

Supplementary Material

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Supplementary Table 1: Sources of resource use and unit costs (UK£2017/18)

	Value	Source
Inpatient costs		
<i>A&E</i>	£160.00	https://improvement.nhs.uk/resources/national-cost-collection/#ncc1819
<i>Ward (non-elective) per attending physician</i>	£3,117.00	
<i>Excess bed day</i>	£337.00	
<i>Elective ward per attending physician</i>	£3,894.00	
<i>Excess bed day*</i>	£431.00	
<i>HDU / Critical Care</i>	£1,159.00	
<i>Day case per attending physician</i>	£742.00	
Outpatient attendance costs per clinic type	£140	https://improvement.nhs.uk/resources/national-cost-collection/#ncc1819
Medication costs		British National Formulary 2017 https://www.bnf.org/products/bnf-online/
Primary Care consultation costs		
<i>General Practitioner appointment</i>	£38.00	Personal Social Services Research Unit. Unit costs of health and social care 2017. https://www.pssru.ac.uk/project-pages/unit-costs/unit-costs-2017/
<i>Practice Nurse appointment</i>	£10.50	
<i>Health Care Assistant appointment</i>	£7.25	
<i>Other</i>	£7.25	
<i>Home Visit General Practitioner</i>	£48.00	
<i>General Practitioner Telephone appointment</i>	£14.80	
<i>Home Visit Community Health Professional</i>	£45.00	
Physiotherapist assistant -Band 4 (intervention group only)		
<i>Cost per hour</i>	£30	Personal Social Services Research Unit. Unit costs of health and social care 2017. https://www.pssru.ac.uk/project-pages/unit-costs/unit-costs-2017/
<i>Time with patient per week</i>	0.25 hrs per session, 3 sessions per week	Trial intervention
<i>Cost per patient over 6 months</i>	£701.30	
IDC bike (intervention group only)		
<i>Cost per IDC bike</i>	£6000	https://www.medimotion.co.uk/
<i>Lifetime of IDC bike</i>	3 years	Assumption based on trial intervention
<i>Equivalent annual cost of bike (interest rate 5%)</i>	£2203.29	
<i>Participant per IDC bike</i>	18	Assumption based on trial intervention
<i>Cost per participant over 6 months</i>	£61.20	

Supplementary Table 2: Summary of the base-case cost-effectiveness analysis

Type of evaluation	Cost-utility analysis
Time horizon	6 month trial period extended to 12 months (6 month trial period, plus 6-month post trial)
Perspective	Healthcare service
Comparators	Usual haemodialysis therapy (control group) versus Usual haemodialysis therapy plus the intervention of intradialytic cycling (IDC group)
Cost categories	Hospital costs Prescribed medications costs Primary care costs Intervention costs
Base year for calculating costs/prices	2017/18
Analytic methods	Cost-effectiveness model with multiple imputation and bootstrapping
Outcomes	Cost per QALY

Supplementary Table 3: Table of missingness in the data

	Control group			IDC group		
	Complete Data	Missing observation	Withdrawn/Lost to follow-up	Complete Data	Missing observation	Withdrawn/Lost to follow-up
At baseline (0 months)						
GP costs	59	6	0	55	10	0
Hospital costs	65	0	0	65	0	0
Medication costs	65	0	0	65	0	0
EQ-5D	54	9	0	60	5	0
LV Mass	65	0	0	65	0	0
At 3 months						
EQ-5D	49	16	0	48	17	0
At 6 months						
GP costs	51	5	9	44	9	12
Hospital costs	56	0	9	53	0	12
Medication costs	56	0	9	53	0	12
EQ-5D	51	5	9	50	3	12
LV Mass	50	7	9	51	2	12
At 12 months						
GP costs	44	5	16	43	8	14
Hospital costs	49	0	16	51	0	14
Medication costs	49	0	16	51	0	14

Data presented as number (n)

Supplementary Table 4: Demographic for CYCLE-HD baseline study participants, participants completing the study protocol (not lost to follow up; all included in base-case cost analysis), and participants lost to follow up (e.g. moved away from haemodialysis centre, dropped out, etc; omitted from base-case cost-analysis)

	Baseline demographic for CYCLE-HD study population		Baseline demographic of participants completing the study protocol		Baseline demographic of participants lost to follow up	
	Control group (n=65)	IDC group (n=65)	Control group (n=49)	IDC group (n=51)	Control group (n=16)	IDC group (n=14)
Age (years)	59±15	56±16	59.5±13.5	55.1 ± 15.2	57.1 ±19.1	56.8±16.8
Male sex (%)	53 (81.5%)	42 (64.6%)	38 (78%)	32 (63%)	15 (94%)	10 (71%)
Dialysis vintage (years)	1.3 [0.4, 3.2]	1.2 [0.5, 3.7]	1.2 [0.4, 2.8]	1.2 [0.6, 2.5]	1.8 [1.1, 3.4]	1.0 [0.4, 5.7]
Ethnicity						
White (n)	28	30	19	27	9	3
Mixed (n)	0	2	0	2	0	0
Asian or Asian British (n)	29	24	22	17	7	7
Black or Black British (n)	5	5	5	2	0	3
Other	3	4	3	3	0	1
Predialysis SBP (mmHg)	143.0±20.3	143.1±23.3	143.7±20.6	140.9±21.5	140.6±19.8	151.1±28.1
Predialysis DBP (mmHg)	75.1±13.6	77.1±14.2	73.7±13.4	76.5±13.6	79.3±13.7	79.4±16.6
Resting heart rate (bpm)	75.2±11	78.9±12.5	77.5±10.5	80.8±12.0	69.8±31.7	77.4±10.5
Pre-dialysis weight (kg)	77.3±17.2	80.6±20.8	79.9±21.8	78.7 ±16.5	81.4±18.2	74.0±19.4
Co-morbidities	(n=65)	(n=64)	(n=49)	(n=51)	(n=16)	(n=14)
Ischemic heart disease (n)	9	7	8	6	1	1
Hypertension (n)	44	42	34	34	10	8
Diabetes mellitus (n)	28	21	21	16	7	5
Atrial Fibrillation (n)	2	3	0	2	2	1
Previous renal transplant (n)	11	9	8	7	3	2

Data presented as either mean ± standard deviation, median {[range] or number (n)}.

Supplementary Table 5: Participant length of stay for hospital admissions

	Control group			IDC group		
	6-month pre trial (n=65)	6 month trial period (n=56)	6-month post trial (n=49)	6-month pre trial (n=65)	6 month trial period (n=53)	6-month post trial (n=51)
Length of stay (Days)	1.0 (0.0, 3.5)	0.5 (0.0,4.0)	1.0 (0.0,5.0)	1.0 (0.0,6.0)	0.0 (0.0,2.0)	0.0 (0.0,2.0)

Data presented as median (interquartile range).

Supplementary Table 6: Summary of QALYs

	Control group			IDC group			IDC group vs Control group
	n=	Mean (SD)	Median (IQR)	n=	Mean (SD)	Median (IQR)	Mean difference (95% confidence interval*)
EQ-5D-5L (Utility score)							
0 months	56	0.7145 (0.2913)	0.8017 (0.4819, 0.9390)	60	0.6690 (0.2977)	0.7431 (0.6251, 0.8868)	-0.0455 (-0.1541, 0.0613)
3 months	49	0.6864 (0.2651)	0.7252 (0.5240, 0.8926)	48	0.7155 (0.2958)	0.8162 (0.6203, 0.9328)	0.0291 (-0.0817, 0.1400)
6 months	45	0.6311 (0.2762)	0.6720 (0.4369, 0.8510)	48	0.7386 (0.2453)	0.7930 (0.6701, 0.9420)	0.1075 (0.0021, 0.2135)

* based on 5000 bootstrapped samples