Impact of Screening on Distribution of Colorectal Cancer

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Introduction

- District of Columbia had highest rate of death from colorectal cancer (1999 report) in the US.
- In 2000, the American Cancer Society estimated that:
  - 300 new cases of colorectal cancer will be diagnosed among men and women in the District of Columbia.
  - 100 men and women will die of colorectal cancer in the District of Columbia.

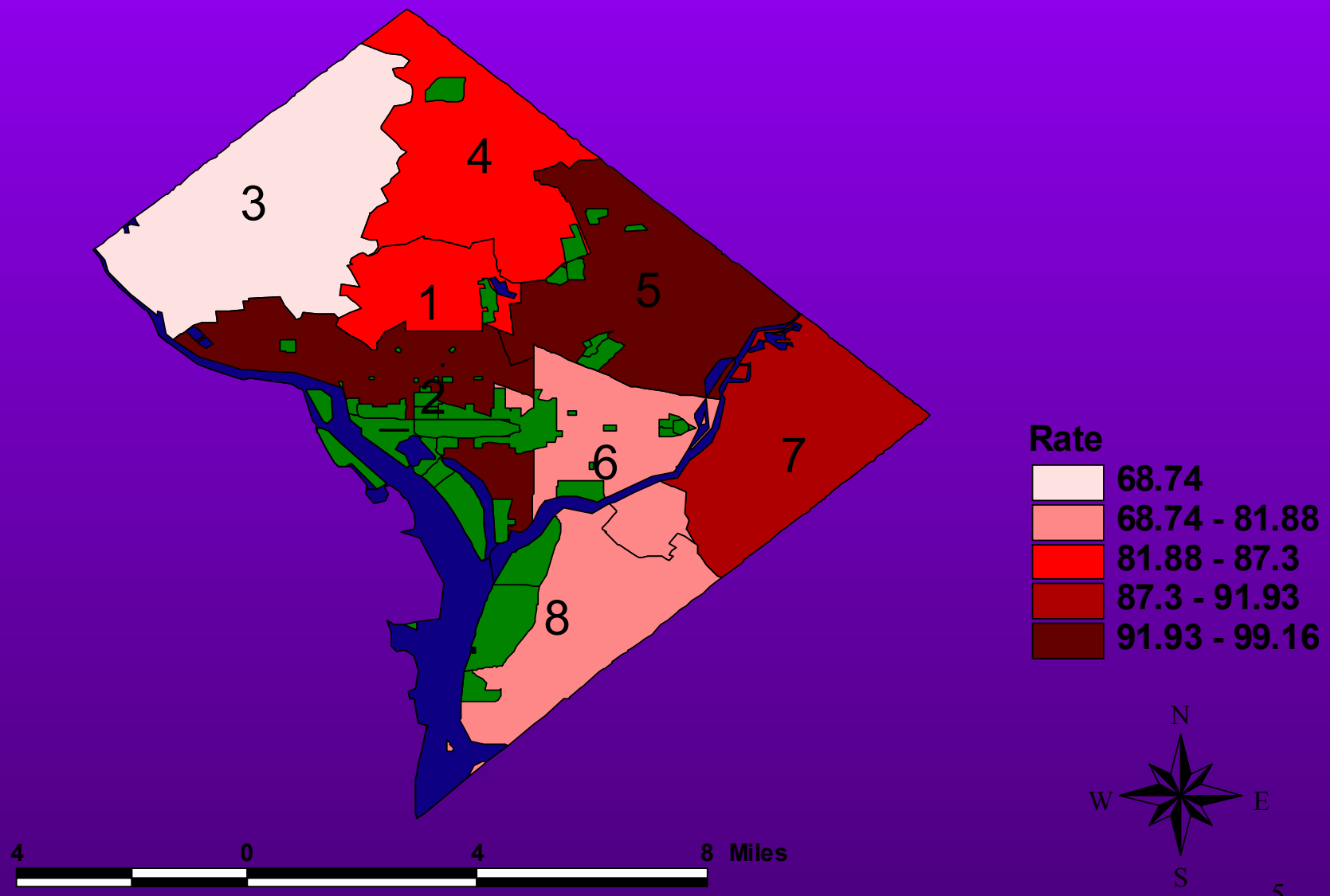
Objectives

1. Determine the distribution of colorectal cancer by ward in District of Columbia.
2. Determine the screening rates for colorectal cancer.
3. Determine the distribution of selected risk factors for colorectal cancer.
4. Evaluate the association between screening rates and colorectal cancer distribution.
5. Correlate selected risk factors and distribution of colorectal cancer.

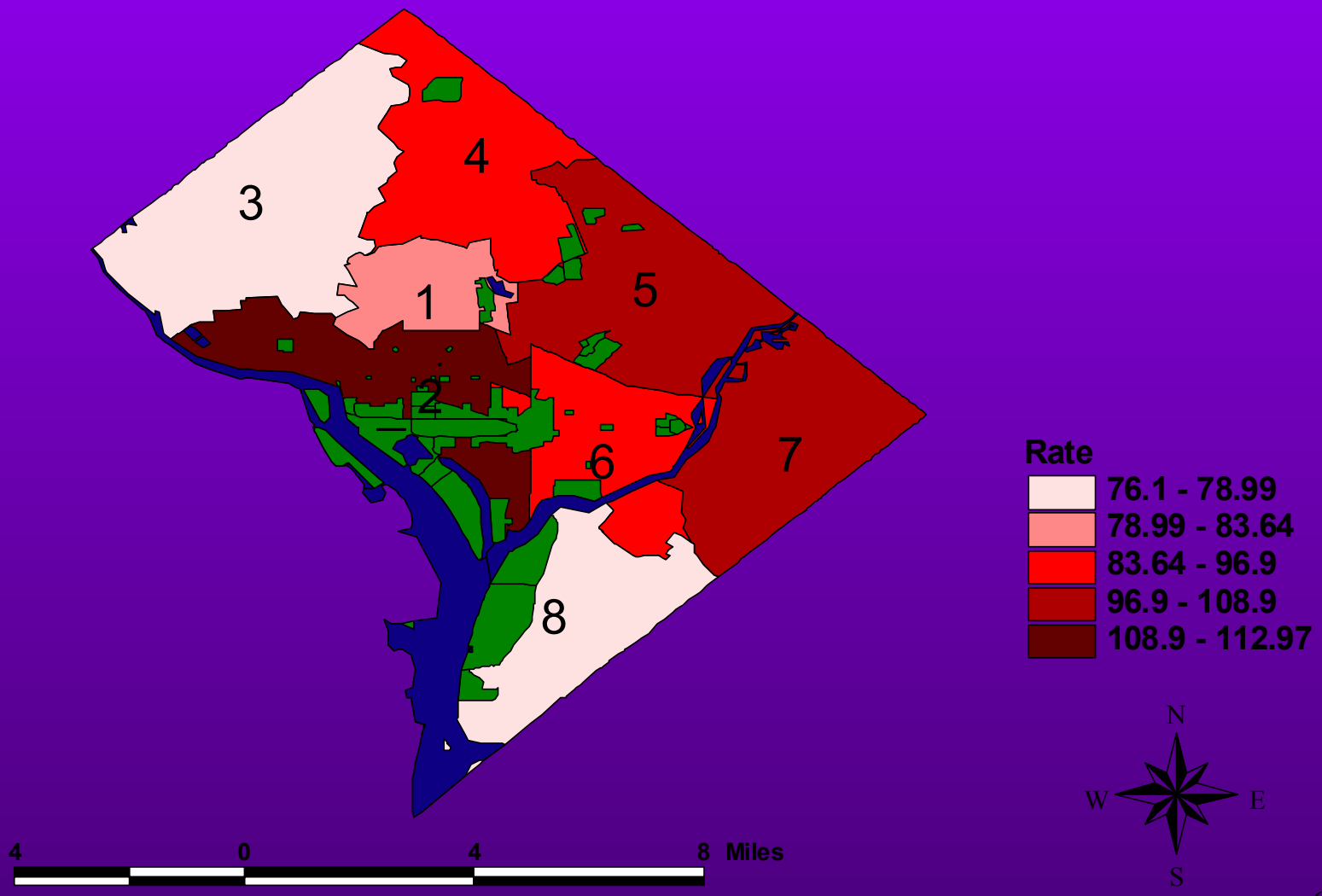
Methodology

- Colorectal cancer data, 1996-2000 obtained from the District of Columbia Cancer Registry.
- Data for screening rates for colorectal cancer (sigmoidoscopy, FOBT, blood stool test, & endoscopy), & selected risk factors for the same period, obtained from the Behavioral Risk Factor Surveillance System (BRFSS).
- Distribution of colorectal cancer mapped using GIS software Arc View version 3.2a.
- Ecological correlations between screening and colorectal cancer incidence, and between selected risk factors and colorectal cancer incidence, using Pearson's correlation method.

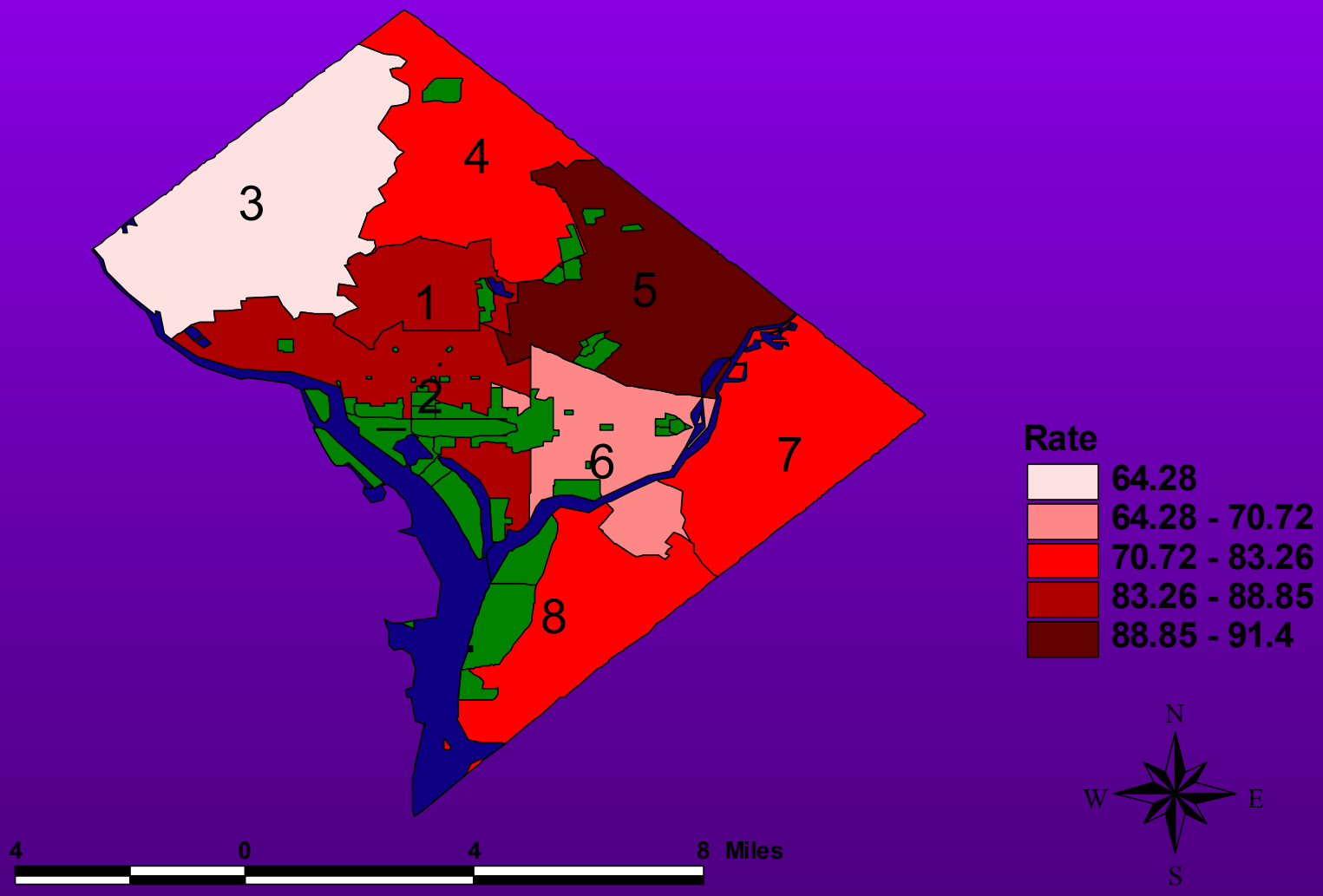
Age Adjusted Incidence of Colorectal Cancer in Washington DC by Ward,1995 – 2000 (Rate = 1/100,000)



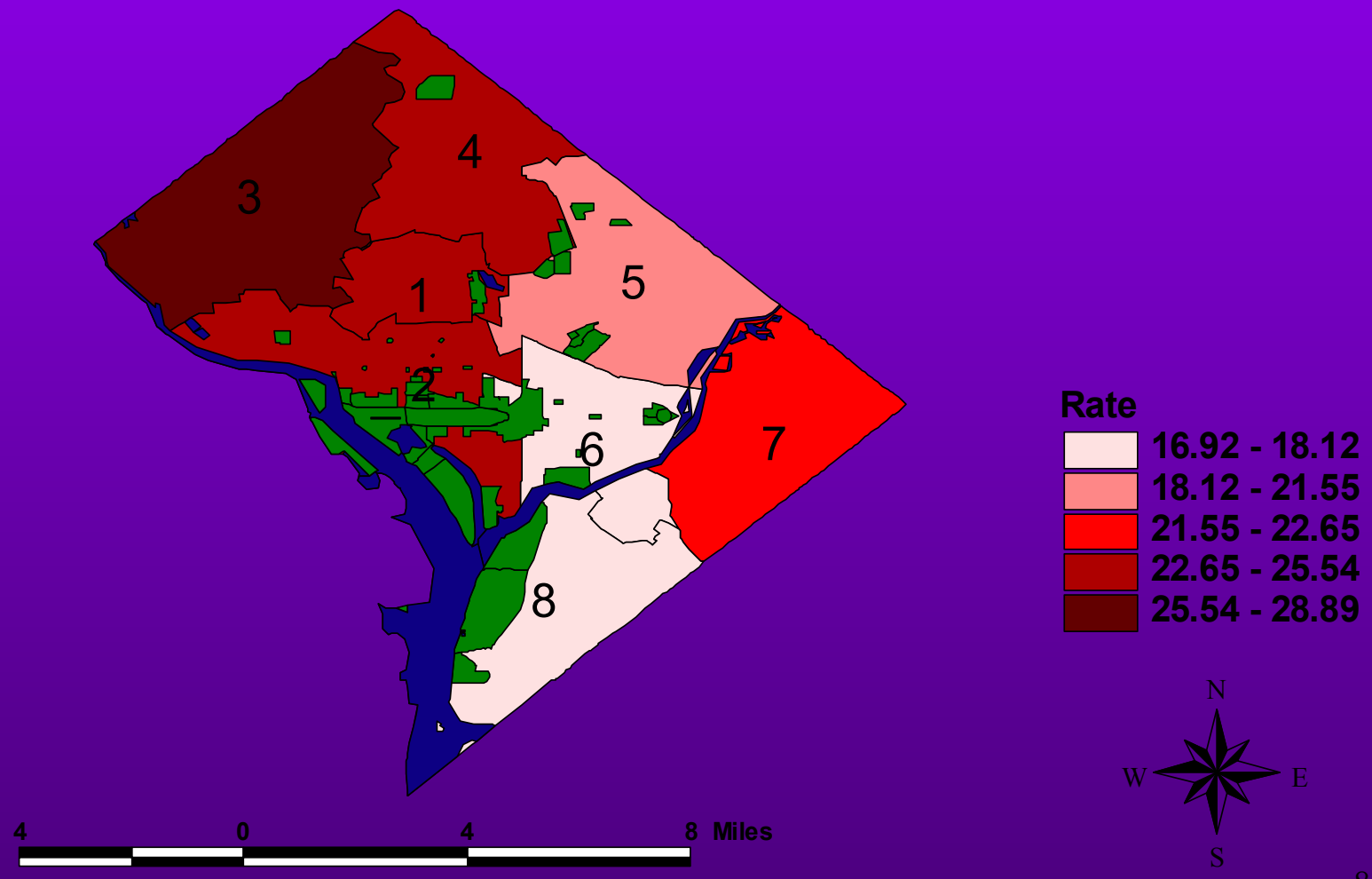
Age Adjusted Colorectal Cancer Incidence for Males in Washington DC by Ward,1995-2000 (Rate = 1/100,000)



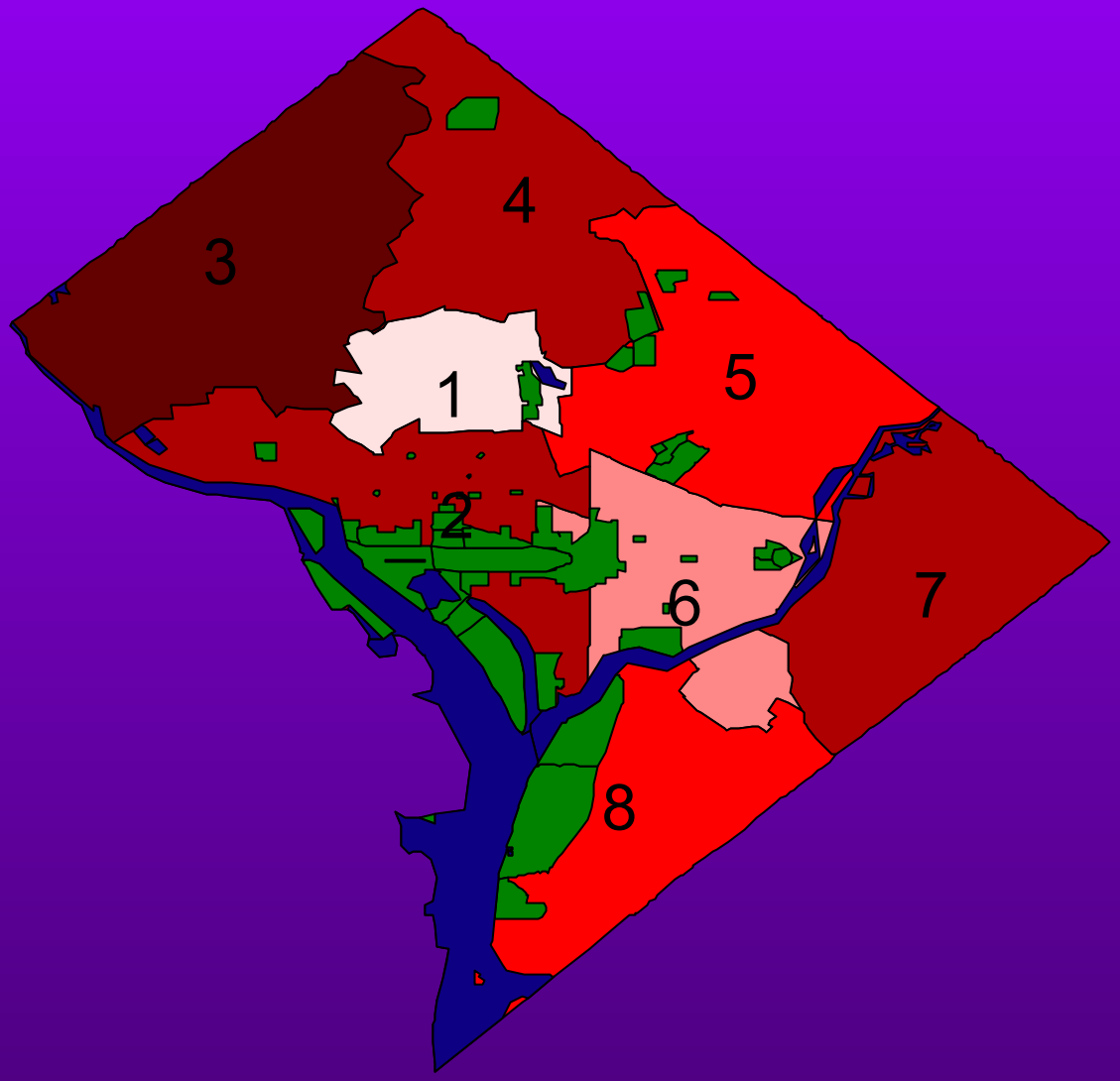
Age Adjusted Colorectal Cancer Incidence for Females in Washington DC by Ward,1995-2000 (Rate = 1/100,000)



Percentage of People Aged 50 & Older Who Have Had FOBT in the Past Year by Ward (BRFSS data, 1997, 1999)

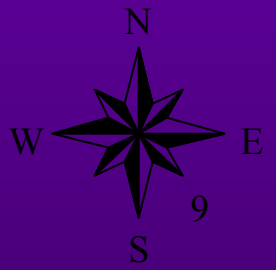


Percentage of People Who Have Ever Had Sigmoidoscopy/Protoscopy in Washington DC by Ward (BRFSS data,1997)



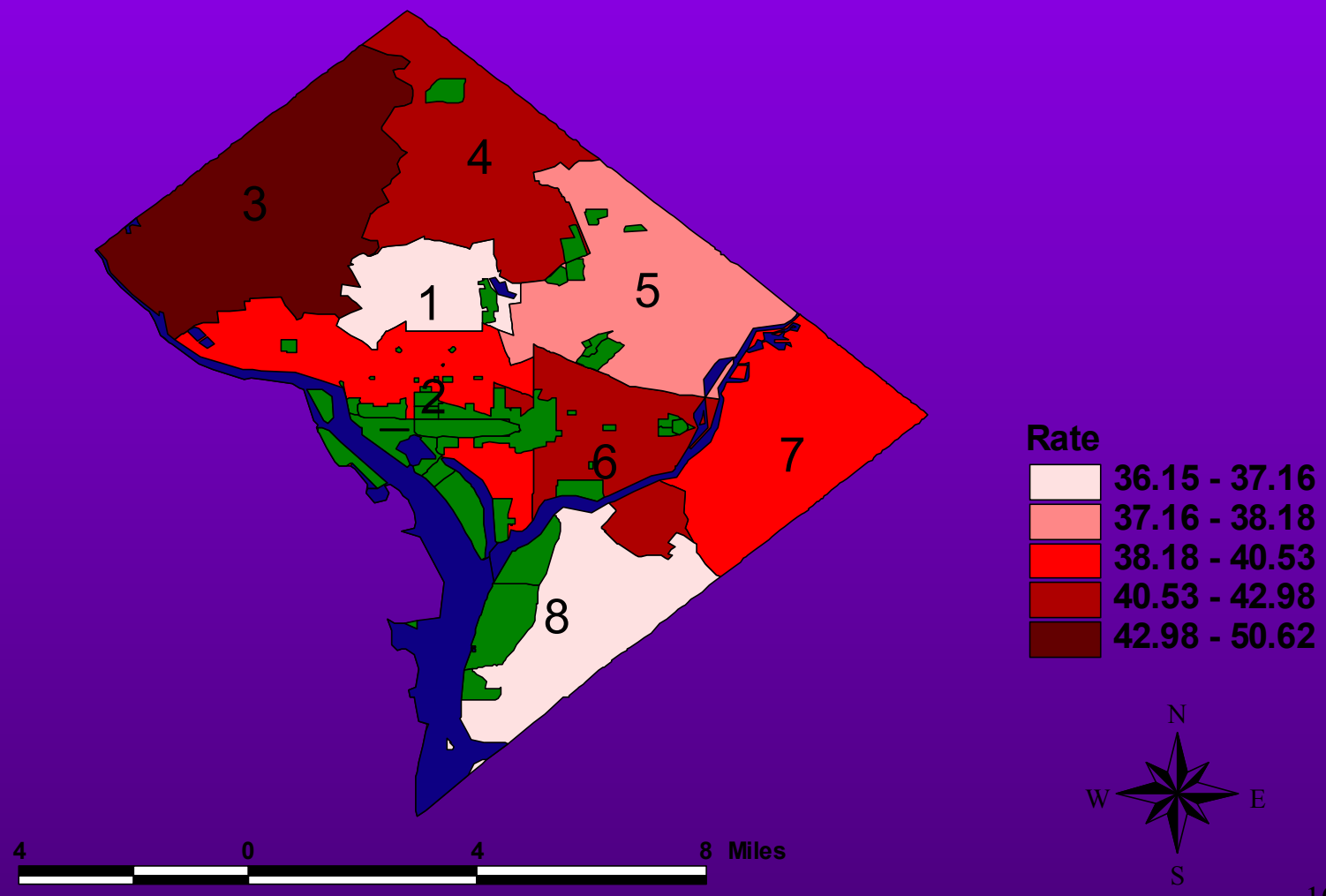
Rate

- 32.09
- 32.09 - 33.65
- 33.65 - 36.3
- 36.3 - 38.59
- 38.59 - 47.94

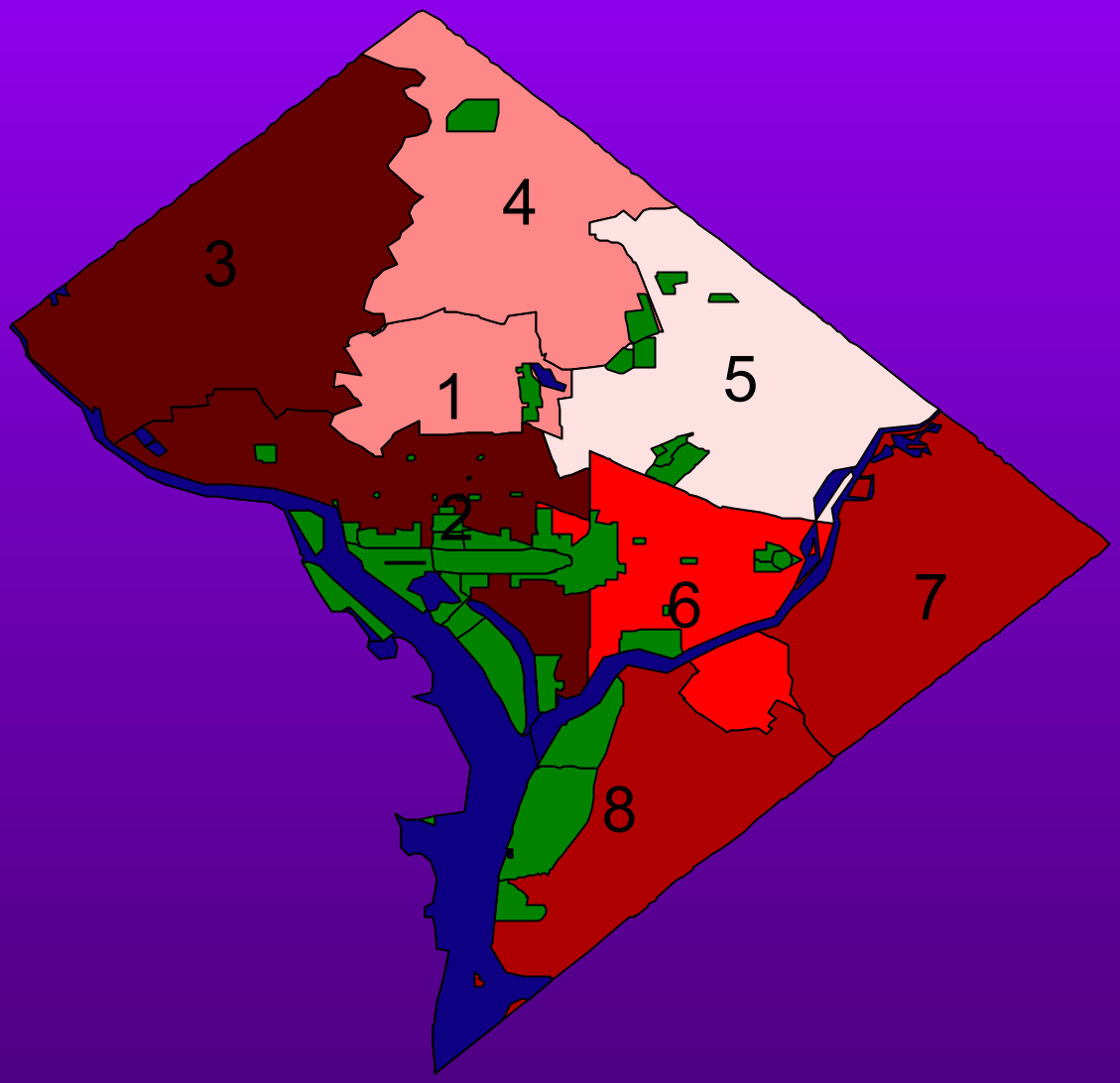


4 0 4 8 Miles

Percentage of People Who Had Blood Stool Test Using Home Kits by Ward (BRFSS data, 1997 & 1999)

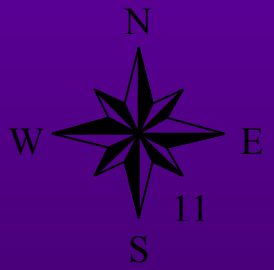


Percentage of People Who Have Had Endoscopic Exams Within the Last 5 Years by Ward (BRFSS data, 1997 & 1999)



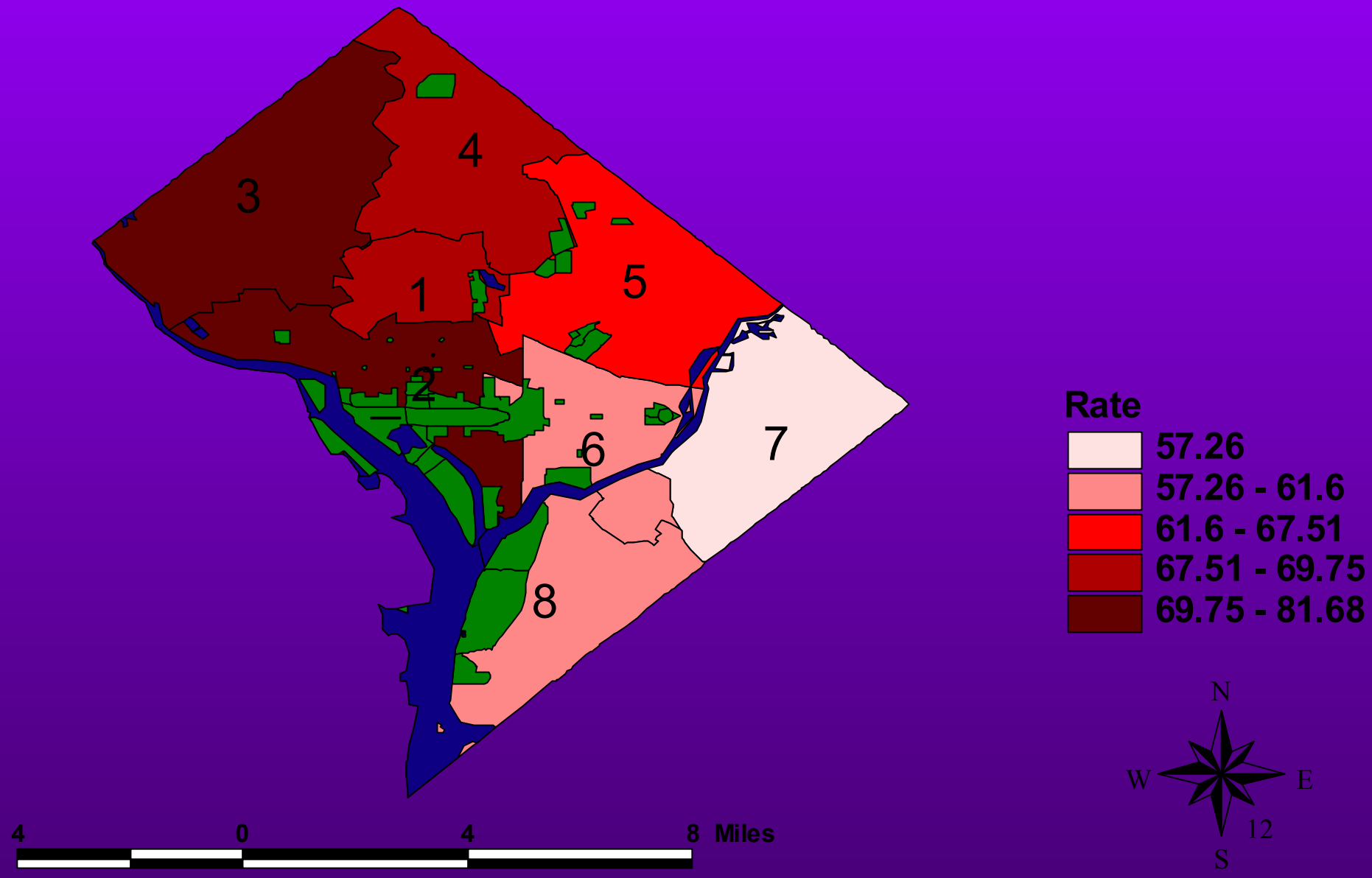
Rate

- 25.48
- 25.48 - 29.34
- 29.34 - 29.98
- 29.98 - 32.19
- 32.19 - 40.39

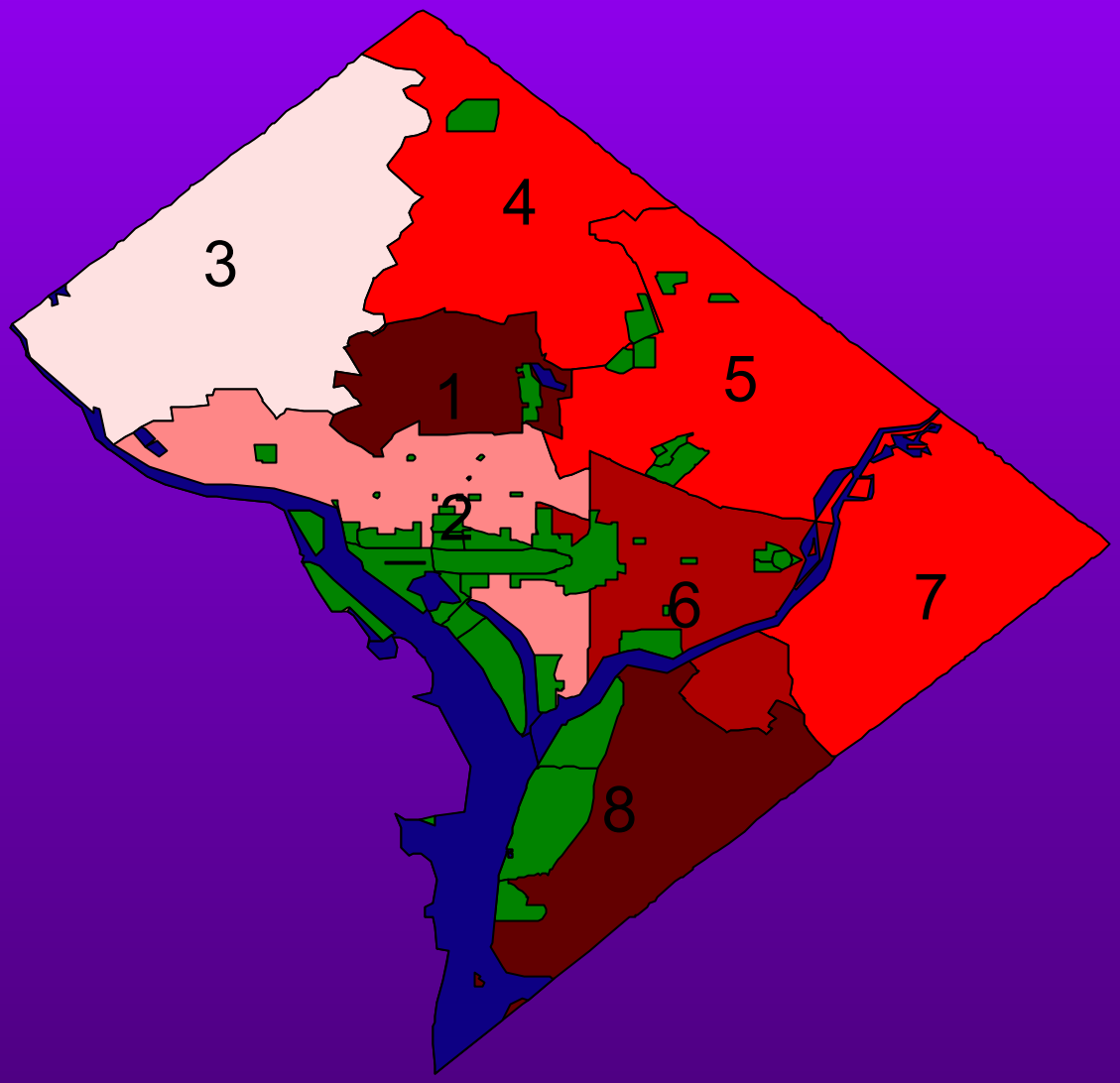


4 0 4 8 Miles

Percentage of People Participating in Physical Exercise in Washington DC by Ward (BRFSS data, 1996, 1998, 2000)

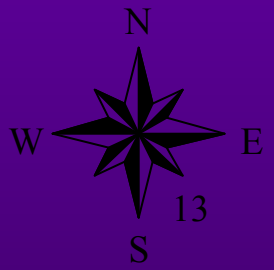


Percentage of People Having <5 Servings of Fruits & Vegetables Each Day (BRFSS data, 1996, 1998 & 2000)



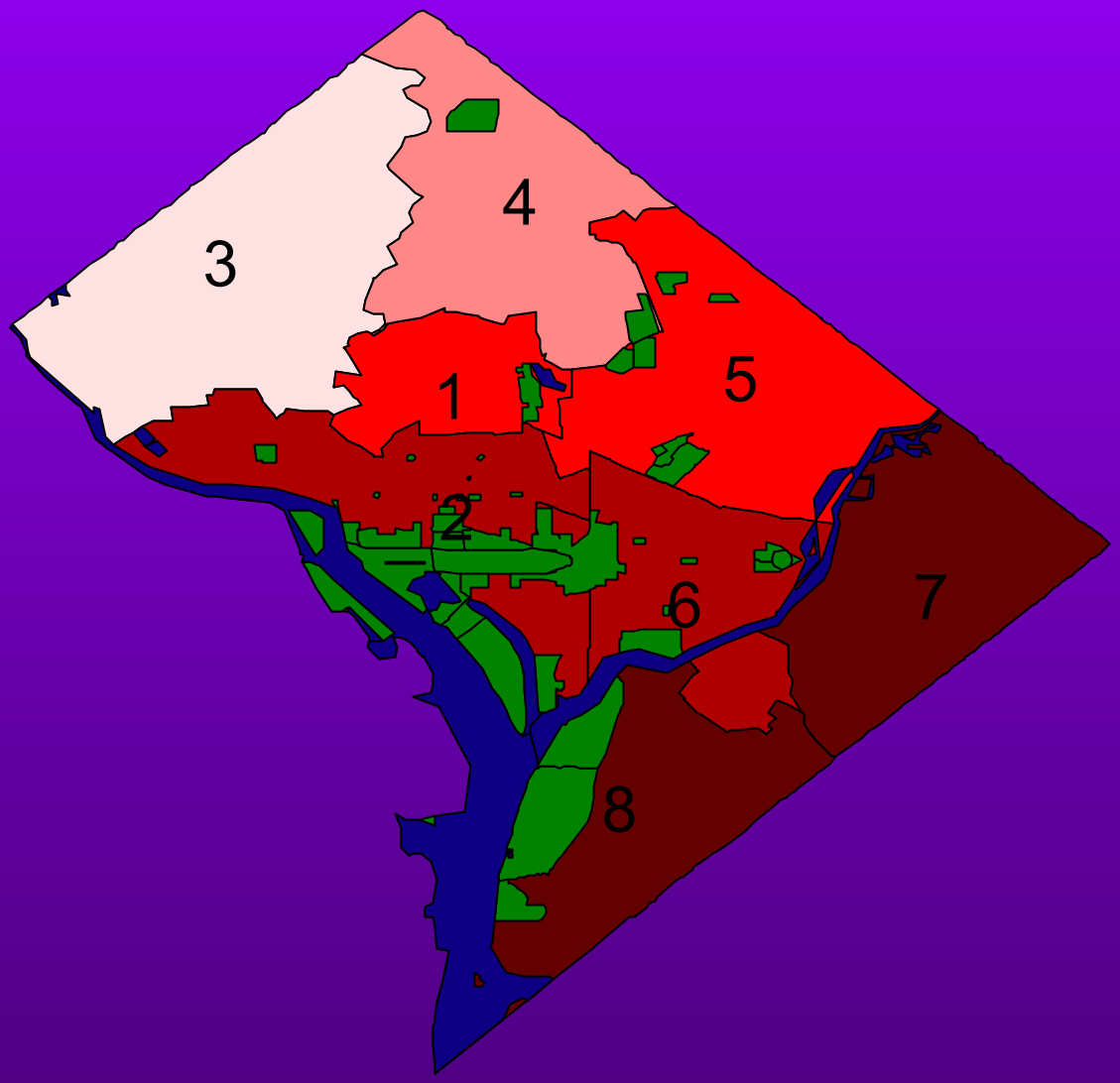
Rate

- 67.21
- 67.21 - 70.22
- 70.22 - 73.36
- 73.36 - 74.93
- 74.93 - 79.48



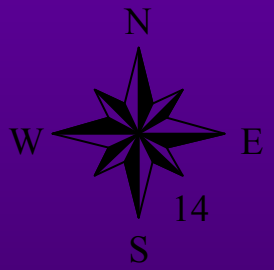
4 0 4 8 Miles

Percentage of People Who are Smokers in Washington DC by Ward
(BRFSS data, 1996 - 2000)



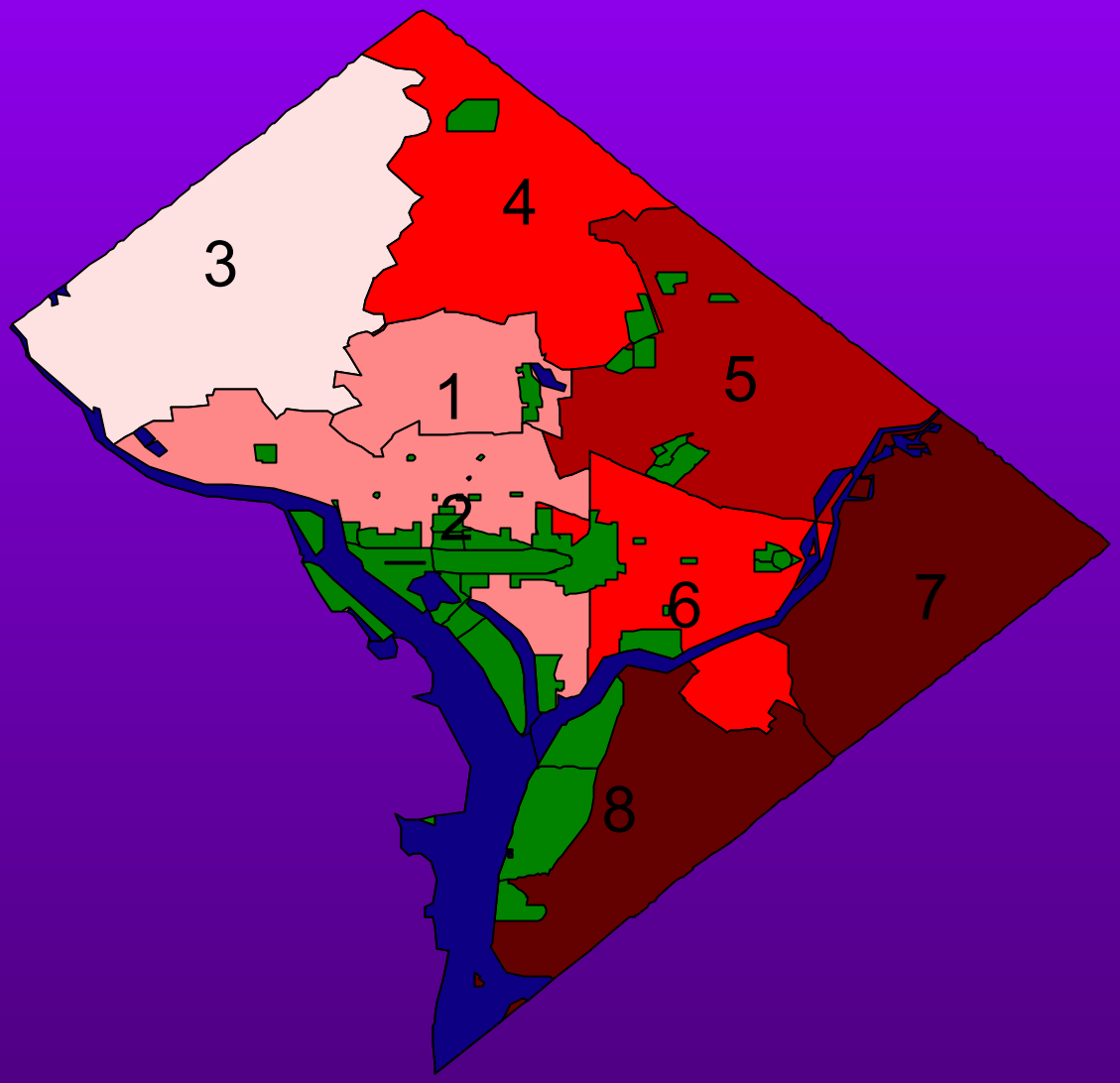
Rate

- 12.3
- 12.3 - 18.25
- 18.25 - 20.44
- 20.44 - 22.47
- 22.47 - 25.84



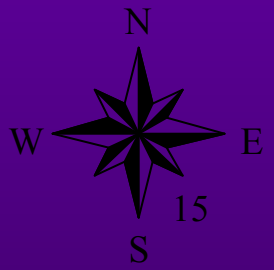
4 0 4 8 Miles

Percentage of People Who are Obese in Washington DC by ward (BRFSS data1996-2000)



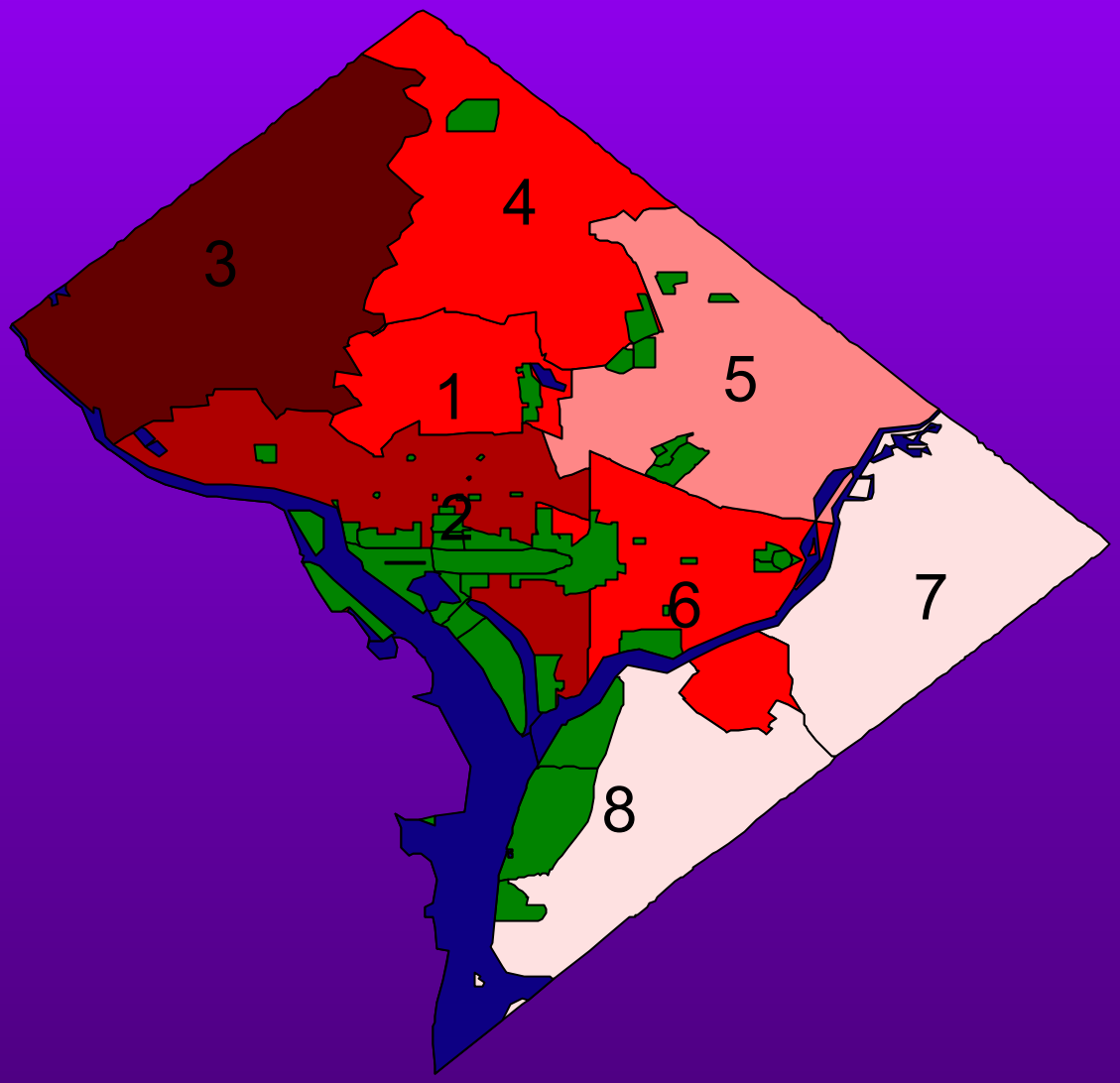
Rate

- 7.62
- 7.62 - 13.55
- 13.55 - 21.84
- 21.84 - 23.68
- 23.68 - 28.58



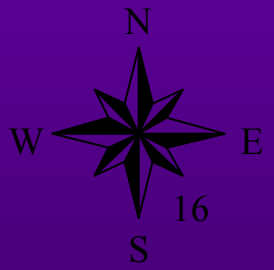
4 0 4 8 Miles

Percentage of People in Washington DC with College Education or Higher by Ward, 1996 – 2000



Rate

- 15.43 - 17.1
- 17.1 - 24.8
- 24.8 - 42.9
- 42.9 - 54.8
- 54.8 - 74.24



4 0 4 8 Miles

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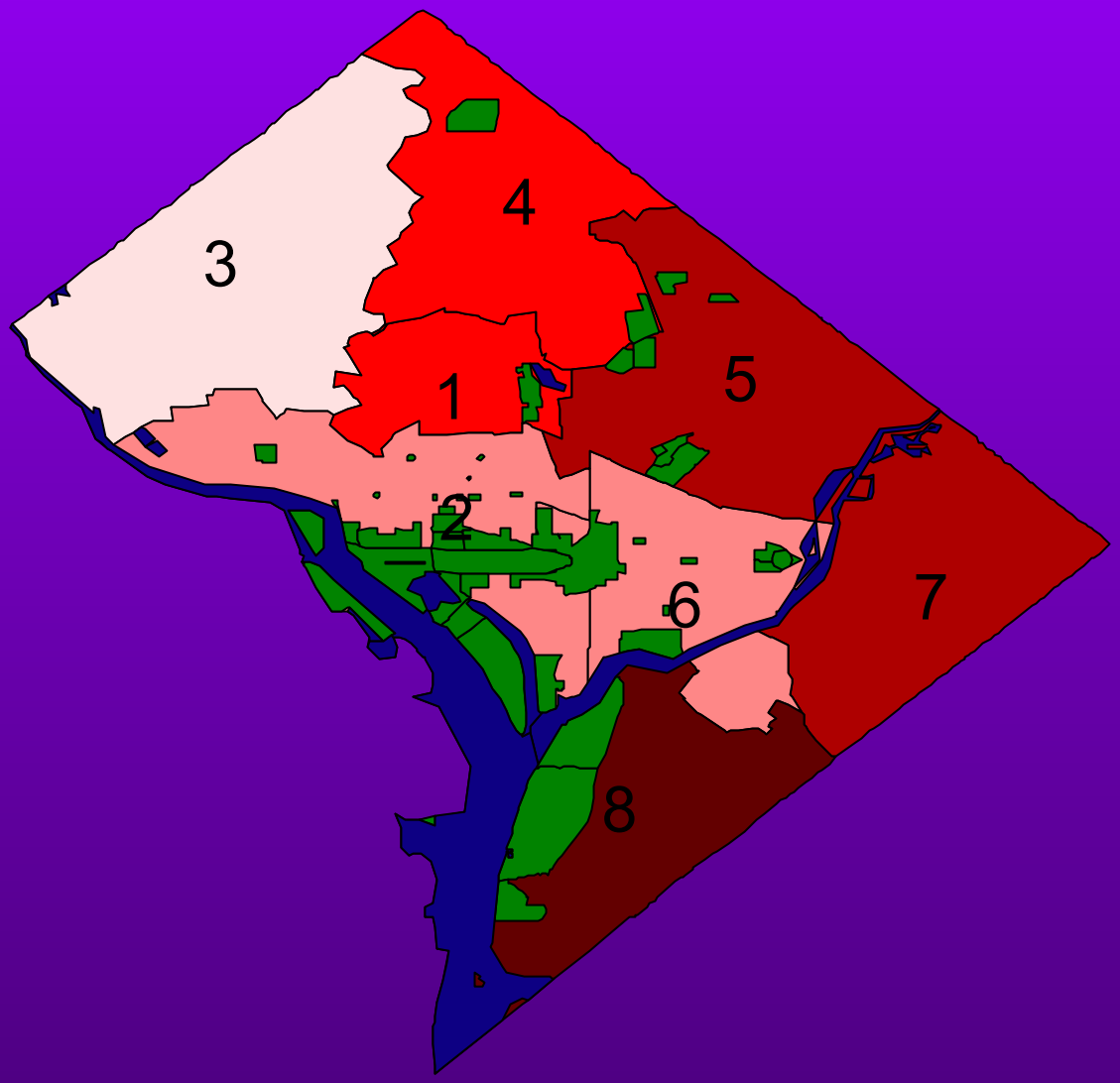
Percentage of People Earning Less Than $50,000 a Year in Washington DC by Ward (BRFSS data 1996-2000)

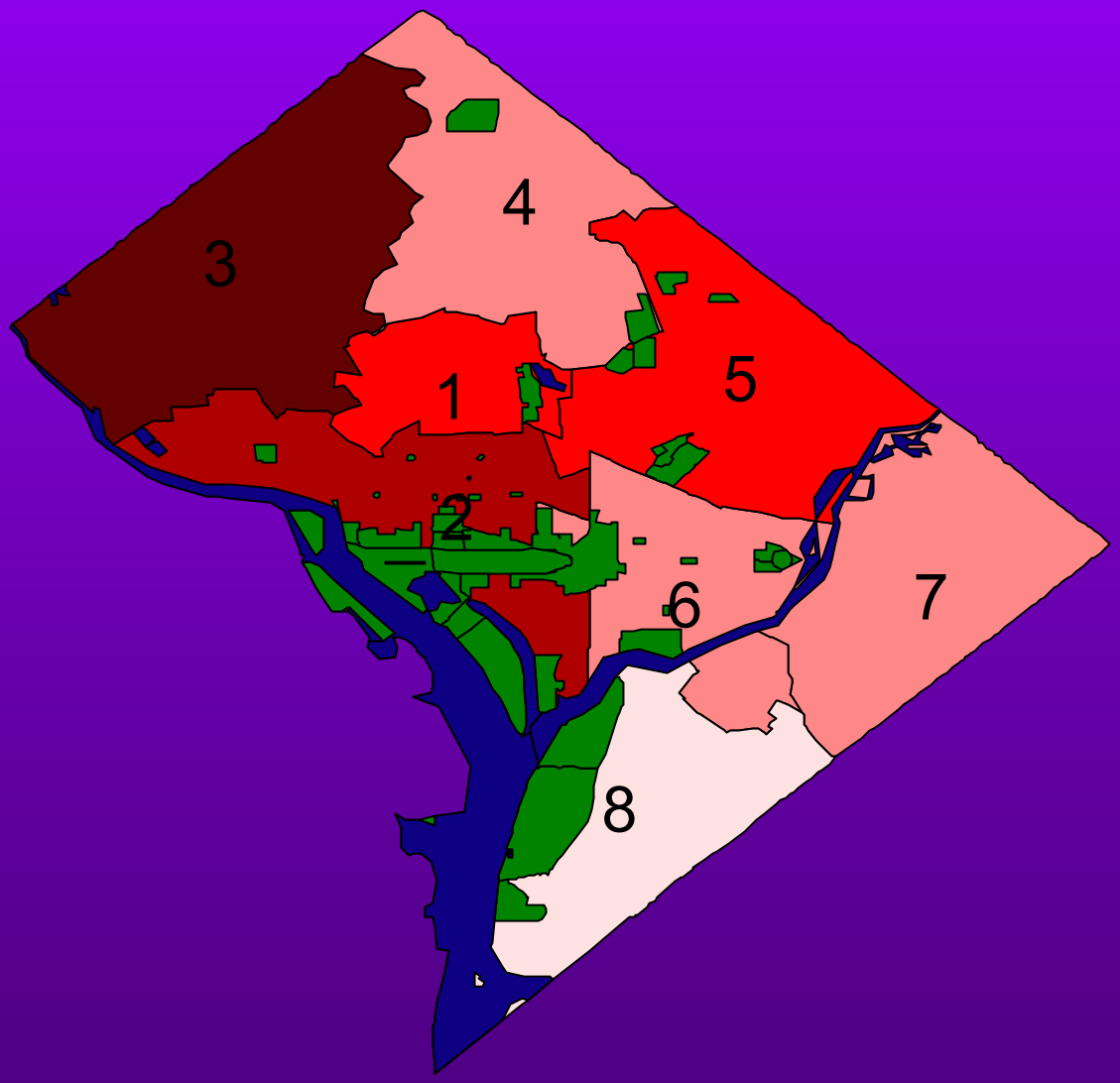


Rate

- 49.31
- 49.31 - 70.67
- 70.67 - 73.59
- 73.59 - 85.37
- 85.37 - 89.35

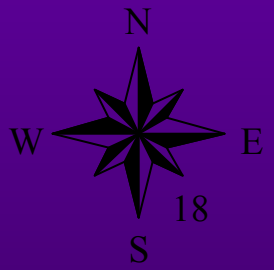
4 0 4 8 Miles

Percentage of People Having Any Kind of Health Insurance Plan in Washington DC by Ward (BRFSS data,1996-2000)



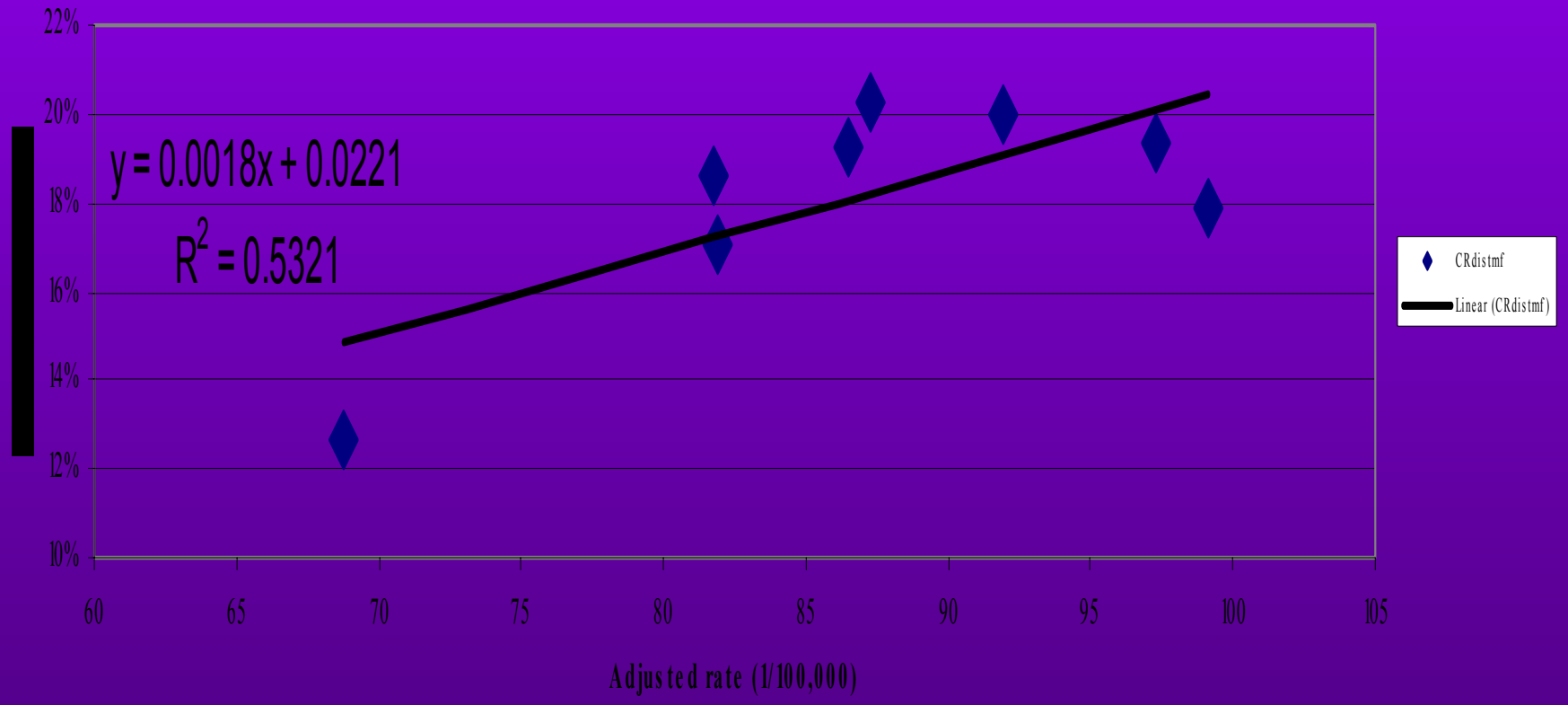
Rate

- 83.88
- 83.88 - 86.74
- 86.74 - 87.72
- 87.72 - 88.78
- 88.78 - 94.92

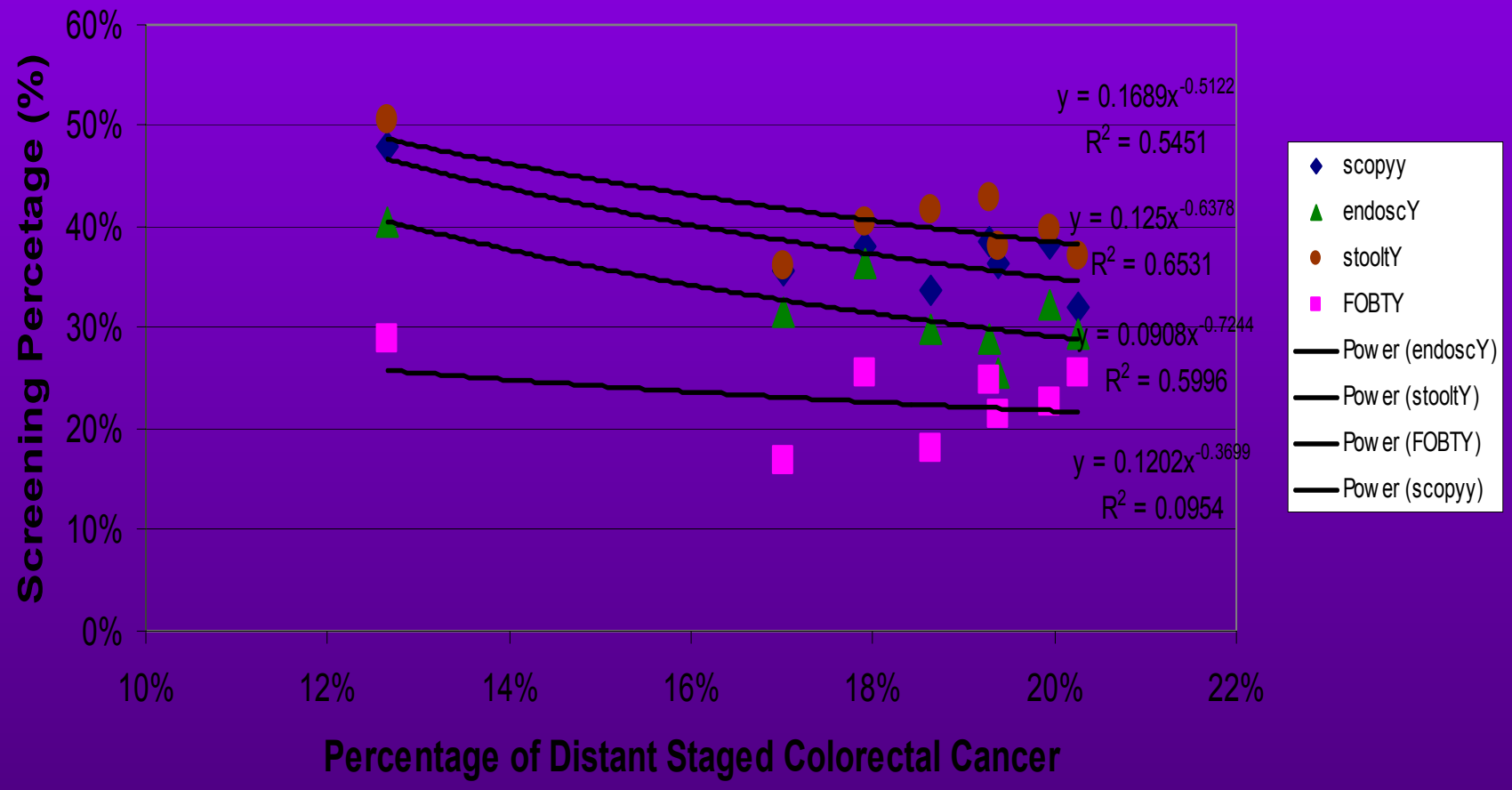


4 0 4 8 Miles

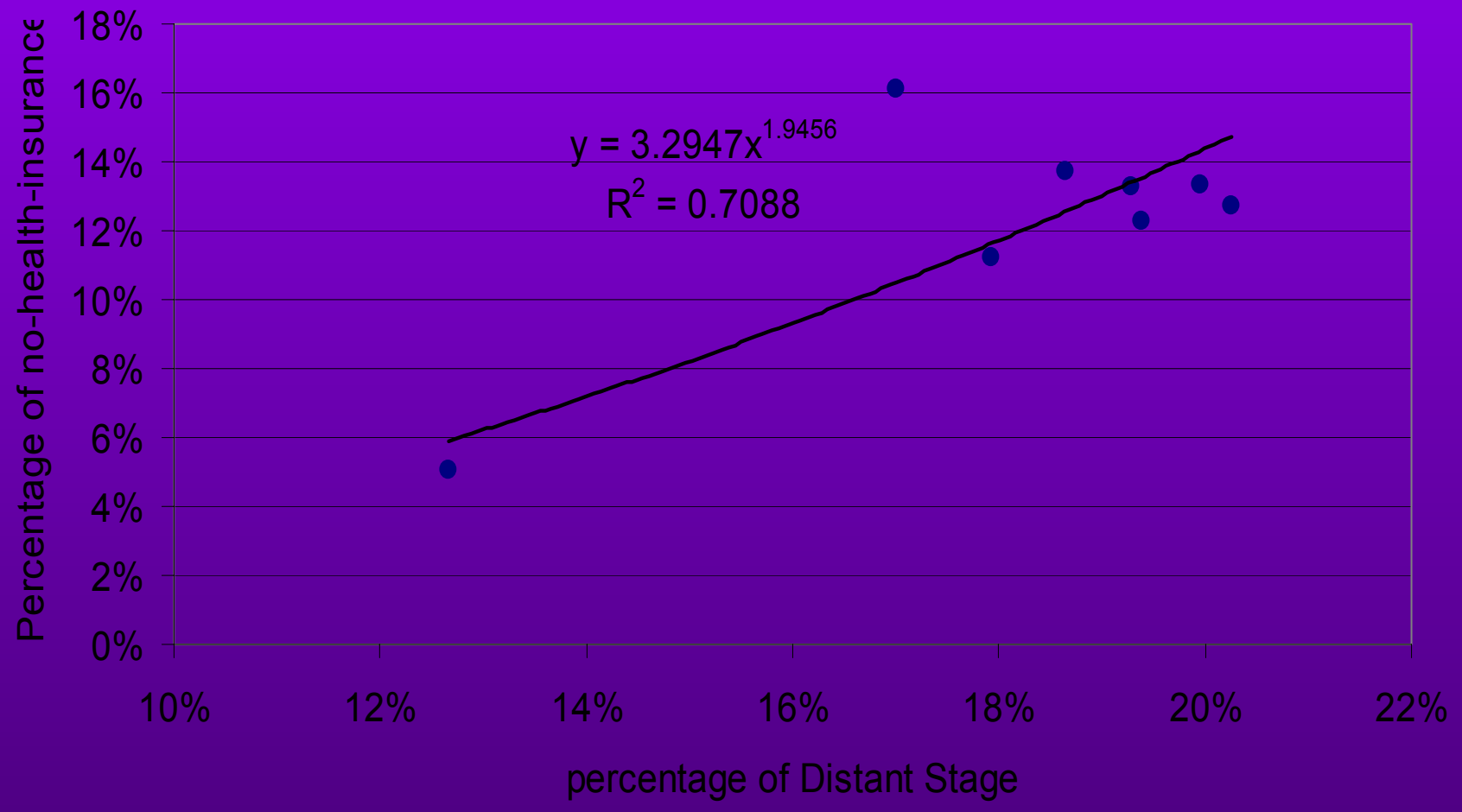
Relationship Between Incidence and Stage at Presentation of Colorectal Cancer



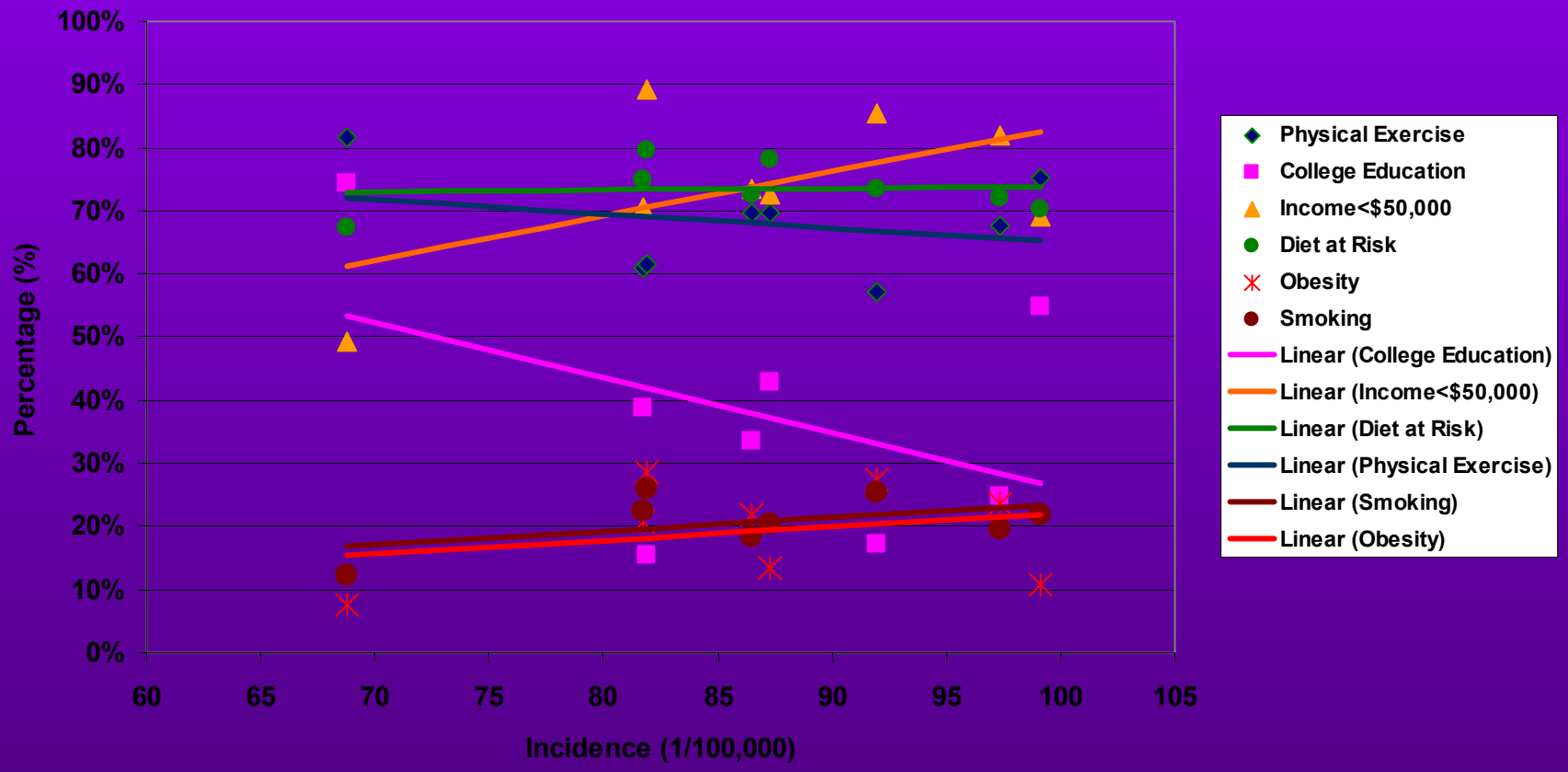
Relationship Between Screening Rate and Stage at presentation for Colorectal Cancer by Ward



Relationship between having no health plan and stage at presentation for Colorectal Cancer



Relationship between Colorectal Cancer Incidence and Selected Risk Factors



Conclusions

- Wards with higher screening rates (sigmoidoscopy, FOBT, endoscopy, blood stool test) show lower rates of distant staged colorectal cancer cases.
- Wards with higher rates of people with No Health Insurance Plan have higher rates of distant staged colorectal cancer cases.
- Higher rates of obesity, smoking, & low socioeconomic level correlated with higher incidence rates of colorectal cancer.
- The higher the educational level, the lower the colorectal cancer rates.
- The higher the rates of physical exercise & fruits & vegetables intake, the lower the rates of colorectal cancer.

Limitations of the Study

- The BRFSS relies on information reported directly by the respondent.
- Wording of questions may result in inaccurate responses.
- The BRFSS is conducted only in English therefore adults who do not speak English are left out of the survey.
- Individuals without telephones are sampled out.
- Environmental/biological factors not considered
- Analysis is not a cause & effect relationship but a means to assess indications of at risk groups.