

## **Pembrolizumab for previously treated advanced or metastatic urothelial cancer [ID1019] – Addendum 1**

**Produced by:** Warwick Evidence

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### **Declared competing interests of the authors**

Dr Maria De Santis received consultancy fees within the last 5 years from MSD, Merck, Pfizer, Roche, AstraZeneca, Pierre Fabre, Sanofi, BMS, Amgen, Astellas, Bayer, Celgene, Eisai, ESSA,

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### **Rider on responsibility for report**

The views expressed in this report are those of the authors and not necessarily those of the NIHR HTA Programme. Any errors are the responsibility of the authors.

### **This report should be referenced as follows**

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### **Contributions of authors**

Xavier Armoiry (Senior Research Fellow) helped co-ordinate the project and the report, and conducted, reviewed and critiqued the clinical effectiveness evidence; Theodoros Mantopoulos (Research Associate) conducted, reviewed and critiqued the cost-effectiveness evidence and undertook additional analyses; Daniel Gallacher (Research Associate) conducted, reviewed and critiqued the survival analysis and cost-effectiveness evidence; Peter Auguste (Research Fellow) conducted, reviewed and critiqued the survival analysis and undertook additional analyses; Jacoby Patterson (Independent Research Consultant) conducted, reviewed and critiqued the clinical effectiveness evidence; Rachel Court (Information Specialist) critiqued the company searches and undertook additional analyses; Karoline Munro (Research Project Administrator) conducted, reviewed and critiqued the background section; Maria De Santis (Associate Clinical Professor) provided expert clinical advice; Joanne Cresswell (Consultant Urological Surgeon) provided expert clinical advice; Hema Mistry (Assistant Professor) co-ordinated the project and

the report, and reviewed and critiqued the cost-effectiveness evidence and undertook additional analyses.

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**Please note that:** Sections highlighted in yellow and underlined are 'academic in confidence' (AIC). Sections highlighted in aqua and underlined are 'commercial in confidence' (CIC). Figures that are CIC have been bordered with blue.

In Tables 1 and 2 we include the overall survival estimates based on the fully-fitted parametric curves for UK SOC and pembrolizumab, respectively.

**Table 1: UK SOC overall survival estimates by parametric distribution**

Overall survival	Exponential	Weibull	Log-normal	Log-logistic	Gompertz	Generalised gamma
Using 0-week cut-off (fully-fitted parametric curves)						
5-year	0.003	0.000	0.019	0.024	0.000	0.01

**Table 2: Pembrolizumab overall survival estimates by parametric distribution**

Overall survival	Exponential	Weibull	Log-normal	Log-logistic	Gompertz	Generalised gamma
Using 0-week cut-off (fully-fitted parametric curves)						
5-year	0.02	0.033	0.119	0.116	0.183	0.146

In tables 3 to 5, we have presented results, based on analyses undertaken at a 2-year, 10-year and 35 year time horizon, using the 0-week cut-off (fully-fitted curves to the overall survival Kaplan-Meier data) for each parametric curve.

**Table 3: Using the ERG's preferred base-case, with results based on a 2-year time-horizon**

<b>Technologies</b>	<b>Total costs (£)</b>	<b>Total LYG</b>	<b>Total QALYs</b>	<b>Incremental costs (£)</b>	<b>Incremental LYGs</b>	<b>Incremental QALYs</b>	<b>ICER (£) versus baseline (QALYs)</b>
<b>Exponential</b>							
UK SOC	£14,641	0.80	0.55	-	-	-	-
Pembrolizumab	£46,845	1.01	0.70	£32,203	0.21	0.15	£209,945
<b>Weibull</b>							
UK SOC	£14,871	0.77	0.53	-	-	-	-
Pembrolizumab	£46,707	1.02	0.70	£31,835	0.24	0.17	£184,485
<b>Gompertz</b>							
UK SOC	£14,788	0.78	0.54	-	-	-	-
Pembrolizumab	£46,349	1.03	0.71	£31,560	0.25	0.18	£179,062
<b>Log-logistic</b>							
UK SOC	£14,587	0.79	0.54	-	-	-	-
Pembrolizumab	£46,433	1.02	0.71	£31,846	0.23	0.16	£193,465
<b>Log-normal</b>							
UK SOC	£14,642	0.81	0.56	-	-	-	-
Pembrolizumab	£46,391	1.03	0.71	£31,748	0.22	0.16	£204,404
<b>Generalised gamma</b>							
UK SOC	£14,690	0.80	0.55	-	-	-	-
Pembrolizumab	£46,310	1.03	0.71	£31,620	0.23	0.16	£190,486

**Table 4: Using the ERG's preferred base-case, with results at a 10-year time horizon**

<b>Technologies</b>	<b>Total costs (£)</b>	<b>Total LYG</b>	<b>Total QALYs</b>	<b>Incremental costs (£)</b>	<b>Incremental LYGs</b>	<b>Incremental QALYs</b>	<b>ICER (£) versus baseline (QALYs)</b>
<b>Exponential</b>							
UK SOC	£15,932	0.88	0.60	-	-	-	-
Pembrolizumab	£50,069	1.26	0.86	£34,137	0.37	0.26	£131,104
<b>Weibull</b>							
UK SOC	£15,382	0.80	0.55	-	-	-	-
Pembrolizumab	£50,575	1.33	0.91	£35,193	0.54	0.36	£96,576
<b>Gompertz</b>							
UK SOC	£15,456	0.81	0.56	-	-	-	-
Pembrolizumab	£56,331	2.30	1.51	£40,875	1.48	0.95	£42,924
<b>Log-logistic</b>							

<b>Technologies</b>	<b>Total costs (£)</b>	<b>Total LYG</b>	<b>Total QALYs</b>	<b>Incremental costs (£)</b>	<b>Incremental LYGs</b>	<b>Incremental QALYs</b>	<b>ICER (£) versus baseline (QALYs)</b>
UK SOC	£16,577	0.98	0.66	-	-	-	-
Pembrolizumab	£53,561	1.81	1.21	£36,985	0.83	0.55	£67,401
<b>Log-normal</b>							
UK SOC	£16,594	0.98	0.66	-	-	-	-
Pembrolizumab	£53,711	1.83	1.22	£37,117	0.85	0.56	£66,343
<b>Generalised gamma</b>							
UK SOC	£16,147	0.91	0.62	-	-	-	-
Pembrolizumab	£54,775	2.01	1.33	£38,629	1.10	0.71	£54,285

**Table 5: Using the ERG's preferred base-case, with results at a 35-year time horizon**

<b>Technologies</b>	<b>Total costs (£)</b>	<b>Total LYG</b>	<b>Total QALYs</b>	<b>Incremental costs (£)</b>	<b>Incremental LYGs</b>	<b>Incremental QALYs</b>	<b>ICER (£) versus baseline (QALYs)</b>
<b>Exponential</b>							
UK SOC	£15,932	0.88	0.60	-	-	-	-
Pembrolizumab	£50,074	1.26	0.86	£34,142	0.37	0.26	£131,018
<b>Weibull</b>							
UK SOC	£15,382	0.80	0.55	-	-	-	-
Pembrolizumab	£50,595	1.33	0.91	£35,213	0.54	0.37	£96,353
<b>Gompertz</b>							
UK SOC	£15,456	0.81	0.56	-	-	-	-
Pembrolizumab	£64,669	3.39	2.13	£49,213	2.58	1.57	£31,360
<b>Log-logistic</b>							
UK SOC	£16,829	1.01	0.68	-	-	-	-
Pembrolizumab	£55,971	2.12	1.38	£39,142	1.11	0.70	£55,486
<b>Log-normal</b>							
UK SOC	£16,661	0.99	0.67	-	-	-	-
Pembrolizumab	£55,617	2.07	1.36	£38,956	1.08	0.69	£56,366
<b>Generalised gamma</b>							
UK SOC	£16,159	0.91	0.62	-	-	-	-
Pembrolizumab	£58,062	2.43	1.57	£41,903	1.52	0.95	£44,147