Time and Travel Analysis

Methods

Patients were asked to complete the Time and Travel questionnaire regarding their health care for the most recent appointments (for their *most recent* treatment over the last 12 months). Data was collected on type of appointment, mileage, usual transport, cost of public transport, total time taken, accompanying people, alternative activities and total number of visits at each venue. By supplementing the responses to the questionnaire with routine data sources where necessary, the unit costs of travelling and accessing health care services were estimated for each speciality and each type of contact.

The average monetary cost of travelling to a specific type of care was either taken directly from the monetary costs reported by the patient for fares or for travel by car the monetary value was estimated by combining the mileage with information on the cost per mile taken from routine sources [1].

For time costs, the average time spent travelling to and actually receiving each specific type of care was estimated from the responses to the Time and Travel questionnaire. These data were combined with information on the type of activity that was displaced by accessing care obtained from routine sources for working [2] and non-working time [3]. Patients indicated what their usual activities would have been if they were not receiving care. This cost was also estimated for the accompanying people. The cost of time was valued at the national median wage rate per hour if the patient or accompanying person missed paid work. If the patient/accompanying person reported that they had lost leisure time, this was valued at the Department of Transport cost per hour of leisure time.

Details used to estimate these costs are presented in Table 1.

Resource	Cost (£)	Source
Paid work/hour	14.37*	ONS Annual survey of hours and earnings 2016 – provisional results *Median (Minimum) UK wage 2016* [2]
Leisure time	7.11**	Department of Transport TAG UNIT 1.3.1 User and Provider Impacts July 2016 *Market price values* [3]
Cost per mile	0.61	AA Motoring costs 2014 *Purchase price of car when*

	new from £13,000 to £18,000 at 10,000 miles/year [1]***

* "All Employees" category

**Inflated to 2016 prices as the price year in the document is 2010

***Inflated to 2016 prices

Table 1 Cost estimates

Stata (version 14) was used to compile summary statistics regarding time and travel costs for Inpatient admissions and Outpatient, GP and Nurse consultations. Results were reported by using means and medians due to skewness of data.

A calculation of average time and travel costs (per visit) was based on all the responses to the Time and Travel questionnaire. The costs were calculated for all patients who attended the visits. However, in order to calculate average annual time and travel costs, data on total number of visits was also necessary. This was obtained from the resource use datasets (Baseline-6 months and 6-12 months).

For Inpatients, only the number of nights spent at hospital was available (as opposed to number of trips). Therefore, an assumption was made that if they indicated any number of nights at hospital, they made one trip during a given 6 month period.

In terms of Outpatients, the calculation of yearly time and travel costs was based on the cost estimates from the Time and Travel dataset and the number of visits from the resource use data sets. The same approach was used for calculating annual GP and Nurse Consultation time and travel costs at their GP surgery.

Results

1. Inpatient Admissions

1.1 Travel Costs (return)

Seventy-seven patients out of 289 participants who completed the Time and Travel questionnaire had an Inpatient admission (34 in the intervention arm, 43 in control). The mean (median) travel costs for all inpatients and by arm are summarised in Table 2.

Cost	Mean (£)	Median (£)
Intervention	24.87	18.00
Control	18.54	12.24
Total	25.10	18.30

Table 2 Cost of Travel for Inpatients

The majority of patients travelled by car (71%) and the mean (median) distance travelled was 20.67 (14) miles. The modes of transport and travel costs are summarised in Table 3.

Mode of Transport	Frequency	Percent (%)	Mean (Median) cost
Car	53	71	26.77 (18.3)*
Taxi	9	12	20.46 (19.6)
Public Transport	1	1	0 (0)
Ambulance	10	13	0 (0)
Walked	2	3	0 (0)

*20.67 (14) miles on average

Table 3 Mode of Transport for Inpatient Appointments

1.2 Time Costs

In terms of alternative activities of Inpatients, most of the admitted patients would have been doing paid work (37%) or leisure activities (30%). All other activities are listed in the Table 4 below.

Alternative activity	Frequency	Percent (%)
Paid work	27	37
Leisure activities	22	30
Housework	15	21
Retired	4	5
Child care	2	3
Caring for someone	2	3
Voluntary Work	1	1

Table 4 Alternative activities of Inpatients

The average (median) opportunity cost of time per inpatient stay was £77.19 (£53.33). For the intervention arm this was £76.43 (£53.33) and for control: £77.83 (£53.33). The estimates are based on the assumption that patients lost 7.5 hours of paid/unpaid activities per stay.

Over a half (57%) of the inpatient appointments were accompanied. On average, carers spent around four hours in hospital (mean: 3.72, median: 2.5 hours). The alternative activities of carers are summarised in Table 5.

Alternative activity	Frequency	Percent (%)
Housework	19	37
Paid work	16	31
Leisure activities	9	17
Caring for someone	4	8
Child care	2	4
Retired	1	2
Voluntary Work	1	2

Table 5 Alternative activities of carers

For an inpatient appointment, the opportunity cost of time for carer was estimated to be £38.52 pounds on average (£24.89 median). Split by treatment group opportunity costs for the intervention arm was £41.49 (£32.00) and £36.03 (£21.56) for the control.

The estimation was based on the following categorisation of activities into paid and unpaid:

Paid (£14.37 p/h)*	**Unpaid (£7.11 p/h)**
Paid work	Housework
Child care	Leisure activities
Caring for someone	Retired
Voluntary work	

*Assumed to provide economic value

Table 6 Classification of paid and unpaid activities

1.3 Average Earnings and Proportion of Lost Income

On average, inpatients earned £18,103 per year. Median earnings were £17,500. The average travel expenditure over a 12 month period was £21.41 (£14 median). This estimate was based on 35 patients who indicated the number of nights spent at hospital in their resource use questionnaire. The proportion of lost earnings due to travel therefore was 0.24 per cent.

The average travel expenditure for the intervention group was £20.37 (£14.64) and £22.18 (£13.1) for the control. Lost earnings due to travel for the intervention group accounted for 0.1 per cent of their income. For the control group, lost earnings constituted 0.3 per cent.

The average (median) number of days patients stayed in hospital during the 12 month period was 12.76 (6) days. The mean (median) opportunity cost of time for these patients was estimated to be £839.27 (£319.95). This accounts for approximately 7 per cent of their annual income.

The mean (median) opportunity cost of time for the intervention arm was £890.63 (£375.53). For the control group it was slightly lower: £795.26 (£319.95). The proportion of lost earnings due to time spent in hospital for the intervention arm therefore was 6.8 per cent and 7.6 per cent for control.

Total lost earnings due to time and travel accounted for 7.4 per cent and 7.3 per cent for the intervention and control arms respectively.

2. Outpatient Appointments

2.1 Travel Costs (return)

Out of the total sample of 289 who completed the Time and Travel questionnaire, almost three quarters of patients (215) had an outpatient appointment within the last two months (107 – intervention, 108 control). Travel costs for both arms and for the total sample are summarised in the table below.

Cost	Mean (£)	Median (£)
Intervention	19.07	9.91
Control	18.56	13.42
Total	18.81	11.76

Table 7 Outpatient Travel Costs

Most patients (75%) travelled by car and the average distance was 16.1 miles (median: 10). The modes of transport and travel costs are summarised in Table 8.

Mode of Transport	Frequency	Percent (%)	Mean (Median) cost (£)
Car	158	75	21.06 (13.68)*
Public Transport	32	15	14.61 (0)**
Taxi	11	5	17.29 (14)
Walked	5	2	0 (0)
Ambulance	2	1	0 (0)
Hospital Vehicle	3	1	0 (0)
Other	1	1	0 (0)

*20.67 (14) miles on average; ** Based on three fares

Table 8 Mode of Transport for Outpatient Appointments

2.2 Time Costs

The mean (median) length of time of an Outpatient appointment was 1.98 (1.5) hours. In terms of alternative activities, most of the admitted patients would have been doing housework (33%) or leisure activities (28%). All other activities are listed in the Table 9 below.

Alternative activity	Frequency	Percent (%)
Housework	67	33
Leisure activities	57	28
Paid work	56	27
Caring for someone	8	4
Retired	7	3
Voluntary work	6	3
Other	2	1

Table 9 Alternative activities of Outpatients

The opportunity cost of time of an outpatient appointment was estimated to be £19.32 on average (median: £10.78). For the intervention arm this was £19.60 (£17.78), for the control: £19.04 (£10.78).

Less than half (43%) of the Outpatient appointments were accompanied. On average, carers spent around four hours in hospital (mean: 3.70, median: 3 hours). The alternative activities of carers are summarised in Table 10.

Alternative activity	Frequency	Percent (%)
Housework	25	28
Paid work	24	27
Leisure activities	20	22
Caring for someone	12	13
Child care	3	3
Retired	2	2

Table 10 Alternative activities of carers

For an Outpatient appointment, the opportunity cost of time for carer was estimated to be £24.85 on average (£21.56 median). Split by treatment arm, it was £26.57 (£21.56) and £23.25 (£21.56) for intervention and control respectively.

2.3 Average Earnings and Proportion of Lost Income

On average, Outpatients earned £19,046 per year. Median earnings were £17,500. The average travel expenditure over a 12 month period was £118.20 (£41.48 median). The proportion of lost earnings due to travel therefore was 0.90 per cent. This estimate was based on 181 patients who indicated the total number of visits to hospital in their resource use questionnaire.

The average travel expenditure for the intervention group was £161.23 (£43.92) and £76.67 (£41.04) for the control. Lost earnings due to travel for the intervention group accounted for 1 per cent of their income. For the control group, lost earnings constituted 0.5 per cent.

Outpatients also had opportunity costs of time spent waiting and travelling to their appointments. The average opportunity cost was £106.81 (£53.33 median). This accounted for approximately 0.70 per cent of their annual income. The total proportion of income lost due to time and travel therefore amounted to 1.6 per cent.

The mean (median) opportunity cost of time for the intervention arm was £133.34 (£64.67). For the control group it was lower: £81.22 (£49.97). The proportion of lost earnings due to

time spent in hospital for the intervention arm therefore was 0.8 per cent and 0.6 per cent for control.

Total lost earnings due to time and travel accounted for 2 per cent and 1 per cent for the intervention and control arms respectively.

3. GP Consultations

GP consultations that took place at the GP Surgery were assessed. These were broken down into the travel costs associated with getting to GP Surgery appointments and the time costs include the *time spent travelling and waiting*.

3.1 Travel Costs (return)

Out of the total sample of 289 who completed the Time and Travel questionnaire, 234 (81 per cent) of patients had a GP appointment within the last 12 months. The average travel costs for the intervention and control as well as for the total sample are summarised in the table below.

Cost	Mean (£)	Median (£)
Intervention	11.97	2.44
Control	4.28	2.44
Total	8.00	2.44

Table 11 GP Travel Costs

Most patients (75%) travelled by car and the average distance was 5.27 miles (median: 2.44). The modes of transport and travel costs are summarised in Table 12.

Mode of Transport	Frequency	Percent (%)	Mean (Median) cost (£)
Car	174	75	9.46 (2.44)
Public Transport	9	4	14.92 (0)
Walked	39	17	0 (0)
Taxi	7	3	11.54 (2.44)
Other	3	1	0 (0)

*5.27 (2.44) miles on average

Table 12 Mode of Transport for GP Appointments

3.2 Time Costs

The mean (median) length of time of a GP appointment was 0.78 (0.75) hours. In terms of alternative activities, most of the admitted patients would have been doing housework (35%) or leisure activities (32%). All other activities are listed in the Table 13 below.

Alternative activity	Frequency	Percent (%)
Housework	80	35
Leisure activities	72	32

Paid work	53	23
Caring for someone	7	3
Retired	6	3
Other	4	2
Voluntary work	2	1

Table 13 Alternative activities of patients attending GP appointments

The opportunity cost of time of a GP appointment was estimated to be £7.28 on average (median: £5.33). For the intervention arm this was £8.26 (£5.33) and for the control £6.37 (£5.33).

A quarter (25%) of the GP appointments were accompanied. On average, carers spent around two hours while waiting and travelling to GP (mean: 2.06, median: 2 hours). The alternative activities of carers are summarised in Table 14.

Alternative activity	**Frequency**	**Percent (%)**
Paid Work	17	36
Housework	10	22
Caring for someone	8	17
Leisure activities	5	11
Child care	2	4
Retired	2	4
Other	2	4

Table 14 Alternative activities of carers

For a GP appointment, the opportunity cost of time for carer was estimated to be £10.07 on average (£5.33 median). For the intervention arm this was £13.25 (£10.67), for the control arm: £7.36 (£5.33).

3.3 Average Earnings and Proportion of Lost Income

3.3.1 GP Surgery Appointments

On average, patients attending GP Surgery earned £19,848 per year. Median earnings were £17,500. The average travel expenditure over a 12 month period was £48.35 (£9.76 median). The proportion of lost earnings due to travel therefore was 0.47 per cent. This estimate was based on 171 patients who indicated the total number of visits to GP Surgery in their resource use questionnaire.

The average travel expenditure for the intervention group was £76.20 (£9.15) and £21.65 (£9.76) for the control. Lost earnings due to travel for the intervention group accounted for 0.8 per cent of their income. For the control group, lost earnings constituted 0.1 per cent.

Patients also had opportunity costs of time spent waiting and travelling to their appointments. The average opportunity cost was £40.75 (£21.33 median). This accounted for approximately 0.30 per cent of their annual income. The total proportion of income lost due to time and travel therefore amounted to 0.8 per cent.

The mean (median) opportunity cost of time for the intervention arm was £51.10 (£25.15). For the control group it was lower: £30.34 (£21.33). The proportion of lost earnings due to time spent in hospital for the intervention arm therefore was 0.4 per cent and 0.2 per cent for control.

Total lost earnings due to time and travel accounted for 1 per cent and 0.3 per cent for the intervention and control arms respectively.

4. Nurse Consultations

The travel costs to the GP surgery to see the Nurse was assumed to be the same for going to the surgery to see the GP.

4.1 Time Costs

Nurse consultations were attended by 54% (156) of the total sample (80 – intervention, 76 – control). The mean (median) length of time of a Nurse Consultation was 1.69 (2) hours. In terms of alternative activities, most of the admitted patients would have been doing leisure activities (34%) or housework (28%). All other activities are listed in the Table 15 below.

Alternative activity	**Frequency**	**Percent (%)**
Leisure activities	51	34
Housework	43	28
Paid work	35	23
Caring for someone	6	4
Voluntary work	5	3
Other	5	3
Retired	4	3
Child care	2	1

Table 15 Alternative activities of patients attending Nurse Consultations

The opportunity cost of time of a Nurse Consultation was estimated to be £5.66 on average (median: £5.33). For the intervention group this was £6.11 (£5.33) and £5.17 (£5.33) for the control.

23 per cent (35) of the appointments were accompanied. On average, carers spent around two hours (mean: 1.86, median: 2 hours). The alternative activities of carers are summarised in Table 16.

Alternative activity	Frequency	Percent (%)
Housework	10	29
Paid work	8	23
Caring for someone	7	20
Leisure activities	6	17
Other	2	6
Child care	1	3
Retired	1	3

Table 16 Alternative activities of carers

For a Nurse Consultation, the opportunity cost of time for carer was estimated to be £7.36 on average (£5.33 median). For the intervention arm this was £7.60 (£5.33). For the control arm this was £7.16 (£5.33).

4.2 Average Earnings and Proportion of Lost Income

4.2.1 Nurse Surgery Appointments

On average, patients attending Nurse Consultations earned £19,783 per year. The average opportunity cost was £18.17 (£9.78 median). This accounted for approximately 0.10 per cent of their annual income.

The mean (median) opportunity cost of time for the intervention arm was £20.96 (£10.72). For the control group it was lower: £14.97 (£7.11). The proportion of lost earnings due to time spent in hospital for the intervention arm therefore was 0.1 per cent for both arms.

5. Employment Status

There were nine different employment categories. Over a half of the sample (53%) were retired. The categories are summarised in Table 17.

Employment Status	Frequency	Percent (%)
Retired	147	43
Fully Employed	56	20
Unemployed, not seeking	31	11
Part-time	30	11
Housework	5	2
Caring	3	1
Student	2	1
Unemployed, seeking	2	1

Other	2	1
Total	278*	100

*11 patients had missing data

Table 17 Employment status

Patients missed 6 (1) days off work due to illness (UTI) on average. The mean proportion of days missed due to UTI was 0.12 days. However, the estimates are based on less than half of the total sample (104 patients) as most data was missing. Only for 15 patients time off work taken due to UTI was greater than 0.

6. Income

Income data was missing for 43 patients. Categories of income are summarised below.

Income	**Frequency**	**Percent (%)**
0	1	1
<6,000	25	9
6,001 – 10,000	34	12
10,001 – 15,000	52	18
15,001 – 20,000	31	11
20,001 – 25,000	30	11
25,001 – 30,000	19	7
30,001 – 35,000	9	3
35,000+	44	16

Table 18 Income

7. Total Costs and Lost Earnings

The tables below summarises the total patient time and travel costs as well as proportion of lost income due to attending different appointments throughout the year.

Cost*	**£ Total (n=289)**	**£ Intervention (n=145)**	**£ Control (n=144)**
Total Travel Cost	110.92 (28.00)	153.53 (24.4)	68.01 (29.28)
Total Opportunity (Time) Cost	246.08 (69.32)	273.16 (69.32)	218.82 (71.10)
Total Time and Travel Cost	357.00 (126.08)	426.69 (140.31)	286.82 (116.82)

Table 19 Mean (Median) Annual Costs

*Based on summing across different types of visits. In order to enable the calculation of the sum, missing values had to be replaced to zeros (e.g. if patient indicated having a GP appointment but did not indicate anything about having an Inpatient appointment, it was assumed they did not have any). This may have led to underestimation of the total costs.

Lost Earnings	%	Number of Observations
Travel	0.97	244
Time	1.95	244
Time and Travel	2.92	244
Illness	5.80	108*
UTI	0.92	99**

Table 20 Lost Earnings

*42 patients missed at least one day off work due to illness

**15 patients missed at least one day off work due to UTI

Table 21 presents the average costs for time and travel derived from the data from the 289 participants who completed the Time and Travel questionnaire. These values were applied to the full sample of participants included in the economic evaluation analyses in order to estimate the participant and carer costs for each patient and combined with the count of each activity recorded for each participant.

	Travel Cost			Opportunity Cost of Time			Time and Travel Cost		
	Total	Intervention	Control	Total	Intervention	Control	Total	Intervention	Control
Inpatient	25.10 (18.30)	24.87 (18.00)	18.54 (12.24)	77.19 (53.33)	76.43 (53.33)	77.83 (53.33)	100.10 (98.13)	102.62 (89.32)	98.17 (107.78)
Outpatient	18.81 (11.76)	19.07 (9.91)	18.56 (13.42)	19.32 (10.78)	19.60 (17.78)	19.04 (10.78)	38.26 (27.92)	38.78 (26.34)	37.76 (29.78)
GP	8.00 (2.44)	11.97 (2.44)	4.28 (2.44)	7.28 (5.33)	8.26 (5.33)	6.37 (5.33)	15.66 (7.88)	20.84 (8.88)	10.87 (7.77)
Nurse	-	-	-	5.66 (5.33)	6.11 (5.33)	5.17 (5.33)	-	-	-

Table 21 Mean (Median) Costs per visit (£)

References

1. AA Motoring costs 2014 Purchase price of car when new from £13,000 to £18,000 at 10,000 miles/year. Available at: https://www.theaa.com/resources/Documents/pdf/motoring-advice/running-costs/petrol2014.pdf
2. ONS Annual survey of hours and earnings 2016 – provisional results *Median (Minimum) UK wage 2016.* Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2016provisionalresults
3. Department of Transport TAG UNIT 1.3.1 User and Provider Impacts July 2016 *Market price values.* Available at: http://webarchive.nationalarchives.gov.uk/20140304105410/http:/www.dft.gov.uk/webtag/documents/expert/pdf/U3_5_6-Jan-2014.pdf

Health economics supplementary information

Item	£	Unit	Reference	CODE	Notes
Inpatient (non-elective)					
Day 1 In-patient	£435	Per night	Non-elective: Short-stay (NES)	LA04S	
Day 2 to Day 7	£357.8	Per night	Non-elective: Long-stay Total cost for seven night duration = £2,505 (NEL)	LA04Q	Calculated cost per night: (£2,505)/7
Days 8 Plus	£252	Per night	Non-elective: Excess bed days (NEL_XS)	LA04Q	
Day case	£352	Per day	Day Case (DC)	LA04S	
Outpatient appointment	£105.09	Per appointment	Total Outpatient Attendances - Urology	101	Total Cost column (i.e. Not the Consultant lead or Non-consultant led cost)
A&E/casualty attendance	£146.86	Per visit	Total Outpatient Attendances - Accident & Emergency	180	Total Cost column (i.e. Not the Consultant lead or Non-consultant led cost)

Table 1: Unit costs - Secondary care
Source: National Schedule of Reference Costs - Year 2015-16 - NHS trusts and NHS foundation trusts (found at https://www.gov.uk/government/publications/nhs-reference-costs-2015-to-2016)

Item	Unit	£	Source Page	Comments
GP				
GP visit at their practice	Per 9.22 minutes appointment	£36	145	**PSSRU 2016** Including direct care staff costs (With qualification Costs)
GP home visit	11.4 minute Per appointment	£44.46	176 (2015) 145 (2016)	**PSSRU 2015** Time spent in the patient's home - 11.4 as the 2016 PSSRU didn't include it (*travel time has been allowed for in the estimation of the ratio of direct to indirect time spent on home visits*) **PSSRU 2016** Per minute contact £3.90 **Calculation** 11.4*3.90 = £44.46
Telephone triage with GP	7.1 minute per consultation	£14.40	176 (2015) 145 (2016)	**PSSRU 2015** Time 11.4 as the 2016 PSSRU didn't include it **PSSRU 2016** Per minute contact £3.90 **Calculation** 7.1*3.90 = £27.69
Out-of-hours consultation with GP	17.2 minutes	£67.08	176 (2015) 145 (2016)	**PSSRU 2015** Clinic time 17.2 as the 2016 PSSRU didn't include it **PSSRU 2016** Per minute contact £3.90 **Calculation** 17.2*3.90 = £67.08
Nurse				
Nurse (GP practice)	15 minutes per consultation	£10.80	175 (2015) 143 (2016)	**PSSRU 2015** Time - Advanced nurse 15 minutes as the 2016 PSSRU didn't include it **PSSRU 2016** £43 per hour costs including qualifications Cost per minute = 43/60 = £0.72 **Calculation** 15*0.72 = £10.80
Nurse home visit	25 minutes per consultation	£18	175 (2015) 145 (2016)	**PSSRU 2015** Time spent in the patient's home - Advanced nurse 25 minutes as the 2016 PSSRU didn't include it **PSSRU 2016** £43 per hour costs including qualifications Cost per minute = 43/60 = £0.72 **Calculation** 25*0.72 = £18
Telephone triage with nurse	6 minutes per consultation	£4.32	175 (2015) 145	**PSSRU 2015** Time - Advanced nurse 6 minutes as the 2016 PSSRU didn't include it

Item	Unit	£	Source Page	Comments
			(2016)	**PSSRU 2016** £43 per hour costs including qualifications Cost per minute = 43/60 = £0.72 **Calculation** 6*0.72 = £4.32
Out-of-hours consultation with nurse	15 minutes per consultation	£10.80	175 (2015) 143 (2016)	**PSSRU 2015** Time - Advanced nurse 15 minutes as the 2016 PSSRU didn't include it **PSSRU 2016** £43 per hour costs including qualifications Cost per minute = 43/60 = £0.72 **Calculation** 15*0.72 = £10.80
Other				
Telephone consultation with hospital doctor	NA	£14.40	NA	Apply same cost as GP telephone consult
Telephone consultation with other health professional (this was assumed to be a 111 call)	£8-12 from NHS evaluation £7.50-£8.50 from BBC report	£12	NA	Evaluation of NHS 111 pilot sites, Second interim report. Turner. J, Ginn. C, Knowles. E, O'Cathain. A, http://www.bbc.co.uk/news/health-22370621
Out-of-hours consultation with hospital doctor	NA	£105.09	NA	Apply same cost as Outpatient appointment Total Outpatient Attendances – Urology *(CODE: 101)*
Out-of-hours consultation with other health professional	NA	£105.09	NA	Apply same cost as Outpatient appointment - National Schedule of Reference Costs - Year 2015-16 Total Outpatient Attendances – Urology *(CODE: 101)*

Table 2: Unit costs - Primary care

Source:

- Unit Costs of Health and Social Care 2016 (found at: http://www.pssru.ac.uk/project-pages/unit-costs/2016/index.php)
- Unit Costs of Health and Social Care 2015 (found at: http://www.pssru.ac.uk/project-pages/unit-costs/2015/index.php)
- National Schedule of Reference Costs - Year 2015-16 - NHS trusts and NHS foundation trusts (found at https://www.gov.uk/government/publications/nhs-reference-costs-2015-to-2016)

NOTES:

- All costs are including qualification costs
- Out-of-hour costs with a GP was unavailable therefore an estimate was calculated using the length of clinic time (17.2 minutes) from the 2015 PSSRU and this time was multiplied by the cost per minute (£3.90) from the 2016 PSSRU
- Out-of-hour costs with a Nurse was unavailable therefore an estimate was calculated using the length of clinic time (15 minutes) from the 2015 PSSRU and this time was multiplied by the cost per minute (£0.72) from the 2016 PSSR

Antibiotic name	Hospital based	Oral	IV	Dose for UTI	Number per day	Unit cost per dose	Source
Penicillins-Standard-Benzyl penicillin	Yes	No	Yes	600 mg vial	4	£2.73	https://bnf.nice.org.uk/medicinal-forms/benzylpenicillin-sodium.html
Penicillins-Penicillinase-resistant-Flucloxacillin	No	Yes	No	250 mg capsule	4	5p	https://bnf.nice.org.uk/medicinal-forms/flucloxacillin.html
Penicillins-Penicillinase-resistant-Temocillin	Yes	No	Yes	1 g vial	2	£25.45	https://bnf.nice.org.uk/medicinal-forms/temocillin.html
Penicillins-Broad-spectrum-Amoxicillin	Yes	Yes	Yes	500 mg vial	3	55p	https://bnf.nice.org.uk/medicinal-forms/amoxicillin.html
Penicillins-Broad-spectrum-Co-amoxiclav	Yes	Yes	Yes	625 mg vial	2	£1.06	https://bnf.nice.org.uk/medicinal-forms/co-amoxiclav.html
Penicillins-Antipseudomonal-Piperacillin/tazobactam	Yes	No	Yes	4.5 g vial	3	£12.90	https://bnf.nice.org.uk/drug/piperacillin-with-tazobactam.html
Penicillins-Antipseudomonal-Ticarcillin/clavulanic acid	Yes	No	Yes	3.2 g vial	2	£5.33	https://bnf.nice.org.uk/medicinal-forms/ticarcillin-with-clavulanic-acid.html
Penicillins-Mecillinams-Mecillinam	Yes	Yes	No	200 mg tablet	3	54p	https://bnf.nice.org.uk/medicinal-forms/pivmecillinam-hydrochloride.html
Beta-lactams-Cephalosporins-Cefalexin	Yes	Yes	No	250 mg capsule	4	5p	https://bnf.nice.org.uk/drug/cefalexin.html
Beta-lactams-Cephalosporins-Cefradine	Yes	Yes	No	250 mg capsule	3	9p	https://bnf.nice.org.uk/medicinal-forms/cefradine.html
Beta-lactams-Cephalosporins-other oral (Cefaclor)	Yes	Yes	No	250 mg capsule	3	32p	https://bnf.nice.org.uk/medicinal-forms/cefaclor.html
Beta-lactams-Cephalosporins-Cefuroxime	Yes	No	Yes	750 mg vial	3	£2.50	https://bnf.nice.org.uk/medicinal-forms/cefuroxime.html

Antibiotic name	Hospital based	Oral	IV	Dose for UTI	Number per day	Unit cost per dose	Source
Beta-lactams-Carbapenems-Meropenem	Yes	No	Yes	500 mg vial	2	£8.07	https://bnf.nice.org.uk/medicinal-forms/meropenem.html
Tetracyclins--Doxycyclin	Yes	Yes	No	5*40mg modified-release capsule	1	5*57p= £2.85	https://bnf.nice.org.uk/medicinal-forms/doxycycline.html
Tetracyclins--Oxytetracyclin	No	Yes	No	250 mg tablet	4	4p	https://bnf.nice.org.uk/medicinal-forms/oxytetracycline.html
Tetracyclins--Other (Tetracyclin)	No	Yes	No	250 mg tablet	4	6p	https://bnf.nice.org.uk/medicinal-forms/tetracycline.html
Aminoglycosides--Gentamicin	Yes	No	Yes	240 mg /80 mL	1	£5.95	https://bnf.nice.org.uk/medicinal-forms/gentamicin.html
Macrolides--Erythromycin	No	Yes	No	250 mg capsule	4	20p	https://bnf.nice.org.uk/medicinal-forms/erythromycin.html
Macrolides--Clarithromycin	No	Yes	No	500 mg tablet	2	16p	https://bnf.nice.org.uk/medicinal-forms/clarithromycin.html
Miscellaneous--Vancomycin	Yes	No	Yes	500 mg vial	2	£6.25	https://bnf.nice.org.uk/medicinal-forms/vancomycin.html
Miscellaneous--Chloramphenicol	No	Yes	No	250 mg capsule	4	£6.28	https://bnf.nice.org.uk/medicinal-forms/chloramphenicol.html
Sulfonamides--Co-trimoxazole	Yes	Yes	No	80 mg/400 mg tablet	2	6p	https://bnf.nice.org.uk/medicinal-forms/co-trimoxazole.html
Sulfonamides--Trimethoprim	Yes	Yes	No	200 mg tablet	2	12p	https://bnf.nice.org.uk/medicinal-forms/trimethoprim.html
Metronidazole --Metronidazole	Yes	Yes	Yes	500 mg /100 mL	2	£3.10	https://bnf.nice.org.uk/medicinal-forms/metronidazole.html
Quinolones--Ciprofloxacin	Yes	Yes	Yes	500 mg tablet	2	9p	https://bnf.nice.org.uk/medicinal-forms/ciprofloxacin.html
Quinolones--Ofloxacin	Yes	Yes	No	200 mg tablet	1	66p	https://bnf.nice.org.uk/drug/ofloxacin.html
Quinolones--Norfloxacin	Yes	Yes	No	400 mg tablet	2	90p	https://bnf.nice.org.uk/medicinal-forms/norfloxacin.html

Antibiotic name	Hospital based	Oral	IV	Dose for UTI	Number per day	Unit cost per dose	Source
Urinary tract -- Nitrofurantoin	Yes	Yes	No	50 mg capsule	4	51p	https://bnf.nice.org.uk/drug/nitrofurantoin.html
Urinary tract -- Fosfomycin	Yes	Yes	No	3 g sachet	1	£4.86	https://bnf.nice.org.uk/medicinal-forms/fosfomycin.html

Table 3: A: Drug unit cost and dose

Name	Nitrofurantoin	Trimethoprim	Cefalexin
Daily dose	50 mg	100 mg	250 mg
Size	30 capsule	28 tables	28 capsule
NHS indicative price (£)	15.42	0.89	1.31
Unit cost (£)	0.51	0.03	0.05
Source	https://bnf.nice.org.uk/drug/nitrofurantoin.html	https://bnf.nice.org.uk/medicinal-forms/trimethoprim.html	https://bnf.nice.org.uk/drug/cefalexin.html

Table 3: B; unit costs of prophylactic antibiotics

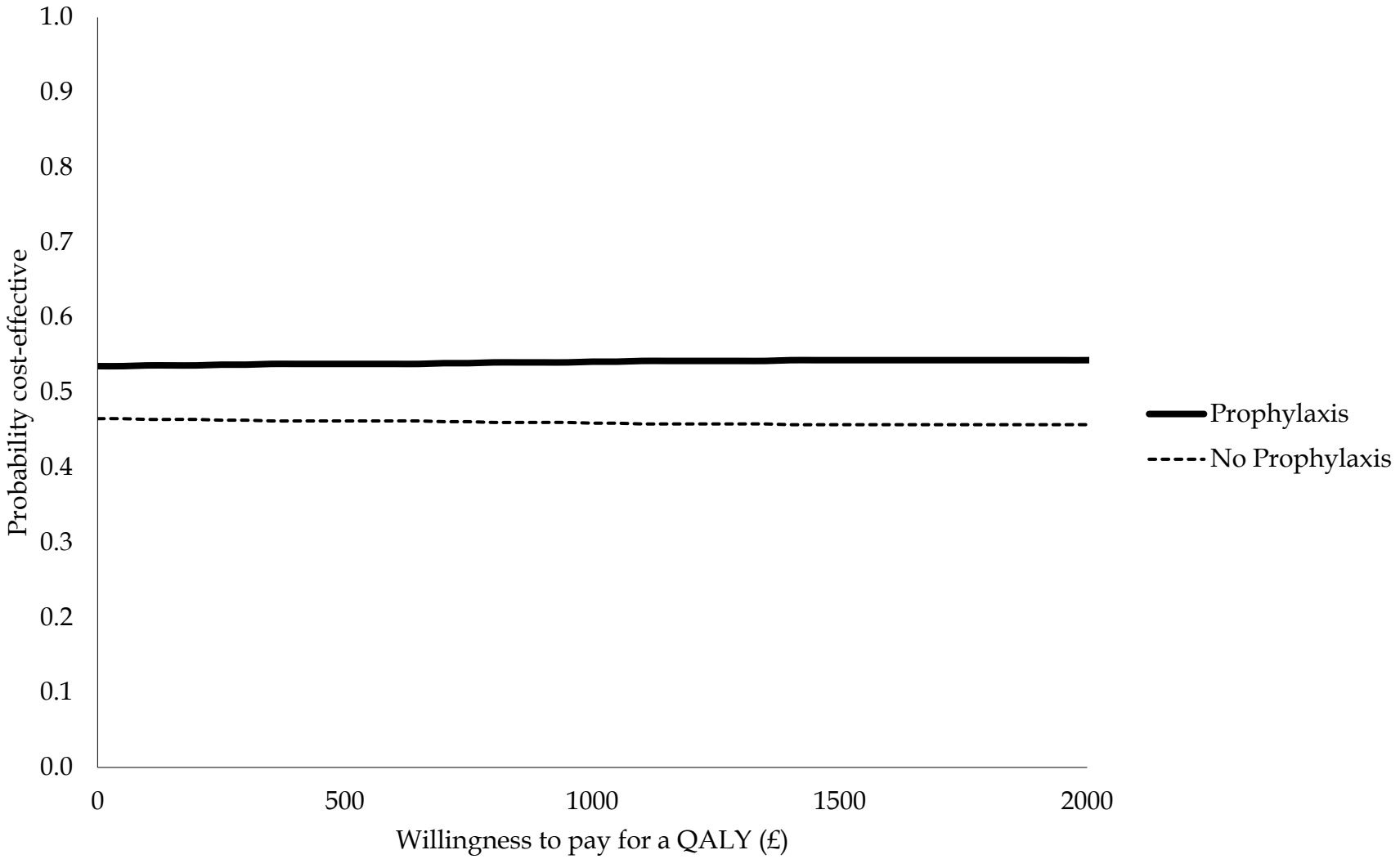

Figure 1: Cost-effectiveness acceptability curves for Prophylaxis vs. No Prophylaxis - <u>adjusted bootstrapped</u> replications for primary cost-utility analysis

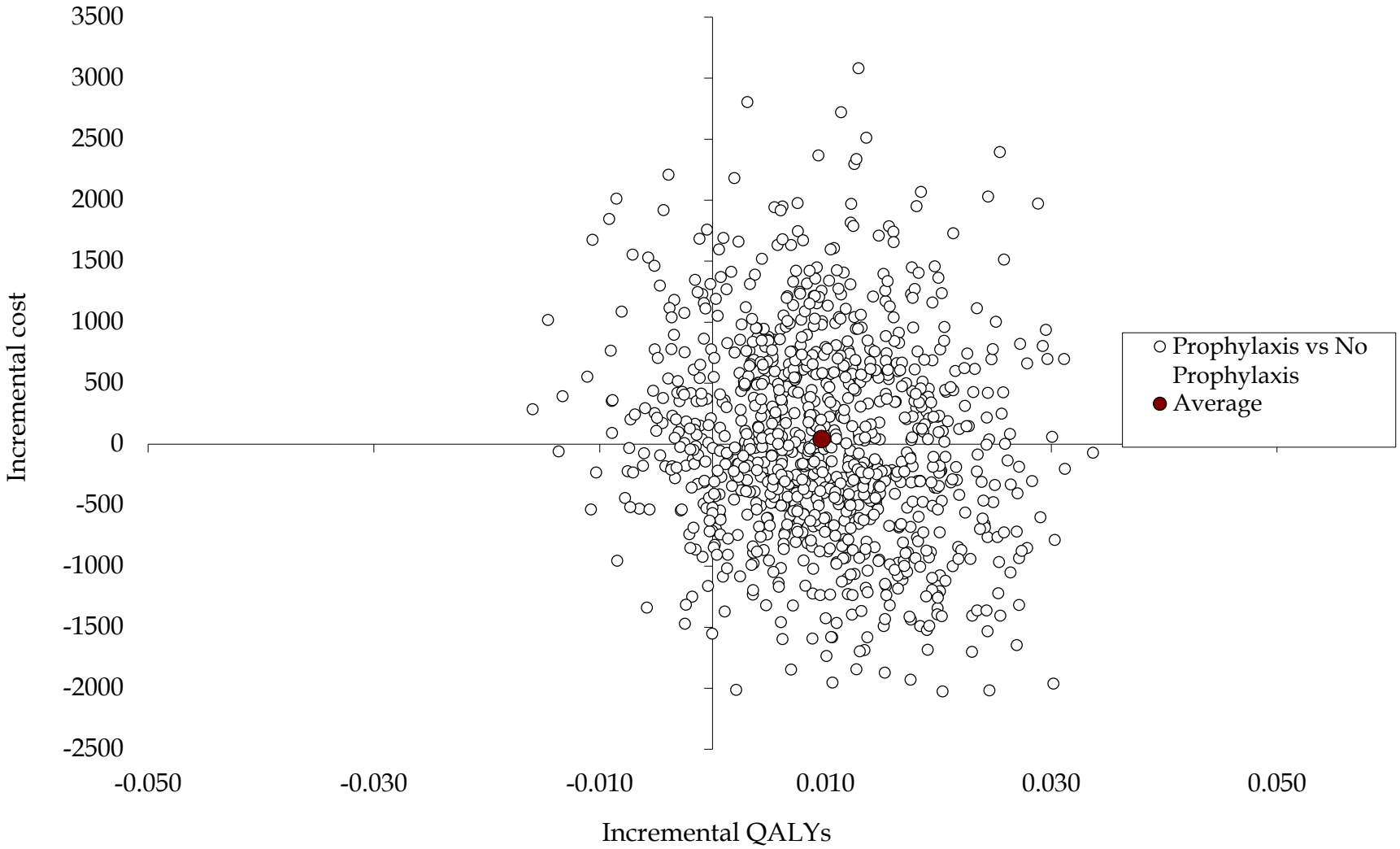

Figure 2: Cost-effectiveness plane for Prophylaxis vs. No Prophylaxis - <u>adjusted bootstrapped</u> replications for cost-utility analysis (including UTI_SF36 with multiple imputation)

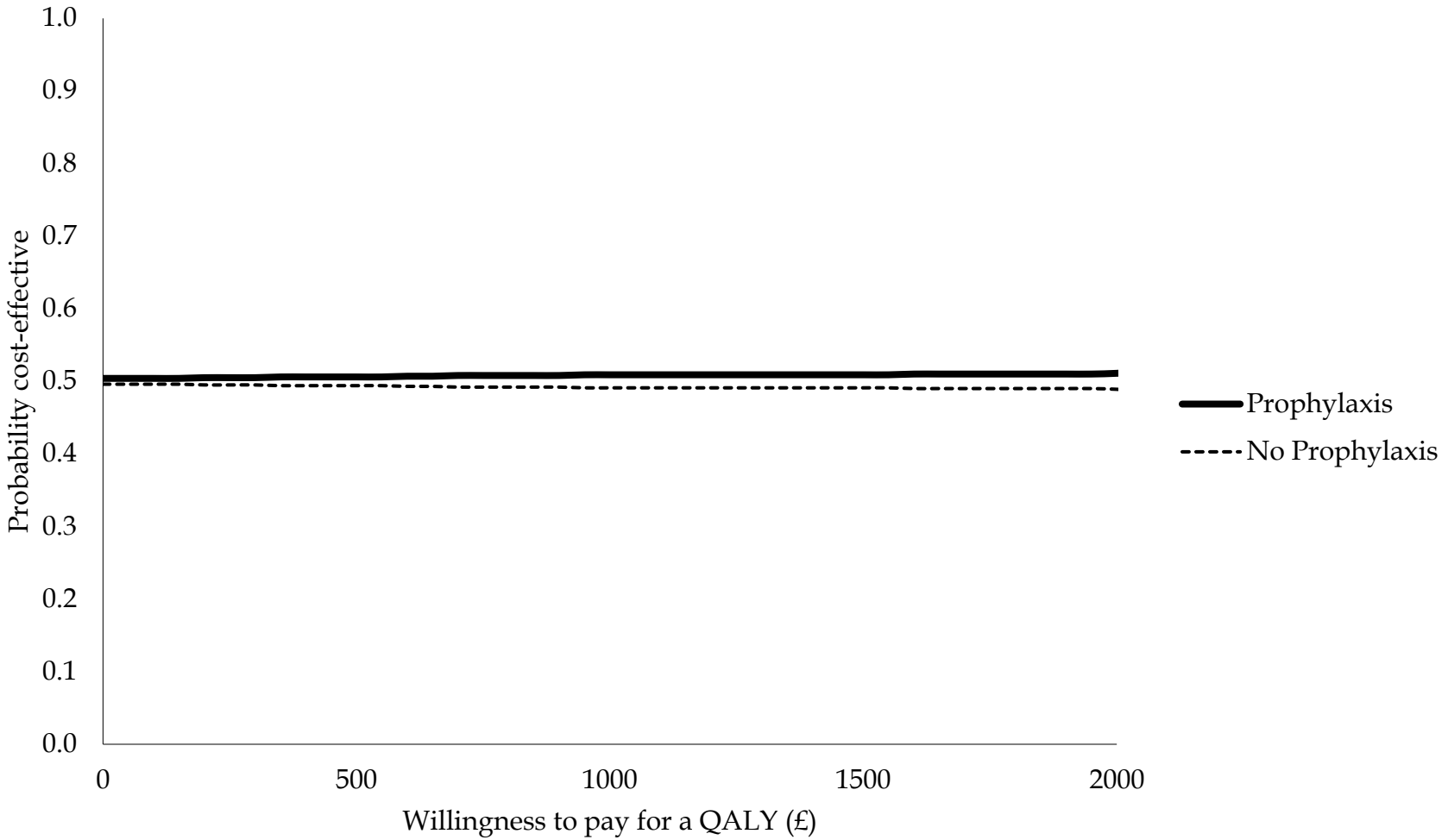

Figure 3: Cost-effectiveness acceptability curves for Prophylaxis vs. No Prophylaxis - <u>adjusted bootstrapped</u> replications for cost-utility analysis (including SF36 completed at time of UTI with multiple imputation)