

**Table S1** Clinicopathologic characteristics of patients stratified by tumor location

Variables	Head and neck			Body and tail			Overlapping		
	PP (n=8,848)	TP (n=1,944)	P value	PP (n=2,285)	TP (n=2,510)	P value	PP (n=520)	TP (n=118)	P value
Race, n (%)			0.36			0.183			0.564
White	7,375 (83.4)	1,616 (83.1)		1,825 (79.9)	199 (79.3)		425 (81.7)	101 (85.6)	
Black	844 (9.5)	174 (9.0)		240 (10.5)	34 (13.5)		45 (8.7)	9 (7.6)	
Other	629 (7.1)	154 (7.9)		220 (9.6)	18 (7.2)		50 (9.6)	8 (6.8)	
Gender, n (%)			0.347			0.853			0.158
Female	4,328 (48.9)	928 (47.7)		1,243 (54.4)	135 (53.8)		271 (52.1)	53 (44.9)	
Male	4,520 (51.1)	1,016 (52.3)		1,042 (45.6)	116 (46.2)		249 (47.9)	65 (55.1)	
Year of diagnosis, n (%)			0.177			0.507			0.356
2002–2007	2,405 (27.2)	551 (28.3)		547 (23.9)	64 (25.5)		129 (24.8)	34 (28.8)	
2008–2011	3,104 (35.1)	703 (36.2)		786 (34.4)	92 (36.7)		185 (35.6)	34 (28.8)	
2012–2015	3,339 (37.7)	690 (35.5)		952 (41.7)	95 (37.8)		206 (39.6)	50 (42.4)	
Pathology grade, n (%)			0.292			0.88			0.283
I	950 (10.7)	211 (10.9)		333 (14.6)	38 (15.1)		65 (12.5)	16 (13.6)	
II	4,556 (51.5)	956 (49.2)		1,164 (50.9)	132 (52.6)		247 (47.5)	51 (43.2)	
III	3,222 (36.4)	750 (38.6)		729 (31.9)	76 (30.3)		189 (36.3)	50 (42.4)	
IV	120 (1.4)	27 (1.4)		59 (2.6)	5 (2.0)		19 (3.7)	1 (0.8)	
LN resection, n (%)			0.049			0.503			0.569
None	121 (1.4)	30 (1.5)		106 (4.6)	9 (3.6)		11 (2.1)	3 (2.5)	
1–3	452 (5.1)	101 (5.2)		236 (10.3)	20 (8.0)		33 (6.3)	4 (3.4)	
>4	8,165 (92.3)	1,777 (91.4)		1,918 (83.9)	220 (87.6)		470 (90.4)	109 (92.4)	
Biopsy	41 (0.5)	20 (1.0)		10 (0.4)	0 (0.0)		1 (0.2)	0 (0.0)	
Unknown	69 (0.8)	16 (0.8)		15 (0.7)	2 (0.8)		5 (1.0)	2 (1.7)	
Tumor size (cm), n (%)			0.409			0.351			0.297
≤2	1,588 (17.9)	327 (16.8)		339 (14.8)	36 (14.3)		58 (11.2)	8 (6.8)	
≤4	5,487 (62.0)	1,210 (62.2)		996 (43.6)	99 (39.4)		205 (39.4)	45 (38.1)	
>4	1,773 (20.0)	407 (20.9)		950 (41.6)	116 (46.2)		257 (49.4)	65 (55.1)	
Other tumor history, n (%)			0.123			0.069			0.576
No	6,919 (78.2)	1,551 (79.8)		1,537 (67.3)	183 (72.9)		379 (72.9)	83 (70.3)	
Yes	1,929 (21.8)	393 (20.2)		748 (32.7)	68 (27.1)		141 (27.1)	35 (29.7)	
Age (years), n (%)			0.84			0.245			0.597
≤60	2,515 (28.4)	557 (28.7)		587 (25.7)	73 (29.1)		146 (28.1)	36 (30.5)	
>60	6,333 (71.6)	1,387 (71.3)		1,698 (74.3)	178 (70.9)		374 (71.9)	82 (69.5)	
Age (years), median [IQR]	67 [59, 74]	67 [59, 74]	0.769	68 [60, 75]	67 [59, 74.5]	0.124	67 [59, 75]	67 [59.2, 74]	0.557
Insurance, n (%)			0.017			0.007			0.601
Uninsured	156 (1.8)	38 (2.0)		26 (1.1)	8 (3.2)		7 (1.3)	3 (2.5)	
Insured	6,220 (70.3)	1,344 (69.1)		1,717 (75.1)	185 (73.7)		392 (75.4)	83 (70.3)	
Medicaid	669 (7.6)	118 (6.1)		161 (7.0)	9 (3.6)		25 (4.8)	6 (5.1)	
Unknown	1,803 (20.4)	444 (22.8)		381 (16.7)	49 (19.5)		96 (18.5)	26 (22.0)	
Marital status, n (%)			0.738			0.985			0.264
Unmarried	1,001 (11.3)	232 (11.9)		236 (10.3)	26 (10.4)		52 (10.0)	10 (8.5)	
Married	5,542 (62.6)	1,210 (62.2)		1,441 (63.1)	157 (62.5)		334 (64.2)	85 (72)	
Other	2,305 (26.1)	502 (25.8)		608 (26.6)	68 (27.1)		134 (25.8)	23 (19.5)	

LN, lymph node; IQR, interquartile range; PP, partial pancreatectomy; TP, total pancreatectomy.

**Table S2** Clinicopathologic characteristics of patients stratified by tumor size

Variables	T1			T2			T3		
	PP (n=2,064)	TP (n=403)	P value	PP (n=6,855)	TP (n=1,408)	P value	PP (n=3,087)	TP (n=639)	P value
Race, n (%)			0.025			0.607			0.45
White	1,733 (84)	316 (78.4)		5,633 (82.2)	1,170 (83.1)		2,551 (82.6)	541 (84.7)	
Black	173 (8.4)	45 (11.2)		692 (10.1)	130 (9.2)		299 (9.7)	56 (8.8)	
Other	158 (7.7)	42 (10.4)		530 (7.7)	108 (7.7)		237 (7.7)	42 (6.6)	
Gender, n (%)			0.568			0.259			0.326
Female	1,082 (52.4)	205 (50.9)		3,531 (51.5)	702 (49.9)		1,394 (45.2)	275 (43.0)	
Male	982 (47.6)	198 (49.1)		3,324 (48.5)	706 (50.1)		1,693 (54.8)	364 (57.0)	
Year of diagnosis, n (%)			0.211			0.069			0.118
2002–2007	578 (28.0)	110 (27.3)		1,771 (25.8)	392 (27.8)		848 (27.5)	181 (28.3)	
2008–2011	724 (35.1)	159 (39.5)		2,382 (34.7)	506 (35.9)		1,099 (35.6)	201 (31.5)	
2012–2015	762 (36.9)	134 (33.3)		2,702 (39.4)	510 (36.2)		1,140 (36.9)	257 (40.2)	
Location, n (%)			<0.001			<0.001			<0.001
Head and neck	1,588 (76.9)	327 (81.1)		5,487 (80.0)	1,210 (85.9)		1,773 (57.4)	407 (63.7)	
Body and tail	339 (16.4)	36 (8.9)		996 (14.5)	99 (7.0)		950 (30.8)	116 (18.2)	
Overlapping	58 (2.8)	8 (2.0)		205 (3.0)	45 (3.2)		257 (8.3)	65 (10.2)	
Pancreas <sup>a</sup>	79 (3.8)	32 (7.9)		167 (2.4)	54 (3.8)		107 (3.5)	51 (8.0)	
Pathology grade, n (%)			0.519			0.282			0.449
I	373 (18.1)	73 (18.1)		716 (10.4)	142 (10.1)		312 (10.1)	70 (11.0)	
II	1,103 (53.4)	219 (54.3)		3,539 (51.6)	693 (49.2)		1,494 (48.4)	300 (46.9)	
III	559 (27.1)	109 (27.0)		2,521 (36.8)	555 (39.4)		1,183 (38.3)	255 (39.9)	
IV	29 (1.4)	2 (0.5)		79 (1.2)	18 (1.3)		98 (3.2)	14 (2.2)	
LN resection, n (%)			0.371			0.296			0.719
None	55 (2.7)	8 (2.0)		117 (1.7)	23 (1.6)		84 (2.7)	14 (2.2)	
1–3	164 (7.9)	26 (6.5)		400 (5.8)	75 (5.3)		198 (6.4)	33 (5.2)	
>4	1,820 (88.2)	360 (89.3)		6,240 (91.0)	1,282 (91.1)		2,772 (89.8)	585 (91.5)	
Biopsy	10 (0.5)	4 (1.0)		36 (0.5)	14 (1.0)		10 (0.3)	2 (0.3)	
Unknown	15 (0.7)	5 (1.2)		62 (0.9)	14 (1.0)		23 (0.7)	5 (0.8)	
Other tumor history, n (%)			0.313			0.029			0.48
No	1,528 (74)	308 (76.4)		5,214 (76.1)	1,109 (78.8)		2,356 (76.3)	496 (77.6)	
Yes	536 (26)	95 (23.6)		1,641 (23.9)	299 (21.2)		731 (23.7)	143 (22.4)	
Age (years), n (%)			0.725			0.431			0.562
≤60	607 (29.4)	115 (28.5)		1,848 (27.0)	394 (28.0)		897 (29.1)	193 (30.2)	
>60	1,457 (70.6)	288 (71.5)		5,007 (73.0)	1,014 (72.0)		2,190 (70.9)	446 (69.8)	
Age (years), median [IQR]	67 [59, 75]	67 [59, 74]	0.816	67 [60, 75]	68 [59, 75]	0.819	67 [59, 74]	66 [59, 73]	0.139
Insurance, n (%)			0.222			0.002			0.054
Uninsured	35 (1.7)	11 (2.7)		111 (1.6)	22 (1.6)		50 (1.6)	18 (2.8)	
Insured	1,443 (69.9)	288 (71.5)		4,972 (72.5)	986 (70.0)		2,146 (69.5)	444 (69.5)	
Medicaid	153 (7.4)	21 (5.2)		476 (6.9)	76 (5.4)		245 (7.9)	37 (5.8)	
Unknown	433 (21.0)	83 (20.6)		1,296 (18.9)	324 (23.0)		646 (20.9)	140 (21.9)	
Marital status, n (%)			0.918			0.178			0.119
Unmarried	249 (12.1)	47 (11.7)		720 (10.5)	171 (12.1)		357 (11.6)	67 (10.5)	
Married	1,281 (62.1)	248 (61.5)		4,307 (62.8)	861 (61.2)		1,940 (62.8)	429 (67.1)	
Other	534 (25.9)	108 (26.8)		1,828 (26.7)	376 (26.7)		790 (25.6)	143 (22.4)	

<sup>a</sup>, tumor location is not specified. LN, lymph node; IQR, interquartile range; PP, partial pancreatectomy; TP, total pancreatectomy.

**Table S3** Clinicopathologic characteristics of pancreatic head and neck cancer patients stratified by tumor size

Variables	T1			T2			T3		
	PP (n=1,588)	TP (n=327)	P value	PP (n=5,487)	TP (n=1,210)	P value	PP (n=1,773)	TP (n=407)	P value
Race, n (%)			0.1			0.318			0.528
White	1,343 (84.6)	262 (80.1)		4,541 (82.8)	1,003 (82.9)		1,491 (84.1)	351 (86.2)	
Black	137 (8.6)	33 (10.1)		548 (10.0)	108 (8.9)		159 (9.0)	33 (8.1)	
Other	108 (6.8)	32 (9.8)		398 (7.3)	99 (8.2)		123 (6.9)	23 (5.7)	
Gender, n (%)			0.778			0.542			0.538
Female	810 (51.0)	164 (50.2)		2,774 (50.6)	600 (49.6)		744 (42.0)	164 (40.3)	
Male	778 (49.0)	163 (49.8)		2,713 (49.4)	610 (50.4)		1,029 (58.0)	243 (59.7)	
Year of diagnosis, n (%)			0.117			0.059			0.303
2002–2007	465 (29.3)	90 (27.5)		1,446 (26.4)	345 (28.5)		494 (27.9)	116 (28.5)	
2008–2011	566 (35.6)	136 (41.6)		1,912 (34.8)	439 (36.3)		626 (35.3)	128 (31.4)	
2012–2015	557 (35.1)	101 (30.9)		2,129 (38.8)	426 (35.2)		653 (36.8)	163 (40.0)	
Pathology grade, n (%)			0.669			0.306			0.973
I	252 (15.9)	56 (17.1)		528 (9.6)	115 (9.5)		170 (9.6)	40 (9.8)	
II	860 (54.2)	170 (52.0)		2,840 (51.8)	594 (49.1)		856 (48.3)	192 (47.2)	
III	457 (28.8)	99 (30.3)		2,060 (37.5)	485 (40.1)		705 (39.8)	166 (40.8)	
IV	19 (1.2)	2 (0.6)		59 (1.1)	16 (1.3)		42 (2.4)	9 (2.2)	
LN resection, n (%)			0.17			0.166			0.956
None	27 (1.7)	8 (2.4)		61 (1.1)	15 (1.2)		33 (1.9)	7 (1.7)	
1–3	101 (6.4)	24 (7.3)		274 (5.0)	61 (5.0)		77 (4.3)	16 (3.9)	
>4	1,444 (90.9)	288 (88.1)		5,079 (92.6)	1,109 (91.7)		1,642 (92.6)	380 (93.4)	
Biopsy	5 (0.3)	4 (1.2)		29 (0.5)	14 (1.2)		7 (0.4)	2 (0.5)	
Unknown	11 (0.7)	3 (0.9)		44 (0.8)	11 (0.9)		14 (0.8)	2 (0.5)	
Other tumor history, n (%)			0.583			0.058			0.634
No	1,216 (76.6)	255 (78.0)		4,286 (78.1)	975 (80.6)		1,417 (79.9)	321 (78.9)	
Yes	372 (23.4)	72 (22.0)		1,201 (21.9)	235 (19.4)		356 (20.1)	86 (21.1)	
Age (years), n (%)			0.643			0.678			0.879
≤60	472 (29.7)	93 (28.4)		1,514 (27.6)	341 (28.2)		529 (29.8)	123 (30.2)	
>60	1,116 (70.3)	234 (71.6)		3,973 (72.4)	869 (71.8)		1,244 (70.2)	284 (69.8)	
Age (years), median [IQR]	66 [59, 74]	67 [59, 74]	0.491	67 [60, 74]	67 [59, 75]	0.607	66 [59, 73]	65 [59, 72]	0.411
Insurance, n (%)			0.132			0.014			0.633
Uninsured	28 (1.8)	11 (3.4)		94 (1.7)	17 (1.4)		34 (1.9)	10 (2.5)	
Insured	1,083 (68.2)	228 (69.7)		3,933 (71.7)	839 (69.3)		1,204 (67.9)	277 (68.1)	
Medicaid	125 (7.9)	18 (5.5)		388 (7.1)	71 (5.9)		156 (8.8)	29 (7.1)	
Unknown	352 (22.2)	70 (21.4)		1,072 (19.5)	283 (23.4)		379 (21.4)	91 (22.4)	
Marital status, n (%)			0.598			0.258			0.073
Unmarried	195 (12.3)	39 (11.9)		581 (10.6)	146 (12.1)		225 (12.7)	47 (11.5)	
Married	989 (62.3)	196 (59.9)		3,460 (63.1)	739 (61.1)		1,093 (61.6)	275 (67.6)	
Other	404 (25.4)	92 (28.1)		1,446 (26.4)	325 (26.9)		455 (25.7)	85 (20.9)	

LN, lymph node; IQR, interquartile range; PP, partial pancreatectomy; TP, total pancreatectomy.

**Table S4** Clinicopathologic characteristics of pancreatic body and tail cancer patients stratified by tumor size

Variables	T1			T2			T3		
	PP (n=339)	TP (n=36)	P value	PP (n=996)	TP (n=99)	P value	PP (n=950)	TP (n=116)	P value
Race, n (%)			0.135			0.053			0.874
White	276 (81.4)	25 (69.4)		790 (79.3)	79 (79.8)		759 (79.9)	95 (81.9)	
Black	27 (8.0)	6 (16.7)		106 (10.6)	16 (16.2)		107 (11.3)	12 (10.3)	
Other	36 (10.6)	5 (13.9)		100 (10.0)	4 (4.0)		84 (8.8)	9 (7.8)	
Gender, n (%)			0.57			0.206			0.494
Female	200 (59.0)	23 (63.9)		559 (56.1)	49 (49.5)		484 (50.9)	63 (54.3)	
Male	139 (41.0)	13 (36.1)		437 (43.9)	50 (50.5)		466 (49.1)	53 (45.7)	
Year of diagnosis, n (%)			0.666			0.364			0.934
2002–2007	73 (21.5)	10 (27.8)		227 (22.8)	22 (22.2)		247 (26)	32 (27.6)	
2008–2011	115 (33.9)	12 (33.3)		335 (33.6)	40 (40.4)		336 (35.4)	40 (34.5)	
2012–2015	151 (44.5)	14 (38.9)		434 (43.6)	37 (37.4)		367 (38.6)	44 (37.9)	
Pathology grade, n (%)			0.265			0.711			0.924
I	95 (28.0)	8 (22.2)		132 (13.3)	17 (17.2)		106 (11.2)	13 (11.2)	
II	171 (50.4)	24 (66.7)		523 (52.5)	51 (51.5)		470 (49.5)	57 (49.1)	
III	67 (19.8)	4 (11.1)		324 (32.5)	29 (29.3)		338 (35.6)	43 (37.1)	
IV	6 (1.8)	0 (0.0)		17 (1.7)	2 (2.0)		36 (3.8)	3 (2.6)	
LN resection, n (%)			0.033			0.844			0.688
None	22 (6.5)	0 (0.0)		46 (4.6)	6 (6.1)		38 (4)	3 (2.6)	
1–3	42 (12.4)	0 (0.0)		98 (9.8)	10 (10.1)		96 (10.1)	10 (8.6)	
>4	269 (79.4)	36 (100.0)		842 (84.5)	83 (83.8)		807 (84.9)	101 (87.1)	
Biopsy	5 (1.5)	0 (0.0)		3 (0.3)	0 (0.0)		2 (0.2)	0 (0.0)	
Unknown	1 (0.3)	0 (0.0)		7 (0.7)	0 (0.0)		7 (0.7)	2 (1.7)	
Other tumor history, n (%)			0.873			0.247			0.151
No	212 (62.5)	23 (63.9)		657 (66.0)	71 (71.7)		668 (70.3)	89 (76.7)	
Yes	127 (37.5)	13 (36.1)		339 (34.0)	28 (28.3)		282 (29.7)	27 (23.3)	
Age (years), n (%)			0.621			0.975			0.068
≤60	98 (28.9)	9 (25.0)		230 (23.1)	23 (23.2)		259 (27.3)	41 (35.3)	
>60	241 (71.1)	27 (75)		766 (76.9)	76 (76.8)		691 (72.7)	75 (64.7)	
Age (years), median [IQR]	68 [60, 76]	68 [61.5, 76.5]	0.727	69 [61, 76]	69 [61.5, 76]	0.922	68 [60, 75]	64 [56, 72.2]	0.016
Insurance, n (%)			0.825			0.565			0.001
Uninsured	5 (1.5)	0 (0.0)		11 (1.1)	2 (2.0)		10 (1.1)	6 (5.2)	
Insured	265 (78.2)	27 (75.0)		768 (77.1)	75 (75.8)		684 (72.0)	83 (71.6)	
Medicaid	20 (5.9)	2 (5.6)		65 (6.5)	4 (4.0)		76 (8.0)	3 (2.6)	
Unknown	49 (14.5)	7 (19.4)		152 (15.3)	18 (18.2)		180 (18.9)	24 (20.7)	
Marital status, n (%)			0.794			0.494			0.404
Unmarried	42 (12.4)	5 (13.9)		94 (9.4)	13 (13.1)		100 (10.5)	8 (6.9)	
Married	204 (60.2)	23 (63.9)		625 (62.8)	59 (59.6)		612 (64.4)	75 (64.7)	
Other	93 (27.4)	8 (22.2)		277 (27.8)	27 (27.3)		238 (25.1)	33 (28.4)	

LN, lymph node; IQR, interquartile range; PP, partial pancreatectomy; TP, total pancreatectomy.

**Table S5** Clinicopathologic characteristics of pancreatic overlapping location cancer patients stratified by tumor size

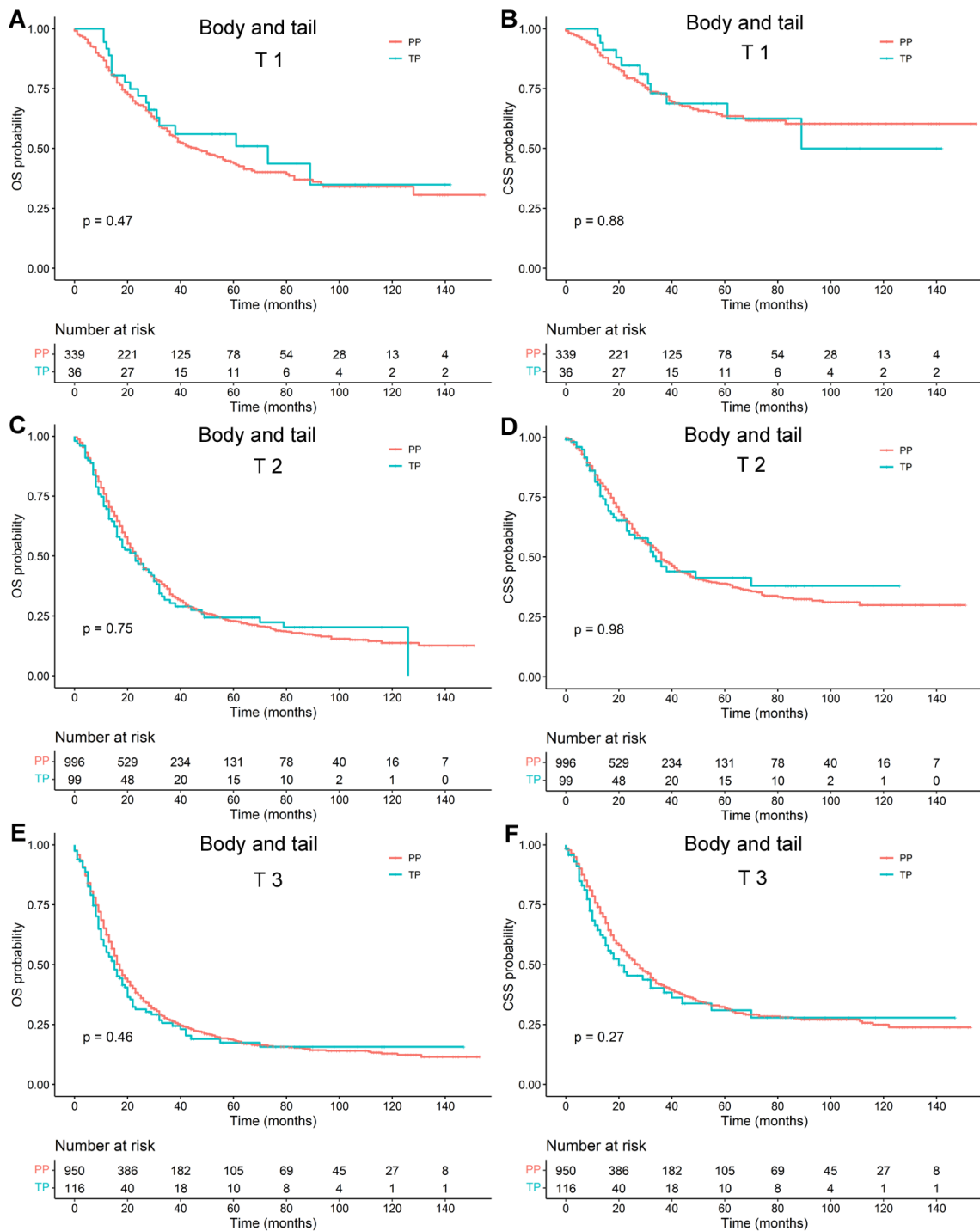
Variables	T1			T2			T3		
	PP (n=58)	TP (n=8)	P value	PP (n=205)	TP (n=45)	P value	PP (n=257)	TP (n=65)	P value
Race, n (%)			0.174			0.115			0.66
White	47 (81.0)	5 (62.5)		162 (79)	41 (91.1)		216 (84.0)	55 (84.6)	
Black	3 (5.2)	2 (25.0)		19 (9.3)	3 (6.7)		23 (8.9)	4 (6.2)	
Other	8 (13.8)	1 (12.5)		24 (11.7)	1 (2.2)		18 (7.0)	6 (9.2)	
Gender, n (%)			0.125			0.669			0.491
Female	35 (60.3)	2 (25.0)		121 (59.0)	25 (55.6)		115 (44.7)	26 (40.0)	
Male	23 (39.7)	6 (75.0)		84 (41.0)	20 (44.4)		142 (55.3)	39 (60.0)	
Year of diagnosis, n (%)			0.127			0.591			0.197
2002–2007	12 (20.7)	0 (0.0)		45 (22.0)	12 (26.7)		72 (28.0)	22 (33.8)	
2008–2011	17 (29.3)	5 (62.5)		70 (34.1)	12 (26.7)		98 (38.1)	17 (26.2)	
2012–2015	29 (50.0)	3 (37.5)		90 (43.9)	21 (46.7)		87 (33.9)	26 (40.0)	
Pathology grade, n (%)			0.252			0.438			0.506
I	10 (17.2)	4 (50)		30 (14.6)	4 (8.9)		25 (9.7)	8 (12.3)	
II	33 (56.9)	3 (37.5)		98 (47.8)	19 (42.2)		116 (45.1)	29 (44.6)	
III	12 (20.7)	1 (12.5)		76 (37.1)	22 (48.9)		101 (39.3)	27 (41.5)	
IV	3 (5.2)	0 (0.0)		1 (0.5)	0 (0.0)		15 (5.8)	1 (1.5)	
LN resection, n (%)			1			0.847			0.326
None	2 (3.4)	0 (0.0)		5 (2.4)	1 (2.2)		4 (1.6)	2 (3.1)	
1–3	6 (10.3)	1 (12.5)		11 (5.4)	1 (2.2)		16 (6.2)	2 (3.1)	
>4	49 (84.5)	7 (87.5)		185 (90.2)	42 (93.3)		236 (91.8)	60 (92.3)	
Biopsy	0 (0.0)	0 (0.0)		1 (0.5)	0 (0.0)		0 (0.0)	0 (0.0)	
Unknown	1 (1.7)	0 (0.0)		3 (1.5)	1 (2.2)		1 (0.4)	1 (1.5)	
Other tumor history, n (%)			0.673			0.307			0.718
No	43 (74.1)	5 (62.5)		152 (74.1)	30 (66.7)		184 (71.6)	48 (73.8)	
Yes	15 (25.9)	3 (37.5)		53 (25.9)	15 (33.3)		73 (28.4)	17 (26.2)	
Age (years), n (%)			0.669			0.406			0.748
≤60	16 (27.6)	1 (12.5)		60 (29.3)	16 (35.6)		70 (27.2)	19 (29.2)	
>60	42 (72.4)	7 (87.5)		145 (70.7)	29 (64.4)		187 (72.8)	46 (70.8)	
Age (years), mean (SD)/median [IQR]	67.8 (11.3)	64.4 (7.2)	0.411	66 (10.3)	65.2 (10.8)	0.634	68 [59, 75]	68 [60, 74]	0.816
Insurance, n (%)			0.606			0.105			0.411
Uninsured	0 (0.0)	0 (0.0)		2 (1.0)	2 (4.4)		5 (1.9)	1 (1.5)	
Insured	45 (77.6)	6 (75.0)		157 (76.6)	32 (71.1)		190 (73.9)	45 (69.2)	
Medicaid	3 (5.2)	1 (12.5)		16 (7.8)	1 (2.2)		6 (2.3)	4 (6.2)	
Unknown	10 (17.2)	1 (12.5)		30 (14.6)	10 (22.2)		56 (21.8)	15 (23.1)	
Marital status, n (%)			0.757			0.447			0.653
Unmarried	8 (13.8)	1 (12.5)		21 (10.2)	5 (11.1)		23 (8.9)	4 (6.2)	
Married	33 (56.9)	6 (75.0)		129 (62.9)	32 (71.1)		172 (66.9)	47 (72.3)	
Other	17 (29.3)	1 (12.5)		55 (26.8)	8 (17.8)		62 (24.1)	14 (21.5)	

LN, lymph node; SD, standard deviation; IQR, interquartile range; PP, partial pancreatectomy; TP, total pancreatectomy.

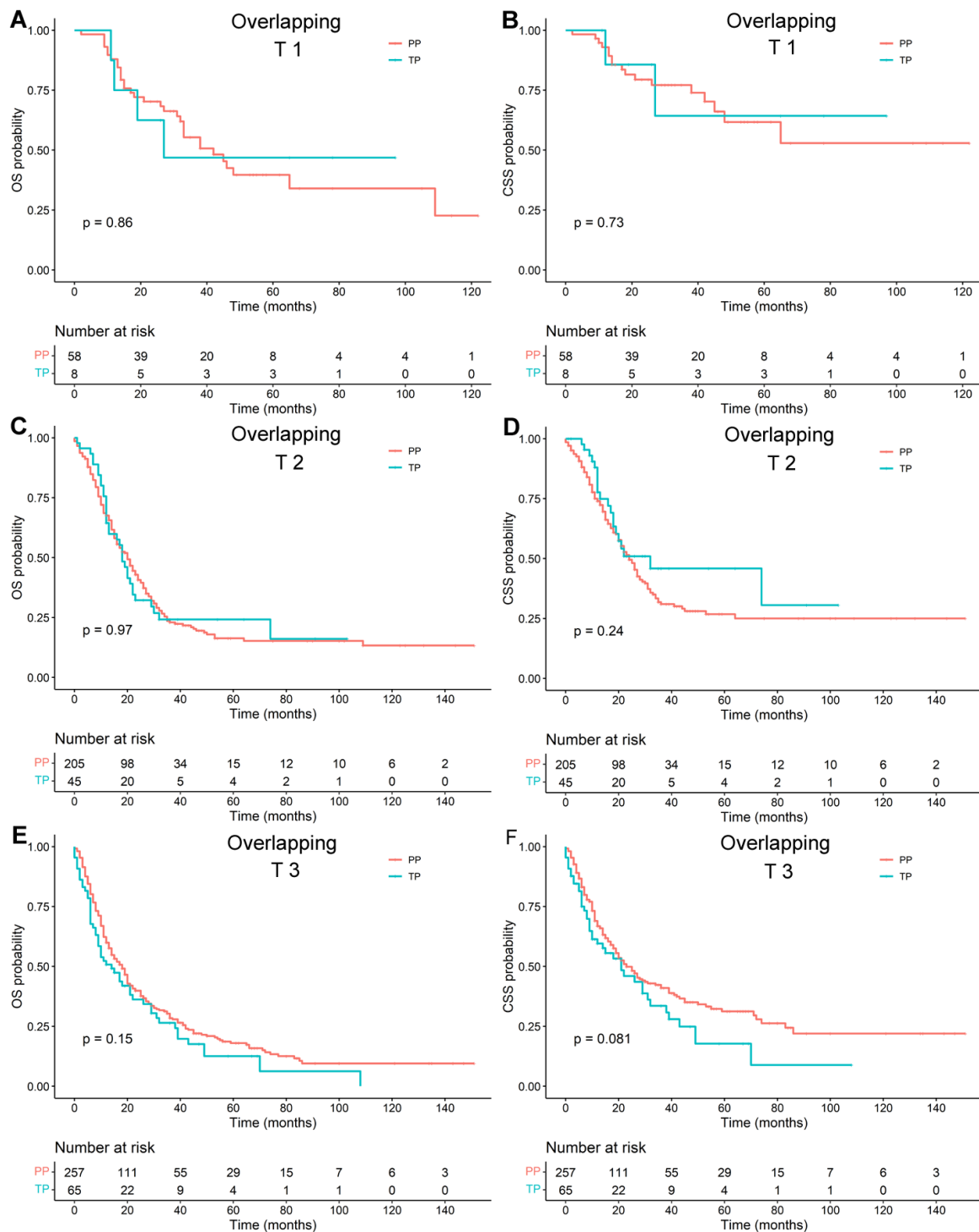
**Table S6** Cox regression analyses for OS and CSS in pancreatic head and neck cancer patients stratified by tumor size

Variables	T1				T2				T3			
	OS		CSS		OS		CSS		OS		CSS	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Race												
White	Reference		Reference		Reference		Reference		Reference		Reference	
Black	1.126 (0.927–1.368)	0.232	1.130 (0.905–1.411)	0.282	1.082 (0.987–1.185)	0.093	1.020 (0.918–1.134)	0.709	0.945 (0.798–1.118)	0.508	0.935 (0.770–1.134)	0.494
Other	1.109 (0.904–1.360)	0.321	1.176 (0.938–1.474)	0.159	0.931 (0.836–1.037)	0.193	0.913 (0.808–1.031)	0.143	0.913 (0.756–1.102)	0.344	0.913 (0.734–1.135)	0.414
Gender												
Female	Reference		Reference		Reference		Reference		Reference		Reference	
Male	0.989 (0.885–1.106)	0.850	0.983 (0.863–1.118)	0.789	1.135 (1.074–1.200)	<0.001	1.089 (1.021–1.161)	0.009	1.145 (1.039–1.262)	0.006	1.153 (1.032–1.288)	0.012
Year of diagnosis												
2002–2007	Reference		Reference		Reference		Reference		Reference		Reference	
2008–2011	0.881 (0.730–1.064)	0.189	0.780 (0.629–0.968)	0.024	0.924 (0.836–1.021)	0.120	0.915 (0.815–1.027)	0.132	0.942 (0.797–1.113)	0.481	0.987 (0.810–1.203)	0.896
2012–2015	0.731 (0.596–0.896)	0.003	0.658 (0.522–0.831)	<0.001	0.867 (0.782–0.961)	0.007	0.841 (0.747–0.947)	0.004	0.854 (0.719–1.015)	0.073	0.911 (0.743–1.117)	0.369
Pathology grade												
I	Reference		Reference		Reference		Reference		Reference		Reference	
II	1.571 (1.331–1.854)	<0.001	1.630 (1.336–1.988)	<0.001	1.405 (1.270–1.555)	<0.001	1.470 (1.306–1.654)	<0.001	1.493 (1.251–1.780)	<0.001	1.656 (1.335–2.053)	<0.001
III	2.040 (1.708–2.438)	<0.001	2.003 (1.624–2.472)	<0.001	1.838 (1.658–2.039)	<0.001	1.902 (1.686–2.145)	<0.001	1.991 (1.665–2.379)	<0.001	2.278 (1.835–2.829)	<0.001
IV	1.629 (0.969–2.740)	0.066	1.998 (1.066–3.745)	0.031	1.788 (1.362–2.348)	<0.001	1.900 (1.402–2.575)	<0.001	1.748 (1.226–2.491)	0.002	2.569 (1.714–3.851)	<0.001
Pancreatectomy												
Partial	Reference		Reference		Reference		Reference		Reference		Reference	
Total	0.914 (0.789–1.058)	0.227	0.868 (0.730–1.031)	0.106	1.100 (1.027–1.179)	0.007	1.112 (1.027–1.203)	0.009	1.098 (0.977–1.234)	0.118	1.131 (0.990–1.293)	0.071
LN resection												
None	Reference		Reference		Reference		Reference		Reference		Reference	
1–3	0.624 (0.412–0.945)	0.026	0.731 (0.455–1.174)	0.195	0.873 (0.661–1.154)	0.340	0.853 (0.620–1.175)	0.330	1.215 (0.812–1.817)	0.344	1.212 (0.762–1.929)	0.417
>4	0.592 (0.411–0.854)	0.005	0.661 (0.439–0.996)	0.048	0.767 (0.594–0.990)	0.042	0.772 (0.577–1.034)	0.082	0.979 (0.695–1.379)	0.903	1.140 (0.777–1.674)	0.503
Biopsy	0.560 (0.232–1.352)	0.197	0.778 (0.295–2.050)	0.611	0.785 (0.516–1.193)	0.257	0.943 (0.591–1.505)	0.806	0.815 (0.359–1.850)	0.624	0.499 (0.150–1.656)	0.256
Unknown	0.473 (0.230–0.970)	0.041	0.508 (0.235–1.097)	0.085	0.847 (0.576–1.244)	0.397	0.868 (0.562–1.340)	0.523	0.867 (0.464–1.621)	0.655	0.820 (0.395–1.700)	0.594
Other tumor history												
No	Reference		Reference		Reference		Reference		Reference		Reference	
Yes	0.903 (0.793–1.029)	0.126	0.138 (0.102–0.186)	<0.001	0.854 (0.800–0.913)	<0.001	0.110 (0.093–0.131)	<0.001	0.939 (0.837–1.055)	0.290	0.116 (0.085–0.157)	<0.001
Age (years)												
≤60	Reference		Reference		Reference		Reference		Reference		Reference	
>60	1.260 (1.114–1.424)	<0.001	1.189 (1.035–1.365)	0.014	1.276 (1.199–1.359)	<0.001	1.199 (1.119–1.285)	<0.001	1.379 (1.242–1.531)	<0.001	1.304 (1.162–1.462)	<0.001
Insurance												
Uninsured	Reference		Reference		Reference		Reference		Reference		Reference	
Insured	0.986 (0.630–1.545)	0.951	0.946 (0.587–1.522)	0.818	1.012 (0.811–1.263)	0.917	0.909 (0.718–1.151)	0.429	0.996 (0.695–1.429)	0.984	1.012 (0.687–1.490)	0.953
Medicaid	1.195 (0.738–1.937)	0.469	1.014 (0.602–1.707)	0.959	1.307 (1.027–1.663)	0.029	1.124 (0.868–1.457)	0.375	1.227 (0.832–1.809)	0.302	1.273 (0.836–1.937)	0.261
Unknown	1.100 (0.678–1.786)	0.699	0.941 (0.559–1.584)	0.820	1.109 (0.871–1.412)	0.401	1.010 (0.779–1.310)	0.940	0.958 (0.648–1.416)	0.828	1.090 (0.712–1.668)	0.693
Marital status												
Unmarried	Reference		Reference		Reference		Reference		Reference		Reference	
Married	1.026 (0.861–1.224)	0.772	1.138 (0.928–1.396)	0.215	0.900 (0.822–0.986)	0.023	0.929 (0.838–1.030)	0.162	0.932 (0.802–1.082)	0.353	0.990 (0.834–1.176)	0.909
Other	1.045 (0.861–1.269)	0.655	1.108 (0.883–1.390)	0.375	1.042 (0.944–1.150)	0.412	1.057 (0.945–1.183)	0.331	1.076 (0.912–1.268)	0.385	1.125 (0.930–1.361)	0.224

OS, overall survival; CSS, cancer-specific survival; LN, lymph node; HR, hazard ratio; CI, confidence interval.



**Figure S1** Kaplan-Meier survival curves for patients undergoing TP or PP stratified by combining tumor location and size. OS and CSS for pancreatic body and tail cancer patients with T1-stage tumors (A,B), T2-stage tumors (C,D), and T3-stage tumors (E,F). OS, overall survival; PP, partial pancreatectomy; TP, total pancreatectomy; CSS, cancer-specific survival.



**Figure S2** Kaplan-Meier survival curves for patients undergoing TP or PP stratified by combining tumor location and size. OS and CSS for pancreatic overlapping location cancer patients with T1-stage tumors (A,B), T2-stage tumors (C,D), and T3-stage tumors (E,F). OS, overall survival; PP, partial pancreatectomy; TP, total pancreatectomy; CSS, cancer-specific survival.



**Table S7** Cox regression analyses for OS and CSS in pancreatic body and tail cancer patients stratified by tumor size

Variables	T1				T2				T3			
	OS		CSS		OS		CSS		OS		CSS	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Race												
White	Reference		Reference		Reference		Reference		Reference		Reference	
Black	0.802 (0.465–1.385)	0.429	0.827 (0.418–1.634)	0.584	1.049 (0.827–1.330)	0.694	0.920 (0.682–1.241)	0.585	1.221 (0.978–1.525)	0.078	1.151 (0.886–1.497)	0.292
Other	0.849 (0.514–1.403)	0.524	0.664 (0.338–1.305)	0.235	0.943 (0.737–1.207)	0.643	0.905 (0.680–1.203)	0.492	0.898 (0.695–1.159)	0.408	0.964 (0.706–1.316)	0.817
Gender												
Female	Reference		Reference		Reference		Reference		Reference		Reference	
Male	1.161 (0.865–1.558)	0.321	1.125 (0.743–1.704)	0.577	0.993 (0.859–1.149)	0.927	0.951 (0.791–1.143)	0.589	1.223 (1.062–1.407)	0.005	1.140 (0.960–1.355)	0.136
Year of diagnosis												
2002–2007	Reference		Reference		Reference		Reference		Reference		Reference	
2008–2011	0.689 (0.424–1.120)	0.133	0.370 (0.187–0.733)	0.004	0.907 (0.709–1.160)	0.437	0.979 (0.721–1.329)	0.891	1.206 (0.931–1.564)	0.157	1.232 (0.879–1.727)	0.226
2012–2015	0.707 (0.429–1.166)	0.175	0.452 (0.230–0.887)	0.021	0.921 (0.714–1.186)	0.522	0.933 (0.682–1.277)	0.666	0.924 (0.709–1.203)	0.556	0.999 (0.706–1.414)	0.997
Pathology grade												
I	Reference		Reference		Reference		Reference		Reference		Reference	
II	1.416 (0.987–2.031)	0.059	1.931 (1.130–3.297)	0.016	1.842 (1.444–2.351)	<0.001	2.406 (1.725–3.356)	<0.001	2.458 (1.860–3.249)	<0.001	2.491 (1.778–3.491)	<0.001
III	1.745 (1.122–2.712)	0.013	2.416 (1.304–4.474)	0.005	2.501 (1.936–3.231)	<0.001	3.439 (2.429–4.869)	<0.001	3.230 (2.427–4.299)	<0.001	3.393 (2.395–4.807)	<0.001
IV	0.810 (0.192–3.411)	0.774	3.465 (0.760–15.797)	0.108	2.096 (1.179–3.726)	0.012	1.441 (0.562–3.695)	0.448	1.792 (1.133–2.835)	0.013	1.792 (1.054–3.047)	0.031
Pancreatectomy												
Partial	Reference		Reference		Reference		Reference		Reference		Reference	
Total	0.797 (0.483–1.313)	0.372	1.012 (0.522–1.965)	0.971	1.128 (0.881–1.445)	0.338	1.014 (0.741–1.388)	0.930	1.170 (0.934–1.465)	0.173	1.165 (0.889–1.526)	0.268
LN resection												
None	Reference		Reference		Reference		Reference		Reference		Reference	
1–3	0.679 (0.333–1.385)	0.288	0.674 (0.275–1.654)	0.389	0.890 (0.598–1.326)	0.567	0.863 (0.496–1.501)	0.603	1.362 (0.873–2.125)	0.173	1.231 (0.732–2.072)	0.433
>4	0.872 (0.483–1.574)	0.650	0.762 (0.369–1.574)	0.463	1.016 (0.722–1.430)	0.928	1.136 (0.712–1.813)	0.591	1.156 (0.776–1.724)	0.476	1.191 (0.752–1.886)	0.456
Biopsy	0.290 (0.037–2.272)	0.239	0.281 (0.034–2.334)	0.240	1.170 (0.353–3.881)	0.797	2.907 (0.644–13.114)	0.165	3.969 (0.926–17.013)	0.063	5.166 (1.176–22.691)	0.030
Unknown	0.750 (0.094–6.006)	0.786	3.924e–08 (0–Inf)	0.997	1.181 (0.493–2.829)	0.709	0.981 (0.286–3.360)	0.976	1.642 (0.761–3.544)	0.206	1.583 (0.657–3.815)	0.306
Other tumor history												
No	Reference		Reference		Reference		Reference		Reference		Reference	
Yes	0.962 (0.709–1.305)	0.802	0.064 (0.025–0.159)	<0.001	0.897 (0.771–1.043)	0.158	0.084 (0.055–0.129)	<0.001	1.013 (0.870–1.179)	0.871	0.087 (0.056–0.136)	<0.001
Age (years)												
≤60	Reference		Reference		Reference		Reference		Reference		Reference	
>60	1.414 (0.984–2.030)	0.061	1.372 (0.857–2.196)	0.187	1.351 (1.127–1.618)	0.001	1.201 (0.970–1.487)	0.094	1.363 (1.155–1.608)	<0.001	1.261 (1.042–1.526)	0.017
Insurance												
Uninsured	Reference		Reference		Reference		Reference		Reference		Reference	
Insured	7.309e+06 (0–Inf)	0.992	8.176e+06 (0–Inf)	0.995	0.914 (0.446–1.873)	0.805	0.808 (0.372–1.756)	0.591	1.474 (0.755–2.879)	0.256	1.401 (0.686–2.859)	0.355
Medicaid	1.212e+07 (0–Inf)	0.992	2.059e+07 (0–Inf)	0.994	1.051 (0.492–2.249)	0.897	1.038 (0.453–2.380)	0.929	1.712 (0.841–3.485)	0.139	1.444 (0.665–3.135)	0.353
Unknown	5.717e+06 (0–Inf)	0.992	5.612e+06 (0–Inf)	0.995	1.164 (0.544–2.491)	0.695	1.116 (0.486–2.562)	0.796	1.660 (0.813–3.387)	0.164	1.818 (0.832–3.972)	0.134
Marital status												
Unmarried	Reference		Reference		Reference		Reference		Reference		Reference	
Married	1.082 (0.667–1.753)	0.750	0.766 (0.398–1.473)	0.424	1.066 (0.812–1.398)	0.647	0.956 (0.688–1.328)	0.788	0.992 (0.778–1.264)	0.946	0.915 (0.689–1.215)	0.540
Other	1.398 (0.836–2.337)	0.201	0.931 (0.452–1.914)	0.845	1.243 (0.932–1.657)	0.139	1.112 (0.783–1.579)	0.552	1.089 (0.839–1.414)	0.520	0.902 (0.660–1.232)	0.516

OS, overall survival; CSS, cancer-specific survival; LN, lymph node; HR, hazard ratio; CI, confidence interval.

**Table S8** Cox regression analyses for OS and CSS in pancreatic overlapping location cancer patients stratified by tumor size

Variables	T1				T2				T3			
	OS		CSS		OS		CSS		OS		CSS	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Race												
White	Reference		Reference		Reference		Reference		Reference		Reference	
Black	1.625 (0.378–6.992)	0.514	1.374 (0.128–14.789)	0.793	1.443 (0.857–2.431)	0.168	1.228 (0.649–2.322)	0.528	1.116 (0.686–1.813)	0.659	1.077 (0.627–1.847)	0.789
Other	1.821 (0.464–7.150)	0.390	2.770 (0.363–21.121)	0.326	1.029 (0.628–1.685)	0.911	1.101 (0.621–1.953)	0.741	0.789 (0.467–1.331)	0.374	0.769 (0.430–1.377)	0.377
Gender												
Female	Reference		Reference		Reference		Reference		Reference		Reference	
Male	1.263 (0.549–2.908)	0.583	0.732 (0.214–2.503)	0.619	0.937 (0.686–1.278)	0.679	0.909 (0.622–1.328)	0.622	1.001 (0.766–1.307)	0.996	0.893 (0.651–1.225)	0.482
Year of diagnosis												
2002–2007	Reference		Reference		Reference		Reference		Reference		Reference	
2008–2011	1.683 (0.338–8.373)	0.525	0.535 (0.070–4.076)	0.546	0.711 (0.395–1.281)	0.256	0.602 (0.294–1.234)	0.166	0.591 (0.374–0.935)	0.025	0.460 (0.269–0.785)	0.004
2012–2015	1.041 (0.198–5.469)	0.963	0.360 (0.039–3.358)	0.370	0.547 (0.305–0.982)	0.043	0.464 (0.229–0.940)	0.033	0.653 (0.407–1.047)	0.077	0.535 (0.309–0.928)	0.026
Pathology grade												
I	Reference		Reference		Reference		Reference		Reference		Reference	
II	4.122 (0.993–17.114)	0.051	5.315 (0.406–69.542)	0.203	1.623 (0.984–2.676)	0.058	1.968 (1.097–3.529)	0.023	1.163 (0.743–1.820)	0.510	1.116 (0.654–1.904)	0.687
III	6.297 (1.214–32.662)	0.029	4.291 (0.311–59.283)	0.277	2.009 (1.200–3.362)	0.008	2.108 (1.158–3.836)	0.015	1.806 (1.146–2.847)	0.011	1.728 (1.013–2.949)	0.045
IV	6.977 (0.810–60.064)	0.077	6.390e-08 (0–Inf)	0.999	3.229 (0.411–25.396)	0.265	3.405 (0.421–27.561)	0.251	1.495 (0.744–3.002)	0.259	1.963 (0.905–4.256)	0.088
Pancreatectomy												
Partial	Reference		Reference		Reference		Reference		Reference		Reference	
Total	1.176 (0.260–5.326)	0.834	2.483 (0.272–22.681)	0.420	1.070 (0.723–1.583)	0.735	0.747 (0.452–1.235)	0.255	1.101 (0.802–1.511)	0.551	1.140 (0.791–1.644)	0.481
LN resection												
None	Reference		Reference		Reference		Reference		Reference		Reference	
1–3	2.138 (0.158–28.838)	0.567	1.138e+09 (0–Inf)	0.999	0.874 (0.279–2.733)	0.817	0.448 (0.073–2.745)	0.385	0.999 (0.282–3.548)	0.999	1.156 (0.244–5.488)	0.855
>4	1.017 (0.091–11.306)	0.989	4.556e+08 (0–Inf)	0.999	0.762 (0.304–1.911)	0.562	1.037 (0.242–4.445)	0.961	1.399 (0.438–4.471)	0.571	1.482 (0.354–6.210)	0.590
Biopsy	NA	NA	NA	NA	1.363 (0.136–13.682)	0.793	1.742 (0.126–24.0950)	0.679	NA	NA	NA	NA
Unknown	1.297e-07 (0–Inf)	0.998	2.557 (0–Inf)	1.000	0.600 (0.137–2.616)	0.496	1.391 (0.216–8.982)	0.728	7.547 (1.127–50.559)	0.037	6.759 (0.841–54.293)	0.072
Other tumor history												
No	Reference		Reference		Reference		Reference		Reference		Reference	
Yes	1.322 (0.580–3.009)	0.507	2.518e-09 (0–Inf)	0.998	0.544 (0.379–0.781)	0.001	0.063 (0.025–0.158)	<0.001	0.622 (0.465–0.832)	0.001	0.102 (0.055–0.189)	<0.001
Age (years)												
≤60	Reference		Reference		Reference		Reference		Reference		Reference	
>60	1.202 (0.458–3.153)	0.708	0.588 (0.184–1.876)	0.370	1.474 (1.050–2.069)	0.025	1.510 (1.034–2.204)	0.033	1.485 (1.095–2.012)	0.011	1.417 (1.005–1.999)	0.047
Insurance												
Uninsured	Reference		Reference		Reference		Reference		Reference		Reference	
Insured	0.455 (0.079–2.623)	0.378	0.551 (0.070–4.340)	0.571	5.666 (0.763–42.055)	0.090	9.661e+06 (0–Inf)	0.995	1.567 (0.617–3.981)	0.345	2.005 (0.707–5.681)	0.191
Medicaid	1.297 (0.156–10.782)	0.810	0.529 (0.021–13.419)	0.700	8.085 (1.012–64.573)	0.049	1.315e+07 (0–Inf)	0.995	1.373 (0.417–4.515)	0.602	1.881 (0.520–6.805)	0.336
Unknown	NA	NA	NA	NA	3.878 (0.501–30.022)	0.194	8.284e+06 (0–Inf)	0.995	1.330 (0.478–3.701)	0.584	1.205 (0.380–3.820)	0.751
Marital status												
Unmarried	Reference		Reference		Reference		Reference		Reference		Reference	
Married	0.586 (0.159–2.158)	0.422	0.433 (0.099–1.903)	0.268	1.092 (0.655–1.820)	0.735	1.270 (0.674–2.393)	0.460	0.557 (0.350–0.886)	0.014	0.571 (0.334–0.974)	0.040
Other	0.661 (0.170–2.564)	0.550	0.399 (0.059–2.681)	0.345	0.959 (0.536–1.717)	0.888	0.980 (0.464–2.068)	0.957	0.852 (0.514–1.413)	0.534	0.923 (0.518–1.643)	0.784

OS, overall survival; CSS, cancer-specific survival; LN, lymph node; HR, hazard ratio; CI, confidence interval; NA, not available.