

Table S1 Existing scoring systems for patients with colorectal liver metastasis

Scoring system	Predicted outcome	Location	Study size	Parameters
Nordlinger <i>et al.</i> , 1996	Overall survival	France	1,568	<ul style="list-style-type: none"> • Age ≥ 60 • Serosal invasion of the primary tumor • Lymph node positive primary disease • Disease-free interval < 24 months • No. of liver metastases > 3 • Largest liver metastasis ≥ 5 cm • Margin ≤ 1 cm
Fong <i>et al.</i> , 1999	Overall survival	USA	1,001	<ul style="list-style-type: none"> • DFI < 12 months • No. of liver metastases > 1 • Preoperative CEA > 200 ng/mL • Largest liver metastasis > 5 cm • Lymph node positive primary disease
Iwatsuki <i>et al.</i> , 1999	Overall survival and recurrence-free survival	USA	305	<ul style="list-style-type: none"> • No. of liver metastases > 2 • Bilobar lesions • Time from treatment of primary to diagnosis of CRLM ≤ 30 months • Tumor size > 8 cm
Rees <i>et al.</i> , 2008	Cancer-specific survival	UK	929	<ul style="list-style-type: none"> • No. of liver metastases > 3 • Lymph node positive primary disease • Poorly differentiated primary tumor • Extrahepatic metastasis • Largest liver metastasis ≥ 5 cm • CEA > 60 ng/mL • Margin involved
Beppu <i>et al.</i> , 2012	Recurrence-free survival	Japan	727	<ul style="list-style-type: none"> • Synchronous metastases • Lymph node positive primary disease • No. of liver metastases 2–4, ≥ 5 • Largest liver metastasis > 5 cm • Extrahepatic metastasis • Preoperative CA19-9 > 100 U/mL
Sasaki <i>et al.</i> , 2018	Overall survival	USA	604	<ul style="list-style-type: none"> • Maximum tumor size • No. of liver metastases
Margonis <i>et al.</i> , 2018	Overall survival	USA	502	<ul style="list-style-type: none"> • KRAS mutation • CRC nodal metastases • Tumor burden score 3–8, ≥ 9 • CEA ≥ 20 ng/mL • Extrahepatic disease
Brudvik <i>et al.</i> , 2019	Overall and recurrence-free survival	USA	564	<ul style="list-style-type: none"> • Lymph node positive primary disease • Largest liver metastasis > 5 cm • RAS Mutation

This is not an exhaustive list of all existing scoring systems.

Table S2 Baseline characteristics of the study population and comparison between the training and validation sets

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Baseline characteristics					
Hospital, n (%)				0.176	
QMH	230 (40.2)	158 (39.5)	72 (41.9)		
QEH	101 (17.7)	65 (16.3)	36 (20.9)		
TMH	121 (21.1)	84 (21.0)	37 (21.5)		
PWH	120 (21.0)	93 (23.3)	27 (15.7)		
Sex, n (%)				0.423	
Male	360 (62.9)	247 (61.8)	113 (65.7)		
Female	212 (37.1)	153 (38.3)	59 (34.3)		
Age, median (Q1, Q3); range (min–max)	62 (56.8, 69.0); (24–94)	62 (56.0, 68.0)	63 (57.0, 70.0)	0.308	
Smoking, n (%)				0.724	42 (7.3)
No	348 (65.7)	240 (65.2)	108 (66.6)		
Moderate	130 (24.5)	94 (25.5)	36 (22.2)		
Heavy	52 (9.8)	35 (9.5)	17 (10.5)		
Drinking, n (%)				0.747	56 (9.8)
No	369 (71.5)	260 (72.2)	109 (69.9)		
Moderate	115 (22.3)	77 (21.4)	38 (24.4)		
Heavy	32 (6.2)	23 (6.4)	9 (5.8)		
Charlson Comorbidity Score, Median (Q1, Q3); range (min–max)	10 (9.0,11.0); (8–16)	10 (9.0, 10.0)	10 (9.0, 9.9)	0.941	
Presence of co-existing cancers (Hong Kong Top 10), n (%)				0.401	
No	557 (97.4)	391 (97.8)	166 (96.5)		
Yes	15 (2.6)	9 (2.3)	6 (3.5)		
Primary tumor					
Tumor location, n (%)				0.852	1 (0.2)
Right	143 (25.0)	101 (25.3)	42 (24.4)		
Left	220 (38.5)	155 (38.8)	65 (37.8)		
Rectum	140 (24.5)	94 (23.6)	46 (26.7)		
Rectum + Colon	69 (12.1)	50 (12.5)	19 (11.0)		
Synchronous colorectal & liver lesion, n (%)				0.345	
No	221 (38.6)	149 (37.3)	72 (41.9)		
Yes	351 (61.4)	251 (62.8)	100 (58.1)		

Table S2 (continued)

Table S2 (continued)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Synchronous colorectal & liver resection, n (%)				0.249	
No	398 (69.6)	272 (68.0)	126 (73.3)		
Yes	174 (30.4)	128 (32.0)	46 (26.7)		
Colorectal CEA, median (Q1, Q3)	9.7 (3.9, 42.0)	10.0 (4.1, 43.5)	8.6 (3.5, 38.9)	0.196	98 (17.1)
ECOG score, n (%)				0.183	255 (44.6)
0	138 (43.5)	93 (43.1)	45 (44.6)		
1	169 (53.3)	120 (55.6)	49 (48.5)		
2	8 (2.5)	5 (2.3)	3 (3.0)		
3	2 (0.6)	0 (0)	2 (2.0)		
Neoadjuvant chemotherapy, n (%)				0.402	8 (1.4)
No	450 (79.8)	311 (78.9)	139 (81.8)		
Yes	114 (20.2)	84 (21.3)	30 (17.6)		
Adjuvant therapy, n (%)				0.334	
No	201 (35.1)	135 (33.8)	66 (38.4)		
Yes	371 (64.9)	265 (66.3)	106 (61.6)		
Surgery admission category, n (%)				0.867	
Emergency	87 (15.2)	62 (15.5)	25 (14.5)		
Elective	485 (84.8)	338 (84.5)	147 (85.5)		
Primary CRC Pathology					
Largest tumor diameter (cm), median (Q1, Q3)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	0.479	119 (20.8)
Lymphovascular invasion, n (%)				0.788	92 (16.1)
No	259 (54.0)	181 (54.5)	78 (52.7)		
Yes	221 (46.0)	151 (45.5)	70 (47.3)		
Venous infiltration, n (%)				0.400	285 (49.8)
No	166 (57.8)	109 (55.9)	57 (62.0)		
Yes	121 (42.2)	86 (44.1)	35 (38.0)		
Resection margin, n (%)				1	53 (9.3)
Negative	499 (96.0)	346 (96.1)	153 (95.6)		
Microscopic	20 (3.8)	14 (3.9)	6 (3.8)		
Shortest resection margin, median (Q1, Q3)	3.5 (2.0, 5.0)	3.5 (2.0, 5.4)	3.3 (2.0, 5.0)	0.618	159 (27.8)
Differentiation, n (%)				0.772	43 (7.5)
Well differentiated	18 (3.4)	13 (3.5)	5 (3.2)		
Moderately differentiated	486 (91.9)	338 (91.1)	148 (93.7)		
Poorly differentiated	25 (4.7)	19 (5.1)	6 (3.8)		

Table S2 (continued)

Table S2 (continued)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Number of lymph nodes positive, median (Q1, Q3)	1 (0, 4.0)	2 (0, 4.0)	1 (0, 3.0)	0.163	14 (2.4)
N-stage, n (%)				0.447	14 (2.4)
0	198 (35.5)	134 (34.0)	64 (39.0)		
1–3	218 (39.1)	151 (38.3)	67 (40.9)		
>3	142 (25.4)	105 (26.6)	37 (22.6)		
Colorectal liver metastasis					
Pre-treatment PET scan findings					
Number of tumor nodules, median (Q1, Q3); range (min–max)	1.0 (1.0, 3.0); (0–12)	1.5 (1.0, 3.0)	1.0 (1.0, 3.0)	0.932	78 (13.6)
Tumor location, n (%)				0.613	86 (15.0)
Unilobar	343 (70.6)	235 (69.9)	108 (72.0)		
Bilobar	143 (29.4)	102 (30.4)	41 (27.3)		
Largest tumor diameter (cm), median (Q1, Q3); range (min–max)	2.5 (1.6, 4.0); (0–16.8)	2.4 (1.6, 3.9)	2.6 (1.7, 4.3)	0.368	154 (26.9)
Maximum SUV of lesion, median (Q1, Q3)	6.4 (4.8, 8.9)	6.65 (4.8, 8.9)	6.3 (4.7, 9.1)	0.963	193 (33.7)
Background SUV, median (Q1, Q3)	2.4 (2.0, 2.8)	2.4 (2.0, 2.7)	2.3 (1.9, 2.9)	0.538	433 (75.7)
Extrahepatic metastasis, n (%)				0.687	99 (17.3)
No	423 (89.4)	288 (88.9)	135 (90.6)		
Yes	50 (10.6)	36 (11.1)	14 (9.4)		
Pre-operative investigations					
HBsAg, n (%)				1	260 (45.5)
Negative	286 (91.7)	200 (92.2)	86 (90.5)		
Positive	26 (8.3)	18 (8.3)	8 (8.4)		
HCV Ab, n (%)				1	387 (67.7)
Negative	185 (100.0)	133 (100.0)	52 (100.0)		
Platelet ($\times 10^9/L$), median (Q1, Q3)	216.0 (175.0, 275.0)	220.0 (172.0, 280.0)	212.0 (175.3, 262.8)	0.383	3 (0.5)
Prothrombin time, median (Q1, Q3)	11.5 (10.8, 12.4)	11.4 (10.7, 12.3)	11.6 (10.8, 12.5)	0.403	21 (3.7)
Albumin (g/L), median (Q1, Q3)	40.0 (36.0, 43.0)	40.0 (35.9, 43.0)	40.0 (36.0, 43.0)	0.761	3 (0.5)
Bilirubin ($\mu\text{mol/L}$), median (Q1, Q3); range (min–max)	8.2 (6.0, 12.9); (2.0–51.0)	8.5 (6.0, 13.0)	8.0 (6.0, 12.0)	0.518	3 (0.5)
Liver CEA (ng/mL), median (Q1, Q3); range (min–max)	12.0 (4.6, 45.4); (0.7–4,040.0)	11.8 (4.7, 45.2)	13.0 (4.4, 45.0)	0.988	13 (2.3)

Table S2 (continued)

Table S2 (*continued*)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Liver pathology					
Largest diameter of liver metastasis (cm), median (Q1, Q3); range (min–max)	3.0 (2.0, 4.0); (0.4–18.0)	2.8 (2.0, 4.0)	3.0 (2.0, 4.0)	0.766	7 (1.2)
Number of tumor nodules, median (Q1, Q3); range (min–max)	2 (1.0, 3.0); (0–8)	2 (1.0, 3.0)	2 (1.0, 3.0)		5 (0.9)
Lymphovascular invasion, n (%)				1	412 (72.0)
No	84 (52.5)	57 (51.8)	27 (54.0)		
Yes	76 (47.5)	52 (47.3)	24 (48.0)		
Resection margin, n (%)				0.576	9 (1.6)
Negative	482 (85.6)	335 (85.0)	147 (87.0)		
Microscopic	54 (9.6)	41 (10.4)	13 (7.7)		
Macroscopic	27 (4.8)	18 (4.6)	9 (5.3)		
Shortest resection margin, median (Q1, Q3)	0.5 (0.1, 1.0)	0.5 (0.1, 1.0)	0.5 (0.1, 1.0)	0.914	93 (16.3)
Tumor lobar involvement, n (%)				0.322	2 (0.3)
Unilobar	395 (69.3)	271 (67.9)	124 (72.5)		
Bilobar	175 (30.7)	128 (32.1)	47 (27.5)		
KRAS, n (%)				0.412	147 (25.7)
No mutation	250 (58.8)	168 (56.9)	82 (63.1)		
Mutation	175 (41.2)	125 (42.4)	50 (38.5)		
BRAF, n (%)				1	563 (98.4)
No mutation	8 (88.9)	6 (85.7)	2 (100.0)		
Mutation	1 (11.1)	1 (14.3)	0 (0)		
New Edmondson grading, n (%)				1	456 (79.7)
Well differentiated	2 (1.7)	2 (2.3)	0 (0)		
Moderately differentiated	103 (88.8)	77 (87.5)	26 (92.9)		
Poorly differentiated	9 (7.8)	7 (8.0)	2 (7.1)		
Liver resection					
Laparoscopic, n (%)				1	2 (0.3)
No	455 (79.8)	319 (79.9)	136 (79.5)		
Yes	115 (20.2)	80 (20.1)	35 (20.5)		
Operation, n (%)				0.204	3 (0.5)
Minor	251 (44.1)	167 (42.0)	84 (49.1)		
Major	318 (55.9)	231 (58.0)	87 (50.9)		

Table S2 (*continued*)

Table S2 (continued)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
RFA combined treatment, n (%)				0.505	2 (0.3)
No	518 (90.9)	360 (90.0)	158 (92.9)		
Yes	52 (9.1)	39 (9.8)	13 (7.6)		
Neoadjuvant/Adjuvant therapy					
Neoadjuvant treatment, n (%)				0.871	5 (0.9)
No	378 (66.7)	264 (66.0)	114 (68.3)		
Yes	189 (33.3)	134 (33.5)	55 (32.9)		
Adjuvant chemotherapy, n (%)				0.319	
No	161 (28.1)	118 (29.5)	43 (25.0)		
Yes	411 (71.9)	282 (70.5)	129 (75.0)		
Fong Clinical Risk Score (CRS)					
CEA, n (%)				0.420	
<200	533 (93.2)	370 (92.5)	163 (94.8)		
≥200	39 (6.8)	30 (7.5)	9 (5.2)		
CRC number of lymph nodes positive, n (%)				0.479	
0	212 (37.1)	144 (36.0)	68 (39.5)		
≥1	360 (62.9)	256 (64.0)	104 (60.5)		
Disease free interval (days), n (%)				0.517	
≥365	112 (19.6)	75 (18.8)	37 (21.5)		
<365	460 (80.4)	325 (81.3)	135 (78.5)		
CRLM number of tumor nodules, n (%)				0.841	
≤1	284 (49.7)	197 (49.3)	87 (50.6)		
>1	288 (50.3)	203 (50.8)	85 (49.4)		
CRLM largest tumor diameter, n (%)				0.521	
≤5	492 (86.0)	347 (86.8)	145 (84.3)		
>5	80 (14.0)	53 (13.3)	27 (15.7)		
Fong CRS, median (Q1, Q3)	2 (2.0, 3.0)	2 (1.8, 3.0)	2 (2.0, 3.0)		
Child-Pugh score					
Bilirubin, n (%)				1	3 (0.5)
≤35	567 (99.6)	397 (99.5)	170 (100.0)		
>35	2 (0.4)	2 (0.5)	0 (0)		
Albumin, n (%)				0.524	3 (0.5)
>35	437 (76.8)	303 (75.8)	134 (79.3)		
≤35	132 (23.2)	96 (24.0)	36 (21.3)		

Table S2 (continued)

Table S2 (continued)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Platelet, n (%)				1	3 (0.5)
>100	564 (99.1)	395 (99.0)	169 (99.4)		
≤100	5 (0.9)	4 (1.0)	1 (0.6)		
Nordlinger					
Age group, n (%)				0.331	
≤60	242 (42.5)	175 (43.8)	67 (39.0)		
>60	330 (58.0)	225 (56.3)	105 (61.0)		
Disease-free interval (years), n (%)				0.264	
≥2y	47 (8.3)	29 (7.3)	18 (10.5)		
<2y	525 (92.3)	371 (92.8)	154 (89.5)		
CRLM number of tumor nodules, n (%)				0.080	5 (0.9)
≤3	472 (83.2)	322 (80.9)	150 (88.8)		
>3	95 (16.8)	74 (18.6)	21 (12.4)		
CRLM largest tumor diameter, n (%)				0.523	7 (1.2)
≤5	485 (85.8)	342 (87.0)	143 (83.1)		
>5	80 (14.2)	53 (13.5)	27 (15.7)		
Follow-up					
Post-operative recurrence, n (%)				0.835	
None	163 (28.8)	117 (29.3)	46 (26.7)		
Intrahepatic	70 (12.4)	46 (11.5)	24 (14.0)		
Extrahepatic	89 (15.8)	62 (15.5)	27 (15.7)		
Intrahepatic + extrahepatic	250 (44.2)	175 (43.8)	75 (43.6)		
Follow-up status at conclusion of study, n (%)				0.490	
Alive, disease free	143 (25.3)	99 (24.8)	44 (25.6)		
Alive, with disease (not recurrence)	28 (5.0)	21 (5.3)	7 (4.1)		
Alive, with recurrence	60 (10.6)	48 (12.0)	12 (7.0)		
Alive, details unavailable	5 (0.9)	3 (0.8)	2 (1.2)		
Dead	327 (57.9)	223 (55.8)	104 (60.5)		
Default	9 (1.6)	6 (1.5)	3 (1.7)		
Hospital mortality, n (%)				0.570	1 (0.2)
No	556 (97.4)	388 (97.0)	168 (98.2)		
Yes	15 (2.6)	12 (3.0)	3 (1.8)		

Table S2 (continued)

Table S2 (continued)

Variables	Total (n=572)	Training set (n=400)	Testing set (n=172)	P value	Missing data, n (%)
Cause of death, n (%)				1	245 (42.8)
Dead from other causes/disease	71 (21.7)	49 (22.0)	22 (21.2)		
Dead from original disease (CRLM) or recurrence or metastasis	256 (78.3)	175 (78.5)	81 (77.9)		
Status, n (%)				0.304	
Censored (alive at the end of the study or was lost to follow up)	243 (42.5)	176 (44.0)	67 (39.0)		
Dead	329 (57.5)	224 (56.0)	105 (61.0)		
Recurrence-free survival (RFS), median (Q1, Q3)	419.0 (186.5, 1,159.8)	437.5 (179.8, 1,182.3)	386.5 (201.0, 1,085.8)	0.807	
Overall survival (OS), median (Q1, Q3)	1,169.0 (771.5, 1,893.0)	1,169.0 (748.8, 1,922.3)	1,167.0 (824.8, 1,844.3)	0.999	
Disease free interval (DFI), median (Q1, Q3)	0 (0, 218.0)	0 (0, 204.8)	0 (0, 289.0)	0.182	

QMH, Queen Mary Hospital; QEH, Queen Elizabeth Hospital; TMH, Tuen Mun Hospital; PWH, Prince of Wales Hospital; HBsAg, Hepatitis B surface antigen; HCV Ab, Hepatitis C antibody; CEA, carcinoembryonic antigen; ECOG, Eastern Cooperative Oncology Group (ECOG) performance status; PET, positron emission tomography; SUV, standardized uptake value; RFA, radiofrequency ablation; DFI, disease-free interval (time from primary tumor diagnosis to colorectal liver metastasis).

Table S3 Cox proportional hazards univariate analysis for OS and RFS

Variable	OS			RFS		
	HR	Estimate (CI)	P value	HR	Estimate (CI)	P value
CRLM number of tumor nodules	3.761	0.127 (0.061–0.193)	<0.001	5.470	0.182 (0.117–0.247)	<0.001
Fong CRS	3.888	0.206 (0.102–0.310)	<0.001	5.216	0.275 (0.172–0.378)	<0.001
Nordlinger score - CRLM number of tumor nodules	-4.123	-0.480 (-0.709, -0.252)	<0.001	4.841	0.661 (0.393–0.928)	<0.001
CRLM adjuvant chemotherapy	3.397	0.080 (0.034–0.125)	<0.001	-4.352	-0.507 (-0.735, -0.279)	<0.001
Fong CRS - CRLM number of tumor nodules	3.262	0.443 (0.177–0.710)	0.001	3.860	0.429 (0.211–0.647)	<0.001
CRLM largest diameter of liver metastasis	3.334	0.580 (0.239–0.921)	0.002	3.580	0.083 (0.038–0.129)	<0.001
CRC N-stage	3.169	2.271 (0.866–3.676)	0.002	3.268	0.233 (0.093–0.372)	0.001
PET - number of tumor nodules	3.135	0.224 (0.084–0.365)	0.002	3.356	0.131 (0.054–0.207)	0.002
PET - extrahepatic metastasis	2.946	0.126 (0.042–0.210)	0.003	3.120	0.524 (0.195–0.853)	0.003
CRLM neoadjuvant treatment	2.802	0.031 (0.009–0.052)	0.005	2.909	0.335 (0.109–0.560)	0.004
PET - tumor location	2.692	0.313 (0.085–0.540)	0.008	2.922	0.388 (0.128–0.649)	0.005
Fong CRS - CEA group	2.466	0.273 (0.056–0.491)	0.014	2.807	0.556 (0.168–0.944)	0.005
CRC lymphovascular invasion	2.394	0.611 (0.111–1.112)	0.018	2.789	0.332 (0.099–0.566)	0.006
CRLM tumor lobar involvement	-2.339	-0.355 (-0.652, -0.057)	0.020	2.711	0.317 (0.088–0.545)	0.007
CRC number of lymph nodes positive	2.246	0.086 (0.011–0.160)	0.028	2.590	0.027 (0.007–0.048)	0.010
CRLM liver resection - laparoscopic	2.165	0.315 (0.030–0.600)	0.042	-2.507	-0.380 (-0.677, -0.083)	0.013
CRC resection margin	2.015	0.236 (0.006–0.465)	0.045	2.479	0.611 (0.128–1.095)	0.014
Fong CRS - DFI	1.995	0.394 (0.007–0.782)	0.047	2.363	0.347 (0.059–0.635)	0.019
CRLM RFA combined treatment	2.395	0.577 (0.105–1.048)	0.054	2.330	0.418 (0.066–0.769)	0.020
Fong CRS - CRC number of lymph nodes positive	1.955	0.262 (-0.001–0.524)	0.055	2.279	0.267 (0.037–0.496)	0.023
PET - largest tumor diameter	1.857	0.272 (-0.015–0.560)	0.064	2.286	0.052 (0.007–0.097)	0.024
Charlson Comorbidity Score	1.809	0.211 (-0.018–0.440)	0.071	2.115	0.091 (0.007–0.175)	0.035
Fong CRS - CRLM number of tumor nodules	1.748	0.009 (-0.001–0.020)	0.081	2.025	0.304 (0.010–0.598)	0.044
CRLM lymphovascular invasion	1.744	0.031 (-0.004–0.065)	0.086	2.115	0.417 (0.031–0.803)	0.067
Bilirubin (>35 µmol/L) pre-hepatectomy	1.677	0.192 (-0.032–0.417)	0.095	1.634	1.161 (-0.231–2.553)	0.103
Colorectal CEA	1.659	0.249 (-0.045–0.543)	0.098	1.600	0.000 (0.000–0.000)	0.111
CRC synchronous lesion	1.733	0.273 (-0.036–0.581)	0.104	1.493	0.170 (-0.053–0.393)	0.137
KRAS	1.623	0.060 (-0.013–0.133)	0.106	1.560	0.237 (-0.061–0.535)	0.138
Platelet	1.549	0.169 (-0.045–0.383)	0.122	-1.358	-0.001 (-0.002–0.000)	0.176
CRC neoadjuvant chemotherapy	1.484	0.165 (-0.053–0.384)	0.139	1.305	0.180 (-0.090–0.450)	0.193
Age	-1.450	-0.083 (-0.195–0.029)	0.148	1.277	0.007 (-0.004–0.017)	0.202

Table S3 (continued)

Table S3 (continued)

Variable	Overall survival (OS)			Recurrence-free survival (RFS)		
	HR	Estimate (CI)	P value	HR	Estimate (CI)	P value
Hospital	-1.409	-0.094 (-0.225-0.037)	0.161	-1.273	-0.059 (-0.150-0.032)	0.204
Liver resection - operation	1.392	0.248 (-0.101-0.598)	0.165	1.267	0.141 (-0.077-0.359)	0.206
Drinking	1.262	0.012 (-0.006-0.030)	0.208	1.212	0.114 (-0.070-0.299)	0.227
Smoking	1.251	0.140 (-0.080-0.361)	0.212	1.198	0.104 (-0.066-0.275)	0.234
Sex	-1.117	-0.130 (-0.358-0.098)	0.265	-1.154	-0.134 (-0.362-0.094)	0.249
CRLM resection margin	1.001	0.023 (-0.022-0.067)	0.318	1.123	0.120 (-0.090-0.330)	0.263
PET background SUV	0.938	0.000 (0.000-0.000)	0.349	-1.222	-0.217 (-0.565-0.131)	0.269
Nordlinger score - DFI	0.919	0.081 (-0.092-0.255)	0.361	1.097	0.228 (-0.180-0.636)	0.274
Prothrombin time	0.815	0.000 (0.000-0.000)	0.416	1.019	0.037 (-0.034-0.109)	0.309
CRLM shortest resection margin	0.807	0.168 (-0.240-0.576)	0.420	-1.016	-0.069 (-0.202-0.064)	0.311
DFI	-0.873	-0.192 (-0.621-0.239)	0.425	-0.981	0.000 (0.000-0.000)	0.327
CRC tumor location	0.824	0.021 (-0.029-0.071)	0.433	-0.956	-0.055 (-0.168-0.058)	0.340
CRC venous invasion	-0.773	-0.001 (-0.002-0.001)	0.440	0.948	0.136 (-0.145-0.416)	0.353
PET maximum SUV of lesion	0.724	0.147 (-0.250-0.543)	0.470	0.922	0.016 (-0.018-0.050)	0.359
Liver CEA	0.688	0.090 (-0.166-0.346)	0.492	0.903	0.000 (0.000-0.000)	0.367
ECOG score	-0.638	-0.006 (-0.026-0.013)	0.524	0.901	0.092 (-0.108-0.293)	0.370
CRC shortest resection margin	0.473	0.114 (-0.358-0.585)	0.644	0.889	0.020 (-0.024-0.063)	0.392
Bilirubin	0.409	0.048 (-0.181-0.277)	0.683	0.820	0.007 (-0.010-0.025)	0.413
Synchronous colorectal & liver resection	-0.389	0.000 (0.000-0.000)	0.698	0.684	0.082 (-0.152-0.315)	0.495
Fong CRS - age group	0.353	0.016 (-0.074-0.107)	0.725	0.531	0.060 (-0.161-0.280)	0.596
Child Pugh Score - albumin	0.273	0.043 (-0.268-0.354)	0.791	0.500	0.065 (-0.191-0.321)	0.618
CRC adjuvant therapy	0.263	0.024 (-0.156-0.205)	0.793	0.447	0.052 (-0.177-0.281)	0.655
CRC New Edmondson Grade	0.261	0.088 (-0.575-0.751)	0.794	-0.391	-0.080 (-0.482-0.322)	0.696
Albumin	0.257	0.092 (-0.609-0.792)	0.802	-0.367	-0.004 (-0.024-0.017)	0.714
HBsAg	0.191	0.022 (-0.201-0.245)	0.849	0.259	0.059 (-0.384-0.501)	0.799
CRC largest tumor diameter	0.170	0.023 (-0.246-0.293)	0.865	-0.198	-0.006 (-0.067-0.055)	0.844
CRC surgery admission category	0.127	0.074 (-1.064-1.212)	0.899	-0.106	-0.016 (-0.320-0.287)	0.916
CRLM New Edmondson Grade	0.120	0.004 (-0.057-0.065)	0.905	0.078	0.013 (-0.320-0.347)	0.940
Child Pugh - platelet	-0.055	-0.009 (-0.312-0.295)	0.956	0.074	0.043 (-1.095-1.181)	0.941
Presence of co-existing cancers (Hong Kong Top 10)	-0.050	-0.005 (-0.213-0.202)	0.960	0.057	0.019 (-0.644-0.682)	0.955
BRAF	-0.005	-0.001 (-0.234-0.233)	0.996	0.024	0.010 (-0.818-0.838)	0.981
HCV Ab	NA due to the large amount of missing data					

CRLM, colorectal liver metastasis; CRS, clinical risk score; CRC, colorectal cancer; HBsAg, Hepatitis B surface antigen; HCV Ab, Hepatitis C antibody; CEA, carcinoembryonic antigen; ECOG, Eastern Cooperative Oncology Group (ECOG) performance status; PET, positron emission tomography; SUV, standardized uptake value; RFA, radiofrequency ablation; DFI, disease-free interval (time from primary tumor diagnosis to colorectal liver metastasis).