Supplemental Materials

Detailed description of sensitivity analyses methodology.

1. Inclusion of incident as well as prevalent patients (PD>3months), total time on PD as exposure time (i.e. including subsequent episodes of PD after return from haemodialysis), co-morbid conditions treated as time-varying covariates for each successive dialysis survey period (rather than only using baseline data at PD commencement) and the effect of treating units with 'high' usage of biocompatible PD solution (defined as ≥20% in any calendar year period).

2. Analysis of outcome restricted to patients who were free of peritonitis at the time of the first dialysis survey to account for potential change in therapy prior to the first record of PD solutions use.

3. Propensity score (PS) analysis where PS was calculated using multivariate logistic regression for probability of receiving biocompatible solutions conditional upon covariates included in the final multivariable Cox model (Supplementary Table 1). Additional PS analysis incorporating all conceivable patient level covariates was also performed. The PS was then integrated into the Cox proportional hazards models using four methods: (1) as a continuous variable; (2) as a stratifying variable (in quintiles); (3) using the PS score to create a 1:1 nearest neighbour matched cohort; (4) using the PS score to create a 1: many matched cohort using radius matching with a calliper of 0.01, in which the controls were matched with replacement and weighted in the Cox model.

Supplementary Table 1. Variables entered into the multiple logistic regression model to derive propensity scores for the likelihood of receiving treatment using biocompatible peritoneal dialysis solutions.

A) Using covariates included in the final multivariable Cox model			
Variable	**Odds Ratio**	**(95% CI)**	**P-value**
Age (years)	0.98	0.97-0.99	0.001
Racial origin			
- Caucasians	Reference		
- ATSI	0.44	0.20-0.99	0.04
- MPI	0.95	0.33-2.73	0.92
- Asian	0.59	0.30-1.16	0.13
- Other	0.46	0.18-1.15	0.10
BMI			
- <18.5	Reference		
- 18.5-25	0.63	0.32-1.22	0.17
- 25-30	0.54	0.26-1.09	0.06
- >30	0.72	0.35-1.47	0.36
ESKD			
- Chronic glomerulonephritis	Reference		
- Diabetic nephropathy	0.93	0.58-1.50	0.77
- Renovascular disease/ Hypertensive nephrosclerosis	1.11	0.62-1.97	0.73
- Polycytic Kidneys	1.28	0.68-2.39	0.44
- Reflux nephropathy	1.31	0.60-2.86	0.49
- Other / Unknown	1.41	0.86-2.32	0.18

CI, confidence interval; ATSI, Aboriginal and Torres Strait Islander peoples; MPI, Maori and Pacific Islander peoples; BMI, body mass index; ESKD, end-stage kidney disease.

B) Using all conceivable patient-level covariates			
Variable	**Odds Ratio**	**(95% CI)**	**P-value**
Age (years)	0.98	0.97-0.99	<0.001
Male	0.78	0.55-1.10	0.15
PD Modality (Automatic peritoneal dialysis)	0.48	0.31-0.76	0.001
Racial origin			
- Caucasians	Reference		
- ATSI	0.46	0.20-1.03	0.06
- MPI	0.97	0.33-2.82	0.95
- Asian	0.59	0.30-1.17	0.13
- Other	0.47	0.19-1.19	0.11
BMI			
- <18.5	Reference		
- 18.5-25	0.61	0.31-1.19	0.15
- 25-30	0.50	0.25-1.03	0.06
- >30	0.66	0.32-1.37	0.27
ESKD			
- Chronic glomerulonephritis	Reference		
- Diabetic nephropathy	1.47	0.68-3.19	0.33
- Renovascular disease/ Hypertensive nephrosclerosis	1.09	0.60-1.96	0.78
- Polycytic Kidneys	1.20	0.63-2.27	0.58
- Reflux nephropathy	1.17	0.53-2.58	0.70
- Other / Unknown	1.40	0.85-2.32	0.19
Comorbidities			
- coronary artery disease	1.58	1.05-2.38	0.03
- peripheral vascular disease	0.85	0.49-1.46	0.55
- cerebrovascular disease	1.07	0.61-1.88	0.82
- chronic lung disease	0.87	0.48-1.60	0.66
- diabetes mellitus	0.56	0.28-1.11	0.10
Late referral	0.63	0.35-1.12	0.11
Smoking	0.88	0.53-1.48	0.64

CI, confidence interval; ATSI, Aboriginal and Torres Strait Islander peoples; MPI, Maori and Pacific Islander peoples; BMI, body mass index; ESKD, end-stage kidney disease.

Supplementary Table 2. Pattern of peritoneal dialysis solutions used in Australia based on buffer-status during 2007-2010.

Years	Neutral pH, low GDP – lactate-buffered (%)	Neutral pH, low GDP – lactate/bicarbonate buffered (%)	Used both types of biocompatible solutions (%)	Conventional solutions (%)	Total
2007	36 (5.8)	10 (1.6)	6 (1)	567 (91.6)	619
2008	53 (4.4)	18 (1.5)	5 (0.4)	1134 (93.7)	1210
2009	60 (4.1)	16 (1.1)	4 (0.3)	1379 (94.5)	1459
2010	44 (3)	12 (0.8)	2 (0.1)	1425 (96.1)	1483

GDP: glucose degradation product.

Supplementary Table 3. Cox proportional hazard models for time to first peritonitis.

Model	Time to First Peritonitis		
	HR	**95% CI**	**P-value**
Unadjusted	1.33	1.05-1.67	0.02
Adjusted*	1.48	1.17-1.87	0.001
Unadjusted + PS#	1.37	1.08-1.73	0.009
Unadjusted + PS in quintiles	1.35	1.07-1.70	0.01
Unadjusted in PS matched cohorts (n=2242)	1.35	1.08-1.70	0.009
Unadjusted in 1:1 PS matched cohorts (n=314)	1.37	0.98-1.93	0.07

HR, hazard ratio; CI, confidence interval; PS, propensity score

*adjusted for body mass index, race and cause of renal failure, size of the treating unit.

#PS obtained using all conceivable patient-level covariates described in Table 1B

Supplementary Table 4. Outcome of first peritonitis episodes.

Outcomes	Biocompatible-EVER (n=80; %)	Biocompatible-NEVER (n=757; %)	P values
Cure with antibiotics alone*	67 (83.8)	607 (80.2)	0.44
Relapse	2 (2.5)	34 (4.5)	0.40
Catheter removal	11 (13.8)	117 (15.5)	0.69
Permanent haemodialysis transfer	10 (12.5)	86 (11.4)	0.74
Hospitalization	62 (77.5)	497 (65.7)	0.03
Peritonitis-related death#	1 (1.3)	17 (2.3)	0.56

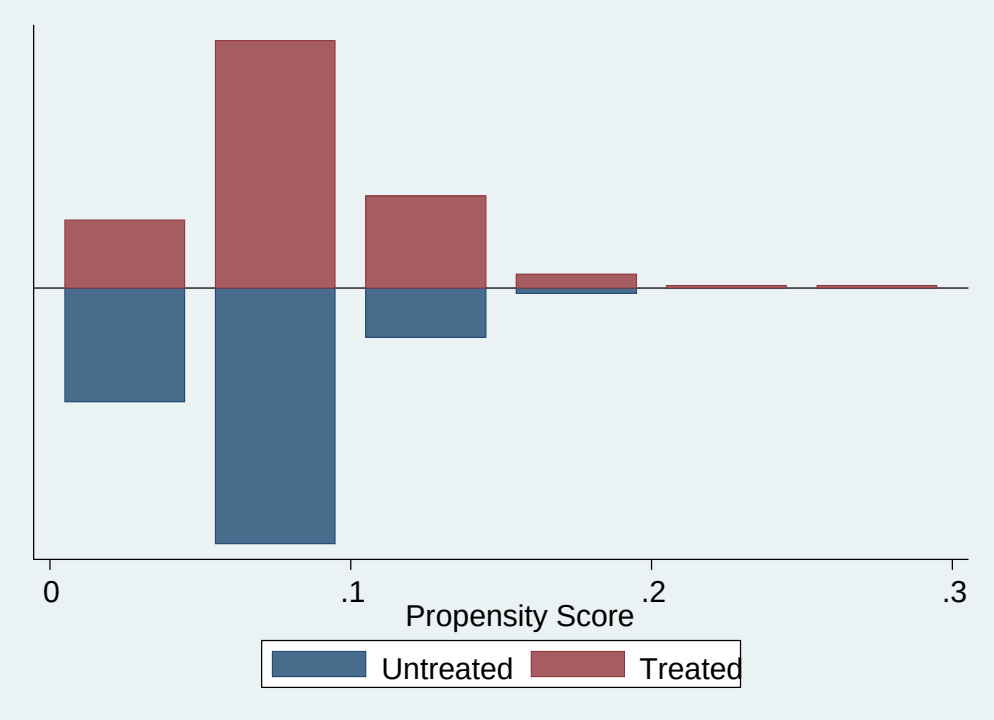
*patient was symptom free, peritoneal dialysis effluent clear and the episode was not complicated by relapse, catheter removal or death.
#patient's death was directly attributable to peritonitis in the clinical opinion of the treating nephrologists.

Supplementary Table 5. Annual peritonitis rates (mean [95% confidence interval]) during 2007-2010.

A) OVERALL	
Years	**Peritonitis rates**
2007	0.46 (0.38 to 0.55)
2008	0.53 (0.48 to 0.59)
2009	0.51 (0.47 to 0.56)
2010	0.45 (0.41 to 0.49)

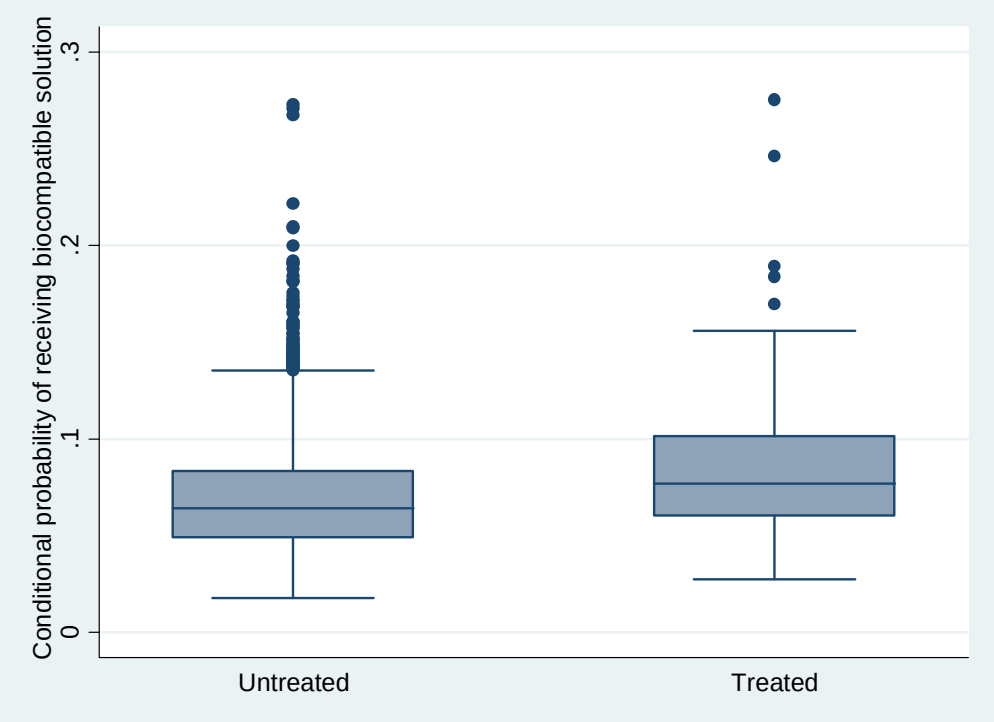
B) VINTAGE		
Year of PD commencement	**Biocompatible-EVER**	**Biocompatible-NEVER**
2007	0.79 (0.64-0.97)	0.46 (0.42-0.50)
2008	0.47 (0.32-0.66)	0.52 (0.47-0.56)
2009	0.53 (0.32-0.84)	0.44 (0.39-0.50)
2010	1.44 (0.66-2.74)	0.45 (0.37-0.55)

Supplementary Figure 1. Propensity score graph showing distribution of propensity score in the treatment and control groups



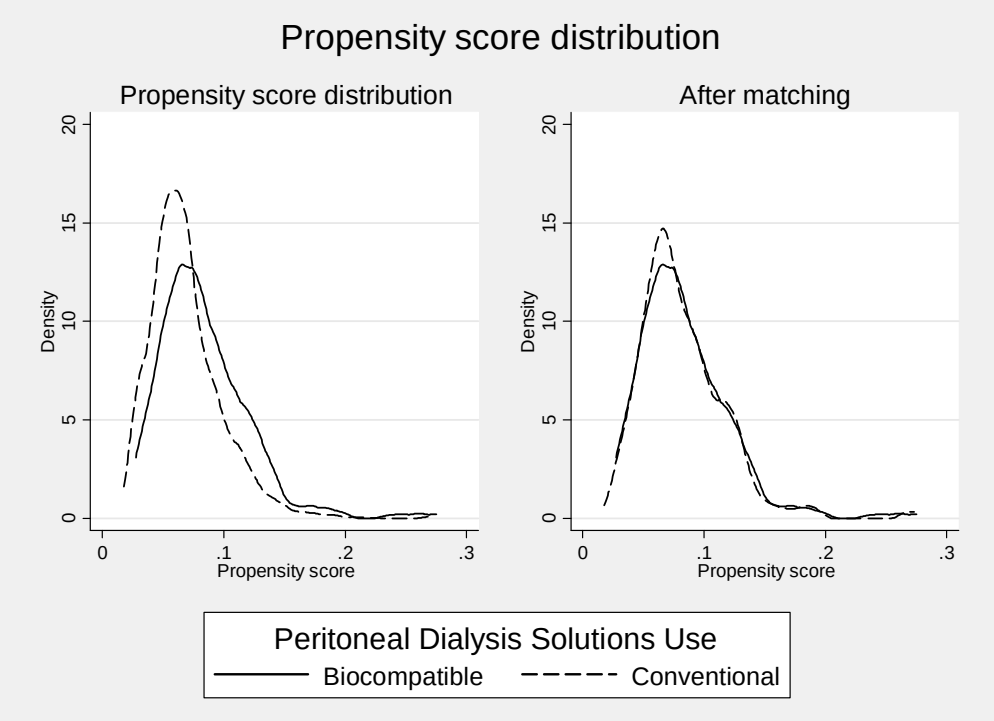
[#]PS obtained using patient-level covariates in the final Cox model (Supplementary Table 1A)

Supplementary Figure 2. Box plot showing distribution of distribution of propensity score in the treatment and control groups.



[#]PS obtained using patient-level covariates in the final Cox model (Supplementary Table 1A)

Supplementary Figure 3. Propensity score distribution in patients receiving biocompatible and conventional peritoneal solutions before and after propensity score matching.



[#]PS obtained using patient-level covariates in the final Cox model (Supplementary Table 1A)