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Table 1: Unit cost of resource utilisation in the economic evaluation

Resource		Source	Unit	Scenario analysis			
D (0 00 1	1 \		cost				
Drug (for a 28-day of	• /	1	Φ4.050	- ·	. •	1000/	
Lenvatinib ^a , 4 mg	Dose		\$4,050	Dose intensity: 100%			
capsule	intensity ^c : 88%	Calculated					
Sorafenib ^b , 200	Dose		\$4,643	Dose in	ntensity:	100%	
mg tablet	intensity ^c : 83%	Calculated					
Disease management		Source	Unit	% of patients Quantity			
			cost	using this		_	per patient
				resourced		per cy	cled
				PF	PD	PF	PD
				state	state	state	state
Clinician visits		·					
Oncologist	Per visit	MBS item	\$77.9	100%	100%	0.75	0.38
		116					
Hepatologist	Per visit	MBS item	\$77.9	100%	100%	0.17	0.5
		116					
Oncology nurse	Per visit	MBS	\$40.4	100%	100%	0.5	1
		item					
		82210	^ 0	1000/	00/	0.00	
Gastroenterologist	Per visit	MBS item	\$77.9	100%	0%	0.08	0
Radiologist	Per visit	MBS item	\$44.35	100%	0%	0.08	0
Clinical nurse	Per visit	MBS item	\$59.5	100%	100%	0.5	0.25
specialist		82215					
Palliative care	Per session	MBS item	\$164.3	100%	100%	0.13	0.75
physician/nurse		3055					
Laboratory tests							
AFP test	Per unit	MBS item 66650	\$24.4	75%	38%	0.83	1
Liver function test	Per unit	MBS item 66500	\$9.70	50%	25%	0.67	1
INR	Per unit	MBS item 65120	\$13.7	50%	0%	0.67	0
Complete blood	Per unit	MBS	\$16.95	75%	50%	1	1
count		item					
		65070					
Biochemistry	Per unit	MBS item	\$17.7	50%	25%	1	1
Ž		66512					
Endoscopy	Per unit	MBS item	\$1,249	25%	0%	0.33	0
		11820		<u> </u>			
CT scan	Per unit	MBS item	\$466.5	73%	73%	0.33	0.39
(abdominal)		56801					
MRI scan	Per unit	MBS item	\$403	27%	27%	0.33	0.5
(abdominal)		63482					

Hospitalisation							
Hospitalisatione	Per episode	ARDRG	\$7427	46%	48%	0.16	0.4
_	_	H61A-B					
Post-hospital follow	v-up						
Specialist	Per visit	MBS item	\$77.9	100%	100%	0.25	3
		116					
GP	Per visit	MBS item	\$38.2	100%	100%	1.5	1.5
		23					
Nurse	Per visit	MBS item	\$21.3	100%	100%	1.75	2
		82205					
Sub-total Sub-total							
PF health state	Per cycle	-	\$1,074	-	-	-	-
PD health state	Per cycle	-	\$2,126	-	-	-	-

AFP Alpha-fetoprotein, ARGDRG Australian Refined Diagnosis Related Groups, CT Computed tomography, GP general physician, IHPA Independent Hospital Pricing Authority, INR international normalized ratio, MBS Medicare Benefits Schedule, mg milligram, MRI magnetic resonance imaging, PF progression-free, PD progressed disease aRecommended dose of 12 mg/day (for bodyweight ≥60 kg) or 8 mg/day (for bodyweight <60 kg).

Table 2: Results of the modelled economic evaluation

Outcome	Lenvatinib	Sorafenib	Difference
Total costs	\$96,325	\$92,394	\$3,931
Drug acquisition costs	\$37,144	\$33,458	\$3,686
PF health state costs	\$11,630	\$7,685	\$3,946
PD heath state costs	\$20,488	\$24,901	-\$4,413
Terminal care and AEs costs	\$27,061	\$26,350	\$712
Total LYs	1.705	1.572	0.133
Total QALYs	1.205	1.086	0.119
ICUR (\$/QALYs)	-	-	\$33,028

AE adverse events, ICUR incremental cost-utility ratio, LYs life years, PD progressed-disease, PF progression-free, QALYs quality-adjusted life years

Table 3: Scenario analysis

Scenario	Incremental Cost	Incremental QALYs	ICUR
Base case	\$3,931	0.119	\$33,028
Sorafenib price discount: 25%	\$12,295	0.119	\$103,309
Sorafenib price discount: 30%	\$13,968	0.119	\$117,366
Dose intensity (100%)	\$2,143	0.119	\$18,007
BW >60 kg (80% patients)	\$5,594	0.119	\$47,002
PFS distribution: exponential	\$4,898	0.114	\$43,006
PFS distribution: weibull	\$5,384	0.111	\$48,368
PFS distribution: gompertz ^a	\$5,230	0.112	\$46,641
PFS distribution: loglogistic	\$3,354	0.122	\$27,478

^bRecommended dose 400 mg twice-daily.

^cDose intensity based on the RELFECT trial accounting for dose reduction/interruptions.

^dPhysician survey in the Manufacture Lenvatinib submission for NICE UK [7].

^eNational Hospital Cost Data Collection, Public Hospitals Cost Report, Available at https://www.ihpa.gov.au/what-we-do/nhcdc

Scenario	Incremental Cost	Incremental QALYs	ICUR
PFS distribution: lognormal	\$4,185	0.118	\$35,564
OS distribution: exponential	\$3,996	0.125	\$31,924
OS distribution: weibull	\$3,441	0.109	\$31,560
OS distribution: gompertz	\$3,114	0.099	\$31,587
OS distribution: loglogistic	\$4,150	0.132	\$31,414
OS distribution: lognormal	\$4,120	0.132	\$31,258
OS equivalent in both drugs ^b	\$502	0.029	\$17,672
Exclude End-of-Life cost	\$3,906	0.119	\$32,818

BW body weight; PFS Progression-free survival, OS overall survival, ICUR incremental costutility ratio, kg kilograms; QALY quality-adjusted life years

^aIn this scenario, the PFS curves for lenvatinib and sorafenib were assumed same when they cross each other.

^bAssume same OS for both lenvatinib OS and sorafenib.