

**Supplemental Table 1. The average dosimetric values from 10 patients with simulated spacing**

Prox-duod*	Original plan	Sep - 2 mm	p value (O-2)	Sep - 3 mm	p value (O-3)	Sep - 5 mm	p-value (O-5)	Sep - 8 mm	p-value (O-8)	Sep - 15 mm	p-value (O-15)
V <sub>15</sub> (cc)	11.237 ±2.812	9.408 ±2.150	<0.01	8.424 ±1.874	<0.01	6.464 ±1.814	<0.01	4.978 ±1.931	<0.01	2.996 ±1.624	<0.01
V <sub>20</sub> (cc)	3.349 ±1.290	2.104 ±0.867	<0.01	1.593 ±0.775	<0.01	0.751 ±0.467	<0.01	0.299 ±0.242	<0.01	0.074 ±0.113	<0.01
V <sub>33</sub> (cc)	0.039 ±0.043	0.003 ±0.009	0.03	0.000 ±0.000	0.02	0.000 ±0.000	0.02	0.000 ±0.000	0.02	0.000 ±0.000	0.02

\*Prox-duod (proximal duodenum) is defined as the overlap between duodenum and the expanded PTV with 20 cm expansion in the axial direction and 1 cm expansion in the superior-inferior direction. The O-2, O-3, O-5, O-8 and O-15 represent the p-value between the original plan and the corresponding plan with the simulated spacing distance 2 mm, 3 mm, 5 mm, 8 mm and 15 mm respectively. The results are averaged over all 10 patients.

**Supplemental Table 2. The proximal duodenum volume receiving 15 Gy (V15) in each original plan and model plans with simulated spacing**

V <sub>15</sub> (cc)	Original plan	Sep – 2 mm	Sep – 3 mm	Sep – 5 mm	Sep – 8 mm	Sep – 15 mm
Patient 1	9.86	8.89	8.02	6.13	4.53	3.14
Patient 2	6.63	6.1	5.83	4.02	3.14	2.19
Patient 3	13.85	8.16	7.35	4.46	2.74	2.47
Patient 4	9.97	8.06	6.7	5.1	3.68	1.37
Patient 5	11.89	10.54	8.98	5.75	3.57	1.6
Patient 6	16.07	13.03	12.05	9.72	8.68	5.11
Patient 7	7.86	7.2	6.75	5.86	4.43	1.27
Patient 8	12.26	11.07	9.8	8.15	7.38	6.12
Patient 9	13.05	11.64	9.93	8	5.56	2.73
Patient 10	10.93	9.39	8.83	7.45	6.07	3.96

**Supplemental Table 3. The proximal duodenum volume receiving 20 Gy (V20) in each original plan and model plans with simulated spacing**

V <sub>20</sub> (cc)	Original plan	Sep – 2 mm	Sep – 3 mm	Sep – 5 mm	Sep – 8 mm	Sep – 15 mm
Patient 1	4.23	3.02	2.46	1.27	0.51	0.34
Patient 2	2.6	2.2	2	1.02	0.72	0.16
Patient 3	6.13	2.67	1.96	0.55	0.06	0.16
Patient 4	2.71	1.69	0.99	0.42	0.12	0
Patient 5	3.26	2.42	1.36	0.37	0.19	0
Patient 6	3.32	0.7	0.56	0.27	0.03	0
Patient 7	3.31	2.61	2.24	1.3	0.4	0
Patient 8	1.36	0.74	0.45	0.11	0.05	0
Patient 9	2.41	1.81	1.29	0.84	0.38	0.03
Patient 10	4.16	3.18	2.62	1.36	0.53	0.05

**Supplemental Table 4. The proximal duodenum volume receiving 33 Gy (V33) in each original plan and model plans with simulated spacing**

<b>V<sub>33</sub> (cc)</b>	<b>Previous plan</b>	<b>Sep – 2 mm</b>	<b>Sep – 3 mm</b>	<b>Sep – 5 mm</b>	<b>Sep – 8 mm</b>	<b>Sep – 15 mm</b>
Patient 1	0.01	0	0	0	0	0
Patient 2	0.04	0.03	0	0	0	0
Patient 3	0.09	0	0	0	0	0
Patient 4	0.04	0	0	0	0	0
Patient 5	0.0	0	0	0	0	0
Patient 6	0.01	0	0	0	0	0
Patient 7	0.1	0	0	0	0	0
Patient 8	0.1	0	0	0	0	0
Patient 9	0.0	0	0	0	0	0
Patient 10	0.0	0	0	0	0	0