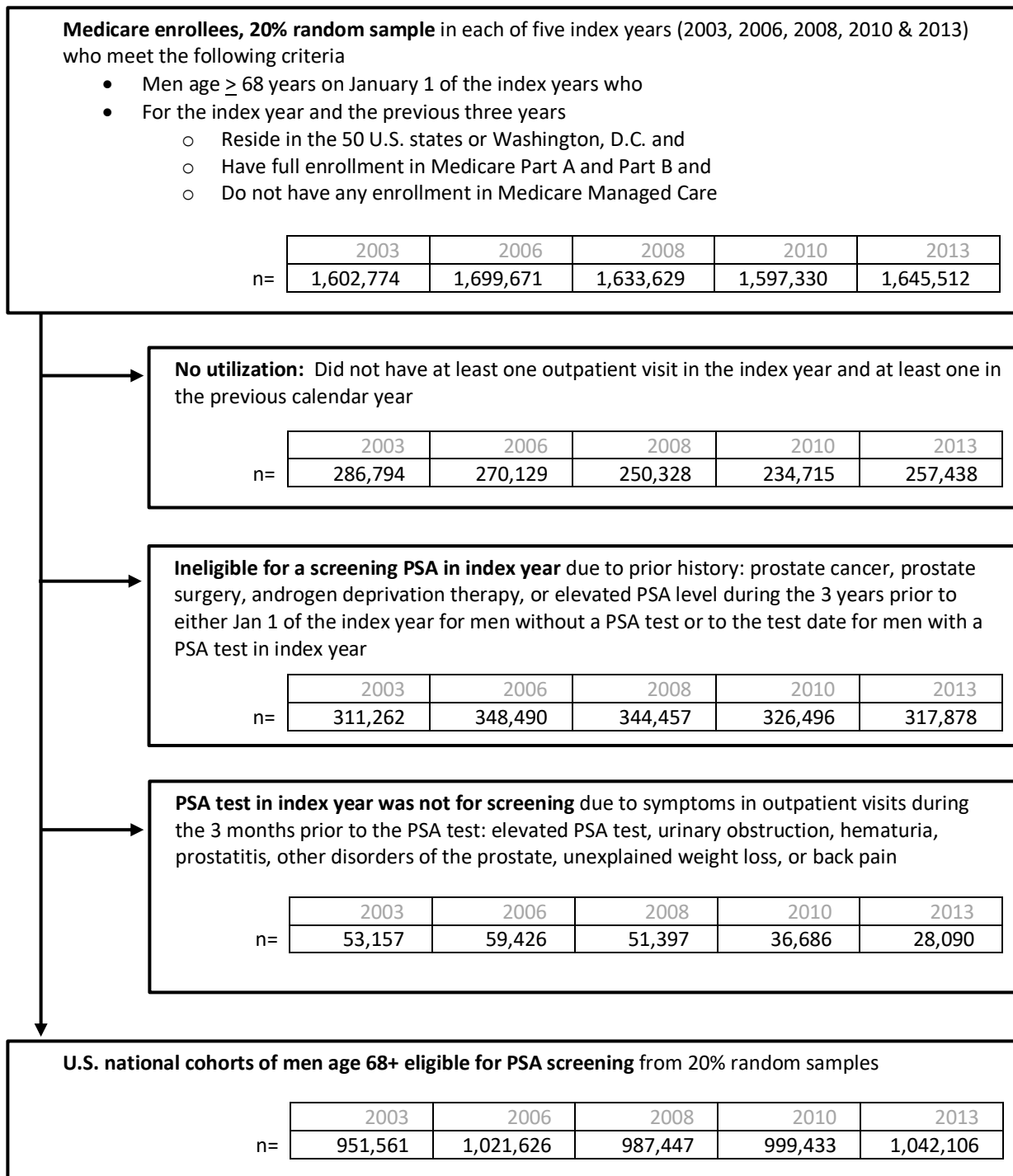


Supplementary Figure 1. Defining national cohorts of men age 68+ eligible for PSA screening for prostate cancer for years 2003, 2006, 2008, 2010, and 2013



Supplementary Table 1. Bivariate Analysis of Percent of Men Screened with PSA Test by Each Factor in 2003-2013^a

| | 2003 | 2006 | 2008 | 2010 | 2013 | Difference between 2003 & 2013 |
|-------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------------------------------------|
| All men in the cohort | 17.2 | 20.3 | 22.3 | 21.6 | 18.6 | p<.001 |
| Individual Sociodemographic & Health Factors | | | | | | |
| Age | | | | | | p<.001 |
| 68-69 years | 20.8 | 24.7 | 27.7 | 27.7 | 25.0 | |
| 70-74 years | 20.4 | 23.8 | 26.7 | 26.8 | 23.9 | |
| 75-79 years | 18.0 | 21.3 | 23.2 | 22.6 | 19.4 | |
| 80-84 years | 14.1 | 16.6 | 18.1 | 16.7 | 13.5 | |
| 85-89 years | 10.3 | 12.2 | 13.3 | 11.8 | 9.2 | |
| 90 + years | 6.3 | 7.8 | 8.4 | 7.3 | 5.8 | |
| Predicted 10-year mortality (average of individual probabilities) | | | | | | p=.55 |
| Lowest quintile | 22.6 | 25.9 | 28.7 | 28.9 | 25.8 | |
| 2 nd quintile | 20.9 | 24.8 | 27.3 | 26.8 | 23.7 | |
| 3 rd quintile | 18.4 | 21.7 | 23.9 | 22.9 | 19.6 | |
| 4 th quintile | 15.1 | 17.9 | 19.5 | 18.3 | 15.0 | |
| Highest quintile | 9.2 | 11.0 | 11.9 | 11.0 | 8.9 | |
| Race | | | | | | p<.001 |
| White | 17.6 | 20.8 | 22.4 | 21.5 | 18.5 | |
| African-American | 12.9 | 17.1 | 19.5 | 19.9 | 17.7 | |
| Hispanic | 12.5 | 17.4 | 21.5 | 22.5 | 19.6 | |
| Any Medicaid enrollment ^a | | | | | | p<.001 |
| No | 18.0 | 21.0 | 22.8 | 22.0 | 18.9 | |
| Yes | 9.2 | 12.5 | 16.0 | 16.9 | 15.1 | |
| Individual health care factors | | | | | | |
| Outpatient visits ^a | | | | | | p<.001 |
| 1 visit | 15.8 | 17.4 | 18.6 | 18.1 | 15.5 | |
| 2-5 visits | 17.9 | 20.8 | 22.7 | 21.7 | 18.6 | |
| 6+ visits | 17.0 | 20.3 | 22.4 | 21.8 | 18.9 | |
| Continuity of care ^a | | | | | | p=.002 |
| Lowest tercile | 19.1 | 21.8 | 24.2 | 23.0 | 19.7 | |
| 2 nd tercile | 17.5 | 20.7 | 22.3 | 21.7 | 18.8 | |
| Highest tercile | 15.7 | 19.0 | 21.1 | 20.8 | 18.0 | |

a Measurements made during the year prior to the index year denoted by the cohort label

Supplementary Table 2. Predicted Likelihood of Men Screened with PSA Test Associated with Each Individual Factor in 2003-2013

| | 2003 | | 2013 | |
|--------------------------------------------------------------|------|-----------|-------|-----------|
| | RR | 95% CI | RR | 95% CI |
| Factors related to the guidelines | | | | |
| Age | | | | |
| 68-69 years | 1.0 | | 1.0 | |
| 70-74 years | 1.03 | 1.02-1.05 | 0.92 | 0.99-1.01 |
| 75-79 years | 1.06 | 1.04-1.08 | 0.76 | 0.90-0.94 |
| 80-84 years | 1.03 | 1.00-1.06 | 0.64 | 0.73-0.78 |
| 85-89 years | 1.00 | 0.96-1.04 | 0.46 | 0.61-0.67 |
| 90 + years | 0.67 | 0.63-0.71 | 0.92 | 0.43-0.48 |
| Predicted 10-year mortality (individual men's probabilities) | | | | |
| Lowest quintile | 1.0 | | 1.0 | |
| 2 nd quintile | 0.90 | 0.89-0.92 | 0.91 | 0.89-0.92 |
| 3 rd quintile | 0.79 | 0.78-0.81 | 0.79 | 0.78-0.81 |
| 4 th quintile | 0.65 | 0.63-0.66 | 0.66 | 0.64-0.67 |
| Highest quintile | 0.43 | 0.42-0.45 | 0.46 | 0.45-0.48 |
| Race | | | | |
| White | 1.0 | | 1.0 | |
| African-American | 0.81 | 0.78-0.84 | 0.91 | 0.87-0.94 |
| Hispanic | 0.86 | 0.78-0.94 | 0.93 | 0.87-1.00 |
| Individual health care factors | | | | |
| Any Medicaid enrollment | | | | |
| No | 1.0 | | 1.0 | |
| Yes | 0.66 | 0.63-0.7 | 0.913 | 0.82-1.02 |
| Outpatient visits | | | | |
| 1 visit | 1.0 | | 1.0 | |
| 2-5 visits | 1.36 | 1.23-1.50 | 1.03 | 0.98-1.08 |
| >5 visits | 1.49 | 1.35-1.64 | 1.20 | 1.14-1.27 |
| Continuity of care | | | | |
| Lowest tercile | 1.0 | | 1.0 | |
| Middle tercile | 0.94 | 0.94-0.97 | 0.97 | 0.96-0.98 |
| Highest tercile | 0.86 | 0.86-0.90 | 0.94 | 0.93-0.96 |

Supplementary Table 3. HRR Characteristics in 2003 Associated with Predicted Absolute Change (2003-2013) in PSA Screening Rates in Men aged 75 and older. Statistically significant results bolded.

| Factor in 2003 | Predicted Change in Percentage of Men Screened with PSA | |
|-----------------------------------------------------------|---------------------------------------------------------|-------------------------|
| | Negative values indicate decline | 95% Confidence Interval |
| Age (mean years) | 0.60 | (-1.12 to 2.32) |
| Race | | |
| Black (%) | 0.12 | (0.03 - 0.21) |
| Hispanic (%) | 0.17 | (0.05 to 0.25) |
| Predicted probability of 10 year mortality | | |
| 2 nd quintile | 0.22 | (-1.03 to 1.47) |
| 3 rd quintile | -0.05 | (-1.46 to 1.35) |
| 4 th quintile | 0.50 | (-0.85 to 1.85) |
| Highest quintile | -0.22 | (-1.92 to 1.47) |
| Proportion dual eligible in the baseline year (quintiles) | | |
| 2 nd quintile | -0.17 | (-1.64 to 1.30) |
| 3 rd quintile | -1.29 | (-2.67 to 0.10) |
| 4 th quintile | 1.62 | (0.13 to 3.12) |
| Highest quintile | 2.35 | (0.50 to 4.21) |
| Income (mean of medians for tracts in \$10k) | 0.18 | (-0.25 to 0.62) |
| Social capital 2005 (quintiles of HRR means) | | |
| 2 nd quintile | -0.76 | (-2.17 to 0.64) |
| 3 rd quintile | -1.89 | (-3.40 to -0.38) |
| 4 th quintile | -1.85 | (-3.51 to -0.20) |
| Highest quintile | -3.18 | (-4.9 to -1.39) |
| Managed care percent (quintiles) | | |
| 2 nd quintile | -0.83 | (-2.10 to 0.43) |
| 3 rd quintile | -0.29 | (-1.68 to 1.11) |
| 4 th quintile | -0.51 | (-1.91 to 0.88) |
| Highest quintile | -1.28 | (-2.78 to 0.23) |
| Malpractice intensity (quintiles) | | |
| 2 nd quintile | -0.26 | (-1.66 to 1.15) |
| 3 rd quintile | 1.44 | (0.09 to 2.80) |
| 4 th quintile | 1.50 | (0.10 to 2.90) |
| Highest quintile | -0.42 | (-1.97 to 1.13) |
| Screening intensity for age 68-69 (quintiles) | | |
| 2 nd quintile | -0.79 | (-2.11 to 0.54) |
| 3 rd quintile | -1.04 | (-2.46 to 0.38) |
| 4 th quintile | -1.92 | (-3.30 to -.54) |
| Highest quintile | -5.58 | (-6.89 to -4.27) |
| Constant | -48.11 | |