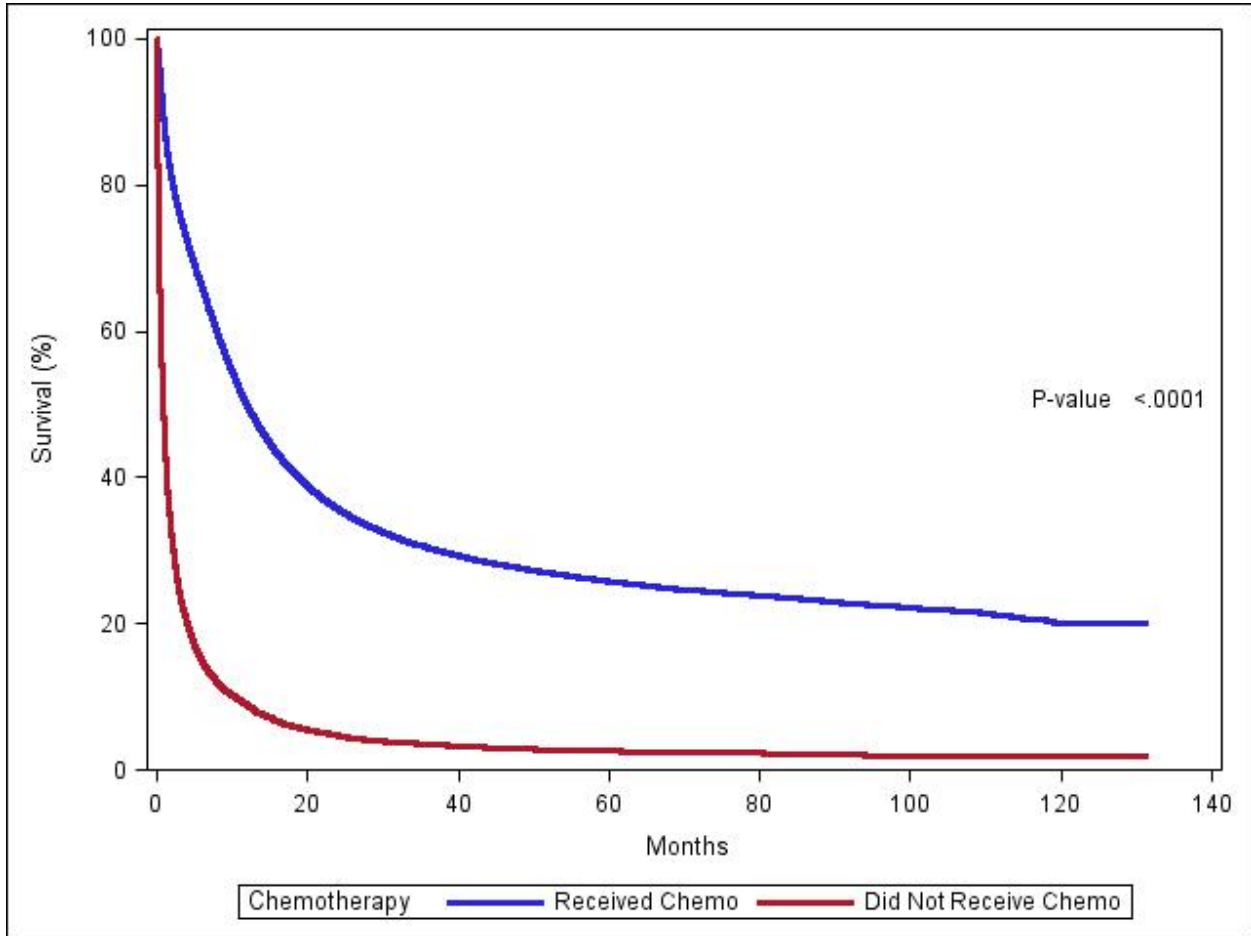**Supplementary Figure 1. Kaplan-Meier curves demonstrating overall survival of patients based on the use of chemotherapy.** Patients who did not receive chemotherapy had a poorer one-year (9.0%, 95% CI 8.5%-9.4%) and five-year overall survival (2.6%, 95% CI 2.3%-2.9%), as compared to patients treated with chemotherapy (49.9%, 95% CI 49.4%-50.3% at one year, and 25.8%, 95% CI 25.4%-26.3% at five years). CI indicates confidence interval.

Supplementary table 1. Age by insurance status interaction predicting receipt of chemotherapy

Age by insurance status interaction	Odds ratio (95% confidence interval)
18-40 years old	
Not insured vs Private Insurance	0.484 (0.366, 0.640)
Not insured vs Medicaid	0.395 (0.283, 0.551)
Not insured vs Medicare	0.791 (0.476, 1.313)
Not insured vs Other Government	0.767 (0.354, 1.666)
Medicaid vs Private Insurance	1.227 (0.938, 1.604)
Medicare vs Private Insurance	0.612 (0.384, 0.976)
Other Government vs Private Insurance	0.631 (0.298, 1.334)
Medicaid vs Medicare	2.004 (1.213, 3.310)
Medicaid vs Other Government	1.945 (0.899, 4.207)
Medicare vs Other Government	0.971 (0.410, 2.296)
41-59 years old	
Not insured vs Private Insurance	0.523 (0.426, 0.641)
Not insured vs Medicaid	0.674 (0.525, 0.865)
Not insured vs Medicare	1.370 (1.077, 1.741)
Not insured vs Other Government	0.544 (0.303, 0.974)
Medicaid vs Private Insurance	0.776 (0.645, 0.934)
Medicare vs Private Insurance	0.382 (0.322, 0.453)
Other Government vs Private Insurance	0.962 (0.550, 1.680)
Medicaid vs Medicare	2.033 (1.626, 2.543)
Medicaid vs Other Government	0.807 (0.453, 1.437)
Medicare vs Other Government	0.397 (0.224, 0.703)
60-70 years old	
Not insured vs Private Insurance	0.573 (0.441, 0.746)
Not insured vs Medicaid	0.789 (0.569, 1.093)
Not insured vs Medicare	0.919 (0.712, 1.188)
Not insured vs Other Government	0.680 (0.417, 1.109)
Medicaid vs Private Insurance	0.726 (0.578, 0.913)
Medicare vs Private Insurance	0.623 (0.562, 0.692)
Other Government vs Private Insurance	0.843 (0.548, 1.297)
Medicaid vs Medicare	1.165 (0.934, 1.453)
Medicaid vs Other Government	0.861 (0.537, 1.382)
Medicare vs Other Government	0.739 (0.483, 1.132)
71-80 years old	

Not insured vs Private Insurance	0.794 (0.500, 1.260)
Not insured vs Medicaid	0.804 (0.465, 1.389)
Not insured vs Medicare	0.797 (0.508, 1.250)
Not insured vs Other Government	1.067 (0.553, 2.058)
Medicaid vs Private Insurance	0.988 (0.707, 1.380)
Medicare vs Private Insurance	0.996 (0.885, 1.121)
Other Government vs Private Insurance	0.744 (0.455, 1.218)
Medicaid vs Medicare	0.992 (0.722, 1.363)
Medicaid vs Other Government	1.327 (0.748, 2.357)
Medicare vs Other Government	1.339 (0.827, 2.167)
>80 years old	
Not insured vs Private Insurance	0.814 (0.410, 1.618)
Not insured vs Medicaid	0.740 (0.324, 1.687)
Not insured vs Medicare	0.808 (0.413, 1.580)
Not insured vs Other Government	0.527 (0.195, 1.423)
Medicaid vs Private Insurance	1.101 (0.664, 1.827)
Medicare vs Private Insurance	1.008 (0.856, 1.186)
Other Government vs Private Insurance	1.546 (0.729, 3.276)
Medicaid vs Medicare	1.093 (0.673, 1.774)
Medicaid vs Other Government	0.712 (0.296, 1.715)
Medicare vs Other Government	0.652 (0.312, 1.361)
Not Insured	
18-40 vs 41-59	0.884 (0.623, 1.255)
18-40 vs 60-70	1.481 (1.010, 2.173)
18-40 vs 71-80	3.614 (2.117, 6.171)
18-40 vs >80	10.710 (5.158, 22.238)
41-59 vs 60-70	1.675 (1.220, 2.300)
41-59 vs 71-80	4.087 (2.505, 6.668)
41-59 vs >80	12.110 (6.025, 24.343)
60-70 vs 71-80	2.440 (1.460, 4.076)
60-70 vs >80	7.229 (3.537, 14.776)
71-80 vs >80	2.963 (1.324, 6.632)
Private Insurance	
18-40 vs 41-59	0.955 (0.751, 1.215)
18-40 vs 60-70	1.754 (1.384, 2.224)
18-40 vs 71-80	5.929 (4.630, 7.591)

18-40 vs >80	18.023 (13.740, 23.640)
41-59 vs 60-70	1.837 (1.599, 2.110)
41-59 vs 71-80	6.208 (5.319, 7.245)
41-59 vs >80	18.871 (15.595, 22.835)
60-70 vs 71-80	3.380 (2.916, 3.917)
60-70 vs >80	10.274 (8.539, 12.362)
71-80 vs >80	3.040 (2.501, 3.696)
Medicaid	
18-40 vs 41-59	1.510 (1.081, 2.108)
18-40 vs 60-70	2.963 (2.076, 4.229)
18-40 vs 71-80	7.362 (4.810, 11.268)
18-40 vs >80	20.075 (11.457, 35.175)
41-59 vs 60-70	1.962 (1.490, 2.584)
41-59 vs 71-80	4.877 (3.400, 6.996)
41-59 vs >80	13.298 (7.956, 22.226)
60-70 vs 71-80	2.485 (1.699, 3.636)
60-70 vs >80	6.776 (3.998, 11.486)
71-80 vs >80	2.727 (1.533, 4.851)
Medicare	
18-40 vs 41-59	1.532 (0.942, 2.490)
18-40 vs 60-70	1.723 (1.080, 2.746)
18-40 vs 71-80	3.644 (2.291, 5.796)
18-40 vs >80	10.949 (6.872, 17.446)
41-59 vs 60-70	1.124 (0.951, 1.330)
41-59 vs 71-80	2.378 (2.025, 2.794)
41-59 vs >80	7.147 (6.058, 8.433)
60-70 vs 71-80	2.115 (1.948, 2.297)
60-70 vs >80	6.356 (5.806, 6.959)
71-80 vs >80	3.005 (2.788, 3.239)
Other Government	
18-40 vs 41-59	0.626 (0.246, 1.597)
18-40 vs 60-70	1.312 (0.552, 3.117)
18-40 vs 71-80	5.025 (2.053, 12.297)
18-40 vs >80	7.353 (2.563, 21.095)
41-59 vs 60-70	2.095 (1.044, 4.202)
41-59 vs 71-80	8.023 (3.854, 16.702)

41-59 vs >80	11.739 (4.677, 29.463)
60-70 vs 71-80	3.830 (2.020, 7.265)
60-70 vs >80	5.605 (2.401, 13.083)
71-80 vs >80	1.463 (0.608, 3.519)

Supplementary table 2. Age by Charlson comorbidity Score interaction predicting receipt of chemotherapy

Age by Charlson comorbidity Score interaction	Odds ratio (95% confidence interval)
18-40 years old	
1 vs 0	0.404 (0.309, 0.528)
≥2 vs 0	0.394 (0.232, 0.670)
1 vs ≥2	1.025 (0.580, 1.812)
41-59 years old	
1 vs 0	0.786 (0.671, 0.919)
≥2 vs 0	0.491 (0.397, 0.608)
1 vs ≥2	1.600 (1.255, 2.039)
60-70 years old	
1 vs 0	0.861 (0.768, 0.966)
≥2 vs 0	0.488 (0.423, 0.562)
1 vs ≥2	1.766 (1.502, 2.077)
71-80 years old	
1 vs 0	0.833 (0.764, 0.908)
≥2 vs 0	0.589 (0.527, 0.659)
1 vs ≥2	1.413 (1.246, 1.602)
>80 years old	
1 vs 0	0.869 (0.782, 0.966)
≥2 vs 0	0.732 (0.634, 0.846)
1 vs ≥2	1.187 (1.011, 1.394)
Charlson comorbidity Score of 0	
18-40 vs 41-59	1.398 (1.105, 1.769)
18-40 vs 60-70	2.446 (1.952, 3.066)
18-40 vs 71-80	7.162 (5.599, 9.162)
18-40 vs >80	19.918 (14.762, 26.875)
41-59 vs 60-70	1.749 (1.470, 2.082)
41-59 vs 71-80	5.122 (4.194, 6.255)
41-59 vs >80	14.245 (10.955, 18.523)
60-70 vs 71-80	2.928 (2.427, 3.533)
60-70 vs >80	8.143 (6.320, 10.491)
71-80 vs >80	2.781 (2.121, 3.647)
Charlson comorbidity Score of 1	
18-40 vs 41-59	0.719 (0.513, 1.010)
18-40 vs 60-70	1.148 (0.833, 1.582)
18-40 vs 71-80	3.476 (2.495, 4.843)
18-40 vs >80	9.265 (6.374, 13.468)
41-59 vs 60-70	1.596 (1.273, 1.999)
41-59 vs 71-80	4.832 (3.800, 6.145)
41-59 vs >80	12.880 (9.580, 17.318)

60-70 vs 71-80	3.029 (2.447, 3.748)
60-70 vs >80	8.073 (6.136, 10.621)
71-80 vs >80	2.666 (2.002, 3.549)
Charlson comorbidity Score of ≥2	
18-40 vs 41-59	1.122 (0.630, 2.000)
18-40 vs 60-70	1.977 (1.133, 3.451)
18-40 vs 71-80	4.789 (2.732, 8.396)
18-40 vs >80	10.724 (5.941, 19.358)
41-59 vs 60-70	1.762 (1.336, 2.323)
41-59 vs 71-80	4.268 (3.210, 5.676)
41-59 vs >80	9.557 (6.810, 13.412)
60-70 vs 71-80	2.423 (1.907, 3.077)
60-70 vs >80	5.425 (4.013, 7.332)
71-80 vs >80	2.239 (1.645, 3.049)