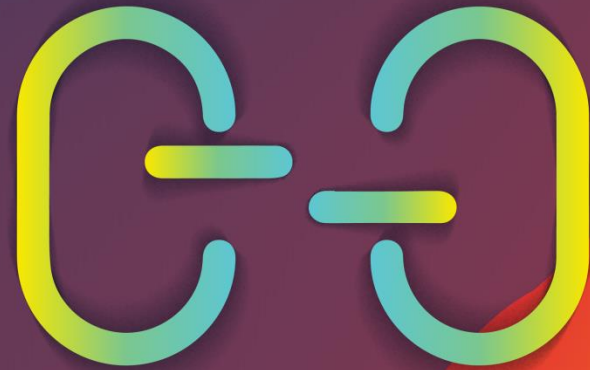


EDIÇÃO VIRTUAL

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FACTORCHAVEPT



Portuguese Registry of Dialysis and Transplantation 2019

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

GABINETE DE REGISTO DA SPN

- **Ana Galvão**
- **Rui Filipe**
- **Rita Leal**
- **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 – 2018: Fernando Macário

2019 - ...: Ana Galvão

GABINETE DE REGISTO DA SPN

Abbreviators

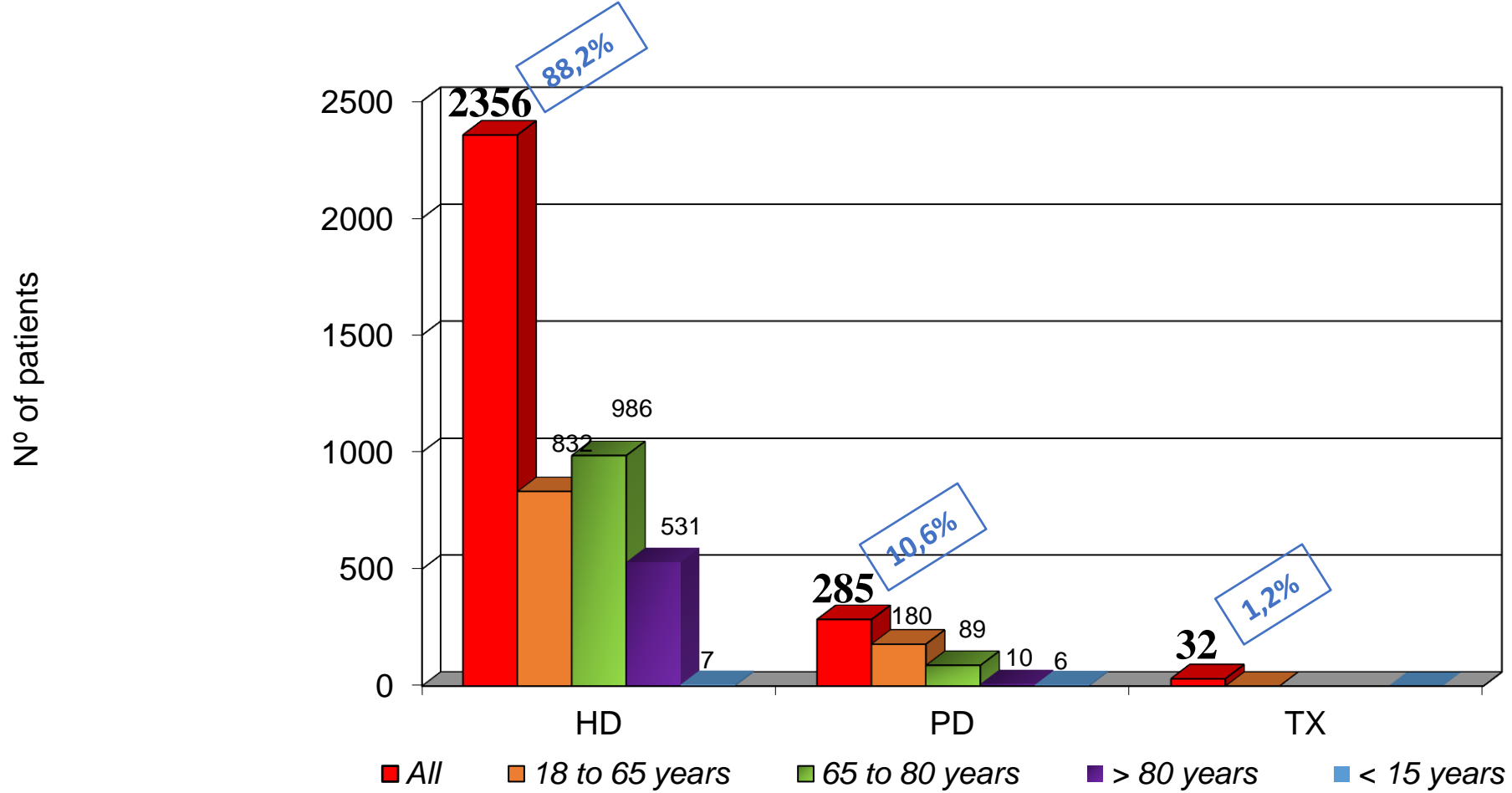
- CKD – Chronic Kidney Disease
- HD - Haemodialysis
- PD - Peritoneal Dialysis
- KTr - Kidney Transplant
- PMP - Per Million Population
- RRT - Renal Replacement Therapy
- Pts – patients
- Nº - number
- VA – Vascular Access
- AVFistula – Arteriovenous fistula
- Cat. – Catheter
- CVC – Central Vein Catheter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

Portuguese Registry of Dialysis and Transplantation 2019

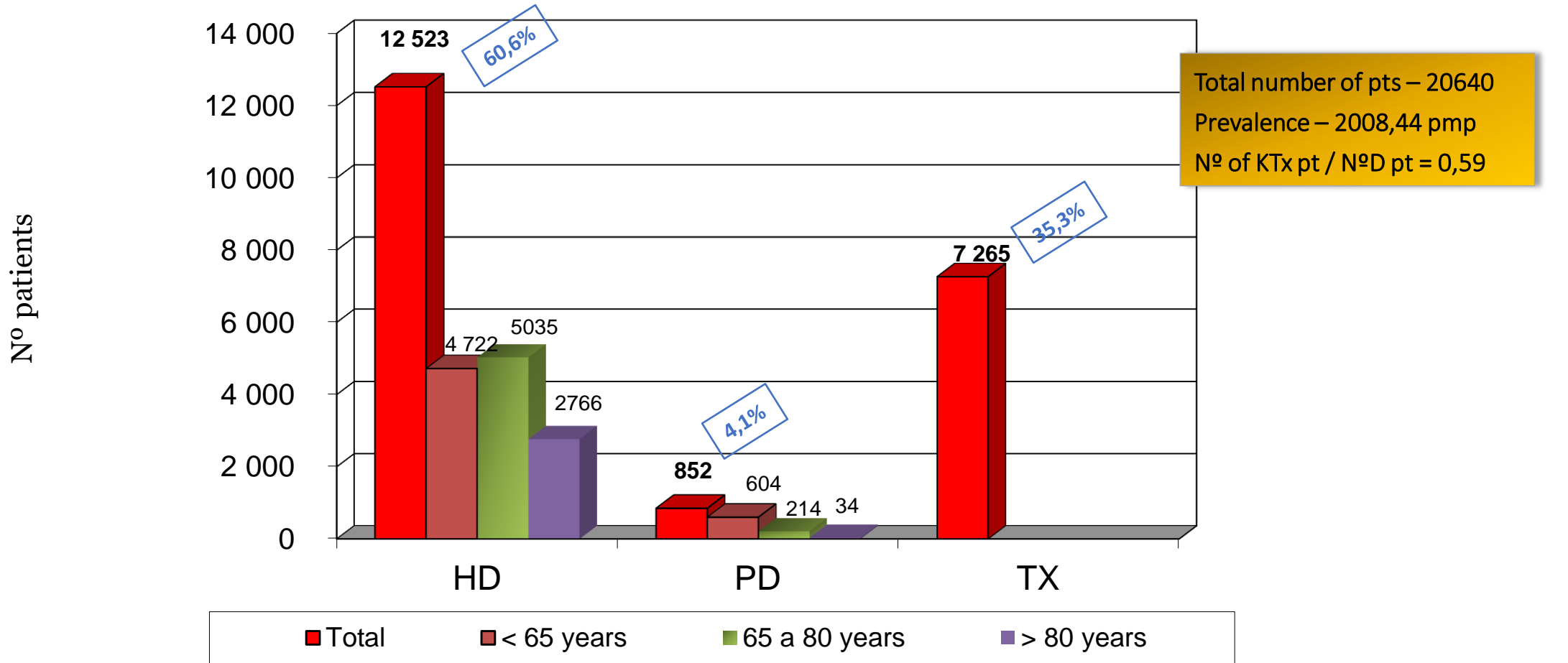
- Questionnaires for Hemodialysis (HD), Peritoneal Dialysis (PD) and Kidney Transplantation
- 129 Hemodialysis Centers
- 25 Peritoneal Dialysis Units
- 8 adult and 1 pediatric kidney transplantation centers
- 100% response rate



New patients starting dialysis or submitted to renal transplantation during 2019 (n=2673)

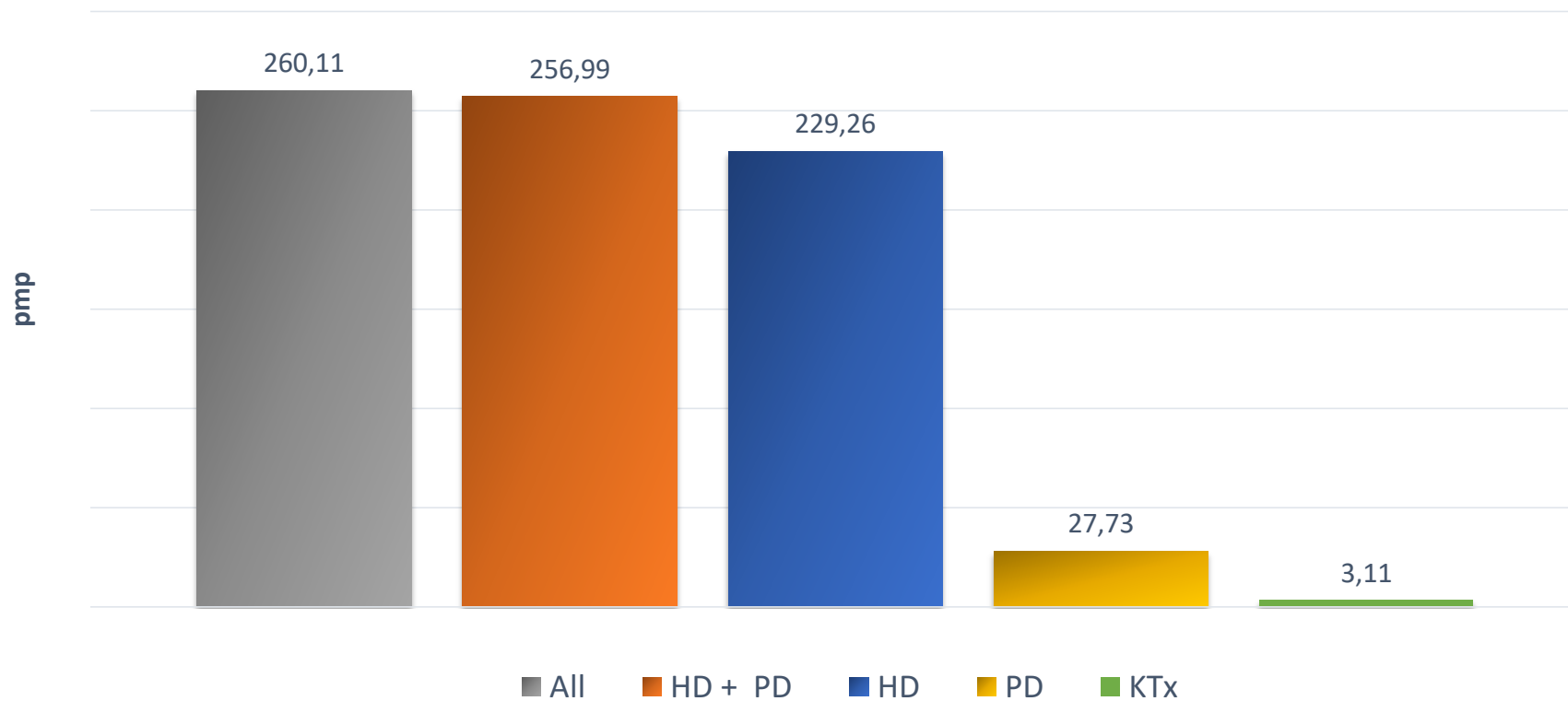


Patients treated by dialysis or with functioning kidney transplant 31st December 2019

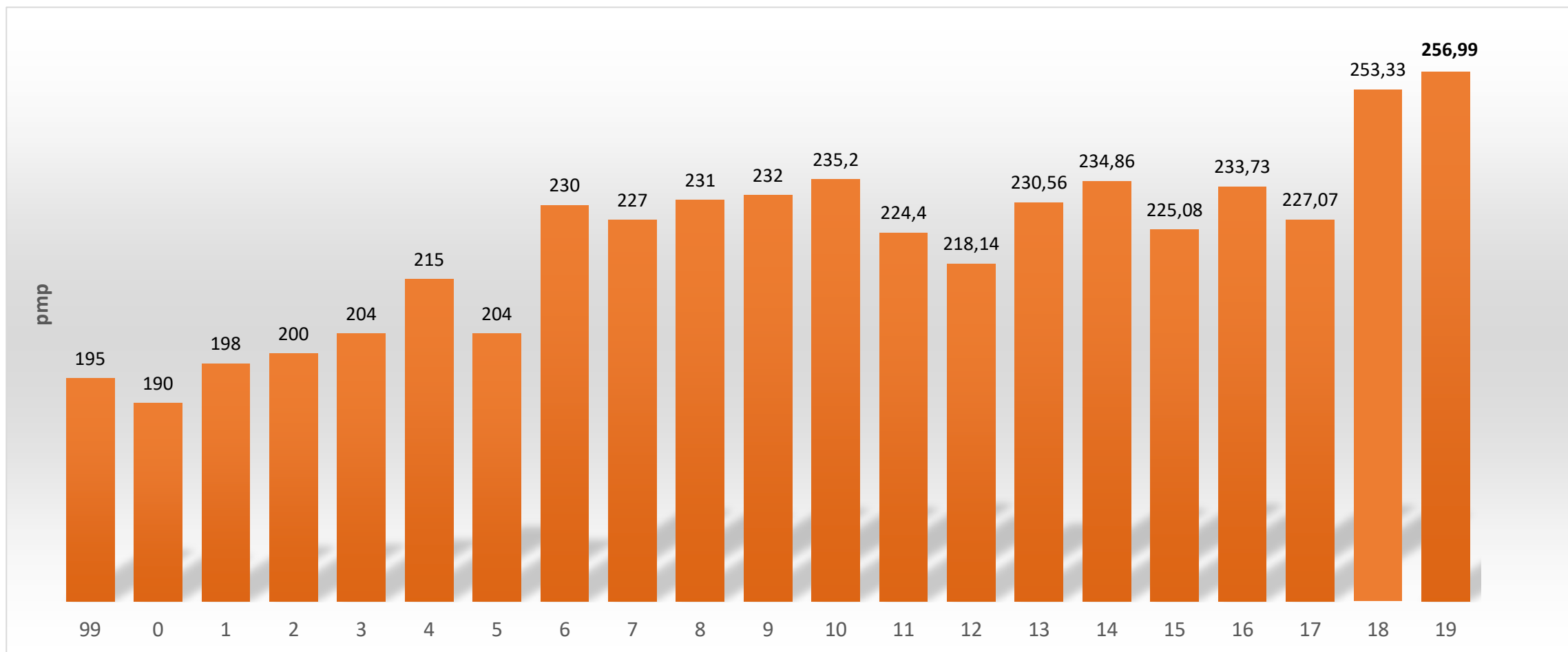


Mean age HD + PD = 67,5 years

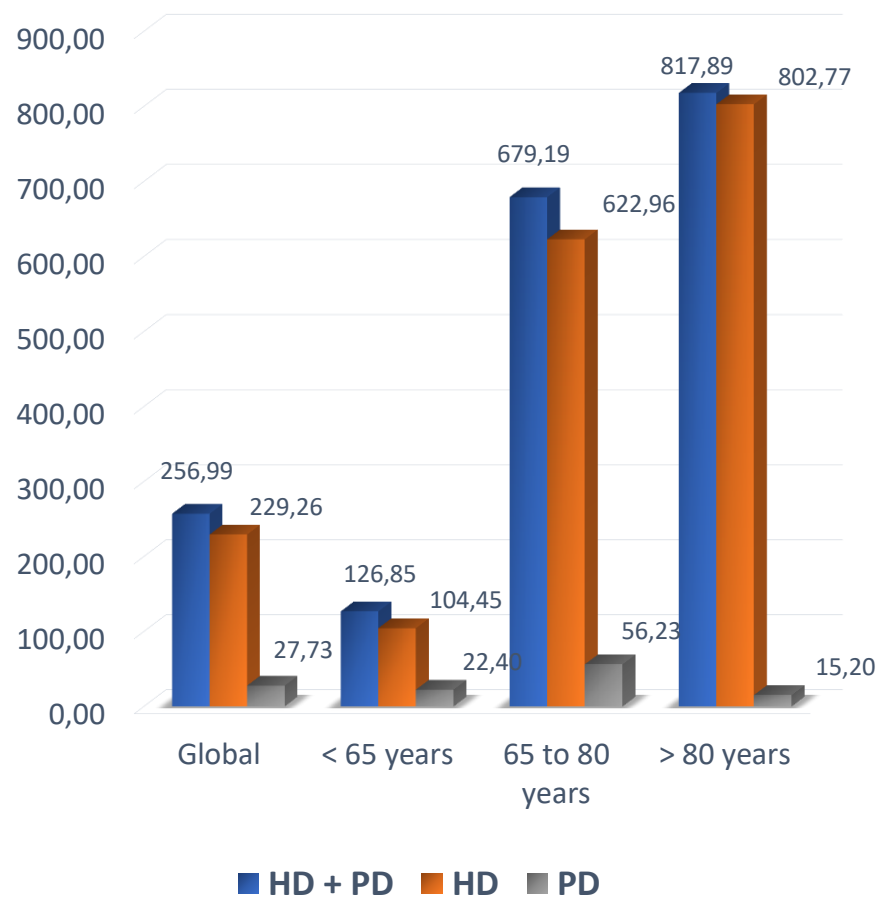
Incident patients accepted for RRT *during 2019*



Incident patients accepted for dialysis *HD and PD per million population 1999 - 2019*



Incident patients accepted for dialysis *HD and PD per million population by age group during 2019*

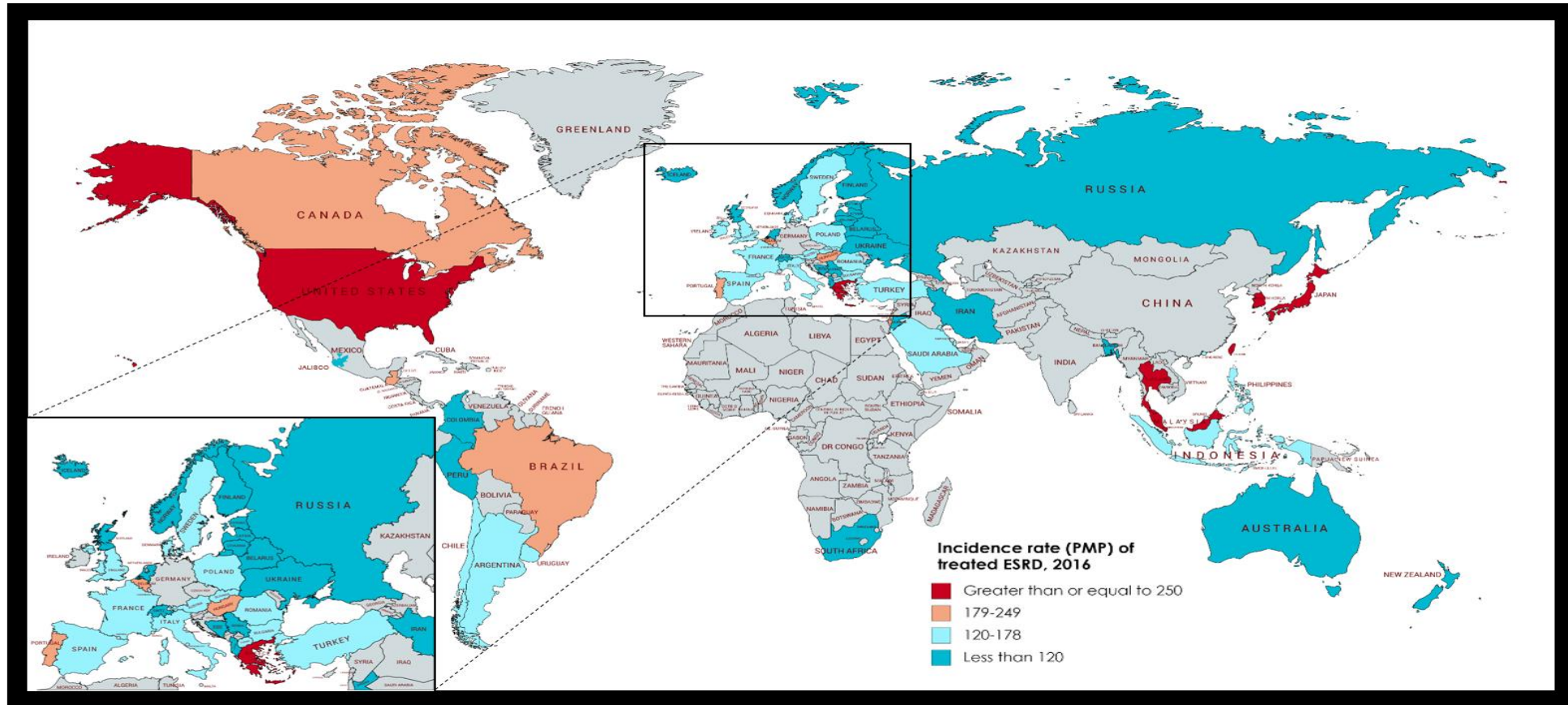


Incidence

How do we compare?



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



Incident patients accepted for RRT in 2017, at day 1 *by country*

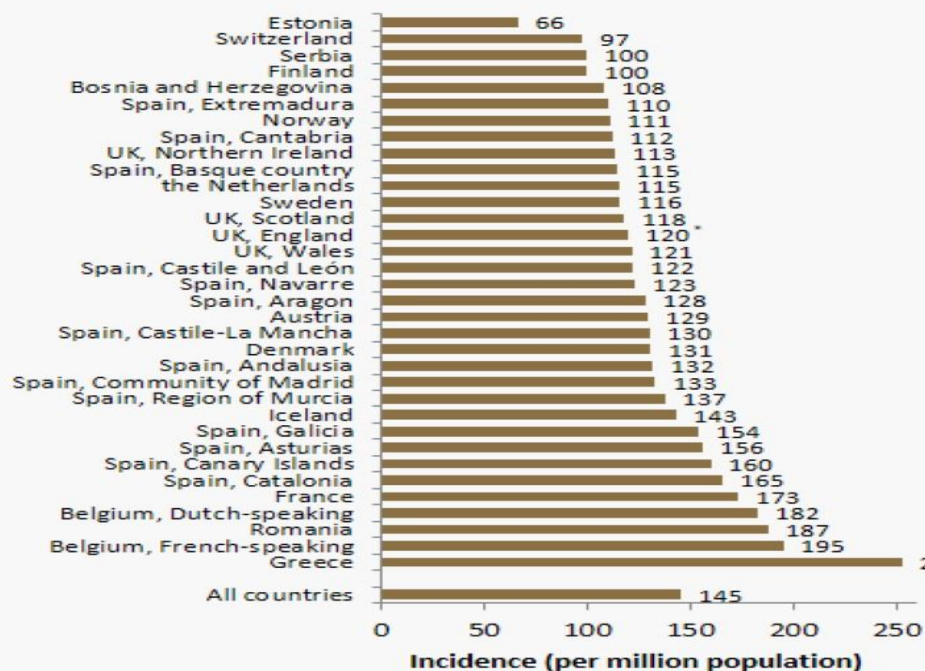




Incident patients accepted for RRT in 2017 at day 1 by country

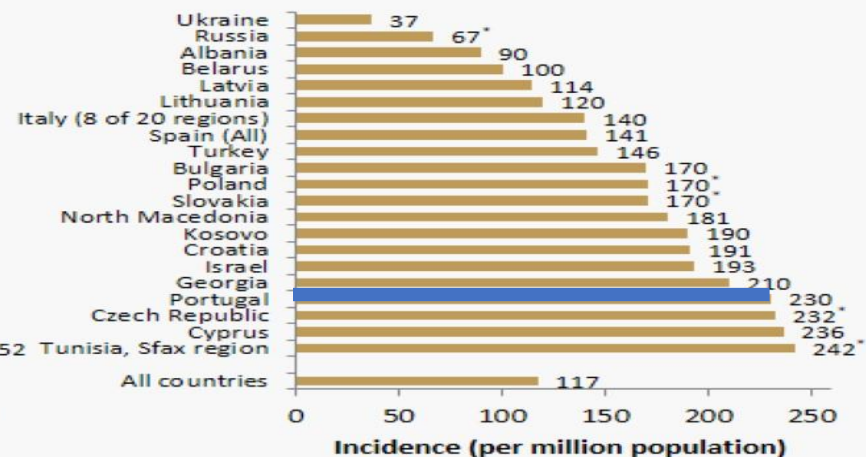
Unadjusted incidence

renal registries providing individual patient data



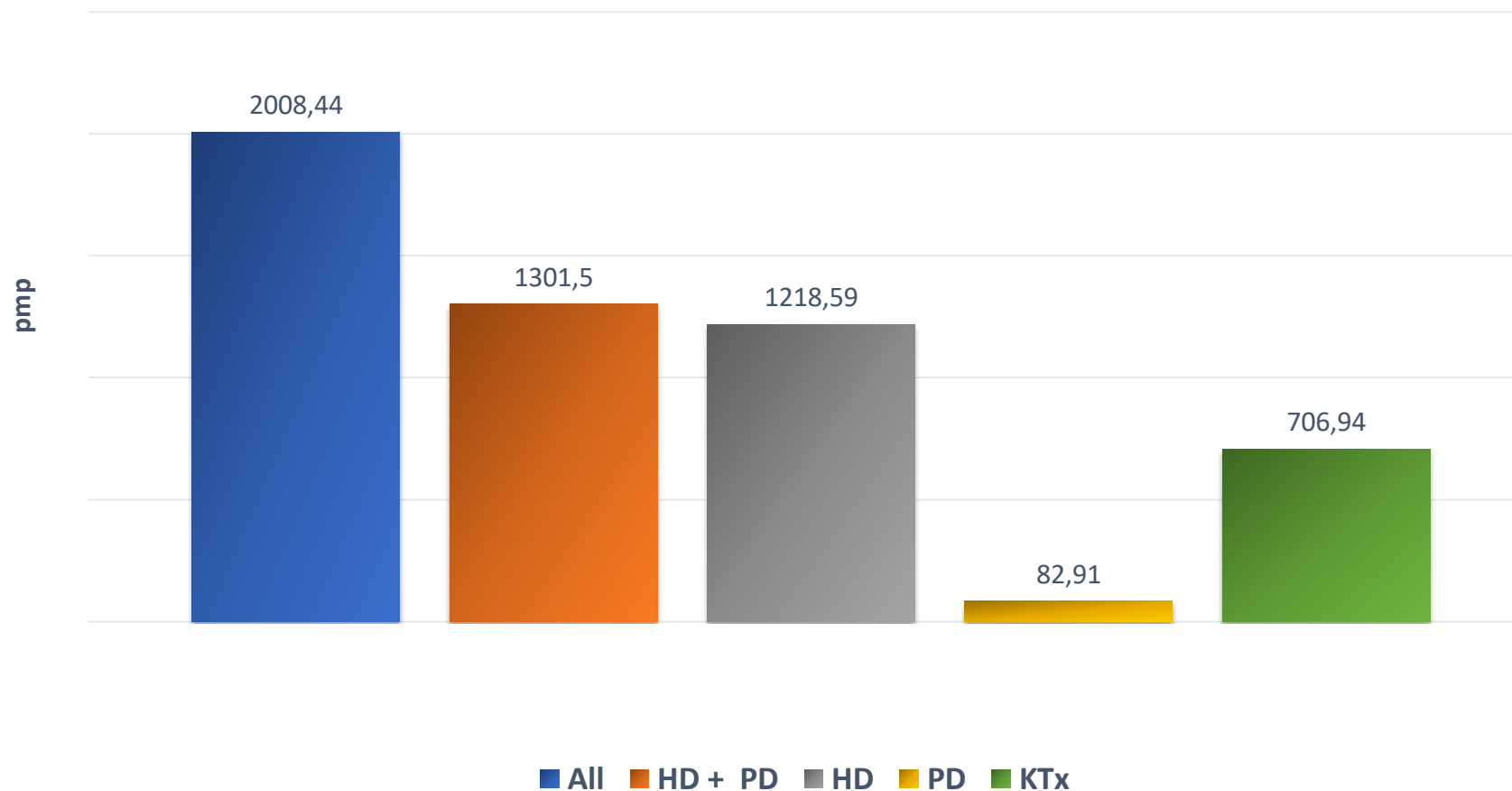
Unadjusted incidence

renal registries providing aggregated data

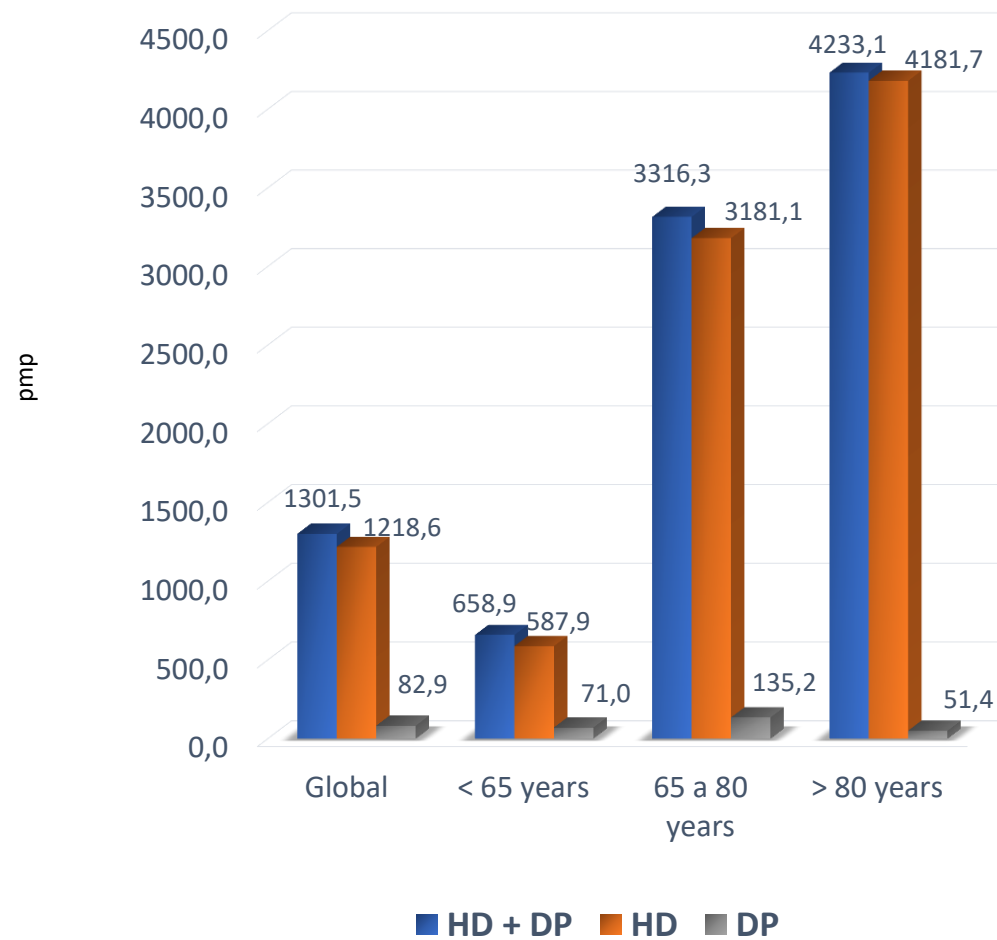


* In these countries the incidence was underestimated due to incomplete coverage. For details see ERA-EDTA Registry Annual Report 2017 tables B.2.2 and C.2.2.

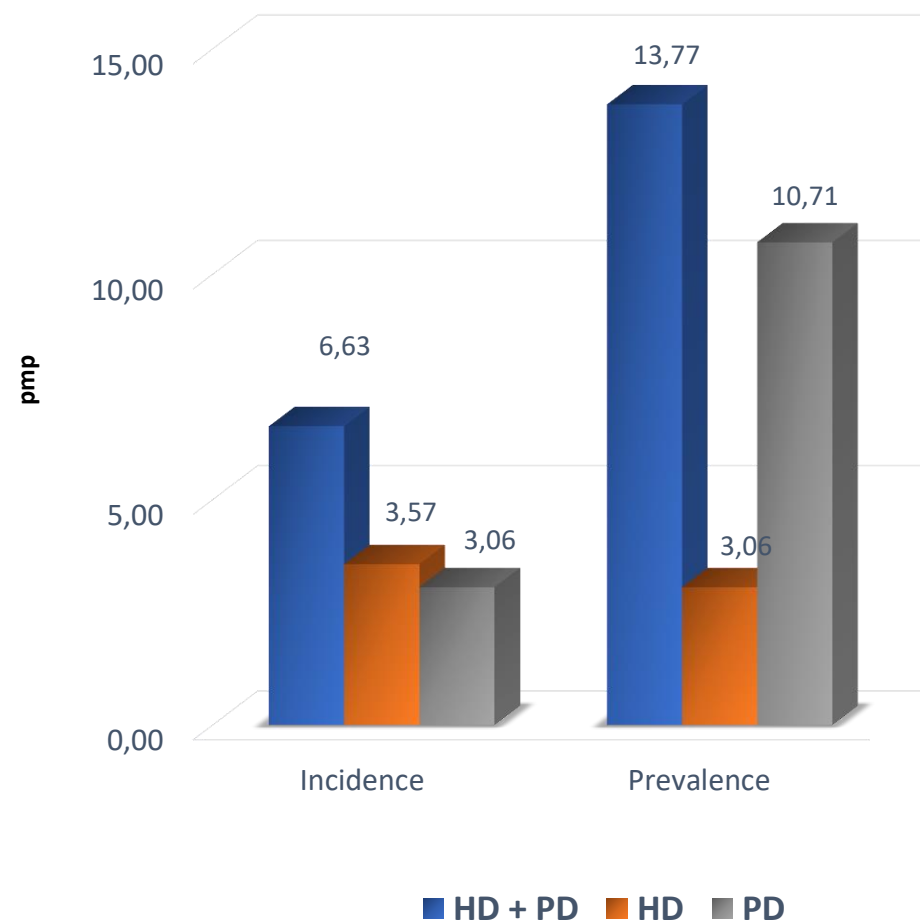
Prevalent patients on RRT by modality 31st December 2019



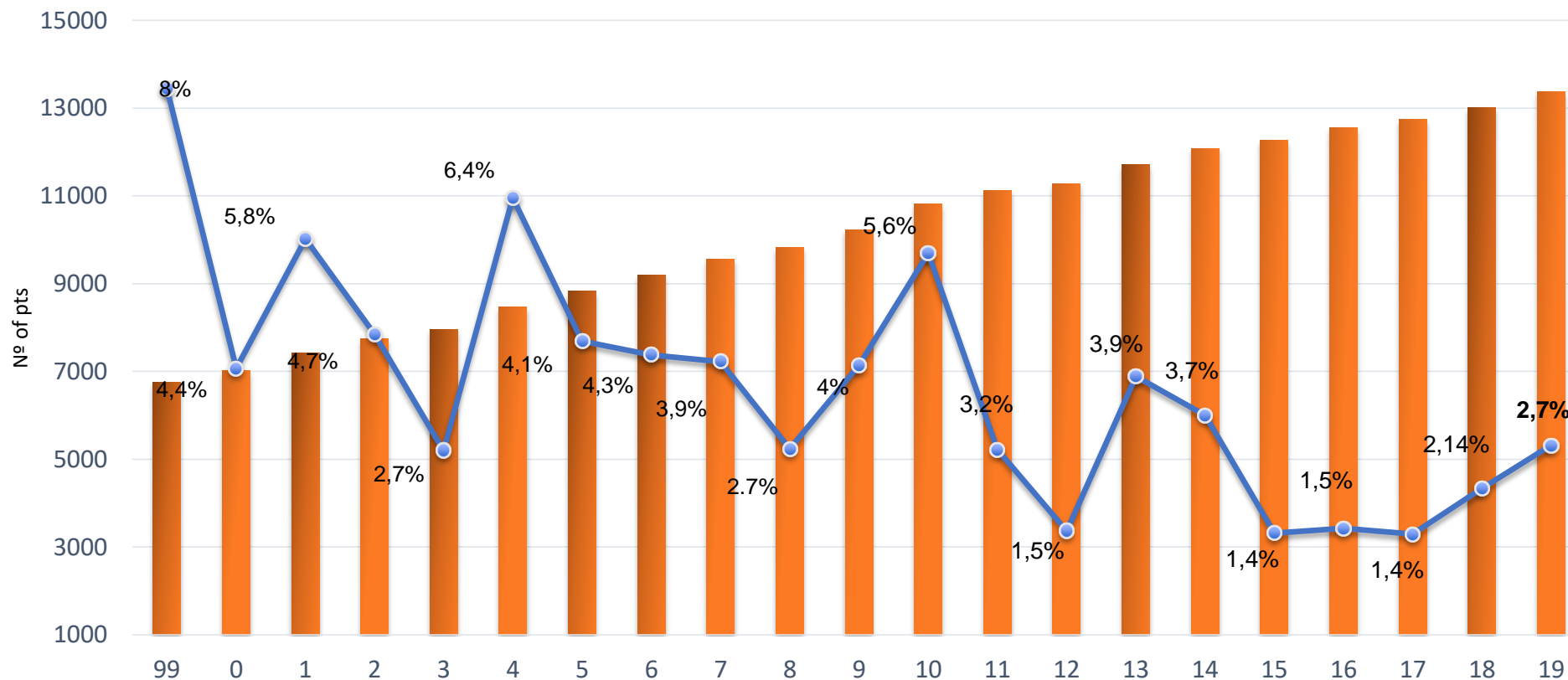
Prevalence of CKD patients treated by dialysis *per million population by age group in 2019*



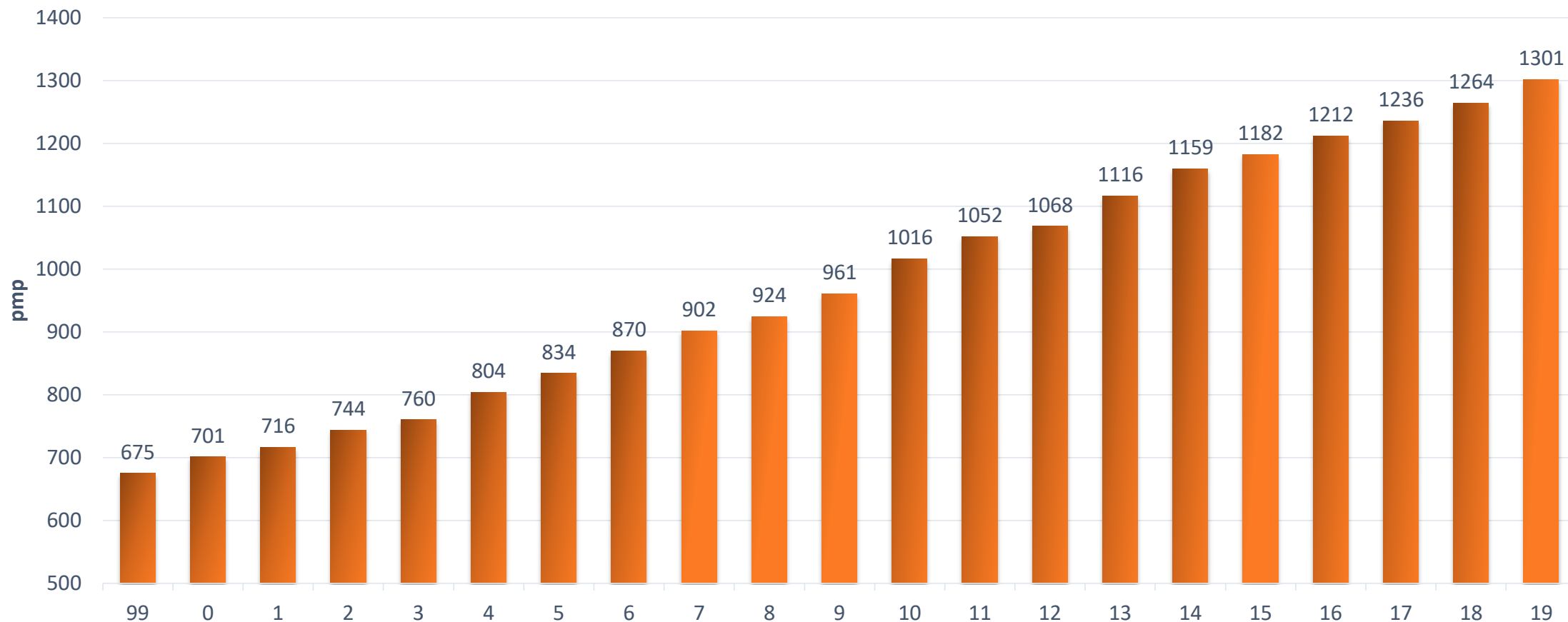
Incident and prevalent pediatric patients on dialysis *HD and PD per million population 2019*



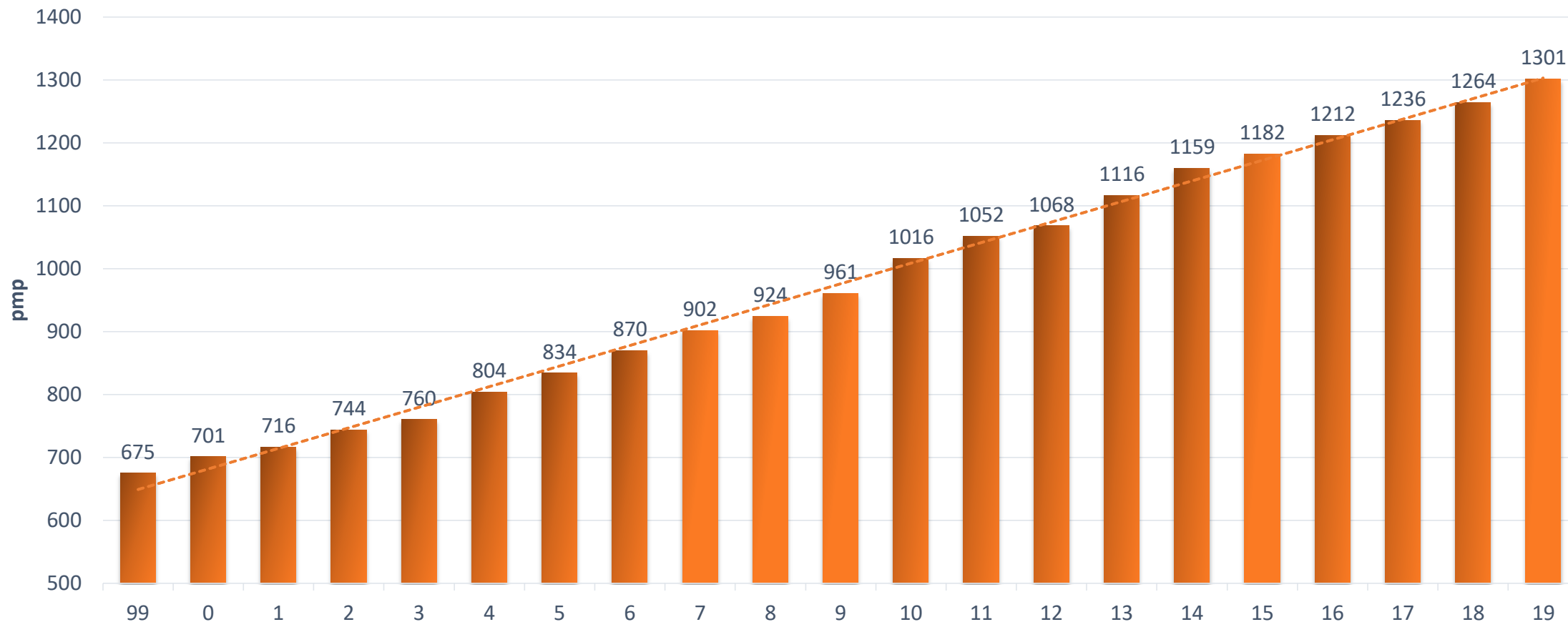
Patients on dialysis and annual growth *end of each year 1999 - 2019*



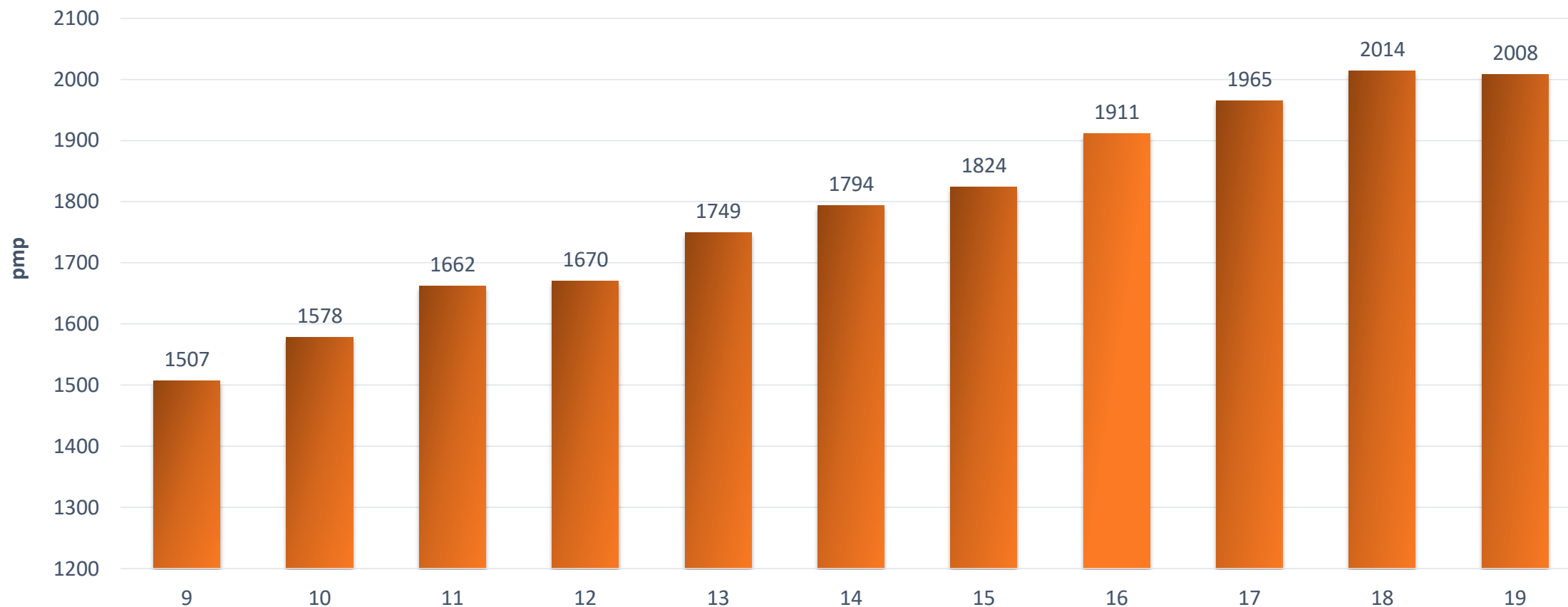
Prevalent patients on dialysis *per million population end of each year 1999 - 2019*



Prevalent patients on dialysis *per million population end of each year 1999 - 2019*



Prevalent patients on RRT *per million population end of each year 2009 - 2019*



Prevalence How do we compare?



Prevalent patients on RRT in 2017 *by country*



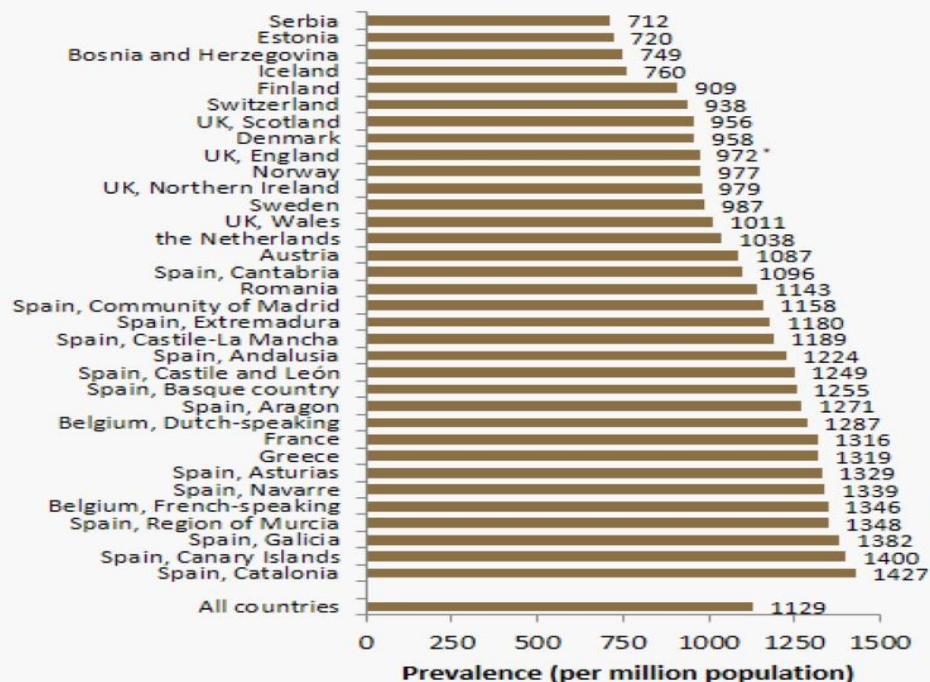
- <750 pmp
- 750-999 pmp
- 1000-1499 pmp
- ≥ 1500 pmp
- No data available



Prevalent patients on RRT in 2017 by country

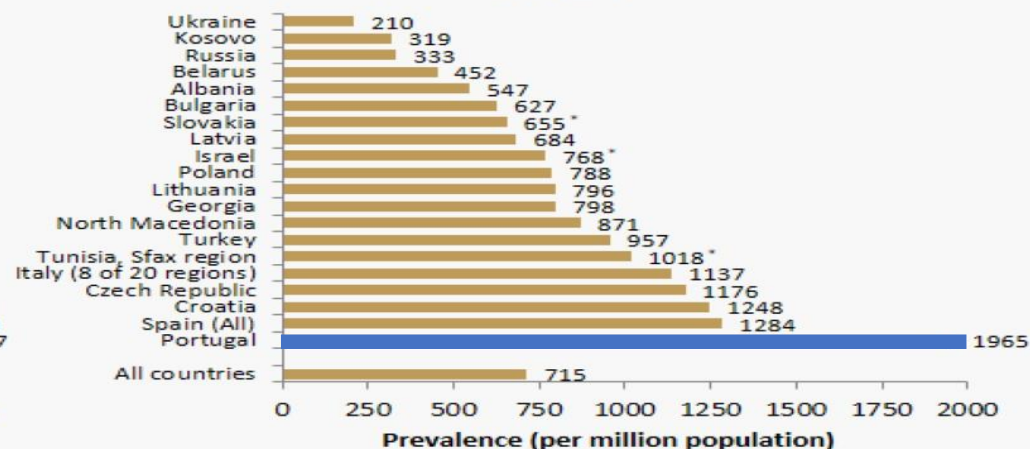
Unadjusted prevalence

renal registries providing individual patient data



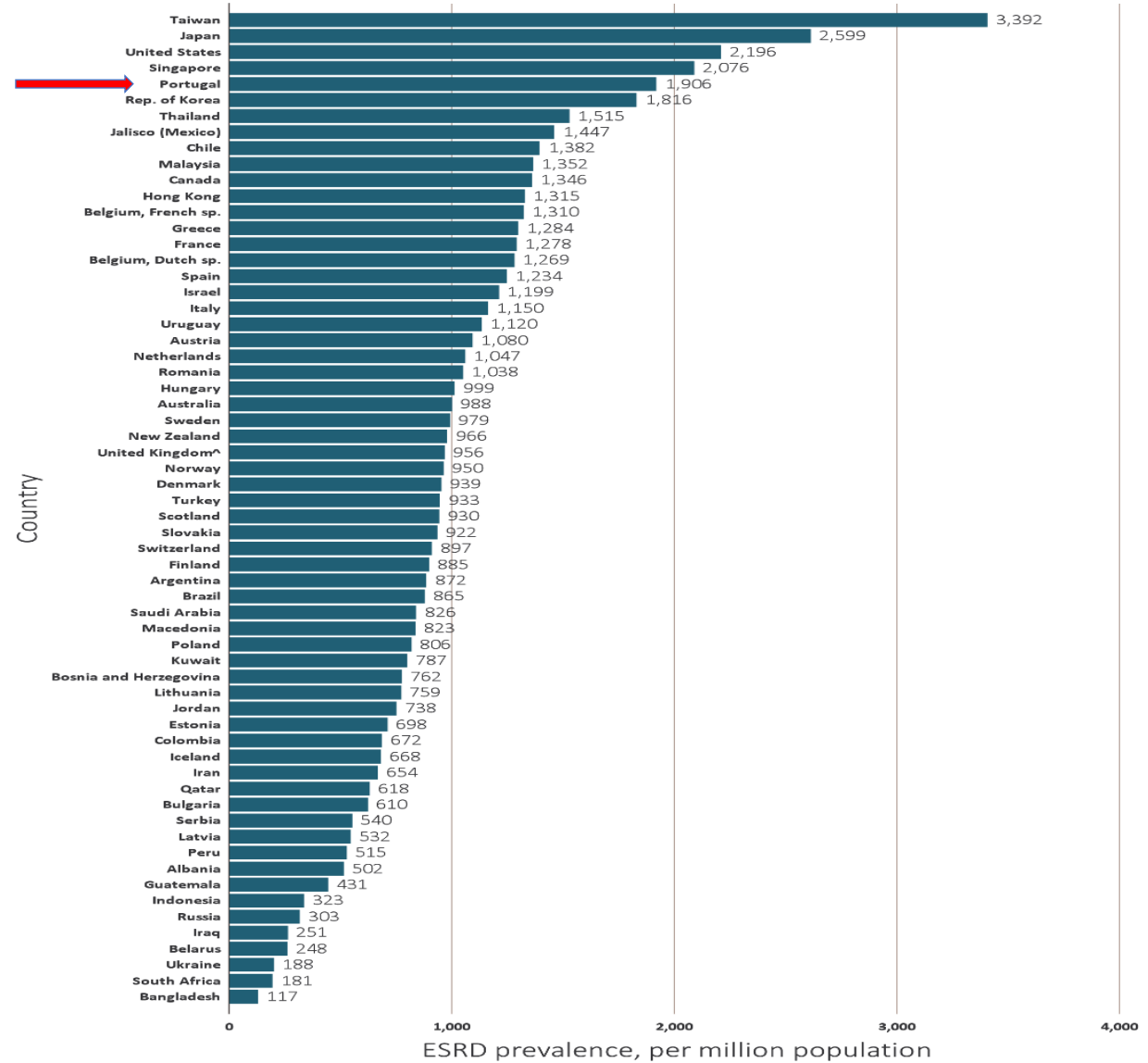
Unadjusted prevalence

renal registries providing aggregated data

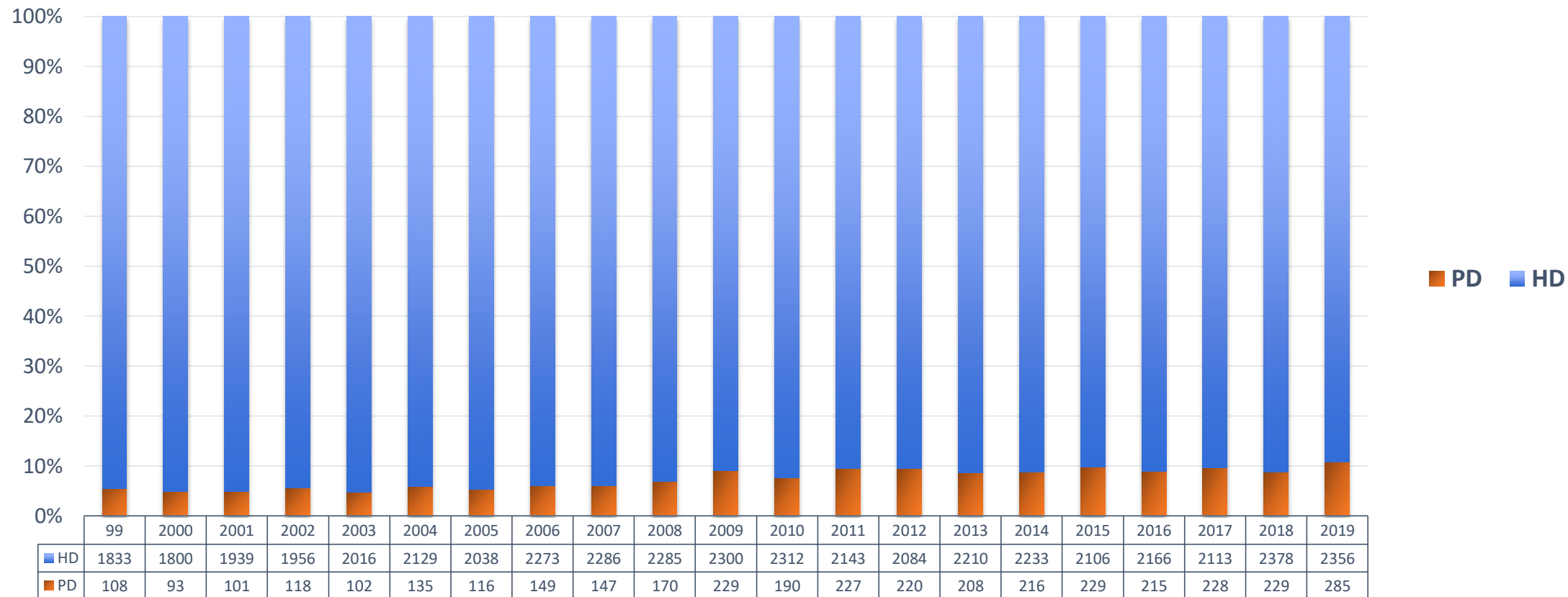


* In these countries the prevalence was underestimated due to incomplete coverage. For details see ERA-EDTA Registry Annual Report 2017 tables B.4.2 and C.4.2.

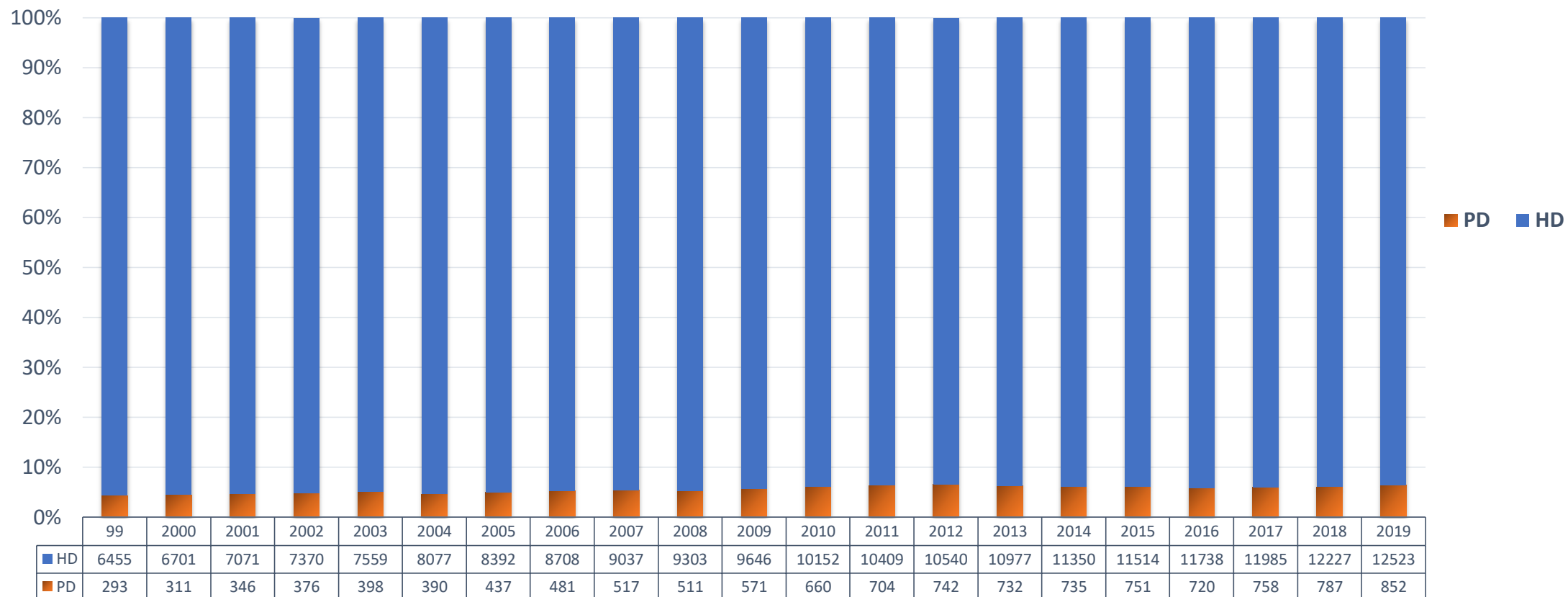
vol 2 Figure 11.9 Prevalence of treated ESRD (per million population), by country, 2016



Incident patients starting PD vs HD 1999 - 2019



Prevalent patients starting PD vs HD 1999 - 2019

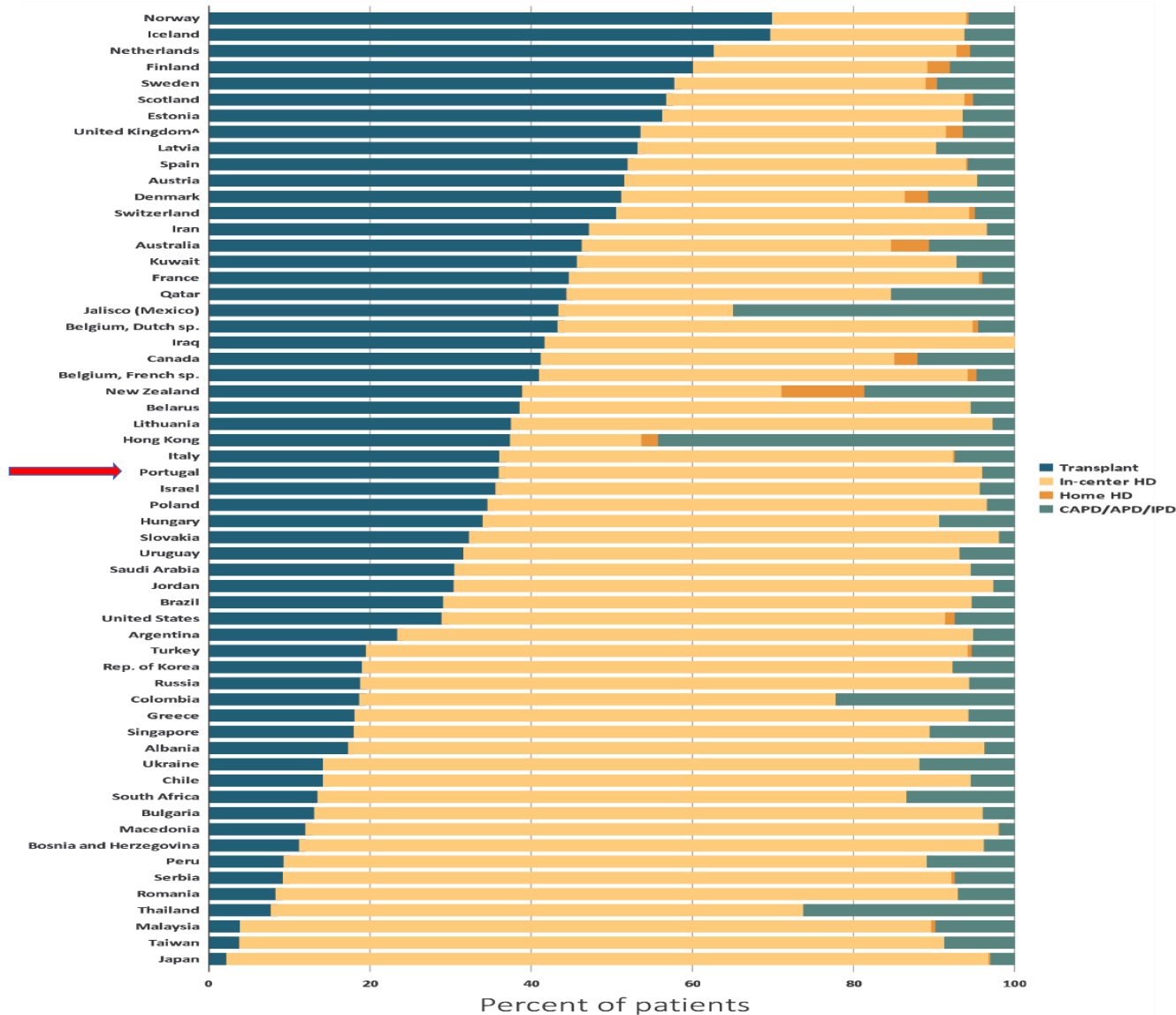


type of renal replacement therapy modality used by ESRD patients

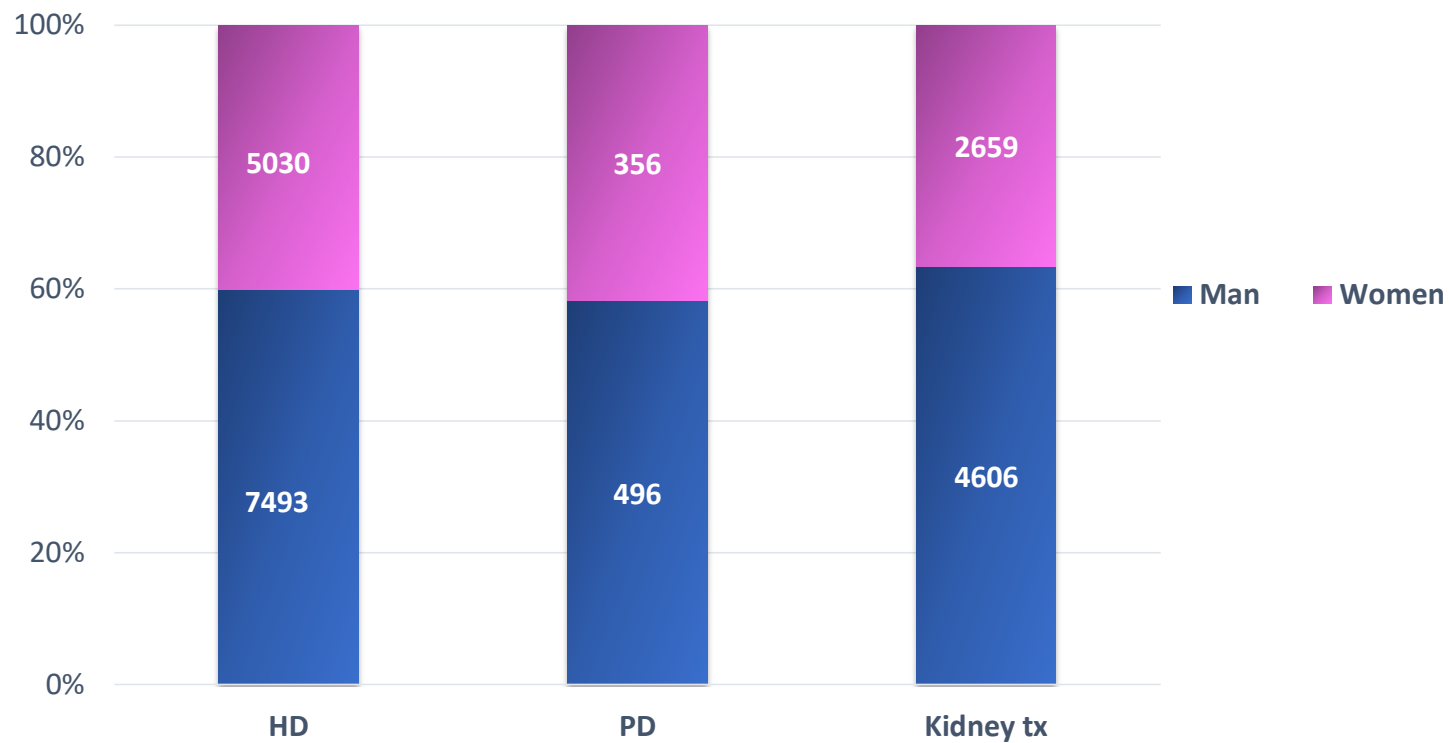
How do we compare?



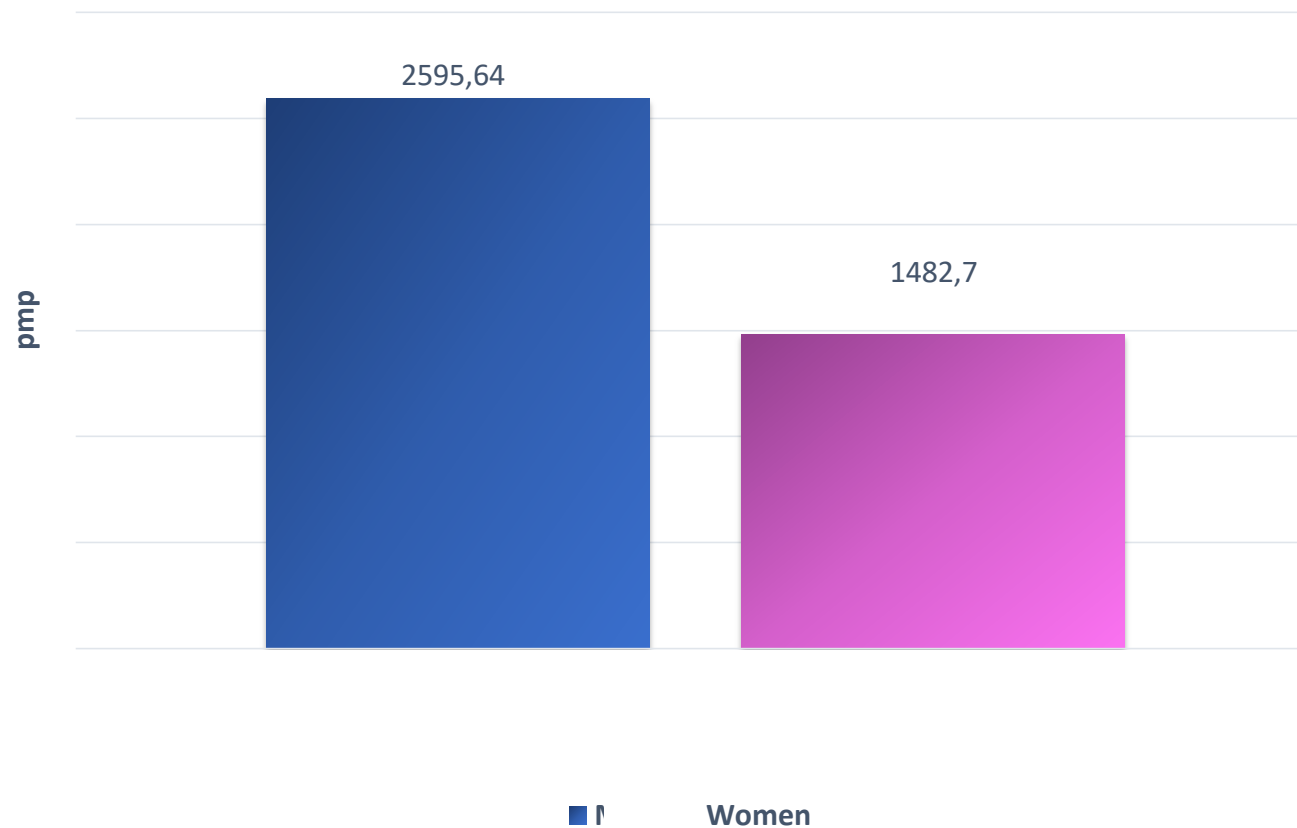
vol 2 Figure 11.12 Percentage distribution of type of renal replacement therapy modality used by ESRD patients, by country, in 2016



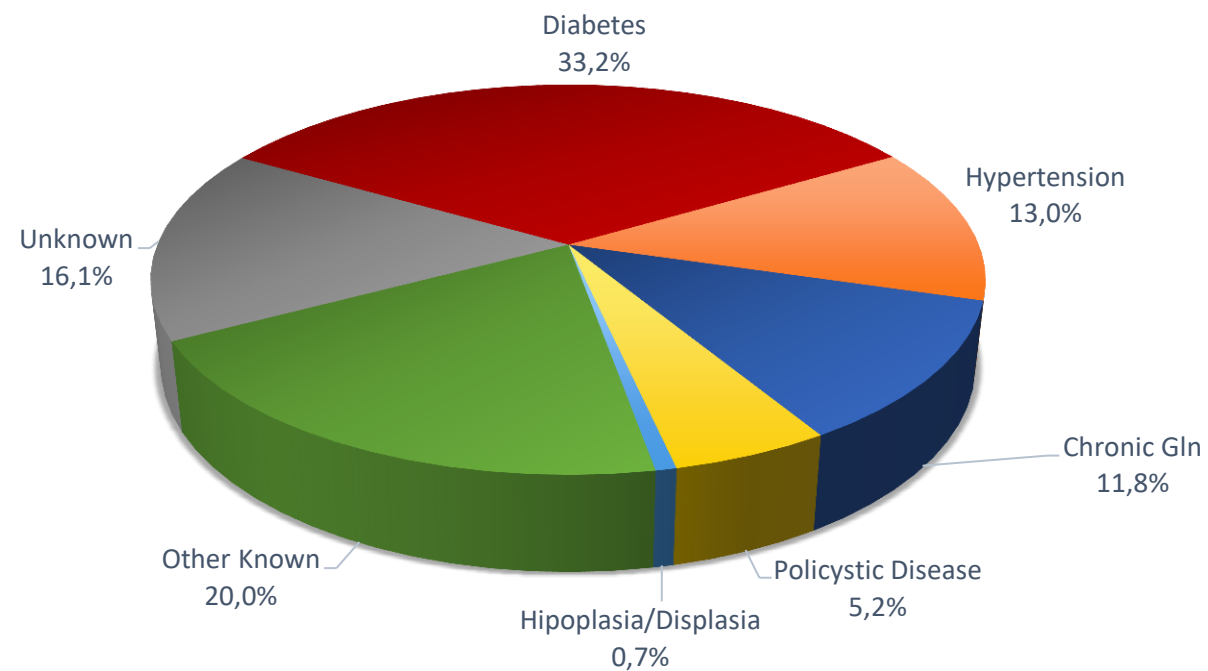
Gender distribution in each modality 31st December 2019



Prevalence by gender, all RRT *per million population 31st December 2019*



Primary renal disease of patients accepted for dialysis *HD and PD during 2019*



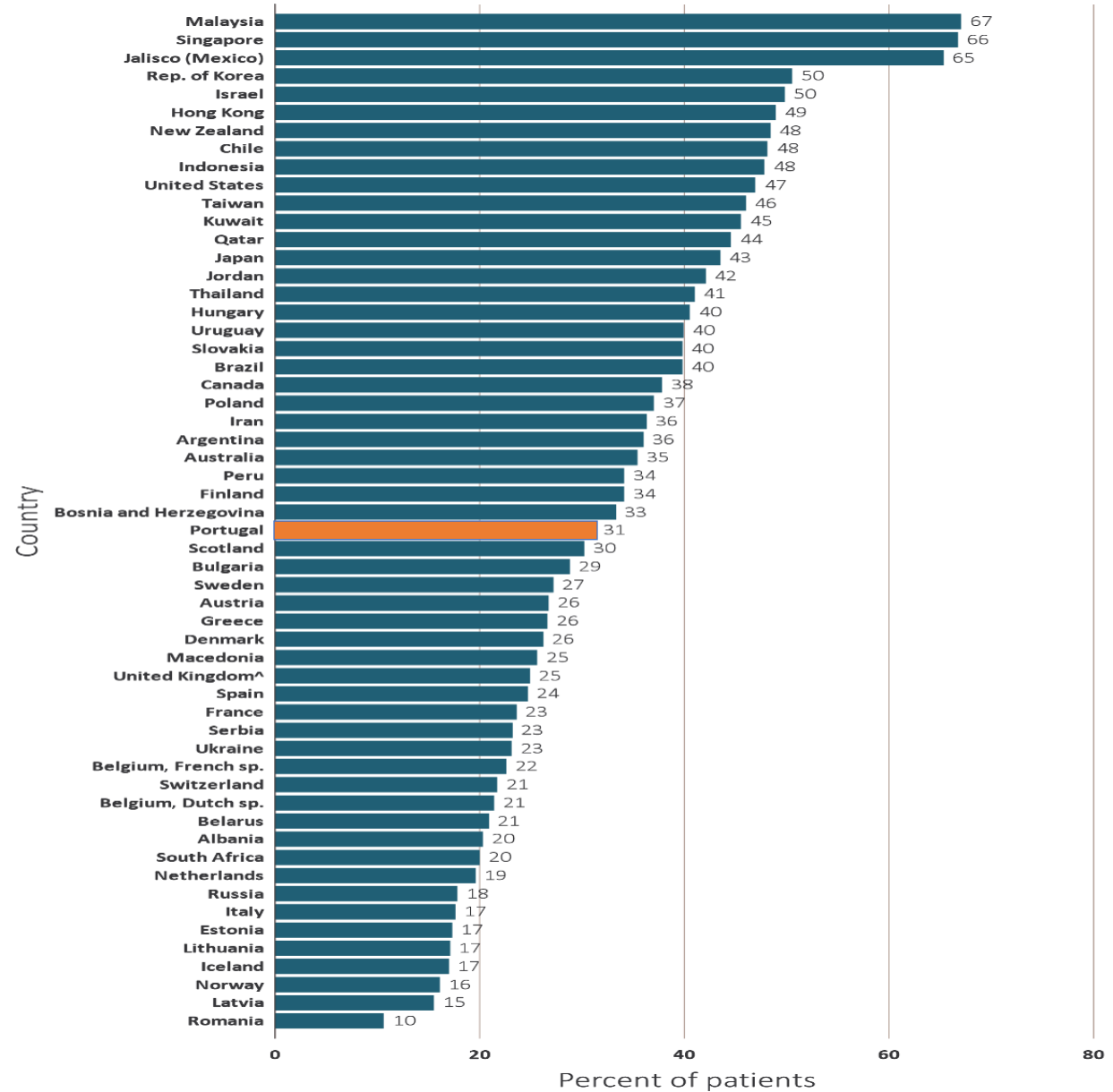
Not available = 14

Diabetes in incident patients How do we compare?

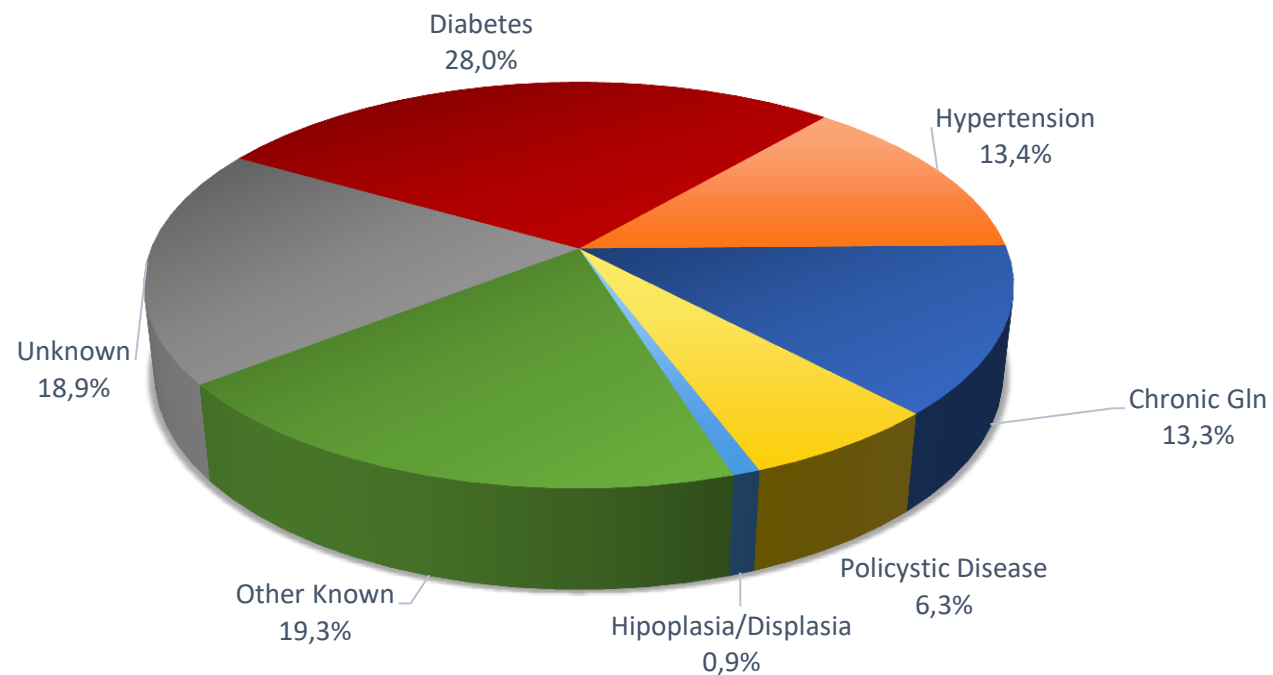


vol 2 Figure 11.4 Incidence of treated ESRD due to diabetes as the assigned primary cause of ESRD cause, by country, 2016

(a) Percentage of incident ESRD patients



Primary renal disease of prevalent patients *HD and PD, 31st December 2019*

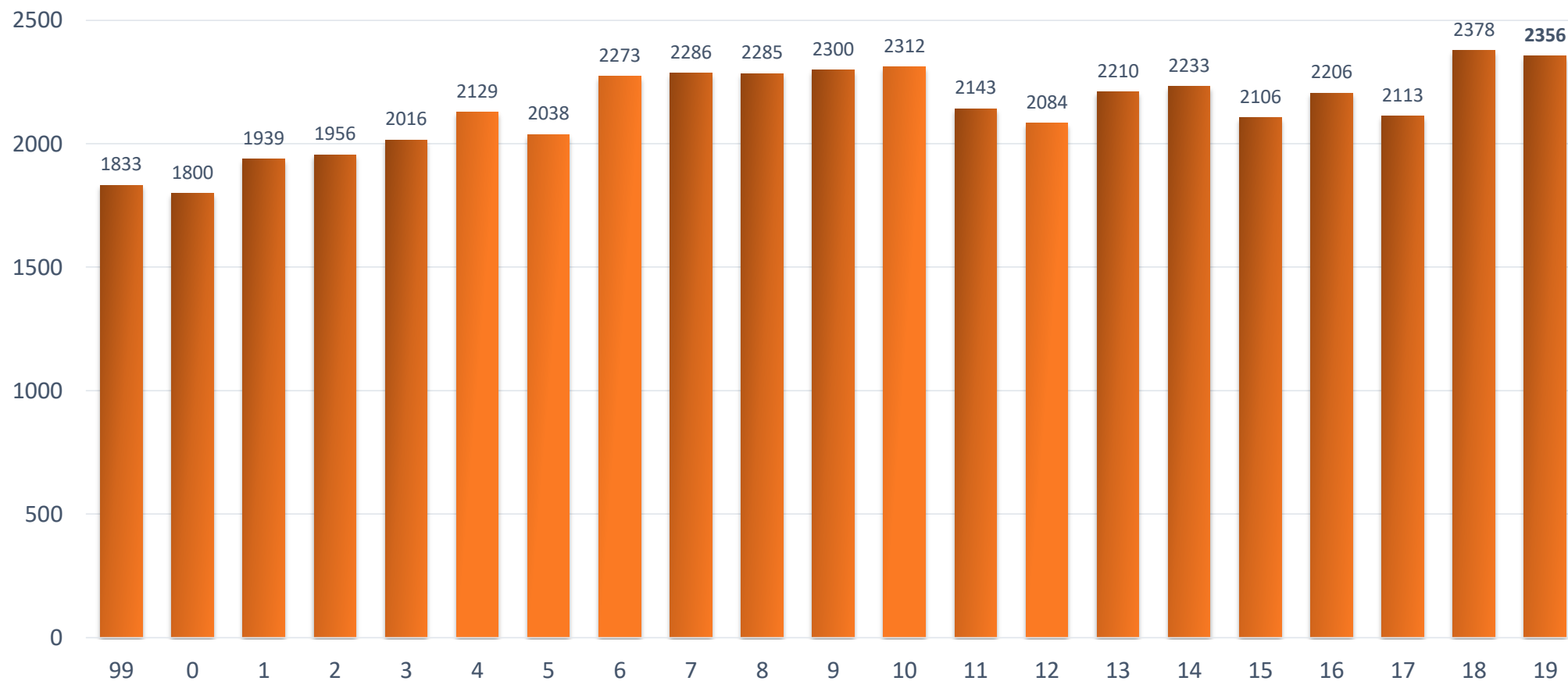


N = 13375
Not available = 162

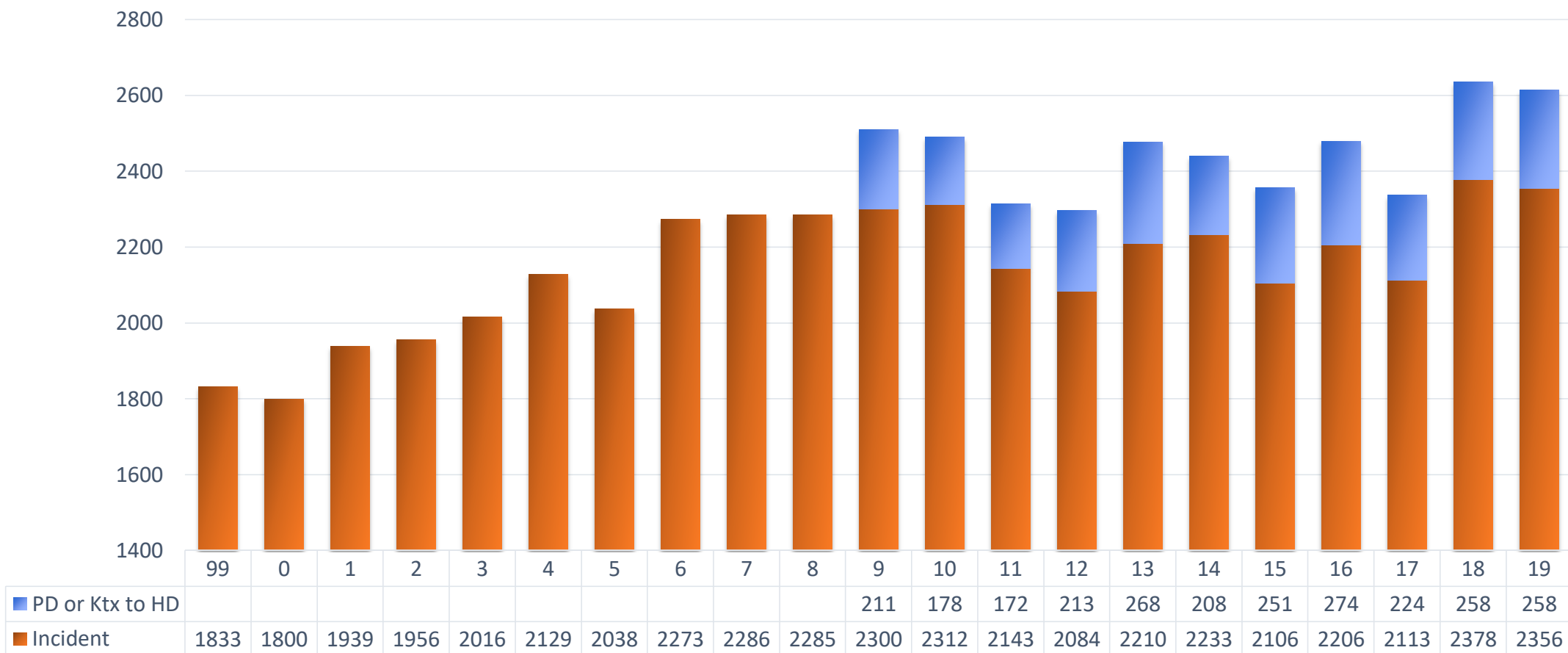
HEMODIALYSIS



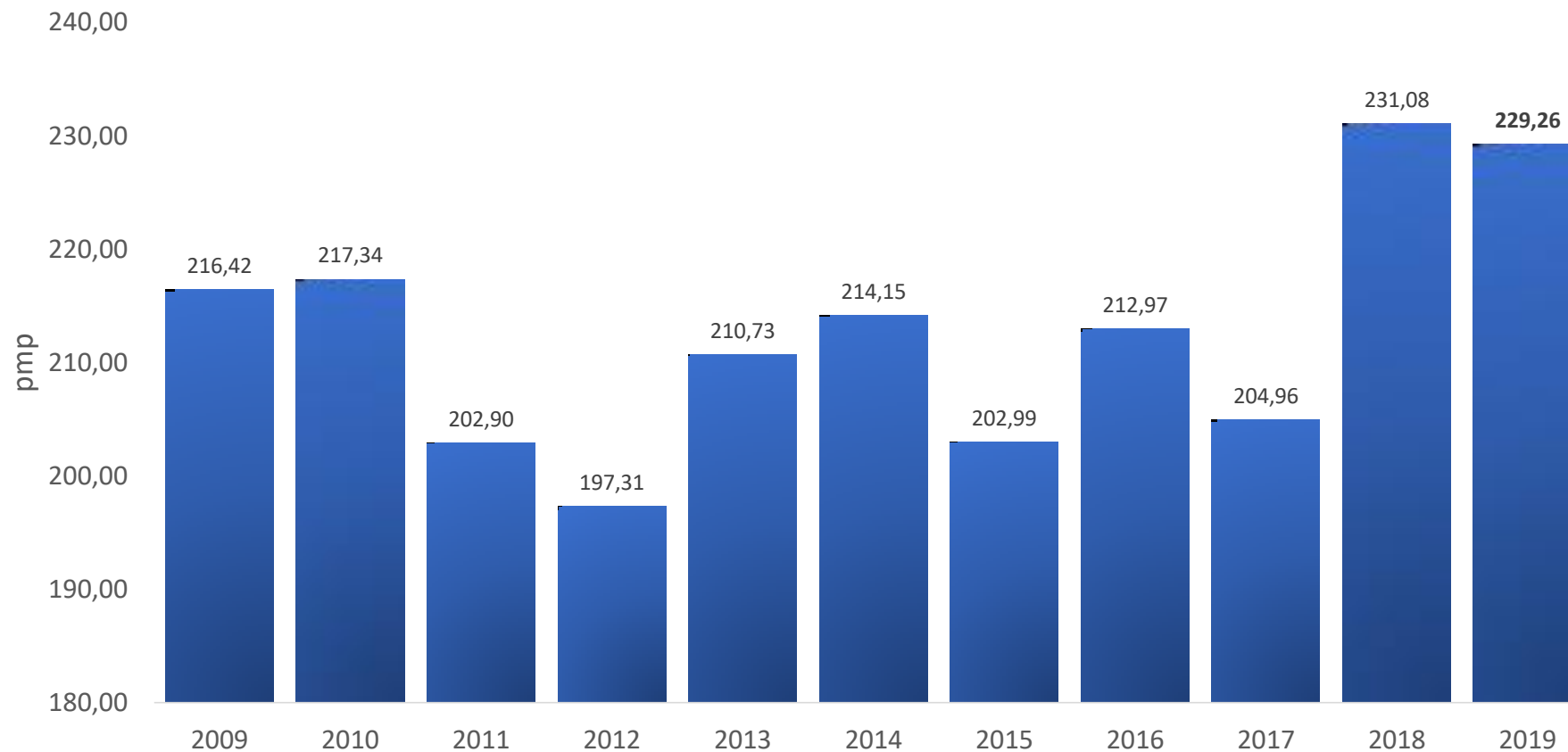
New patients accepted for hemodialysis 1999 - 2019



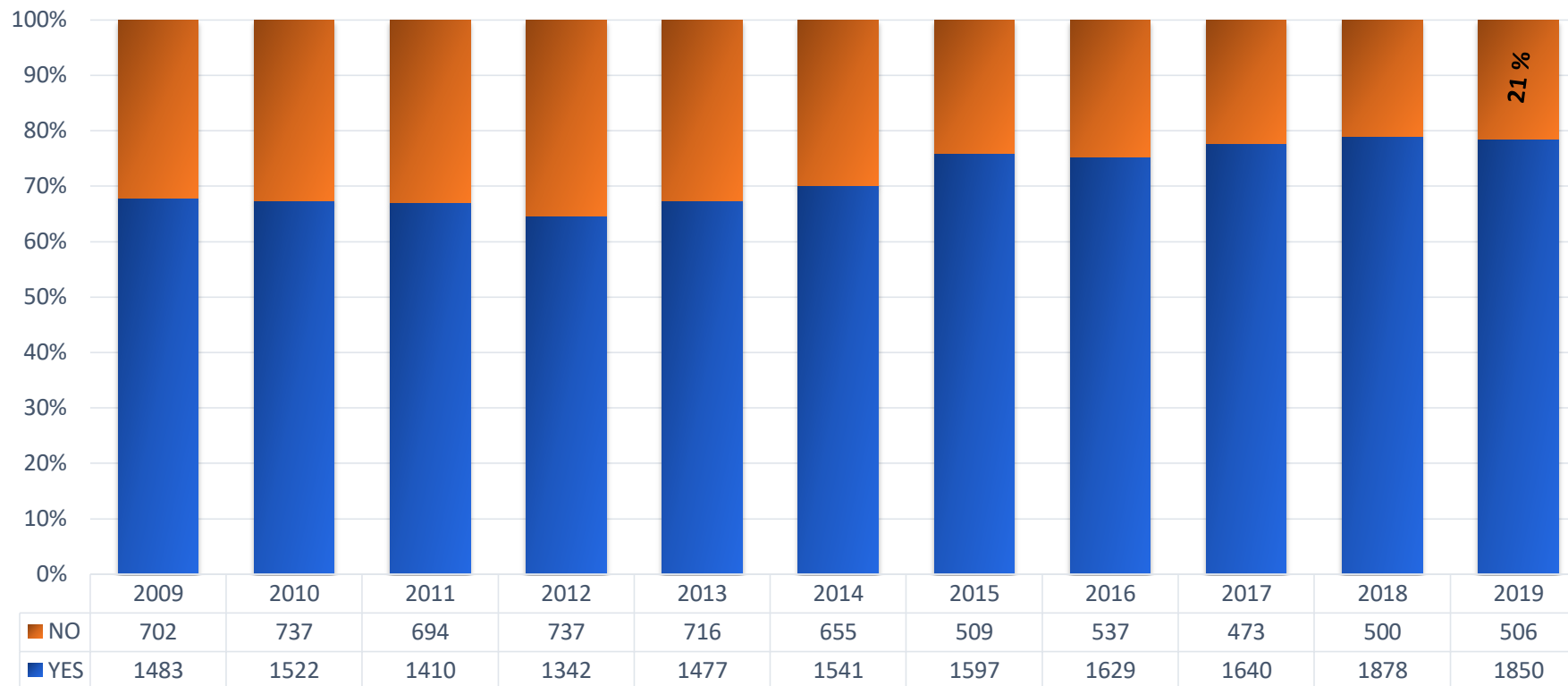
All patients accepted for hemodialysis *Incident and returning from other modalities 1999 - 2019*



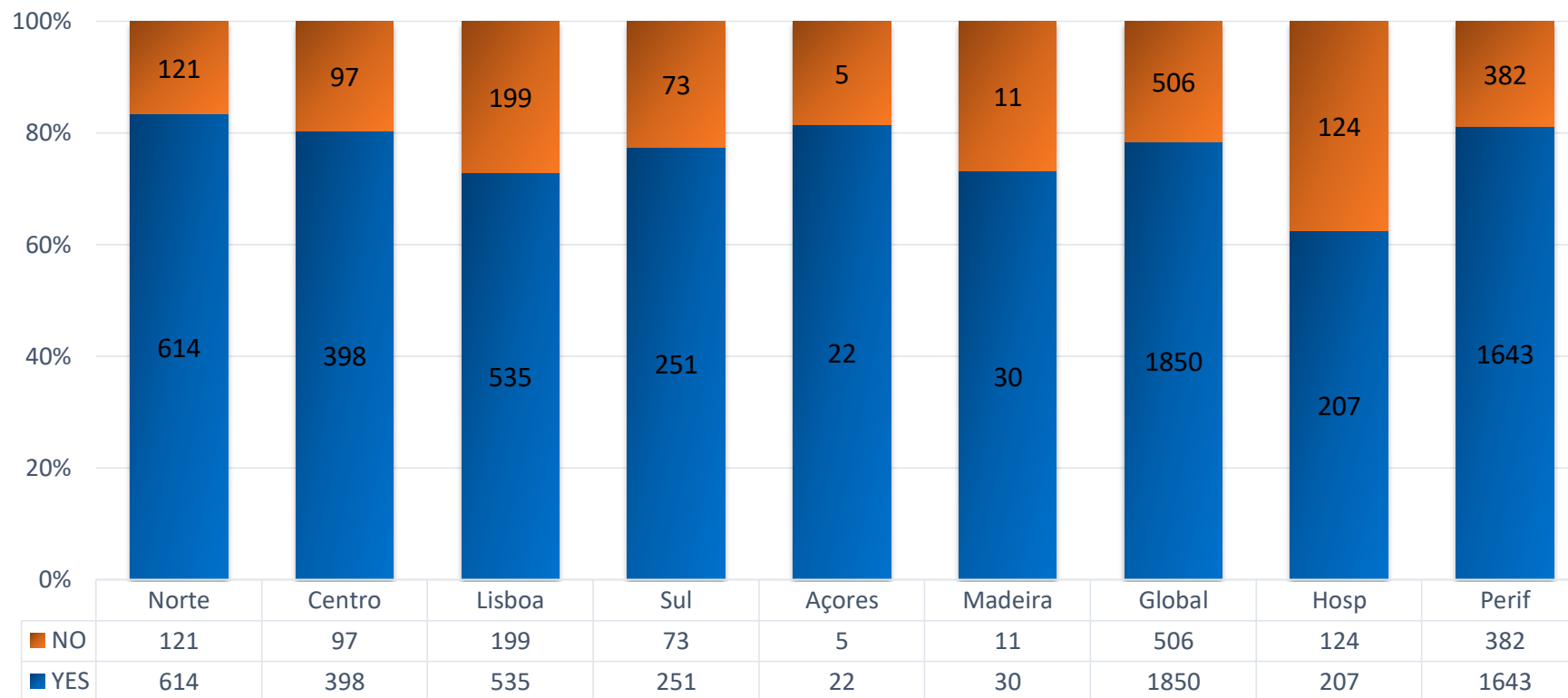
Incident patients accepted for hemodialysis *per million population 2009 - 2019*



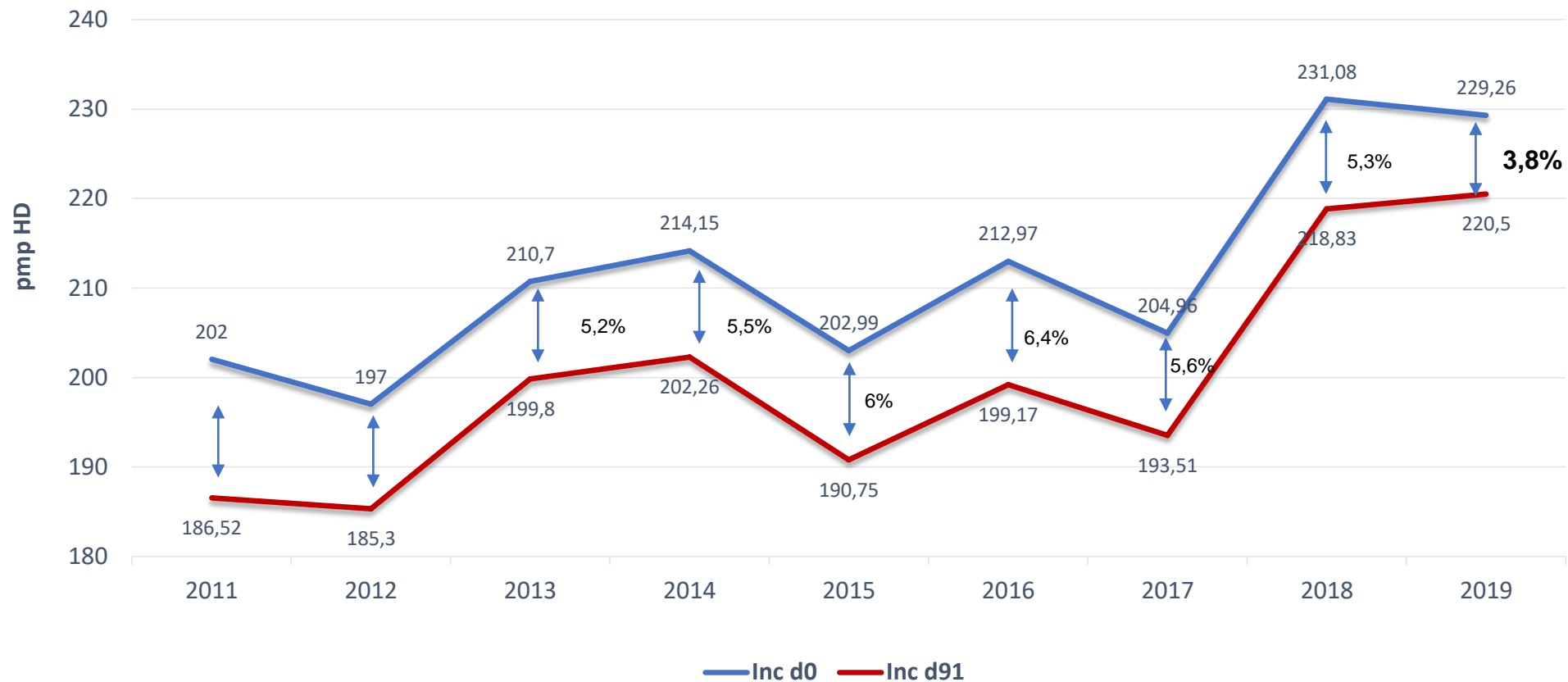
Previous follow-up by nephrology (> 3 months) HD patients 2009 – 2019



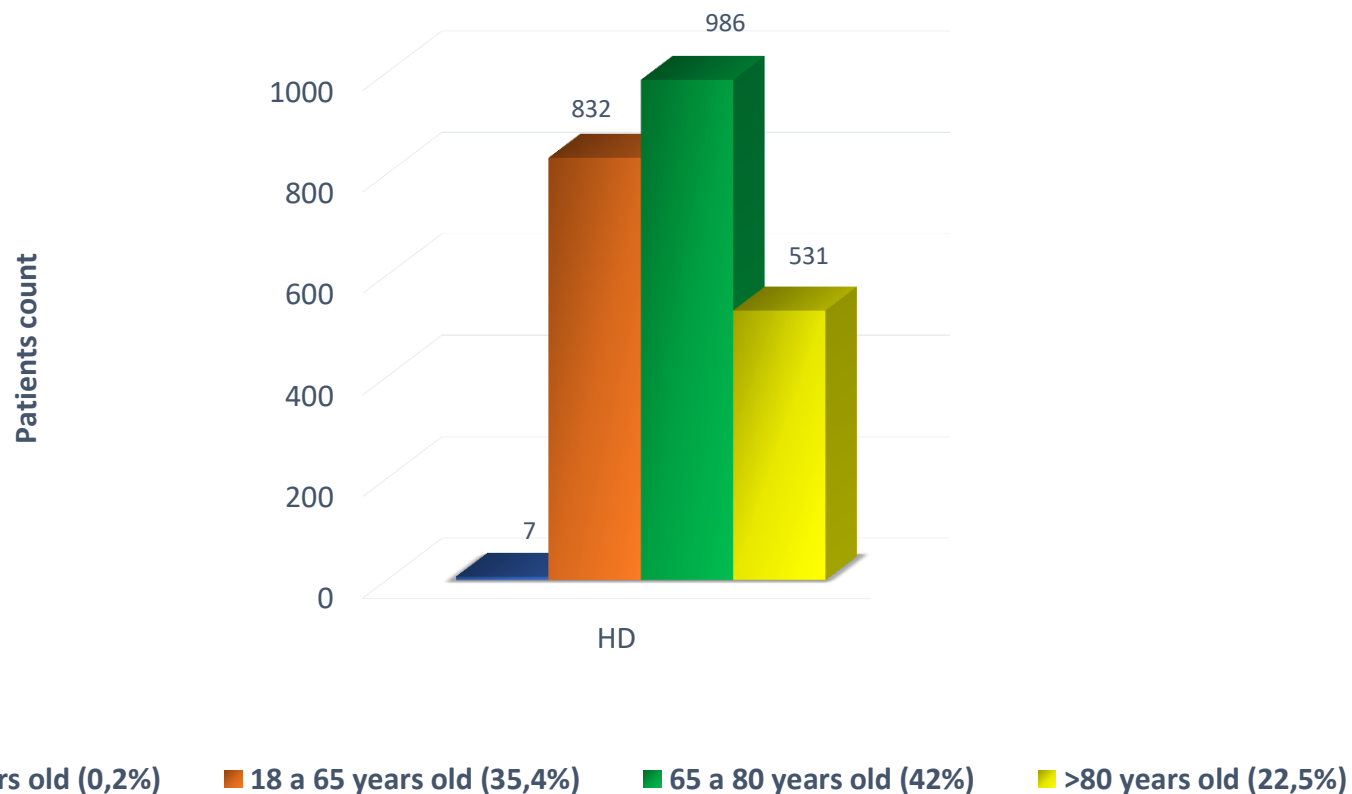
Previous follow-up by nephrology (> 3 months) HD patients, *by country region and facility type - 2019*



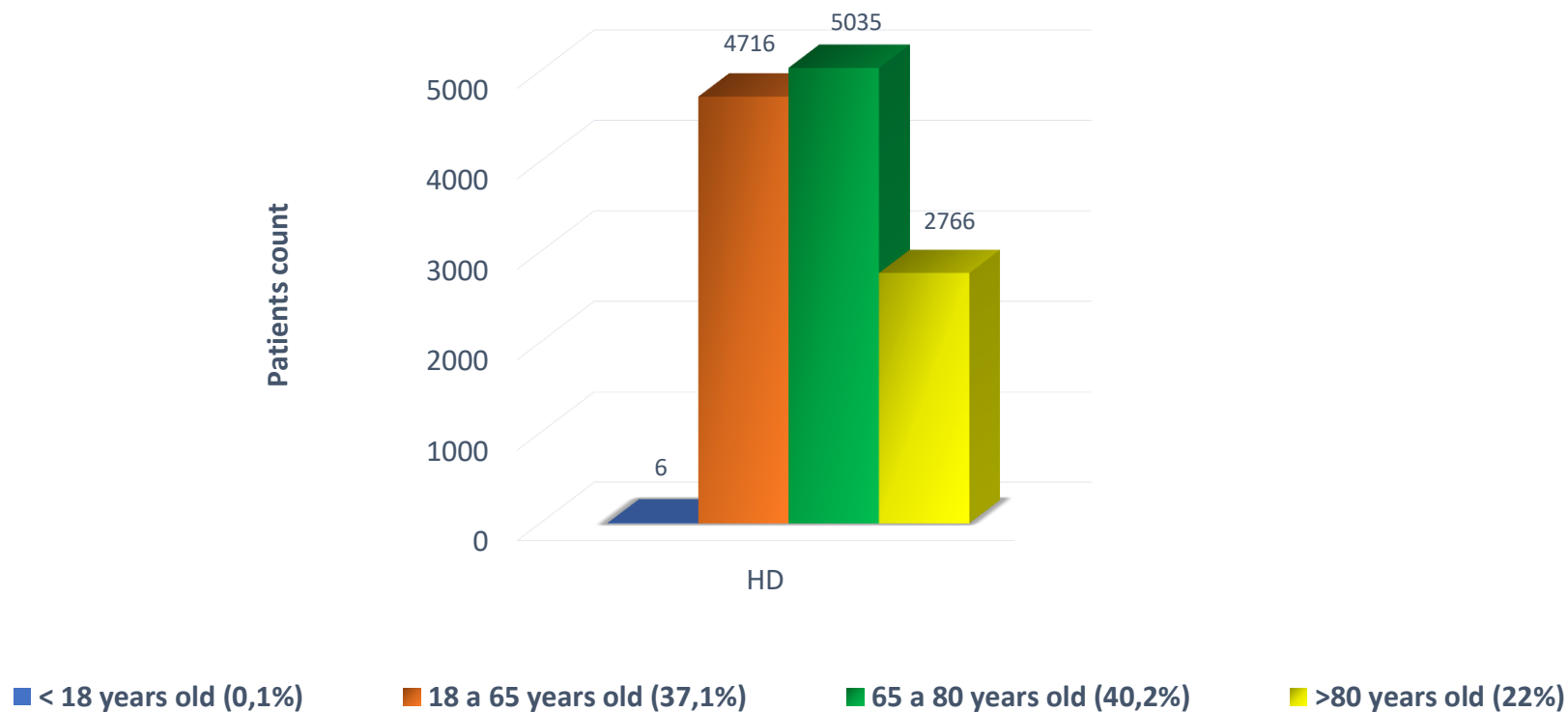
Incident patients accepted for hemodialysis Day 0 and day 91, 2011-2019



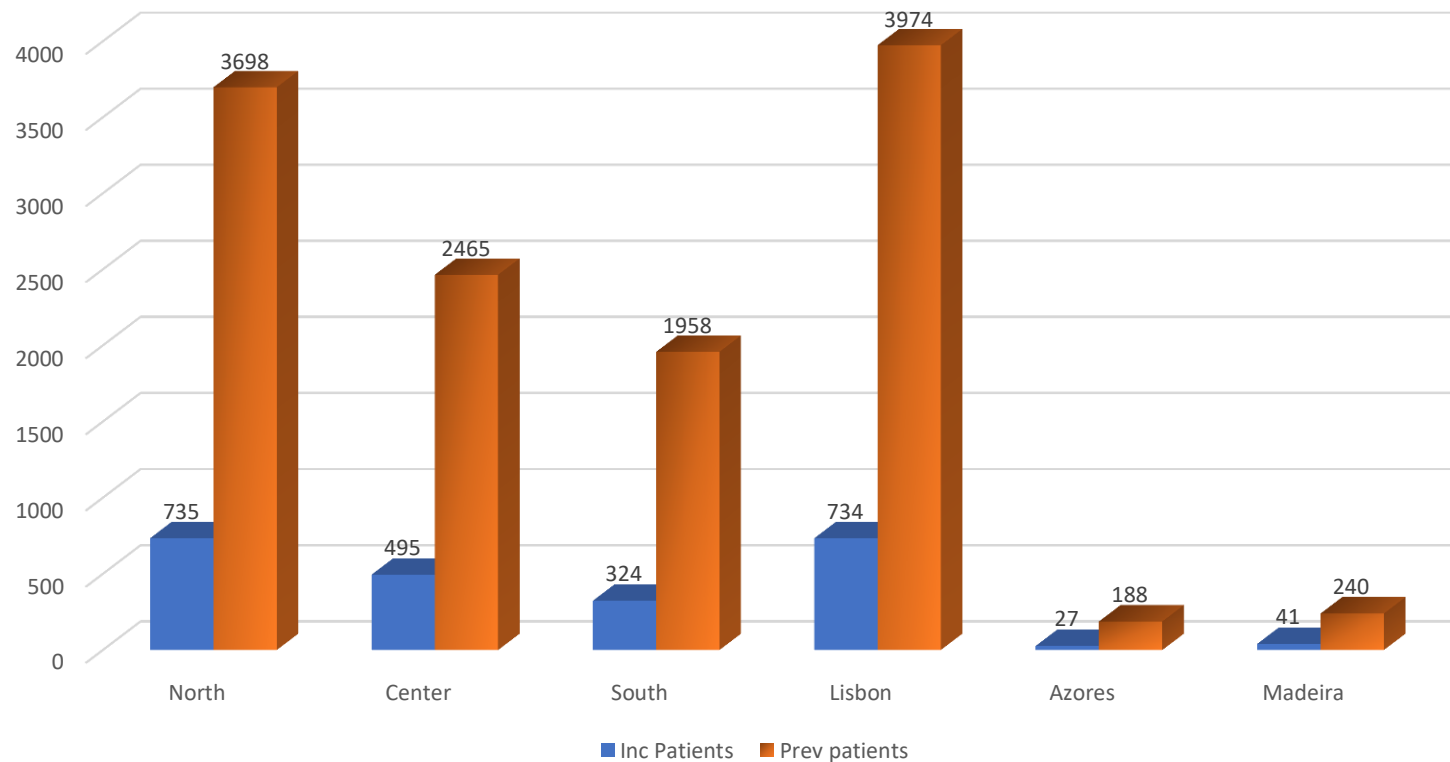
Patients accepted for hemodialysis *by age group, during 2019*



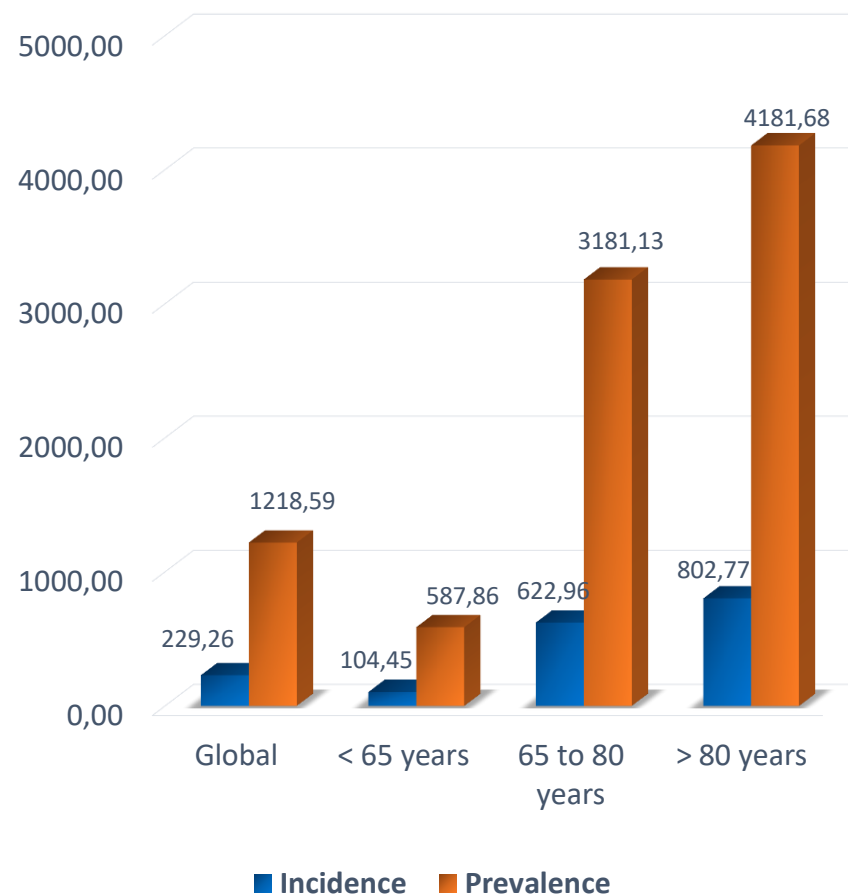
Patients treated by hemodialysis by age group , 31st December 2019



Incident and prevalent patients treated by hemodialysis by country region, 2019

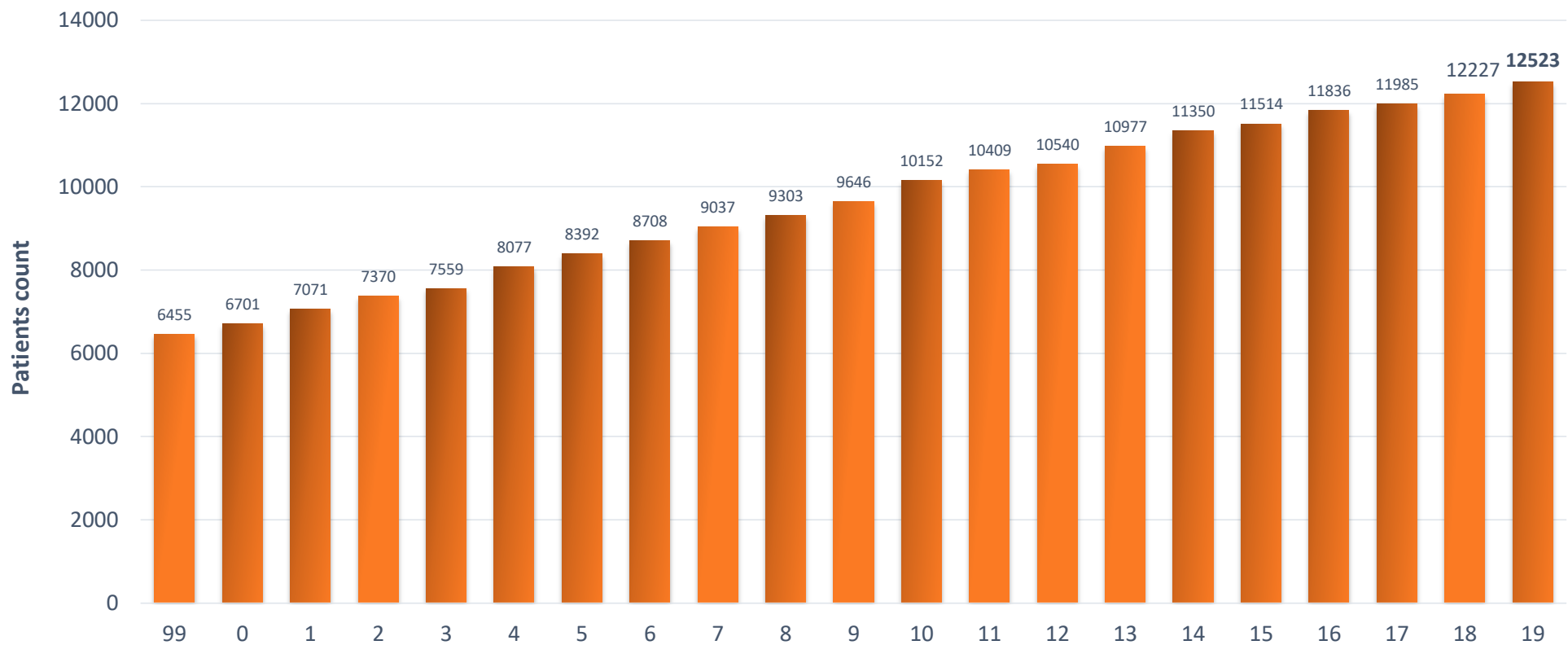


Incident and prevalent patients treated by hemodialysis *per million population by age group, 2019*



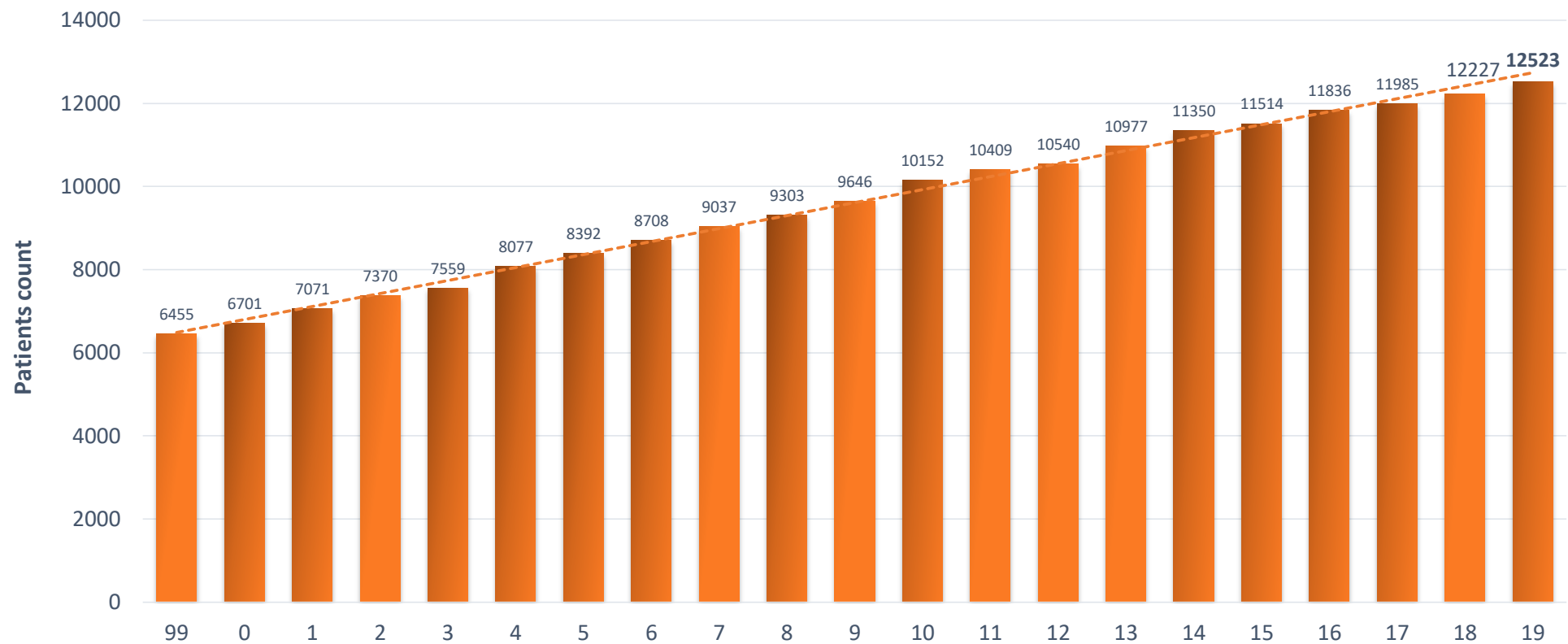
Patients treated by hemodialysis

31st of December each year, 1999 – 2019

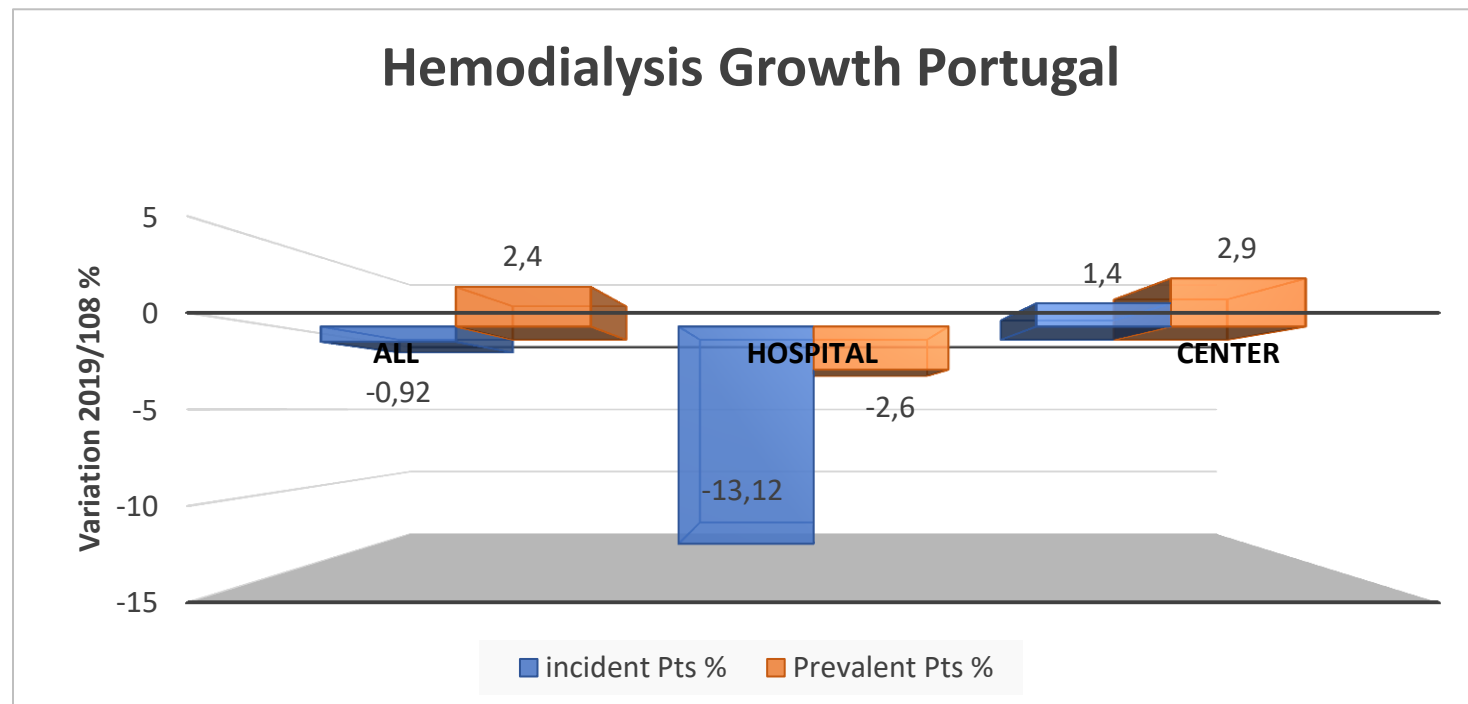


Patients treated by hemodialysis

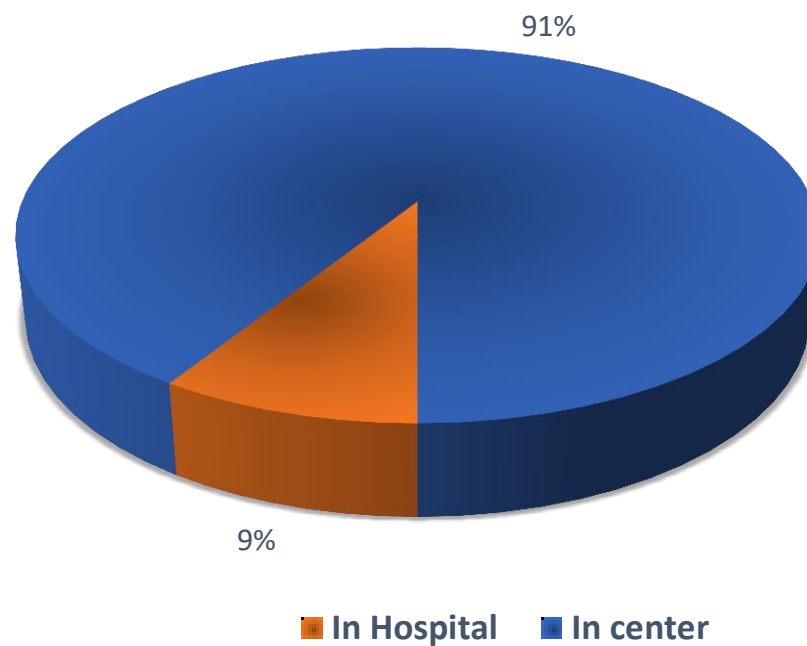
31st of December each year, 1999 – 2019



Hemodialysis growth 2019 vs 2018 (%) 31st of December each year

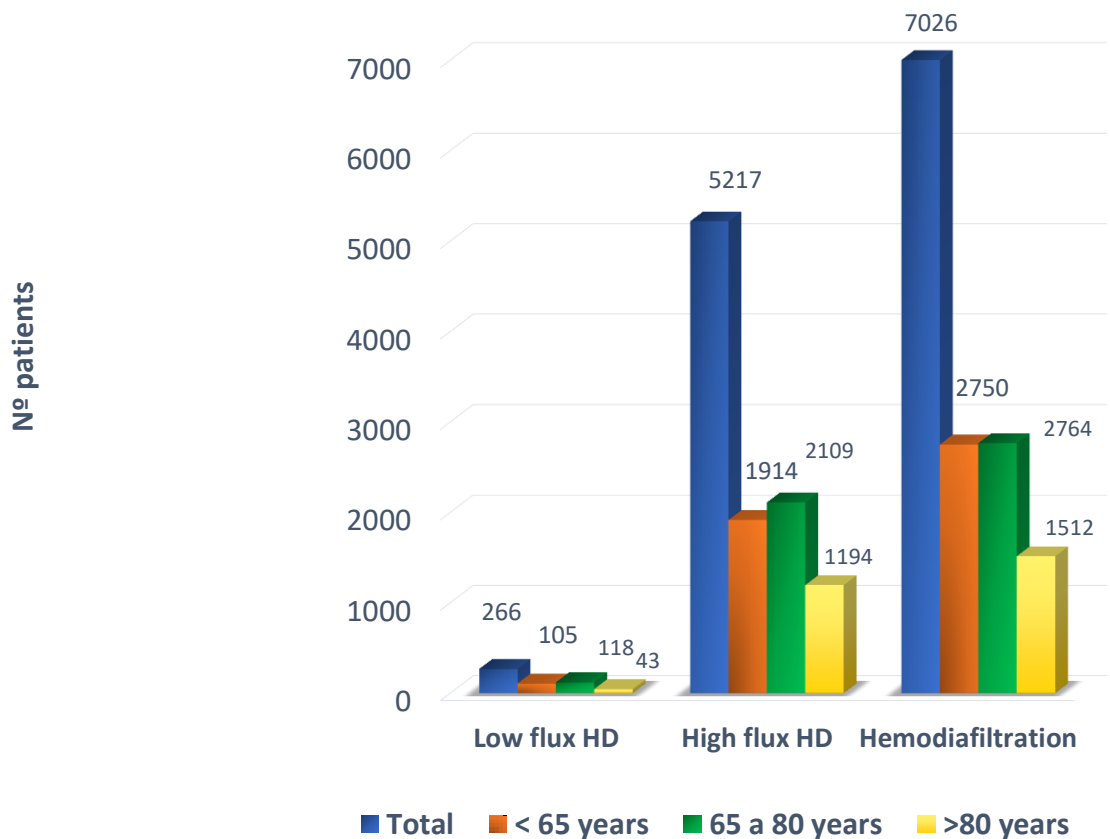


Distribution of hemodialysis patients by type of dialysis facility 31st of December 2019



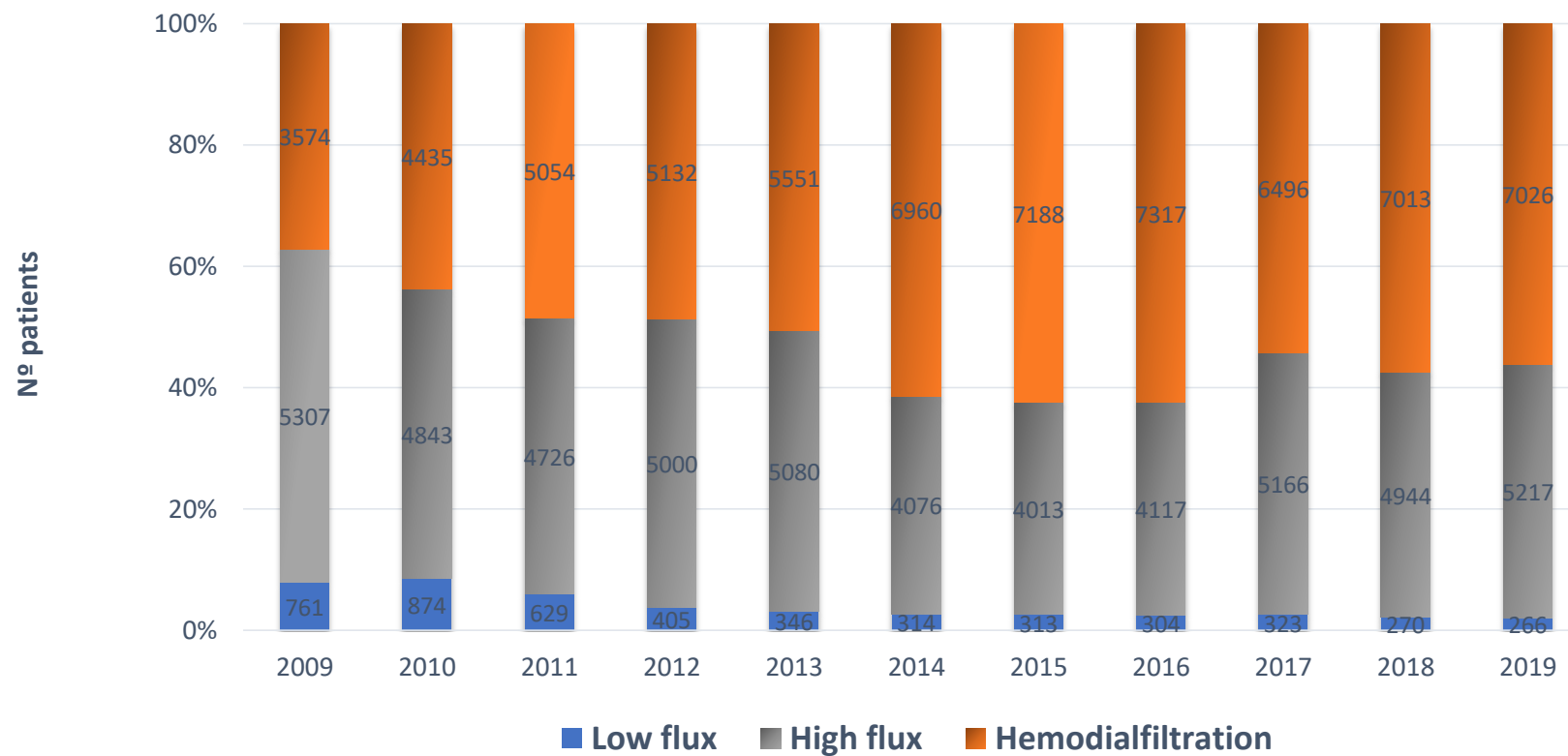
N = 12523
In Hospital:1116
In Center:11407

Patients treated by hemodialysis *distribution by techniques in each age group, 31st of December 2019*

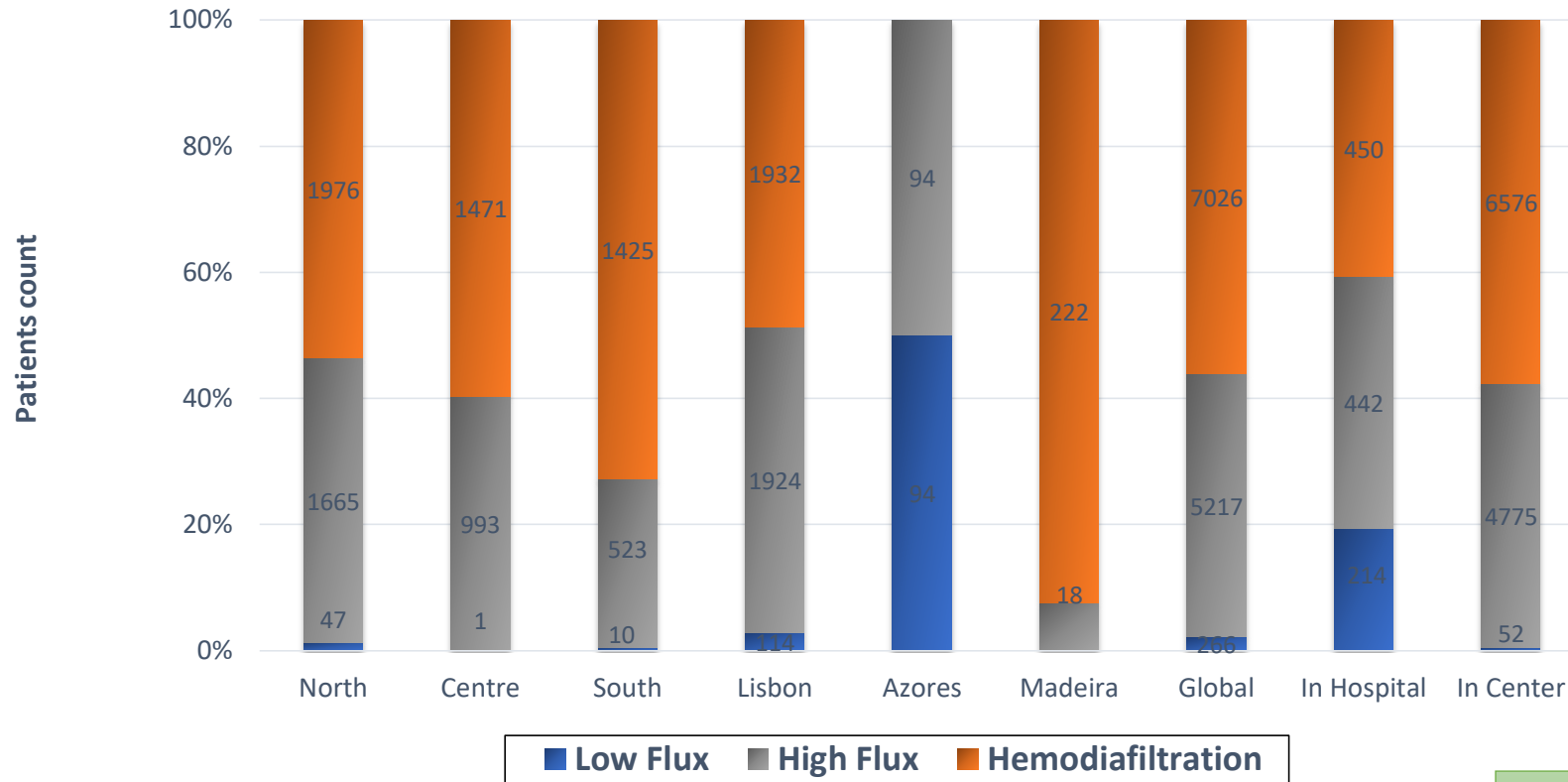


*N = 12509
14 not available
low flux 2,1% (2,2% in 2018)*

Patients treated by hemodialysis *distribution by techniques, 31st Dec. 2009 - 2019*

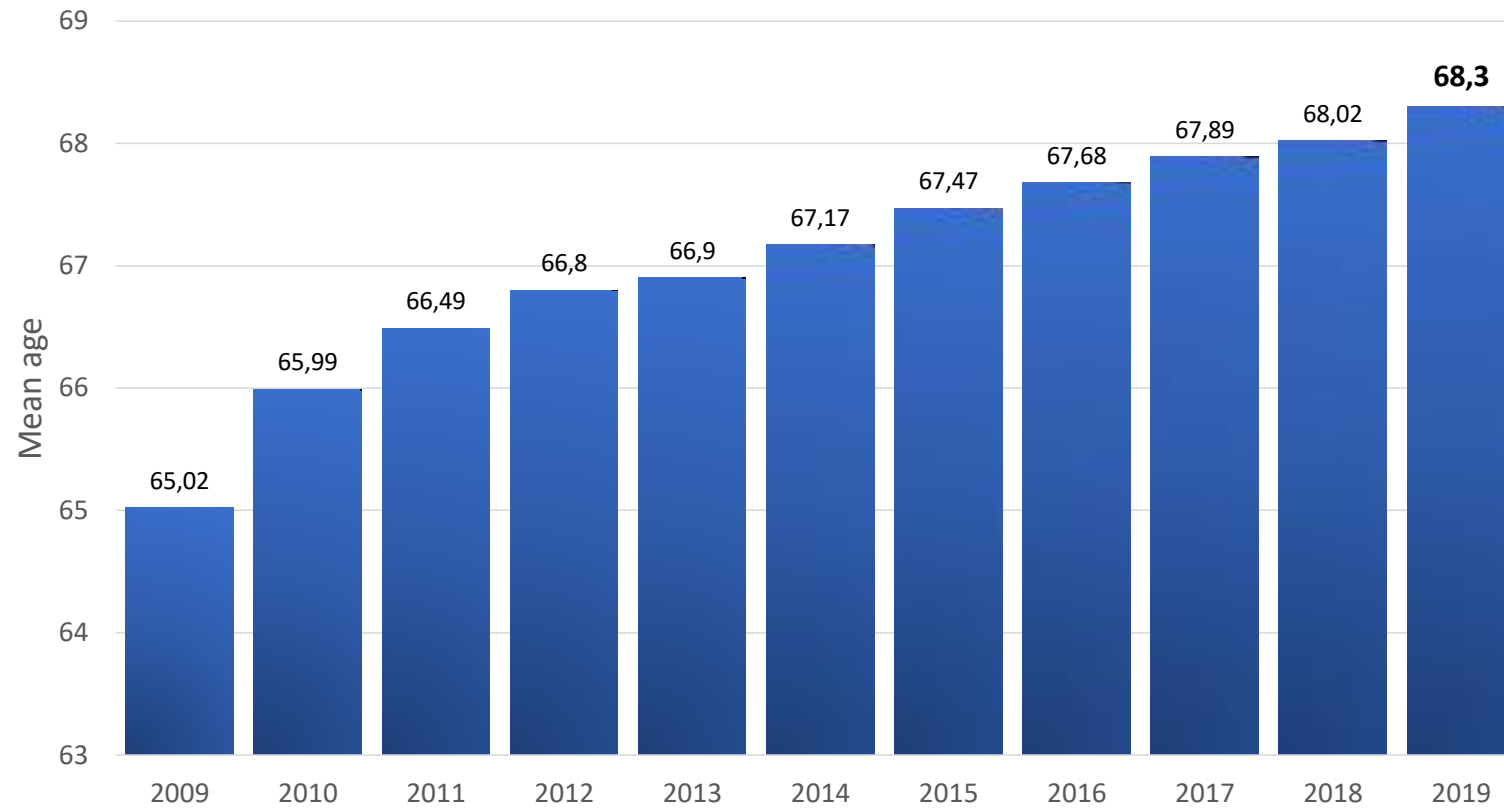


Patients treated by hemodialysis *distribution by techniques by region and facility type, 31st Dec. 2019*

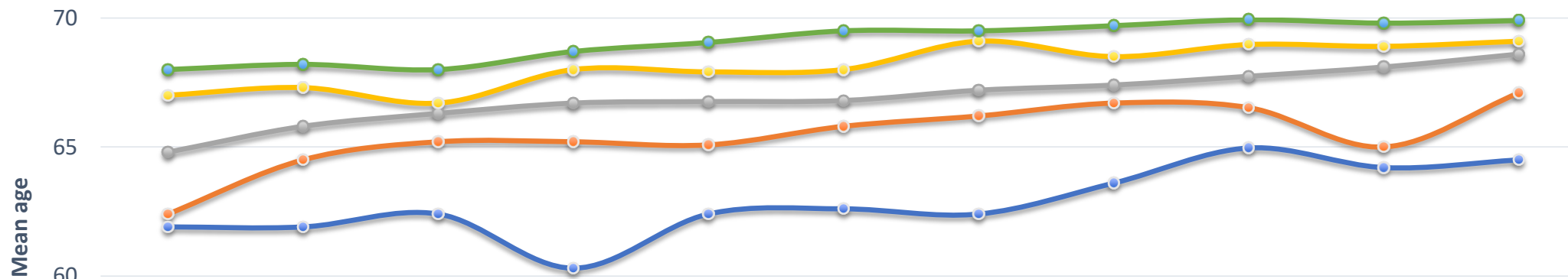


*N = 12509 by end of December 2019
14 not available*

Mean Age of patients treated by hemodialysis *31st of December 2009 – 2019*

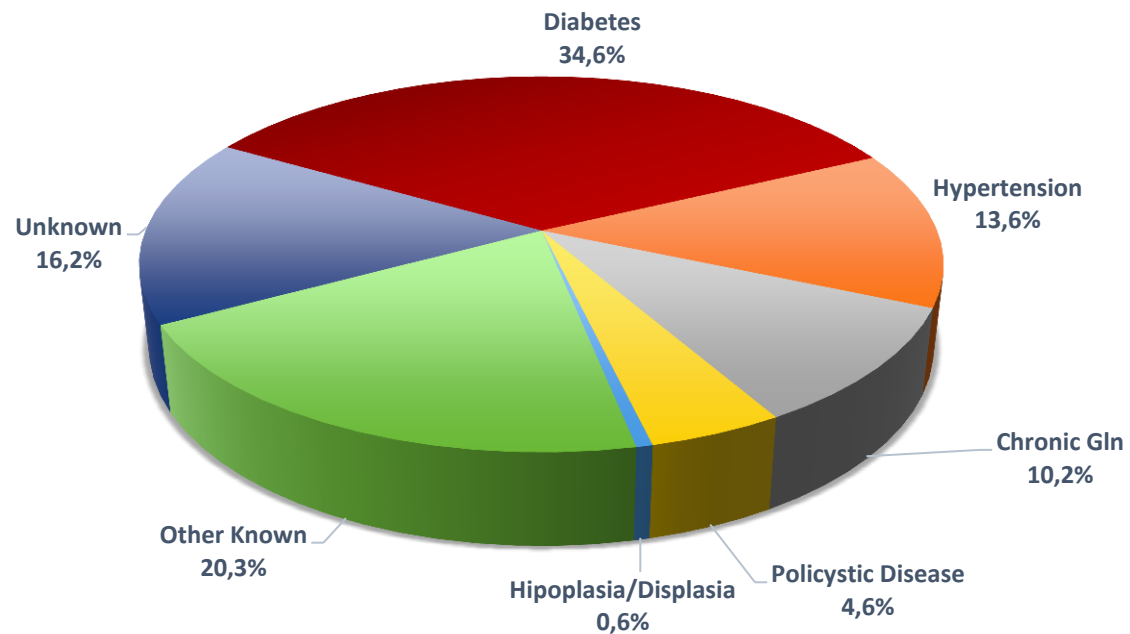


Mean Age of patients treated by hemodialysis by country region, 31st of December 2009 – 2019



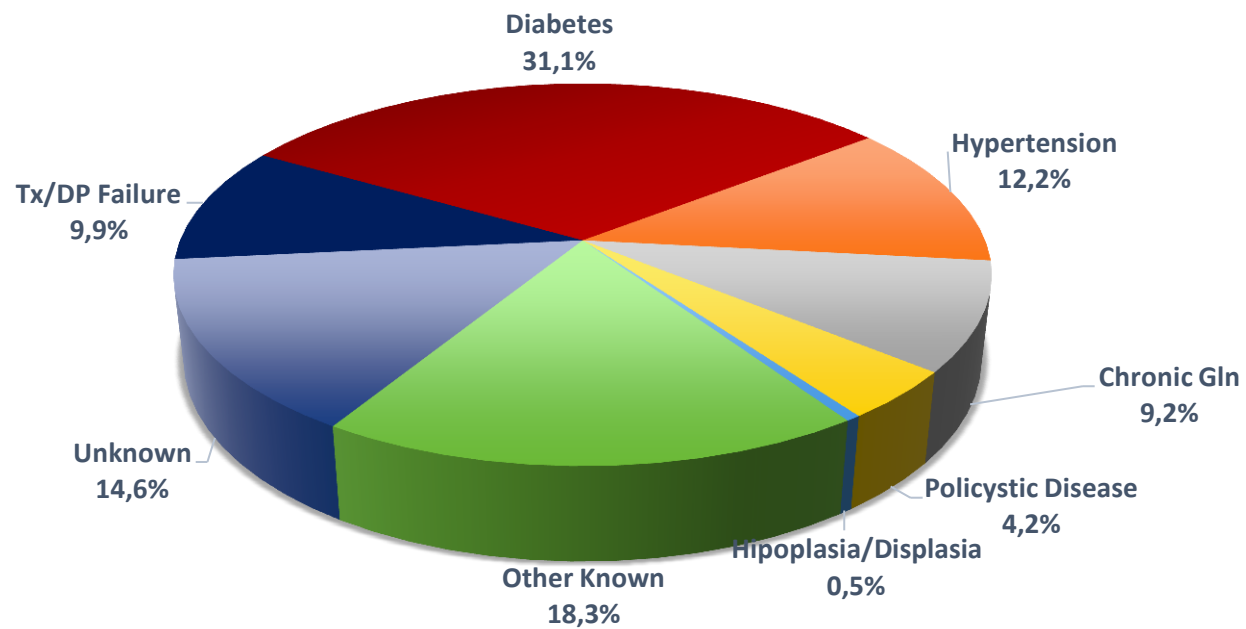
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Islands	61,9	61,9	62,4	60,3	62,4	62,6	62,4	63,6	65,0	64,2	64,5
Lisbon	62,4	64,5	65,2	65,2	65,1	65,8	66,2	66,7	66,5	65	67,1
North	64,8	65,8	66,3	66,7	66,8	66,8	67,2	67,4	67,7	68,1	68,6
South	67	67,3	66,7	68	67,9	68	69,1	68,5	69,0	68,9	69,1
Centre	68	68,2	68	68,7	69,1	69,5	69,5	69,7	69,9	69,8	69,9

Primary renal disease of patients accepted for hemodialysis during 2019



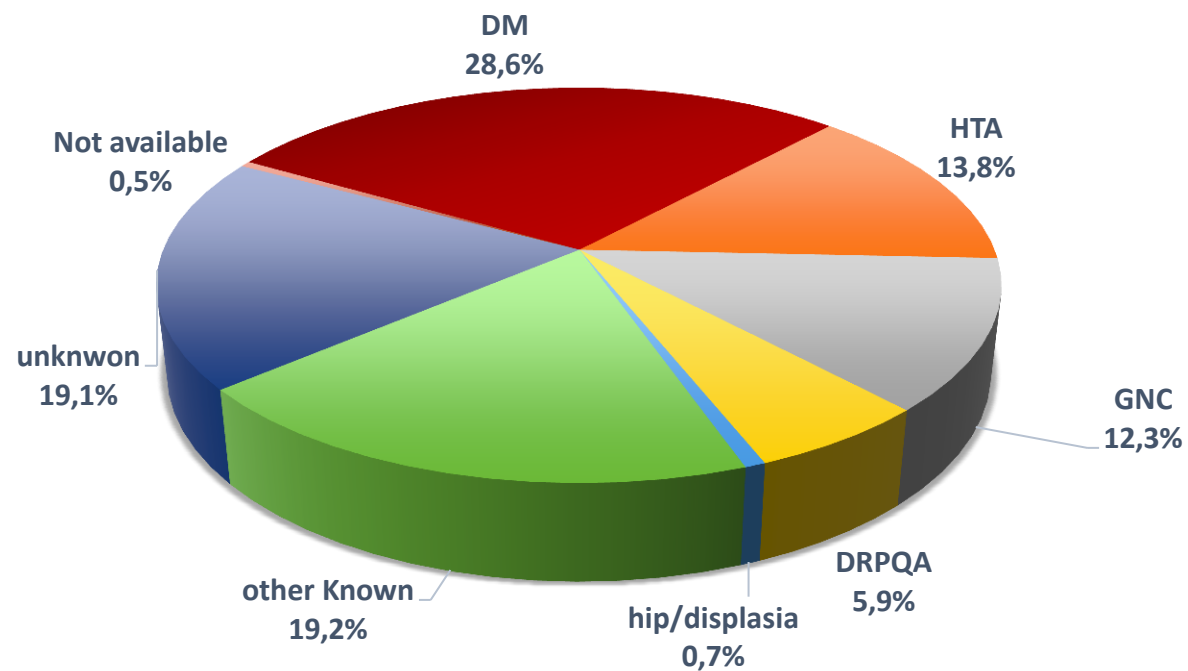
N = 2343
13 not available

Etiology of All patients accepted for hemodialysis during 2019



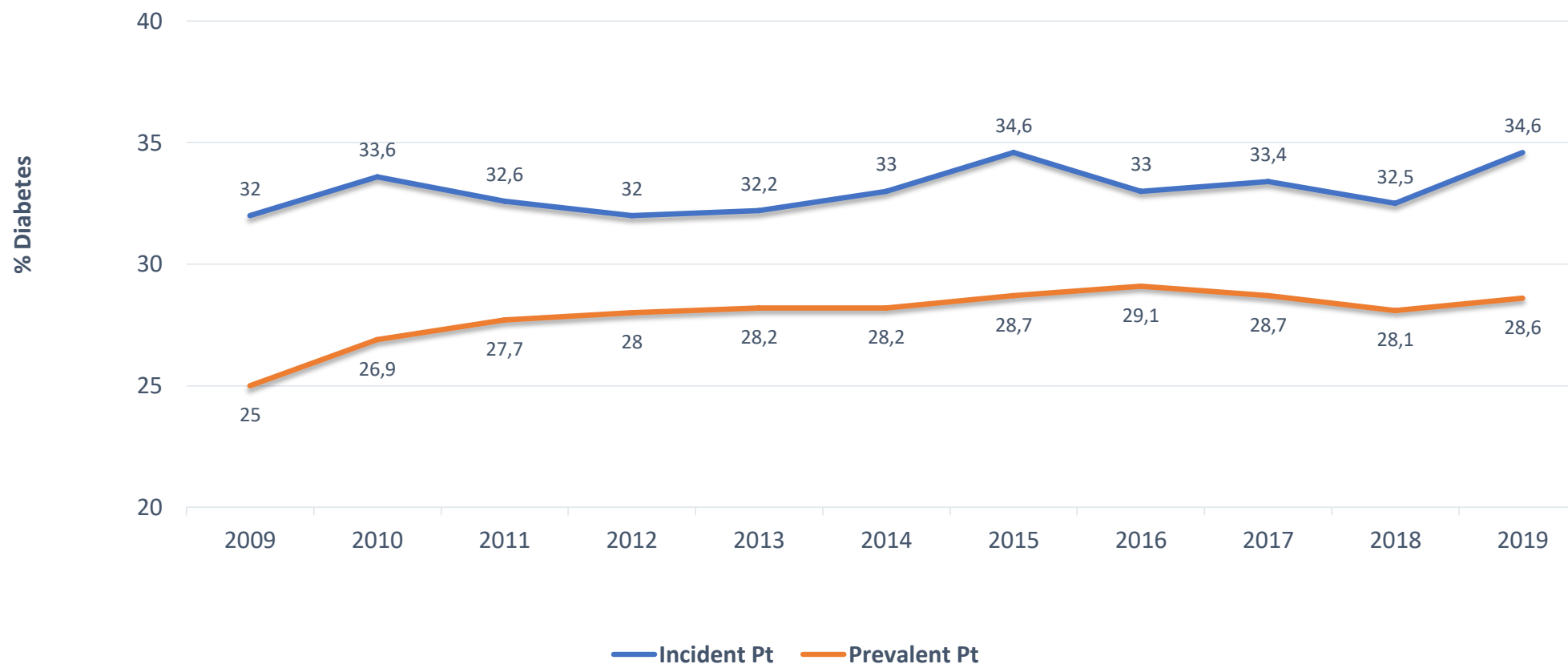
N = 2601

Primary renal disease of prevalent hemodialysis patients 31st December 2019

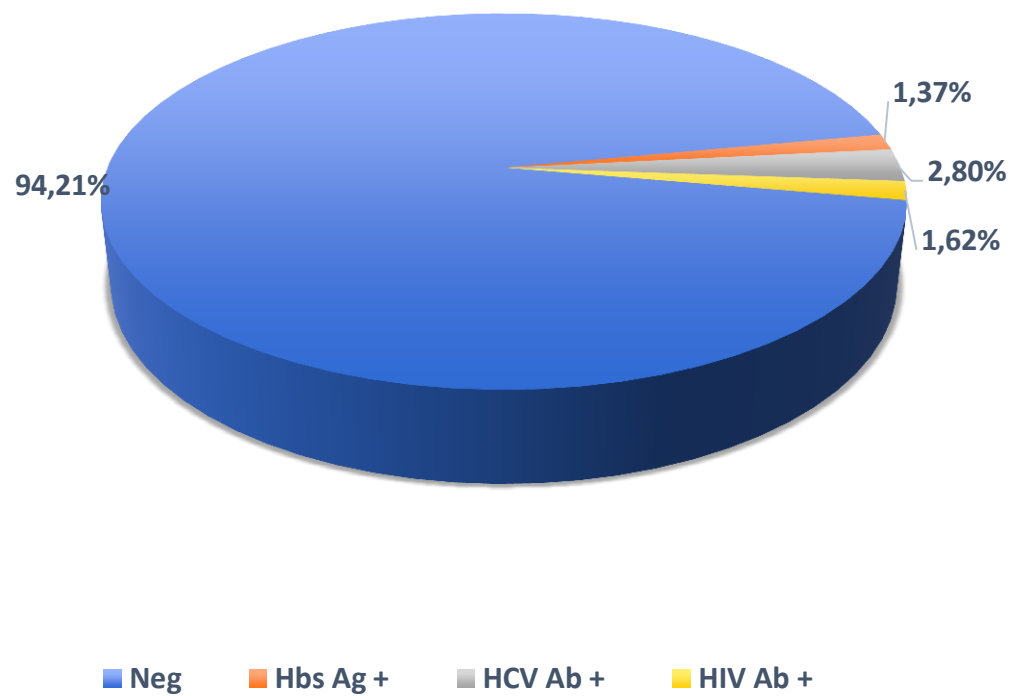


N = 12417
106 not available

Diabetes as primary renal disease in HD patients Incident and prevalent (%) 2009 - 2019

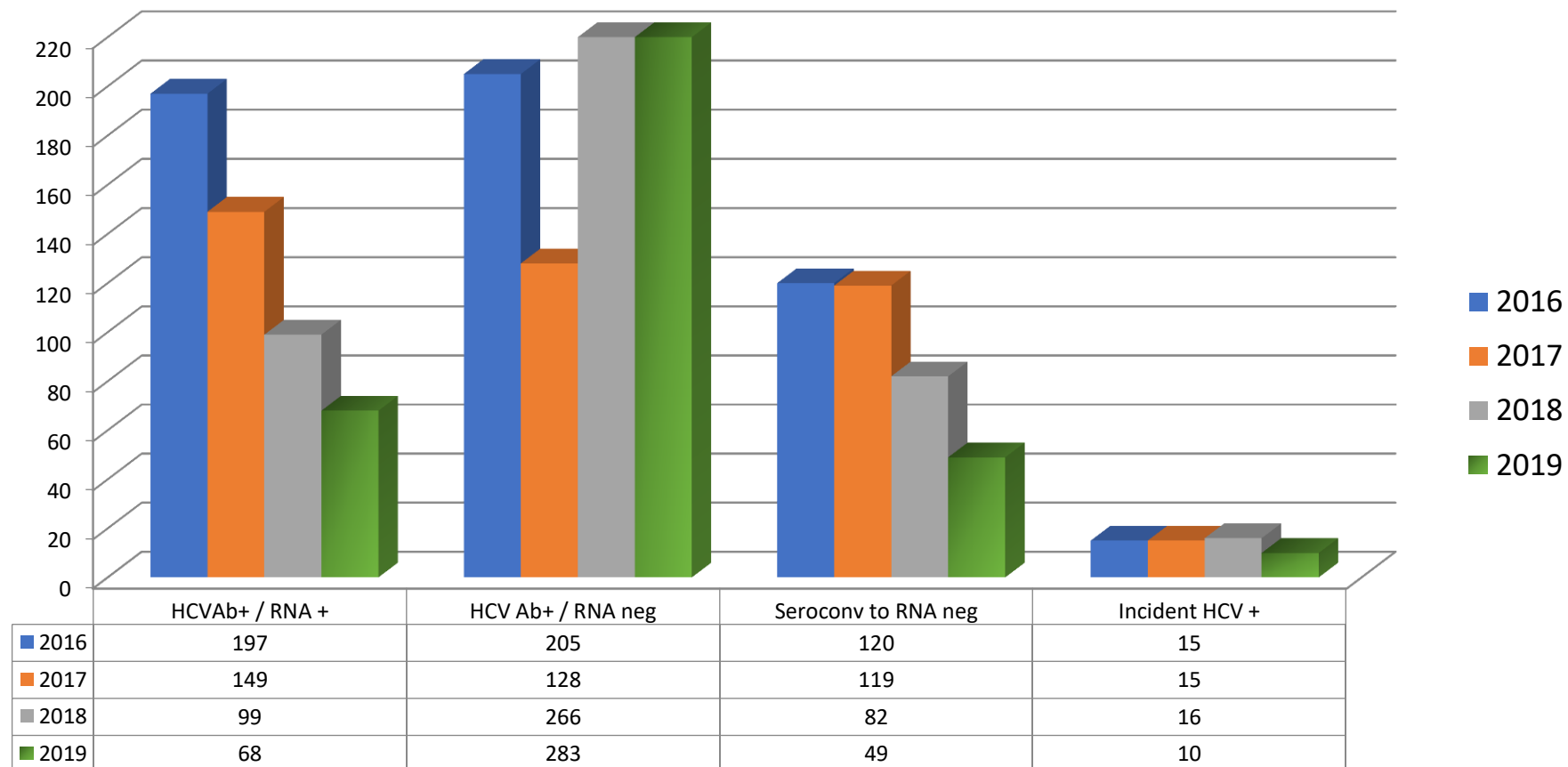


Viral status in HD prevalent patients 31st December 2019

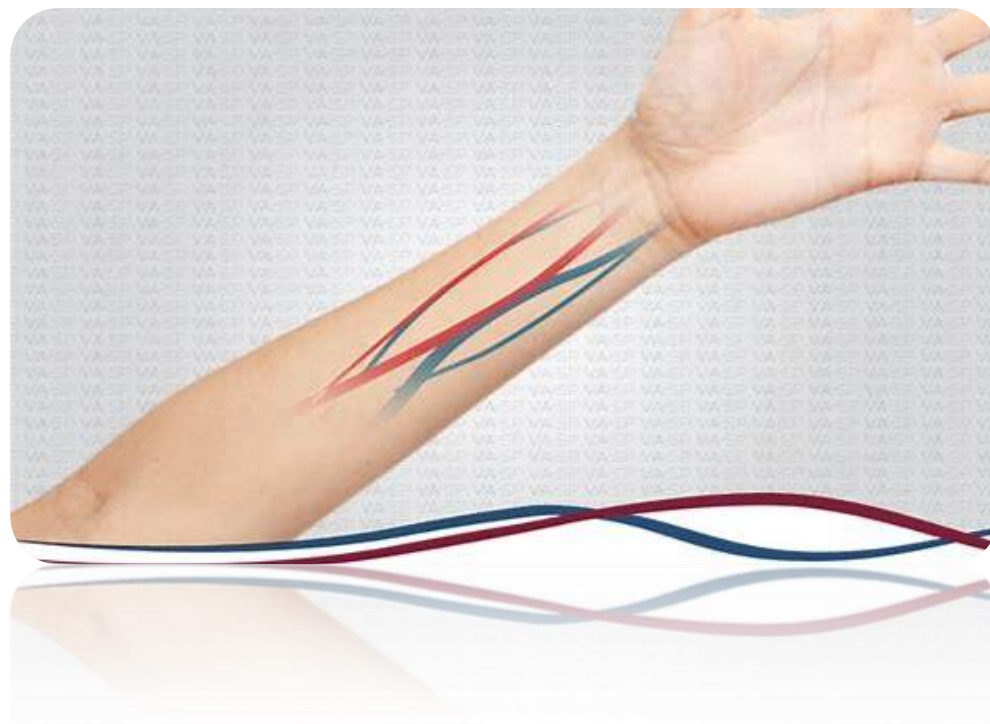


N = 12523

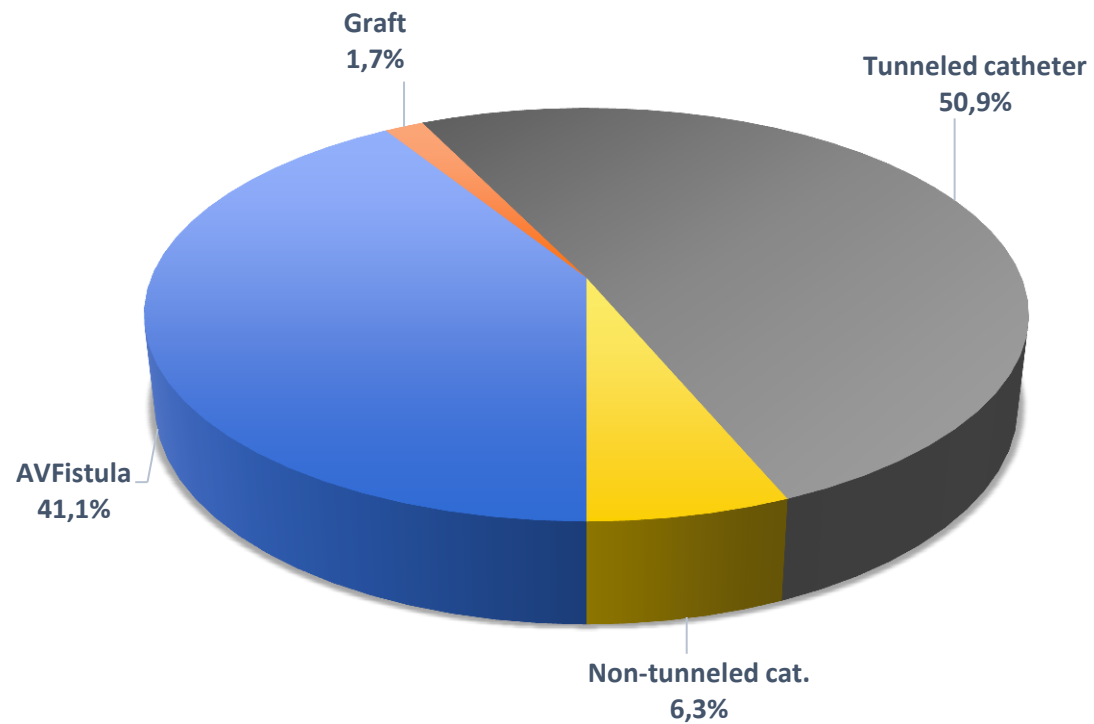
Hepatitis C viral status in HD prevalent pts 31st December 2016 – 2017 – 2018 - 2019



Vascular access

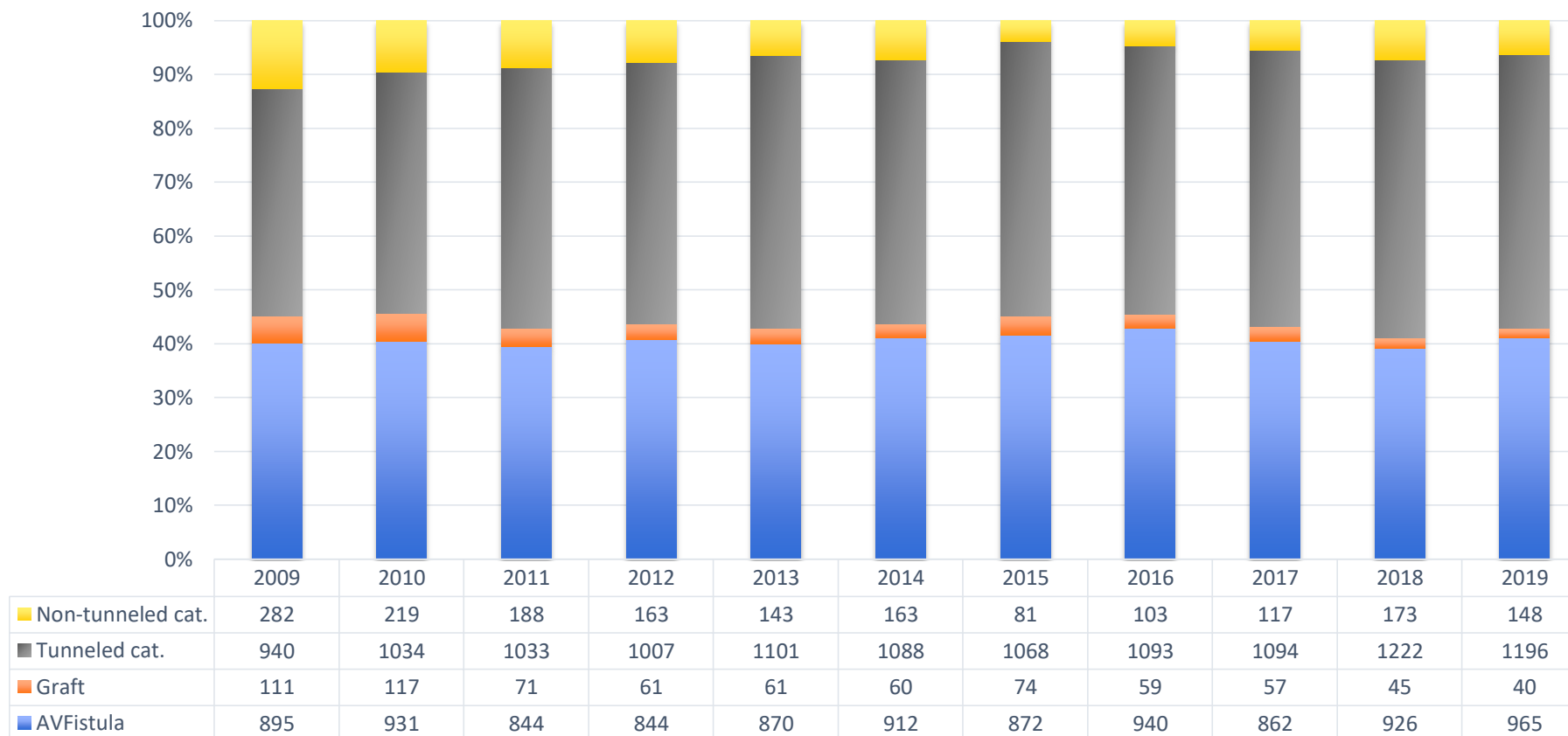


Vascular access of HD incident patients during 2019

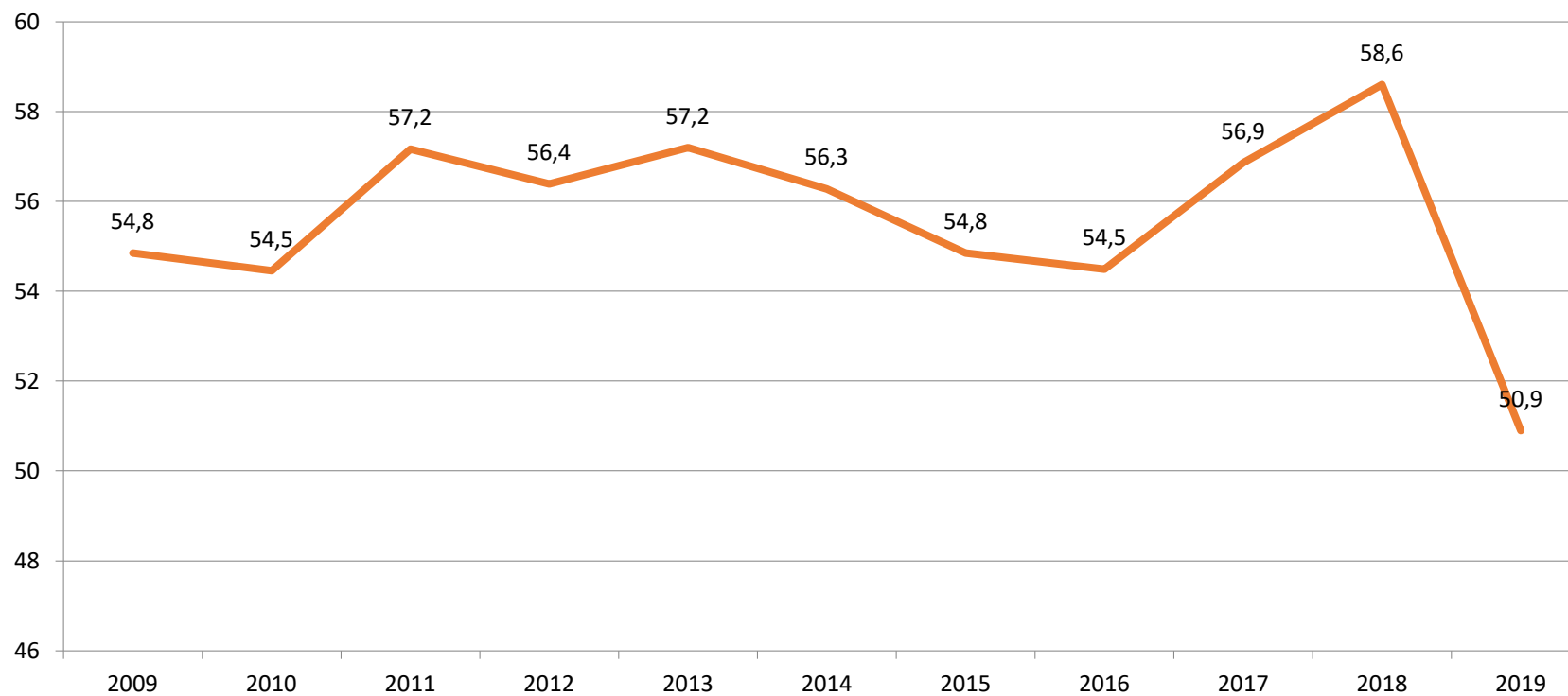


N = 2349
7 unavailable

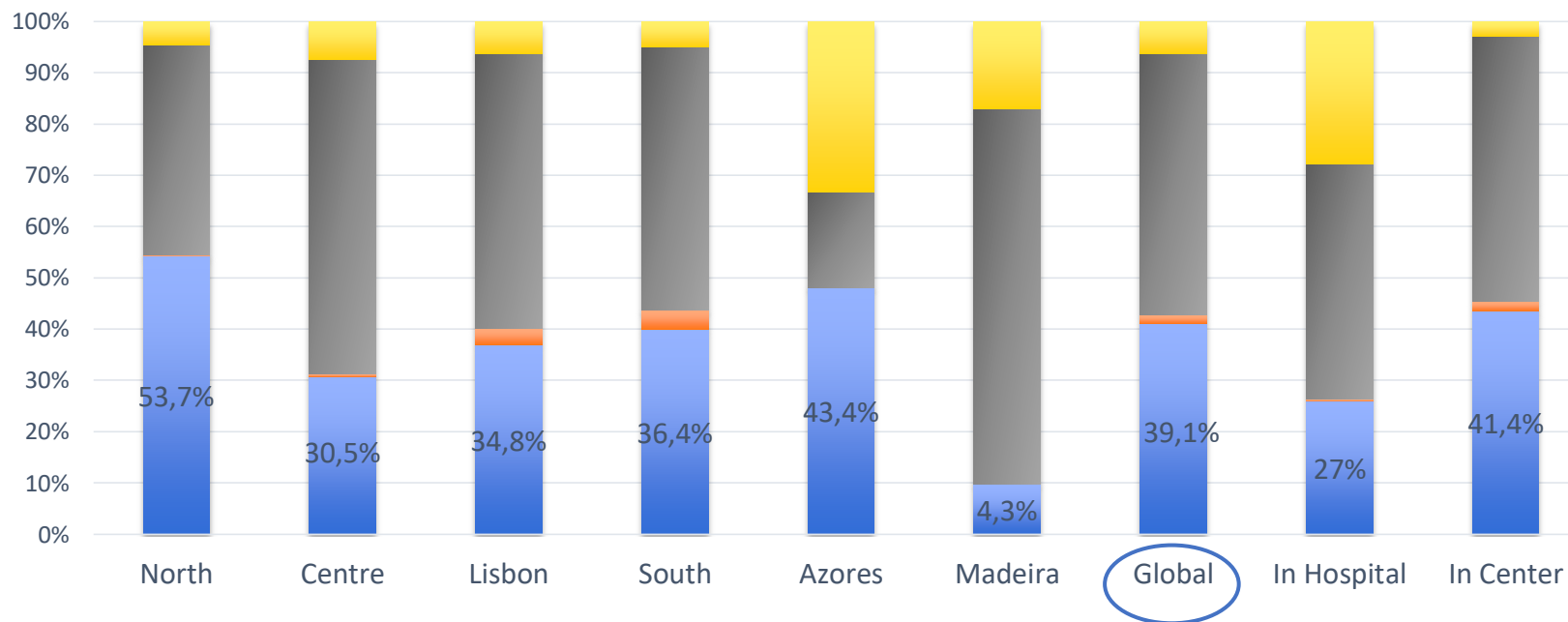
Vascular access of HD incident patients 2009 – 2019



Catheter rate (%) in the first HD session of incident patients 2009 – 2019



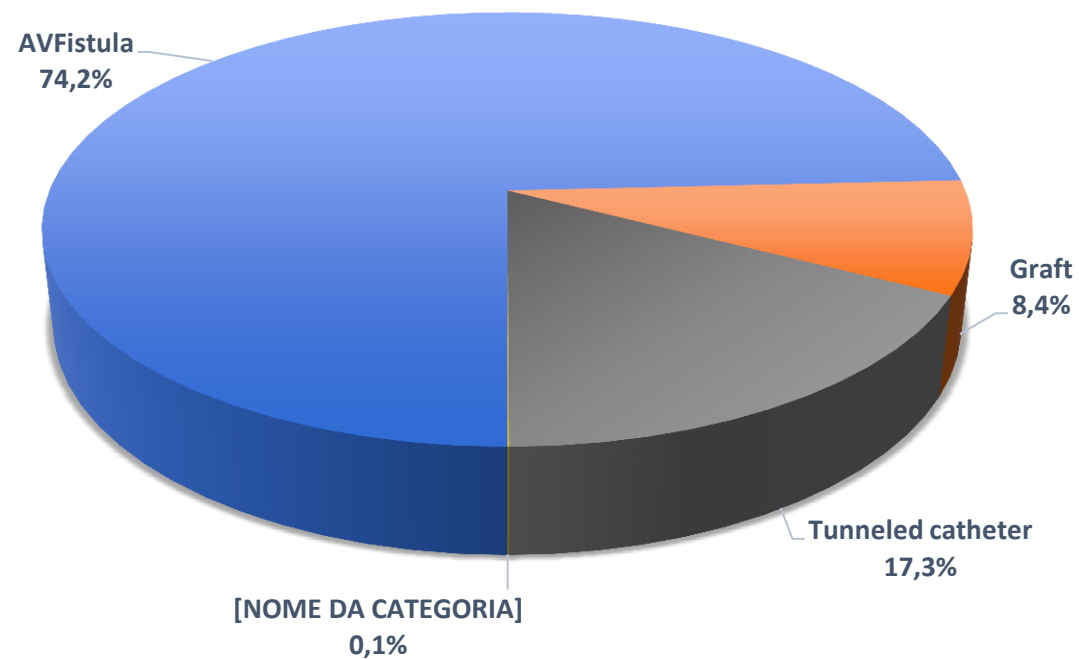
Vascular access of HD incident patients *by country region and facility type*



■ AVFistula
 ■ Graft
 ■ Tunneled Catheter
 ■ Non-tunneled Cat.

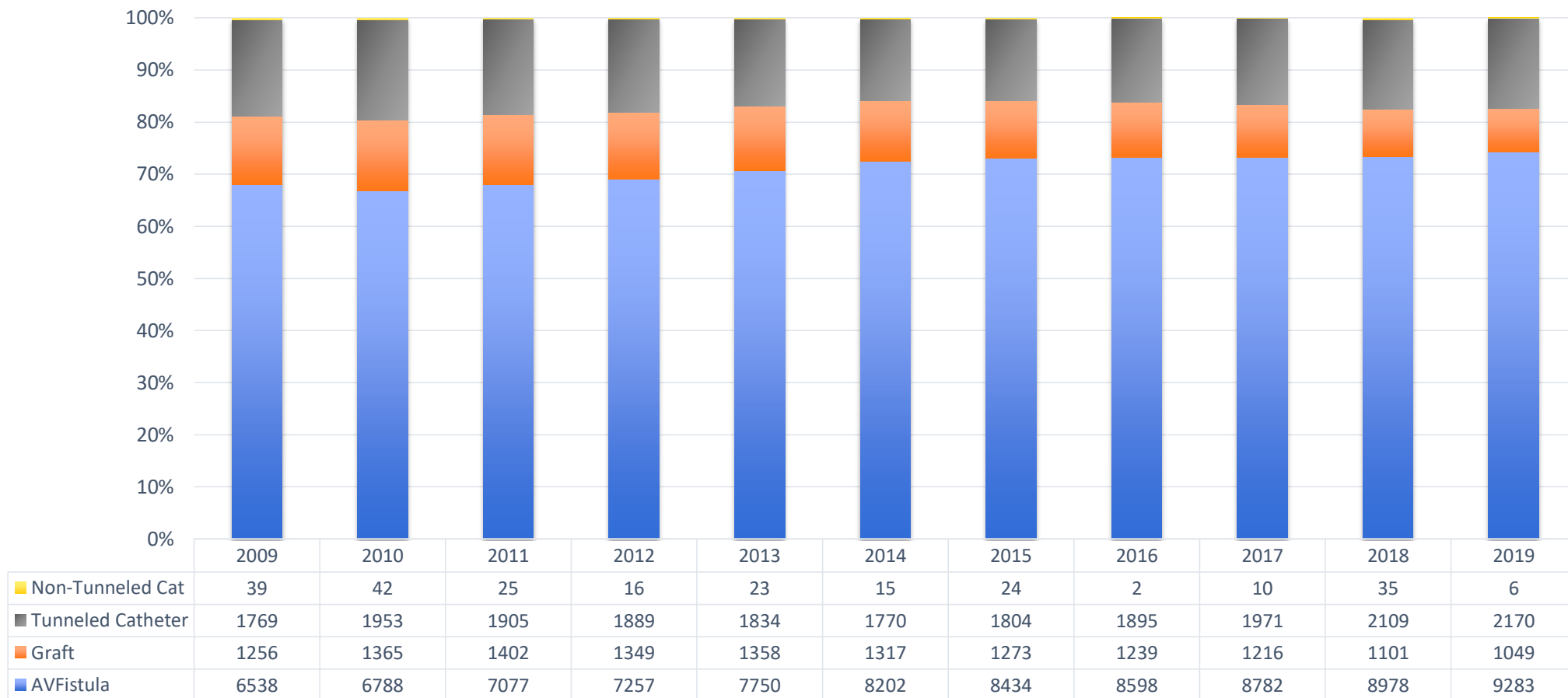
N = 2349
7 not available

Vascular access of HD prevalent patients 31st December 2019

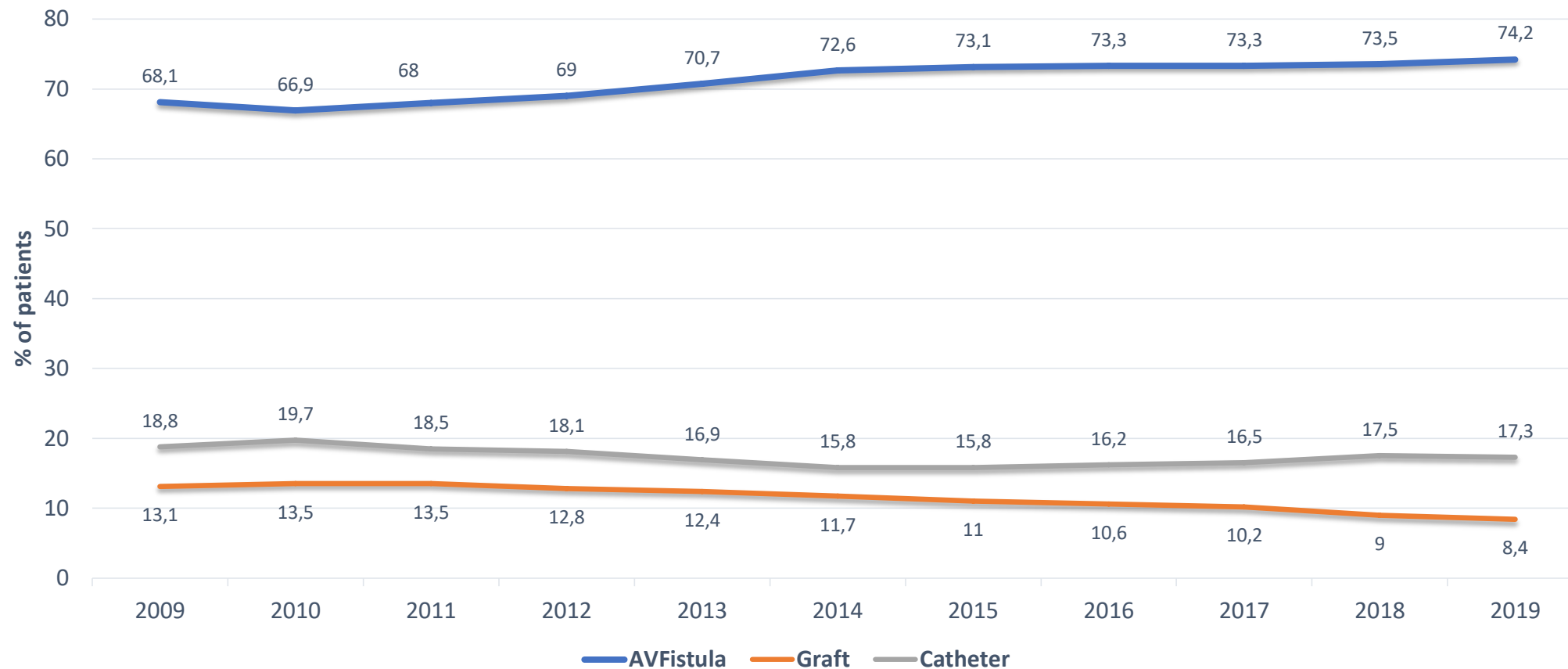


N = 12508
15 not available

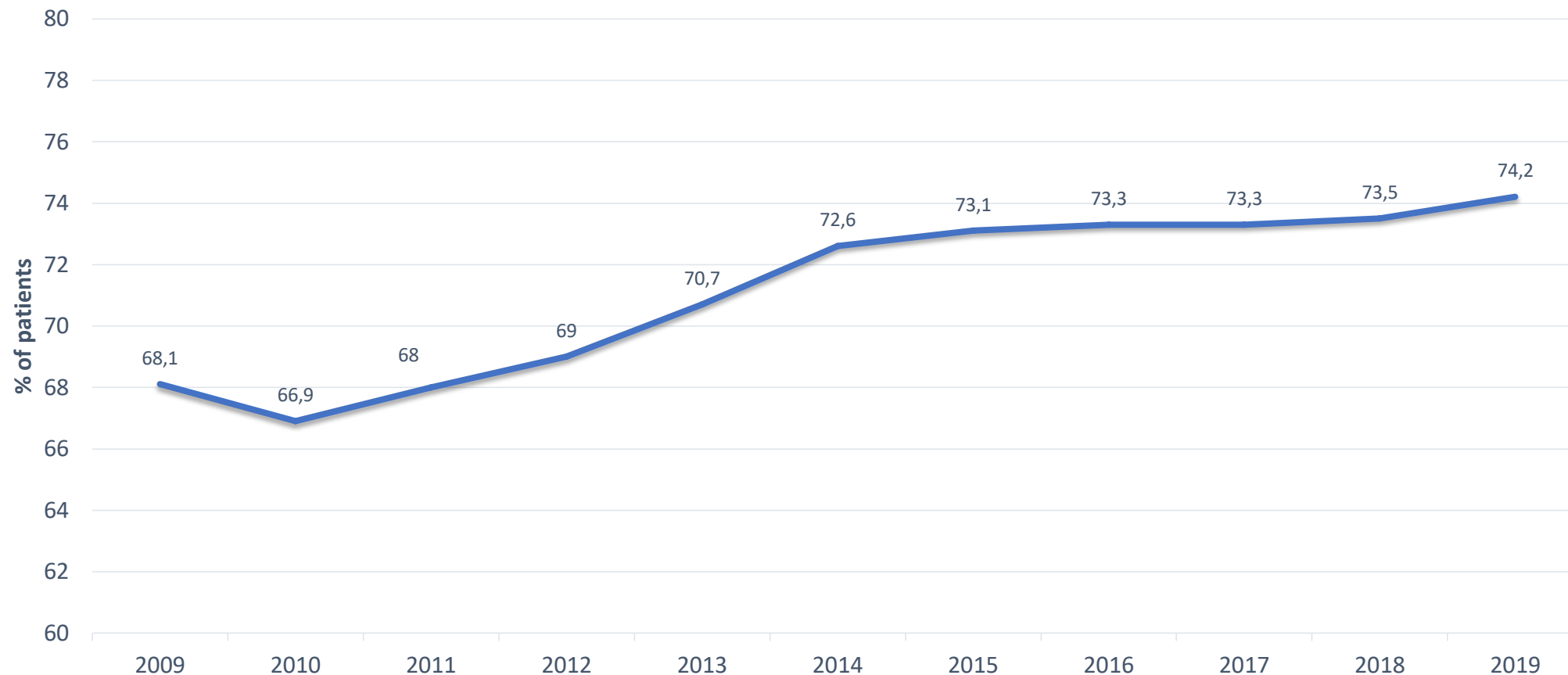
Vascular access of HD prevalent patients 31st December, 2009 - 2019



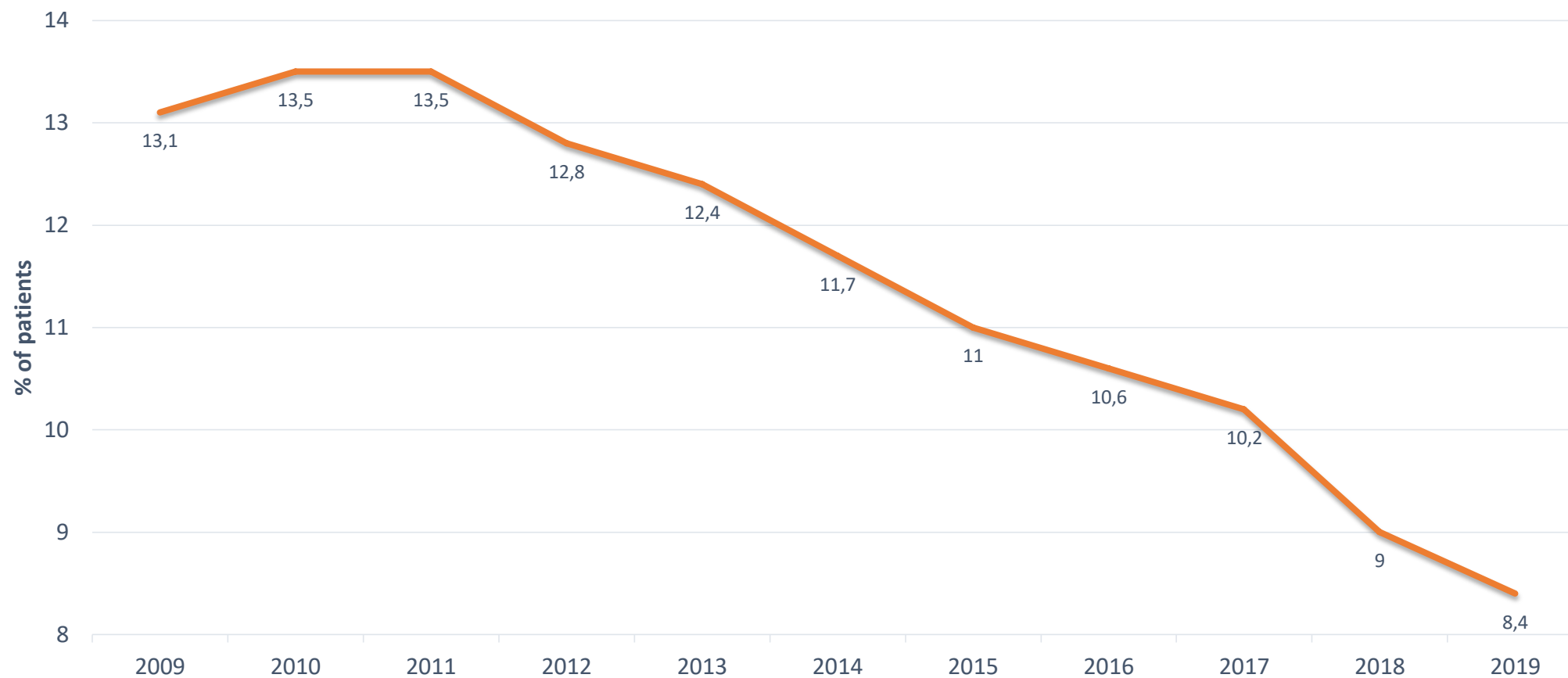
Vascular access of prevalent patients (%) 31st December, 2009 - 2019



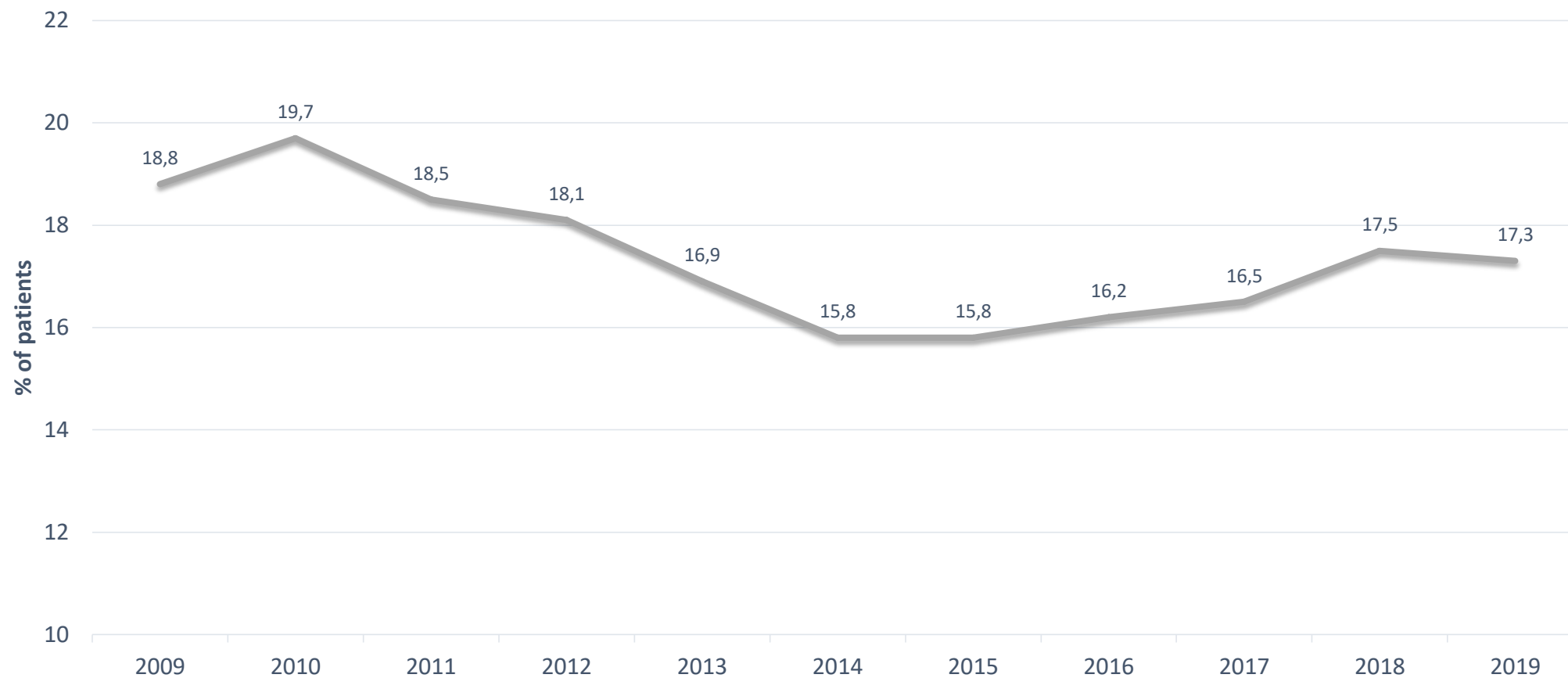
AV Fistula rate of prevalent patients (%) 31st December, 2009 - 2019



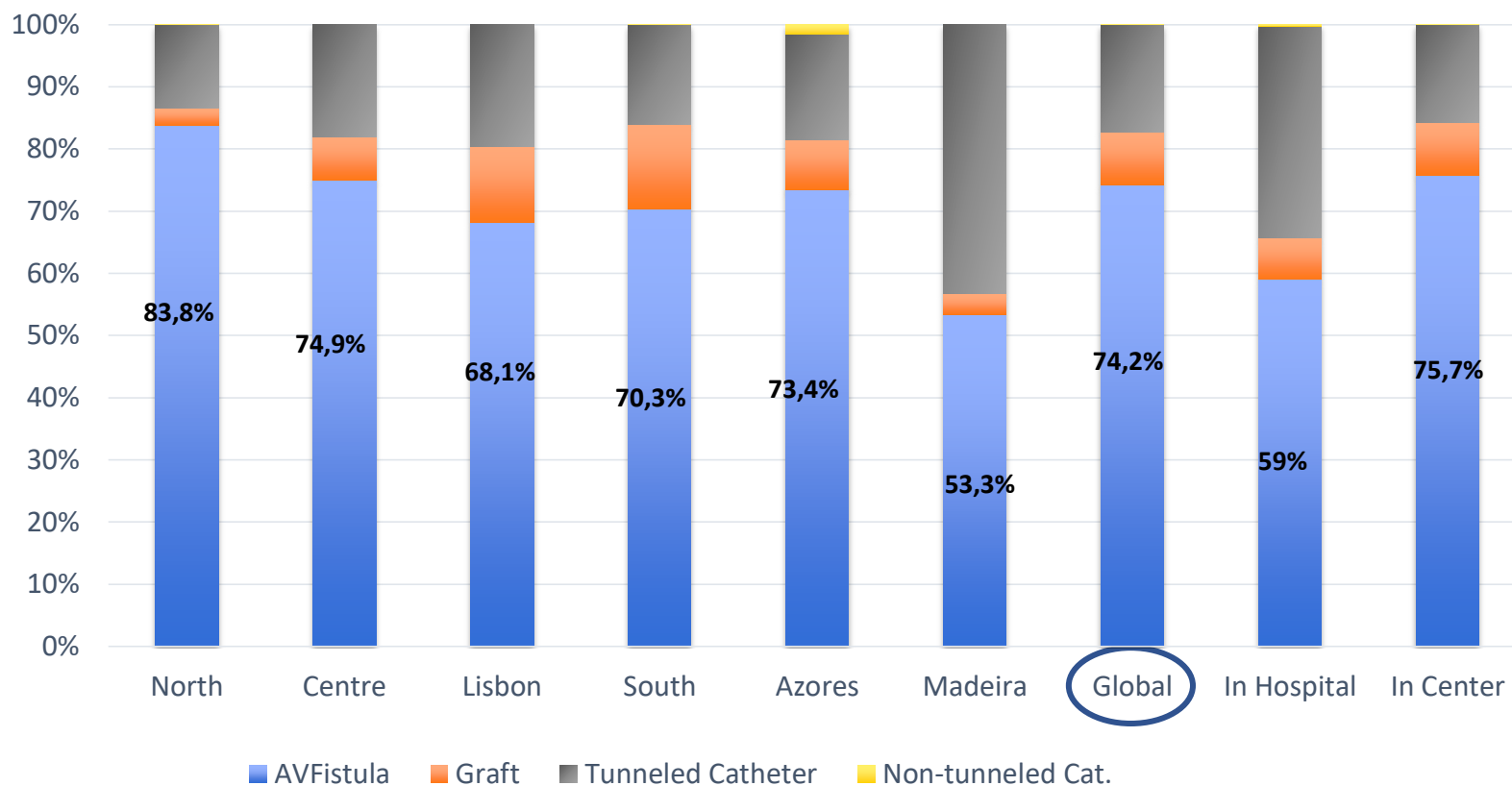
Graft rate of prevalent patients (%) 31st December, 2008 - 2018



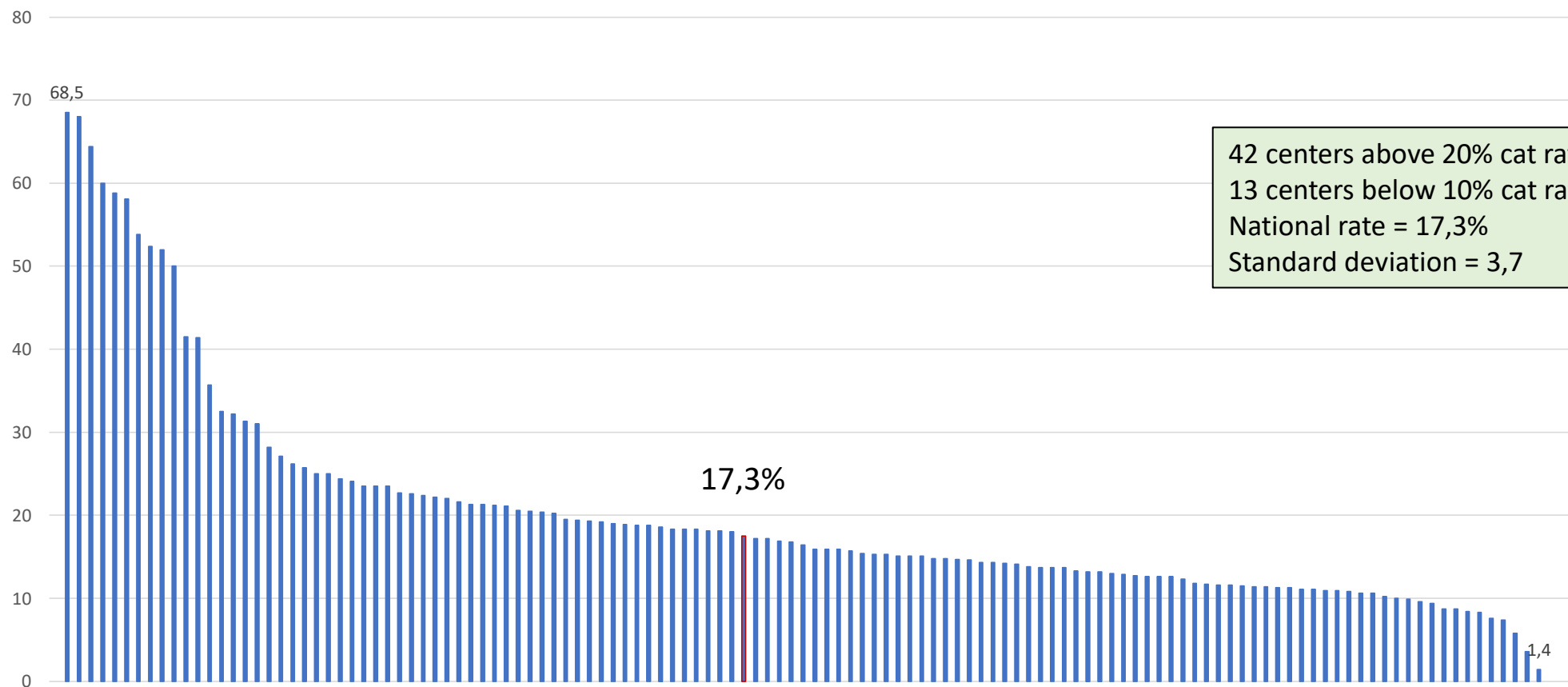
Catheter rate of prevalent patients (%) 31st December, 2009 - 2019



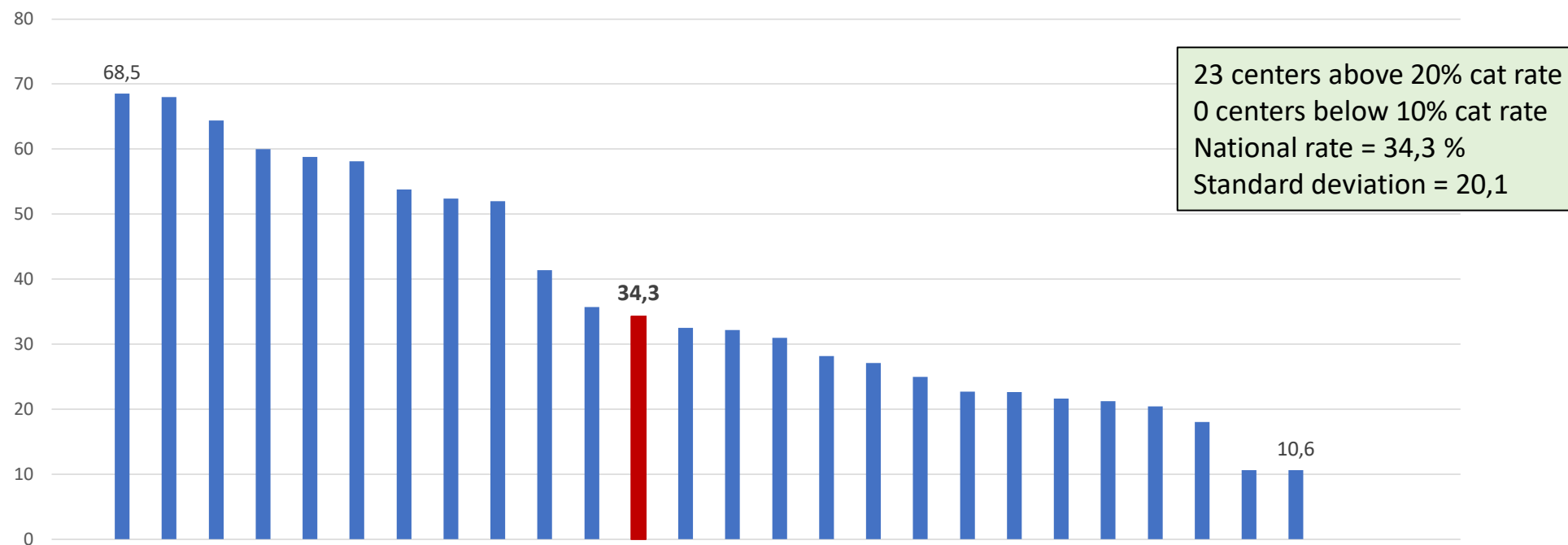
Vascular access of HD prevalent patients by country region and facility type, 31st of December 2019



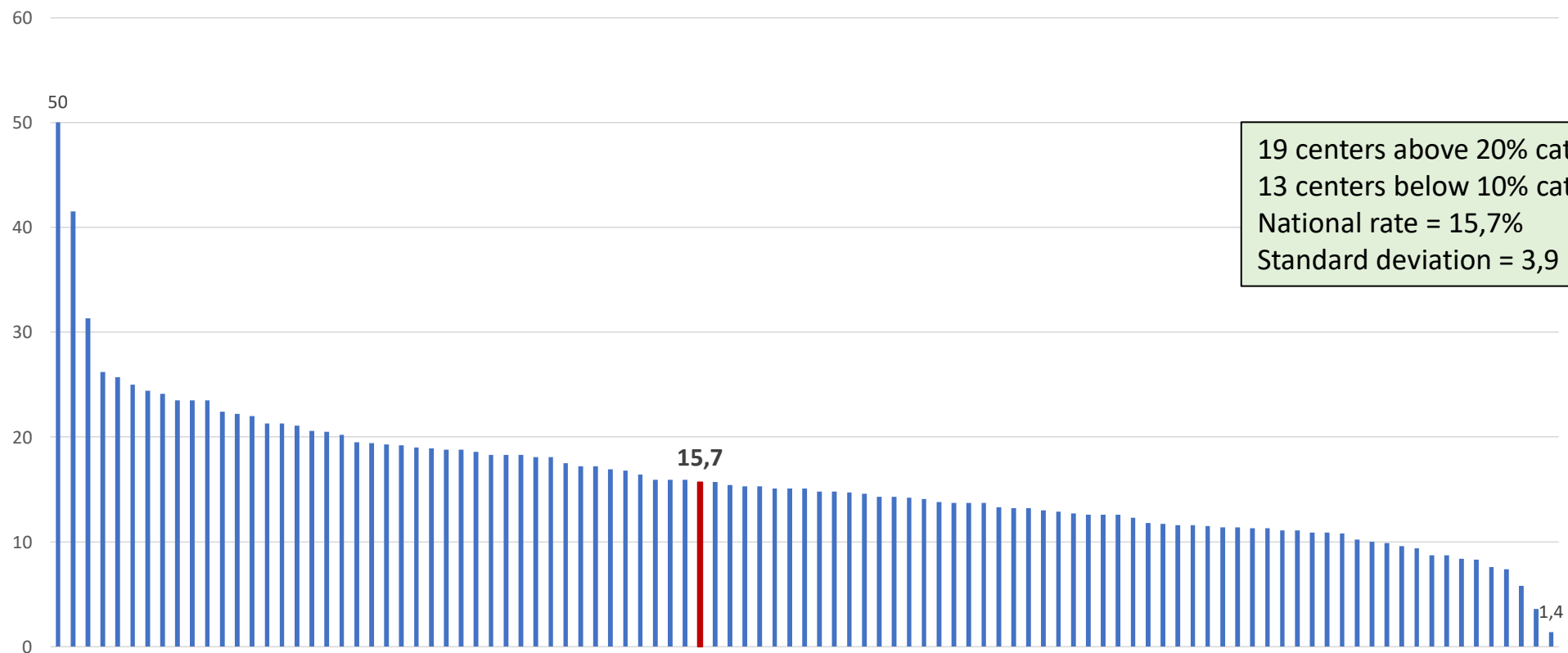
Catheter rate of prevalent patients (%) 31st December 2019



Catheter rate of prevalent patients (%) *In Hospital HD patients - 2019*



Catheter rate of prevalent patients (%) In Center HD patients - 2019



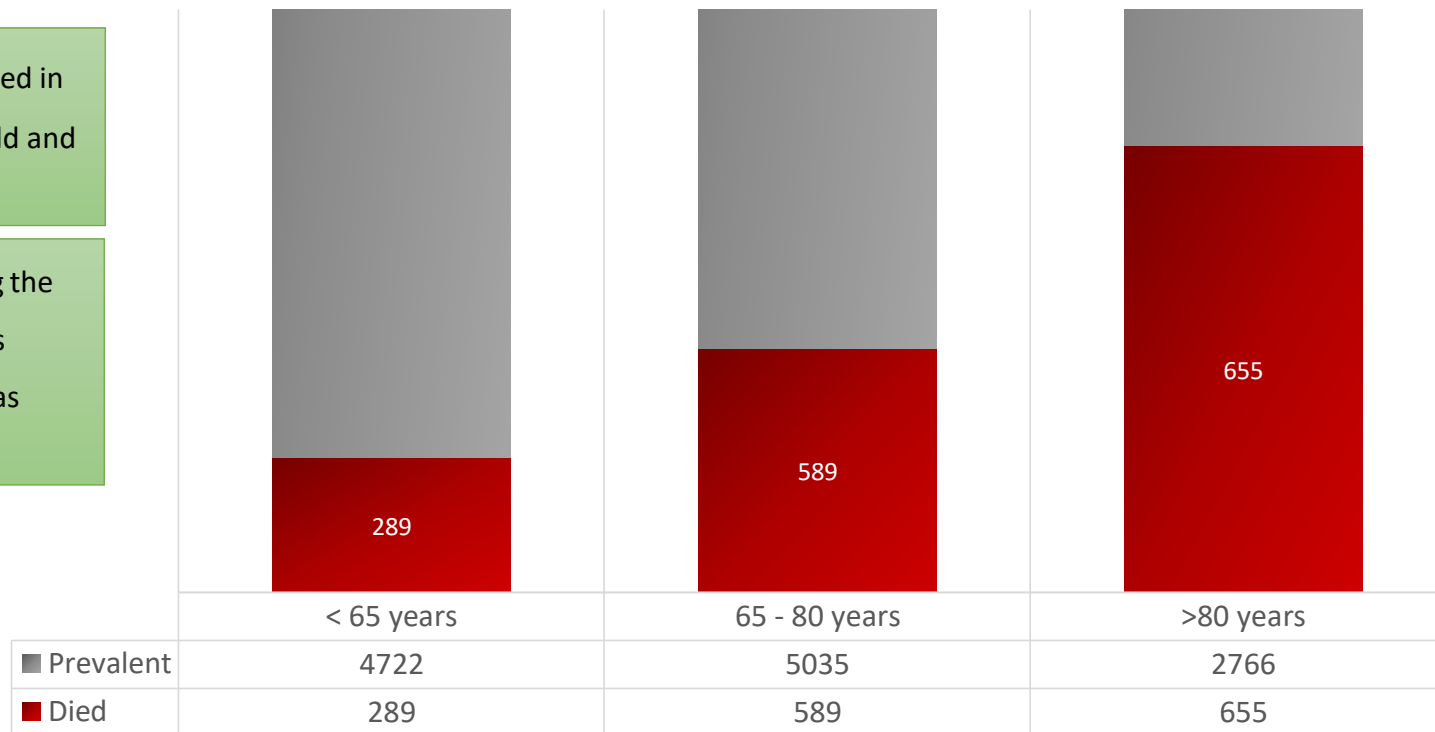
Mortality - hemodialysis

Deaths in hemodialysis by age group in 2019

* 81,1% of **1533** patients that died in 2019 were more than 65 years old and 42,7% more than 80 years

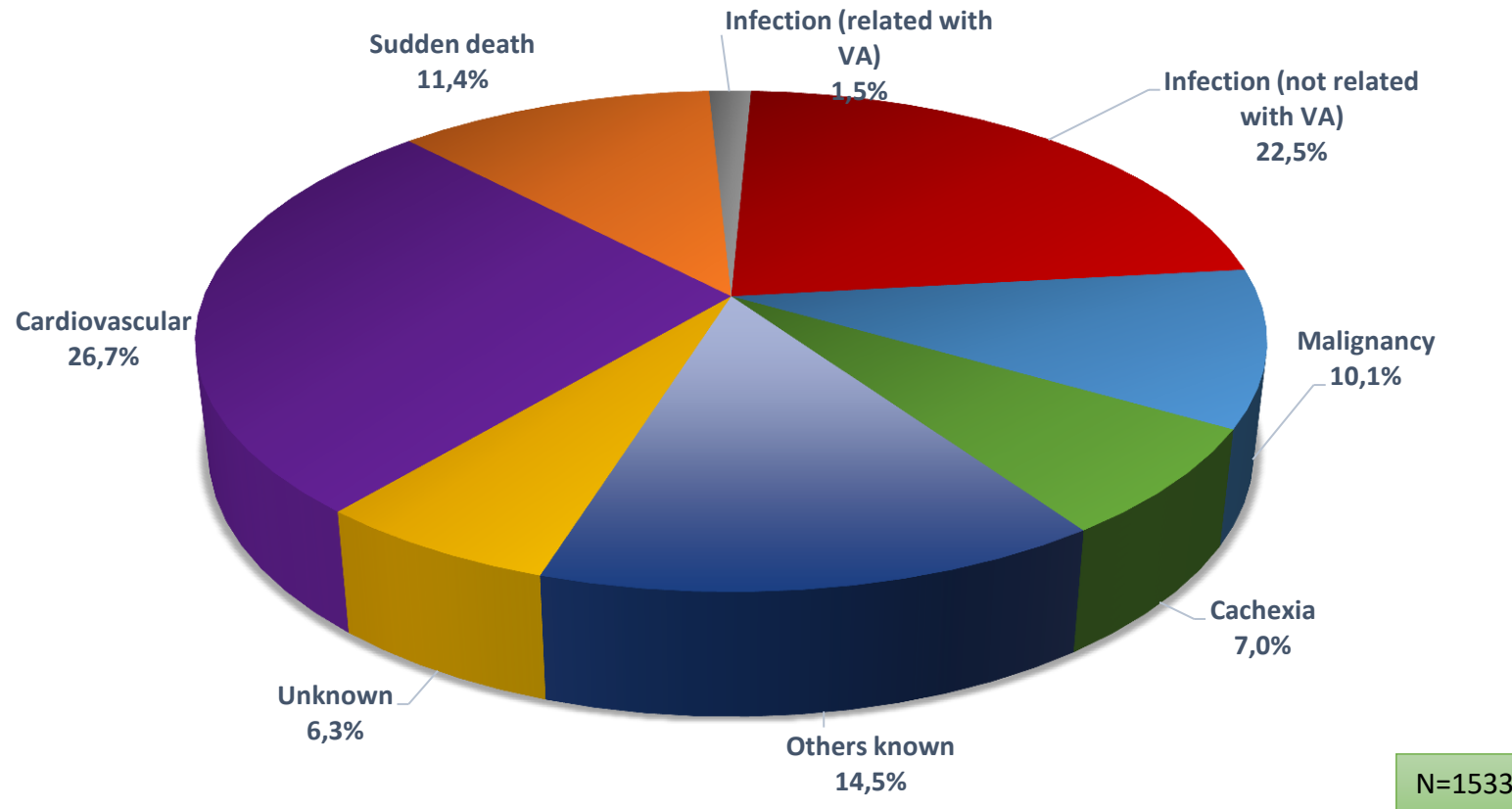
* 5,8% of deaths occurred during the first 90 days after starting dialysis

* Mortality in the first 90 days was 3,4% (5,7% em 2018)

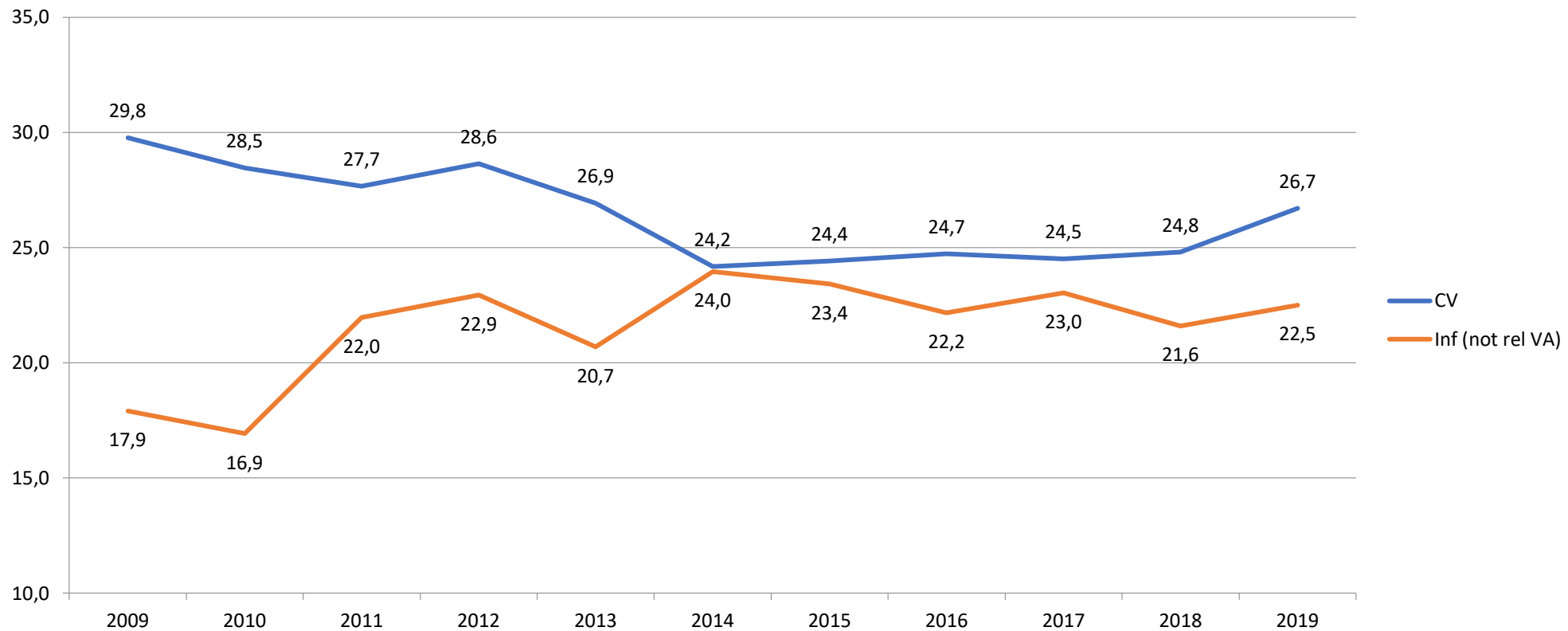


N: 1533

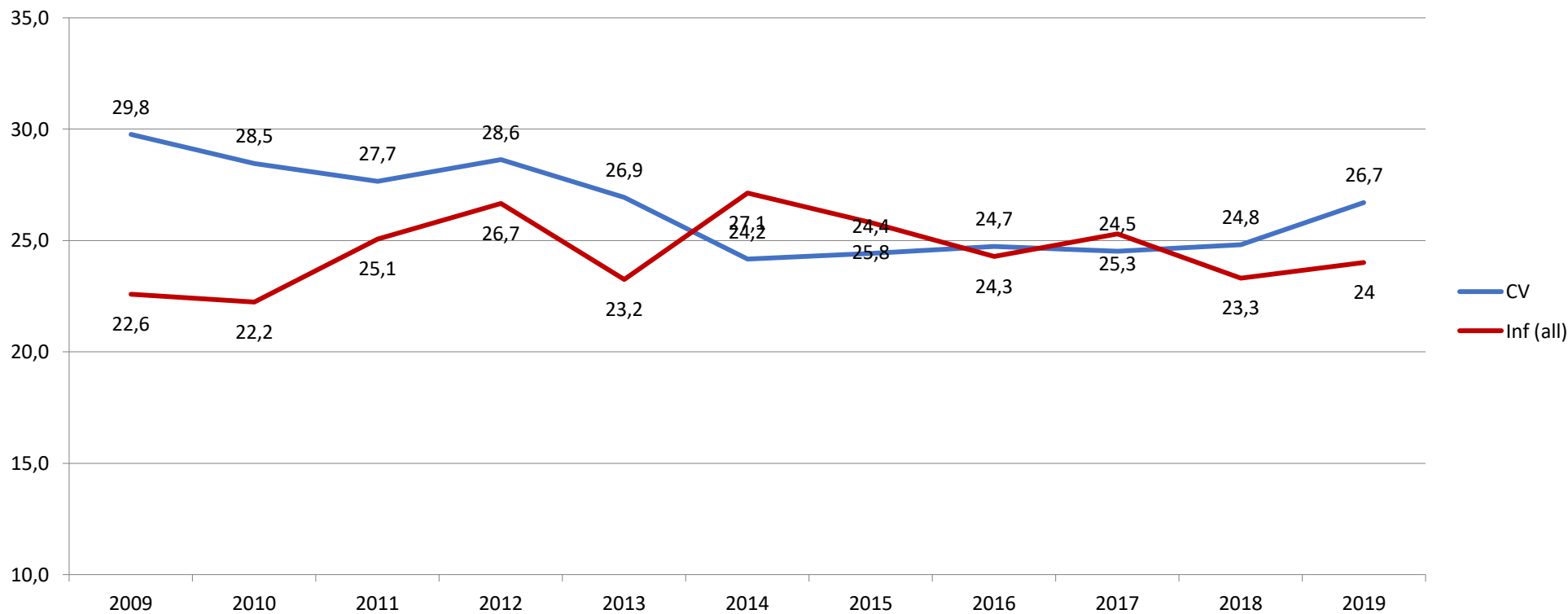
Death causes in HD patients during 2019



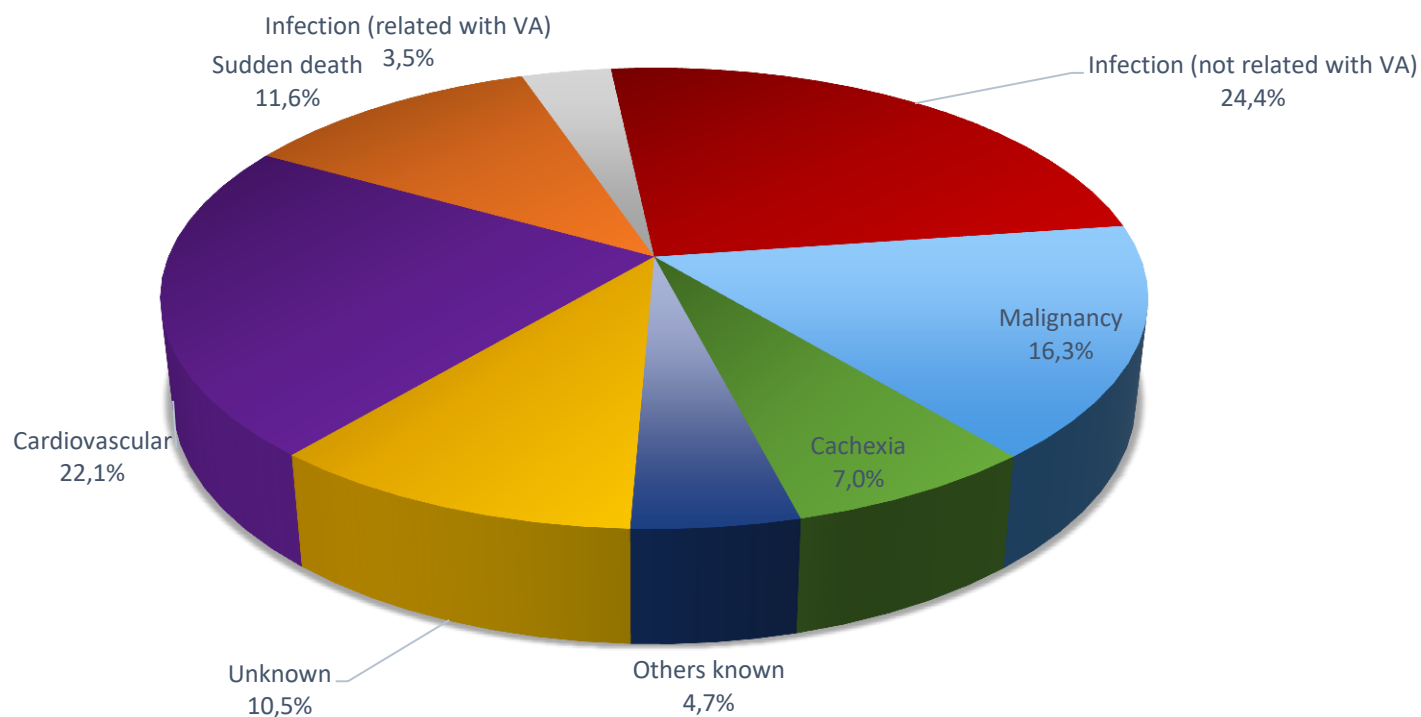
Cardiovascular and Infection deaths in hemodialysis (%) 2009 - 2019



Cardiovascular and Infection deaths in hemodialysis (%) 2009 - 2019

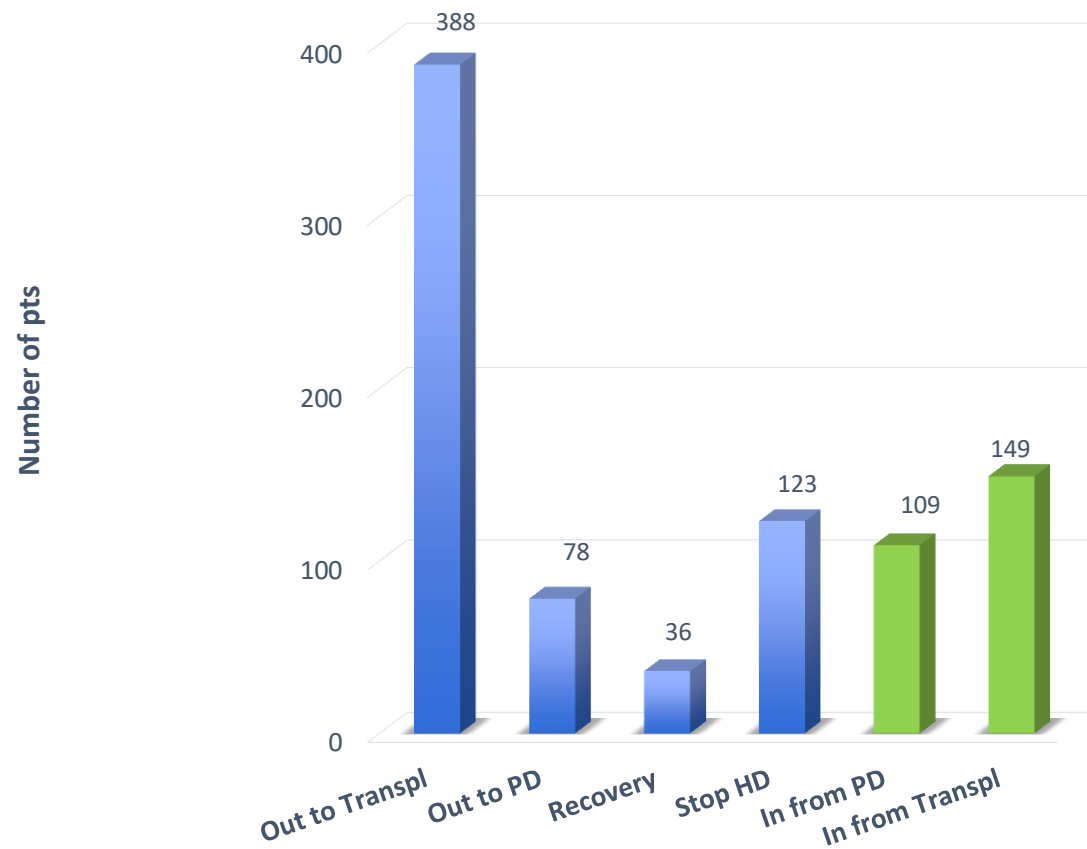


Death causes during the first 90 days of HD 2019



N=86
4 not available

Patients movement in 2019



Out = 625 ; In = 258

HD patients movement in 2019

	IN		OUT
First treatment	2356	Deaths	1533
Transplant failure	149	Transplanted	388
PD into HD	109	HD into PD	78
		Stop treat. or recovery	159

GROSS MORTALITY RATE = 12,47%

(90d mortality = 3,44%)

Mortality rates – hemodialysis 2019

National gross mortality rate = **12,47%**

(90 day mortality = 3,44%)

Hemodialysis *in hospital*

17,81%

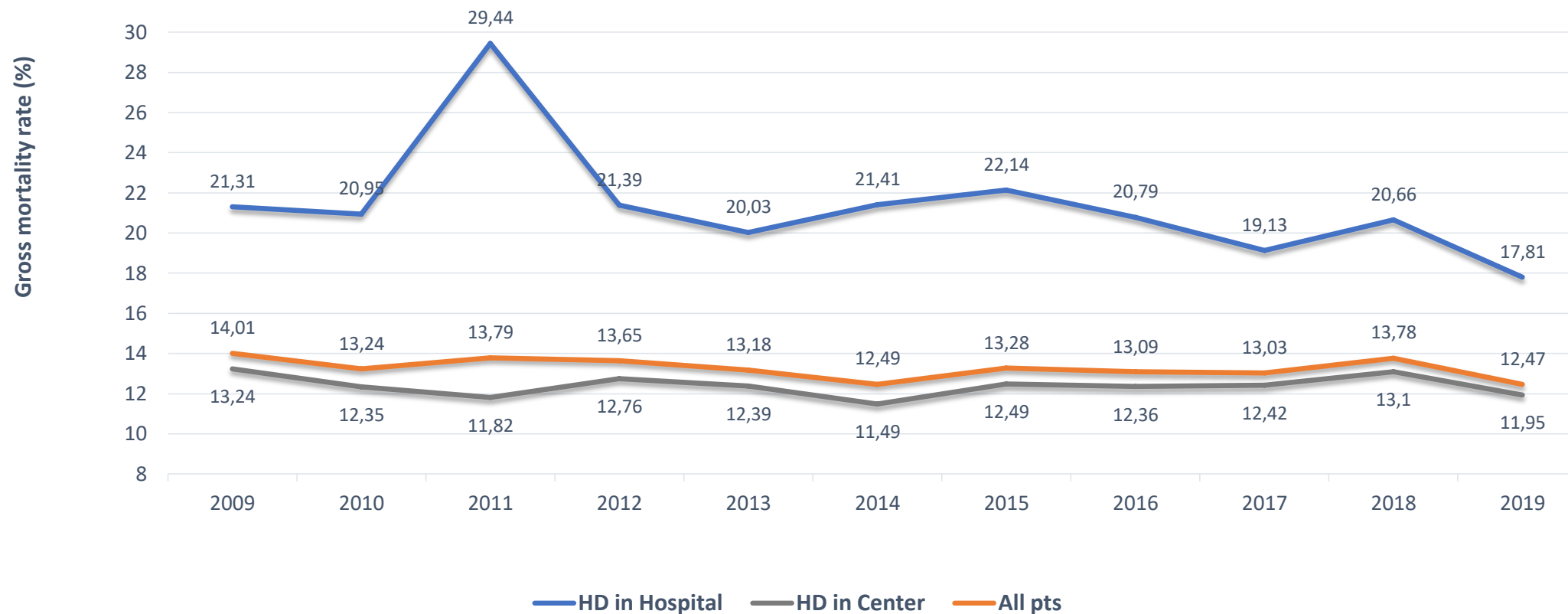
(90 day mortality = 5,5%)

Hemodialysis *in center*

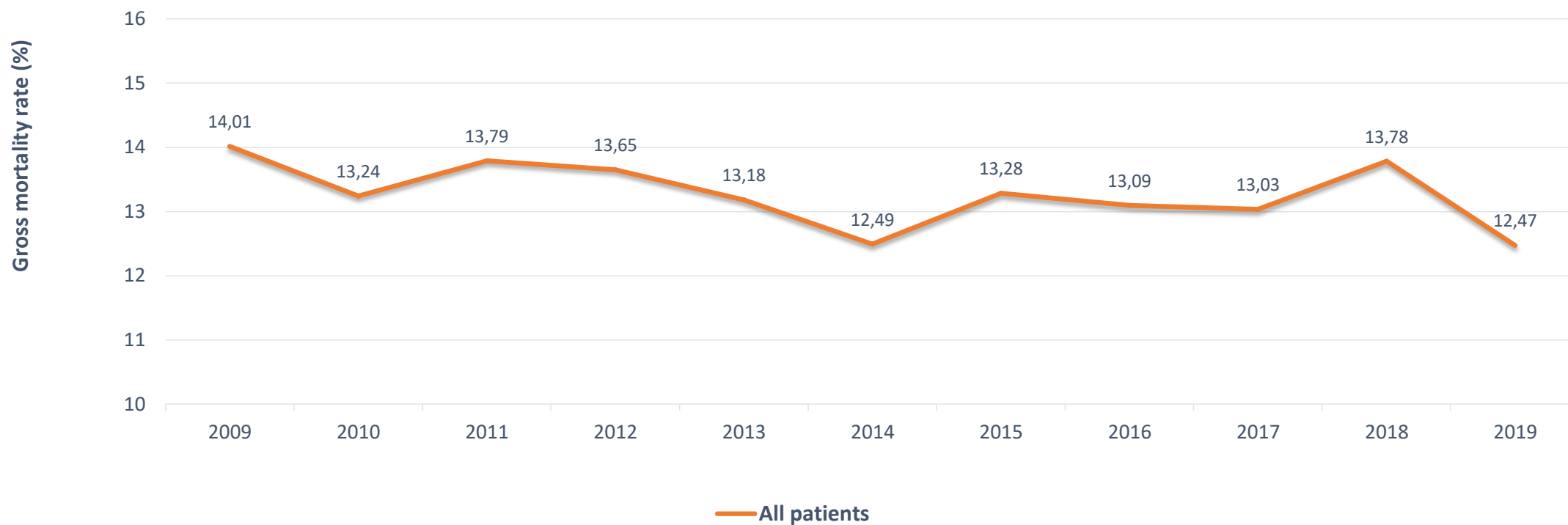
11,95%

(90 day mortality = 3,07%)

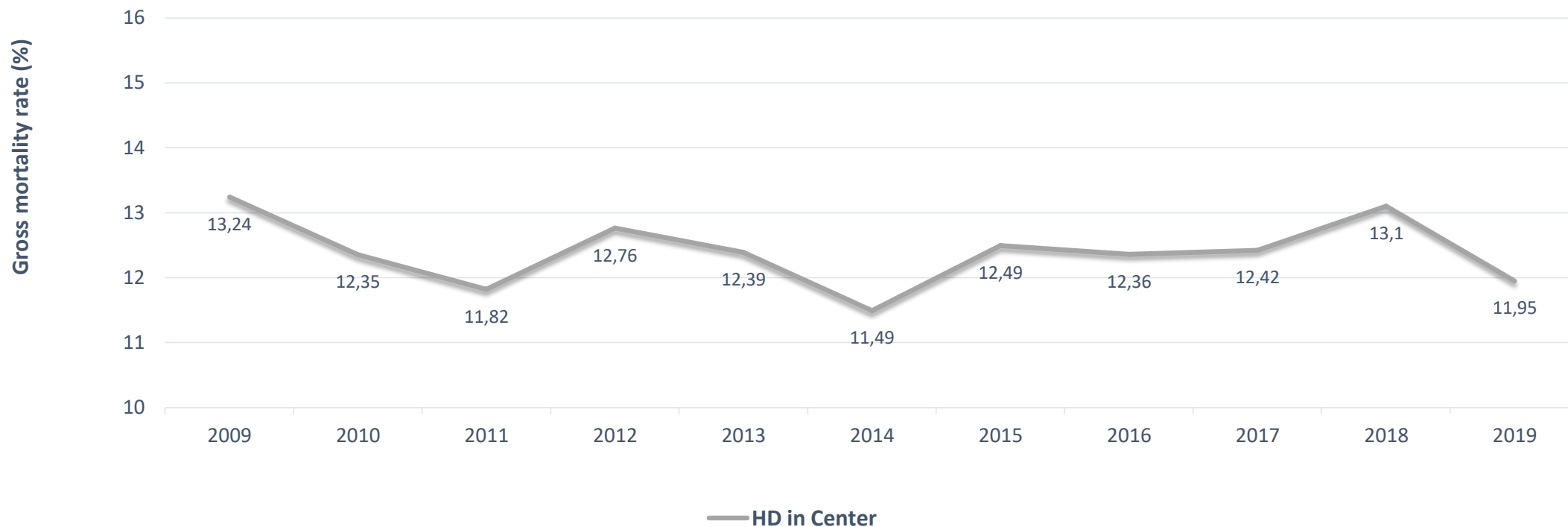
Gross mortality rate in hemodialysis 2009 - 2019



Gross mortality rate in hemodialysis 2009 - 2019

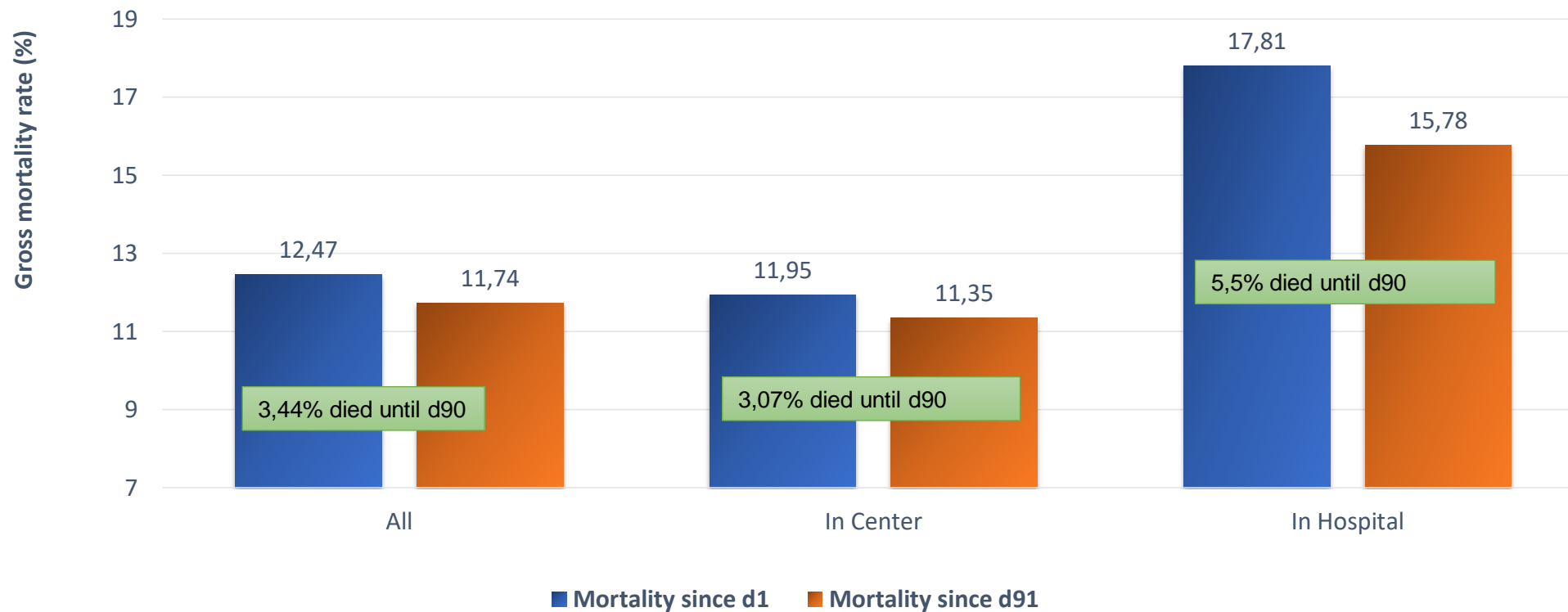


Gross mortality rate in hemodialysis *in center treated patients, 2009 - 2019*



Gross mortality rate

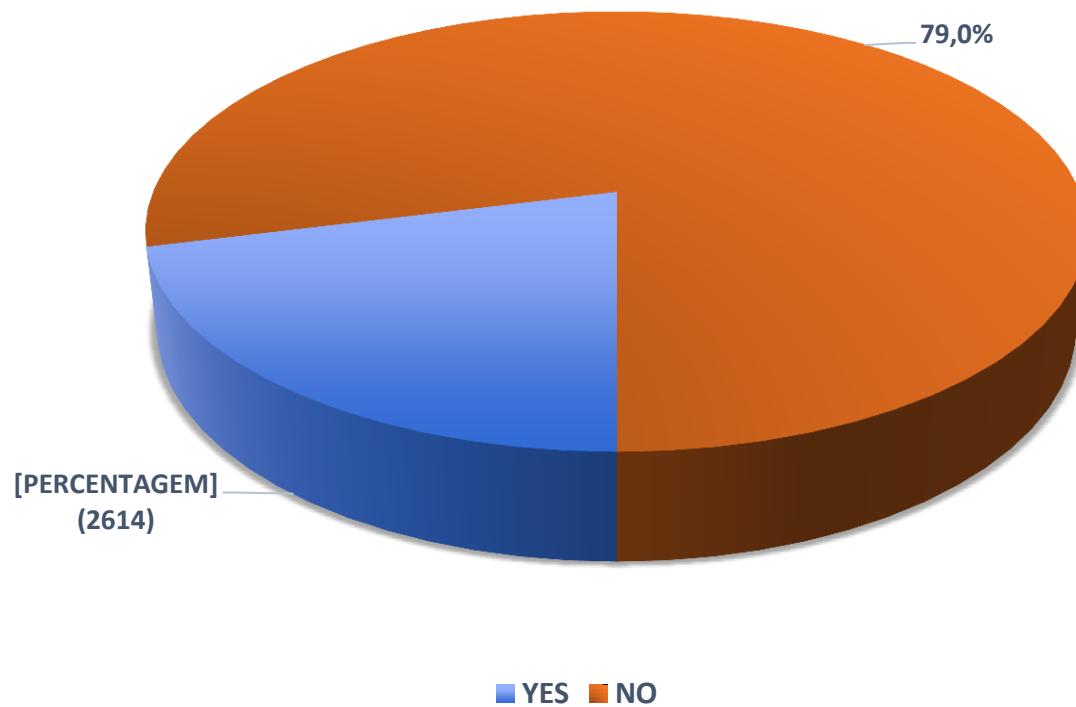
Impact of deaths until day 90, 2019



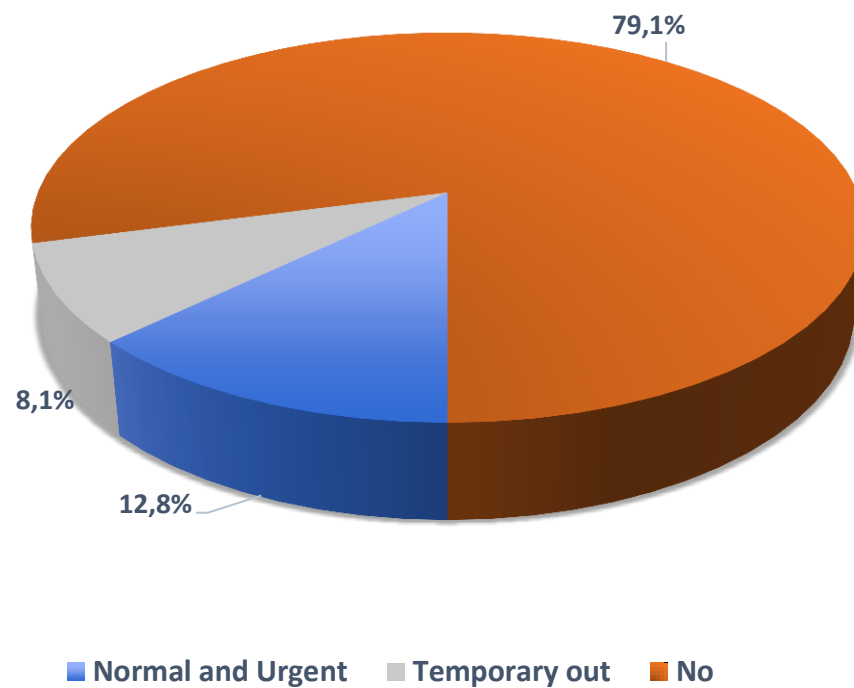
Gross mortality rates – hemodialysis *since d1 and d91 by country region, 2019*

	Mean Age	Mortality since d1	Mortality since d91	Deaths until d90 (% of incident)
Global	68,3	12,47%	11,74%	3,44%
North	68,6	11,69%	11,16%	2,37%
Center	69,9	13,01%	12,22%	3,36%
South	69,1	13,16%	12,39%	4,1%
Lisbon	67,1	12,44%	11,52%	4,48%
Azores	65,09	14,62%	14,1%	2,94%
Madeira	64,15	11,79%	11,79%	0,00%

Waiting list for renal transplantation *Hemodialysis patients, 2019*



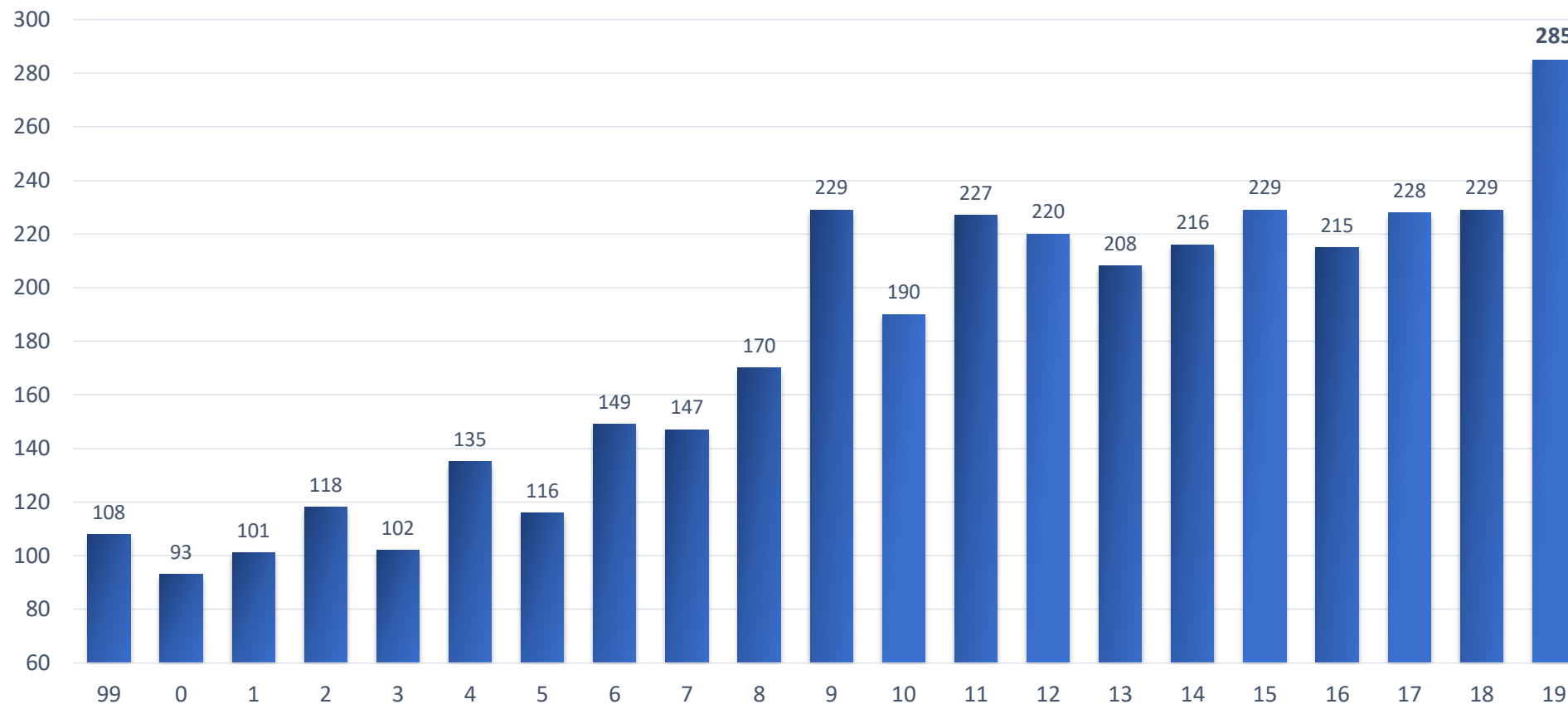
Waiting list for renal transplantation *HD patients, Active and temporary contraindication - 2019*



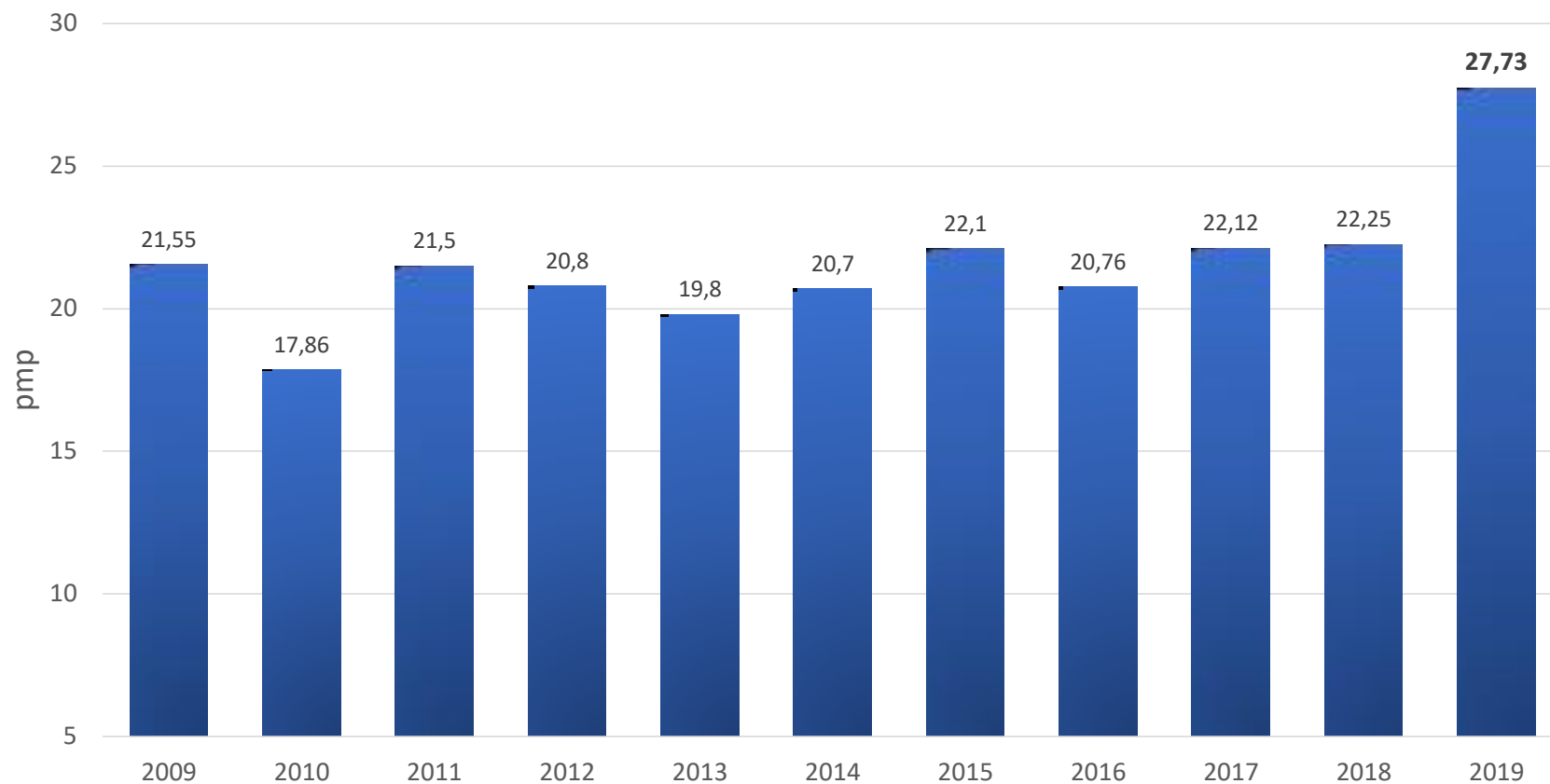
PERITONEAL DIALYSIS



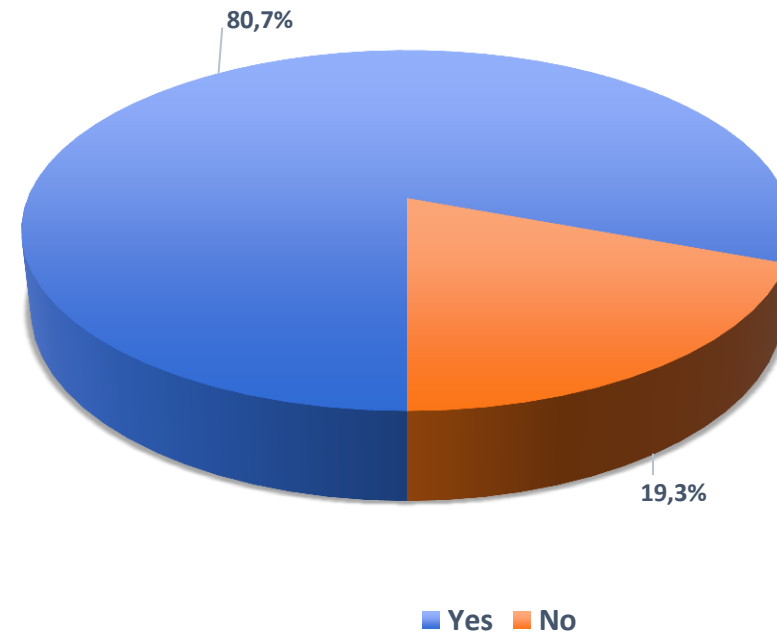
New patients starting peritoneal dialysis 1999 - 2019



Incident patients accepted for peritoneal dialysis *per million population 2009 - 2019*

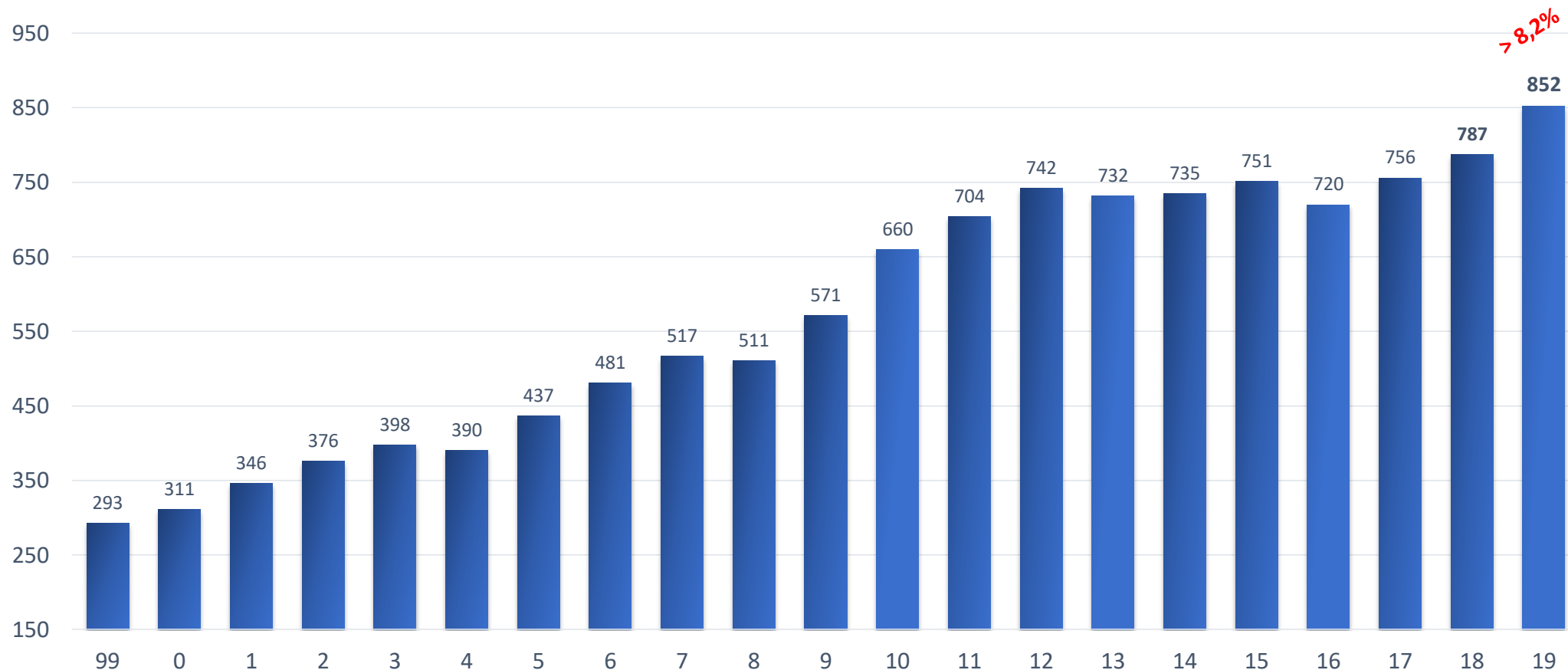


Previous follow-up by nephrology (> 3 months) PD patients, 31st of December 2019

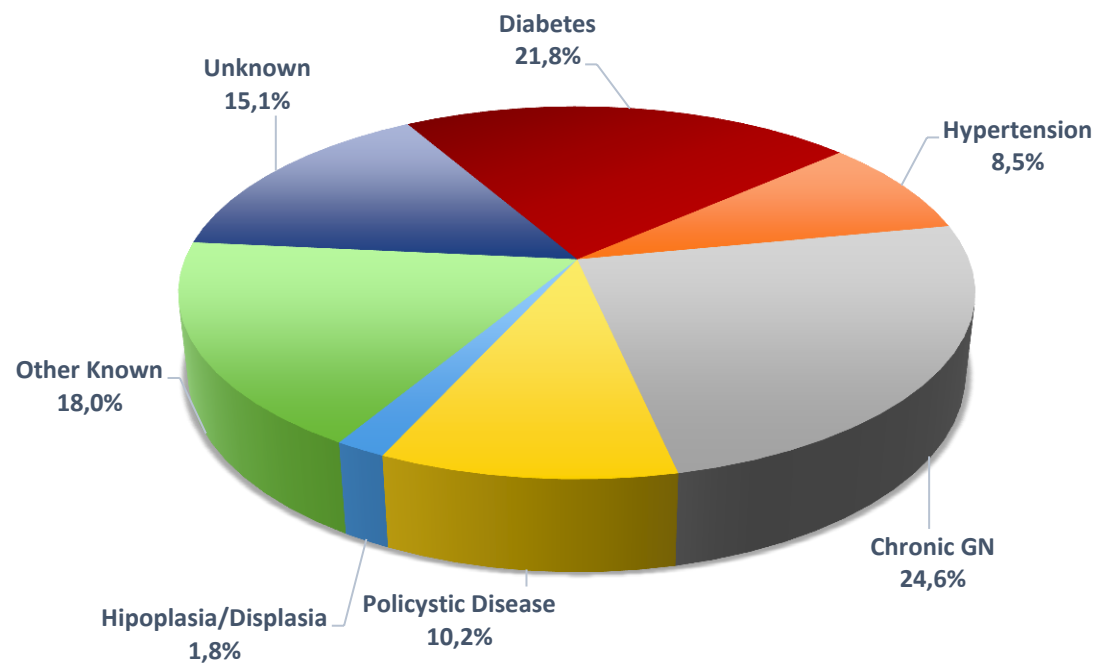


N = 285

Patients treated by peritoneal dialysis Count at 31st of December each year, 1999 – 2019

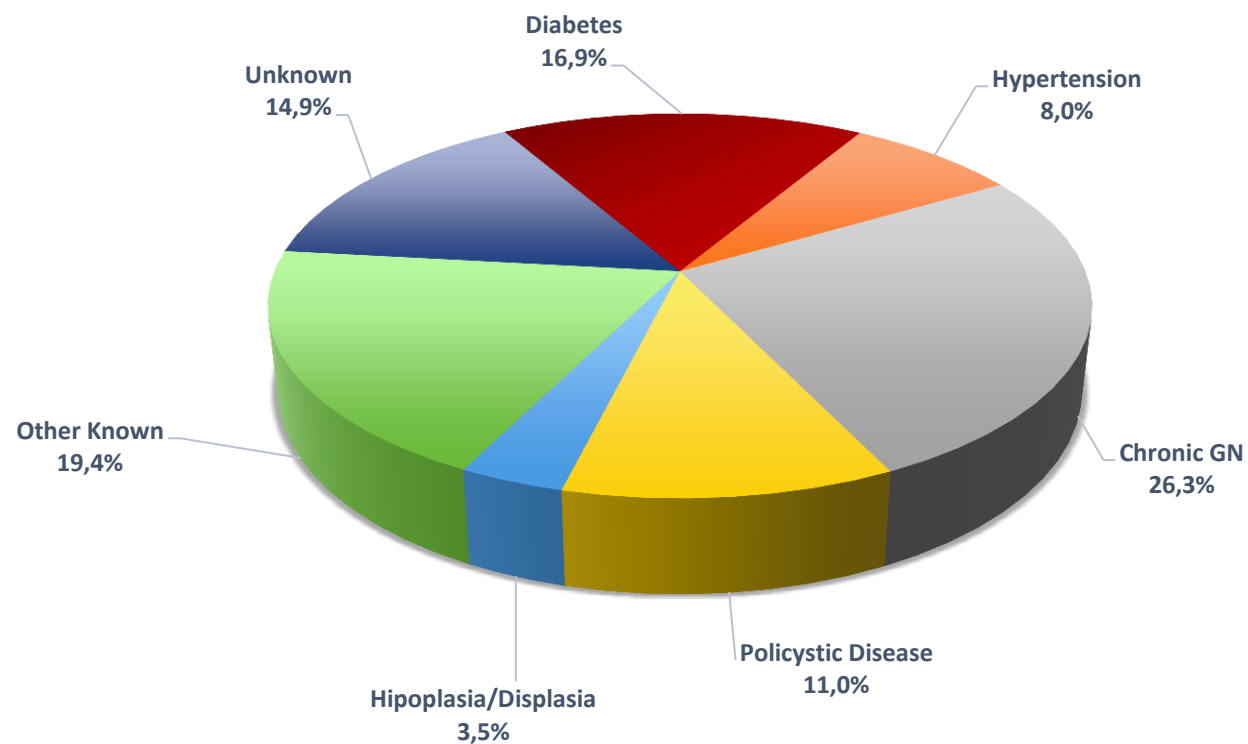


Primary renal disease of patients accepted for peritoneal dialysis during 2019



N = 284

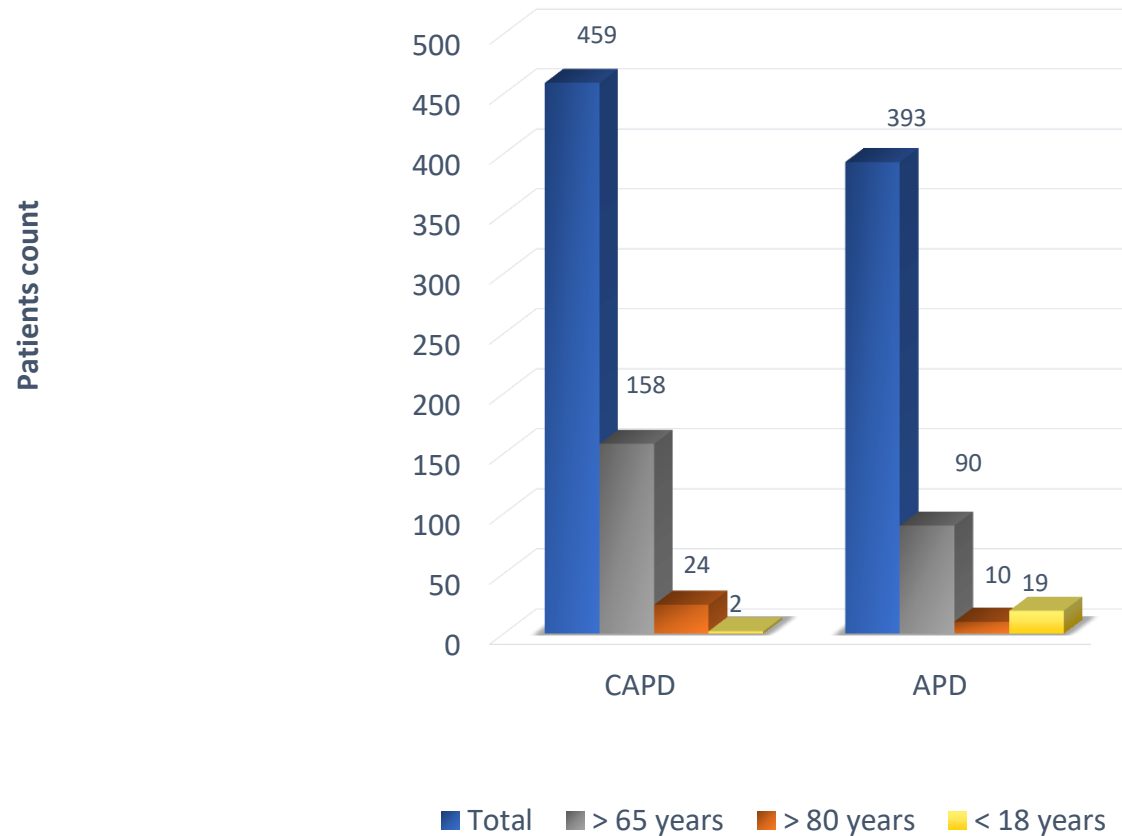
Primary renal disease of prevalent peritoneal dialysis patients 31st December 2019



N = 852

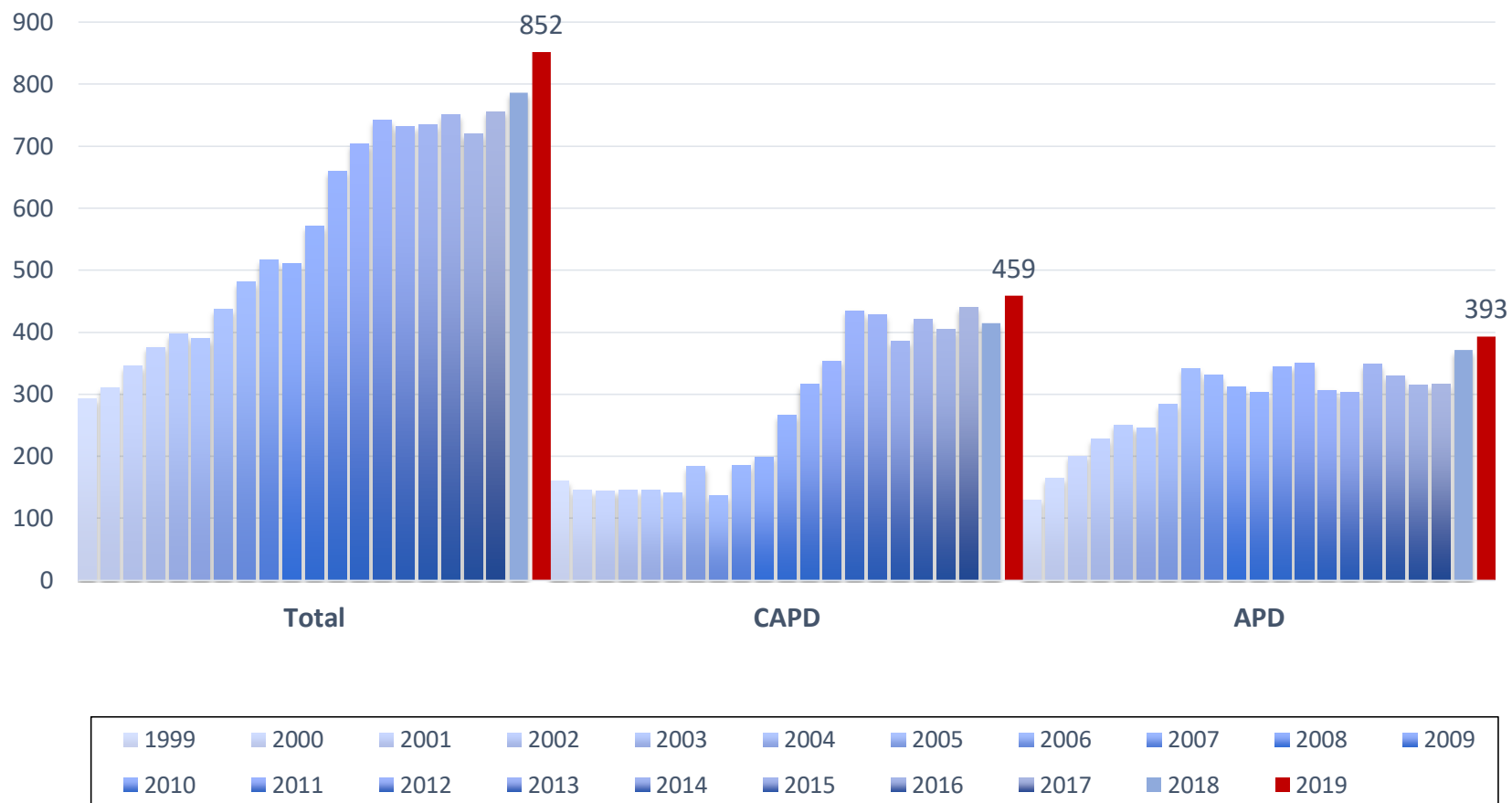
Patients treated by peritoneal dialysis

Manual vs automated, 31st of December 2019

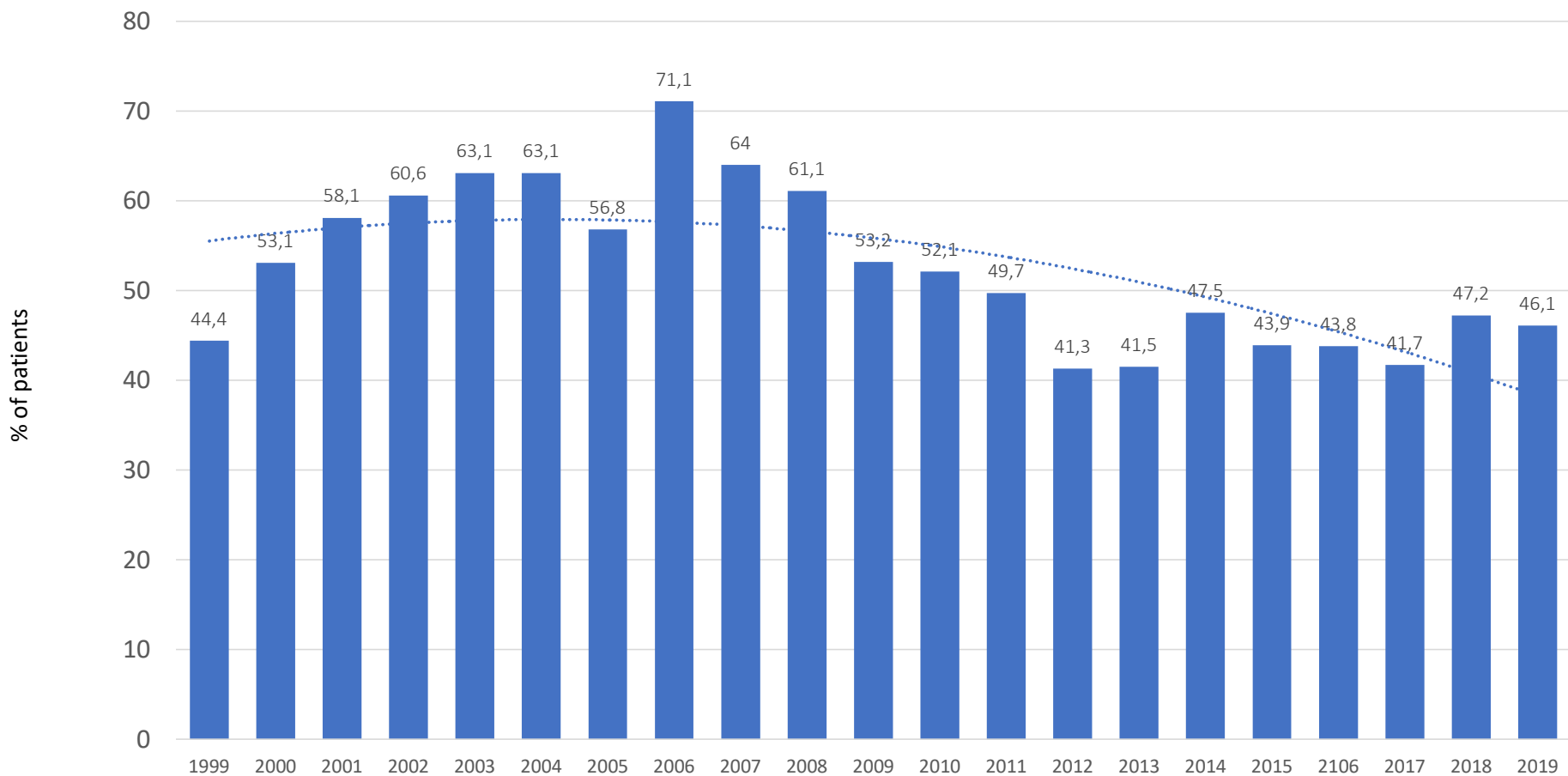


N = 852
APD:46,1%
Age>65 years:29,1%;
Age>80years:3,9%

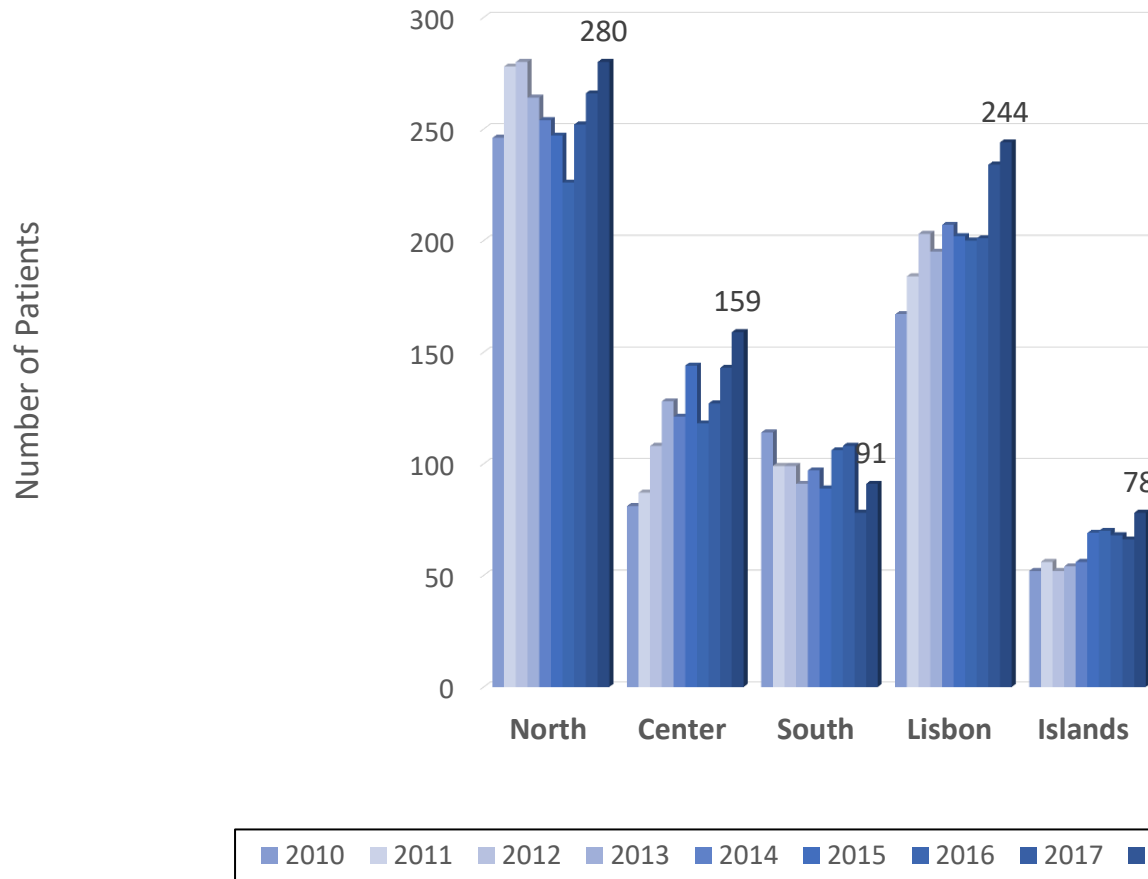
Patients treated by peritoneal dialysis *Manual vs automated, 31st December 1999 - 2019*



Automated Peritoneal Dialysis usage (%) 31st December 1999 - 2019

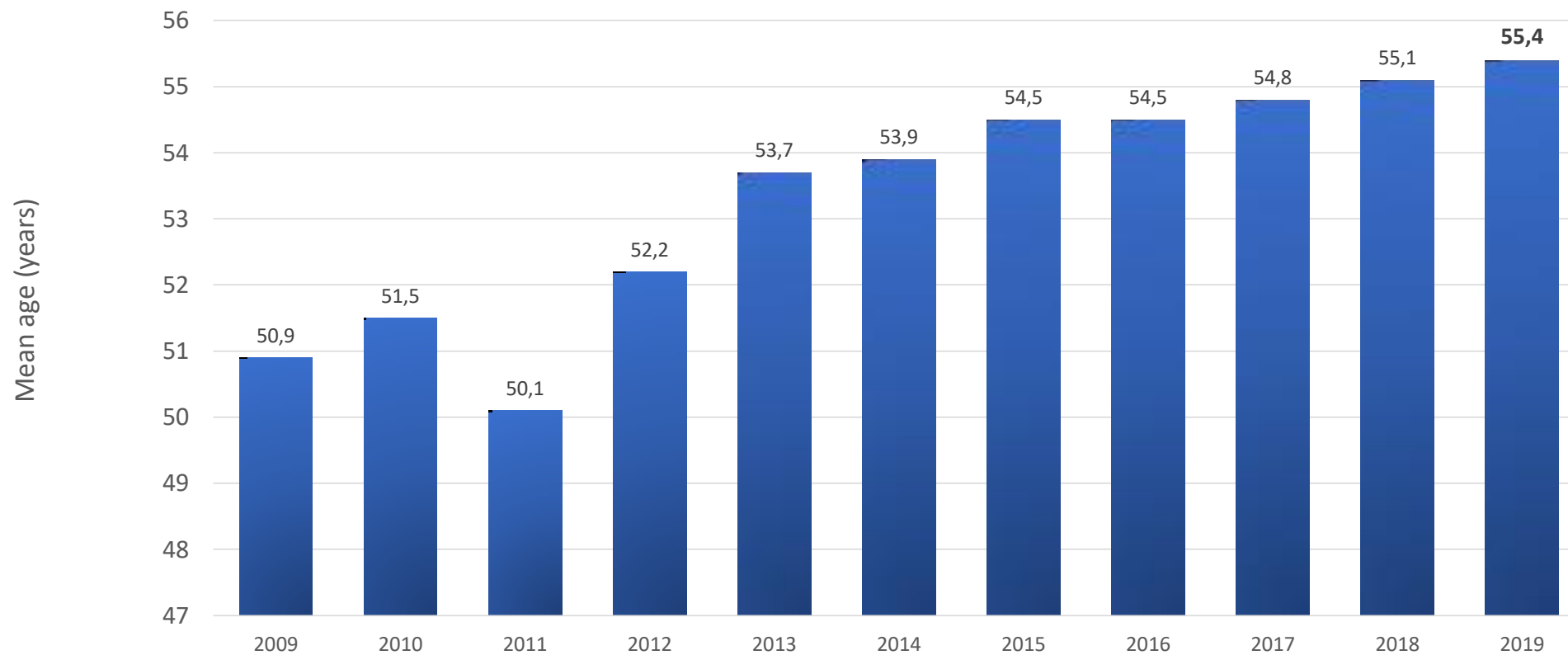


Patients treated by peritoneal dialysis *by region, 31st of December 2010 to 2019*

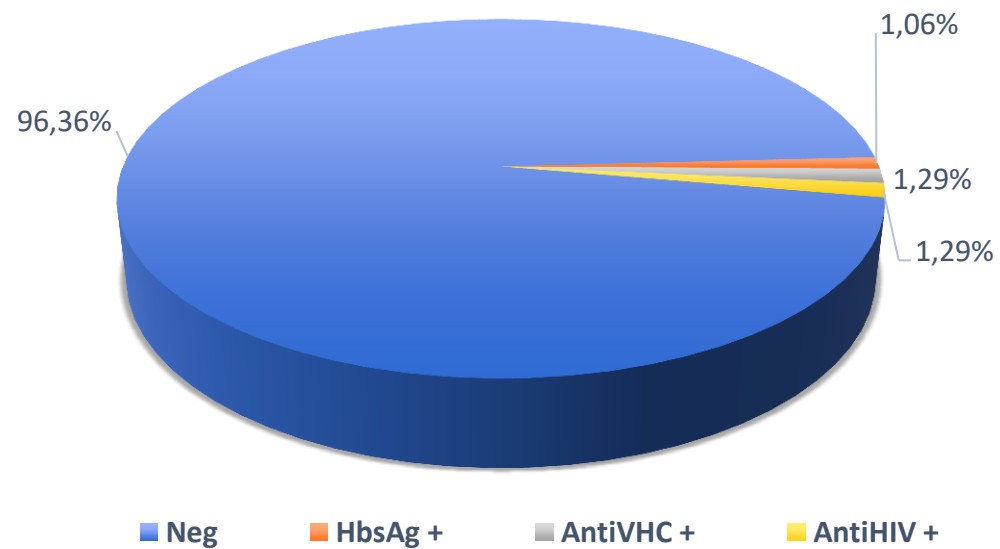


N = 852
 (2019)

Mean Age of patients treated by peritoneal dialysis *31st of December 2009 – 2019*



Viral status in PD prevalent patients 31st December 2019

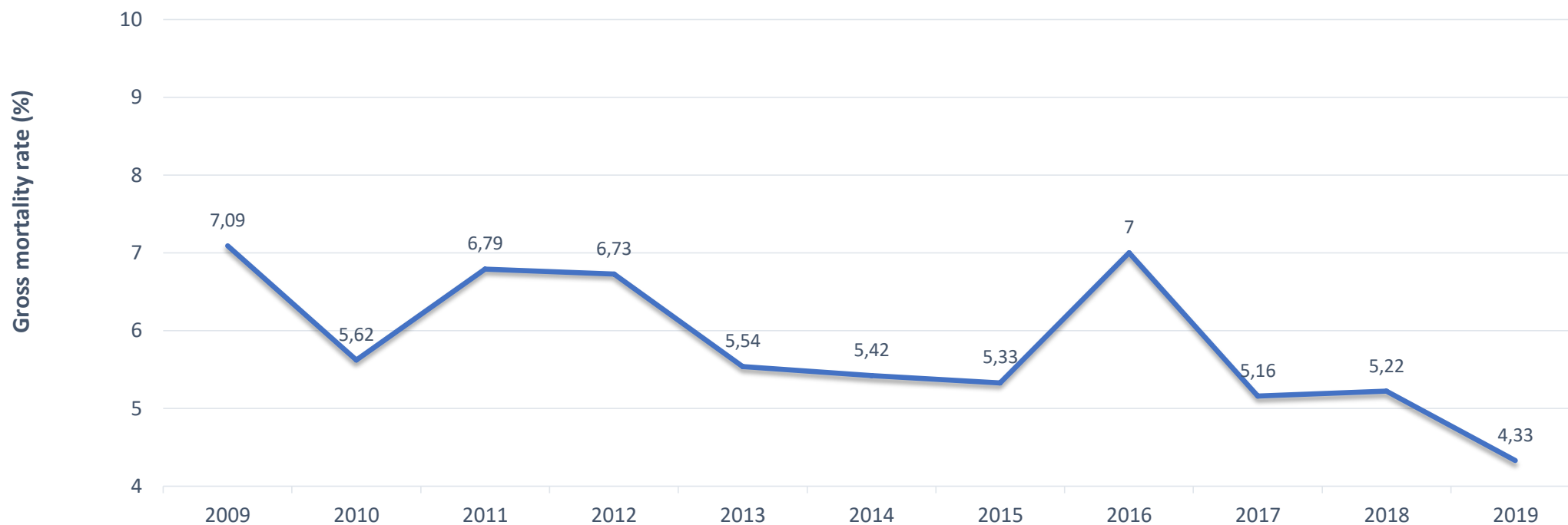


N = 852

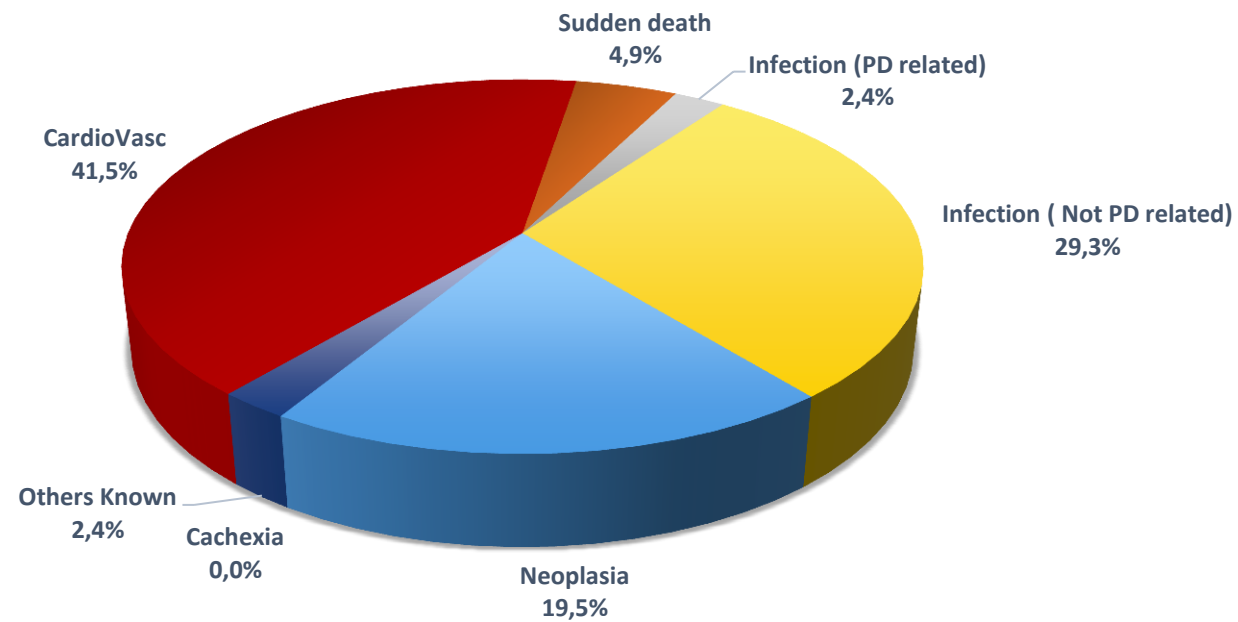
PD patients movement in 2019

	IN		OUT
New patients	285	Death	41
KTr failure	31	Transplant	90
HD to PD	44	PD to HD	135
		Suspension	2
		Renal Recovery	4
<p>Mortality rate = 4,33 % (90 d mortality = 2,4%)</p>			

Gross mortality rate in peritoneal dialysis 2009 - 2019



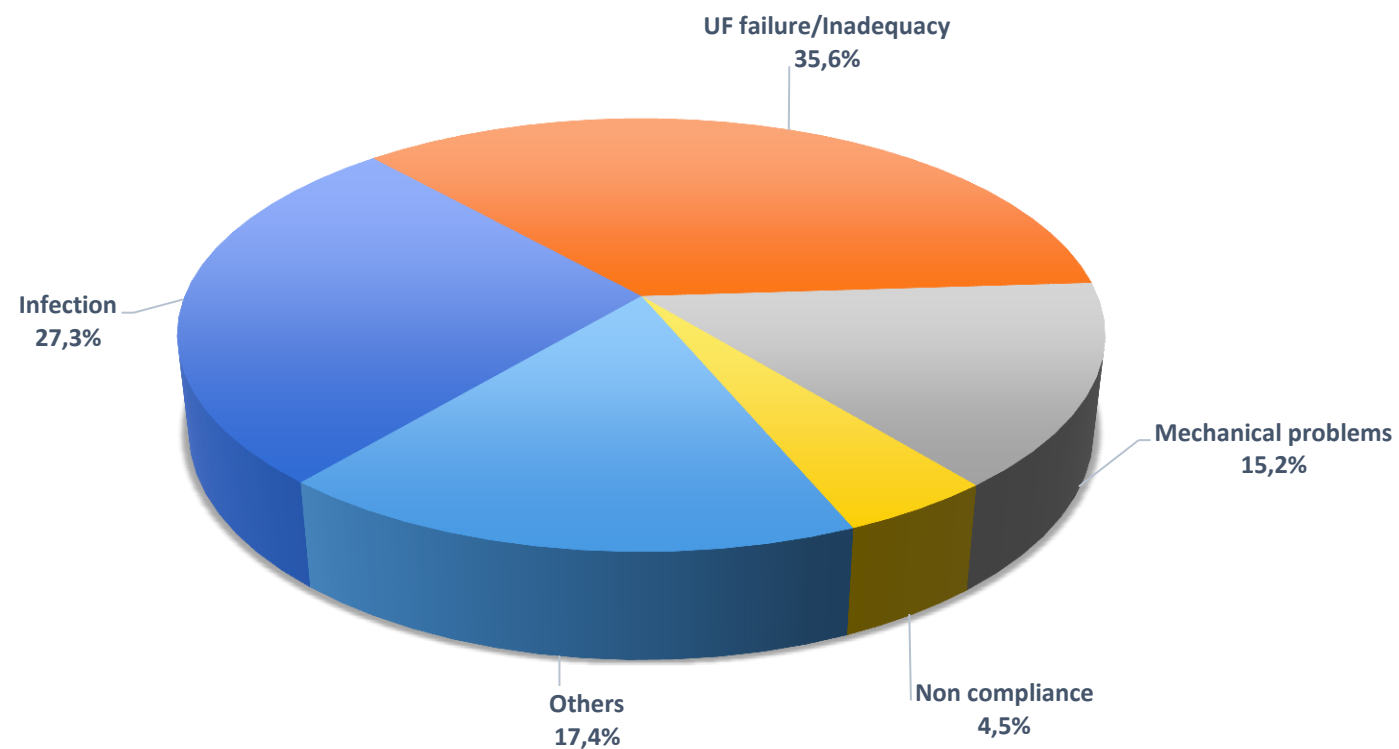
Death causes in PD patients 2019



N = 41

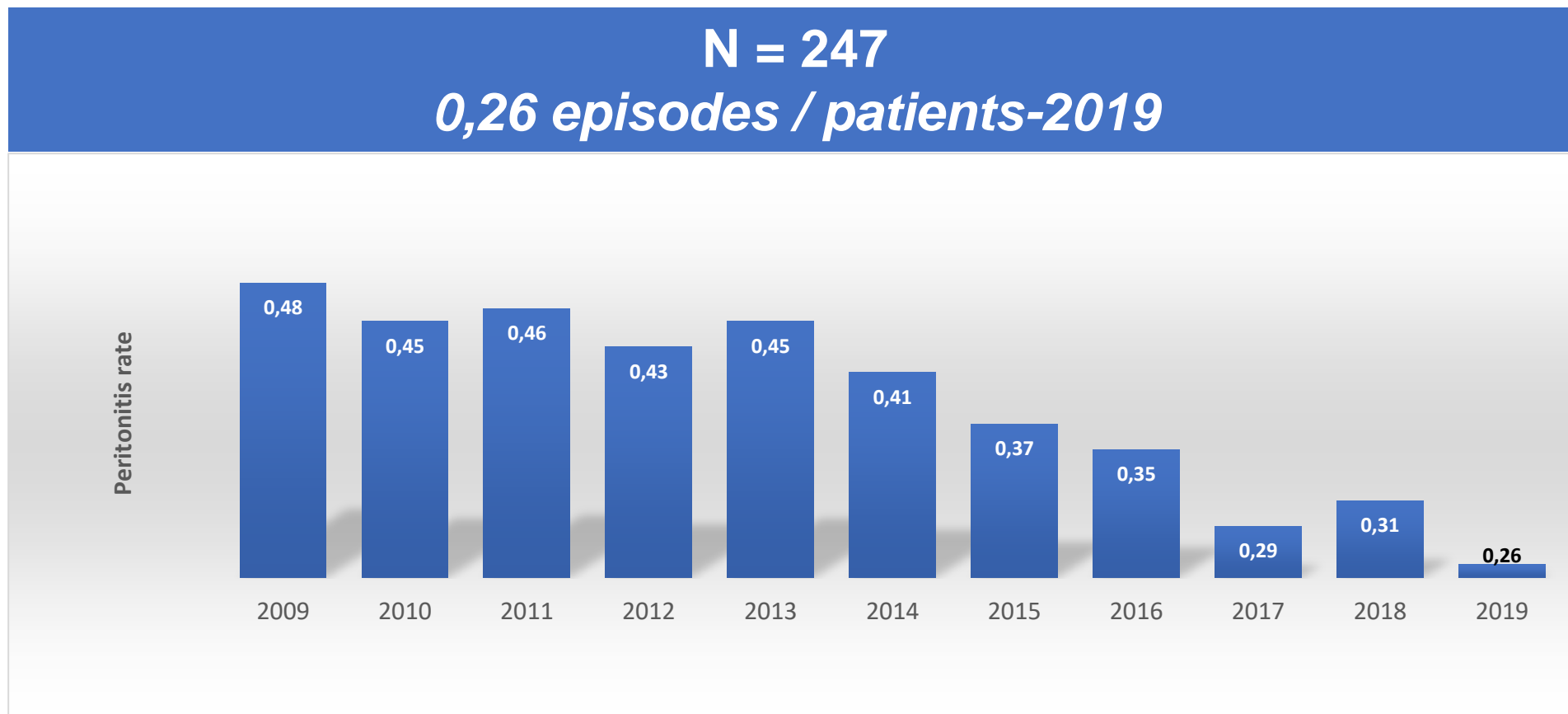
7 patients died until day 90;
2,4% of incidente patients and
17% of all deaths

Reasons for PD withdraw 2019

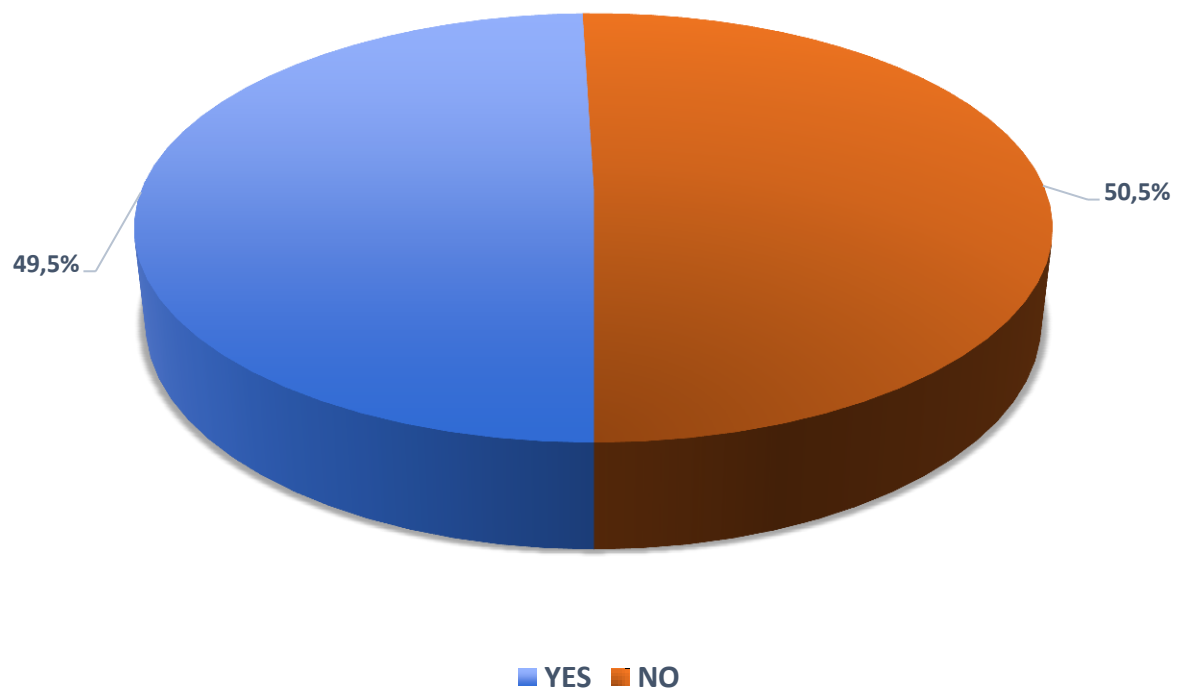


N = 114

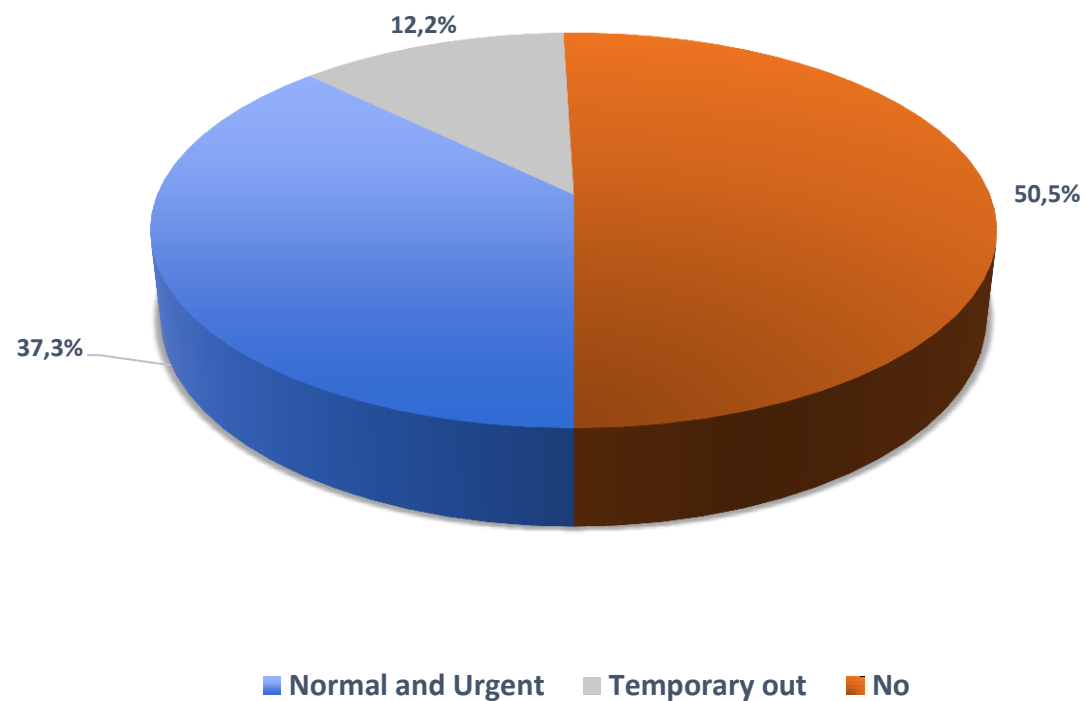
Peritonitis episodes 2019



PD patients in waiting list for renal transplantation 2019



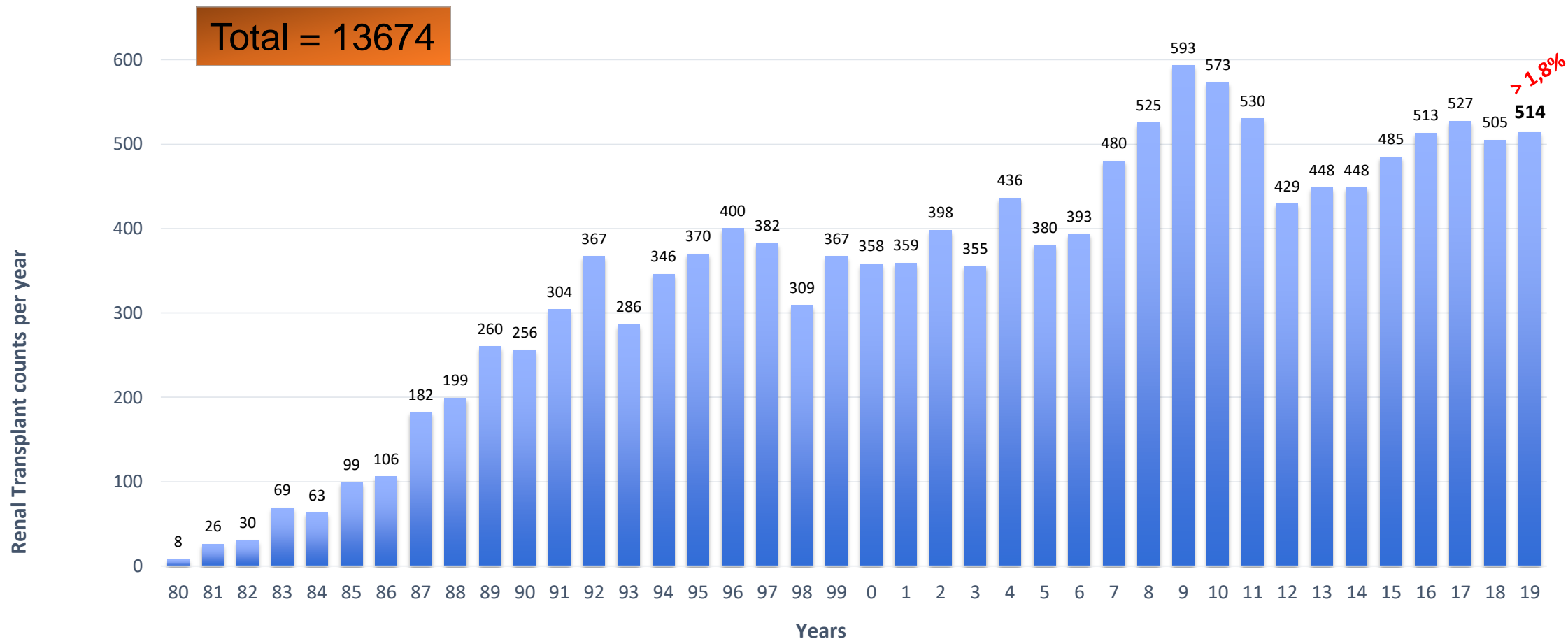
PD patients in waiting list for renal transplantation Active ant temporary contraindication for transplantation



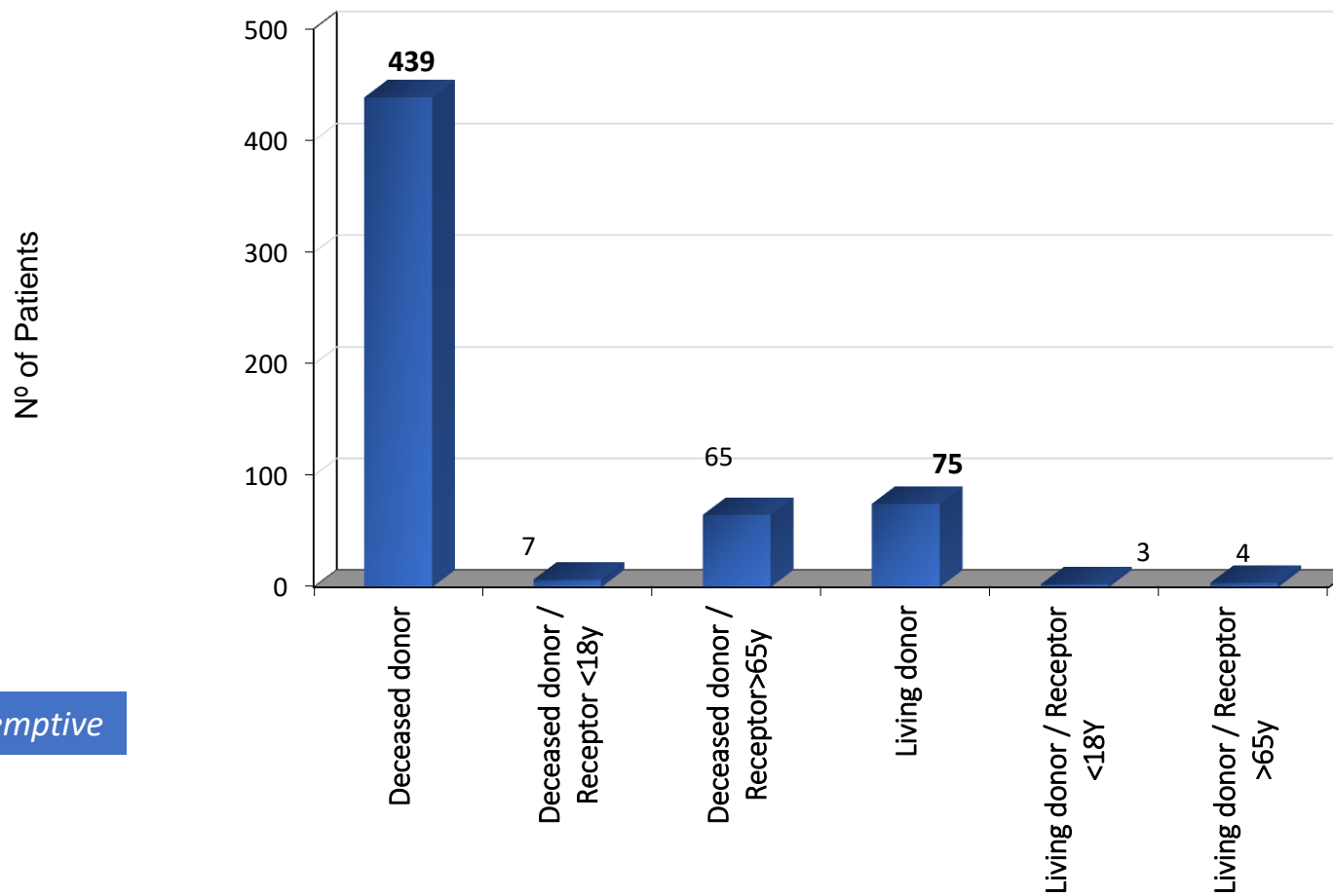
RENAL TRANSPLANTATION



Renal Transplants performed 1980-2019

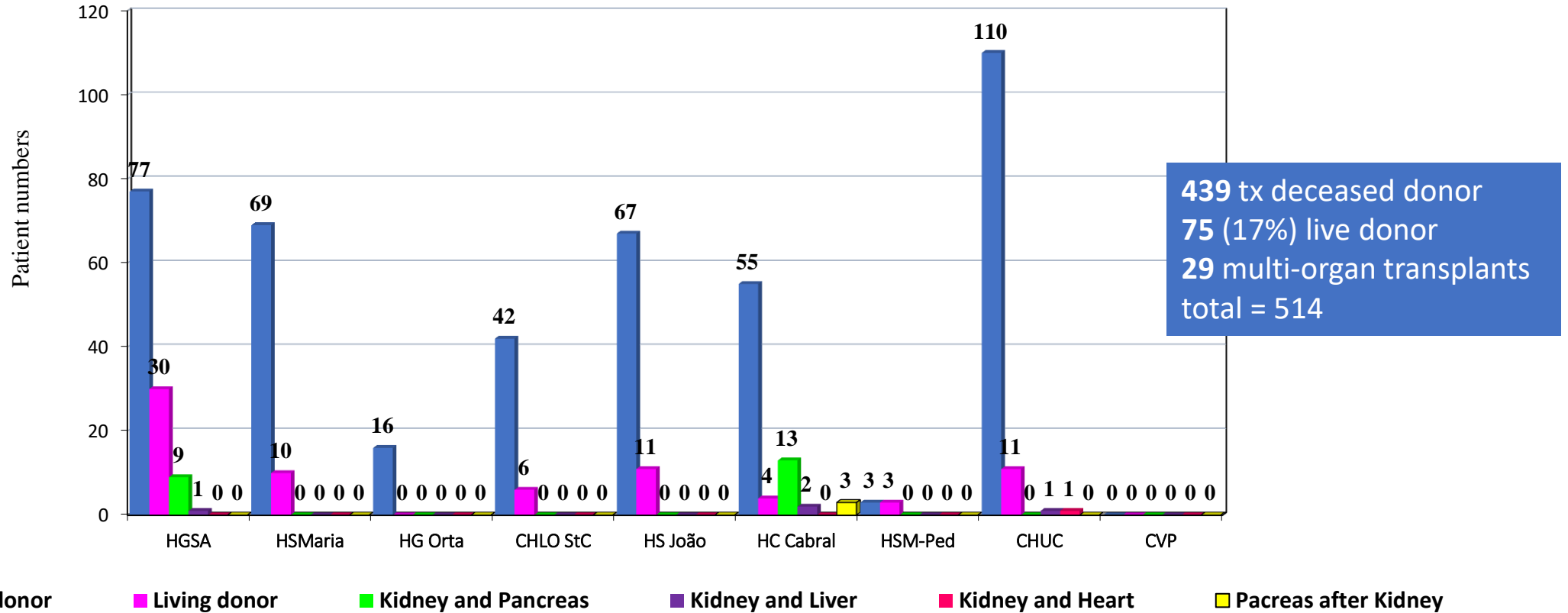


Renal transplantation activity characterization 2019

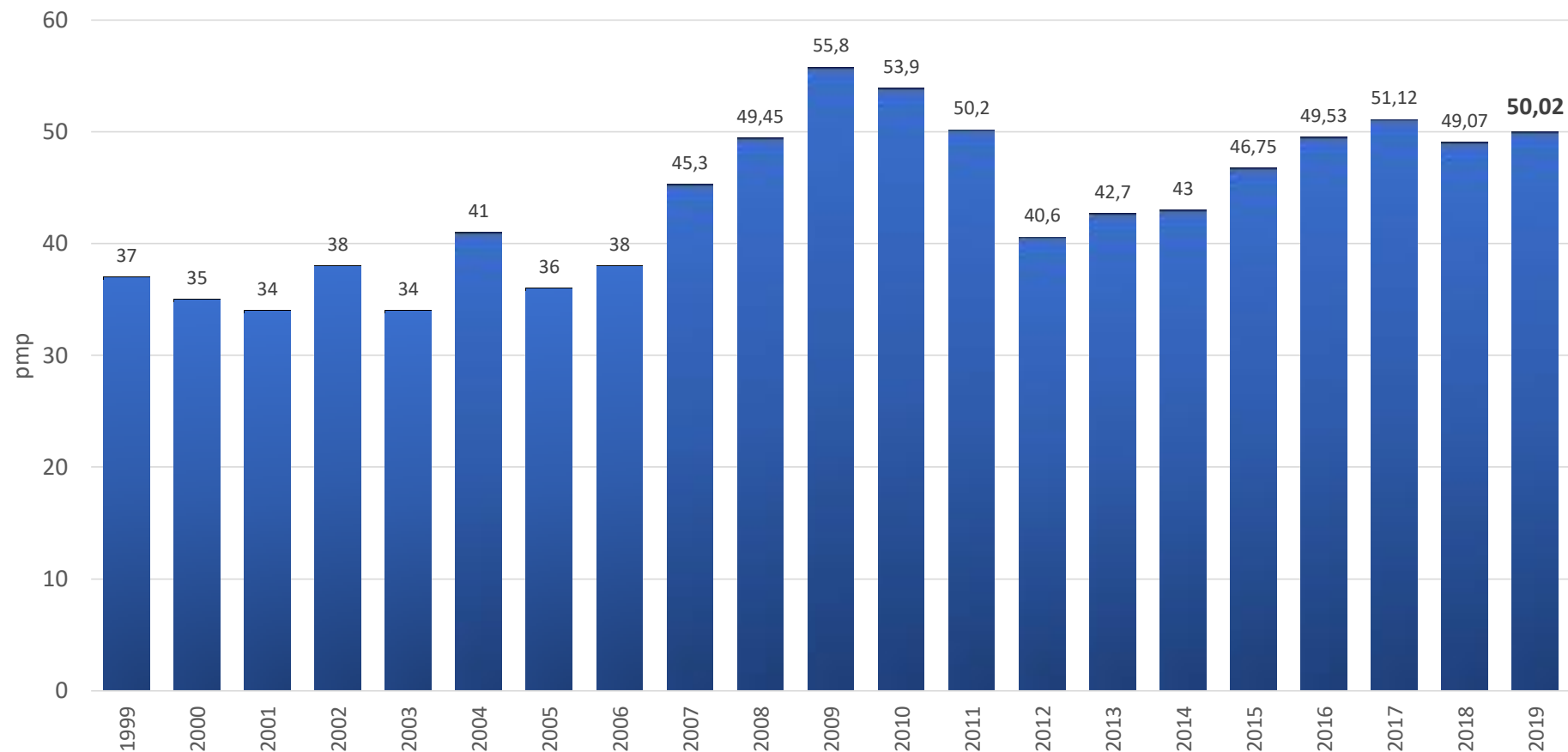


32 pre-emptive

Portuguese Transplant Centers Activity 2019

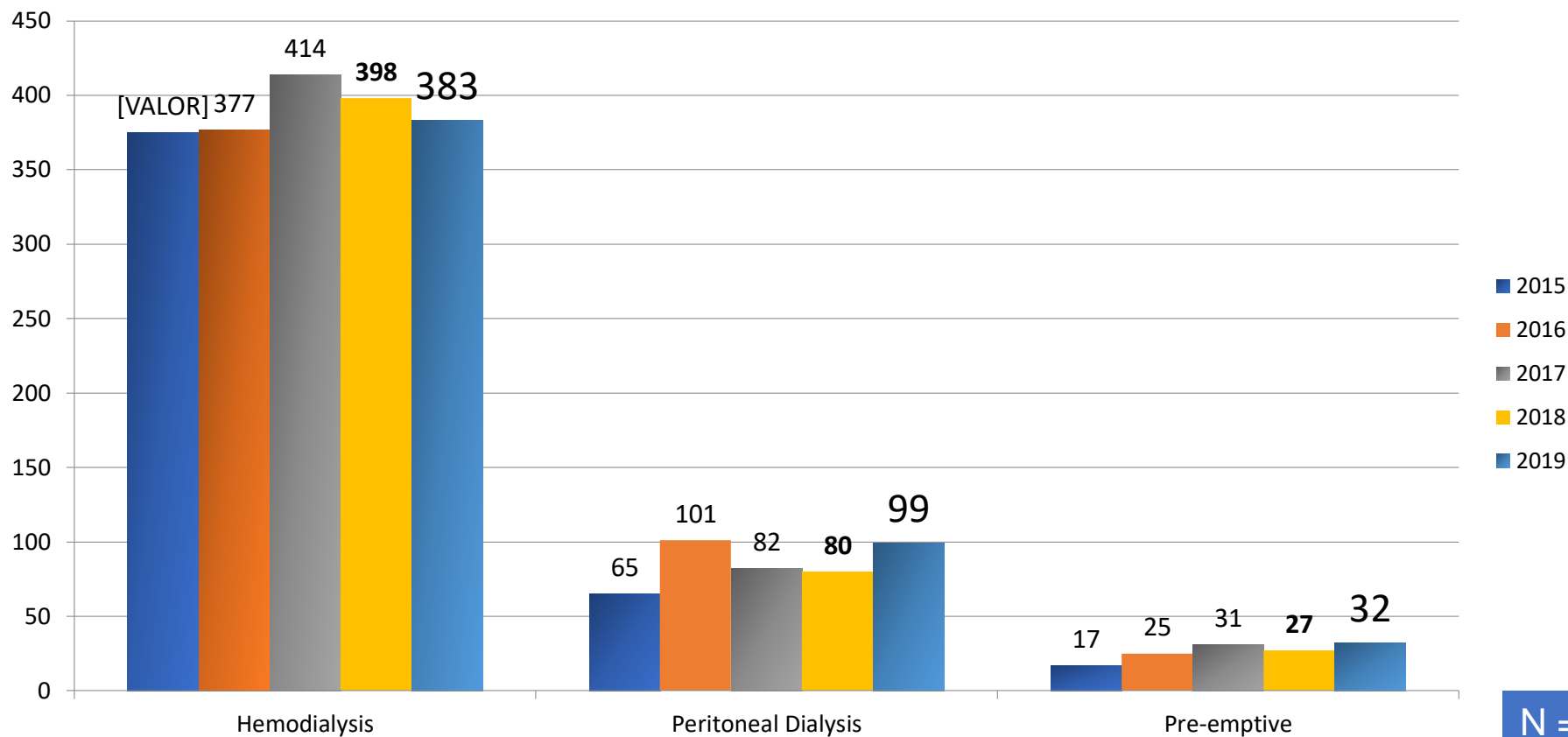


Renal Transplants Performed *per million population, 2009 - 2019*



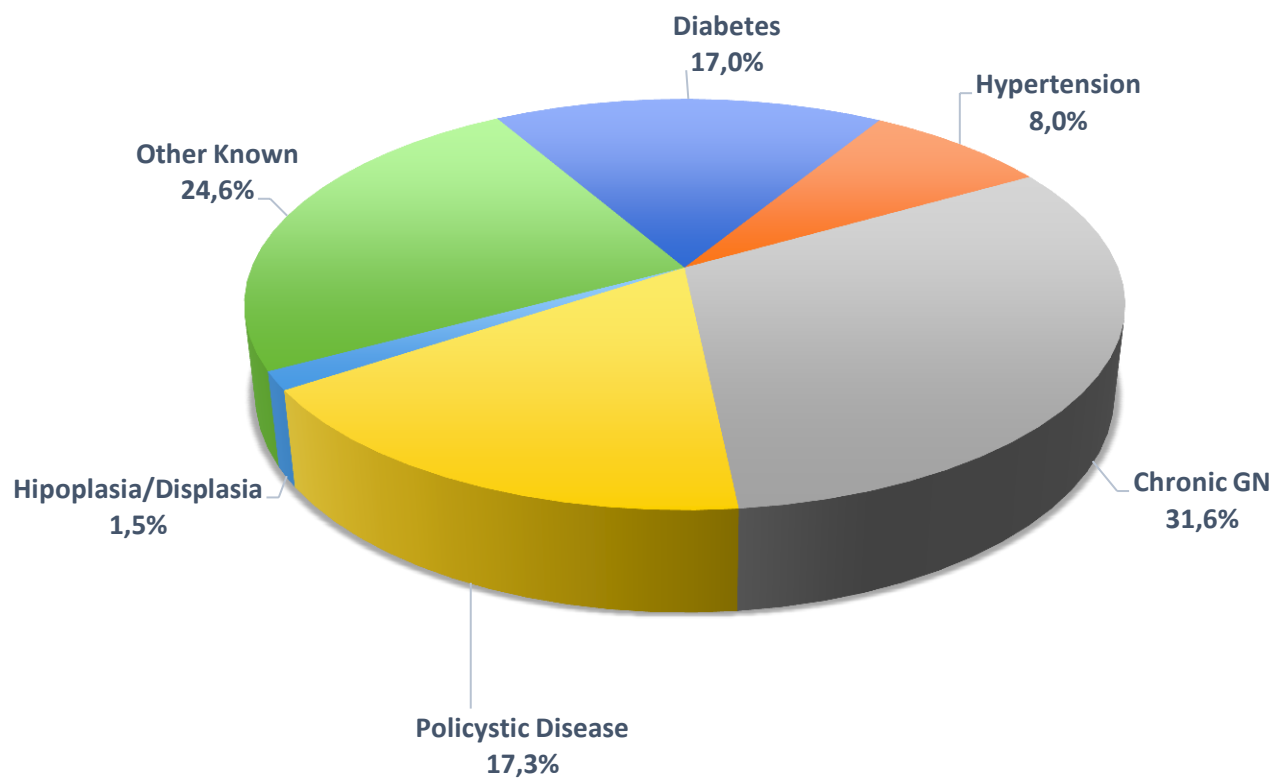
Renal Transplanted Patients

Previous renal replacement therapy, 2015-2019



N = 514 (2019)

Primary renal disease of renal transplanted patients during 2019



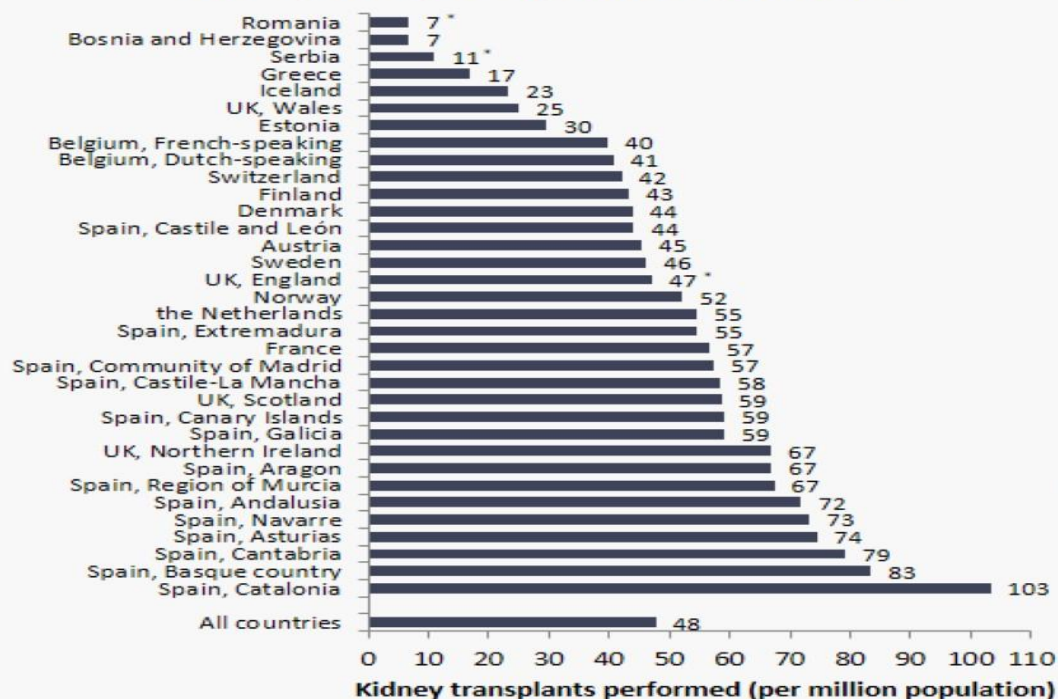
Incidence of transplantation How do we compare?



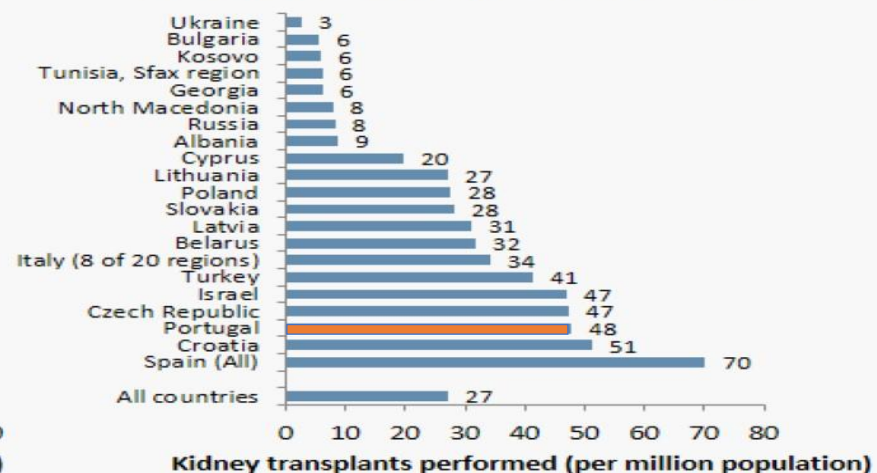


Kidney transplants performed in 2017 by country

Kidney transplants performed
renal registries providing individual patient data

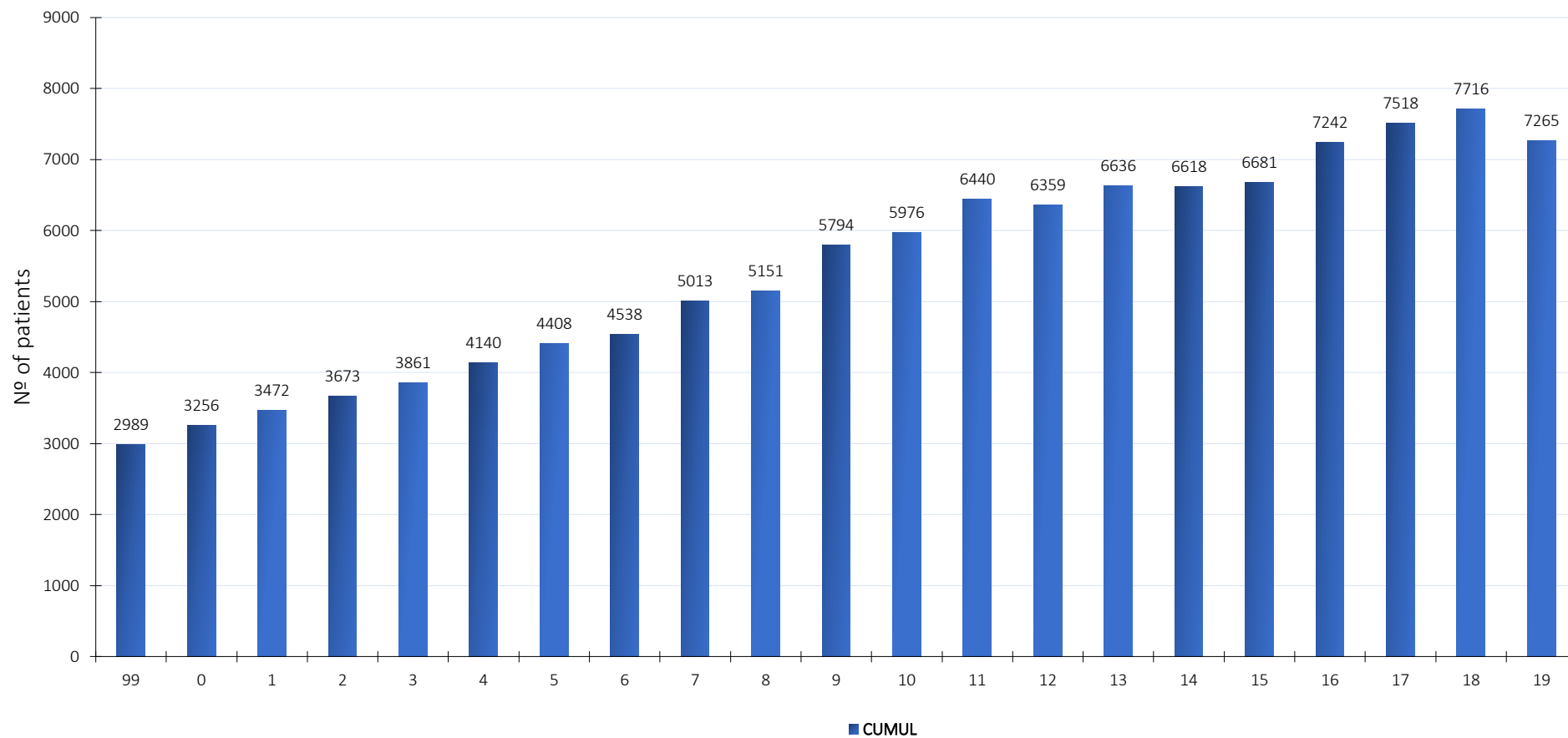


Kidney transplants performed
renal registries providing aggregated data

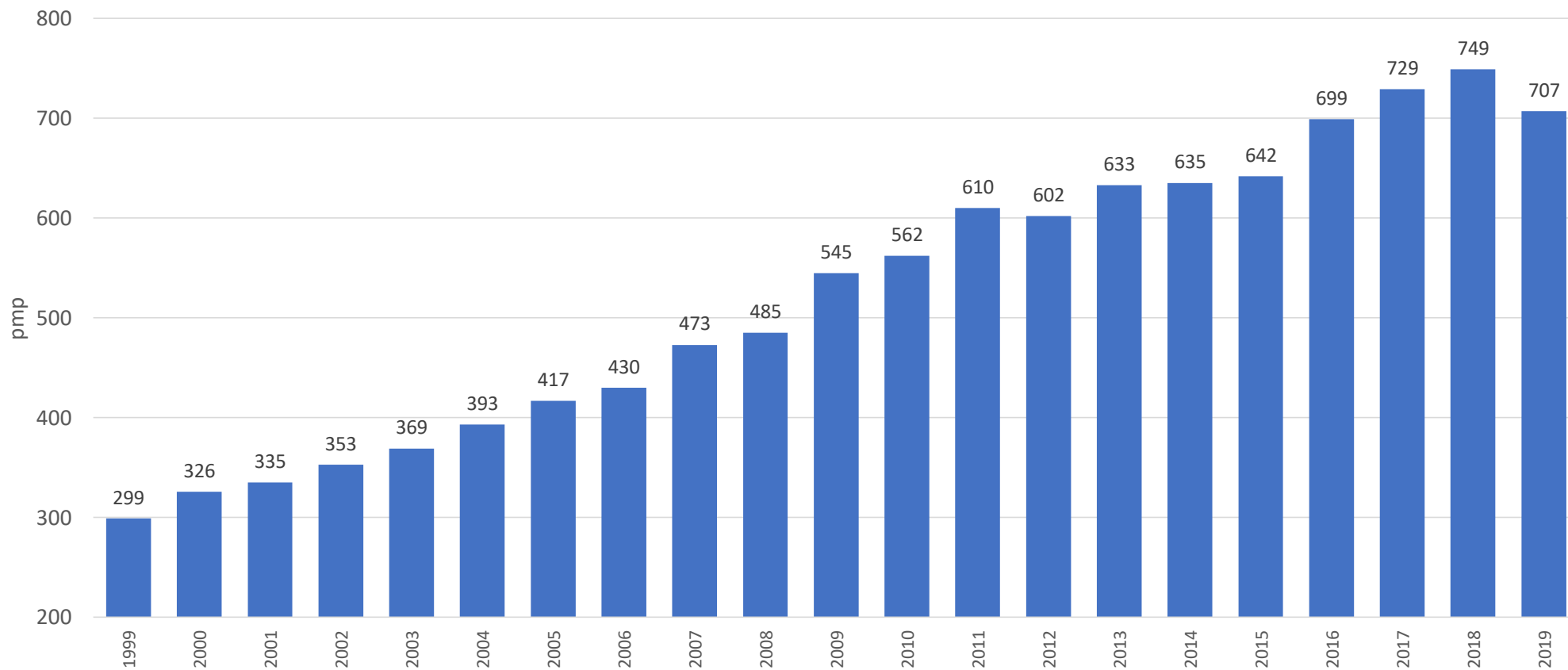


* In these countries the kidney transplant activity was underestimated due to incomplete coverage. For details see ERA-EDTA Registry Annual Report 2017 table B.5.2.

Patients with functioning graft and annual growth *31st December 1999 - 2019*

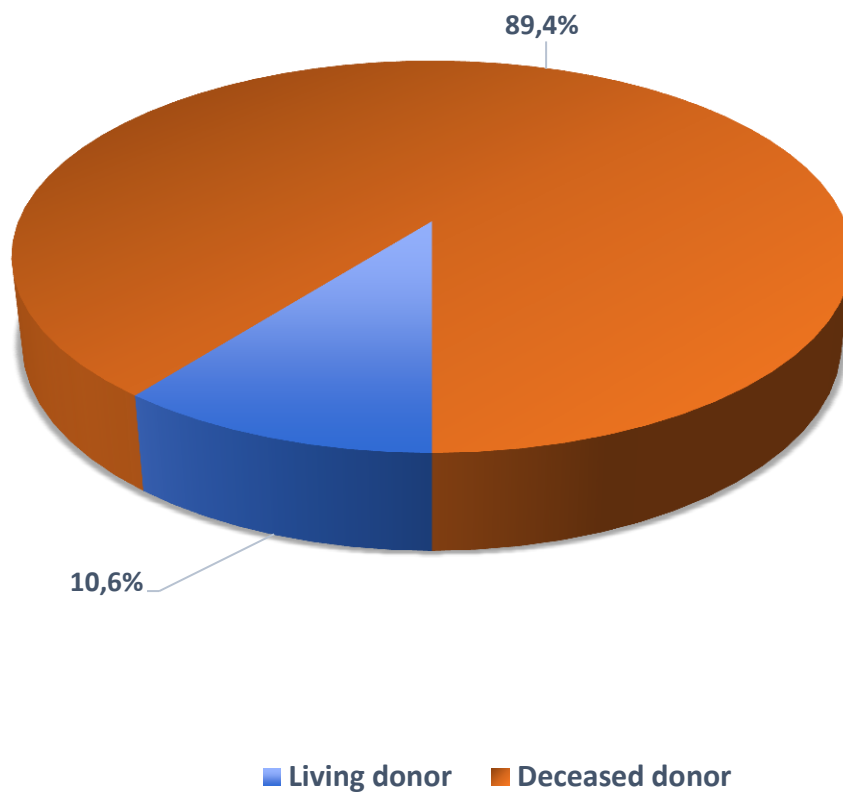


Prevalence of CKD patients with functioning graft *cumulative per million population end of each year 1999 - 2019*



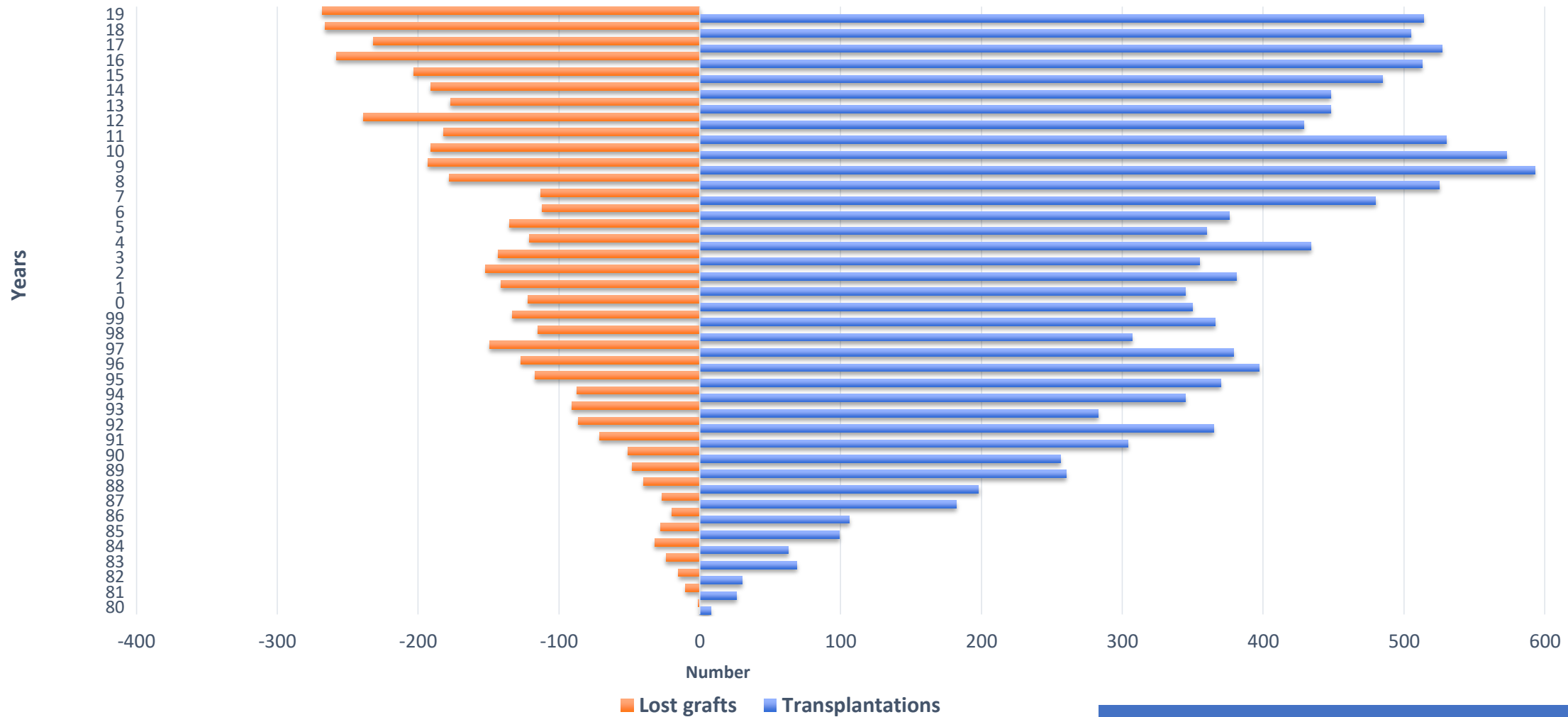
N = 7265

Renal transplantation: living vs deceased donor 2019



N = 7265

Renal transplantation activity 1980 - 2019



2019: 112 patients died with functioning graft;
138 transferred to HD / 18 transferred to PD

Portuguese Registry of Dialysis and Transplantation 2019

- ✓ A incidência pmp de doentes a iniciar TSFR continua muito elevada – 260 pmp
- ✓ Continuamos no topo da Europa e do mundo
- ✓ Pelo 2º ano consecutivo a prevalência de doentes sob TSFR pmp ultrapassou 2000 pmp

Portuguese Registry of Dialysis and Transplantation 2019

Hemodiálise

- ✓ A incidência em HD é inferior em relação a 2018 mas > 200 pmp
- ✓ A prevalência continua a aumentar (2,4%)
- ✓ A idade média continua a aumentar (68,3 anos)
- ✓ A taxa de mortalidade global diminuiu (12,47%)
- ✓ A mortalidade nos 1º 90 dias teve impacto inferior (3,4%)

Diálise Peritoneal

- ✓ Aumento da incidência em 2019 (27 pmp)
- ✓ Crescimento na prevalência de 8,2%
- ✓ A idade média continua a aumentar (55,4 anos)
- ✓ A taxa de mortalidade e o nº de episódios de peritonite/doente.ano diminuíram

Transplantação Renal

- ✓ Aumento da incidência em 2019 (50 pmp)
- ✓ Pool de doentes transplantados continua a crescer
- ✓ Crescimento do tx dador vivo



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

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Obrigada