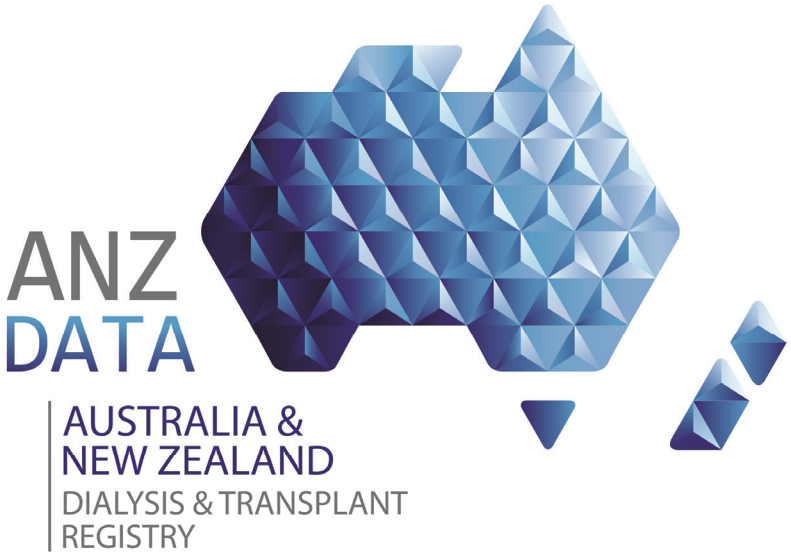
Chapter 5

Peritoneal Dialysis



2016

ANZDATA Registry

39th Annual Report

Data to 31-Dec-2015

Stock and Flow

Table 5.1 shows the proportion of home dialysis patients undergoing peritoneal dialysis (PD) in each state and country over 2011-2015. Overall around two-thirds of home dialysis patients undergo PD, although there is some variation between states.

The duration of time spent on PD by prevalent patients is shown in figure 5.1.

Table 5.1 Proportion (%) PD of all Home Dialysis Patients

State	2011	2012	2013	2014	2015
Queensland	65%	63%	62%	64%	64%
New South Wales	66%	66%	65%	68%	68%
Australian Capital Territory	38%	45%	48%	51%	43%
Victoria	67%	69%	72%	73%	74%
Tasmania	78%	68%	69%	61%	65%
South Australia	86%	87%	80%	79%	78%
Northern Territory	50%	48%	47%	41%	43%
Western Australia	80%	77%	77%	75%	73%
Australia	**67%**	**67%**	**67%**	**68%**	**68%**
New Zealand	**65%**	**62%**	**64%**	**62%**	**62%**

Figure 5.1.1

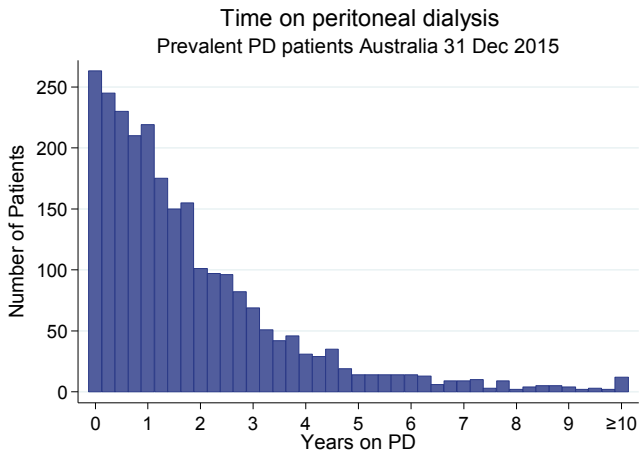


Figure 5.1.2

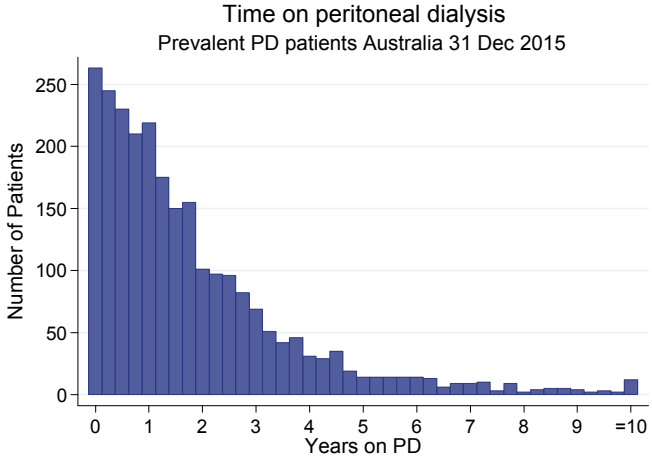


Table 5.2 shows the overall stock and flow of PD patients. The number of prevalent patients is growing in Australia but stable in New Zealand. Figure 5.2 presents some of these data graphically.

Table 5.2 Stock and Flow of Peritoneal Dialysis Patients 2011 - 2015

Year		2011	2012	2013	2014	2015
Australia	**Patients new to PD**	839	1012	983	1100	1011
	First Dialysis Treatment	556	678	713	793	748
	Previous HD	275	320	251	290	238
	Previous Transplant	8	14	19	17	25
	Transplanted	211	209	242	232	274
	Deaths	278	246	258	280	301
	Never Transplanted	271	239	248	273	292
	Previously Transplanted	7	7	10	7	9
	Transfer to HD	479	519	553	513	503
	Patients Dialysing 31 December	2082	2250	2313	2496	2514
New Zealand	**Patients new to PD**	244	270	297	279	293
	First Dialysis Treatment	154	169	180	186	210
	Previous HD	90	97	115	91	79
	Previous Transplant	0	4	2	2	4
	Transplanted	39	43	38	47	47
	Deaths	146	134	121	147	132
	Never Transplanted	140	131	117	144	132
	Previously Transplanted	6	3	4	3	
	Transfer to HD	137	151	132	154	162
	Patients Dialysing 31 December	795	777	835	818	791

Figure 5.2.1

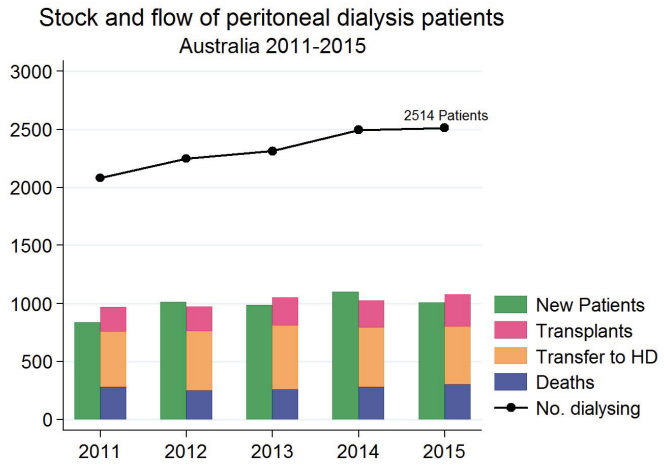
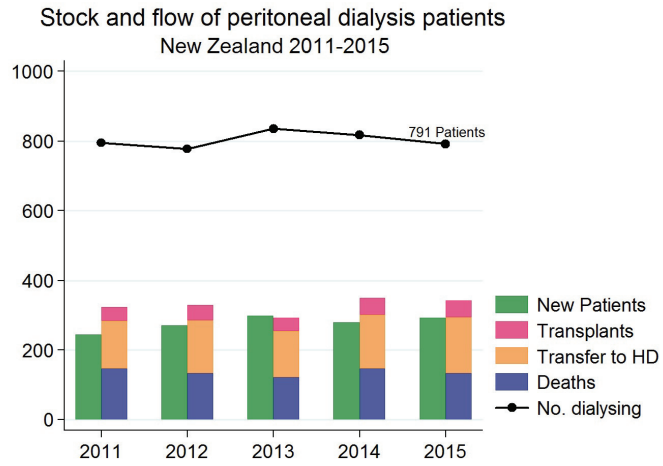


Figure 5.2.2



The age distributions of incident and prevalent PD patients are shown in figures 5.3 and 5.4 respectively.

Figure 5.3.1

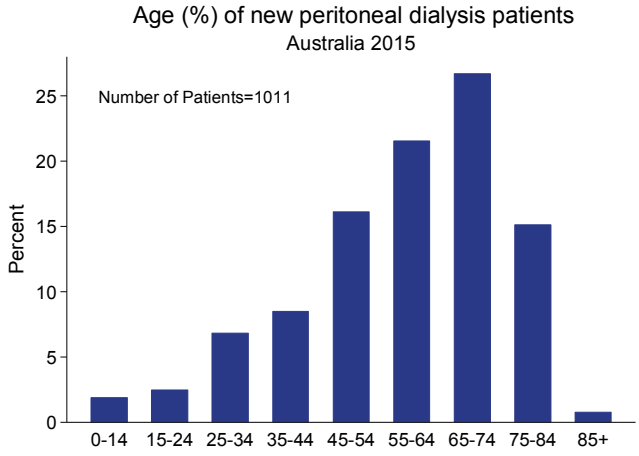


Figure 5.3.2

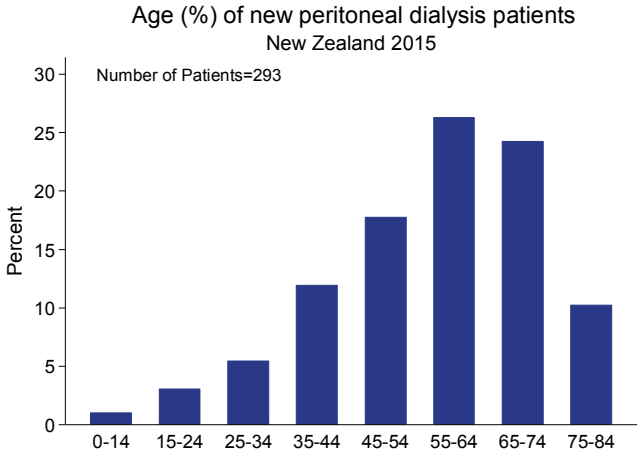


Figure 5.4.1

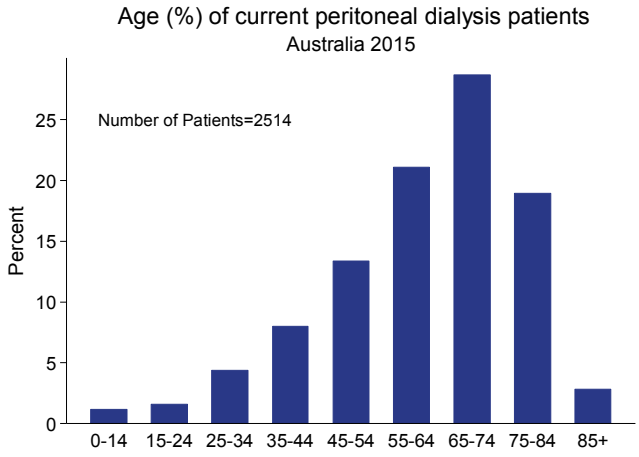


Figure 5.4.2

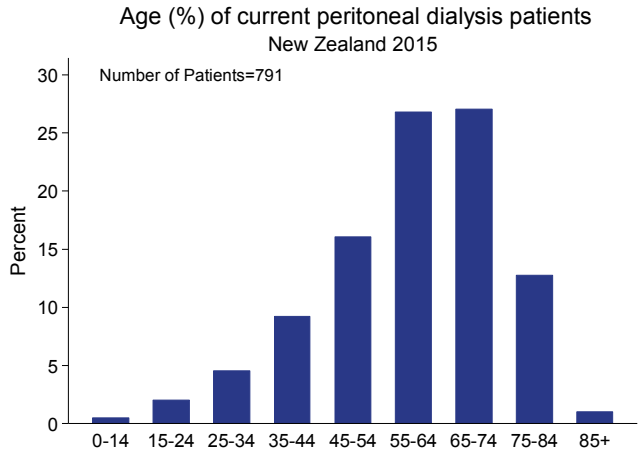


Table 5.3 presents the number and proportion of incident and prevalent patients by age group, and incident patients by primary renal disease.

Table 5.31 Incident and prevalent PD patients by age group and primary disease - Australia

Category	Age group	2011	2012	2013	2014	2015
New Patients	0-14	22 (3%)	20 (2%)	24 (2%)	27 (2%)	19 (2%)
	15-24	29 (3%)	28 (3%)	27 (3%)	29 (3%)	25 (2%)
	25-34	41 (5%)	61 (6%)	66 (7%)	53 (5%)	69 (7%)
	35-44	87 (10%)	122 (12%)	89 (9%)	125 (11%)	86 (9%)
	45-54	156 (19%)	147 (15%)	169 (17%)	180 (16%)	163 (16%)
	55-64	182 (22%)	231 (23%)	218 (22%)	238 (22%)	218 (22%)
	65-74	181 (22%)	239 (24%)	244 (25%)	279 (25%)	270 (27%)
	75-84	128 (15%)	151 (15%)	129 (13%)	153 (14%)	153 (15%)
	85+	13 (2%)	13 (1%)	17 (2%)	16 (1%)	8 (1%)
	Total	**839**	**1012**	**983**	**1100**	**1011**
Patients Dialysing	0-14	26 (1%)	29 (1%)	25 (1%)	31 (1%)	29 (1%)
	15-24	44 (2%)	42 (2%)	46 (2%)	38 (2%)	40 (2%)
	25-34	96 (5%)	98 (4%)	105 (5%)	96 (4%)	110 (4%)
	35-44	185 (9%)	206 (9%)	200 (9%)	223 (9%)	201 (8%)
	45-54	310 (15%)	341 (15%)	329 (14%)	347 (14%)	336 (13%)
	55-64	456 (22%)	497 (22%)	513 (22%)	551 (22%)	530 (21%)
	65-74	516 (25%)	565 (25%)	595 (26%)	692 (28%)	721 (29%)
	75-84	399 (19%)	418 (19%)	441 (19%)	457 (18%)	476 (19%)
	85+	50 (2%)	54 (2%)	59 (3%)	61 (2%)	71 (3%)
	Total	**2082**	**2250**	**2313**	**2496**	**2514**
Primary Renal Disease	Glomerulonephritis	224 (27%)	265 (26%)	239 (24%)	272 (25%)	230 (24%)
	Analgesic Nephropathy	9 (1%)	14 (1%)	15 (2%)	9 (1%)	10 (1%)
	Hypertension	116 (14%)	124 (12%)	147 (15%)	163 (15%)	148 (15%)
	Polycystic Disease	45 (5%)	55 (5%)	50 (5%)	67 (6%)	61 (6%)
	Reflux Nephropathy	23 (3%)	34 (3%)	23 (2%)	33 (3%)	19 (2%)
	Diabetic Nephropathy	278 (33%)	328 (32%)	325 (33%)	364 (33%)	333 (34%)
	Miscellaneous	95 (11%)	140 (14%)	125 (13%)	137 (13%)	122 (13%)
	Uncertain	48 (6%)	52 (5%)	59 (6%)	51 (5%)	53 (5%)
	Total	**838**	**1012**	**983**	**1096**	**976**

Table 5.3.2 Incident and prevalent PD patients by age group and primary disease - New Zealand						
Category	**Age group**	**2011**	**2012**	**2013**	**2014**	**2015**
New Patients	0-14	5 (2%)	6 (2%)	3 (1%)	6 (2%)	3 (1%)
	15-24	5 (2%)	11 (4%)	6 (2%)	13 (5%)	9 (3%)
	25-34	13 (5%)	11 (4%)	18 (6%)	18 (6%)	16 (5%)
	35-44	21 (9%)	26 (10%)	26 (9%)	27 (10%)	35 (12%)
	45-54	39 (16%)	64 (24%)	58 (20%)	49 (18%)	52 (18%)
	55-64	76 (31%)	79 (29%)	86 (29%)	66 (24%)	77 (26%)
	65-74	66 (27%)	58 (21%)	76 (26%)	71 (25%)	71 (24%)
	75-84	18 (7%)	14 (5%)	22 (7%)	25 (9%)	30 (10%)
	85+	1 (<1%)	1 (<1%)	2 (1%)	4 (1%)	0 (0%)
	Total	**244**	**270**	**297**	**279**	**293**
Patients Dialysing	0-14	9 (1%)	4 (1%)	4 (<1%)	7 (1%)	4 (1%)
	15-24	24 (3%)	19 (2%)	21 (3%)	23 (3%)	16 (2%)
	25-34	26 (3%)	33 (4%)	36 (4%)	34 (4%)	36 (5%)
	35-44	58 (7%)	66 (8%)	66 (8%)	65 (8%)	73 (9%)
	45-54	121 (15%)	125 (16%)	144 (17%)	137 (17%)	127 (16%)
	55-64	240 (30%)	229 (29%)	247 (30%)	225 (28%)	212 (27%)
	65-74	224 (28%)	216 (28%)	223 (27%)	222 (27%)	214 (27%)
	75-84	89 (11%)	82 (11%)	88 (11%)	93 (11%)	101 (13%)
	85+	4 (1%)	3 (1<%)	6 (1%)	12 (1%)	8 (1%)
	Total	**795**	**777**	**835**	**818**	**791**
Primary Renal Disease	Glomerulonephritis	55 (23%)	59 (22%)	70 (24%)	59 (21%)	66 (23%)
	Analgesic Nephropathy	3 (1%)	4 (1%)	2 (1%)	0 (0%)	0 (0%)
	Hypertension	29 (12%)	22 (8%)	26 (9%)	27 (10%)	27 (9%)
	Polycystic Disease	12 (5%)	13 (5%)	15 (5%)	14 (5%)	10 (3%)
	Reflux Nephropathy	4 (2%)	7 (3%)	10 (3%)	9 (3%)	9 (3%)
	Diabetic Nephropathy	107 (44%)	126 (47%)	138 (46%)	125 (45%)	136 (47%)
	Miscellaneous	23 (9%)	30 (11%)	28 (9%)	37 (13%)	33 (11%)
	Uncertain	11 (5%)	9 (3%)	8 (3%)	8 (3%)	9 (3%)
	Total	**244**	**270**	**297**	**279**	**290**

Figure 5.5 shows the proportion of dialysis patients using PD as their modality by age. In both Australia and New Zealand PD is the predominant modality for paediatric patients, but HD is the predominant modality for adult patients.

Figure 5.5.1

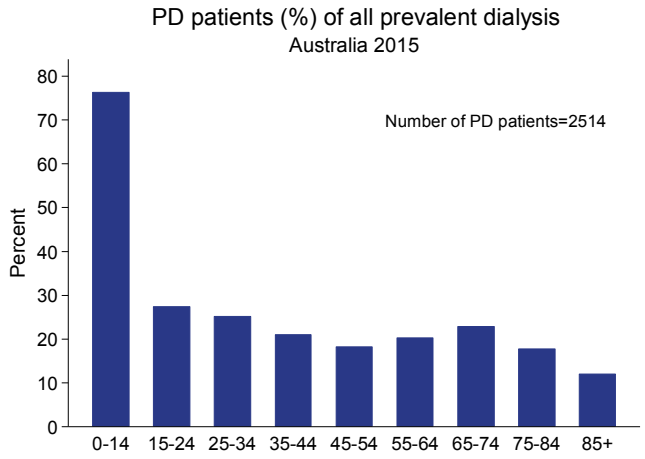


Figure 5.5.2

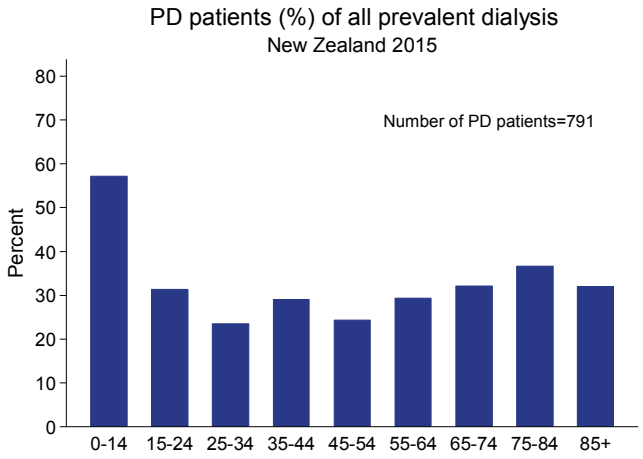


Table 5.4 shows the number of prevalent PD patients, and number per million population, according to PD.

Table 5.4.1 Number (per Million) of Prevalent PD Patients, Australia 2011-2015

	2011	2012	2013	2014	2015
Total	**2082 (93)**	**2250 (99)**	**2313 (100.00)**	**2496 (106)**	**2514 (106)**
APD	1293 (58)	1409 (62)	1480 (64)	1622 (69)	1676 (70)
CAPD	789 (35)	841 (37)	833 (36)	874 (37)	838 (35)

Table 5.4.2 Number (per Million) of Prevalent PD Patients, New Zealand 2011-2015

	2011	2012	2013	2014	2015
Total	**795 (181)**	**777 (176)**	**835 (188)**	**818 (181)**	**791 (172)**
APD	353 (81)	376 (85)	392 (88)	391 (87)	412 (90)
CAPD	442 (101)	401 (91)	443 (100)	427 (95)	379 (82)

Peritoneal Dialysis Fluids

Table 5.5 shows the use of icodextrin by country and PD type at the end of 2015. Figure 5.6 shows the trends in icodextrin use over the last three years; the proportion of patients using icodextrin is gradually increasing. Finally, figure 5.7 shows icodextrin use by state and PD type at the end of 2015.

Table 5.5 Icodextrin Usage by Modality Type - December 2015

PD Type		Australia				New Zealand			
		No	Yes	Not Reported	Total	No	Yes	Not Reported	Total
CAPD	n	396	333	109	**838**	179	196	4	**379**
	%	47.26%	39.74%	13.01%		47.23%	51.72%	1.06%	
APD	n	786	831	59	**1676**	142	265	5	**412**
	%	46.90%	49.58%	3.52%		34.47%	64.32%	1.21%	
Total	n	1182	1164	168	**2514**	321	461	9	**791**
	%	47.02%	46.30%	6.68%		40.58%	58.28%	1.14%	

Figure 5.6.1

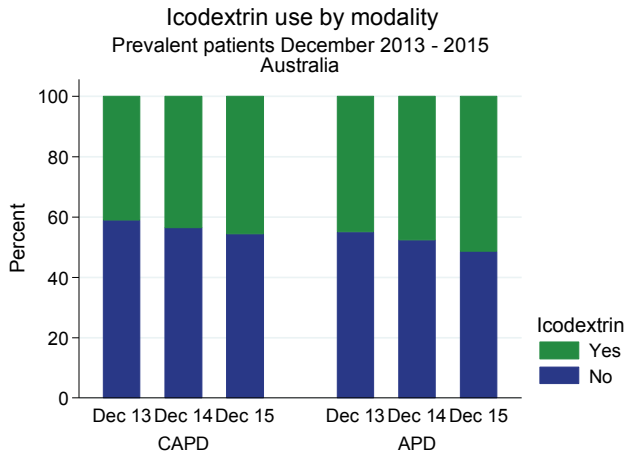


Figure 5.6.2

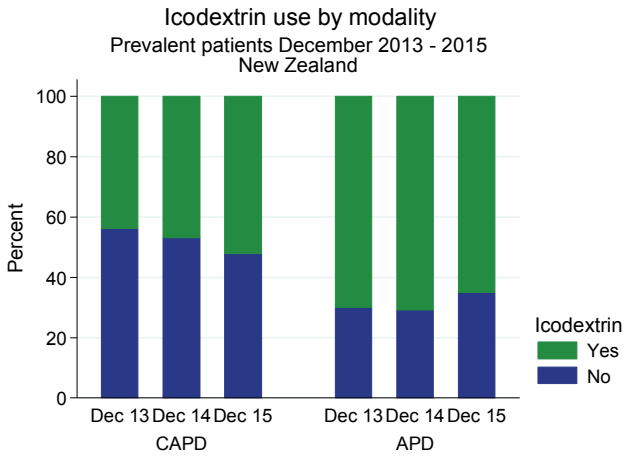


Figure 5.7

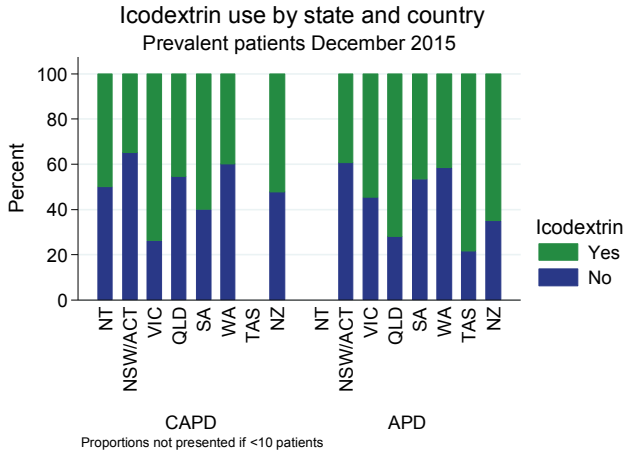


Table 5.6 and figure 5.8 present similar data for low lactate PD solutions, and table 5.7 and figure 5.9 present similar data for low bicarbonate PD solutions. The use of these PD solutions in both Australia and New Zealand is uncommon.

Table 5.6 Low GDP Usage by Modality Type - December 2015

PD Type		Australia				New Zealand			
		No	Yes	Not Reported	Total	No	Yes	Not Reported	Total
CAPD	n	493	231	114	838	348	25	6	379
	%	59%	28%	14%		92%	7%	2%	
APD	n	1403	211	62	1676	391	15	6	412
	%	84%	13%	4%		95%	4%	1%	
Total	n	1896	442	176	2514	739	40	12	791
	%	75%	18%	7%		93%	5%	2%	

Figure 5.8.1

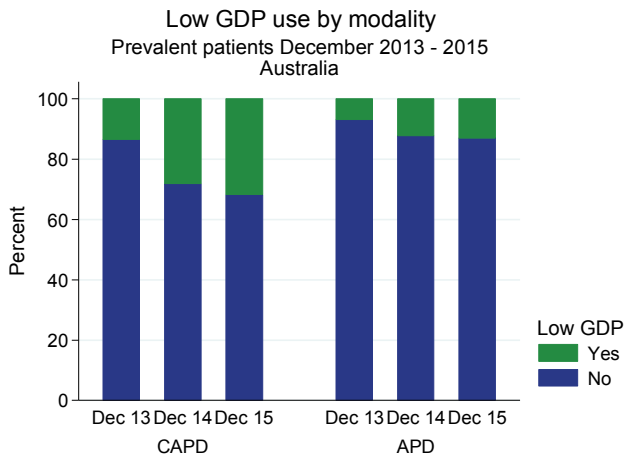


Figure 5.8.2

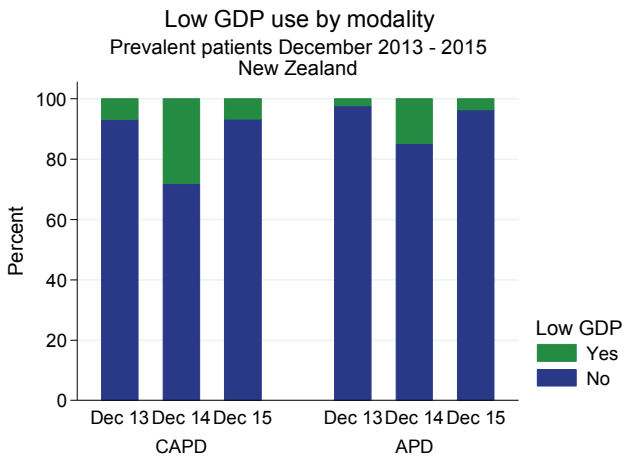


Table 5.7 Low GDP use by Australian State - December 2015					
State	Modality	No	Yes	Not reported	Total
NT	CAPD	6 (26%)	12 (52%)	5 (22%)	23
	APD	0 (0%)	4 (80%)	1 (20%)	5
	Total	6 (21%)	16 (57%)	6 (21%)	28
NSW	CAPD	255 (80%)	30 (9%)	32 (10%)	317
	APD	603 (92%)	29 (4%)	24 (4%)	656
	Total	858 (88%)	59 (6%)	56 (6%)	973
QLD	CAPD	99 (82%)	13 (11%)	9 (7%)	121
	APD	442 (92%)	29 (6%)	8 (2%)	479
	Total	541 (90%)	42 (7%)	17 (3%)	600
SA	CAPD	117 (57%)	78 (38%)	9 (4%)	204
	APD	210 (70%)	83 (28%)	5 (2%)	298
	Total	327 (65%)	161 (32%)	14 (3%)	502
WA	CAPD	9 (90%)	1 (10%)	0 (0%)	10
	APD	104 (96%)	0 (0%)	4 (4%)	108
	Total	113 (96%)	1 (1%)	4 (3%)	118
TAS	CAPD	0 (0%)	83 (58%)	59 (42%)	142
	APD	1 (1%)	59 (74%)	20 (25%)	80
	Total	1 (<1%)	142 (64%)	79 (36%)	222
ACT	CAPD	6 (100%)	0 (0%)	0 (0%)	6
	APD	41 (98%)	1 (2%)	0 (0%)	42
	Total	47 (98%)	1 (2%)	0 (0%)	48
	CAPD	1 (7%)	14 (93%)	0 (0%)	15
	APD	2 (25%)	6 (75%)	0 (0%)	8
	Total	3 (13%)	20 (87%)	0 (0%)	23

Figure 5.9.1

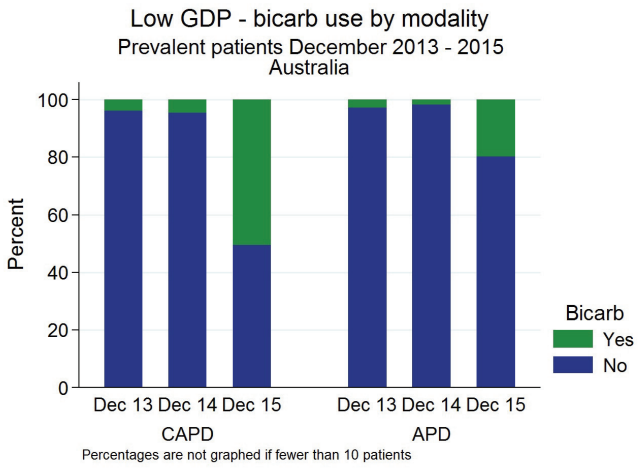
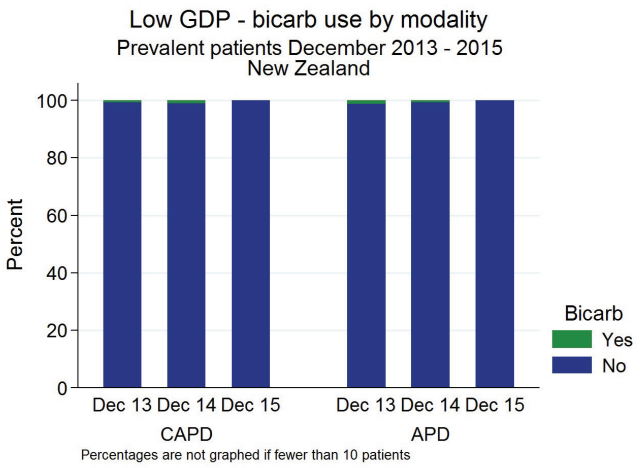


Figure 5.9.2



Patient Survival

The next section examines PD patient survival. Survival time is for those on PD at day 90, from day 90, and censored at transplantation.

Table 5.8 and figure 5.10 show patient survival by era; survival is gradually improving in each country.

Table 5.8 Patient Survival by Era for those on Peritoneal Dialysis at 90 Days Censored for Transplant
% [95% Confidence Interval]

Country	Period	No. of Patients	6 months	1 year	3 years	5 years
Australia	2004 - 2006	1958	97 [96,98]	91[90,93]	71[69,73]	56[54,58]
	2007 - 2009	2104	98 [98,99]	94[93,95]	74[72,76]	59[57,61]
	2010 - 2012	1951	98 [97,98]	95[94,96]	78[76,80]	63[60,65]
	2013 - 2015	2428	99 [98,99]	96[95,96]	79[75,81]	-
New Zealand	2004 - 2006	637	98 [97,99]	92[90,94]	68[64,71]	47[43,50]
	2007 - 2009	617	98 [96,99]	92[90,94]	73[69,76]	53[49,57]
	2010 - 2012	631	99 [98,100]	94[92,96]	70[66,74]	47[43,52]
	2013 - 2015	650	99 [97,99]	96[94,97]	72[65,78]	-

Figure 5.10.1

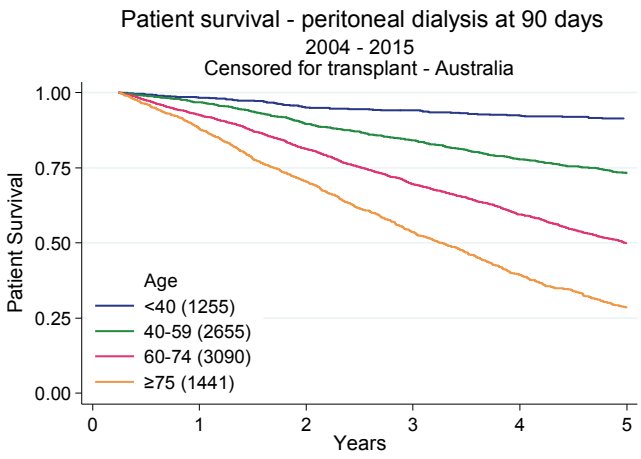


Figure 5.10.2

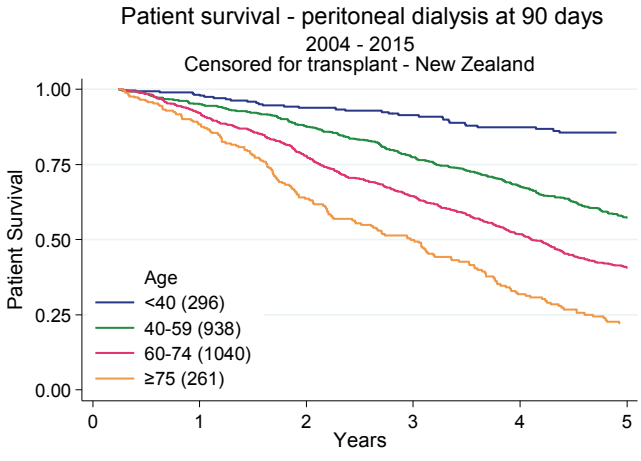


Table 5.9 and figure 5.11 demonstrate the strong association between patient age and survival.

Table 5.9 Survival of Patients on Peritoneal Dialysis at 90 Days by Age Group (2004-2015)
Censored for Transplant
% [95% Confidence Interval]

Country	Age Group	No. of Patients	6 months	1 year	3 years	5 years
Australia	<40	1255	99[99,100]	98[97,99]	94[92,95]	91[90,93]
	40-59	2655	99[98,99]	97[96,97]	84[83,86]	73[71,75]
	60-74	3090	97[97,98]	93[92,93]	70[68,71]	50[48,52]
	≥75	1441	96[95,97]	88[86,90]	54[51,57]	29[26,31]
New Zealand	<40	296	99[97,100]	98[96,99]	91[87,94]	86[80,90]
	40-59	938	99[98,99]	95[93,96]	77[74,80]	57[53,61]
	60-74	1040	98[97,99]	92[90,94]	64[61,67]	41[37,44]
	≥75	261	96[93,98]	88[84,92]	50[43,56]	22[17,28]

Figure 5.11.1

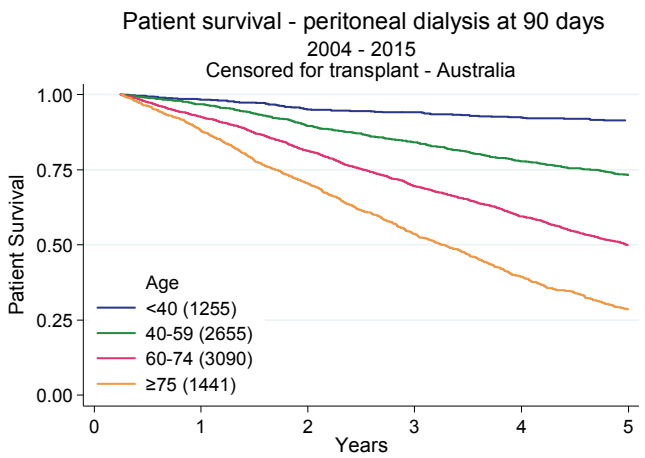


Figure 5.11.2

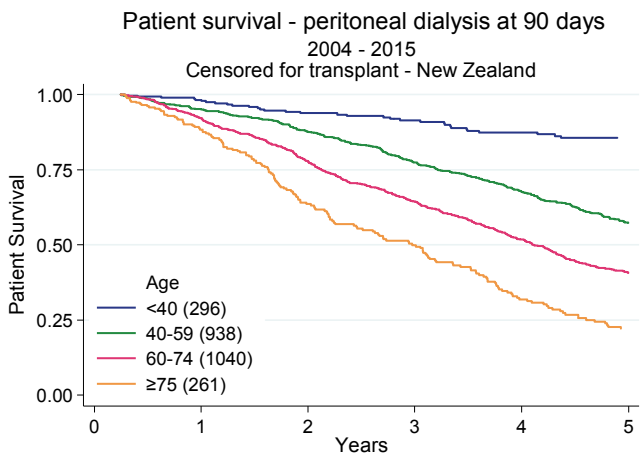


Table 5.10 and figure 5.12 present these data by diabetic status; as expected, survival is worse in diabetic patients

Table 5.10 Patient Survival by Diabetic Status 2004 - 2015
Censored for Transplant
% [95% Confidence Interval]

Country	Period	No. of Patients	6 months	1 year	3 years	5 years
Australia	Non-diabetic	4826	98[98,99]	95[94,96]	81[80,82]	69[67,70]
	Diabetic	3587	98[97,98]	92[91,93]	67[66,69]	47[45,49]
New Zealand	Non-diabetic	1257	98[97,99]	95[93,96]	78[76,80]	63[60,66]
	Diabetic	1277	98[98,99]	92[91,94]	63[60,66]	37[34,40]

Figure 5.12.1

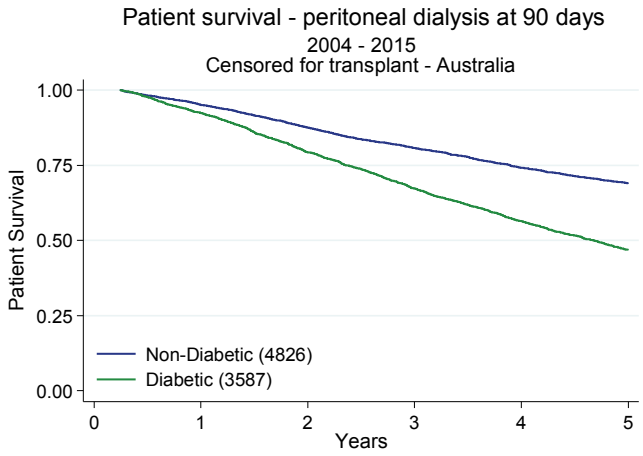
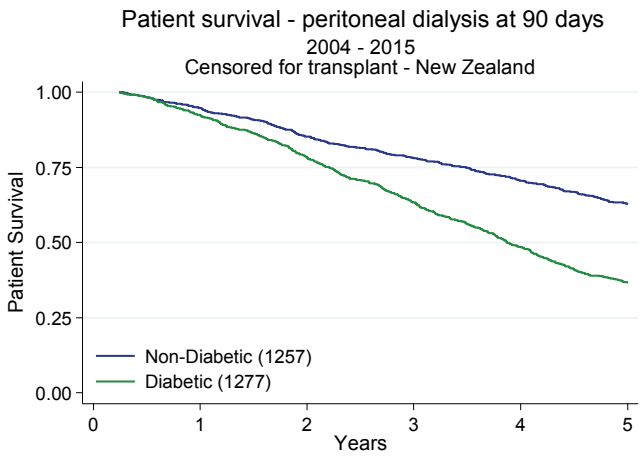


Figure 5.12.2



Technique Survival

This section examines PD technique survival, defined as the number of days the patient spent on PD before transferring to HD for at least 30 days or dying. Survival time is calculated from day 90 and censored at transplantation. Survival is shown for the same categories reported for patient survival above. As with patient survival, technique survival is adversely affected by older age and diabetic status, and is improving gradually over time.

Table 5.11 Technique Survival by Era 2004 - 2015
Censored for Transplant
% [95% Confidence Interval]

Country	Age Group	No. of Patients	6 months	1 year	3 years	5 years
Australia	2004 - 2006	1958	92[91,93]	77[75,79]	36[34,39]	16[15,18]
	2007 - 2009	2104	93[91,94]	79[77,81]	39[37,42]	19[17,21]
	2010 - 2012	1951	93[91,94]	81[79,82]	42[39,44]	20[17,22]
	2013 - 2015	2428	95[94,95]	84[82,85]	49[45,53]	-
New Zealand	2004 - 2006	637	95[93,96]	83[80,86]	42[38,46]	20[17,23]
	2007 - 2009	617	94[92,96]	84[81,87]	46[42,50]	21[18,25]
	2010 - 2012	631	96[94,97]	85[82,88]	46[41,50]	16[13,20]
	2013 - 2015	650	95[93,96]	86[83,88]	48[40,55]	-

Figure 5.13.1

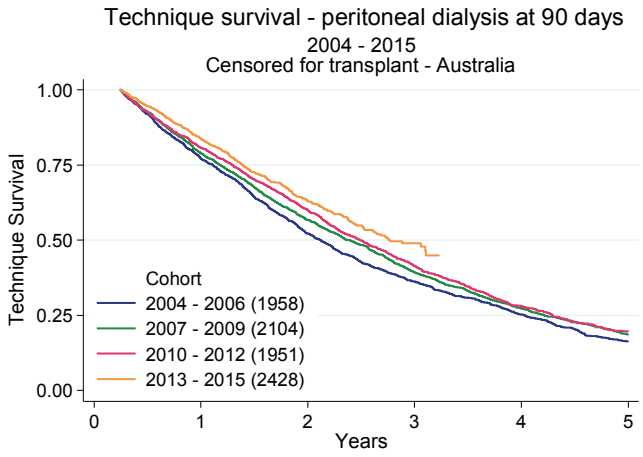


Figure 5.13.2

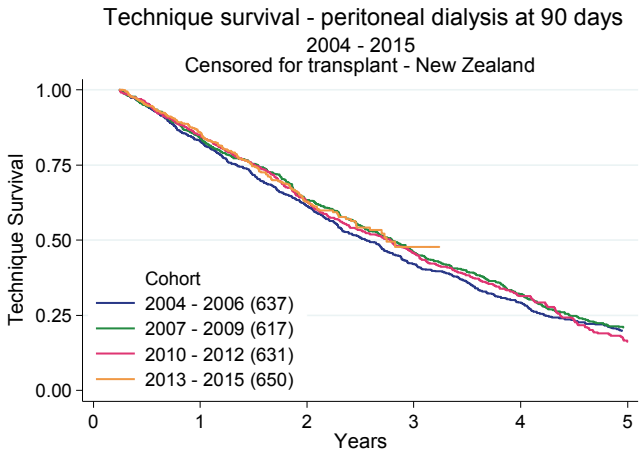


Table 5.12 Technique Survival by Age Group for those on Peritoneal Dialysis at 90 Days (2004 - 2015)
Censored for transplant
% [95% Confidence Interval]

Country	Age Group	No. of Patients	6 months	1 year	3 years	5 years
Australia	<40	1255	94[93,95]	80[77,82]	46[42,50]	28[23,33]
	40-59	2655	94[93,95]	82[80,83]	43[41,46]	22[20,25]
	60-74	3090	93[92,93]	81[79,82]	40[38,42]	19[17,21]
	≥75	1441	91[90,93]	76[74,79]	33[31,36]	11[9,13]
New Zealand	<40	296	95[92,97]	87[82,91]	48[40,55]	31[23,40]
	40-59	938	95[93,96]	85[83,88]	47[43,50]	22[19,26]
	60-74	1040	96[94,97]	83[81,86]	45[41,48]	19[16,22]
	≥75	261	93[89,96]	82[76,86]	36[29,42]	9[5,14]

Figure 5.14.1

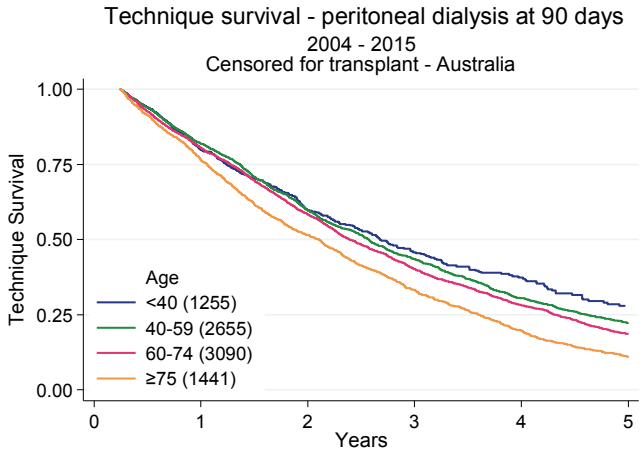


Figure 5.14.2

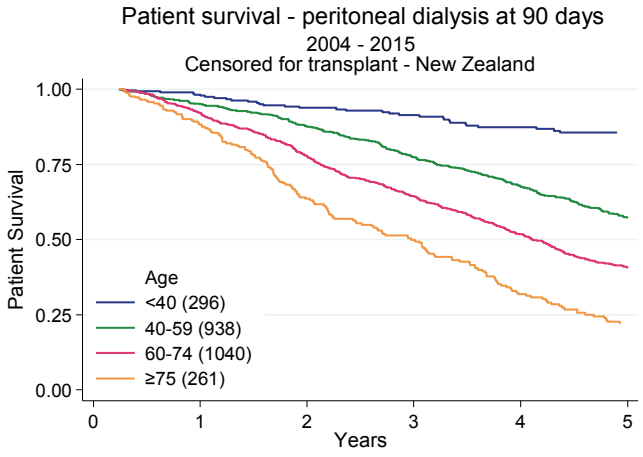


Table 13 Technique Survival by Diabetic Status for those on Peritoneal Dialysis at 90 Days (2004 - 2015) Censored for Transplant
% [95% Confidence Interval]

Country	Period	No. of Patients	6 months	1 year	3 years	5 years
Australia	Diabetic	3587	93[92,93]	79[77,80]	36[34,37]	14[12,16]
	Non-diabetic	4826	93[93,94]	81[80,82]	44[43,46]	23[21,25]
New Zealand	Non-diabetic	1257	94[93,96]	85[83,87]	50[47,54]	26[23,29]
	Diabetic	1277	95[94,96]	84[82,86]	40[37,43]	15[13,17]

Figure 5.15.1

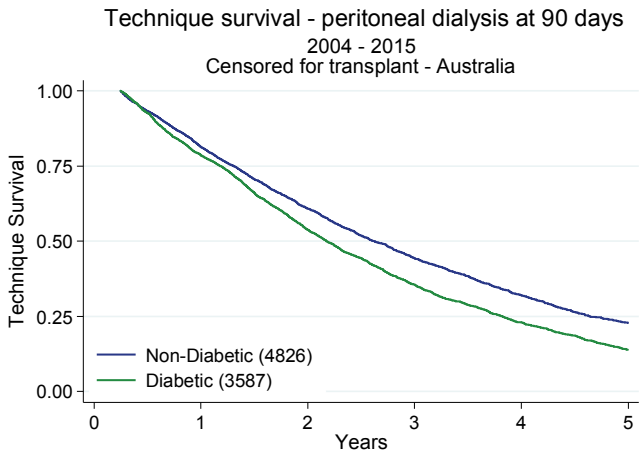
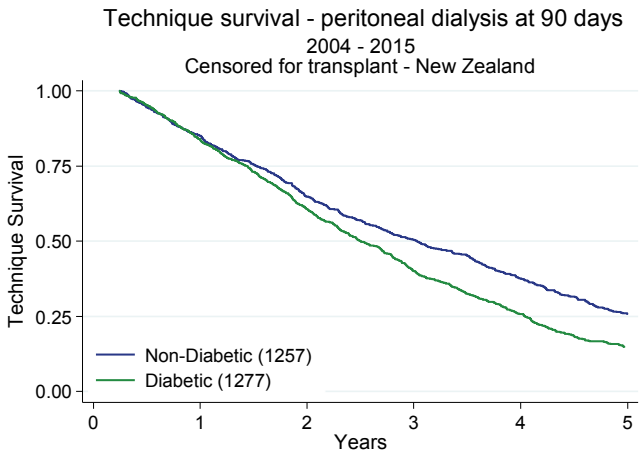


Figure 5.15.2



The causes of PD technique failure in 2015, apart from deaths on PD, are shown in table 5.14. Peritonitis remains the most common cause of technique failure in Australia, whereas in New Zealand in 2015 technical causes were the most common.

Table 5.14 Causes of Peritoneal Dialysis Technique Failure in 2015

Category	Cause of technique failure	Australia	New Zealand
Infection	Recurrent/Persistent Peritonitis	58	29
	Acute Peritonitis	93	28
	Tunnel/Exit Site Infection	15	9
	Diverticulitis	1	1
	Abdominal Abscess	1	2
	Peritoneal Infection	7	3
	Total	175 (22%)	175 (24%)
Inadequate	Inadequate Solute Clearance	75	28
	Inadequate Fluid Ultrafiltration	26	12
	Poor Nutrition	1	0
	Total	102 (13%)	102 (14%)
Mechanical	Dialysate Leak	16	12
	Catheter Block	9	5
	Catheter Fell Out	1	0
	Hernia	19	3
	Abdominal Pain	4	2
	Abdominal Surgery	11	4
	Multiple Adhesions	2	1
	Pleural Effusion	2	3
	Other Surgery	3	0
	Hydrothorax	3	1
	Scrotal Oedema	2	0
	Total	72 (9%)	72 (11%)
Social	Patient Preference	34	3
	Unable to Manage Self-Care	34	9
	Total	68 (8%)	68 (4%)
Other	Cardiovascular	5	0
	Vascular Access	1	0
	Planned Transfer After Acute PD Start	1	1
	Planned Transfer After Acute HD Start	1	0
	Other (Specify)	34	5
	Total	42 (5%)	42 (2%)
Death	Total	283 (35%)	283 (44%)
Not Reported	Total	62 (8%)	62 (2%)

NB: Figures relate to 2015 only. Previous data reflected at 2 year period. It should be noted in the text: Technique Failure is defined as a permanent (i.e. >30 days) change to Haemodialysis.

Peritonitis

Table 5.15 and figure 5.16 present the time to first peritonitis over 2011-2015 by age at PD start. Peritonitis is more common in children, but otherwise there is little association between age and time to first peritonitis.

Table 5.15 First PD Treatment to First Episode of Peritonitis By Age at Entry 01-Jan-2011 to 31-Dec-2015 %Survival [95% Confidence Interval]

Survival	Age Groups						
	00-14	15-34	35-54	55-64	65-74	≥75	All
Australia	**(n=112)**	**(n=427)**	**(n=1313)**	**(n=1076)**	**(n=1208)**	**(n=775)**	**(n=4911)**
3 months	81 [72,87]	92 [89,95]	90 [88,91]	91 [89,93]	92 [90,93]	91 [88,92]	91 [90,92]
6 months	70 [60,78]	85 [81,89]	83 [80,85]	86 [84,88]	86 [84,88]	86 [83,88]	85 [84,86]
9 months	62 [51,71]	79 [74,83]	76 [74,79]	81 [78,83]	80 [77,82]	79 [76,82]	79 [77,80]
1 year	60 [49,70]	72 [67,77]	71 [68,73]	76 [73,79]	76 [73,78]	74 [70,77]	74 [72,75]
2 years	48 [28,66]	60 [52,67]	58 [54,61]	56 [52,60]	57 [53,61]	57 [52,62]	57 [55,59]
3 years	-	44 [32,55]	44 [39,49]	43 [38,48]	43 [38,48]	43 [37,49]	43 [40,46]
New Zealand	**(n=23)**	**(n=119)**	**(n=396)**	**(n=384)**	**(n=340)**	**(n=117)**	**(n=1379)**
3 months	91 [69,98]	98 [93,100]	93 [89,95]	91 [88,94]	90 [87,93]	95 [88,98]	92 [91,94]
6 months	81 [56,92]	88 [79,93]	85 [81,89]	84 [80,88]	86 [81,89]	85 [76,91]	85 [83,87]
9 months	74 [47,88]	84 [75,90]	80 [75,84]	79 [74,83]	83 [78,87]	82 [73,89]	81 [78,83]
1 year	66 [37,84]	82 [72,88]	73 [68,78]	73 [68,78]	79 [73,83]	78 [67,85]	75 [73,78]
2 years	66 [37,84]	73 [61,82]	54 [47,60]	55 [48,61]	66 [58,72]	63 [49,74]	59 [56,63]
3 years	-	63 [44,77]	45 [36,52]	44 [36,52]	56 [46,64]	54 [36,68]	49 [45,54]

Figure 5.16.1

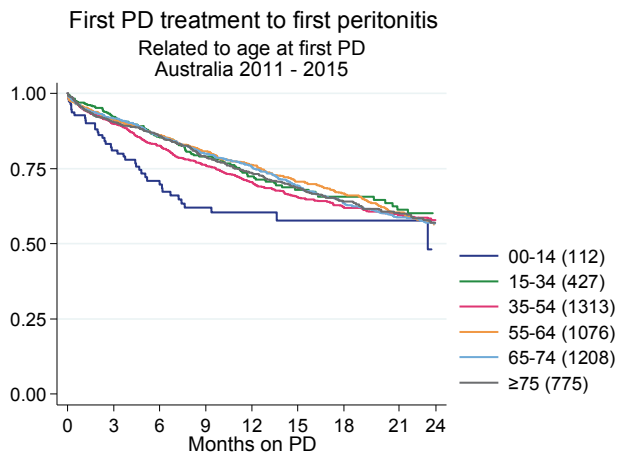
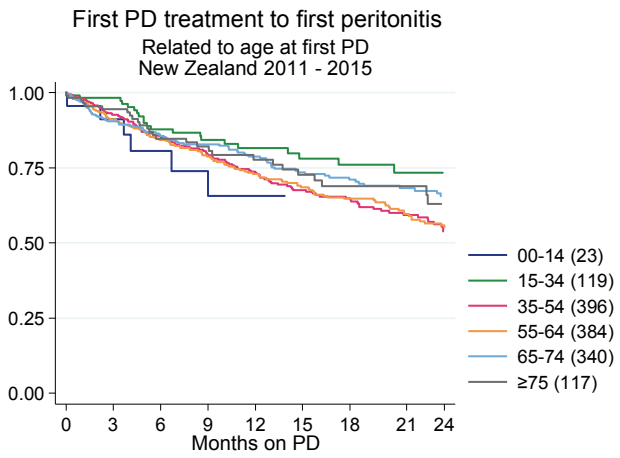


Figure 5.16.2



In Australia peritonitis is more common in indigenous patients and less common in Asians (figures 5.17 and 5.18). In New Zealand a similar but less pronounced pattern is seen, and the gap between races appears to be narrowing (figures 5.19 and 5.20).

Figure 5.17

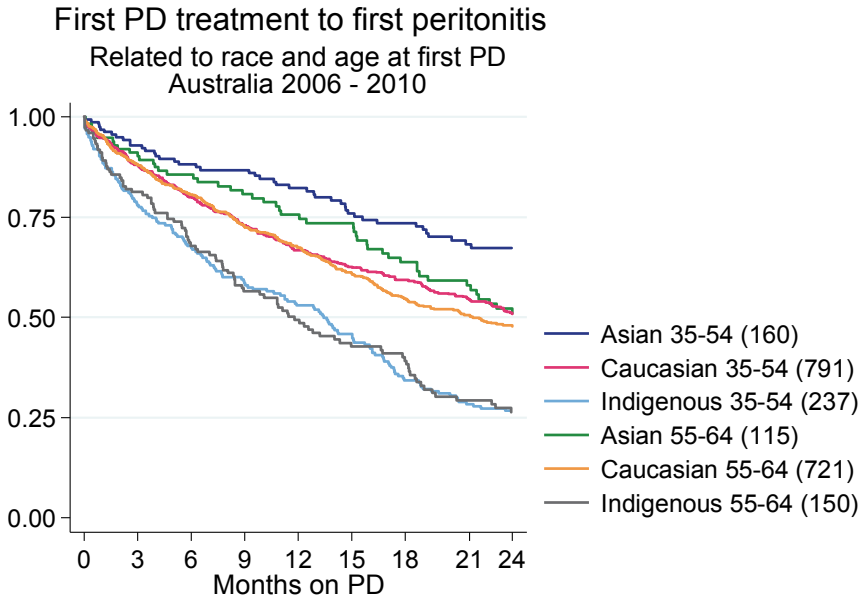


Figure 5.18

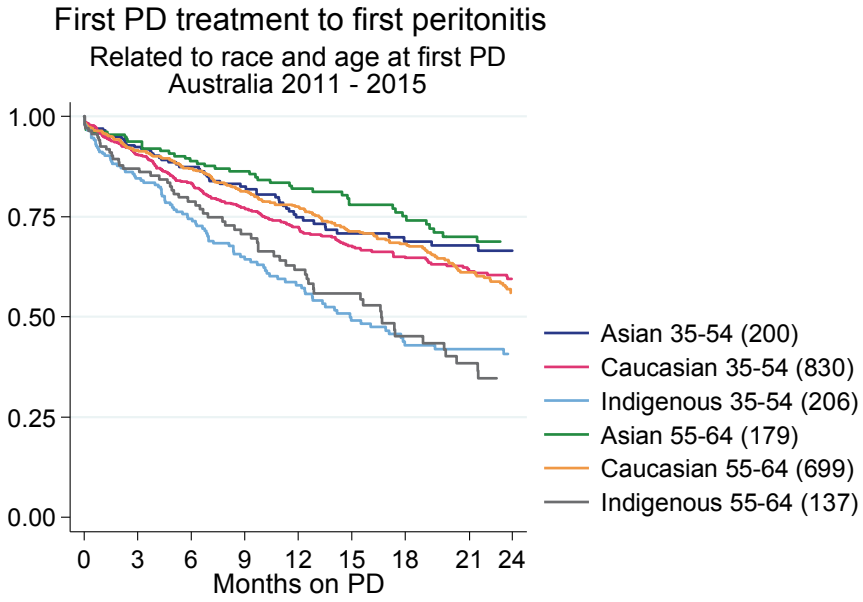


Figure 5.19

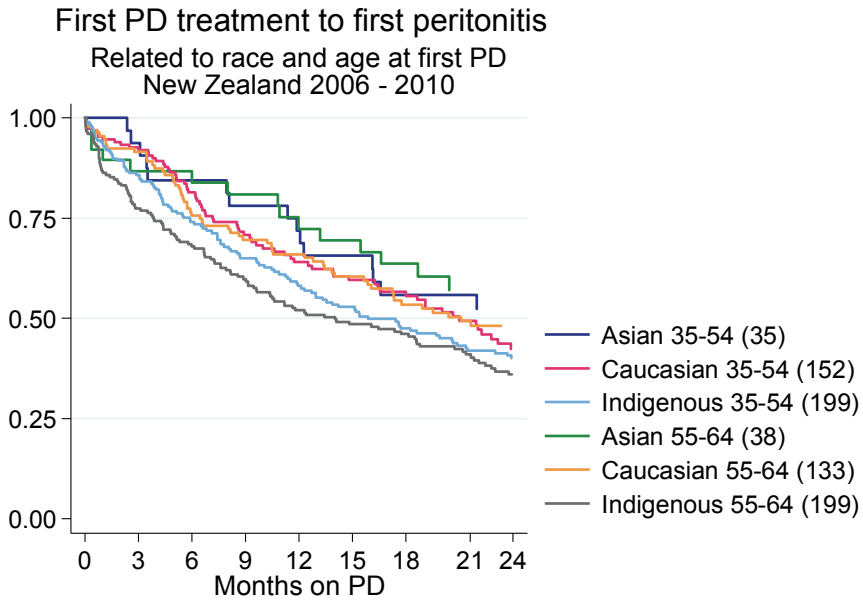


Figure 5.20

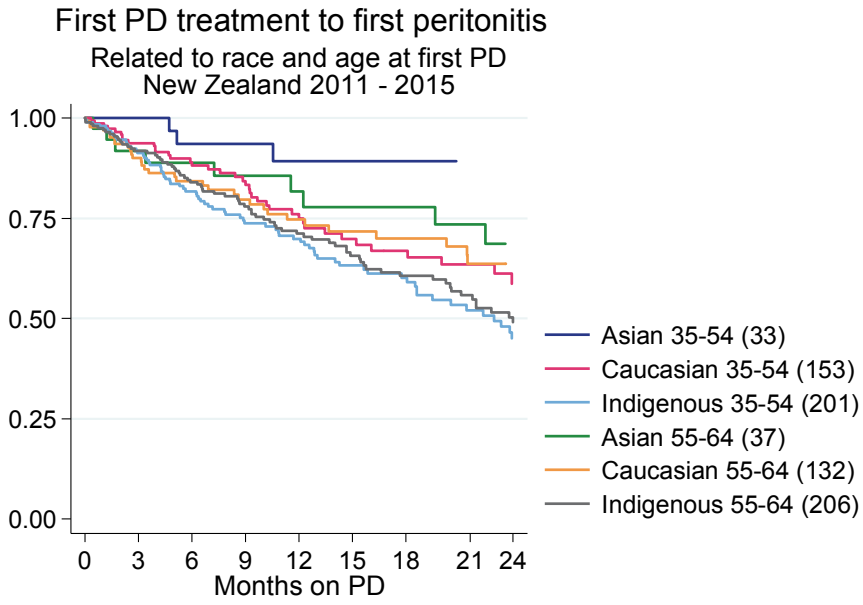


Table 5.16 and figure 5.21 show similar data by age group, but restricted to patients who commenced APD.

Table 5.16 First home APD Treatment to First Episode of Peritonitis By Age at Entry 2011 - 2015 %Survival [95% Confidence Interval]

Survival	Age Groups						
	00-14	15-34	35-54	55-64	65-74	≥75	All
Australia	**(n=116)**	**(n=429)**	**(n=1246)**	**(n=1006)**	**(n=993)**	**(n=556)**	**(n=4346)**
3 months	88 [80, 93]	94 [91, 96]	92 [90, 94]	94 [92, 95]	96 [94, 97]	95 [93, 96]	94 [93, 95]
6 months	77 [67, 84]	87 [83, 90]	86 [84, 88]	89 [87, 91]	92 [90, 93]	91 [88, 93]	88 [87, 89]
9 months	71 [61, 80]	82 [77, 86]	80 [78, 83]	84 [81, 86]	86 [83, 88]	86 [83, 89]	83 [82, 84]
1 year	71 [61, 80]	79 [73, 83]	76 [73, 79]	81 [78, 83]	83 [80, 85]	81 [77, 85]	79 [78, 81]
2 years	62 [44, 75]	64 [56, 71]	65 [61, 69]	65 [61, 69]	68 [64, 72]	67 [61, 72]	66 [64, 68]
3 years	-	51 [38, 62]	53 [47, 58]	53 [47, 59]	54 [48, 60]	55 [47, 63]	53 [50, 56]
New Zealand	**(n=3)**	**(n=6)**	**(n=30)**	**(n=19)**	**(n=18)**	**(n=7)**	**(n=83)**
3 months	67 [5, 95]	100 [., .]	100 [., .]	91 [51, 99]	100 [., .]	100 [., .]	97 [88, 99]
6 months	67 [5, 95]	100 [., .]	94 [65, 99]	91 [51, 99]	100 [., .]	100 [., .]	94 [83, 98]
9 months	-	100 [., .]	87 [58, 97]	91 [51, 99]	100 [., .]	100 [., .]	91 [77, 97]
1 year	-	-	87 [58, 97]	91 [51, 99]	80 [20, 97]	100 [., .]	87 [69, 95]
2 years	-	-	44 [11, 74]	91 [51, 99]	53 [7, 86]	-	60 [33, 79]
3 years	-	-	44 [11, 74]	91 [51, 99]	53 [7, 86]	-	60 [33, 79]

Figure 5.21.1

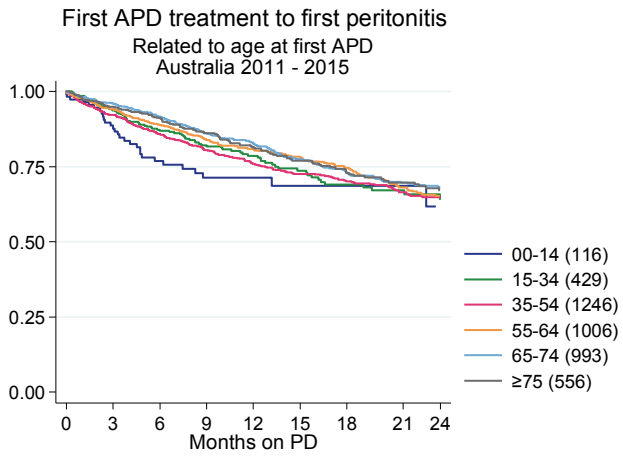
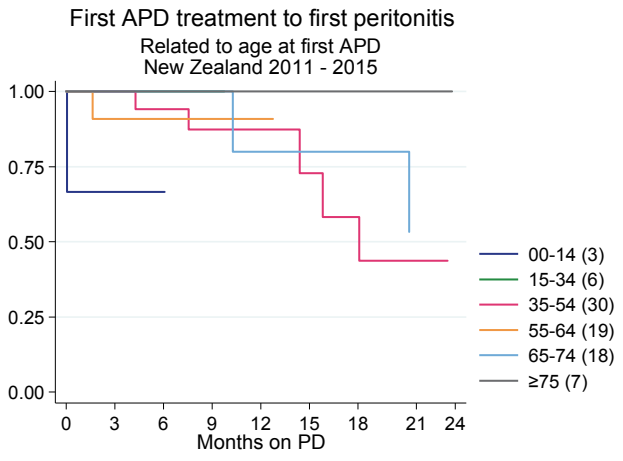


Figure 5.21.2



Australian Peritonitis Registry

Since October 2003 ANZDATA has collected detailed information on PD peritonitis episodes in Australian patients. A selection of those data are reported here. New Zealand has a separate PD registry and we are in the process of linking that with ANZDATA in order to report similar data for New Zealand.

Figures 5.22-5.26 report the peritonitis rate, expressed as episodes per patient-year on the left y axis and patient-months per episode on the right y axis, according to different categories. The overall peritonitis rate in Australia has dropped considerably over the last few years, but has stabilised over 2011-2015 (figure 5.22). However, there remains significant variation between states (figures 5.23 and 5.24) and individual treating hospitals (figures 5.25 and 5.26).

Figure 5.22

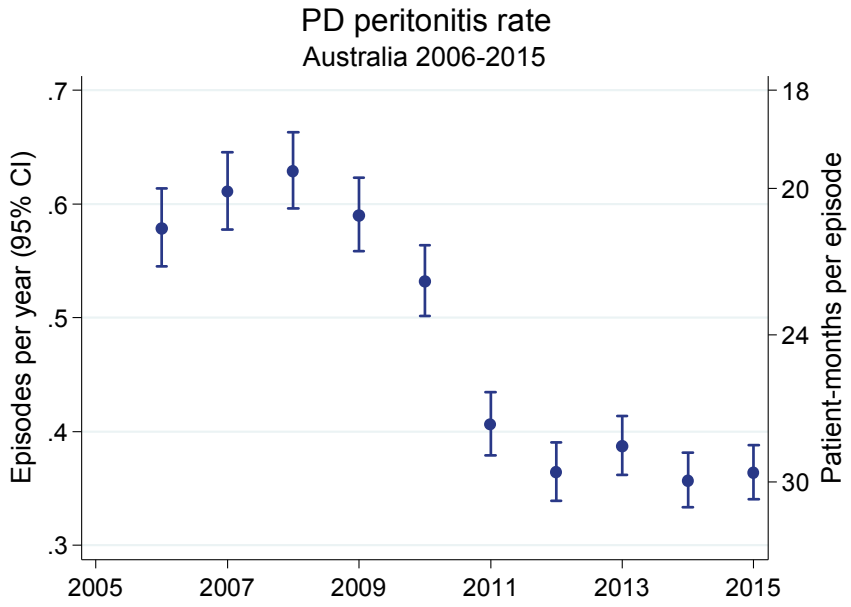


Figure 5.23

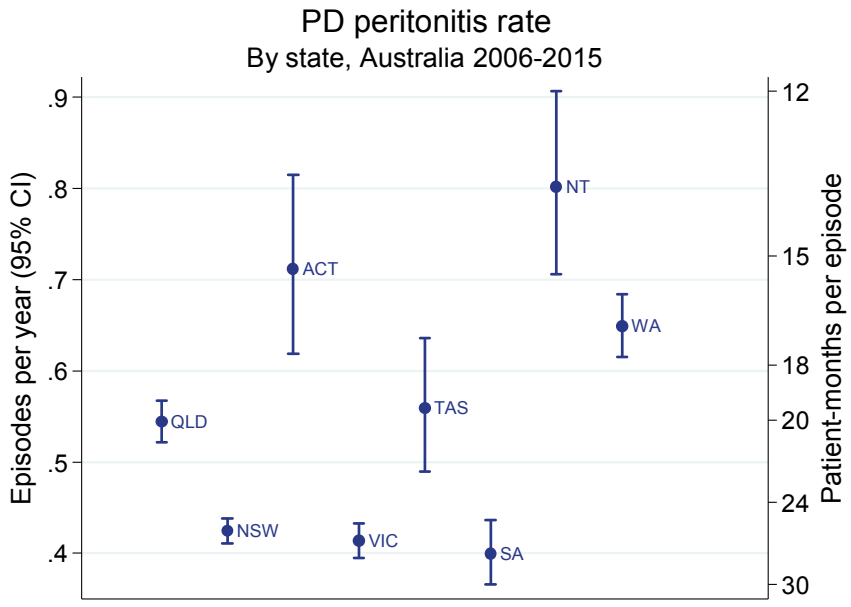


Figure 5.24

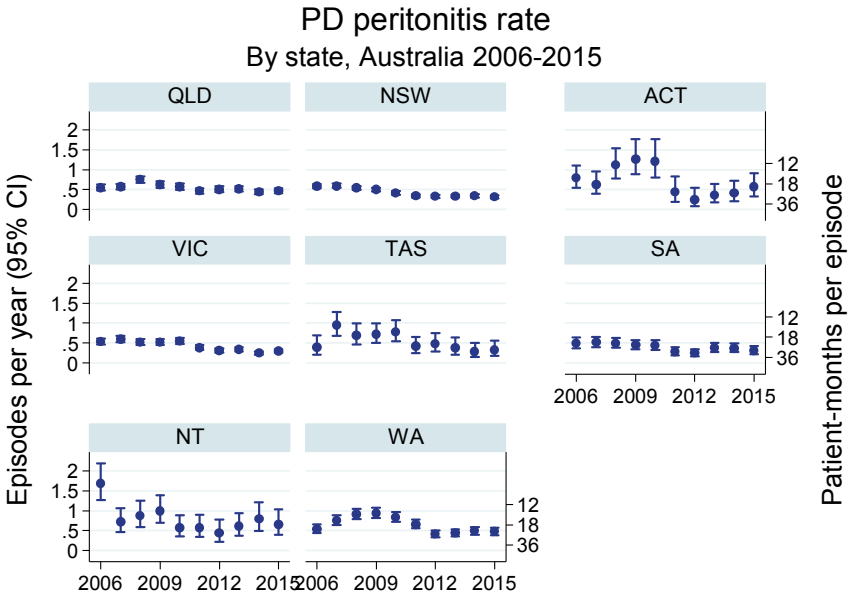


Figure 5.25

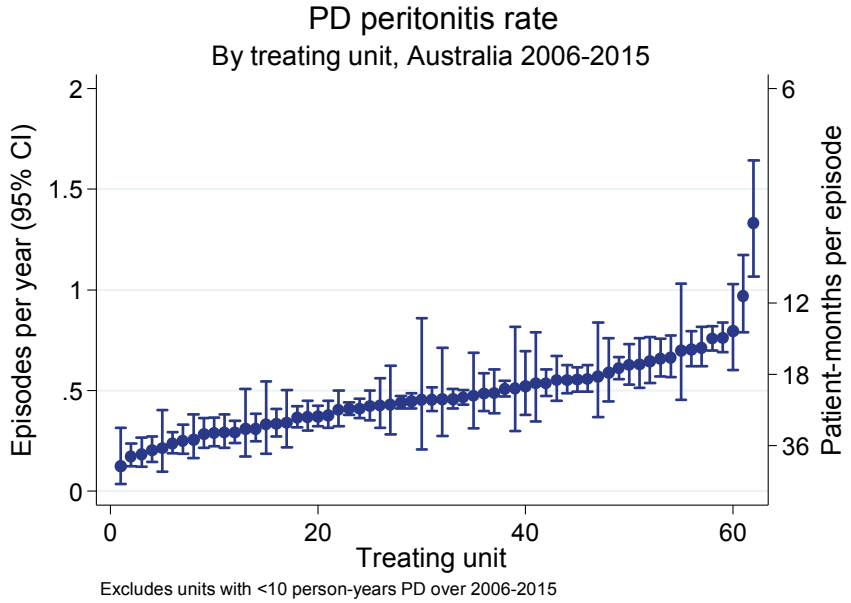
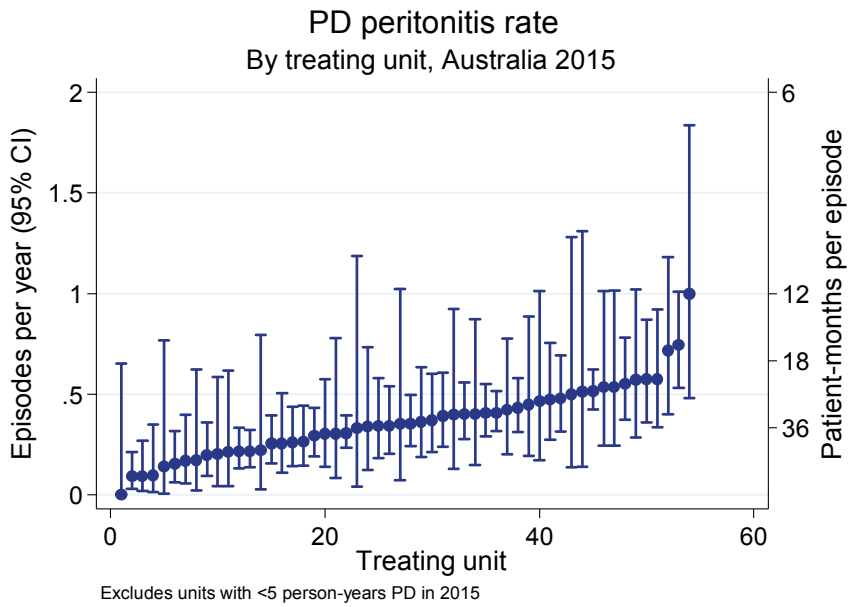


Figure 5.27



The organisms causing peritonitis are presented in figure 5.27. The distribution of organisms is quite stable, although there has been a gradual increase the proportion of culture negative infections. Figure 5.28 shows these data for 2015 stratified by state.

Figure 5.28

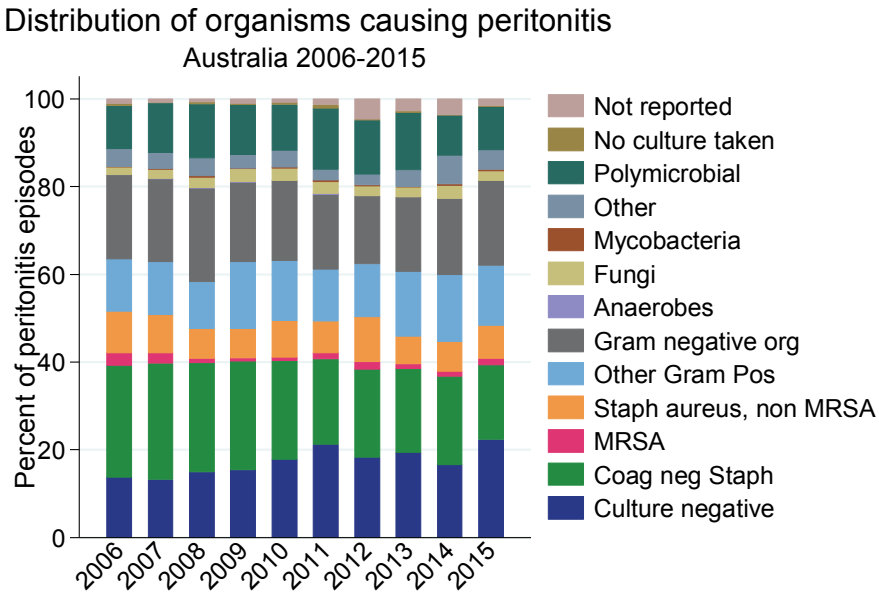
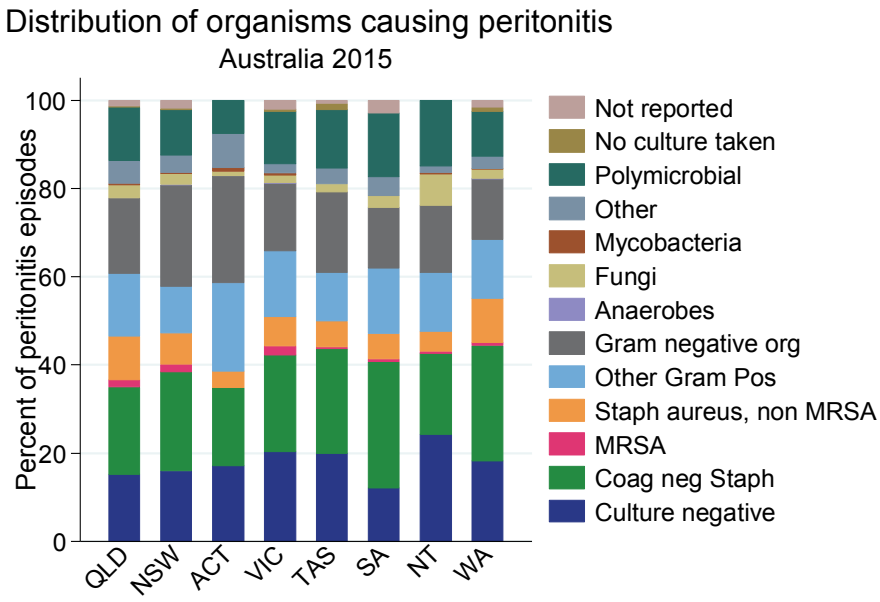


Figure 5.29



Around half of episodes are initially treated with vancomycin, and the majority receive an aminoglycoside (figure 5.29). The use of these drugs in the final regime are shown in figure 5.30.

Figure 5.30

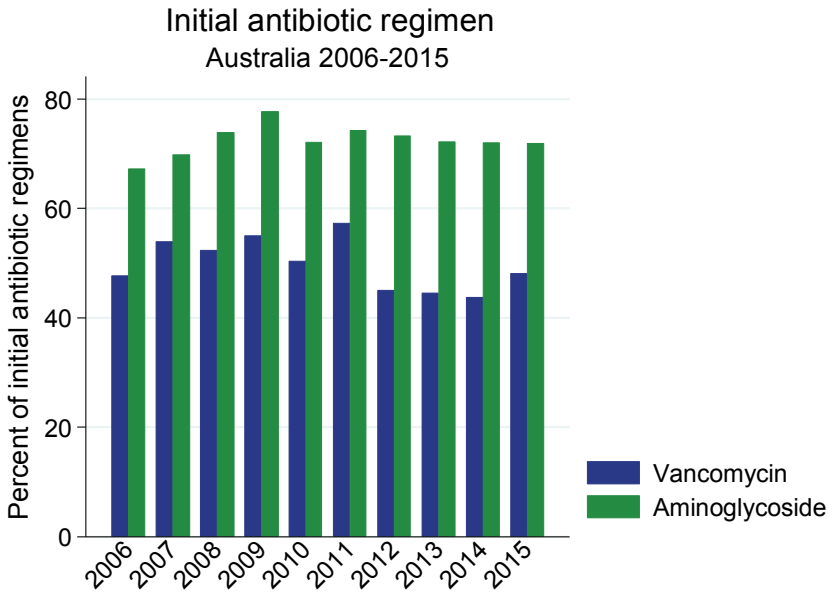
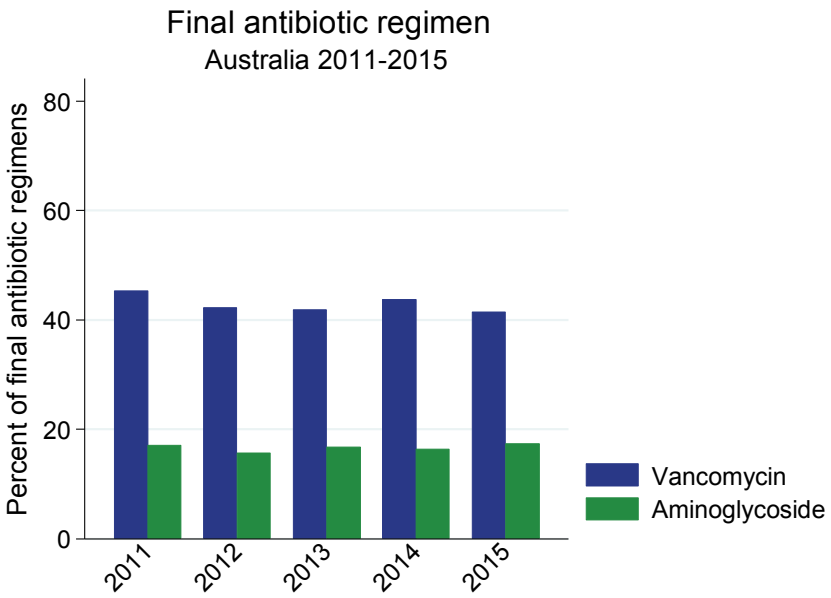
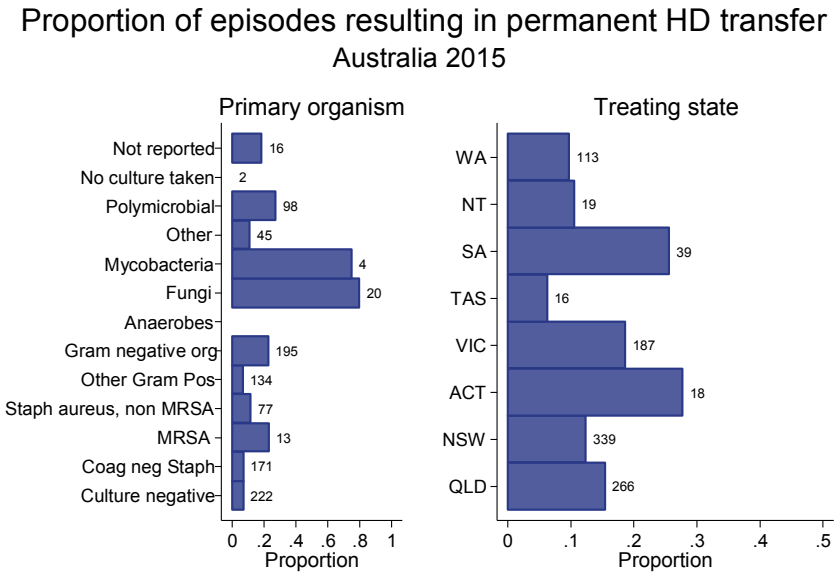


Figure 5.30



The proportion of peritonitis episodes resulting in a permanent transfer to haemodialysis varies by organism and, to a lesser extent, state (figure 5.31).

Figure 5.31



Values are total number of peritonitis episodes reported in 2015

Anaemia

Figure 5.32 shows the distribution of Hb in PD patients over the last 3 years, and figure 5.33 presents the same data stratified by the presence or absence of coronary artery disease.

Figure 5.32

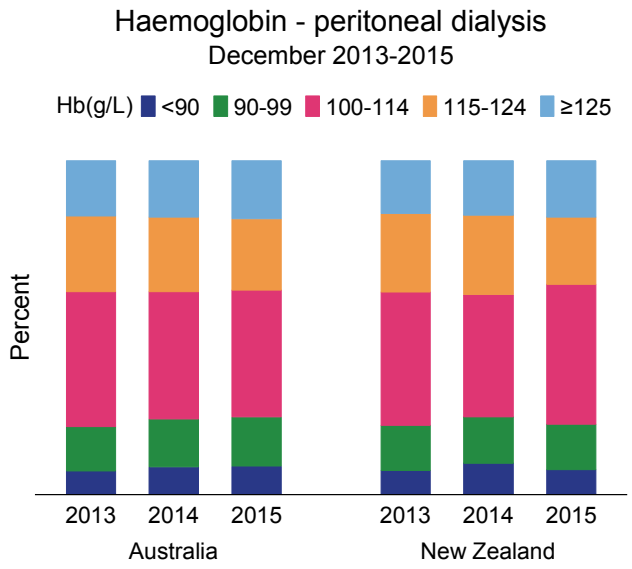


Figure 33.1

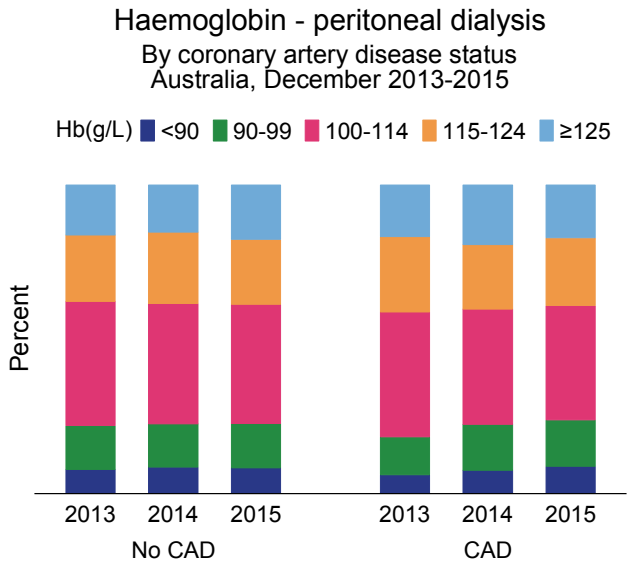


Figure 5.33.2

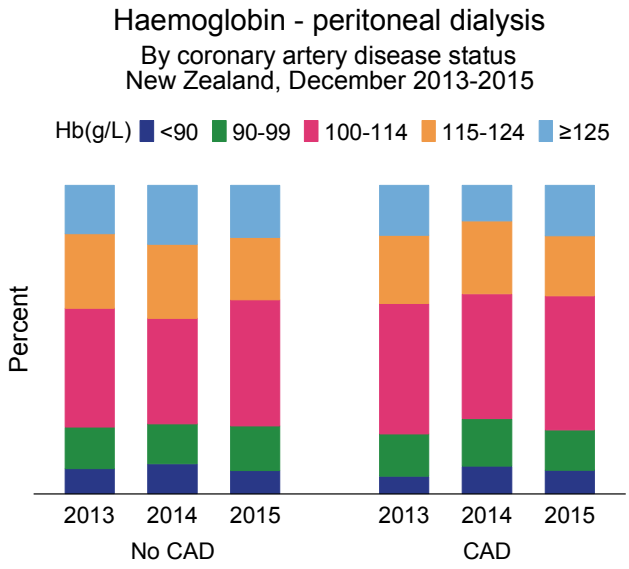


Figure 5.34 shows the variation in Hb between treating hospitals; median Hb ranged from 100 to 127g/L in Australia and 104.5-113.5g/L in New Zealand. Figure 5.35 shows the proportion of patients with Hb between 110-129g/L; the proportion ranged from 20-69% in Australia and 26-55% in New Zealand.

Figure 5.34.1

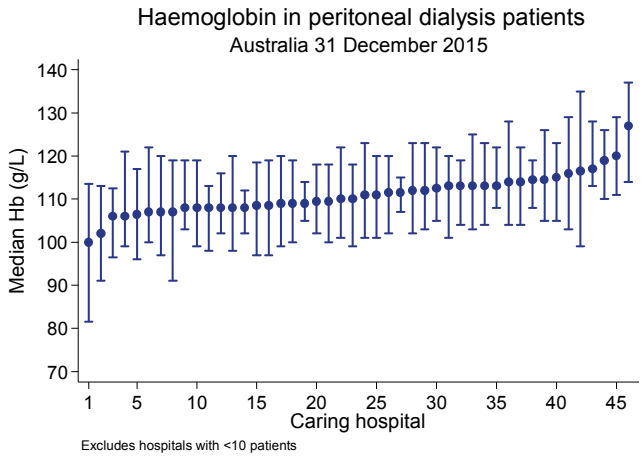


Figure 5.34.2

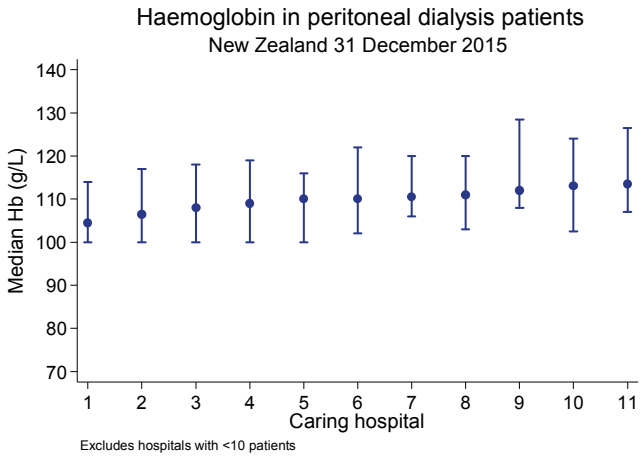


Figure 5.35.1

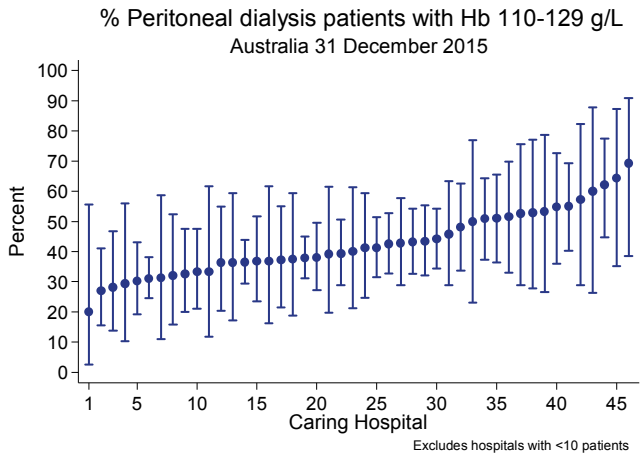


Figure 5.35.2

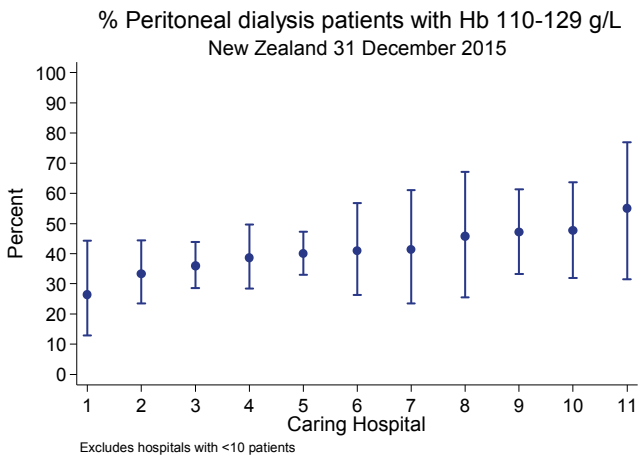


Figure 5.36 shows the distribution of ferritin in HD patients over 2013-2015. The proportion of patients with ferritin between 200-500µg/L ranged from 10-55% in Australia and 28-56% in New Zealand (figure 5.38). Figures 5.37 and 5.39 present equivalent data for transferrin saturation.

Figure 5.36

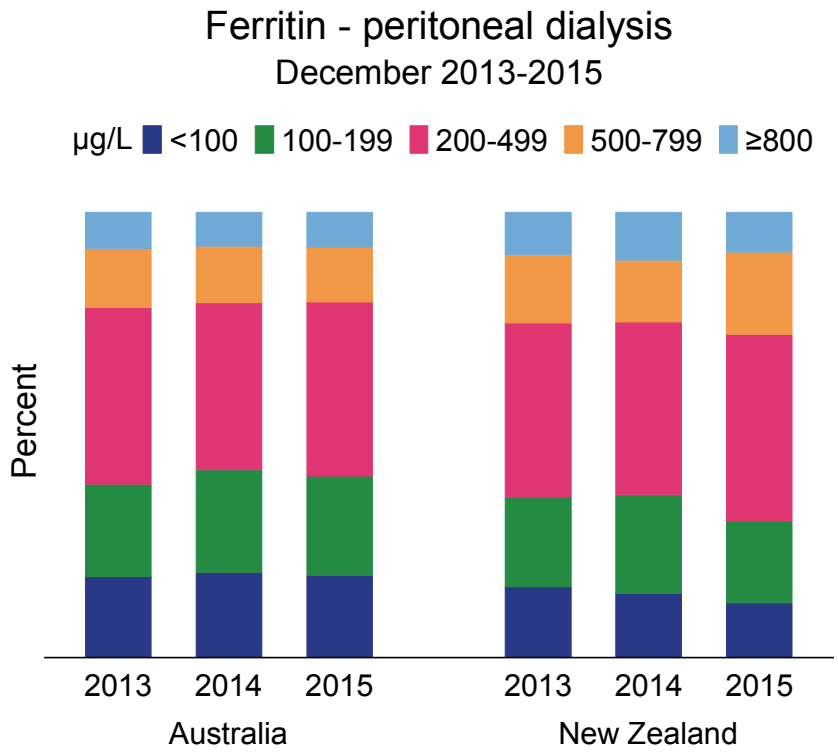


Figure 5.37

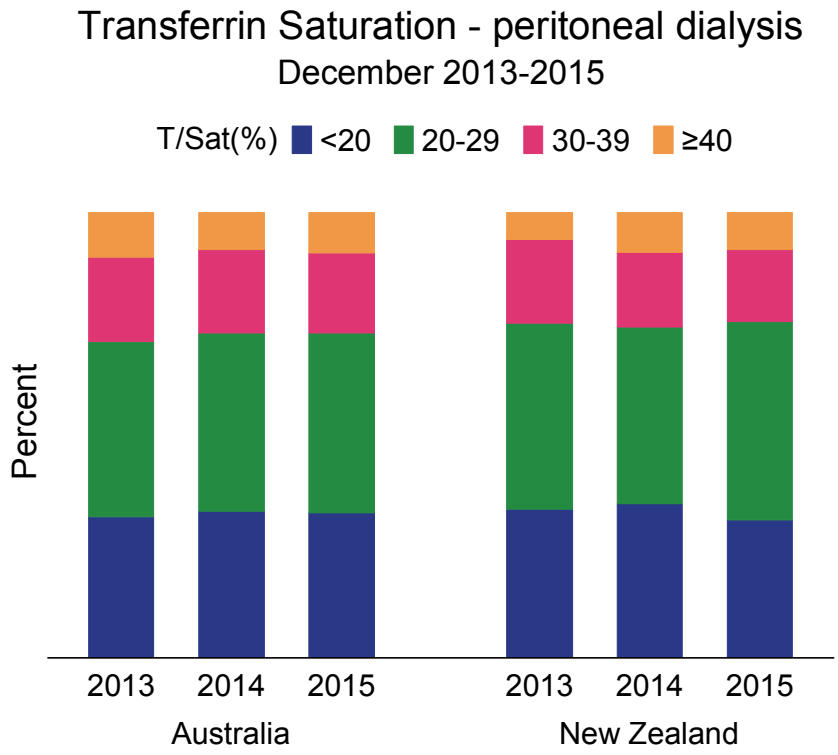


Figure 5.38.1

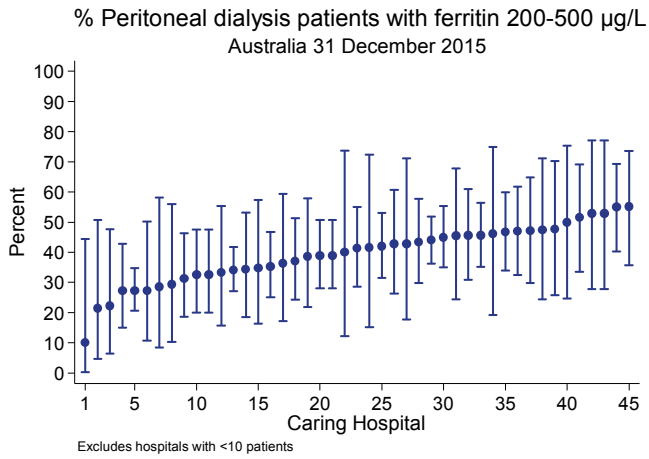


Figure 5.38.2

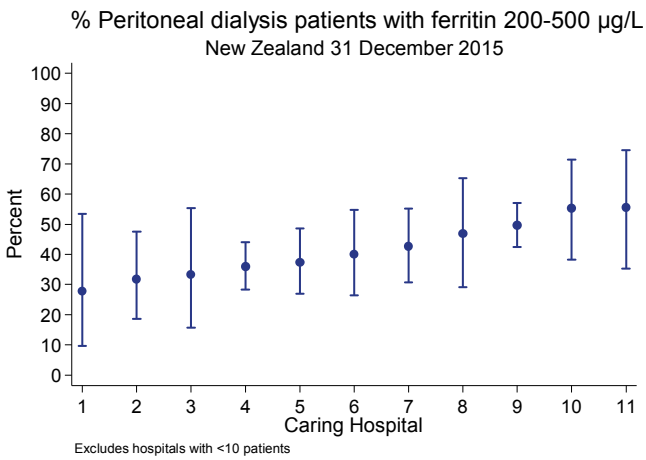


Figure 5.39.1

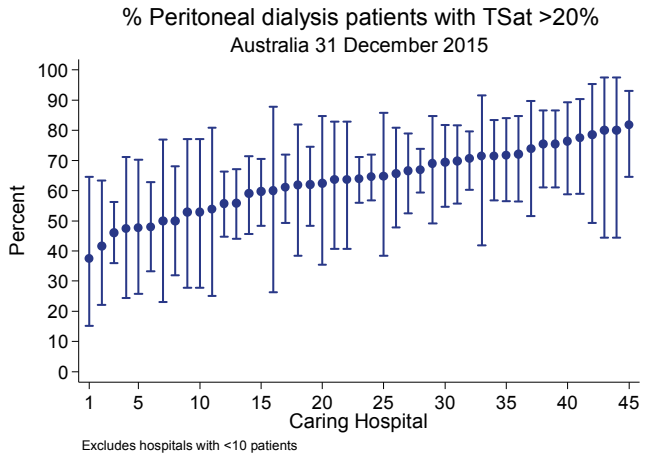
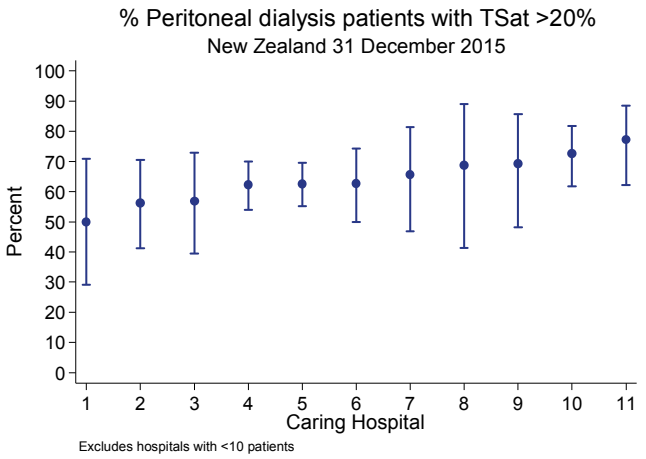


Figure 5.39.2



Biochemistry

Figures 5.40-5.45 present the distribution of calcium, phosphate and calcium-phosphate product. These numbers remain stable compared with previous years.

Figure 5.40

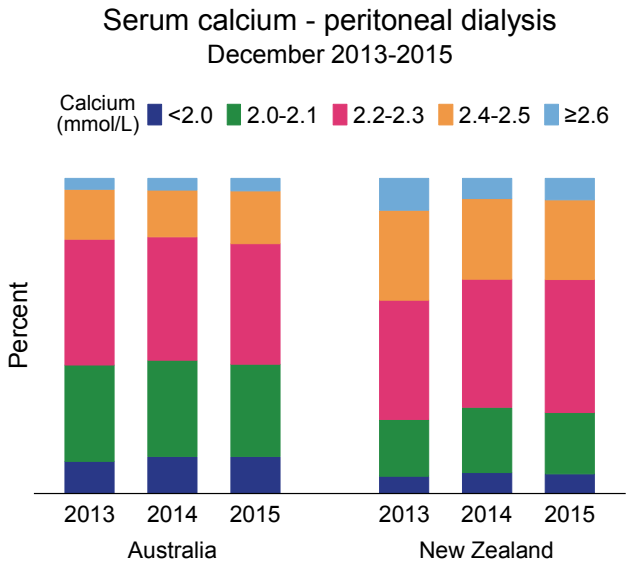


Figure 5.41.1

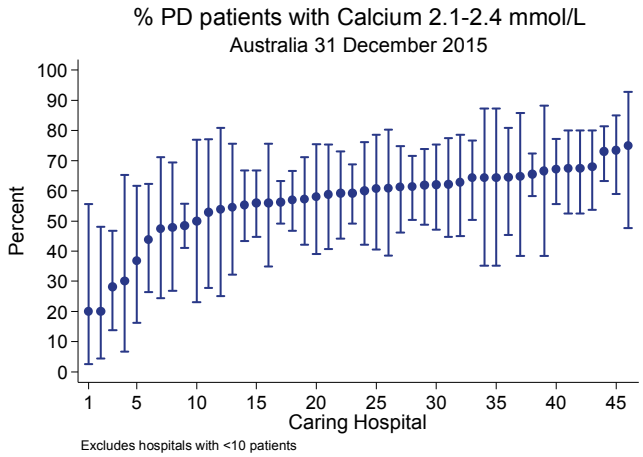


Figure 5.41.2

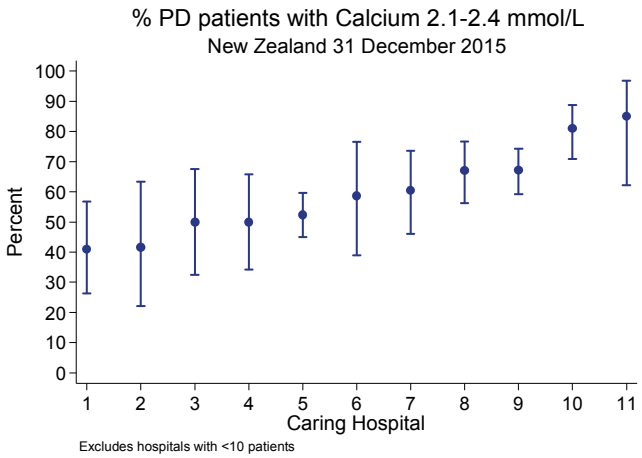


Figure 5.42

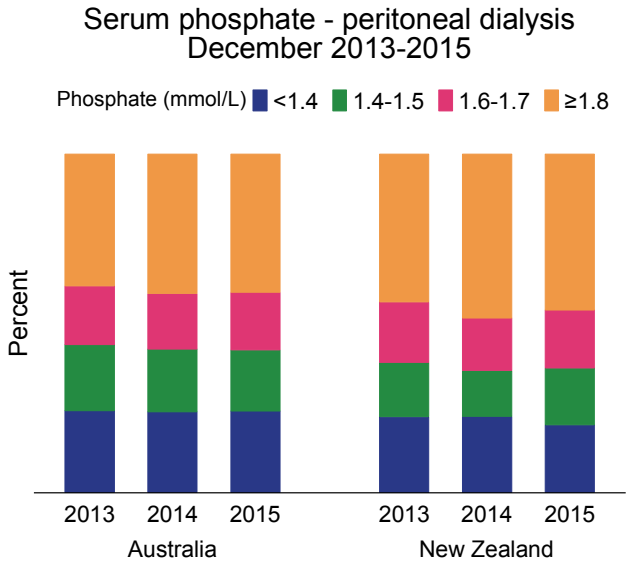


Figure 5.43.1

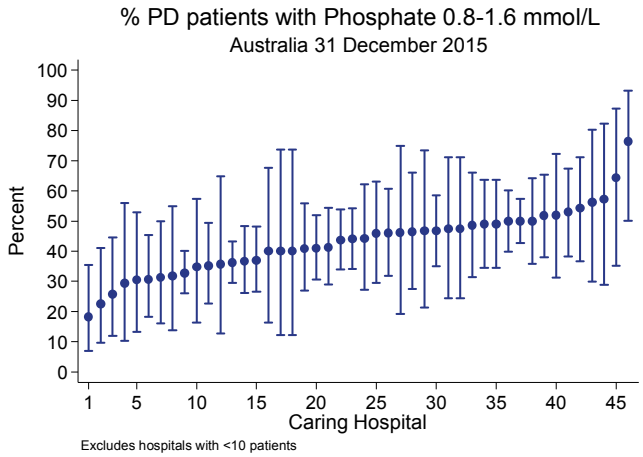


Figure 5.43.2

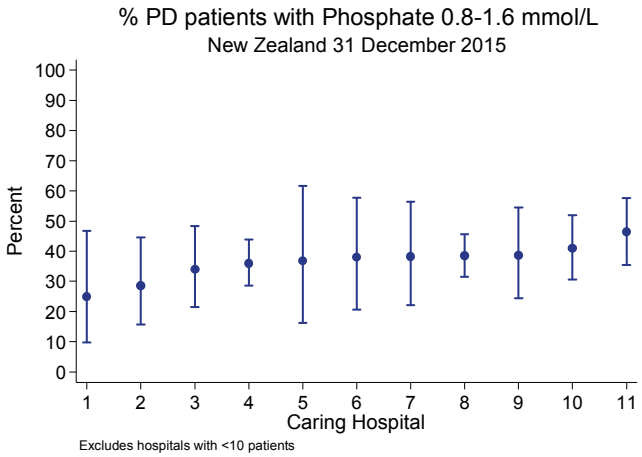


Figure 5.44

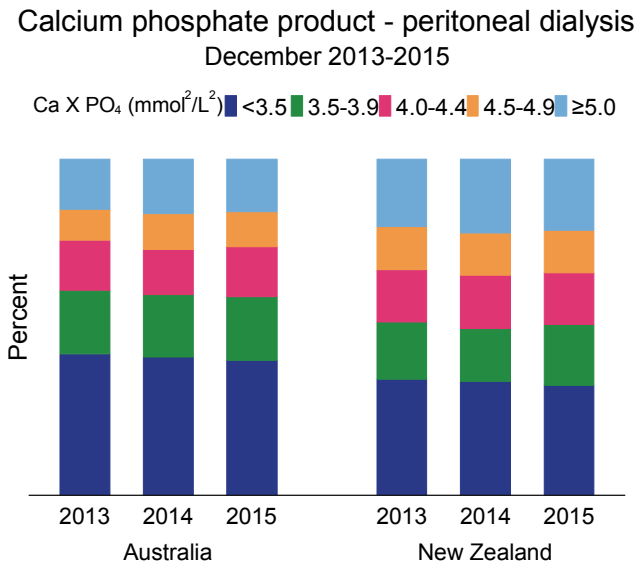


Figure 5.45.1

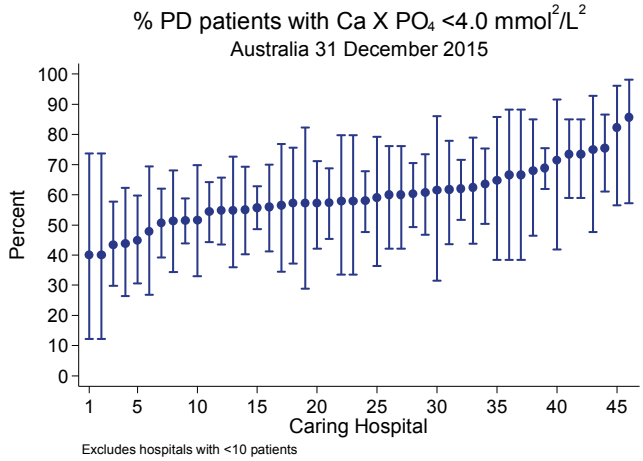
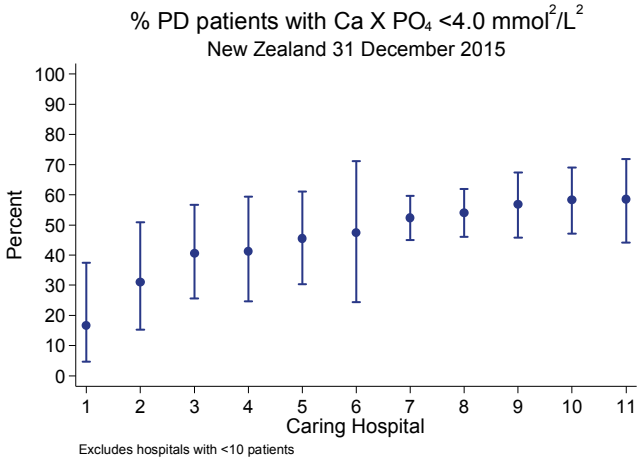


Figure 5.45.2



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