

# **CHAPTER 10**

## **Hepatitis on Dialysis**

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**Table 10.1: Prevalence of positive HBsAg and positive Anti-HCV at annual survey, HD patients 2001-2010**

<b>Year</b>	<b>Number of patients</b>	<b>Prevalence of HBsAg+ (%)</b>	<b>Prevalence of Anti-HCV+ (%)</b>
<b>2001</b>	<b>5187</b>	<b>6</b>	<b>23</b>
<b>2002</b>	<b>6106</b>	<b>5</b>	<b>20</b>
<b>2003</b>	<b>6977</b>	<b>5</b>	<b>19</b>
<b>2004</b>	<b>7618</b>	<b>5</b>	<b>17</b>
<b>2005</b>	<b>8957</b>	<b>4</b>	<b>14</b>
<b>2006</b>	<b>11295</b>	<b>5</b>	<b>12</b>
<b>2007</b>	<b>12496</b>	<b>5</b>	<b>11</b>
<b>2008</b>	<b>14951</b>	<b>4</b>	<b>9</b>
<b>2009</b>	<b>17354</b>	<b>4</b>	<b>8</b>
<b>2010</b>	<b>18575</b>	<b>4</b>	<b>7</b>

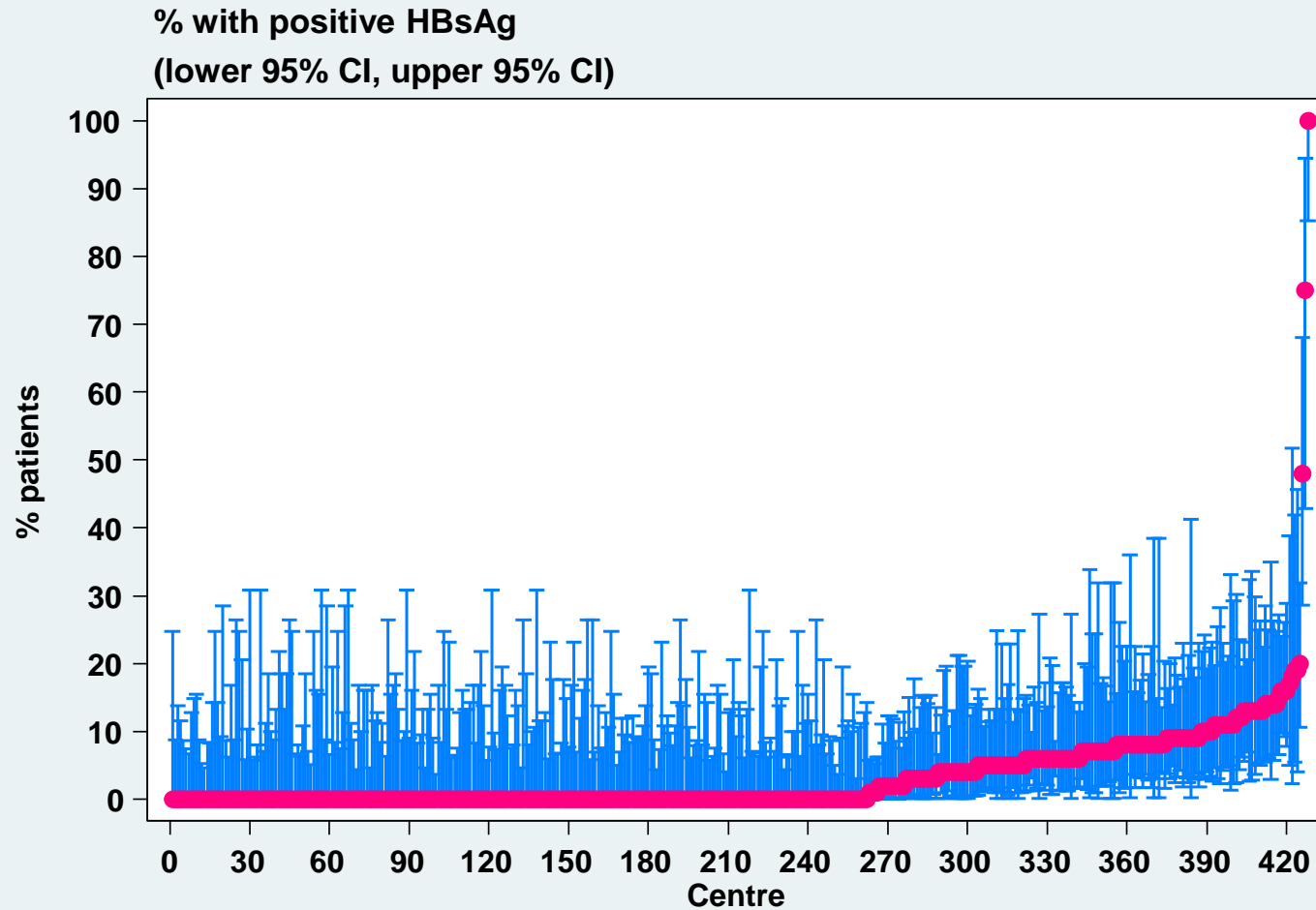
**Table 10.2: Prevalence of positive HBsAg and positive Anti-HCV at annual survey, PD patients 2001-2010**

<b>Year</b>	<b>Number of patients</b>	<b>Prevalence of HBsAg+ (%)</b>	<b>Prevalence of Anti-HCV+ (%)</b>
<b>2001</b>	<b>781</b>	<b>2</b>	<b>3</b>
<b>2002</b>	<b>891</b>	<b>3</b>	<b>4</b>
<b>2003</b>	<b>1223</b>	<b>3</b>	<b>4</b>
<b>2004</b>	<b>1200</b>	<b>4</b>	<b>5</b>
<b>2005</b>	<b>1318</b>	<b>4</b>	<b>5</b>
<b>2006</b>	<b>1494</b>	<b>5</b>	<b>4</b>
<b>2007</b>	<b>1731</b>	<b>5</b>	<b>4</b>
<b>2008</b>	<b>2017</b>	<b>4</b>	<b>3</b>
<b>2009</b>	<b>2144</b>	<b>4</b>	<b>3</b>
<b>2010</b>	<b>2280</b>	<b>3</b>	<b>3</b>

**Table 10.3: Variation in Proportion of patients with positive HBsAg at annual survey among HD centres, 2001-2010**

<b>Year</b>	<b>Number of centres</b>	<b>Min</b>	<b>5<sup>th</sup> Centile</b>	<b>LQ</b>	<b>Media n</b>	<b>UQ</b>	<b>95<sup>th</sup> Centile</b>	<b>Max</b>
<b>2001</b>	<b>127</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>9</b>	<b>16</b>	<b>90</b>
<b>2002</b>	<b>153</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>14</b>	<b>26</b>
<b>2003</b>	<b>184</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>15</b>	<b>73</b>
<b>2004</b>	<b>208</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>7</b>	<b>15</b>	<b>92</b>
<b>2005</b>	<b>237</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>16</b>	<b>100</b>
<b>2006</b>	<b>289</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>16</b>	<b>94</b>
<b>2007</b>	<b>316</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>15</b>	<b>100</b>
<b>2008</b>	<b>364</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>12</b>	<b>100</b>
<b>2009</b>	<b>400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>13</b>	<b>96</b>
<b>2010</b>	<b>428</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5.5</b>	<b>13</b>	<b>100</b>

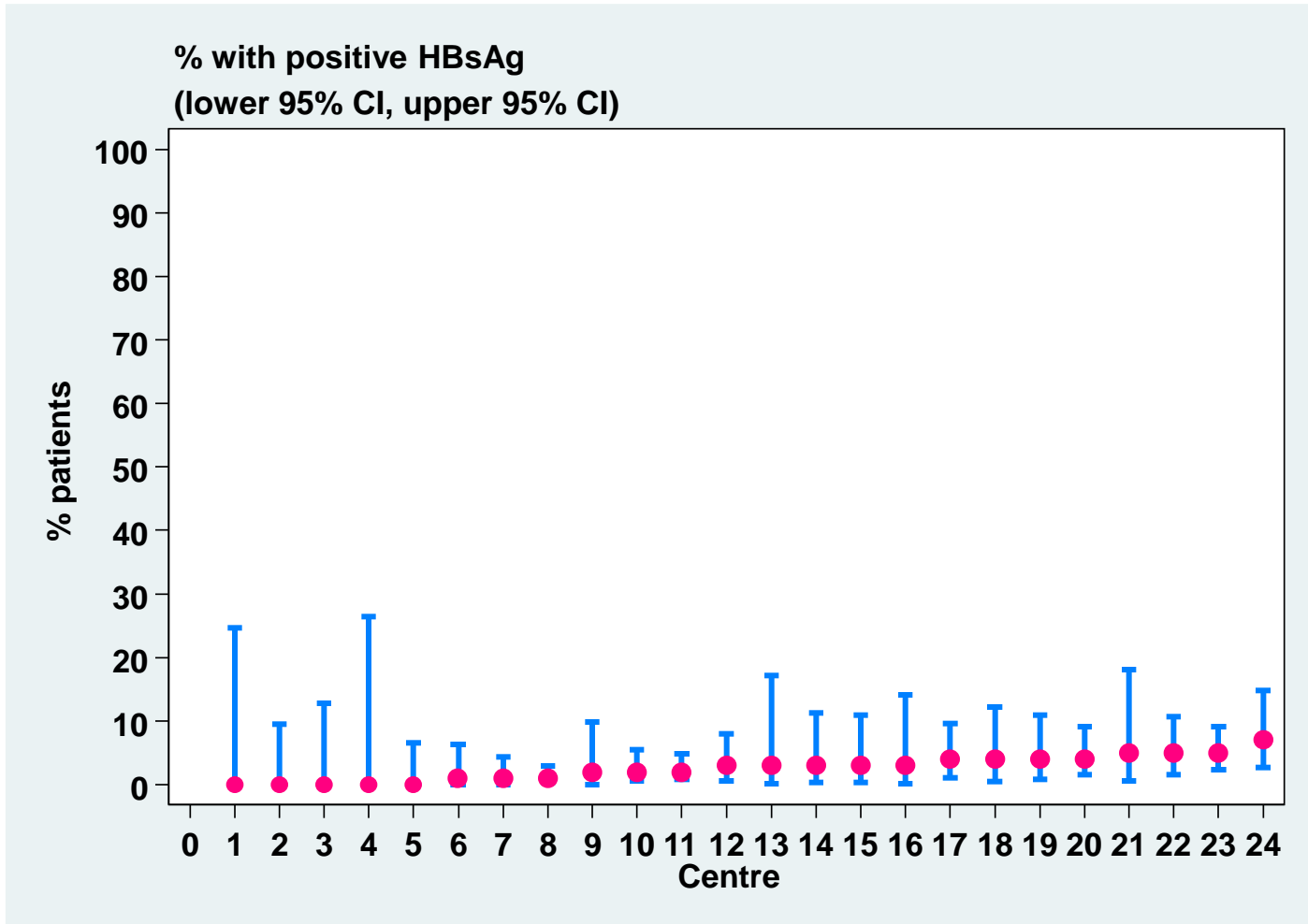
**Figure 10.3: Variation in Proportion of patients with positive HBsAg among HD centres, 2010**



**Table 10.4: Variation in Proportion of patients with positive HBsAg at annual survey among PD centres, 2001-2010**

<b>Year</b>	<b>Number of centres</b>	<b>Min</b>	<b>5<sup>th</sup> Centile</b>	<b>LQ</b>	<b>Median</b>	<b>UQ</b>	<b>95<sup>th</sup> Centile</b>	<b>Max</b>
<b>2001</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>9</b>	<b>9</b>
<b>2002</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>18</b>	<b>18</b>
<b>2003</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>8</b>
<b>2004</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>11</b>	<b>11</b>
<b>2005</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>10</b>	<b>10</b>
<b>2006</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>9</b>	<b>13</b>
<b>2007</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>11</b>
<b>2008</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>10</b>	<b>13</b>
<b>2009</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>9</b>	<b>10</b>
<b>2010</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>7</b>

**Figure 10.4: Variation in Proportion of patients with positive HBsAg among PD centres, 2010**

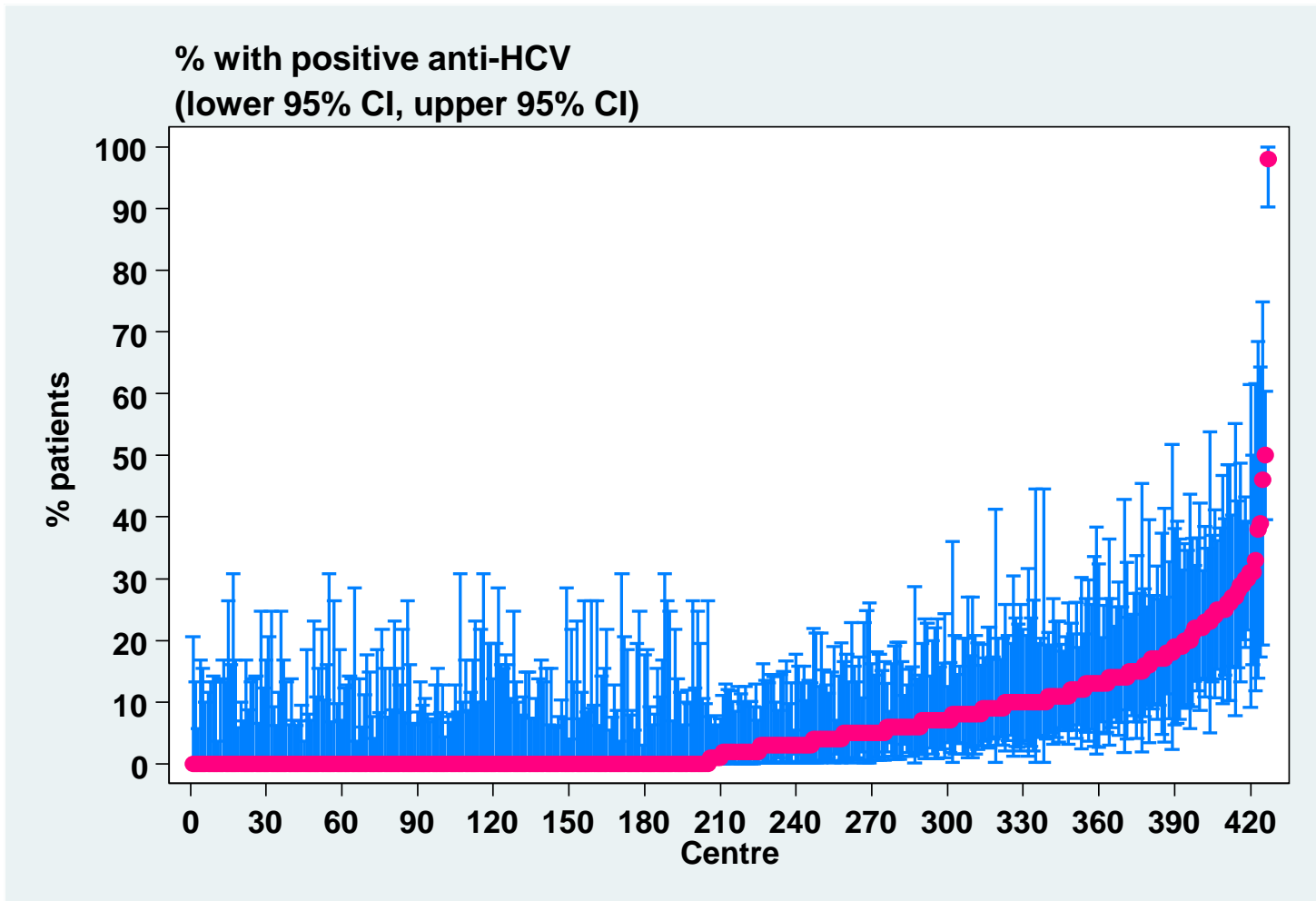


**Table 10.5: Variation in Proportion of patients with positive anti-HCV at annual survey among HD centres, 2001-2010**

<b>Year</b>	<b>Number of centre</b>	<b>Min</b>	<b>5<sup>th</sup> centile</b>	<b>LQ</b>	<b>Median</b>	<b>UQ</b>	<b>95<sup>th</sup> centile</b>	<b>Max</b>
<b>2001</b>	<b>127</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>17</b>	<b>31</b>	<b>65</b>	<b>88</b>
<b>2002</b>	<b>153</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>14</b>	<b>26</b>	<b>54</b>	<b>94</b>
<b>2003</b>	<b>184</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>13</b>	<b>25</b>	<b>50</b>	<b>90</b>
<b>2004</b>	<b>210</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>11.5</b>	<b>25</b>	<b>50</b>	<b>100</b>
<b>2005</b>	<b>239</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>20</b>	<b>38</b>	<b>98</b>
<b>2006</b>	<b>288</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>17.5</b>	<b>41</b>	<b>98</b>
<b>2007</b>	<b>315</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>14</b>	<b>35</b>	<b>100</b>
<b>2008</b>	<b>364</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>12</b>	<b>29</b>	<b>100</b>
<b>2009</b>	<b>400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>26</b>	<b>98</b>
<b>2010</b>	<b>427</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>9</b>	<b>24</b>	<b>98</b>



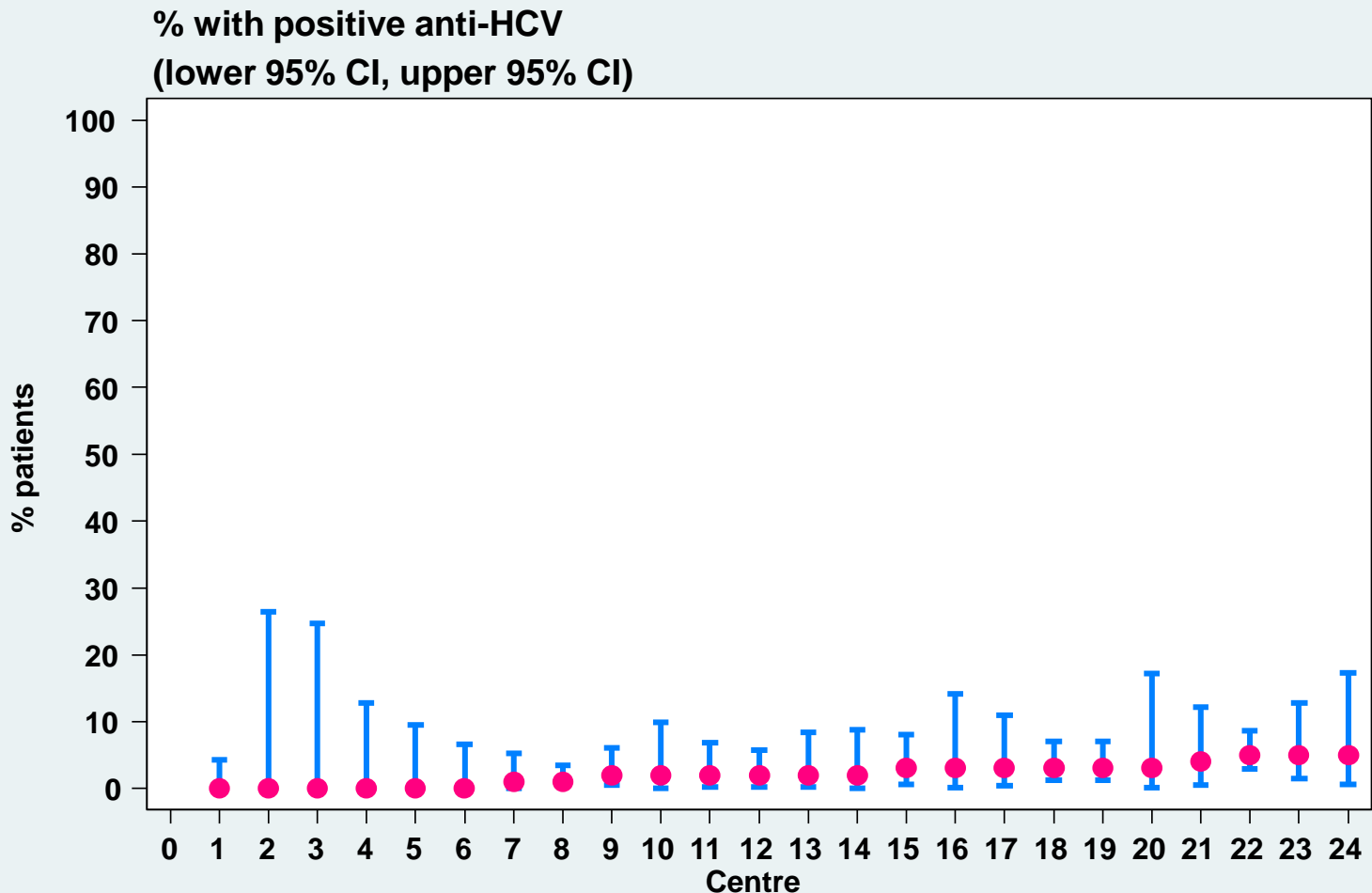
**Figure 10.5: Variation in Proportion of patients with positive anti-HCV among HD centres, 2010**



**Table 10.6: Variation in Proportion of patients with positive anti-HCV at annual survey among PD centres, 2001-2010**

<b>Year</b>	<b>Number of centre</b>	<b>Min</b>	<b>5<sup>th</sup> centile</b>	<b>LQ</b>	<b>Median</b>	<b>UQ</b>	<b>95<sup>th</sup> centile</b>	<b>Max</b>
<b>2001</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>7</b>
<b>2002</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>11</b>	<b>11</b>
<b>2003</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4.5</b>	<b>7</b>	<b>9</b>	<b>9</b>
<b>2004</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4.5</b>	<b>7</b>	<b>10</b>	<b>10</b>
<b>2005</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>11</b>
<b>2006</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2.5</b>	<b>6</b>	<b>8</b>	<b>11</b>
<b>2007</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2.5</b>	<b>6</b>	<b>8</b>	<b>9</b>
<b>2008</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>9</b>
<b>2009</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>8</b>
<b>2010</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0.5</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>5</b>

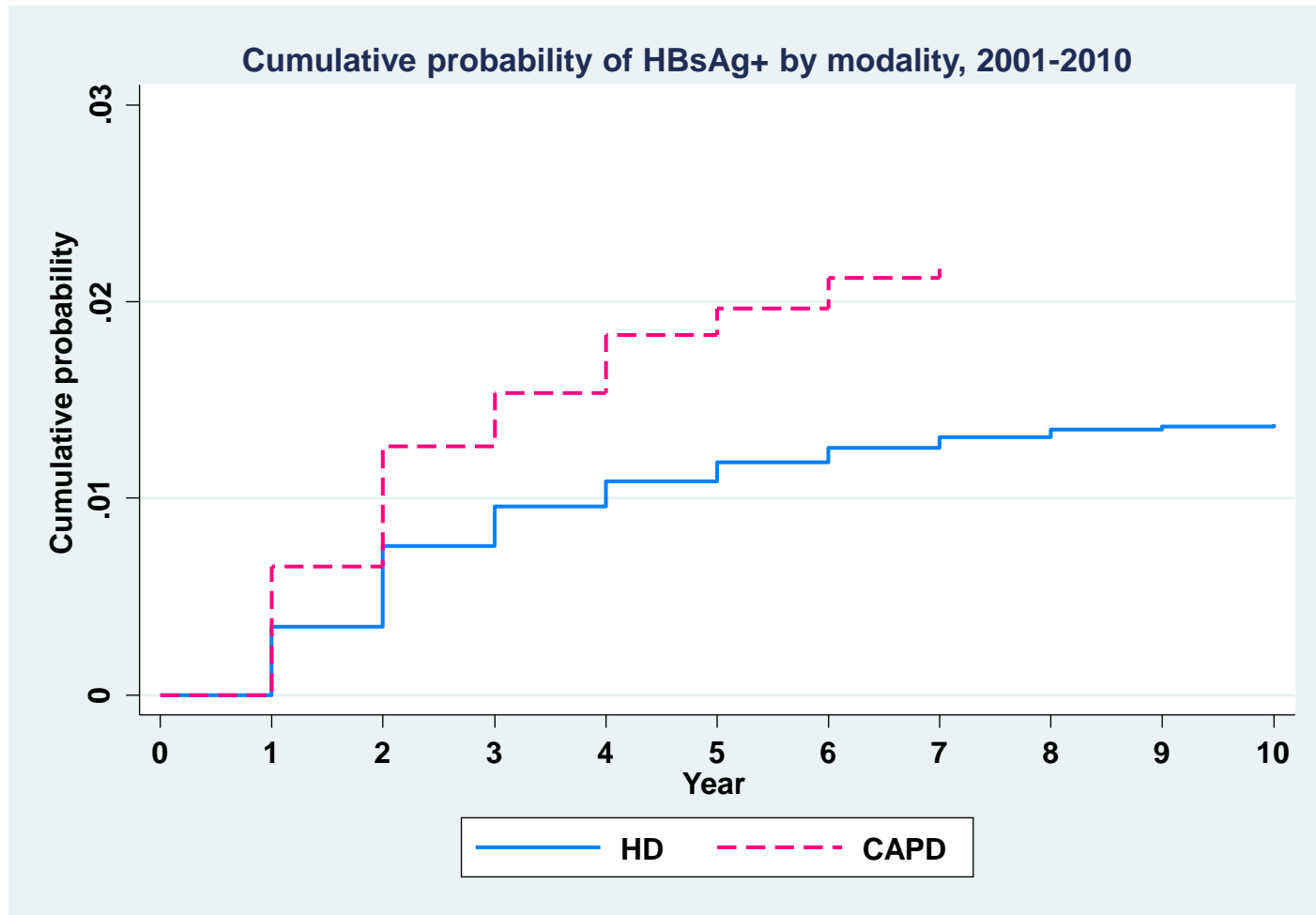
**Figure 10.6: Variation in Proportion of patients with positive anti-HCV among PD centres, 2010**



**Table 10.7 (a): Cumulative risk of sero-conversion to HBsAg positive among sero-negative patients at entry into dialysis, comparing HD and CAPD 2001-2010**

<b>Modality</b>	<b>CAPD</b>		<b>HD</b>	
<b>Interval (years)</b>	<b>% Cumulative probability</b>	<b>SE*</b>	<b>% Cumulative probability</b>	<b>SE*</b>
<b>1</b>	<b>0.65</b>	<b>0.19</b>	<b>0.35</b>	<b>0.10</b>
<b>2</b>	<b>1.26</b>	<b>0.18</b>	<b>0.76</b>	<b>0.12</b>
<b>3</b>	<b>1.53</b>	<b>0.08</b>	<b>0.96</b>	<b>0.06</b>
<b>4</b>	<b>1.83</b>	<b>0.09</b>	<b>1.09</b>	<b>0.04</b>
<b>5</b>	<b>1.96</b>	<b>0.04</b>	<b>1.18</b>	<b>0.03</b>
<b>6</b>	<b>2.12</b>	<b>0.05</b>	<b>1.26</b>	<b>0.02</b>
<b>7</b>	<b>2.17</b>	<b>0.02</b>	<b>1.31</b>	<b>0.02</b>
<b>8</b>	<b>-</b>	<b>-</b>	<b>1.35</b>	<b>0.01</b>
<b>9</b>	<b>-</b>	<b>-</b>	<b>1.37</b>	<b>0.01</b>
<b>10</b>	<b>-</b>	<b>-</b>	<b>1.38</b>	<b>0.00</b>

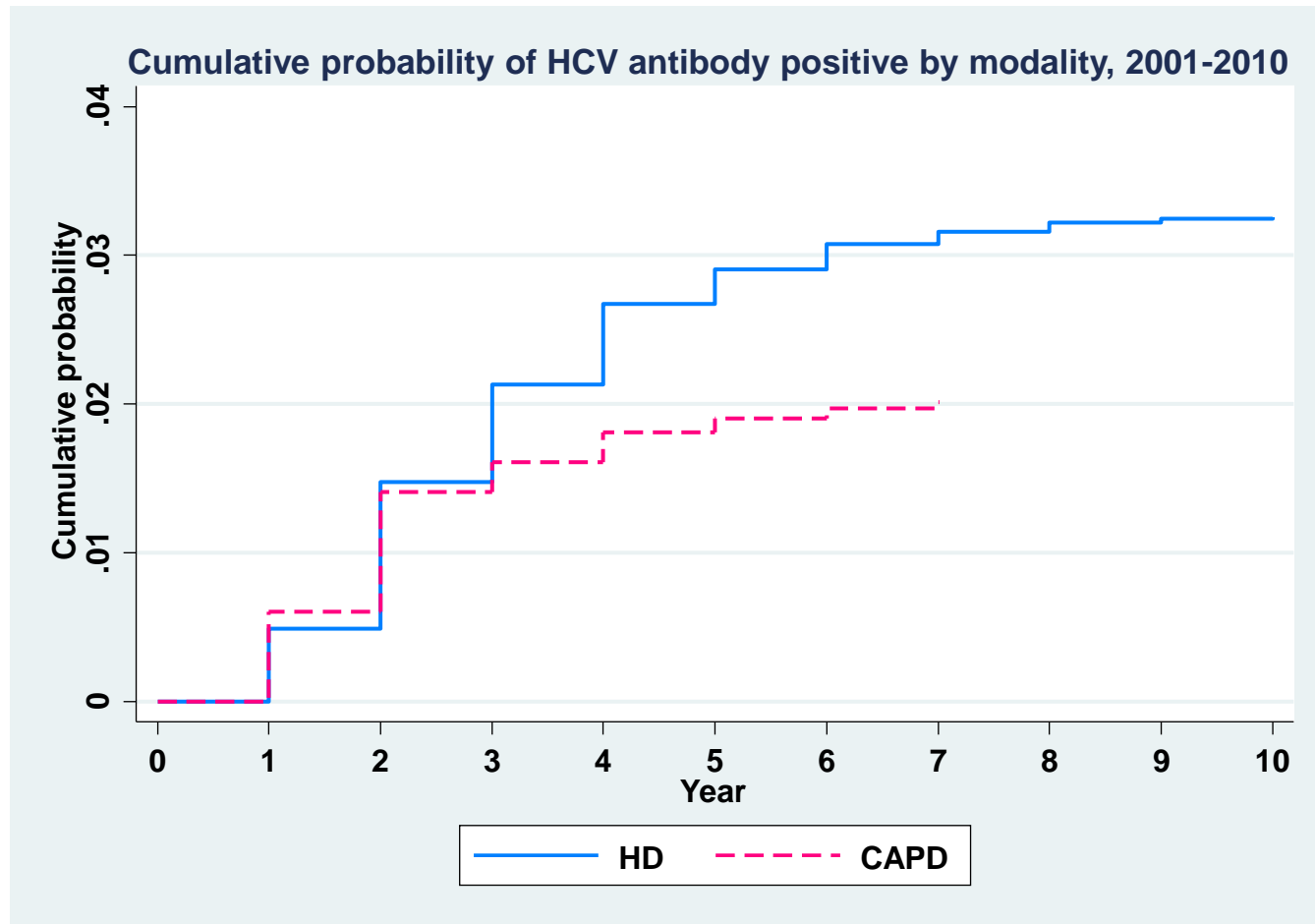
**Figure 10.7 (a): Cumulative risk of sero-conversion to HBsAg positive among sero-negative patients at entry into dialysis, comparing HD and CAPD 2001-2010**



**Table 10.7 (b): Cumulative risk of sero-conversion to anti HCV antibody positive among sero-negative patients at entry into dialysis, comparing HD and CAPD 2001-2010**

<b>Modality</b>	<b>CAPD</b>		<b>HD</b>	
<b>Interval (years)</b>	<b>% Cumulative probability</b>	<b>SE*</b>	<b>% Cumulative probability</b>	<b>SE*</b>
<b>1</b>	<b>0.60</b>	<b>0.18</b>	<b>0.49</b>	<b>0.14</b>
<b>2</b>	<b>1.41</b>	<b>0.24</b>	<b>1.47</b>	<b>0.28</b>
<b>3</b>	<b>1.61</b>	<b>0.06</b>	<b>2.13</b>	<b>0.19</b>
<b>4</b>	<b>1.81</b>	<b>0.06</b>	<b>2.67</b>	<b>0.16</b>
<b>5</b>	<b>1.90</b>	<b>0.03</b>	<b>2.90</b>	<b>0.07</b>
<b>6</b>	<b>1.97</b>	<b>0.02</b>	<b>3.07</b>	<b>0.05</b>
<b>7</b>	<b>2.01</b>	<b>0.02</b>	<b>3.16</b>	<b>0.02</b>
<b>8</b>	<b>-</b>	<b>-</b>	<b>3.22</b>	<b>0.02</b>
<b>9</b>	<b>-</b>	<b>-</b>	<b>3.24</b>	<b>0.01</b>
<b>10</b>	<b>-</b>	<b>-</b>	<b>3.26</b>	<b>0.00</b>

**Figure 10.7 (b): Cumulative risk of sero-conversion to anti HCV antibody positive among sero-negative patients at entry into dialysis, comparing HD and CAPD 2001-2010**



**Table 10.8a: Risk factors in relation to HD practices for seroconversion to anti-HCV positive among sero-negative patients 2001-2010**

Risk factor		Number of patients	Risk Ratio	95% CI	p-value
Assistance to Perform HD	Self care <sup>(ref*)</sup>	119	1.00		
	Partial self care	95	0.82	(0.62;1.09)	0.165
	Completely assisted	643	0.96	(0.78;1.19)	0.718
Dialyzer Reuse	less than 10 <sup>(ref*)</sup>	490	1.00		
	more than 10	362	0.51	(0.44;0.59)	<0.001
Dialyzer Reprocessing System	Fully Auto <sup>(ref*)</sup>	545	1.00		
	Semi Auto	98	1.22	(0.99;1.52)	0.067
	Manual	80	1.58	(1.25;2)	<0.001
Age	<=20 <sup>(ref*)</sup>	7	1.00		
	21-40	91	1.41	(0.62;3.19)	0.414
	41-60	370	1.57	(0.7;3.52)	0.269
	>60	392	1.74	(0.78;3.9)	0.179
Gender	Female <sup>(ref*)</sup>	350	1.00		
	Male	510	1.17	(1.01;1.36)	0.032
Diabetes	No <sup>(ref*)</sup>	407	1.00		
	Yes	453	0.83	(0.72;0.97)	0.018
Previous Renal Transplant	No <sup>(ref*)</sup>	834	1.00		
	Yes	26	2.08	(1.39;3.11)	<0.001
History of Blood Transfusion	No <sup>(ref*)</sup>	501	1.00		
	Yes	359	1.37	(1.18;1.58)	<0.001



**Table 10.8b: Risk factors for seroconversion to anti-HCV positive among sero-negative patients in PD 2001-2010**

Risk factor		Number of patients	Risk Ratio	95% CI	p-value
Age	<=20 (ref*)	7	1.00		
	21-40	18	1.36	(0.57;3.23)	0.489
	41-60	43	1.51	(0.67;3.42)	0.318
	>60	23	0.86	(0.36;2.07)	0.744
Gender	Female (ref*)	35	1.00		
	Male	56	1.69	(1.11;2.57)	0.015
Diabetes	No (ref*)	60	1.00		
	Yes	31	0.63	(0.4;1.01)	0.056
Switch from HD to PD	No (ref*)	67	1.00		
	Yes	24	2.25	(1.4;3.6)	0.001
Previous Renal Transplant	No (ref*)	90	1.00		
	Yes	1	0.27	(0.04;1.92)	0.190
History of Blood Transfusion	No (ref*)	48	1.00		
	Yes	43	1.34	(0.88;2.04)	0.170