ENCONTRO RENAL

28 - 30 MARÇO 2019

CENTRO DE CONGRESSOS DE VILAMOURA
ALGARVE | PORTUGAL

XXXIII CONGRESSO PORTUGUÊS DE NEFROLOGIA
SPN Sociedade Portuguesa de Nefrologia
SPNEFRO.PT

XXXIII CONGRESSO APEDT
APEDT
APEDT.PT

XI CONGRESSO LUSO BRASILEIRO DE NEFROLOGIA
Sociedade Brasileira de Nefrologia
SBN.ORG.BR

AGÊNCIA OFICIAL
FactorChave
FACTORCHAVE.PT

ENCONTRO RENAL

28 - 30 MARÇO 2019
CENTRO DE CONGRESSOS DE VILAMOURA
ALGARVE | PORTUGAL

Portuguese Registry of Dialysis and Transplantation 2018

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

Sociedade Portuguesa de Nefrologia

Sociedade Portuguesa de Nefrologia

GABINETE DE REGISTO DA SPN

- Ana Galvão
- Rui Filipe
- Maria João Carvalho
- José António Lopes
- Manuel Amoedo
- Gil Silva

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

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

Sociedade Portuguesa de Nefrologia

Abbreviators

CKD – Chronic Kidney Disease

HD - Haemodialysis

PD - Peritoneal Dialysis

KTr - Kidney Transplant

PMP - Per Million Population

RRT - Renal Replacement Therapy

Pts – patients

Nº - number

- VA – Vascular Access
- AVFistula – Arteriovenous fistula
- Cat. – Catheter
- CVC – Central Vein Catheter
- EDTA – European Dialysis and Transplantation Association

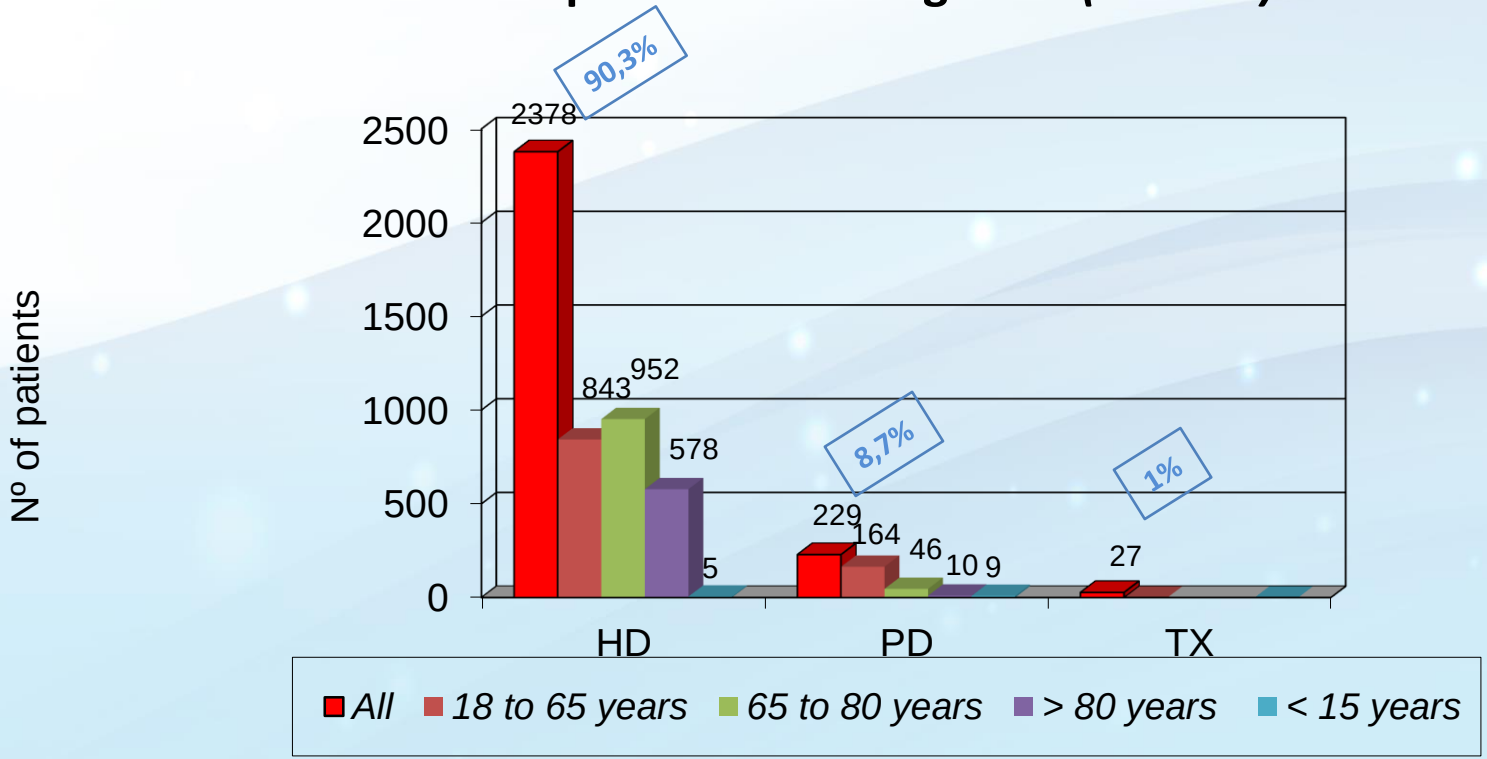
Sociedade Portuguesa de Nefrologia

Portuguese Registry of Dialysis and Transplantation 2018

- Questionnaires for Hemodialysis (HD), Peritoneal Dialysis (PD) and Kidney Transplantation
- 124 Hemodialysis Centers
- 25 Peritoneal Dialysis Units
- 8 adult and 1 pediatric kidney transplantation centers
- 100% response rate

Sociedade Portuguesa de Nefrologia

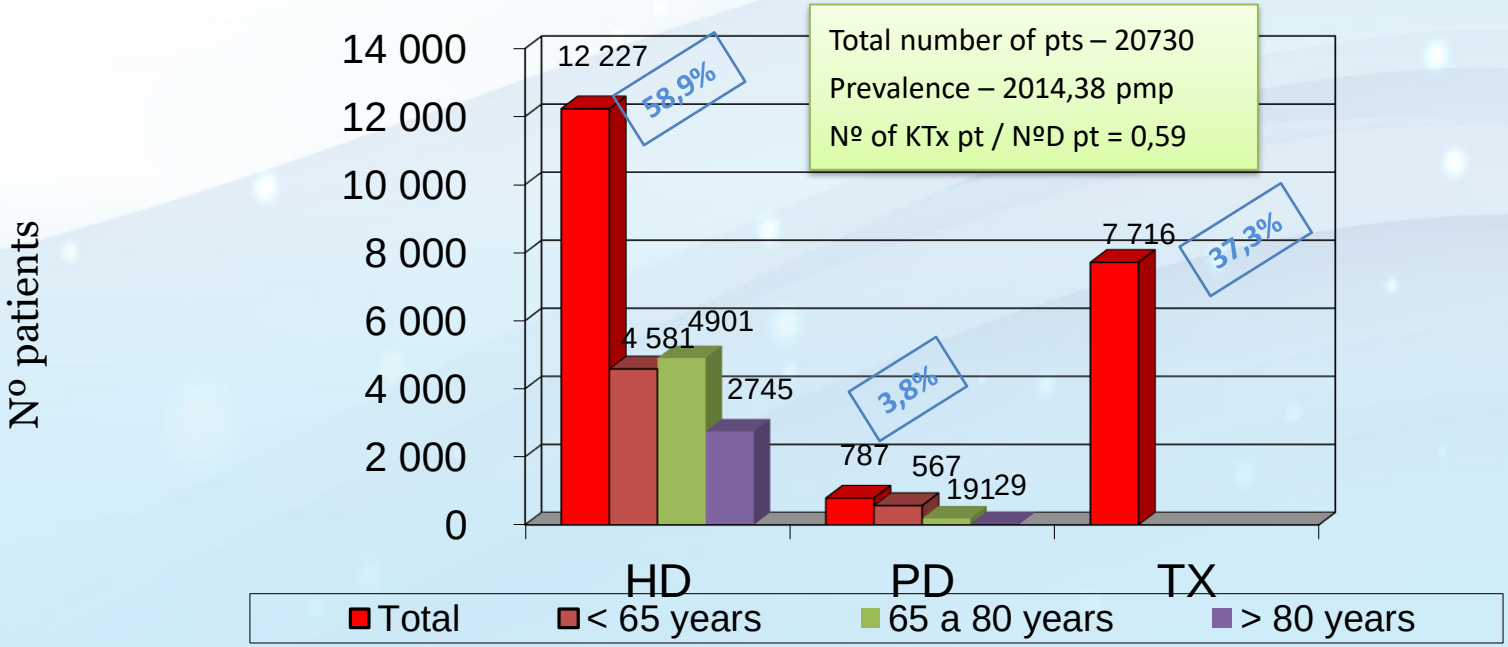
New patients starting dialysis or submitted to renal transplantation during 2018 *(n=2634)*



Sociedade Portuguesa de Nefrologia

Patients treated by dialysis or with functioning kidney transplant

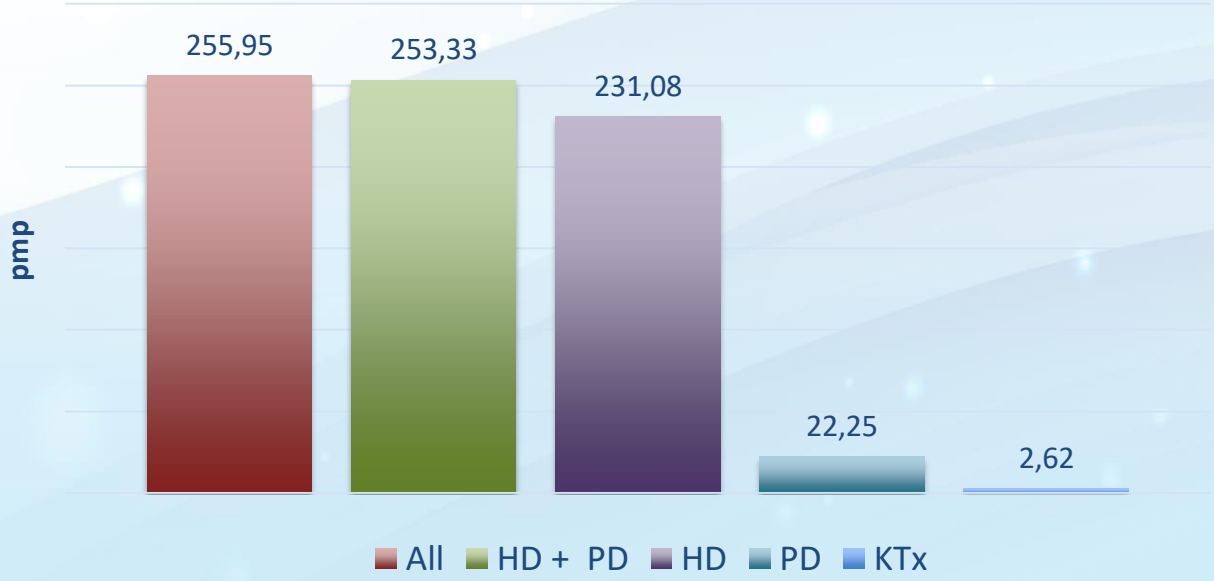
31st December 2018



Mean age HD + PD = 67,2 years

Sociedade Portuguesa de Nefrologia

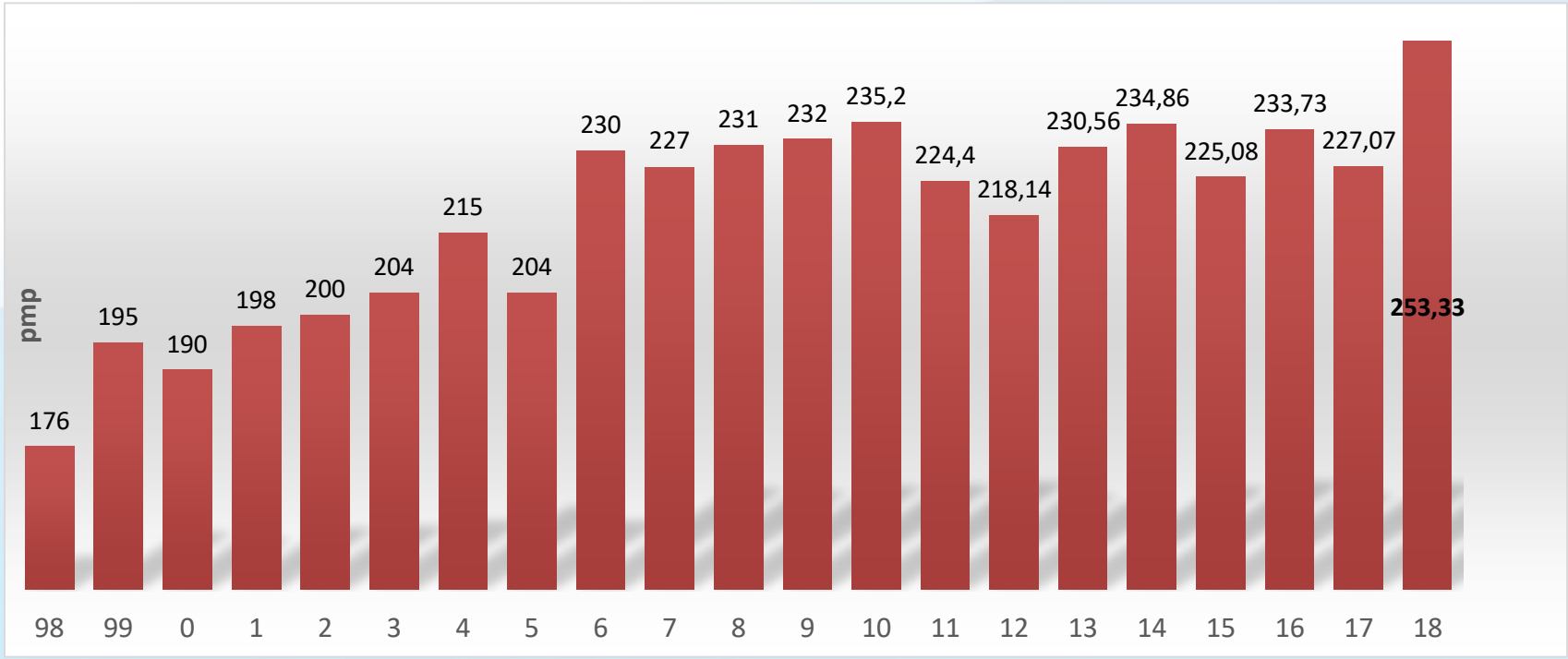
Incident patients accepted for RRT *during 2018*



Sociedade Portuguesa de Nefrologia

Incident patients accepted for dialysis

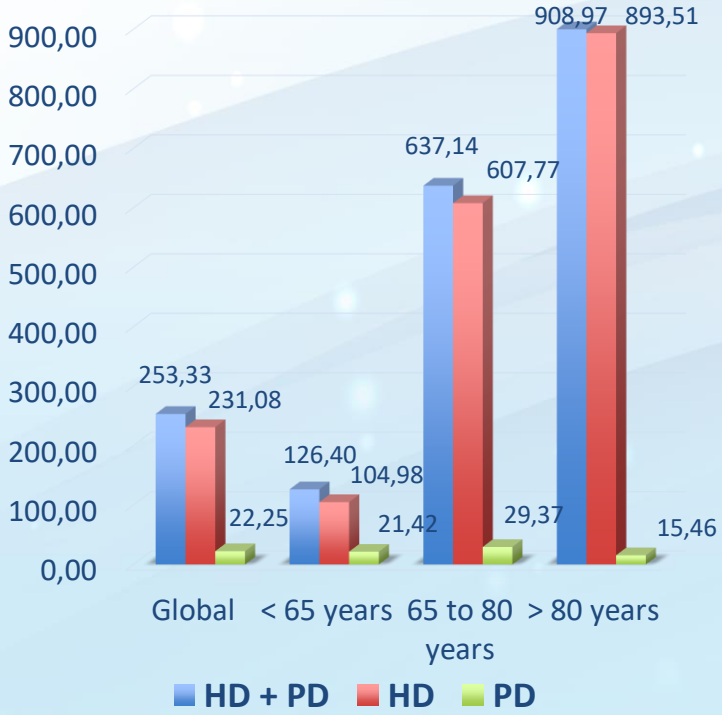
HD and PD per million population 1998 - 2018



Sociedade Portuguesa de Nefrologia

Incident patients accepted for dialysis

HD and PD per million population by age group during 2018

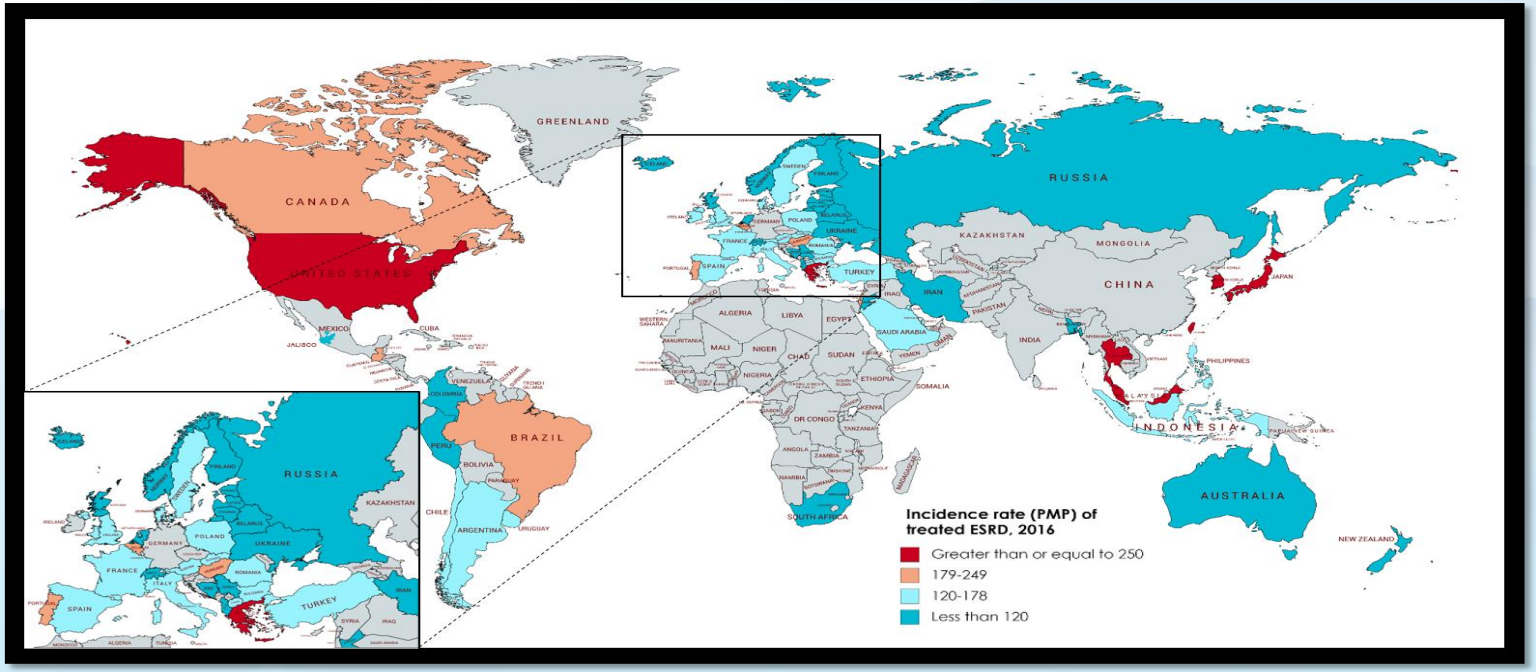


Sociedade Portuguesa de Nefrologia

Incidence
How do we compare?

Sociedade Portuguesa de Nefrologia

vol 2 Figure 11.1 Geographic variation in the incidence rate of treated ESRD (per million population), by country, 2016



USRDS
UNITED STATES RENAL DATA SYSTEM

2018 Annual Data Report
Volume 2 ESRD, Chapter 11

Sociedade Portuguesa de Nefrologia

Incident patients accepted for RRT in 2016, at day 1

by country

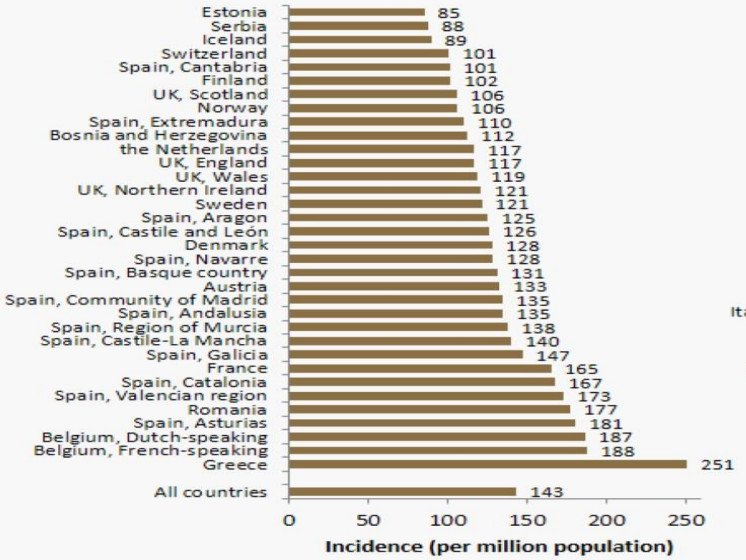
Sociedade Portuguesa de Nefrologia

Incident patients accepted for RRT in 2016 at day 1

by country

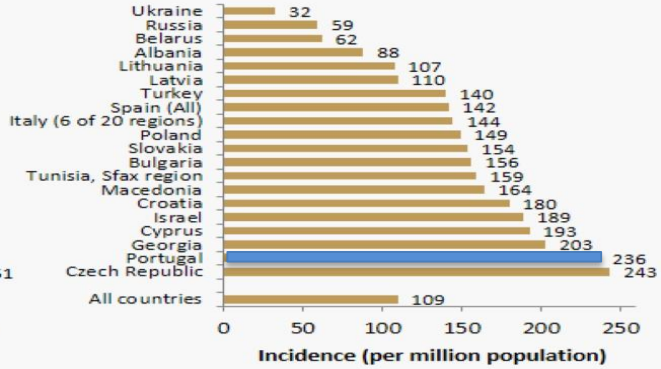
Unadjusted incidence

renal registries providing individual patient data



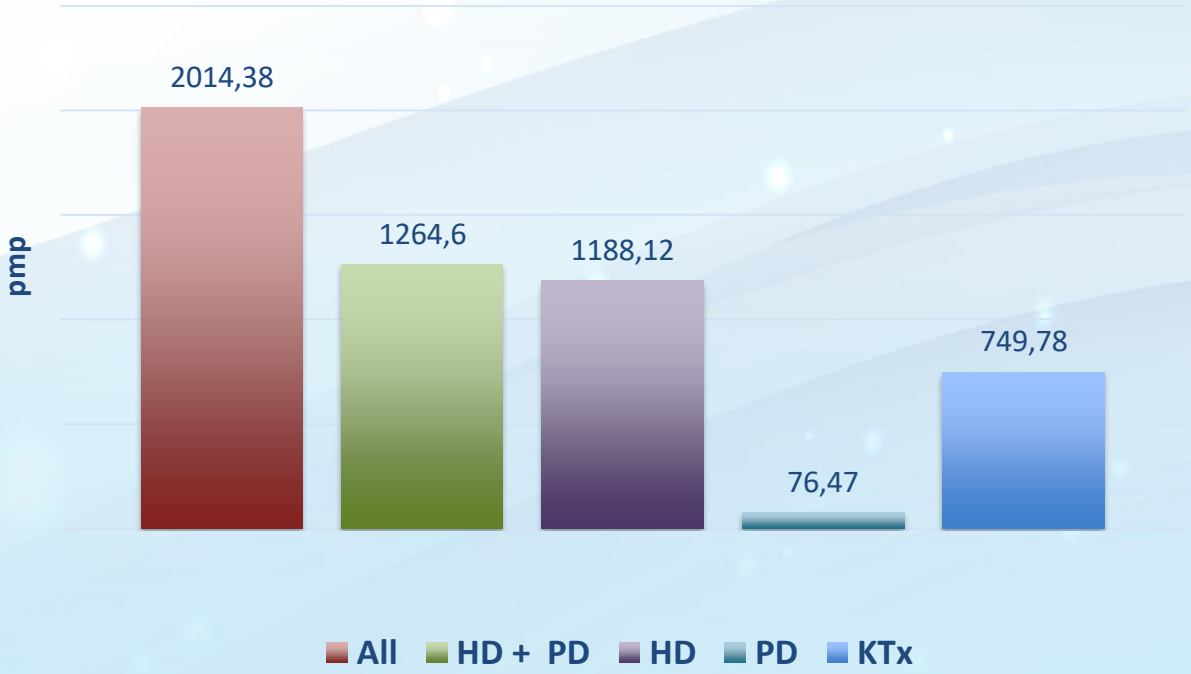
Unadjusted incidence

renal registries providing aggregated data



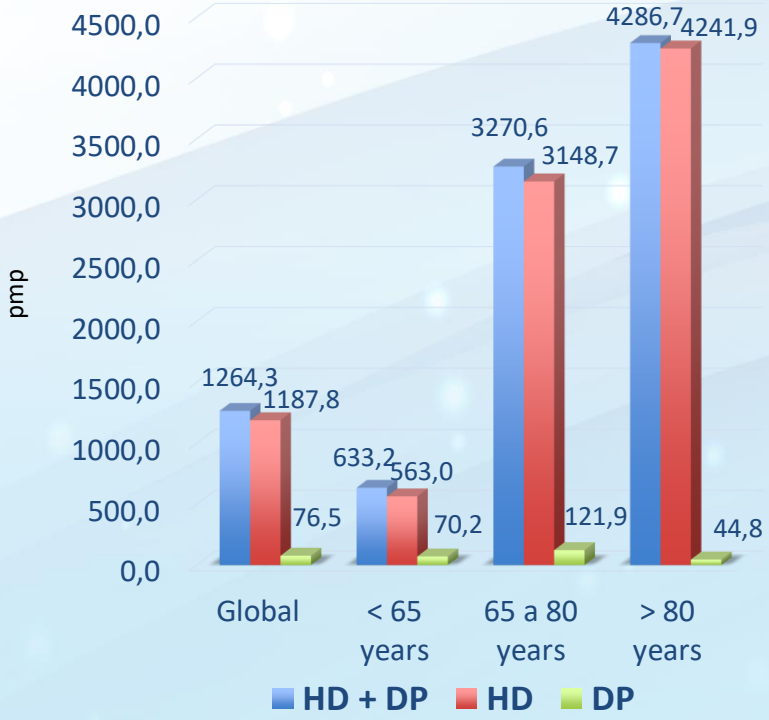
Sociedade Portuguesa de Nefrologia

Prevalent patients on RRT by modality
31st December 2018



Sociedade Portuguesa de Nefrologia

Prevalence of CKD patients treated by dialysis *per million population by age group in 2018*



Sociedade Portuguesa de Nefrologia

Incident and prevalent pediatric patients on dialysis

HD and PD per million population 2018

Sociedade Portuguesa de Nefrologia

Patients on dialysis and annual growth

end of each year 1998 - 2018

Sociedade Portuguesa de Nefrologia

Prevalent patients on dialysis

per million population end of each year 1998 - 2018

Sociedade Portuguesa de Nefrologia

Prevalent patients on dialysis

per million population end of each year 1998 - 2018

Sociedade Portuguesa de Nefrologia

Prevalent patients on RRT

per million population end of each year 1998 - 2018

Sociedade Portuguesa de Nefrologia

Prevalence
How do we compare?

Sociedade Portuguesa de Nefrologia

era edta REGISTRY

Prevalent patients on RRT in 2016

by country

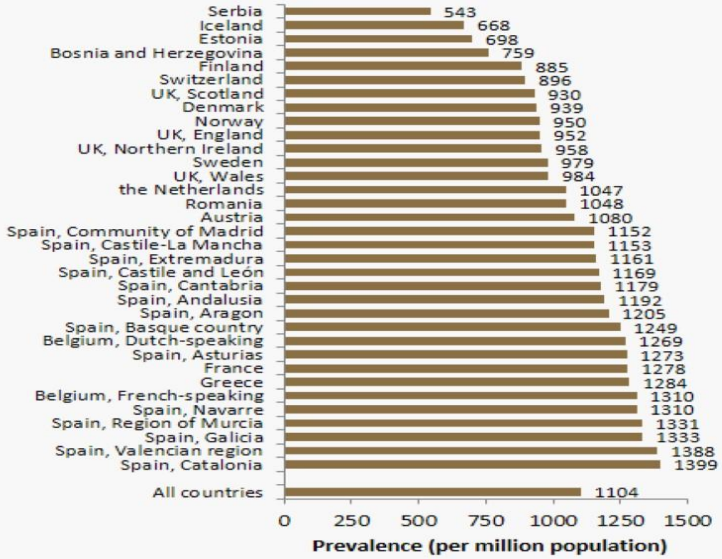
Sociedade Portuguesa de Nefrologia

Prevalent patients on RRT in 2016

by country

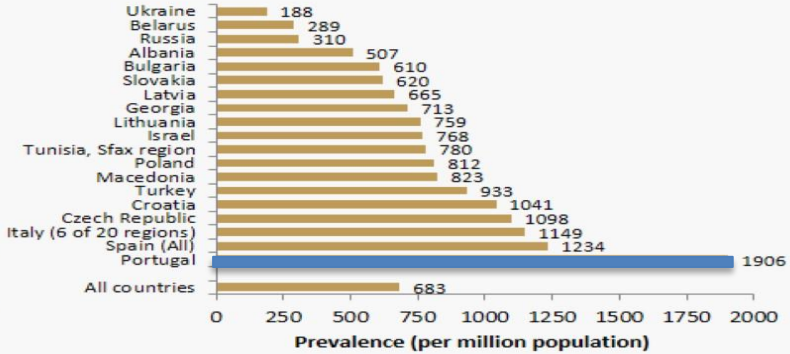
Unadjusted prevalence

renal registries providing individual patient data



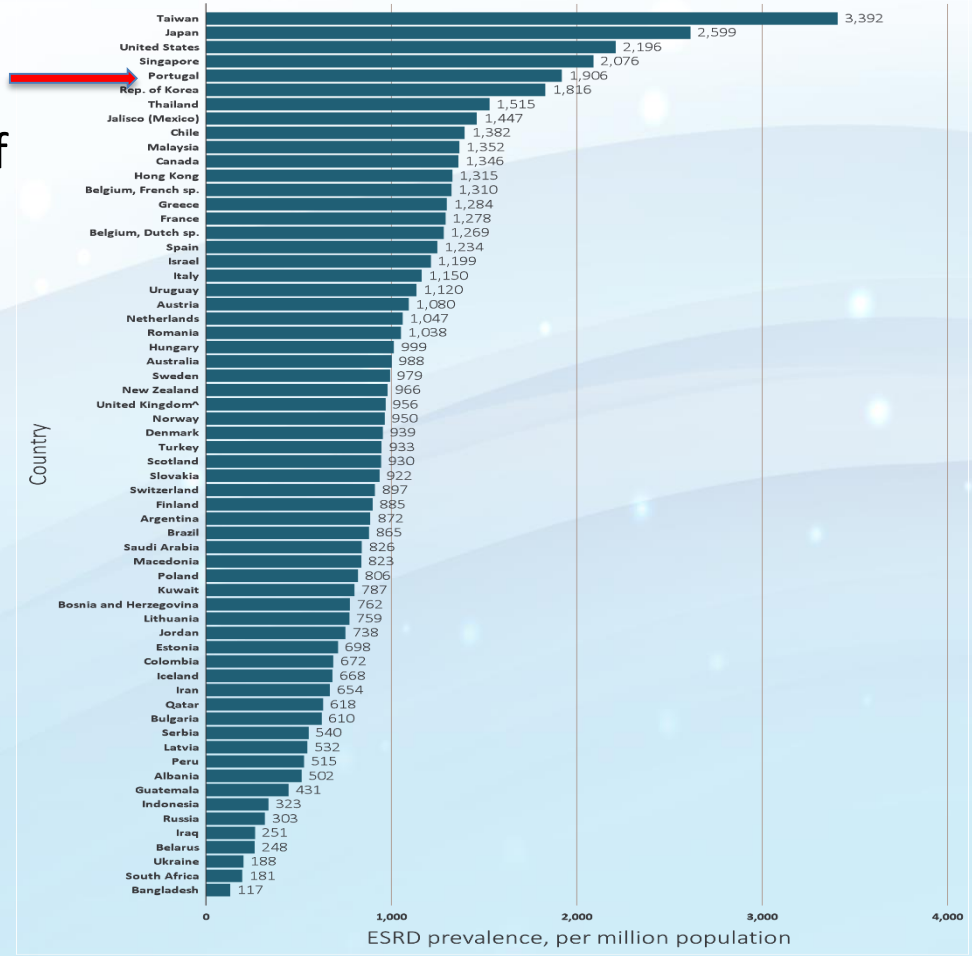
Unadjusted prevalence

renal registries providing aggregated data



Sociedade Portuguesa de Nefrologia

vol 2 Figure 11.9 Prevalence of treated ESRD (per million population), by country, 2016



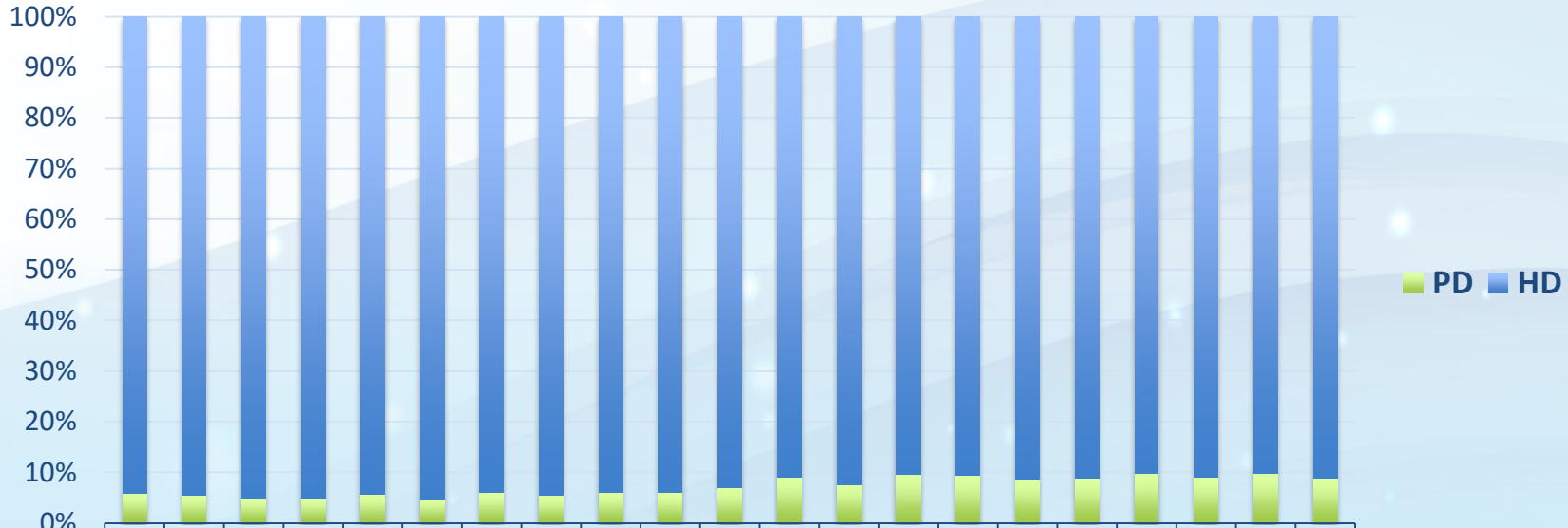
USRDS
UNITED STATES RENAL DATA SYSTEM

2018 Annual Data Report
Volume 2 ESRD, Chapter 11

Sociedade Portuguesa de Nefrologia

Incident patients starting PD *vs* HD

1998 - 2018

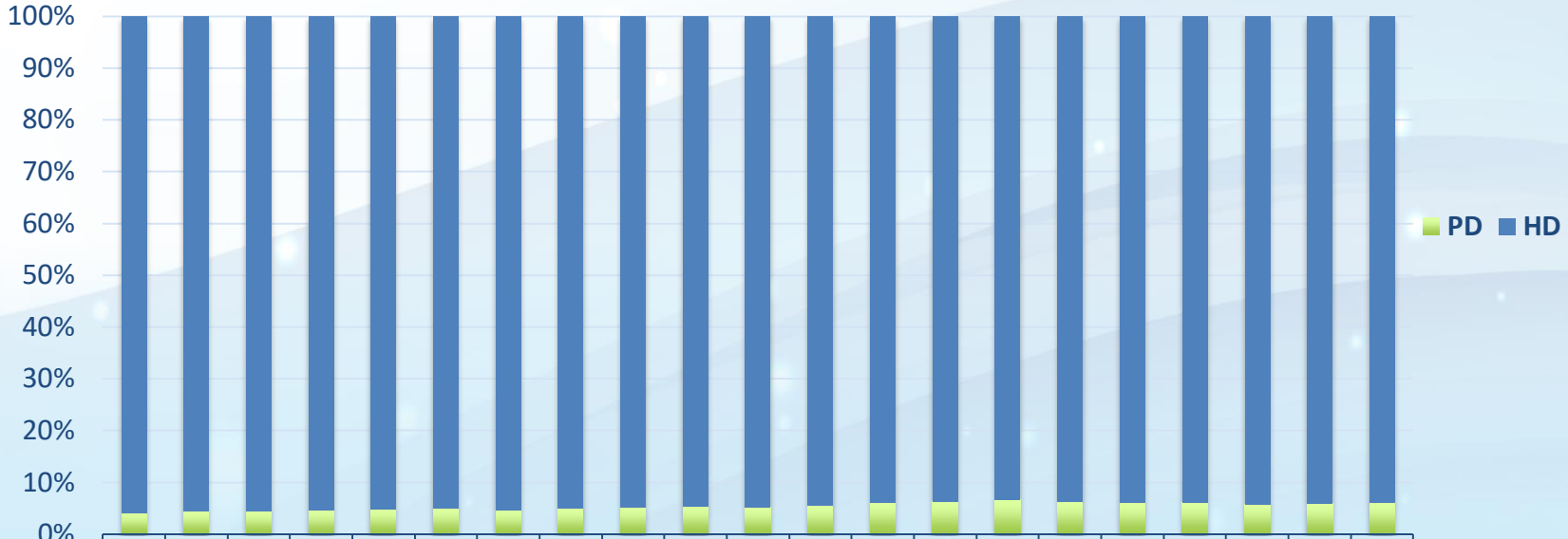


	98	99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HD	1655	1833	1800	1939	1956	2016	2129	2038	2273	2286	2285	2300	2312	2143	2084	2210	2233	2106	2166	2113	2378
PD	103	108	93	101	118	102	135	116	149	147	170	229	190	227	220	208	216	229	215	228	229

Sociedade Portuguesa de Nefrologia

Prevalent patients starting PD *vs* HD

1998 - 2018



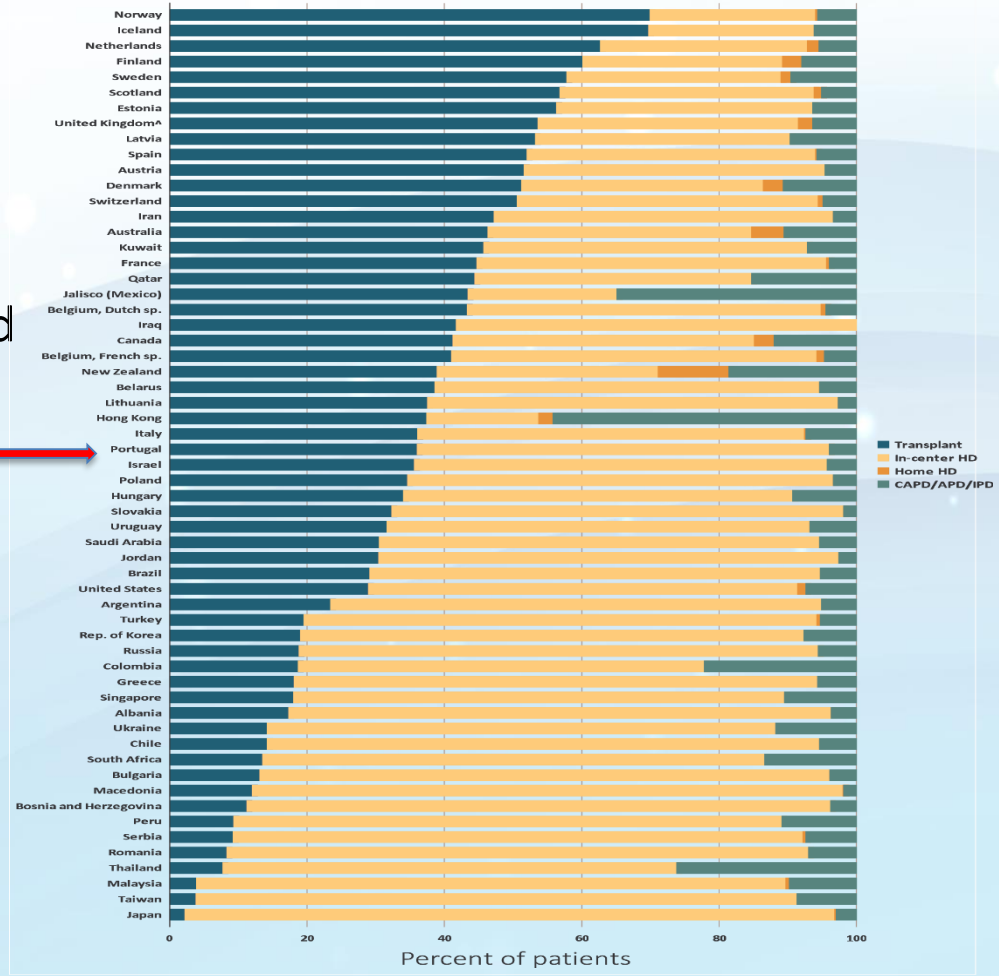
	98	99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HD	5989	6455	6701	7071	7370	7559	8077	8392	8708	9037	9303	9646	10152	10409	10540	10977	11350	11514	11738	11985	12227
PD	261	293	311	346	376	398	390	437	481	517	511	571	660	704	742	732	735	751	720	758	787

Sociedade Portuguesa de Nefrologia

type of renal replacement therapy modality used by ESRD patients
How do we compare?

Sociedade Portuguesa de Nefrologia

vol 2 Figure 11.12 Percentage distribution of type of renal replacement therapy modality used by ESRD patients, by country, in 2016



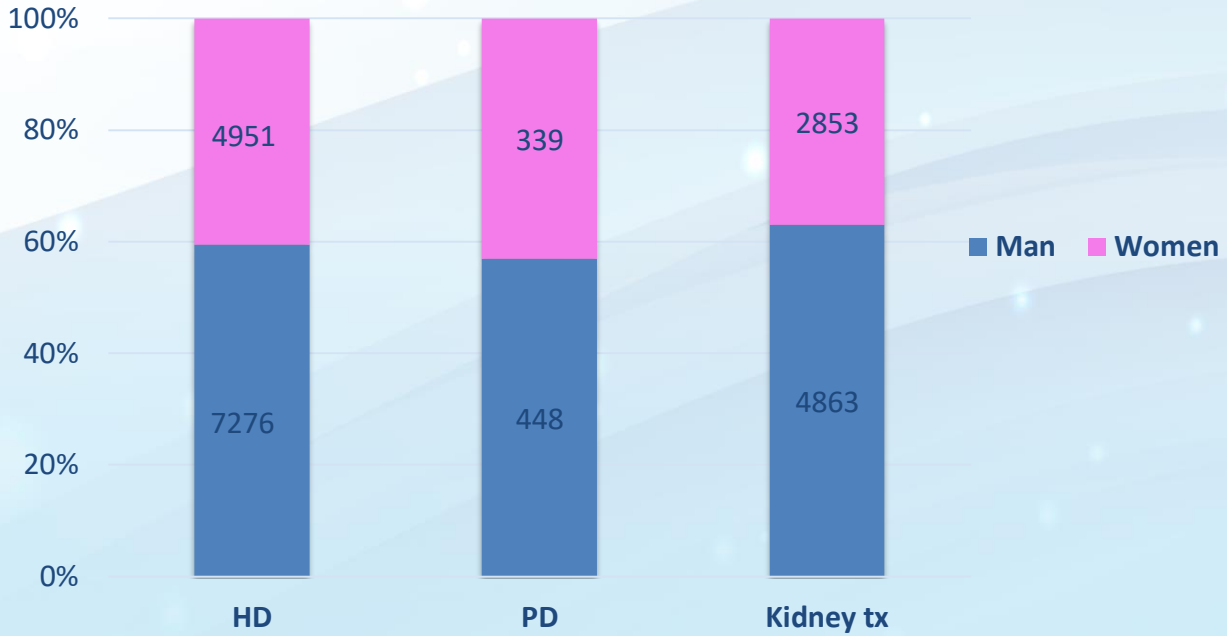
USRDS UNITED STATES RENAL DATA SYSTEM

2018 Annual Data Report
Volume 2 ESRD, Chapter 11

Sociedade Portuguesa de Nefrologia

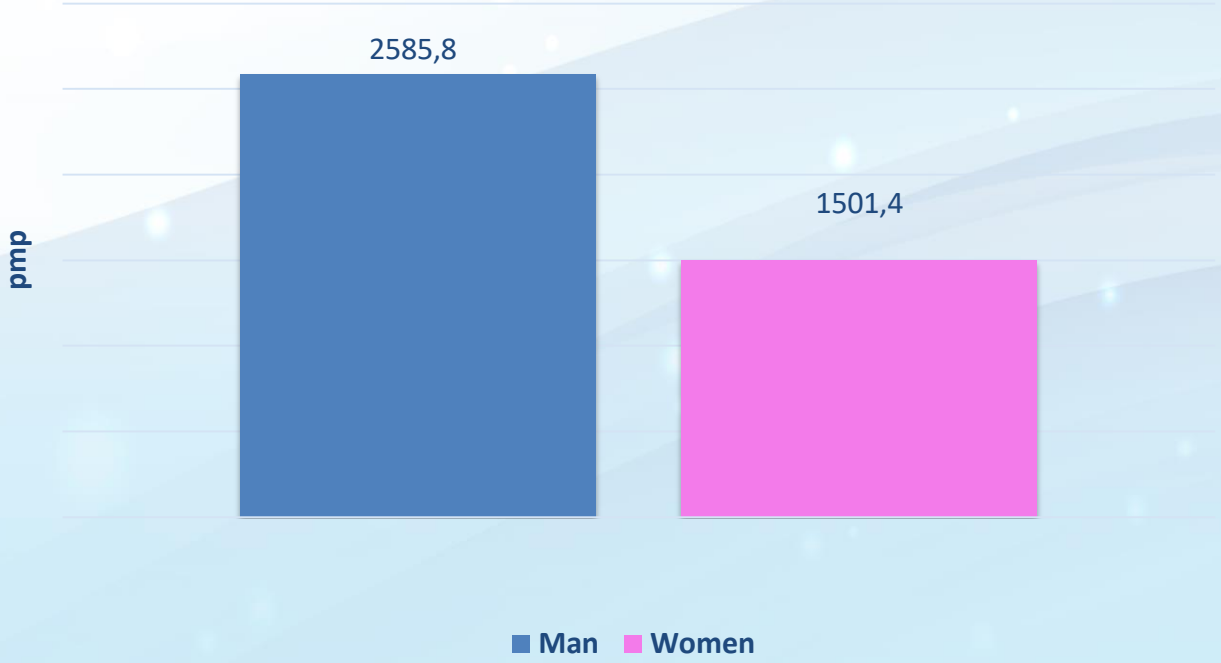
Gender distribution in each modality

31st December 2018



Sociedade Portuguesa de Nefrologia

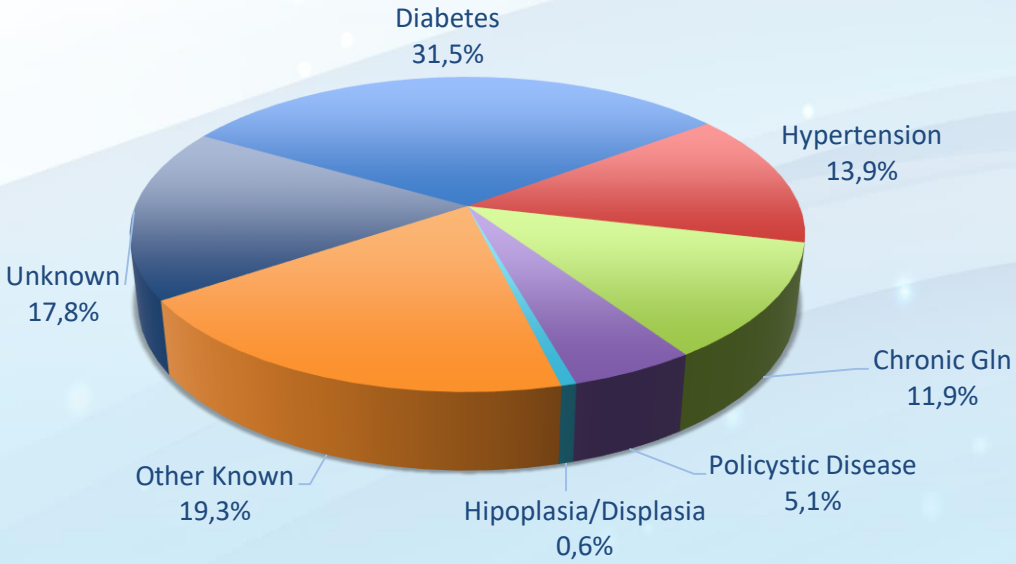
Prevalence by gender, all RRT
per million population 31st December 2018



Sociedade Portuguesa de Nefrologia

Primary renal disease of patients accepted for dialysis

HD and PD during 2018



Not available = 9

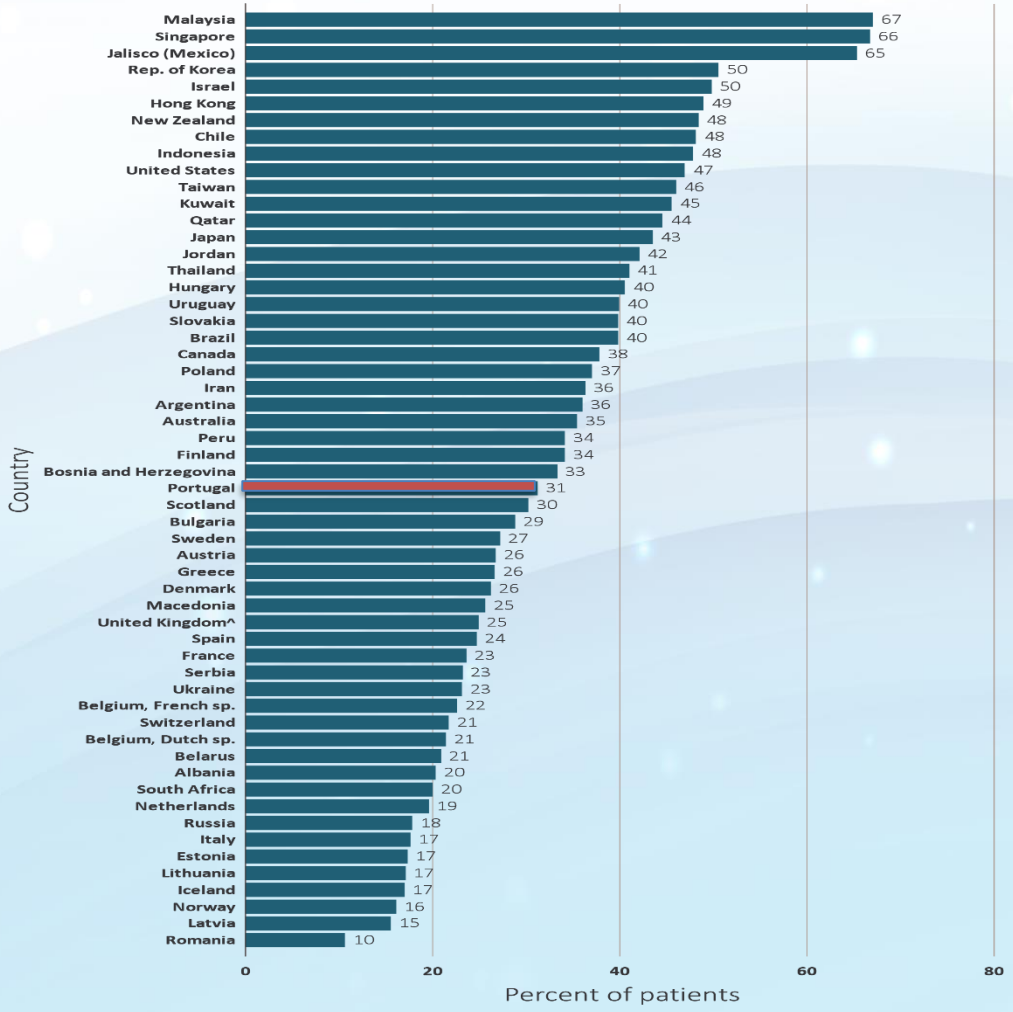
Sociedade Portuguesa de Nefrologia

Diabetes in incident patients
How do we compare?

Sociedade Portuguesa de Nefrologia

vol 2 Figure 11.4 Incidence of treated ESRD due to diabetes as the assigned primary cause of ESRD cause, by country, 2016

(a) Percentage of incident ESRD patients



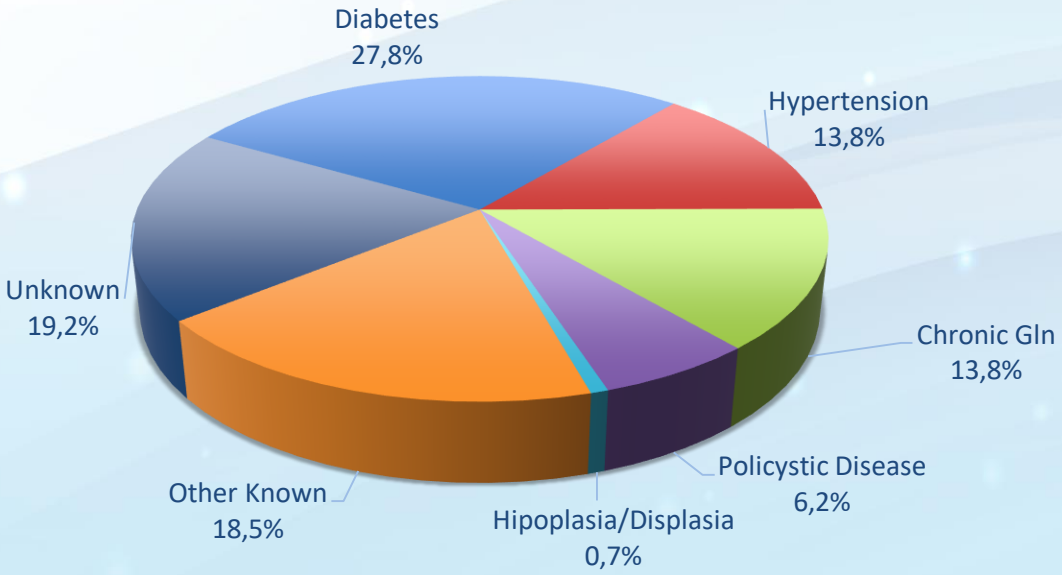
USRDS UNITED STATES RENAL DATA SYSTEM

2018 Annual Data Report
Volume 2 ESRD, Chapter 11

Sociedade Portuguesa de Nefrologia

Primary renal disease of prevalent patients

HD and PD, 31st December 2018



N = 12762
Not available = 220

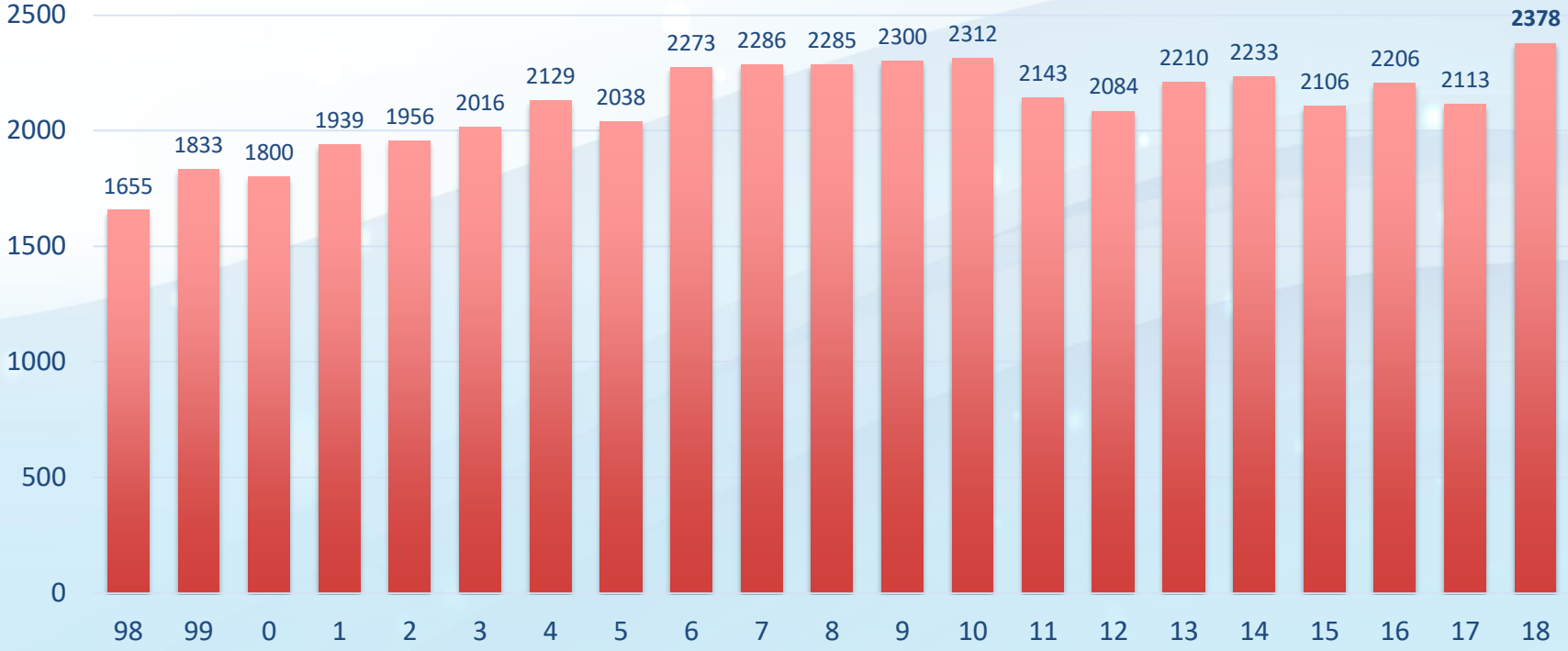
Sociedade Portuguesa de Nefrologia

HEMODIALYSIS

Sociedade Portuguesa de Nefrologia

New patients accepted for hemodialysis

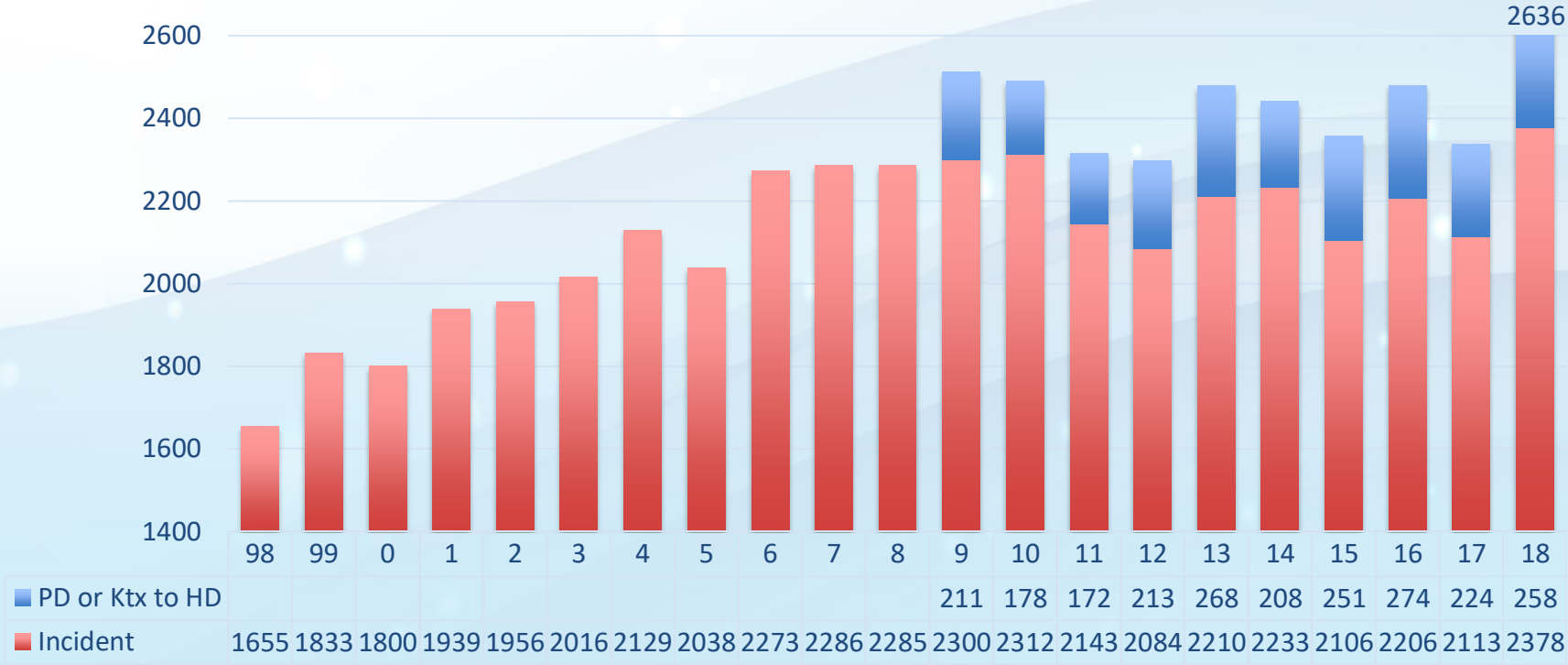
1998 - 2018



Sociedade Portuguesa de Nefrologia

All patients accepted for hemodialysis

Incident and returning from other modalities 1998 - 2018



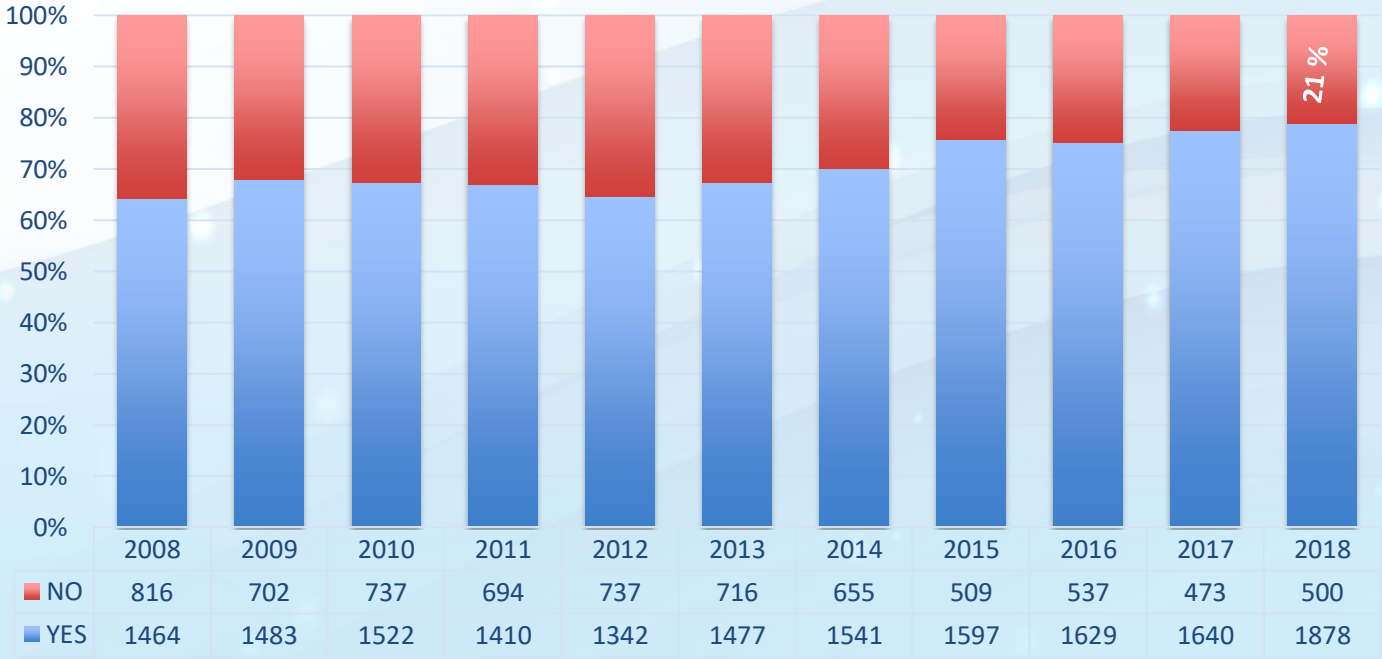
	98	99	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PD or Ktx to HD												211	178	172	213	268	208	251	274	224	258
Incident	1655	1833	1800	1939	1956	2016	2129	2038	2273	2286	2285	2300	2312	2143	2084	2210	2233	2106	2206	2113	2378

Sociedade Portuguesa de Nefrologia

Incident patients accepted for hemodialysis
per million population 2008 - 2018

Sociedade Portuguesa de Nefrologia

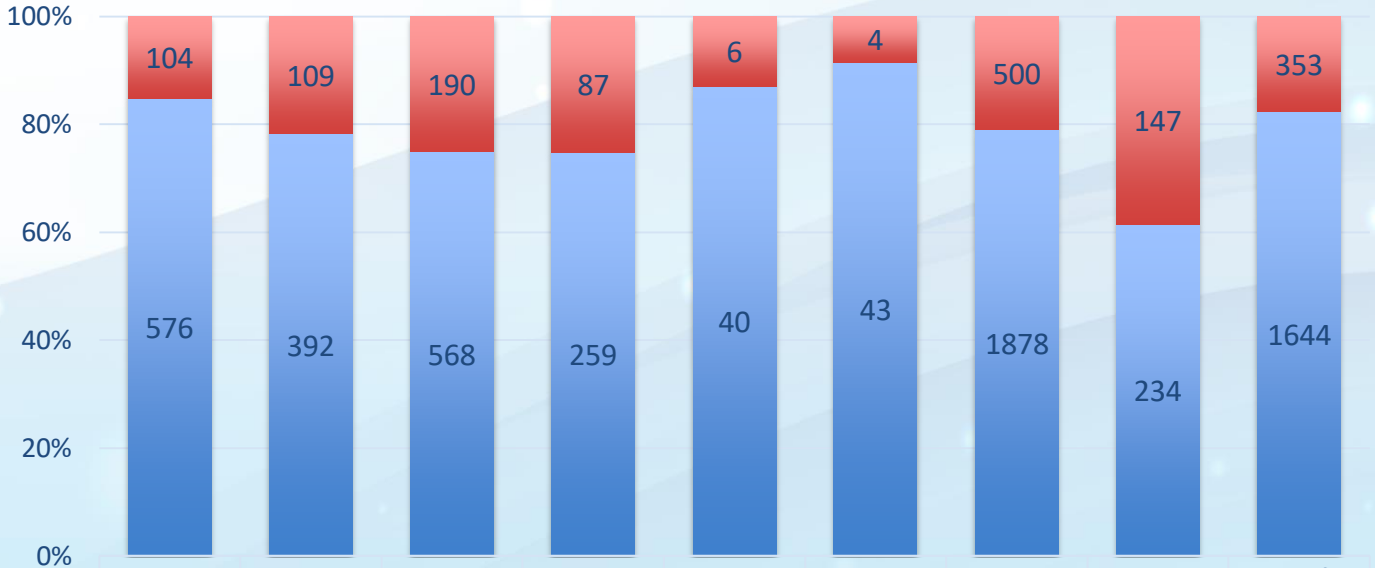
Previous follow-up by nephrology (> 3 months)
HD patients *2008 – 2018*



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NO	816	702	737	694	737	716	655	509	537	473	500
YES	1464	1483	1522	1410	1342	1477	1541	1597	1629	1640	1878

Sociedade Portuguesa de Nefrologia

Previous follow-up by nephrology (> 3 months)
HD patients, *by country region and facility type - 2018*



	Norte	Centro	Lisboa	Sul	Açores	Madeira	Global	Hosp	Perif
NO	104	109	190	87	6	4	500	147	353
YES	576	392	568	259	40	43	1878	234	1644

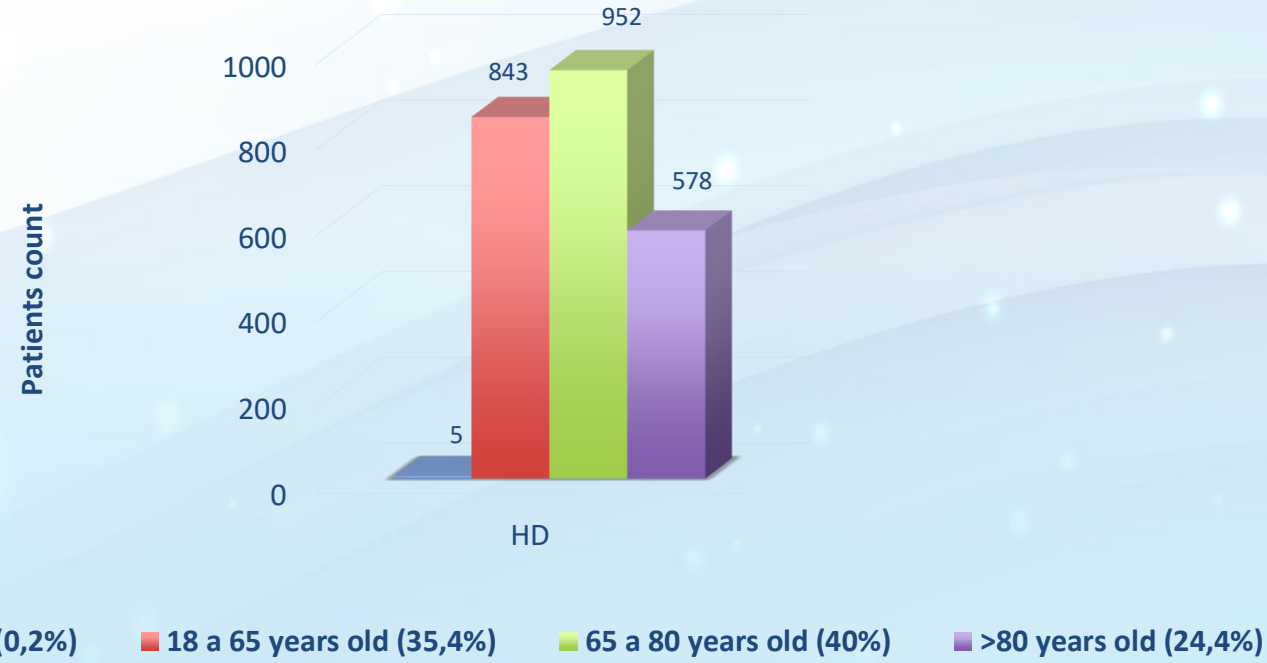
Sociedade Portuguesa de Nefrologia

Incident patients accepted for hemodialysis

Day 0 and day 91, 2011-2018

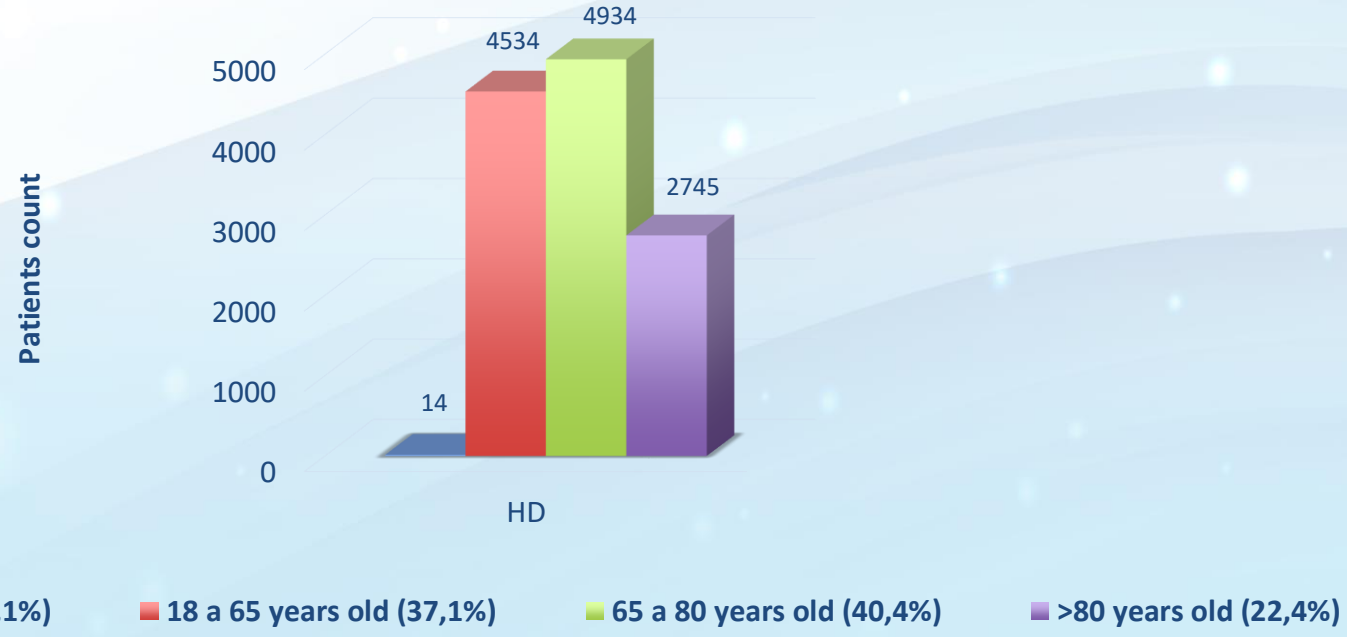
Sociedade Portuguesa de Nefrologia

Patients accepted for hemodialysis
by age group, during 2018



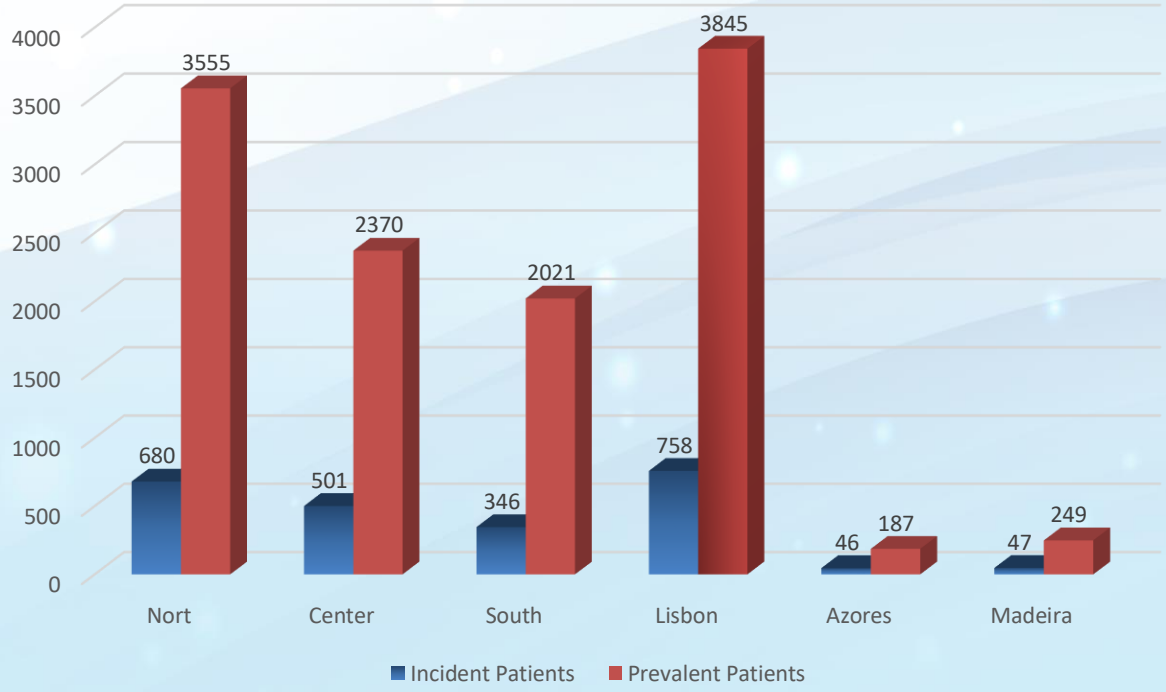
Sociedade Portuguesa de Nefrologia

Patients treated by hemodialysis
by age group , 31st December 2018



Sociedade Portuguesa de Nefrologia

Incident and prevalent patients treated by hemodialysis *by country region, 2018*



Sociedade Portuguesa de Nefrologia

Incident and prevalent patients treated by hemodialysis

per million population by age group, 2018

Sociedade Portuguesa de Nefrologia

Patients treated by hemodialysis

31st of December each year, 1998 – 2018

Sociedade Portuguesa de Nefrologia

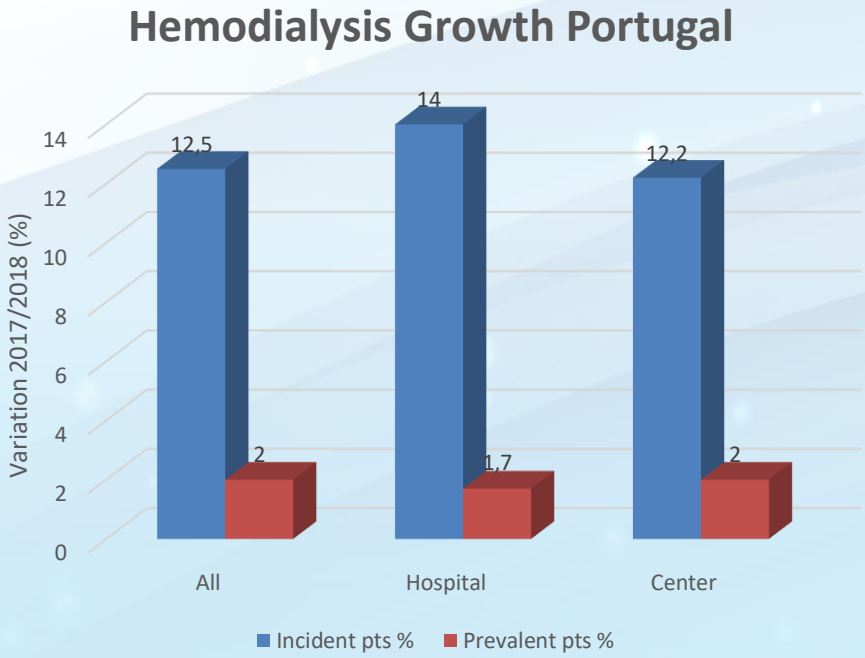
Patients treated by hemodialysis

31st of December each year, 1998 – 2018

Sociedade Portuguesa de Nefrologia

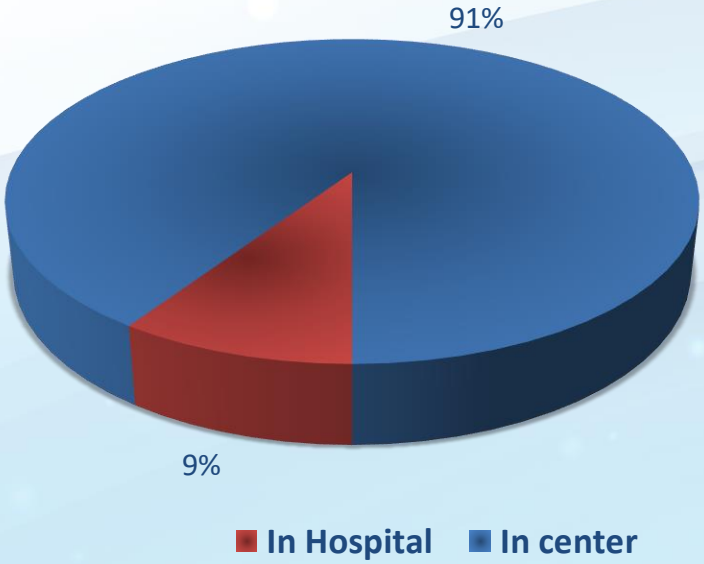
Hemodialysis growth 2018 vs 2017 (%)

31st of December each year



Sociedade Portuguesa de Nefrologia

Distribution of hemodialysis patients by type of dialysis facility
31st of December 2018

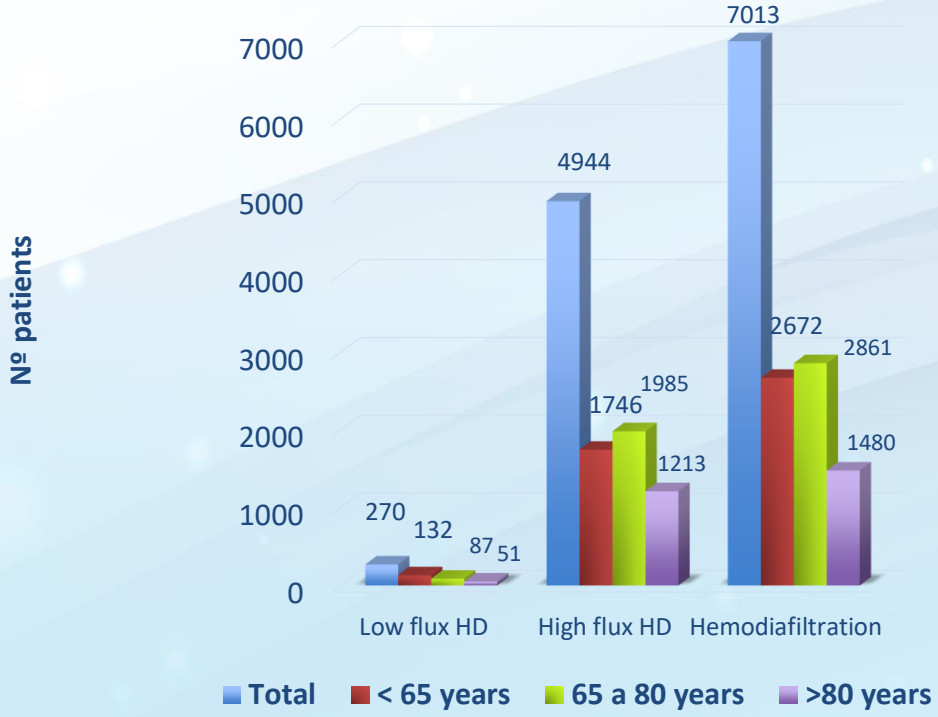


N = 12227
In Hospital:1146
In Center:11081

Sociedade Portuguesa de Nefrologia

Patients treated by hemodialysis

distribution by techniques in each age group, 31st of December 2018

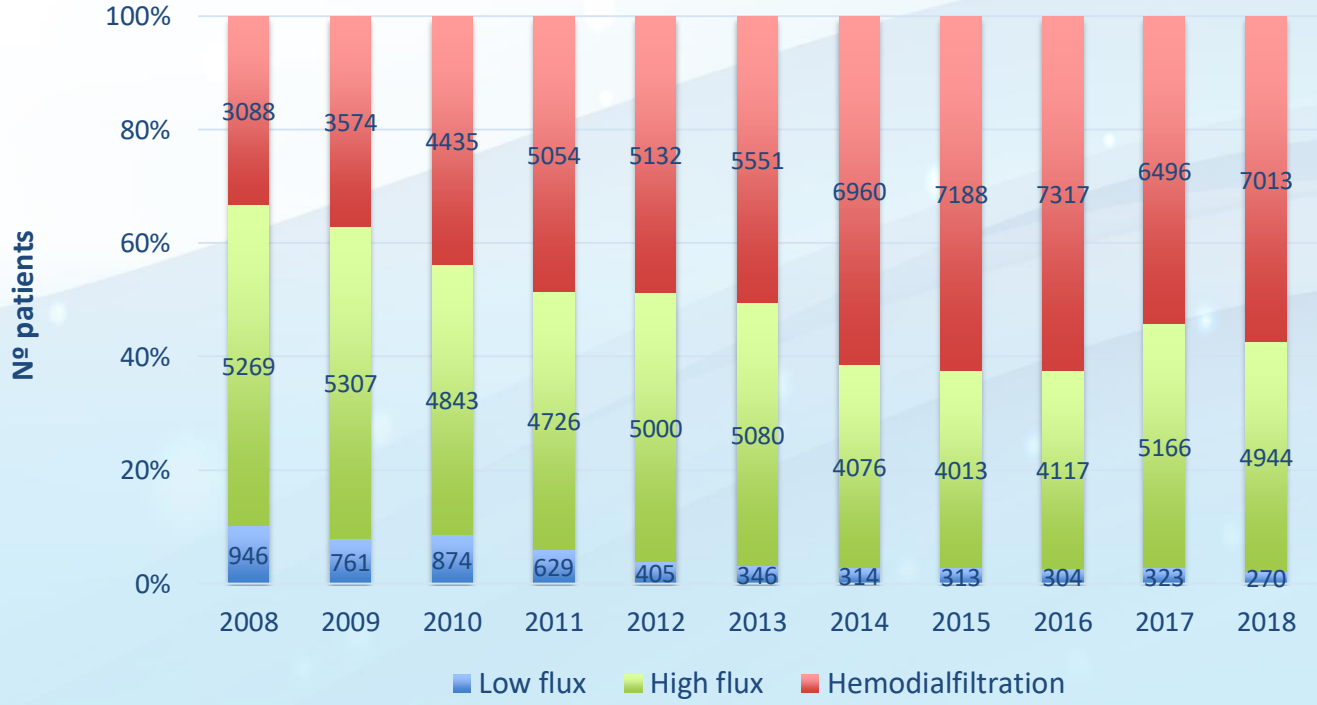


N = 12227
low flux 2,2% (2,4% in 2017)

Sociedade Portuguesa de Nefrologia

Patients treated by hemodialysis

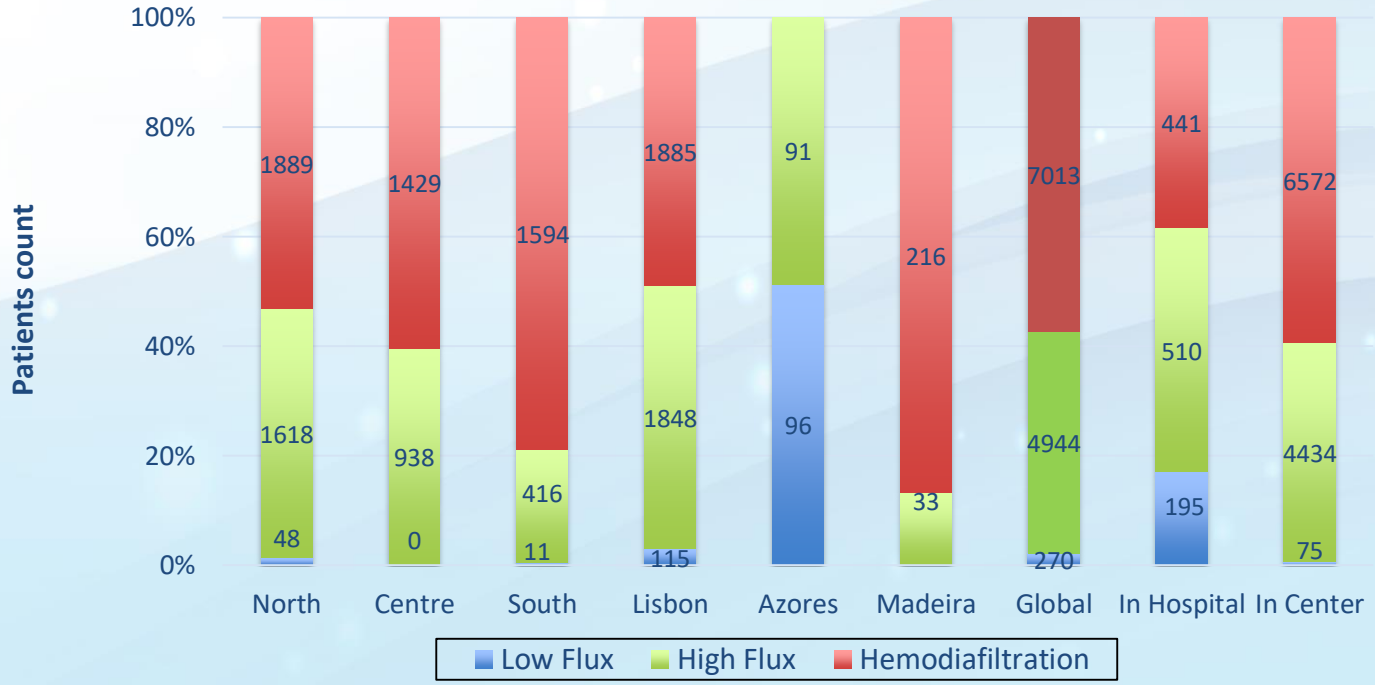
distribution by techniques, 31st Dec. 2008 - 2018



Sociedade Portuguesa de Nefrologia

Patients treated by hemodialysis

distribution by techniques by region and facility type, 31st Dec. 2018



N = 12227 by end of December 2018

Sociedade Portuguesa de Nefrologia

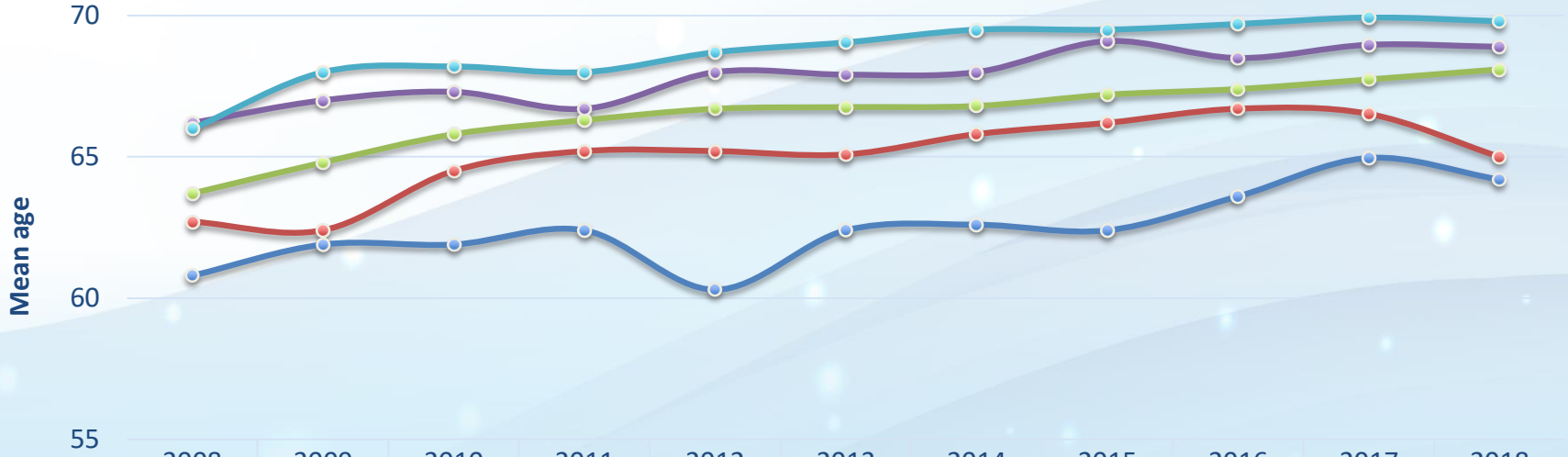
Mean Age of patients treated by hemodialysis

31st of December 2008 – 2018

Sociedade Portuguesa de Nefrologia

Mean Age of patients treated by hemodialysis

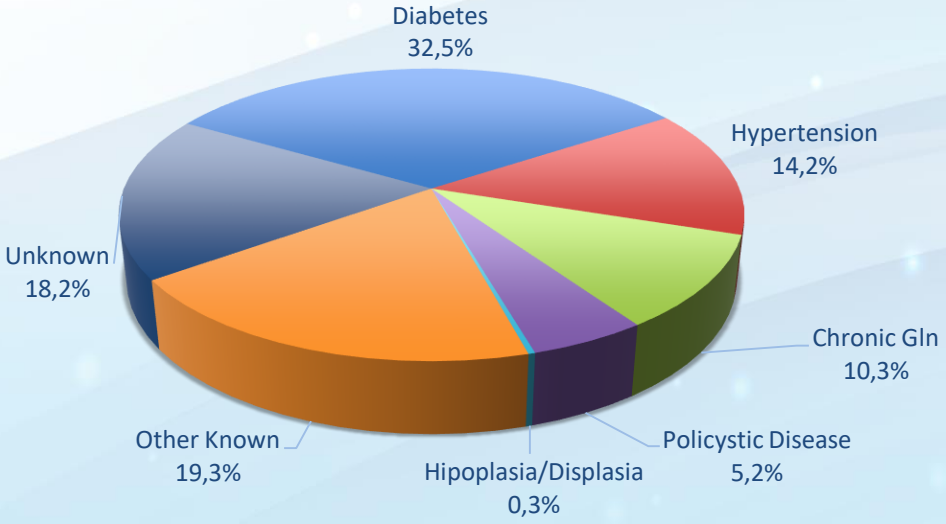
by country region, 31st of December 2008 – 2018



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Islands	60,8	61,9	61,9	62,4	60,3	62,4	62,6	62,4	63,6	65,0	64,2
Lisbon	62,7	62,4	64,5	65,2	65,2	65,1	65,8	66,2	66,7	66,5	65
North	63,7	64,8	65,8	66,3	66,7	66,8	66,8	67,2	67,4	67,7	68,1
South	66,2	67	67,3	66,7	68	67,9	68	69,1	68,5	69,0	68,9
Centre	66	68	68,2	68	68,7	69,1	69,5	69,5	69,7	69,9	69,8

Sociedade Portuguesa de Nefrologia

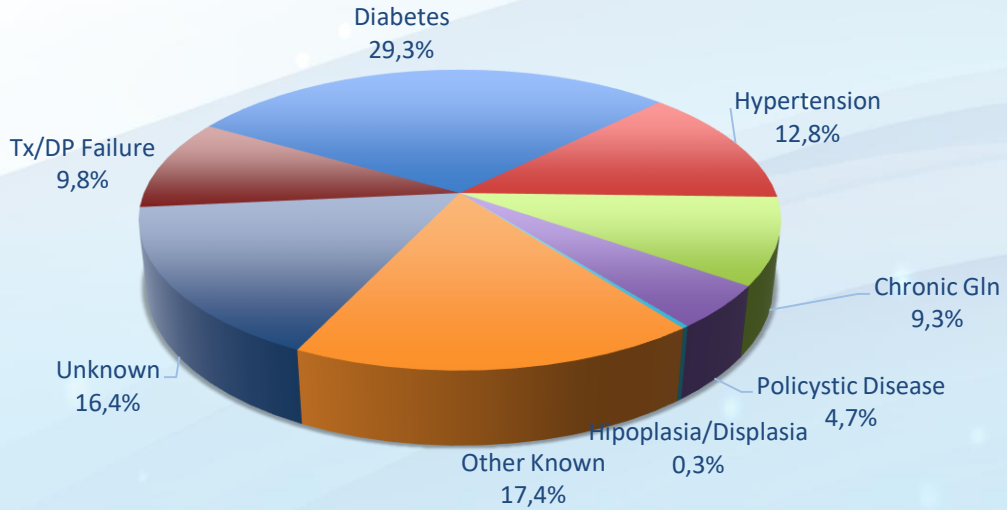
Primary renal disease of patients accepted for hemodialysis *during 2018*



N = 2378

Sociedade Portuguesa de Nefrologia

Etiology of All patients accepted for hemodialysis *during 2018*

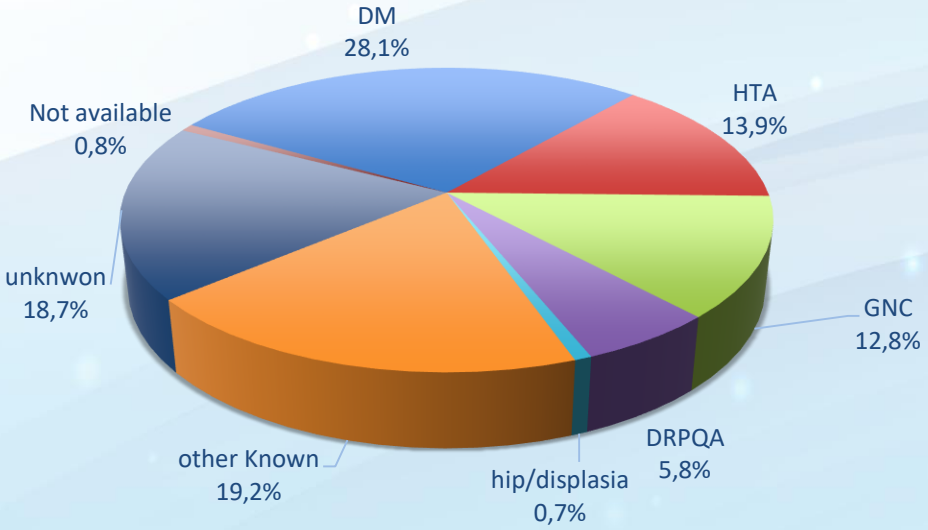


N = 2636

Sociedade Portuguesa de Nefrologia

Primary renal disease of prevalent hemodialysis patients

31st December 2018



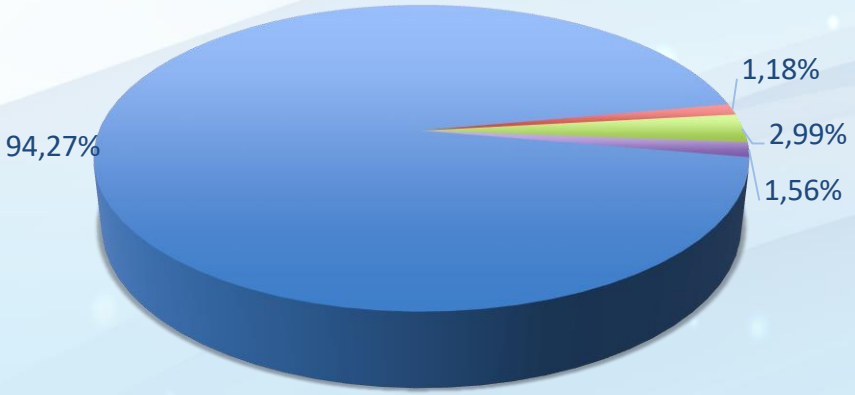
N = 12194
33 not available

Sociedade Portuguesa de Nefrologia

Diabetes as primary renal disease in HD patients
Incident and prevalent (%) *2008 - 2018*

Sociedade Portuguesa de Nefrologia

Viral status in HD prevalent patients
31st December 2018

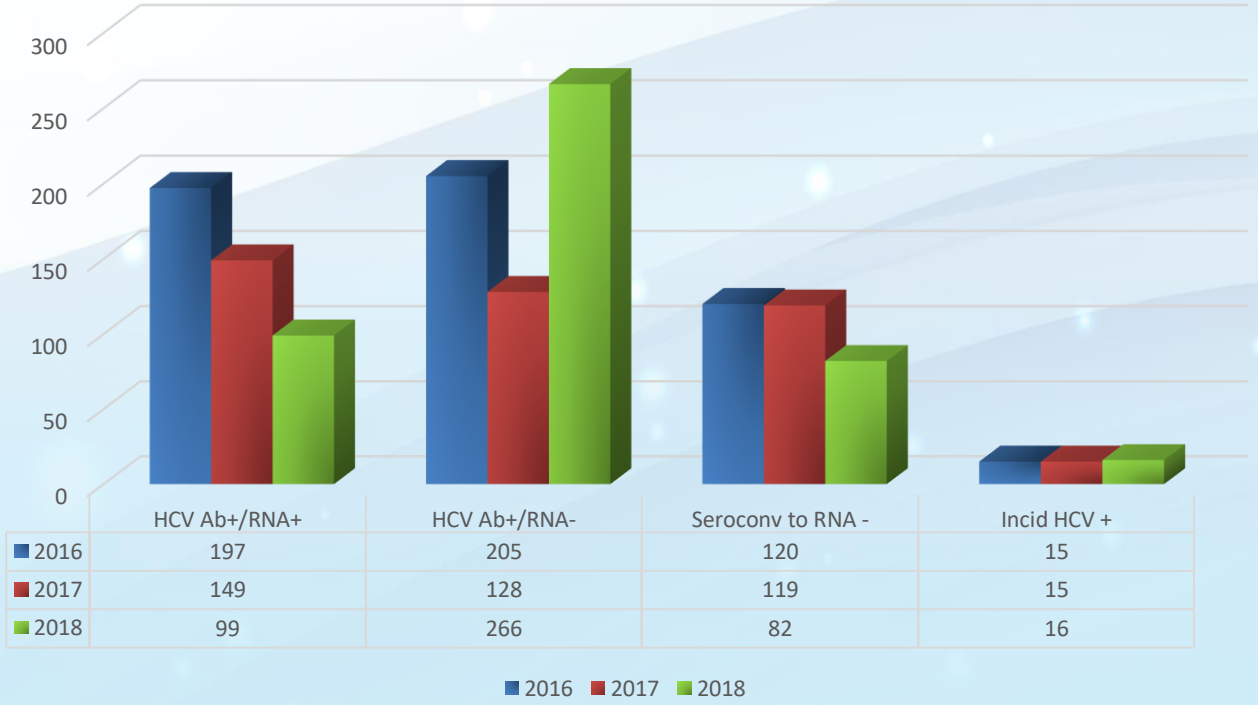


N = 12227

Sociedade Portuguesa de Nefrologia

Hepatitis C viral status in HD prevalent pts

31st December 2016 – 2017 - 2018



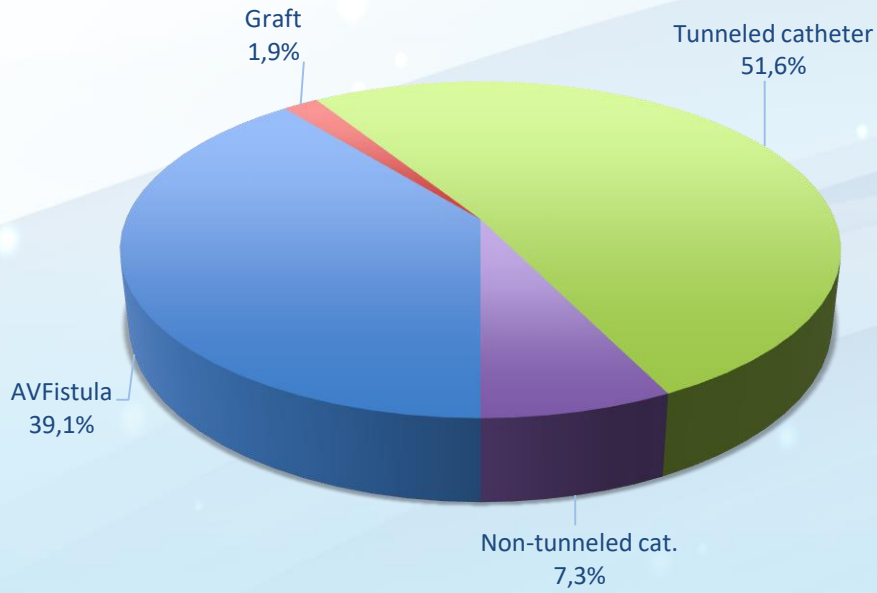
	HCV Ab+/RNA+	HCV Ab+/RNA-	Seroconv to RNA -	Incid HCV +
2016	197	205	120	15
2017	149	128	119	15
2018	99	266	82	16

Sociedade Portuguesa de Nefrologia

Vascular access

Sociedade Portuguesa de Nefrologia

Vascular access of HD incident patients *during 2018*

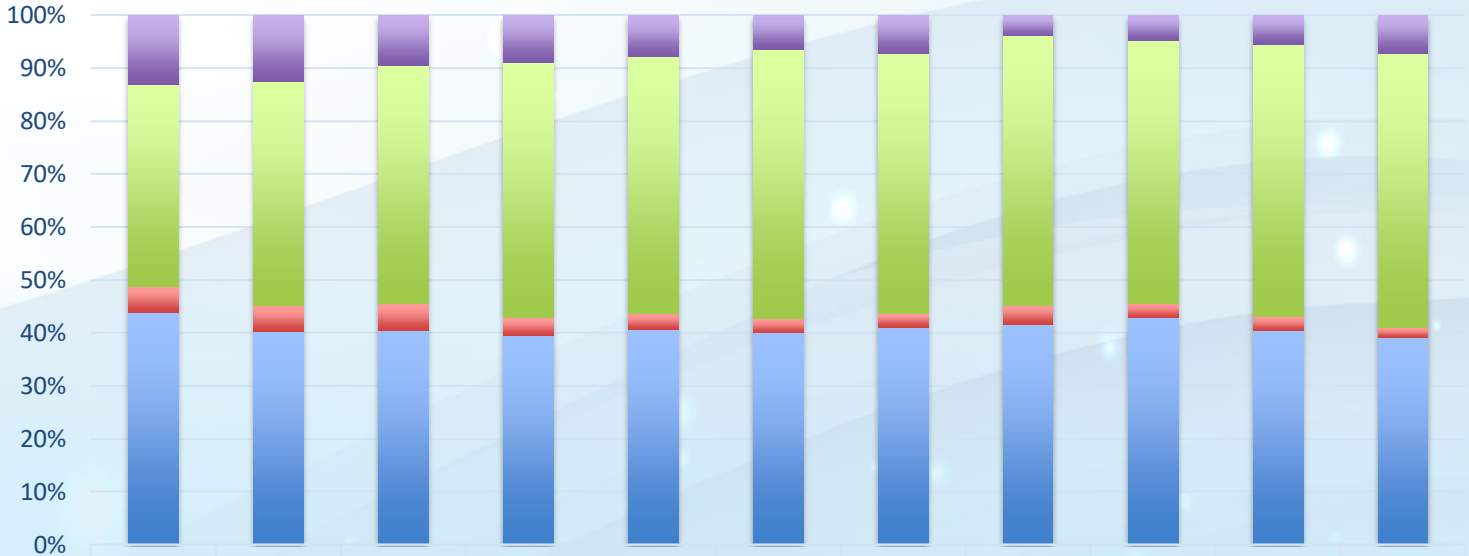


N = 2366
12 unavailable

Sociedade Portuguesa de Nefrologia

Vascular access of HD incident patients

2008 – 2018

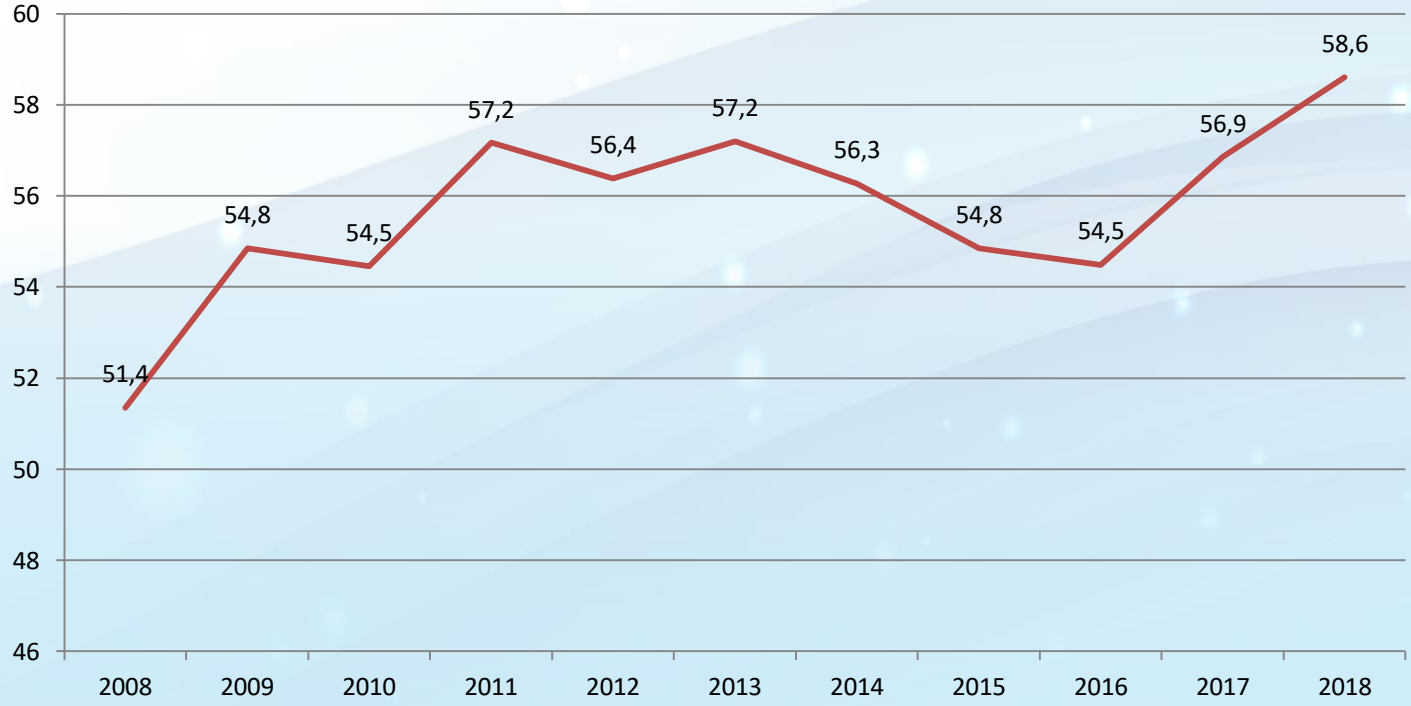


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non-tunneled cat.	296	282	219	188	163	143	163	81	103	117	173
Tunneled cat.	864	940	1034	1033	1007	1101	1088	1068	1093	1094	1222
Graft	109	111	117	71	61	61	60	74	59	57	45
AVFistula	990	895	931	844	844	870	912	872	940	862	926

Sociedade Portuguesa de Nefrologia

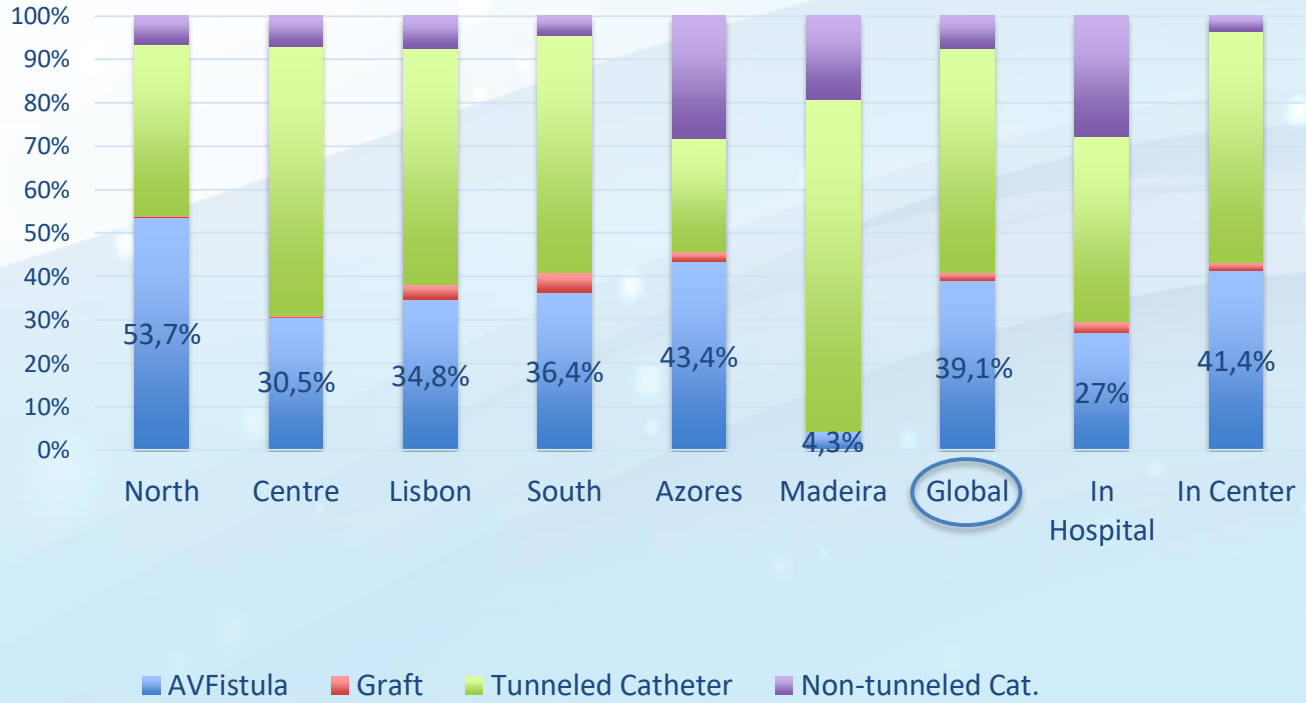
Catheter rate (%) in the first HD session of incident patients

2008 – 2018



Sociedade Portuguesa de Nefrologia

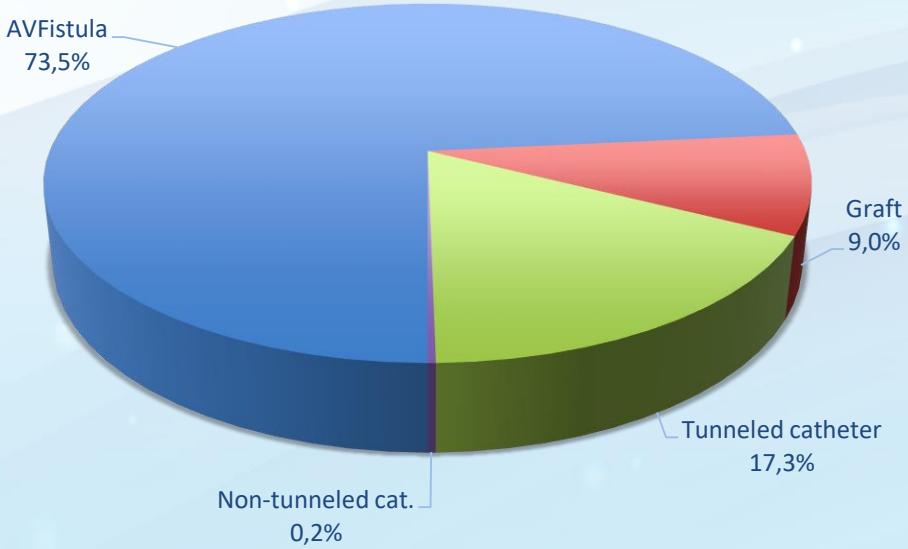
Vascular access of HD incident patients
by country region and facility type



N = 2366
12 not available

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients
31st December 2018

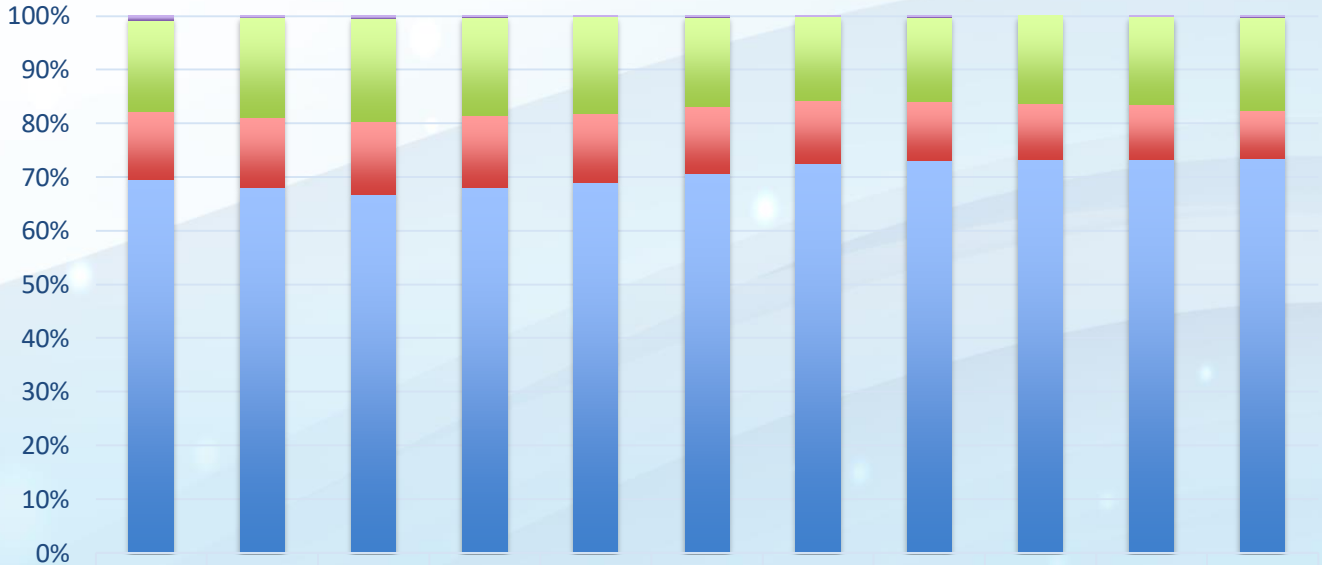


N = 12223
4 not available

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients

31st December, 2008 - 2018

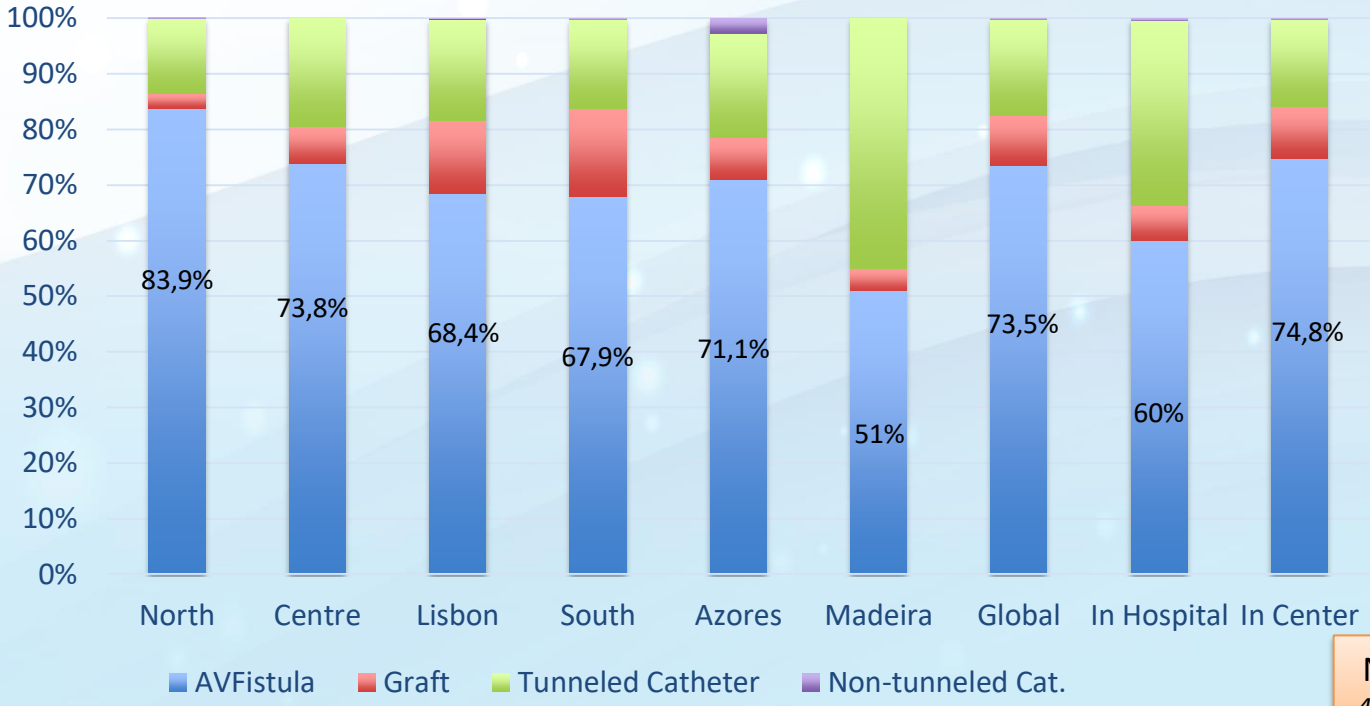


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non-Tunneled Cat	76	39	42	25	16	23	15	24	2	10	35
Tunneled Catheter	1572	1769	1953	1905	1889	1834	1770	1804	1895	1971	2109
Graft	1191	1256	1365	1402	1349	1358	1317	1273	1239	1216	1101
AVFistula	6464	6538	6788	7077	7257	7750	8202	8434	8598	8782	8978

Sociedade Portuguesa de Nefrologia

Vascular access of HD prevalent patients

by country region and facility type, 31st of December 2018



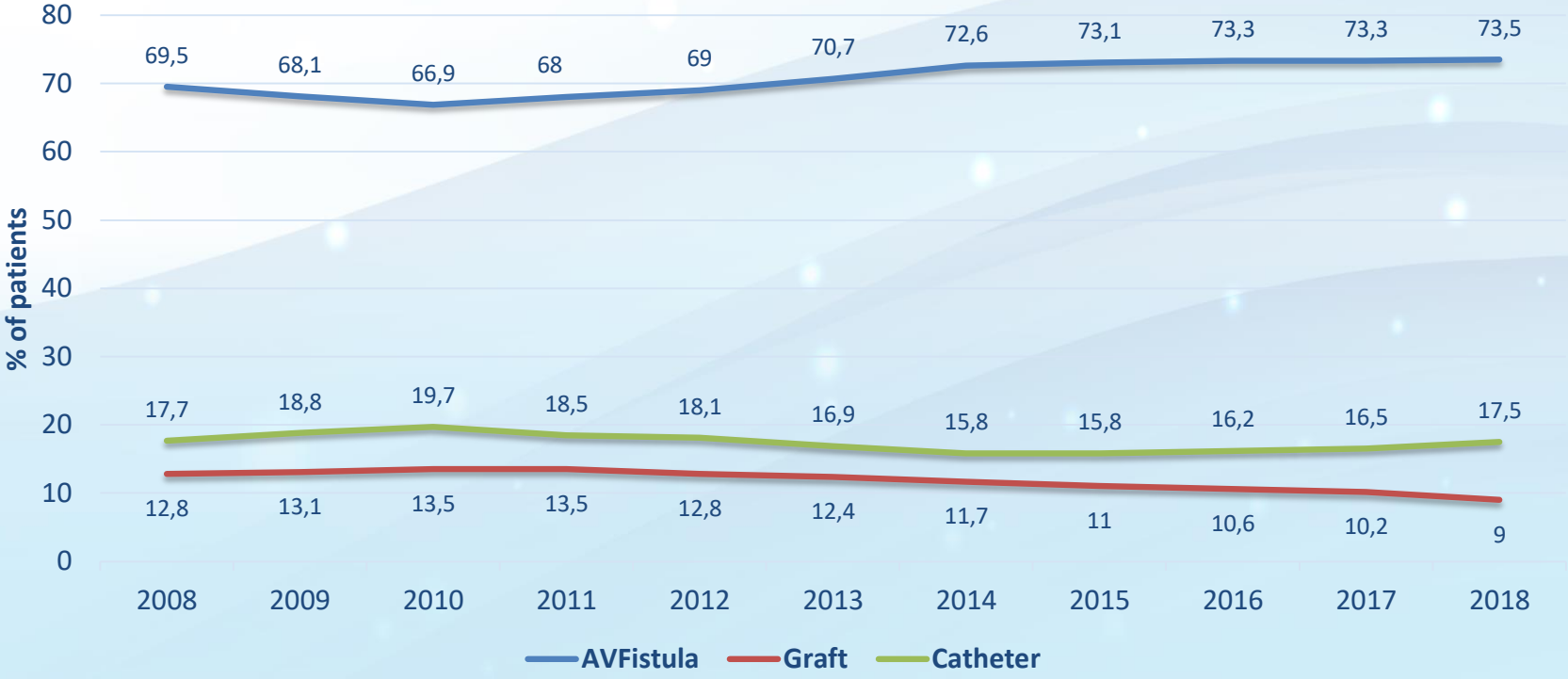
N = 12223

4 not available

Sociedade Portuguesa de Nefrologia

Vascular access of prevalent patients (%)

31st December, 2008 - 2018



Sociedade Portuguesa de Nefrologia

AV Fistula rate of prevalent patients (%)

31st December, 2008 - 2018

Sociedade Portuguesa de Nefrologia

Graft rate of prevalent patients (%)

31st December, 2008 - 2018

Sociedade Portuguesa de Nefrologia

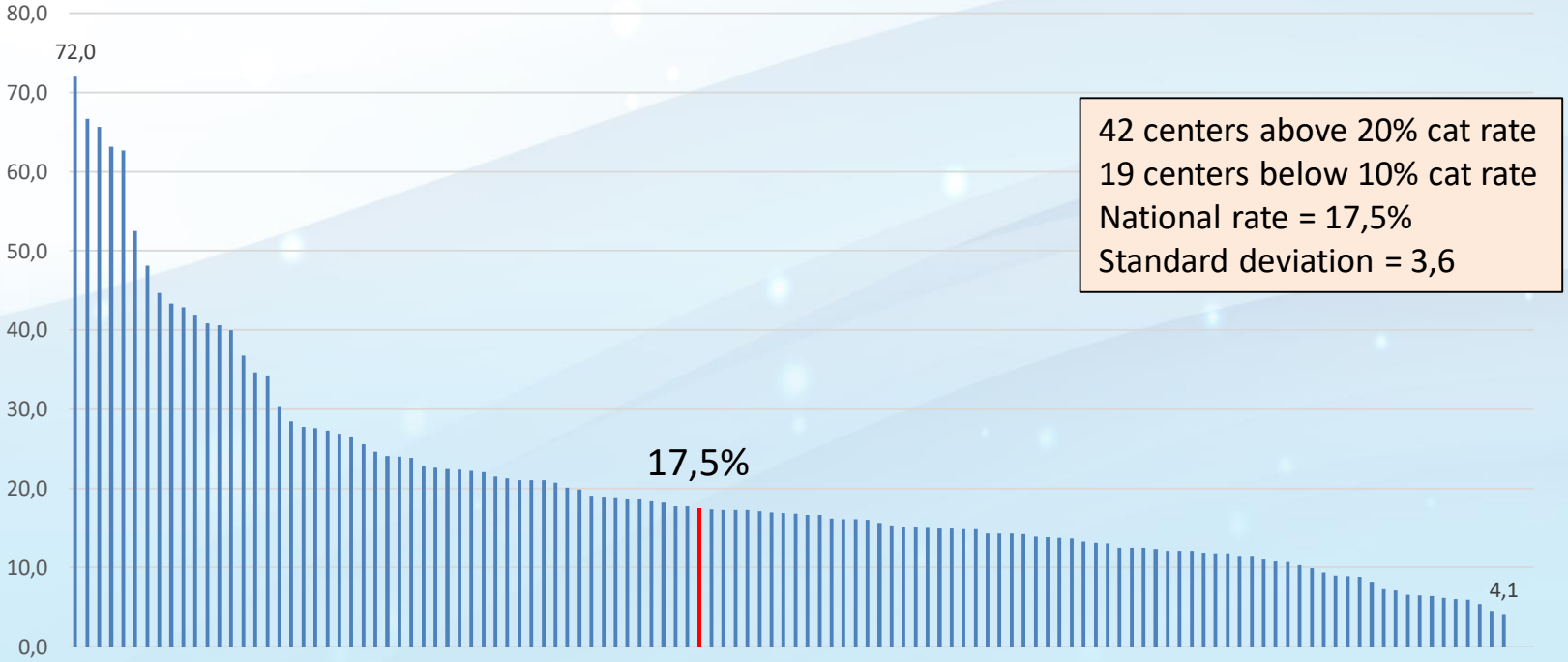
Catheter rate of prevalent patients (%)

31st December, 2008 - 2018

Sociedade Portuguesa de Nefrologia

Catheter rate of prevalent patients (%)

31st December 2018

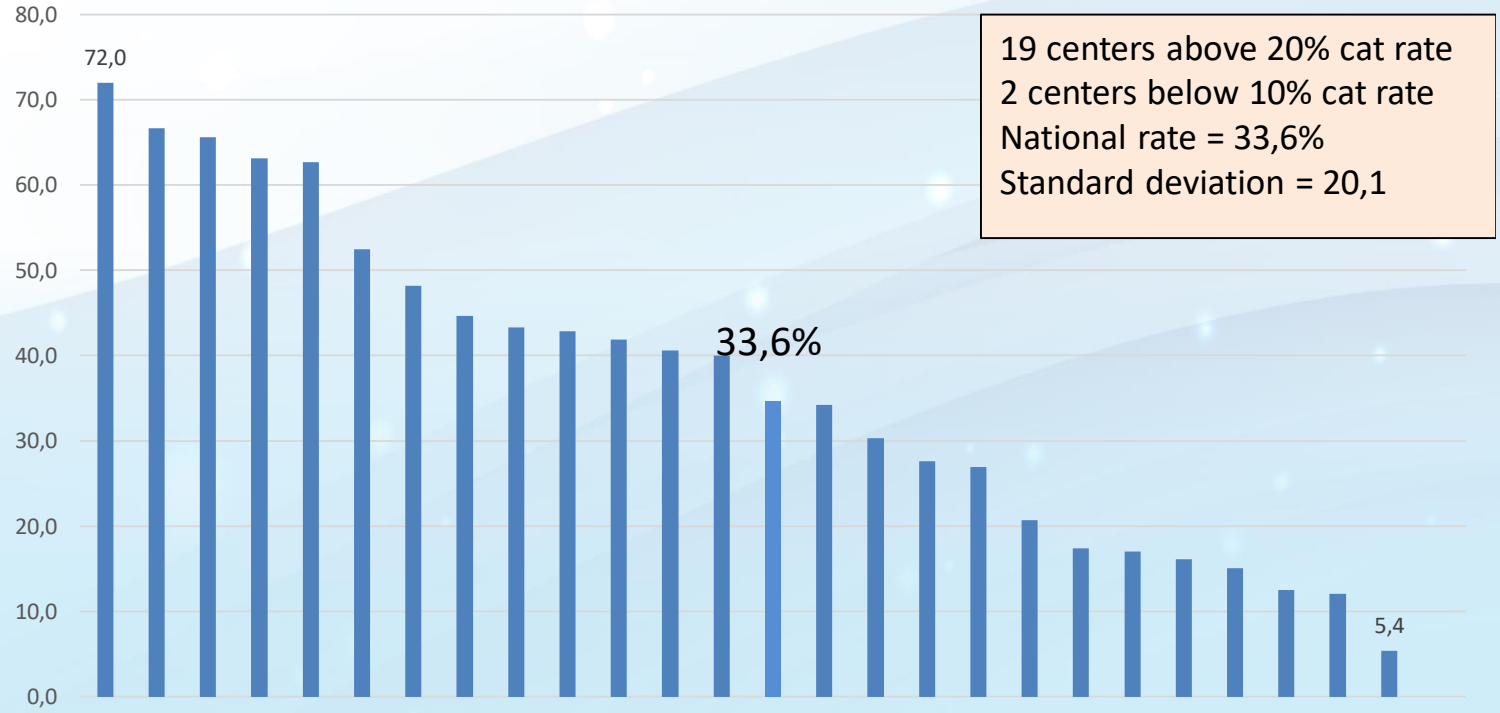


42 centers above 20% cat rate
19 centers below 10% cat rate
National rate = 17,5%
Standard deviation = 3,6

Sociedade Portuguesa de Nefrologia

Catheter rate of prevalent patients (%)

In Hospital HD patients - 2018

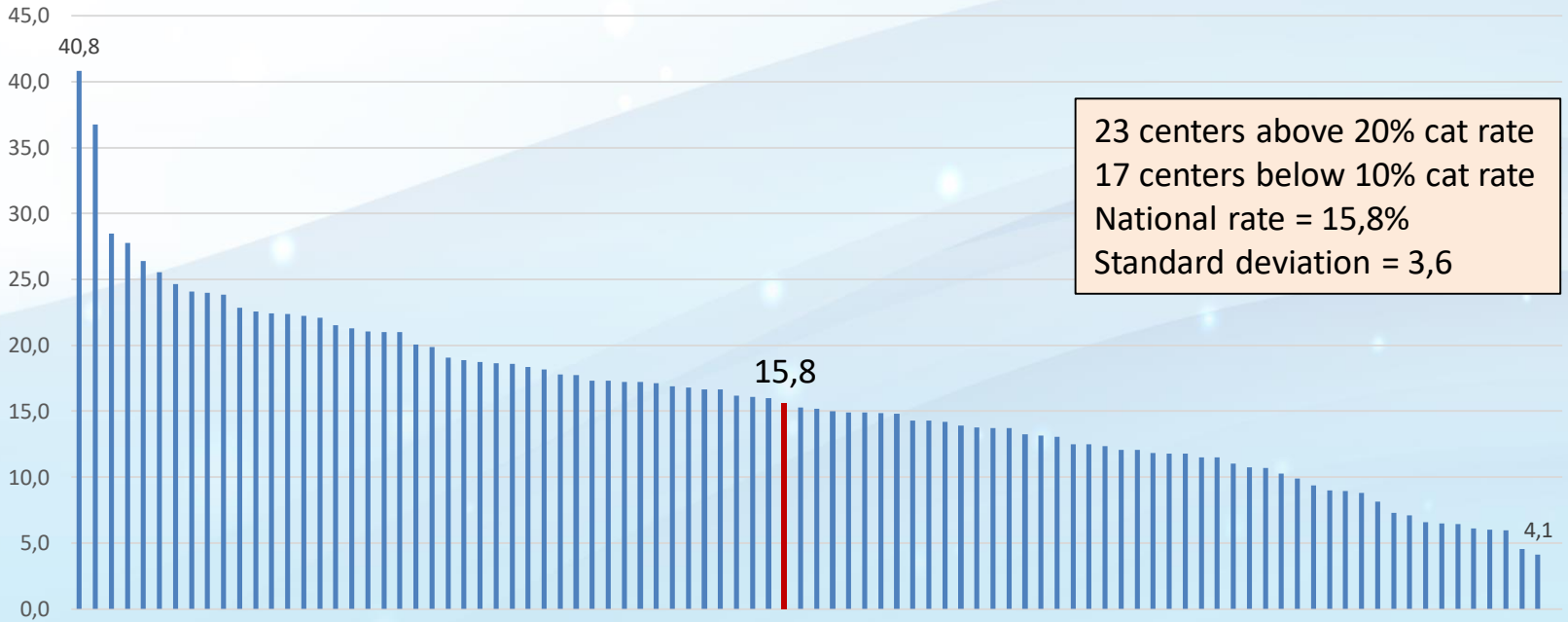


19 centers above 20% cat rate
2 centers below 10% cat rate
National rate = 33,6%
Standard deviation = 20,1

Sociedade Portuguesa de Nefrologia

Catheter rate of prevalent patients (%)

In Center HD patients - 2018



Sociedade Portuguesa de Nefrologia

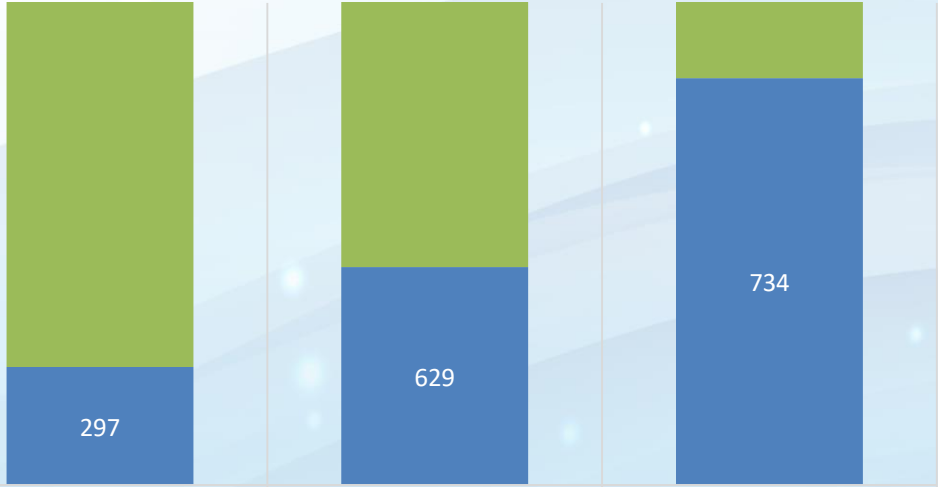
Mortality - hemodialysis

Sociedade Portuguesa de Nefrologia

Deaths in hemodialysis
by age group in 2018

* 82,1% of 1660 patients that died in 2018 were more than 65 years old and 44,2% more than 80 years

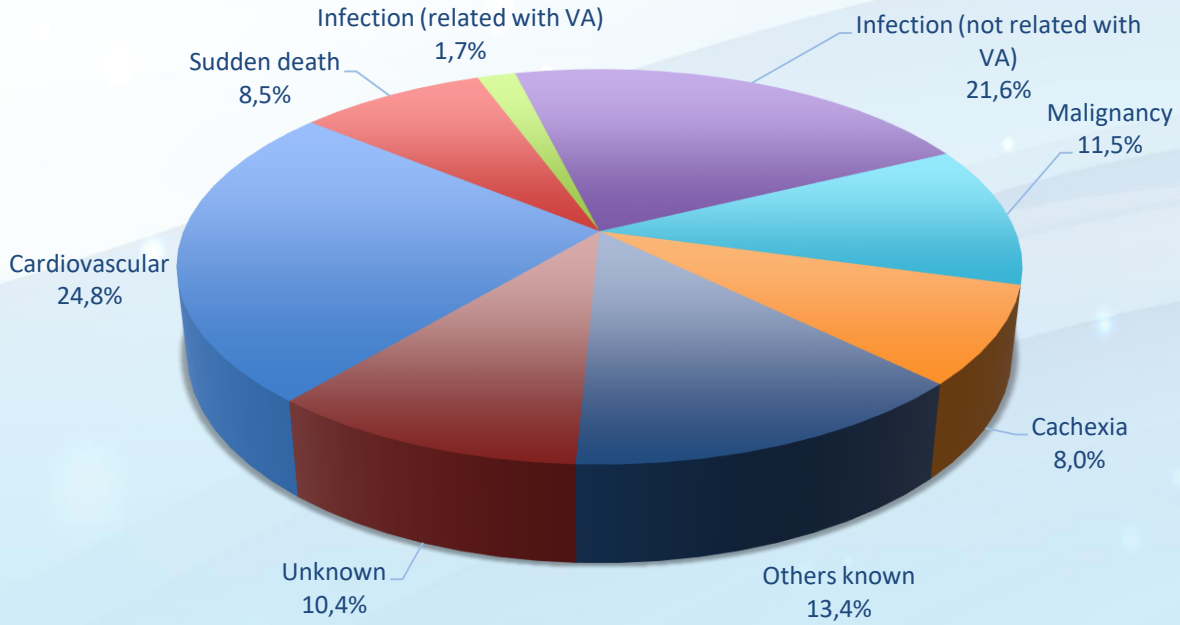
* 7,6% of deaths occurred during the first 90 days after starting dialysis
* Mortality in the first 90 days was 4,78% (5,05% em 2017)



	< 65 years	65 - 80 years	>80 years
Prevalent	4548	4932	2744
Died	297	629	734

Sociedade Portuguesa de Nefrologia

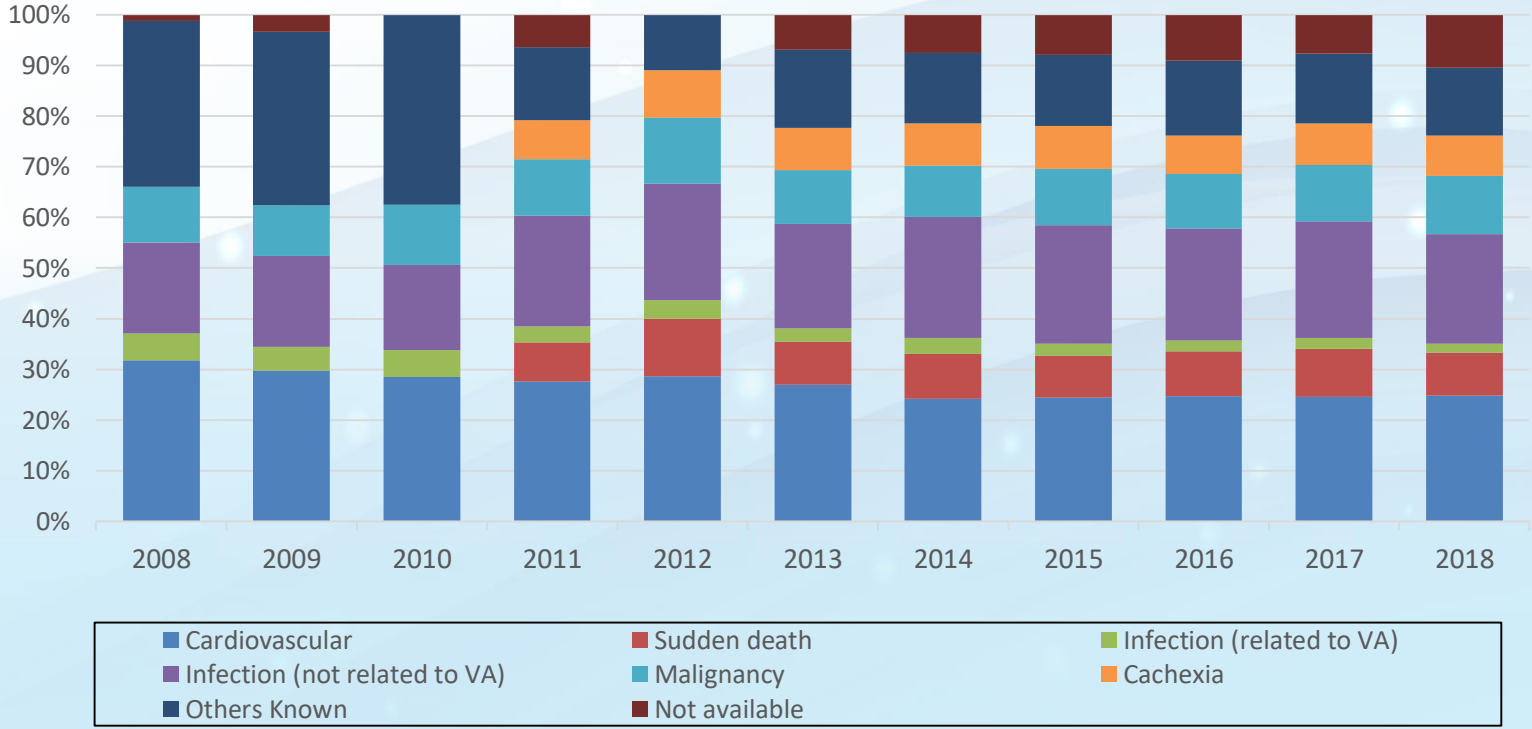
Death causes in HD patients *during 2018*



N=1660

Sociedade Portuguesa de Nefrologia

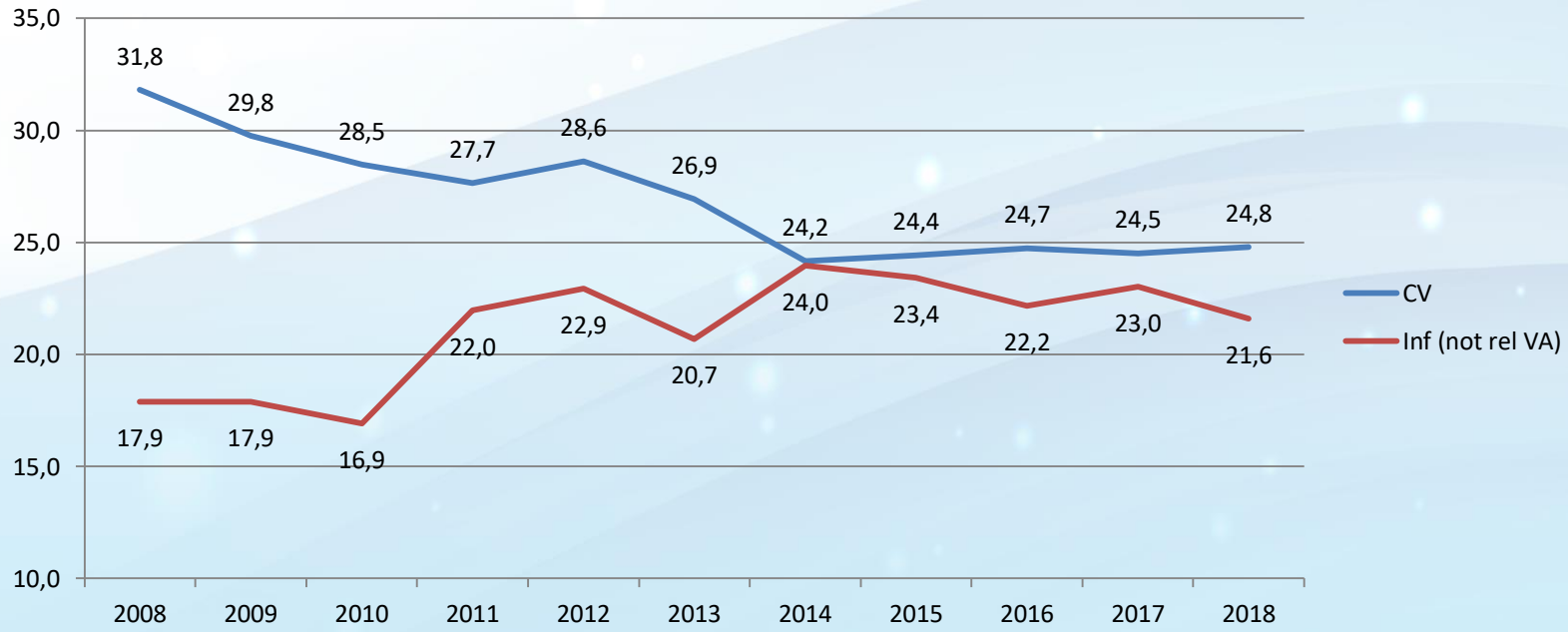
Deaths in hemodialysis
2011 - 2018



Sociedade Portuguesa de Nefrologia

Cardiovascular and Infection deaths in hemodialysis (%)

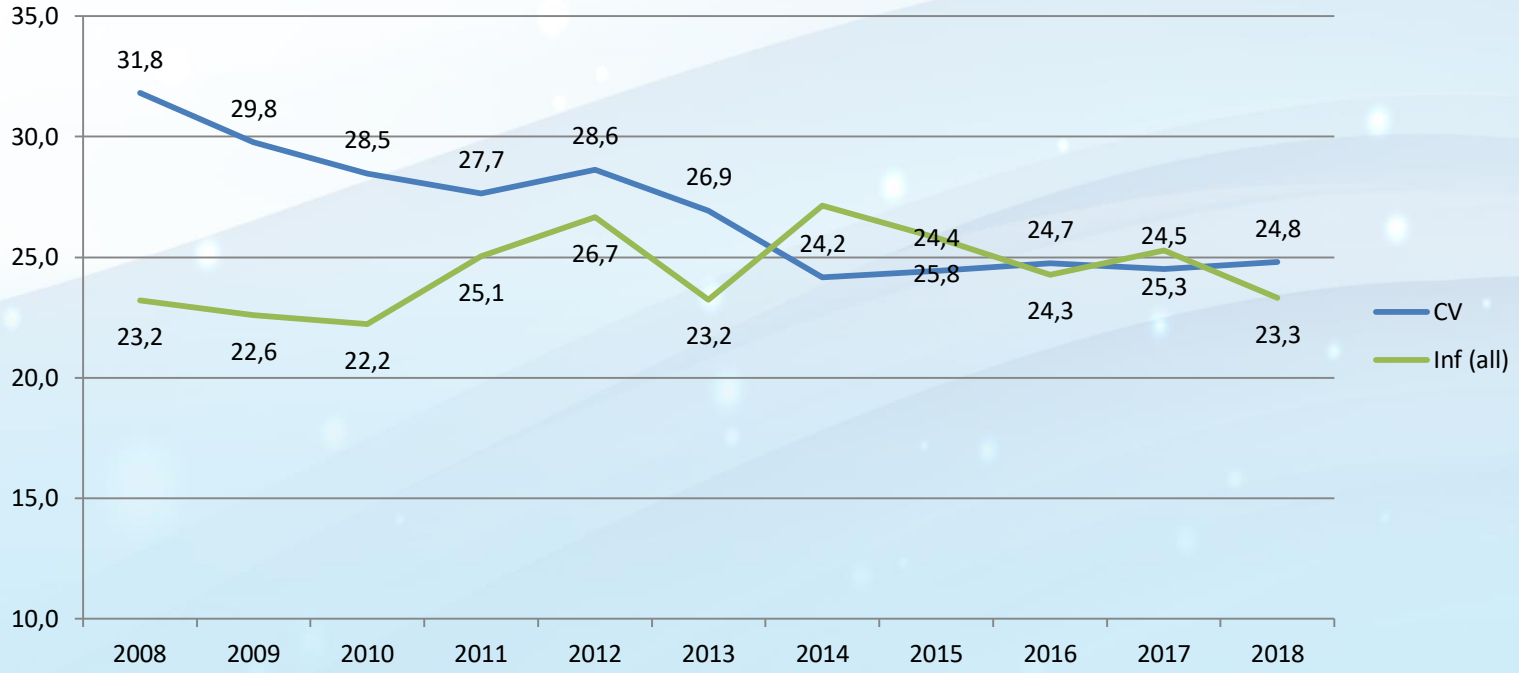
2008 - 2018



Sociedade Portuguesa de Nefrologia

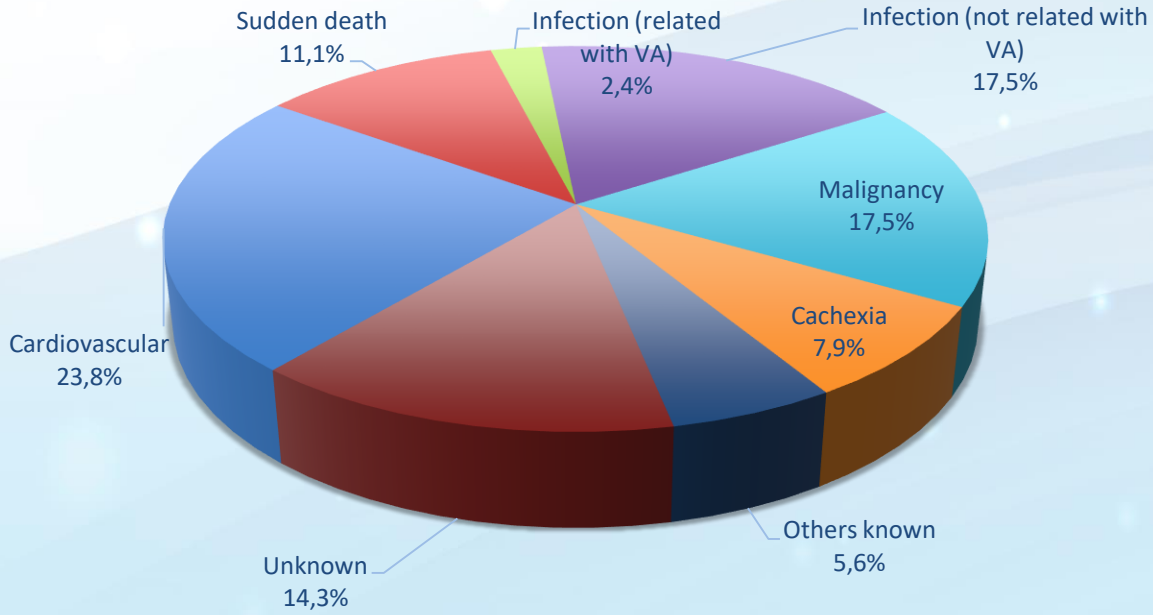
Cardiovascular and Infection deaths in hemodialysis (%)

2008 - 2018



Sociedade Portuguesa de Nefrologia

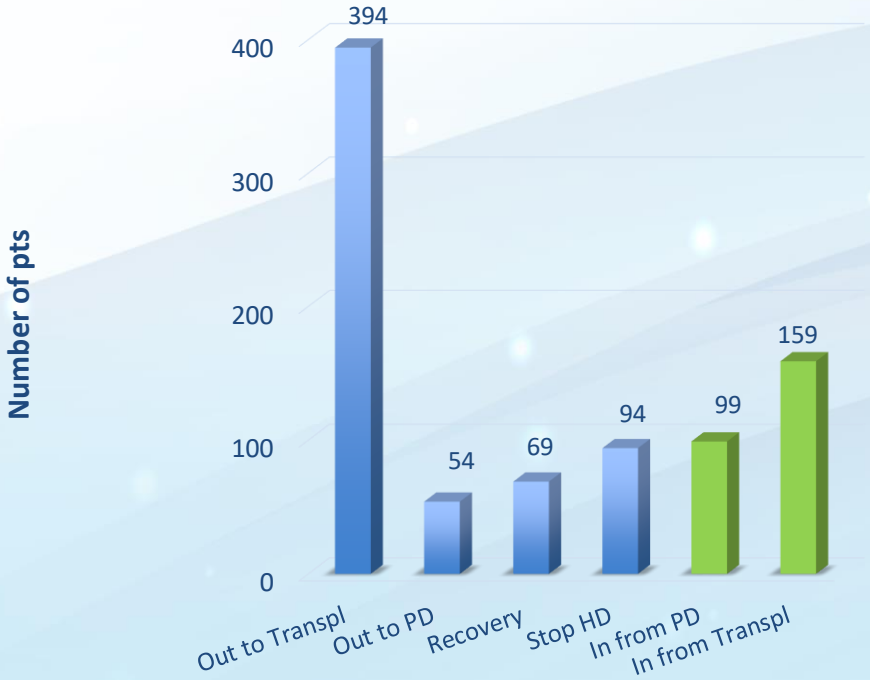
Death causes during the first 90 days of HD
2018



N=126

Sociedade Portuguesa de Nefrologia

Patients movement in 2018



Out = 611 ; In = 258

Sociedade Portuguesa de Nefrologia

HD patients movement in 2018

	IN		OUT
First treatment	**2378**	Deaths	**1660**
Transplant failure	**159**	Transplanted	**394**
PD into HD	**99**	HD into PD	**54**
		Stop treat. or recovery	**163**

GROSS MORTALITY RATE = 13,78%

(90d mortality = 4,78%)

Sociedade Portuguesa de Nefrologia

Mortality rates – hemodialysis

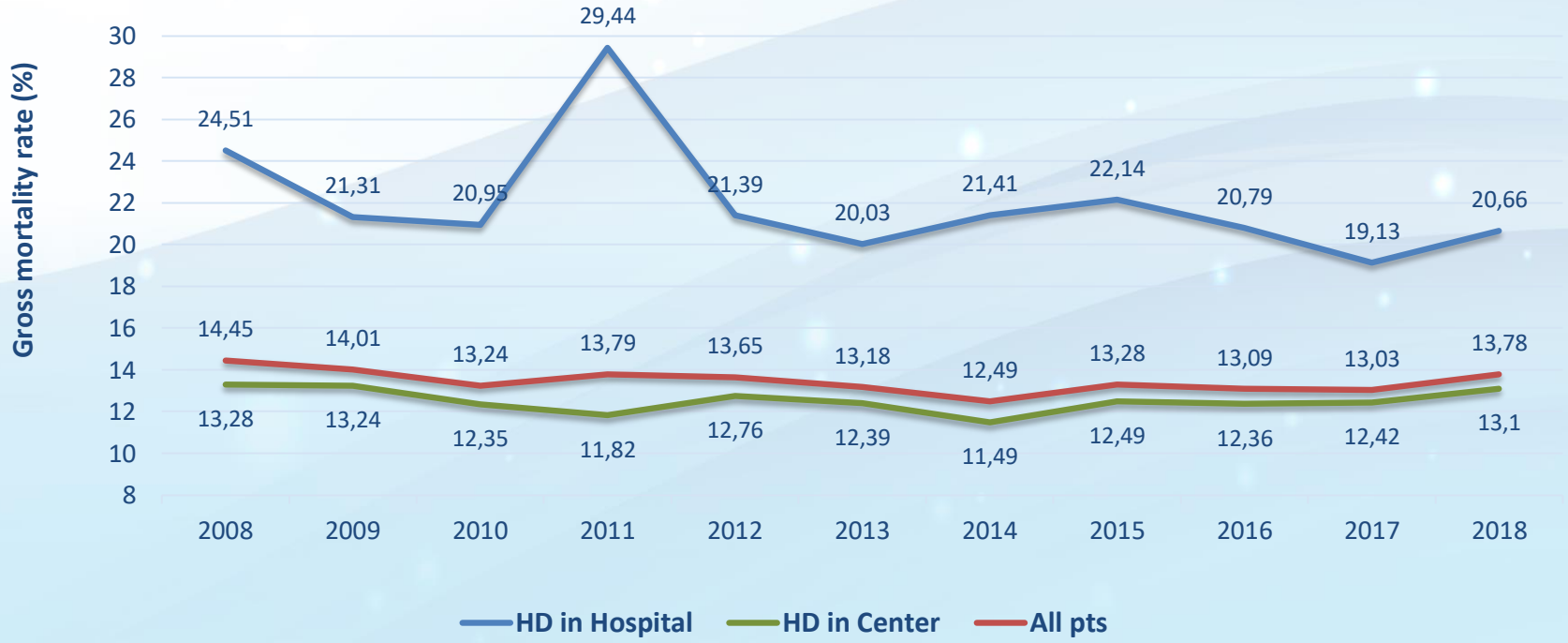
2018

National gross mortality rate = **13,78%** (90 day mortality = 4,78%)	
Hemodialysis ***in hospital***	**20,66%** (90 day mortality = 6,5%)
Hemodialysis ***in center***	**13,10%** (90 day mortality = 4,4%)

Sociedade Portuguesa de Nefrologia

Gross mortality rate in hemodialysis

2008 - 2018



Sociedade Portuguesa de Nefrologia

Gross mortality rate in hemodialysis

2008 - 2018

Sociedade Portuguesa de Nefrologia

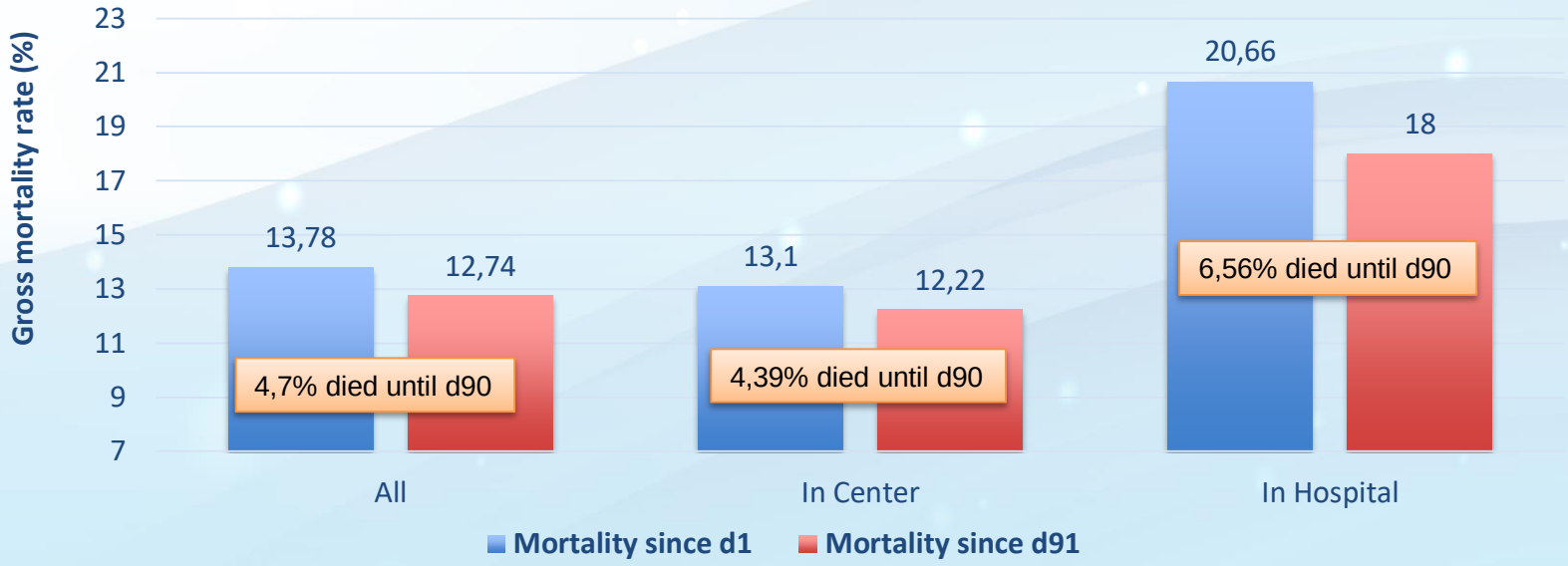
Gross mortality rate in hemodialysis

in center treated patients, 2008 - 2018

Sociedade Portuguesa de Nefrologia

Gross mortality rate

Impact of deaths until day 90, 2018



Sociedade Portuguesa de Nefrologia

Gross mortality rates – hemodialysis

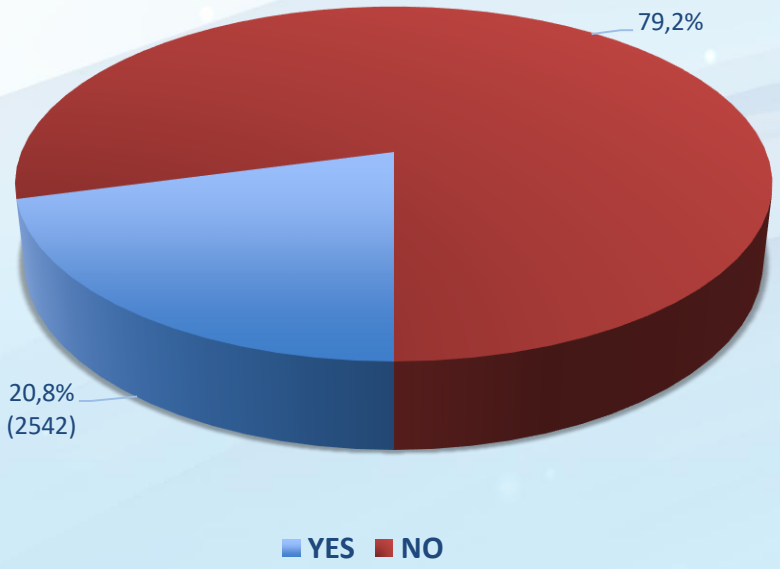
since d1 and d91 by country region, 2018

	Mean Age	Mortality since d1	Mortality since d91	Deaths until d90 (% of incident)
Global	**68,02**	**13,78%**	**12,74%**	**4,75%**
North	68,1	12,99%	11,51%	6,93%
Center	69,8	15,78%	15.01%	2,98%
South	68,9	13,34%	12,6%	3,93%
Lisbon	65	13,69%	12,97%	3,18%
Azores	63,8	13,45%	5,6%	26,92%
Madeira	64,4	12,20%	11,79%	2,00%

Sociedade Portuguesa de Nefrologia

Waiting list for renal transplantation

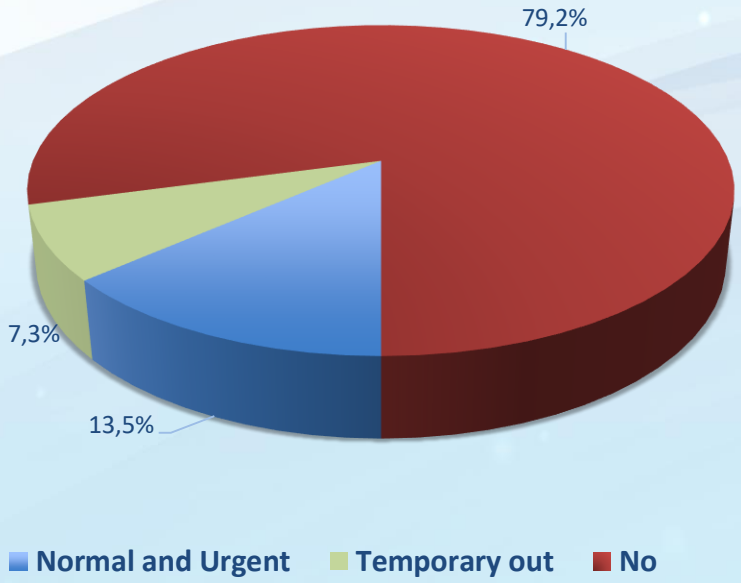
Hemodialysis patients, 2018



Sociedade Portuguesa de Nefrologia

Waiting list for renal transplantation

HD patients, Active and temporary contraindication - 2018



Sociedade Portuguesa de Nefrologia

PERITONEAL DIALYSIS

Sociedade Portuguesa de Nefrologia

New patients starting peritoneal dialysis
1998 - 2018

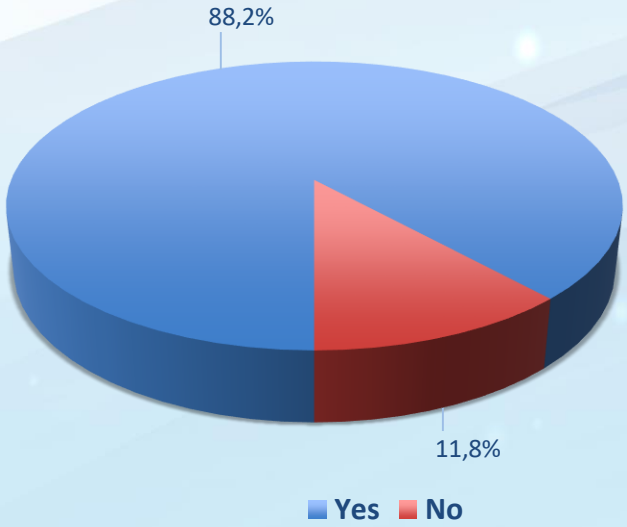
Sociedade Portuguesa de Nefrologia

Incident patients accepted for peritoneal dialysis
per million population 2008 - 2018

Sociedade Portuguesa de Nefrologia

Previous follow-up by nephrology (> 3 months)

PD patients, *31st of December 2018*

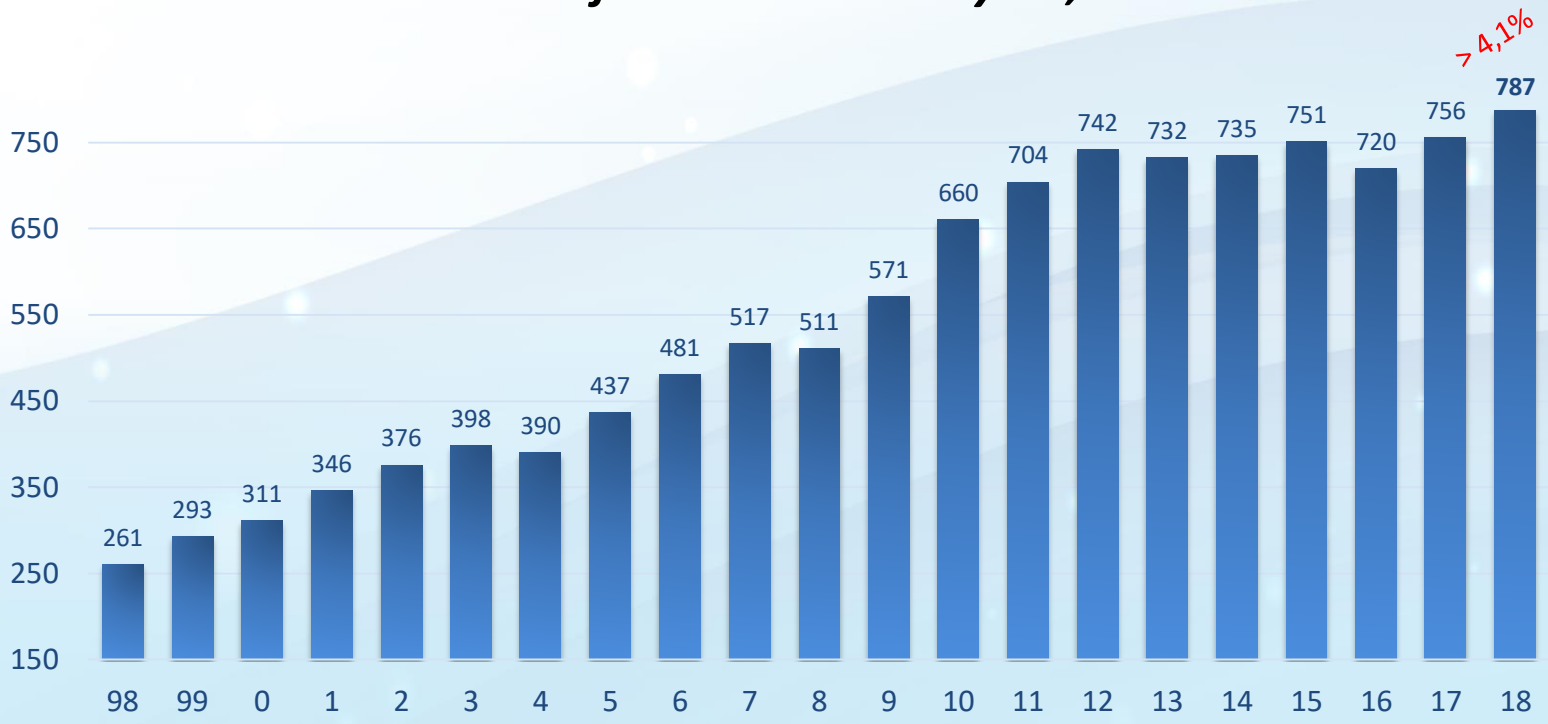


N = 229

Sociedade Portuguesa de Nefrologia

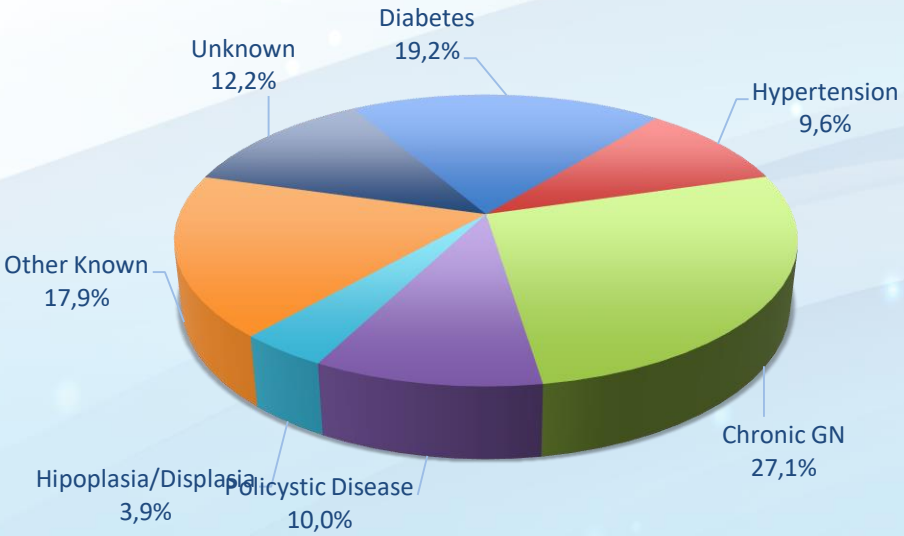
Patients treated by peritoneal dialysis

Count at 31st of December each year, 1998 – 2018



Sociedade Portuguesa de Nefrologia

Primary renal disease of patients accepted for peritoneal dialysis *during 2018*

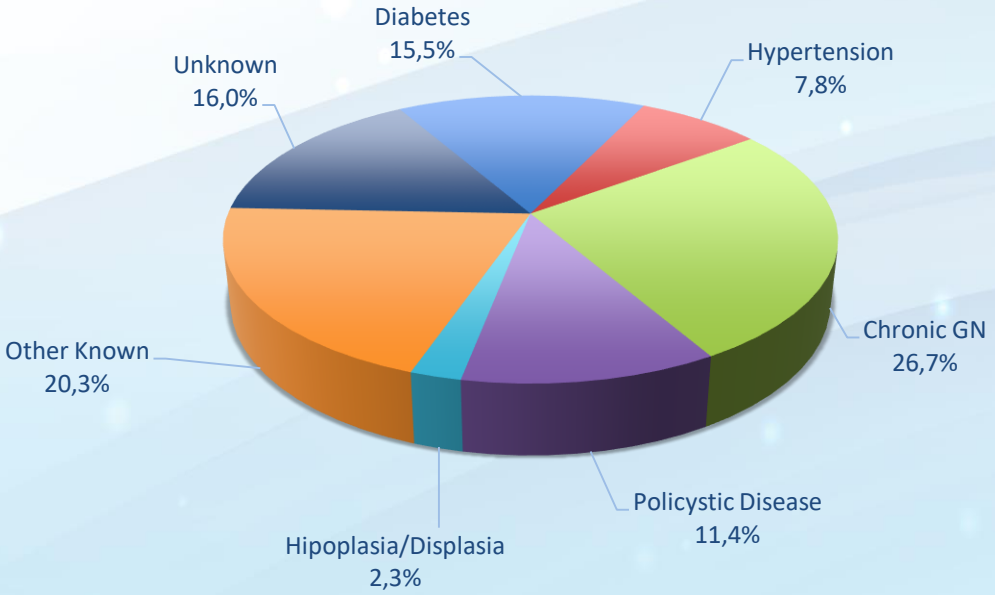


N = 229

Sociedade Portuguesa de Nefrologia

Primary renal disease of prevalent peritoneal dialysis patients

31st December 2018

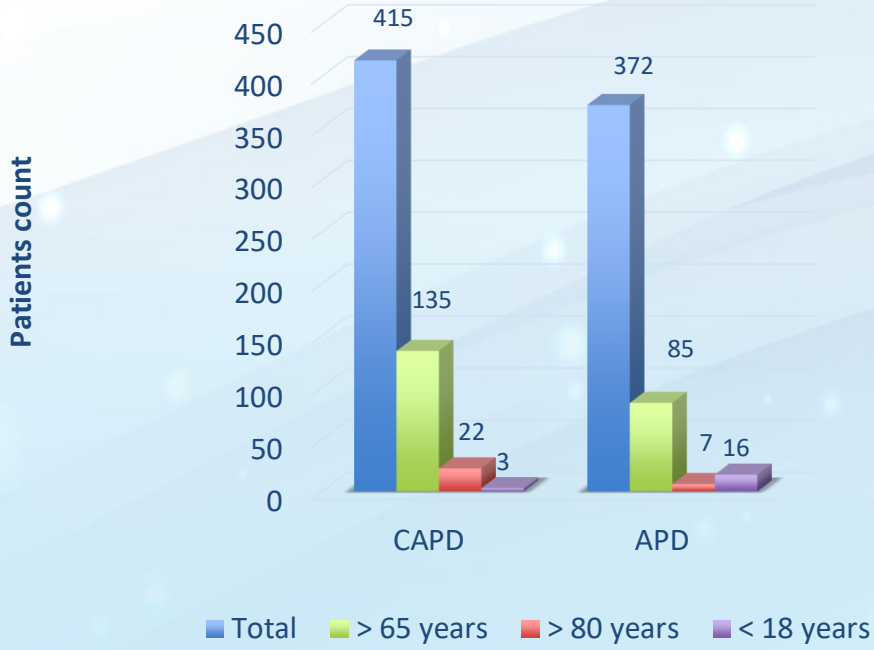


N = 787

Sociedade Portuguesa de Nefrologia

Patients treated by peritoneal dialysis

Manual vs automated, 31st of December 2018

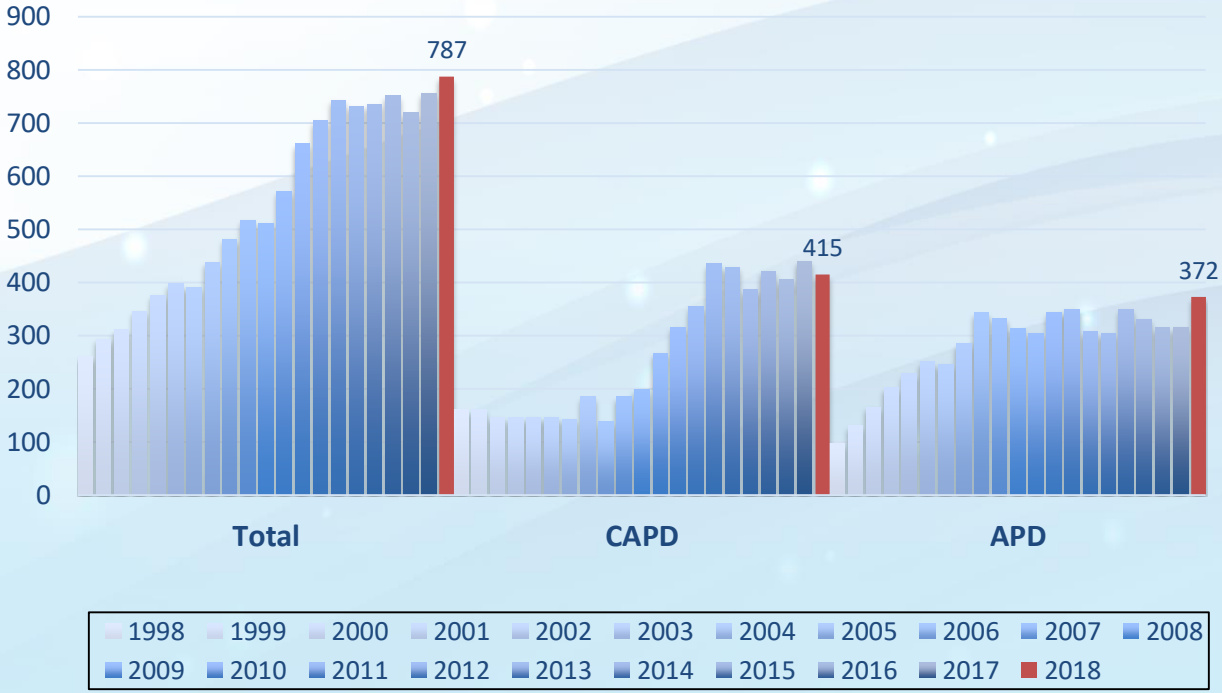


N = 787
APD:47,2%
Age>65 years:27,9%;
Age>80years:3,6%

Sociedade Portuguesa de Nefrologia

Patients treated by peritoneal dialysis

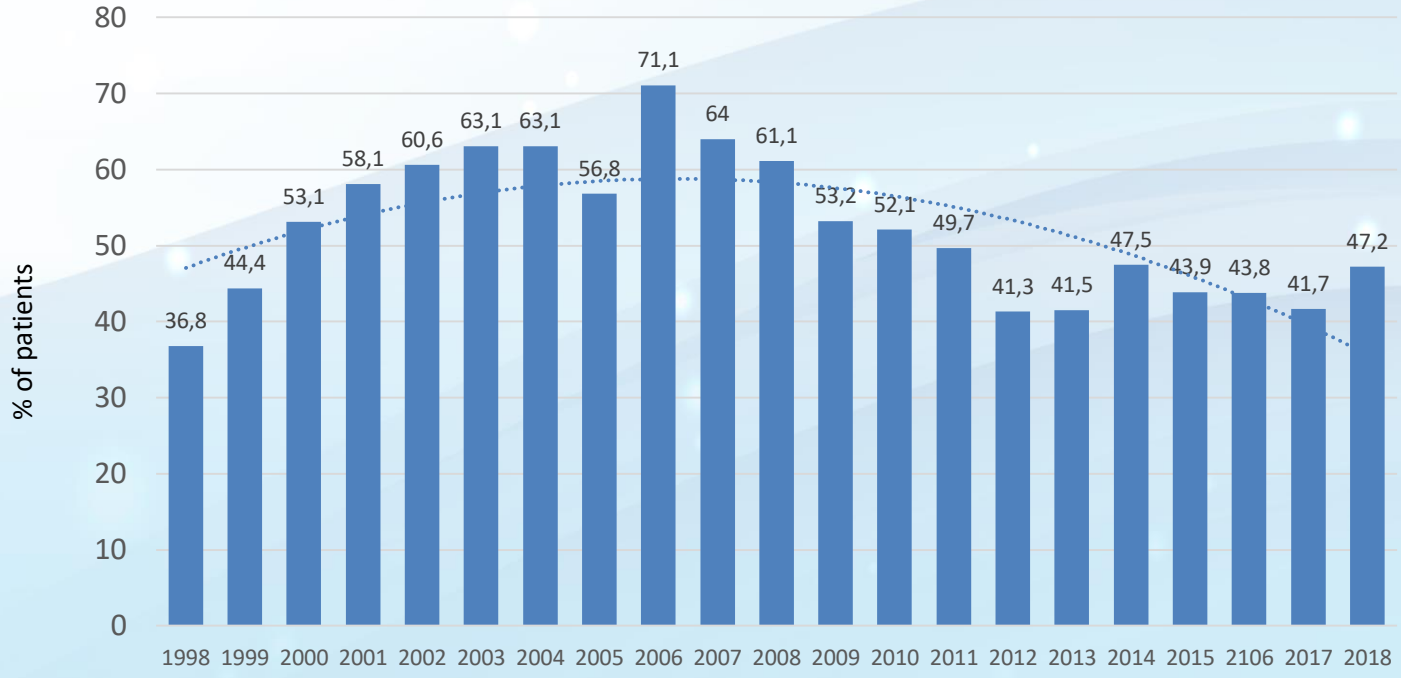
Manual vs automated, 31st December 1998 - 2018



Sociedade Portuguesa de Nefrologia

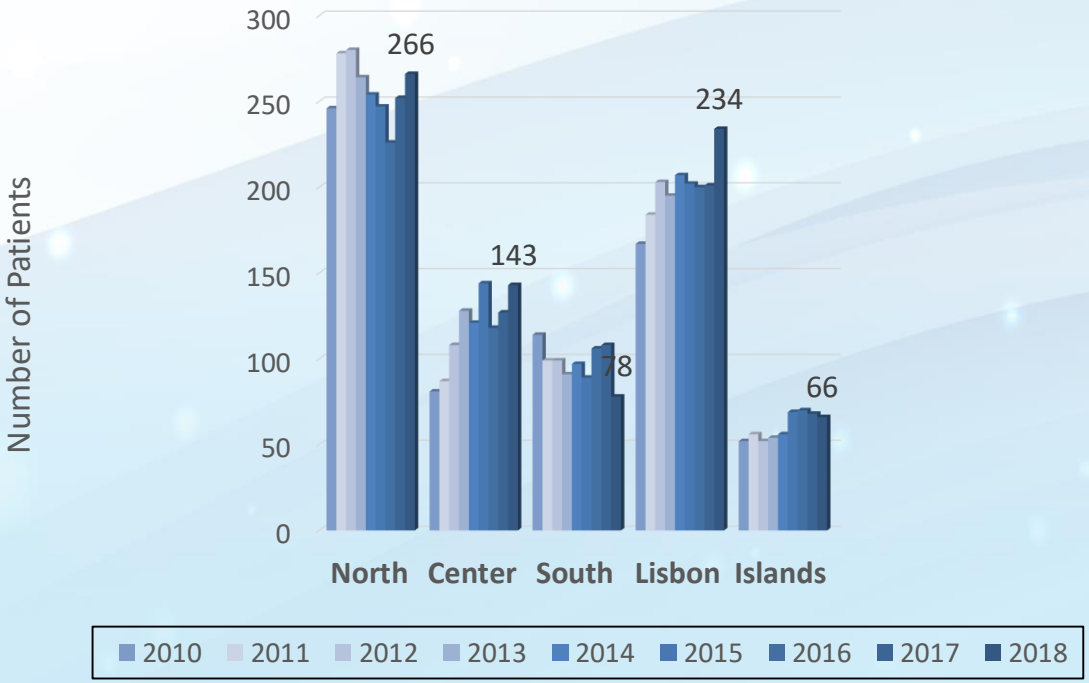
Automated Peritoneal Dialysis usage (%)

31st December 1998 - 2018



Sociedade Portuguesa de Nefrologia

Patients treated by peritoneal dialysis
by region, 31st of December 2010 to 2018



N = 787
(2018)

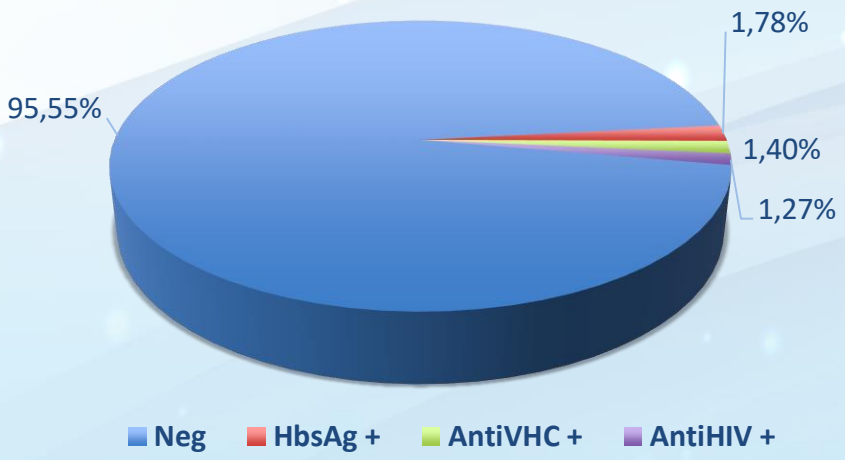
Sociedade Portuguesa de Nefrologia

Mean Age of patients treated by peritoneal dialysis

31st of December 2008 – 2018

Sociedade Portuguesa de Nefrologia

Viral status in PD prevalent patients
31st December 2018



N = 787

Sociedade Portuguesa de Nefrologia

PD patients movement in 2018

	IN		OUT
New patients	229	Death	46
KTr failure	15	Transplant	74
HD to PD	53	PD to HD	123
		Suspension	7
		Renal Recovery	7
Mortality rate = 5,22 % (90 d mortality = 2,7%)			

Sociedade Portuguesa de Nefrologia

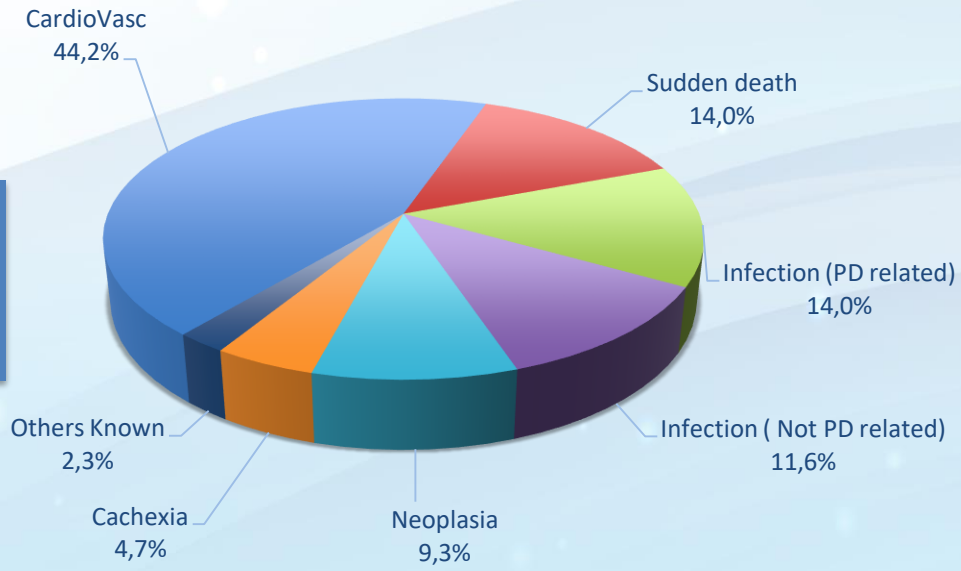
Gross mortality rate in peritoneal dialysis

2008 - 2018

Sociedade Portuguesa de Nefrologia

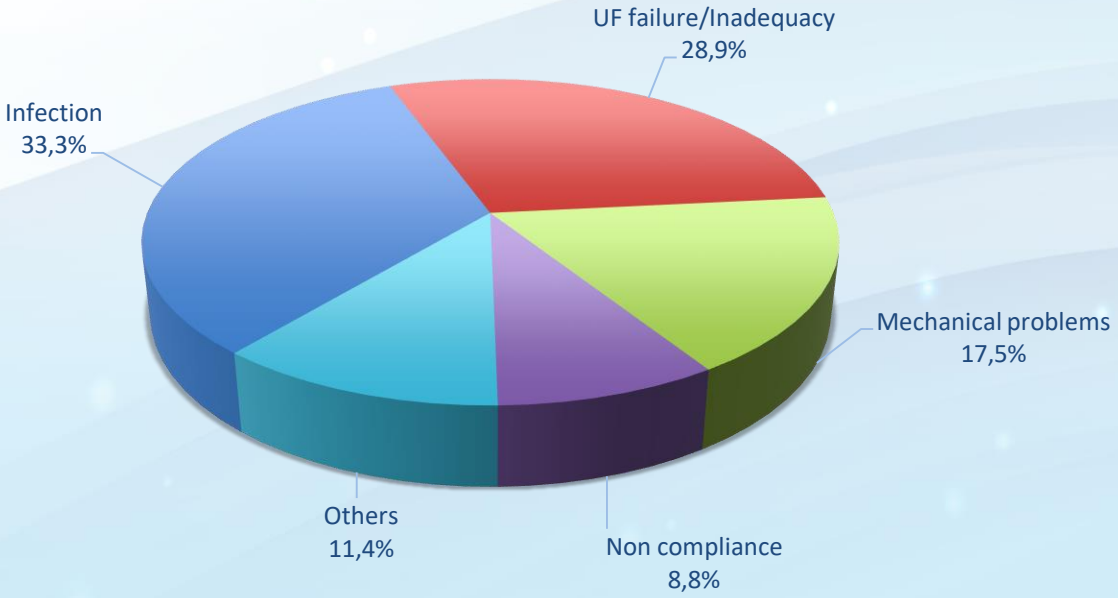
Death causes in PD patients
2018

N = 46
8 patients died until day 90;
2,7% of incidente patients and
17% of all deaths



Sociedade Portuguesa de Nefrologia

Reasons for PD withdraw
2018



N = 114

Sociedade Portuguesa de Nefrologia

Peritonitis episodes
2018

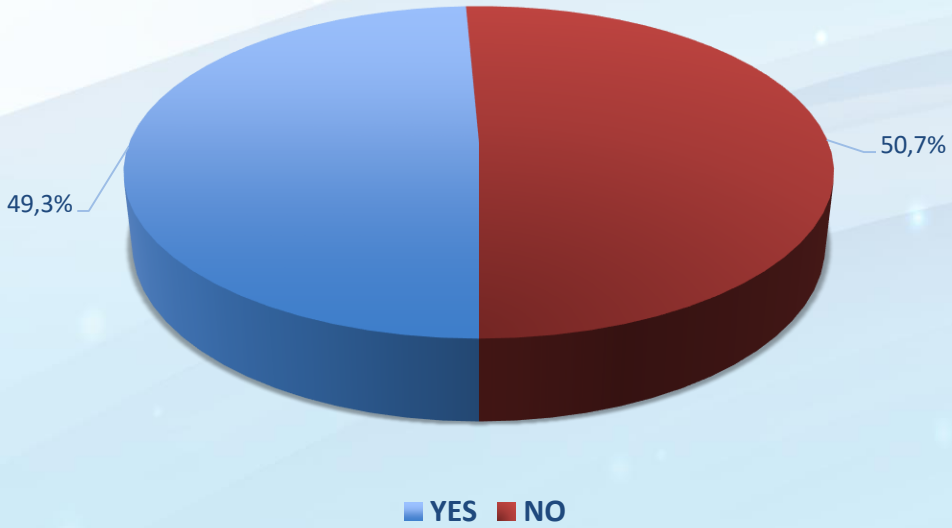
N = 273

0,31 episodes / patients-2018

Sociedade Portuguesa de Nefrologia

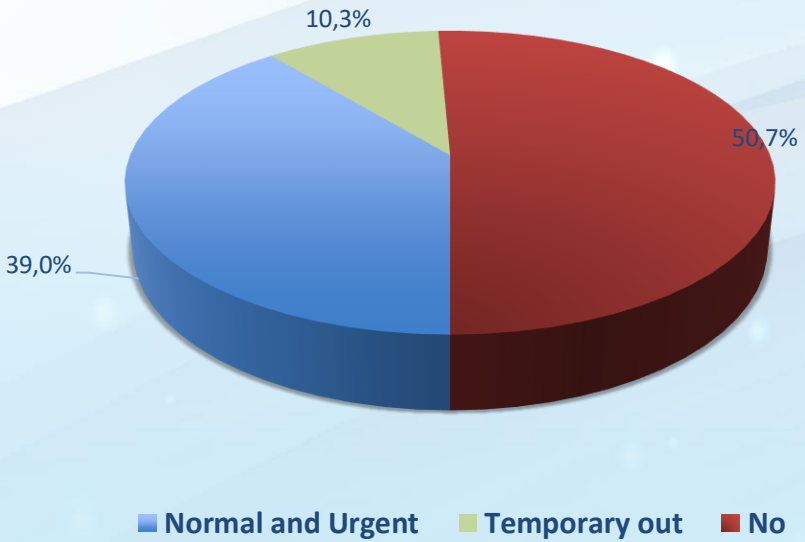
PD patients in waiting list for renal transplantation

2018



Sociedade Portuguesa de Nefrologia

PD patients in waiting list for renal transplantation
Active ant temporary contraindication for transplantation



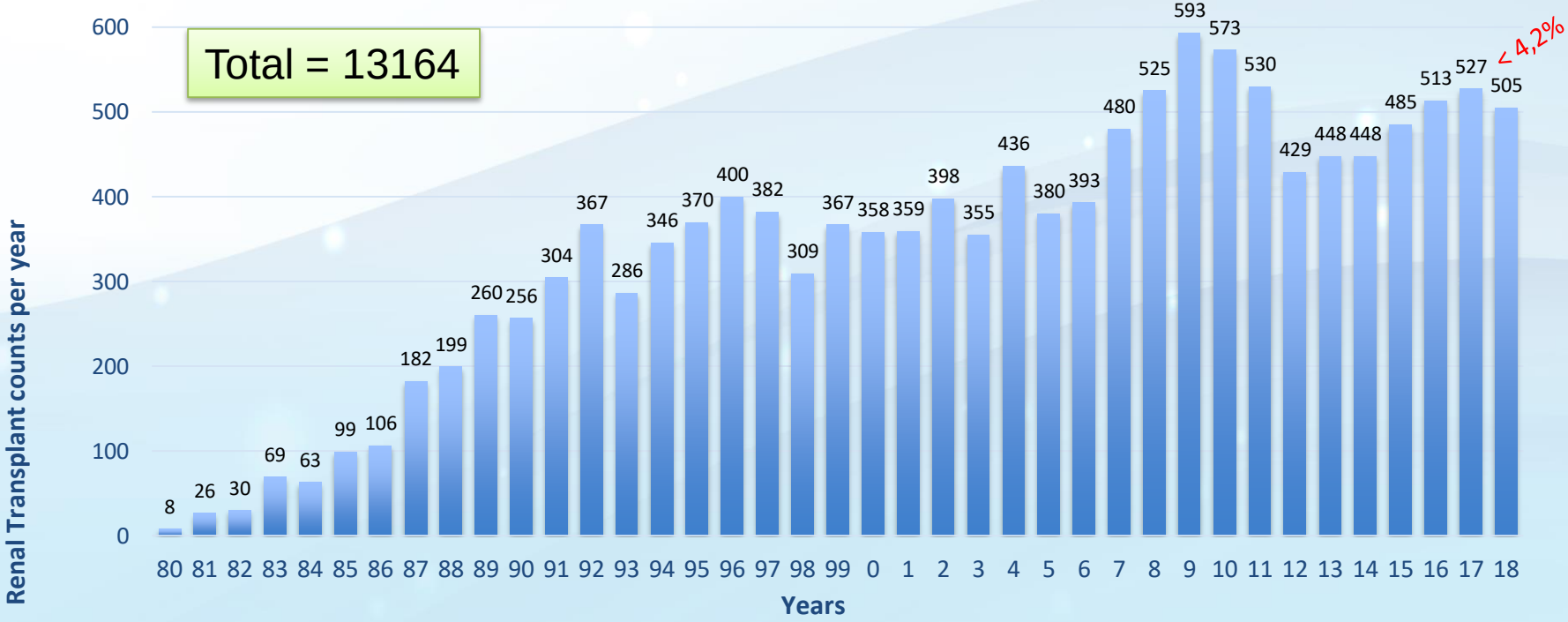
Sociedade Portuguesa de Nefrologia

RENAL TRANSPLANTATION

Portuguese Registry of Dialysis and Transplantation 2018

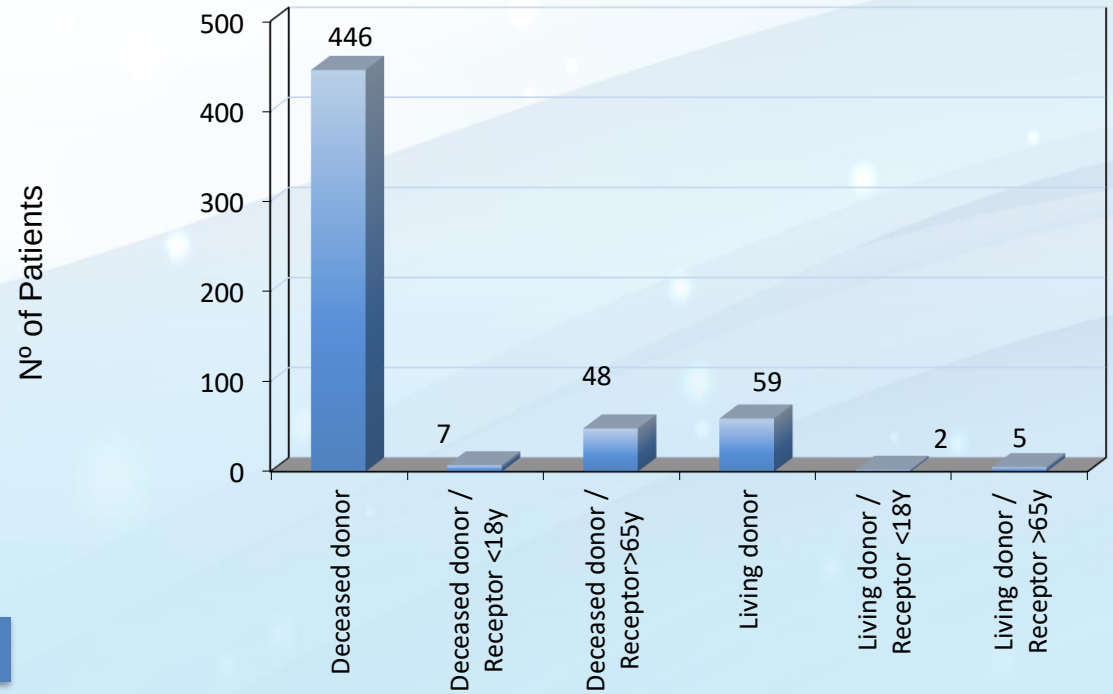
Sociedade Portuguesa de Nefrologia

Renal Transplants performed 1980-2018



Sociedade Portuguesa de Nefrologia

Renal transplantation activity characterization 2018

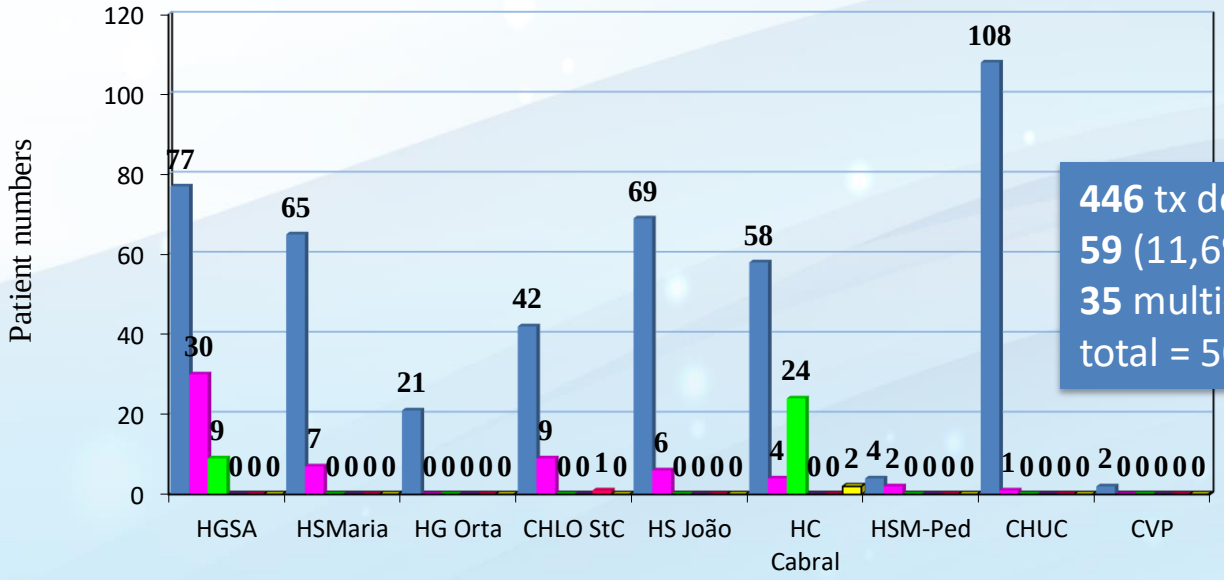


27 pre-emptive

Sociedade Portuguesa de Nefrologia

Portuguese Transplant Centers Activity

2018



446 tx deceased donor
59 (11,6%) live donor
35 multi-organ transplants
total = 505

Deceased donor | Living donor | Kidney and Pancreas | Kidney and Liver | Kidney and Heart | Pacreas after Kidney

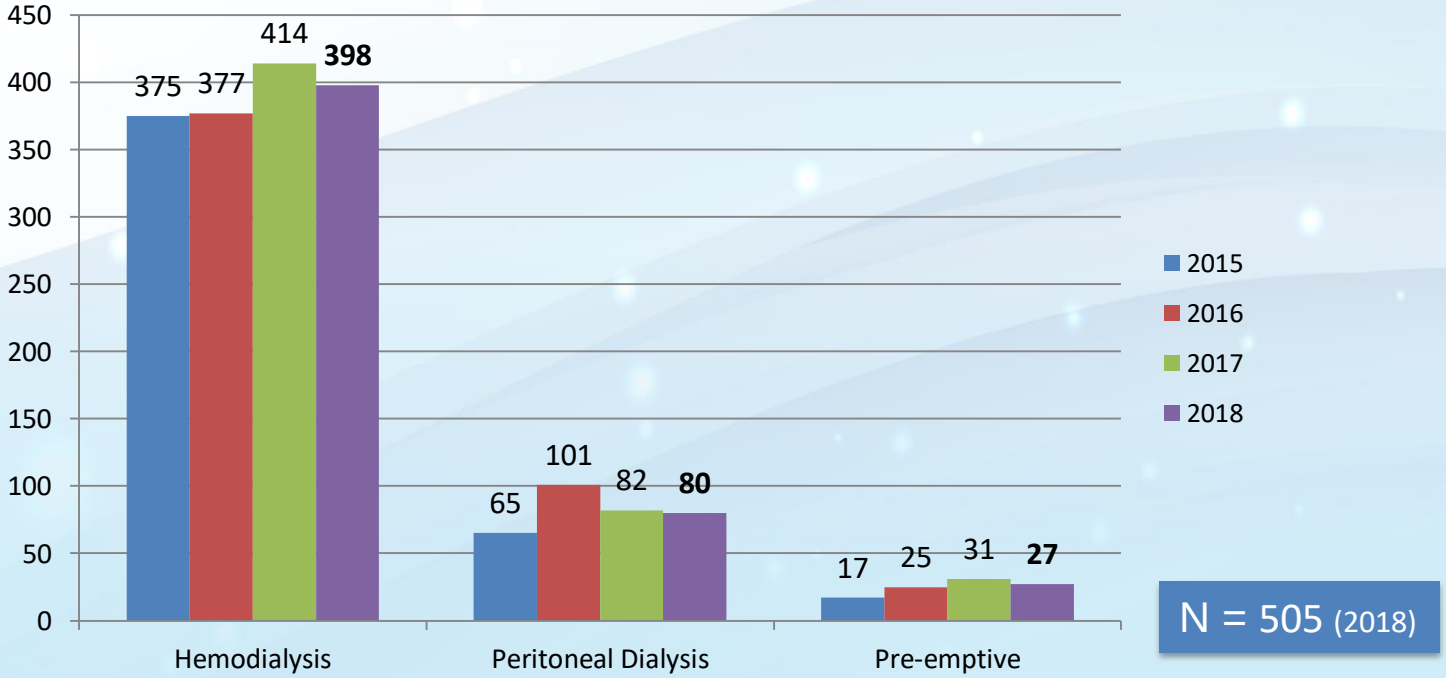
Sociedade Portuguesa de Nefrologia

Renal Transplants Performed
per million population, 2008 - 2018

Sociedade Portuguesa de Nefrologia

Renal Transplanted Patients

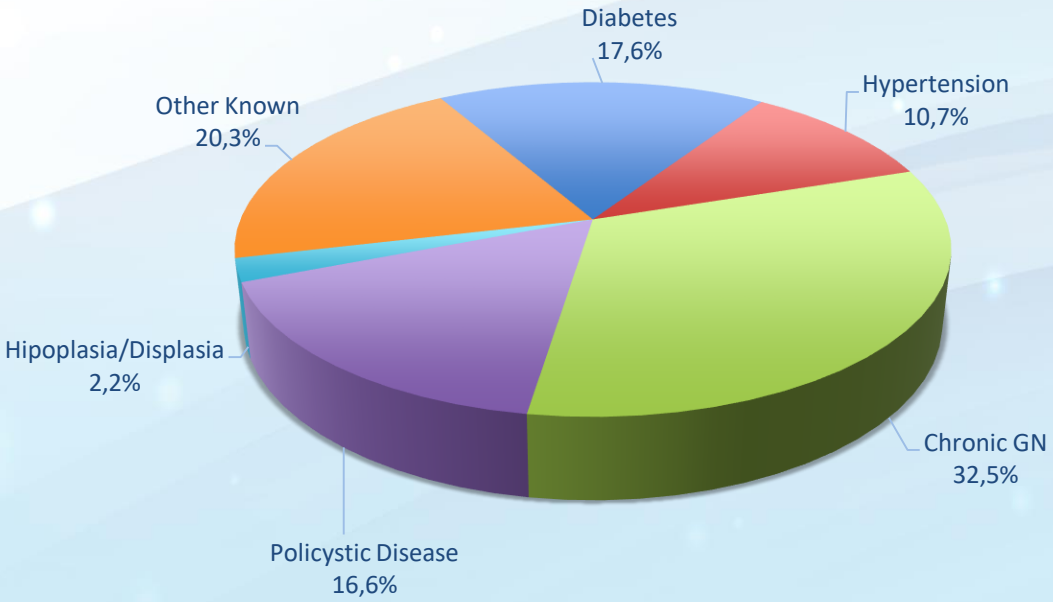
Previous renal replacement therapy, 2015-2018



N = 505 (2018)

Sociedade Portuguesa de Nefrologia

Primary renal disease of renal transplanted patients *during 2018*



N =505

Sociedade Portuguesa de Nefrologia

Incidence of transplantation
How do we compare?

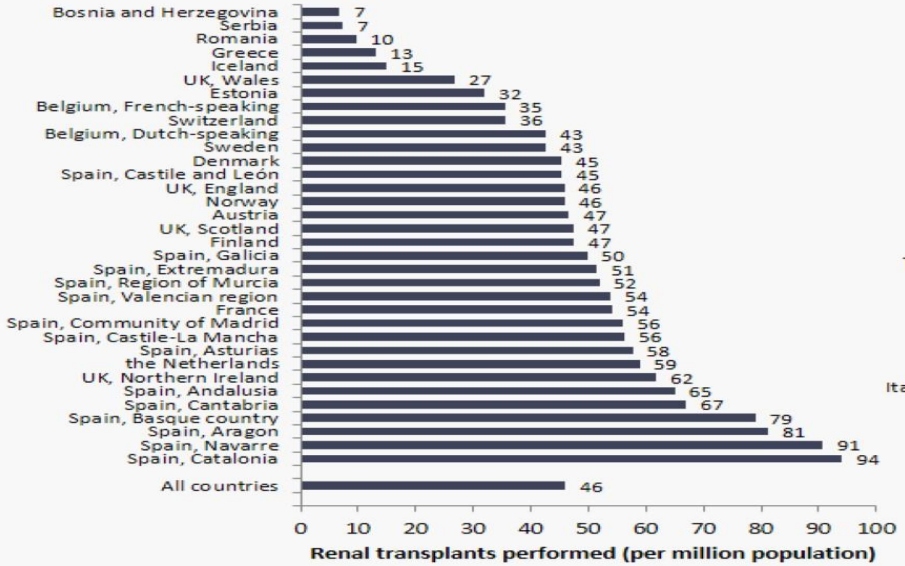
Sociedade Portuguesa de Nefrologia

Renal transplants performed in 2016

by country

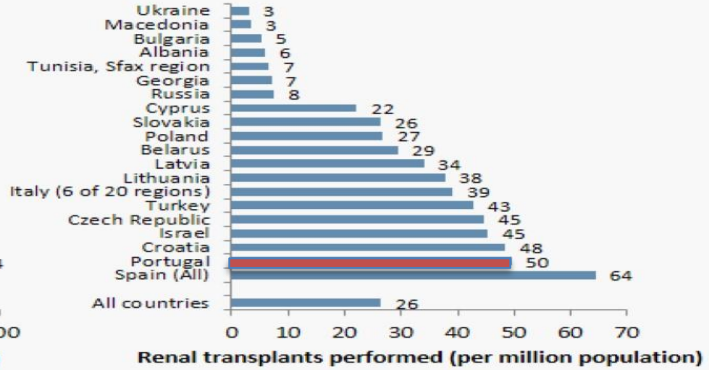
Renal transplants performed

renal registries providing individual patient data



Renal transplants performed

renal registries providing aggregated data



Sociedade Portuguesa de Nefrologia

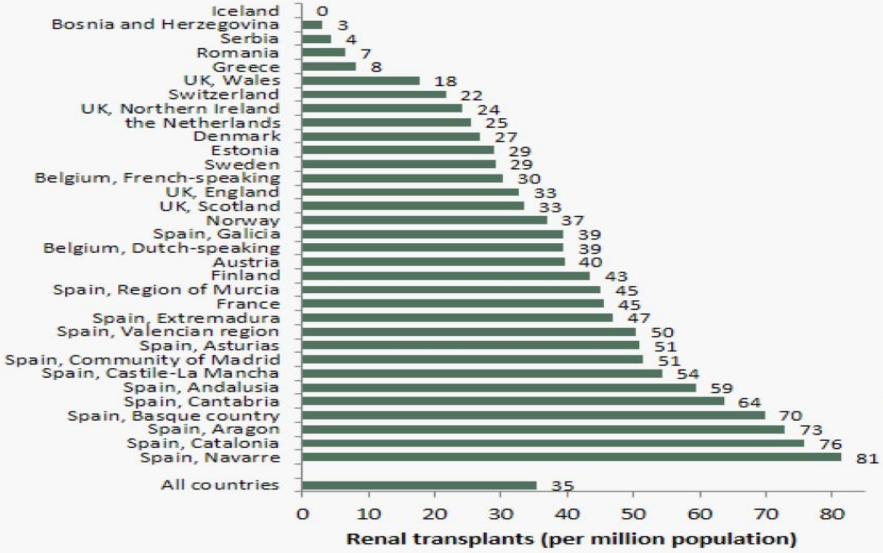
era edta REGISTRY

Renal transplants performed in 2016

transplants from deceased donors by country

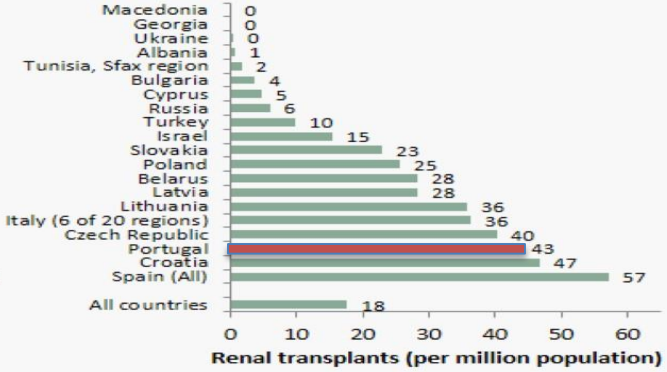
Deceased donor transplant rate

renal registries providing individual patient data



Deceased donor transplant rate

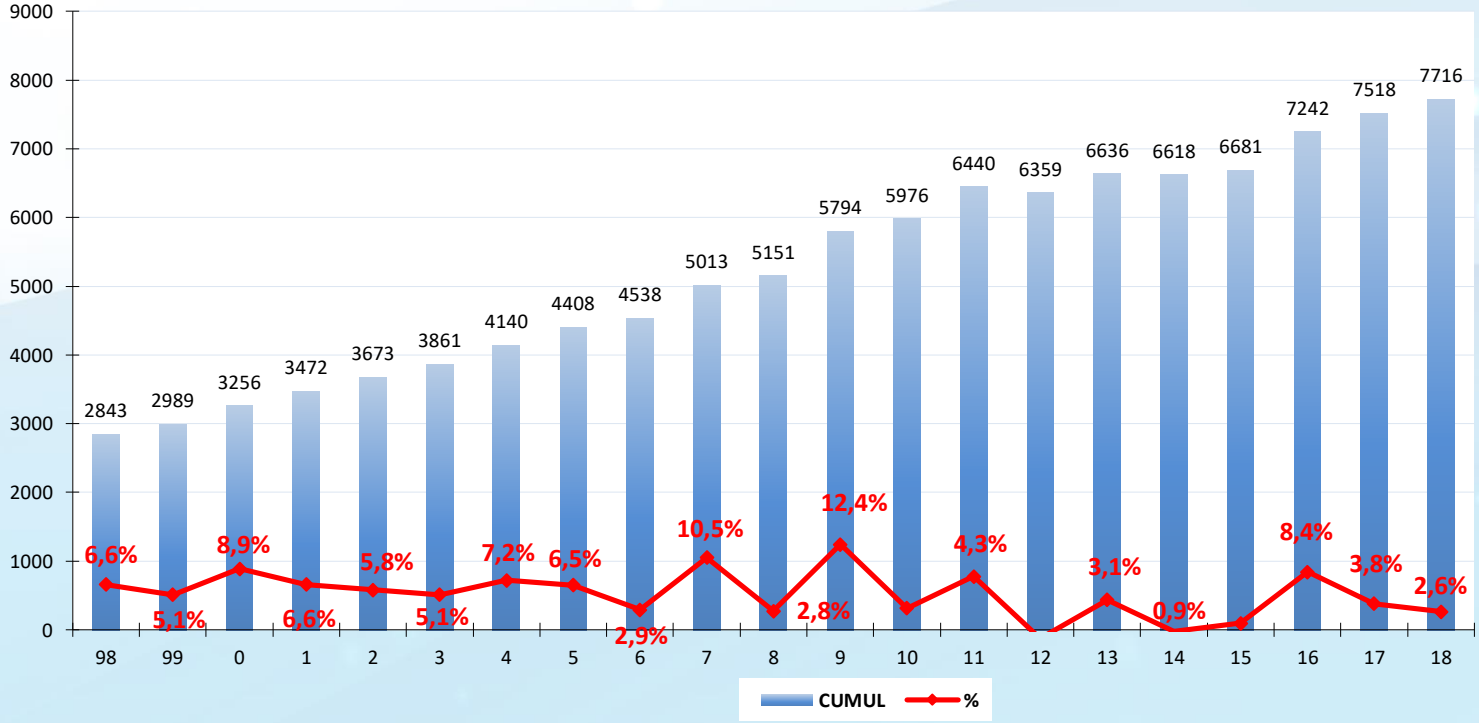
renal registries providing aggregated data



Sociedade Portuguesa de Nefrologia

Patients with functioning graft and annual growth

31st December 1998 - 2018



Sociedade Portuguesa de Nefrologia

Prevalence of CKD patients with functioning graft

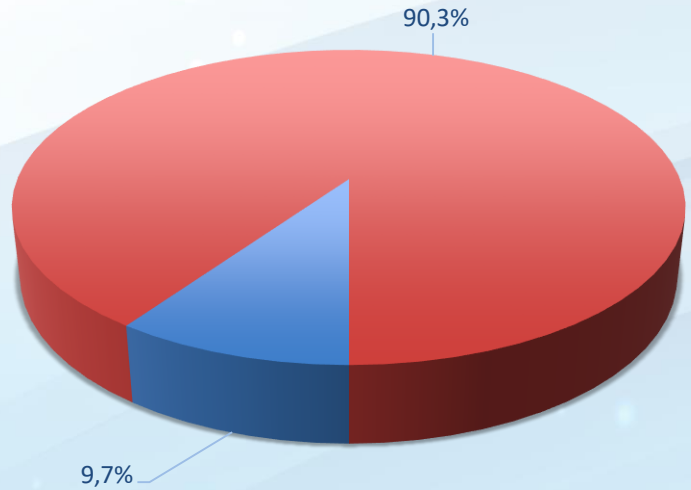
cumulative per million population end of each year 1998 - 2018

N = 7716

Sociedade Portuguesa de Nefrologia

Renal transplantation: living vs deceased donor

2018

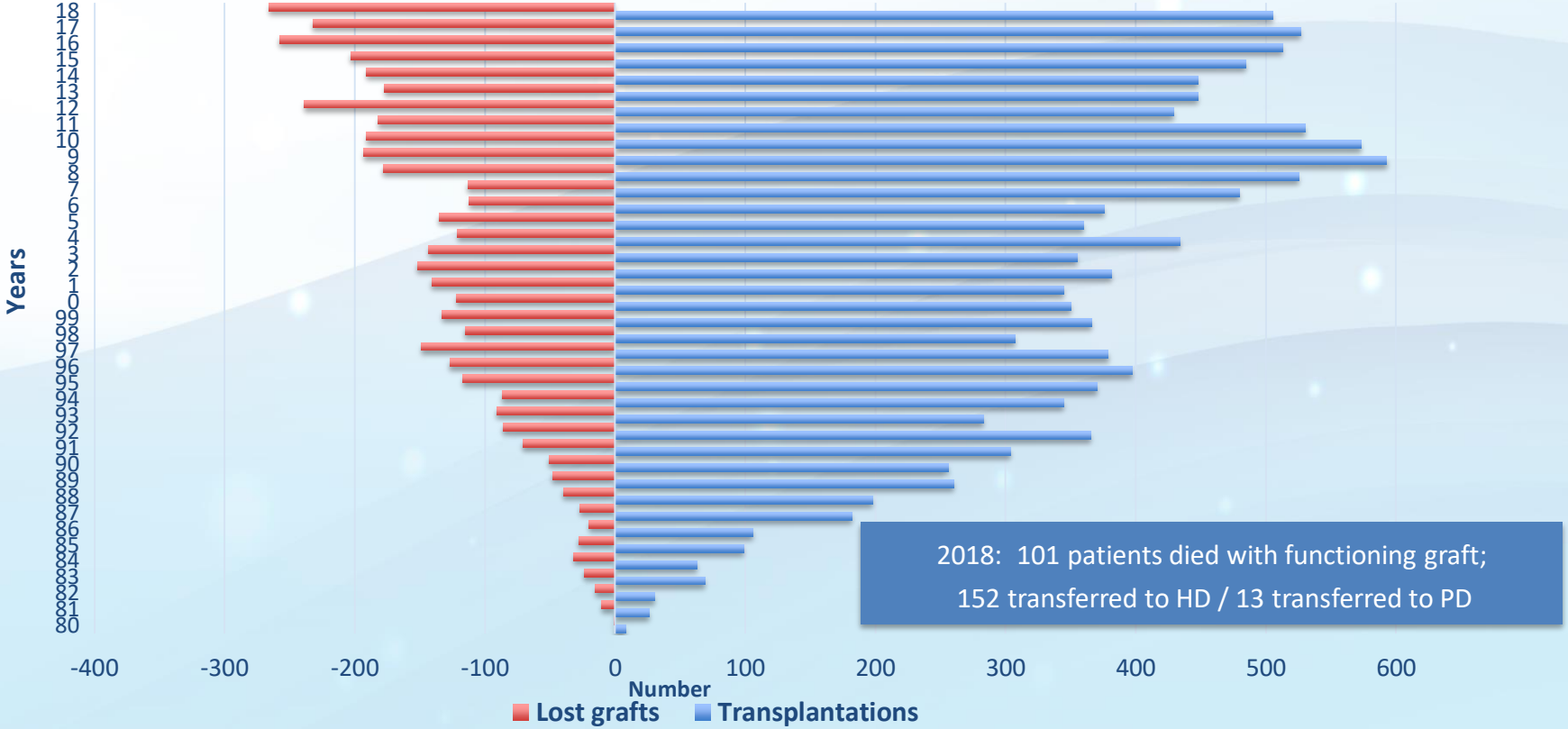


N = 7716

Sociedade Portuguesa de Nefrologia

Renal transplantation activity

1980 - 2018



2018: 101 patients died with functioning graft;
152 transferred to HD / 13 transferred to PD

ENCONTRO RENAL

28 - 30 MARÇO 2019
CENTRO DE CONGRESSOS DE VILAMOURA
ALGARVE | PORTUGAL

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

Ana Galvão
Rui Filipe
Maria João Carvalho
José António Lopes
Manuel Amoedo
Gil Silva

Sociedade Portuguesa de Nefrologia