ENCONTRO
RENAL

22 - 24 MARÇO 2018
CENTRO DE CONGRESSOS DE VILAMOURA
ALGARVE | PORTUGAL

Portuguese Registry of Dialysis and Transplantation 2017

Gabinete do Registo da Doença Renal Crónica
da
Sociedade Portuguesa de Nefrologia

Sociedade Portuguesa de Nefrologia

GABINETE DE REGISTO DA SPN

Fernando Macário

Rui Filipe

Maria João Carvalho

Ana Galvão

José António Lopes

Manuel Amoedo

Gil Silva

Abbreviations

- CKD – Chronic Kidney Disease
- HD - Haemodialysis
- PD - Peritoneal Dialysis
- KTr - Kidney Transplant
- PMP - Per Million Population
- RRT - Renal Replacement Therapy
- Pts – patients
- № - number
- VA – Vascular Access
- AVFistula – Arteriovenous fistula
- Cat. – Catheter
- CVC – Central Vein Catheter
- EDTA – European Dialysis and Transplantation Association

Brief appointment of the Portuguese Registry of Dialysis and Transplantation

- ***1984**: national registry for Chronic Renal Insufficiency was created by Prof. Dr. Jacinto Simões, President of the Portuguese Society of Nephrology*
- *From 1984 till end of eighties the registry follows casuistic EDTA model*
- *From the end of eighties till 1996 permanent registry with data on incidence, prevalence, mortality and other clinical data*
- ***1997 to 2007**, aggregated data on incidences, prevalence and mortality with 100% of clinics and hospitals reporting*
- ***Since 2007**, analysis of new clinical data on several aspects of CKD 5 treatment: incidence, prevalence, analysis by sexes and country regions, median age and age groups, etiology of CKD, gross mortality rates, vascular access, virology status, etc. Hundred percent response rate*
- ***2010**, online registry*
- *Head of Registry:*
  - ***1984 – 1990: Dr. João Ribeiro Santos***
  - ***1991 – 1992: Dr. Pedro Ponce***
  - ***1993: Dr. João Ribeiro Santos***
  - ***1994 – 1996: Dr. Francisco Remédio***
  - ***1997 – 2007: Dr. João Pinto dos Santos***
  - ***2007 - ... Fernando Macário***

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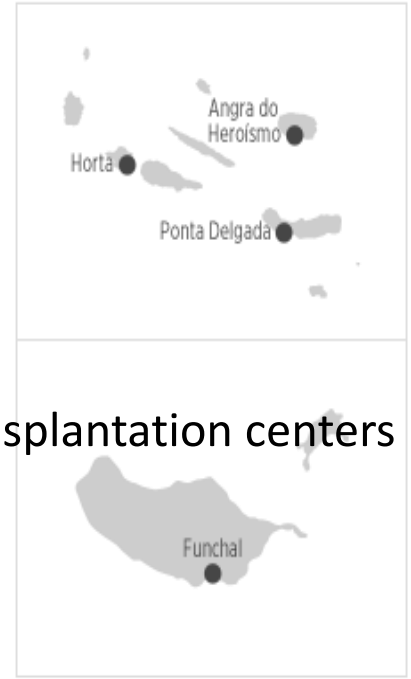
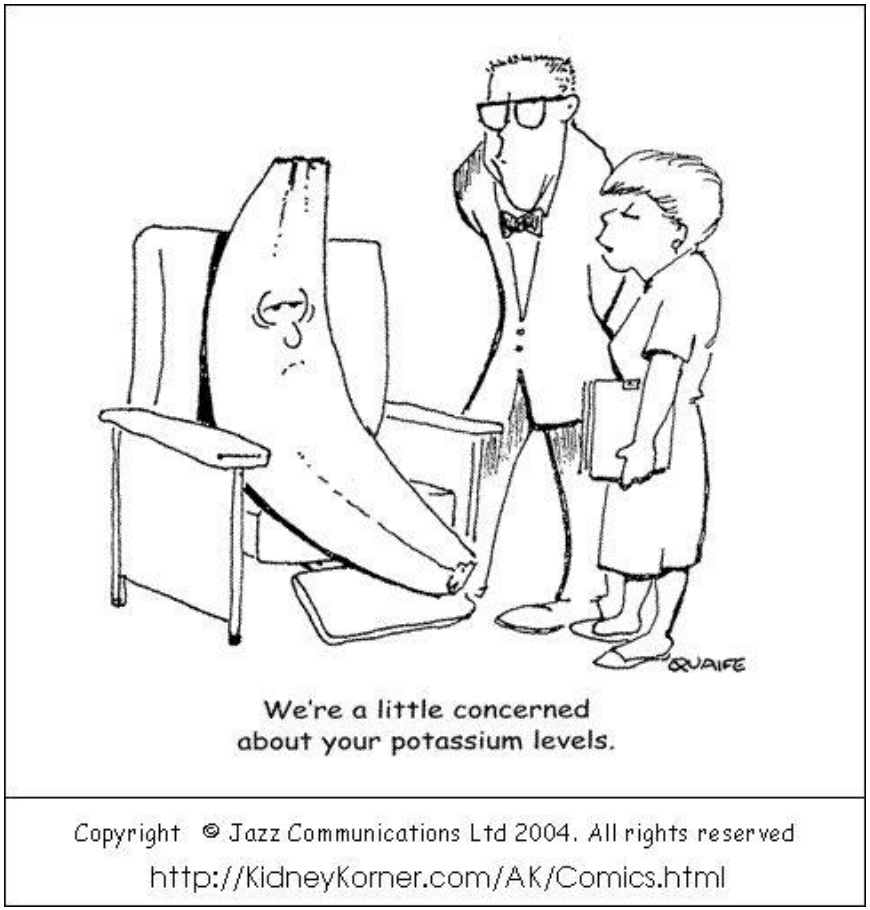
Portuguese Registry of Dialysis and Transplantation 2017

- Questionnaires for Hemodialysis (HD),

Peritoneal Dialysis (PD) and Kidney Transplantation

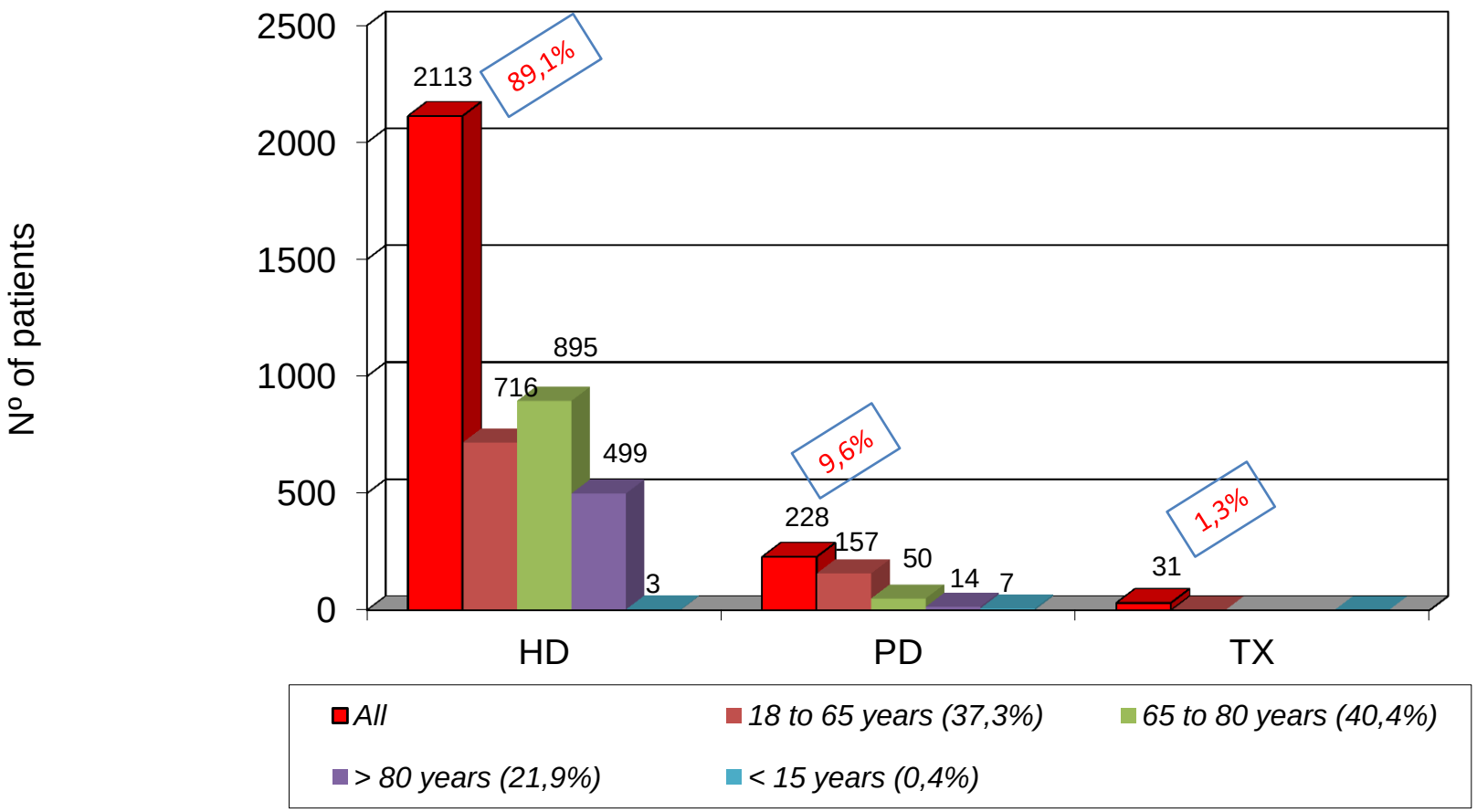
- 123 Hemodialysis Centers
- 25 Peritoneal Dialysis Units
- 8 adult and 1 pediatric kidney transplantation centers
- 100% response rate





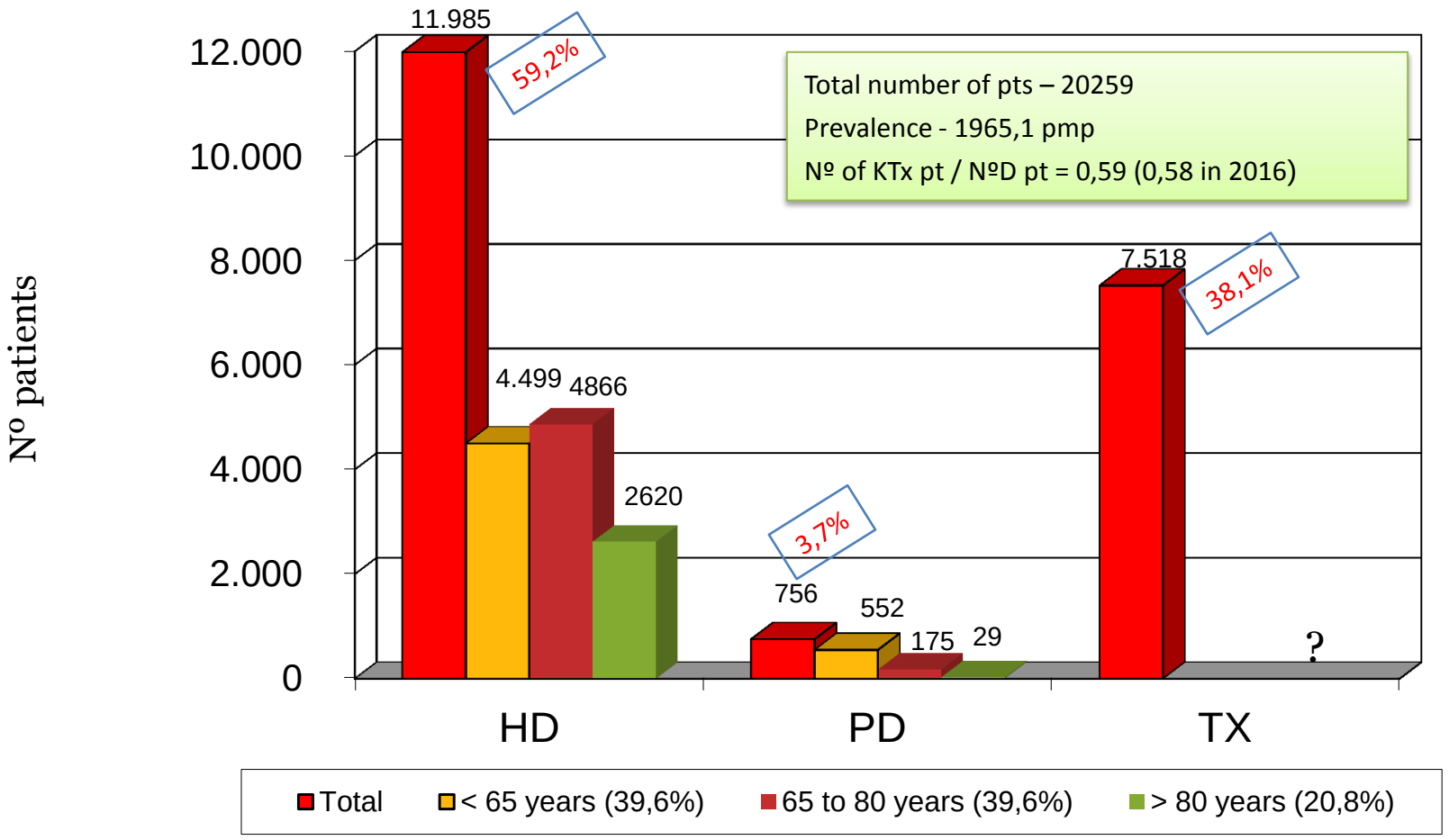
EPIDEMIOLOGY OF RRT IN PORTUGAL

New patients starting dialysis or submitted to renal transplantation during 2017 *(n=2372)*



Patients treated by dialysis or with functioning kidney transplant

31st December 2017



Mean age HD + PD = 67,1 years

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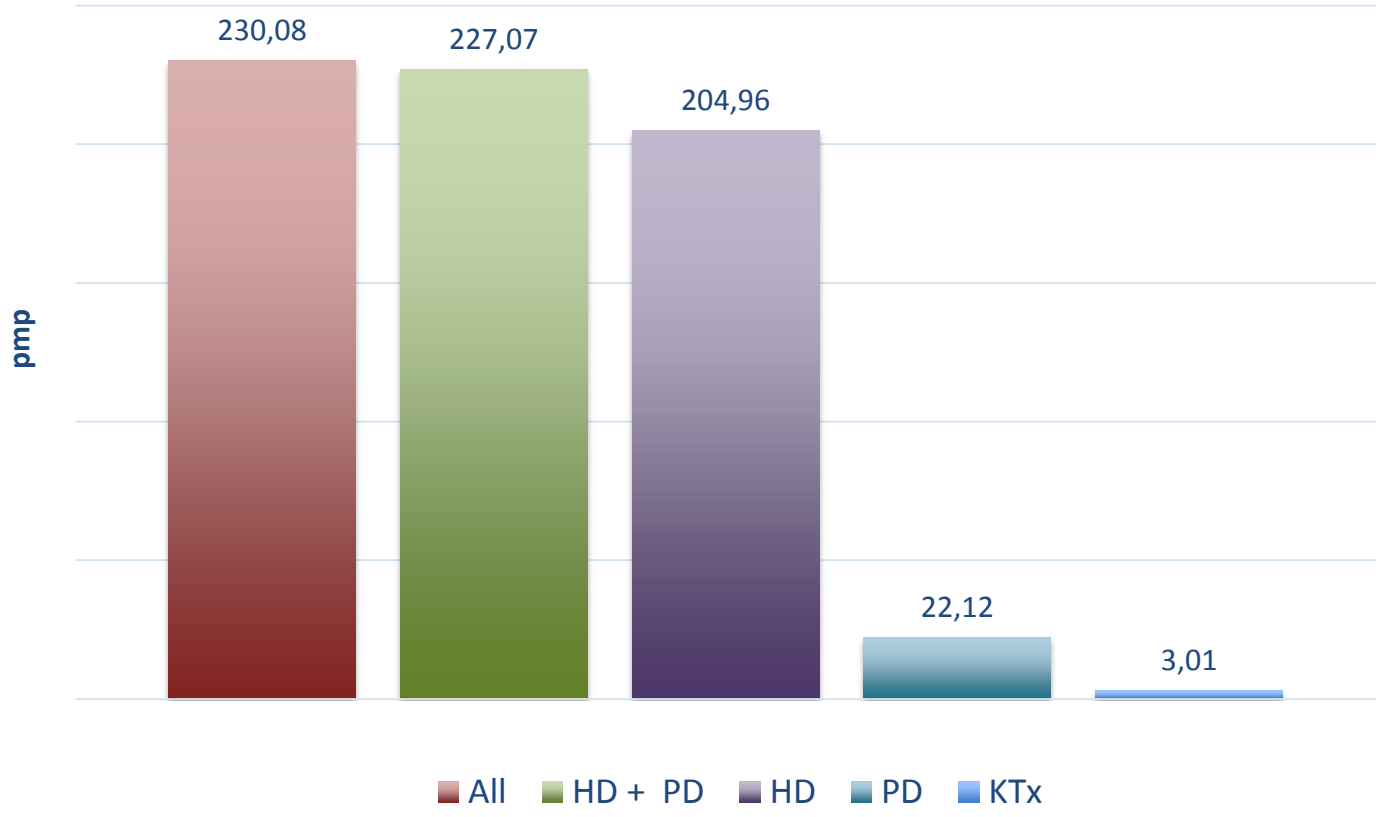
Incident patients accepted for RRT

per million population during 2017



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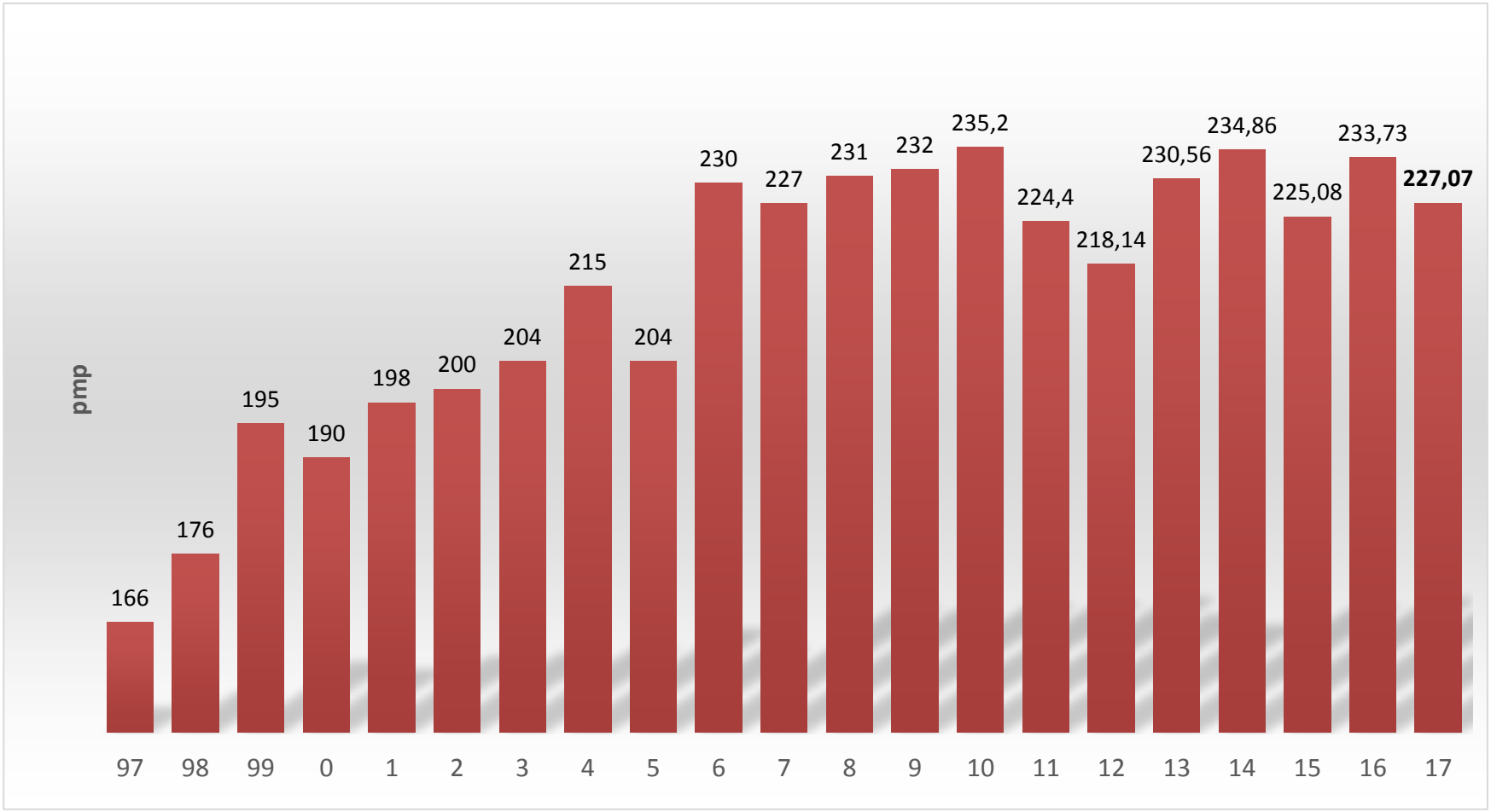
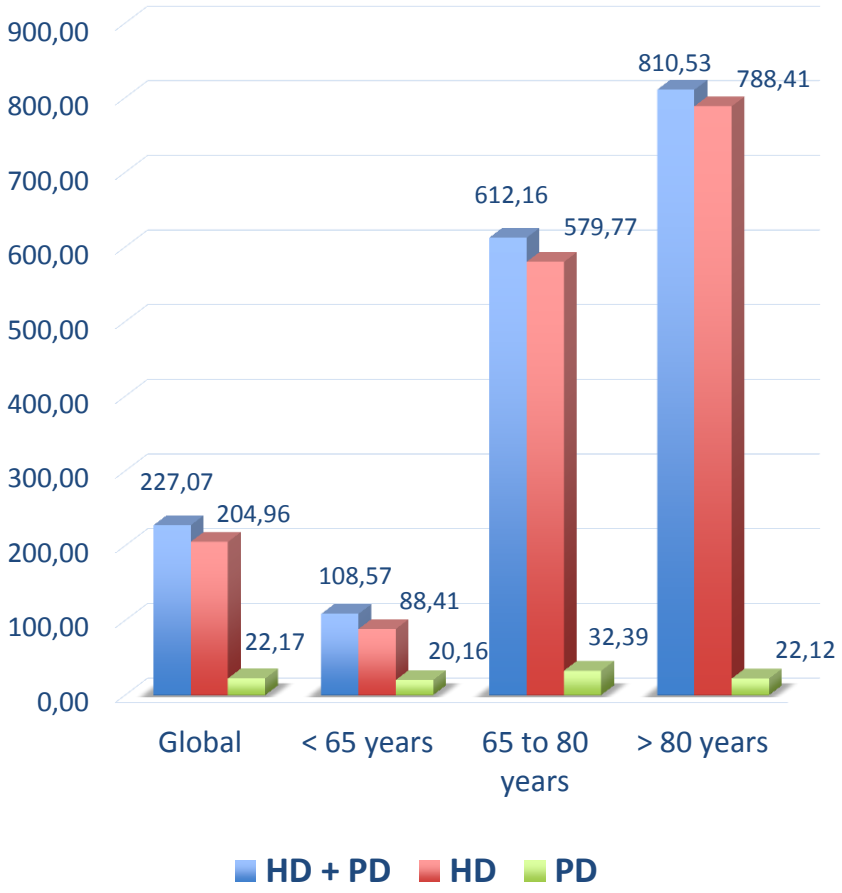
Incident patients accepted for dialysis

HD and PD per million population 2007 - 2017



Incident patients accepted for dialysis

HD and PD per million population by age group during 2017



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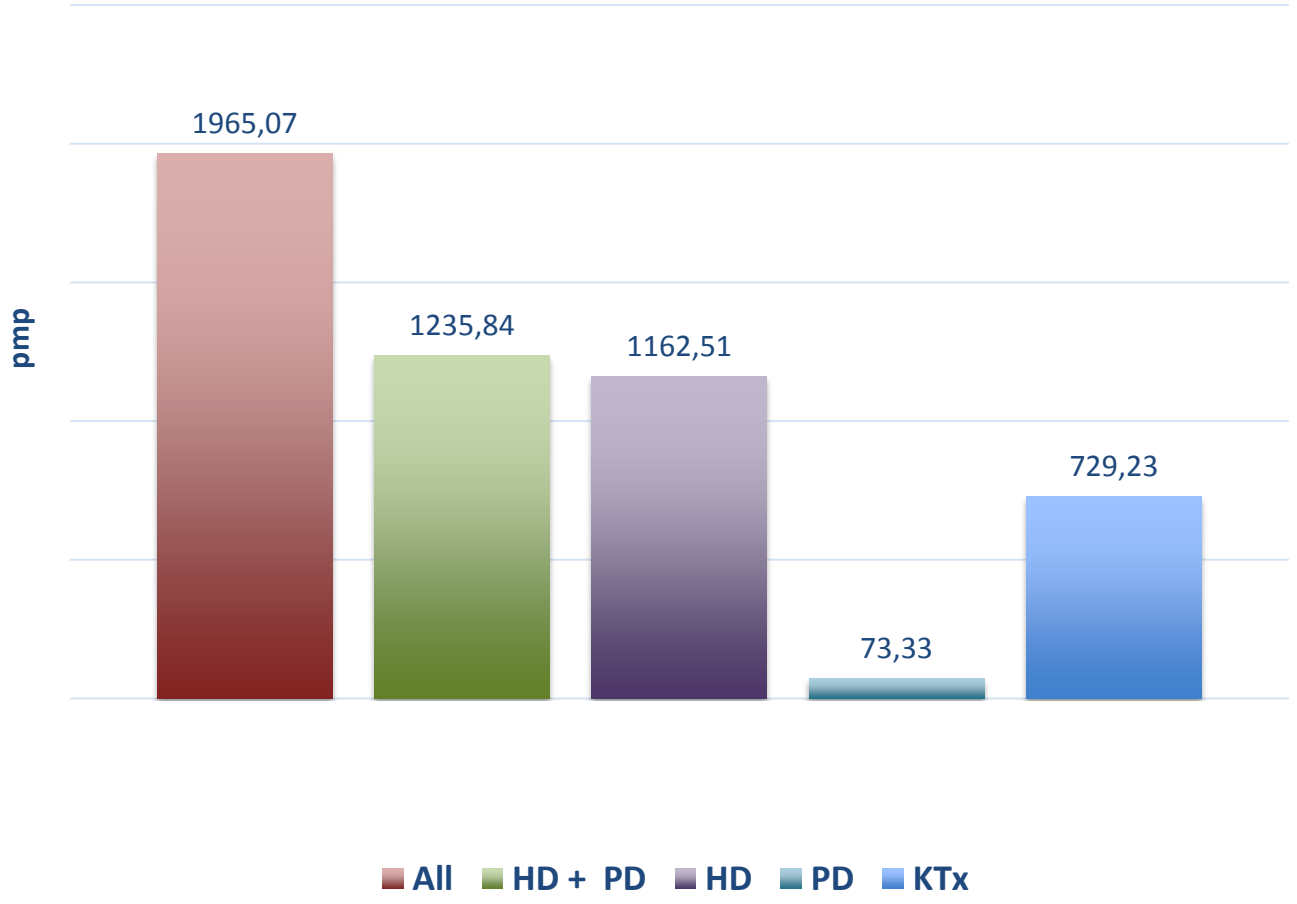
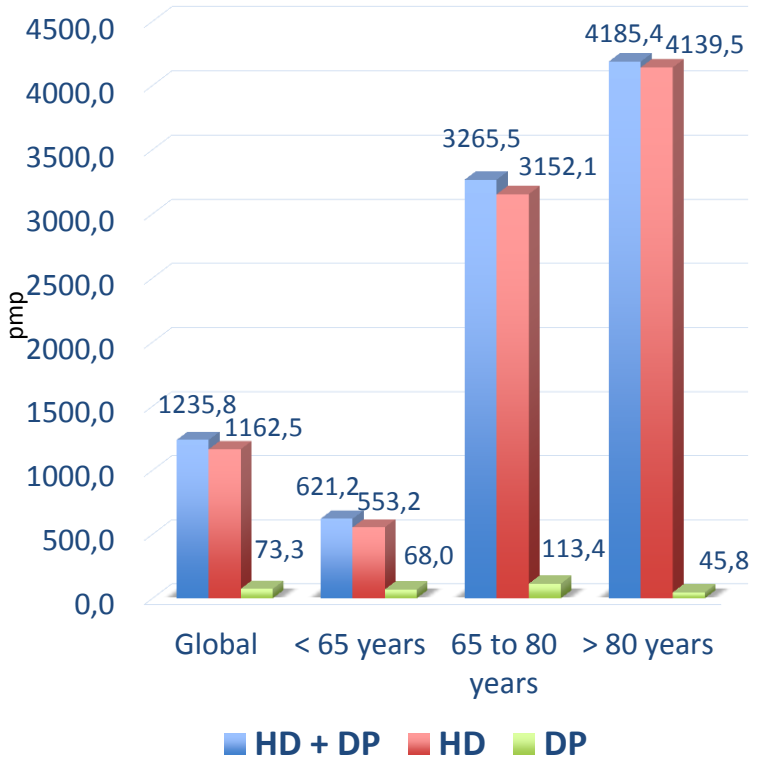
Prevalent patients on RRT by modality

per million population 31st December 2017



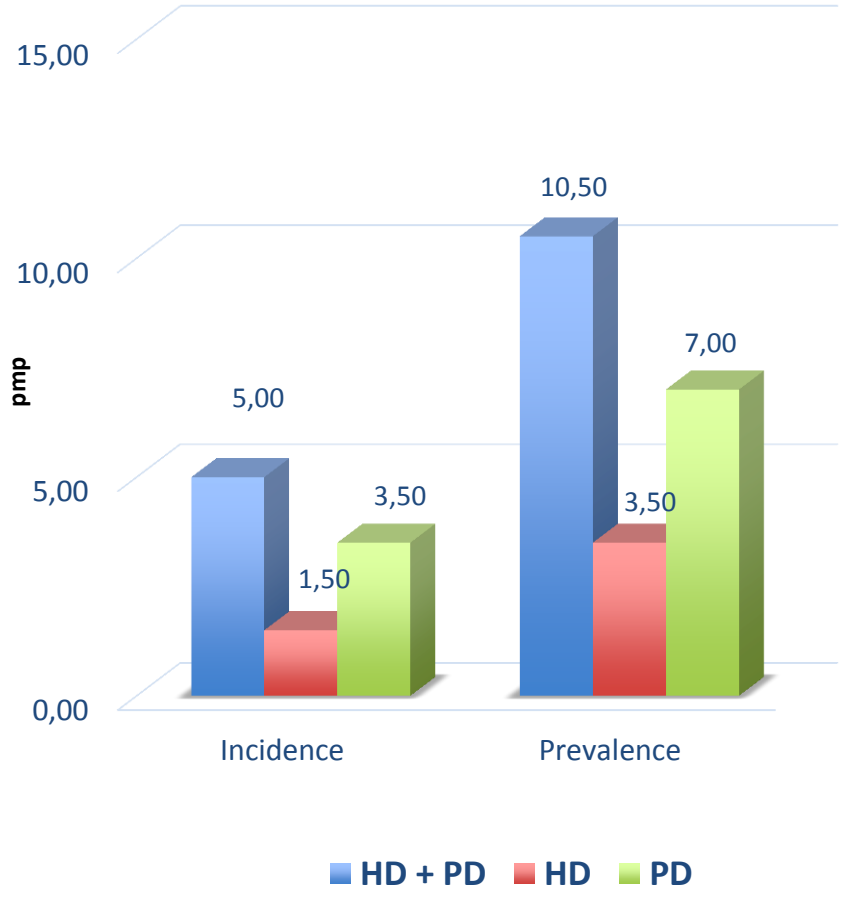
Prevalence of CKD patients treated by dialysis

per million population by age group in 2017



Incident and prevalent pediatric patients on dialysis

HD and PD per million population 2017



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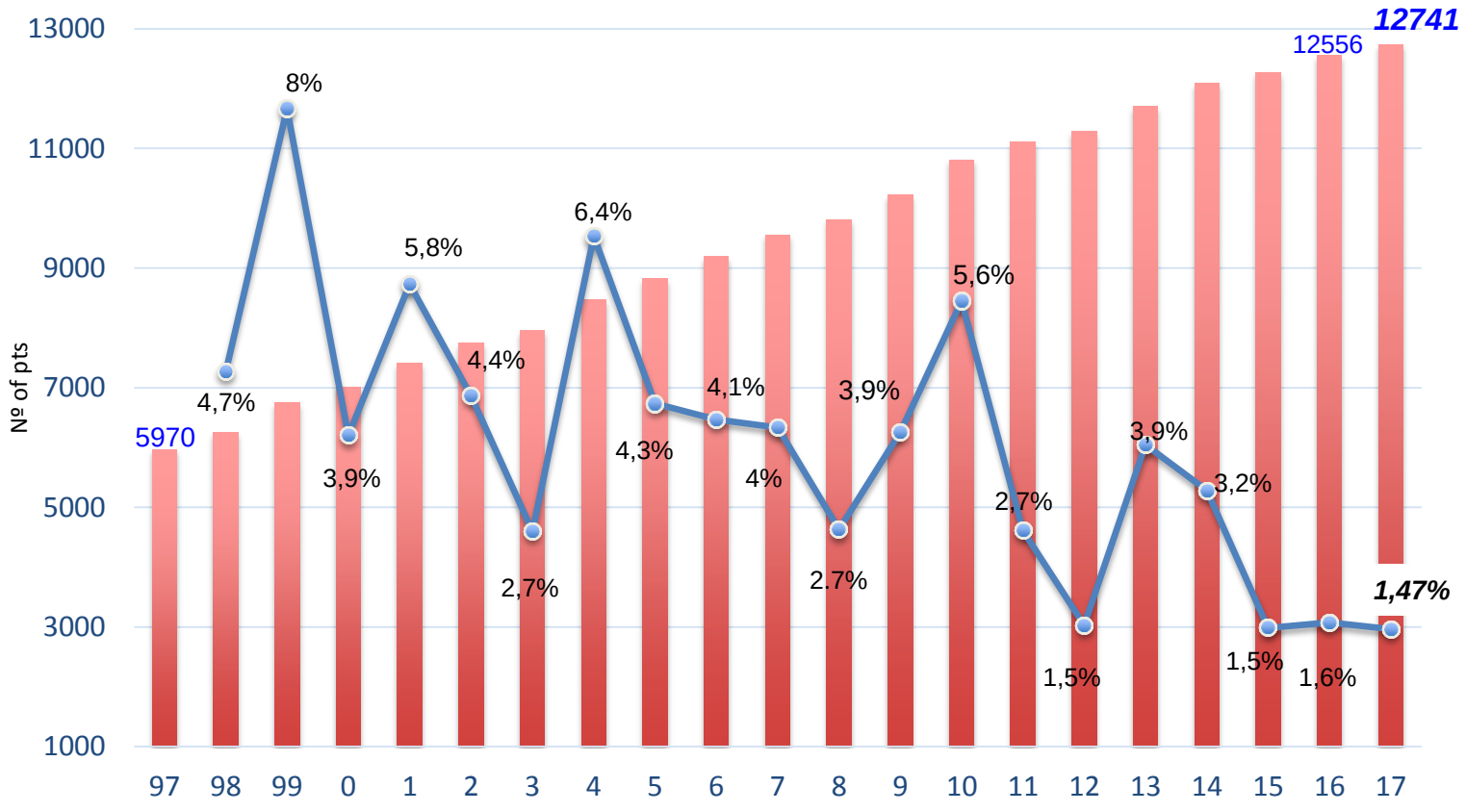
Patients on dialysis and annual growth

per million population end of each year 1997 - 2017



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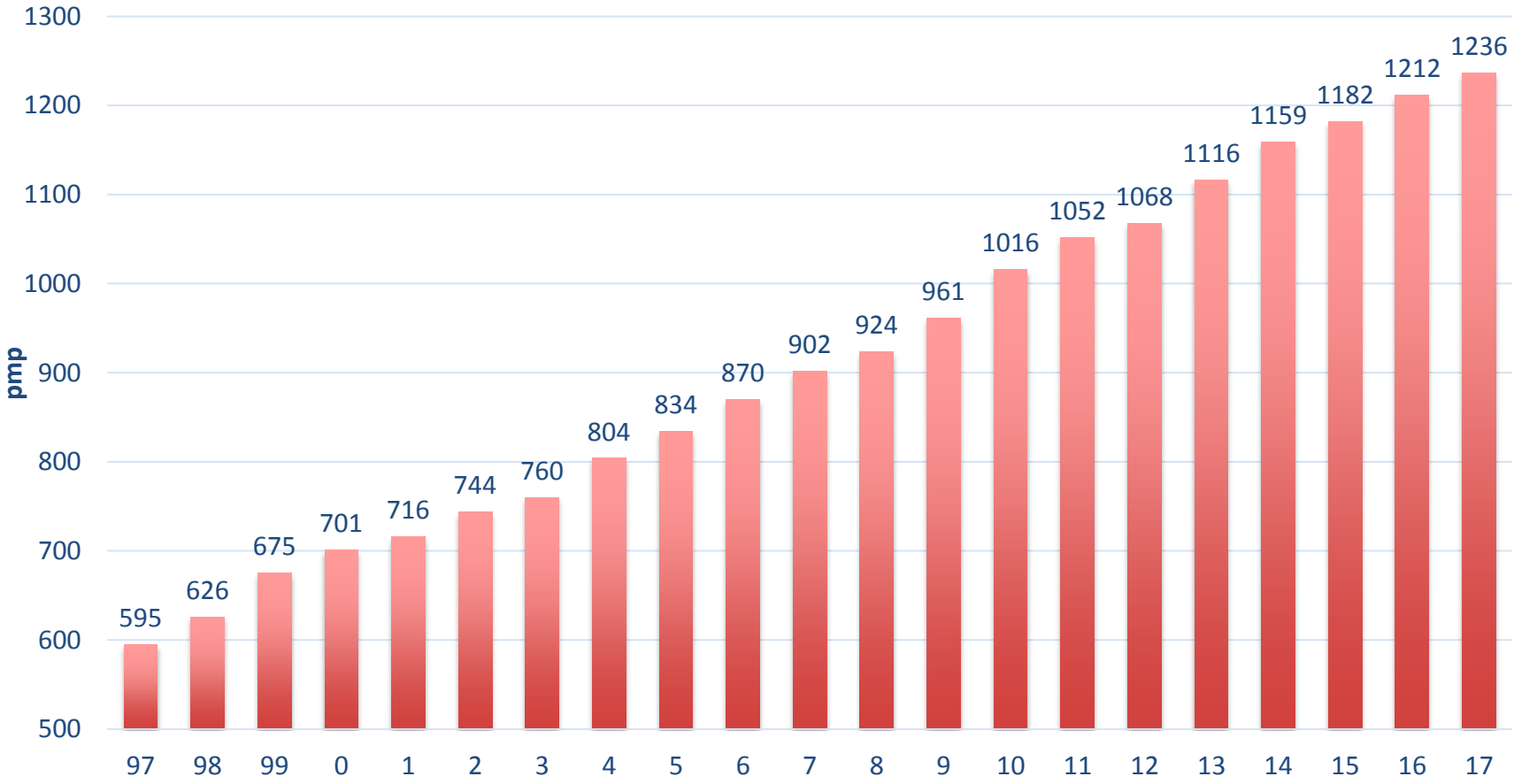
Prevalent patients on dialysis

per million population end of each year 1997 - 2017



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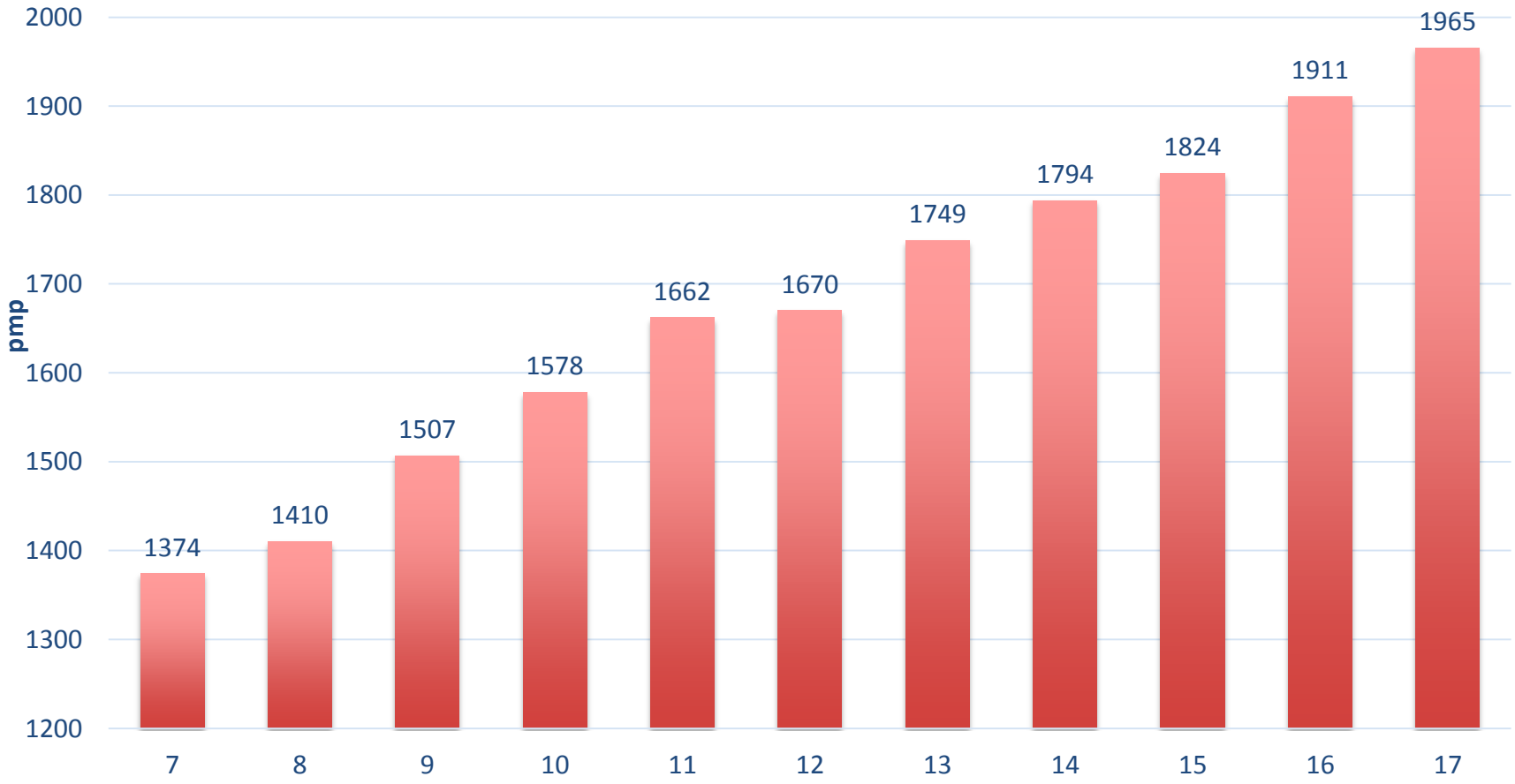
Prevalent patients on RRT

per million population end of each year 1997 - 2017



PD *vs* HD

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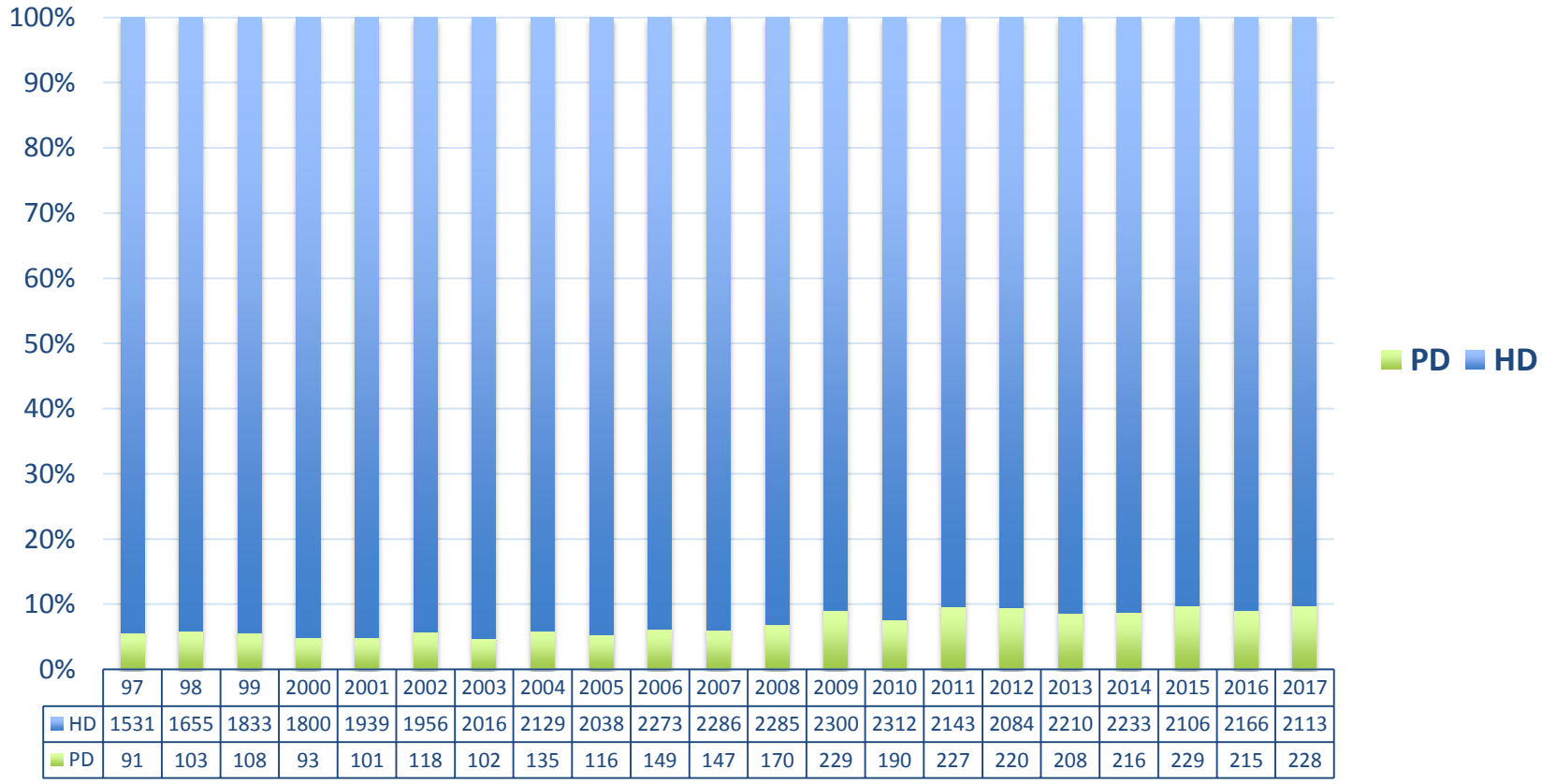
Incident patients starting PD *vs* HD

1997 - 2017



	97	98	99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
HD	1531	1655	1833	1800	1939	1956	2016	2129	2038	2273	2286	2285	2300	2312	2143	2084	2210	2233	2106	2166	2113
PD	91	103	108	93	101	118	102	135	116	149	147	170	229	190	227	220	208	216	229	215	228

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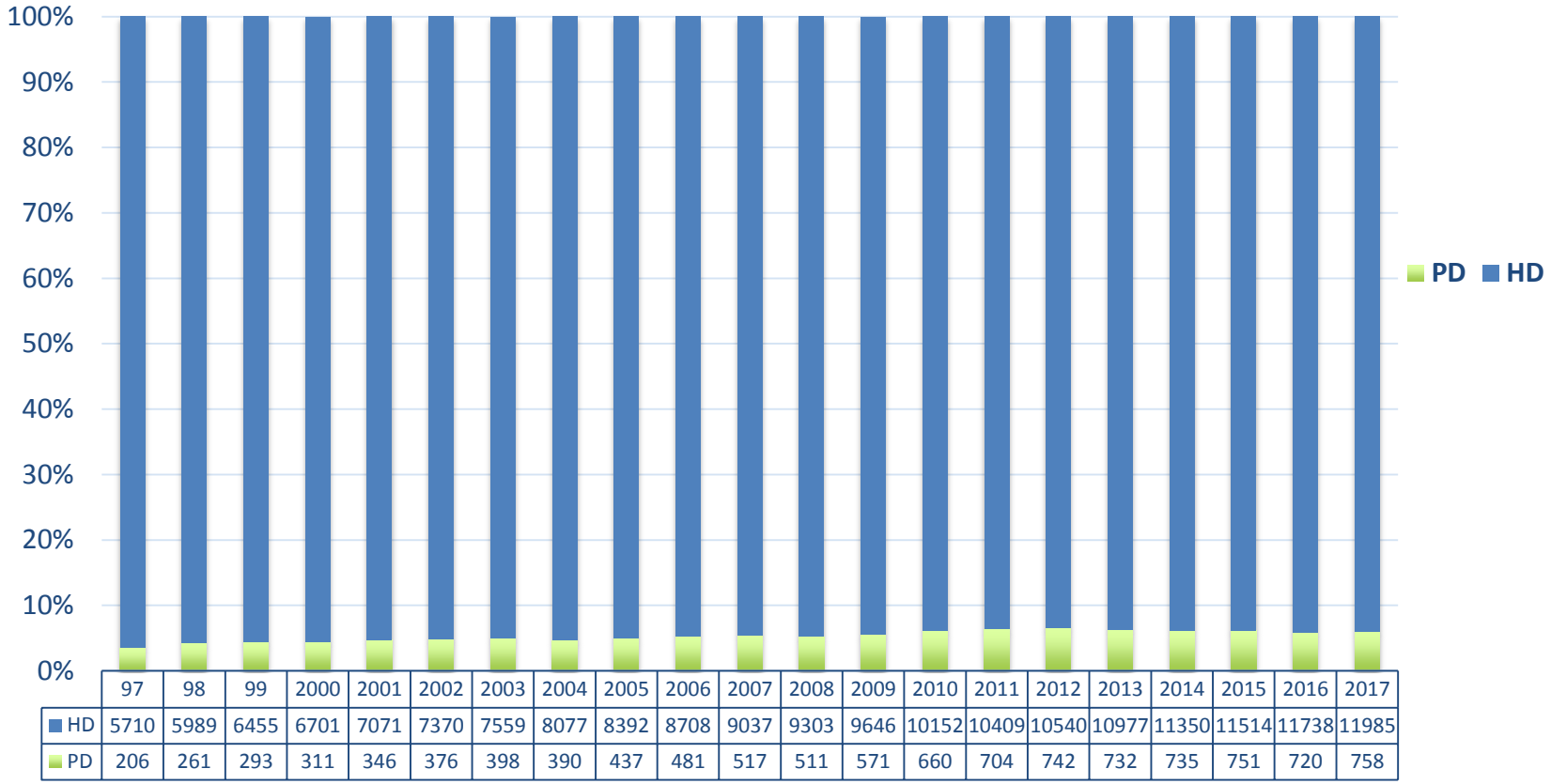
Prevalent patients on PD *vs* HD

1997 - 2017



	97	98	99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
HD	5710	5989	6455	6701	7071	7370	7559	8077	8392	8708	9037	9303	9646	10152	10409	10540	10977	11350	11514	11738	11985
PD	206	261	293	311	346	376	398	390	437	481	517	511	571	660	704	742	732	735	751	720	758

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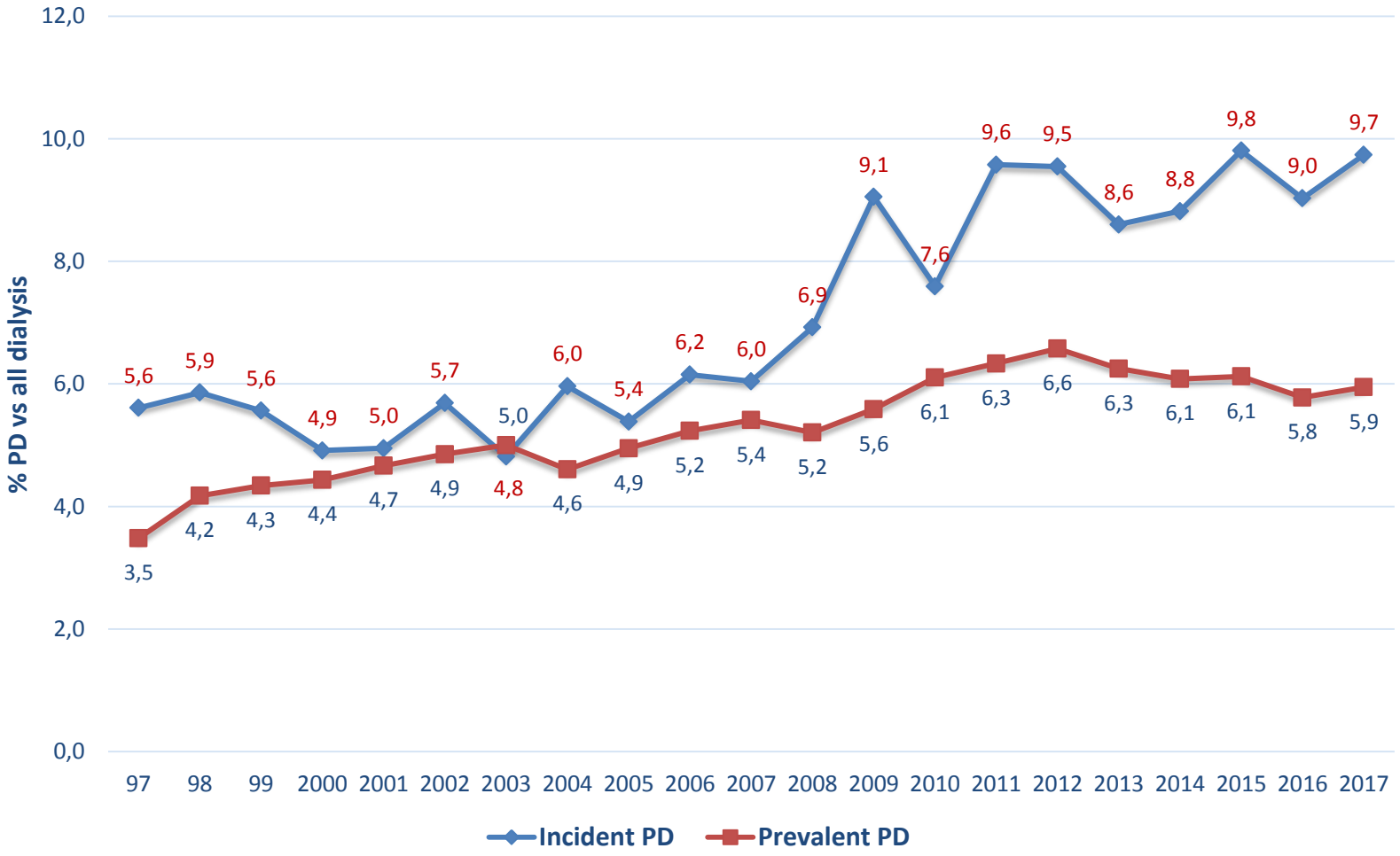
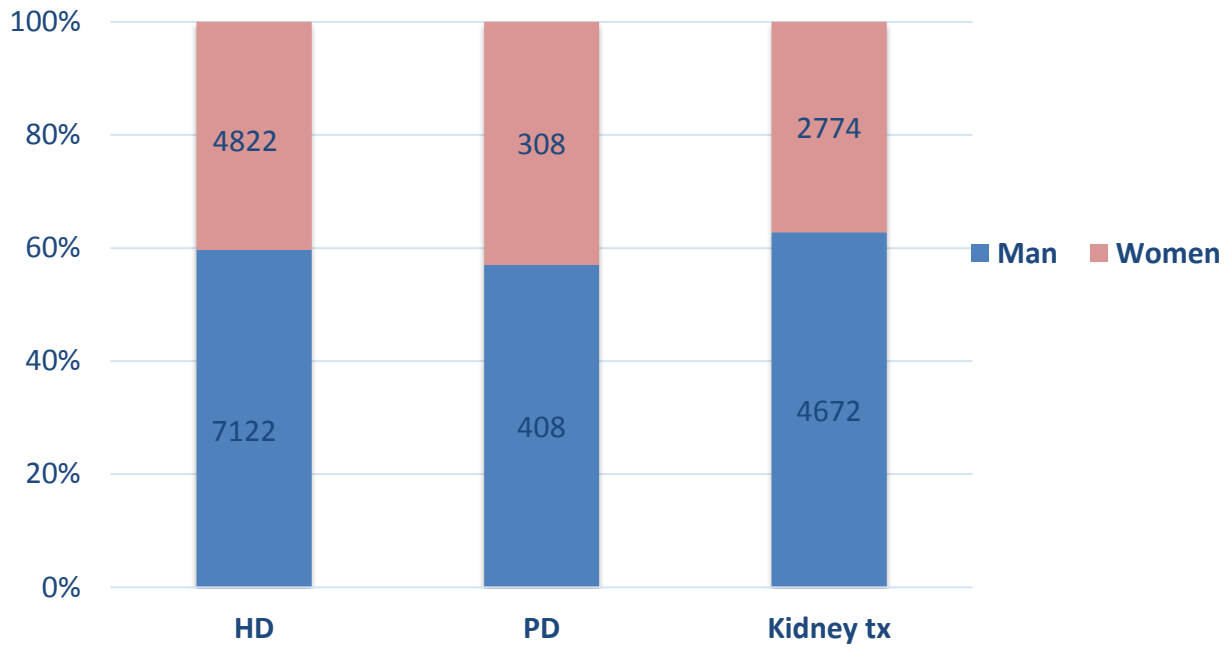
Percentage of dialysis patients treated by PD

Incident and prevalent pts 1997 - 2017



Gender distribution in each modality

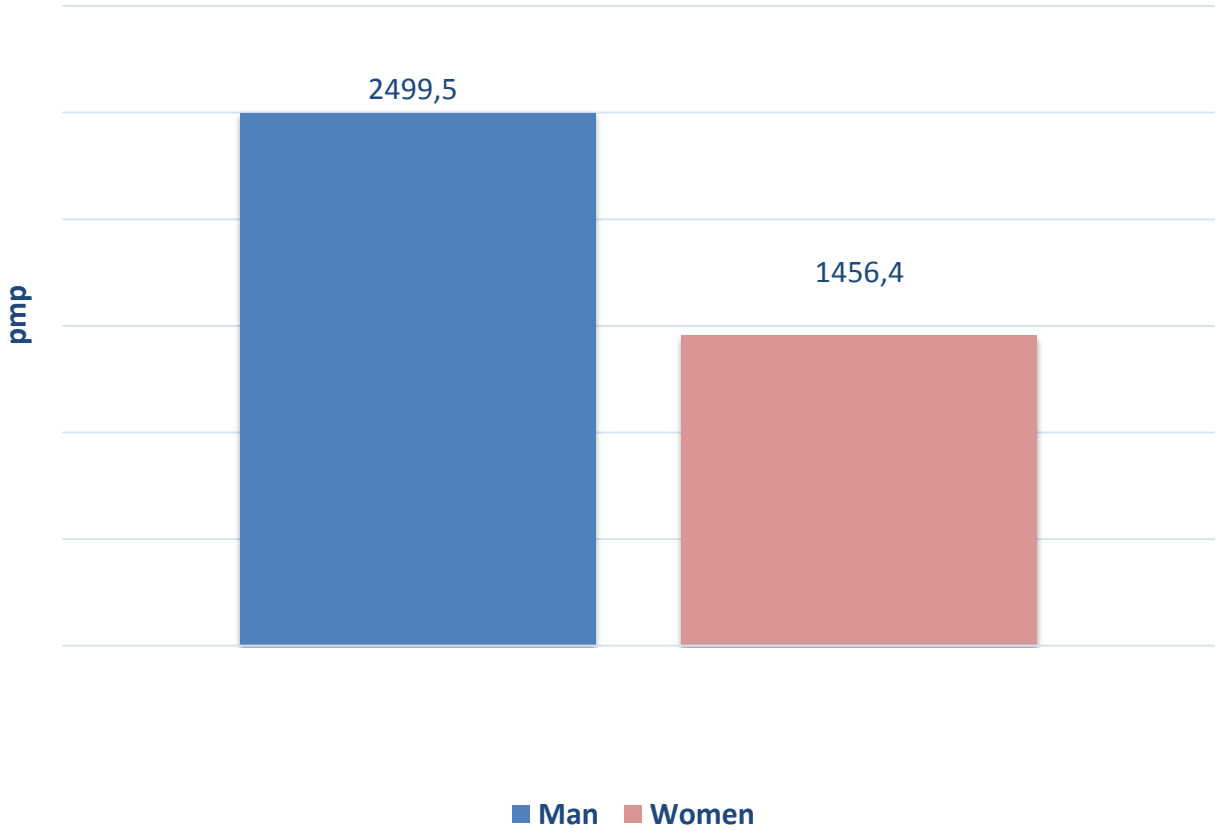
31st December 2017



*** 153 missing data**

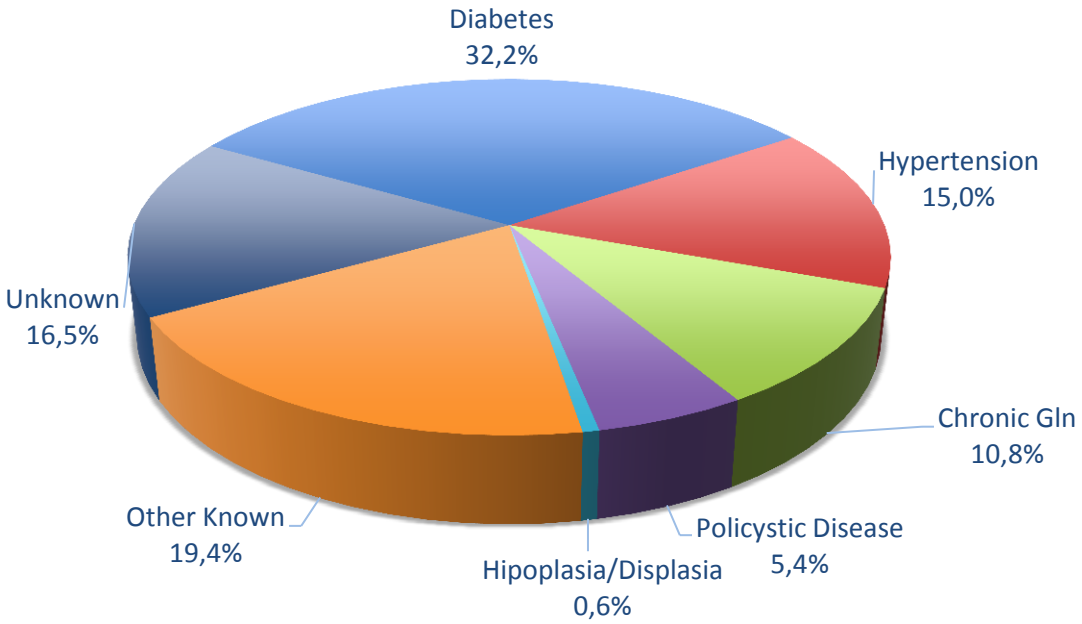
Prevalence by gender, all RRT

per million population 31st December 2017



Primary renal disease of patients accepted for dialysis

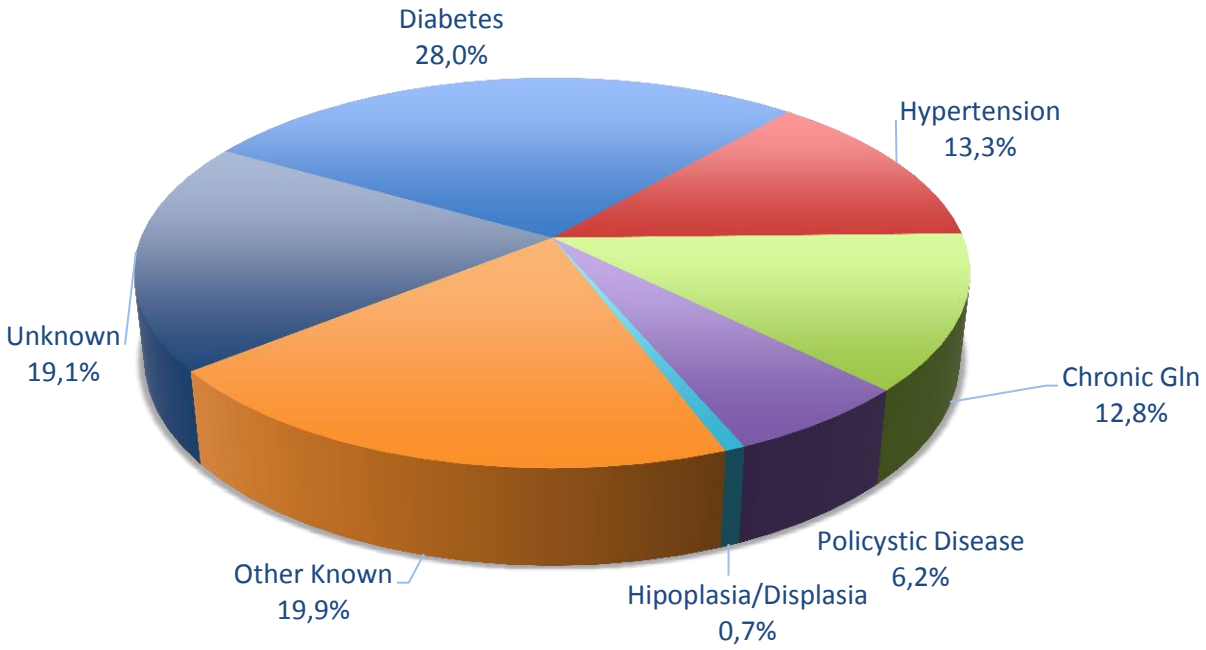
HD and PD during 2017



Not available = 6

Primary renal disease of prevalent patients

HD and PD, 31st December 2017



N = 12548
Not available = 193

I don't care what day it is.
Four hours is four hours.

HEMODIALYSIS

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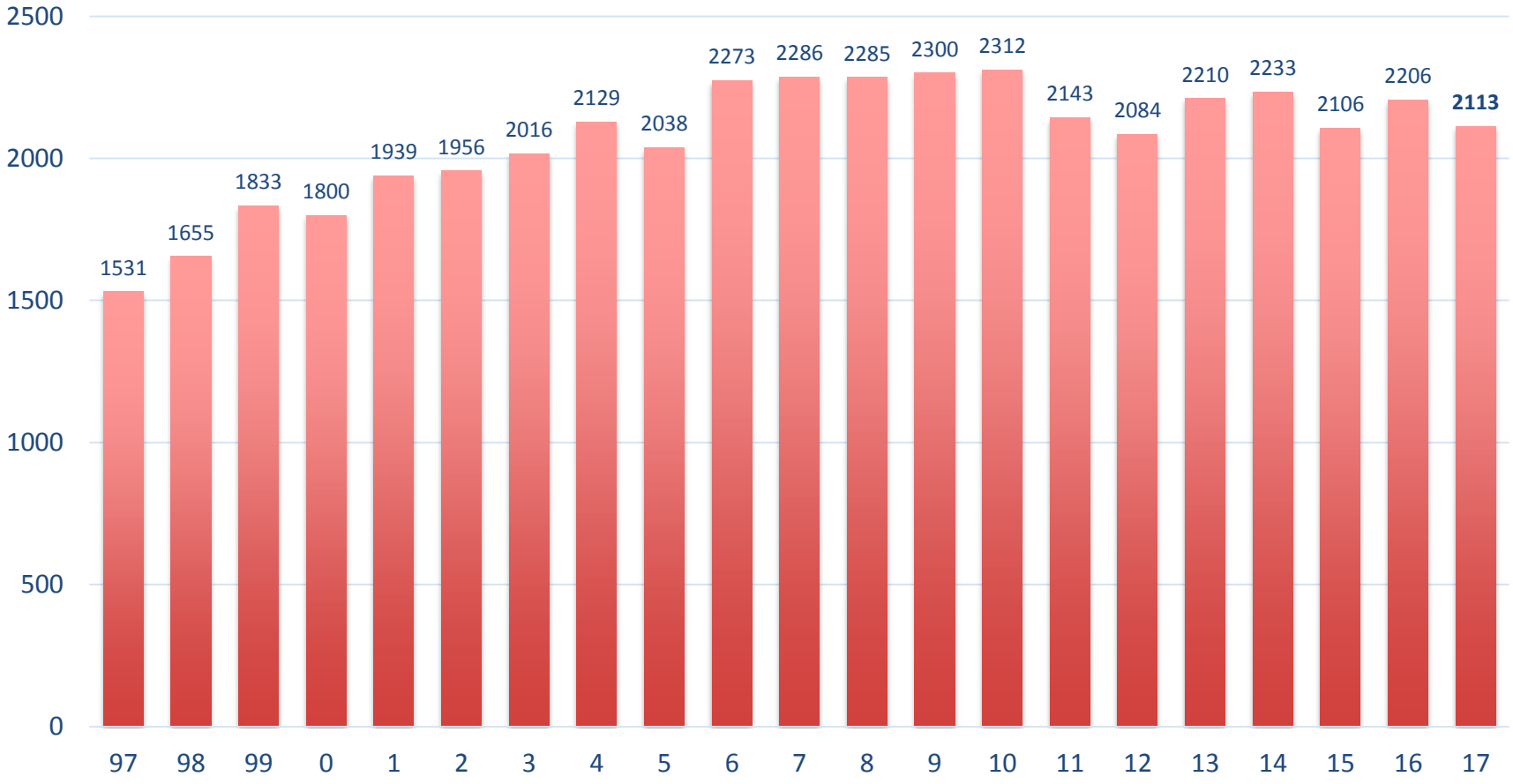
New patients accepted for hemodialysis

1997 - 2017



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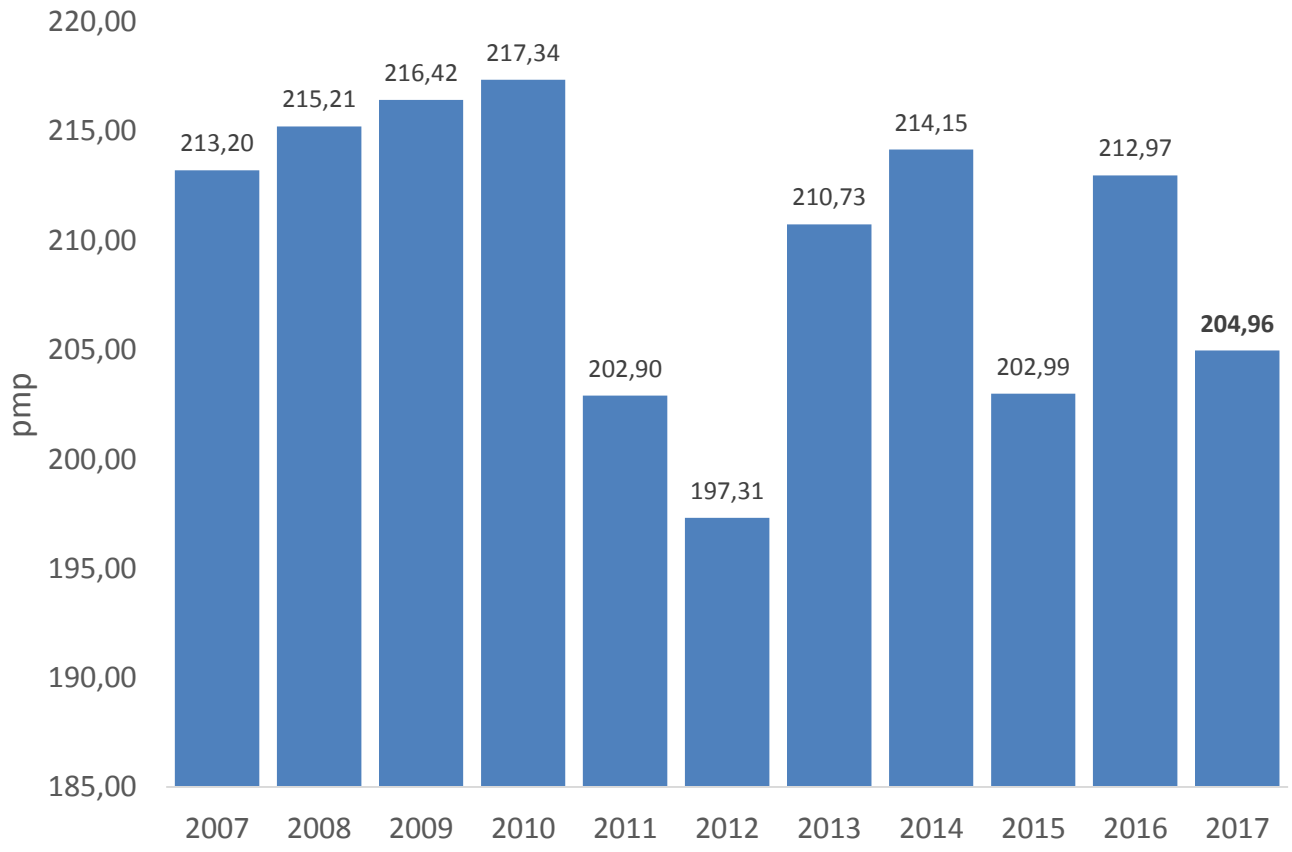
Incident patients accepted for hemodialysis

per million population 2007 - 2017



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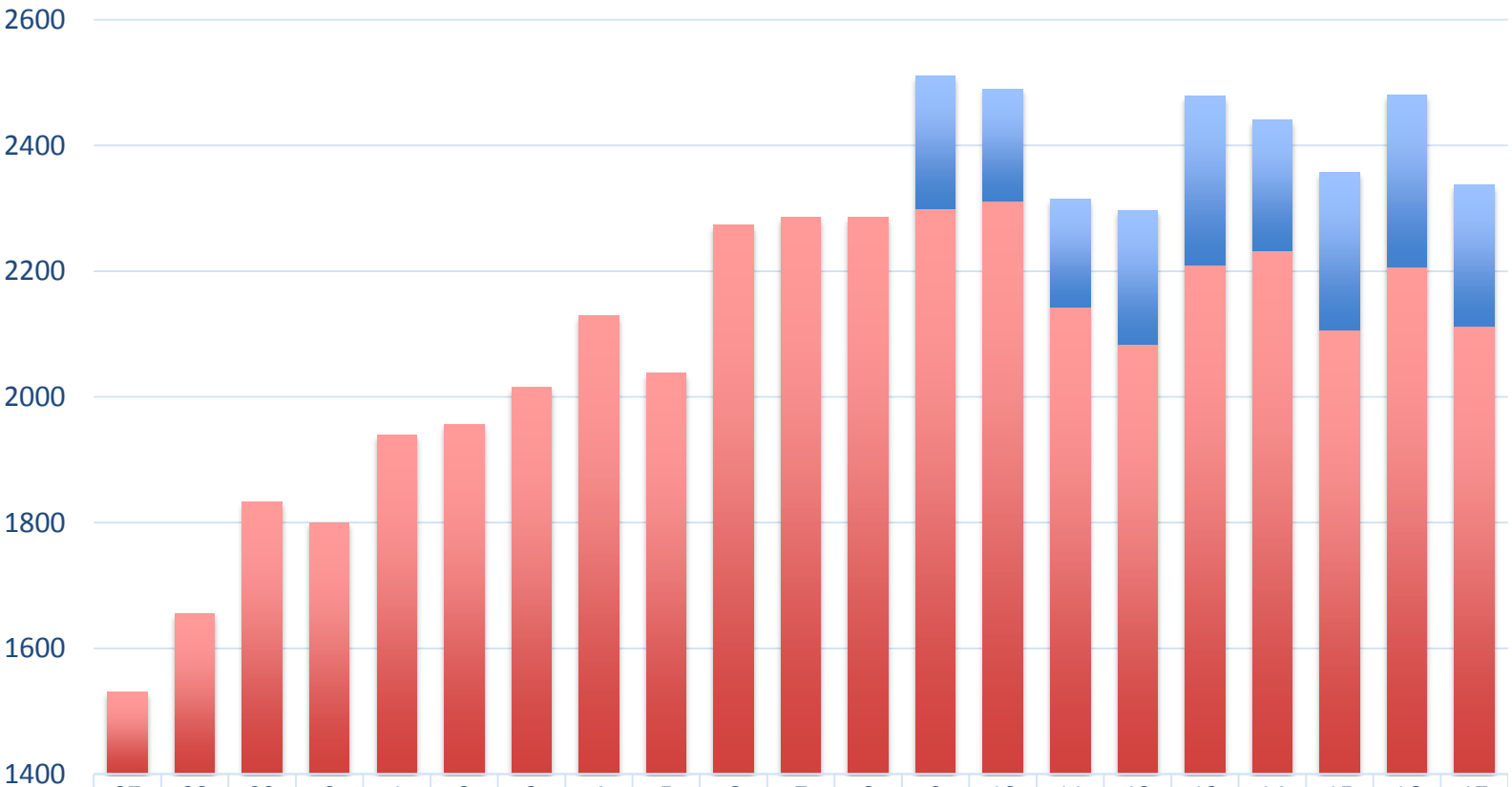
All patients accepted for hemodialysis

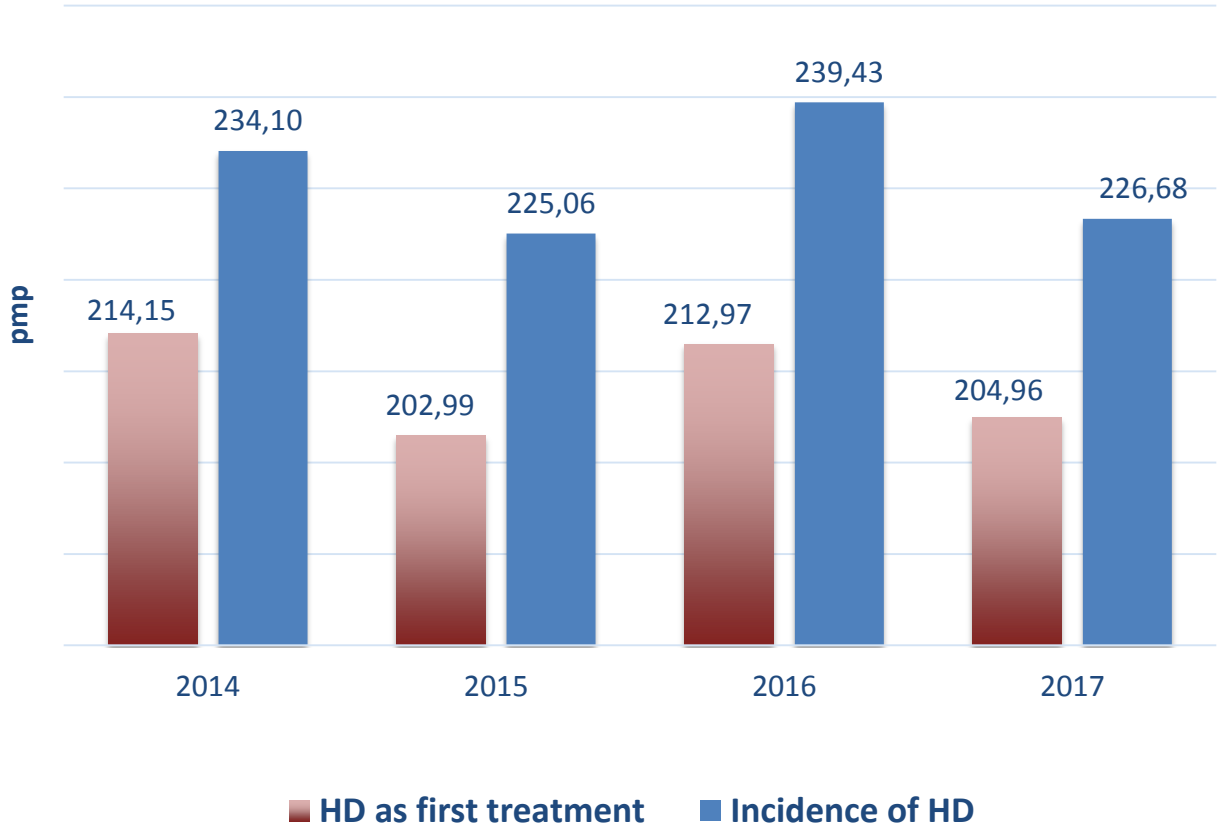
Incident and returning from other modalities 1997 - 2017



	97	98	99	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
PD or Ktx to HD													211	178	172	213	268	208	251	274	224
Incident	1531	1655	1833	1800	1939	1956	2016	2129	2038	2273	2286	2285	2300	2312	2143	2084	2210	2233	2106	2206	2113

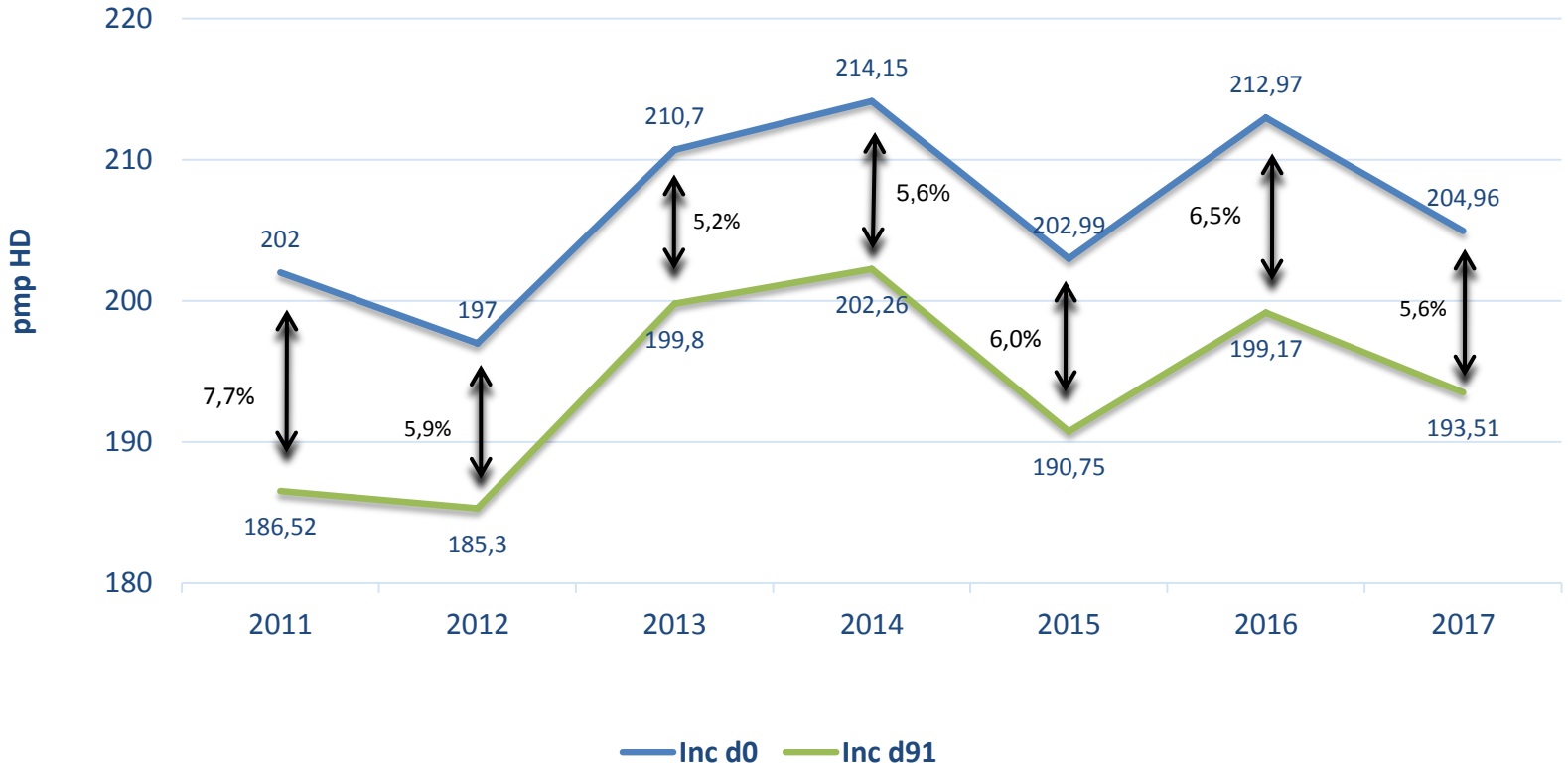
Patients accepted for hemodialysis

"Incident" and "Incident plus returning from other modalities", pmp, 2014-2017



Incident patients accepted for hemodialysis

Day 0 and day 91, 2011-2017



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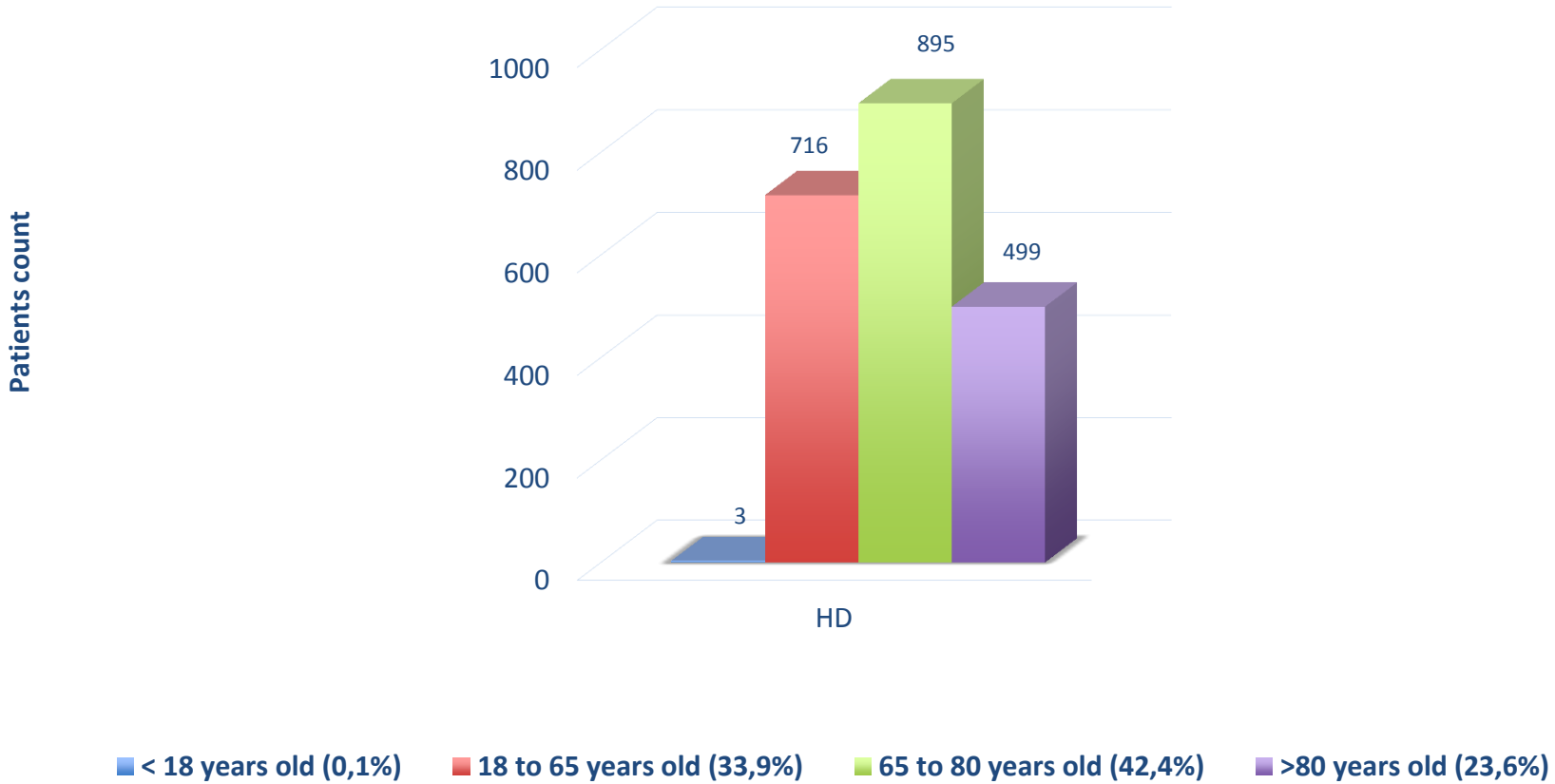
Patients accepted for hemodialysis

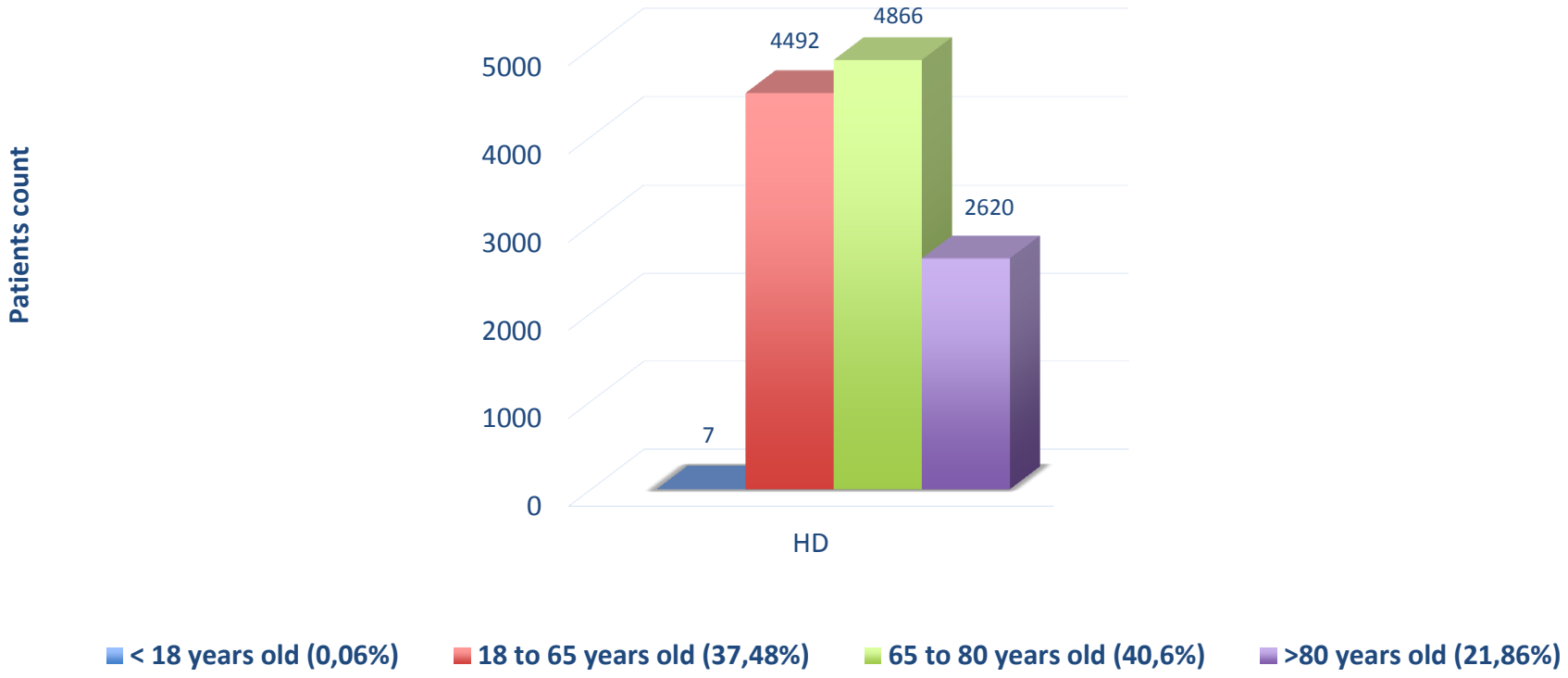
by age group, during 2017



N = 2113

Patients treated by hemodialysis

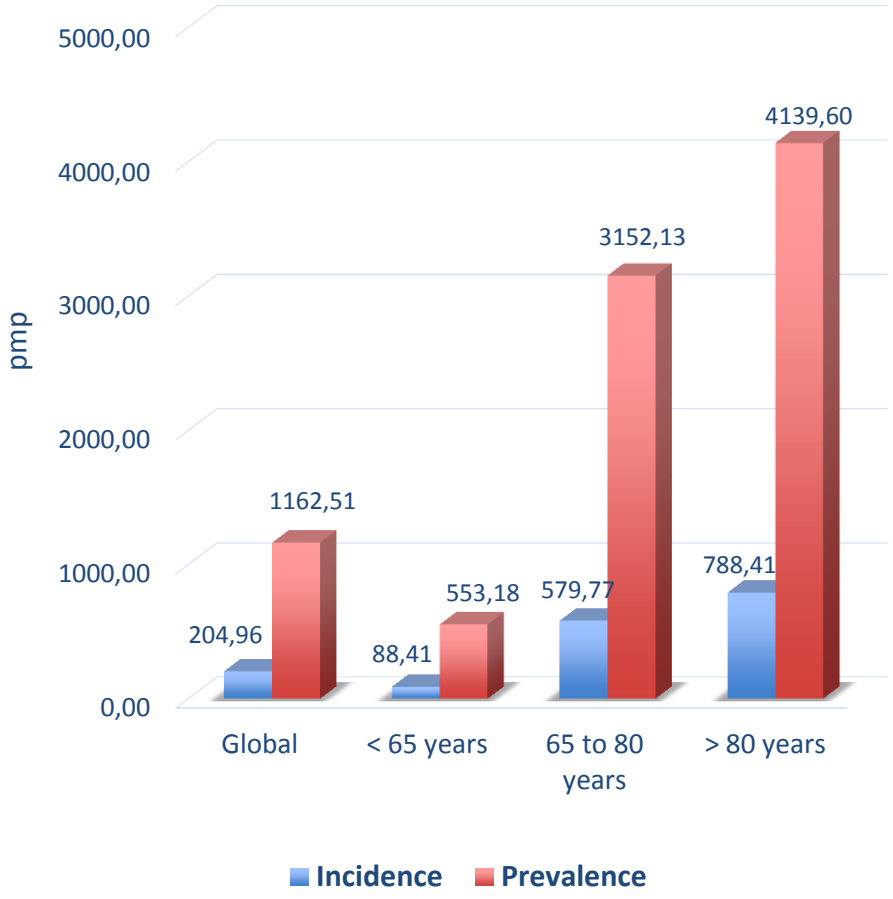
by age group , 31st December 2017



N = 11985

Incident and prevalent patients treated by hemodialysis

per million population by age group, 2017



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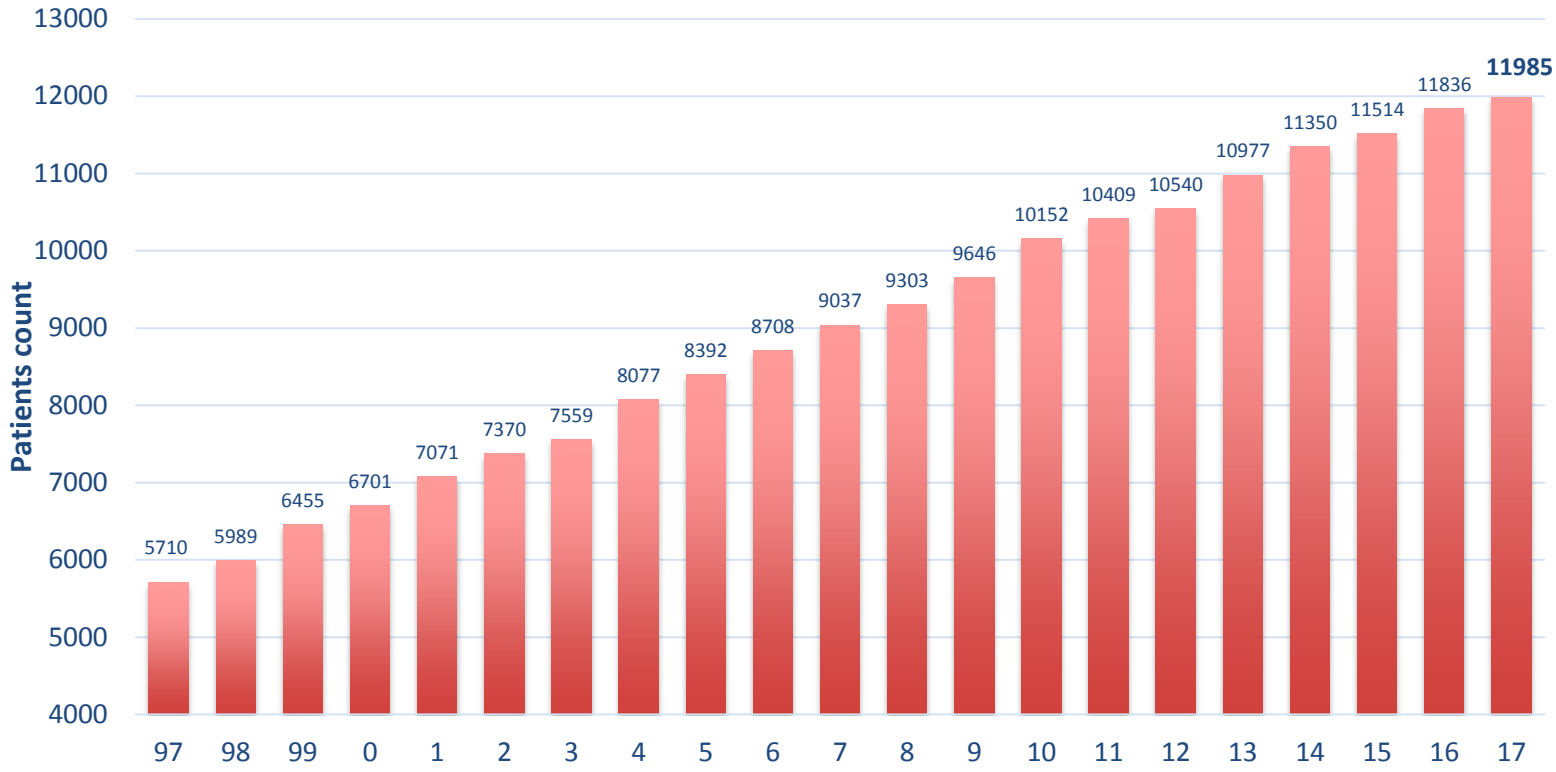
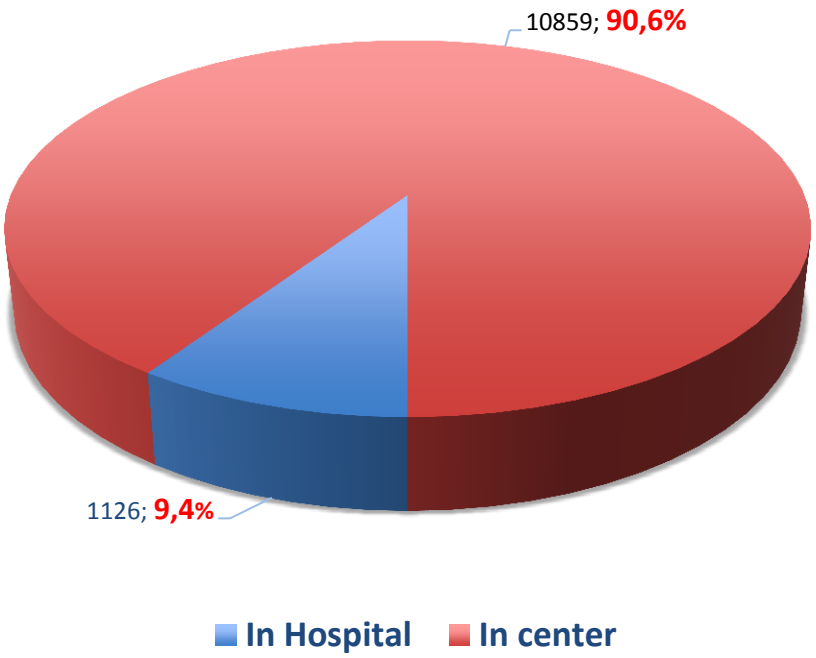
Patients treated by hemodialysis

31st of December each year, 1997 – 2017



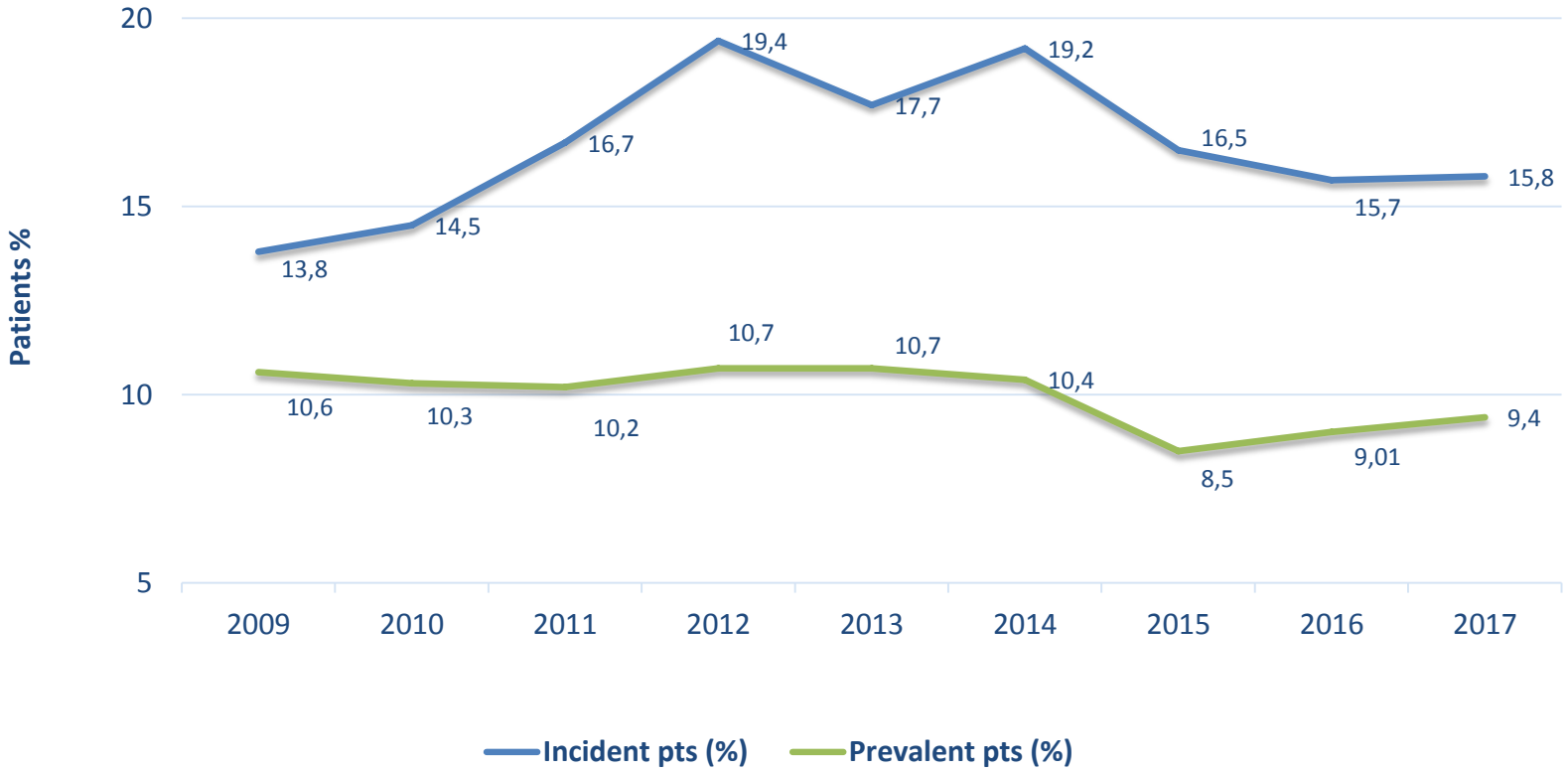
Distribution of hemodialysis patients by type of dialysis facility

31st of December 2017



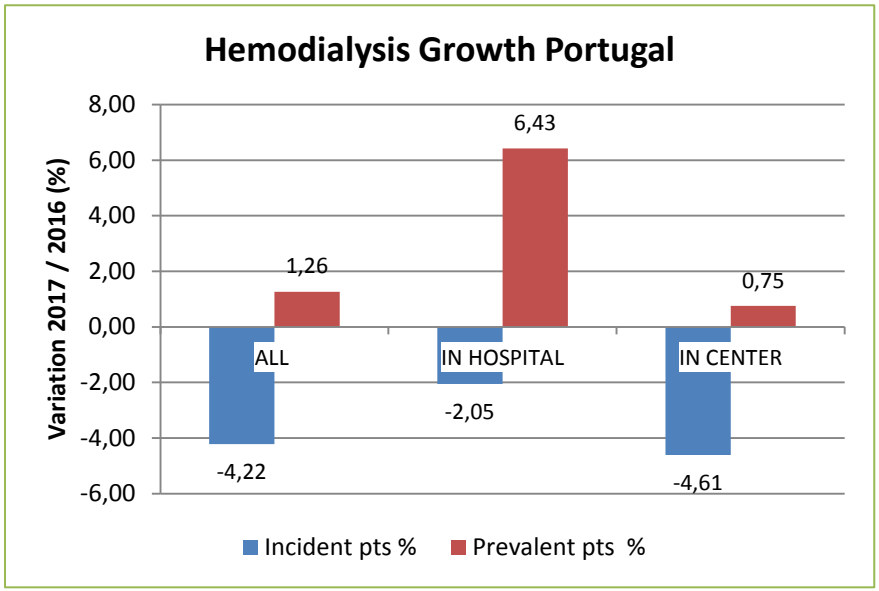
Hemodialysis patients treated *in Hospital* (%)

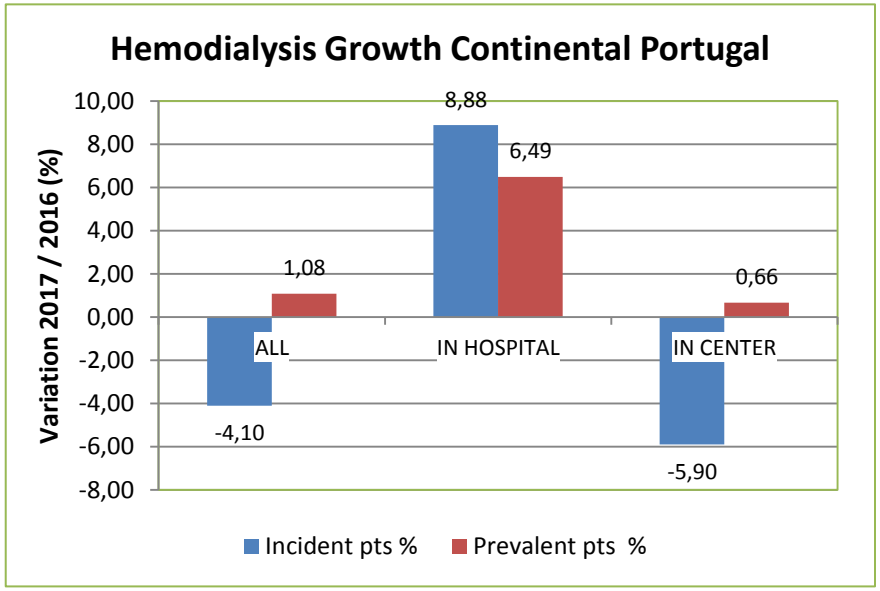
31st of December each year (2009 – 2017)



Hemodialysis growth 2017 vs 2016 (%)

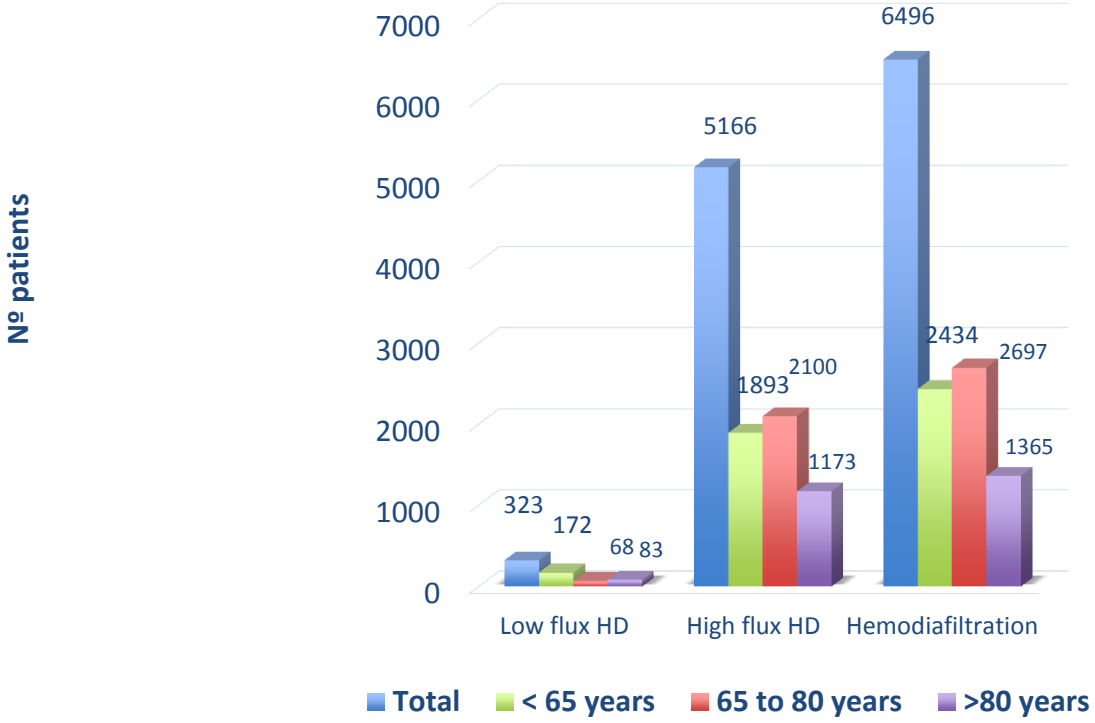
31st of December each year





Patients treated by hemodialysis

distribution by techniques in each age group, 31st of December 2017



N = 11985 ; low flux 2,4% (2,6% in 2016); 62,5% older than > 65 years ; 21,9% older > 80 years (21,3% in 2016)

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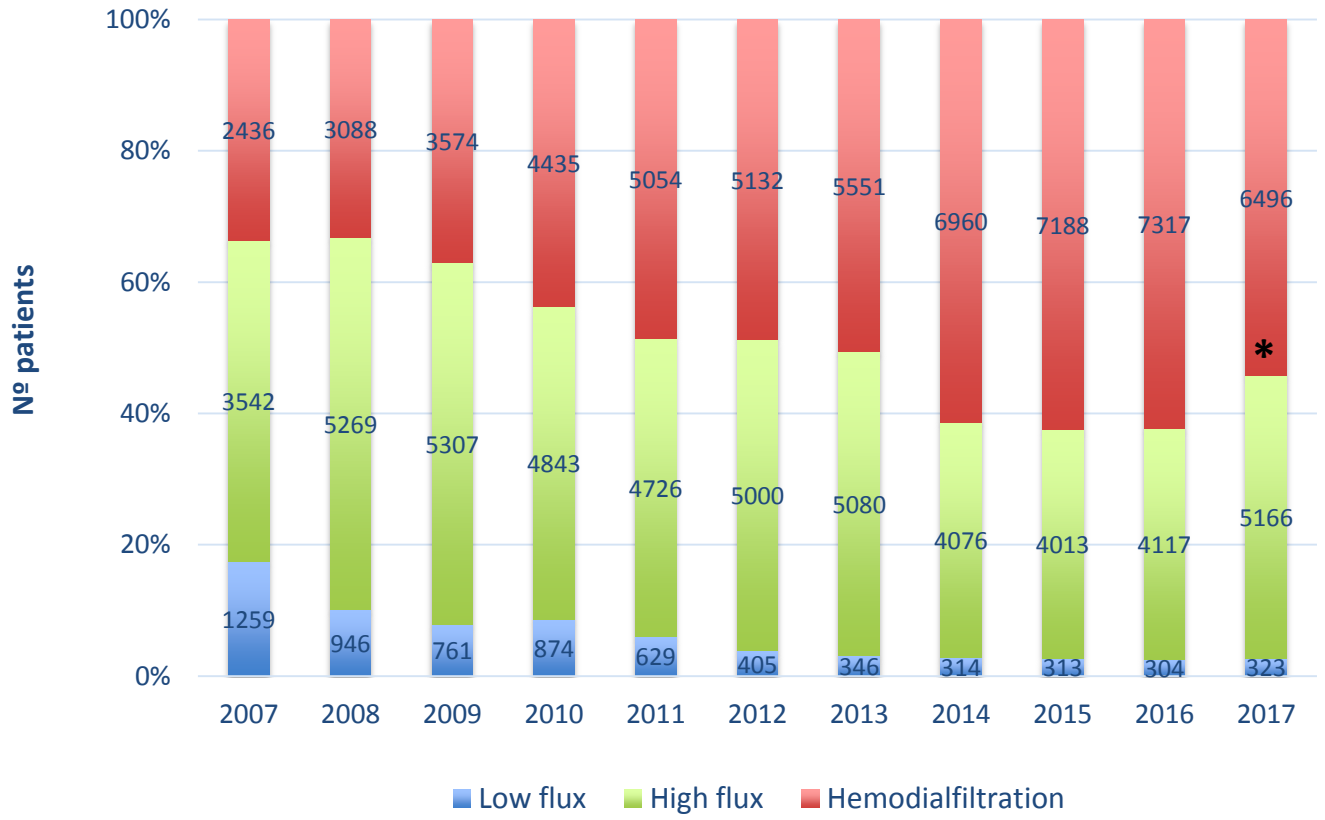
Patients treated by hemodialysis

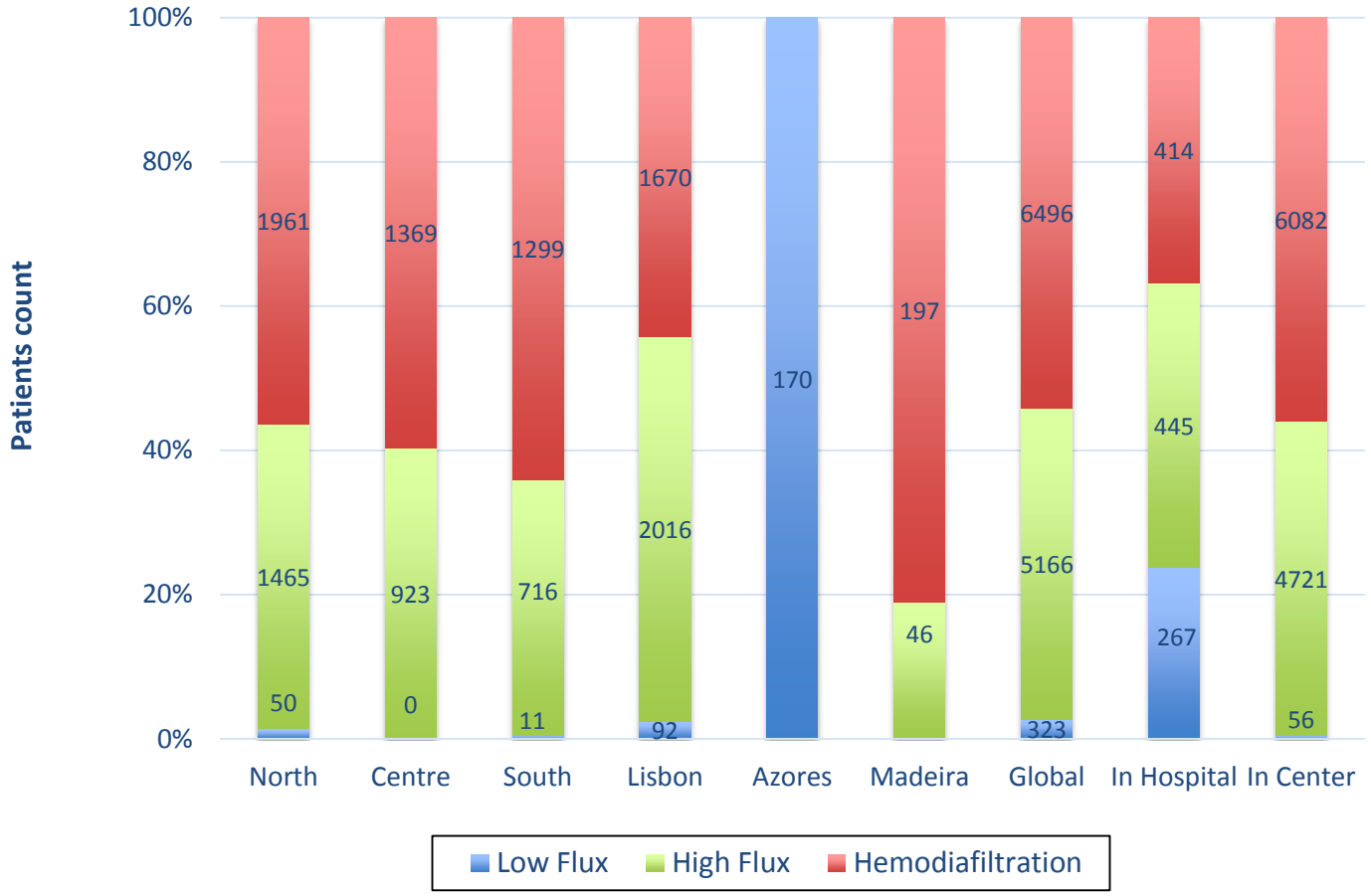
distribution by techniques, 31st Dec.1997 - 2017



* Due to water shortage in Portugal many patients were switched from HDF to high flux HD by the end of 2017 and later returned to HDF

Patients treated by hemodialysis

distribution by techniques by region and facility type, 31st Dec. 2017



N = 11985 by end of December 2017

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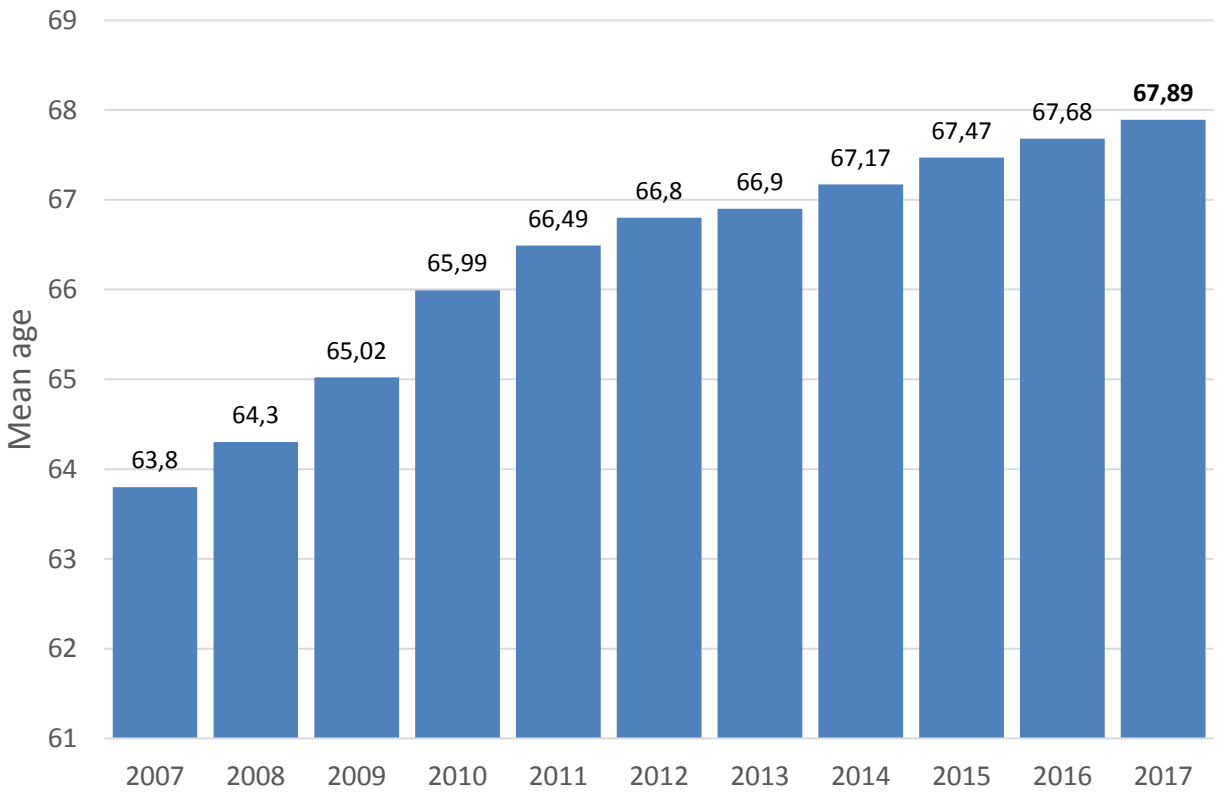
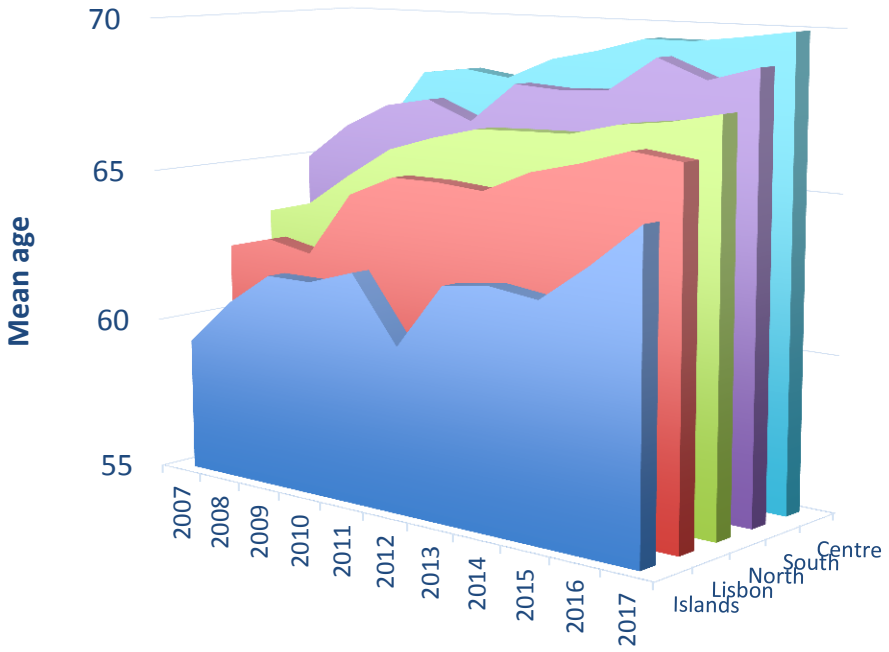
Mean Age of patients treated by hemodialysis

31st of December 2007 – 2017



Mean Age of patients treated by hemodialysis

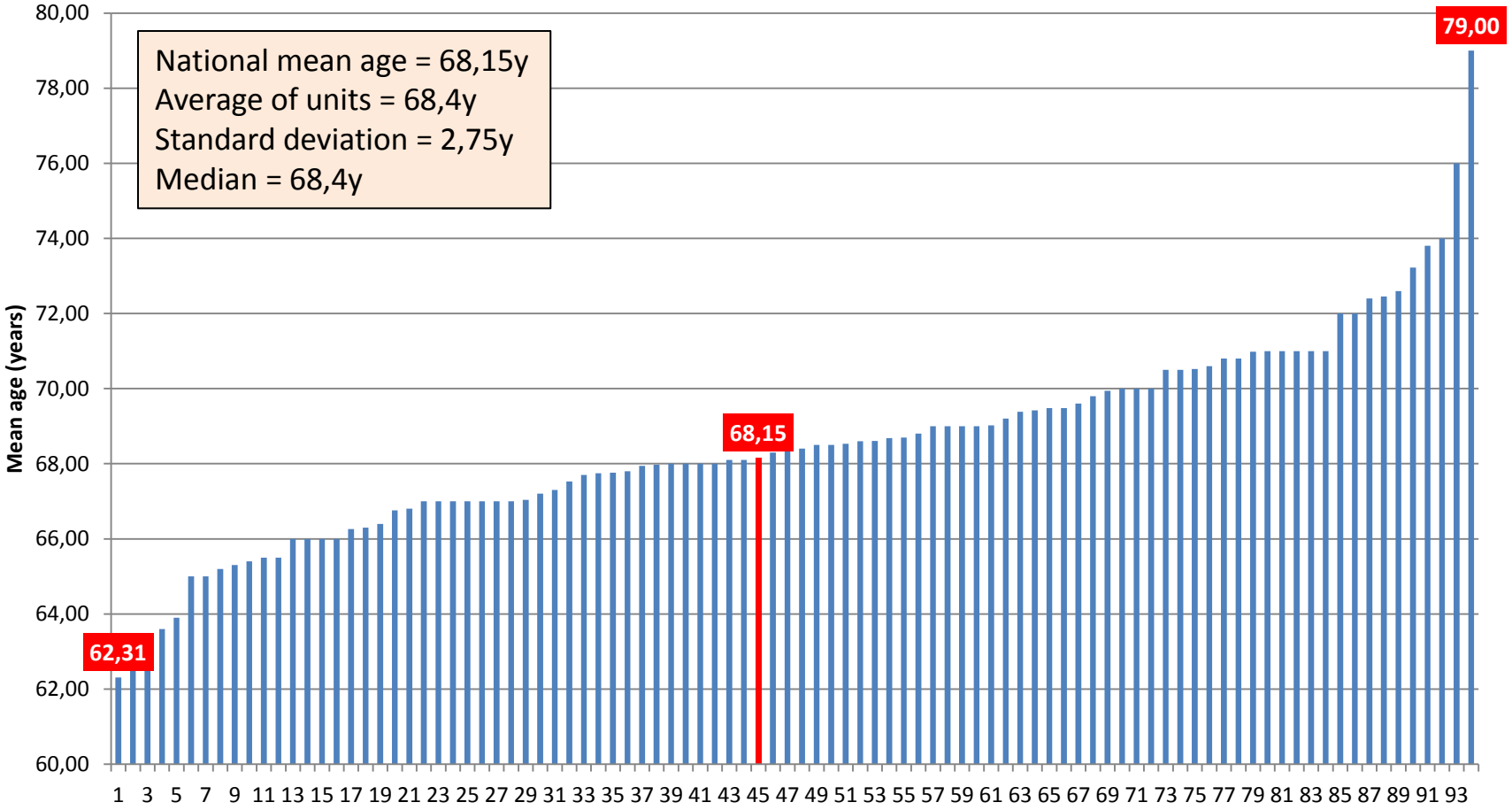
by country region, 31st of December 2007 – 2017



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Islands	59,3	60,8	61,9	61,9	62,4	60,3	62,4	62,6	62,4	63,6	65,0
Lisbon	62,3	62,7	62,4	64,5	65,2	65,2	65,1	65,8	66,2	66,7	66,5
North	63,3	63,7	64,8	65,8	66,3	66,7	66,8	66,8	67,2	67,4	67,7
South	65	66,2	67	67,3	66,7	68	67,9	68	69,1	68,5	69,0
Centre	65,5	66	68	68,2	68	68,7	69,1	69,5	69,5	69,7	69,9

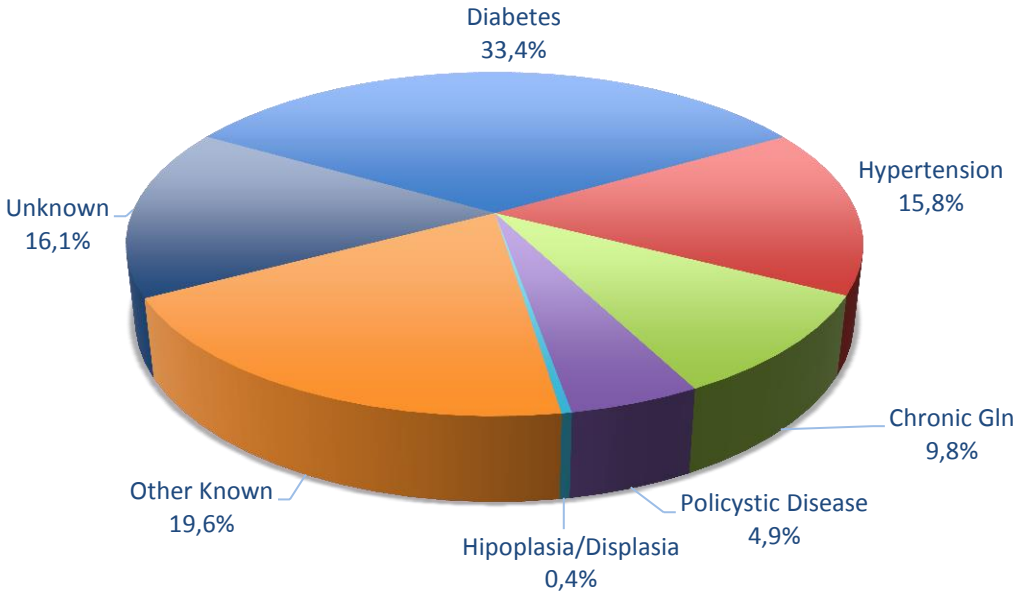
Mean Age of patients treated by hemodialysis

Hemodialysis "in Center", 31st of December 2017



Primary renal disease of Incident patients accepted for hemodialysis

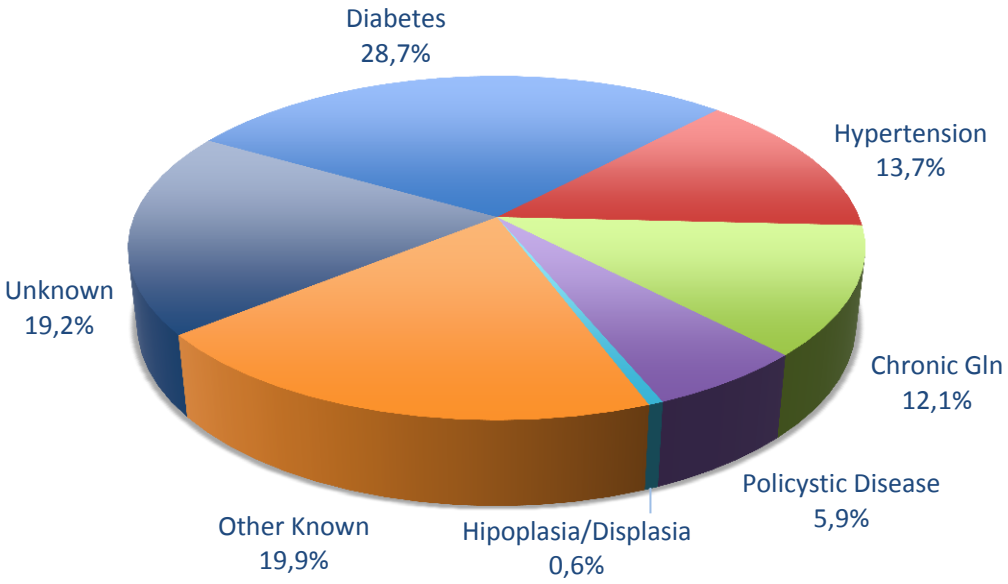
during 2017



N = 2113

Primary renal disease of prevalent hemodialysis patients

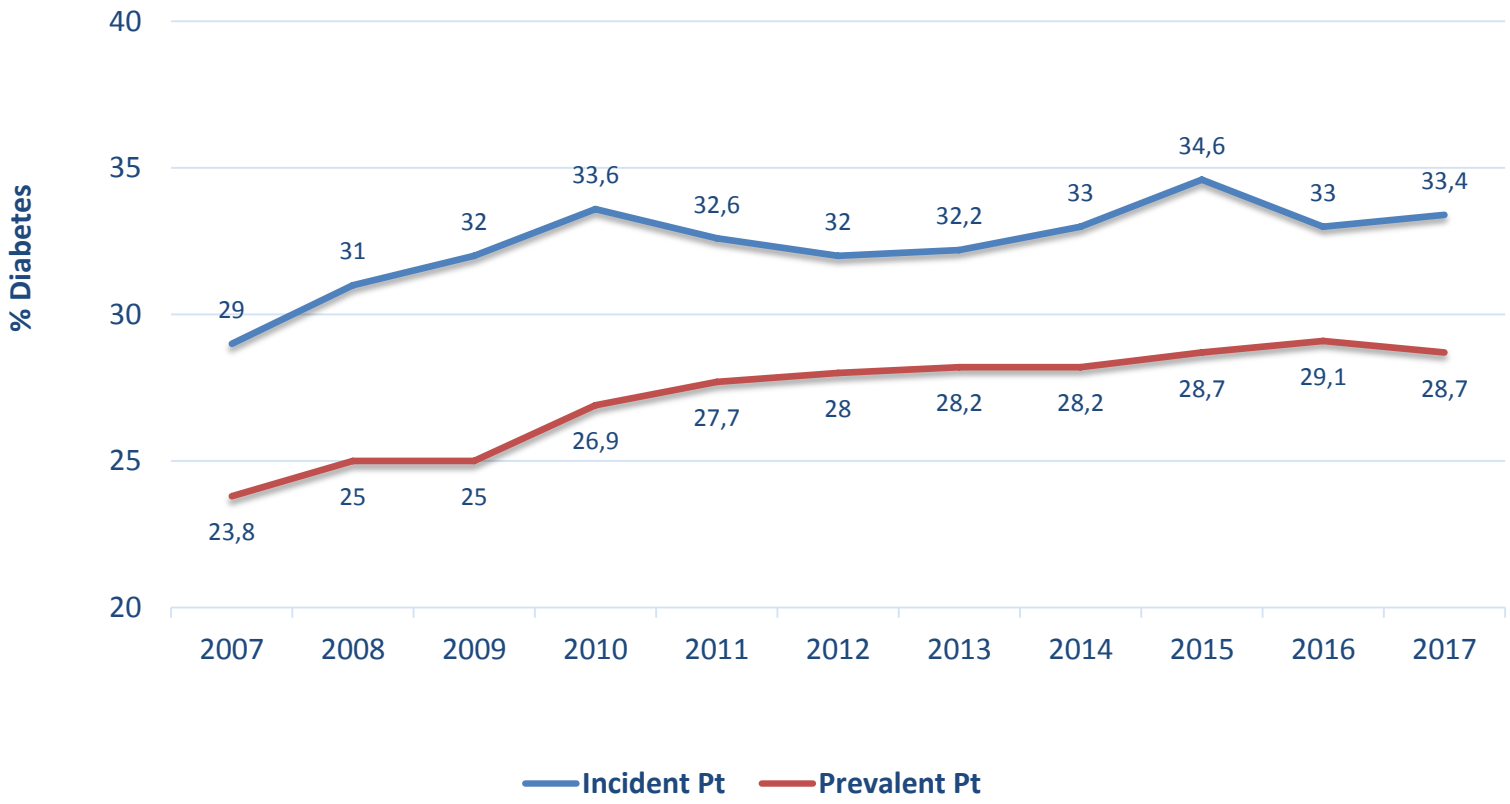
31st December 2017



N = 11949
36 not available

Diabetes as primary renal disease in HD patients

Incident and prevalent (%) *2007 - 2017*



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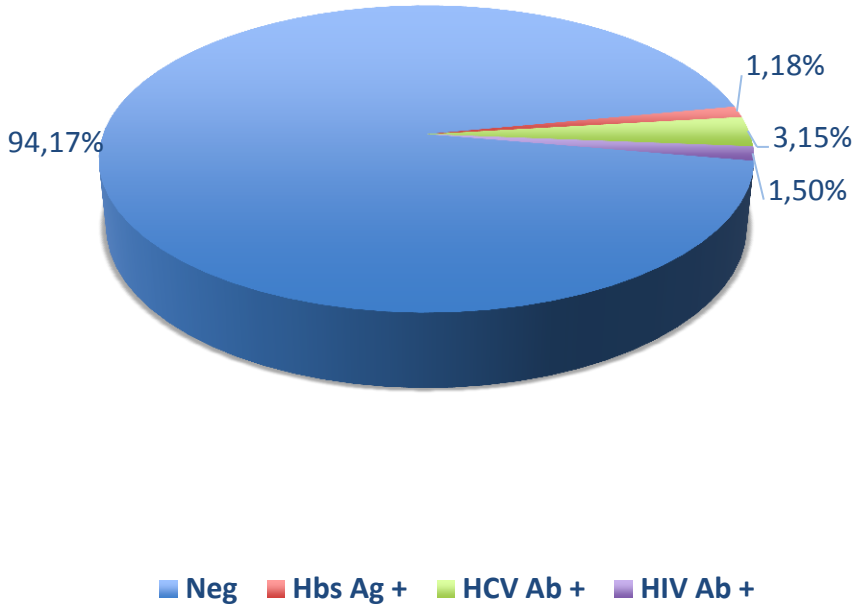
Viral status in HD prevalent patients

31st December 2017

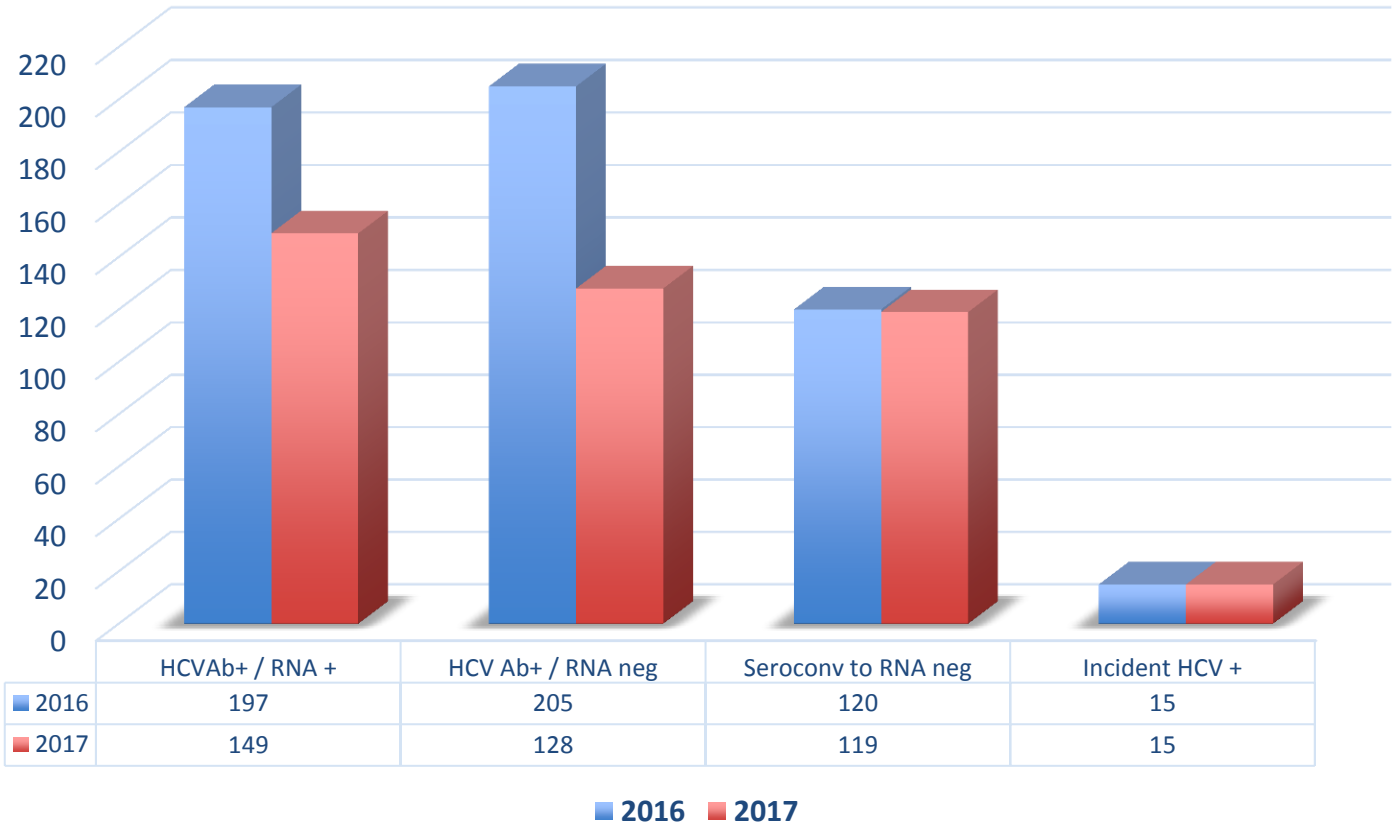


N = 11985

Sociedade Portuguesa de Nefrologia

Hepatitis C viral status in HD prevalent pts

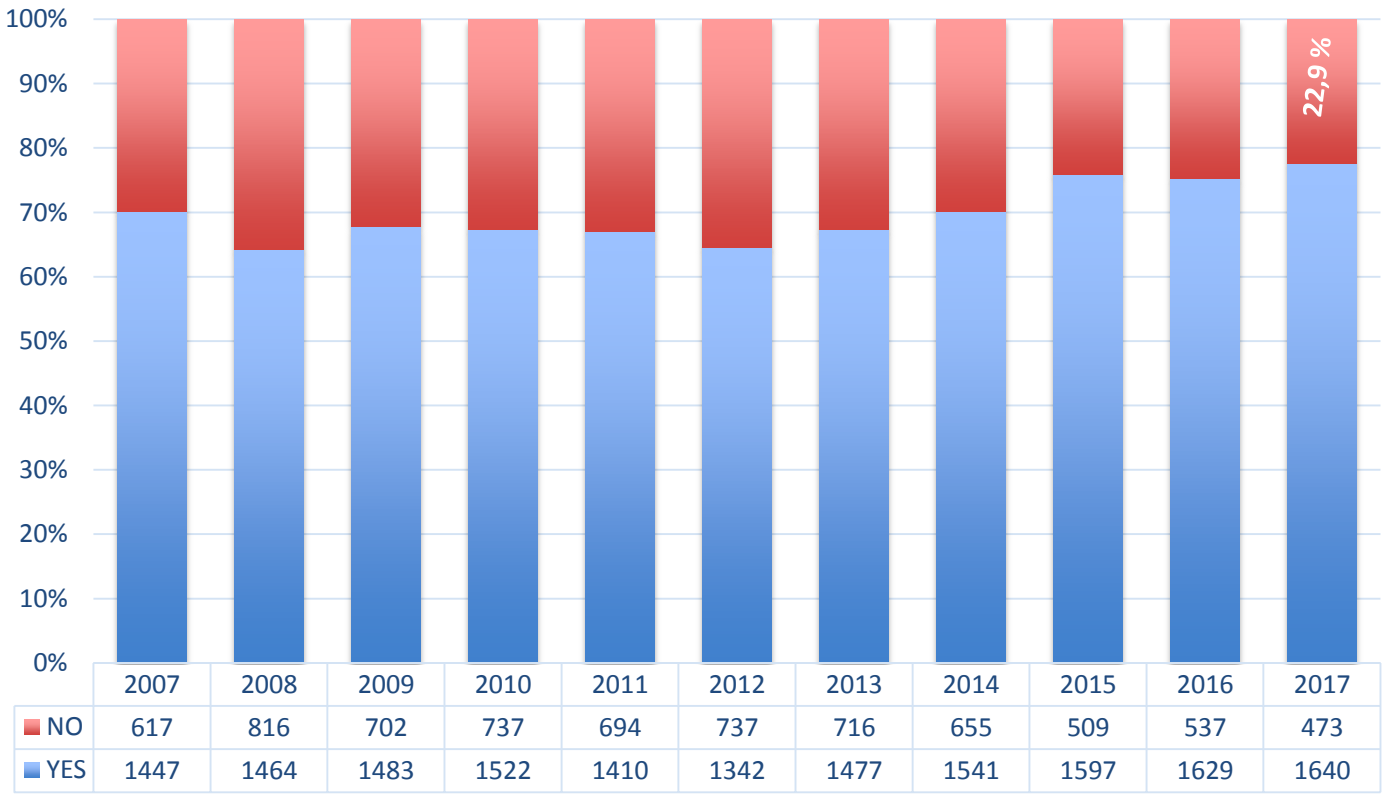
31st December 2016 - 2017



	HCVAb+ / RNA +	HCV Ab+ / RNA neg	Seroconv to RNA neg	Incident HCV +
2016	197	205	120	15
2017	149	128	119	15

Previous follow-up by nephrology (> 3 months)

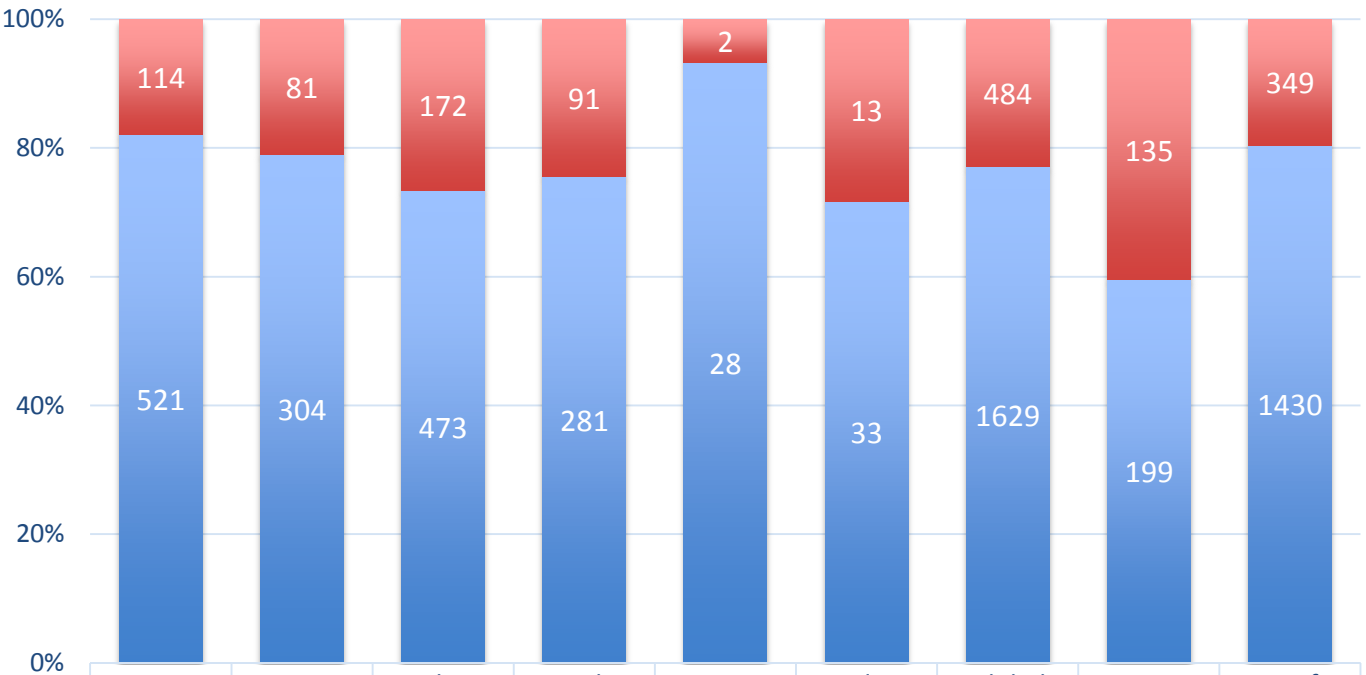
HD patients, *31st of December 2007 – 2017*



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NO	617	816	702	737	694	737	716	655	509	537	473
YES	1447	1464	1483	1522	1410	1342	1477	1541	1597	1629	1640

Previous follow-up by nephrology (> 3 months)

HD patients, *by country region and facility type - 31st of December 2017*



	Norte	Centro	Lisboa	Sul	Açores	Madeira	Global	Hosp	Perif
NO	114	81	172	91	2	13	484	135	349
YES	521	304	473	281	28	33	1629	199	1430

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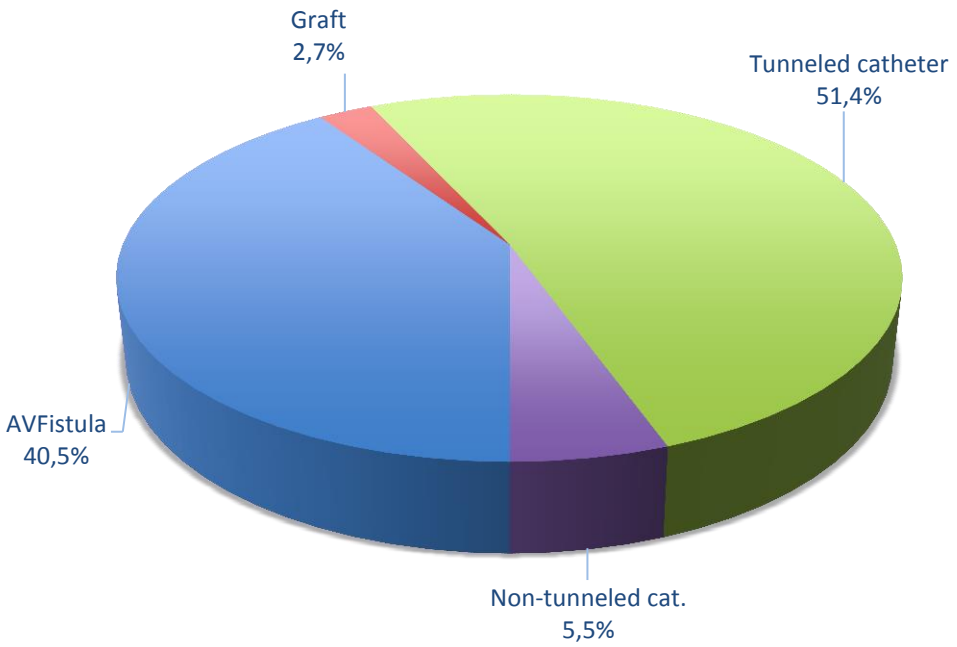
Vascular access of HD incident patients

during 2017



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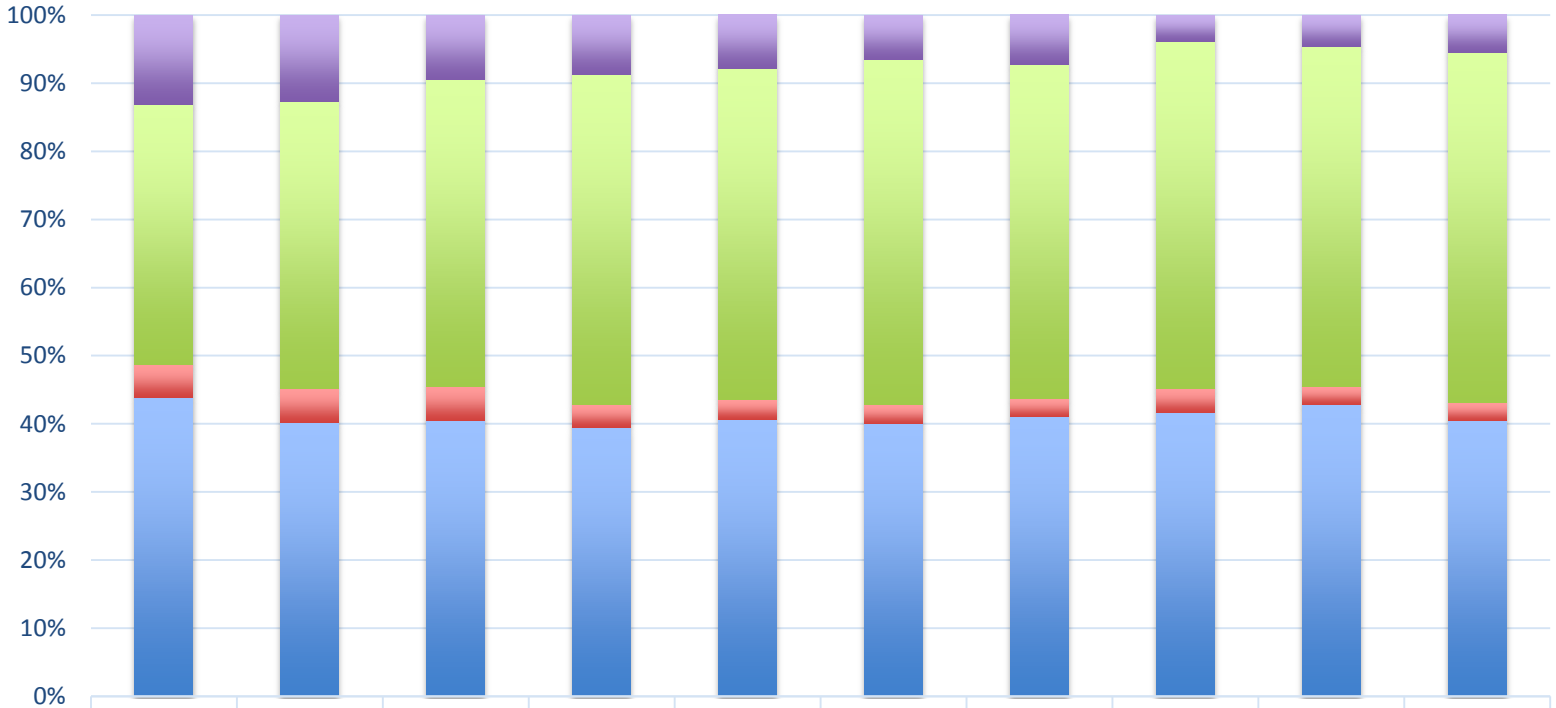
Vascular access of HD incident patients

2008 – 2017

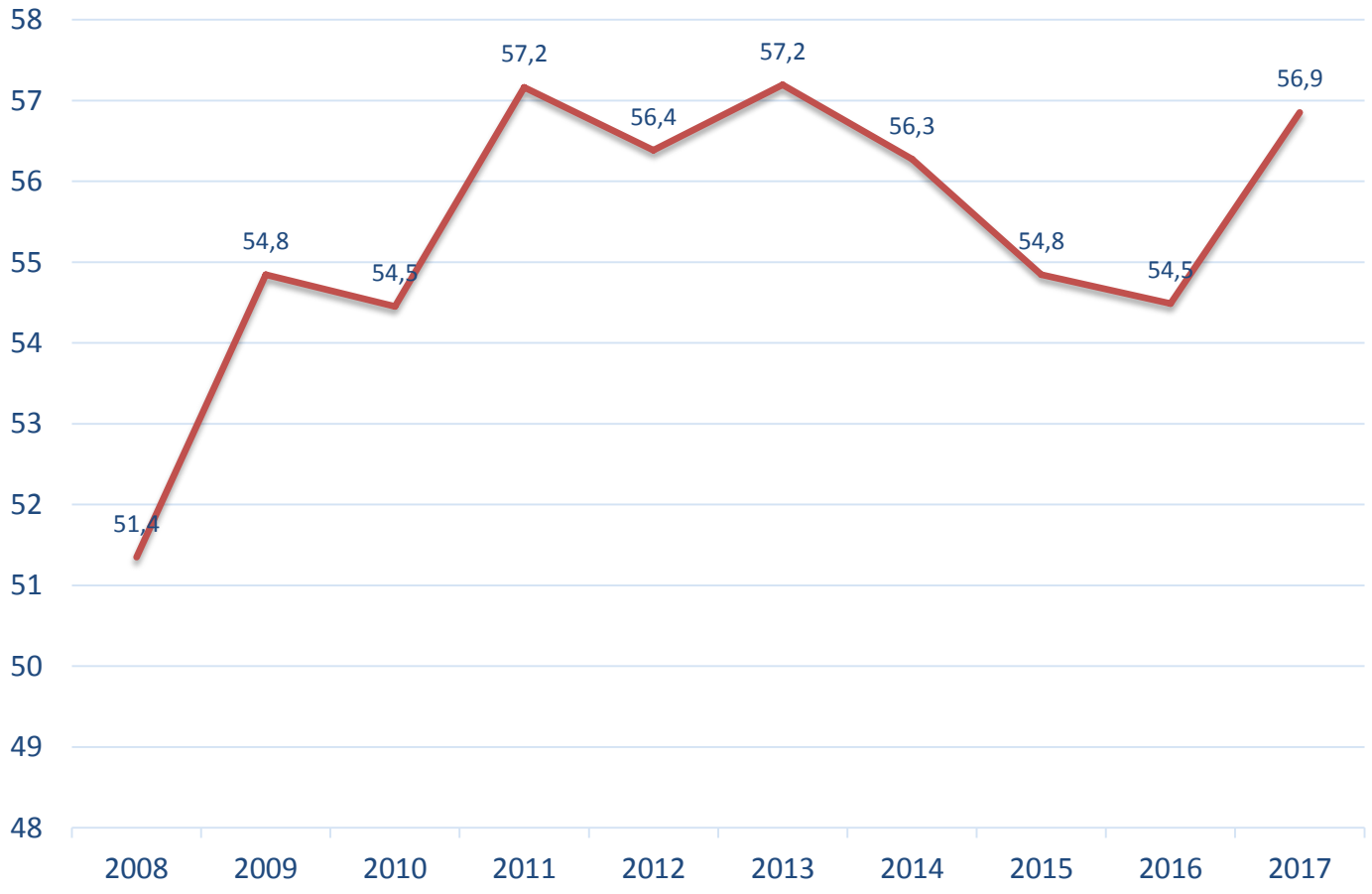


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-tunneled cat.	296	282	219	188	163	143	163	81	103	117
Tunneled cat.	864	940	1034	1033	1007	1101	1088	1068	1093	1094
Graft	109	111	117	71	61	61	60	74	59	57
AVFistula	990	895	931	844	844	870	912	872	940	862

Sociedade Portuguesa de Nefrologia

Catheter rate (%) in the first HD session of incident patients

2008 – 2017



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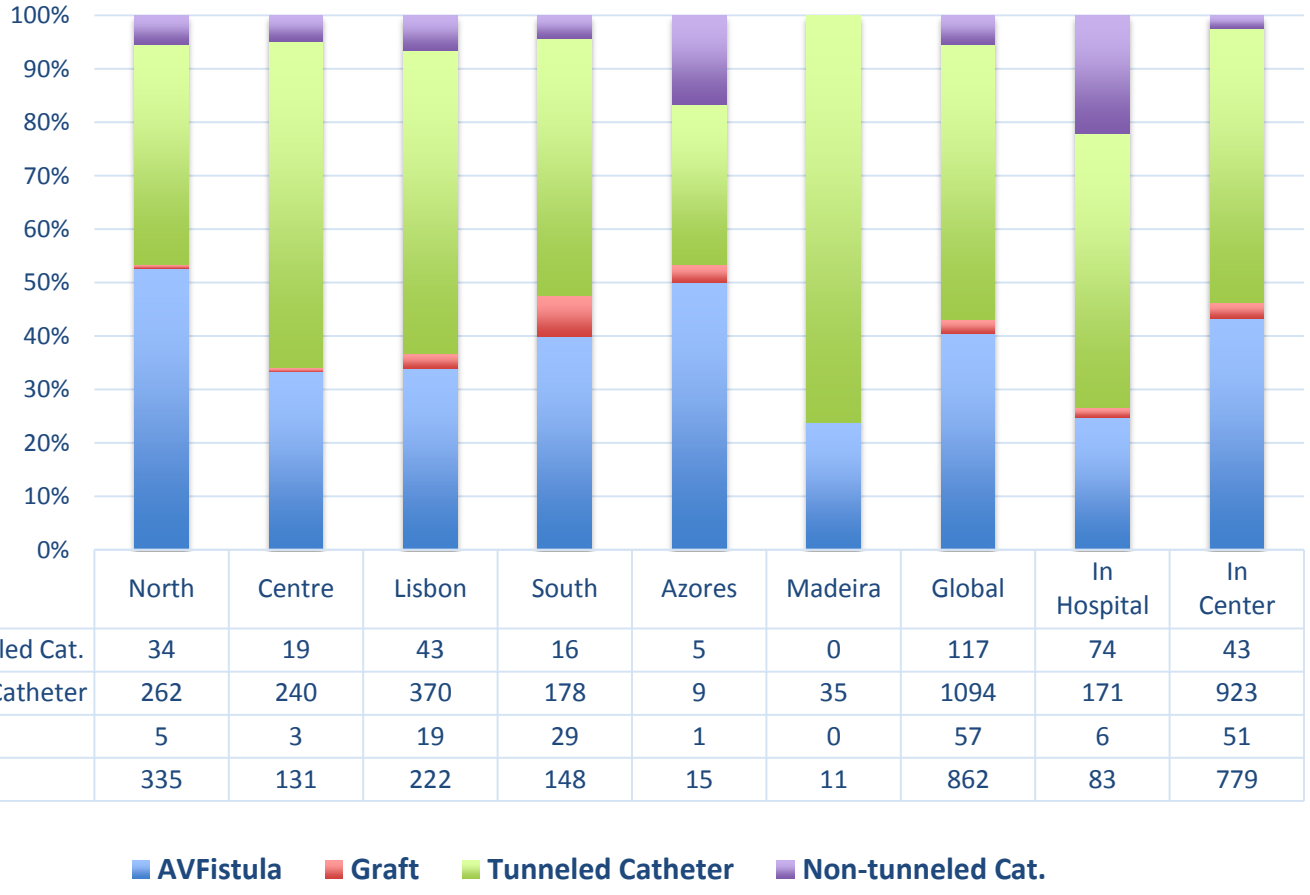
Vascular access of HD incident patients

by country region and facility type - 31st of December 2017

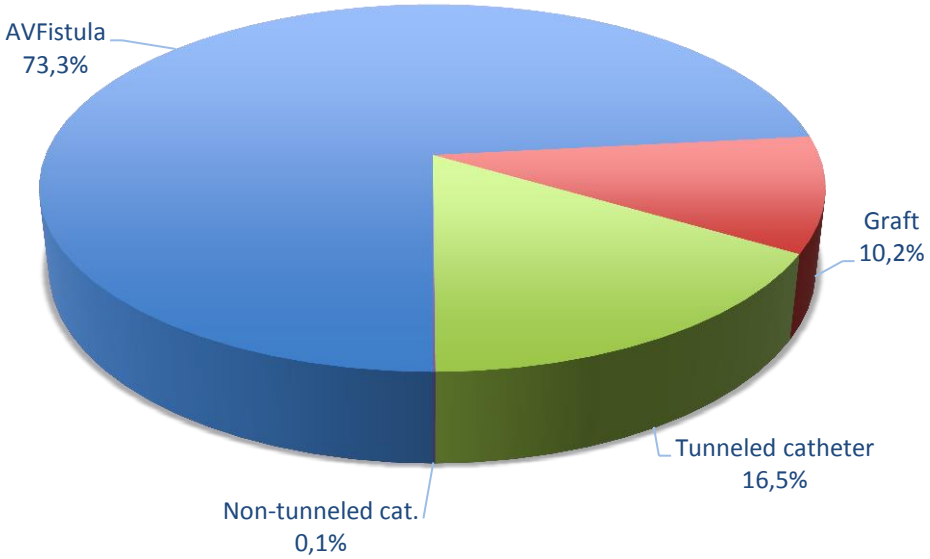


	North	Centre	Lisbon	South	Azores	Madeira	Global	In Hospital	In Center
Non-tunneled Cat.	34	19	43	16	5	0	117	74	43
Tunneled Catheter	262	240	370	178	9	35	1094	171	923
Graft	5	3	19	29	1	0	57	6	51
AVFistula	335	131	222	148	15	11	862	83	779

N = 2130
17 duplicated

Vascular access of HD prevalent patients

31st December 2017

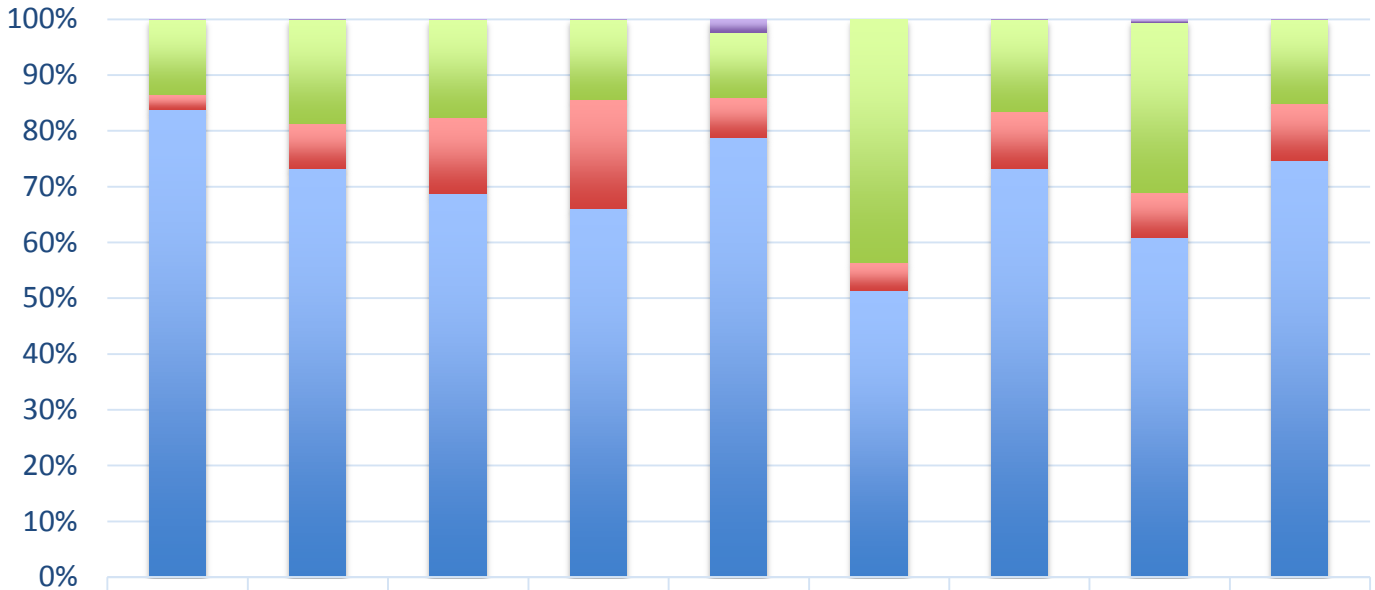


N = 11979
6 not available

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients

by country region and facility type, 31st of December 2017



	North	Centre	Lisbon	South	Azores	Madeira	Global	In Hospital	In Center
Non-tunneled Cat.	1	2	1	2	4	0	10	6	4
Tunneled Catheter	467	427	662	289	20	106	1971	345	1626
Graft	95	185	514	398	12	12	1216	91	1125
AVFistula	2920	1677	2589	1337	134	125	8782	686	8096

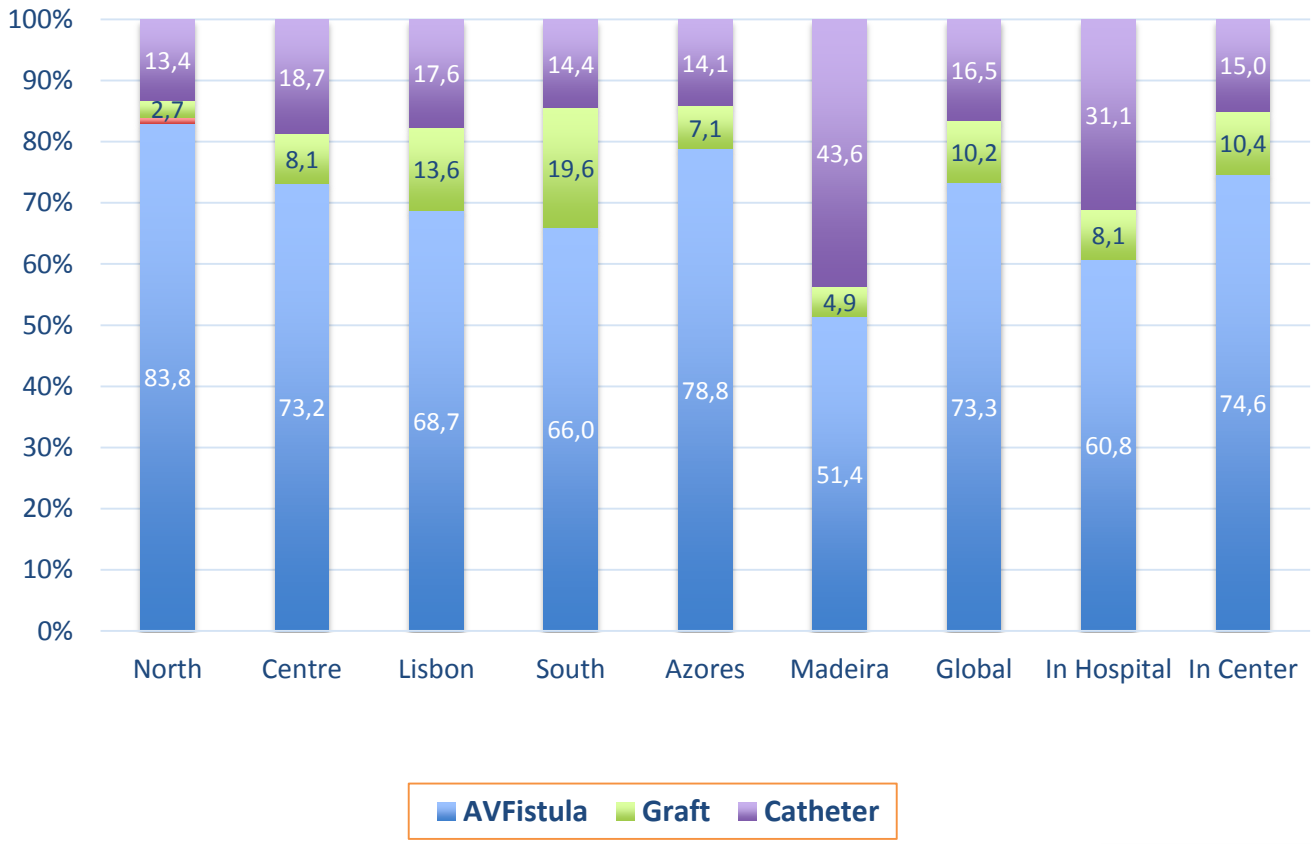
N = 11979

6 not available

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients

Percentage by country region and facility type, 31st of December 2017

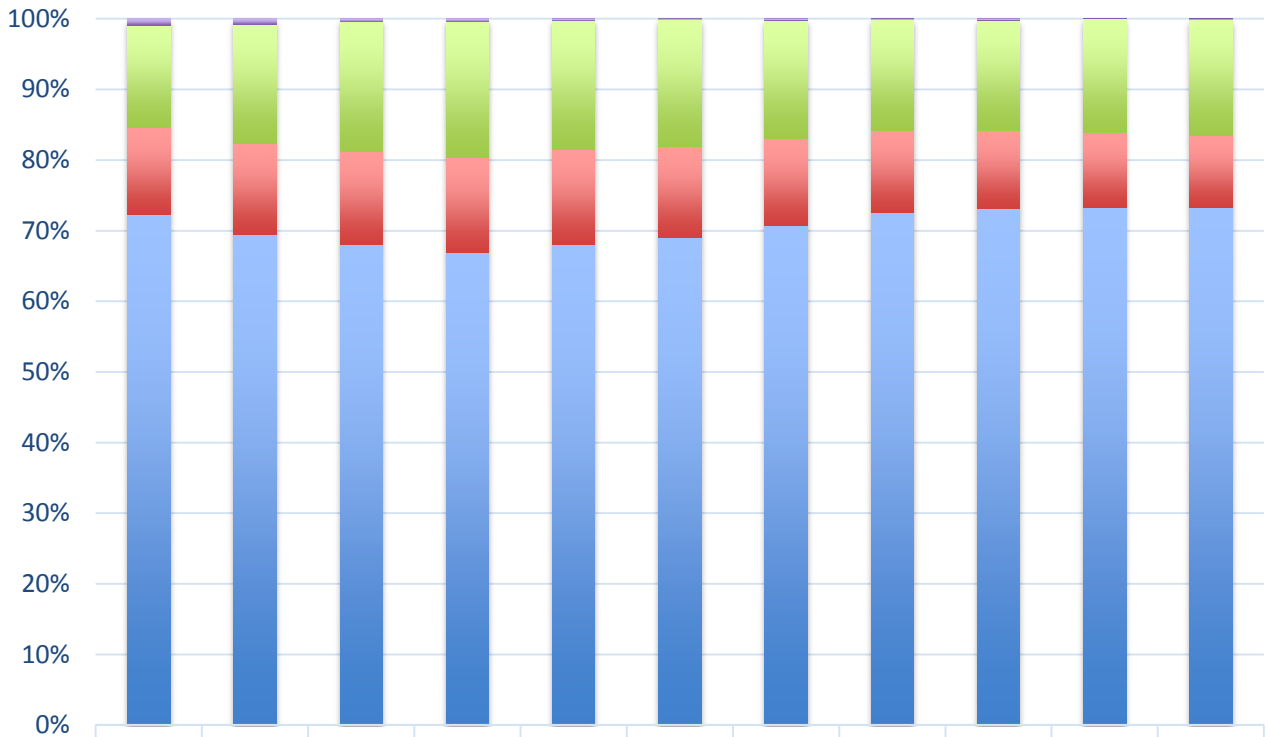


N = 11979
6 not available

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients

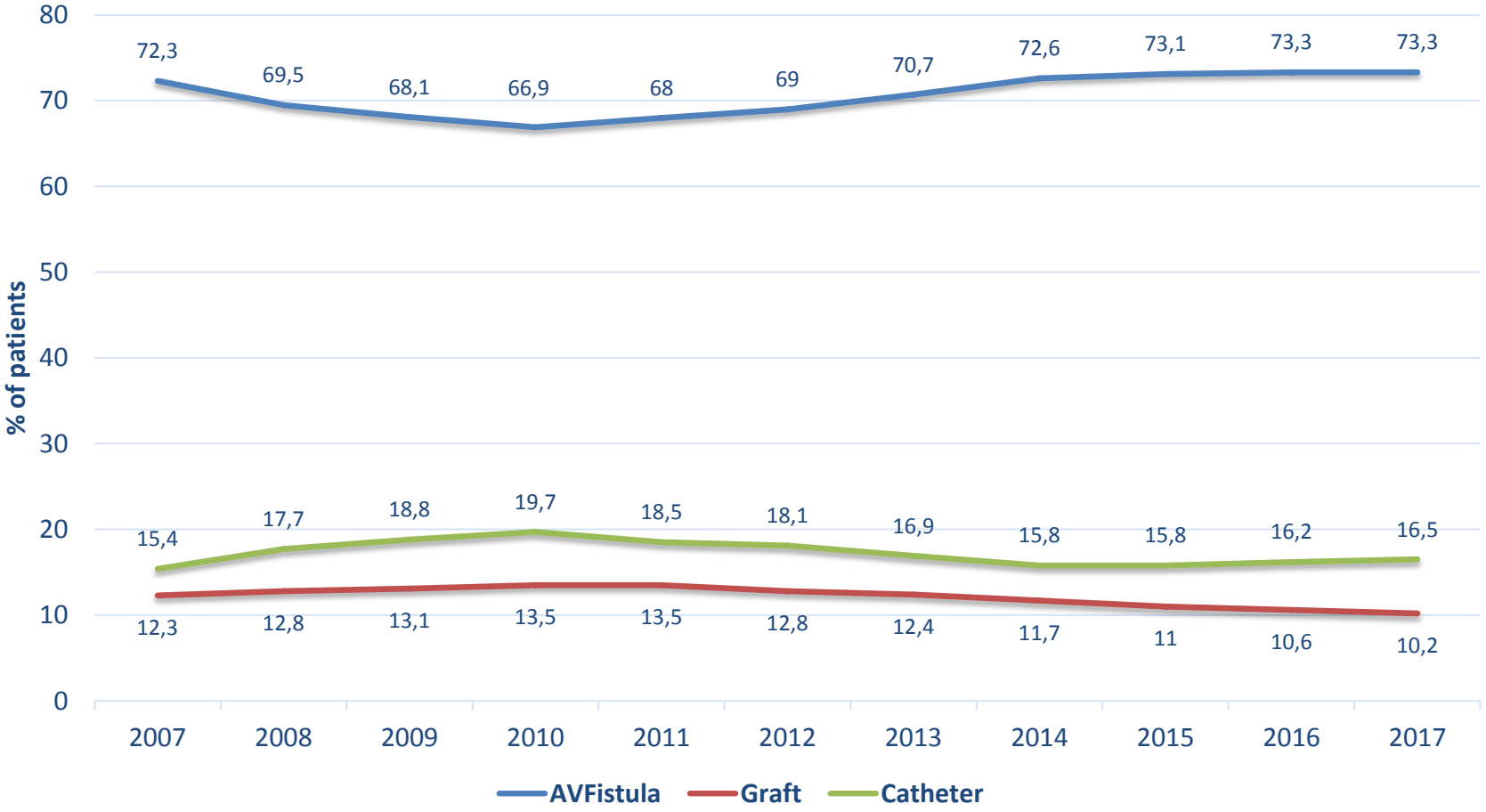
31st December, 2007 - 2017



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-Tunneled Cat	91	76	39	42	25	16	23	15	24	2	10
Tunneled Catheter	1386	1572	1769	1953	1905	1889	1834	1770	1804	1895	1971
Graft	1185	1191	1256	1365	1402	1349	1358	1317	1273	1239	1216
AVFistula	6937	6464	6538	6788	7077	7257	7750	8202	8434	8598	8782

Vascular access of prevalent patients (%)

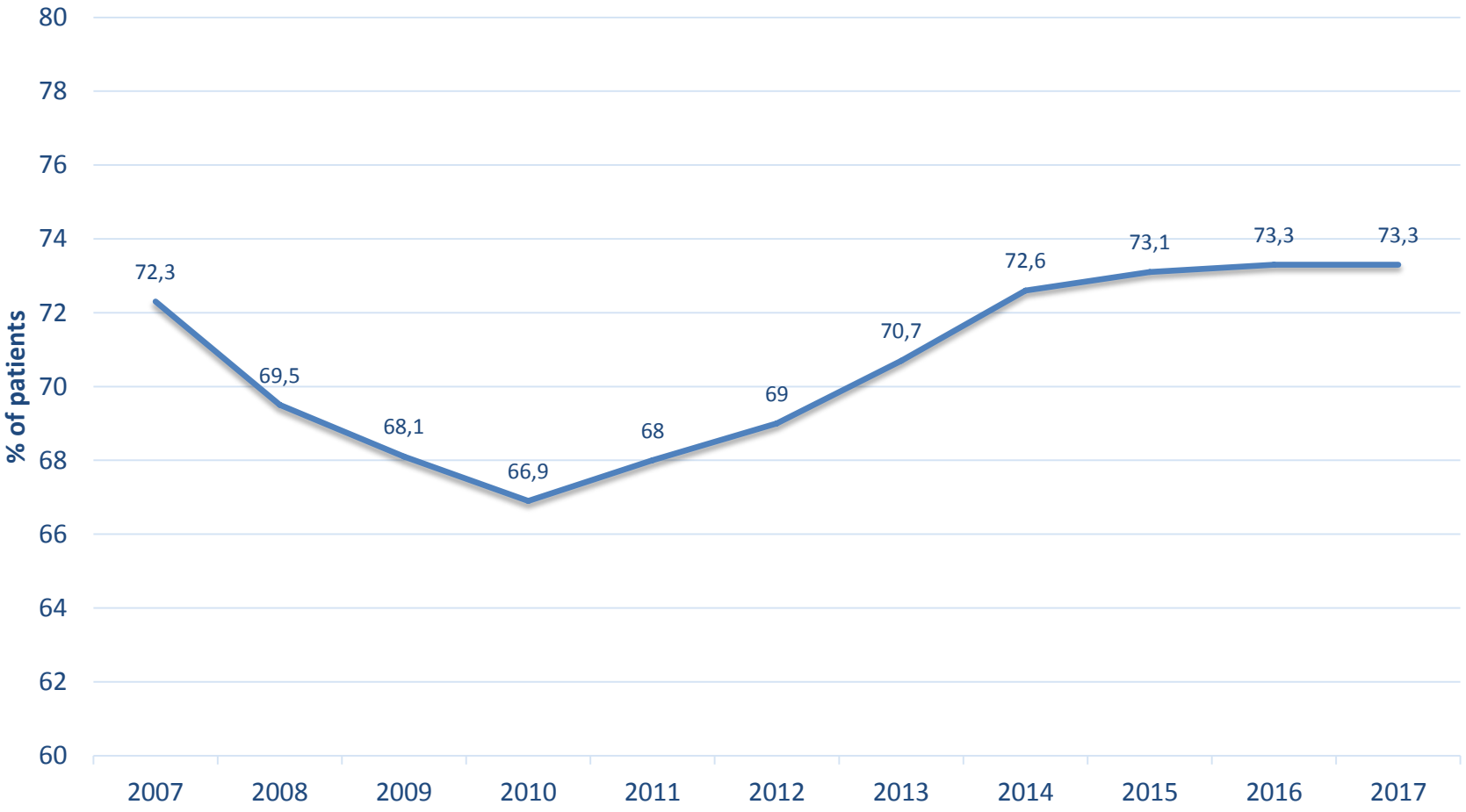
31st December, 2007 - 2017



Sociedade Portuguesa de Nefrologia

AV Fistula rate of prevalent patients (%)

31st December, 2007 - 2017



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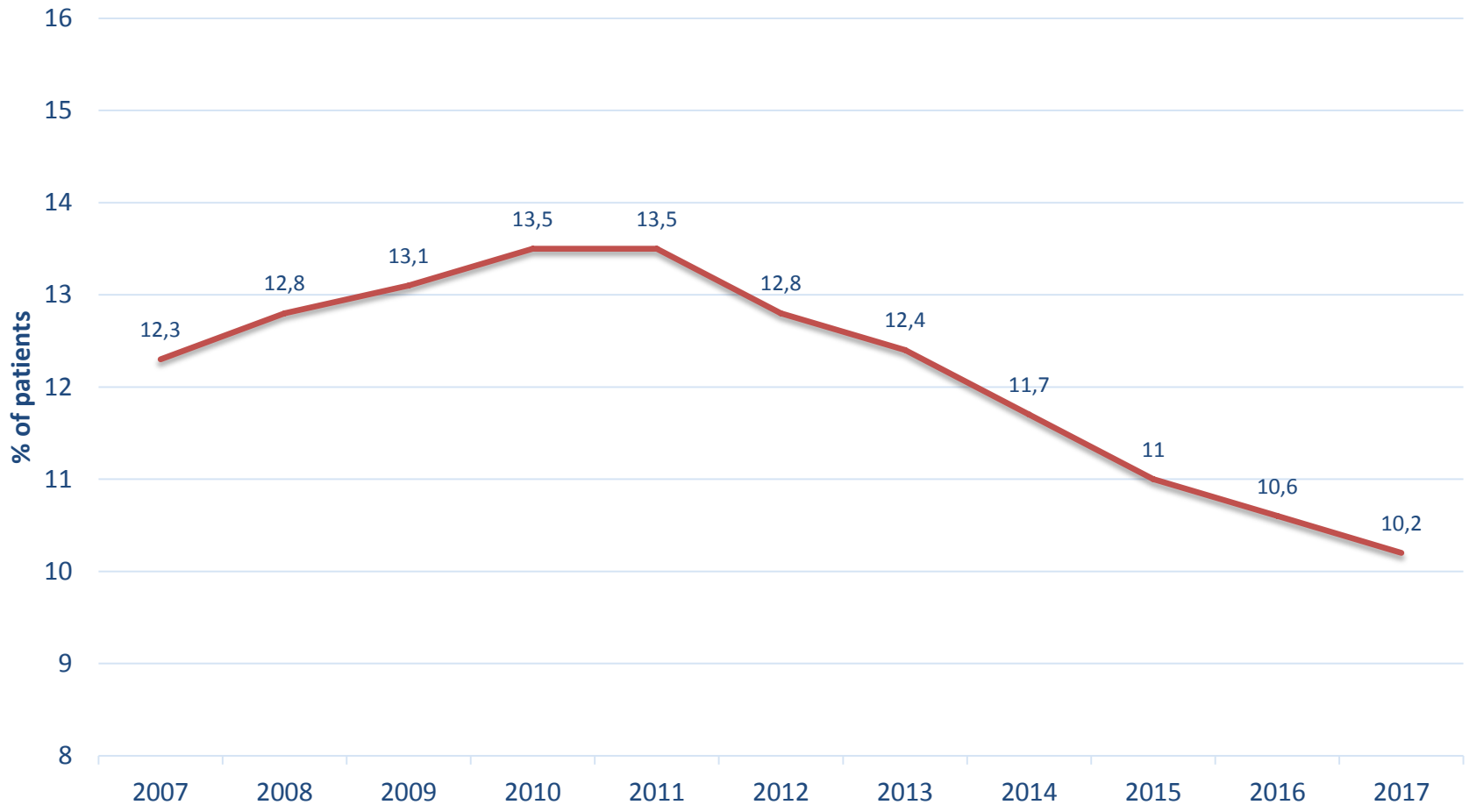
Graft rate of prevalent patients (%)

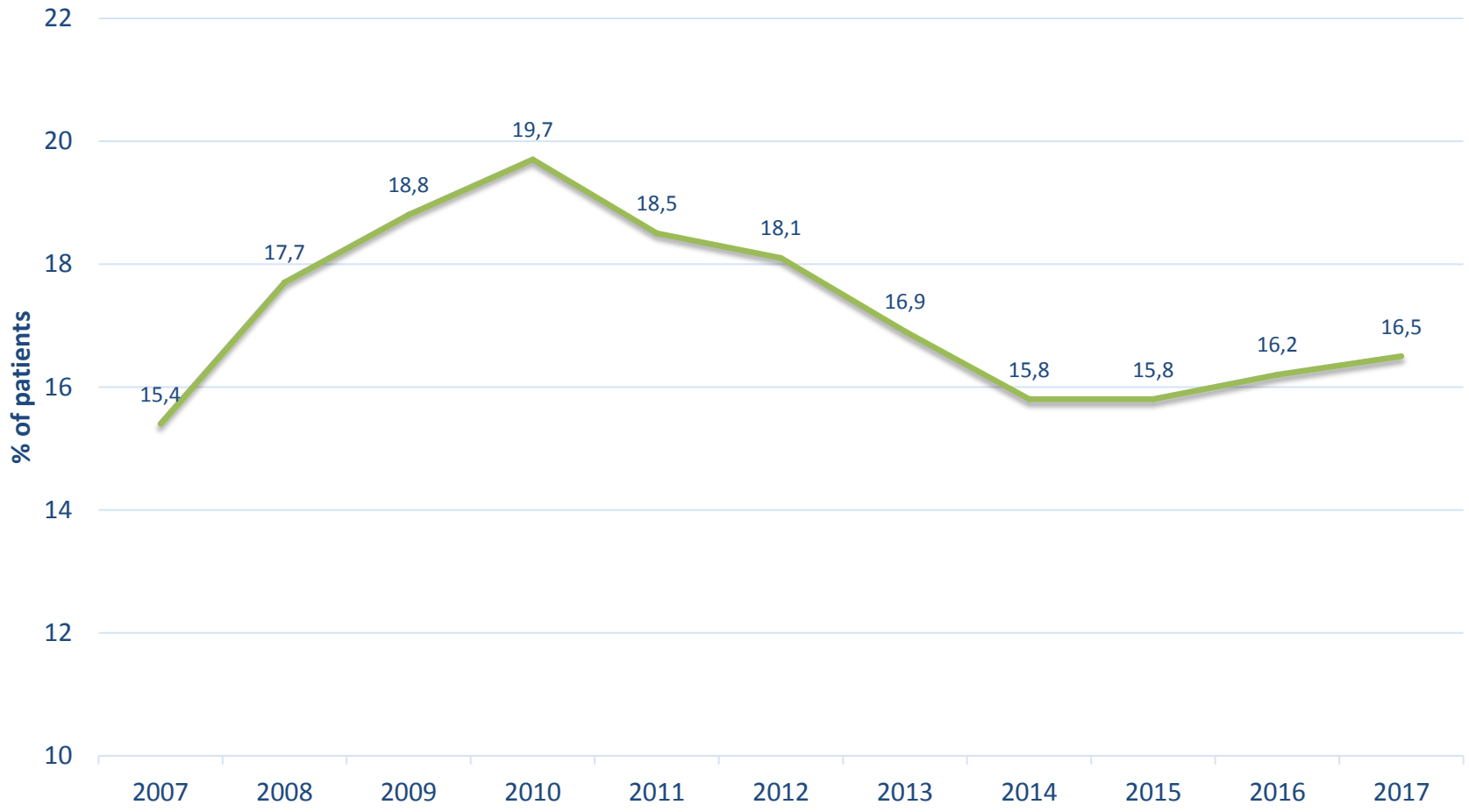
31st December, 2007 - 2017



Sociedade Portuguesa de Nefrologia

Catheter rate of prevalent patients (%)

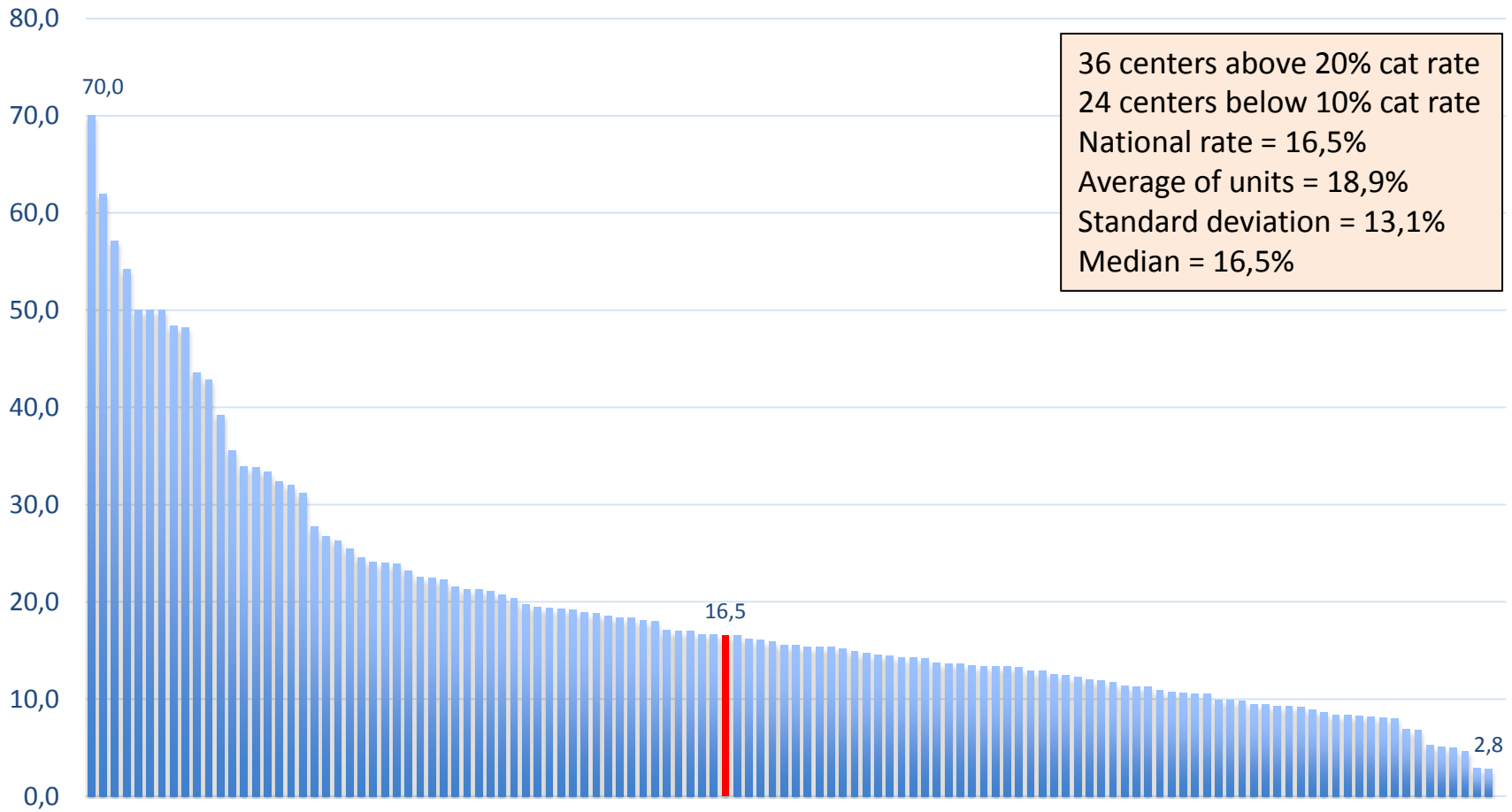
31st December, 2007 - 2017



Sociedade Portuguesa de Nefrologia

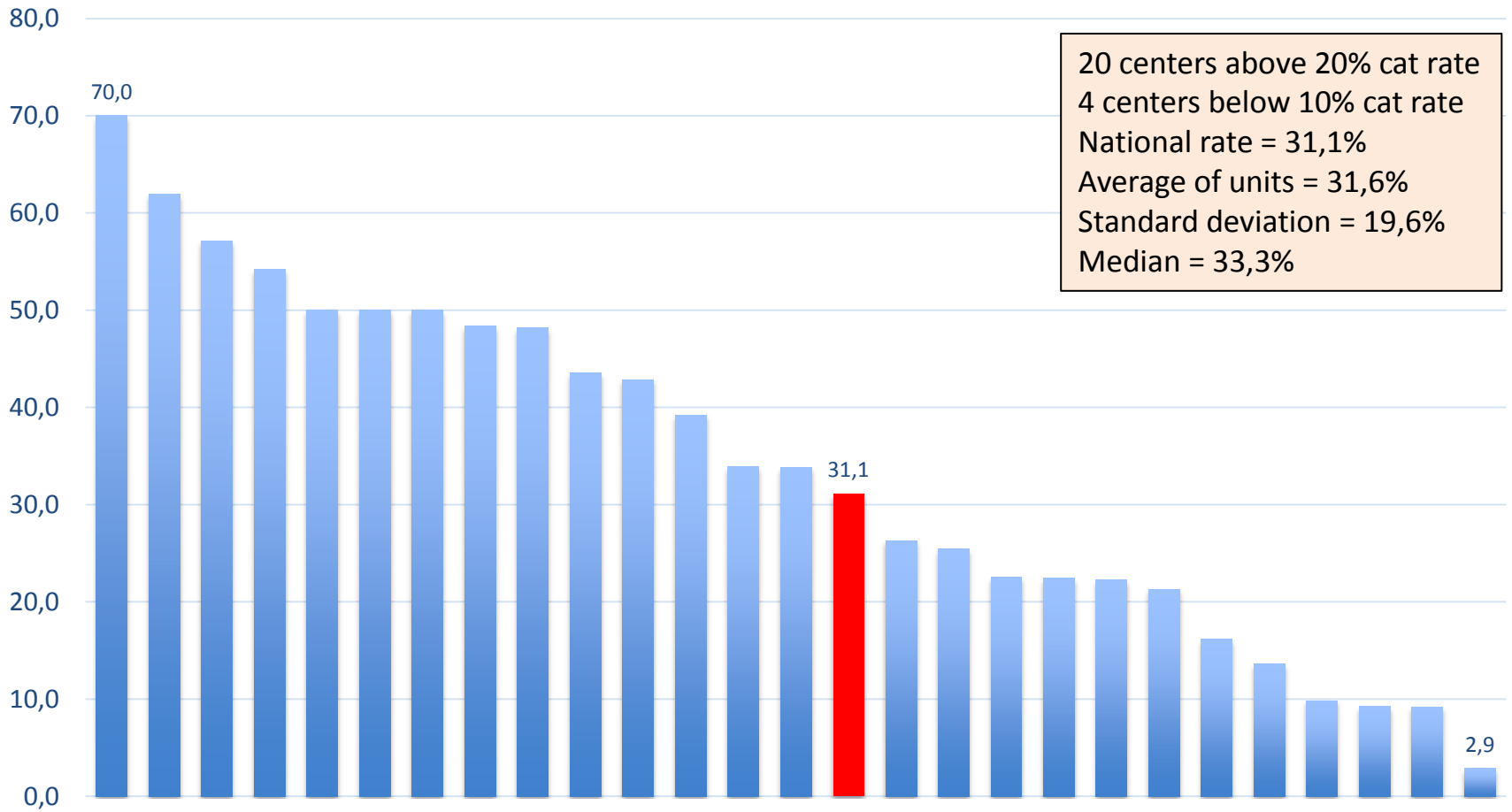
Catheter rate of prevalent patients (%)

31st December 2017



Catheter rate of prevalent patients (%)

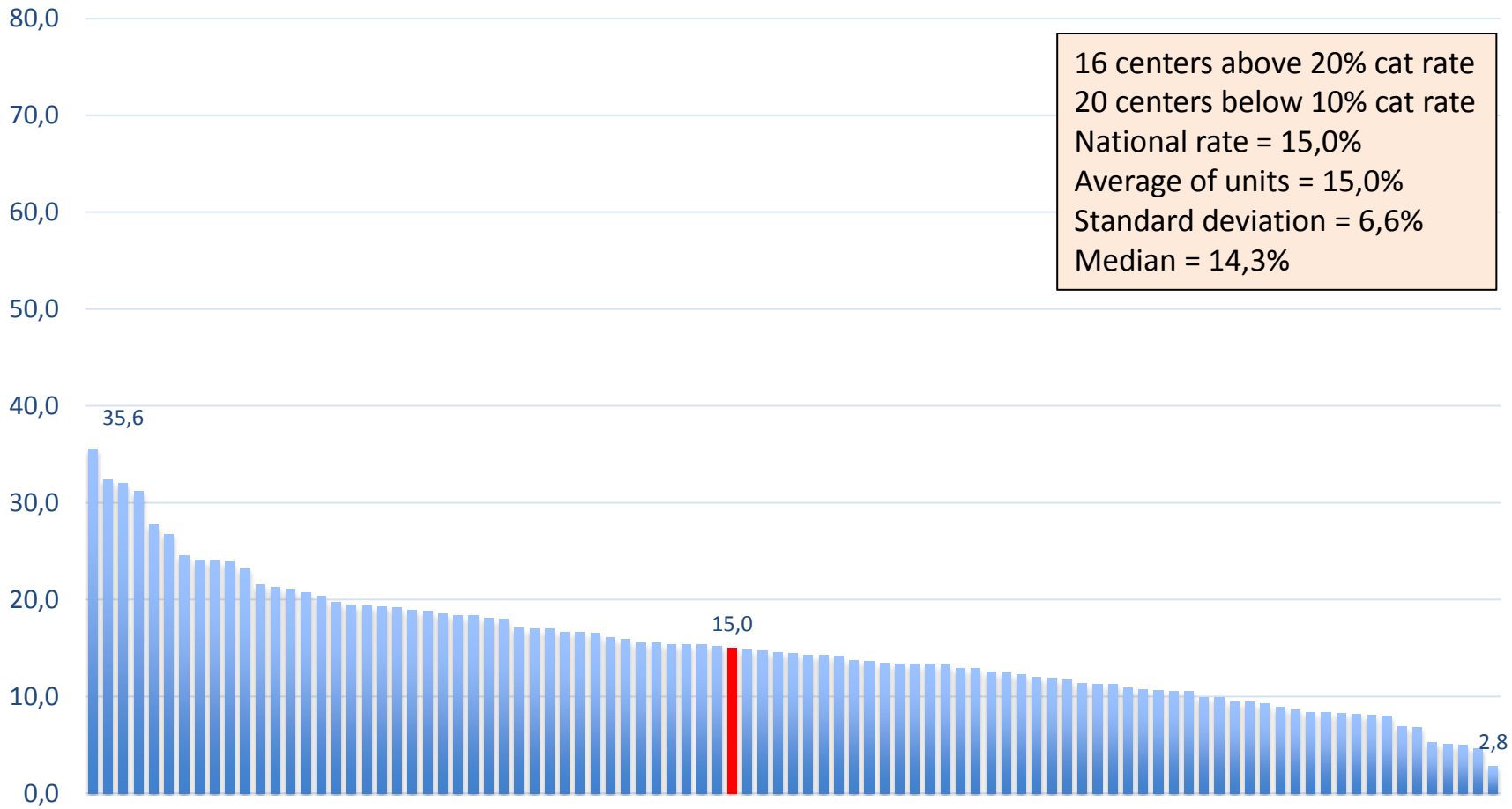
In Hospital HD patients, 31st December 2017



Sociedade Portuguesa de Nefrologia

Catheter rate of prevalent patients (%)

In Center HD patients - 2017



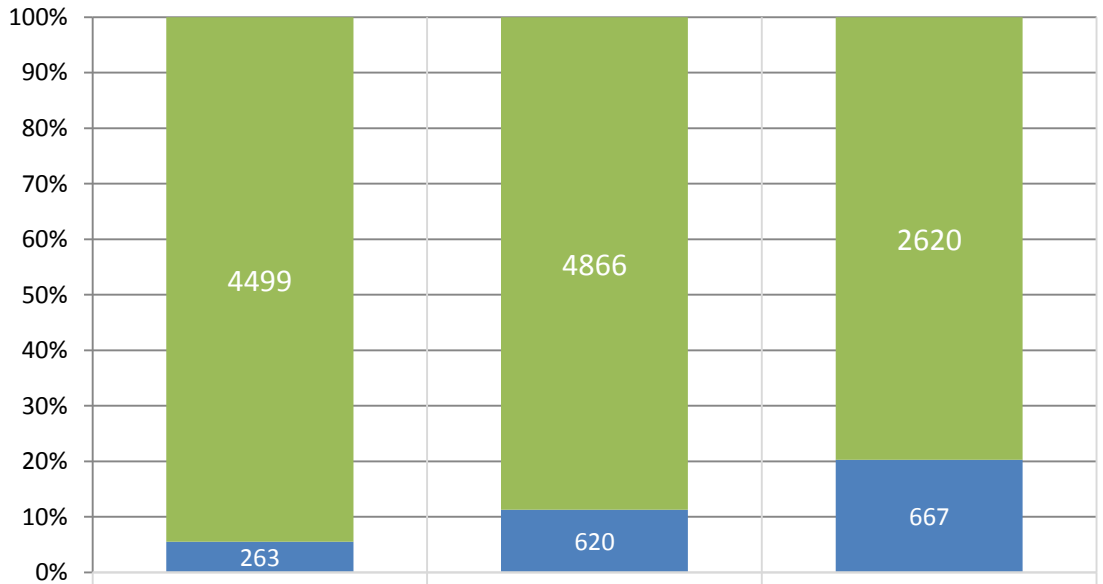
Sociedade Portuguesa de Nefrologia

Mortality - hemodialysis

Sociedade Portuguesa de Nefrologia

Deaths in hemodialysis

by age group in 2017



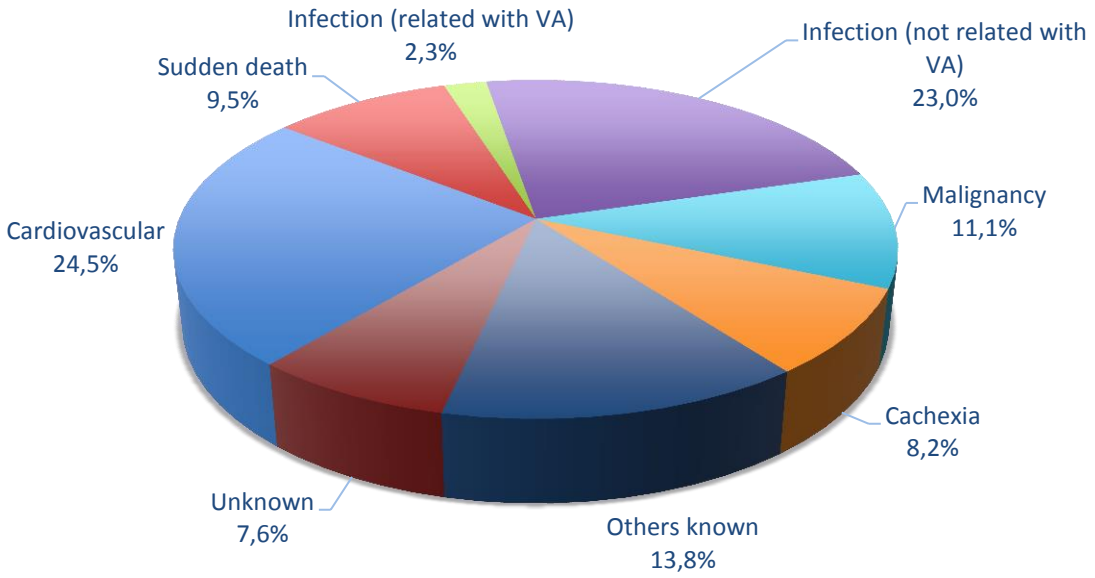
	< 65 years	65 - 80 years	>80 years
Prevalent	4499	4866	2620
Died	263	620	667

* 83,03% of 1550 patients that died in 2017 were more than 65 years old and 43,03% more than 80 years
* 7,8% of deaths occurred during the first 90 days after starting dialysis
* Mortality in the first 90 days was 5,05%

Sociedade Portuguesa de Nefrologia

Death causes in HD patients

during 2017

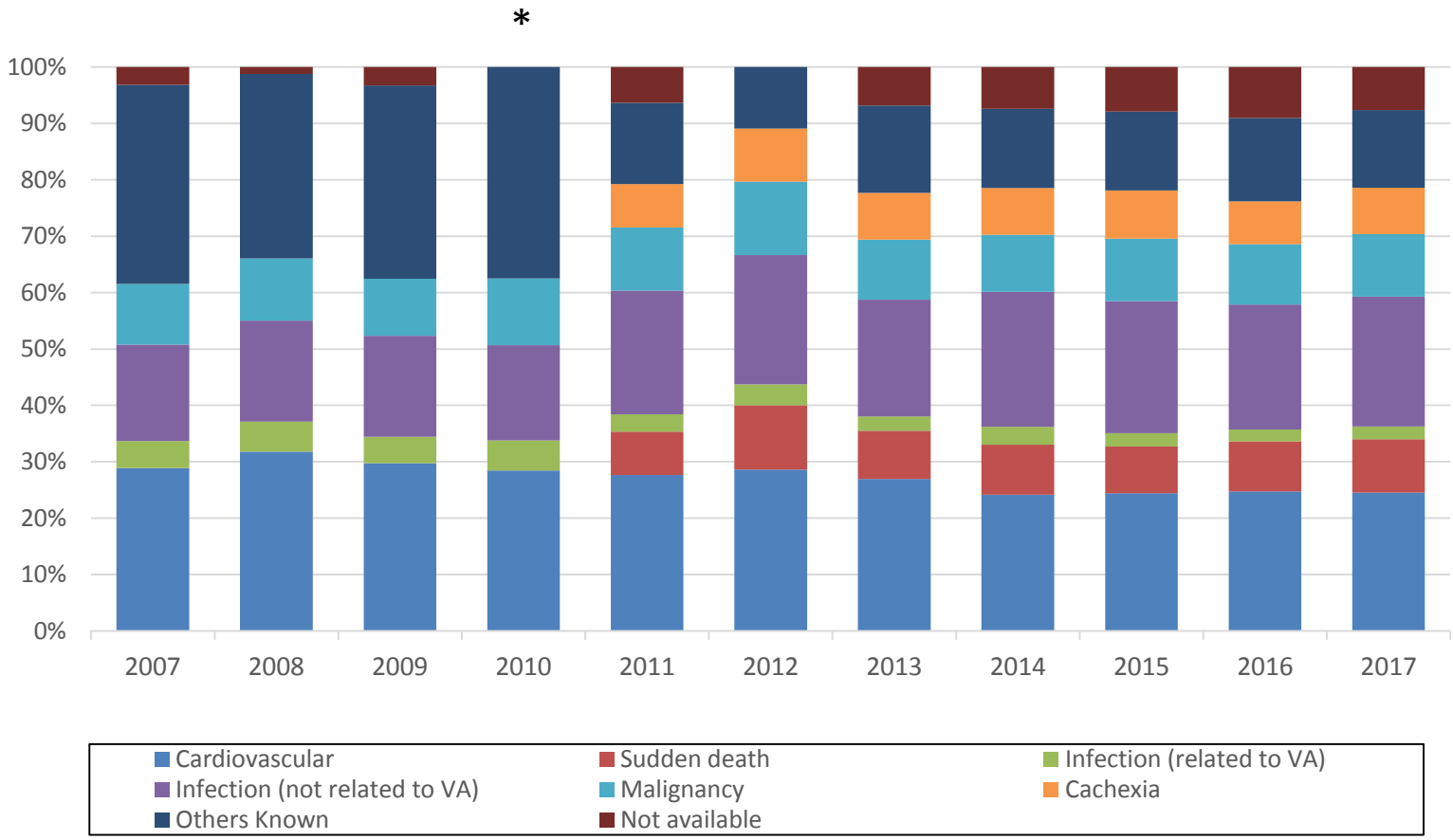


N=1550

Sociedade Portuguesa de Nefrologia

Deaths in hemodialysis

2007 - 2017

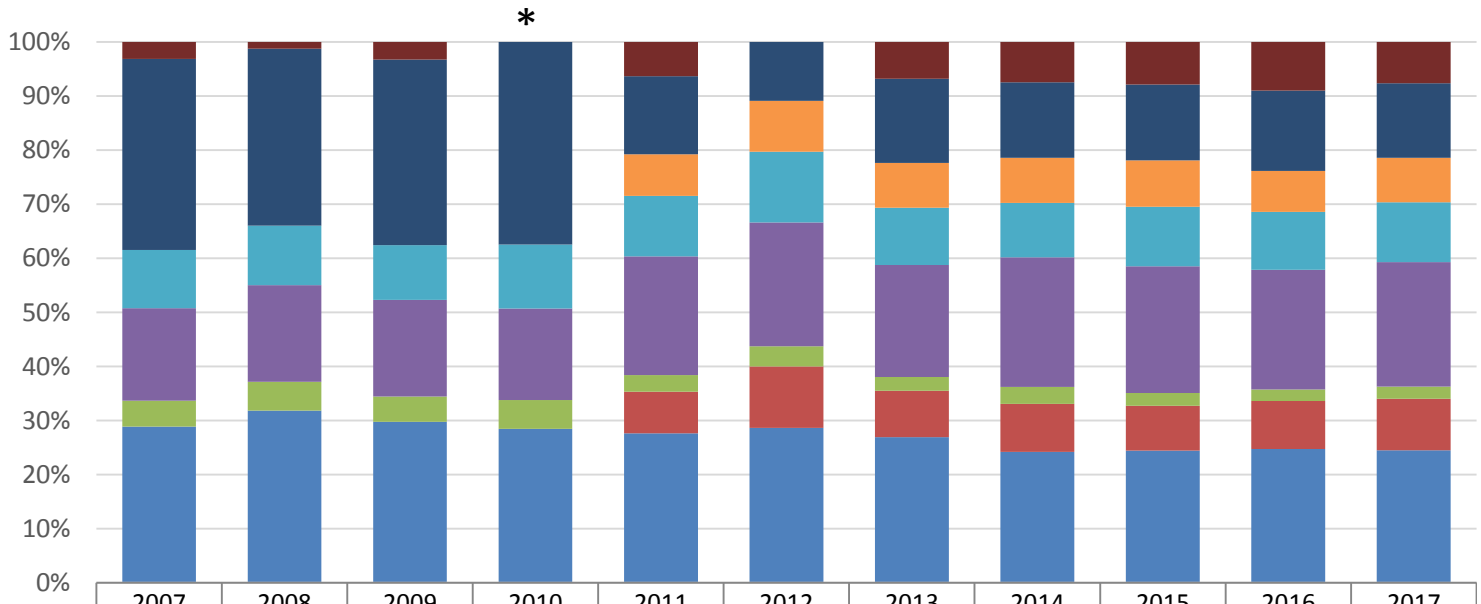


* Sudden death and cachexia were not reported until 2010

Sociedade Portuguesa de Nefrologia

Deaths in hemodialysis

2007 - 2017



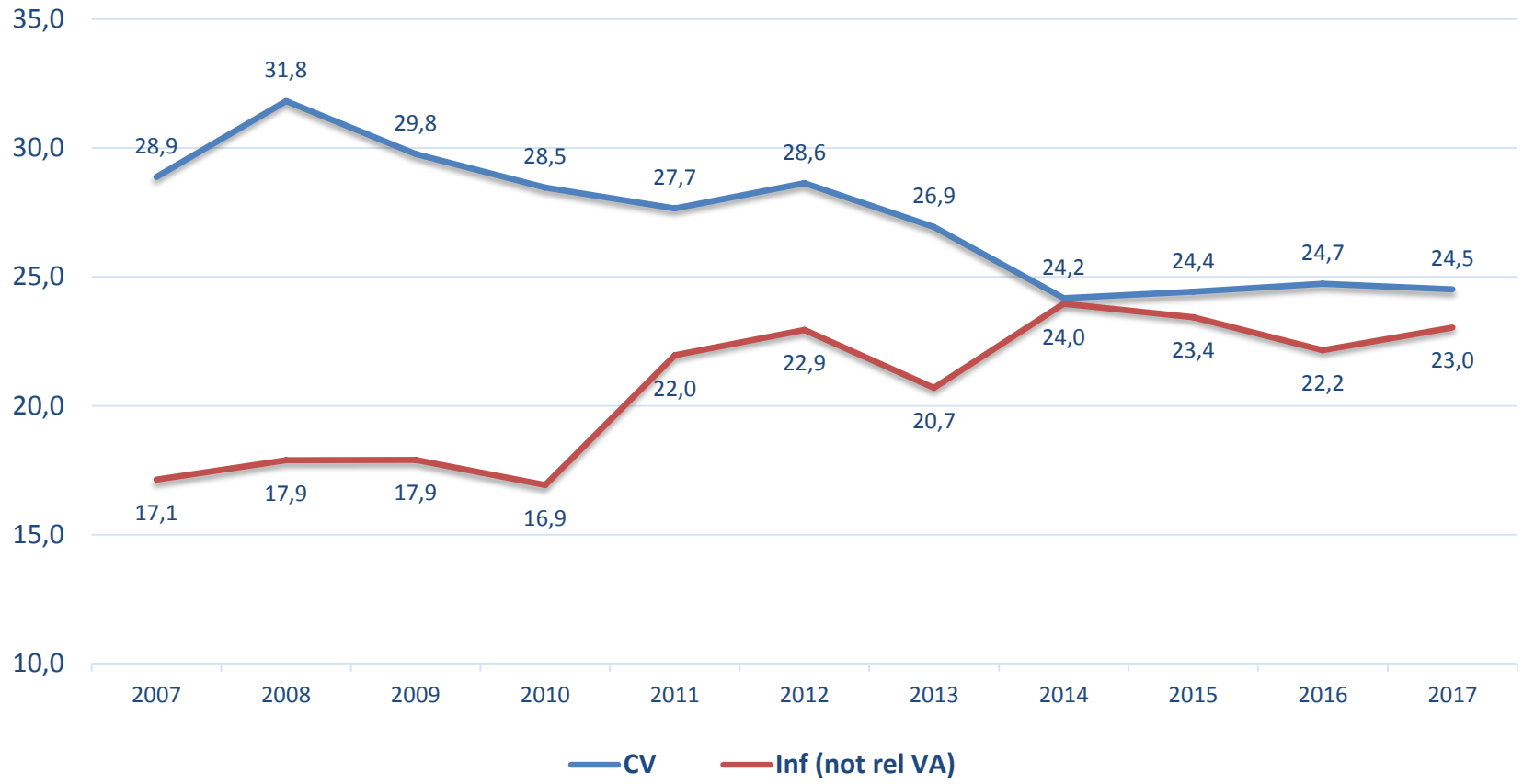
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Not available	42	16	43		90		96	103	119	136	118
Others Known	472	430	454	487	205	132	219	194	212	224	214
Cachexia					109	114	117	115	129	115	127
Malignancy	144	145	134	154	159	158	150	140	167	162	172
Infection (not related to VA)	229	235	237	220	312	278	292	332	354	335	357
Infection (related to VA)	64	70	62	69	44	45	36	44	36	32	35
Sudden death					109	138	121	123	125	134	147
Cardiovascular	386	418	394	370	393	347	380	335	369	374	380

* Sudden death and cachexia were not reported until 2010

Sociedade Portuguesa de Nefrologia

Cardiovascular and Infection deaths in hemodialysis (%)

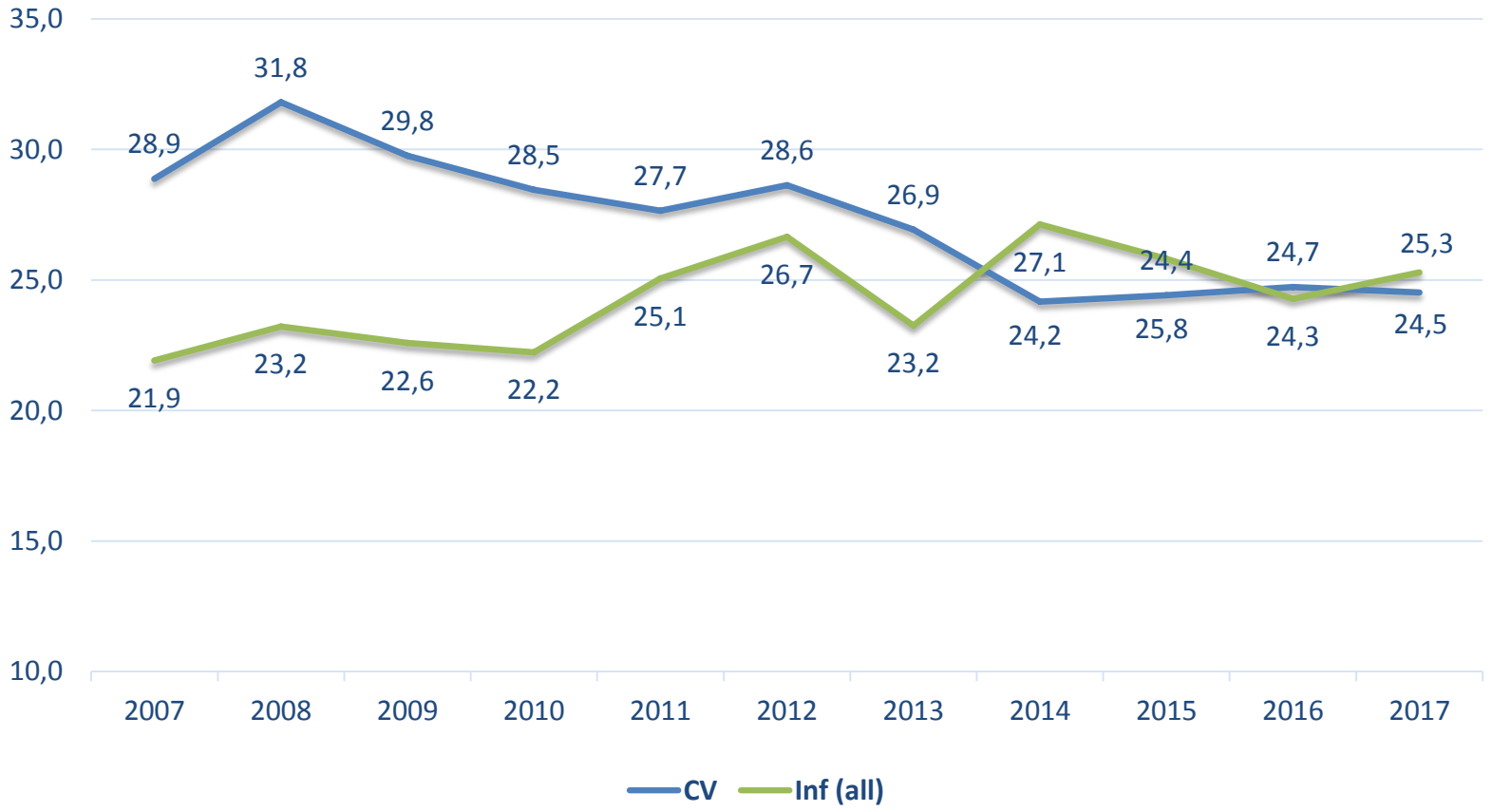
2007 - 2017



Sociedade Portuguesa de Nefrologia

Cardiovascular and Infection deaths in hemodialysis (%)

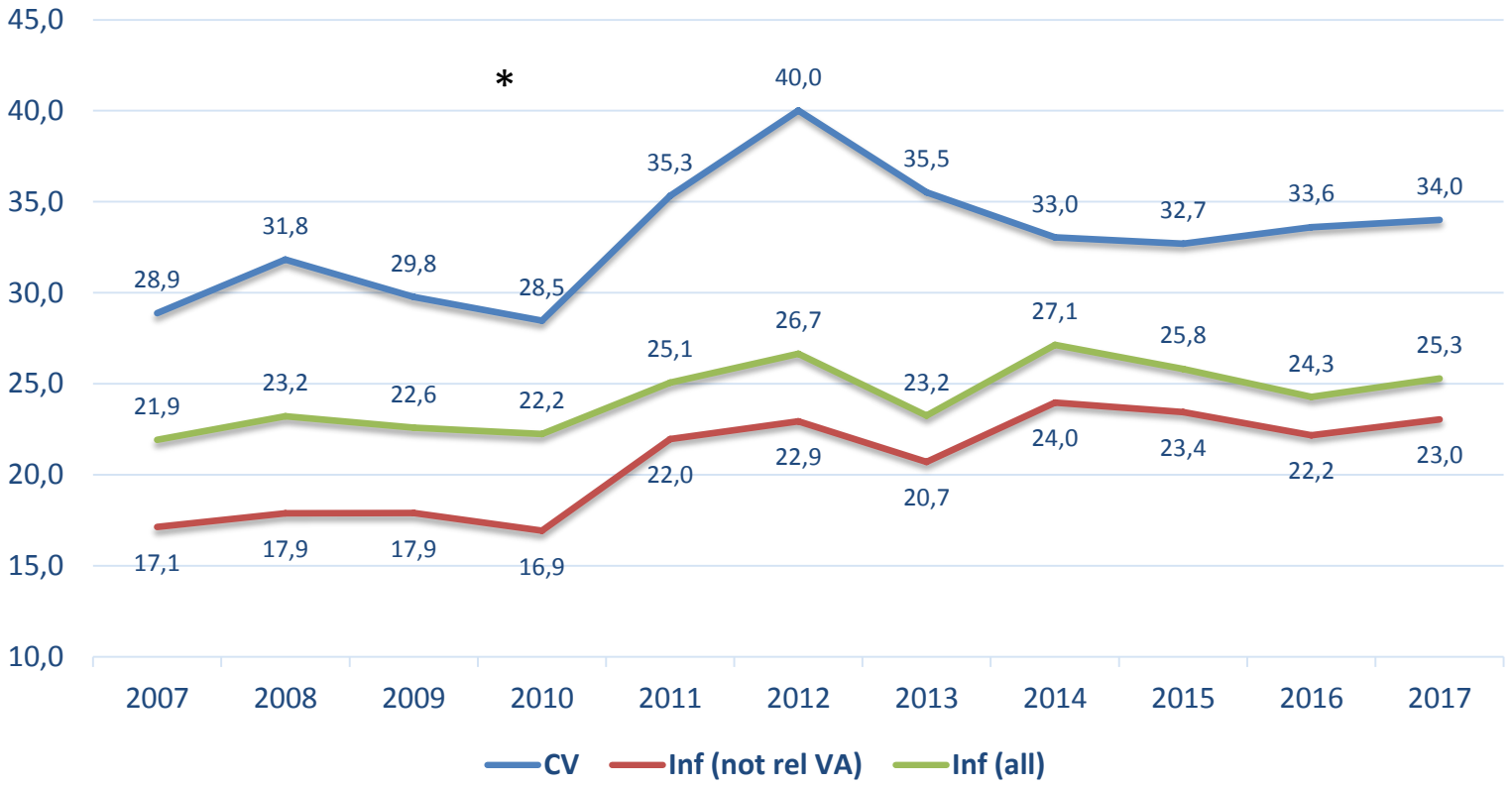
2007 - 2017



Sociedade Portuguesa de Nefrologia

Cardiovascular *(+sudden death)* and Infection deaths in hemodialysis (%)

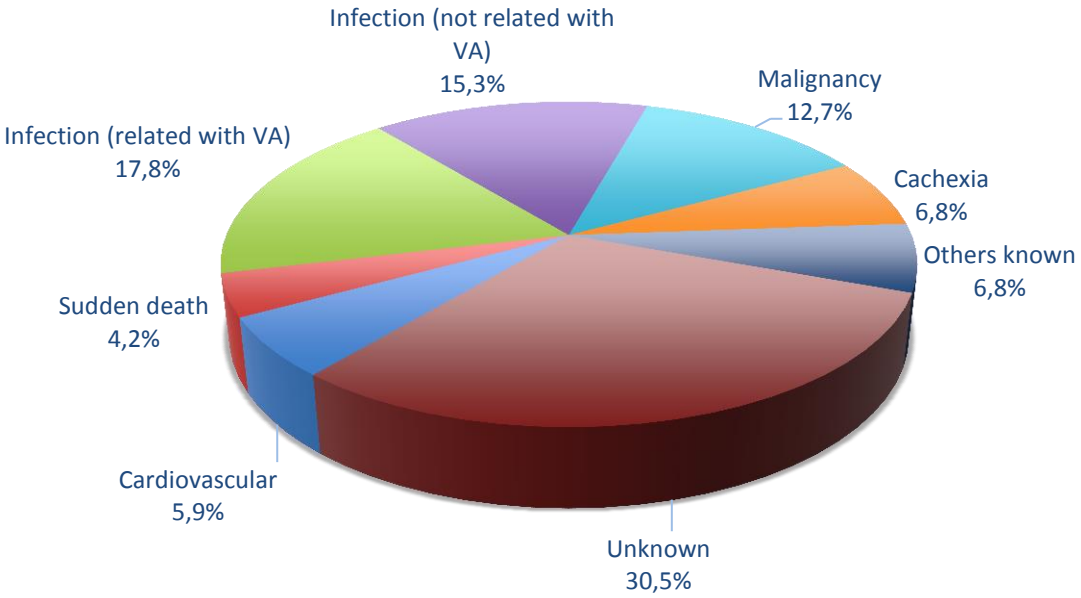
2007 - 2017



* Sudden death was not reported until 2010

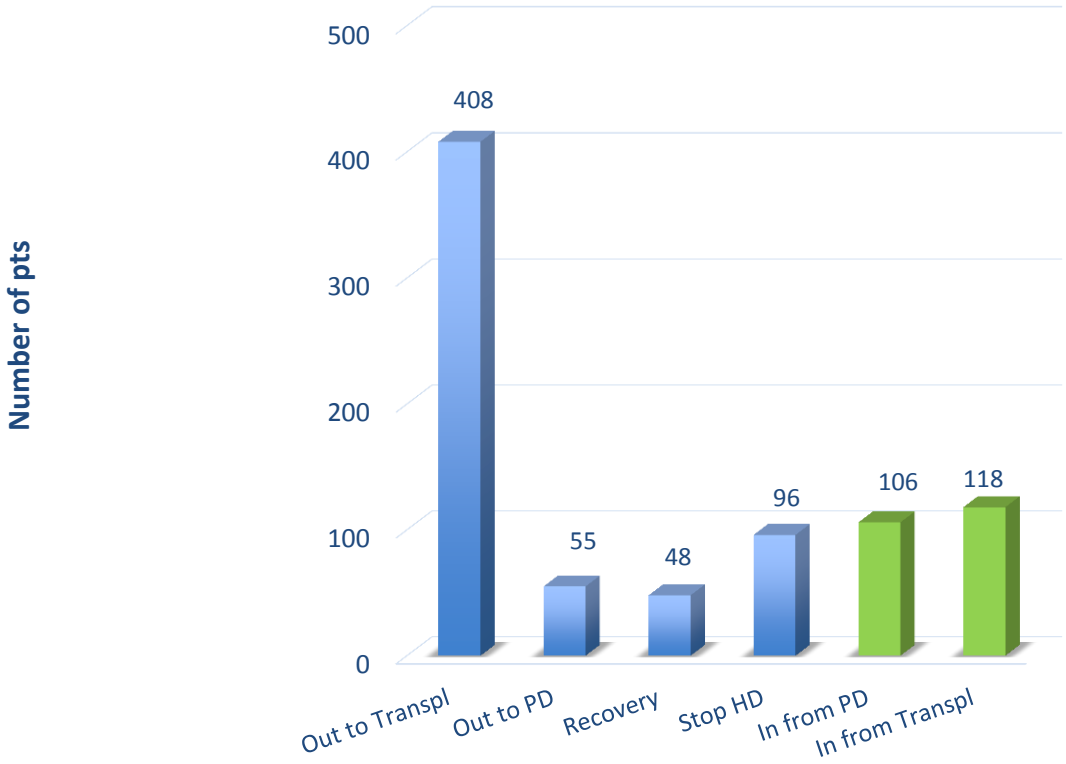
Death causes during the first 90 days of HD

2017



N=118

Patients movement in 2017



Out = 607 ; In = 224

Sociedade Portuguesa de Nefrologia

HD patients movement in 2017

	IN		OUT
First treatment	2113	Deaths	1550
Transplant failure	118	Transplanted	408
PD into HD	106	HD into PD	65
		Stop treat. or recovery	144

National Crude Mortality Rate in HD = 13,03%

(90d mortality = 5,05%)

Mortality rates – hemodialysis

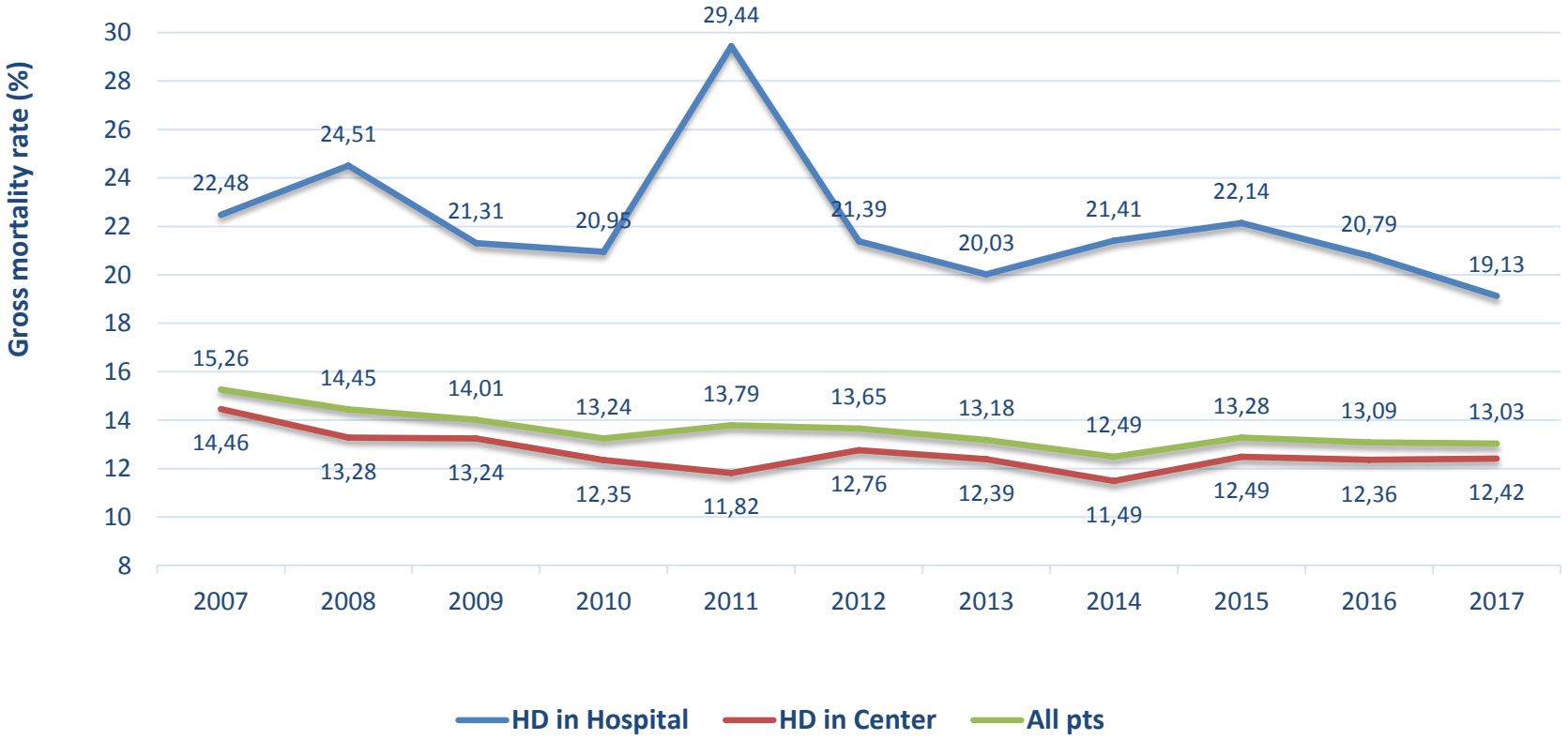
2017

National crude mortality rate = **13,03%** (90 day mortality = 5,05%)	
Hemodialysis ***in hospital***	**19,13%** (90 day mortality = 9,41%)
Hemodialysis ***in center***	**12,42%** (90 day mortality = 4,17%)

Sociedade Portuguesa de Nefrologia

Crude mortality rate in hemodialysis

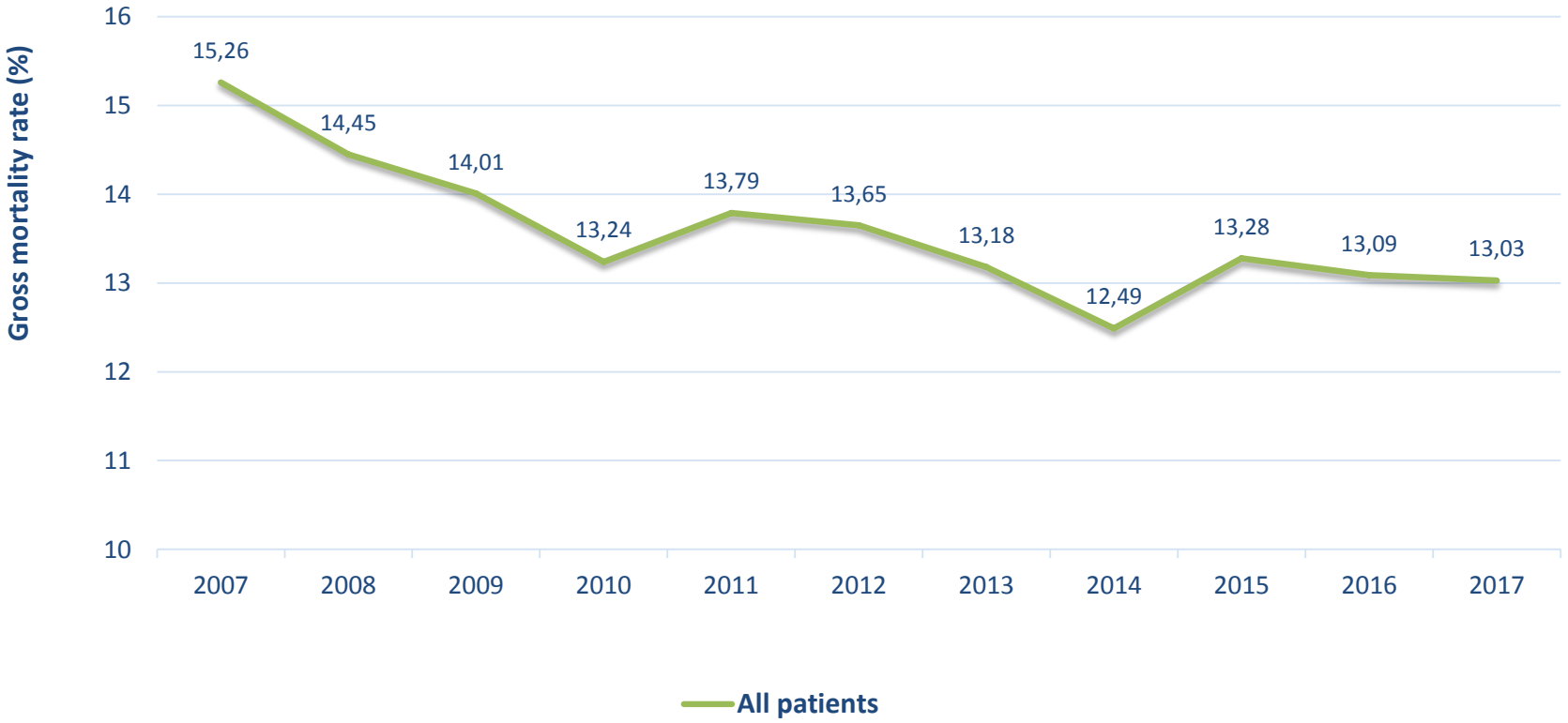
2007 - 2017



Sociedade Portuguesa de Nefrologia

Crude mortality rate in hemodialysis

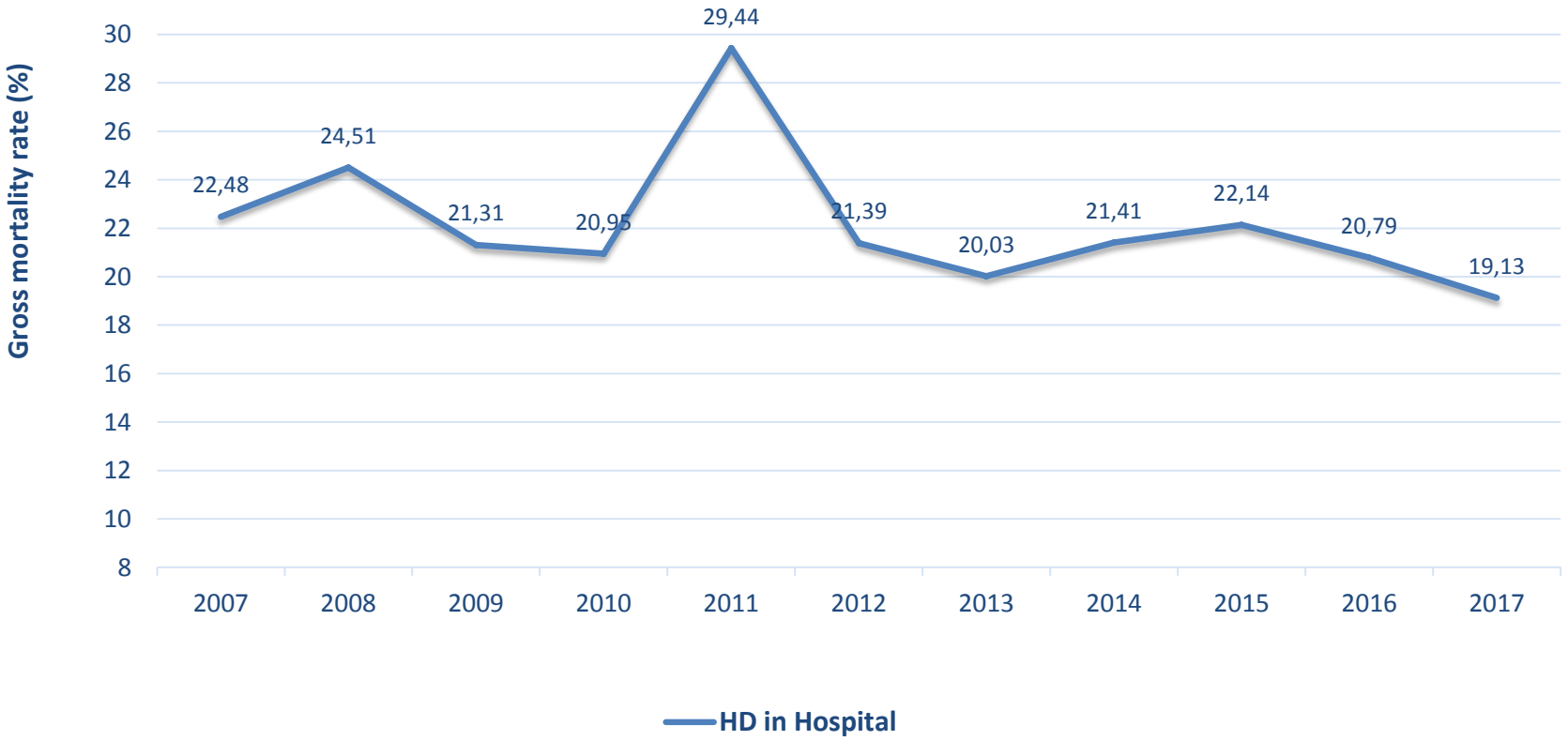
2007 - 2017



Sociedade Portuguesa de Nefrologia

Crude mortality rate in hemodialysis

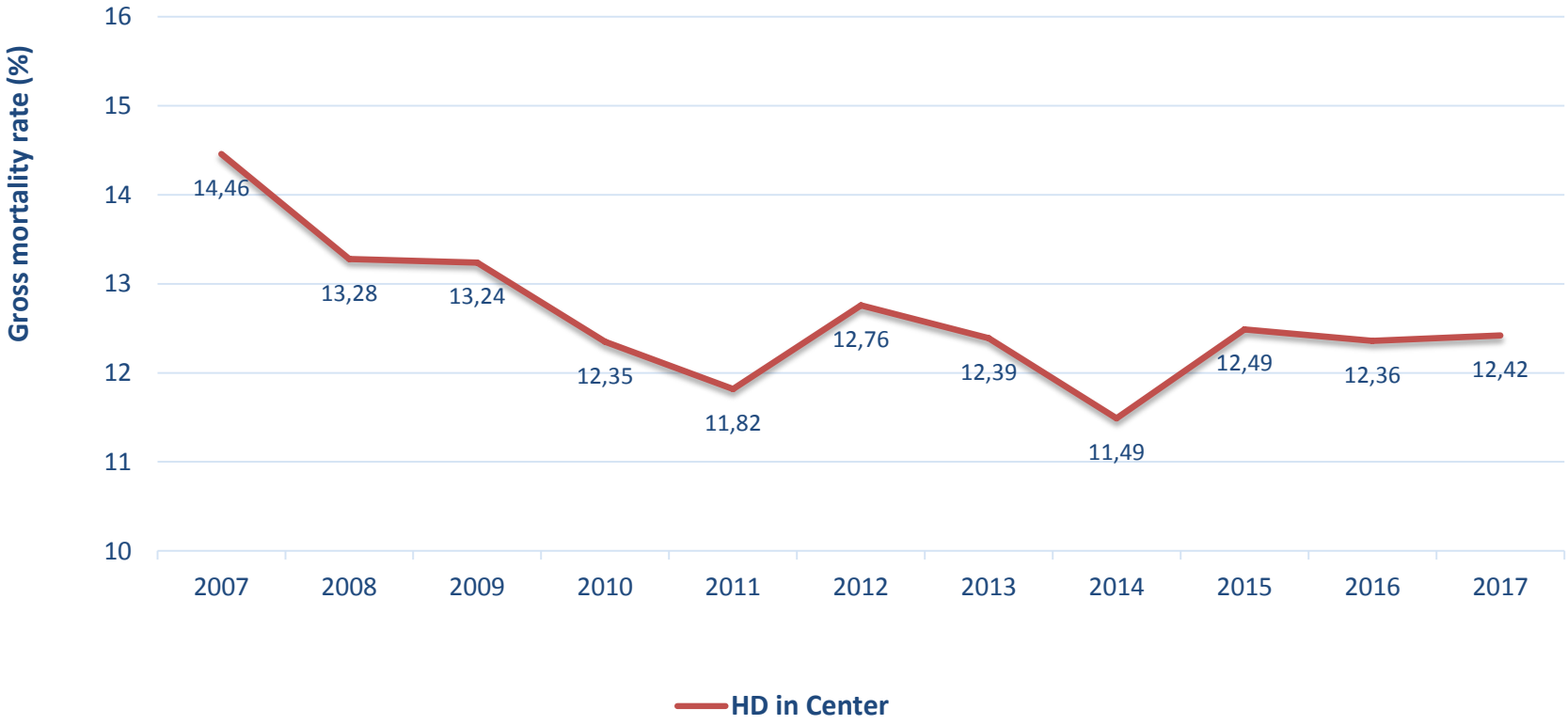
in hospital treated patients, 2007 - 2017



Sociedade Portuguesa de Nefrologia

Crude mortality rate in hemodialysis

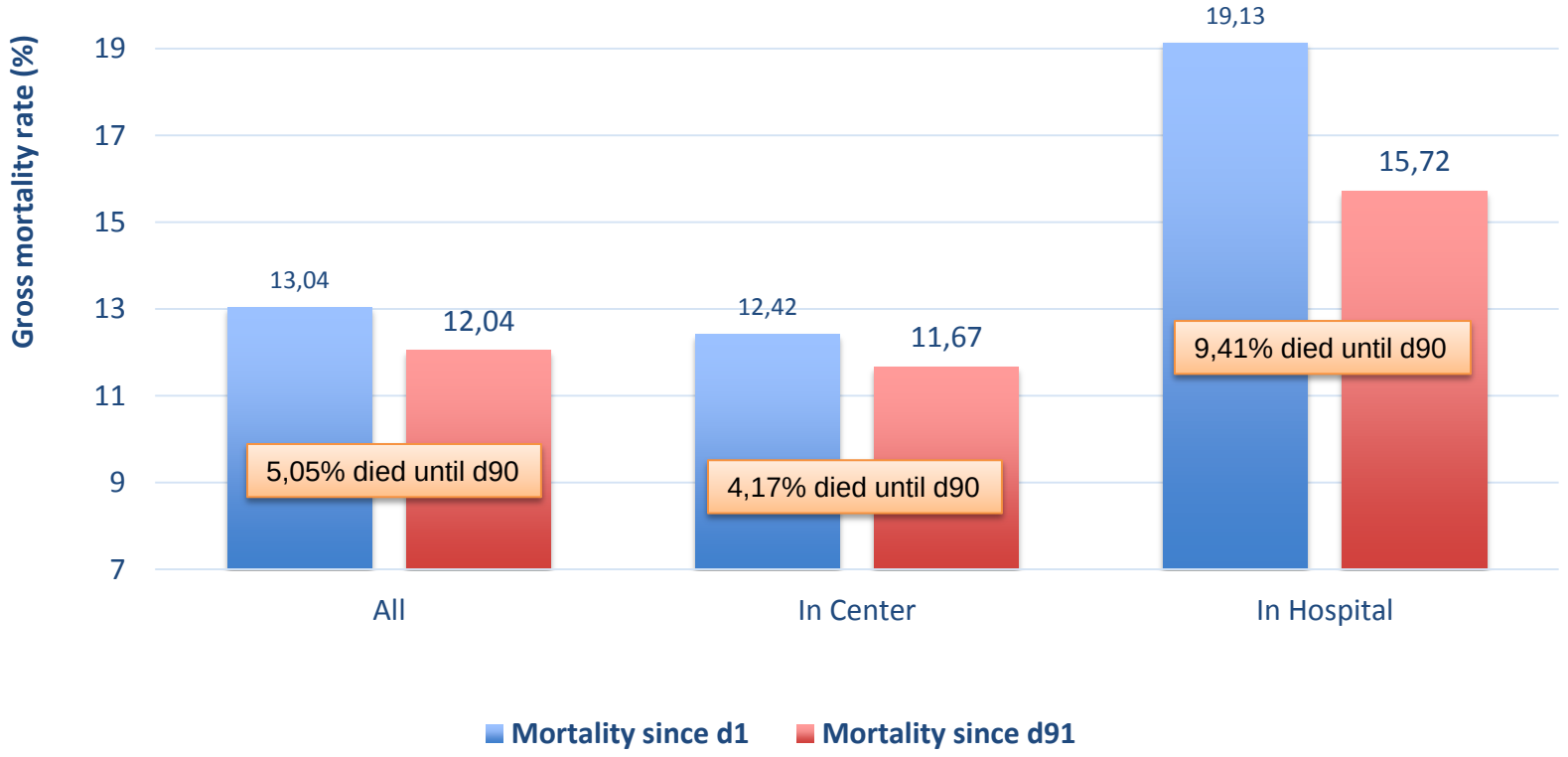
in center treated patients, 2007 - 2017



Sociedade Portuguesa de Nefrologia

Crude mortality rate

Impact of deaths until day 90, 2017



Sociedade Portuguesa de Nefrologia

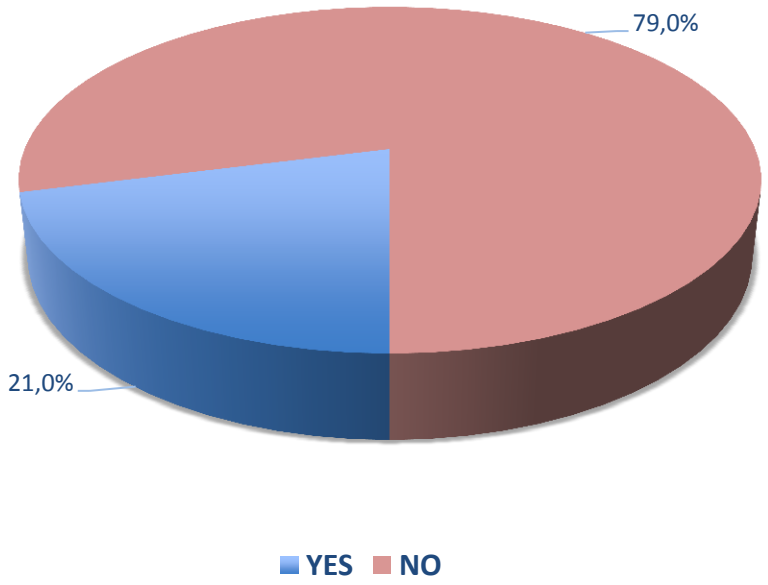
Crude mortality rates – hemodialysis

since d1 and d91 by country region, 2017

	Mean Age	Mortality since d1	Mortality since d91	Deaths until d90 (% of incident)
Global	**67,9**	**13,03%**	**12,04%**	**5,05%**
North	67,7	13,22%	12,21%	4,91%
Center	69,9	15,60%	14,55%	5,41%
South	69,0	10,96%	10,11%	4,24%
Lisbon	66,5	12,54%	11,50%	5,64%
Azores	63,6	11,90%	11,31%	2,70%
Madeira	65,9	11,37%	10,44%	4,00%

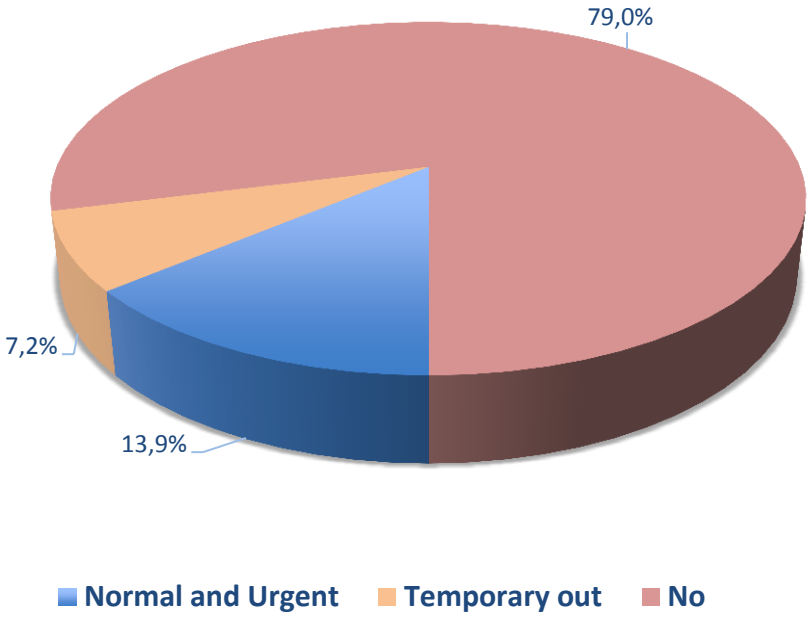
Waiting list for renal transplantation

Hemodialysis patients, 2017



Waiting list for renal transplantation

HD patients, Active and temporary contraindication - 2017

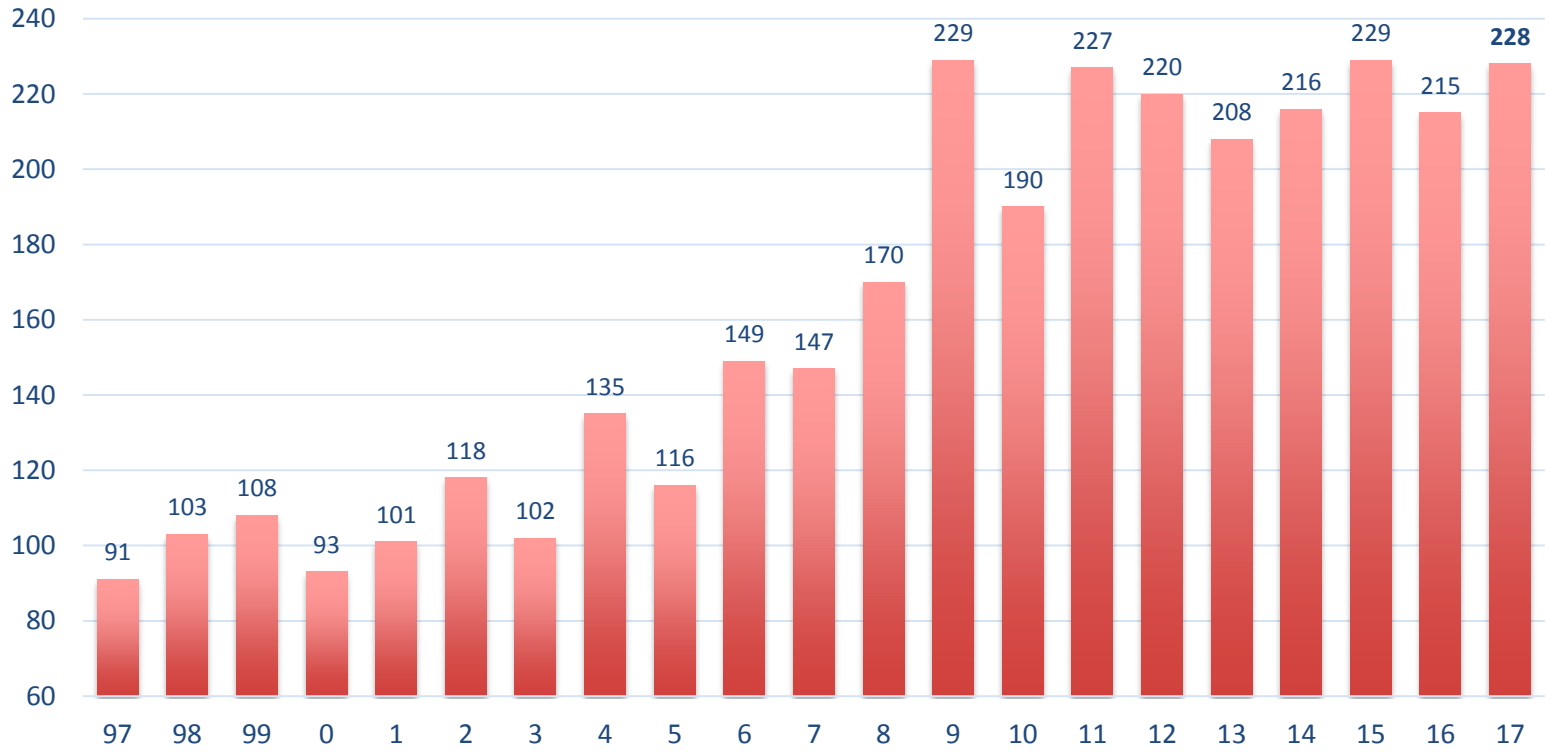


PERITONEAL DIALYSIS

Sociedade Portuguesa de Nefrologia

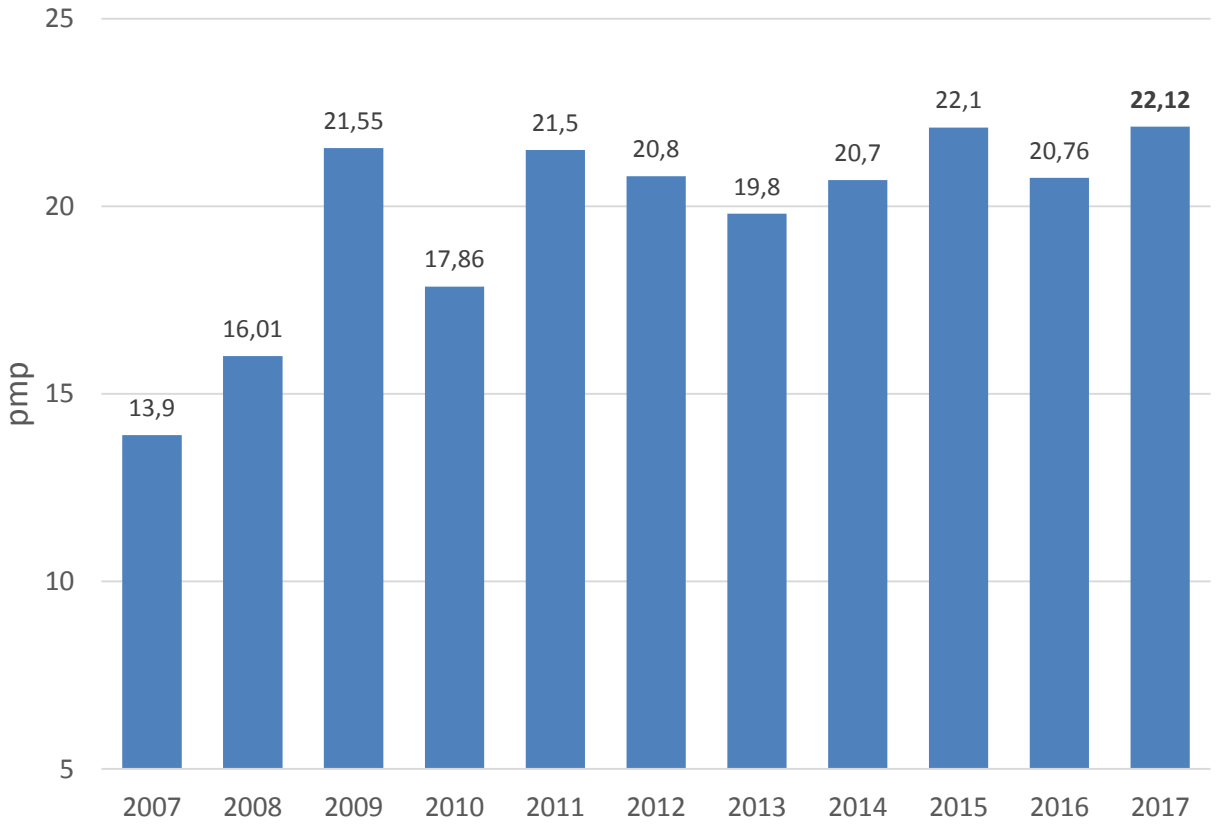
New patients starting peritoneal dialysis

1997 - 2017



Incident patients accepted for peritoneal dialysis

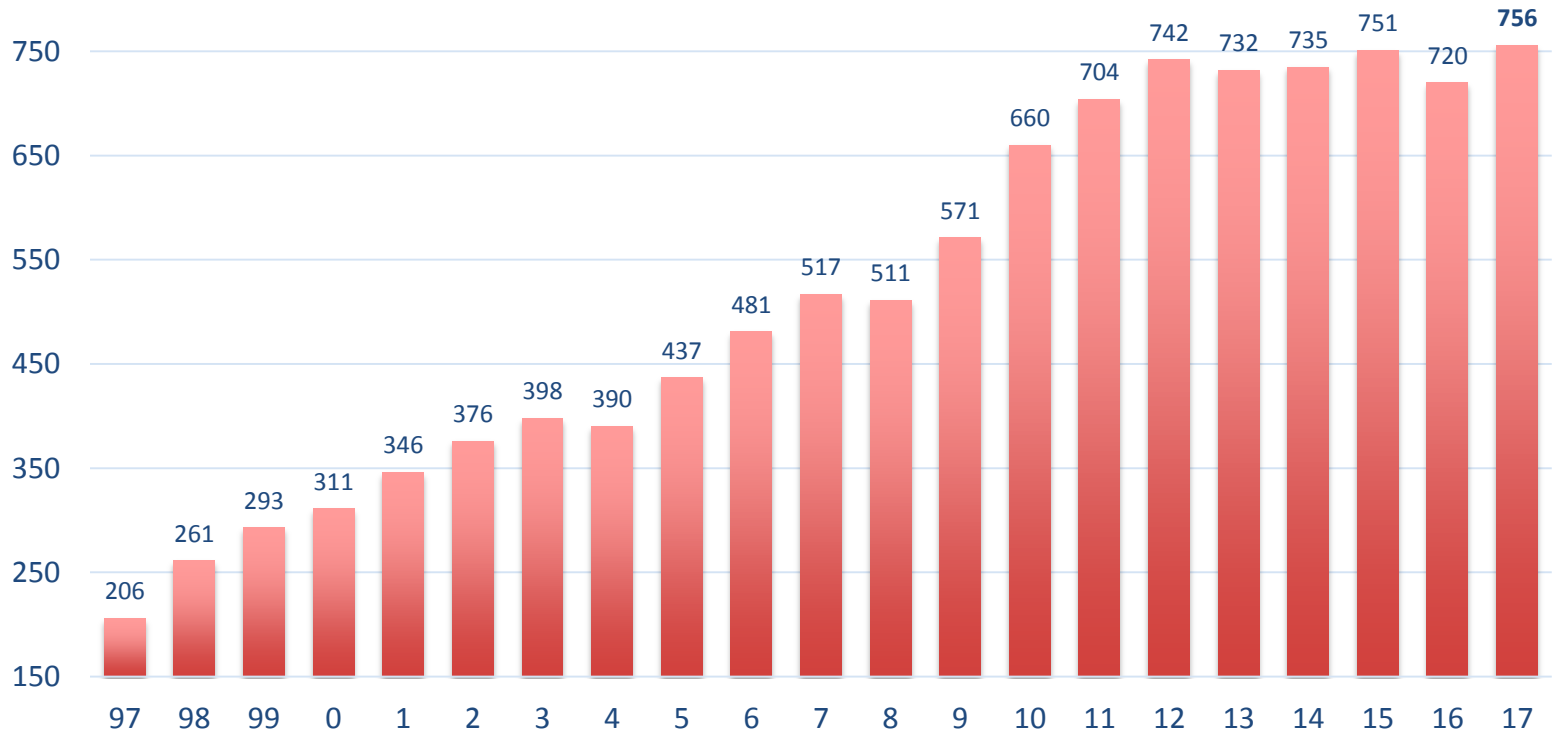
per million population 2007 - 2017



Sociedade Portuguesa de Nefrologia

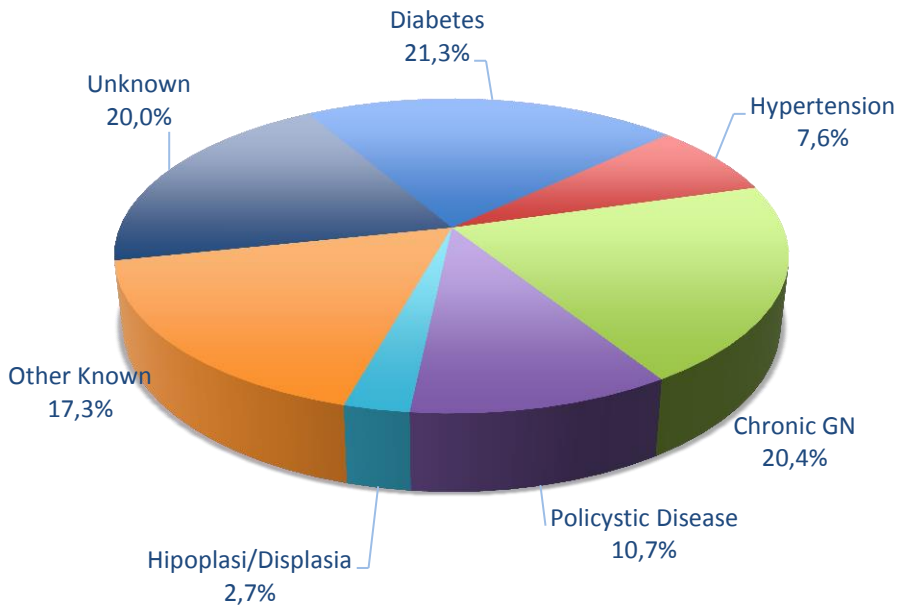
Patients treated by peritoneal dialysis

Count at 31st of December each year, 1997 – 2017



Primary renal disease of patients accepted for peritoneal dialysis

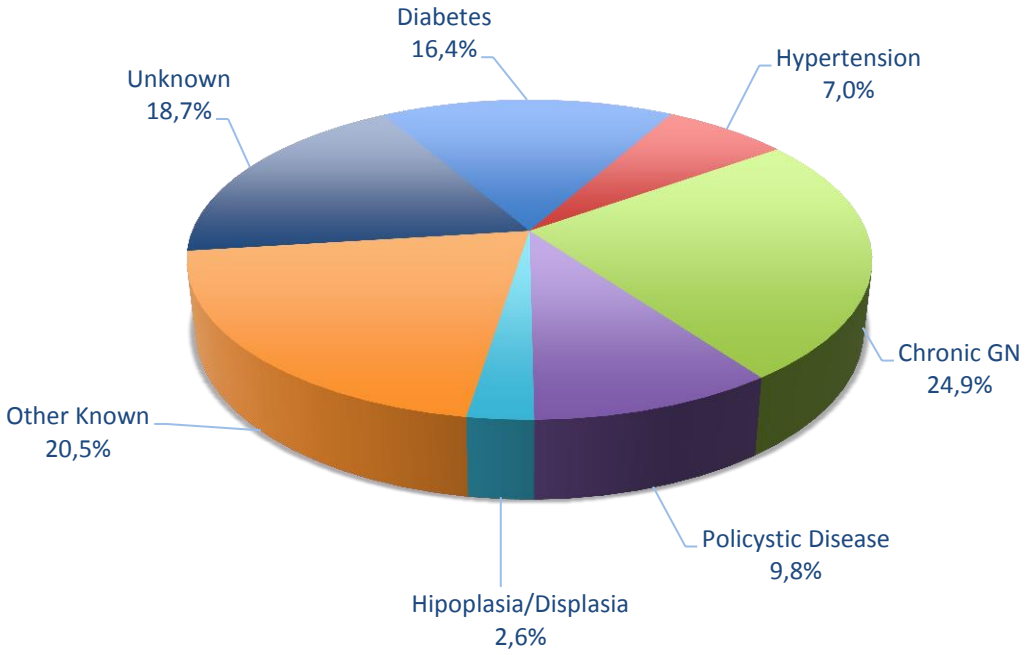
during 2017



N = 228
No answer:3

Primary renal disease of prevalent peritoneal dialysis patients

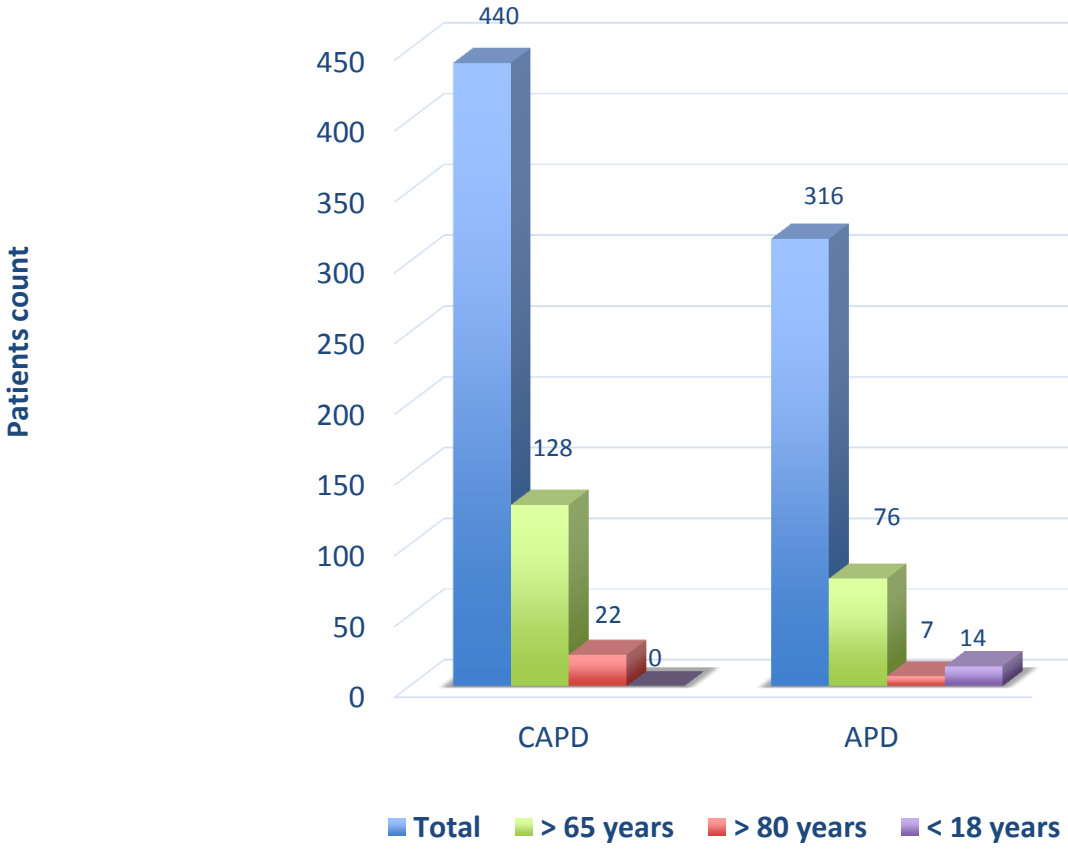
31st December 2017



N = 755
n.avail. 1pt

Patients treated by peritoneal dialysis

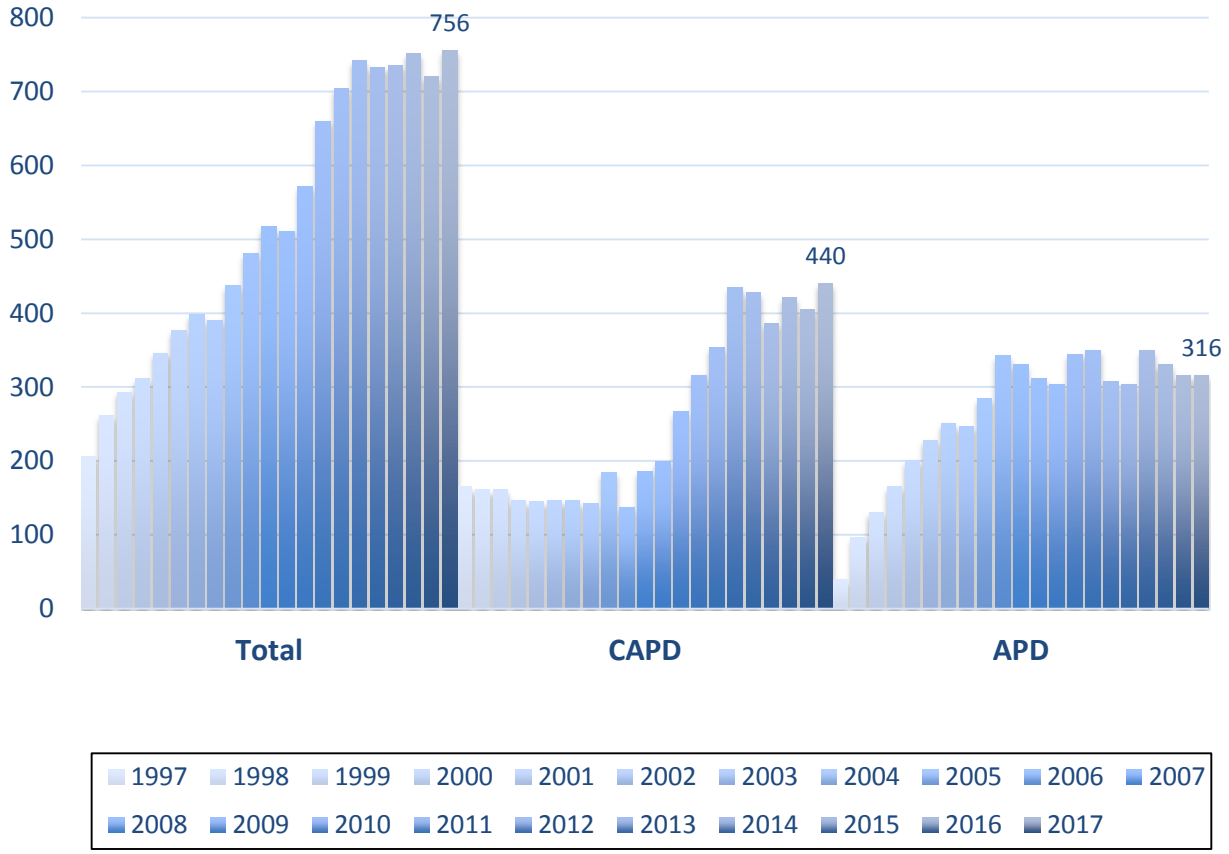
Manual vs automated, 31st of December 2017



N = 756 ; APD:41,8%; Age>65 years:26,9%; Age>80years:3,8%

Patients treated by peritoneal dialysis

Manual vs automated, 31st December 2007 - 2017



N_{2017} = 756 ; CAPD:440 ; APD/Others:316

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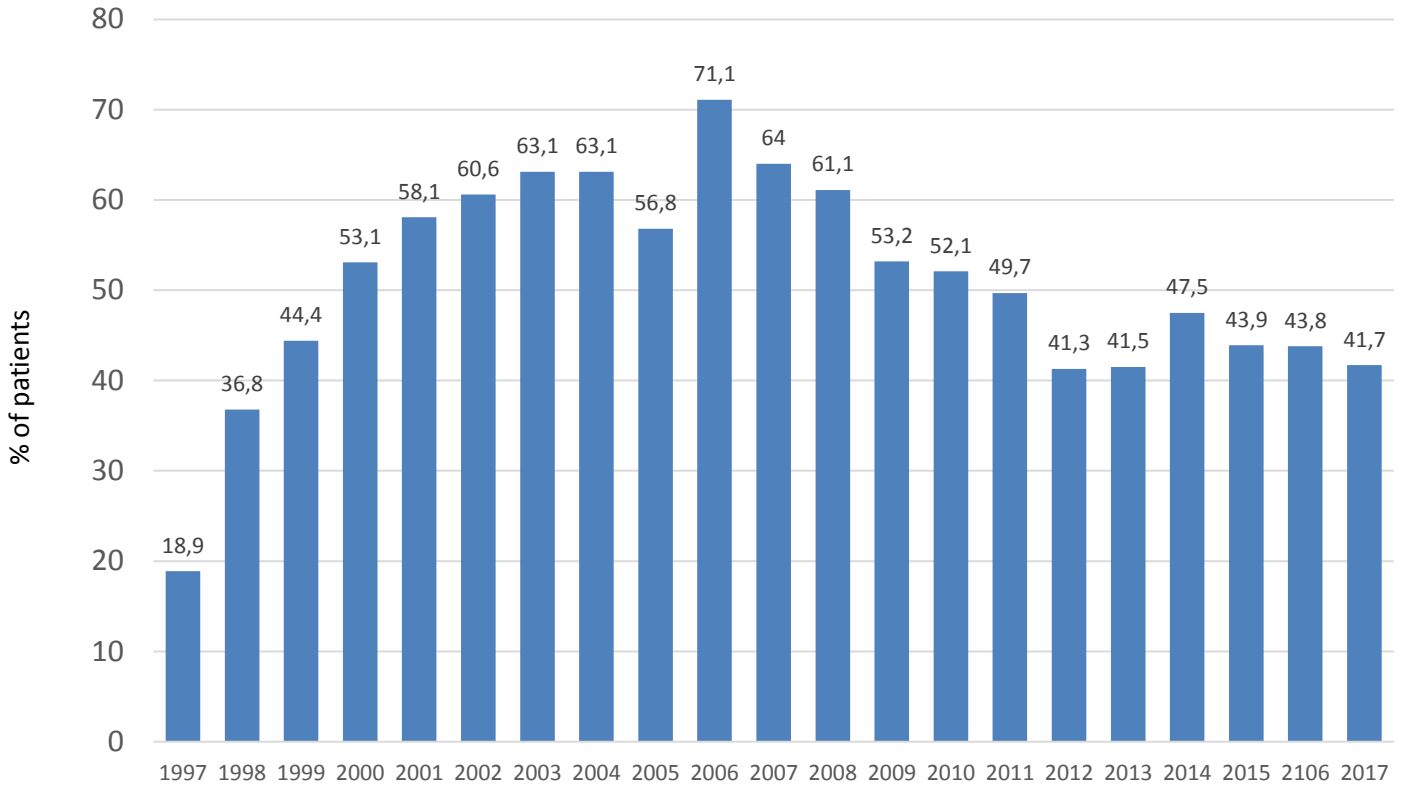
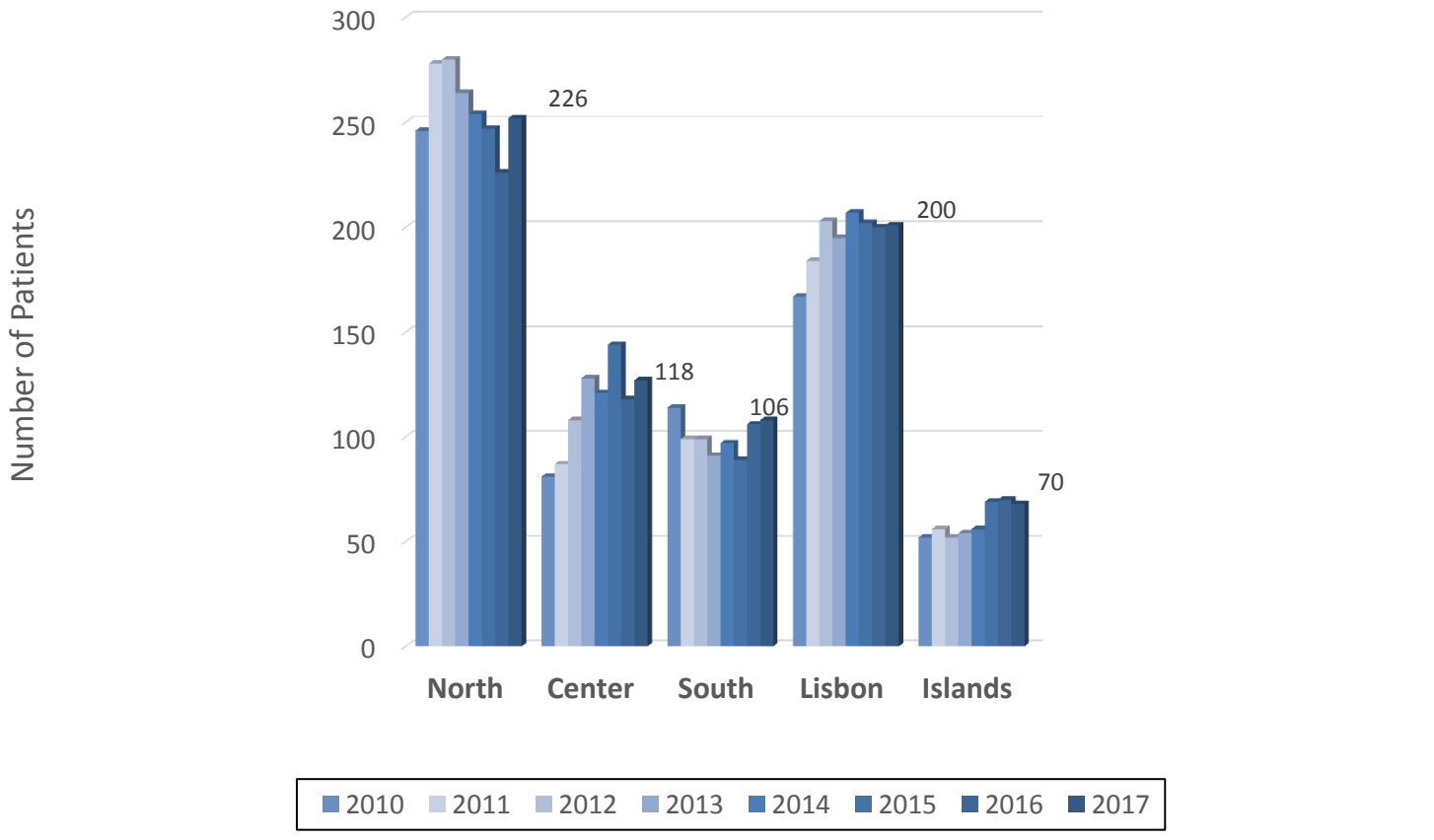
Automated Peritoneal Dialysis usage (%)

31st December 2007 - 2017



Patients treated by peritoneal dialysis

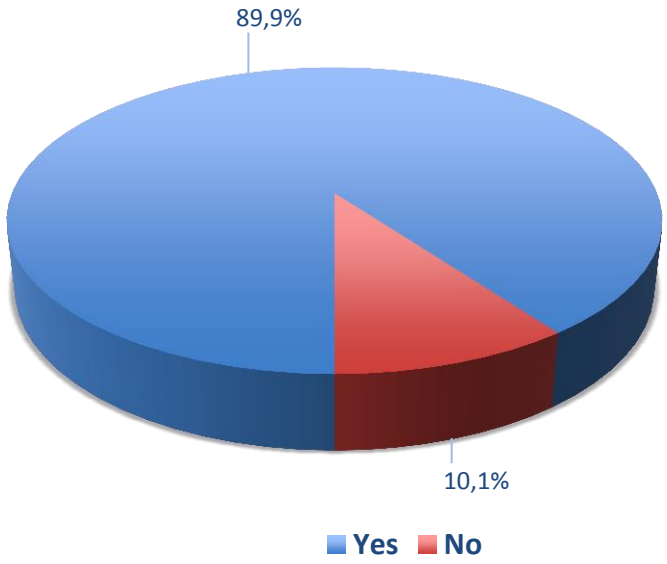
by region, 31st of December 1997 to 2017



N = 756 (2017)

Previous follow-up by nephrology (> 3 months)

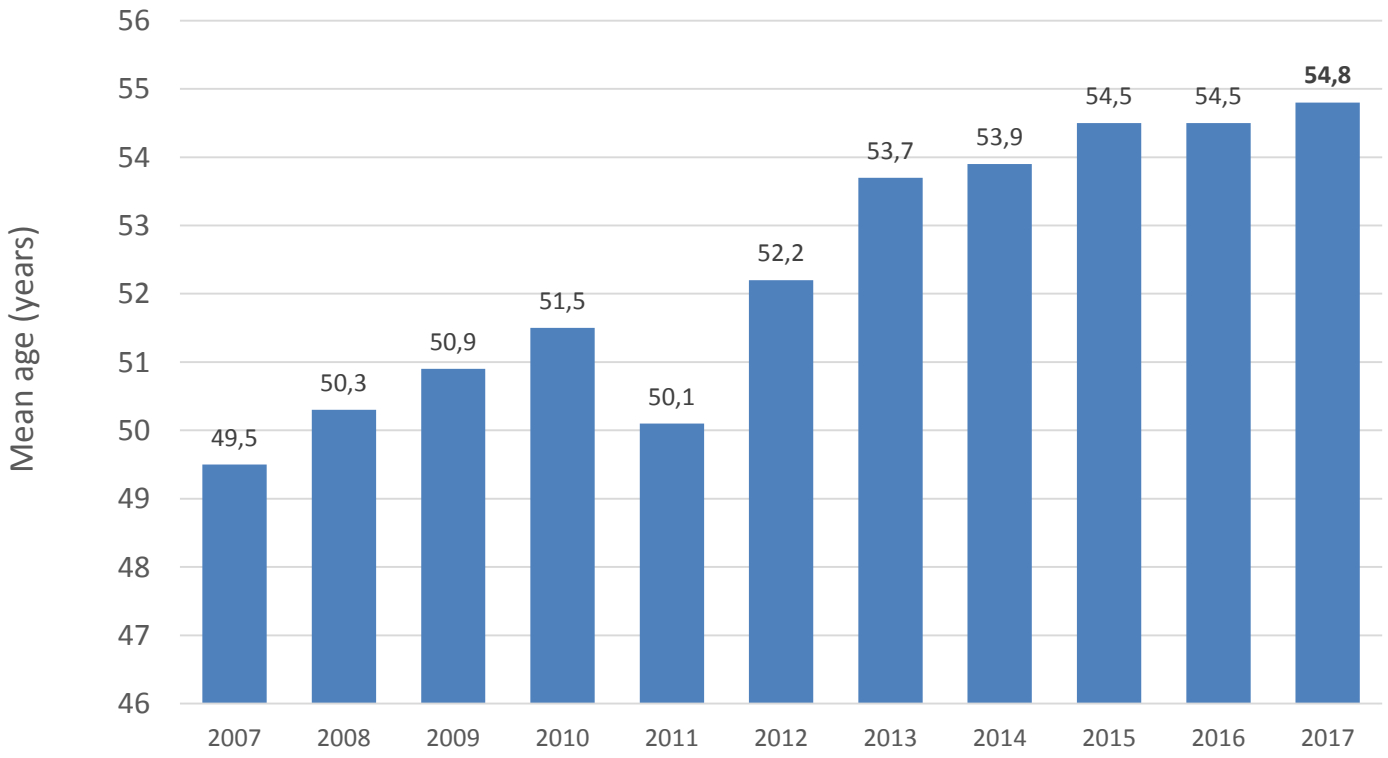
PD patients, *31st of December 2007 – 2017*



N = 228

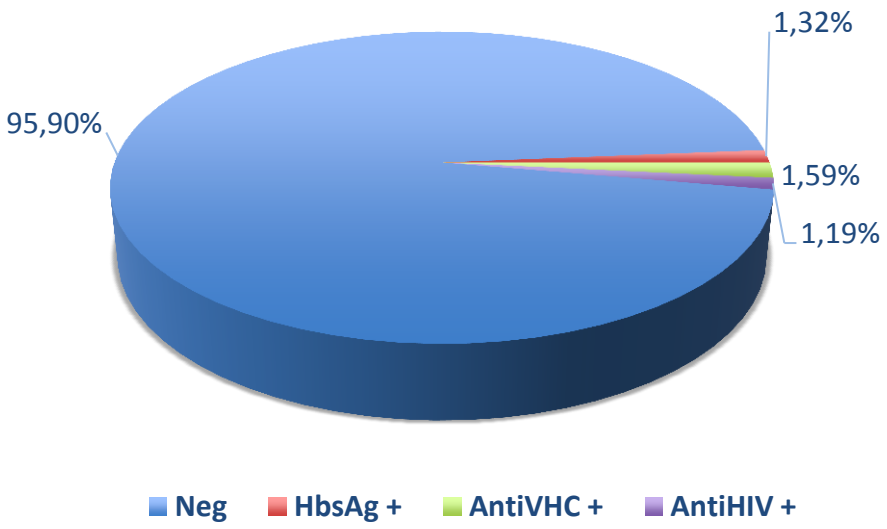
Mean Age of patients treated by peritoneal dialysis

31st of December 2007 – 2017



Viral status in PD prevalent patients

31st December 2017



N = 756

PD patients movement in 2017

	IN		OUT
New patients	228	Death	44
KTr failure	14	Transplant	71
HD to PD	37	PD to HD	126
		Suspension	1
		Renal Recovery	3
National Crude Mortality Rate in PD = 5,16 % (90 d mortality = 2,5%)			

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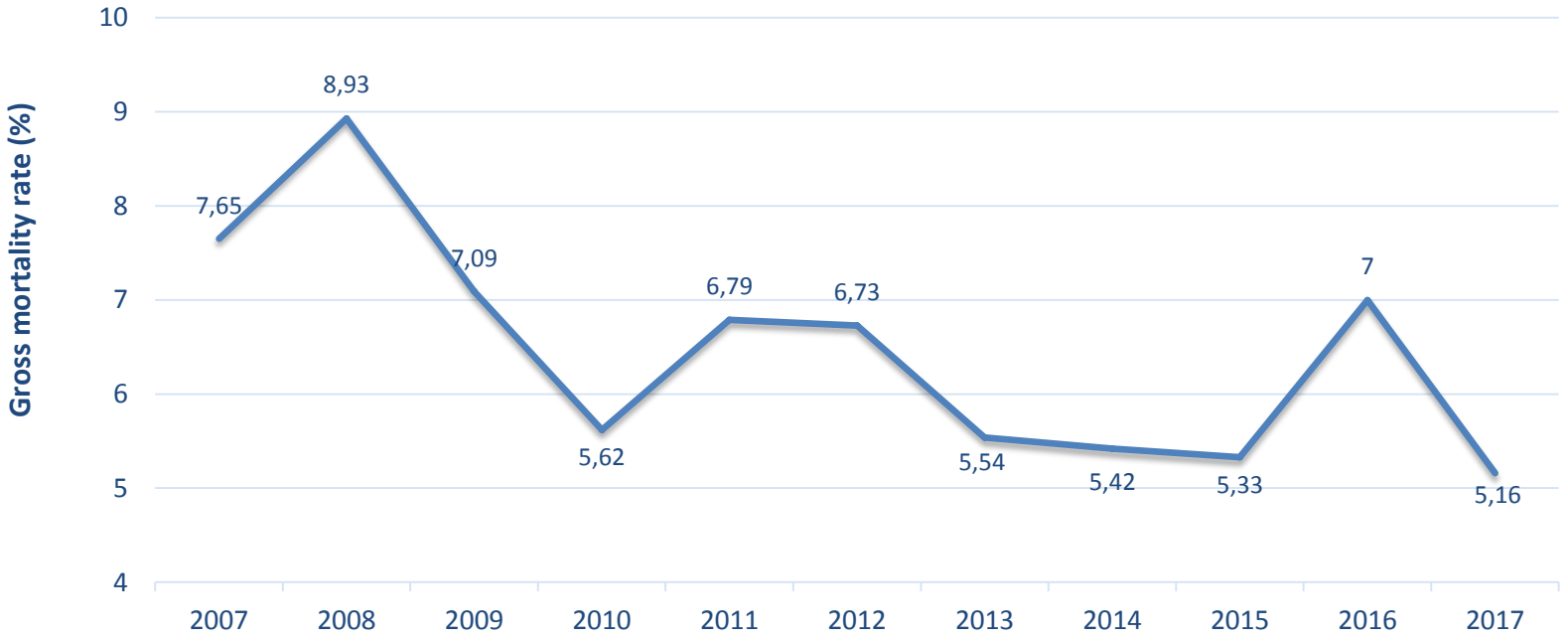
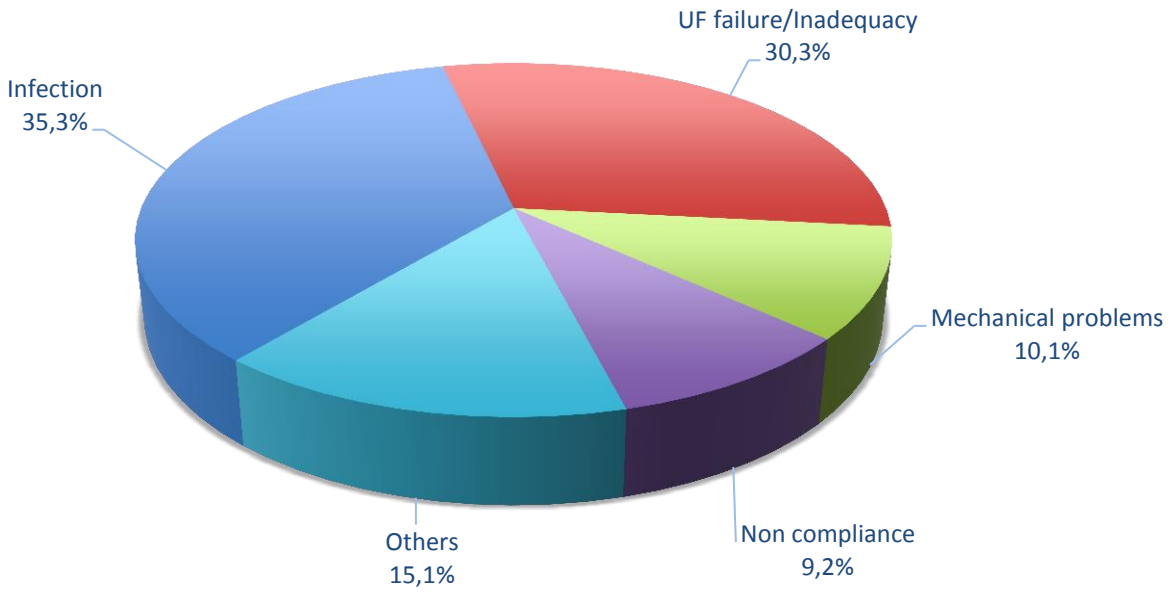
Crude mortality rate in peritoneal dialysis

2007 - 2017



Reasons for PD withdraw

2017



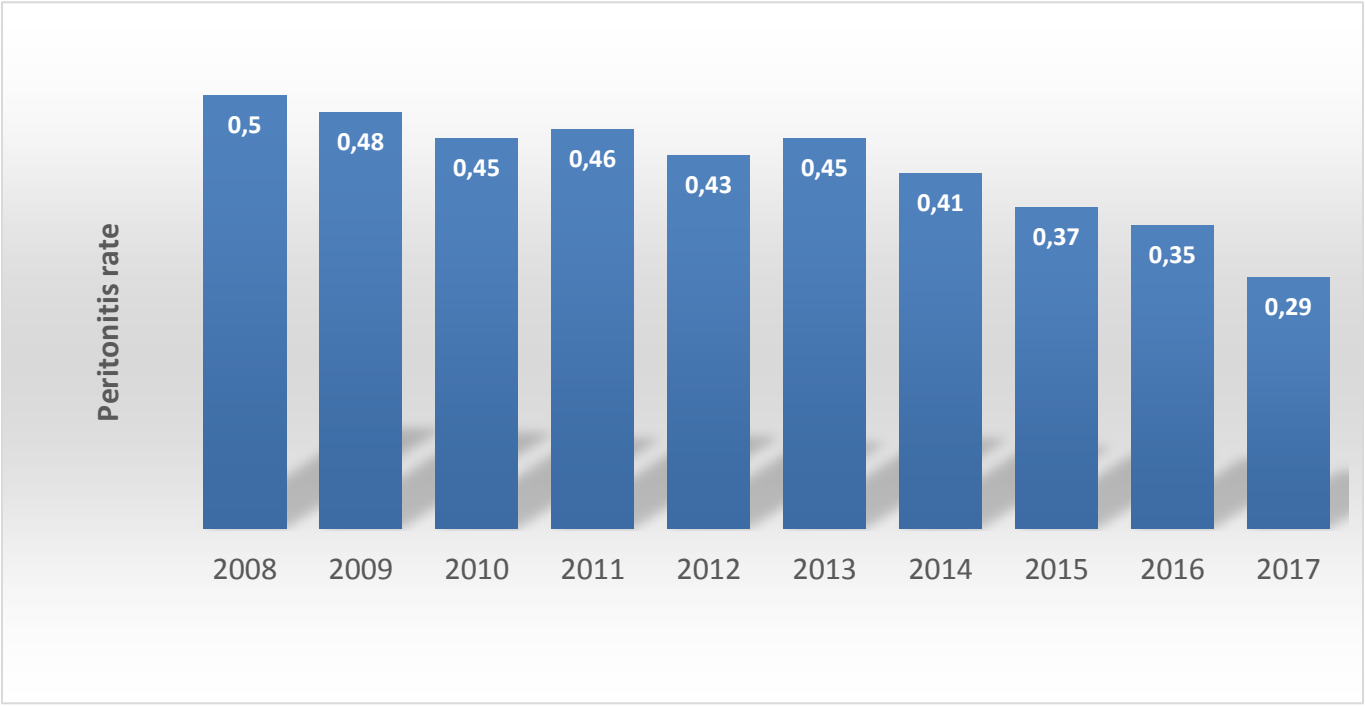
N = 119

Peritonitis episodes

2017

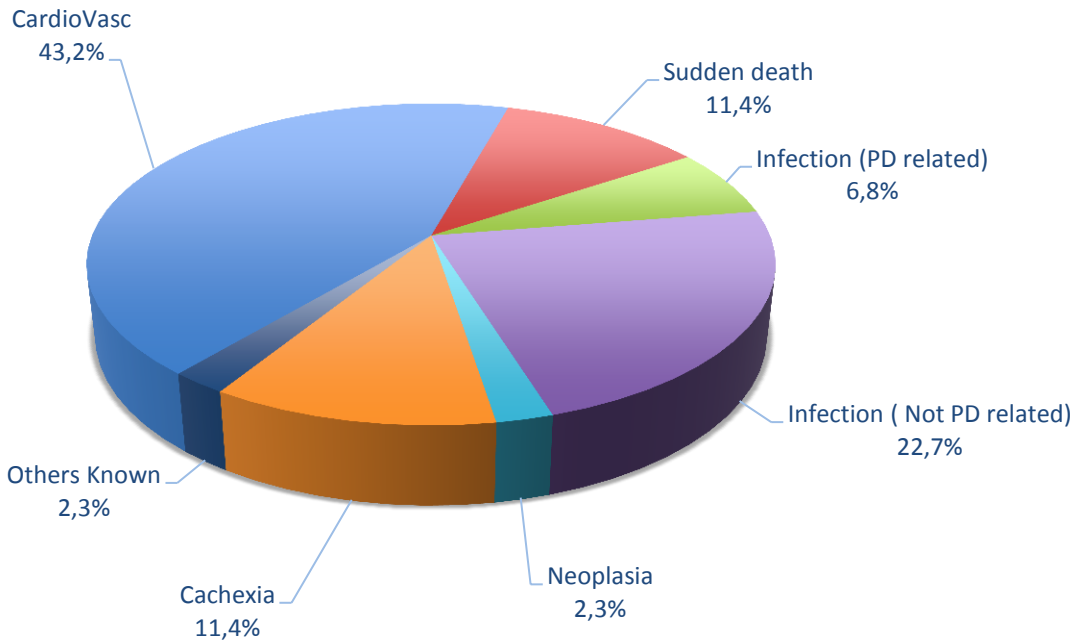
N = 246

0,29 episodes / patients-2017



Death causes in PD patients

31st December 2014 - 2017

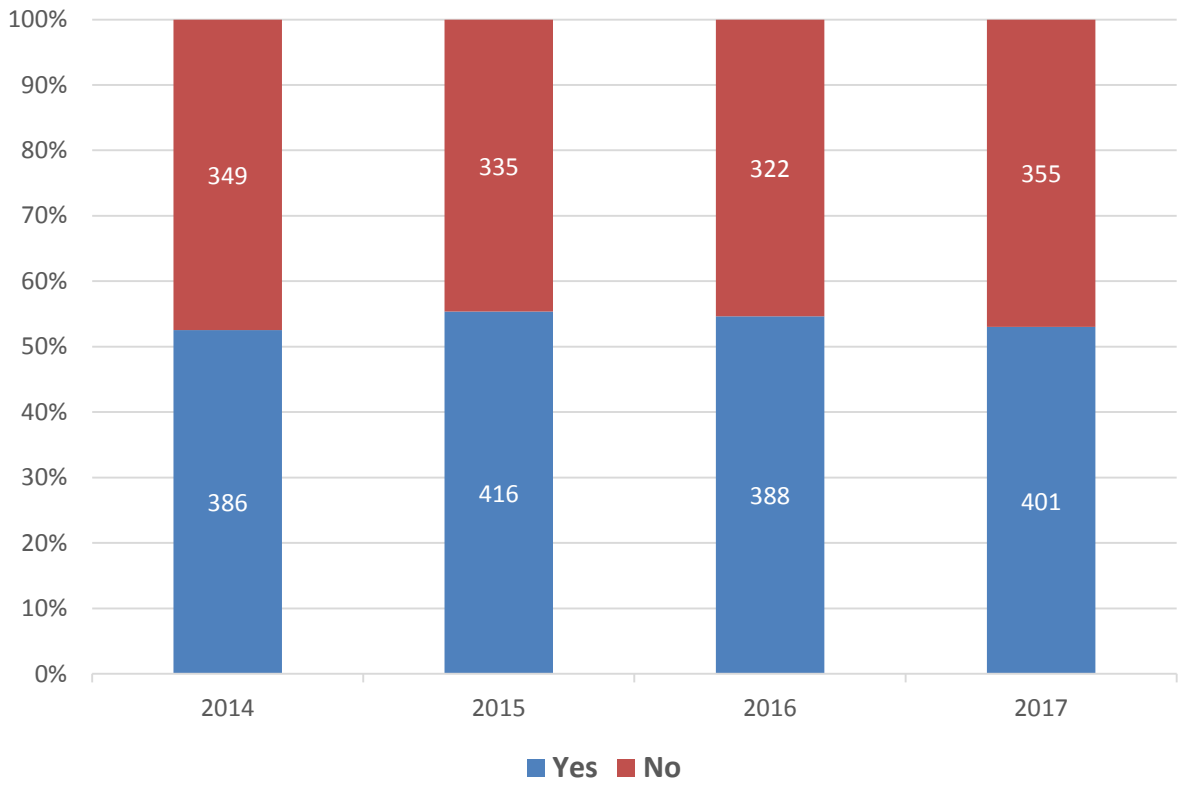


N = 44

7 patients died until day 90; 3,0% of incident patients and 15,9% of all deaths

PD patients in waiting list for renal transplantation

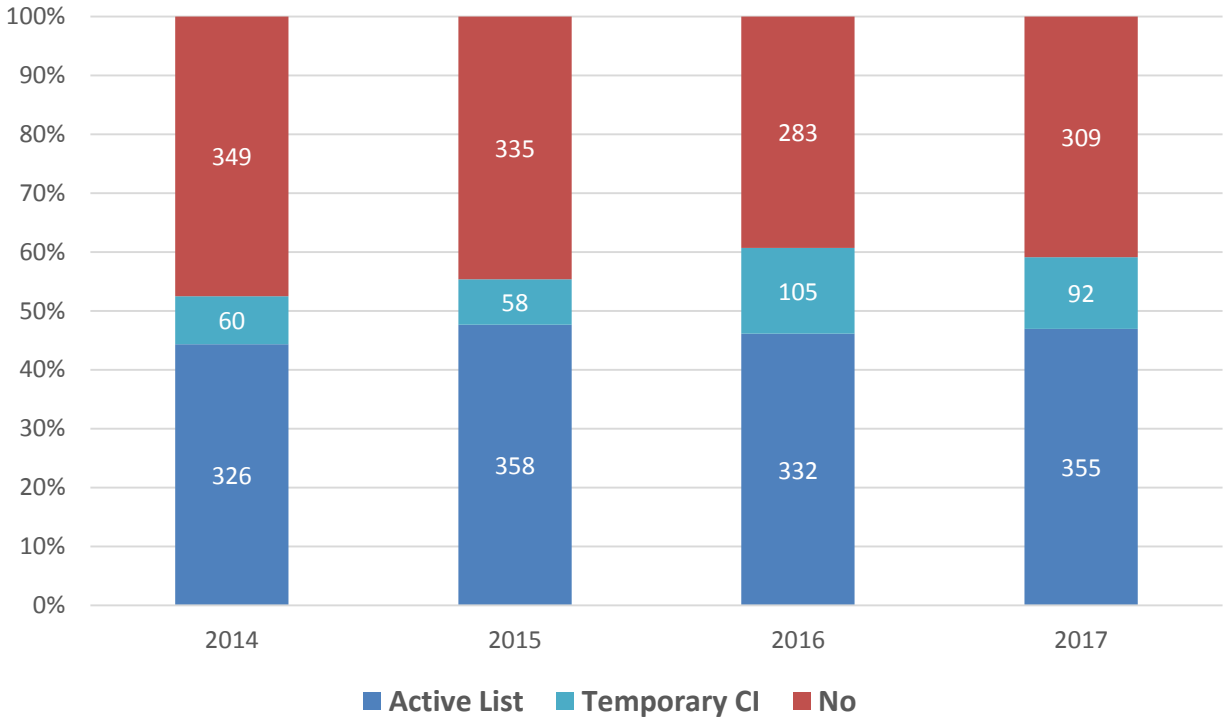
Active and excluded for *transplantation,* *31st December 2014 - 2017*

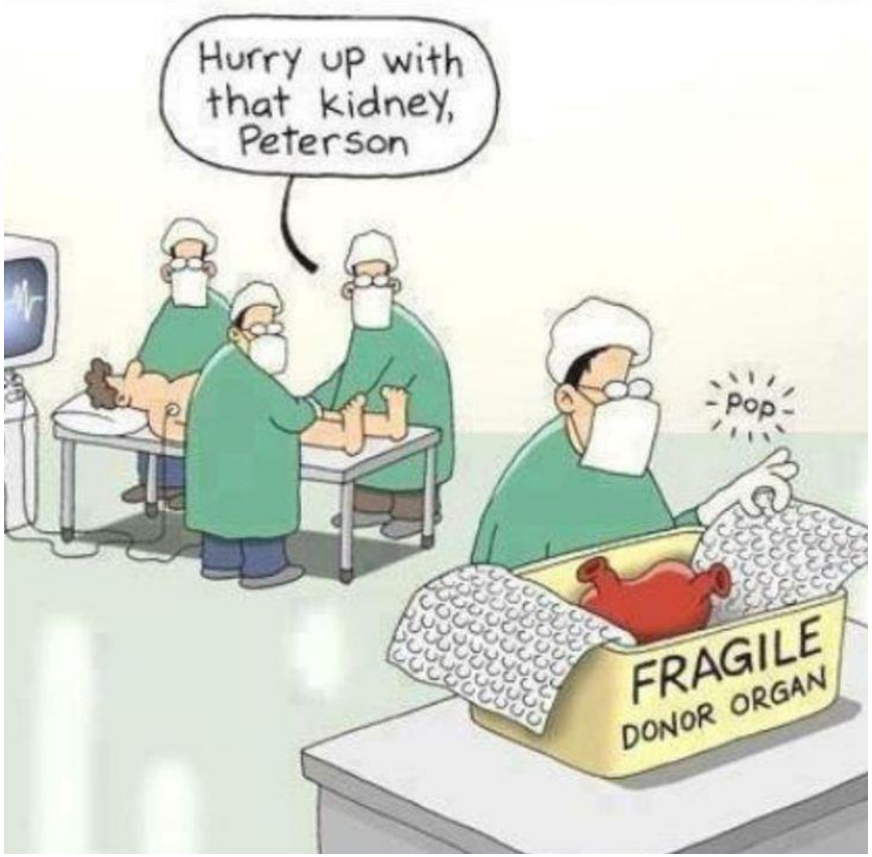


PD patients in waiting list for renal transplantation

Active, temporary contraindication and excluded for transplantation

31st December 2014 - 2017



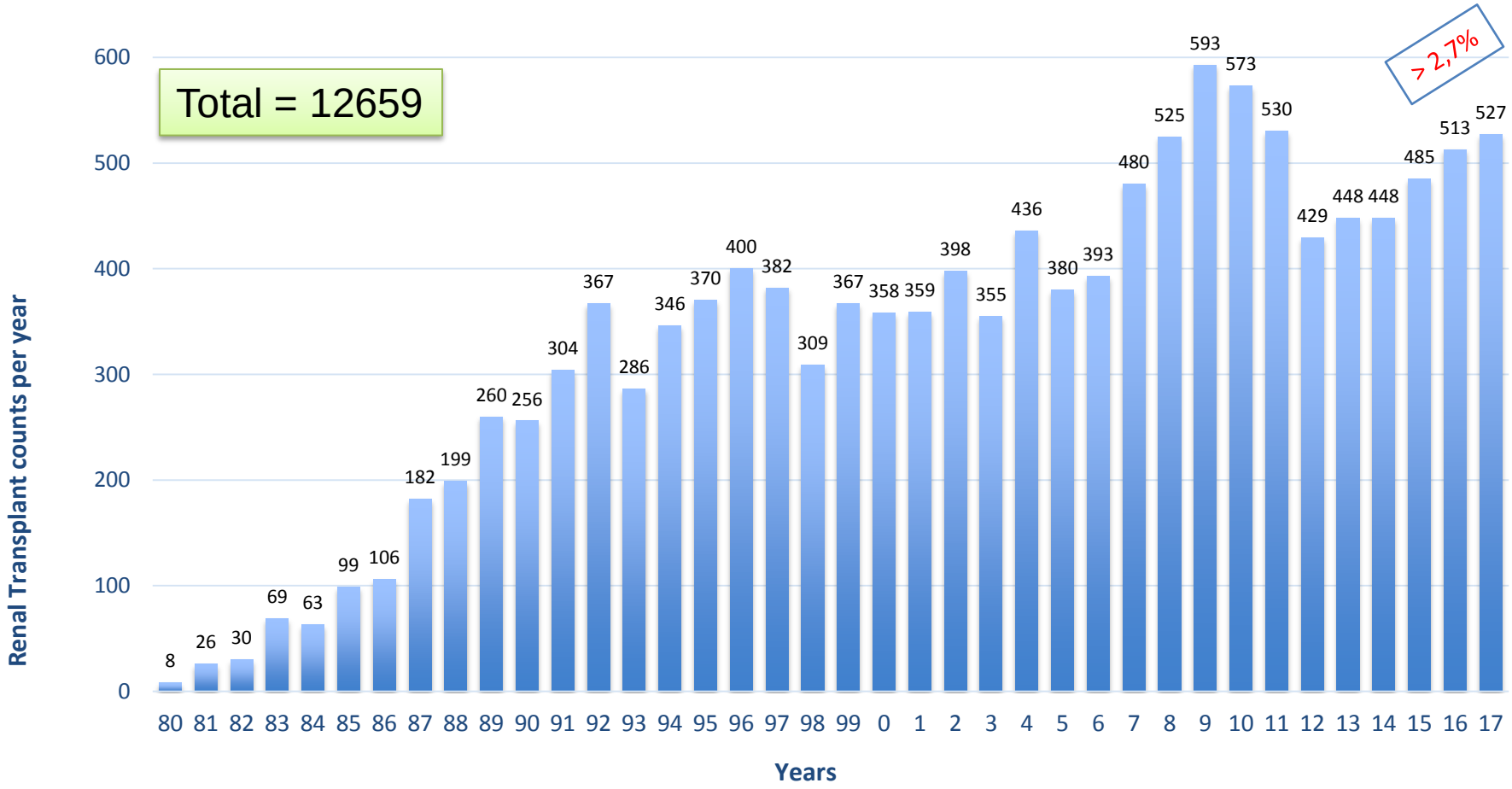


RENAL TRANSPLANTATION

Sociedade Portuguesa de Nefrologia

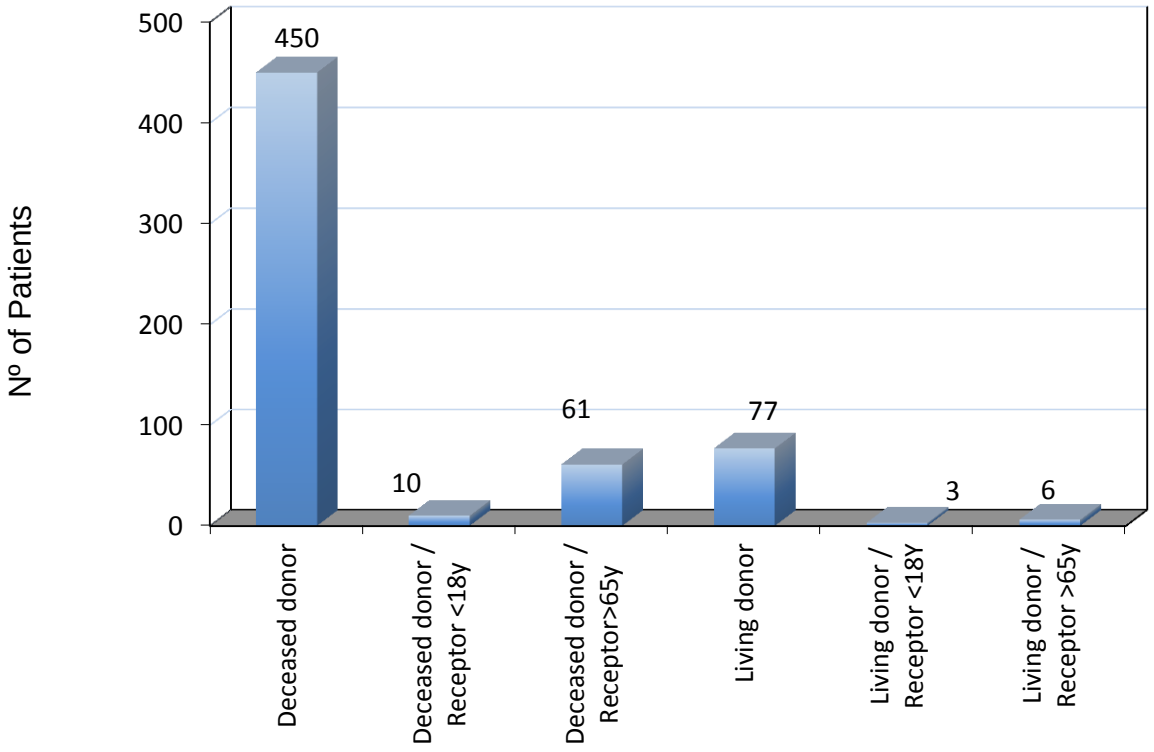
Renal Transplants performed

1980-2017



Renal transplantation activity characterization

2017



31 pre-emptive (3 receptors <18A)

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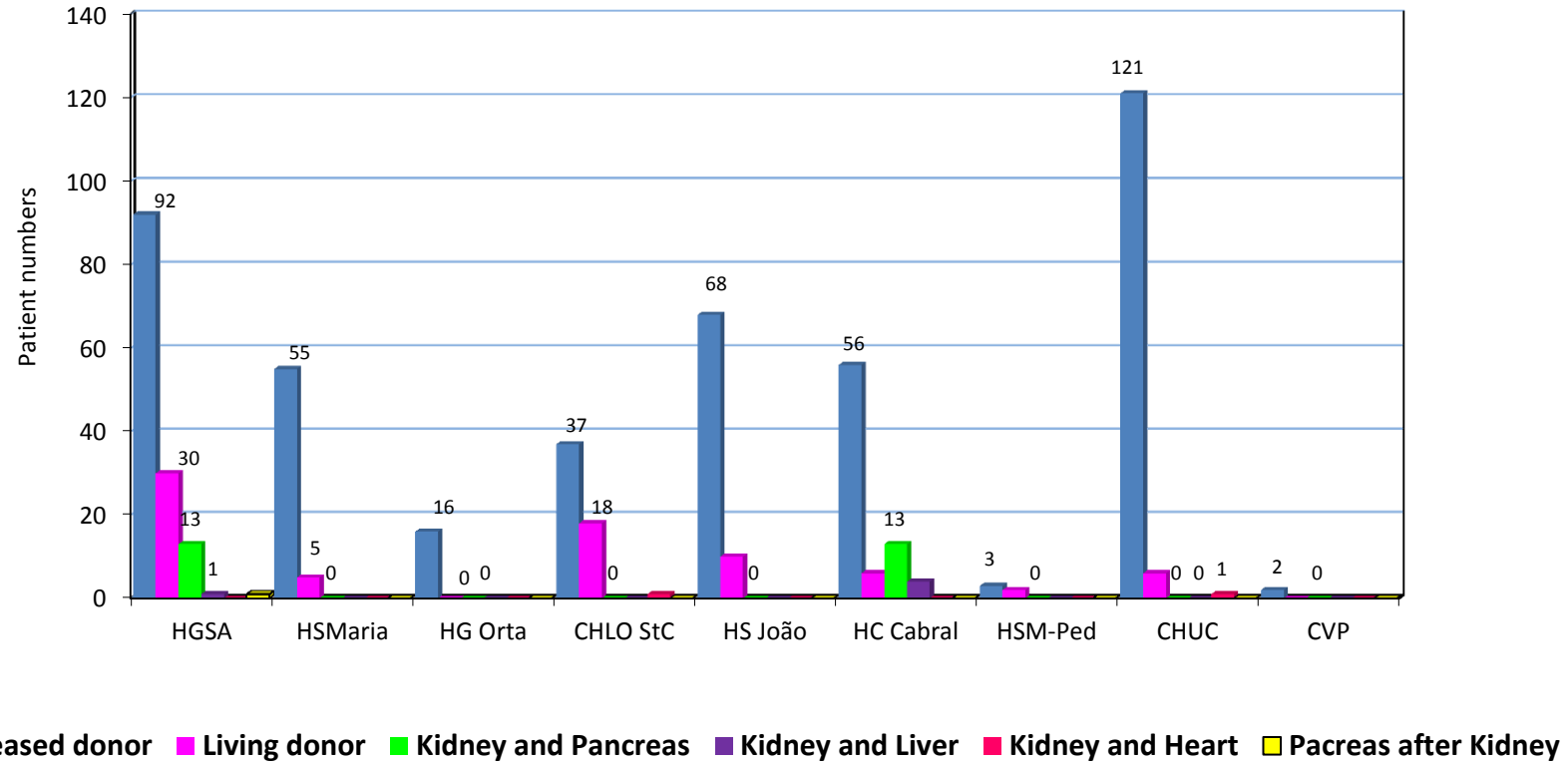
Portuguese Transplant Centers Activity

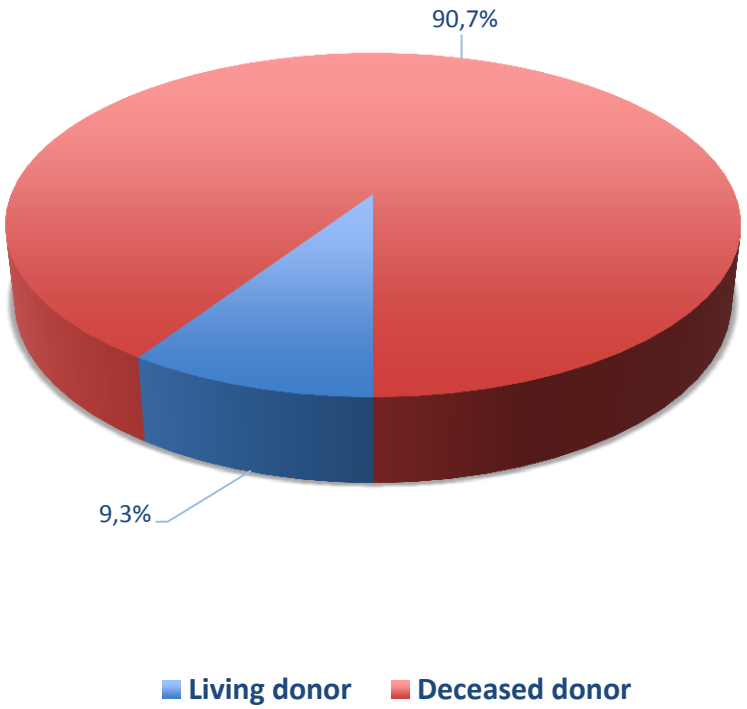
2017



N = 450 tx deceased donor and **77** (14,6%) live donor;
34 multi-organ transplants (total = 527)

Renal transplantation: living vs deceased donor

pts with functioning Ktx, 31st December 2017



N = 7518

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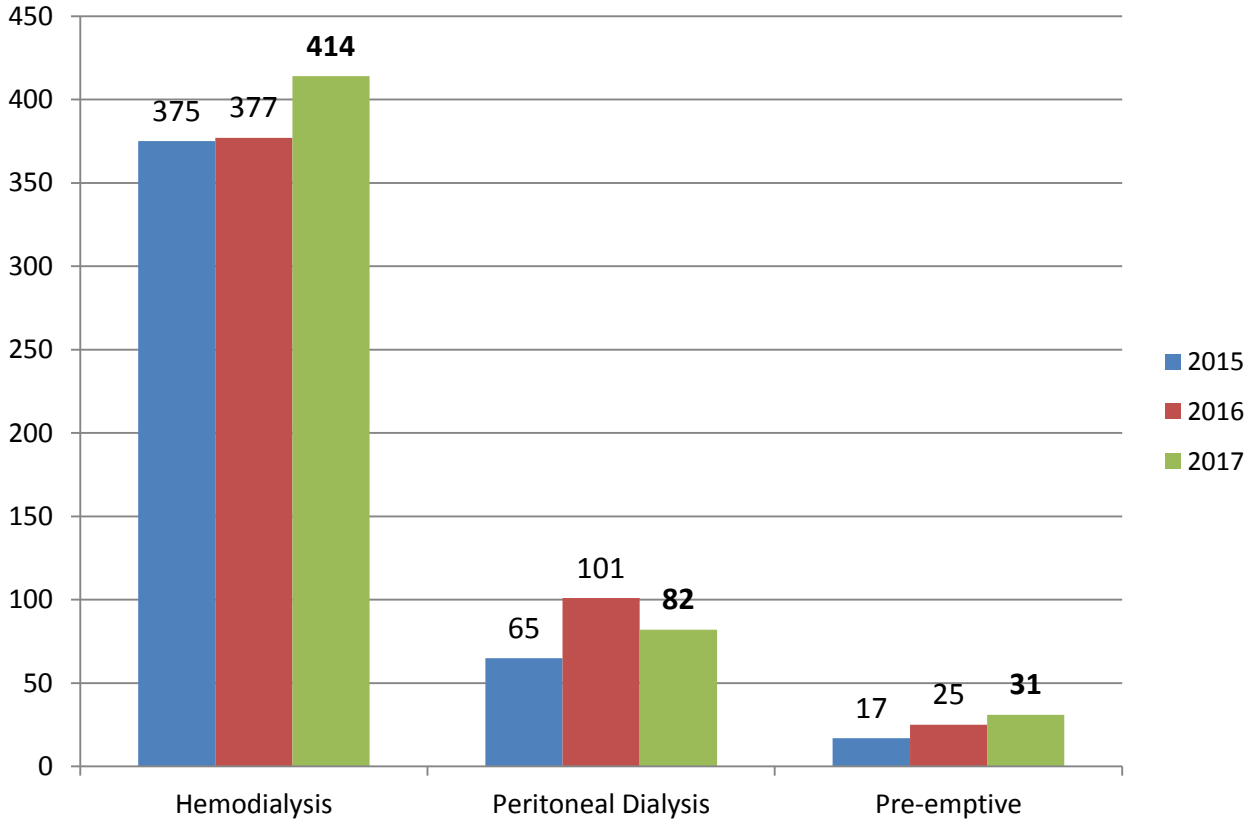
Prevalent Renal Transplanted Patients

Previous renal replacement therapy, 2015-2017



N = 527 (2017)

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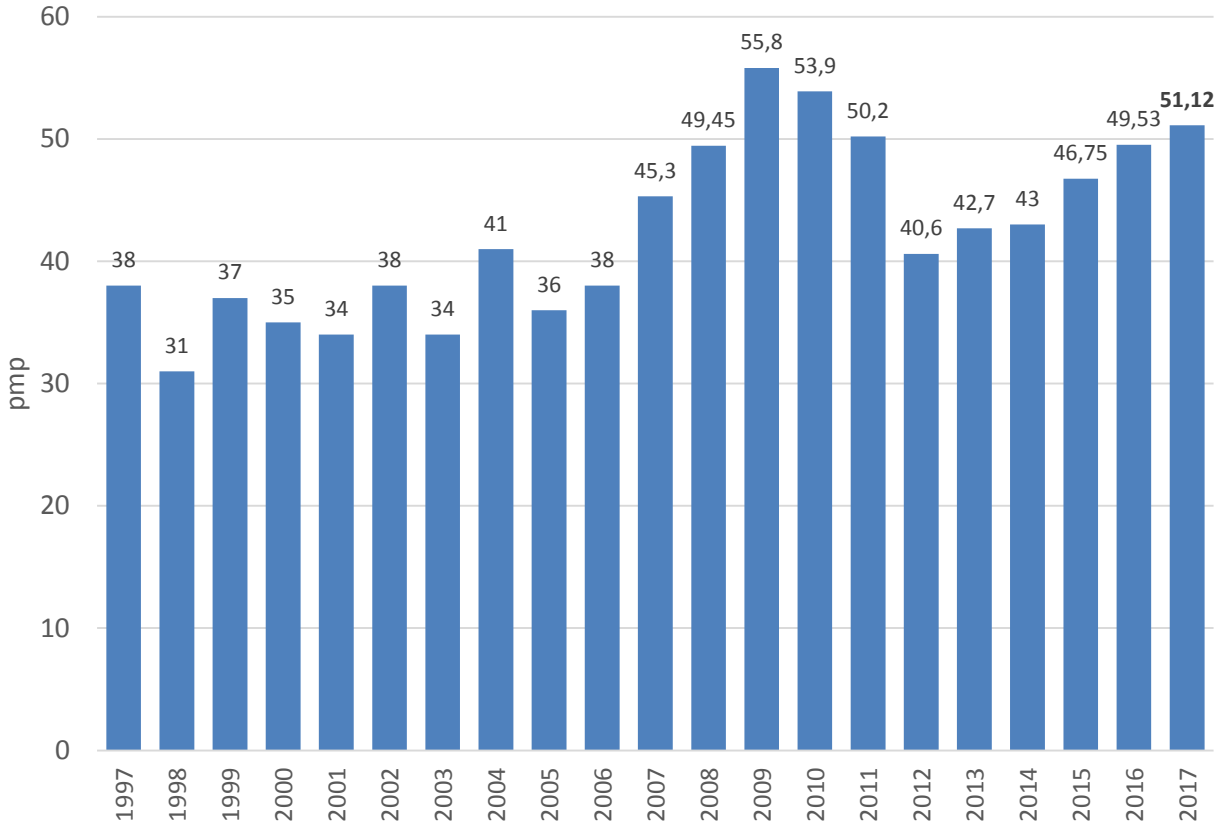
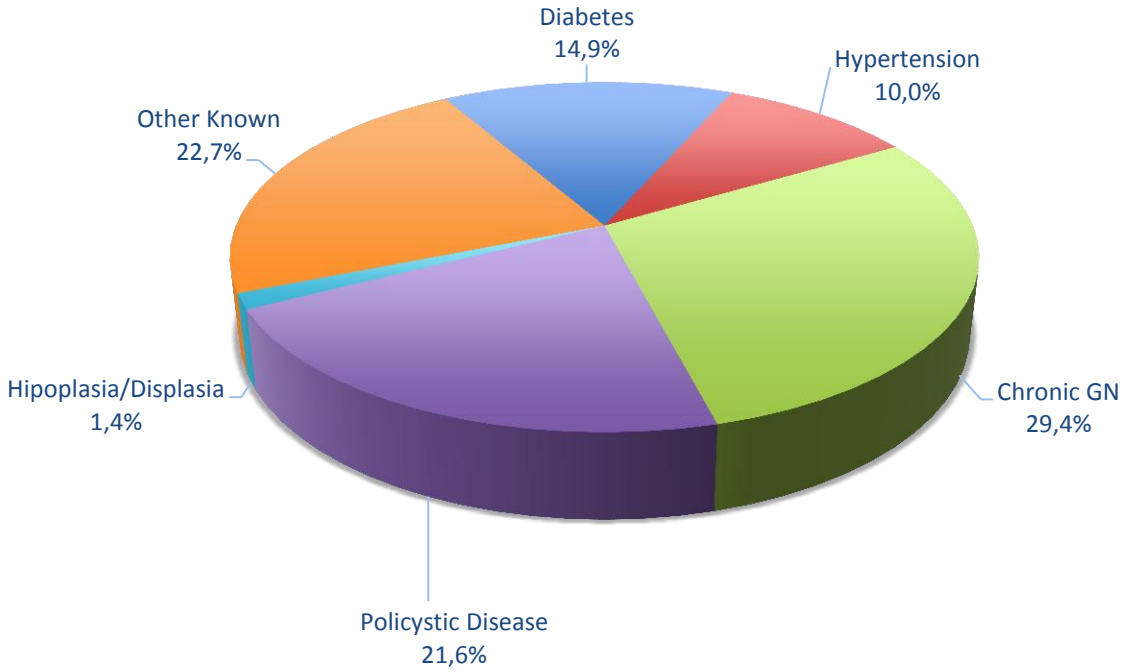
Renal Transplants Performed

per million population, 2007 - 2017



Primary renal disease of renal transplanted patients

during 2017

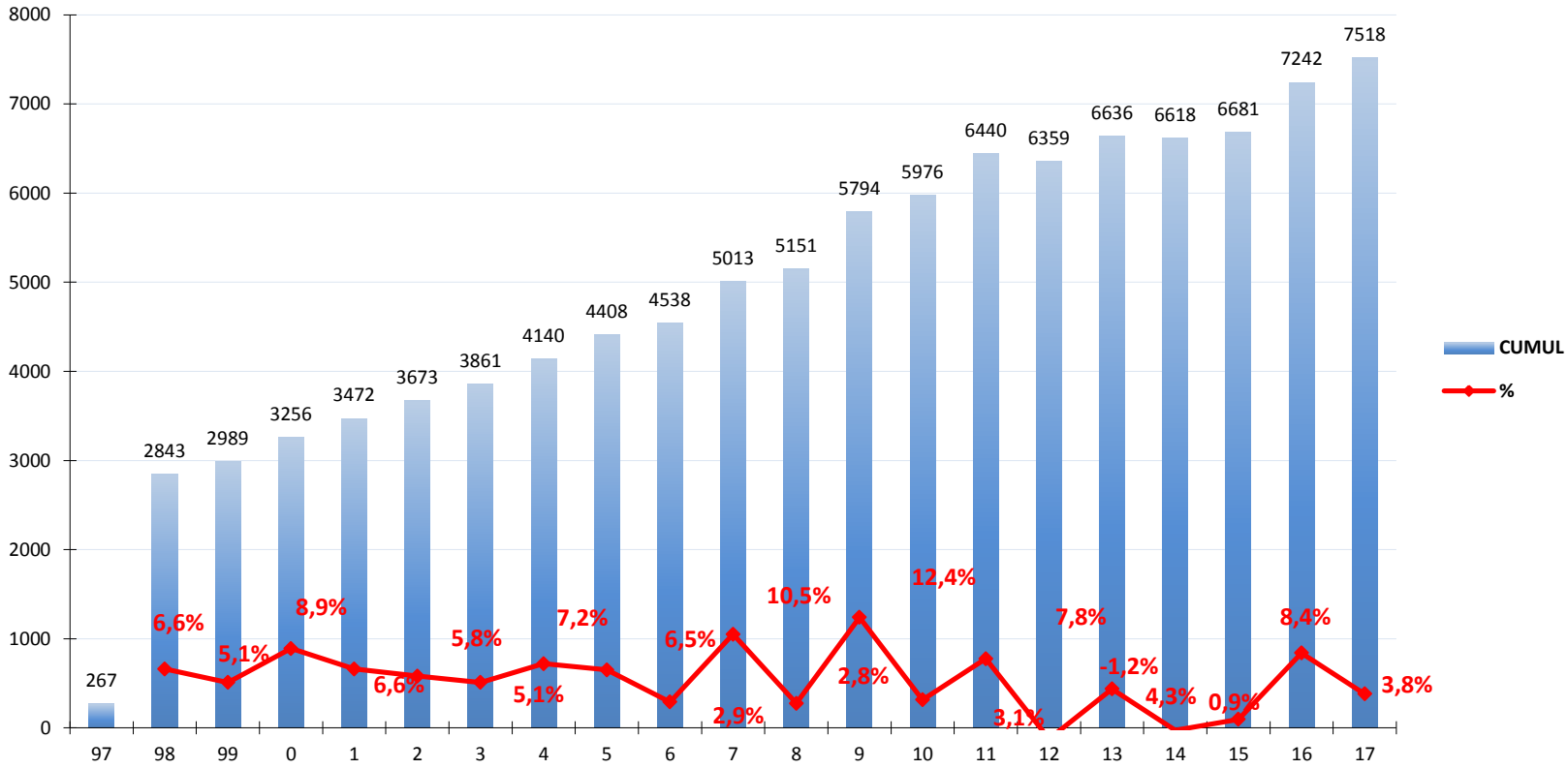


N = 519

8 not available

Patients with functioning graft and annual growth

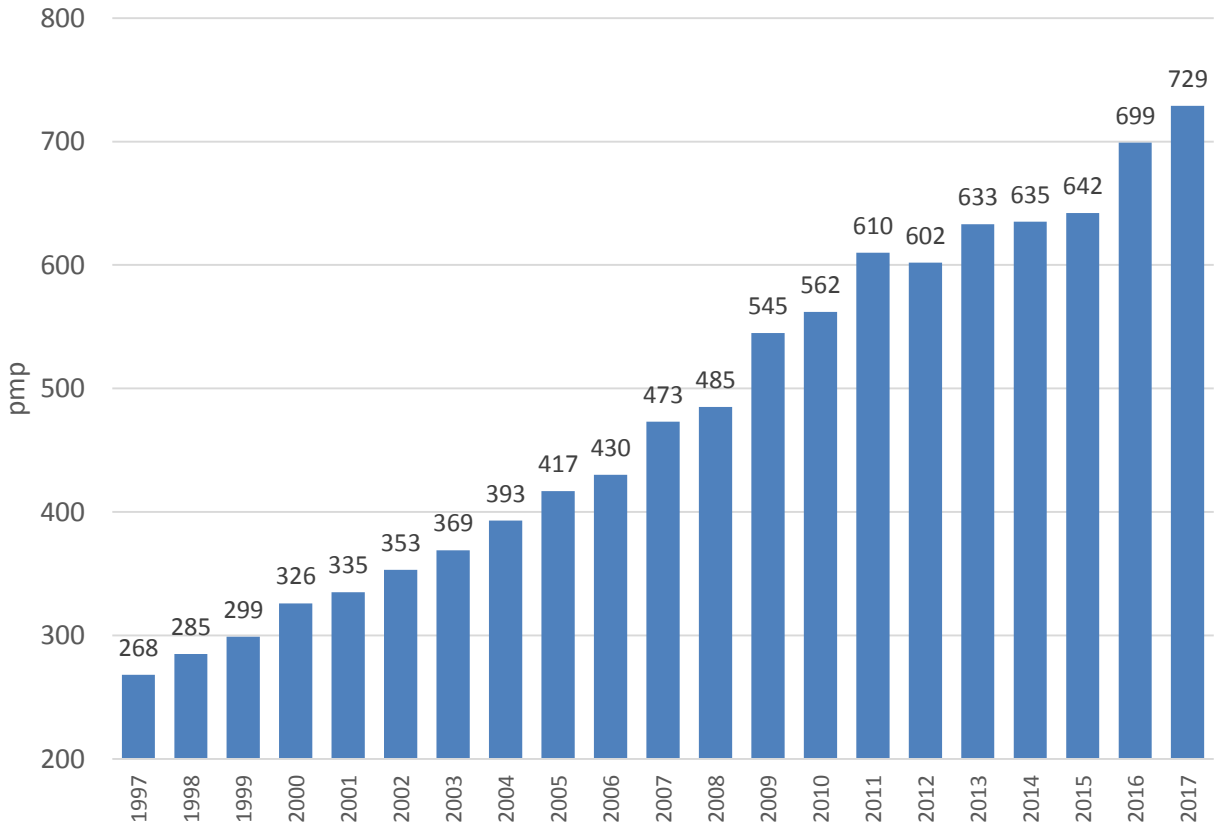
31st December 1997 - 2017



Sociedade Portuguesa de Nefrologia

Prevalence of CKD patients with functioning graft

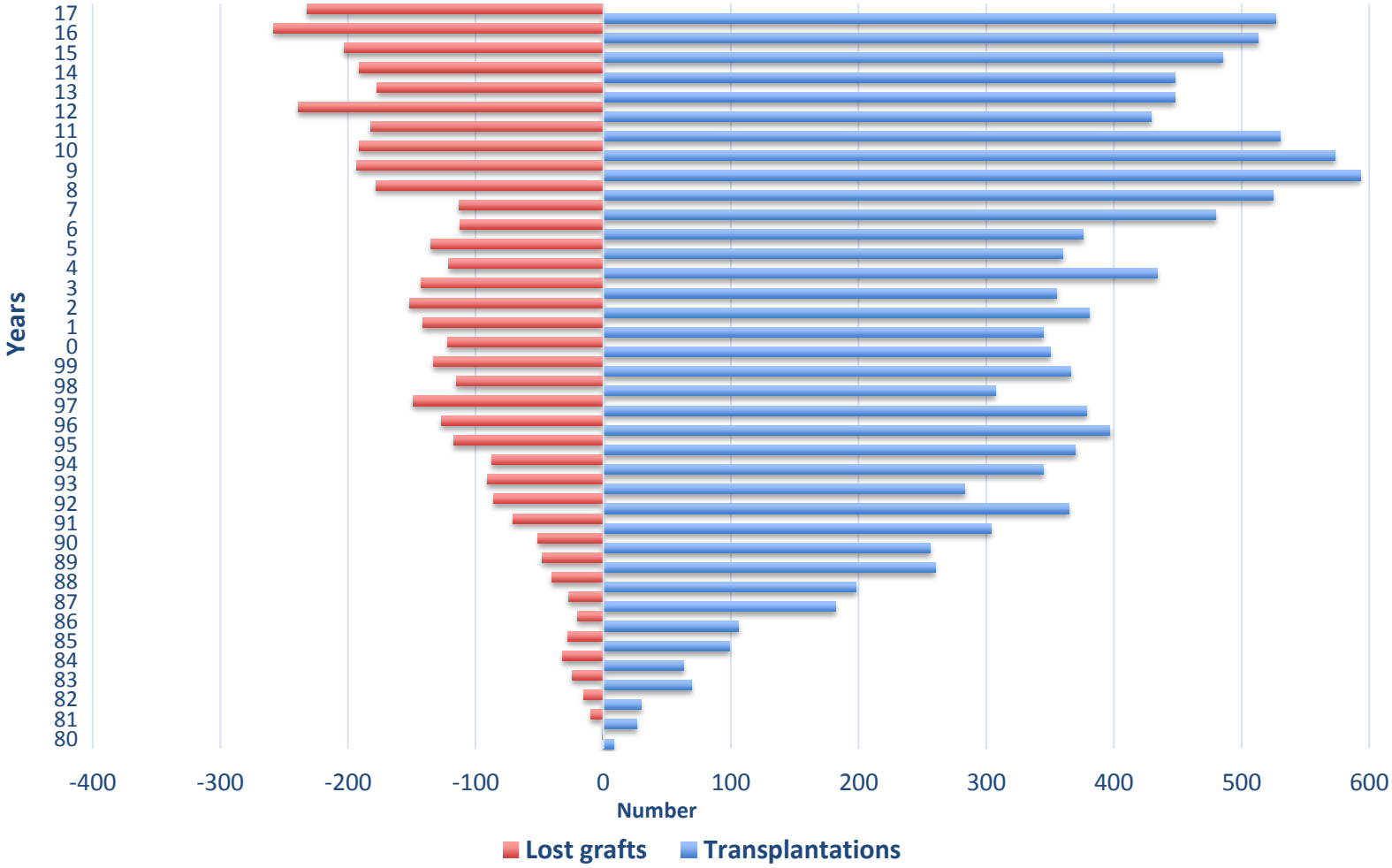
cumulative per million population end of each year 1997 - 2017



N = 7242

Renal transplantation activity

1980 - 2017



2017: 104 patients died with functioning graft; 120 transferred to HD / 8 transferred to PD

ENCONTRO RENAL

22 - 24 MARÇO 2018

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apdp Associação Protectora dos Diabéticos de Portugal — WWW.APDP.PT

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AGÊNCIA OFICIAL
Miraflores Office Center
Av. das Tulipas n.º 6 - 19.º andar
1495 - 161 Algés | Portugal
Email: congressos@factorchave.pt