우리나라 신대체 요법의 현황

– 인산 민병석 교수 기념 말기 신부전 환자 등록사업 2010 –

Current Renal Replacement Therapy in Korea

-Insan Memorial Dialysis Registry 2010-

KOREAN ESRD REGISTRY

대한신장학회 등록위원회

ESRD Registry Committee, Korean Society of Nephrology

Oct. 2011

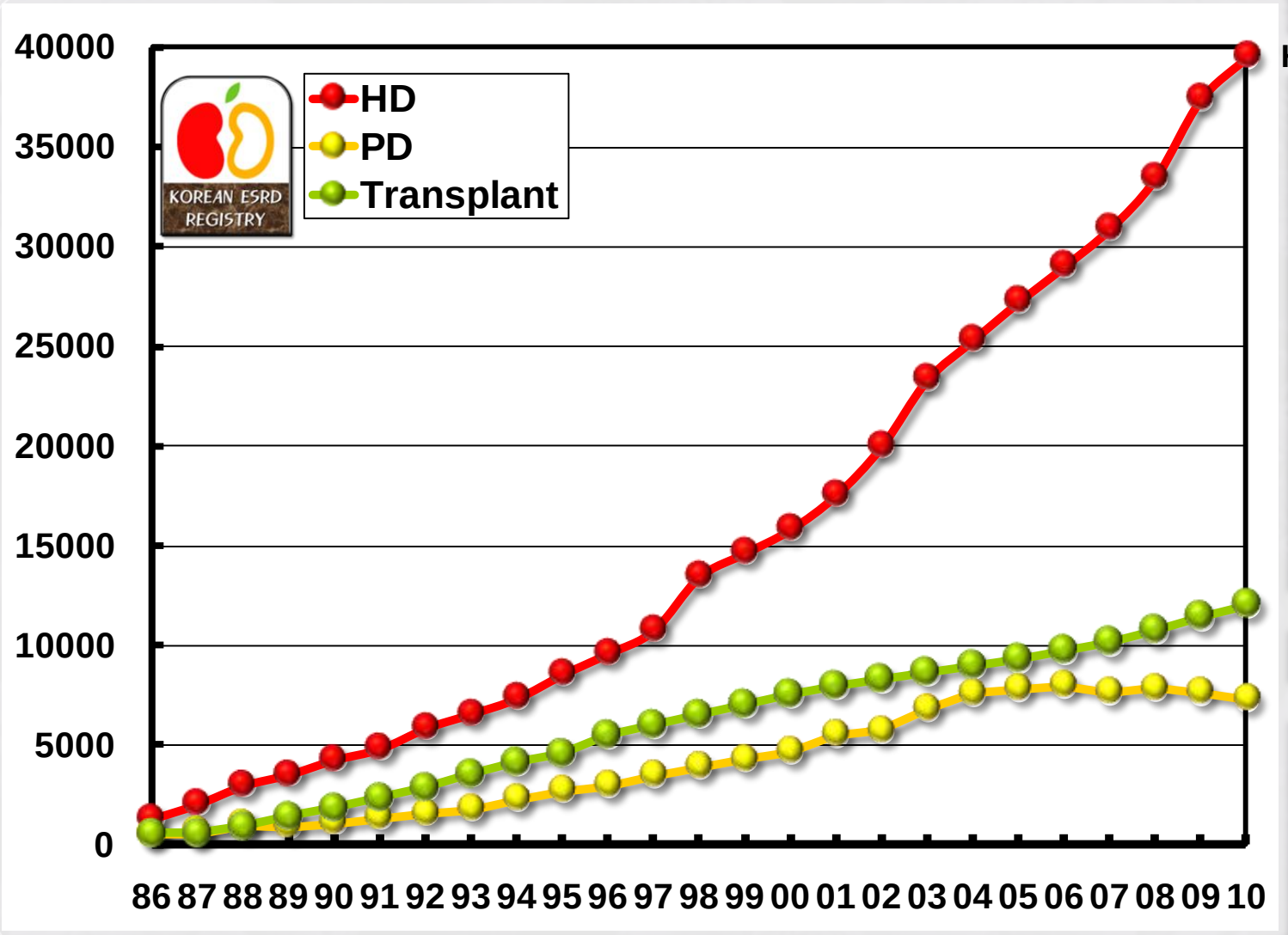
KOREAN ESRD REGISTRY

Prevalence of Renal Replacement Therapy

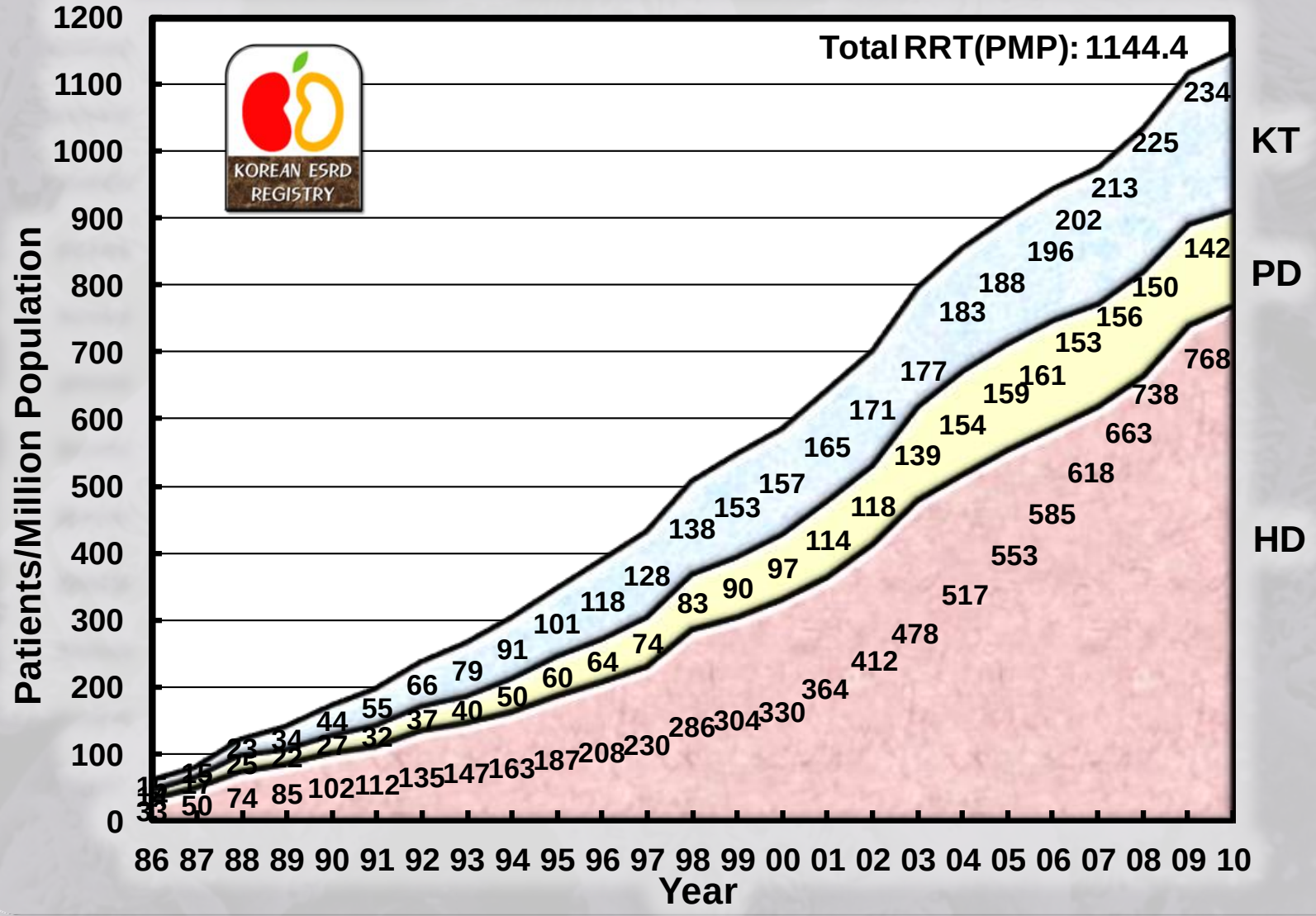
Year	HD		PD		Transplant		Total	
1986	1,335	(32.6)	573	(13.9)	621	(15.1)	2,534	(61.7)
1988	3,012	(74.0)	1,058	(25.2)	982	(23.4)	5,142	(122.7)
1990	4,311	(101.8)	1,130	(26.7)	1,866	(44.1)	7,307	(172.6)
1992	5,890	(135.3)	1,599	(36.7)	2,862	(65.8)	10,351	(237.8)
1994	7,387	(162.7)	2,284	(50.3)	4,116	(90.6)	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)

( ): number of patients per million population, Population in Korea at the end of 2010: 51,434,583.

Patient Number of RRT



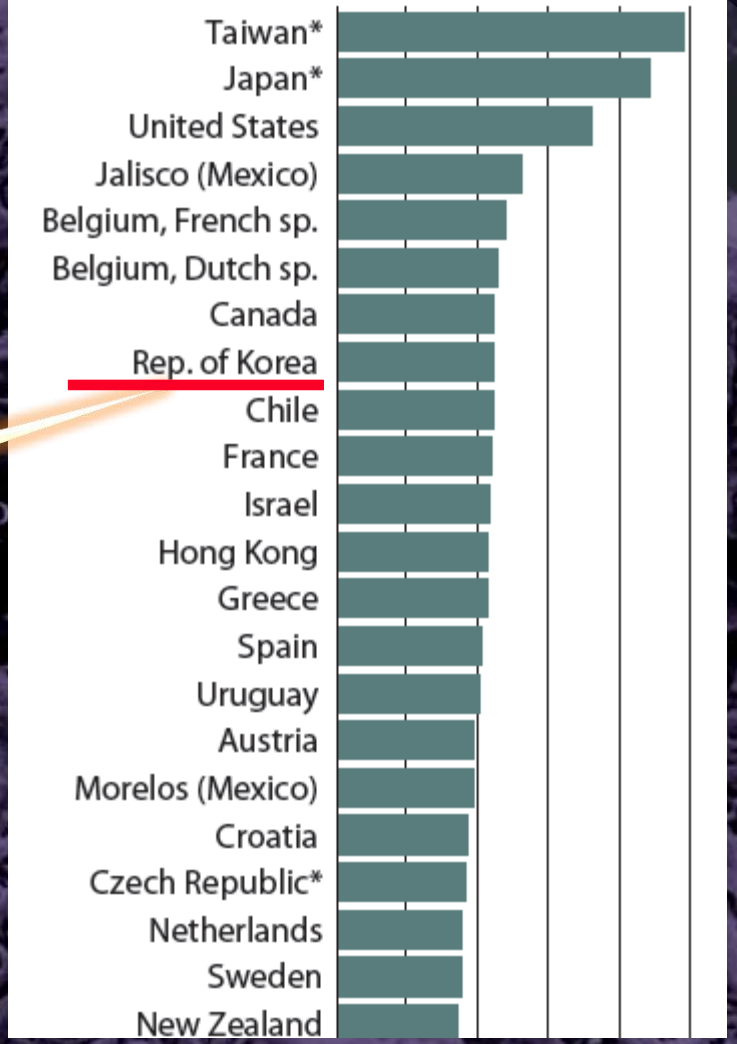
Point Prevalence of RRT

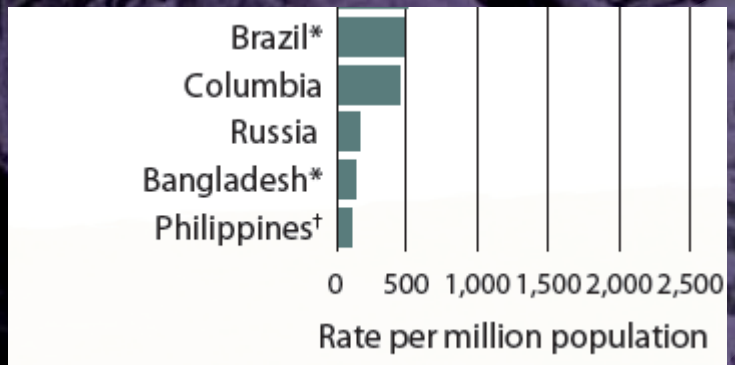


KOREAN ESRD REGISTRY

Prevalence of ESRD

1113.6 PMP
End of 2009





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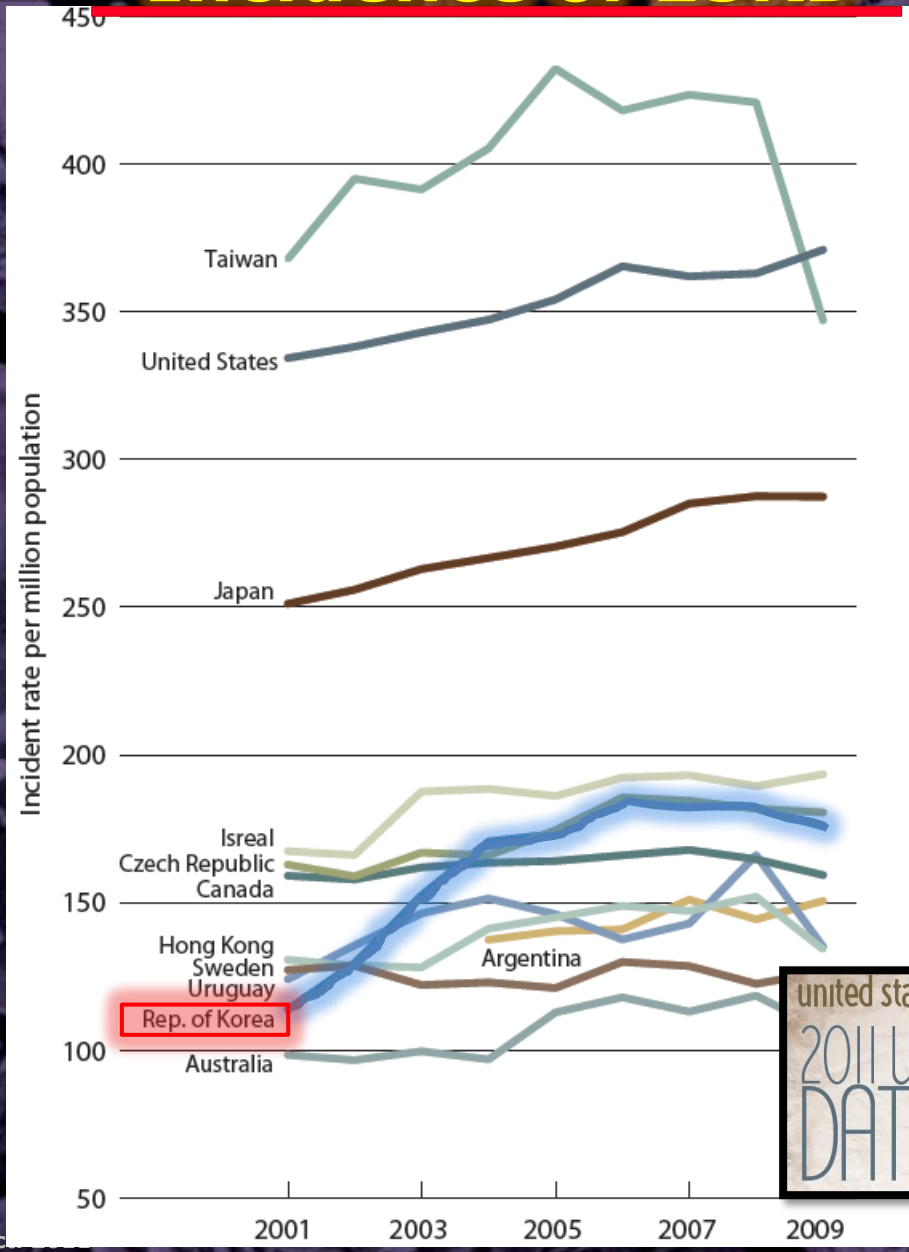
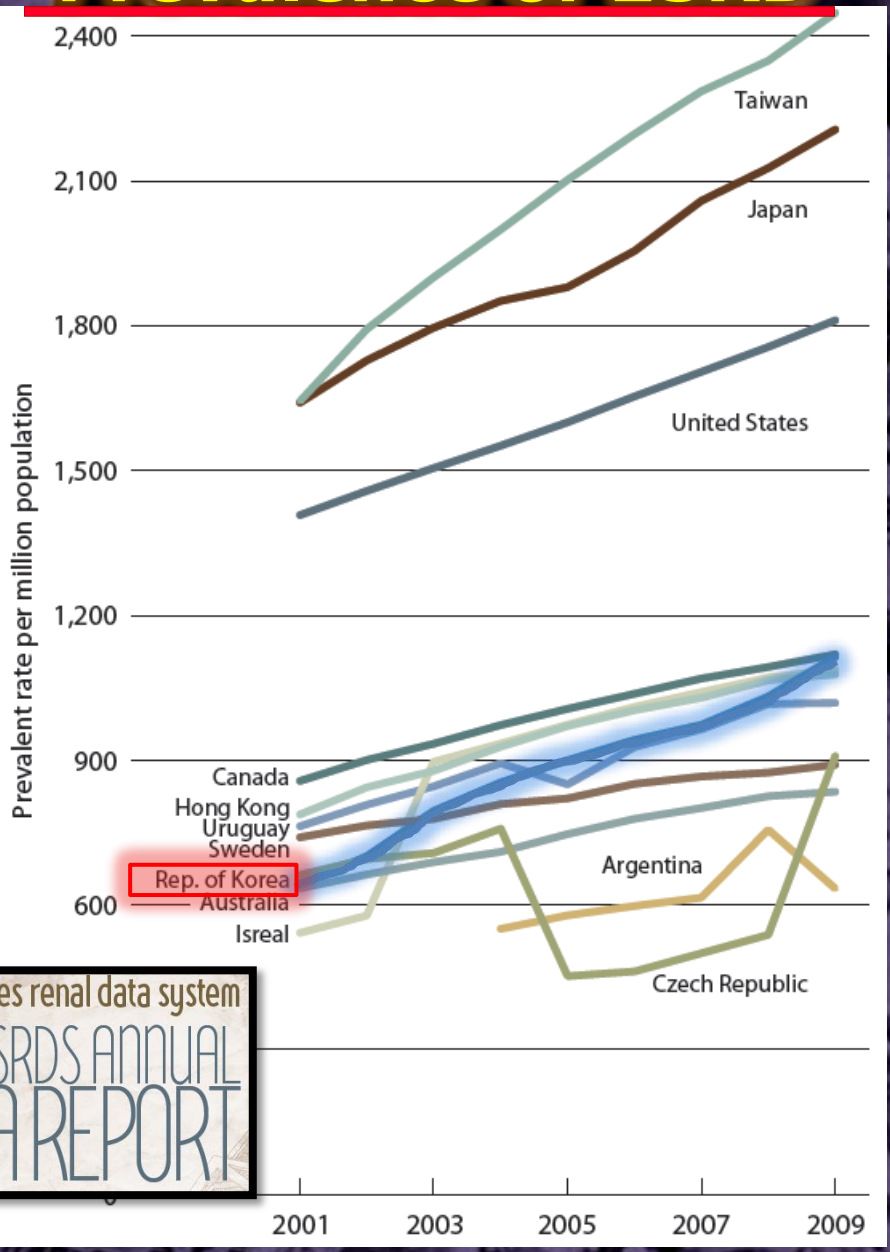
KOREAN ESRD REGISTRY

Incidence of ESRD



Prevalence of ESRD



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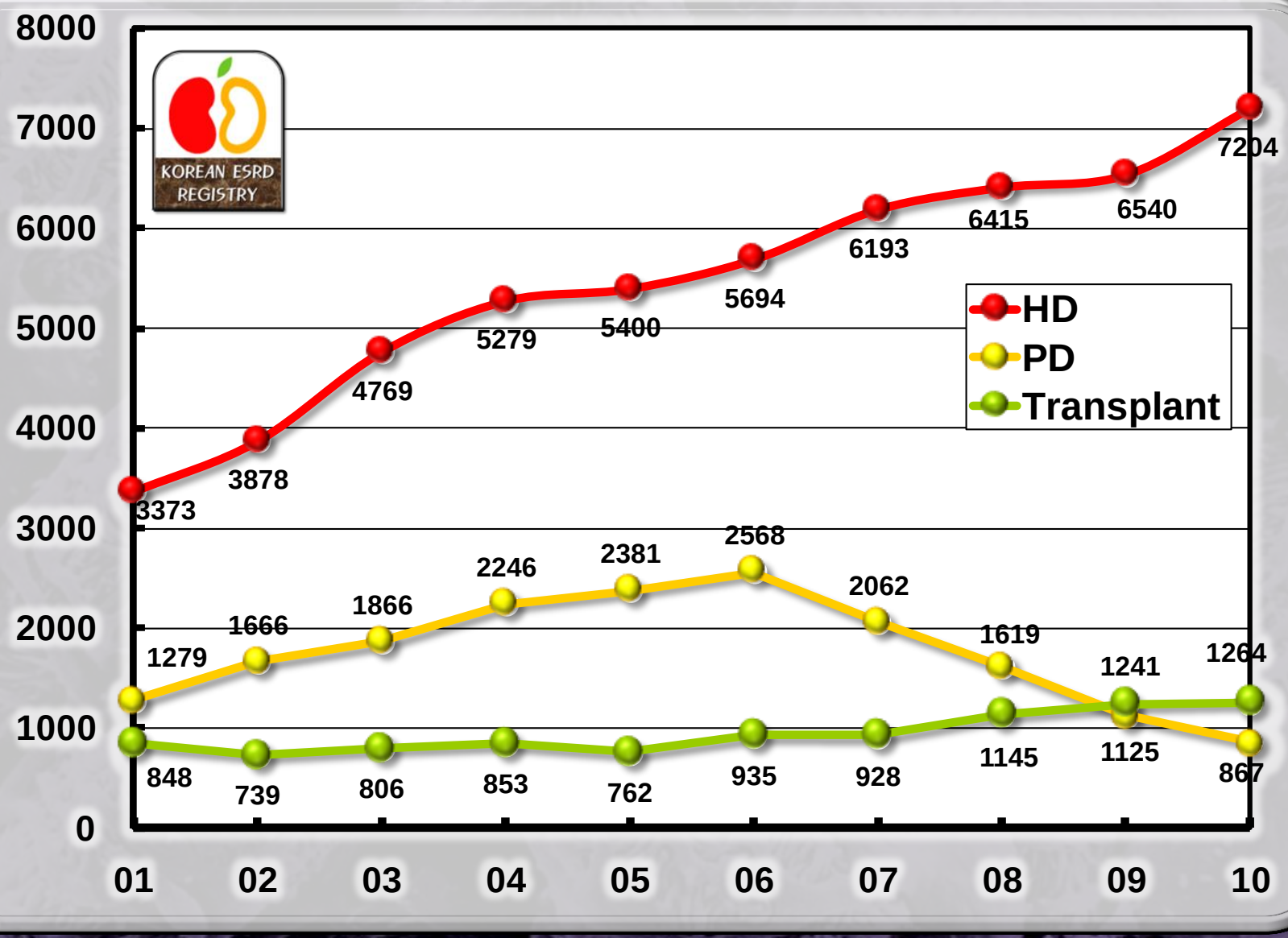
KOREAN ESRD REGISTRY

Number of New RRT Patients

Year	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)

( ): number of patients per million population (Population in Korea at the end of 2010: 51,434,583)

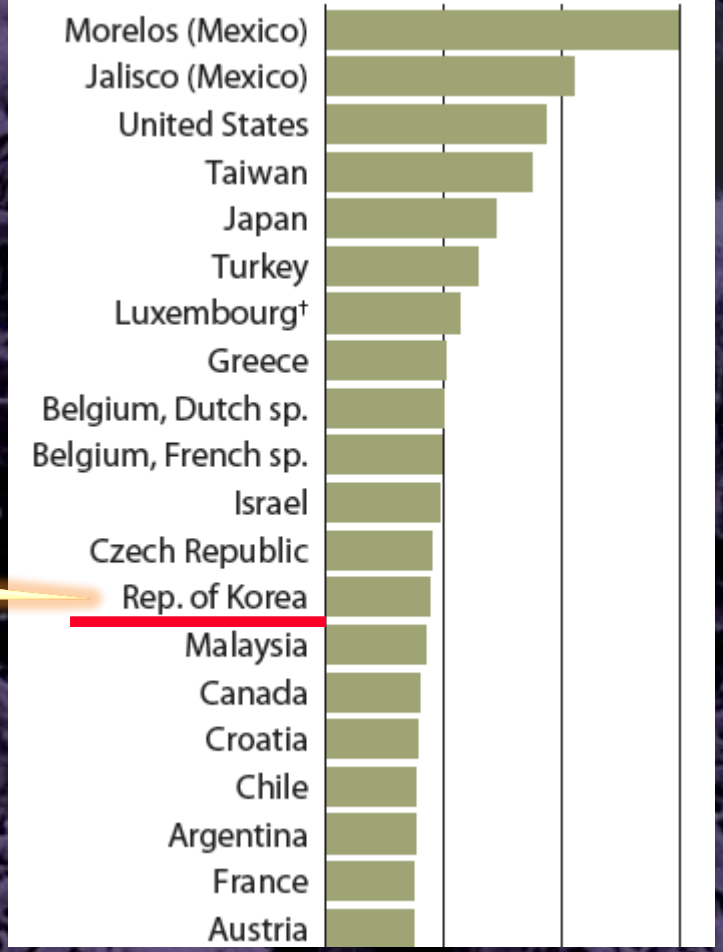
Number of New RRT Patients

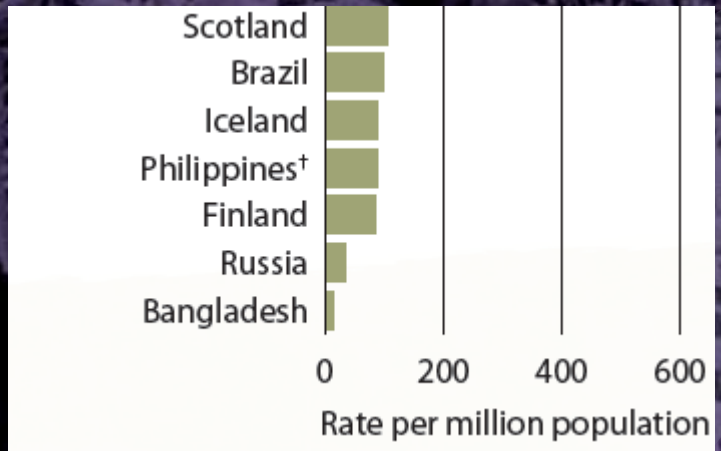


KOREAN ESRD REGISTRY

Incidence of ESRD

175.9 PMP
End of 2009





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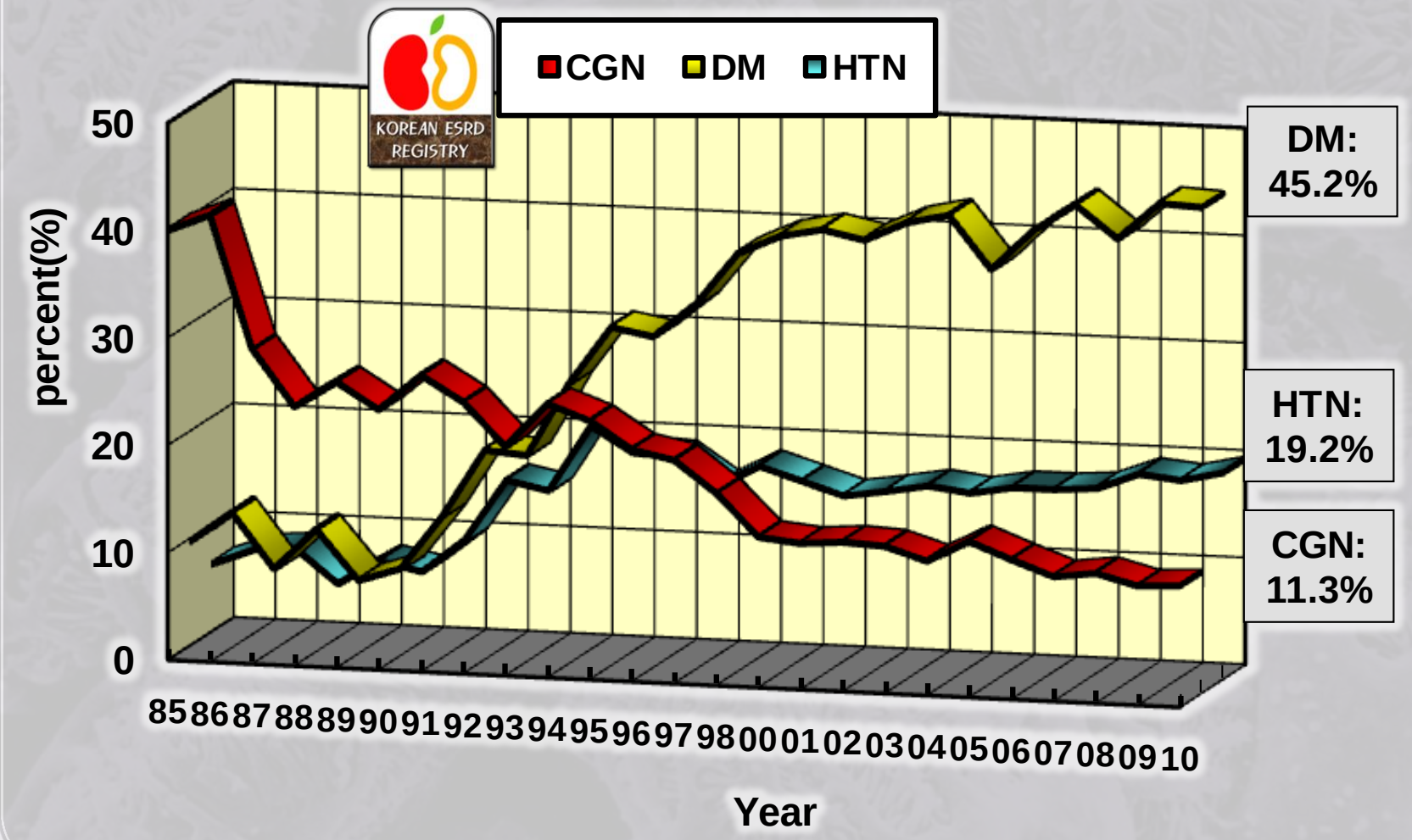
KOREAN ESRD REGISTRY

Causes of ESRD in New Patients

Causes	Percent (%)											
	1992	1994	1996	1998	2000	2002	2004	2006	2007	2008	2009	2010*
Chronic Glomerulonephritis	25.3	25.5	21.6	17.9	14	13.9	12.5	13	11.6	12.1	11.1	11.3
Not Histologically confirmed	19.7	20.4	16.7	13.6	10.6	10	8.6	9	8.3	8.2	7.5	7.7
Histologically confirmed	5.6	5	4.9	4.3	3.4	3.9	3.9	3.9	3.3	3.8	3.6	3.6
Diabetic nephropathy	19.5	26.1	30.8	38.9	40.7	40.7	43.4	42.3	44.9	41.9	45.4	45.2
Hypertensive nephrosclerosis	15.4	20.8	18.3	17.8	16.6	16	16.2	16.9	17.2	18.7	18.3	19.2
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	1.7
Renal tuberculosis	1.1	1.5	1.2	0.5	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.2
Pyelo/interstitial nephritis	1.3	1.1	0.7	1	0.8	0.6	0.6	0.6	0.5	0.5	0.5	0.4
Drugs or nephrotoxic agents	1.3	0.1	0.6	0.3	0.3	0.4	0.2	0.3	0.2	0.3	0.3	0.3
Lupus nephritis	0.8	0.7	1	0.5	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.5
Gouty nephropathy	0.7	0.7	0.6	0.5	0.7	0.4	0.5	0.3	0.3	0.3	0.3	0.4
Hereditary nephropathy	0.3	0.7	0.4	0.2	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.2
Kidney tumor	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.2
Other	4.1	2.7	2.8	3.9	3	5.6	5.9	6	5.1	5.8	5.2	5.1
Uncertain	28.6	17.8	15.9	16.6	20.2	19	17.8	17.5	17.2	17.6	16.0	15.3

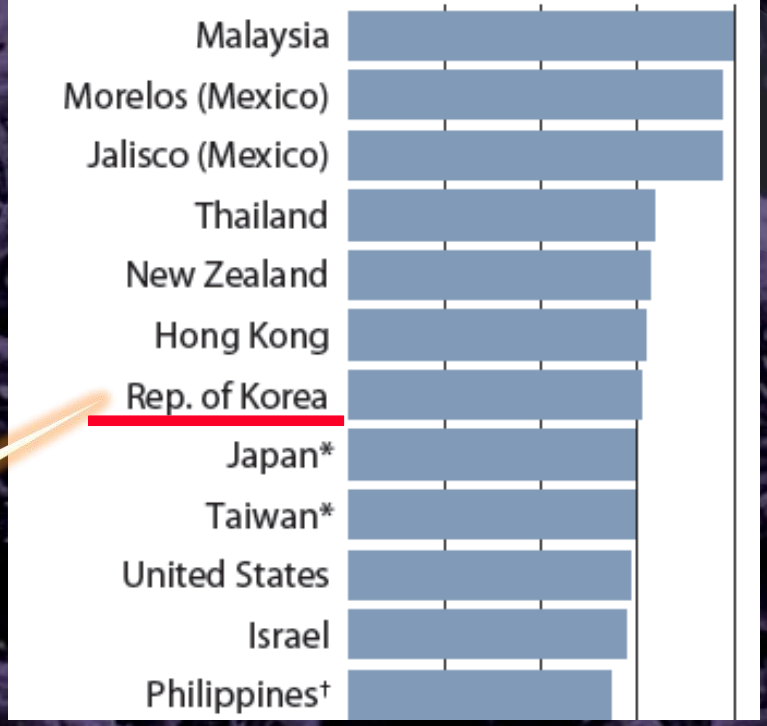
Three Major Causes of ESRD

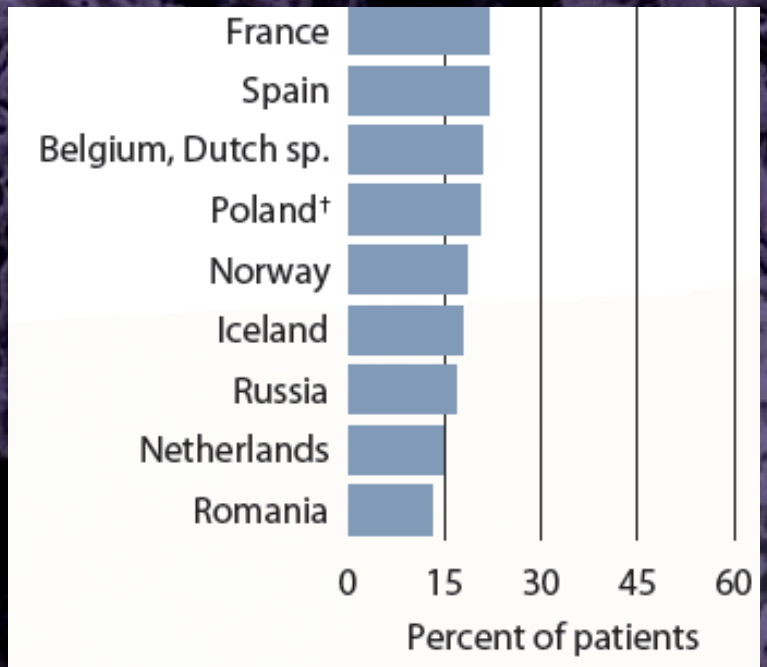


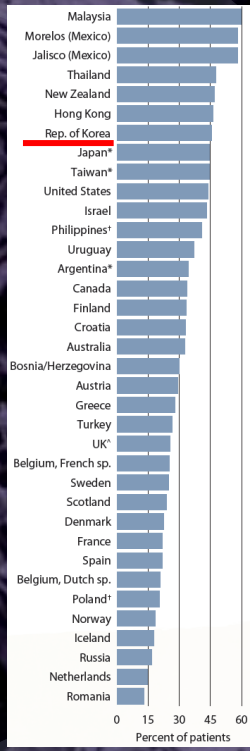
KOREAN ESRD REGISTRY

Diabetic ESRD

45.4%
in 2009







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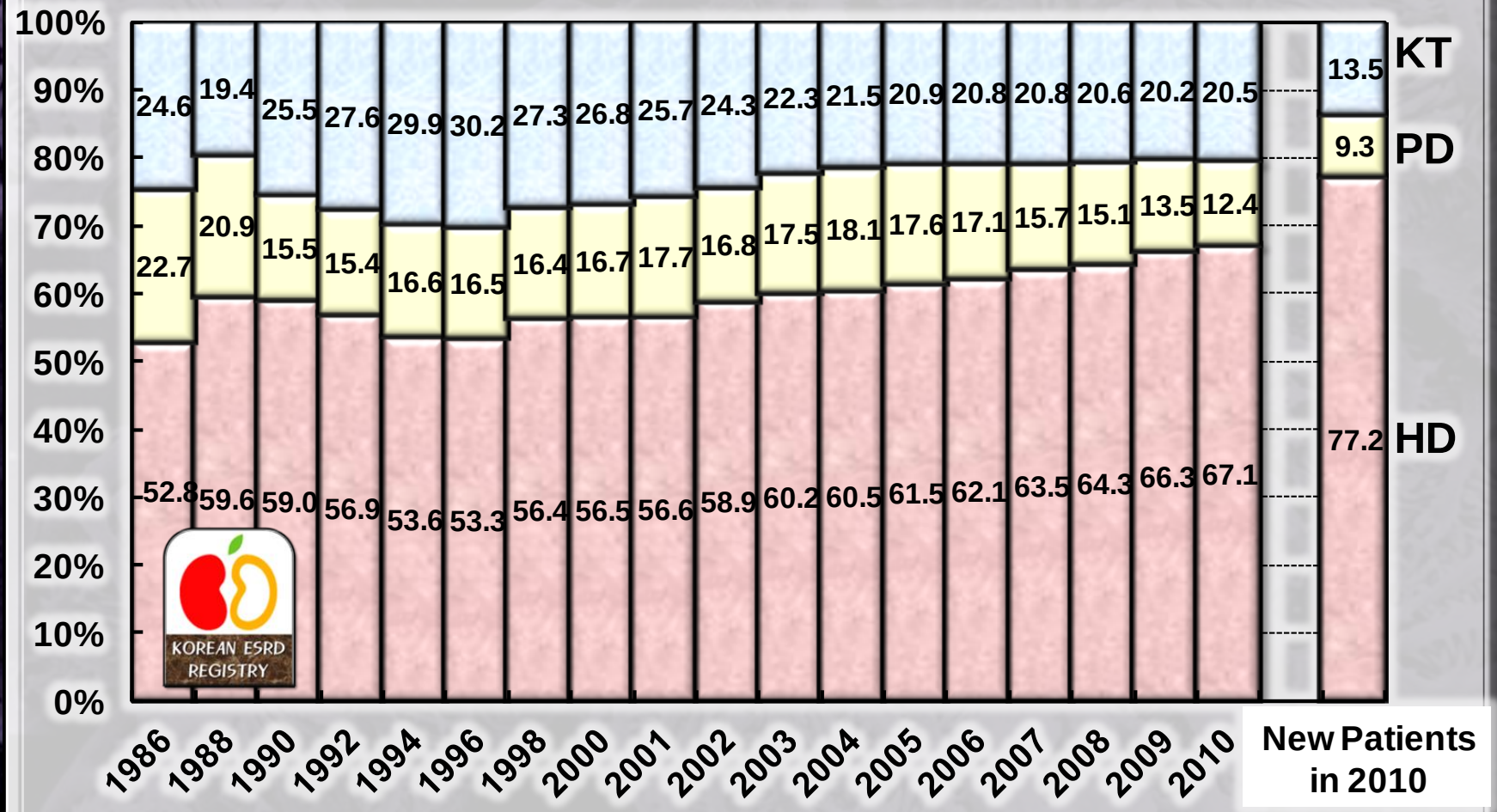
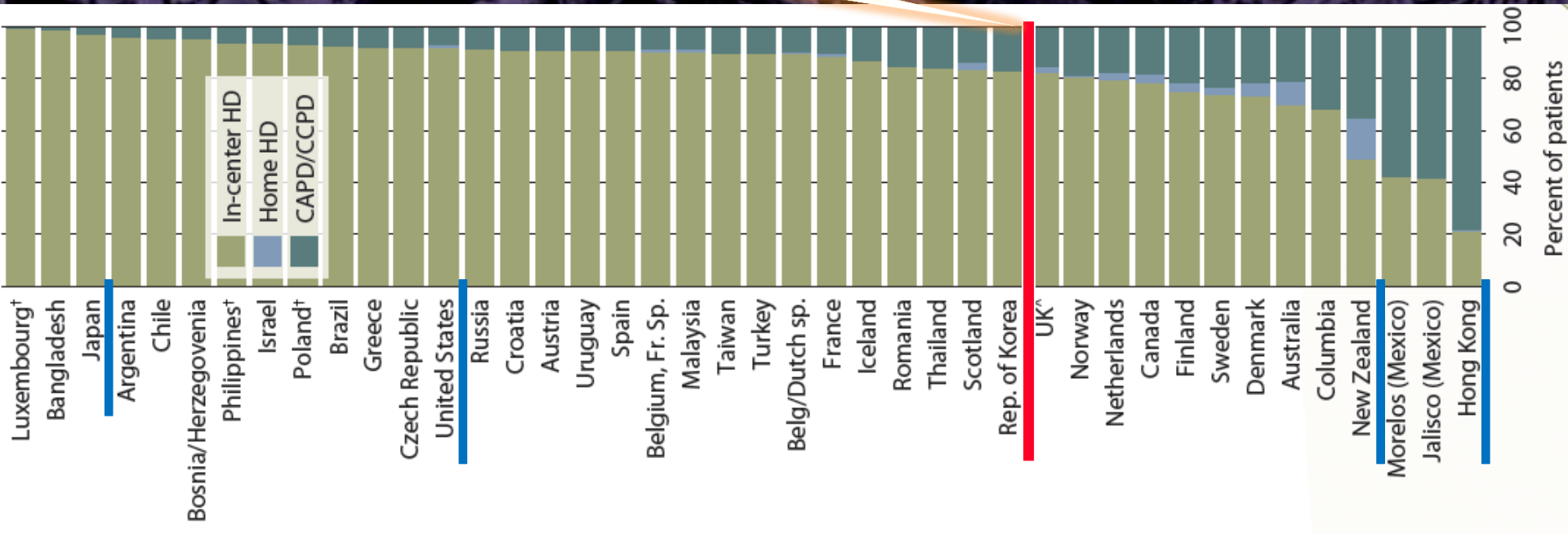
Proportion of RRT Modalities



KOREAN ESRD REGISTRY

Percent Distribution of Dialysis Modalities

HD:PD = 83.1% : 16.9%
End of 2009



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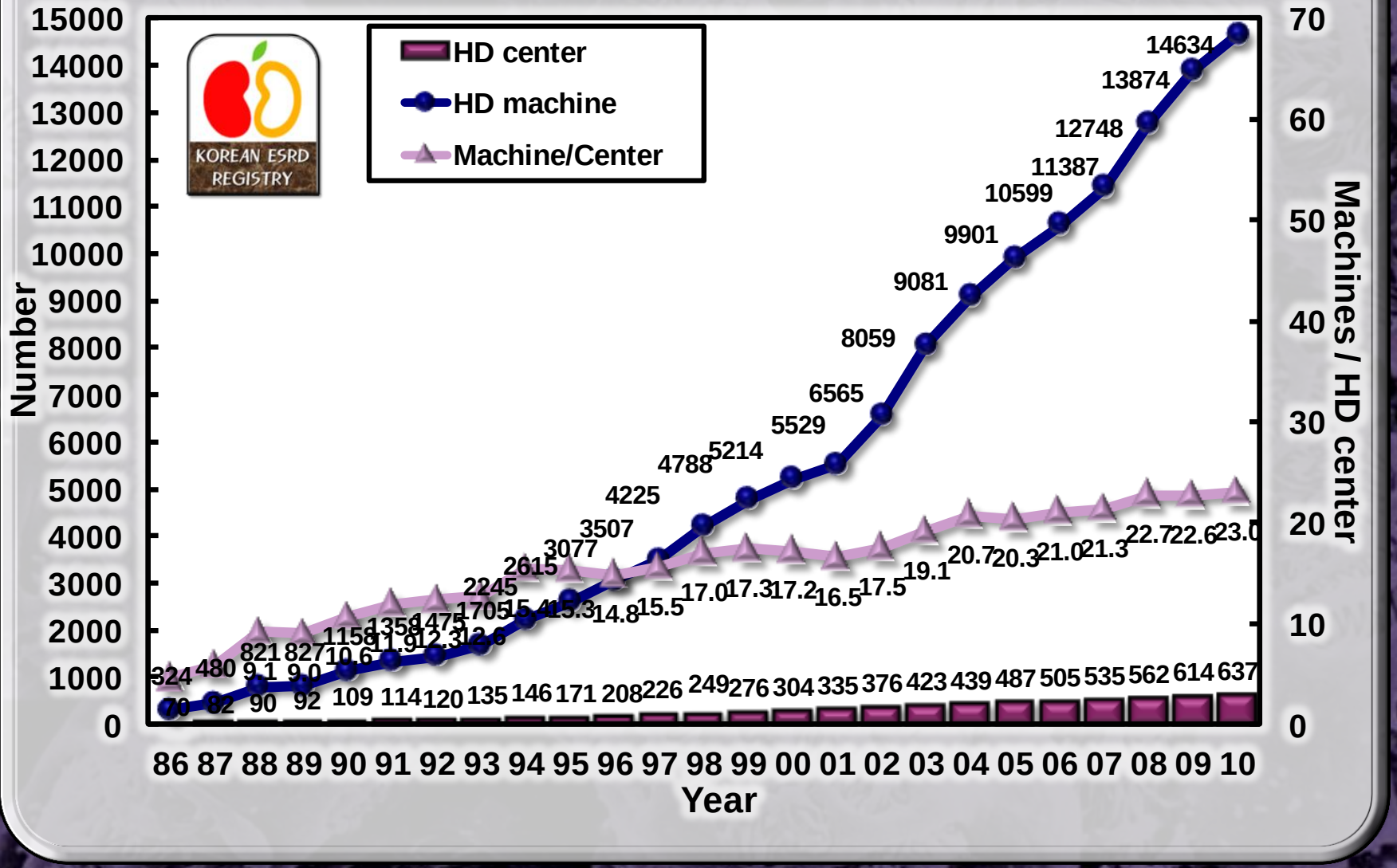
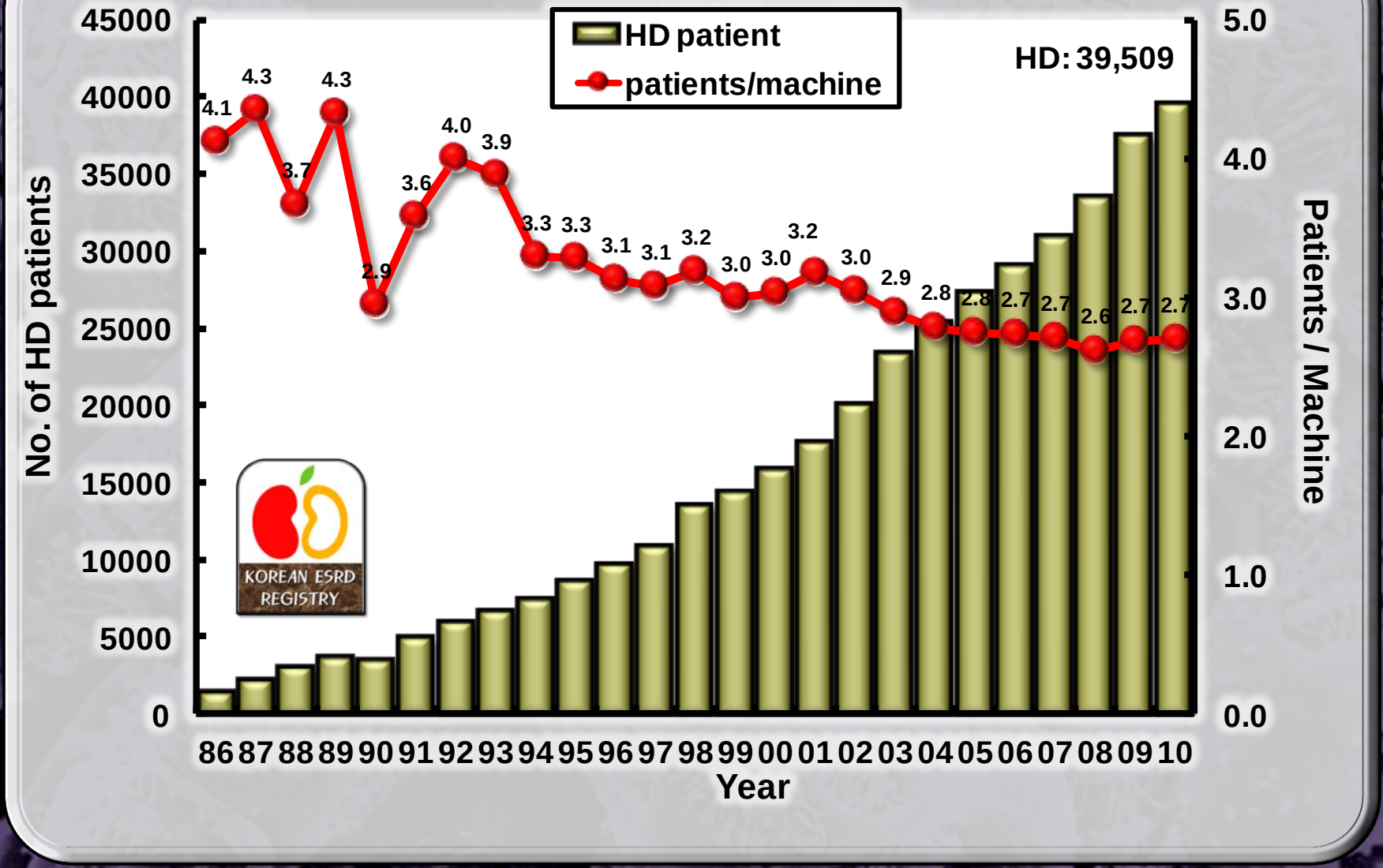
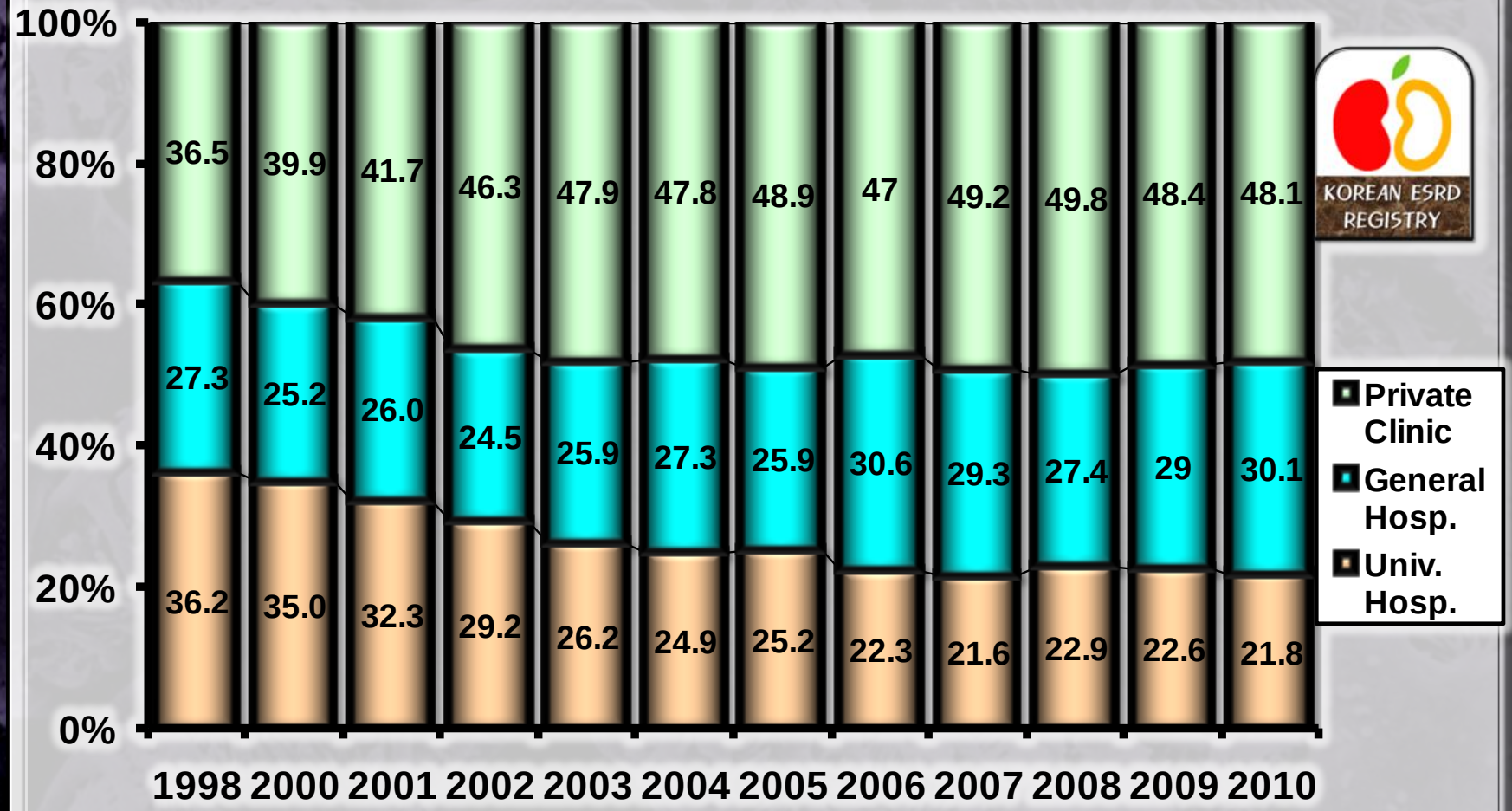
Number of HD Centers & HD Machines



Ratio of HD Machine & HD Patients



HD Pts Proportion of Dialysis Center Type



행정구역별 투석환자 및 혈액투석기 분포

(2010년 12월말 기준)

	HD pts	PD pts	Total Dialysis pts	Dialysis pts. / Million pop.	Dialysis Centers	HD machines	HD pts./ HD machine
서울 Seoul	9,046	2,547	11,593	1,096	139	3,323	2.7
부산 Busan	3,146	746	3,892	1,081	47	1,169	2.7
대구 Daegu	2,487	652	3,139	1,240	36	827	3.0
인천 Incheon	1,925	294	2,219	790	23	608	3.2
광주 Gwangju	1,354	245	1,599	1,089	29	615	2.2
대전 Daejeon	1,305	331	1,636	1,077	19	527	2.5
울산 Ulsan	754	71	825	722	13	281	2.7
경기 Gyeonggi	7,820	1,142	8,962	742	128	3,014	2.6
강원 Gangwon	1,274	284	1,558	1,009	23	487	2.6
충북 Chungbuk	1,288	87	1,375	874	23	499	2.6
충남 Chungnam	1,479	132	1,611	761	29	525	2.8
전북 Jeonbuk	1,723	142	1,865	987	21	549	3.1
전남 Jeonnam	1,190	136	1,326	683	26	558	2.1
경북 Gyeongbuk	1,718	171	1,889	693	30	559	3.1
경남 Gyeongnam	2,417	267	2,684	802	42	911	2.7
제주 Jeju	583	62	645	1,117	9	182	3.2
Total	39,509	7,309	46,818	910	637	14,634	2.7

생활권역별 투석환자 및 혈액투석기 분포

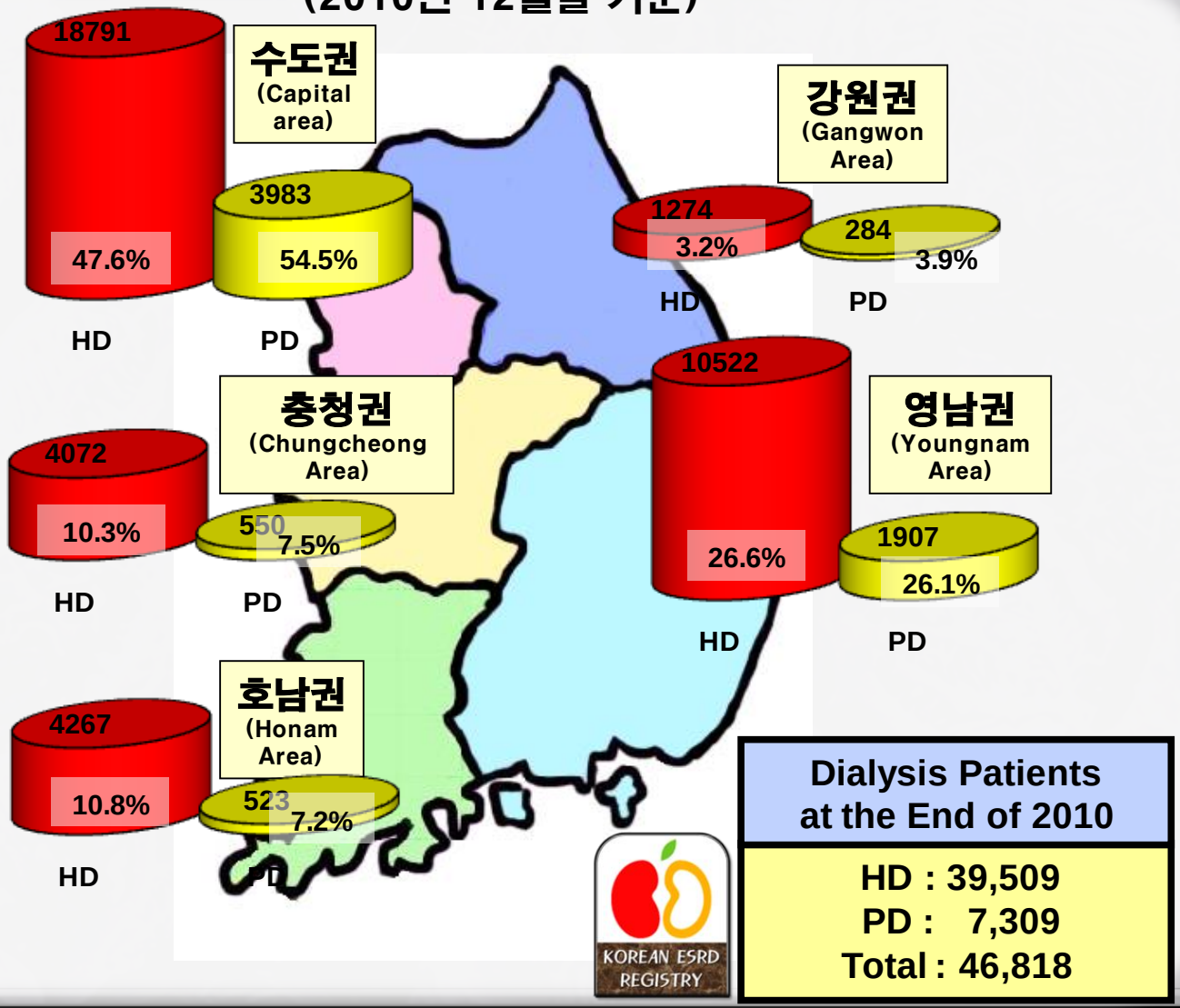
(2010년 12월말 기준)

	Population (%)	HD patients	PD patients	Total Dialysis patients	Dialysis pts /Million pop.	Dialysis centers	Dialysis machine	HD pts / HD machine
수도권 (Capital area)	25,455,619	18,791	3,983	22,774	895	290	6,945	2.7
(Seoul, Incheon, Gyeonggi)	49.5%	47.6%	54.5%	48.6%		45.5%	47.5%	
충청권 (Chungchung)	5,210,788	4,072	550	4,622	887	71	1,551	2.6
(Daejeon, Chungnam, Chungbuk)	10.1%	10.3%	7.5%	9.9%		11.1%	10.6%	
호남권 (Honam)	5,297,566	4,267	523	4,790	904	76	1,722	2.5
(Gwangju, Jeonnam, Jeonbuk)	10.3%	10.8%	7.2%	10.2%		11.9%	11.8%	
영남권 (Youngnam)	13,349,868	10,522	1,907	12,429	931	168	3,747	2.8
(Busan, Daegu, Gyeongnam, Gyeongbuk, Ulsan)	26.0%	26.6%	26.1%	26.5%		26.4%	25.6%	
강원권 (Gangwon)	1,543,555	1,274	284	1,558	1,009	23	487	2.6
	3.0%	3.2%	3.9%	3.3%		3.6%	3.3%	
Total	51,434,583	39,509	7,309	46,818	910	637	14,634	2.7

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

생활권역별 투석환자 및 혈액투석기 분포

(2010년 12월말 기준)



Dialysis Patients at the End of 2010
HD : 39,509
PD : 7,309
Total : 46,818

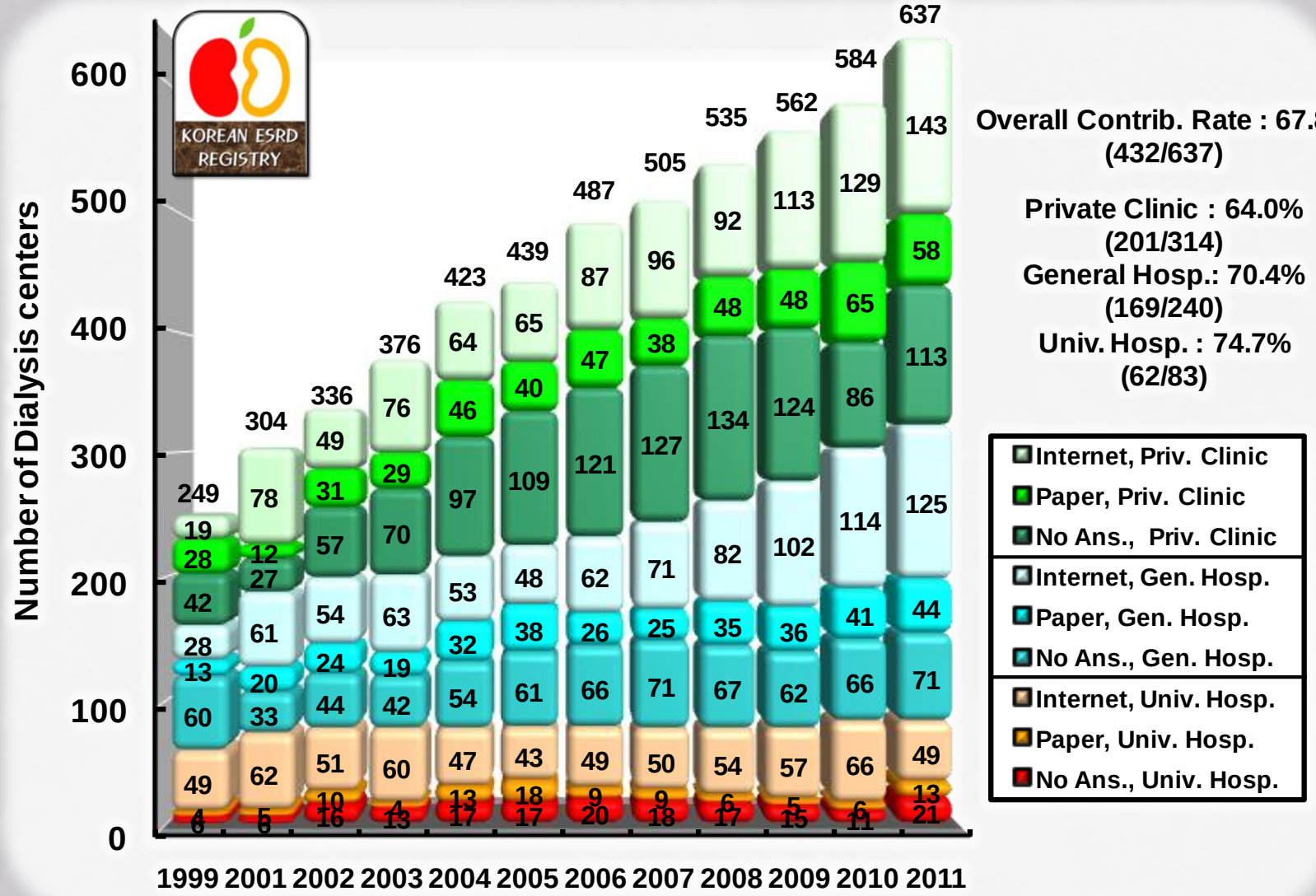
KOREAN ESRD REGISTRY

등록사업에 참여한 의료기관 수 및 응답률

	Dialysis centers*	Internet Input	Paper data	Total contributed center	Contributing rate (%)
서울 Seoul	139	81	24	105	75.5
부산 Busan	47	19	6	25	53.2
대구 Daegu	36	21	6	27	75.0
인천 Incheon	23	10	6	16	69.6
광주 Gwangju	29	16	4	20	69.0
대전 Daejeon	19	7	1	8	42.1
울산 Ulsan	13	5	3	8	61.5
경기 Gyeonggi	128	54	26	80	62.5
강원 Gangwon	23	6	8	14	60.9
충북 Chungbuk	23	13	4	17	73.9
충남 Chungnam	29	12	3	15	51.7
전북 Jeonbuk	21	14	1	15	71.4
전남 Jeonnam	26	11	6	17	65.4
경북 Gyeongbuk	30	18	7	25	83.3
경남 Gyeongnam	42	24	9	33	78.6
제주 Jeju	9	6	1	7	77.8
Total	637	317	115	432	67.8

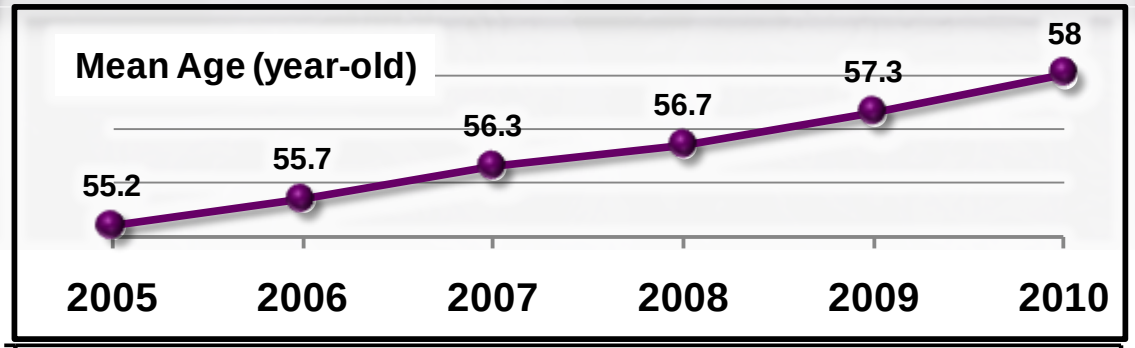
* 투석의료기관에서 비윤리 의료기관(약30개소)은 제외함.

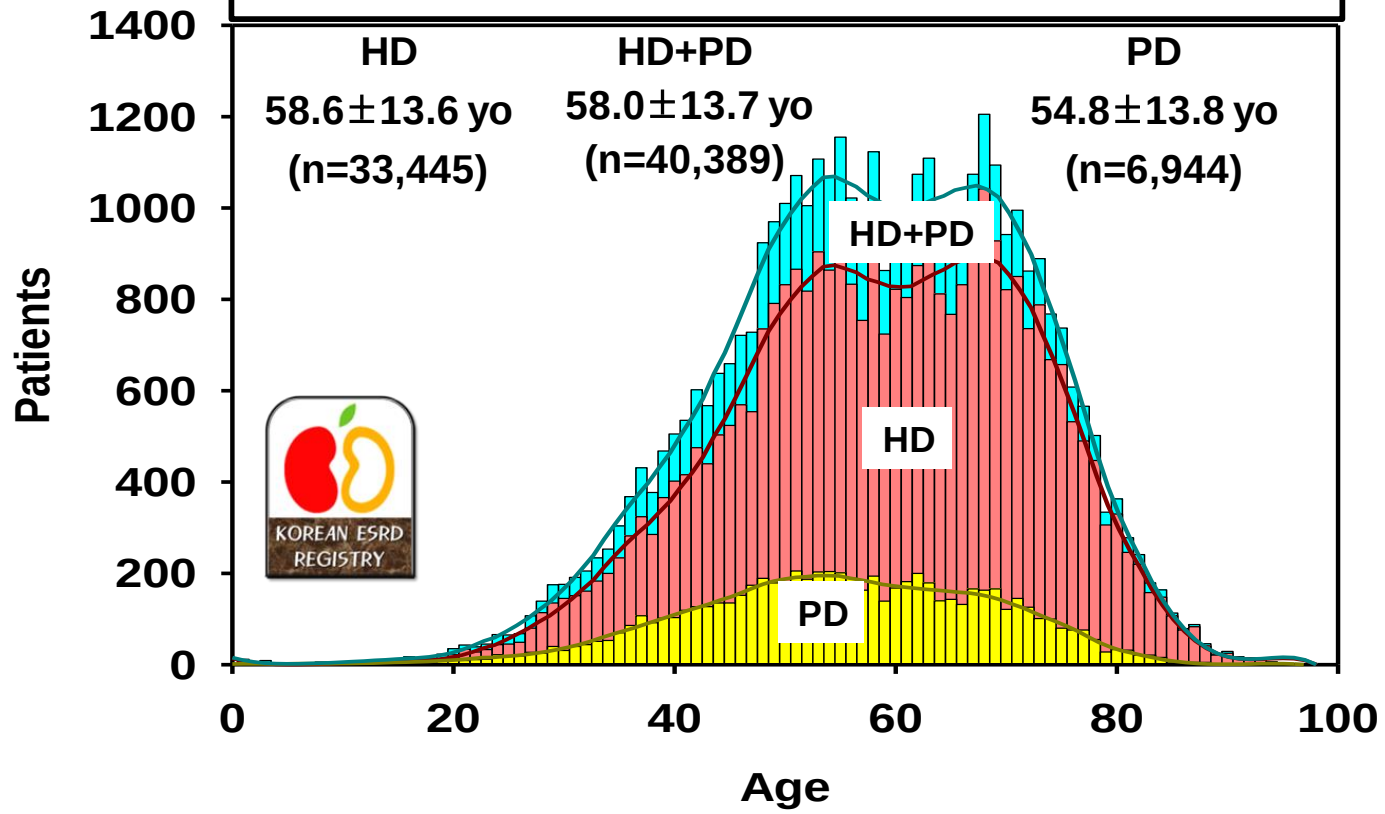
의료기관의 증가와 의료기관별 등록률



Gender Ratio of Dialysis Patients

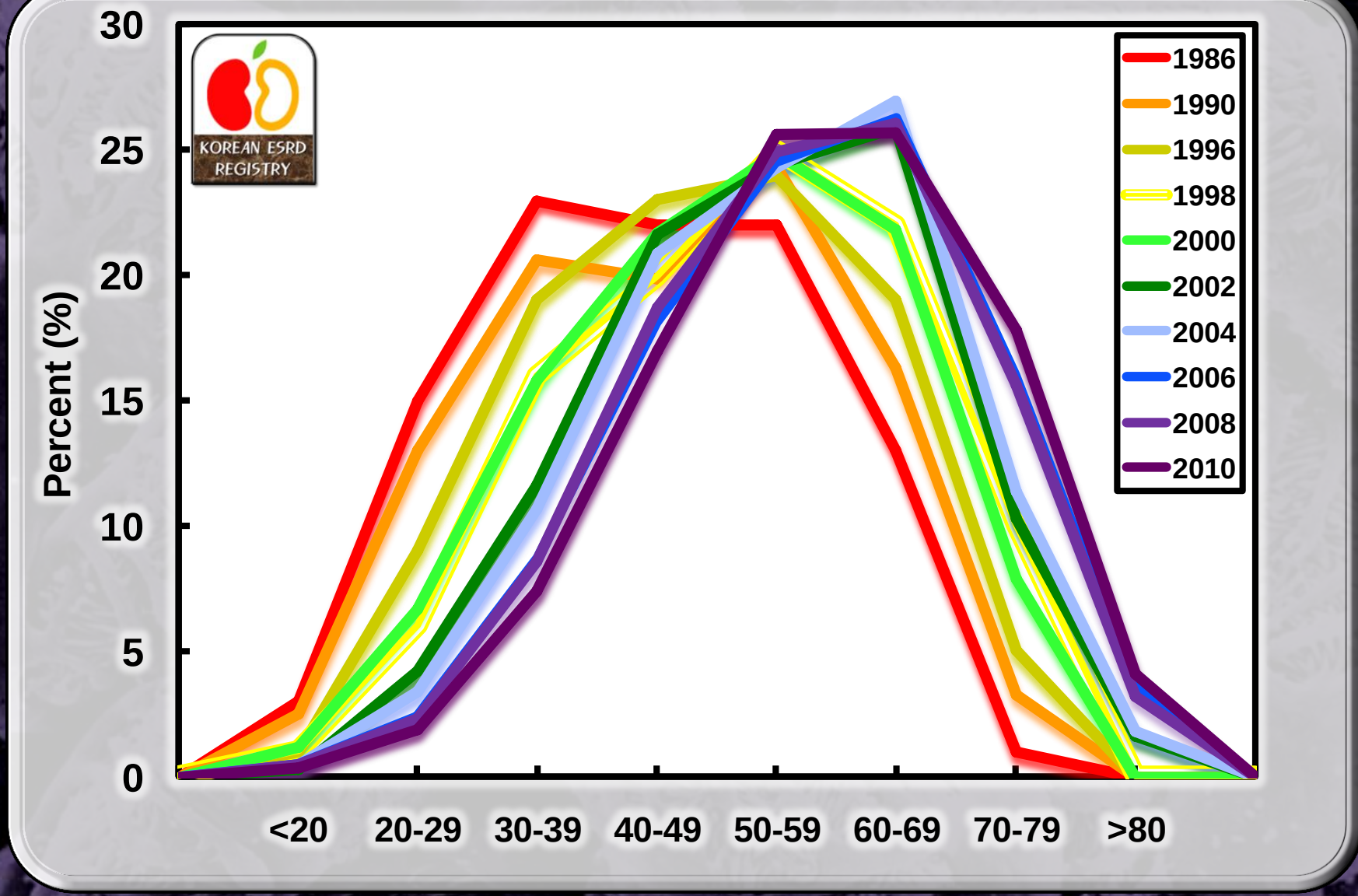
Age Distribution of Dialysis Patients



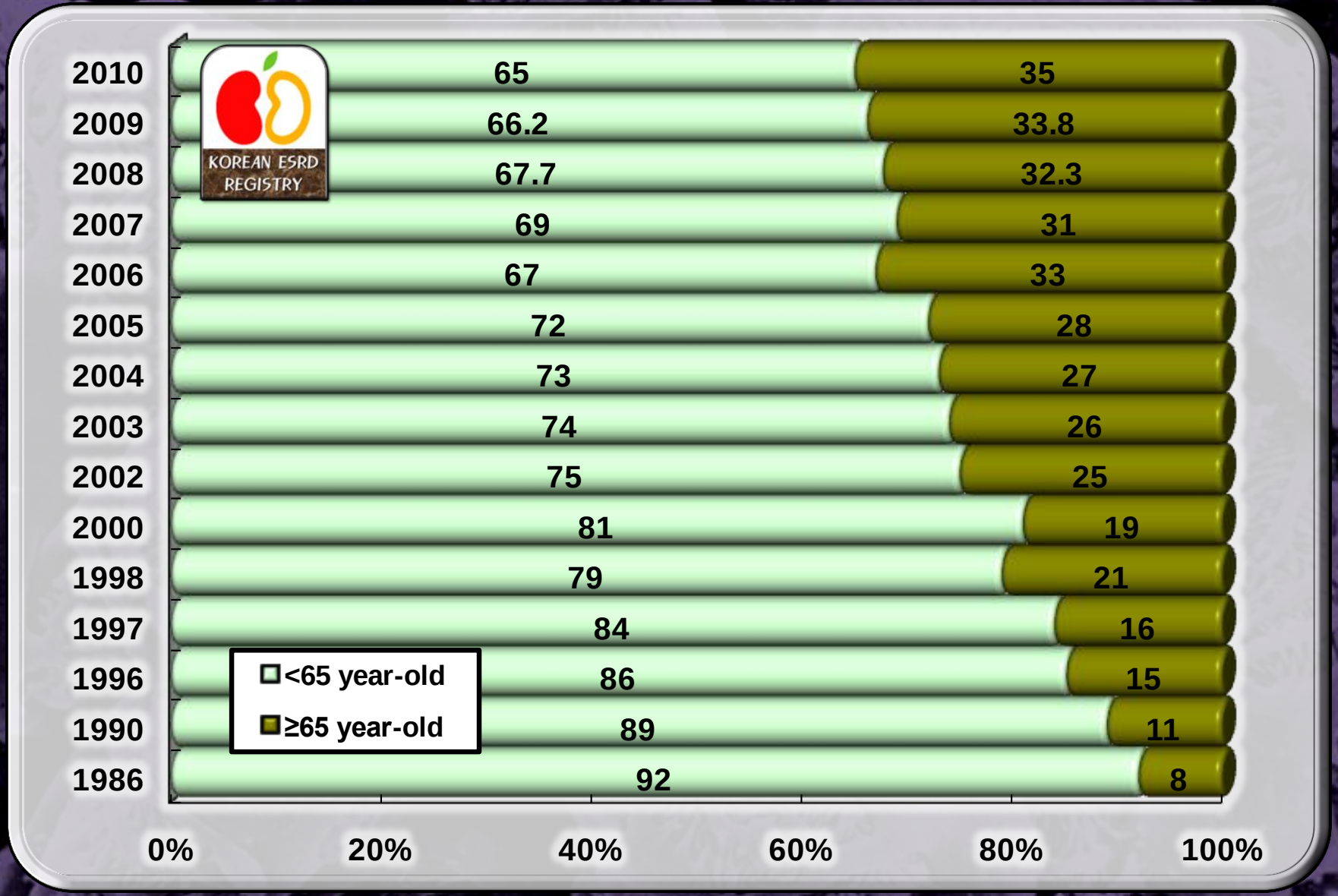


KOREAN ESRD REGISTRY

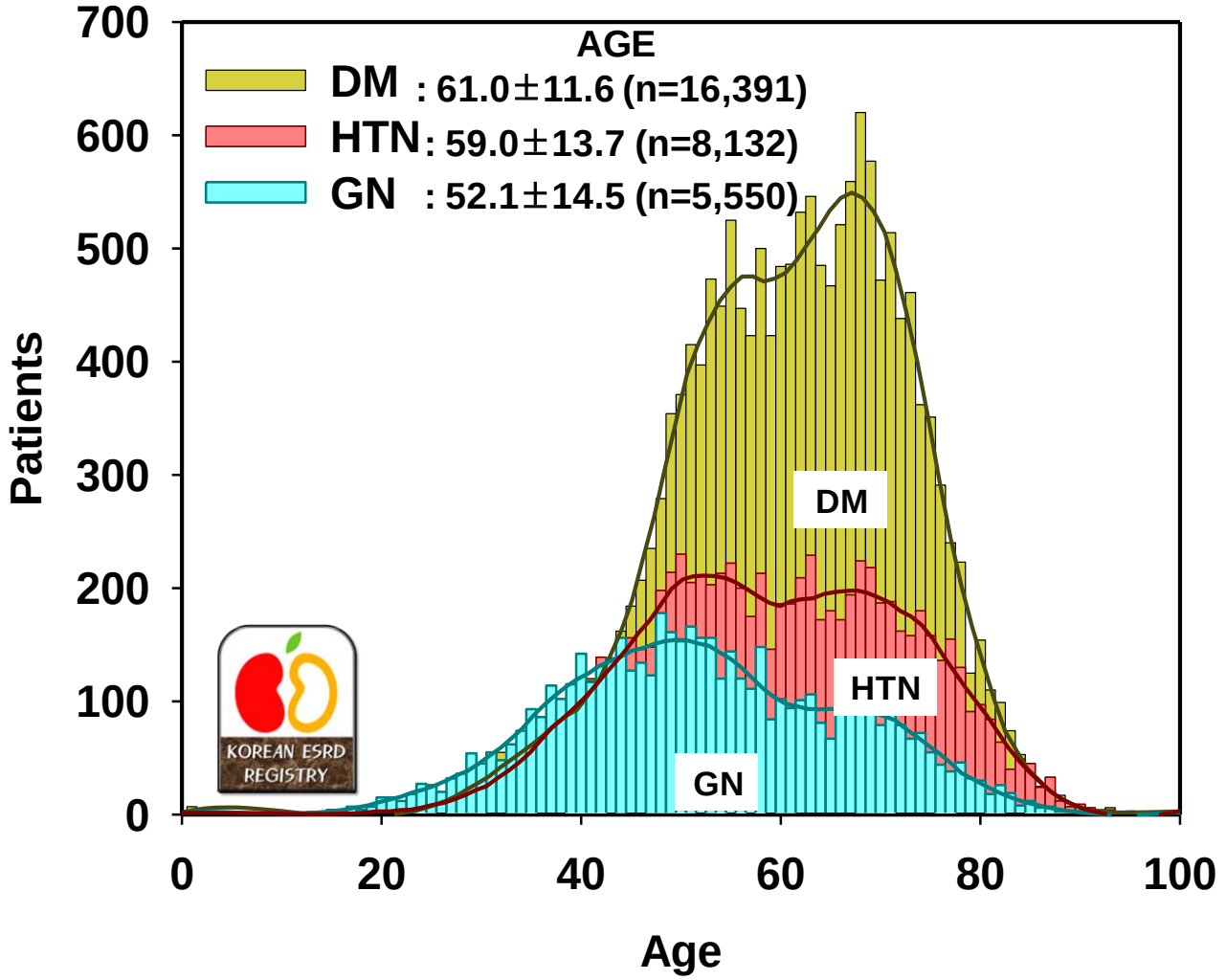
Age Distribution of HD Pts according to Year



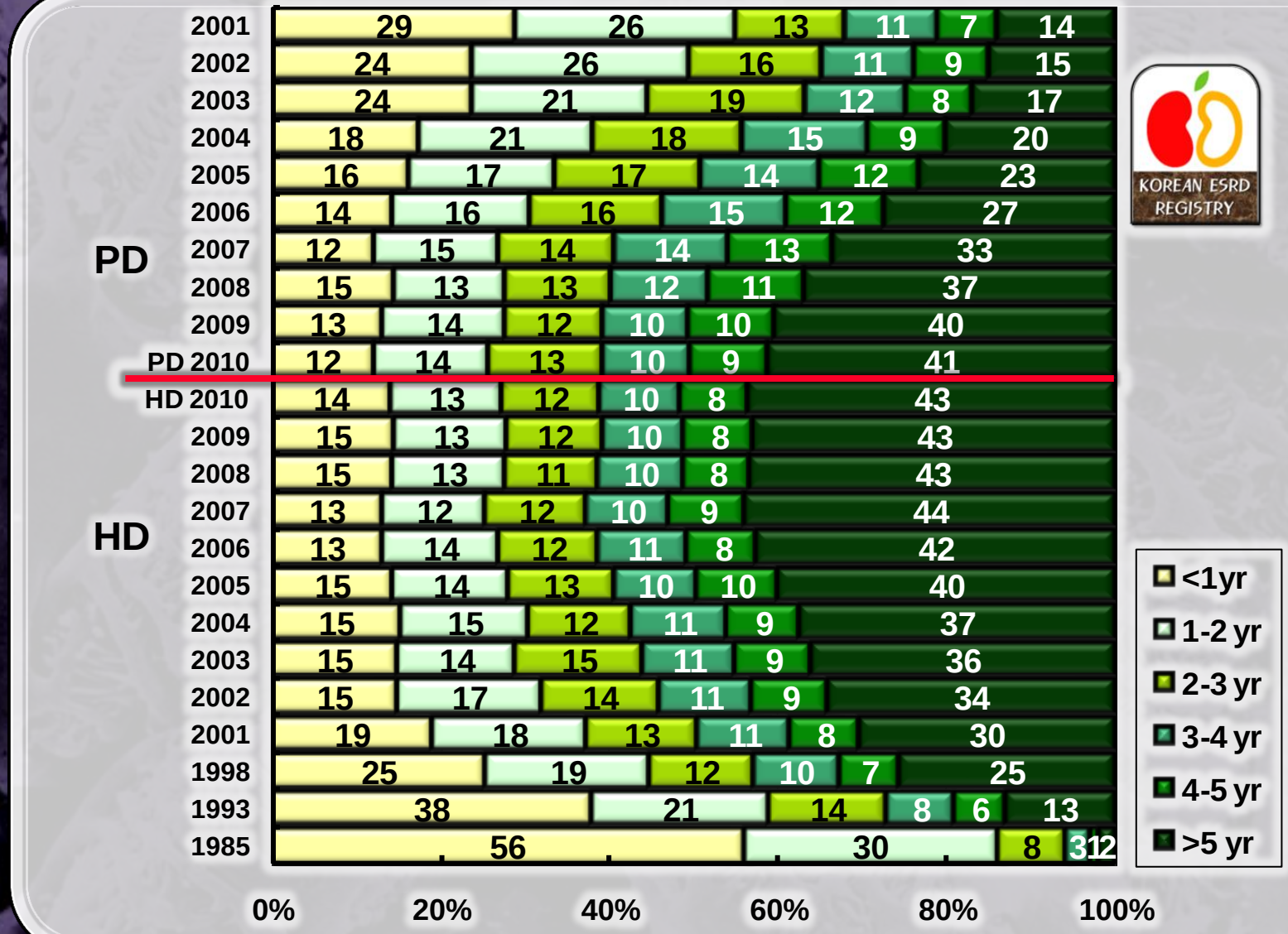
Percent of Elderly Dialysis Patients



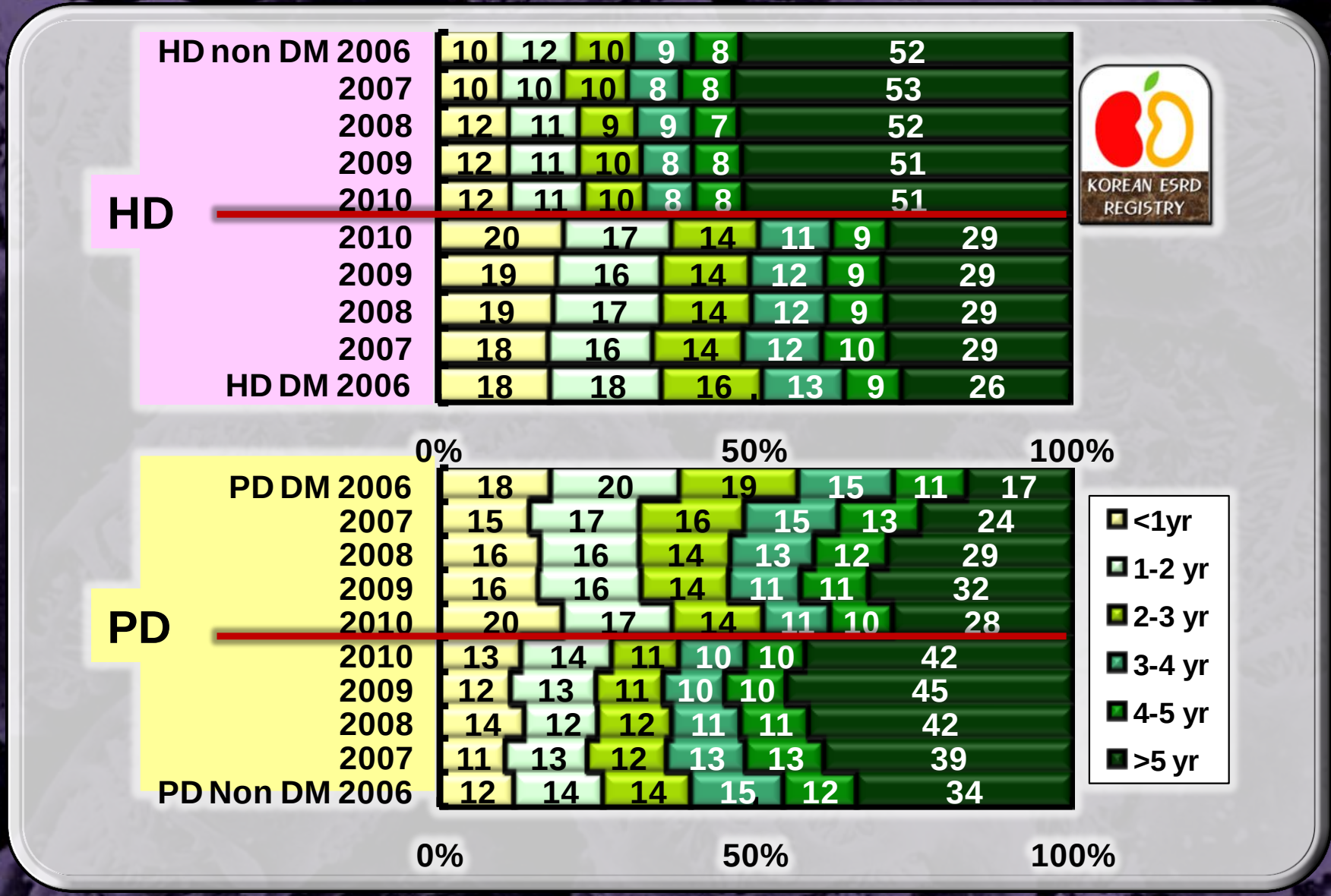
Age Distribution according to ESRD Causes



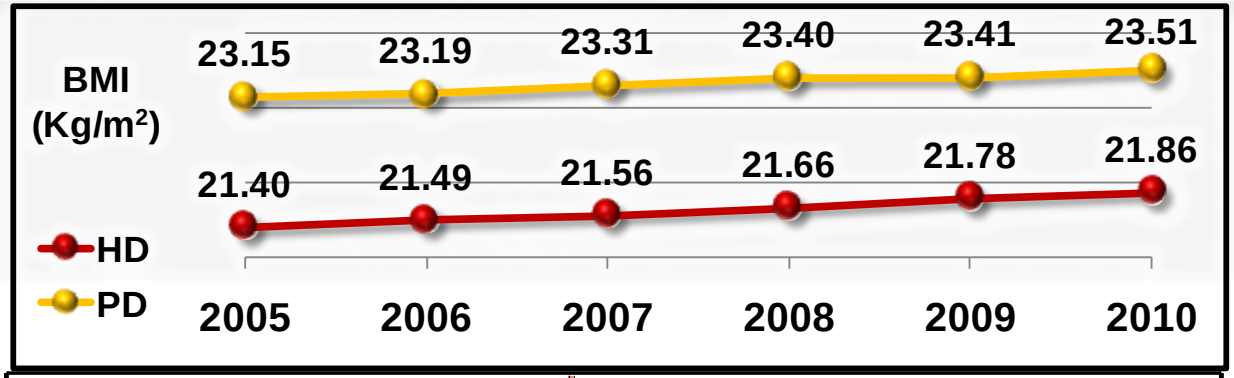
Duration of Dialysis Maintenance

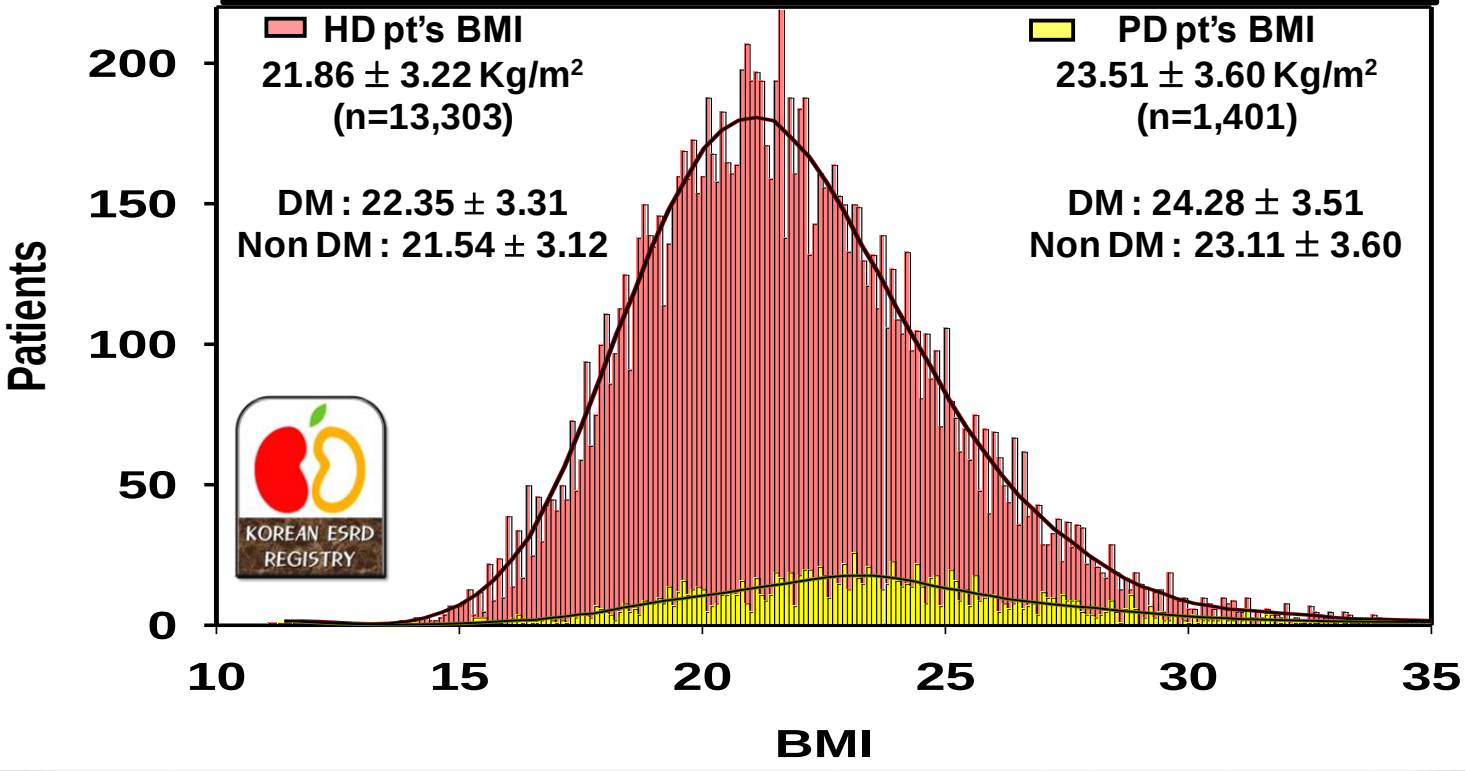


Duration of Dialysis : DM & Non-DM

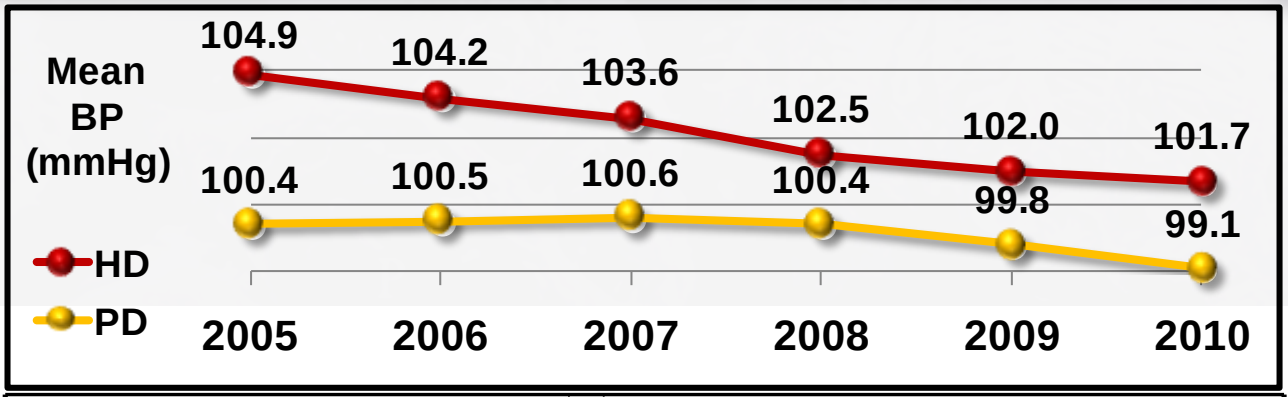


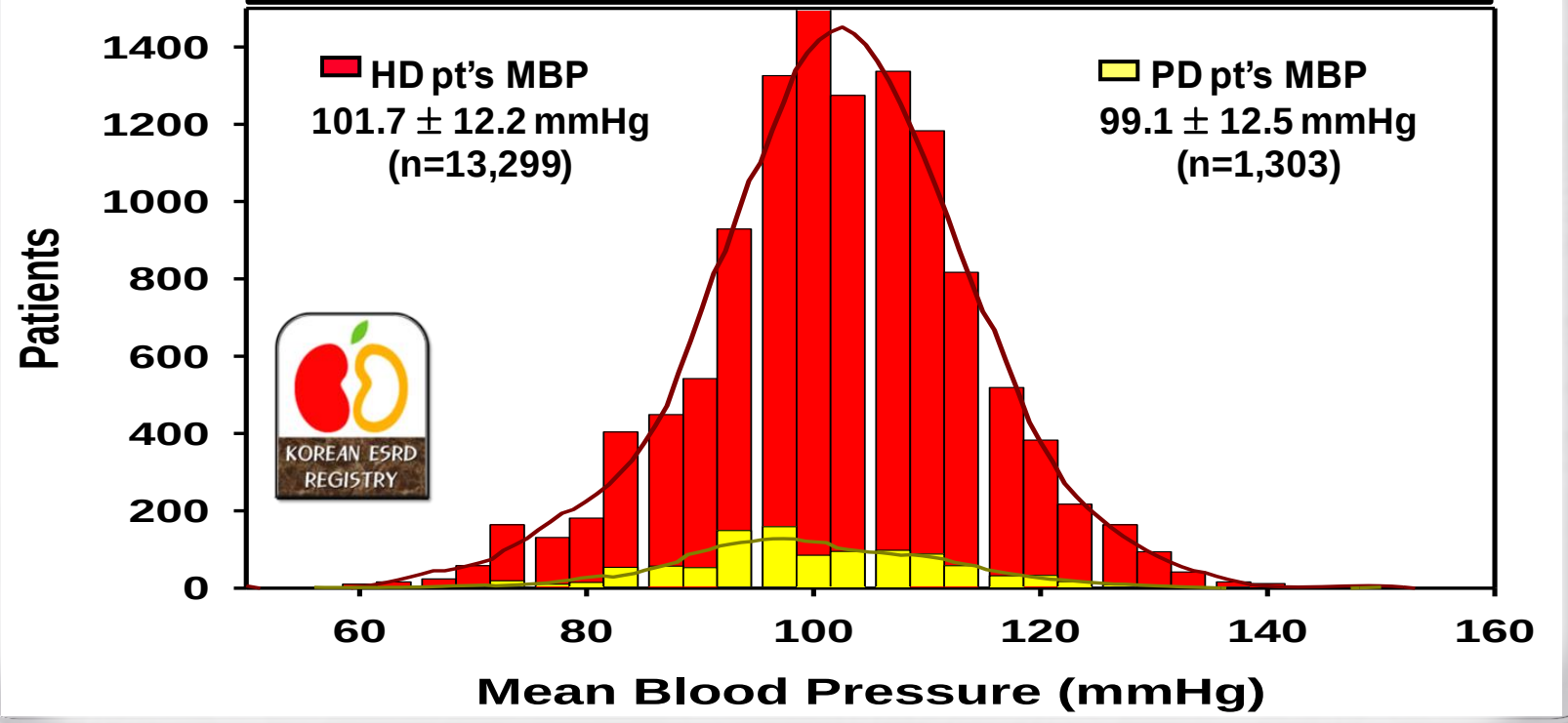
Body Mass Index : HD & PD



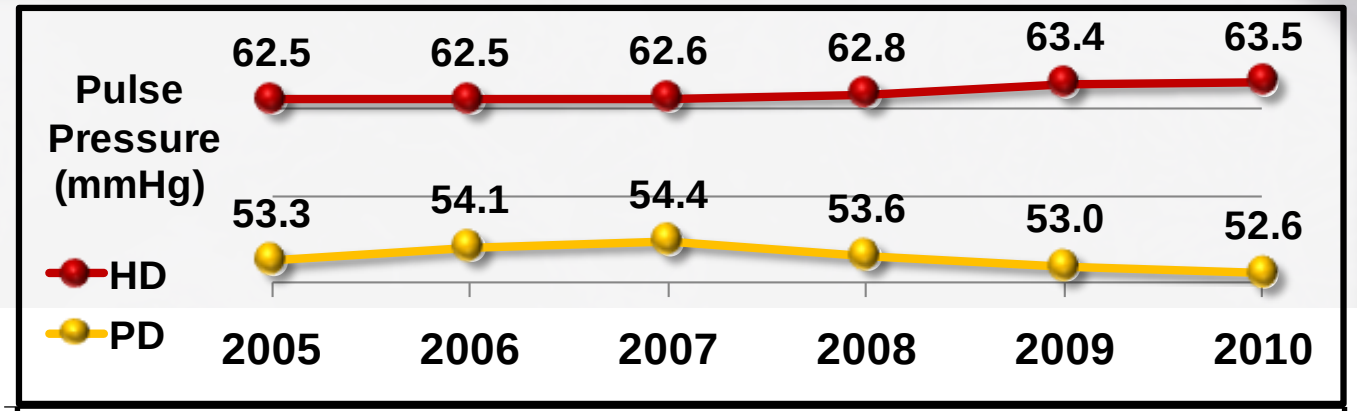


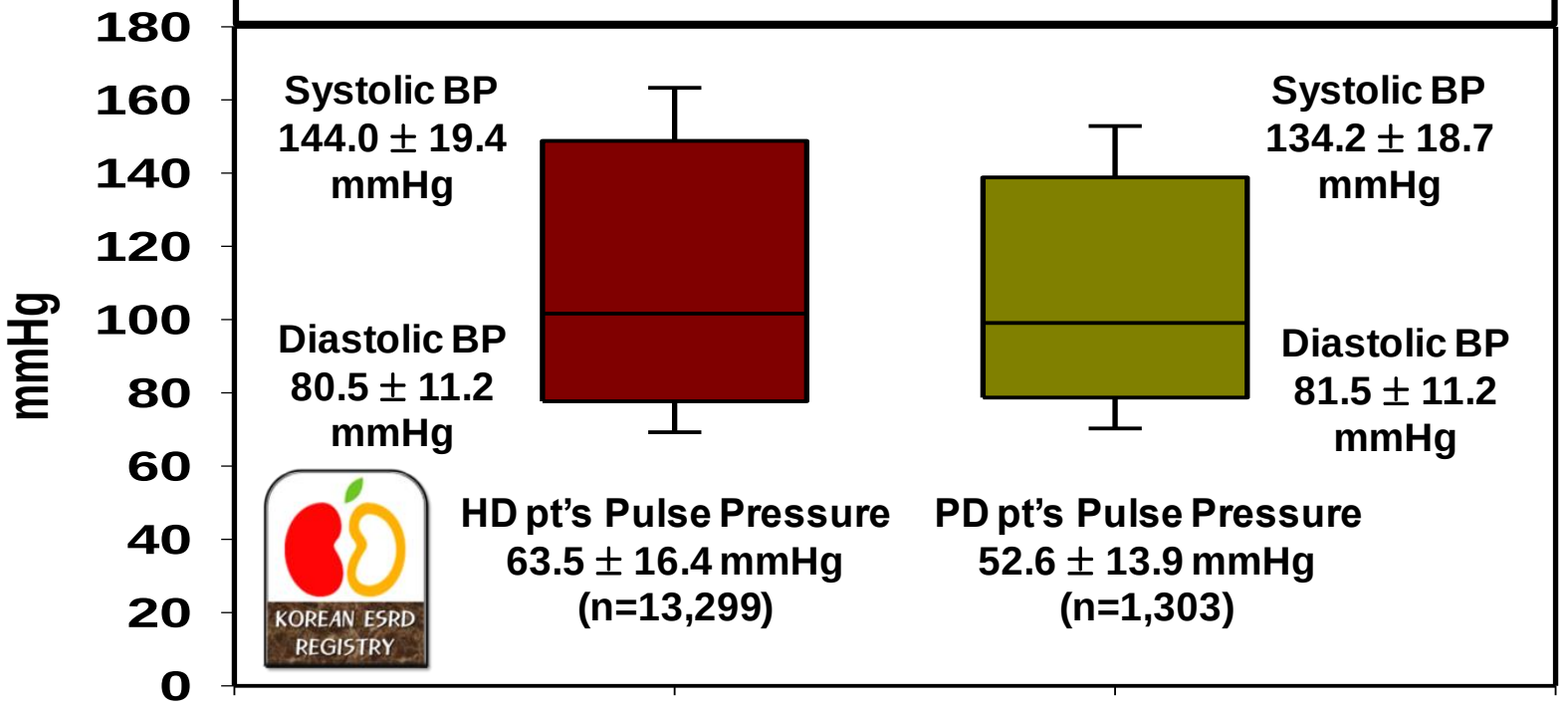
Mean Blood Pressure : HD & PD



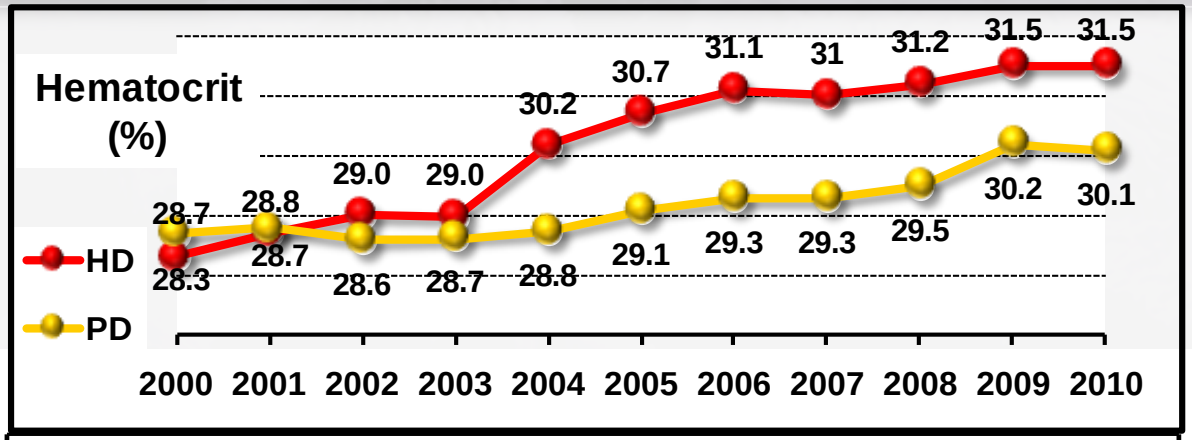


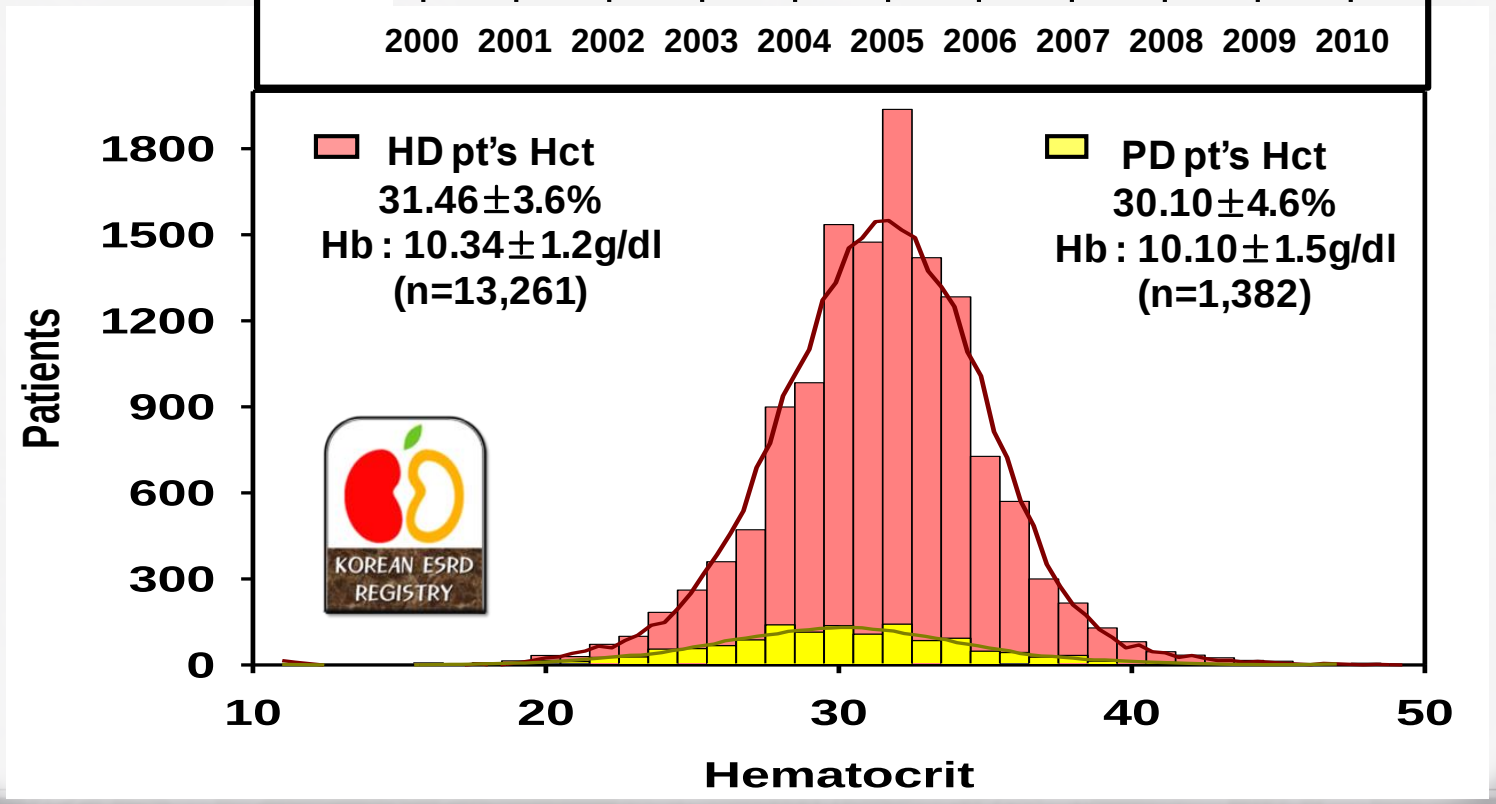
Pulse Pressure : HD & PD



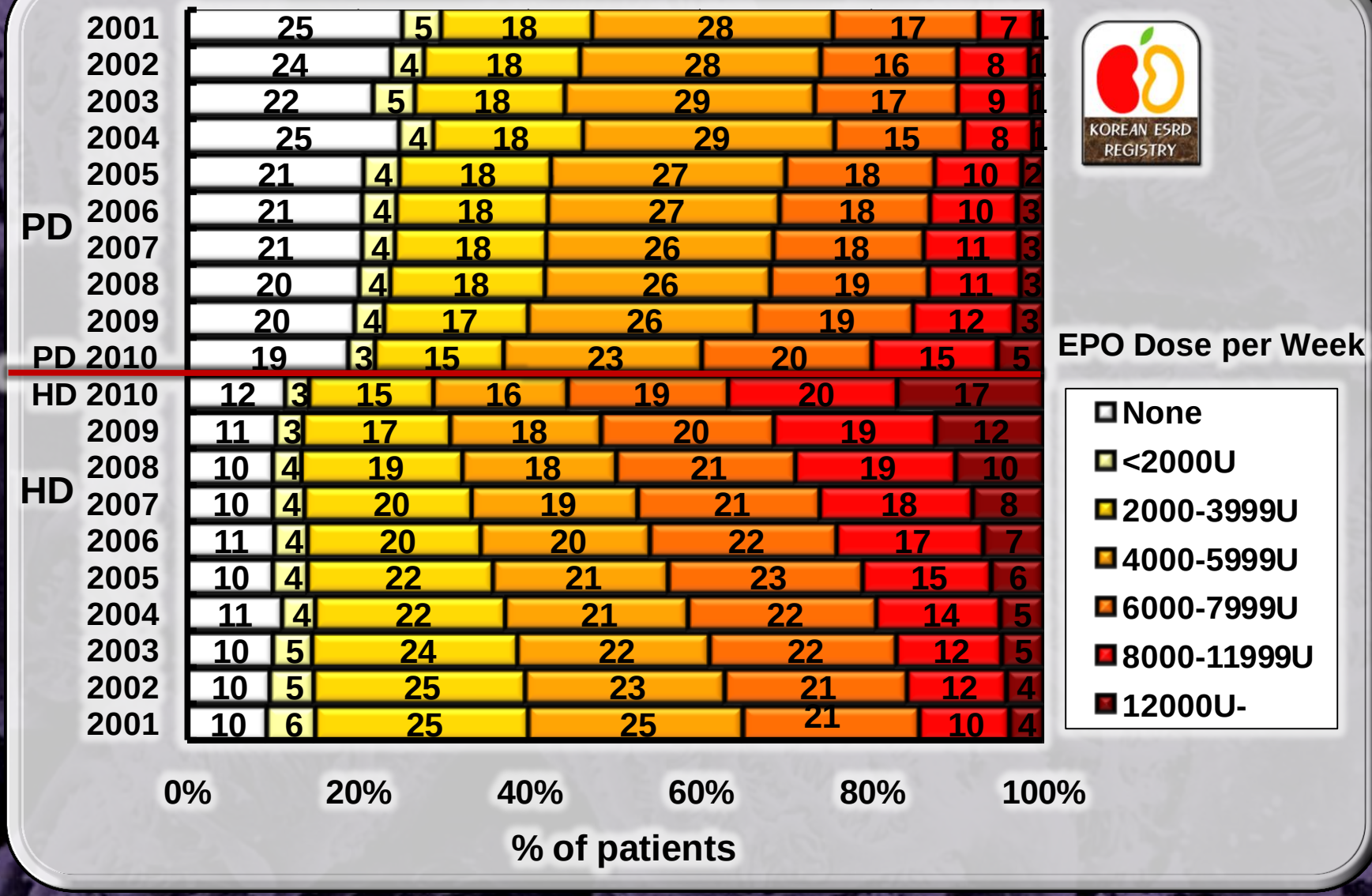


Hematocrit : HD & PD

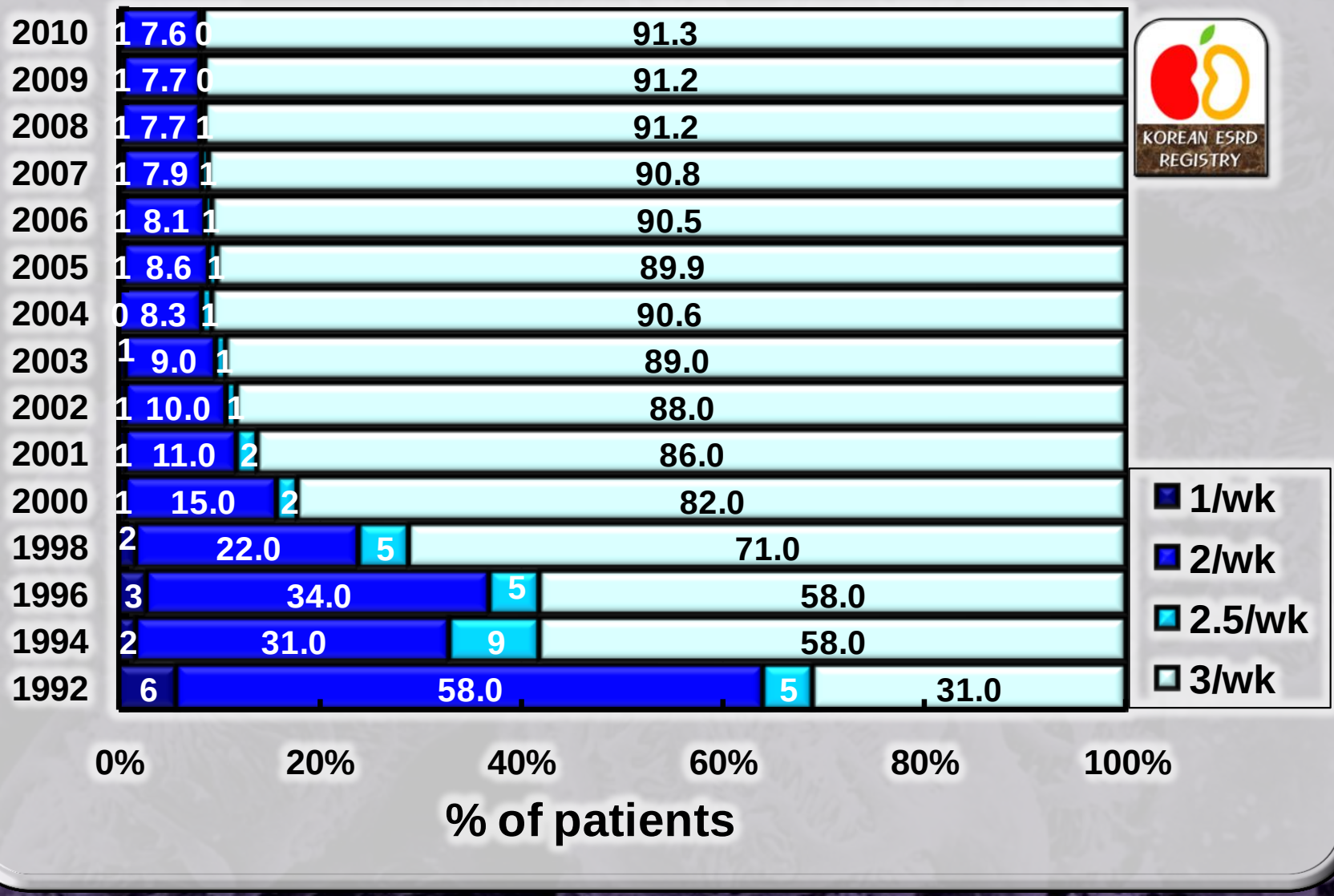




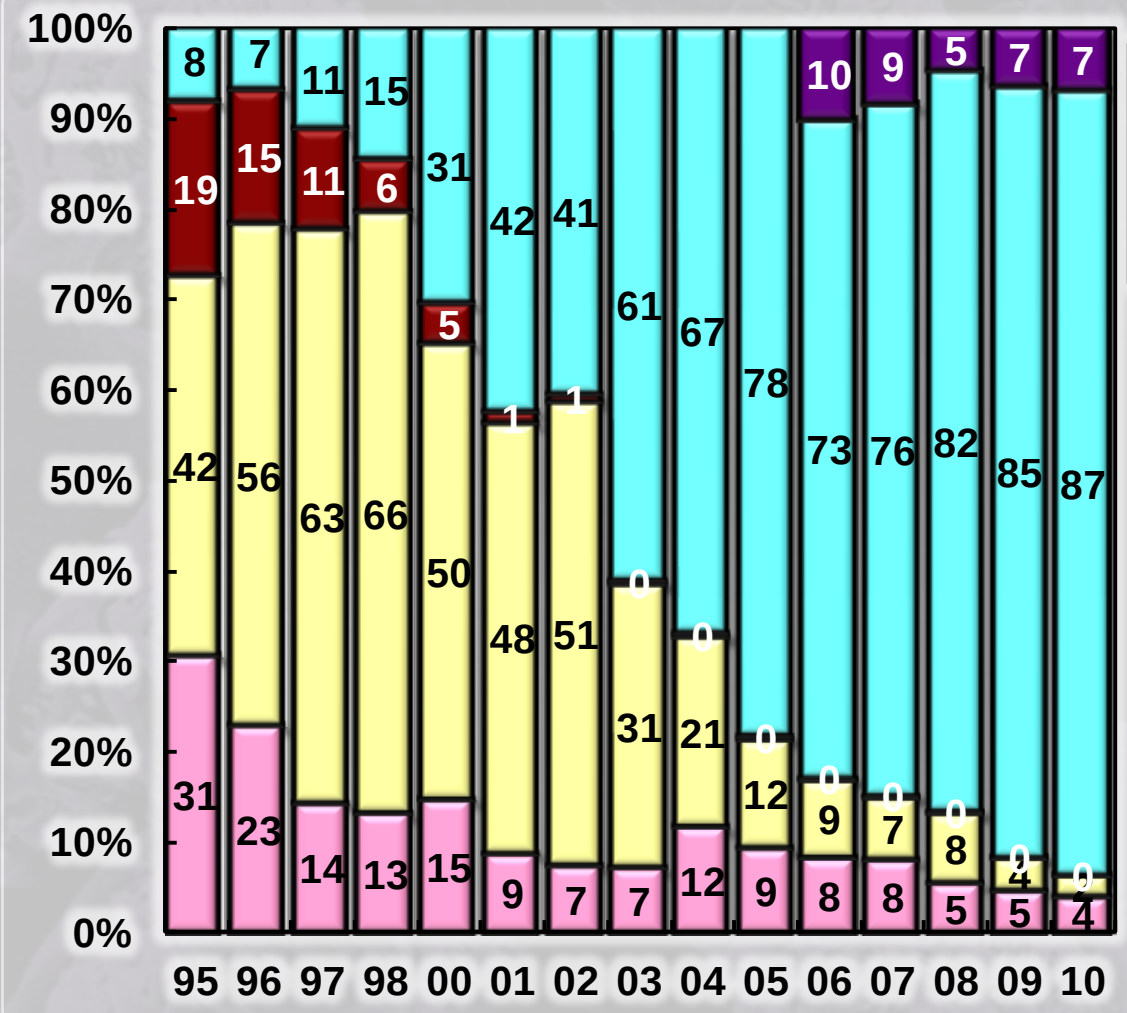
Erythropoietin Doses

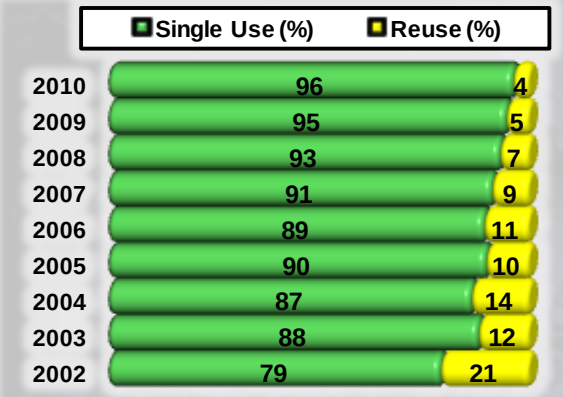


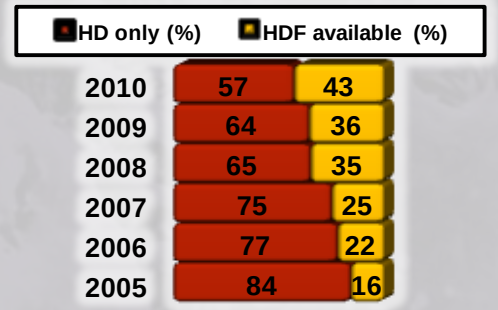
Frequency of HD per Week



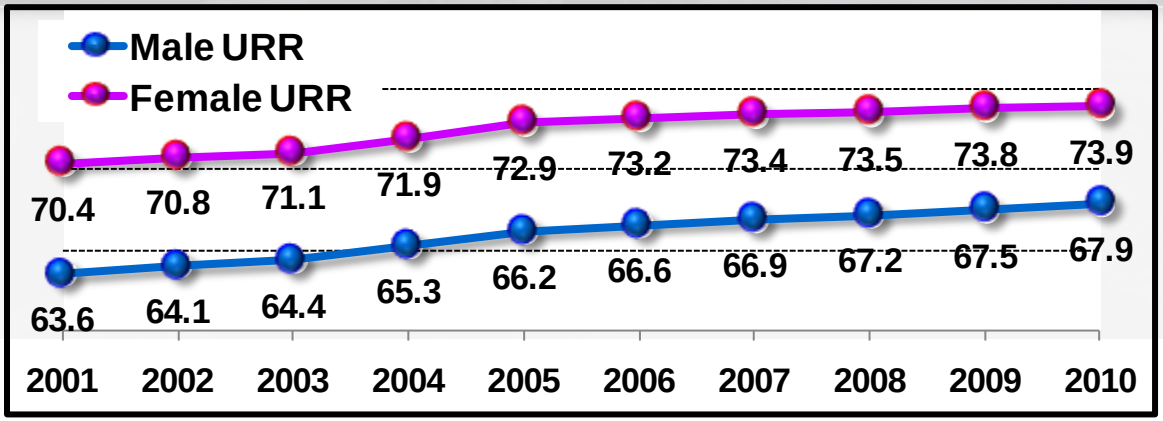
HD Dialyser

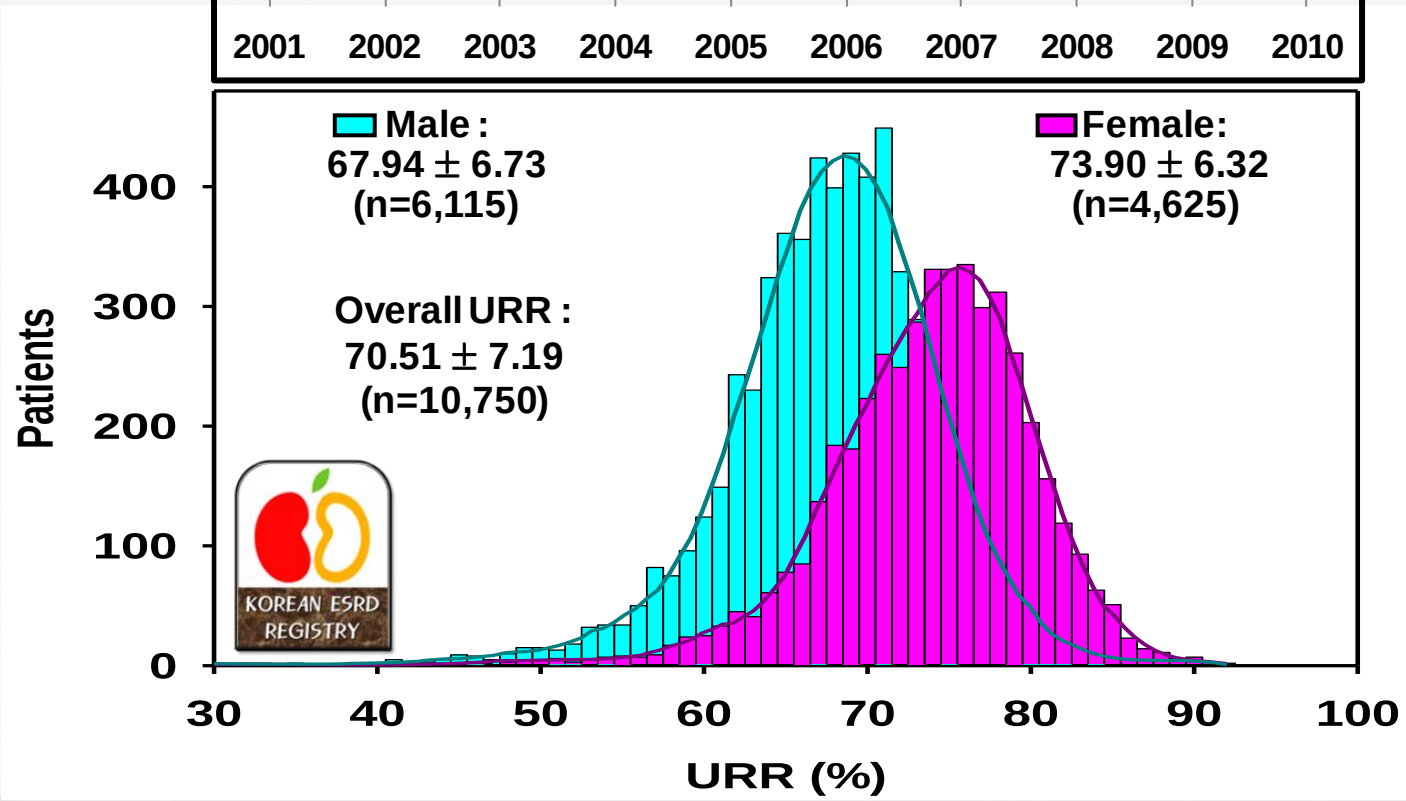

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
95 96 97 98 00 01 02 03 04 05 06 07 08 09 10
8 19 42 31
7 15 56 23
11 11 63 14
15 6 66 13
31 5 50 15
42 1 48 9
41 1 51 7
61 0 31 7
67 0 21 12
78 0 12 9
10 73 0 9 8
9 76 0 7 8
5 82 0 8 5
7 85 0 4 5
7 87 0 4
Polyamide
Polysulfone
Cuprophan
Hemophan
Cellulose


Single Use (%)
Reuse (%)
2010 96 4
2009 95 5
2008 93 7
2007 91 9
2006 89 11
2005 90 10
2004 87 14
2003 88 12
2002 79 21

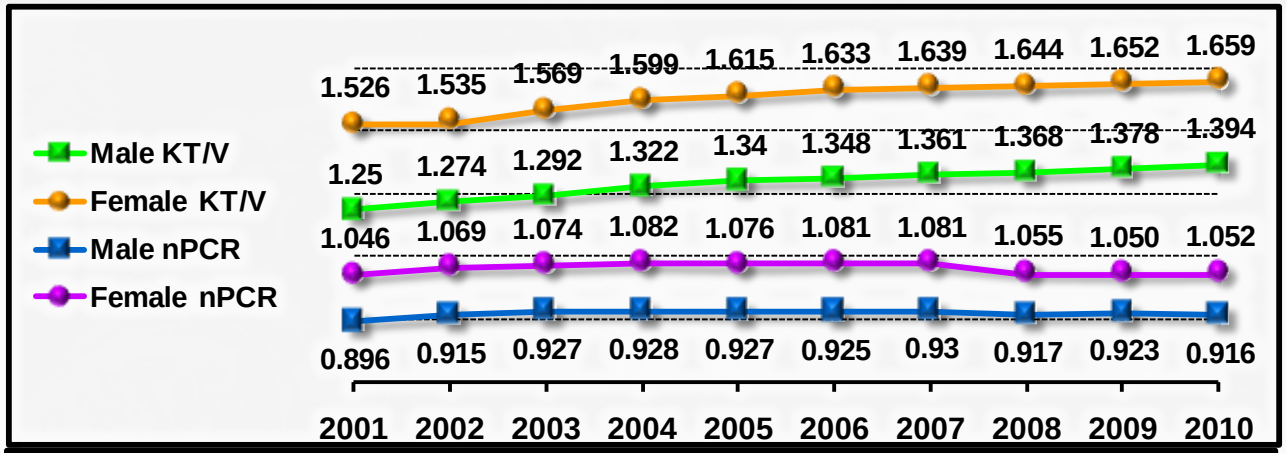

HD only (%)
HDF available (%)
2010 57 43
2009 64 36
2008 65 35
2007 75 25
2006 77 22
2005 84 16

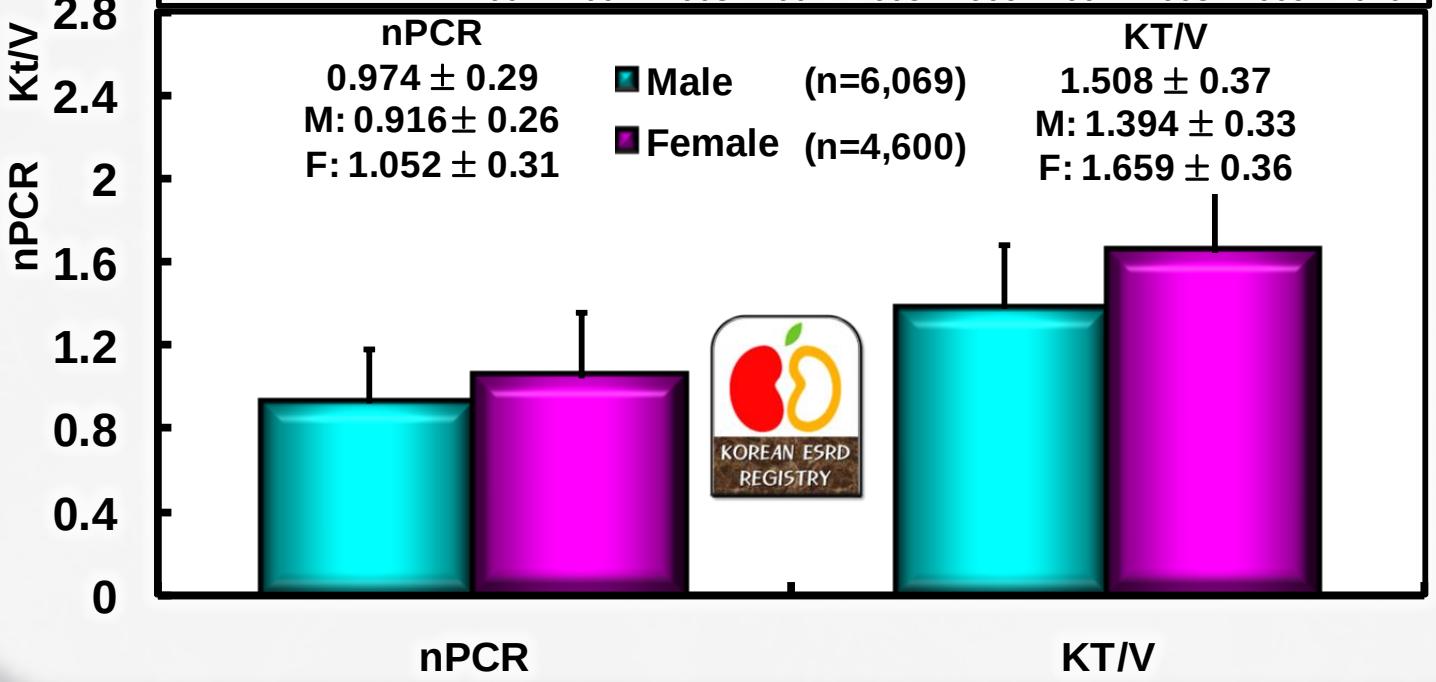
Urea Reduction Ratio



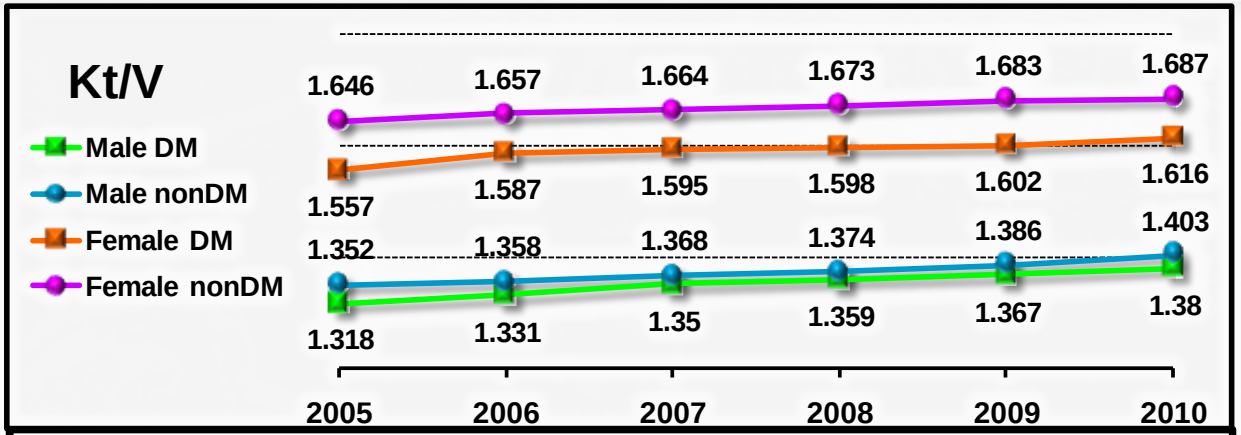


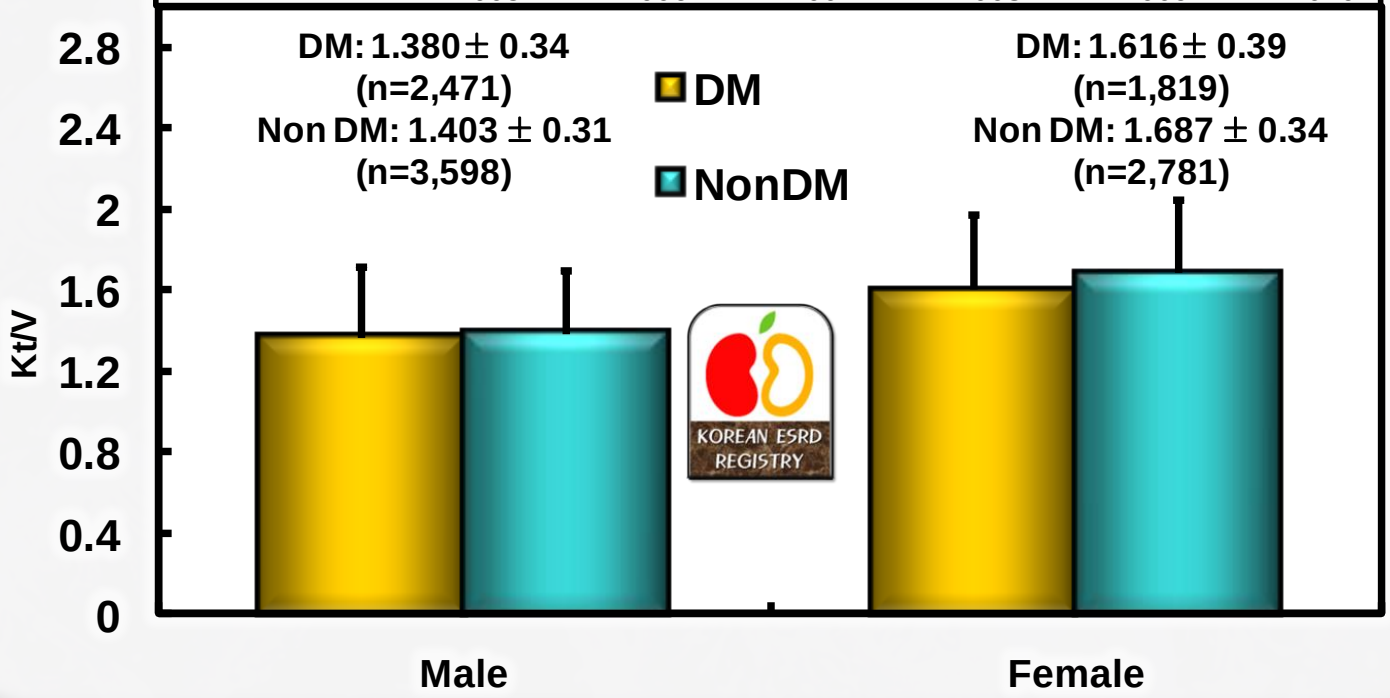
HD Adequacy


Male KT/V
Female KT/V
Male nPCR
Female nPCR
1.526 1.535 1.569 1.599 1.615 1.633 1.639 1.644 1.652 1.659
1.25 1.274 1.292 1.322 1.34 1.348 1.361 1.368 1.378 1.394
1.046 1.069 1.074 1.082 1.076 1.081 1.081 1.055 1.050 1.052
0.896 0.915 0.927 0.928 0.927 0.925 0.93 0.917 0.923 0.916
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

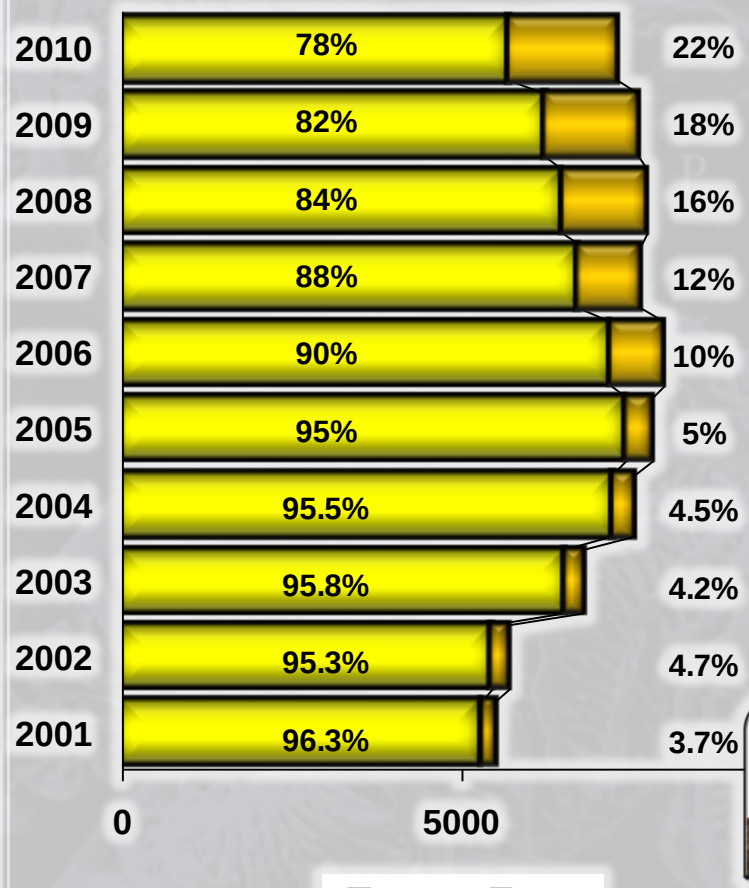

nPCR
0.974 ± 0.29
M: 0.916 ± 0.26
F: 1.052 ± 0.31
Male (n=6,069)
Female (n=4,600)
KT/V
1.508 ± 0.37
M: 1.394 ± 0.33
F: 1.659 ± 0.36
Kt/V
nPCR
2.8
2.4
2
1.6
1.2
0.8
0.4
0
KOREAN ESRD REGISTRY
nPCR
KT/V

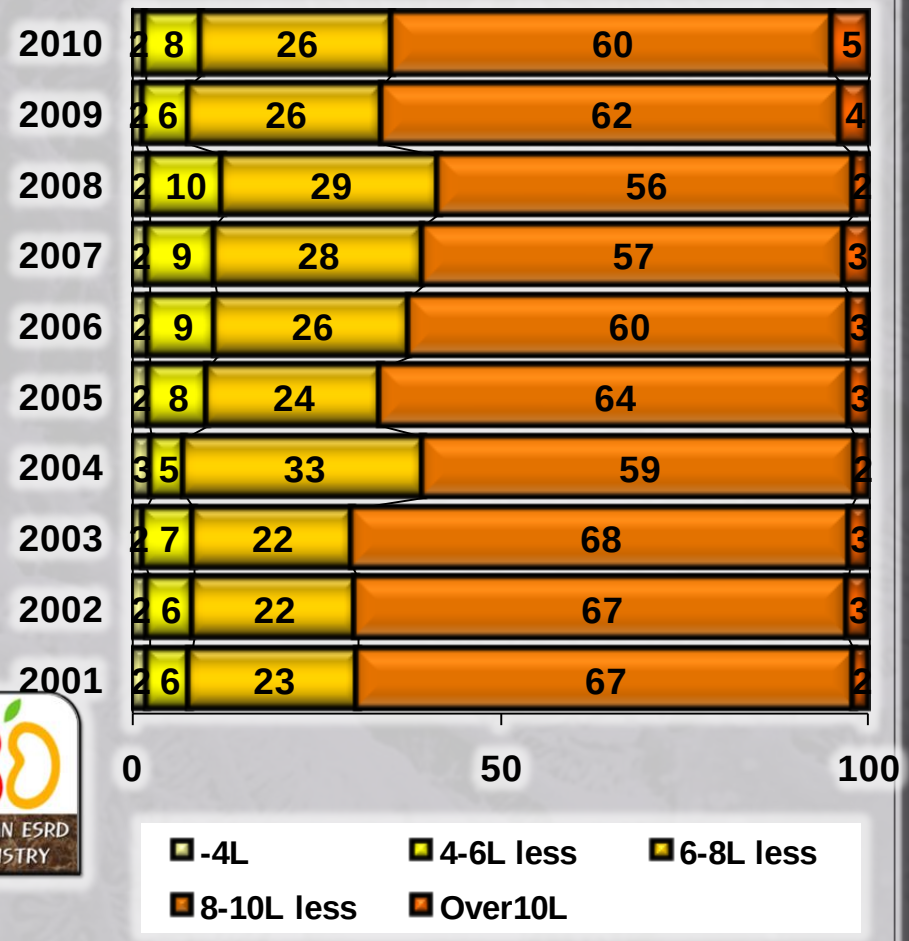
HD Adequacy : DM & Non-DM





PD Type & Doses





KOREAN ESRD REGISTRY

Co-Morbidity of Dialysis Patients

Complications		HD (%)	PD (%)
Cardiac	Coronary Artery Disease Congestive Heart Failure Pericardial Effusion Arrythmia	17.1	18.8
Vascular	Cerebrovascular accident Hypertension Other vascular disease	51.1	46.5
Infection	Pneumonia Tuberculosis Peritonitis Herpes zoster Other Infection	6.5	19.1
Liver disease	Hepatitis B Hepatitis C Congestive Liver Hemochromatosis Other liver diseases	7.7	3.9
Gastrointestinal	Gastric Ulcer Duodenal Ulcer Other Gastrointestinal Diseases	8.6	7.8
Miscellaneous	Malnutrition (Alb<2.5g/dl) Malignancy Hypertensive Retinopathy Uremic Dermatitis Uremic Neuritis Uremic Dementia Uremic Ascites / Pleural Effusion Osteodystrophy	8.9	3.9

*Reported patients number: Hemodialysis =4,185, Perioneal dialysis=383.

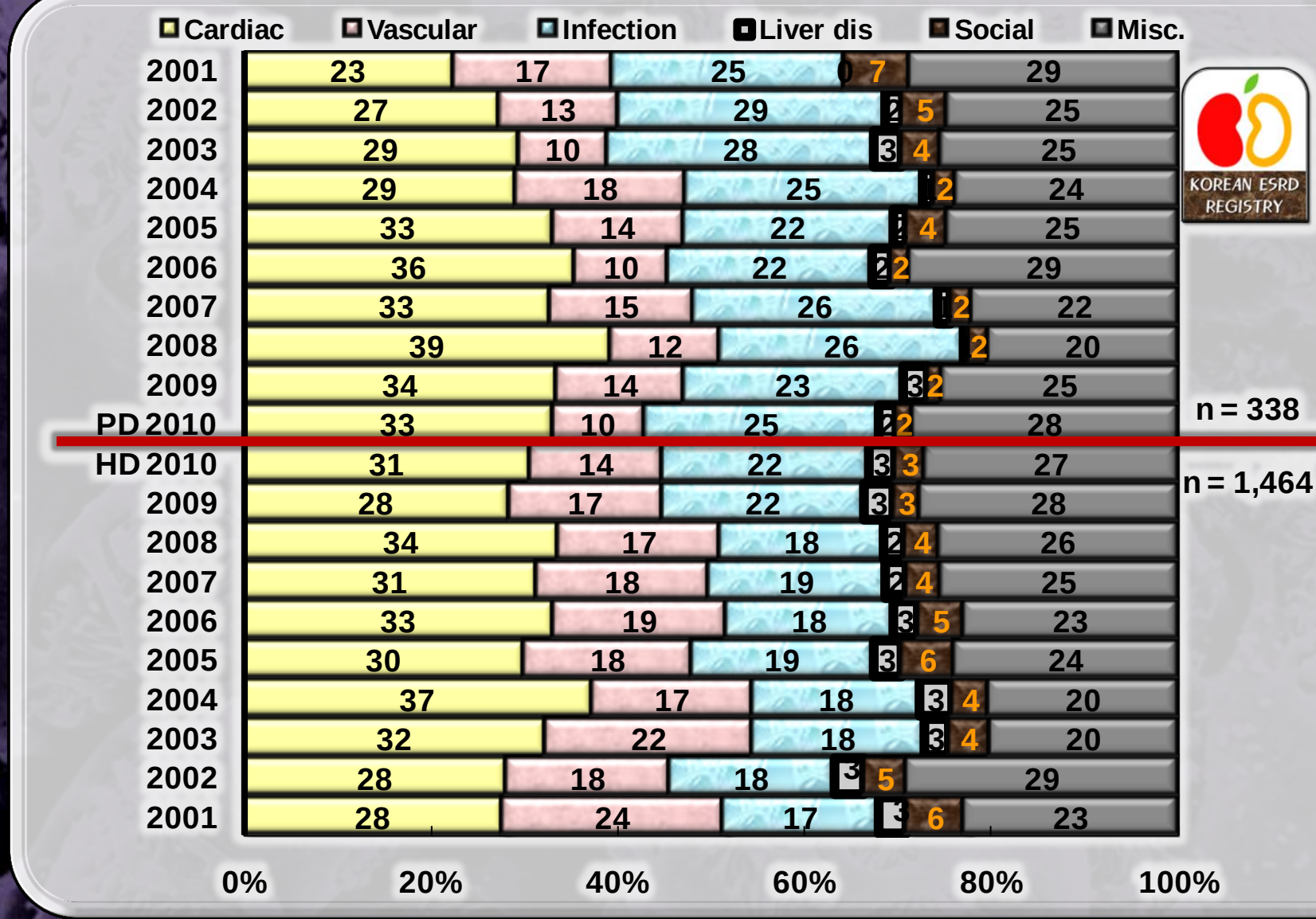
KOREAN ESRD REGISTRY

Causes of Death (%), 1994-2010

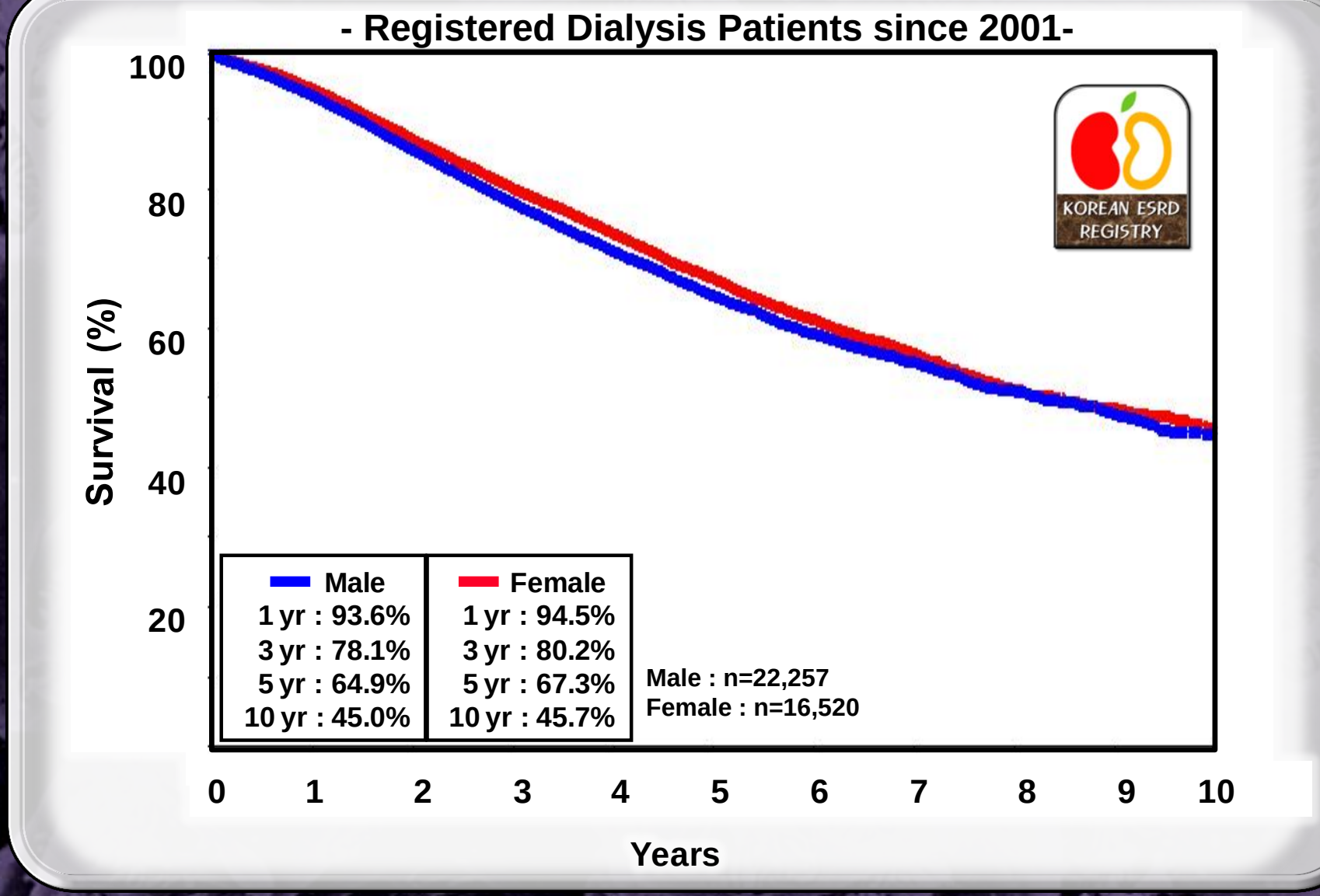
	1994-96	1998	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cardiac	**27.4**	**27.4**	**26.9**	**27.9**	**31.7**	**35.5**	**30.7**	**33.7**	**31.7**	**35.1**	**29.5**	**31.1**
Myocardial infarction	6.4	6.4	7.7	5.5	7.4	8.3	8	9.1	7.5	9.7	8.0	8.3
Cardiac arrest, uremia associated	13.7	13.7	11.2	10.6	11.7	13.6	10.4	11.1	10.8	11	8.5	8.7
Cardiac arrest, other cause	7.2	7.2	8.1	11.8	12.5	13.6	12.4	13.5	13.3	14.4	13	14.2
Vascular	**17.2**	**17.2**	**22.7**	**15.7**	**19.5**	**17.5**	**17**	**16.5**	**17.8**	**16**	**15.9**	**13.3**
Cerebrovascular accident	14.3	14.3	15.1	11.6	14.5	12.8	12.3	11.5	13	12.2	11	8.2
Pulmonary embolus	0.2	0.2	0.5	0.4	0.1	0.2	0.6	0.7	0.5	0.1	0.2	0.1
Gastrointestinal hemorrhage	1.7	1.7	2.7	1.9	3.2	2	1.7	1.8	2.7	1.9	2.3	2.6
Gastrointestinal embolism	0.1	0.1	0.1	0.1	0	0.4	0.5	0.5	0.1	0.1	0.5	0.4
Other vascular disease	0.9	0.9	4.3	1.7	1.6	2.1	1.9	2	1.6	1.7	1.9	2.2
Infection	**13.5**	**13.5**	**17.8**	**21.6**	**20.5**	**19.5**	**20.1**	**18.8**	**20.2**	**19.5**	**21.9**	**22.6**
Pulmonary infection	2.5	2.5	4.5	4.9	3.6	3.7	4.5	4.2	4.4	4.4	5.9	7.5
Septicemia	6.6	6.6	6.9	9.2	9.7	9.4	9.6	8.9	11.7	9	10.4	10.7
Tuberculosis	0.3	0.3	0.8	0.5	0.2	0.1	0.3	0.1	0.2	0.1	0.3	0.2
Peritonitis	2.1	2.1	1.1	2.5	2	1.5	1.4	1.1	1.1	2	0.8	1.2
Other Infection	2	2	4.5	4.5	4.9	4.8	4.3	4.5	2.9	4	4.5	2.9
Liver disease	**3.4**	**3.4**	**2.6**	**2.8**	**2.8**	**2.9**	**2.7**	**2.6**	**2.2**	**1.9**	**3.1**	**2.7**
Liver failure due to hepatitis B	1.8	1.8	1.6	1.2	1.8	2.1	1.5	1.4	1.3	1	2.2	1.2
Liver failure due to other cause	1.6	1.6	1	1.6	1	0.9	1.2	1.1	0.8	0.8	0.9	1.6
Social	**6.2**	**6.2**	**6.3**	**4.7**	**4.4**	**3.6**	**5.4**	**4.2**	**3.3**	**3.3**	**2.5**	**2.9**
Patient refused further treatment	2.9	2.9	2.1	1.8	1	1.1	1.1	0.6	1.1	0.6	0.5	0.3
Suicide	2.5	2.5	3.3	1.9	2.3	2	3.3	3	1.5	1.6	1.3	1.9
Therapy ceased for other reason	0.8	0.8	0.9	1	1	0.5	1	0.6	0.7	1	0.8	0.7
Miscellaneous	**32**	**32**	**23.7**	**27.4**	**21.3**	**21**	**24**	**24.2**	**24.8**	**24.3**	**27.1**	**27.3**
Cachexia	2.9	2.9	8.1	6.8	6.6	6.1	4	3.9	4.4	3.8	3.3	2.8
Malignant disease	2.1	2.1	4.4	4.8	3.5	3.6	6.4	5.4	5.7	4.6	5.7	5.9
Accident	1.2	1.2	0.9	0.5	1.1	0.9	1.4	1.6	1.2	1	1.3	0.6
Uncertain	25.8	25.8	10.3	15.3	10.1	10.3	12.3	13.2	13.4	14.9	16.8	18

*Number of patients :1994-1996=981, 1998=911, 2001=761, 2002=1,256, 2003=894, 2004=1,162, 2005=1,256, 2006=1,248, 2007=1,531, 2008=1,563, 2009=1,727, 2010=1,802

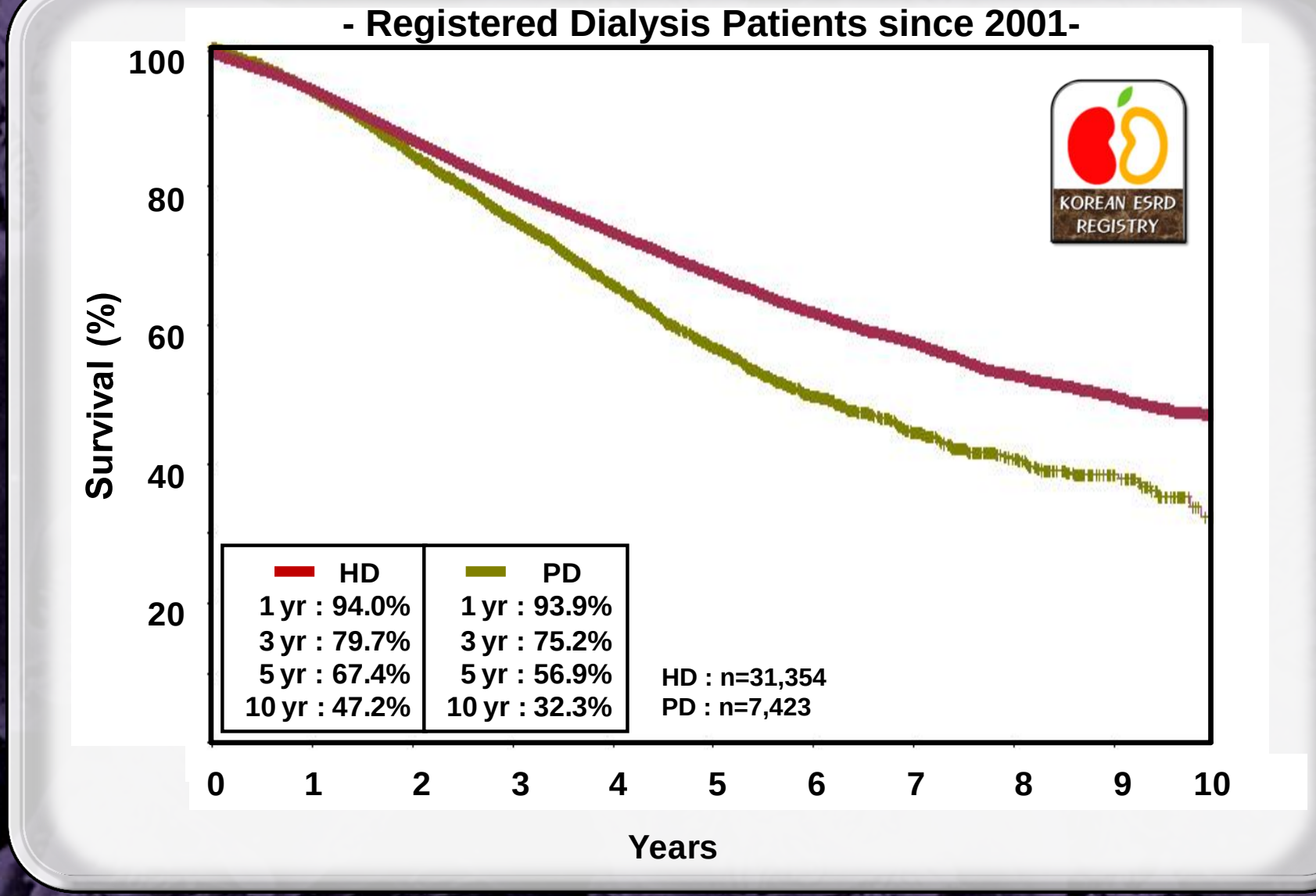
Death Causes, HD & PD



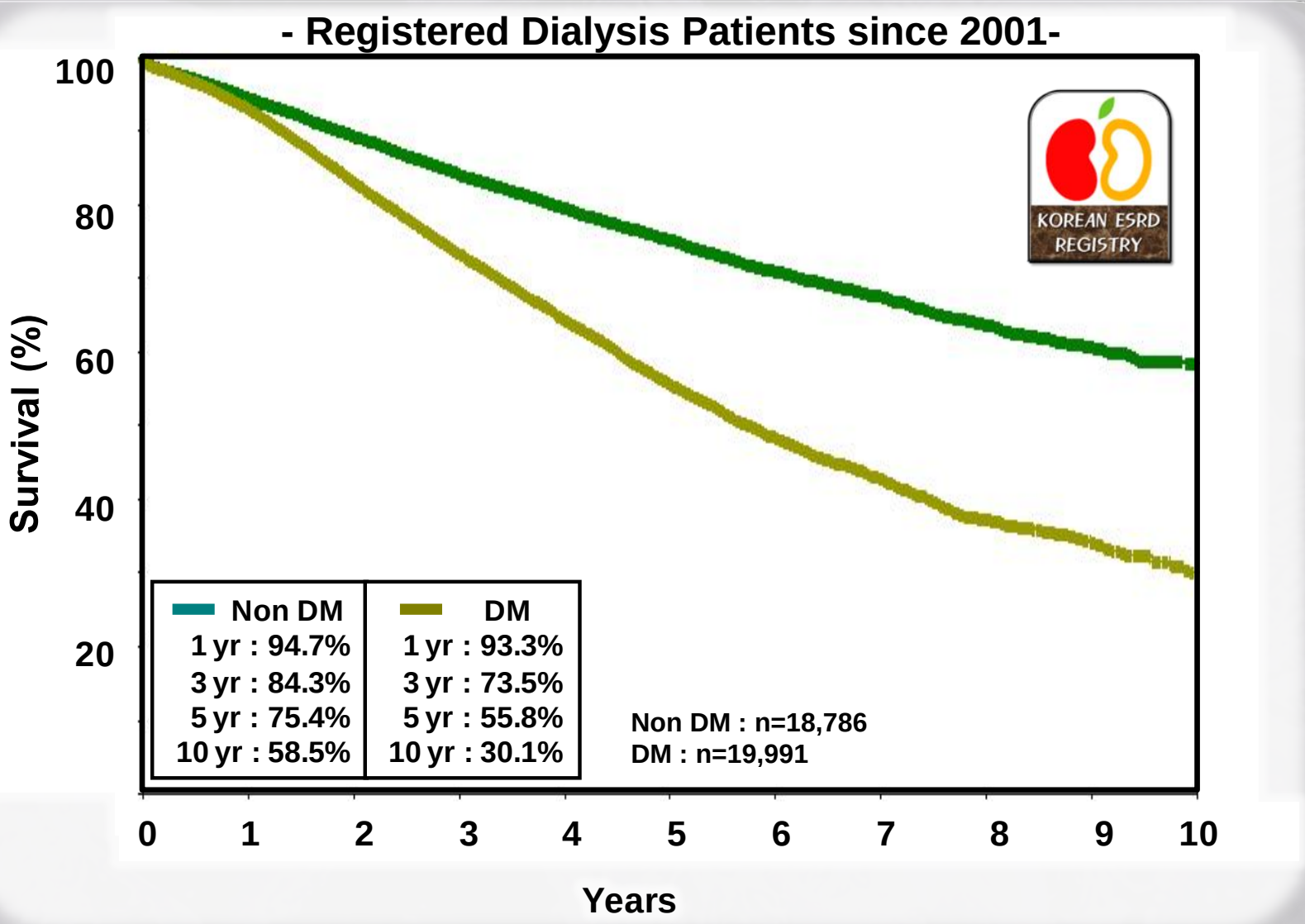
Overall Patient Survival



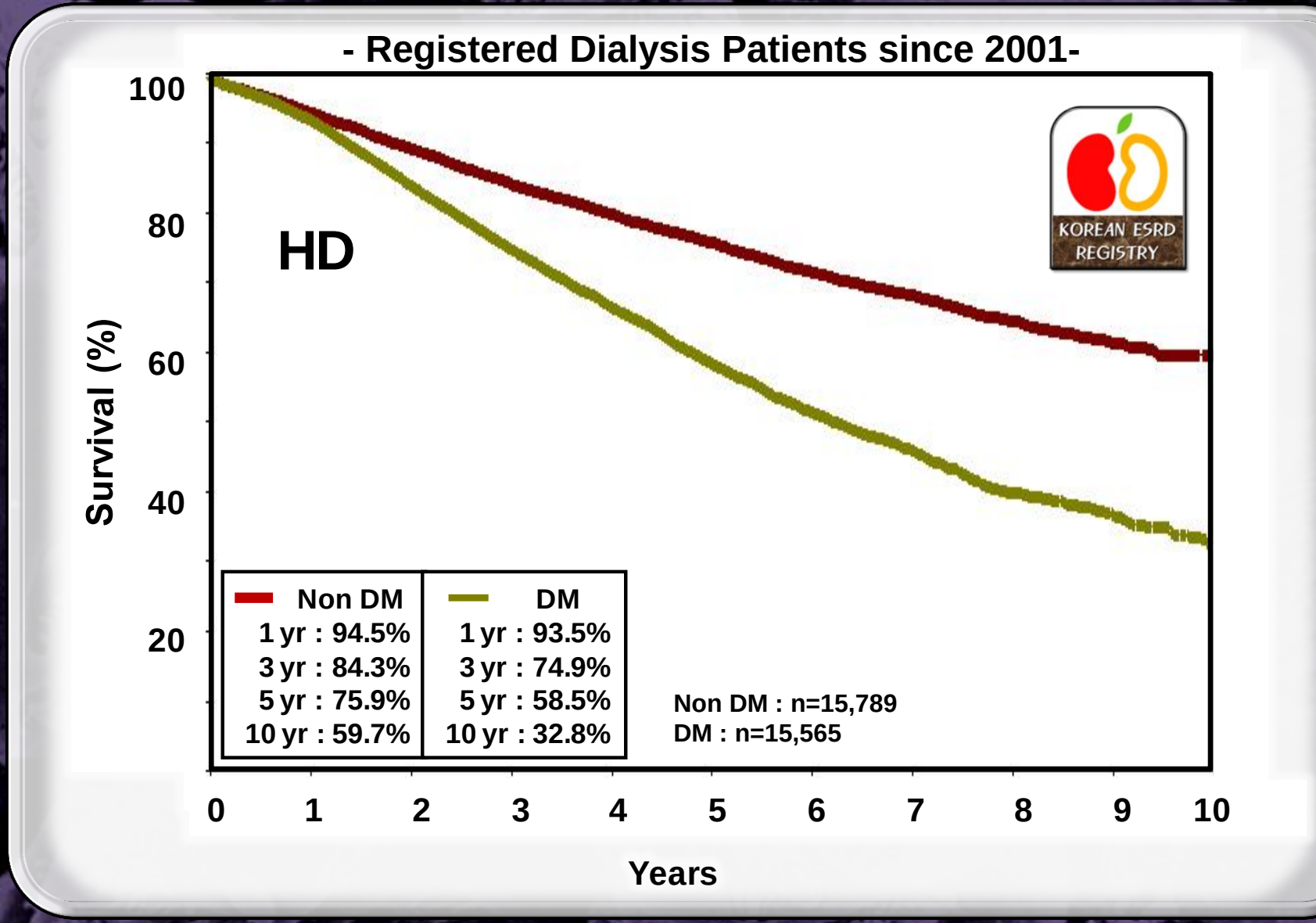
Patient Survival : HD vs PD



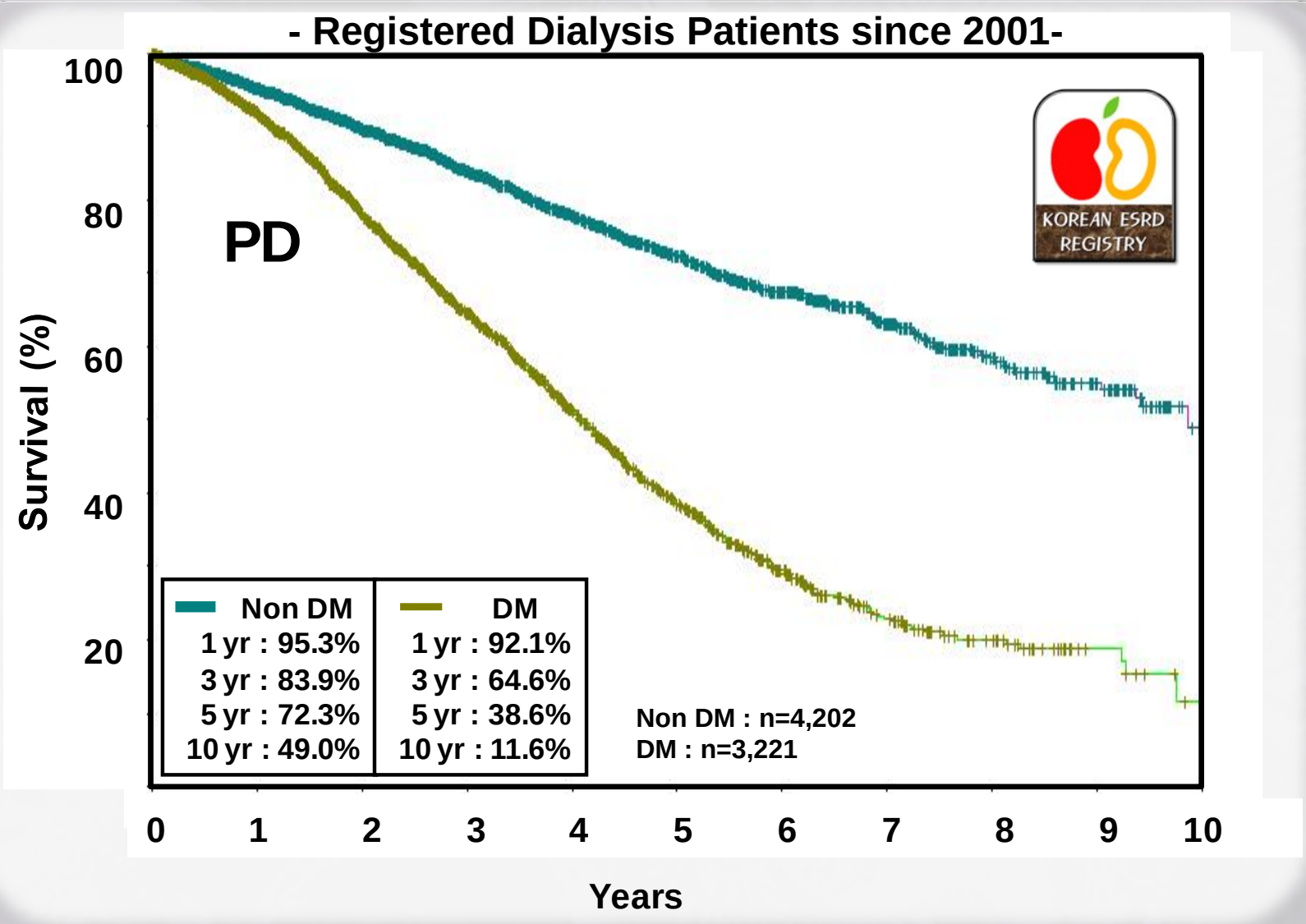
Patients Survival : DM vs Non-DM



HD Pts Survival : DM vs Non-DM



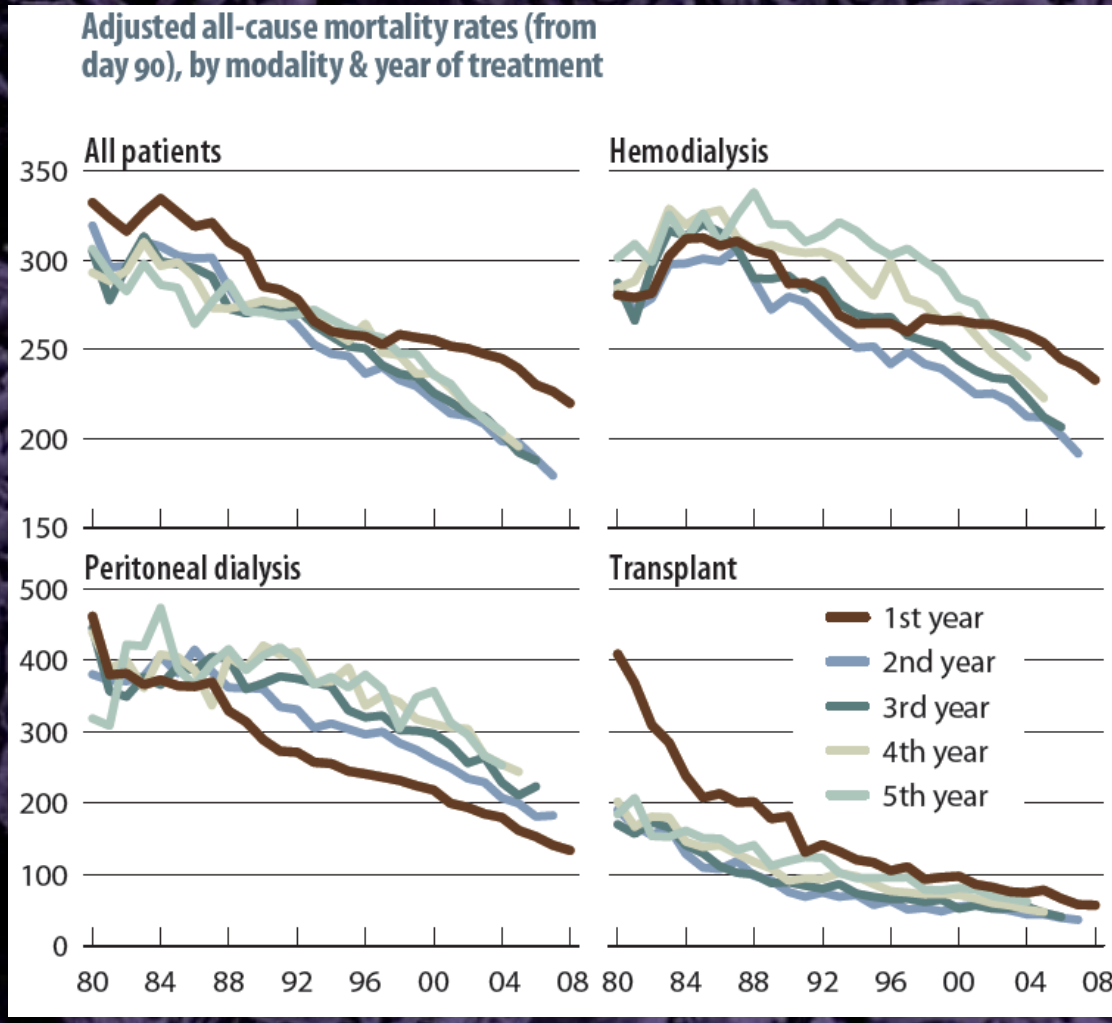
PD Pts Survival : DM vs Non-DM



Survival of ESRD Pts, USA

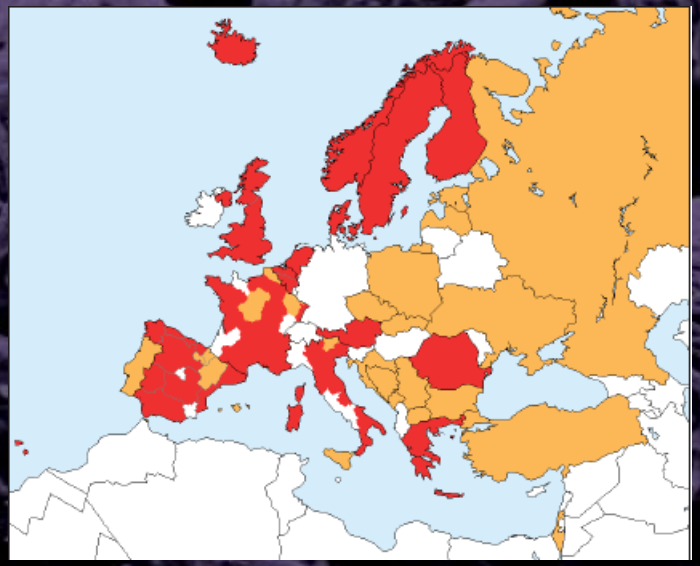
- 2009년말 투석환자수 : 39만9천명 (1,210PMP)
  - 신장이식유지 환자수 :17만 3천명 (528 PMP)
- 혈액투석 환자수 : 36만 3천명
- 복막투석 환자수 : 2만7천명

- Adjusted Survival probabilities in 60 months since 2004
  - Overall dialysis : 0.34
  - Hemodialysis: 0.34
  - Peritoneal dialysis : 0.40
  - Transplant : 0.73



KOREAN ESRD REGISTRY

Dialysis in Europe

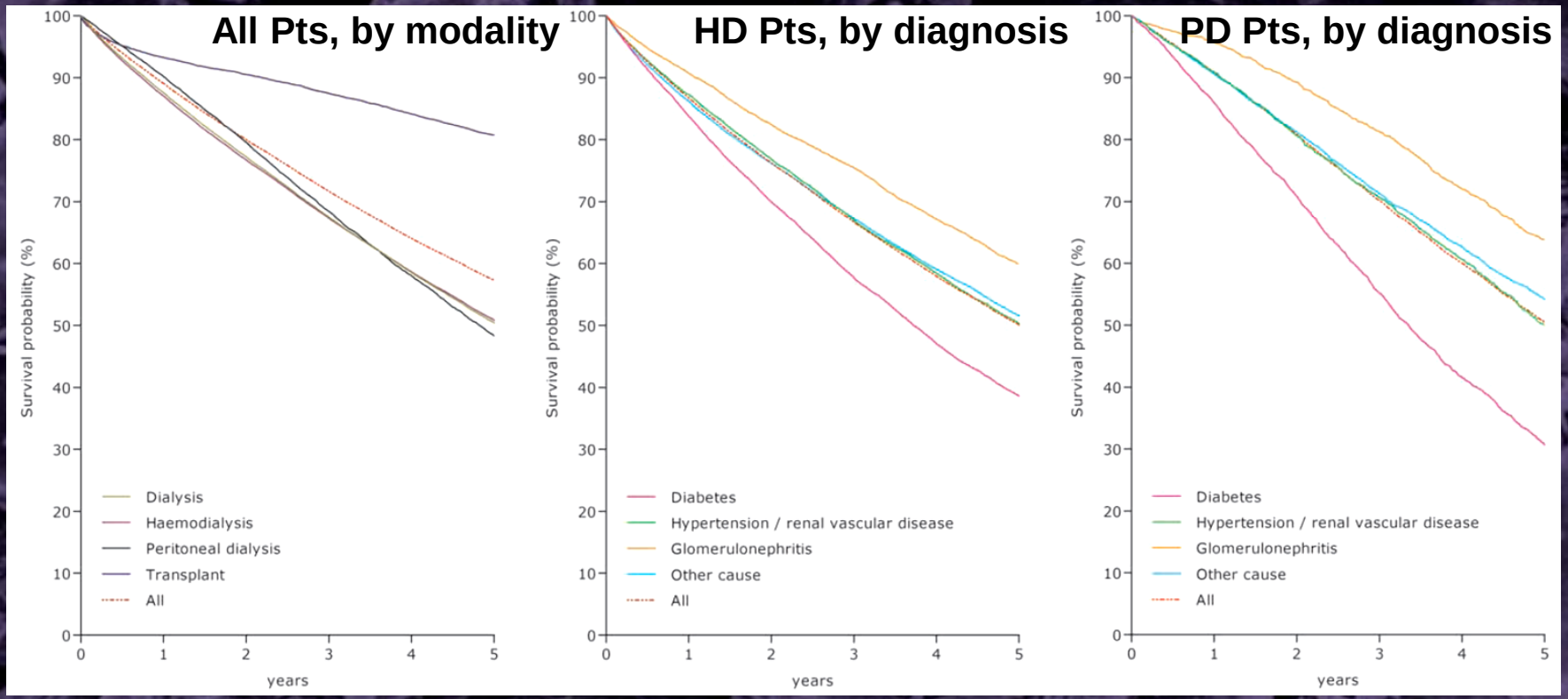


EUROPEAN RENAL ASSOCIATION
EUROPEAN DIALYSIS AND TRANSPLANT ASSOCIATION
Registered Charity No. 1060134

Annual Report 2009

ERA-EDTA Registry

- 2009년 말 기준
  (주요 참여국 통계)
- 유병율:Italy, France, Spain, Portugal : 1006 ~1506 PMP
- 60~64세 투석환자의 기대 여명: 5.6년



Dialysis in Japan

図　説
わが国の慢性透析療法の現況
2010年12月31日現在
An overview of regular dialysis treatment in Japan as of Dec. 31, 2010

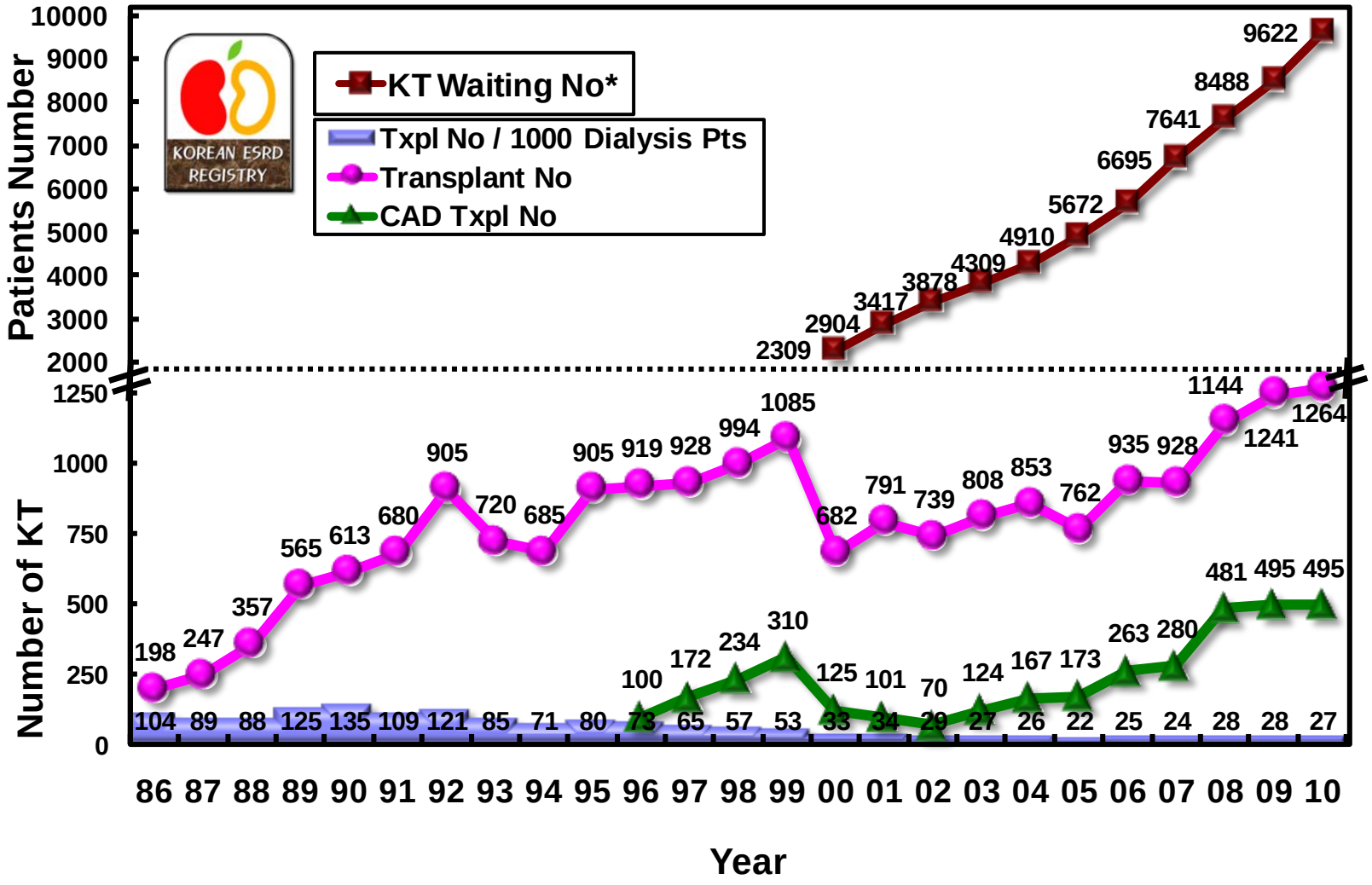
日本透析医学会
Japanese Society for Dialysis Therapy

- 2010년 말 기준
  - 투석기관수 : 4,152개소 (혈액투석기 118,135대)
  - 투석 환자수 : 29만7,126명 (2,320 PMP) : 20년 이상 투석환자 : 7.5%
  - 혈액투석환자수 : 28만7천명, (주간 24만 5천명 , 야간 4만2천명)
  - 복막투석 환자수: 9,728명 (3.3%)

Survival Rate

1 yr : 87.4%
5 yr : 59.6%
10 yr: 36.7%
20 yr: 17.2%

Kidney Transplantation

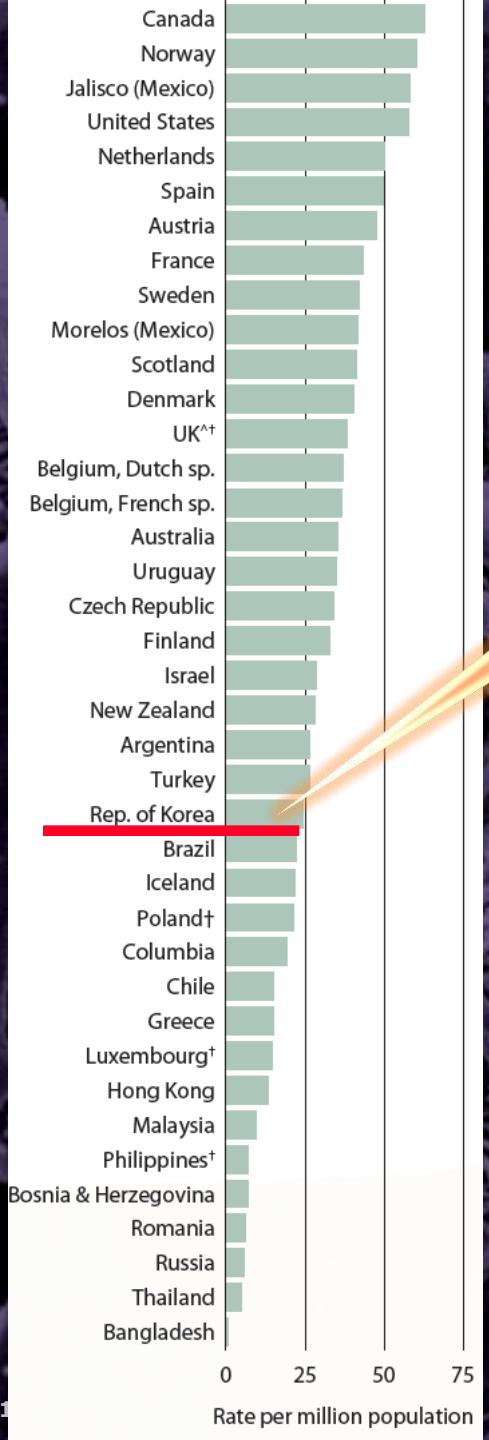


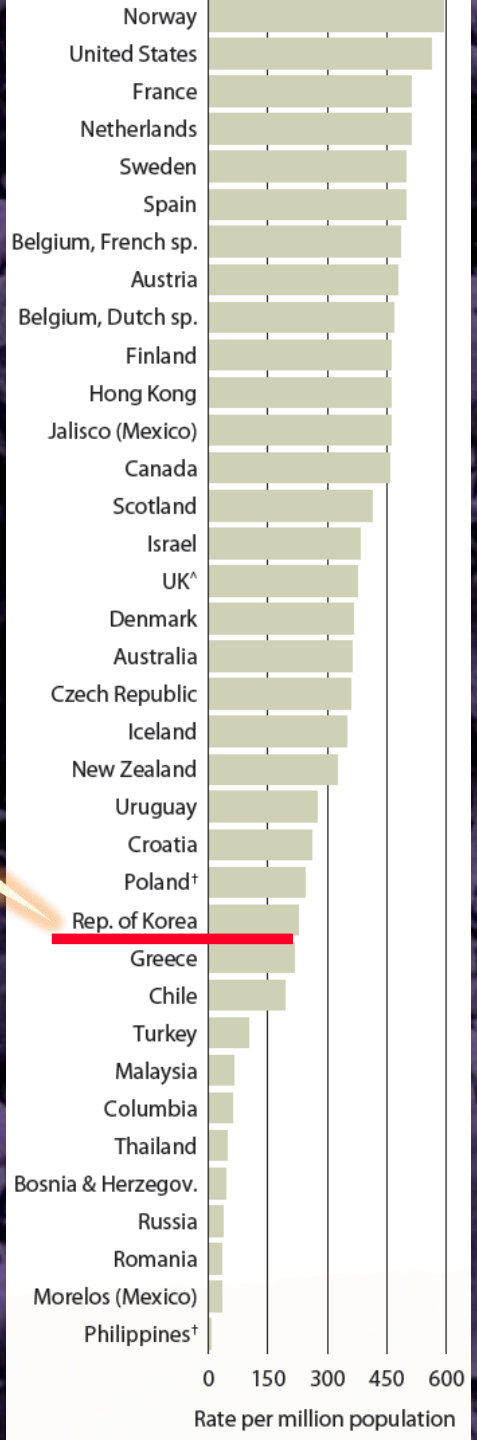
KOREAN ESRD REGISTRY

Kidney Transplantation

Incidence
24.5 PMP
2009

Prevalence
224.8 PMP
2009





united states renal data system
2011 USRDS ANNUAL DATA REPORT

U.S. Renal Data System, USRDS 2011 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2011.

KOREAN ESRD REGISTRY

특 징 요 약

- 투석환자 및 혈액투석기관수의 꾸준한 증가, 비윤리 의료기관 존재
- 복막투석의 감소 및 상대적 혈액투석 비율의 증가
- 원인 신질환에서 당뇨병성 신증의 비율 45% 유지
- 혈액투석 효율 점진적 향상, 빈혈 개선, 혈압저하
- 신장이식 약간 증가, 뇌사공여 500건 미만(증가 없음)
- 의료보험 심사평가원의 적정성 평가, 대한신장학회의 투석기관 인증제, 개인정보 보호법에 따른 등록사업의 변화 예정

감사의 글

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

  (FMC Korea, 보령제약, Baxter Korea, Gambro Korea)