Regorafenib for previously treated unresectable hepatocellular carcinoma: A Single Technology Appraisal

Addendum: ERG exploratory analyses based on 2016 and 2017 data cut-offs

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This addendum presents the ERG's exploratory analyses using the original RESORCE data cut-off (29th February 2016 cut-off, Table 1) and using the later data-cut off (23rd January 2017, see

Table *2*). Additional sensitivity analyses using the later 23rd January 2017 data cut-off are presented in Table 3. As shown in the results, the use of the newer data cut-off reduces the ICER for regorafenib versus BSC.

Table 1: ERG exploratory analyses using 29th February 2016 data-cut-off

Option	QALYs	Costs	Inc. QALYs	Inc. costs	ICER (per QALY gained)
Exploratory analysis 1: Correction of unequivocal model errors and use of alternative unit costs					
Regorafenib	1.048	■■■	0.368	£12,659	**£34,406**
BSC	0.680		-	-	-
*Exploratory analysis 2: Inclusion of more appropriate general ward bed day cost**					
Regorafenib	1.048	■■■	0.368	£12,647	**£34,376**
BSC	0.680		-	-	-
*Exploratory analysis 3: Use of full pack dosing**					
Regorafenib	1.048	■■■	0.368	£15,508	**£42,151**
BSC	0.680		-	-	-
*Exploratory analysis 4: Removal of half-cycle correction for drug acquisition costs**					
Regorafenib	1.048	■■■	0.368	£13,332	**£36,235**
BSC	0.680		-	-	-
*Exploratory analysis 5: Use of combined 2007 and 2015 survey costs**					
Regorafenib	1.048	■■■	0.368	£20,297	**£55,166**
BSC	0.680		-	-	-
*Exploratory analysis 6: Use of independent Weibull functions to model OS**					
Regorafenib	0.896	■■■	0.265	£10,242	**£38,683**
BSC	0.632		-	-	-
*Exploratory analysis 7: Use of a fully extrapolated log logistic time to discontinuation curve (patients on treatment at 29th February 2016 censored, with full pack dosing)**					
Regorafenib	1.048	■■■	0.368	£21,751	**£59,120**
BSC	0.680		-	-	-
*Exploratory analysis 8: ERG's preferred base case (including all individual amendments)**					
Regorafenib	0.896	■■■	0.265	£21,468	**£81,081**
BSC	0.632		-	-	-

Table 2: ERG exploratory analyses using 23rd January 2017 data-cut-off

Option	QALYs	Costs	Inc. QALYs	Inc. costs	ICER (per QALY gained)
Exploratory analysis 1: Correction of unequivocal model errors and use of alternative unit costs					
Regorafenib	1.072	■	0.405	£13,637	**£33,703**
BSC	0.668	■	-	-	-
*Exploratory analysis 2: Inclusion of more appropriate general ward bed day cost**					
Regorafenib	1.072	■	0.405	£13,536	**£33,456**
BSC	0.668	■	-	-	-
*Exploratory analysis 3: Use of full pack dosing**					
Regorafenib	1.072	■	0.405	£16,594	**£41,012**
BSC	0.668	■	-	-	-
*Exploratory analysis 4: Removal of half-cycle correction for drug acquisition costs**					
Regorafenib	1.072	■	0.405	£14,309	**£35,365**
BSC	0.668	■	-	-	-
*Exploratory analysis 5: Use of combined 2007 and 2015 survey costs**					
Regorafenib	1.072	■	0.405	£22,099	**£54,619**
BSC	0.668	■	-	-	-
*Exploratory analysis 6: Use of independent Weibull functions to model OS**					
Regorafenib	0.967	■	0.319	£11,553	**£36,241**
BSC	0.648	■	-	-	-
*Exploratory analysis 7: Use of a fully extrapolated log logistic time to discontinuation curve (patients on treatment at 29th February 2016 censored, with full pack dosing)**					
Regorafenib	1.072	■	0.405	£22,305	**£55,128**
BSC	0.668	■	-	-	-
*Exploratory analysis 8: ERG's preferred base case (including all individual amendments)**					
Regorafenib	0.967	■	0.319	£23,768	**£74,559**
BSC	0.648	■	-	-	-

Table 3: New sensitivity analyses using 23rd January 2017 data-cut-off

Scenario	Inc. QALYs	Inc. costs	ICER (regorafenib versus BSC)
ERG base case	0.319	£23,768	£74,559
Alternative OS functions			
OS - exponential	0.348	£23,836	£68,462
OS – log normal	0.410	£28,851	£70,409
OS – log logistic	0.412	£28,987	£70,424
OS – Gompertz	0.343	£23,296	£67,835
OS – generalised gamma	0.408	£28,764	£70,551
Alternative time to treatment discontinuation functions			
TTTD - exponential	0.319	£21,461	£67,320
TTTD – Weibull	0.319	£22,832	£71,622
TTTD – log normal	0.319	£23,977	£75,214
TTTD – Gompertz	0.319	£24,192	£75,888
Alternative utility values			
Utilities from SHARP trial	0.281	£23,768	£84,597
Disutility due to progression doubled (state utility=0.715)	0.311	£23,768	£76,441
Disutility due to progression tripled (state utility=0.667)	0.303	£23,768	£78,422
Alternative interpretation of company's resource use survey			
Number of hospitalisations per month estimated per month assumed to apply to the entire population.	0.319	£24,481	£76,793
Inclusion of dose reductions			
Indefinite dose reduction to 120mg/day	■■■	■■■	■■■