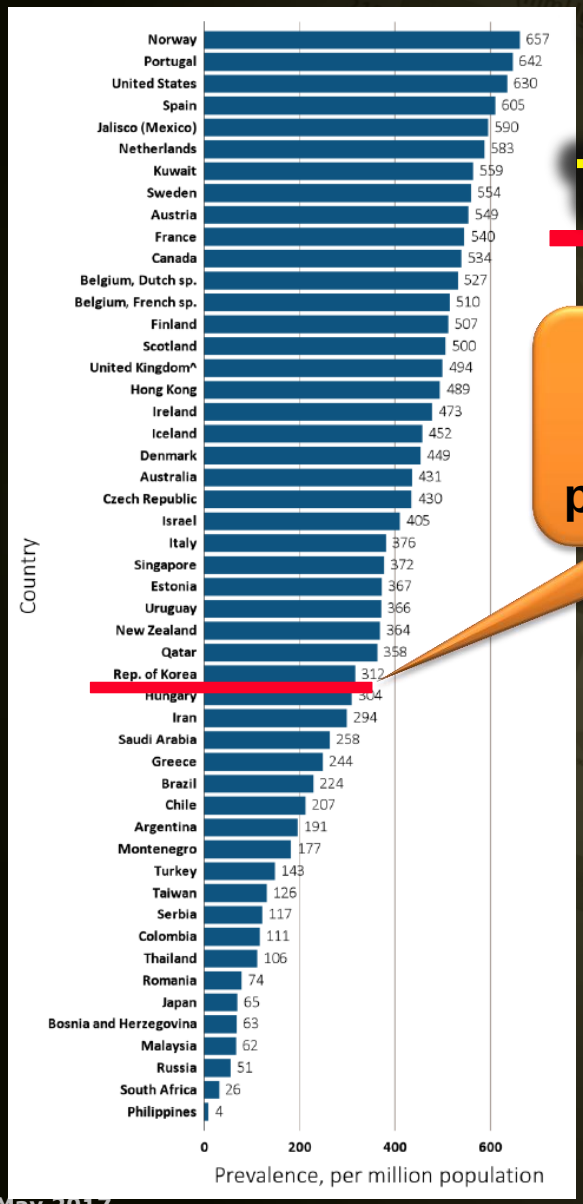


Kidney Transplantation



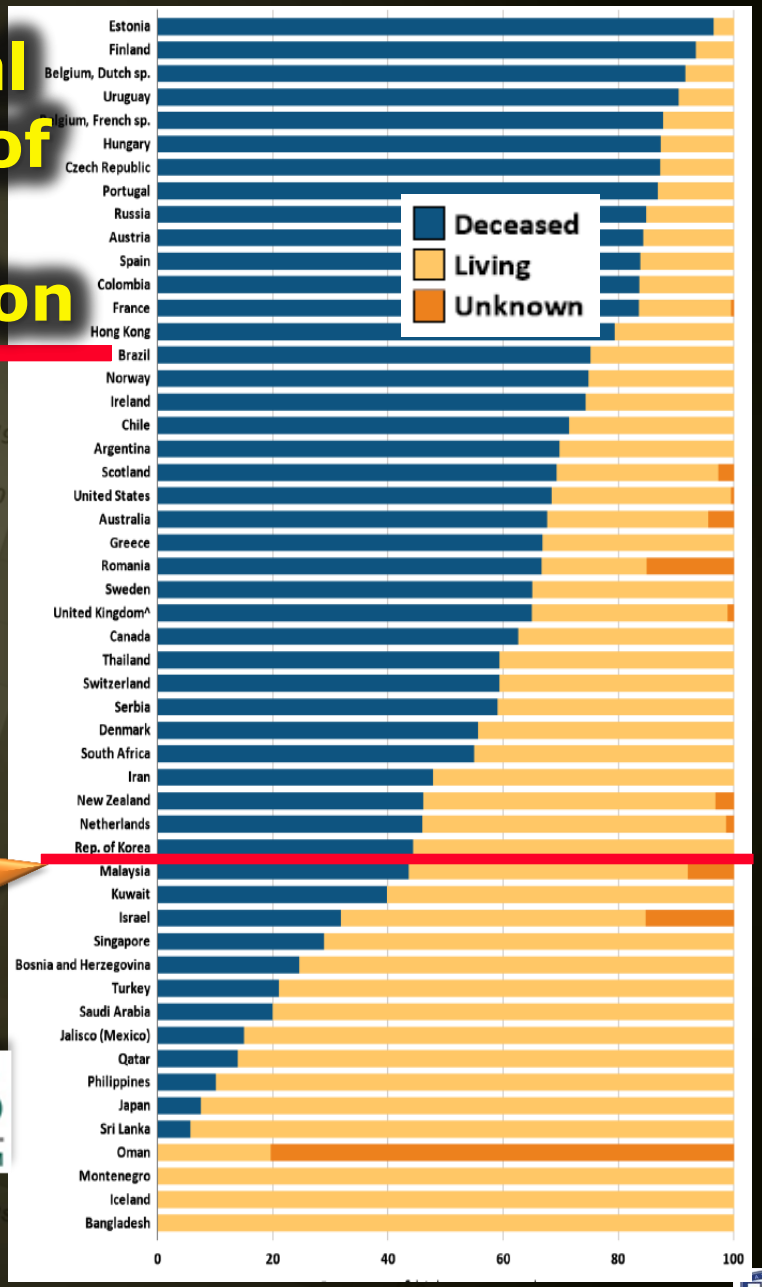
KOREAN ESRD REGISTRY

International Comparison of Kidney Transplantation



KT, 312
Per million population, 2014

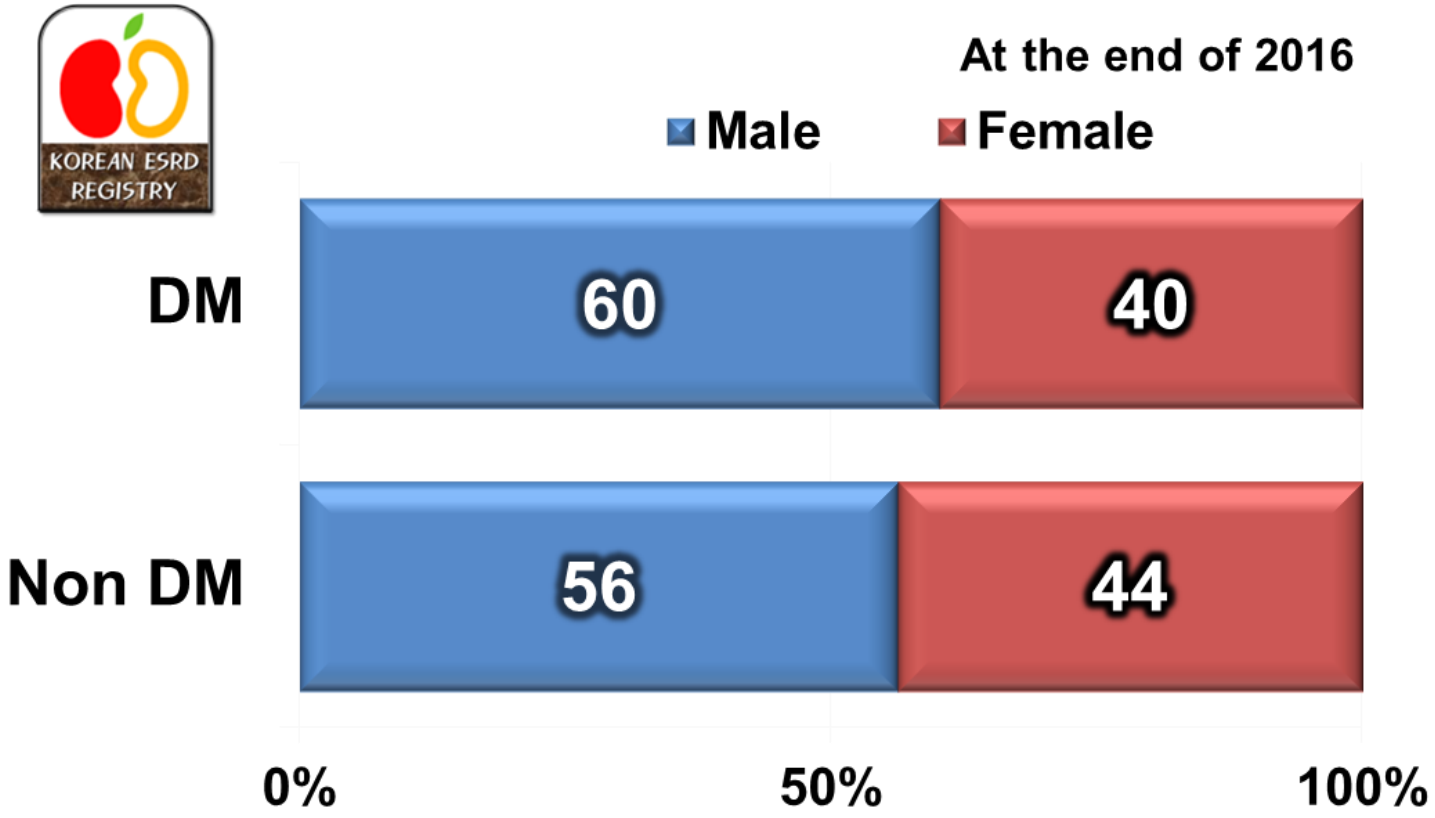
Deceased Donor 45%, 2014



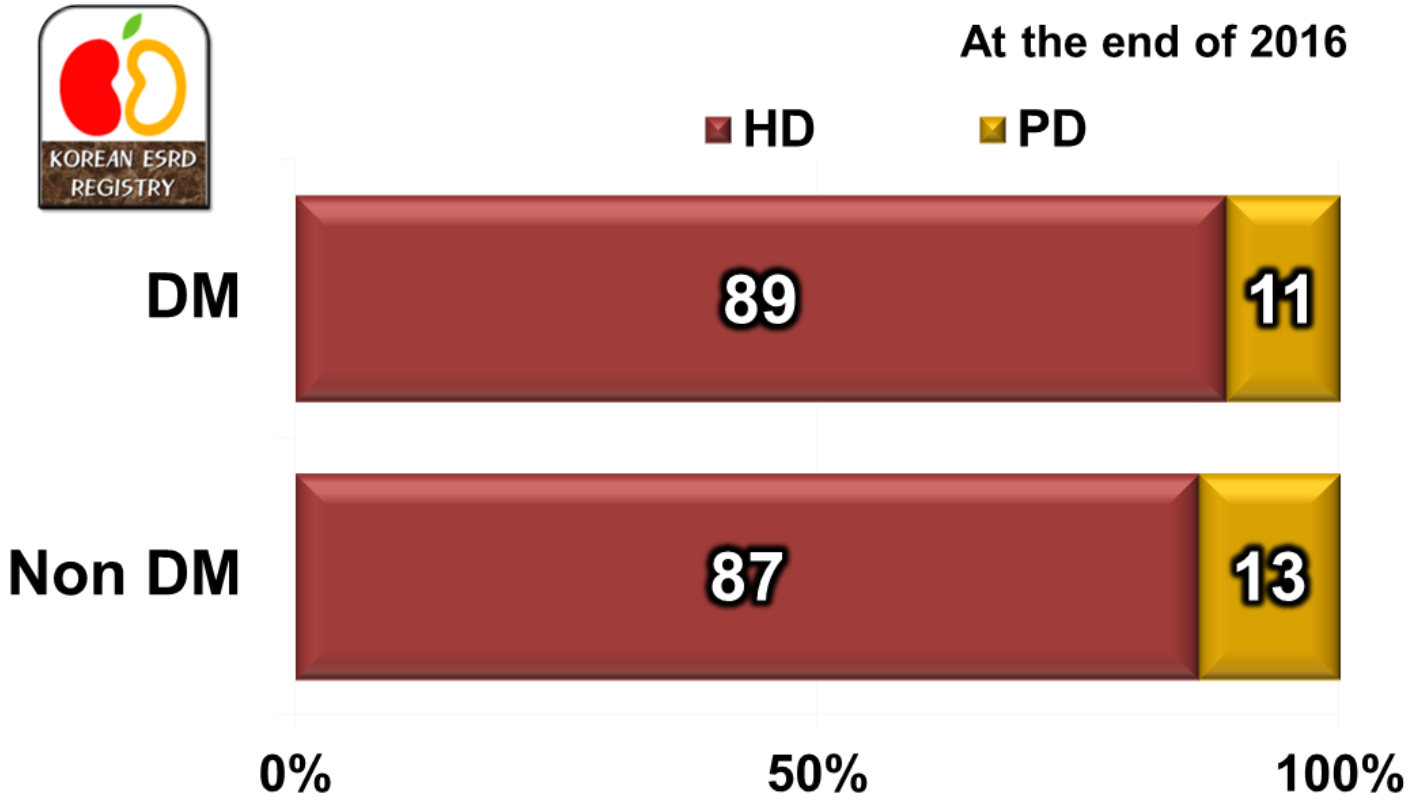
USRDS
UNITED STATES RENAL DATA SYSTEM

USRDS Report 2016

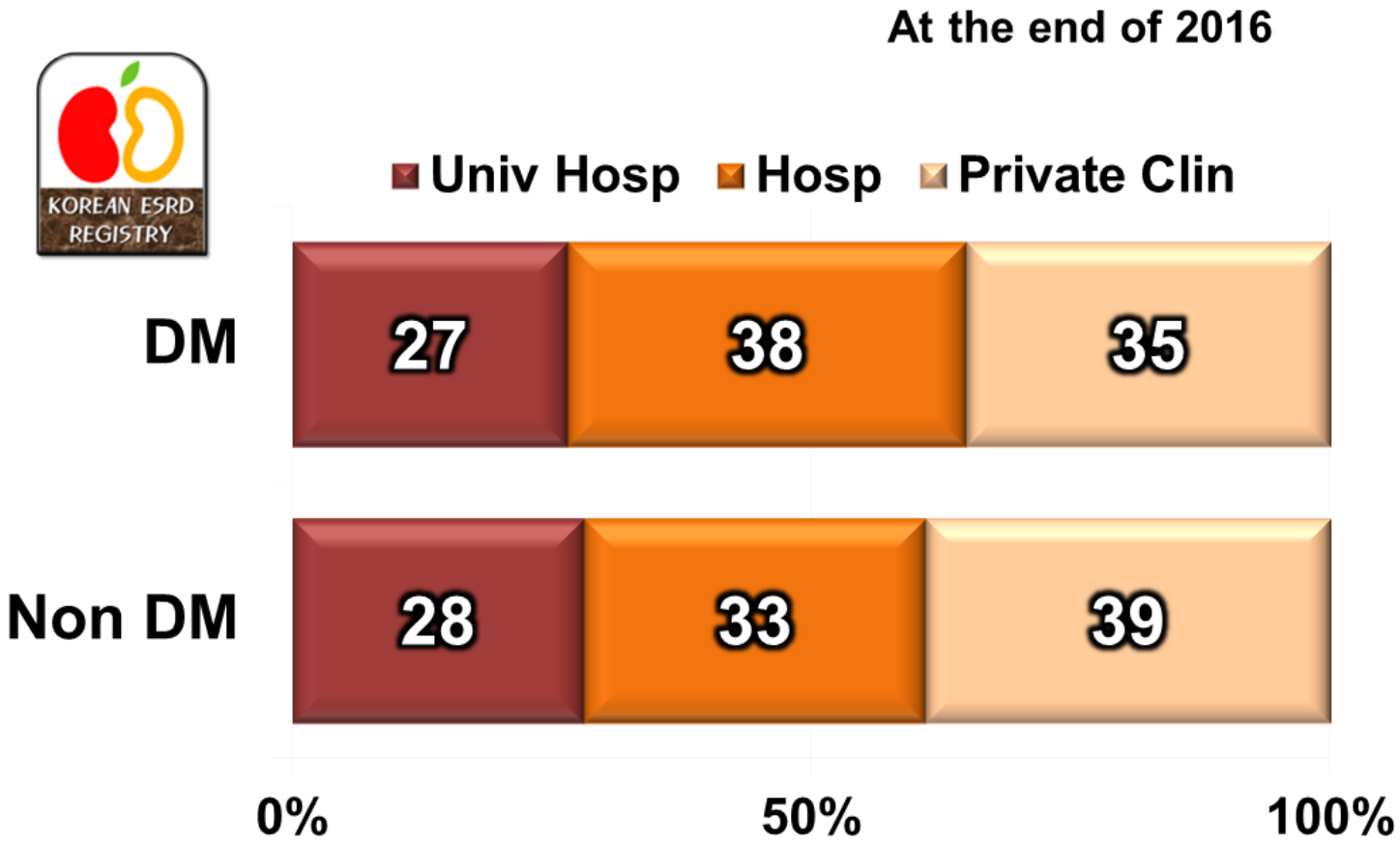
Gender Ratio (%), DM & Non-DM



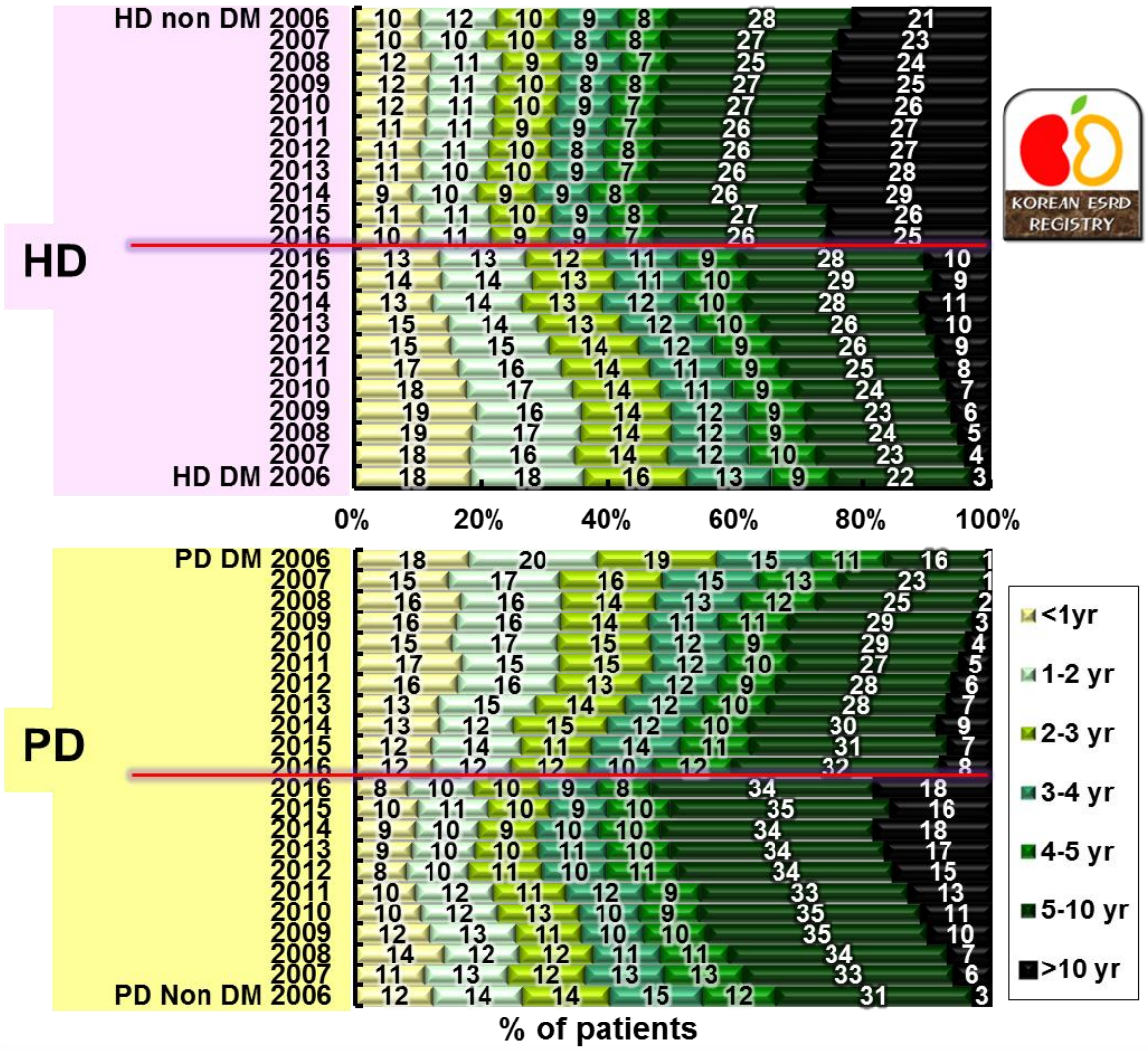
Dialysis Modality (%), DM & Non-DM



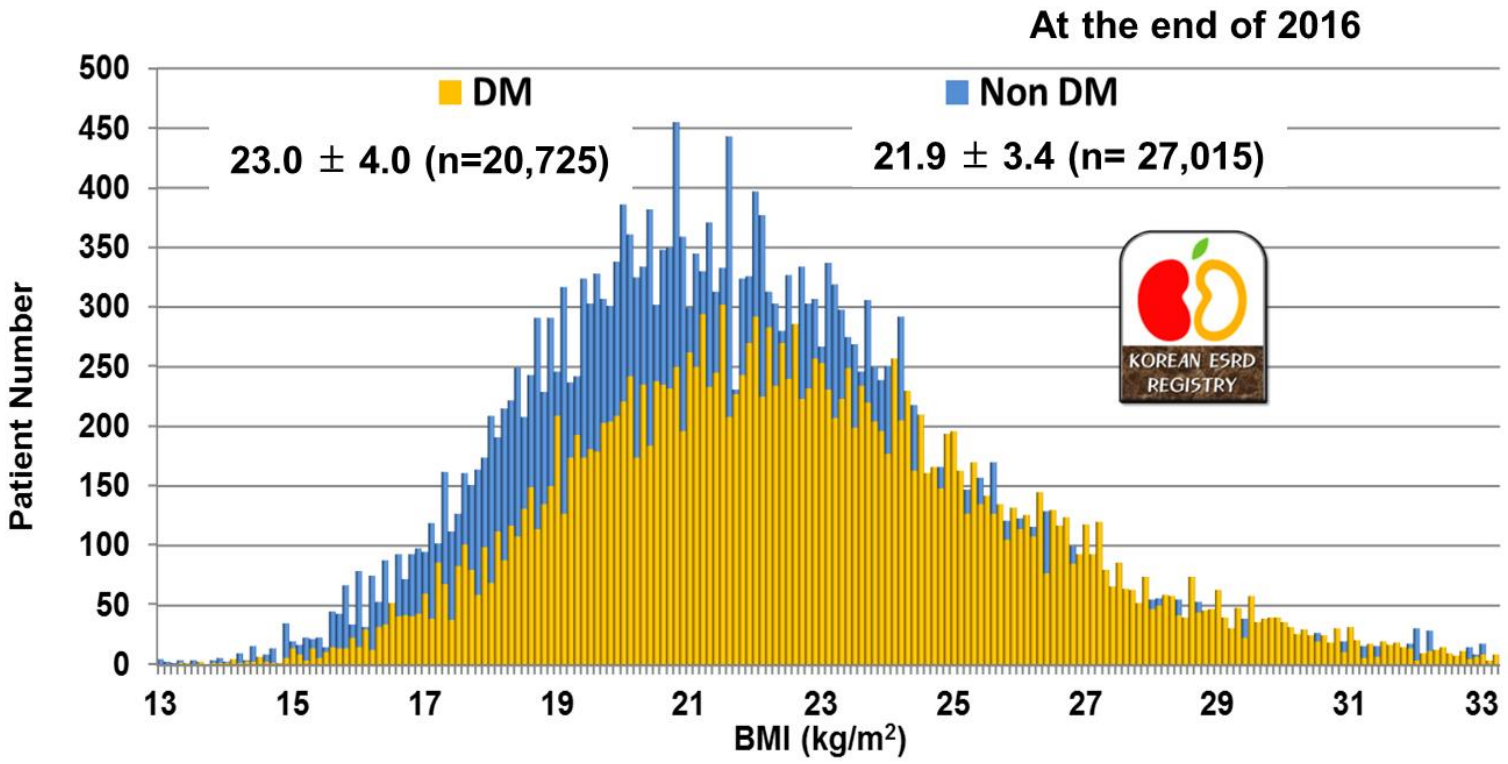
Dialysis Center Type (%), DM & Non-DM



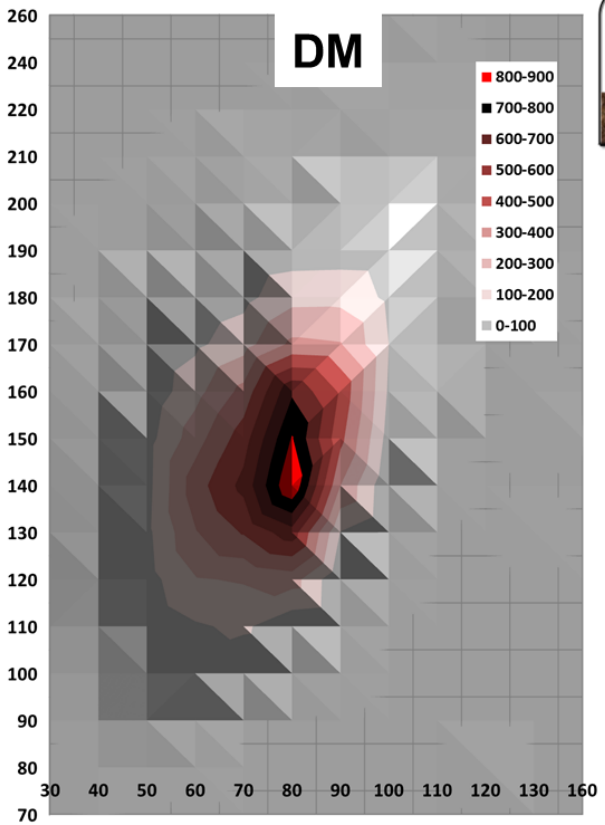
Duration of Dialysis, DM & Non-DM



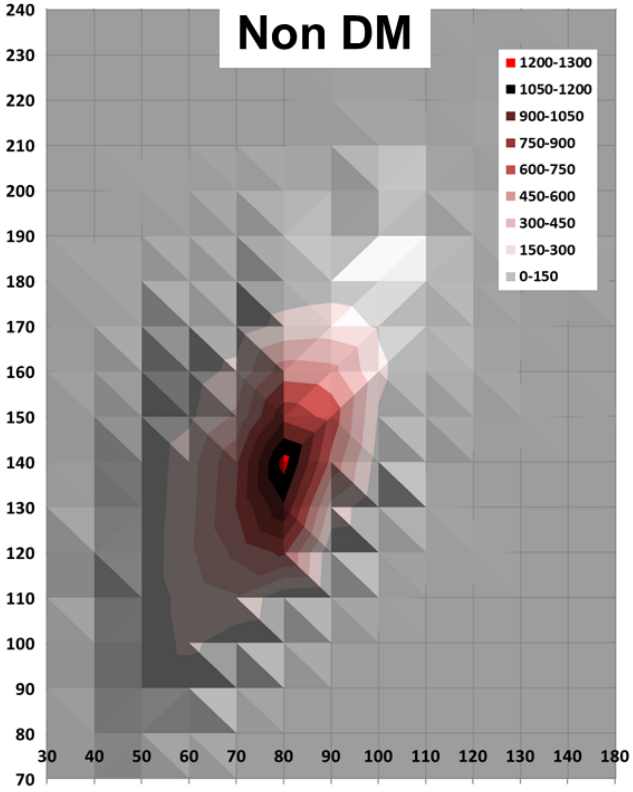
BMI, DM & Non-DM


At the end of 2016
DM
Non DM
23.0 ± 4.0 (n=20,725)
21.9 ± 3.4 (n= 27,015)
KOREAN ESRD REGISTRY
Patient Number
500
450
400
350
300
250
200
150
100
50
0
13
15
17
19
21
23
25
27
29
31
33
BMI (kg/m²)

BP Distribution, DM & Non-DM

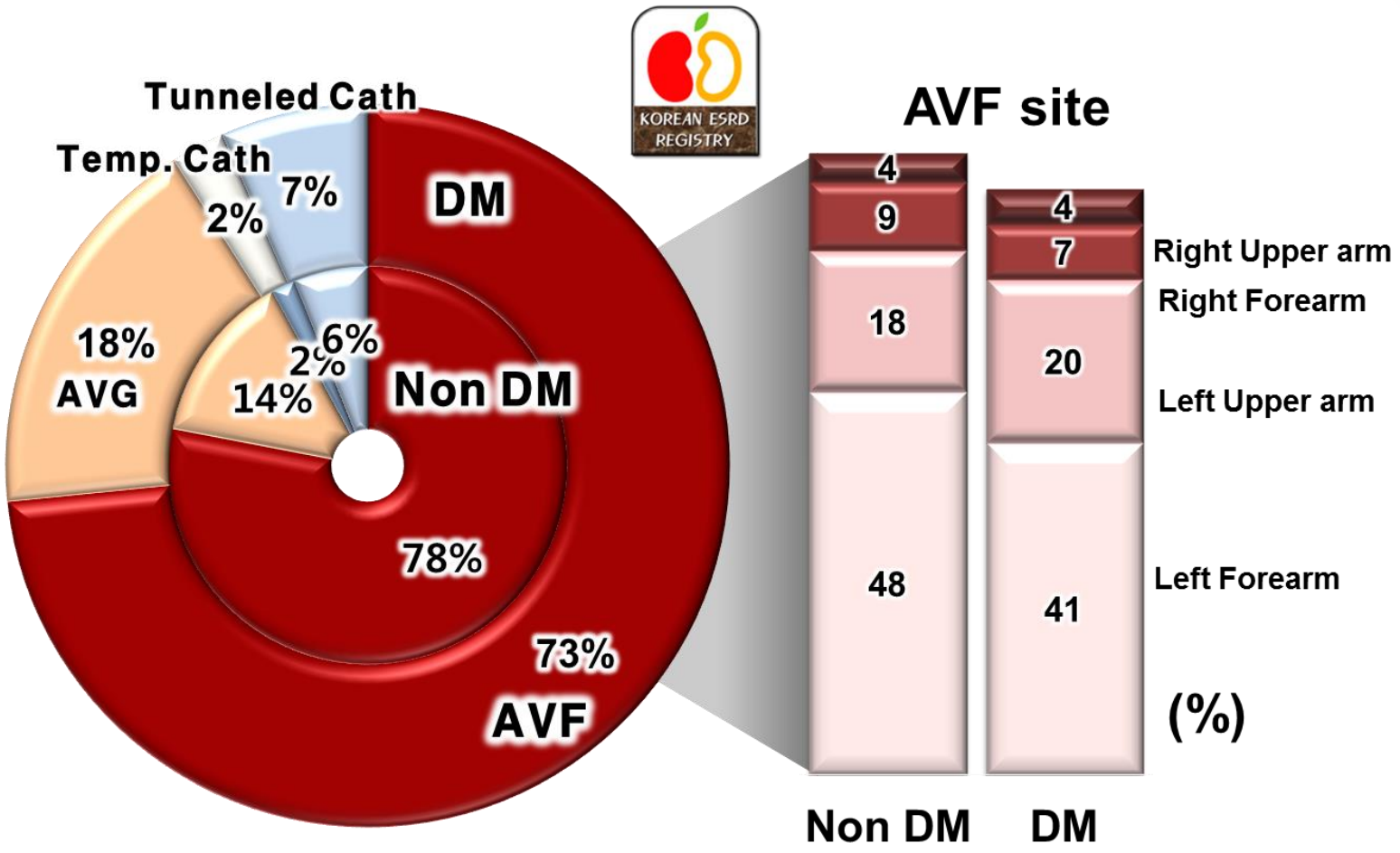


KOREAN ESRD REGISTRY

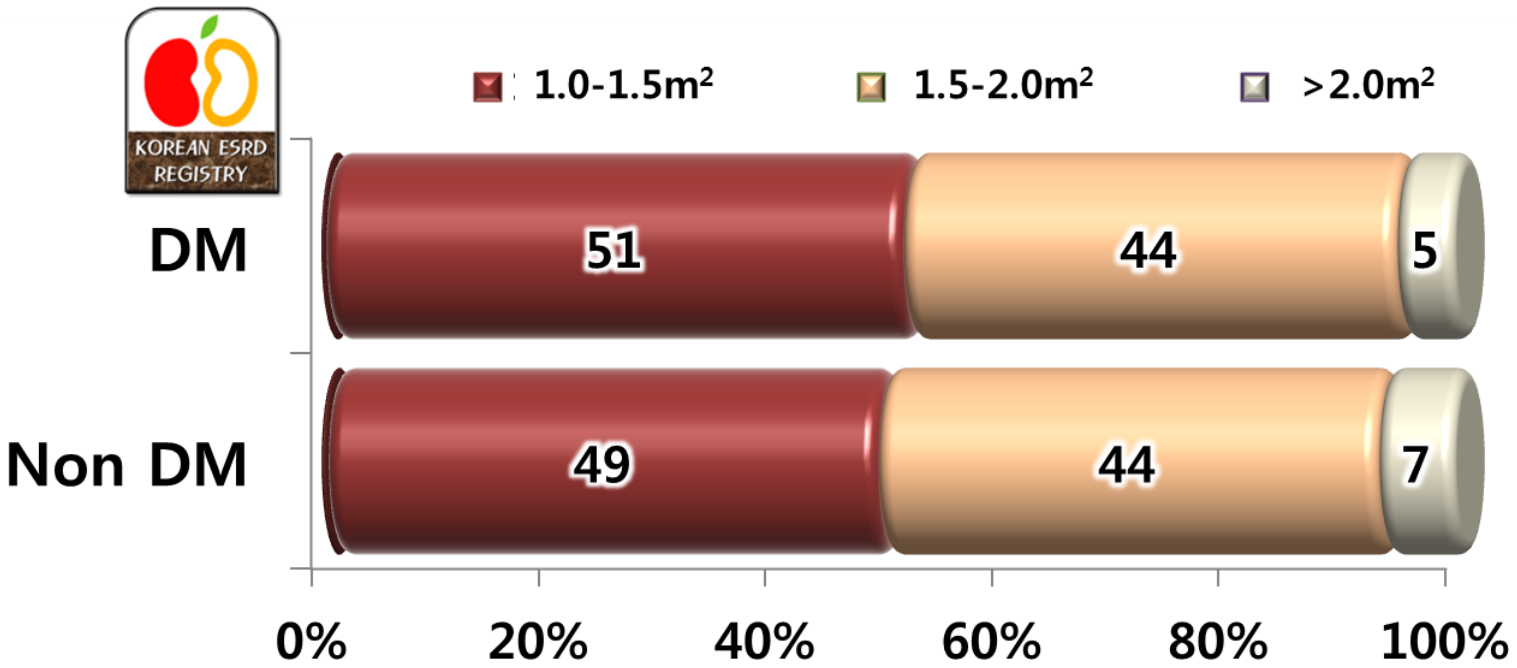


147.9 ± 19.4 mmHg	Systolic BP	140.4 ± 19.5 mmHg
76.3 ± 12.3 mmHg	Diastolic BP	77.8 ± 12.2 mmHg
71.5 ± 18.2 mmHg	Pulse pressure	62.6 ± 16.7 mmHg
(n= 10,541)		(n= 12,370)

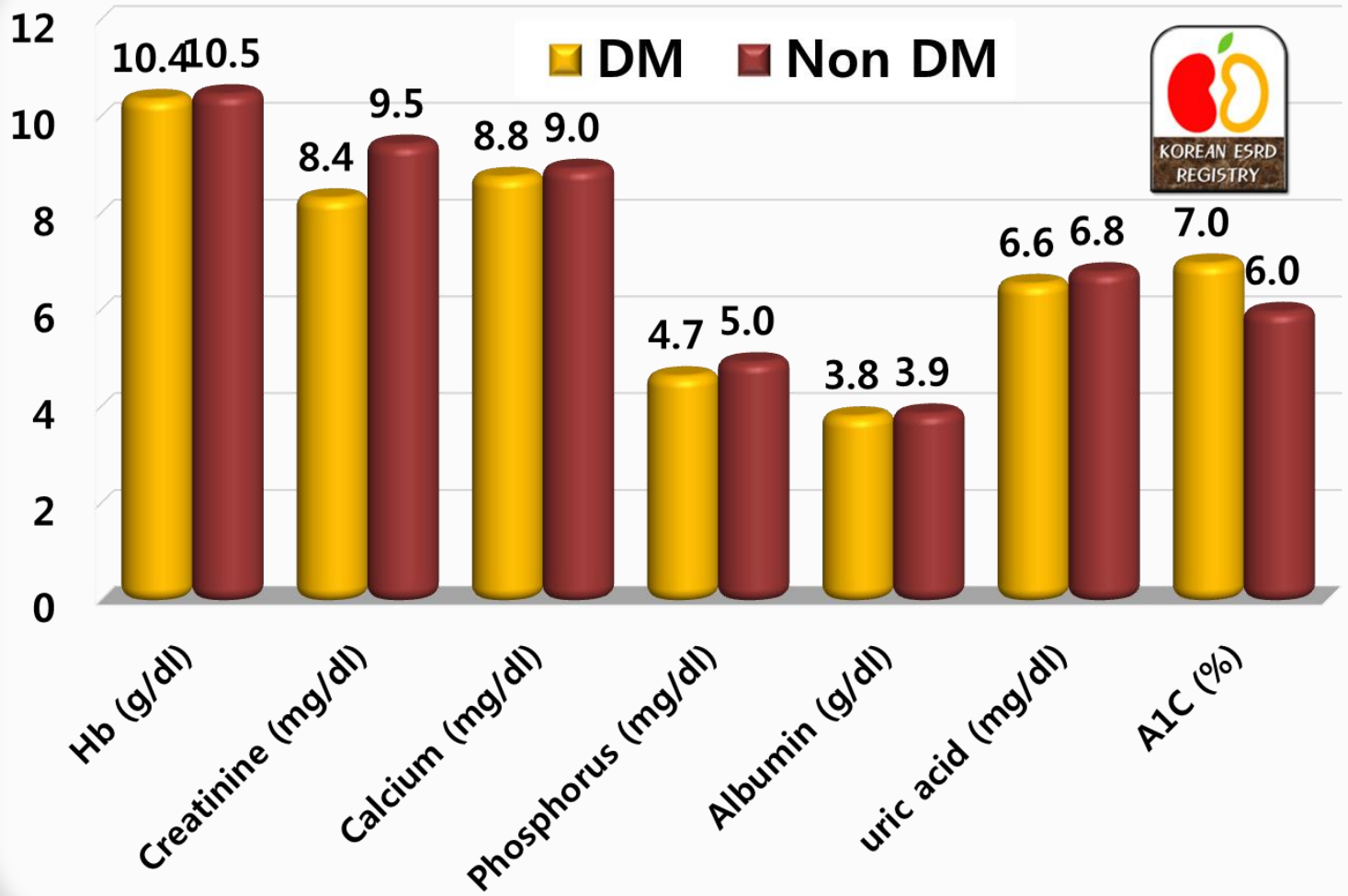
Vascular Access, DM & Non-DM



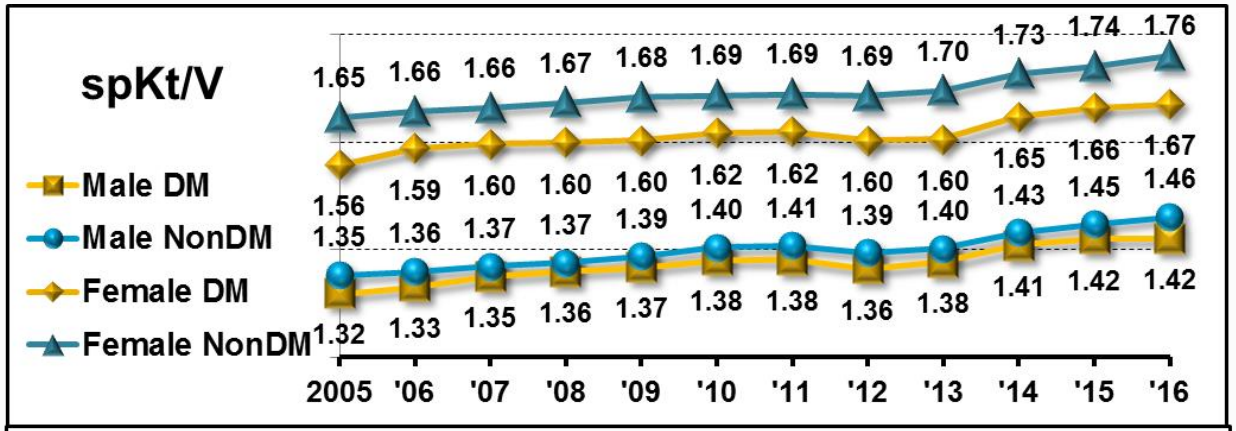
Dialyzer Surface Area, DM & Non-DM

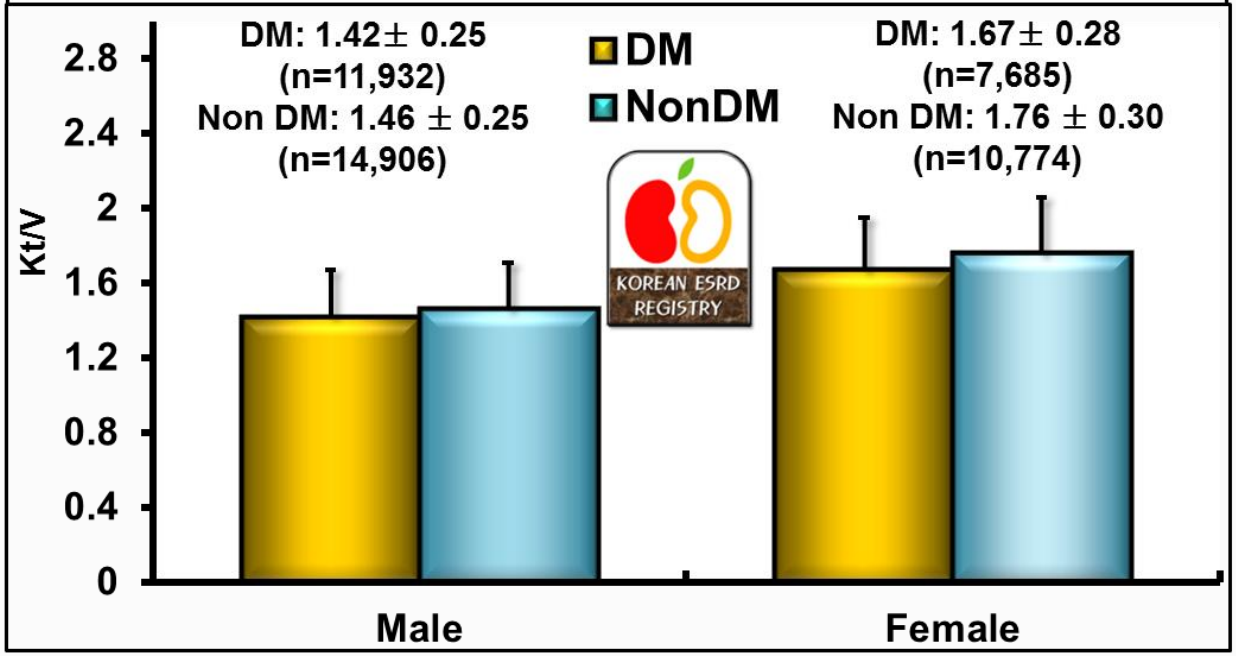


Lab Data: DM & Non-DM

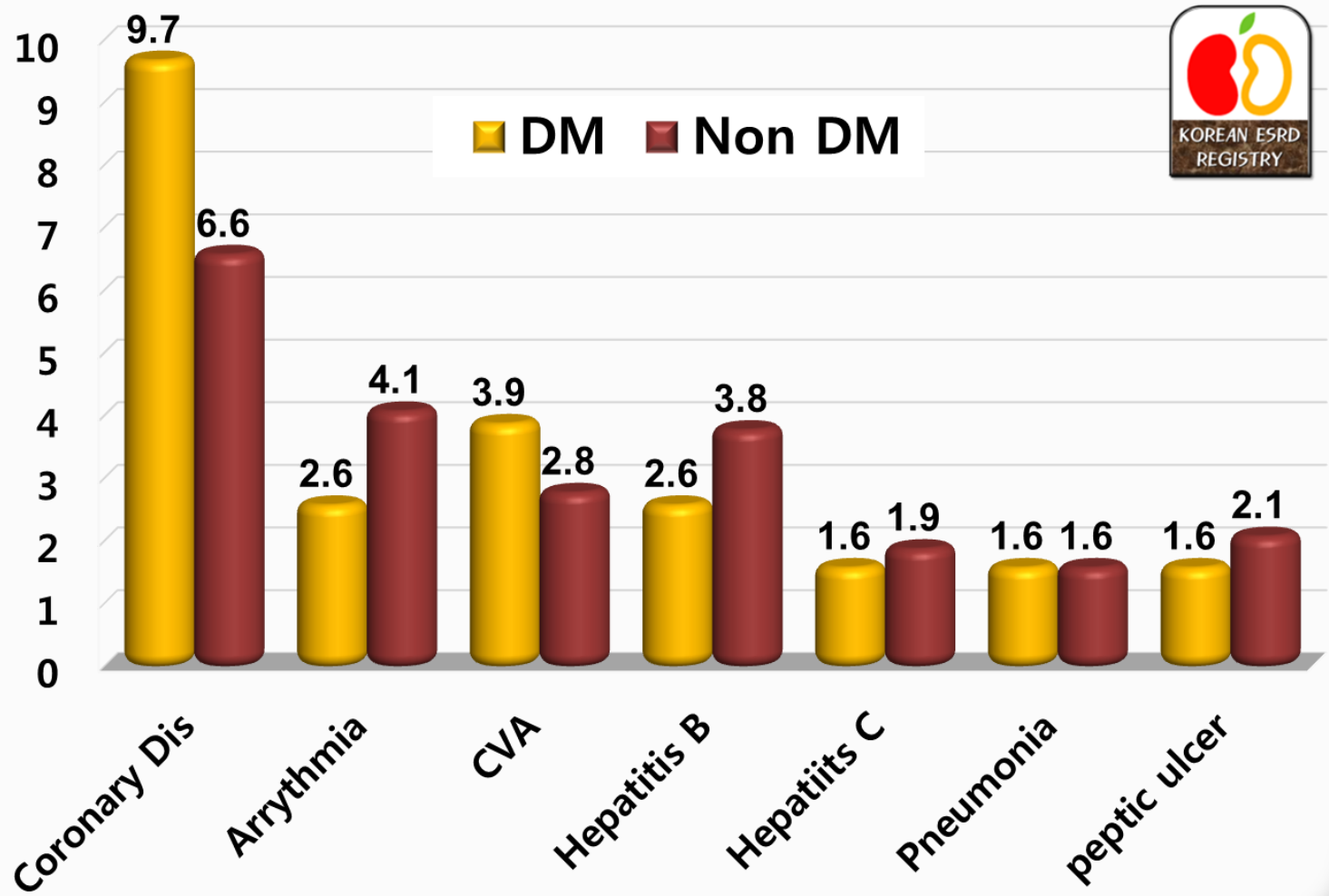


HD Adequacy: DM & Non-DM

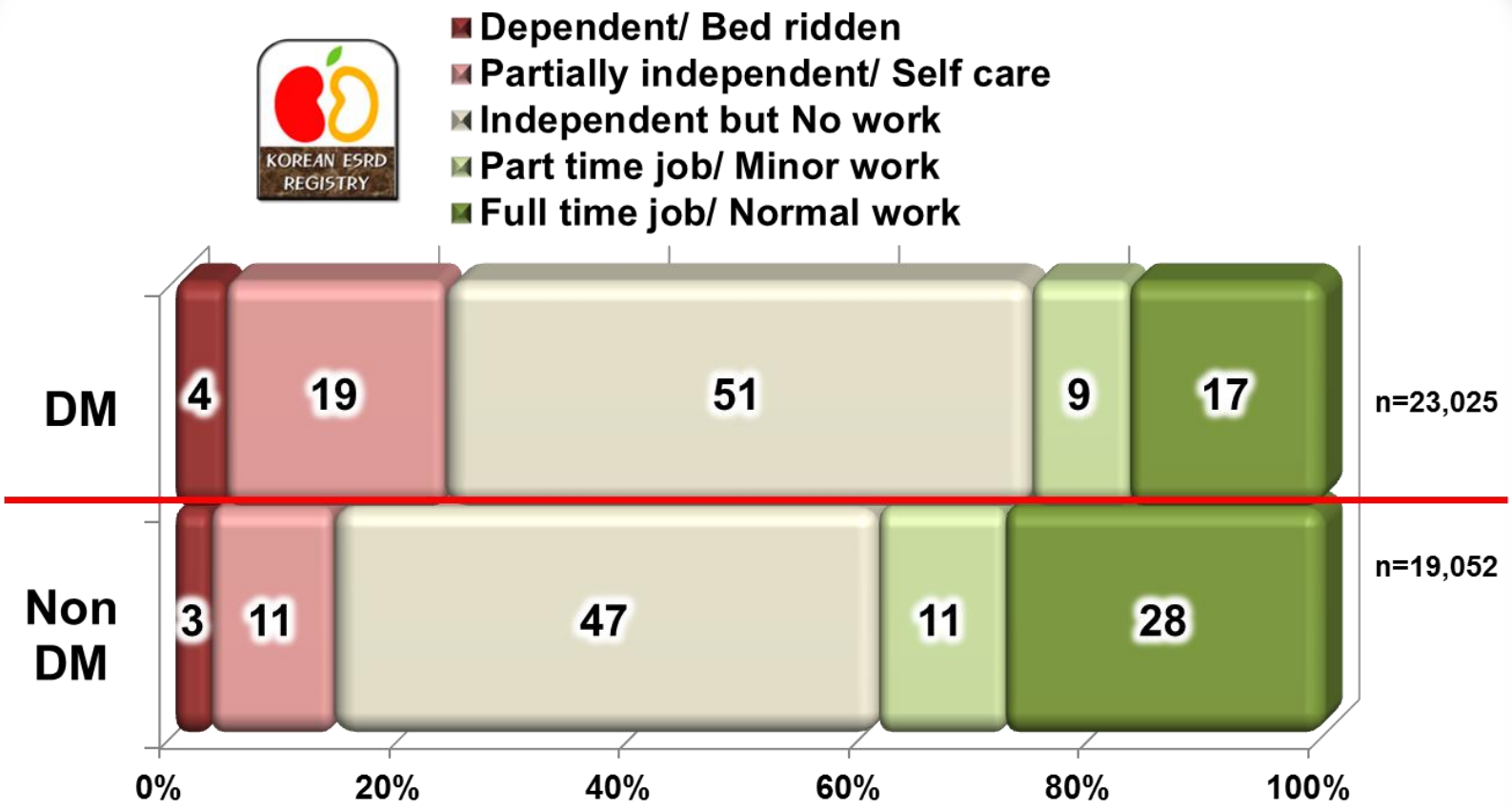




Co-Morbid Prevalence: DM & Non-DM



Rehabilitation : DM & Non-DM



특 징 요 약

- 전체 투석환자 및 혈액투석기관수의 계속적 빠른 증가
- 비윤리 의료기관 존재, 요양병원 증가, 등록률 감소
- 복막투석의 감소 및 혈액투석 비율의 증가, 꾸준히 증가하는 신장이식.
- 원인 신질환에서 당뇨병성 신증의 비율 높게 유지
- 혈액투석 효율 점진적 향상, 혈압저하
- 당뇨환자 비율이 꾸준히 증가하고 있으며 투석 효율이나 전신상태가 나쁘지 않은 편이나 생존기간과 재활비율은 낮음.

감사의 글

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

  (Baxter Korea, FMC Korea)