Portuguese Registry of Dialysis and Transplantation 2020

Gabinete do Registo da Doença Renal Crónica da Sociedade Portuguesa de Nefrologia
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: Dr. Fernando Macário

2019 - …: Ana Galvão
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 2020

- Questionnaires for Hemodialysis (HD), Peritoneal Dialysis (PD) and Kidney Transplantation
- 132 Hemodialysis Centers
- 27 Peritoneal Dialysis Units
- 8 adult and 1 pediatric kidney transplantation centers
- 100% response rate
New patients starting dialysis or submitted to renal transplantation during 2020 (n=2361)

<table>
<thead>
<tr>
<th>Limits</th>
<th>HD</th>
<th>PD</th>
<th>TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 years</td>
<td>21</td>
<td>239</td>
<td>21</td>
</tr>
<tr>
<td>18-65 years</td>
<td>515</td>
<td>518</td>
<td>65</td>
</tr>
<tr>
<td>65-80 years</td>
<td>818</td>
<td>763</td>
<td>9</td>
</tr>
<tr>
<td>&gt;80 years</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>&lt;18 years</td>
<td>21</td>
<td>239</td>
<td>21</td>
</tr>
<tr>
<td>All</td>
<td>2101</td>
<td>160</td>
<td>21</td>
</tr>
</tbody>
</table>

- HD: Hemodialysis
- PD: Peritoneal Dialysis
- TX: Transplantation

- Patients aged 18 to 65 years: 88.9%
- Patients aged 65 to 80 years: 10.1%
- Patients > 80 years: 1%
- Patients < 18 years: 1%
Patients treated by dialysis or with functioning kidney transplant
31st December 2020

Total number of pts – 20713
Prevalence – 2011,31 pmp
Nº of KTx pt / NºD pt = 0,55

Mean age HD + PD = 67,6 years
Incident patients accepted for RRT during 2020

- All: 229.26
- HD + PD: 227.22
- HD: 204.02
- PD: 23.21
- KTx: 2.04
 Incident patients accepted for dialysis
HD and PD per million population 2000 - 2020

- 11.5%
Incident patients accepted for dialysis
*HD and PD per million population by age group during 2020*
Incidence
How do we compare?
The ERA-EDTA Registry Annual Report 2018: a summary
Published: 24 December 2020
Incident patients accepted for RRT in 2018, at day 1 by country
National and regional renal registries that contributed data to the 2018 ERA-EDTA Registry Annual Report

- Red: Renal registries contributing with individual patient data
- Orange: Renal registries contributing with aggregated data

Portuguese Registry of Dialysis and Transplantation 2020
Ana Galvão
Incident patients accepted for RRT in 2018 at day 1 by country

Unadjusted incidence
renal registries providing individual patient data

Incidence (per million population)

Unadjusted incidence
renal registries providing aggregated data

Incidence (per million population)

* patients younger than 20 years of age are not included; ¹ the incidence is underestimated by 2%; º data includes patients receiving dialysis only
vol 2 Figure 11.1 Geographic variation in the incidence rate of treated ESRD (per million population), by country, 2018
Prevalent patients on RRT by modality
31st December 2020

- **All**: 2011.31
- **HD + PD**: 1294.98
- **HD**: 1209.72
- **PD**: 85.26
- **KTx**: 716.34
Prevalent patients on RRT
per million population end of each year 2010 - 2020
Prevalent patients on dialysis
per million population end of each year 2000 - 2020
Patients on dialysis and annual growth
end of each year 2000 - 2020

- 0.3 %
Prevalence of CKD patients treated by dialysis

*per million population by age group in 2020*
Incident and prevalent pediatric patients on dialysis

**HD and PD per million population 2020**

<table>
<thead>
<tr>
<th></th>
<th>HD</th>
<th>PD</th>
<th>HD + PD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incidence</strong></td>
<td>5.22</td>
<td>2.61</td>
<td>7.83</td>
</tr>
<tr>
<td><strong>Prevalence</strong></td>
<td>14.59</td>
<td>5.71</td>
<td>20.30</td>
</tr>
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</table>
Prevalence
How do we compare?
Prevalent patients on RRT in 2018 by country
vol 2 Figure 11.9 Prevalence of treated ESRD (per million population), by country, 2018
Gender distribution in each modality
31st December 2020

<table>
<thead>
<tr>
<th>Modality</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>7486</td>
<td>4972</td>
</tr>
<tr>
<td>PD</td>
<td>506</td>
<td>372</td>
</tr>
<tr>
<td>Kidney tx</td>
<td>4631</td>
<td>2746</td>
</tr>
</tbody>
</table>

61% / 39%
Prevalence by gender, all RRT
per million population 31st December 2020

- Man: 2597.99
- Women: 1487.26
Primary renal disease of patients accepted for dialysis

**HD and PD during 2020**

- Diabetes: 33.1%
- Hypertension: 14.4%
- Chronic Gln: 11.8%
- Hypoplasia/Dysplasia: 0.8%
- Polycystic Disease: 4.9%
- Other Known: 19.1%
- Unknown: 15.9%
- Other Known: 11.8%
- Not available = 7
Primary renal disease of prevalent patients
**HD and PD, 31st December 2020**

- Diabetes: 27.7%
- Hypertension: 12.8%
- Chronic Gln: 13.9%
- Polycystic Disease: 6.7%
- Hypoplasia/Dysplasia: 1.1%
- Other Known: 19.8%
- Unknown: 18.0%
- Other Known: 19.8%

N = 13279
Not available = 57
HEMODIALYSIS

Portuguese Registry of Dialysis and Transplantation 2020
Ana Galvão
New patients accepted for hemodialysis
2000 - 2020

- 10.8 %
Incident patients accepted for hemodialysis per million population 2010 - 2020
Previous follow-up by nephrology (> 3 months)
HD patients 2010 – 2020

![Bar chart showing the percentage of HD patients with previous follow-up by nephrology (≥ 3 months) from 2010 to 2020. The chart indicates that 18.4% of patients had previous nephrology follow-up after 3 months.](image-url)
Incident patients accepted for hemodialysis
Day 0 and day 91, 2011-2020
Patients accepted for hemodialysis 
by age group, during 2020

- < 18 years old (0,2%)
- 18 a 65 years old (36,3%)
- 65 a 80 years old (39%)
- >80 years old (24,5%)
Patients treated by hemodialysis
31st of December each year, 2000 – 2020

- 0,52 %
Prevalent patients treated by hemodialysis
per million population 2010 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Prevalent Patients per Million Population</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>953.21</td>
</tr>
<tr>
<td>2011</td>
<td>985.55</td>
</tr>
<tr>
<td>2012</td>
<td>997.90</td>
</tr>
<tr>
<td>2013</td>
<td>1046.70</td>
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<tr>
<td>2014</td>
<td>1088.50</td>
</tr>
<tr>
<td>2015</td>
<td>1109.80</td>
</tr>
<tr>
<td>2016</td>
<td>1133.20</td>
</tr>
<tr>
<td>2017</td>
<td>1162.51</td>
</tr>
<tr>
<td>2018</td>
<td>1188.12</td>
</tr>
<tr>
<td>2019</td>
<td>1218.59</td>
</tr>
<tr>
<td>2020</td>
<td>1209.72</td>
</tr>
</tbody>
</table>
Patients treated by hemodialysis by age group, 31st December 2020

- < 18 years old (0.1%)
- 18 a 65 years old (34.9%)
- 65 a 80 years old (42%)
- >80 years old (23%)
Incident and prevalent patients treated by hemodialysis by country region, 2020
Incident and prevalent patients treated by hemodialysis per million population by age group, 2020
Patients treated by hemodialysis
distribution by techniques in each age group, 31st of December 2020

N = 12458
low flux 1.8% (2.1% in 2019)
Patients treated by hemodialysis
distribution by techniques by region and facility type, 31st Dec. 2020
Hemodialysis growth 2020 vs 2019 (%)
31st of December each year

<table>
<thead>
<tr>
<th>ALL</th>
<th>HOSPITAL</th>
<th>CENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10.8</td>
<td>-19.8</td>
<td>-9.48</td>
</tr>
<tr>
<td>-0.52</td>
<td>-1.31</td>
<td>-19.8</td>
</tr>
</tbody>
</table>

Variation 2019/2020 %

Incident Pts %
Prevalent Pts %
Distribution of hemodialysis patients by type of dialysis facility
31st of December 2020

- In Hospital: 902
- In Center: 11556

N = 12458
Mean Age of patients treated by hemodialysis
31st of December 2010 – 2020
Mean Age of patients treated by hemodialysis
by country region, 31st of December 2010 – 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Islands</th>
<th>Lisbon</th>
<th>North</th>
<th>South</th>
<th>Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>61.9</td>
<td>64.5</td>
<td>65.8</td>
<td>67.3</td>
<td>68.2</td>
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<tr>
<td>2011</td>
<td>62.4</td>
<td>65.2</td>
<td>66.3</td>
<td>66.7</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>60.3</td>
<td>65.2</td>
<td>66.7</td>
<td>68</td>
<td>68.7</td>
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<tr>
<td>2013</td>
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<td>65.1</td>
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<td>69.1</td>
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<td>2014</td>
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<td>65.8</td>
<td>66.8</td>
<td>68</td>
<td>69.1</td>
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<tr>
<td>2015</td>
<td>62.4</td>
<td>66.2</td>
<td>67.2</td>
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<td>69.5</td>
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<td>2016</td>
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<td>67.4</td>
<td>69.5</td>
<td>69.7</td>
</tr>
<tr>
<td>2017</td>
<td>65.0</td>
<td>66.5</td>
<td>67.7</td>
<td>69.0</td>
<td>69.9</td>
</tr>
<tr>
<td>2018</td>
<td>64.2</td>
<td>65</td>
<td>68.1</td>
<td>68.9</td>
<td>69.8</td>
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<tr>
<td>2019</td>
<td>64.5</td>
<td>67.1</td>
<td>68.6</td>
<td>69.1</td>
<td>69.9</td>
</tr>
<tr>
<td>2020</td>
<td>64.3</td>
<td>67.27</td>
<td>68.65</td>
<td>69.14</td>
<td>70.28</td>
</tr>
</tbody>
</table>
Primary renal disease of patients accepted for hemodialysis during 2020

- Diabetes: 34.5%
- Hypertension: 14.8%
- Chronic Glm: 10.1%
- Policystic Disease: 4.5%
- Hypoplasia/Dysplasia: 0.6%
- Other Known: 19.3%
- Unknown: 16.3%
- Other Known: 19.3%

N = 2094
7 not available
Etiology of All patients accepted for hemodialysis during 2020

- Diabetes: 30.6%
- Hypertension: 13.1%
- Chronic Gln: 8.9%
- Hypoplasia/Dysplasia: 0.5%
- Chronic PC: 8.9%
- Other Known: 17.1%
- Tx/DP Failure: 11.2%
- Unknown: 14.5%
- Other Known: 17.1%

N = 2358
7 not available
Primary renal disease of prevalent hemodialysis patients
31st December 2020

- DM: 28.6%
- HTA: 13.2%
- GNC: 12.8%
- Policystic disease: 6.4%
- other Known: 19.9%
- hyp/dysplasia: 1.0%
- unknown: 18.2%

N = 12410
19 not available
Diabetes as primary renal disease in HD patients
Incident and prevalent (%) 2010 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Incident Pt</th>
<th>Prevalent Pt</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>26.9%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>27.7%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>28.2%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>28.2%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>28.7%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>29.1%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>28.7%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>28.1%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>28.6%</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>28.6%</td>
<td></td>
</tr>
</tbody>
</table>
Viral status in HD prevalent patients
31st December 2020

- Neg: 94.51%
- Hbs Ag +: 1.33%
- HCV Ab +: 2.61%
- HIV Ab +: 1.55%

N = 12458
Hepatitis C viral status in HD prevalent pts

<table>
<thead>
<tr>
<th>Year</th>
<th>HCVAb+ / RNA +</th>
<th>HCV Ab+ / RNA neg</th>
<th>Seroconv to RNA neg</th>
<th>Incident HCV +</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>197</td>
<td>205</td>
<td>120</td>
<td>15</td>
</tr>
<tr>
<td>2017</td>
<td>149</td>
<td>128</td>
<td>119</td>
<td>15</td>
</tr>
<tr>
<td>2018</td>
<td>99</td>
<td>266</td>
<td>82</td>
<td>16</td>
</tr>
<tr>
<td>2019</td>
<td>68</td>
<td>283</td>
<td>49</td>
<td>10</td>
</tr>
<tr>
<td>2020</td>
<td>43</td>
<td>282</td>
<td>20</td>
<td>17</td>
</tr>
</tbody>
</table>
Vascular access
Vascular access of HD incident patients during 2020

- AVFistula: 38.2%
- Graft: 1.4%
- Tunneled catheter: 56.6%
- Non-tunneled cat.: 3.8%

N = 2095
6 unavailable
## Vascular access of HD incident patients

### 2010 – 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-tunneled cat.</th>
<th>Tunneled cat.</th>
<th>Graft</th>
<th>AVFistula</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>219</td>
<td>1034</td>
<td>117</td>
<td>931</td>
</tr>
<tr>
<td>2011</td>
<td>188</td>
<td>1033</td>
<td>71</td>
<td>844</td>
</tr>
<tr>
<td>2012</td>
<td>163</td>
<td>1007</td>
<td>61</td>
<td>844</td>
</tr>
<tr>
<td>2013</td>
<td>143</td>
<td>1101</td>
<td>61</td>
<td>870</td>
</tr>
<tr>
<td>2014</td>
<td>163</td>
<td>1088</td>
<td>60</td>
<td>912</td>
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<td>2015</td>
<td>81</td>
<td>1068</td>
<td>74</td>
<td>872</td>
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<td>2016</td>
<td>103</td>
<td>1093</td>
<td>59</td>
<td>940</td>
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<tr>
<td>2017</td>
<td>117</td>
<td>1094</td>
<td>57</td>
<td>862</td>
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<tr>
<td>2018</td>
<td>173</td>
<td>1222</td>
<td>45</td>
<td>926</td>
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<tr>
<td>2019</td>
<td>148</td>
<td>1196</td>
<td>40</td>
<td>965</td>
</tr>
<tr>
<td>2020</td>
<td>80</td>
<td>1185</td>
<td>30</td>
<td>800</td>
</tr>
</tbody>
</table>

The chart shows the percentage of vascular access methods used for hemodialysis patients from 2010 to 2020. The categories include non-tunneled catheters, tunneled catheters, grafts, and AV fistulas.
Catheter rate (%) in the first HD session of incident patients
2010 – 2020
Vascular access of HD incident patients
by country region and facility type

North
- AVFistula: 49.4%
- Graft: 25.5%
- Tunneled Catheter: 33.9%
- Non-tunneled Cat.: 43.3%

Centre
- AVFistula: 33.9%
- Graft: 43.3%
- Tunneled Catheter: 30.1%
- Non-tunneled Cat.: 30.3%

Lisbon
- AVFistula: 43.3%
- Graft: 33.3%
- Tunneled Catheter: 30.1%
- Non-tunneled Cat.: 30.3%

South
- AVFistula: 33.3%
- Graft: 38.2%
- Tunneled Catheter: 38.2%
- Non-tunneled Cat.: 30.3%

Azores
- AVFistula: 33.3%
- Graft: 38.2%
- Tunneled Catheter: 38.2%
- Non-tunneled Cat.: 39.3%

Madeira
- AVFistula: 30.1%
- Graft: 30.3%
- Tunneled Catheter: 30.3%
- Non-tunneled Cat.: 39.3%

Global
- AVFistula: 38.2%
- Graft: 38.2%
- Tunneled Catheter: 38.2%
- Non-tunneled Cat.: 39.3%

In Hospital
- AVFistula: 30.1%
- Graft: 30.3%
- Tunneled Catheter: 30.3%
- Non-tunneled Cat.: 39.3%

In Center
- AVFistula: 30.1%
- Graft: 30.3%
- Tunneled Catheter: 30.3%
- Non-tunneled Cat.: 39.3%

N = 2095
6 not available
Vascular access of HD prevalent patients
31st December 2020

- AV Fistula: 73.4%
- Graft: 7.6%
- Tunneled catheter: 19.0%

N = 12458
Vascular access of HD prevalent patients
31st December, 2010 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-Tunneled Cat</th>
<th>Tunneled Catheter</th>
<th>Graft</th>
<th>FAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>42</td>
<td>1953</td>
<td>1365</td>
<td>6788</td>
</tr>
<tr>
<td>2011</td>
<td>25</td>
<td>1905</td>
<td>1402</td>
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<td>2012</td>
<td>16</td>
<td>1889</td>
<td>1349</td>
<td>7257</td>
</tr>
<tr>
<td>2013</td>
<td>23</td>
<td>1834</td>
<td>1358</td>
<td>7750</td>
</tr>
<tr>
<td>2014</td>
<td>15</td>
<td>1770</td>
<td>1317</td>
<td>8202</td>
</tr>
<tr>
<td>2015</td>
<td>24</td>
<td>1804</td>
<td>1273</td>
<td>8434</td>
</tr>
<tr>
<td>2016</td>
<td>2</td>
<td>1895</td>
<td>1239</td>
<td>8598</td>
</tr>
<tr>
<td>2017</td>
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<tr>
<td>2018</td>
<td>35</td>
<td>2109</td>
<td>1101</td>
<td>8978</td>
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<tr>
<td>2019</td>
<td>6</td>
<td>2170</td>
<td>1049</td>
<td>9283</td>
</tr>
<tr>
<td>2020</td>
<td>0</td>
<td>2371</td>
<td>950</td>
<td>9137</td>
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Vascular access of HD prevalent patients
31st December, 2010 - 2020

Portuguese Registry of Dialysis and Transplantation 2020
Ana Galvão
Vascular access of prevalent patients (%)
31st December, 2010 - 2020
AV Fistula rate of prevalent patients (%)
31st December, 2010 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>66.9</td>
</tr>
<tr>
<td>2011</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>69</td>
</tr>
<tr>
<td>2013</td>
<td>70.7</td>
</tr>
<tr>
<td>2014</td>
<td>72.4</td>
</tr>
<tr>
<td>2015</td>
<td>73.1</td>
</tr>
<tr>
<td>2016</td>
<td>73.3</td>
</tr>
<tr>
<td>2017</td>
<td>73.3</td>
</tr>
<tr>
<td>2018</td>
<td>73.5</td>
</tr>
<tr>
<td>2019</td>
<td>74.2</td>
</tr>
<tr>
<td>2020</td>
<td>73.4</td>
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</tbody>
</table>
Graft rate of prevalent patients (%)  
31st December, 2010 - 2020
Catheter rate of prevalent patients (%)  
31\textsuperscript{st} December, 2010 - 2020
Vascular access of HD prevalent patients by country region and facility type, 31st of December 2020

North: 33.7%, Centre: 74.6%, Lisbon: 66%, South: 70.6%, Azores: 59.5%, Madeira: 48.9%, Global: 73.4%, In Hospital: 57.7%, In Center: 74.6%
Catheter rate of prevalent patients (%)
31st December 2020

51 centers above 20% cat rate
18 centers below 10% cat rate
National rate = 19%
Standard deviation = 4,1
Catheter rate of prevalent patients (%)  
*In Hospital HD patients - 2020*

- 20 centers above 20% cat rate
- 3 centers below 10% cat rate
National rate = 35%
Standard deviation = 21.3
Catheter rate of prevalent patients (%)
In Center HD patients - 2020

33 centers above 20% cat rate
13 centers below 10% cat rate
National rate = 17.8% (15.7% 2019)
Standard deviation = 3.8
Mortality - hemodialysis
Deaths in hemodialysis
by age group in 2020

- 79.4% of 1737 patients that died in 2020 were more than 65 years old and 41% more than 80 years.
- 6.3% of deaths occurred during the first 90 days after starting dialysis.
- Mortality in the first 90 days was 4.6% (3.4% em 2019).

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Prevalent</th>
<th>Died</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 65 years</td>
<td>4337</td>
<td>357</td>
</tr>
<tr>
<td>65 - 80 years</td>
<td>5261</td>
<td>668</td>
</tr>
<tr>
<td>&gt;80 years</td>
<td>2860</td>
<td>712</td>
</tr>
</tbody>
</table>

N: 1737
Death causes in HD patients during 2020

- Cardiovascular: 27.3%
- Sudden death: 8.5%
- Infection (related with VA): 1.4%
- Infection (not related with VA): 26.4%
- Malignancy: 8.3%
- Cachexia: 6.9%
- Others known: 14.3%
- Unknown: 6.9%

N=1721
16 not available
Death causes in HD patients during 2020

- Cardiovascular: 27.3%
- COVID: 8.3%
- Sudden death: 8.5%
- Infection (related with VA): 1.4%
- Infection (not related with VA): 18.1%
- Malignancy: 8.3%
- Cachexia: 6.9%
- Unknown: 6.9%
- Others known: 14.3%

N=1721
16 not available
Cardiovascular and Infection deaths in hemodialysis (%)
2010 - 2020

CV Inf. not rel VA

(%)

0 5 10 15 20 25 30 35


26.4
Cardiovascular and Infection deaths in hemodialysis (%)

2010 - 2020

CV  Inf. not rel VA  Inf. not rel VA out COVID
Death causes during the first 90 days of HD 2020

- Cardiovascular: 32.1%
- Sudden death: 12.3%
- Infection (related with VA): 4.7%
- Infection (not related with VA): 22.6%
- Malignancy: 9.4%
- Cachexia: 4.7%
- Others known: 8.5%
- Unknown: 5.7%
- N=106
- 4 not available
### HD patients movement in 2020

<table>
<thead>
<tr>
<th>Category</th>
<th>IN</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>First treatment</td>
<td>2101</td>
<td>1737</td>
</tr>
<tr>
<td>Transplant failure</td>
<td>121</td>
<td>303</td>
</tr>
<tr>
<td>PD into HD</td>
<td>143</td>
<td>69</td>
</tr>
<tr>
<td>Deaths</td>
<td></td>
<td>192</td>
</tr>
<tr>
<td>Transplanted</td>
<td></td>
<td>129</td>
</tr>
<tr>
<td>HD into PD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop treat. or recovery ?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GROSS MORTALITY RATE = 14%**

(90d mortality = 4.6%)
### Mortality rates – hemodialysis
#### 2020

<table>
<thead>
<tr>
<th>Hemodialysis</th>
<th>2020 Rate</th>
<th>90 day mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>in hospital</td>
<td>23.26%</td>
<td>7.74%</td>
</tr>
<tr>
<td>in center</td>
<td>13.29%</td>
<td>4.06%</td>
</tr>
</tbody>
</table>

National gross mortality rate = **14%**

(90 day mortality = 4.6%)
Gross mortality rate in hemodialysis

2010 - 2020
Gross mortality rate

Impact of deaths until day 90, 2020

- All: 14 (Gross mortality rate: 4.6% until d90)
- In Center: 13.11 (Gross mortality rate: 4.06% until d90)
- In Hospital: 23.26 (Gross mortality rate: 7.74% until d90)

Mortality since d1: □
Mortality since d91: □
Gross mortality rates – hemodialysis
since d1 and d91 by country region, 2020

<table>
<thead>
<tr>
<th>Country Region</th>
<th>Mean Age</th>
<th>Mortality since d1</th>
<th>Mortality since d91</th>
<th>Deaths until d90 (% of incident)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>68,48</td>
<td>14%</td>
<td>13,11%</td>
<td>4,6%</td>
</tr>
<tr>
<td>North</td>
<td>68,65</td>
<td>14,1%</td>
<td>13,28%</td>
<td>4,15%</td>
</tr>
<tr>
<td>Center</td>
<td>70,28</td>
<td>14,16%</td>
<td>13,31%</td>
<td>4,65%</td>
</tr>
<tr>
<td>South</td>
<td>69,14</td>
<td>13,15%</td>
<td>12,28%</td>
<td>5,38%</td>
</tr>
<tr>
<td>Lisbon</td>
<td>67,27</td>
<td>14,19%</td>
<td>13,24%</td>
<td>4,48%</td>
</tr>
<tr>
<td>Azores</td>
<td>64,5</td>
<td>18,87%</td>
<td>17,79%</td>
<td>4,44%</td>
</tr>
<tr>
<td>Madeira</td>
<td>64,16</td>
<td>10,82%</td>
<td>9,62%</td>
<td>3,33%</td>
</tr>
</tbody>
</table>
Waiting list for renal transplantation
Hemodialysis patients, 2020

79.9% (9950)
20.1% (2508)
Waiting list for renal transplantation
*HD patients, Active and temporary contraindication - 2020*

- **79.9%**
- **7.2%** (896)
- **12.9%** (1612)

Legend:
- Normal and Urgent
- Temporary out
- No
New patients starting peritoneal dialysis
2000 - 2020

-16.1%
Incident patients accepted for peritoneal dialysis
per million population 2010 - 2020
Previous follow-up by nephrology (> 3 months)
PD patients, 31st of December 2020

- Yes: 90.4%
- No: 9.6%

N = 216
Patients treated by peritoneal dialysis
Count at 31st of December each year, 2000 – 2020
Prevalent patients treated by peritoneal dialysis

per million population 2010 - 2020
Primary renal disease of patients accepted for peritoneal dialysis during 2020

- Diabetes: 21.3%
- Hypertension: 11.7%
- Chronic GN: 27.2%
- Polycystic Disease: 8.4%
- Hypoplasia/Dysplasia: 2.5%
- Other Known: 17.2%
- Unknown: 11.7%

N = 239
Primary renal disease of prevalent peritoneal dialysis patients
31st December 2020

- Chronic GN: 28.1%
- Other Known: 18.8%
- Hypoplasia/Dysplasia: 2.5%
- Policystic Disease: 11.0%
- Hypertension: 8.2%
- Unknown: 15.5%
- Diabetes: 15.8%
- Other Known: 18.8%

N = 878
Patients treated by peritoneal dialysis
*Manual vs automated, 31st of December 2020*

- **N = 878**
- **APD: 41.5%**
- **Age > 65 years: 30.6%**
- **Age > 80 years: 3.1%**
Patients treated by peritoneal dialysis

Manual vs automated, 31st December 2000 - 2020

- Total
- CAPD
- APD


Numbers of patients:
- Total: 878, 523, 365
Patients treated by peritoneal dialysis by region, 31st of December 2011 to 2020

Number of Patients

N = 878
Mean Age of patients treated by peritoneal dialysis
31st of December 2010 – 2020

Mean age (years)
Viral status in PD prevalent patients
31st December 2020

N = 878
## PD patients movement in 2020

<table>
<thead>
<tr>
<th></th>
<th>IN</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>New patients</td>
<td>239</td>
<td>Death</td>
</tr>
<tr>
<td>KTr failure</td>
<td>10</td>
<td>Transplant</td>
</tr>
<tr>
<td>HD to PD</td>
<td>69</td>
<td>PD to HD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suspension</td>
</tr>
<tr>
<td>Renal Recovery</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

### Mortality rate = 5.4%

(90 d mortality = 2%)
Gross mortality rate in peritoneal dialysis

2010 - 2020
Death causes in PD patients
2020

N = 54
6 patients died until day 90; 2% of incidente patients and 11% of all deaths

- CardioVasc 31.5%
- Sudden death 16.7%
- Infection (PD related) 1.9%
- Infection (Not PD related) 27.8%
- Neoplasia 7.4%
- Cachexia 1.9%
- Others Known 13.0%
Death causes in PD patients
2020

N = 54
6 patients died until day 90; 2% of incidente patients and 11% of all deaths

- CardioVasc 31.5%
- Others Known 13.0%
- Cachexia 1.9%
- Neoplasia 7.4%
- Infection (PD related) 1.9%
- Infection (Not PD related) 18.5%
- Sudden death 16.7%
- COVID 9.3%
Reasons for PD withdraw
2020

- Infection: 40.5%
- UF failure/Inadequacy: 21.5%
- Mechanical problems: 9.2%
- Non compliance: 8.0%
- Others: 20.9%
- N = 163
Peritonitis episodes
2020

N = 290
0.29 episodes / patients-2020

Peritonitis rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>0.45</td>
</tr>
<tr>
<td>2011</td>
<td>0.46</td>
</tr>
<tr>
<td>2012</td>
<td>0.43</td>
</tr>
<tr>
<td>2013</td>
<td>0.45</td>
</tr>
<tr>
<td>2014</td>
<td>0.41</td>
</tr>
<tr>
<td>2015</td>
<td>0.37</td>
</tr>
<tr>
<td>2016</td>
<td>0.35</td>
</tr>
<tr>
<td>2017</td>
<td>0.29</td>
</tr>
<tr>
<td>2018</td>
<td>0.31</td>
</tr>
<tr>
<td>2019</td>
<td>0.26</td>
</tr>
<tr>
<td>2020</td>
<td>0.29</td>
</tr>
</tbody>
</table>
PD patients in waiting list for renal transplantation 2020

- 50.6% (444)
- 49.4% (434)
PD patients in waiting list for renal transplantation
Active ant temporary contraindication for transplantation

- 35.4% (311) Normal and Urgent
- 15.1% (133) Temporary out
- 49.4% (434) No

Portuguese Registry of Dialysis and Transplantation 2020
Ana Galvão
Renal Transplants performed
1980-2020

Total = 14063
Renal Transplants Performed
per million population, 2010 - 2020

- 2000: 35
- 2001: 34
- 2002: 38
- 2003: 34
- 2004: 36
- 2005: 38
- 2006: 41
- 2007: 45.3
- 2008: 49.45
- 2009: 55.8
- 2010: 53.9
- 2011: 50.2
- 2012: 40.6
- 2013: 42.7
- 2014: 43
- 2015: 46.75
- 2016: 49.53
- 2017: 51.12
- 2018: 49.07
- 2019: 50.02
- 2020: 38.16
Renal transplantation activity characterization 2020

![Bar chart showing the number of patients by donor type and recipient age groups.]

- Deceased donor: 352
- Deceased donor / Receptor <18y: 2
- Deceased donor / Receptor >65y: 40
- Living donor: 41
- Living donor / Receptor <18y: 6
- Living donor / Receptor >65y: 0

21 pre-emptive
Renal transplantation activity characterization 2020

- 19.8%

- 45.3%

Nº of Patients

2020

2019
Portuguese Transplant Centers Activity 2020

352 tx deceased donor
41 (10.4%) live donor
31 multi-organ transplants
total = 393
Renal Transplanted Patients

Previous renal replacement therapy, 2016-2020

N = 393 (2020)
Primary renal disease of renal transplanted patients
during 2020

- Diabetes: 21.7%
- Hypertension: 12.9%
- Chronic GN: 25.6%
- Polycystic Disease: 14.9%
- Hypoplasia/Dysplasia: 1.3%
- Other Known: 23.6%

N = 393
Patients with functioning graft and annual growth
31st December 2000 - 2020
Prevalence of CKD patients with functioning graft
cumulative per million population end of each year 2000 - 2020

N = 7377
Renal transplantation: living vs deceased donor

2020

- Living donor: 10.6%
- Deceased donor: 89.4%

N = 7377
Renal transplantation activity
1980 - 2020

2020: 150 patients died with functioning graft; 121 transferred to HD / 10 transferred to PD
Redução de 11,5% na incidência pmp de novos doentes a iniciar Diálise (em relação a 2019)

A incidência de novos doentes a iniciar TSFR continua muito elevada > 200 pmp

A Prevalência de doentes em diálise diminuiu pela 1ª vez (0,3% em relação a 2019)

A prevalência de doentes sob TSFR continua muito elevada > 2000 pmp
Portuguese Registry of Dialysis and Transplantation 2020

**Hemodiálise**
- Redução da incidência (10.8% em relação a 2019) mantendo-se > 200 pmp
- Pela 1ª vez redução na prevalência (0,52% em relação a 2019)
- A idade média continua a aumentar (68,48 anos)
- Maior % de doentes a iniciar HD por CVC (60,4%) e a taxa de CVC nos doentes prevalentes atingiu os 19%
- Maior taxa de mortalidade 14% com maior % de mortes por infeção não relacionada com AV

**Diálise Peritoneal**
- Redução da incidência de novos doentes (16,1% em relação a 2019)
- A prevalência continua a aumentar (3% em relação a 2019)
- A idade média continua a aumentar (56,3 anos)
- A taxa de mortalidade e o nº de episódios de peritonite/doente.ano aumentaram

**Transplantação Renal**
- Redução da incidência de 23,5% em relação a 2019
- Redução da incidência de tx com dador vivo (45% em relação a 2019)
- A incidência de tx duplos aumentou (Rim/Panc)
- Pool de doentes transplantados continua a crescer
Gabinete do Registo da Doença Renal Crónica da Sociedade Portuguesa de Nefrologia

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

Obrigada