

**Table 2** PRT Covid-19 Summary: palliative non-emergencies

Palliative (Non-Emergencies)									
Reference	Main Prescriptive Indication	Alternative	Additional Statement (if any)					% Consensus Vote*	
								A = Agreement (1 + 2)	
								D = Disagreement (3 + 4)	
								SA = Strong Agreement (1)	
								SD = Strong Disagreement (4)	
<b>P1 Painful bone metastasis</b>									
QP1a	Thureau [8]	8 Gy/1fx8Gy	6-10 Gy/1 fx6-10 Gy	<ul style="list-style-type: none"> <li>Adapt the medical treatment as much as possible and avoid palliative RT in pt controlled by level 1 to 3 oral analgesics</li> <li>Palliative RT remains an important option for patients experiencing significant pain, diminished QoL and reduced autonomy by bone metastases, especially if it enables a reduction in the need for daily nursing care</li> <li>The simplest conformal RT techniques should be used</li> <li>Other than 8 Gy should be avoided</li> <li>Evaluate Omission</li> <li>If RT is for symptom relief then it is best to ensure that all other options have been fully explored e.g. maximizing analgesia or bisphosphonates in the case of bone pain</li> </ul>	A = 70% [SA = 40%]	D = 30% [SD = 0%]			
QP1b	Simcock [14]	8 Gy/1fx8Gy	-	<ul style="list-style-type: none"> <li>Other than 8 Gy should be avoided</li> <li>Evaluate Omission</li> </ul>	A = 40% [SA = 10%]	D = 60% [SD = 20%]			
QP1c	Combs [15]	<ul style="list-style-type: none"> <li>8 Gy/1fx8Gy</li> <li>20 Gy/ 5 fx4Gy</li> <li>21 Gy/ 3 fx7Gy</li> </ul>	-	-	A = 60% [SA = 30%]	D = 40% [SD = 0%]			
QP1d	Yerramilli [9]	8 Gy/1fx8Gy	-	<ul style="list-style-type: none"> <li>If pts have life expectancy of days to weeks: refer to Best supportive Care</li> <li>If pts have life expectancy of longer than weeks, but not emergency: delay RT</li> <li>pt with less urgent symptoms (able to wait planning) single-fraction SBRT may be considered</li> <li>Advanced breast cancer (ABC); RT is urgent if pts not responding to pharmaceutical interventions</li> </ul>	A = 50% [SA = 10%]	D = 50% [SD = 20%]			
QP1e	Curigliano [16]	-	-	-	A = 80% [SA = 20%]	D = 20% [SD = 10%]			
<b>P3 Bone Oligometastases Suitable for SBRT</b>									
QP3a	Thureau [8]	-	Single fraction (16 to 24 Gy) SBRT for Retreatment of Symptomatic MESSC	<ul style="list-style-type: none"> <li>Evidence for using SBRT in oligometastatic is too low to be considered in the current situation</li> <li>It is often possible to postpone this treatment for a few weeks, especially for hormone sensitive tumors</li> </ul>	A = 90% [SA = 30%]	D = 10% [SD = 0%]			
QP3b	Simcock [14]	-	-	<ul style="list-style-type: none"> <li>Omit RT</li> </ul>	A = 20% [SA = 0%]	D = 80% [SD = 80%]			
QP3c	Combs [15]	SBRT 1-5 fx (not further specified)	-	-	A = 80% [SA = 10%]	D = 20% [SD = 10%]			
<b>P4 Retreatment of painful bone metastasis</b>									
QP4a	Thureau [8]	8 Gy/1fx8Gy	-	<ul style="list-style-type: none"> <li>Waiting a minimum of 6 weeks after completion of the initial RT</li> <li>The simplest conformal RT techniques should be used</li> </ul>	A = 90% [SA = 50%]	D = 10% [SD = 0%]			
<b>P5 Adjuvant (post-surgery) bone metastasis radiotherapy</b>									
QP5a	Thureau [8]	30 Gy/10 fx3Gy	20 Gy/4 or 5fx 5 or 4 Gy	<ul style="list-style-type: none"> <li>RT may be postponed or performed secondarily in case of progressive post-operative signs</li> </ul>	A = 80% [SA = 50%]	D = 20% [SD = 0%]			
QP5b	Simcock [14]	-	20 Gy/4or5fx 5or4Gy	<ul style="list-style-type: none"> <li>Omit RT</li> </ul>	A = 40% [SA = 0%]	D = 60% [SD = 20%]			

**Table 2** (continued)

Reference	Main Prescriptive Indication	Alternative	Additional Statement (if any)	% Consensus Vote*
				A = Agreement (1 + 2) D = Disagreement (3 + 4) SA = Strong Agreement (1) SD = Strong Disagreement (4)
<b>P6 Pain NOT associated to Bone Mets</b> (e.g.: direct infiltration, primary pancreatic; H&N; Lymph-node infiltrating surrounding structures, etc.)				
QP6a Thomson [6]	<b>H&amp;N:</b> If restricted RT department resources single fraction could be used: 8 Gy/1fx8Gy	<b>H&amp;N:</b> If restricted RT department resources: 20 Gy/5fx4Gy	<ul style="list-style-type: none"> <li>• Symptomatic benefit and chance of cure are two of the top three factors determining which patients should start RT within 1–3 wks</li> <li>• Do not postpone RT initiation of HNSCC radiotherapy by more than 4–6 wks</li> <li>• If Covid+pt delay RT until clinical recover</li> <li>• Use a more hypofractionated schedule if restricted RT department resources</li> </ul>	A = 70% [SA = 30%] D = 30% [SD = 0%]
QP6b Combs [15]	<b>H&amp;N:</b> 14 Gy/4fx 3.5 Gy BID (repeated Q 4 weeks interval X2 times) [QUAD SHOT- RTOG 8502 [26, 27]]	–	–	A = 60% [SA = 20%] D = 40% [SD = 10%]
QP6c Hahn et al. [63]	<b>H&amp;N + Gyn + Melanoma:</b> <ul style="list-style-type: none"> <li>• 8 Gy/1fx8Gy</li> <li>• 18–24/3fx6-8 Gy Q 0-7 (21 if needed) [25, 29, 36]</li> </ul>	–	–	A = 80% [SA = 40%] D = 20% [SD = 0%]
QP6d Tchelebi [7]	<ul style="list-style-type: none"> <li>• Pain by <b>primary Esophageal + HCC:</b> 6–8/1fx6-8 Gy</li> <li>• Pain by <b>primary Pancreas:</b> 8–10/1fx8-10 Gy</li> </ul>	–	–	A = 80% [SA = 20%] D = 20% [SD = 0%]
QP6e Rathod [18]	<b>SCLC/NSCLC:</b> <ul style="list-style-type: none"> <li>• 8–10 Gy/1fx8-10 Gy [IAEA [37]]</li> <li>• 16 Gy/2fx 8 Gy (1 week apart) [IAEA [37]]</li> </ul>	–	–	A = 90% [SA = 20%] D = 10% [SD = 0%]
<b>P7 Other than Pain symptoms NOT associated to Bone Mets</b> (e.g.: obstruction, etc.)				
QP7a Thomson [6]	<b>(H&amp;N)</b> If restricted RT department resources single fraction could be used: 8 Gy/1fx8Gy	<b>(H&amp;N)</b> If restricted RT department resources: 20 Gy/5fx4Gy	<ul style="list-style-type: none"> <li>• Do not postpone RT initiation of HNSCC RT by more than 4–6 wks</li> <li>• If Covid+pt: delay RT until clinical recover</li> <li>• Use a more hypofractionated schedule if restricted RT department resources</li> </ul>	A = 60% [SA = 30%] D = 40% [SD = 0%]

Table 2 (continued)

Reference	Main Prescriptive Indication	Alternative	Additional Statement (if any)	% Consensus Vote*
				A = Agreement (1 + 2) D = Disagreement (3 + 4) SA = Strong Agreement (1) SD = Strong Disagreement (4)
QP7b	Combs [15] <b>H&amp;N:</b> 14 Gy/4fx 3.5 Gy BID (repeated Q4 weeks interval × 2 times) [QUAD SHOT- RTOG 8502 [26, 27]]	-	-	A = 70% [SA = 20%] D = 30% [SD = 0%]
QP7c	Simcock [14] <b>H&amp;N:</b> • 36 Gy/5fx6Gy (2 fx/week) • 30 Gy/6fx6Gy (2 fx/week) [HYPO trial [38]]	<b>H&amp;N:</b> 18or24Gy/3fx6or8 (1 fx/week) Prefer 3D or IMRT	-	A = 70% [SA = 10%] D = 30% [SD = 0%]
QP7d	Hahn et al. [63] <b>H&amp;N + Gyn + Melanoma:</b> • 8 Gy/1fx8Gy • 18–24 Gy/3fx6–8 Gy Q 0–7 (21 if needed)	-	-	A = 60% [SA = 40%] D = 40% [SD = 0%]
QP7e	Simcock [14] <b>Esophageal dysphagia:</b> • 12 Gy/4fx3GyBID [SHARON project [23]] • 18 Gy/3fx6 (1 fx/week)	<b>Esophageal dysphagia:</b> 15 Gy/3fx5Gy [SHARON project] § Note: the schedule reported in the paper do not corresponds to Sharon Project schedule	-	A = 60% [SA = 0%] D = 40% [SD = 0%]
QP7f	Tchelebi [7] <b>Esophageal Dysphagia:</b> 20 Gy/5fx4Gy	-	• RT is preferred over either an esophageal stent or percutaneous endoscopic gastrostomy (PEG) tube placement in order to avoid consumption of limited operative supplies and aerosolization of the virus secondary to intubation	A = 90% [SA = 50%] D = 10% [SD = 0%]
QP7g	Tchelebi [7] <b>Pancreas Symptomatic (non-pain):</b> 8–10 Gy/1fx8–10 Gy <b>SCLC/NSCLC:</b> • 8–10 Gy/1fx 8–10 Gy • 16 Gy/2 fx 8 Gy (1 week apart) [IAEA [37]]	-	-	A = 70% [SA = 20%] D = 30% [SD = 0%]
QP7h	Rathod [18]	-	-	A = 70% [SA = 30%] D = 30% [SD = 0%]

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Reference	Main Prescriptive Indication	Alternative	Additional Statement (if any)	% Consensus Vote*
				A = Agreement (1 + 2) D = Disagreement (3 + 4) SA = Strong Agreement (1) SD = Strong Disagreement (4)
QP7i	Gueckemberger [5] NSCLC Early Phase (Risk Mitigation): 1.17 Gy/2 fx 8.5 Gy § 2.8–10 Gy/1fx 8–10 Gy 3.20 Gy/5fx 4 Gy	–	<ul style="list-style-type: none"> <li>• NSCLC Early Phase (Risk Mitigation): do not postpone RT of 4–6 weeks</li> <li>• Postpone or interrupt RT if pts is or became Covid +</li> <li>• Order for “NSCLC Early Phase” follows the highest consensus reported in the paper</li> </ul>	A = 70% [SA = 20%] D = 30% [SD = 0%]
QP7j	Wu [13] NSCLC Later Phase (Lack of RT Resources): • 8–10 Gy/1fx 8–10 Gy	–	<ul style="list-style-type: none"> <li>• Lung tumors: palliative lung radiation should be deferred</li> </ul>	A = 20% [SA = 0%] D = 80% [SD = 20%]
<b>P8 Symptomatic Haematological Malignancies (non-emergencies)</b>				
QP8a	Yahalom 4 <ul style="list-style-type: none"> <li>• <b>Symptomatic aggressive NHL</b> (no chemo options) Life expectancy &gt; 3 months: 25 Gy/5fx5Gy</li> <li>• <b>Symptomatic aggressive NHL</b> (no chemo options) Life expectancy &lt; 3 months: 8 Gy/1fx8Gy</li> </ul>	–	<ul style="list-style-type: none"> <li>• Consider omitting RT when the risk of severe outcomes from COVID-19 infection (aged ≥ 60 years and/or presence of serious underlying health conditions) outweigh the benefit of RT; where alternatives can be offered e.g. optimizing pain control</li> </ul>	A = 100% [SA = 40%] D = 0% [SD = 0%]
<b>P8 Symptomatic multiple myeloma (No cord compression): 8 Gy/1fx8Gy</b>				
<b>Symptomatic multiple myeloma (Cord compression): 20 Gy/5fx4Gy</b>				
<b>Symptomatic indolent lymphoma (No cord compression): 4 Gy/1fx4Gy</b>				
<b>Symptomatic indolent lymphoma (Cord compression): 20 Gy/5fx4Gy</b>				

**Table 2** (continued)

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Palliative (Non-Emergencies)				
				A = Agreement (1 + 2) D = Disagreement (3 + 4) SA = Strong Agreement (1) SD = Strong Disagreement (4)
QP8b	<ul style="list-style-type: none"> <li>• <b>Myeloid sarcoma/leukemia</b>—Cranial leptomeningeal disease: 8 Gy/2fx4Gy</li> <li>• <b>Myeloid sarcoma/leukemia</b>—Focal leptomeningeal spine disease, and symptomatic chloroma outside the CNS: 12 Gy/3fx4Gy</li> </ul> <b>Palliative Lymphoma, low grade:</b> 4 Gy/1 fx4Gy	—	—	A = 90% [SA = 40%] D = 10% [SD = 0%]
<b>P9 Other Oligometastases Suitable for SBRT (Lung)</b>				
QP9a	Combs [15]	—	SBRT 1–5 fx (not further specified)	A = 50% [SA = 20%] D = 50% [SD = 0%]
<b>P10 Other Oligometastases Suitable for SBRT (Liver)</b>				
QP10a	Combs [15]	—	SBRT 1–5 fx (not further specified)	A = 50% [SA = 20%] A = 60% [SA = 30%] D = 40% [SD = 0%]
QP10b	Tchelebi [7]	—	—	
	<b>Colorectal Primary</b>	—	—	
	• <b>For small, non-central lesions:</b> 16–30 Gy in 1fx	—	—	
	• <b>For lesions near the biliary tree:</b> 48–60 in 3–5 fx	—	—	
<b>P11 Other Oligometastases Suitable for SBRT (Adrenal)</b>				
QP11a	Combs [15]	—	SBRT 1–5 fx (not further specified)	A = 40% [SA = 30%] D = 60% [SD = 0%]
<b>P12 Other Oligometastases Suitable for SBRT (Lymph-node asymptomatic)</b>				
QP12a	Combs [15]	—	SBRT 1–5 fx (not further specified)	A = 50% [SA = 30%] D = 50% [SD = 0%]
<b>P13 Brain metastases (N° 1–4)</b>				
QP13a	Yerramilli [9]	SRS (not further specified)	<ul style="list-style-type: none"> <li>• In pt with good performance SRS for all or dominant lesion cause of morbidity</li> <li>• To delay or avoid whole brain</li> </ul>	A = 80% [SA = 30%] D = 20% [SD = 0%]

**Table 2** (continued)

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QP13b	Combs [15] <b>1–10 Brain Mets with good performance status: "single fraction"</b> • 18 Gy/1fx18Gy • 20 Gy/1fx × 20 Gy			A = 60% [SA = 10%] D = 40% [SD = 10%]
QP13c	Simcock [14] <b>1–3 Brain Mets, good KPS, no extracranial disease</b> 15–20 Gy/1fx15–20 Gy		• SRS	A = 100% [SA = 60%] D = 0% [SD = 0%]
<b>P14 Brain metastases (N° 5–10)</b>				
QP14a	Simcock [14] <b>Palliation WBRT:</b> 20 Gy/5fx4Gy [RTOG QUARTZ [43]]	–	• 3D WBRT • A routine option in UK, Europe, Asia, Canada, and Australia. Established in RTOG dose escalation studies	A = 100% [SA = 30%] D = 0% [SD = 0%]
QP14b	Combs [15] <b>1–10 Brain Mets with good performance status: "single fraction"</b> • 18 Gy/1fx18Gy • 20 Gy/1fx × 20 Gy		• SRS	A = 50% [SA = 20%] D = 50% [SD = 10%]
<b>P15 Brain metastases (N° &gt; 4), poor KPS, meningeal involvement</b>				
QP15a	Yerrailli [9] <b>Multiple brain metastases or leptomeningeal disease WB:</b> • 20 Gy/5fx4Gy • 30 Gy/10fx3Gy	–	• For patients with urgent indications, progressive neurologic symptom	A = 90% [SA = 40%] D = 10% [SD = 0%]
QP15b	Combs [15] <b>Life expectancy &gt; 3 mth:</b> WBRT 20 Gy/5fx4 Gy	–	• For patients in whom longer term survival is expected, in order limit neurocognitive complications • In patients with limited prognosis, the QUARTZ study demonstrated similar rates of overall survival and QoL with steroids and best supportive care alone <b>Poor performance status</b> Evaluate BSC with critical view of steroids [RTOG QUARTZ <sup>10</sup> ]	A = 100% [SA = 50%] D = 0% [SD = 0%]
QP15c	Curigiano [16]	–	<b>RT is urgent for the following situations:</b> Treatment of brain and leptomeningeal metastases	A = 80% [SA = 20%] D = 20% [SD = 10%]
QP15d	Simcock [14] <b>Brain metastasis Palliation, poor Prognosis:</b> 12 Gy/2fx6Gy	–	<b>CNS mets from NSCLC needing WBRT:</b> • Best supportive care including steroids • Omit RT [RTOG QUARTZ [43]] <b>Brain Mets Palliation, poor Prognosis:</b> • Prefer 3D	A = 70% [SA = 10%] D = 30% [SD = 0%]

**Table 2** (continued)

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Palliative (Non-Emergencies)				
A = Agreement (1 + 2) D = Disagreement (3 + 4) SA = Strong Agreement (1) SD = Strong Disagreement (4)				
<b>P16 Primary symptomatic Brain tumor, poor KPS</b>				
QP16a	Combs [15] Glioblastoma KPS < 60: 25 Gy/5fx5Gy; (No TMZ) [Roa 2004 [44]]	-	<ul style="list-style-type: none"> <li>• Glioblastoma KPS &lt; 50, age &gt; 70y TMZ mono (MGMT methylated) or BSC [Malmstrom [45]]</li> </ul>	A = 90% [SA = 30%] D = 10% [SD = 0%]
QP16b	Simecock [14] GBM, poor KPS: Age ≥ 50, KPS 50–70, or Age ≥ 65 KPS 50–100: 25 Gy/5fx5Gy No TMZ	-	<ul style="list-style-type: none"> <li>• GBM, poor KPS Age ≥ 50, KPS 50–70, or Age ≥ 65 KPS 50–100: Prefer 3D; CTV 2 cm margin as per EORTC</li> <li>• Glioblastoma Age &gt; 60, methylated TMZ only Standard RT associated with poor outcomes</li> </ul>	A = 90% [SA = 30%] D = 10% [SD = 0%]
QP16c	Noticewala [19] GMB, very poor PS KPS < 50:	-	<ul style="list-style-type: none"> <li>• GMB, very poor PS KPS &lt; 50: Alternatively, consider: Best supportive care or TMZ with omission of RT</li> <li>• Recurrent GBM: not generally recommend re-irradiation Systemic therapies if considered reasonable. Therapies may include, but are not limited to temozolomide, bevacizumab, lomustine, and others</li> </ul>	A = 100% [SA = 10%] D = 0% [SD = 0%]
<b>P17 Postoperative Brain Mets</b>				
QP17a	Combs [15] Postoperative SRS of resection cavity:	-	<ul style="list-style-type: none"> <li>• 34 Gy/10fx3.4 Gy [Malmstrom [45]]</li> <li>• 25 Gy/5fx5Gy [Roa 2015 [46]]</li> </ul>	A = 90% [SA = 40%] D = 10% [SD = 0%]
			*The dose depends on target diameter:	
			<ul style="list-style-type: none"> <li>• &lt; 2.0 cm</li> <li>• 2 ≤ 2.9 cm #The dose depends on target size (in cc):</li> <li>• ≤ 10 cc</li> <li>• 10.1–15 cc</li> <li>• &gt; 15 cc</li> </ul>	

§ (Authors do not specify in text/table but the reference report the schedule as “weekly”) [MRC [32]]

\* Consensus Vote: 1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree

MESCC Metastatic Epidural Spinal Cord Compression; fx fraction; OS: overall Survival; RT Radiotherapy; pt patient; BID bis in die; Q quality of life; SBRT stereotactic body RT; mets metastases; wks weeks; PEG percutaneous endoscopic gastrostomy; WBRT whole brain RT; TMZ Temozolamide; mth months; IMRT-SIB Intensity modulated RT— Simultaneous integrated boost