

Table S1. Characteristics of patients with gastric cancer by age, young versus elderly. SEER 2004-2012 (n=16856)^a

Characteristics	Total	<50	≥50	P value ^b
	16856 (100)	2240 (13.29)	14616 (86.71)	
Median Follow-up				
Months (IQR)		11 (4-30)	11 (3-31)	
Age (IQR)		43 (38-47)	72 (63-80)	
Sex				<0.001
male	9432 (100)	1146 (12.15)	8286 (87.85)	
female	7424 (100)	1094 (14.74)	6330 (85.26)	
Race				0.001
white	10262 (100)	1334 (13)	8928 (87)	
black	2800 (100)	423 (15.11)	2377 (84.89)	
American Indian/Alaska Native	159 (100)	32 (20.13)	127 (79.87)	
Asian or Pacific Islander	3579 (100)	444 (12.41)	3135 (87.59)	
Unknown	56 (100)	7 (12.5)	49 (87.5)	
Marital status				<0.001
Married	9852 (100)	1410 (14.31)	8442 (85.69)	
Single (never married)	2428 (100)	636 (26.19)	1792 (73.81)	
Divorced/Separated	1530 (100)	177 (11.57)	1353 (88.43)	
Widowed	3046 (100)	17 (0.56)	3029 (99.44)	
Histological type				<0.001
Adenocarcinoma, NOS	8254 (100)	770 (9.33)	7484 (90.67)	
Adenocarcinoma, intestinal type	2424 (100)	110 (4.54)	2314 (95.46)	
Carcinoma, diffuse type	1083 (100)	236 (21.79)	847 (78.21)	
Tubular adenocarcinoma	166 (100)	8 (4.82)	158 (95.18)	
Papillary adenocarcinoma, NOS	41 (100)	5 (12.2)	36 (87.8)	
Mucinous adenocarcinoma	308 (100)	31 (10.06)	277 (89.94)	
Signet ring cell carcinoma	4580 (100)	1080 (23.58)	3500 (76.42)	
Site				<0.001
Fundus of stomach	854 (100)	98 (11.48)	756 (88.52)	
Body of stomach	2109 (100)	257 (12.19)	1852 (87.81)	
Gastric antrum	5426 (100)	658 (12.13)	4768 (87.87)	
Pylorus	838 (100)	102 (12.17)	736 (87.83)	
Lesser curvature of stomach, NOS	2201 (100)	269 (12.22)	1932 (87.78)	
Greater curvature of stomach, NOS	987 (100)	144 (14.59)	843 (85.41)	
Overlapping lesion of stomach	1884 (100)	315 (16.72)	1569 (83.28)	
Stomach, NOS	2557 (100)	397 (15.53)	2160 (84.47)	
Stage^c				<0.001
I	4453 (100)	342 (7.68)	4111 (92.32)	
II	3708 (100)	432 (11.65)	3276 (88.35)	
III	4054 (100)	563 (13.89)	3491 (86.11)	
IV	4641 (100)	903 (19.46)	3738 (80.54)	

Depth of invasion				
T1	4859 (28.83)	472 (21.07)	4387 (30.02)	
T2	1741 (10.33)	203 (9.06)	1538 (10.52)	
T3	7382 (43.79)	1042 (46.52)	6340 (43.38)	
T4	2874 (17.05)	523 (23.35)	2351 (16.09)	
Lymph node involvement				
N0	7912 (46.94)	894 (39.91)	7018 (48.02)	
N1	1953 (11.59)	240 (10.71)	1713 (11.72)	
N2	3930 (23.32)	602 (26.88)	3328 (22.77)	
N3	3061 (18.16)	504 (22.5)	2557 (17.49)	
Distant metastasis				
M0	12216 (72.47)	1338 (59.73)	10878 (74.43)	
M1	4640 (27.53)	902 (40.27)	3738 (25.57)	
Grade				
Grade I	597 (100)	34 (5.7)	563 (94.3)	<0.001
Grade II	3685 (100)	181 (4.91)	3504 (95.09)	
Grade III	10500 (100)	1700 (16.19)	8800 (83.81)	
Grade IV	339 (100)	55 (16.22)	284 (83.78)	
cell type not determined	1735 (100)	270 (15.56)	1465 (84.44)	
Surgery				
No surgery	5405 (100)	792 (14.65)	4613 (85.35)	<0.001
Non-Total or Non-near-total gastrectomy	8935 (100)	1015 (11.36)	7920 (88.64)	
Total or near total gastrectomy	2516 (100)	433 (17.21)	2083 (82.79)	
Radiotherapy				
No radiotherapy	12746 (100)	1503 (11.79)	11243 (88.21)	<0.001
Radiotherapy	3858 (100)	701 (18.17)	3157 (81.83)	
Radiotherapy unknown	252 (100)	36 (14.29)	216 (85.71)	

Abbreviation: NOS= no other specific; SEER=Surveillance, Epidemiology and End Results;
IQR=interquartile range

^aData are presented as No.(percentage) of patients.

^bP value of the Chi-square test or Wilcoxon-Mann-Whitney test comparing young and elderly groups

^cBeing restaged according to the criteria of AJCC Cancer Staging Manual (7th edition, 2010)

Table S2. Univariate and multivariate survival analysis for age on gastric cancer-specific survival (CSS) by surgery. SEER 2004-2012 (n=12216)

Surgery	3-year CSS	Univariate analysis		Multivariate analysis		
		Log rank χ^2	P value	HR	95%CI	P value
No surgery (n=2332)						
Age		3.1	0.0781			
<50	20.49%					
\geq 50	17.88%					
Non-Total gastrectomy (n=7780)						
Age		2.12	0.1457			
<50	64.95%					
\geq 50	62.01%					
Total gastrectomy (n=2104)						
Age		5.33	0.021			
<50	55.93%			Reference		
\geq 50	48.73%			1.34	1.11-1.62	0.003

Abbreviation: SEER=Surveillance, Epidemiology and End Results;

Table S3. Univariate and multivariate survival analysis for age on gastric cancer-specific survival (CSS) by surgery, in 1:1 matching. SEER 2004-2012 (n=2676)

Variable	3-year CSS	Univariate Analysis		Multivariate Analysis		
		Log rank χ^2	P Value	HR	95%CI	P Value
Age		17.65	<0.001			
<50	56.60%			Reference		
≥50	48.76%			1.39	1.23-1.57	<0.001
Primary Site		87.91	<0.001			
Fundus of stomach	41.99%			Reference		
Body of stomach	55.51%			0.85	0.63-1.15	0.288
Gastric antrum	57.36%			0.85	0.65-1.12	0.254
Pylorus	56.94%			1.04	0.74-1.46	0.825
Lesser curvature of stomach, NOS	60.96%			0.68	0.51-0.92	0.012
Greater curvature of stomach, NOS	58.65%			0.9	0.64-1.27	0.536
Overlapping lesion of stomach	33.43%			1.18	0.88-1.58	0.259
Stomach, NOS	43.65%			1.09	0.82-1.46	0.555
Sex		1.34	0.2472			
Male	53.22%					
Female	52.00%					
Race		37.06	<0.001			
white	49.14%			Reference		
black	50.49%			0.97	0.84-1.12	0.682
American Indian/Alaska Native	50.37%			1	0.59-1.70	0.991
Asian or Pacific Islander	63.67%			0.77	0.66-0.90	0.001
Unknown	85.71%			0.29	0.04-2.05	0.213
Marital status		21.56	<0.001			
Married	55.35%			Reference		
Single (never married)	48.61%			1.23	1.05-1.43	0.010
Divorced/Separated	49.96%			1.14	0.94-1.38	0.187
Widowed	45.19%			1.26	1.03-1.53	0.025
Grade		40.6	<0.001			
Grade I (well differentiated)	87.95%			Reference		
Grade II (moderately differentiated)	64.39%			1.64	0.75-3.56	0.215
Grade III (poorly differentiated)	50.98%			2.17	1.02-4.65	0.045
Grade IV (undifferentiated)	41.67%			3.02	1.32-6.92	0.009
cell type not determined	49.30%			1.92	0.88-4.19	0.102
Histological type		22.06	0.0012			
Adenocarcinoma, NOS	56.15%			Reference		

Adenocarcinoma, intestinal type	61.47%			1.06	0.80-1.40	0.686
Carcinoma, diffuse type	50.27%			1.19	0.97-1.46	0.097
Tubular adenocarcinoma	57.14%			2.77	1.02-7.50	0.045
Papillary adenocarcinoma, NOS	100.00%			0.87	0.28-2.72	0.809
Mucinous adenocarcinoma	59.73%			1.06	0.66-1.71	0.818
Signet ring cell carcinoma	48.68%			1.2	1.05-1.37	0.008
Stage^a		275.17	<0.001			
I	78.86%			Reference		
II	54.32%			2.43	1.97-2.99	<0.001
III	35.18%			3.68	2.92-4.63	<0.001
Surgery		400.13	<0.001			
No surgery	17.49%			Reference		
Non-Total or Non-near-total gastrectomy	61.16%			0.32	0.25-0.42	<0.001
Total or near total gastrectomy	48.54%			0.42	0.32-0.56	<0.001
Radiation		6.39	0.0409			
No radiotherapy	51.29%			Reference		
Radiotherapy	54.86%			0.67	0.59-0.76	<0.001
Radiotherapy unknown	51.43%			0.78	0.51-1.19	0.241

Abbreviation: NOS= no other specific; SEER=Surveillance, Epidemiology and End Results;

^aBeing restaged according to the criteria of AJCC Cancer Staging Manual (7th edition, 2010)