**APPENDIX**

*Appendix Table 1.* Up-to-date on colorectal cancer screening by year and race/ethnicity, adjusted for age and sex, KPNC 2004-2013

| Receipt of CRC screening tests by test type and study year | Overall | Non-Hispanic whites | Non-Hispanic blacks | Hispanics | Asians/ Pacific Islanders | Native Americans | Multiple races |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Any CRC screening test** |  |  |  |  |  |  |  |
| 2004 | 35.3 | 35.2 | 35.6 | 33.1 | 36.3 | 29.4 | 39.0 |
| 2005 | 40.8 | 40.5 | 41.4 | 38.5 | 42.8 | 34.6 | 44.4 |
| 2006 | 45.9 | 45.6 | 45.7 | 43.2 | 48.5 | 37.9 | 50.1 |
| 2007 | 52.7 | 53.2 | 48.8 | 49.3 | 54.9 | 44.9 | 56.7 |
| 2008 | 66.0 | 66.6 | 61.7 | 61.2 | 69.1 | 56.0 | 70.0 |
| 2009 | 68.1 | 68.6 | 64.0 | 63.8 | 70.7 | 57.4 | 72.8 |
| 2010 | 74.1 | 74.7 | 70.8 | 69.7 | 76.4 | 64.8 | 78.8 |
| 2011 | 79.3 | 79.6 | 76.8 | 75.8 | 81.6 | 71.4 | 83.6 |
| 2012 | 80.2 | 80.3 | 77.6 | 77.3 | 82.5 | 73.0 | 84.3 |
| 2013 | 80.9 | 81.1 | 78.0 | 78.3 | 83.0 | 74.5 | 84.9 |
| **Fecal immunochemical test (FIT)** |  |  |  |  |  |  |  |
| 2006 | 1.0 | 1.1 | 0.6 | 0.8 | 0.8 | 1.2 | 1.0 |
| 2007 | 11.3 | 11.8 | 7.9 | 9.9 | 11.8 | 10.5 | 11.8 |
| 2008 | 32.4 | 32.8 | 27.0 | 28.9 | 36.2 | 26.8 | 33.8 |
| 2009 | 32.2 | 32.7 | 27.2 | 29.2 | 35.0 | 26.4 | 33.9 |
| 2010 | 36.6 | 37.1 | 32.2 | 33.4 | 39.3 | 32.5 | 38.0 |
| 2011 | 42.0 | 42.1 | 38.3 | 40.1 | 45.5 | 38.8 | 42.8 |
| 2012 | 43.5 | 43.4 | 39.8 | 42.2 | 47.3 | 40.5 | 44.0 |
| 2013 | 44.0 | 43.8 | 40.1 | 43.1 | 47.6 | 40.8 | 44.5 |
| **Guaiac fecal occult blood test** |  |  |  |  |  |  |  |
| 2004 | 4.3 | 4.2 | 3.9 | 4.2 | 4.9 | 3.7 | 5.1 |
| 2005 | 5.1 | 4.8 | 5.6 | 5.0 | 6.6 | 4.9 | 5.9 |
| 2006 | 9.2 | 8.7 | 9.6 | 9.0 | 11.5 | 7.6 | 10.5 |
| 2007 | 5.9 | 5.7 | 5.1 | 5.9 | 7.3 | 5.1 | 6.6 |
| 2008 | 0.6 | 0.5 | 0.8 | 0.6 | 0.5 | 0.6 | 0.7 |
| 2009 | 0.3 | 0.3 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 |
| 2010 | 0.3 | 0.2 | 0.4 | 0.4 | 0.2 | 0.5 | 0.4 |
| 2011 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.4 | 0.3 |
| 2012 | 0.2 | 0.2 | 0.3 | 0.3 | 0.1 | 0.4 | 0.3 |
| 2013 | 0.2 | 0.2 | 0.2 | 0.3 | 0.1 | 0.3 | 0.2 |
| **Either a guaiac fecal occult blood test or FIT** |  |  |  |  |  |  |  |
| 2004 | 4.3 | 4.2 | 3.9 | 4.2 | 4.9 | 3.7 | 5.1 |
| 2005 | 5.1 | 4.8 | 5.6 | 5.0 | 6.6 | 4.9 | 5.9 |
| 2006 | 10.2 | 9.8 | 10.2 | 9.8 | 12.3 | 8.7 | 11.5 |
| 2007 | 17.0 | 17.3 | 12.8 | 15.5 | 18.9 | 15.6 | 18.1 |
| 2008 | 32.8 | 33.3 | 27.7 | 29.4 | 36.6 | 27.4 | 34.4 |
| 2009 | 32.5 | 33.0 | 27.6 | 29.5 | 35.2 | 26.9 | 34.2 |
| 2010 | 36.8 | 37.3 | 32.6 | 33.7 | 39.5 | 32.9 | 38.3 |
| 2011 | 42.2 | 42.3 | 38.5 | 40.3 | 45.6 | 39.1 | 43.1 |
| 2012 | 43.6 | 43.5 | 40.0 | 42.4 | 47.3 | 40.8 | 44.2 |
| 2013 | 44.1 | 44.0 | 40.3 | 43.2 | 47.7 | 40.9 | 44.7 |
| **Colonoscopy** |  |  |  |  |  |  |  |
| 2004 | 8.2 | 8.7 | 7.4 | 7.1 | 6.7 | 8.5 | 9.8 |
| 2005 | 10.1 | 10.7 | 8.9 | 8.7 | 8.3 | 10.0 | 11.8 |
| 2006 | 12.3 | 13.0 | 10.5 | 10.9 | 10.5 | 11.6 | 14.4 |
| 2007 | 14.7 | 15.6 | 12.6 | 13.2 | 12.7 | 13.5 | 17.1 |
| 2008 | 17.7 | 18.7 | 15.3 | 15.7 | 15.6 | 16.5 | 20.6 |
| 2009 | 20.8 | 21.8 | 18.4 | 18.6 | 18.9 | 18.9 | 24.2 |
| 2010 | 24.2 | 25.2 | 21.7 | 21.8 | 22.4 | 21.7 | 28.0 |
| 2011 | 27.3 | 28.3 | 25.0 | 24.8 | 25.4 | 24.4 | 31.3 |
| 2012 | 30.1 | 31.0 | 27.9 | 27.7 | 28.5 | 27.5 | 34.3 |
| 2013 | 32.6 | 33.4 | 30.7 | 30.2 | 31.0 | 30.1 | 36.8 |
| **Sigmoidoscopy** |  |  |  |  |  |  |  |
| 2004 | 27.2 | 0.2 | 28.3 | 25.7 | 29.1 | 21.3 | 29.6 |
| 2005 | 31.4 | 26.8 | 32.4 | 29.8 | 33.9 | 24.7 | 34.1 |
| 2006 | 30.5 | 30.9 | 31.5 | 29.1 | 33.5 | 23.6 | 33.3 |
| 2007 | 29.8 | 29.8 | 31.2 | 28.7 | 32.9 | 21.9 | 32.1 |
| 2008 | 29.2 | 29.0 | 30.9 | 28.4 | 32.3 | 21.7 | 31.4 |
| 2009 | 28.5 | 28.3 | 30.8 | 28.3 | 31.4 | 21.4 | 30.5 |
| 2010 | 26.3 | 27.5 | 29.2 | 26.3 | 28.7 | 20.5 | 28.0 |
| 2011 | 22.6 | 25.2 | 26.2 | 22.7 | 24.5 | 18.2 | 24.3 |
| 2012 | 18.4 | 21.7 | 21.8 | 18.6 | 19.6 | 15.0 | 20.0 |
| 2013 | 14.4 | 17.6 | 17.4 | 14.6 | 15.1 | 12.6 | 15.7 |

**Note**: Patient considered up-to-date on CRC screening if, in any given year, s/he had received a colonoscopy within the prior 5 years, sigmoidoscopy within the prior 5 years, or stool-based screening tests in that calendar year, without regard to the indication for the test. The rates are adjusted for age and sex using log-binomial regression models.

*Appendix Table 2*. Probabilities for subsequent completion of fecal immunochemical test or endoscopy following a mailed invitation to screen according to race/ethnicity at KPNC

|  |  |  |  |
| --- | --- | --- | --- |
| Race/Ethnicity of Patients | Probability (%) of each outcome following a mailed-fecal immunochemical test (FIT) outreach screening invitation | | |
|  | **No screening** | **Completed FIT** | **Endoscopy** |
| Non-Hispanic whites | 32.2 | 65.5 | 2.3 |
| Non-Hispanic blacks | 38.6 | 58.5 | 2.9 |
| Hispanics | 38.2 | 59.3 | 2.5 |
| Native Americans | 41.5 | 56.5 | 2.0 |
| Asians/Pacific Islanders | 29.5 | 68.3 | 2.2 |
| Multiple Races | 25.1 | 72.6 | 2.3 |

Note: Results obtained from transition probability analysis according to race/ethnicity. Endoscopy exams were colonoscopy or sigmoidoscopy.

*Appendix Table 3:* Association between race/ethnicity and test type by year, 2004 – 2013

|  |  | Rate ratios and 95% CI\* | | | |
| --- | --- | --- | --- | --- | --- |
| Race/Ethnicity of Patients | Test Year | All Tests | Colonoscopy | Sigmoidoscopy | Immunochemical or guaiac-based fecal occult blood test |
| **Non-Hispanic blacks** |  |  |  |  |  |
|  | 2004 | 1.01 (0.99-1.03) | 0.85 (0.81-0.89) | 0.92 (0.86-0.98) | 1.06 (1.03-1.08) |
|  | 2005 | 1.02 (1.01-1.04) | 0.83 (0.80-0.87) | 1.19 (1.12-1.25) | 1.05 (1.03-1.07) |
|  | 2006 | 1.00 (0.99-1.02) | 0.81 (0.78-0.84) | 1.04 (1.00-1.09) | 1.06 (1.04-1.08) |
|  | 2007 | 0.92 (0.91-0.93) | 0.81 (0.78-0.84) | 0.74 (0.71-0.76) | 1.07 (1.05-1.09) |
|  | 2008 | 0.93 (0.92-0.94) | 0.82 (0.80-0.84) | 0.83 (0.82-0.85) | 1.09 (1.07-1.11) |
|  | 2009 | 0.93 (0.92-0.94) | 0.84 (0.82-0.87) | 0.84 (0.82-0.86) | 1.12 (1.10-1.14) |
|  | 2010 | 0.95 (0.94-0.96) | 0.86 (0.84-0.88) | 0.87 (0.86-0.89) | 1.16 (1.13-1.18) |
|  | 2011 | 0.96 (0.96-0.97) | 0.88 (0.86-0.90) | 0.91 (0.90-0.93) | 1.21 (1.18-1.23) |
|  | 2012 | 0.97 (0.96-0.97) | 0.90 (0.88-0.92) | 0.92 (0.91-0.93) | 1.24 (1.21-1.27) |
|  | 2013 | 0.96 (0.96-0.97) | 0.92 (0.90-0.94) | 0.92 (0.90-0.93) | 1.27 (1.23-1.31) |
| **Hispanics** |  |  |  |  |  |
|  | 2004 | 0.94 (0.93-0.96) | 0.82 (0.79-0.85) | 0.99 (0.93-1.04) | 0.96 (0.94-0.98) |
|  | 2005 | 0.95 (0.94-0.96) | 0.82 (0.79-0.85) | 1.05 (1.00-1.10) | 0.97 (0.95-0.98) |
|  | 2006 | 0.95 (0.93-0.96) | 0.84 (0.81-0.86) | 1.00 (0.97-1.04) | 0.98 (0.96-0.99) |
|  | 2007 | 0.93 (0.92-0.94) | 0.85 (0.82-0.87) | 0.89 (0.87-0.92) | 0.99 (0.97-1.01) |
|  | 2008 | 0.92 (0.91-0.93) | 0.84 (0.82-0.86) | 0.88 (0.87-0.90) | 1.00 (0.99-1.02) |
|  | 2009 | 0.93 (0.92-0.94) | 0.85 (0.83-0.87) | 0.90 (0.88-0.91) | 1.03 (1.01-1.05) |
|  | 2010 | 0.93 (0.93-0.94) | 0.87 (0.85-0.88) | 0.90 (0.89-0.92) | 1.04 (1.02-1.06) |
|  | 2011 | 0.95 (0.95-0.96) | 0.88 (0.86-0.89) | 0.95 (0.94-0.97) | 1.05 (1.03-1.07) |
|  | 2012 | 0.96 (0.96-0.97) | 0.89 (0.88-0.91) | 0.97 (0.96-0.99) | 1.06 (1.03-1.08) |
|  | 2013 | 0.97 (0.96-0.97) | 0.90 (0.89-0.92) | 0.98 (0.97-1.00) | 1.07 (1.04-1.09) |
| **Asians/Pacific Islanders** |  |  |  |  |  |
|  | 2004 | 1.03 (1.02-1.05) | 0.77 (0.74-0.81) | 1.17 (1.11-1.23) | 1.09 (1.07-1.11) |
|  | 2005 | 1.06 (1.04-1.07) | 0.78 (0.75-0.81) | 1.39 (1.33-1.45) | 1.10 (1.08-1.12) |
|  | 2006 | 1.06 (1.05-1.08) | 0.80 (0.78-0.83) | 1.26 (1.22-1.30) | 1.13 (1.11-1.14) |
|  | 2007 | 1.03 (1.02-1.04) | 0.82 (0.79-0.84) | 1.09 (1.06-1.11) | 1.13 (1.12-1.15) |
|  | 2008 | 1.04 (1.03-1.05) | 0.84 (0.82-0.86) | 1.10 (1.08-1.11) | 1.14 (1.12-1.16) |
|  | 2009 | 1.03 (1.02-1.04) | 0.87 (0.85-0.89) | 1.07 (1.05-1.08) | 1.14 (1.13-1.16) |
|  | 2010 | 1.02 (1.02-1.03) | 0.89 (0.87-0.91) | 1.06 (1.05-1.07) | 1.14 (1.12-1.16) |
|  | 2011 | 1.02 (1.02-1.03) | 0.90 (0.88-0.91) | 1.08 (1.07-1.09) | 1.13 (1.11-1.15) |
|  | 2012 | 1.03 (1.02-1.03) | 0.92 (0.90-0.93) | 1.09 (1.08-1.10) | 1.12 (1.10-1.14) |
|  | 2013 | 1.02 (1.02-1.03) | 0.93 (0.91-0.94) | 1.09 (1.07-1.10) | 1.10 (1.07-1.12) |
| **Native Americans** |  |  |  |  |  |
|  | 2004 | 0.84 (0.77-0.90) | 0.98 (0.83-1.15) | 0.87 (0.67-1.13) | 0.80 (0.72-0.88) |
|  | 2005 | 0.85 (0.80-0.91) | 0.94 (0.81-1.09) | 1.02 (0.82-1.28) | 0.80 (0.73-0.87) |
|  | 2006 | 0.83 (0.78-0.88) | 0.89 (0.78-1.02) | 0.89 (0.76-1.05) | 0.79 (0.73-0.86) |
|  | 2007 | 0.84 (0.80-0.89) | 0.87 (0.77-0.99) | 0.90 (0.80-1.01) | 0.75 (0.69-0.83) |
|  | 2008 | 0.84 (0.80-0.88) | 0.89 (0.79-0.99) | 0.82 (0.76-0.89) | 0.77 (0.70-0.84) |
|  | 2009 | 0.84 (0.80-0.87) | 0.87 (0.78-0.96) | 0.82 (0.75-0.88) | 0.78 (0.71-0.85) |
|  | 2010 | 0.87 (0.84-0.90) | 0.86 (0.78-0.94) | 0.88 (0.82-0.95) | 0.81 (0.74-0.89) |
|  | 2011 | 0.90 (0.87-0.92) | 0.86 (0.79-0.94) | 0.92 (0.87-0.98) | 0.84 (0.76-0.93) |
|  | 2012 | 0.91 (0.88-0.94) | 0.89 (0.82-0.96) | 0.94 (0.89-0.99) | 0.85 (0.76-0.96) |
|  | 2013 | 0.92 (0.89-0.94) | 0.90 (0.84-0.97) | 0.93 (0.88-0.99) | 0.92 (0.81-1.04) |
| **Multiple Race** |  |  |  |  |  |
|  | 2004 | 1.11 (1.08-1.13) | 1.13 (1.07-1.19) | 1.20 (1.12-1.29) | 1.11 (1.08-1.14) |
|  | 2005 | 1.10 (1.08-1.12) | 1.11 (1.06-1.16) | 1.24 (1.16-1.33) | 1.10 (1.08-1.13) |
|  | 2006 | 1.10 (1.08-1.12) | 1.11 (1.06-1.15) | 1.17 (1.12-1.23) | 1.12 (1.09-1.15) |
|  | 2007 | 1.07 (1.05-1.08) | 1.10 (1.06-1.14) | 1.04 (1.01-1.08) | 1.11 (1.08-1.13) |
|  | 2008 | 1.05 (1.04-1.06) | 1.11 (1.07-1.14) | 1.03 (1.01-1.06) | 1.11 (1.08-1.14) |
|  | 2009 | 1.06 (1.05-1.07) | 1.11 (1.08-1.14) | 1.04 (1.01-1.06) | 1.11 (1.08-1.14) |
|  | 2010 | 1.06 (1.05-1.06) | 1.11 (1.08-1.14) | 1.03 (1.01-1.05) | 1.11 (1.08-1.14) |
|  | 2011 | 1.05 (1.04-1.06) | 1.11 (1.08-1.13) | 1.02 (1.00-1.04) | 1.12 (1.09-1.16) |
|  | 2012 | 1.05 (1.04-1.06) | 1.10 (1.08-1.13) | 1.02 (1.00-1.04) | 1.14 (1.10-1.18) |
|  | 2013 | 1.05 (1.04-1.05) | 1.10 (1.08-1.13) | 1.02 (1.00-1.04) | 1.14 (1.10-1.19) |

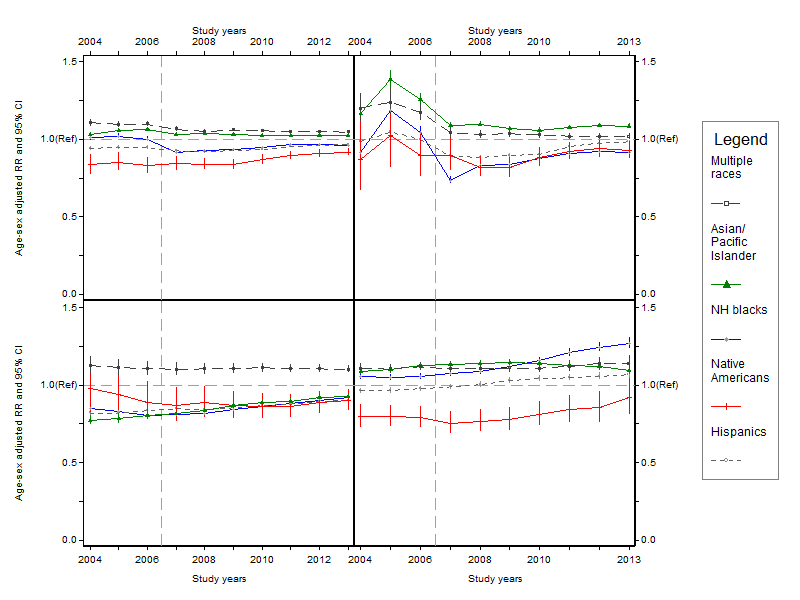
\*Reference group is Non-Hispanic white. Estimates are age and sex adjusted and generated using log-binomial models in separate repeated cross-sectional analyses.

*Appendix Figure 1.*Overall receipt of colorectal cancer screening tests in the cohort, 2004-2013

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Note: The vertical line on the x-axis demarcates the full implementation of the outreach screening program.

*Appendix Figure 2.*Association of race/ethnicity with up-to-date on colorectal cancer screening by year and test type compared to non-Hispanic whites, KPNC 2004-2013.



Note: All estimates are relative to non-Hispanic whites (the reference line). Estimates of rate ratios and 99% confidence intervals were derived from repeated cross-sectional analysis of screening receipt using age and sex adjusted log-binomial models. The vertical line on the x-axis demarcates the full implementation of the outreach screening program.