# Colorectal Cancer in Idaho 2002-2004 

November 2, 2006<br>Chris Johnson, CDRI<br>cjohnson@teamiha.org

## Colorectal Cancer in Idaho, 2002-2004

- Fast facts:
- Colorectal cancer is the second leading cause of cancer death in Idaho and the U.S.
- It is largely preventable with screening and the removal of pre-cancerous polyps.
- There is currently no program in Idaho to specifically address awareness, prevention and early detection of colorectal cancer.


## Colorectal Cancer in Idaho, 2002-2004

- Presentation includes information on:
- Risk Factors (BRFSS \& YRBSS)
- Screening (BRFSS)
- Incidence (CDRI \& SEER)
- Survival (CDRI \& SEER)
- Mortality (CDRI \& SEER)


## Risk Factors - Data Sources

- YRBSS
- Youth Risk Behavior Surveillance System
- School-based health survey of public high school students in Idaho. Conducted by the Idaho Department of Education with assistance from Idaho Division of Health and CDC.
- BRFSS
- Behavioral Risk Factor Surveillance System
- Phone-based health survey of adults aged 18+. Conducted by Idaho Division of Health under cooperative agreement with CDC.


## Presentation Format

- Population Prevalence
- Probability (Odds Ratios)
- Maps
- Crude (Population Prevalence)
- Adjusted (Odds Ratios)


## Prevalence

- In epidemiology, the prevalence of a disease or condition is defined as:
- the total number of persons with the disease/condition in a specified population at a specified time
- and/or
- the ratio of the number of cases of the disease/condition to the total population size at a specified time (percentage, rate).


## Odds Ratio

- The odds are a way of representing probability, especially familiar for betting.
- Example: the odds that a single throw of a die will produce a six are 1 to 5 , or $1 / 5$.
- The odds is the ratio of the probability that the event of interest occurs to the probability that it does not.
- This is often estimated by the ratio of the number of times that the event of interest occurs to the number of times that it does not.


## Odds Ratio Review



- Odds of Disease among Exposed $=20 / 30=.667$
- Odds of Disease among non-Exposed $=10 / 100=.1$
- Odds Ratio = 6.67
- Odds of Exposure among Cases $=20 / 10=2.0$
- Odds of Exposure among Controls $=30 / 100=0.3$
- Odds Ratio = 6.67


## Odds Ratio Review

- These are the SAME numerical ratios.
- This property makes the odds ratio a useful indicator of the strength of relationships, for both case-control and cohort studies.

Physical Activity: 30+ Min Moderate 5+ Days/Wk or 20+ Min Vigorous 3+ Days/Wk
Men and Women Aged 18+
Goal: 65\%

| Overall | N | Percent Phys Act | 95\% Confidence Interval | Rounded 2005 Population | Number Phys Act | Insuff. Phys Act | \# To Reach Goal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Yes | 5290 | 58.0\% | 56.3\%-59.8\% | 951,000 | 552,000 | 399,000 | 67,000 |
|  |  |  |  |  |  |  |  |
| Race/Ethnicity | N | Percent Phys Act | 95\% Confidence Interval | Rounded 2005 Population | Number Phys Act | Insuff. Phys Act | \# To Reach |
| Non-Hispanic White | 4790 | 59.1\% | 57.2\%-60.9\% | 827,000 | 488,000 | 338,000 | 50,000 |
| Hispanic | 289 | 46.0\% | 37.1\% - 54.9\% | 80,000 | 37,000 | 43,000 | 16,000 |
| Native American | 82 | 57.1\% | 44.3\%-69.8\% | 14,000 | 8,000 | 6,000 | 2,000 |
| Other | 120 | 60.9\% | 49.2\% - 72.6\% | 28,000 | 17,000 | 11,000 | 2,000 |


| Age Group | $\mathbf{N}$ | Percent <br> Phys Act | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> Phys Act | Insuff. <br> Phys Act | \# To Reach <br> Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathbf{1 8 - 2 4}$ | 319 | $64.5 \%$ | $57.7 \%-71.3 \%$ | 150,000 | 97,000 | 53,000 | 1,000 |
| $\mathbf{2 5 - 3 4}$ | 818 | $60.4 \%$ | $56.3 \%-64.5 \%$ | 173,000 | 104,000 | 68,000 | 8,000 |
| $\mathbf{3 5 - 4 4}$ | 927 | $62.8 \%$ | $59.1 \%-66.6 \%$ | 178,000 | 112,000 | 66,000 | 4,000 |
| $\mathbf{4 5 - 5 4}$ | 1129 | $59.0 \%$ | $55.5 \%-62.5 \%$ | 181,000 | 107,000 | 74,000 | 11,000 |
| $\mathbf{5 5 - 6 4}$ | 935 | $52.0 \%$ | $48.1 \%-55.8 \%$ | 128,000 | 67,000 | 62,000 | 17,000 |
| $\mathbf{6 5 +}$ | 1162 | $46.7 \%$ | $43.3 \%-50.1 \%$ | 142,000 | 66,000 | 76,000 | 27,000 |


| Sex | $\mathbf{N}$ | Percent <br> Phys Act | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> Phys Act | Insuff. <br> Phys Act | \# To Reach <br> Goal |
| :---: | :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Male | 2047 | $59.9 \%$ | $57.1 \%-62.8 \%$ | 478,000 | 287,000 | 192,000 | 25,000 |
| Female | 3243 | $56.1 \%$ | $54.0 \%-58.3 \%$ | 473,000 | 265,000 | 207,000 | 42,000 |


| Health Insurance | $\mathbf{N}$ | Percent <br> Phys Act | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> Phys Act | Insuff. <br> Phys Act | \# To Reach <br> Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 4444 | $58.7 \%$ | $56.8 \%-60.6 \%$ | 770,000 | 452,000 | 318,000 | 49,000 |
| No | 832 | $54.9 \%$ | $49.7 \%-60.0 \%$ | 176,000 | 97,000 | 80,000 | 18,000 |


| Household Income | $\mathbf{N}$ | Percent <br> Phys Act | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> Phys Act | Insuff. <br> Phys Act | \# To Reach <br> Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Less than $\mathbf{\$ 1 5 , 0 0 0}$ | 573 | $53.7 \%$ | $47.2 \%-60.1 \%$ | 92,000 | 49,000 | 43,000 | 11,000 |
| $\$ \mathbf{1 5 , 0 0 0} \mathbf{- \$ 2 4 , 9 9 9}$ | 961 | $52.1 \%$ | $47.6 \%-56.5 \%$ | 157,000 | 82,000 | 75,000 | 21,000 |
| $\$ \mathbf{2 5 , 0 0 0} \mathbf{- \$ 3 4 , 9 9 9}$ | 750 | $58.3 \%$ | $53.3 \%-63.3 \%$ | 134,000 | 78,000 | 56,000 | 9,000 |
| $\$ \mathbf{3 5 , 0 0 0} \mathbf{- \$ 4 9 , 9 9 9}$ | 937 | $59.1 \%$ | $54.9 \%-63.3 \%$ | 172,000 | 102,000 | 71,000 | 11,000 |
| $\$ 50,000+$ | 1572 | $63.7 \%$ | $60.8 \%-66.6 \%$ | 305,000 | 194,000 | 111,000 | 4,000 |


| Education | $\mathbf{N}$ | Percent <br> Phys Act | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> Phys Act | Insuff. <br> Phys Act | \# To Reach <br> Goal |
| :---: | :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Not College Grad | 3809 | $55.8 \%$ | $53.6 \%-58.0 \%$ | 684,000 | 382,000 | 302,000 | 63,000 |
| College Grad | 1474 | $63.8 \%$ | $60.7 \%-66.8 \%$ | 267,000 | 170,000 | 97,000 | 4,000 |

Source: 2005 BRFSS data provided by BHPVS, analyzed by CDRI.
Note: Estimated 2005 population based on 2005 BRFSS weights. Category totals are not equal due to differentia missing data patterns. Population numbers are rounded to the nearest 1,000. Number to screen to reach goal rounded up to nearest 1,000 .

* In 2005, Idaho ranked 12th among states (1st = best) in the proportion of adults who engaged in moderate or vigorous physical activity for the prescribed durations and frequencies


# Physical Activity 

Men and Women Aged 18+

## Aggregated BRFSS Data 2001-2005

 Results from Multilevel Logistic Regression ModelingOdds Ratios and 95\% Confidence Intervals for Fixed Parameters

| Main Effect | OR | 95\% CI |
| :---: | :---: | :---: |
| Age, y |  |  |
| 18-24 | 2.45 | 2.09-2.88 |
| 25-34 | 1.76 | 1.55-1.99 |
| 35-44 | 1.53 | 1.35-1.72 |
| 45-54 | 1.23 | 1.09-1.38 |
| 55-64 | 1.07 | 0.95-1.22 |
| 65+ | 1.00 |  |
| Sex |  |  |
| Male | 1.14 | 1.06-1.22 |
| Female | 1.00 |  |
| Race/Ethnicity |  |  |
| Non-Hispanic White | 1.13 | 0.89-1.43 |
| Hispanic | 0.74 | 0.55-0.99 |
| Native American | 1.03 | 0.71-1.49 |
| Other | 1.00 |  |
| Health Insurance |  |  |
| Yes | 0.96 | 0.86-1.07 |
| No | 1.00 |  |
| Household Income |  |  |
| Less than \$15,000 | 1.00 |  |
| \$15,000-\$24,999 | 1.22 | 1.07-1.38 |
| \$25,000-\$34,999 | 1.40 | 1.23-1.61 |
| \$35,000-\$49,999 | 1.62 | 1.42-1.85 |
| \$50,000+ | 1.93 | 1.69-2.20 |
| Education |  |  |
| Not College Grad | 1.00 |  |
| College Grad | 1.15 | 1.06-1.25 |
| Year of Survey |  |  |
| 2001 | 0.98 | 0.90-1.07 |
| 2003 | 1.03 | 0.94-1.12 |
| 2005 | 1.00 |  |

Variation (on Logit Scale) in Screening Between Counties, Before and After Taking Into Account Individual-Level Covariates, Idaho, 2001-2005

Physical Activity:
30+ Min Moderate 5+ Days/Wk or 20+ Min Vigorous 3+ Days/W Men and Women Aged 18+
Aggregated BRFSS Data 2001-2005

## Legend



Physical Activity:
30+ Min Moderate 5+ Days/Wk or 20+ Min Vigorous 3+ Days/Wk Men and Women Aged 18+
Aggregated BRFSS Data 2001-2005


## Youth Physical Activity

By 2010 Increase to $80 \%$ the percentage of idaho high school students who accumulate 30 minutes or more per day of moderate physical activity on five or more days of the week or participate in 20 minutes or more of vigorous physical acitivity on three or more days of the week.

Source: 2005 Idaho Youth Risk Behavior Survey

| 2005 Idaho total | $\begin{gathered} \mathrm{N} \\ 1,434 \end{gathered}$ | $\begin{gathered} \% \\ 73.0 \% \end{gathered}$ | $\begin{gathered} \text { 95\% C.I. } \\ 70.5 \%-75.5 \% \end{gathered}$ | Total Population* (rounded) 66,700 | Number of Physically Active Youth 48,691 | Number of students needing to increase P.A. to hit target 4,669 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sex |  |  |  |  |  |  |
| Male | 694 | 78.3\% | 75.1\%-81.5\% | 32,300 | 25,291 | 549 |
| Female | 735 | 67.6\% | 63.0\%-72.2\% | 34,200 | 23,119 | 4,241 |
| Ethnicity |  |  |  |  |  |  |
| Hispanic | 150 | 70.2\% | 61.3\%-79.1\% | 7,000 | 4,914 | 686 |
| White | 1,088 | 73.6\% | 71.0\%-76.2\% | 50,600 | 37,242 | 3,238 |
| Grade |  |  |  |  |  |  |
| 9th | 263 | 75.3\% | 70.8\%-79.8\% | 12,200 | 9,187 | 573 |
| 10th | 345 | 78.4\% | 74.1\%-82.7\% | 16,000 | 12,544 | 256 |
| 11th | 493 | 68.8\% | 63.8\%-73.8\% | 22,900 | 15,755 | 2,565 |
| 12th | 323 | 68.7\% | 61.3\%-76.2\% | 15,000 | 10,305 | 1,695 |


| Overall | N | Percent OK Weight | 95\% Confidence Interval | Rounded 2005 Population | Number OK Weight | OverWeight | \# To Reach Goal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Yes | 5439 | 38.6\% | 36.8\%-40.4\% | 970,000 | 375,000 | 595,000 | 62,000 |
| Race/Ethnicity | N | Percent OK Weight | 95\% Confidence Interval | Rounded 2005 Population | Number <br> OK Weight | OverWeight | \# To Reach Goal |
| Non-Hispanic White | 4953 | 38.9\% | 37.0\% - 40.7\% | 853,000 | 332,000 | 522,000 | 53,000 |
| Hispanic | 262 | 40.1\% | 30.4\% - 49.8\% | 69,000 | 28,000 | 42,000 | 4,000 |
| Native American | 87 | 24.7\% | 14.2\%-35.2\% | 15,000 | 4,000 | 11,000 | 3,000 |
| Other | 129 | 36.1\% | 25.3\%-46.9\% | 30,000 | 11,000 | 19,000 | 3,000 |


| Age Group | P | Percent <br> OK Weight | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> OK Weight | Over- <br> Weight | \# To Reach <br> Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathbf{1 8 - 2 4}$ | 316 | $59.2 \%$ | $52.1 \%-66.4 \%$ | 144,000 | 86,000 | 59,000 | - |
| $\mathbf{2 5 - 3 4}$ | 818 | $42.1 \%$ | $38.1 \%-46.2 \%$ | 173,000 | 73,000 | 100,000 | 5,000 |
| $\mathbf{3 5 - 4 4}$ | 941 | $34.6 \%$ | $30.9 \%-38.2 \%$ | 180,000 | 62,000 | 118,000 | 19000 |
| $\mathbf{4 5 - 5 4}$ | 1134 | $29.1 \%$ | $26.1 \%-32.2 \%$ | 184,000 | 54,000 | 131,000 | 30,000 |
| $\mathbf{5 5 - 6 4}$ | 955 | $30.9 \%$ | $27.4 \%-34.3 \%$ | 131,000 | 40,000 | 91,000 | 19,000 |
| $\mathbf{6 5 +}$ | 1275 | $38.2 \%$ | $35.1 \%-41.4 \%$ | 157,000 | 60,000 | 97,000 | 11,000 |


| Sex | $\mathbf{N}$ | Percent <br> OK Weight | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> OK Weight | Over- <br> Weight | \# To Reach <br> Goal |
| :---: | :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Male | 2159 | $29.2 \%$ | $26.3 \%-32.0 \%$ | 492,000 | 144,000 | 349,000 | 78,000 |
| Female | 3280 | $48.4 \%$ | $46.2 \%-50.6 \%$ | 478,000 | 231,000 | 247,000 | - |


| Health Insurance | $\mathbf{N}$ | Percent <br> OK Weight | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> OK Weight | Over- <br> Weight | \# To Reach <br> Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 4599 | $37.6 \%$ | $35.8 \%-39.4 \%$ | 794,000 | 299,000 | 495,000 | 59,000 |
| No | 826 | $43.5 \%$ | $38.1 \%-48.8 \%$ | 171,000 | 74,000 | 97,000 | 3,000 |


| Males |  |  |  |  |  |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Household Income | N | Percent <br> OK Weight | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> OK Weight | Over- <br> Weight | \# To Reach <br> Goal |
| Less than $\$ \mathbf{1 5 , 0 0 0}$ | 154 | $44.1 \%$ | $30.2 \%-58.0 \%$ | 37,000 | 17,000 | 21,000 | 1,000 |
| $\$ 15,000-\$ 24,999$ | 393 | $31.1 \%$ | $24.7 \%-37.5 \%$ | 82,000 | 25,000 | 56,000 | 12,000 |
| $\$ 25,000-\$ 34,999$ | 323 | $33.5 \%$ | $24.3 \%-42.7 \%$ | 72,000 | 24,000 | 48,000 | 9.000 |
| $\$ 35,000-\$ 49,999$ | 404 | $20.5 \%$ | $15.8 \%-25.3 \%$ | 92,000 | 19,000 | 73,000 | 23,000 |
| $\$ 50, \mathbf{0 0 0 +}$ | 736 | $26.4 \%$ | $22.4 \%-30.4 \%$ | 176,000 | 46,000 | 129,000 | 33,000 |


| Females |  |  |  |  |  |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Household Income | $\mathbf{N}$ | Percent <br> OK Weight | 95\% Confidence <br> Interval | Rounded 2005 <br> Population | Number <br> OK Weight | Over- <br> Weight | \# To Reach <br> Goal |
| Less than $\$ \mathbf{\$ 1 5 , 0 0 0}$ | 433 | $45.3 \%$ | $39.1 \%-51.5 \%$ | 54,000 | 24,000 | 30,000 | - |
| $\$ \mathbf{1 5 , 0 0 0}-\$ \mathbf{2 4 , 9 9 9}$ | 626 | $46.4 \%$ | $41.4 \%-51.3 \%$ | 82,000 | 38,000 | 44,000 | - |
| $\$ 25, \mathbf{0 0 0}-\$ 34,999$ | 437 | $48.8 \%$ | $42.5 \%-55.0 \%$ | 62,000 | 30,000 | 32,000 | - |
| $\$ 35, \mathbf{0 0 0}-\$ 49,999$ | 541 | $46.6 \%$ | $41.3 \%-52.0 \%$ | 81,000 | 38,000 | 43,000 | - |
| $\$ 50, \mathbf{0 0 0 +}$ | 873 | $50.5 \%$ | $46.5 \%-54.5 \%$ | 139,000 | 70,000 | 69,000 | - |

Source: 2005 BRFSS data provided by BHPVS, analyzed by CDRI.
Note: Estimated 2005 population based on 2005 BRFSS weights. Category totals are not equal due to differential missing data patterns. Population numbers are rounded to the nearest 1,000 . Numbers to reach goal rounded up to nearest 1,000.

* In 2005, Idaho ranked 25th among states (1st = best) in the proportion of adults who were neither overweight nor obese (body mass index < 25.0).

Results from Multilevel Logistic Regression Modeling
Odds Ratios and 95\% Confidence Intervals for Fixed Parameters

| Main Effect | OR | 95\% CI |
| :---: | :---: | :---: |
| Age, y |  |  |
| 18-24 | 2.80 | 2.38-3.30 |
| 25-34 | 1.32 | 1.17-1.49 |
| 35-44 | 1.00 | 0.89-1.13 |
| 45-54 | 0.80 | 0.71-0.90 |
| 55-64 | 0.69 | 0.60-0.78 |
| 65+ | 1.00 |  |
| Race/Ethnicity |  |  |
| Non-Hispanic White | 0.79 | 0.62-1.00 |
| Hispanic | 0.59 | 0.44-0.80 |
| Native American | 0.48 | 0.33-0.71 |
| Other | 1.00 |  |
| Health Insurance |  |  |
| Yes | 0.92 | 0.82-1.02 |
| No | 1.00 |  |
| Sex and Income |  |  |
| M- Less than \$15,000 | 1.00 |  |
| M- \$15,000-\$24,999 | 0.90 | 0.70-1.14 |
| M- \$25,000-\$34,999 | 0.83 | 0.65-1.06 |
| M- \$35,000-\$49,999 | 0.72 | 0.56-0.91 |
| M- \$50,000+ | 0.69 | 0.55-0.87 |
| F- Less than \$15,000 | 1.43 | 1.14-1.80 |
| F- \$15,000-\$24,999 | 1.54 | 1.24-1.93 |
| F- \$25,000-\$34,999 | 1.76 | 1.40-2.22 |
| F- \$35,000-\$49,999 | 1.63 | 1.29-2.04 |
| F- \$50,000+ | 2.34 | 1.88-2.93 |
| Education |  |  |
| Not College Grad | 1.00 |  |
| College Grad | 1.30 | 1.19-1.41 |
| Year of Survey |  |  |
| 2003 | 1.06 | 0.97-1.16 |
| 2004 | 1.06 | 0.97-1.15 |
| 2005 | 1.00 |  |

Variation (on Logit Scale) in Screening Between Counties, Before and After Taking Into Account Individual-Level Covariates, Idaho, 2003-2005

| Before Adjustment | After | Percent Change |
| :---: | :---: | ---: |
| 0.0331 | 0.0277 | $-16.2 \%$ |

Body Mass Index: Neither Overweight Nor Obese
Men and Women Aged 18+ Aggregated BRFSS Data 2003-2005

## Legend

| Idaho Counties |  |
| :---: | :---: |
| Empirical Prevalence |  |
|  | 25.3\%-30.0\% |
|  | 30.1\% - $35.0 \%$ |
|  | 35.0\% - 40.0\% |
|  | 40.0\% - 44.9\% |
|  | 45.0\%+ Objective 1.11 |
| P7L | 30 or fewer interviews |

Body Mass Index:
Neither Overweight Nor Obese
Men and Women Aged 18+ Aggregated BRFSS Data 2003-2005


## Colorectal Cancer Screening: Colonoscopy or Sigmoidoscopy Within Previous 5 Years

 Men and Women Aged 50+Goal: 50\%

| Overall | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 2428 | $38.0 \%$ | $35.7 \%-40.3 \%$ | 365,000 | 139,000 | 227,000 | 44,000 |


| Age Group | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathbf{5 0 - 5 4}$ | 517 | $24.4 \%$ | $20.1 \%-28.7 \%$ | 92,000 | 22,000 | 69,000 | 24,000 |
| $\mathbf{5 5 - 6 4}$ | 850 | $35.8 \%$ | $32.1 \%-39.6 \%$ | 124,000 | 44,000 | 80,000 | 18,000 |
| $\mathbf{6 5 +}$ | 1061 | $48.1 \%$ | $44.4 \%-51.8 \%$ | 149,000 | 72,000 | 77,000 | 3,000 |


| Sex | N | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Male | 942 | $39.3 \%$ | $35.6 \%-42.9 \%$ | 170,000 | 67,000 | 103,000 | 19,000 |
| Female | 1486 | $36.8 \%$ | $34.0 \%-39.7 \%$ | 195,000 | 72,000 | 123,000 | 26,000 |


| Health Insurance | N | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 2209 | $40.5 \%$ | $38.1 \%-43.0 \%$ | 331,000 | 134,000 | 197,000 | 32.000 |
| No | 211 | $12.7 \%$ | $8.1 \%-17.4 \%$ | 33,000 | 4,000 | 29,000 | 13,000 |


| Household Income | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Less than $\$ \mathbf{S 1 5 , 0 0 0}$ | 282 | $34.6 \%$ | $28.1 \%-41.0 \%$ | 32,000 | 11,000 | 21,000 | 5,000 |
| $\$ 15,000-\$ 24,999$ | 514 | $37.3 \%$ | $32.2 \%-42.5 \%$ | 73,000 | 27,000 | 46,000 | 10,000 |
| $\$ 25,000-\$ 34,999$ | 358 | $39.8 \%$ | $33.9 \%-45.7 \%$ | 54,000 | 21,000 | 33,000 | 6,000 |
| $\$ 35,000-\$ 49,999$ | 375 | $36.1 \%$ | $30.5 \%-41.7 \%$ | 61,000 | 22,000 | 39,000 | 9,000 |
| $\$ 50,000+$ | 579 | $39.7 \%$ | $35.0 \%-44.4 \%$ | 100,000 | 40,000 | 61,000 | 11,000 |


| Education | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Not College Grad | 1811 | $36.5 \%$ | $33.9 \%-39.1 \%$ | 263,000 | 96,000 | 167,000 | 36,000 |
| College Grad | 612 | $41.8 \%$ | $37.1 \%-46.5 \%$ | 102,000 | 42,000 | 59,000 | 9,000 |

Source: 2004 BRFSS data provided by BHPVS, analyzed by CDRI.
Note: Estimated 2004 population based on 2004 BRFSS weights. Category totals are not equal due to differential missing data patterns. Population numbers are rounded to the nearest 1,000 . Number to screen to reach goal rounded up to nearest 1,000.

* In 2004, Idaho ranked 42nd among states (1st = best) in the proportion of adults aged 50+ who have ever had a sigmoidoscopy or colonoscopy.


# Colonoscopy or Sigmoidoscopy Within Previous 5 Years 

Men and Women Aged 50+
Aggregated BRFSS Data 1997-2004
Results from Multilevel Logistic Regression Modeling
Odds Ratios and 95\% Confidence Intervals for Fixed Parameters

| Main Effect | OR | 95\% CI |
| :---: | :---: | :---: |
| Age, y |  |  |
| 50-54 | 0.37 | 0.32-0.42 |
| 55-64 | 0.67 | 0.60-0.75 |
| 65+ | 1.00 |  |
| Sex |  |  |
| Male | 1.17 | 1.07-1.29 |
| Female | 1.00 |  |
| Health Insurance |  |  |
| Yes | 2.34 | 1.87-2.94 |
| No | 1.00 |  |
| Household Income |  |  |
| Less than \$15,000 | 1.00 |  |
| \$15,000-\$24,999 | 1.16 | 1.00-1.34 |
| \$25,000-\$34,999 | 1.30 | 1.11-1.53 |
| \$35,000-\$49,999 | 1.30 | 1.10-1.54 |
| \$50,000+ | 1.45 | 1.22-1.72 |
| Education |  |  |
| Not College Grad | 1.00 |  |
| College Grad | 1.12 | 1.00-1.25 |
| Year of Survey |  |  |
| 1997 | 0.55 | 0.48-0.64 |
| 1999 | 0.64 | 0.56-0.74 |
| 2001 | 0.74 | 0.64-0.85 |
| 2002 | 0.85 | 0.74-0.97 |
| 2004 | 1.00 |  |

Variation (on Logit Scale) in Screening Between Counties, Before and After Taking Into Account Individual-Level Covariates, Idaho, 1997-2004

| Before Adjustment | After | Percent Change |
| :---: | :---: | ---: |
| 0.0712 | 0.0625 | $-12.1 \%$ |

Variation (on Logit Scale) in Screening Between Counties, Before and After Taking Into Account County-Level \# of Facilities Offering Colonoscopy, Idaho, 1997-2004
Before Adjustment After Percent Change
$0.06250 .0431-31.1 \%$

Colorectal Cancer Screening: Colonoscopy or Sigmoidoscopy Within Previous 5 Years

Men and Women Aged 50+ Aggregated BRFSS Data 1997-2004


Colorectal Cancer Screening:

Colonoscopy or Sigmoidoscopy Within Previous 5 Years

Men and Women Aged 50+ Aggregated BRFSS Data 1997-2004



## Colorectal Cancer Screening: Blood Stool Test Within Previous 2 Years Men and Women Aged 50+ <br> Goal: 33\%

| Overall | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 2407 | $21.8 \%$ | $19.9 \%-23.8 \%$ | 362,000 | 79,000 | 283,000 | 41,000 |


| Age Group | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathbf{5 0 - 5 4}$ | 509 | $13.2 \%$ | $9.7 \%-16.7 \%$ | 90,000 | 12,000 | 78,000 | 18,000 |
| $\mathbf{5 5 - 6 4}$ | 841 | $24.8 \%$ | $21.4 \%-28.2 \%$ | 123,000 | 30,000 | 92,000 | 11,000 |
| $\mathbf{6 5 +}$ | 1057 | $24.6 \%$ | $21.5 \%-27.8 \%$ | 149,000 | 37,000 | 113,000 | 13,000 |


| Sex | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Male | 933 | $21.1 \%$ | $18.0 \%-24.2 \%$ | 169,000 | 36,000 | 133,000 | 21,000 |
| Female | 1474 | $22.5 \%$ | $20.0 \%-25.0 \%$ | 193,000 | 43,000 | 150,000 | 21,000 |


| Health Insurance | $\mathbf{N}$ | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yes | 2189 | $22.4 \%$ | $20.3 \%-24.5 \%$ | 328,000 | 74,000 | 254,000 | 35,000 |
| No | 210 | $16.3 \%$ | $10.1 \%-22.4 \%$ | 33,000 | 5,000 | 27,000 | 6,000 |


| Household Income | N | Percent Screened | 95\% Confidence Interval | Rounded 2004 Population | Number Screened | Not Screened | \# to Screen To <br> Reach Goal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Less than \$15,000 | 283 | 19.8\% | 14.6\% - 25.0\% | 32,000 | 6,000 | 26,000 | 5,000 |
| \$15,000-\$24,999 | 510 | 22.3\% | 17.8\%-26.7\% | 72,000 | 16,000 | 56,000 | 8,000 |
| \$25,000-\$34,999 | 356 | 23.2\% | 18.2\% - 28.2\% | 54,000 | 12,000 | 41,000 | 6.000 |
| \$35,000-\$49,999 | 375 | 19.7\% | 15.1\% - 24.3\% | 61,000 | 12,000 | 49,000 | 9,000 |
| \$50,000+ | 569 | 22.0\% | 17.9\%-26.1\% | 98,000 | 22,000 | 77,000 | 11,000 |


| Education | N | Percent <br> Screened | 95\% Confidence <br> Interval | Rounded 2004 <br> Population | Number <br> Screened | Not <br> Screened | \# to Screen To <br> Reach Goal |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Not College Grad | 1796 | $20.7 \%$ | $18.5 \%-22.9 \%$ | 261,000 | 54,000 | 207,000 | 33,000 |
| College Grad | 606 | $25.0 \%$ | $20.8 \%-29.3 \%$ | 100,000 | 25,000 | 75,000 | 8,000 |

Source: 2004 BRFSS data provided by BHPVS, analyzed by CDRI.
Note: Estimated 2004 population based on 2004 BRFSS weights. Category totals are not equal due to differential missing data patterns. Population numbers are rounded to the nearest 1,000 . Number to screen to reach goal rounded up to nearest 1,000.

* In 2004, Idaho ranked 45th among states (1st = best) in the proportion of adults aged 50+ who had a blood stool test within the previous two years.



## Blood Stool Test Within Previous 2 Years <br> Men and Women Aged 50+

Aggregated BRFSS Data 1997-2004
Results from Multilevel Logistic Regression Modeling
Odds Ratios and 95\% Confidence Intervals for Fixed Parameters

| Main Effect | OR | 95\% CI |
| :---: | :---: | :---: |
| Age, y |  |  |
| 50-54 | 0.47 | 0.41-0.55 |
| 55-64 | 0.86 | 0.77-0.97 |
| 65+ | 1.00 |  |
| Sex |  |  |
| Male | 0.70 | 0.63-0.78 |
| Female | 1.00 |  |
| Health Insurance |  |  |
| Yes | 1.85 | 1.46-2.35 |
| No | 1.00 |  |
| Household Income |  |  |
| Less than \$15,000 | 1.00 |  |
| \$15,000-\$24,999 | 1.31 | 1.11-1.53 |
| \$25,000-\$34,999 | 1.42 | 1.19-1.69 |
| \$35,000-\$49,999 | 1.50 | 1.25-1.80 |
| \$50,000+ | 1.58 | 1.31-1.90 |
| Education |  |  |
| Not College Grad | 1.00 |  |
| College Grad | 1.20 | 1.06-1.35 |
| Year of Survey |  |  |
| 1997 | 1.26 | 1.08-1.47 |
| 1999 | 1.13 | 0.96-1.32 |
| 2001 | 1.20 | 1.03-1.41 |
| 2002 | 1.22 | 1.05-1.42 |
| 2004 | 1.00 |  |

Variation (on Logit Scale) in Screening Between Counties, Before and After Taking Into Account Individual-Level Covariates, Idaho, 1997-2004

Colorectal Cancer Screening: Blood Stool Test Within Previous 2 Years Men and Women Aged 50+ Aggregated BRFSS Data 1997-2004


Colorectal Cancer Screening: Blood Stool Test Within Previous 2 Years

Men and Women Aged 50+
Aggregated BRFSS Data 1997-2004


Colorectal Cancer in Idaho, 2002-2004, Invasive Cases Numbers of Cases, Age-adjusted and Crude Rates

| Geography | Rates |  |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Adjusted | Crude | Cases | Person-Years |  |
| Health District 1 | 51.3 | 55.8 | 317 | 567,966 |
| Health District 2 | 40.2 | 47.2 | 142 | 301,038 |
| Health District 3 | 50.6 | 47.3 | 303 | 640,379 |
| Health District 4 | 45.8 | 37.7 | 418 | $1,109,708$ |
| Health District 5 | 43.6 | 45.7 | 229 | 500,889 |
| Health District 6 | 30.4 | 27.1 | 129 | 475,239 |
| Health District 7 | 39.5 | 32.7 | 166 | 508,201 |
| State of Idaho | 44.4 | 41.8 | 1,714 | $4,103,420$ |
| SEER Whites 2003 | 49.6 | 49.8 | 29,577 | $59,360,369$ |
| SEER All Races 2003 | 50.1 | 47.3 | 36,022 | $76,177,809$ |

Rates are per 100,000 person-years.
Age-adjusted rates use the 2000 U.S. standard.

## State Colorectal Cancer Incidence

Age-specific Rates


Comureniensive cancer
allilance for Ulatho


Colorectal Cancer Survival, 1993-2004
 Camureenensive cancer
alilance for Idaho

> Colorectal Cancer in Idaho, 2002-2004, Mortality Numbers of Deaths, Age-adjusted and Crude Rates

| Geography | Rates |  |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Health District 1 | 19.5 | 21.1 | 120 | 567,966 |
| Health District 2 | 14.9 | 17.6 | 53 | 301,038 |
| Health District 3 | 15.0 | 17.8 | 51 | 286,124 |
| Health District 4 | 14.9 | 11.9 | 132 | $1,109,708$ |
| Health District 5 | 16.1 | 16.8 | 84 | 500,889 |
| Health District 6 | 12.8 | 11.6 | 55 | 475,239 |
| Health District 7 | 14.0 | 11.2 | 57 | 508,201 |
| State of Idaho | 15.6 | 14.6 | 601 | $4,103,420$ |
| US Whites 2003 | 18.5 | 20.1 | 47,572 | $236,281,936$ |
| US All Races 2003 | 19.0 | 19.2 | 55,783 | $290,788,976$ |

Rates are per 100,000 person-years.
Age-adjusted rates use the 2000 U.S. standard.

## Questions/Comments

