

Supplementary Fig 1

Variable		N	Hazard ratio	p-value
Time of diagnosis	Group A:1973–1983	15734	Reference	
	Group B:1984–1993	17186	0.87 (0.85, 0.89)	<0.001
	Group C:1994–2003	32705	0.75 (0.73, 0.76)	<0.001
	Group D:2004–2014	51093	0.55 (0.54, 0.56)	<0.001
Gender	Female	44695	Reference	
	Male	72023	1.12 (1.11, 1.14)	<0.001
Age	<50y	13816	Reference	
	50-64y	32646	1.11 (1.08, 1.14)	<0.001
	65-79y	46898	1.34 (1.30, 1.37)	<0.001
	≥80y	23358	1.96 (1.90, 2.02)	<0.001
Race	White	83727	Reference	
	American Indian/Alaska Native	926	1.26 (1.17, 1.36)	<0.001
	Asian or Pacific Islander	17051	0.86 (0.84, 0.88)	<0.001
	Black	15014	1.00 (0.98, 1.02)	0.934
Ethnic origin	Non-Spanish Hispanic Latino	100112	Reference	
	Spanish Hispanic Latino	16606	0.97 (0.94, 0.99)	0.003
Pathological grading	Well differentiated; Grade I	6100	Reference	
	Moderately differentiated; Grade II	24030	1.41 (1.35, 1.47)	<0.001
	Poorly differentiated; Grade III	56793	1.90 (1.82, 1.98)	<0.001
	Undifferentiated; anaplastic; Grade IV	3783	1.83 (1.73, 1.93)	<0.001
	Unknown	26012	1.39 (1.33, 1.45)	<0.001
SEER tumor stage	Localized	28504	Reference	
	Distant	41941	4.79 (4.67, 4.91)	<0.001
	Regional	35439	2.66 (2.59, 2.72)	<0.001
	Unstaged	10834	2.01 (1.95, 2.07)	<0.001
Marrital status	Married (including common law)	70402	Reference	
	Separated or divorced	9904	1.13 (1.10, 1.16)	<0.001
	Single (never married)	14517	1.14 (1.11, 1.17)	<0.001
	Widowed	21895	1.16 (1.14, 1.19)	<0.001
High school education (2008-12)#	Q1	29250	Reference	
	Q2	29150	1.00 (0.98, 1.02)	0.972
	Q3	29615	1.01 (0.99, 1.03)	0.466
	Q4	28703	1.03 (1.00, 1.05)	0.048
Median household income (2008-2012)#	Q1	29282	Reference	
	Q2	29301	0.90 (0.88, 0.92)	<0.001
	Q3	31244	0.91 (0.89, 0.93)	<0.001
	Q4	26891	0.87 (0.85, 0.89)	<0.001
Surgery status	Surgery is performed	64173	Reference	
	Surgery is not recommended ,and not performed	37344	2.82 (2.77, 2.88)	<0.001
	Surgery is recommended,but not performed	15201	2.59 (2.53, 2.66)	<0.001

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Supplementary Fig 2

Variable		N	Hazard ratio		p-value
Time of diagnosis	Group A:1973–1983	15734			Reference
	Group B:1984–1993	17186			0.88 (0.86, 0.90) <0.001
	Group C:1994–2003	32705			0.76 (0.74, 0.77) <0.001
	Group D:2004–2014	51093			0.57 (0.55, 0.58) <0.001
Gender	Female	44695			Reference
	Male	72023			1.16 (1.15, 1.18) <0.001
Age	<50y	13816			Reference
	50_64y	32646			1.19 (1.16, 1.22) <0.001
	65_79y	46898			1.58 (1.54, 1.62) <0.001
	≥80y	23358			2.43 (2.37, 2.50) <0.001
Race	White	83727			Reference
	American Indian/Alaska Native	926			1.23 (1.15, 1.32) <0.001
	Asian or Pacific Islander	17051			0.86 (0.85, 0.88) <0.001
	Black	15014			1.03 (1.01, 1.05) 0.007
Ethnic origin	Non_Spanish_Hispanic_Latino	100112			Reference
	Spanish_Hispanic_Latino	16606			0.98 (0.96, 1.00) 0.102
Pathological grading	Well differentiated; Grade I	6100			Reference
	Moderately differentiated; Grade II	24030			1.25 (1.21, 1.30) <0.001
	Poorly differentiated; Grade III	56793			1.59 (1.54, 1.65) <0.001
	Undifferentiated; anaplastic; Grade IV	3783			1.52 (1.45, 1.59) <0.001
	Unknown	26012			1.21 (1.17, 1.26) <0.001
SEER tumor stage	Localized	28504			Reference
	Distant	41941			3.47 (3.39, 3.54) <0.001
	Regional	35439			1.96 (1.92, 2.00) <0.001
	Unstaged	10834			1.60 (1.56, 1.64) <0.001
Marital status	Married (including common law)	70402			Reference
	Separated or divorced	9904			1.16 (1.14, 1.19) <0.001
	Single (never married)	14517			1.18 (1.15, 1.20) <0.001
	Widowed	21895			1.20 (1.18, 1.22) <0.001
High school education (2008-12)#	Q1	29250			Reference
	Q2	29150			1.00 (0.99, 1.02) 0.601
	Q3	29615			1.02 (1.00, 1.04) 0.060
	Q4	28703			1.03 (1.01, 1.06) 0.009
Median household income (2008-2012)#	Q1	29282			Reference
	Q2	29301			0.91 (0.90, 0.93) <0.001
	Q3	31244			0.92 (0.90, 0.93) <0.001
	Q4	26891			0.87 (0.85, 0.89) <0.001
Surgery status	Surgery is performed	64173			Reference
	Surgery is not recommended not performed	37344			2.67 (2.62, 2.72) <0.001
	Surgery is recommended,not performed	15201			2.42 (2.37, 2.47) <0.001

Table S1. The baseline demographic and clinical characteristics for GC in our study

	Non-surgical group N=37344(71.1%)	Surgical noncompliance group N=15201(28.9%)	Chi-square Test
Time of diagnosis			
group A:1973-1983	0(0.0%)	5959(39.2%)	<0.0001
group B:1984-1993	3231(8.7%)	3342(22.0%)	
group C:1994-2003	10532(28.2%)	3700(24.3%)	
group D:2004-2014	23581(63.1%)	2200(14.5%)	
Gender			
Female	13923(37.3%)	5843(38.4%)	0.0136
Male	23421(62.7%)	9358(61.6%)	
Age			
<50y	4648(12.4%)	1202(7.9%)	<0.0001
50-64y	10105(27.1%)	3458(22.7%)	
65-79y	13499(36.1%)	6037(39.7%)	
≥80y	9092(24.3%)	4504(29.6%)	
Race			
White	27306(73.1%)	11500(75.7%)	<0.0001
American Indian/Alaska Native	326(0.9%)	156(1.0%)	
Asian or Pacific Islander	4673(12.5%)	1576(10.4%)	
Black	5039(13.5%)	1969(13.0%)	
Ethnic origin			
Non-Spanish Hispanic Latino	30755(82.4%)	13781(90.7%)	<0.0001
Spanish Hispanic Latino	6589(17.6%)	1420(9.3%)	
Pathological grading			
Well differentiated; Grade I	1141(3.1%)	682(4.5%)	<0.0001
Moderately differentiated; Grade II	7127(19.1%)	2614(17.2%)	
Poorly differentiated; Grade III	19175(51.3%)	5953(39.2%)	
Undifferentiated; anaplastic; Grade IV	812(2.2%)	727(4.8%)	
Unknown	9089(24.3%)	5225(34.4%)	
SEER tumor stage			
Localized	4841(13.0%)	2028(13.3%)	<0.0001
Distant	23258(62.3%)	7114(46.8%)	
Regional	3922(10.5%)	2153(14.2%)	
Unstaged	5323(14.3%)	3906(25.7%)	
Marital status			
Married (including common law)	20862(55.9%)	8287(54.5%)	<0.0001
Separated or divorced	3431(9.2%)	1090(7.2%)	

Single (never married)	5785(15.5%)	1653(10.9%)	
Widowed	7266(19.5%)	4171(27.4%)	
Median household income			
(2008-2012)#			
Q1	9259(24.8%)	4733(31.1%)	
Q2	10986(29.4%)	2545(16.7%)	<0.0001
Q3	8802(23.6%)	4562(30.0%)	
Q4	8297(22.2%)	3361(22.1%)	
High school education			
(2008-2012)#			
Q1	7931(21.2%)	4785(31.5%)	
Q2	8426(22.6%)	3989(26.2%)	<0.0001
Q3	9319(25.0%)	4557(30.0%)	
Q4	11668(31.2%)	1870(12.3%)	

Measure of educational level or economic income for each patient's area of residence is from 2012 American Community Survey data, and it is categorized into equally proportioned quartiles