Distribution of Health, Disease, and Social Determinants of Health in Richmond, Chesterfield, and Henrico

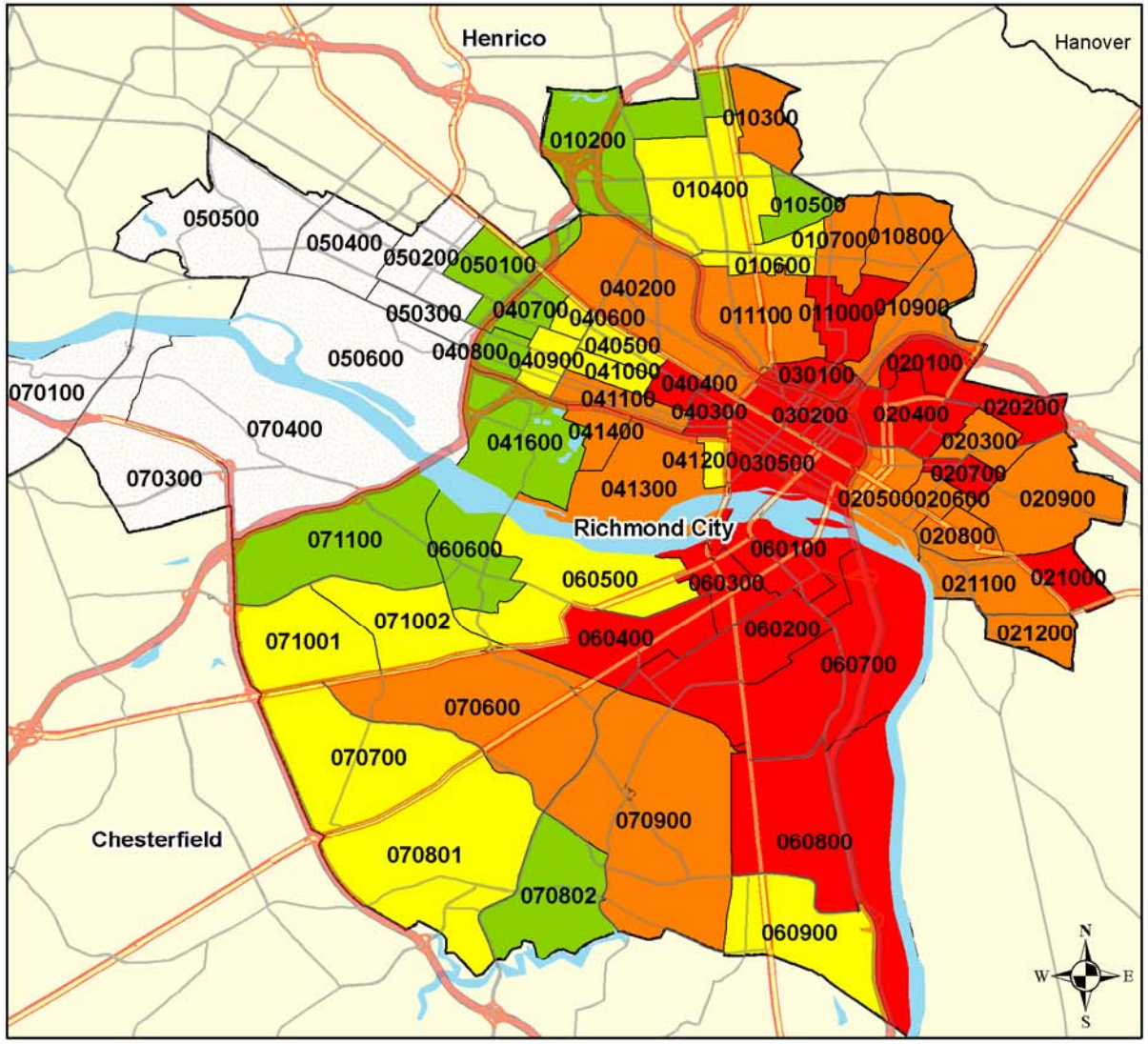
Richmond City

Poverty by Census Tract, 2000

% population below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

Source: US Census 2000, (SF3, P87).



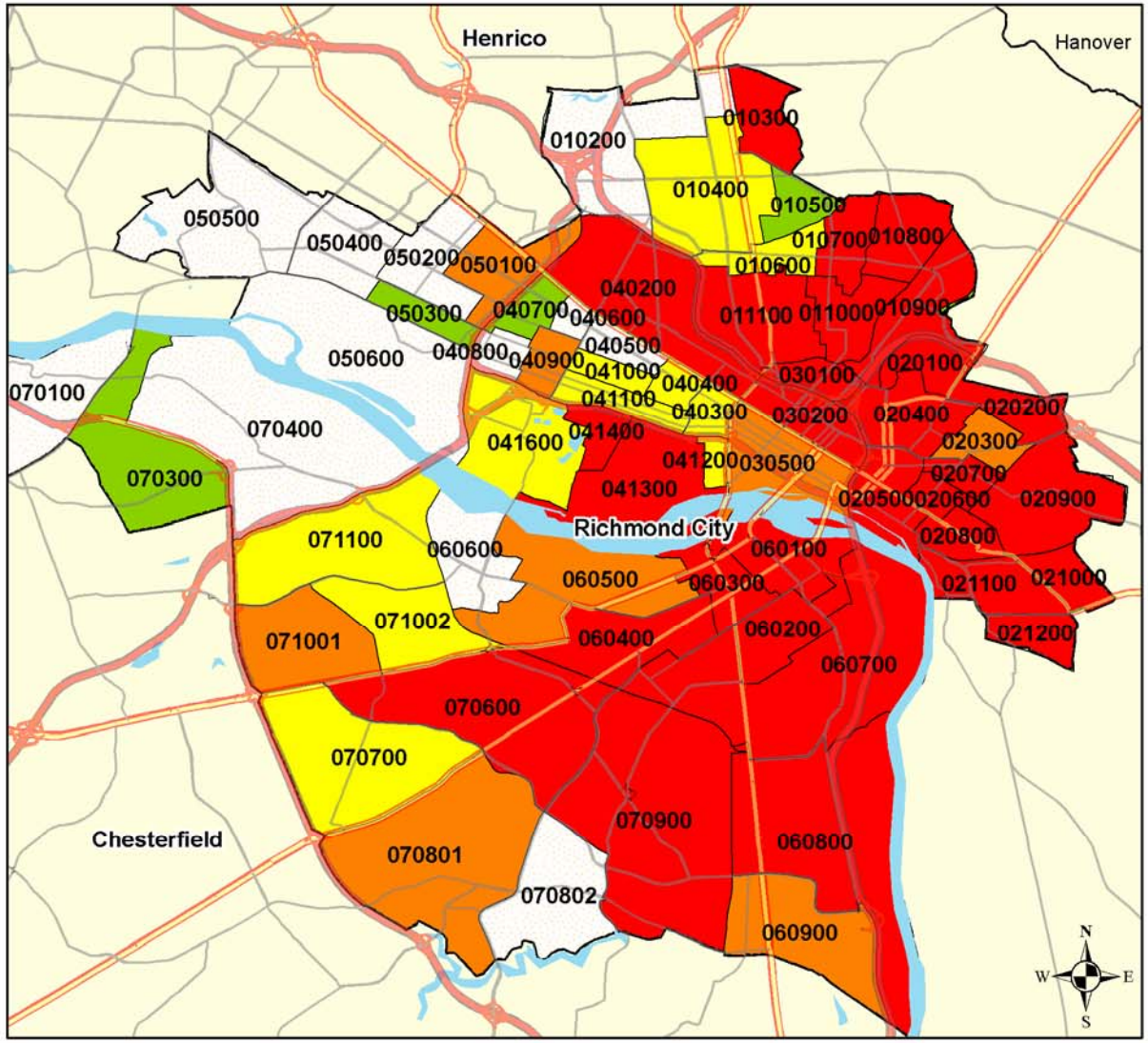
Richmond City

Child Poverty* by Census Tract, 2000

% population (under 18 years) below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

* Child Poverty - Persons under 18 years old living below the federal poverty level. Source: US Census 2000, (SF3, P87).



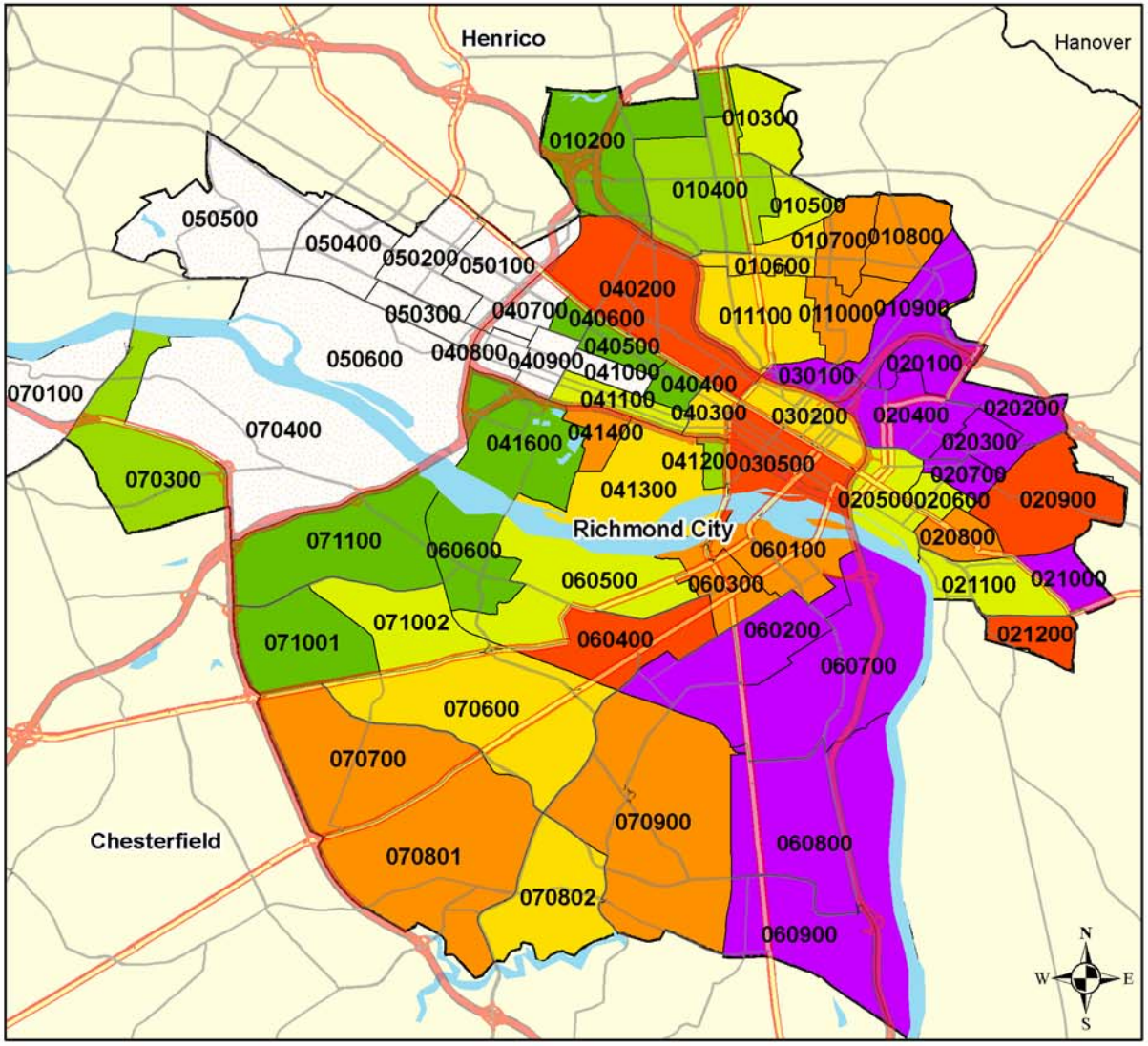
Richmond City

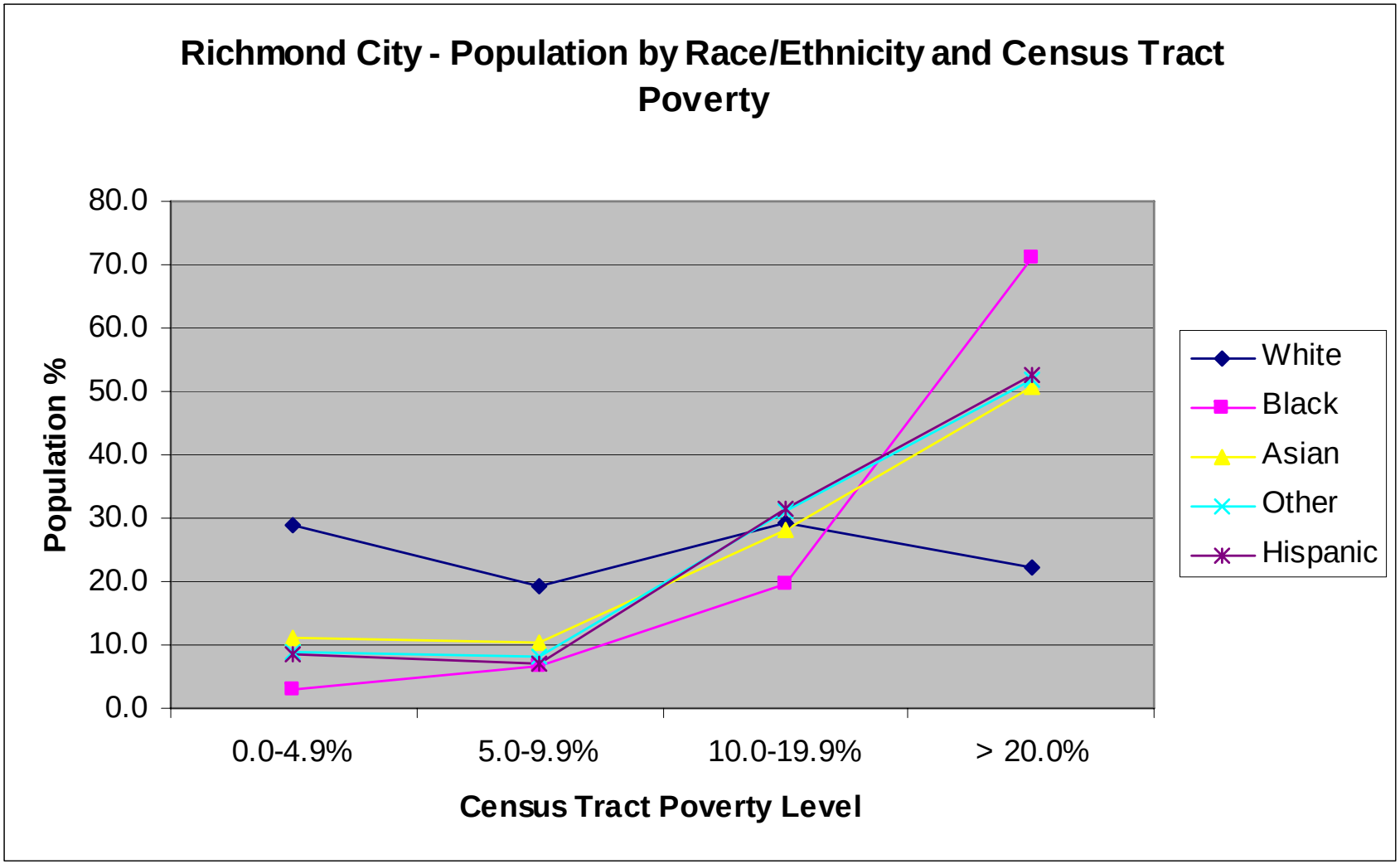
Low Education* by Census Tract, 2000

Low Education Population %

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 14.9
- 15.0 - 19.9
- 20.0 - 24.9
- 25.0 - 29.9
- 30.0 - 34.9
- ≥ 35.0

* Low Education: persons between the ages of 24 and 65 years old with neither a high school diploma nor GED.
Source: US Census 2000, (SF3, PCT 25).





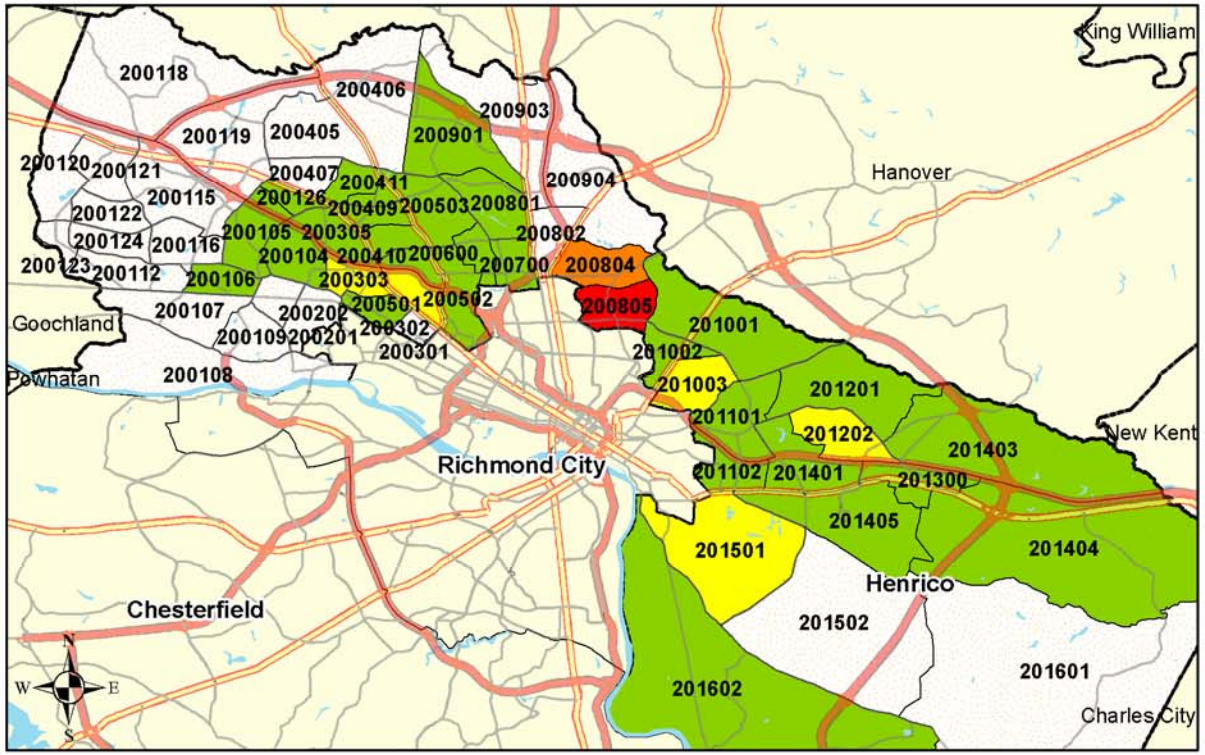
Source: US Census 2000; poverty (SF3, P87); race (SF1 P7); Hispanic ethnicity (SF1 P4).

Henrico County Poverty by Census Tract, 2000

% population below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

Source: US Census 2000, (SF3, P87).



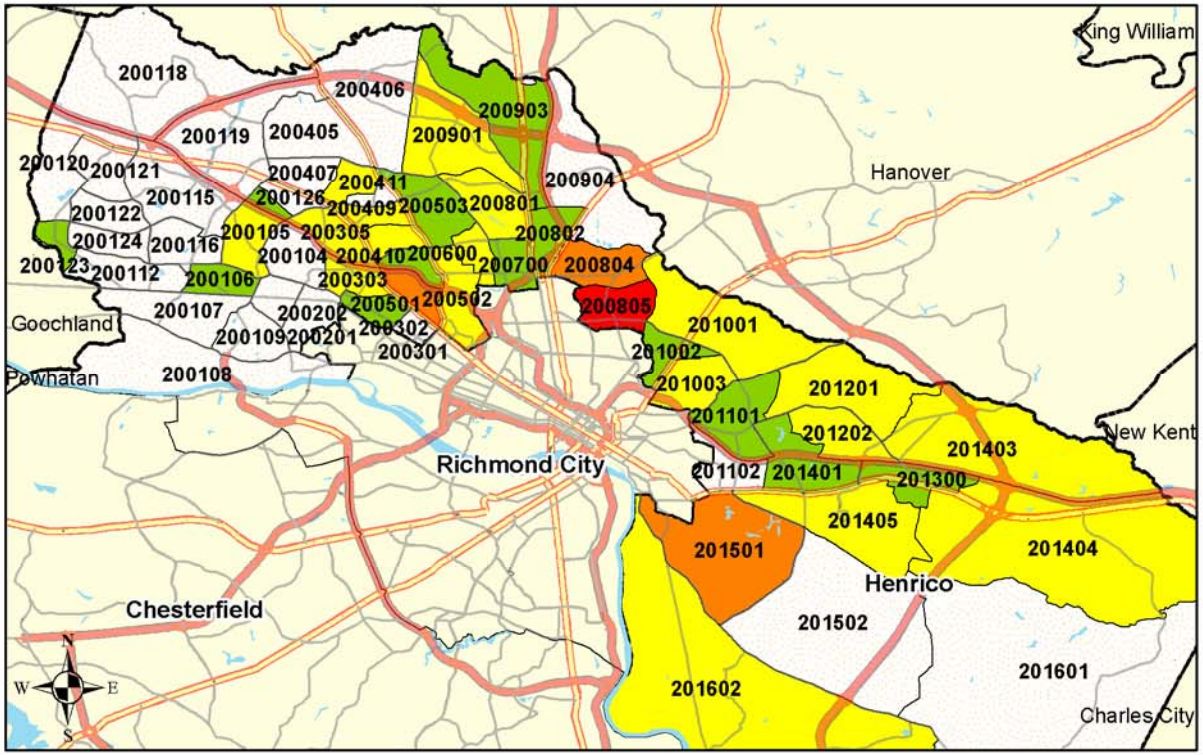
Henrico County

Child Poverty* by Census Tract, 2000

% population (under 18 years) below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

* Child Poverty - Persons under 18 years old living below the federal poverty level. Source: US Census 2000, (SF3, P87).

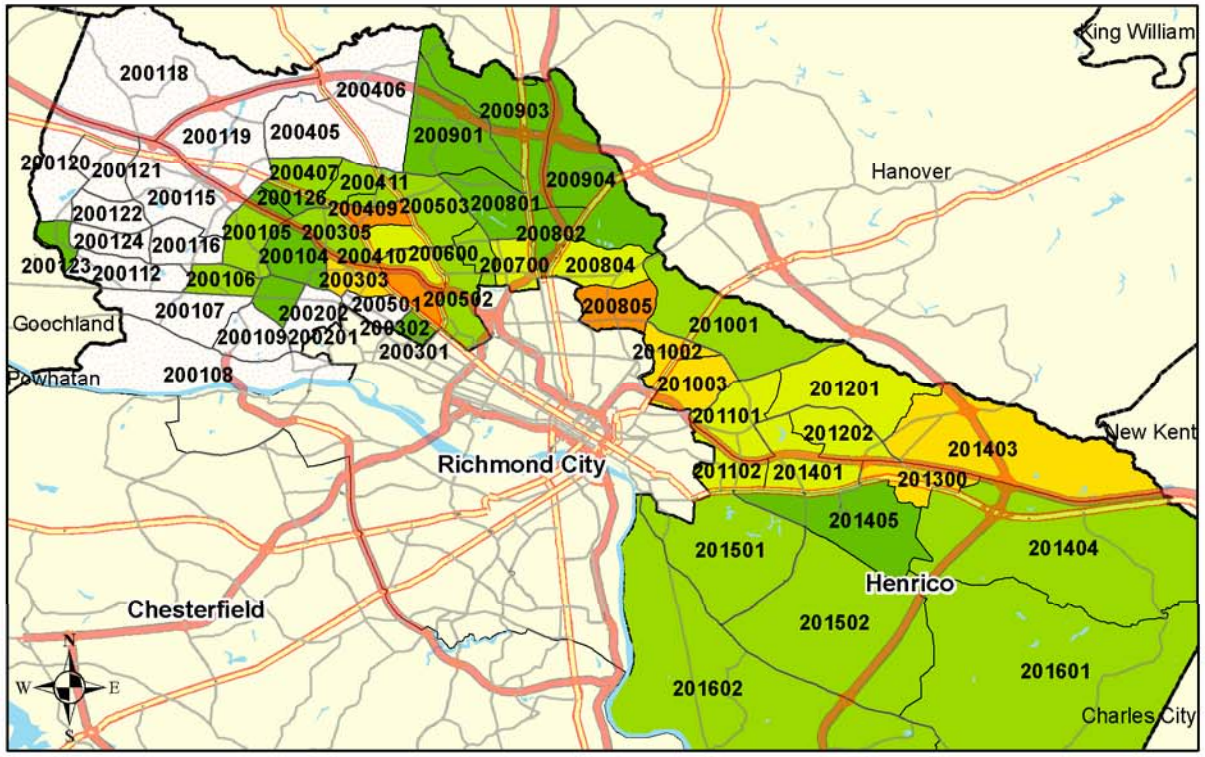


Henrico County

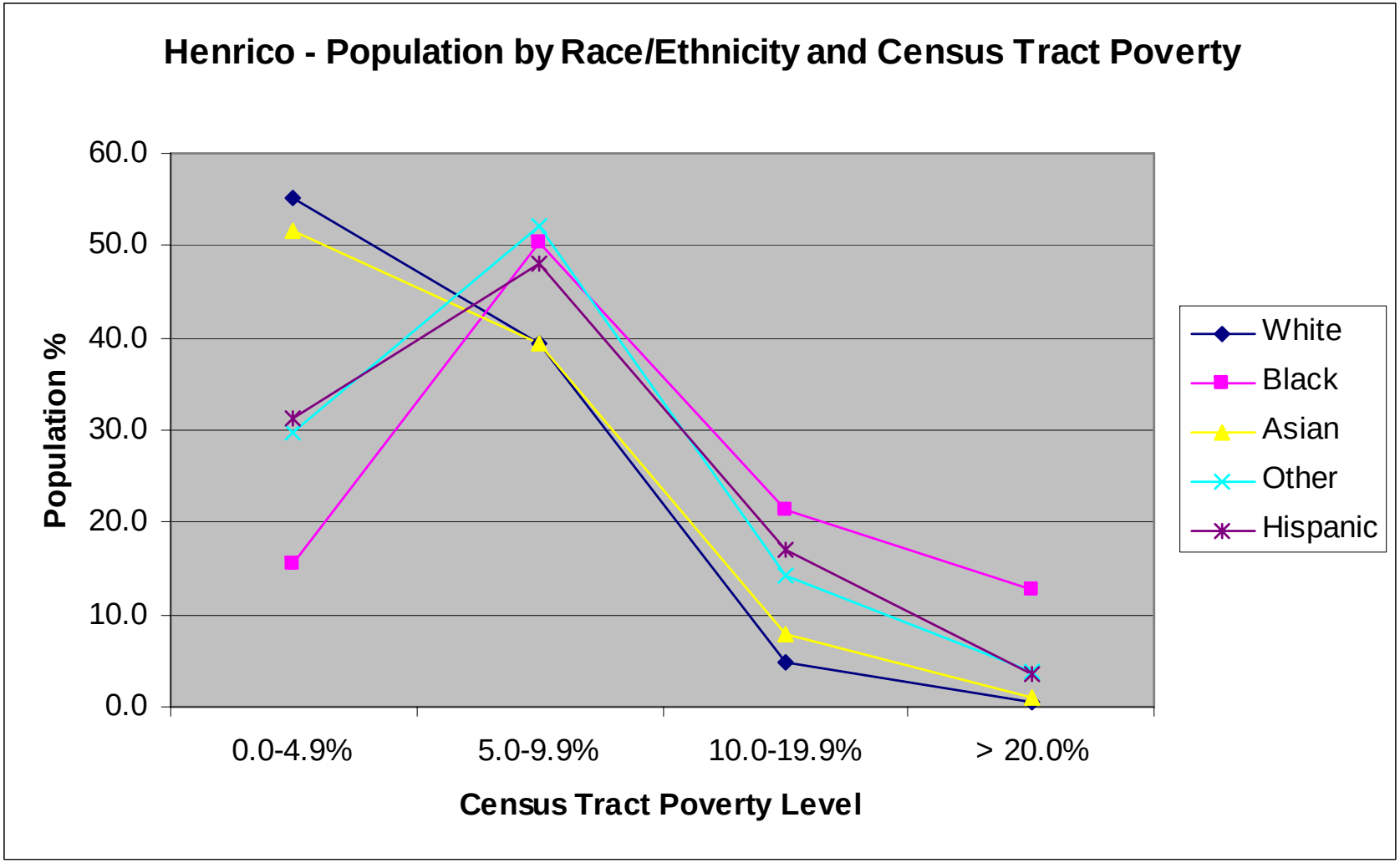
Low Education* by Census Tract, 2000

Low Education Population %

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 14.9
- 15.0 - 19.9
- 20.0 - 24.9
- 25.0 - 29.9
- 30.0 - 34.9
- ≥ 35.0



* Low Education: persons between the ages of 24 and 65 years old with neither a high school diploma nor GED.
Source: US Census 2000, (SF3, PCT 25).



Source: US Census 2000; poverty (SF3, P87); race (SF1 P7); Hispanic ethnicity (SF1 P4).

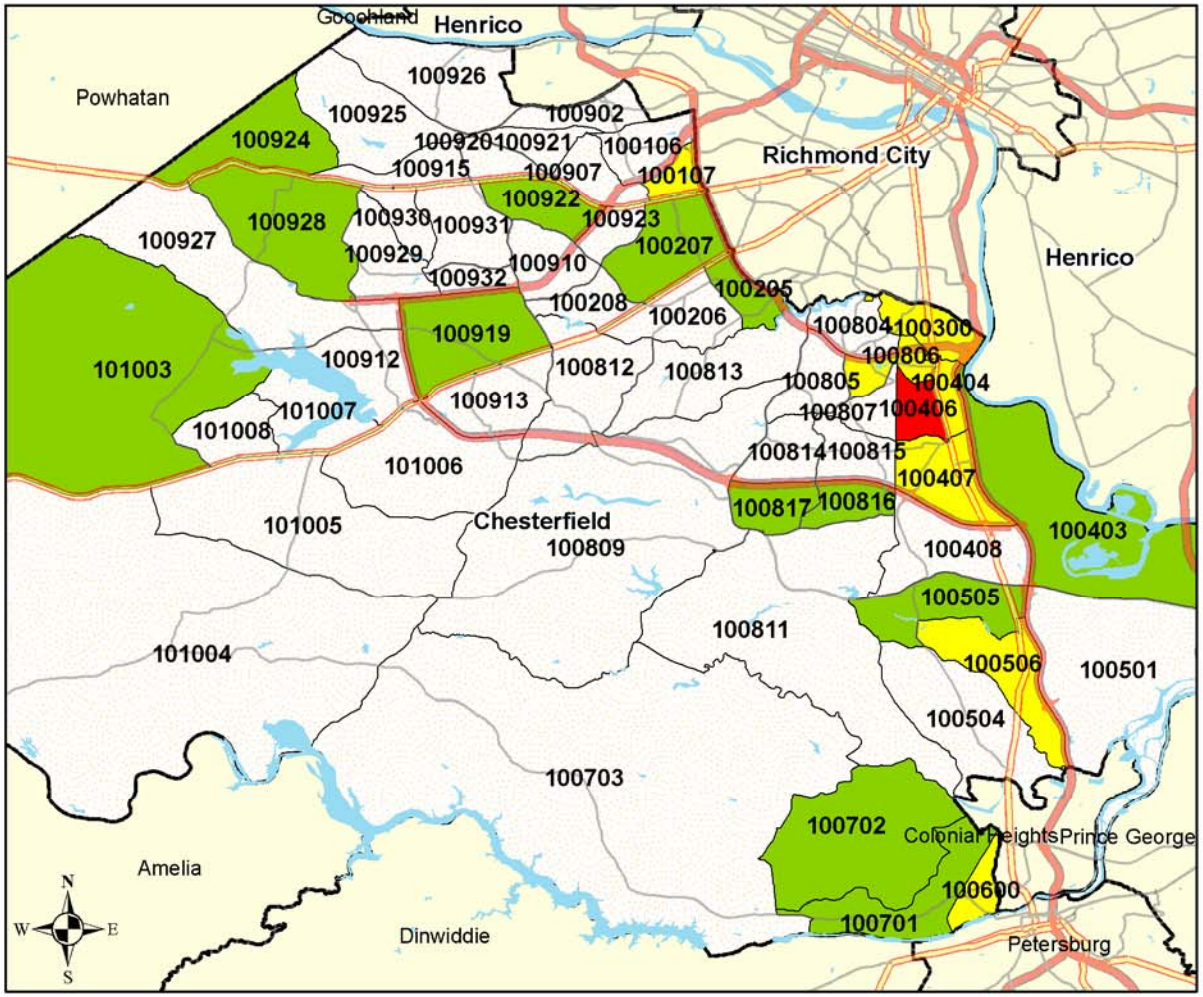
Chesterfield County

Poverty by Census Tract, 2000

% population below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

Source: US Census 2000, (SF3, P87).



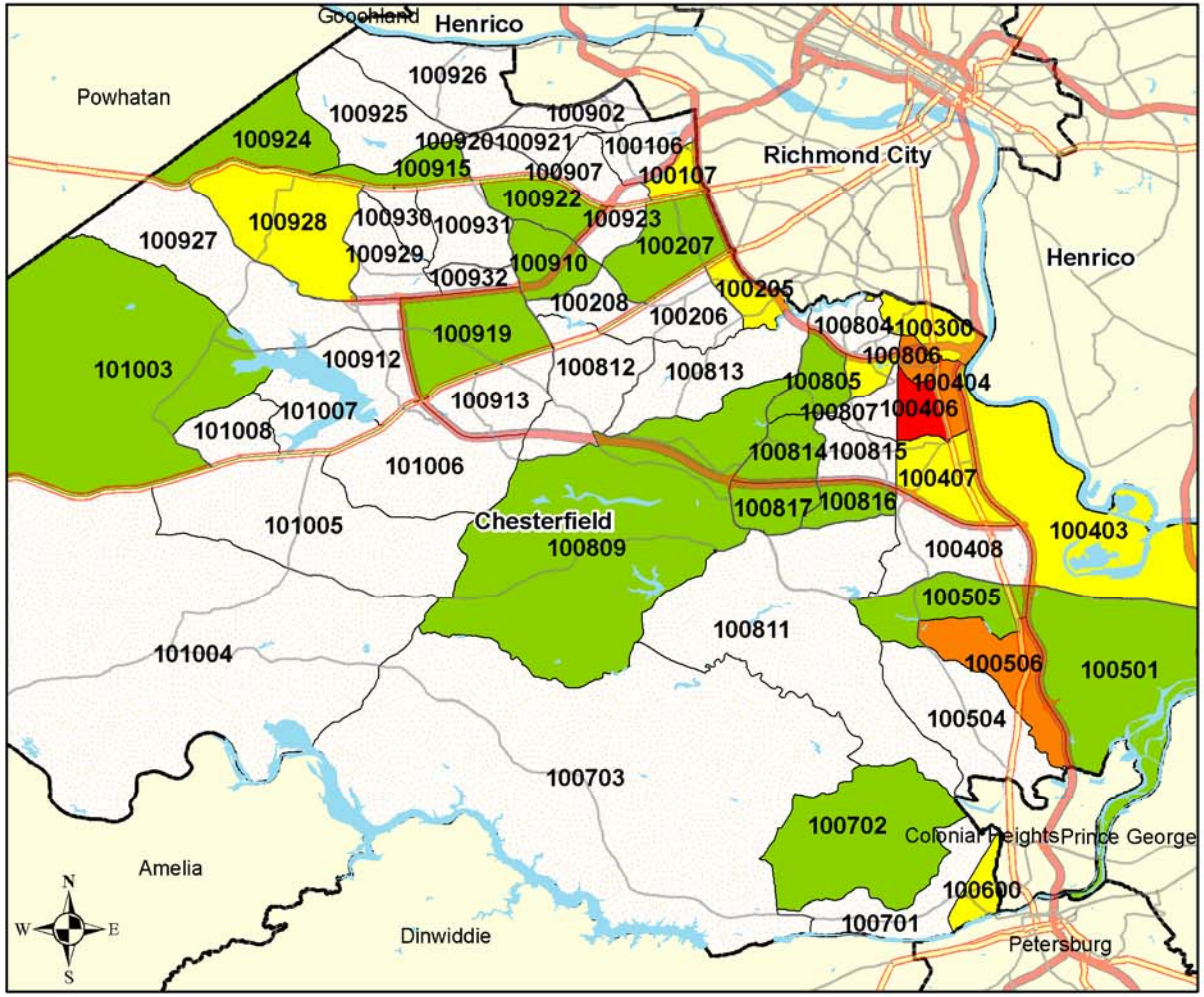
Chesterfield County

Child Poverty* by Census Tract, 2000

% population (under 18 years) below federal poverty level

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 19.9
- 20.0 - 29.9
- ≥ 30.0

* Child Poverty - Persons under 18 years old living below the federal poverty level. Source: US Census 2000, (SF3, P87).



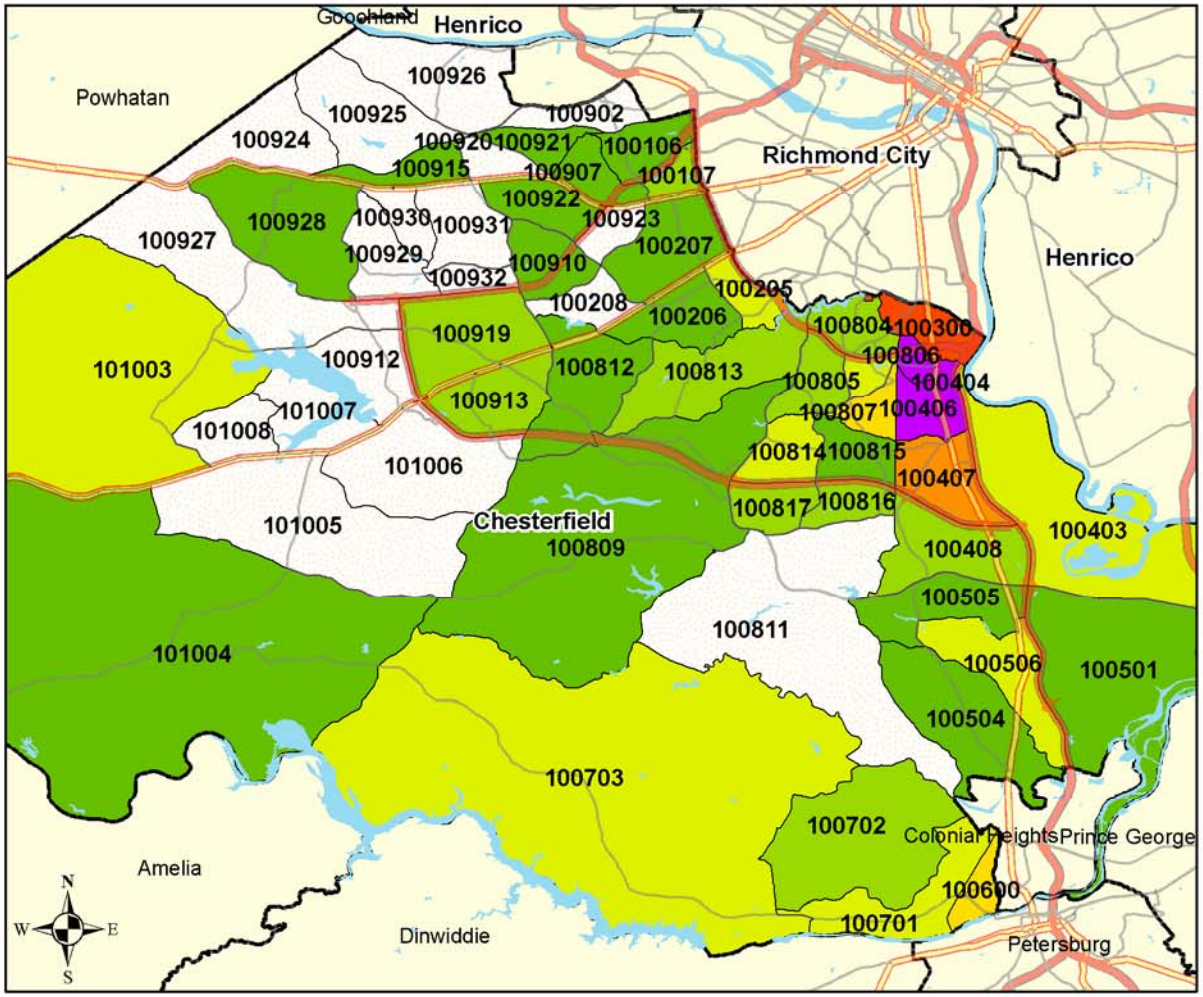
Chesterfield County

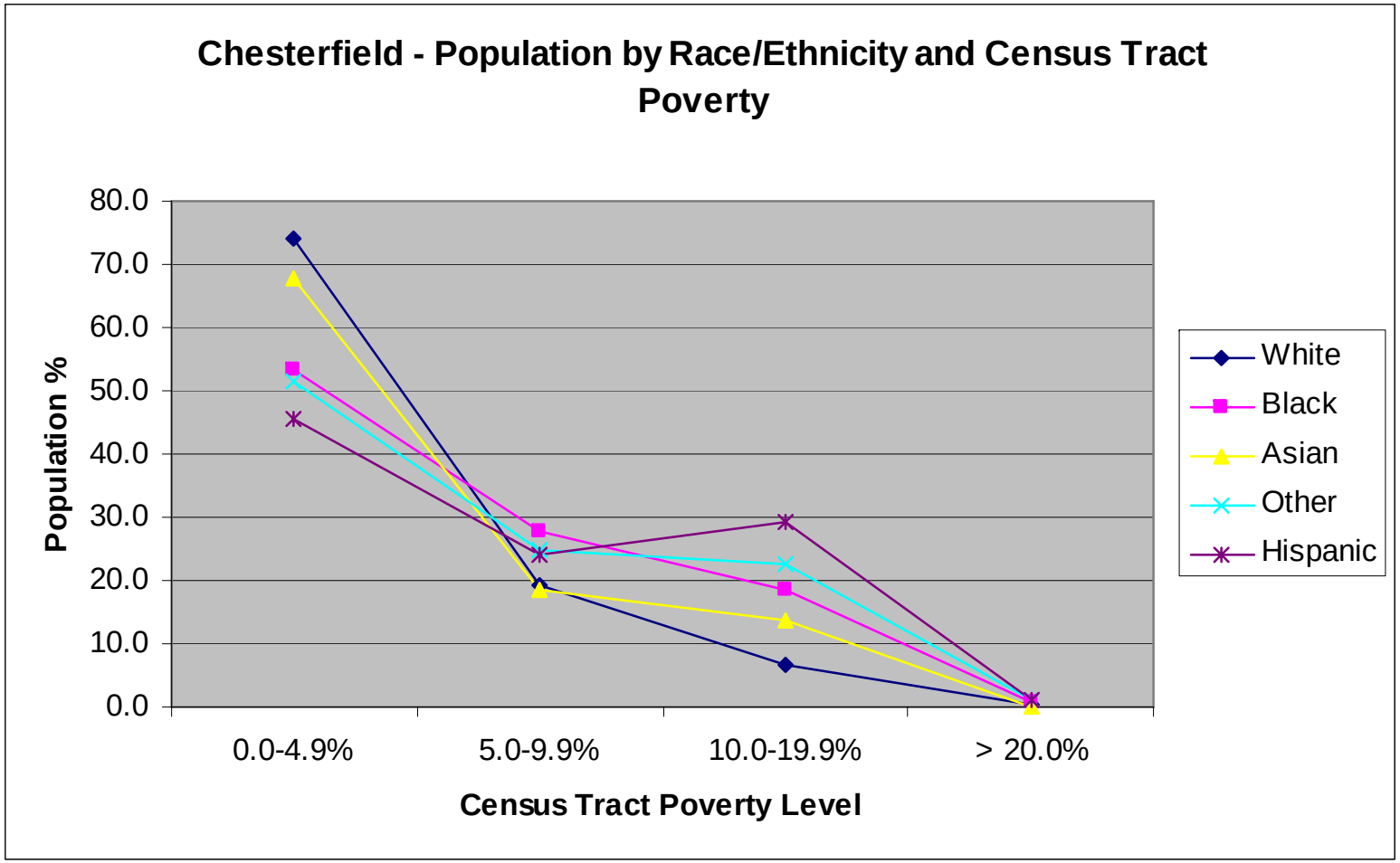
Low Education* by Census Tract, 2000

Low Education Population %

- ≤ 4.9
- 5.0 - 9.9
- 10.0 - 14.9
- 15.0 - 19.9
- 20.0 - 24.9
- 25.0 - 29.9
- 30.0 - 34.9
- ≥ 35.0

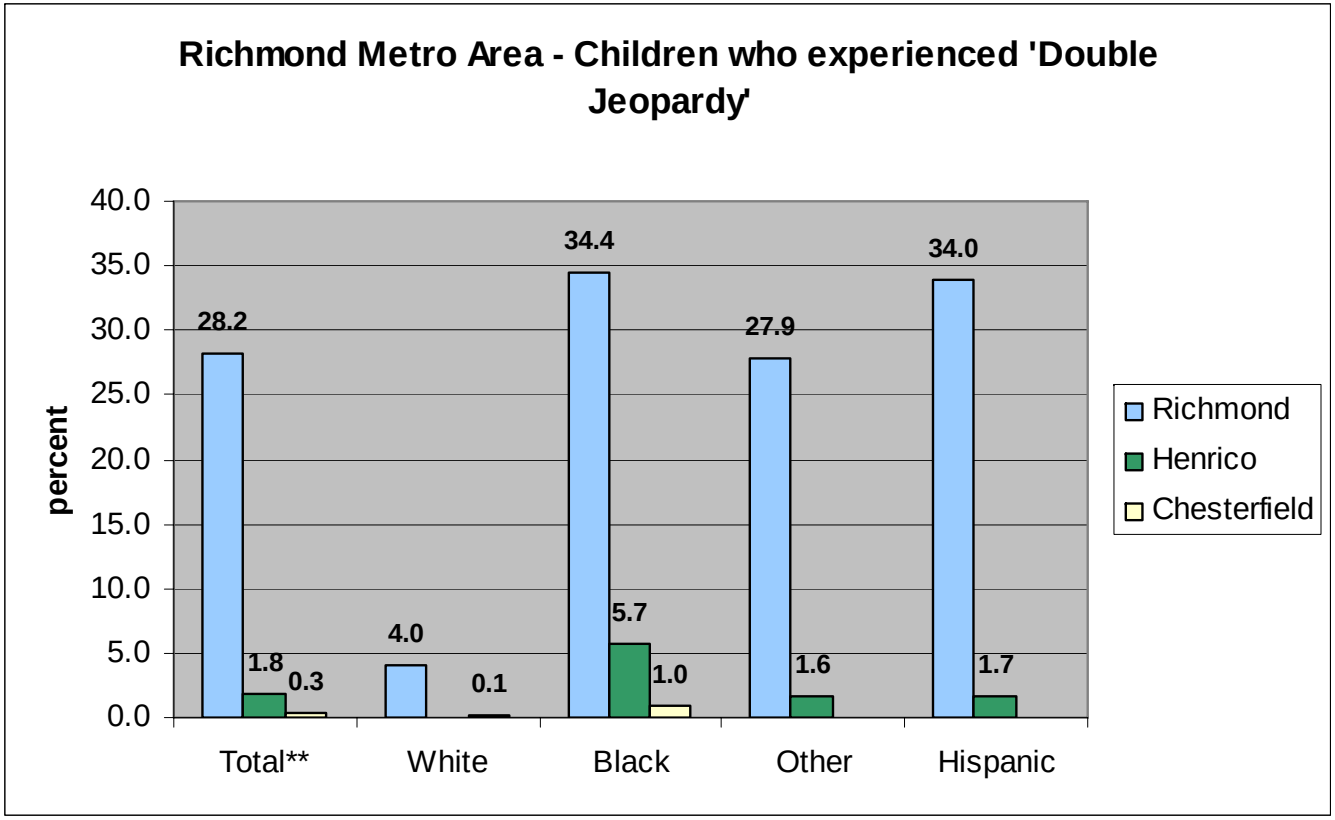
* Low Education: persons between the ages of 24 and 65 years old with neither a high school diploma nor GED.
Source: US Census 2000, (SF3, PCT 25).



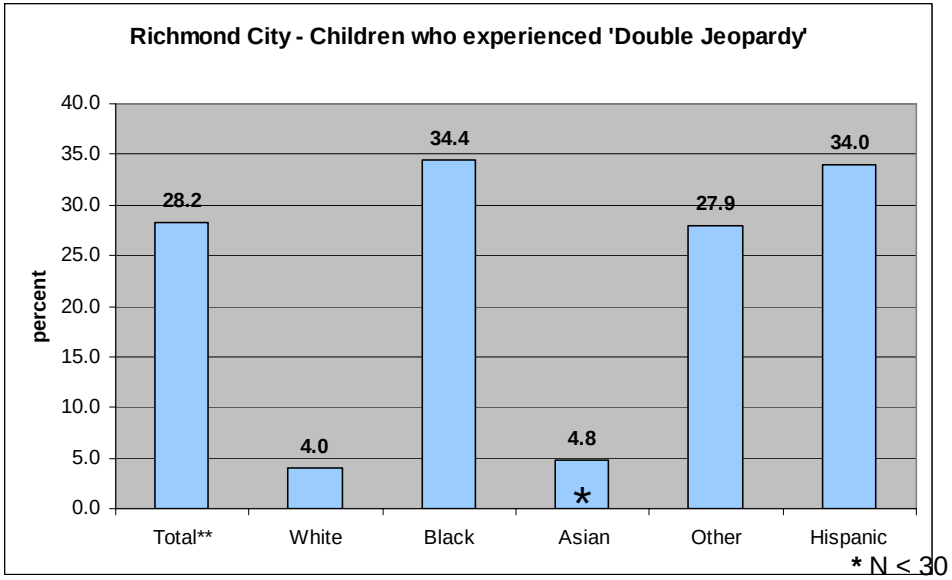


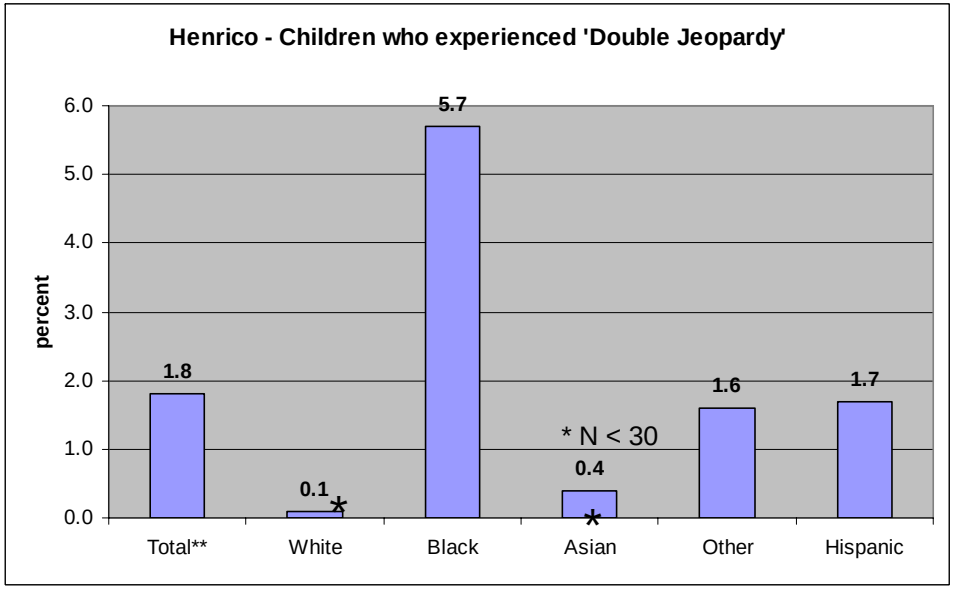
Source: US Census 2000; poverty (SF3, P87); race (SF1 P7); Hispanic ethnicity (SF1 P4).

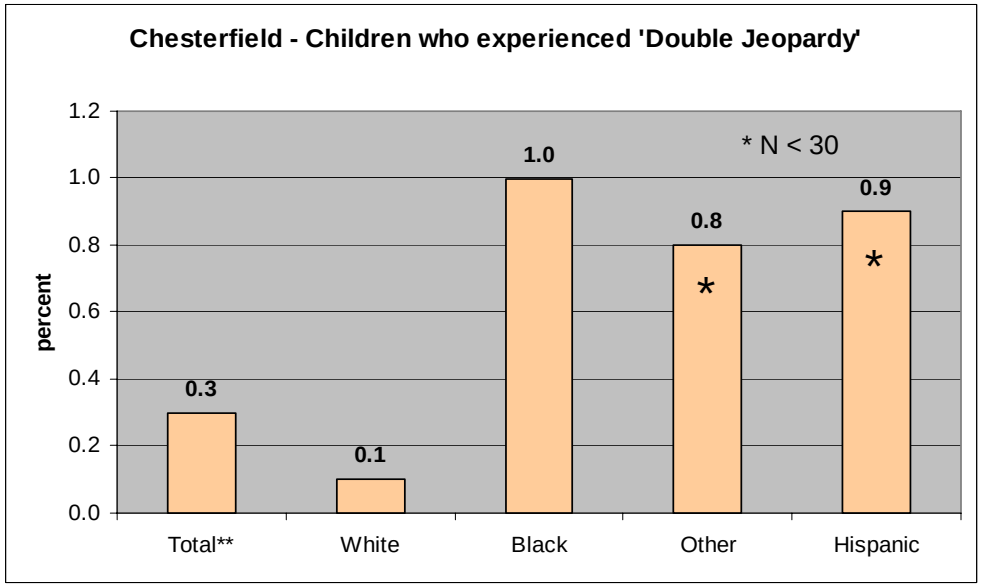
NOTE: Where percents are not listed, n <30. (So Asian is not included because in all 3 localities the number of Asian kids in double jeopardy was < 30.



Double Jeopardy describes children (under 18 years old) that live in poor families and in poor neighborhoods. Poor neighborhoods are defined as census tracts (CTs) with greater than 20.0% poverty. The racial categories include persons of Hispanic and non-Hispanic origin; 'Other' includes American Indian, Alaska Native, Native Hawaiian and other Pacific Islander, some other race alone, and two or more races. **Total number of children living below the federal poverty level reflects the sum of the four racial categories since Hispanic ethnicity could not be determined for each race.
Source: Census 2000, SF3, P159.

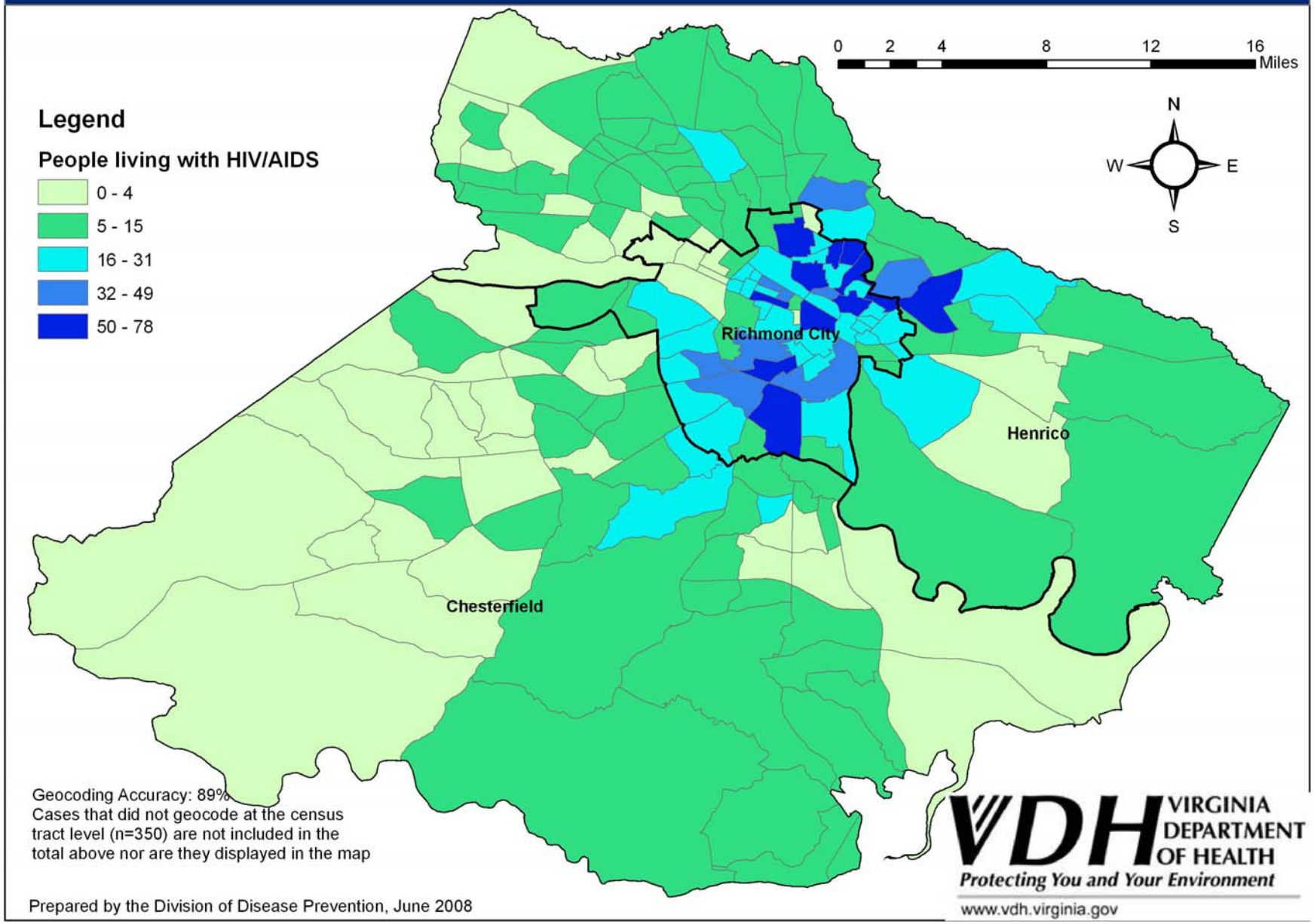

Richmond City - Children who experienced 'Double Jeopardy'
percent
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
28.2
4.0
34.4
4.8
*
27.9
34.0
Total**
White
Black
Asian
Other
Hispanic
* N < 30


Henrico - Children who experienced 'Double Jeopardy'
percent
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1.8
0.1
*
5.7
0.4
*
1.6
1.7
* N < 30
Total**
White
Black
Asian
Other
Hispanic


Chesterfield - Children who experienced 'Double Jeopardy'
percent
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.3
0.1
1.0
0.8
*
0.9
*
* N < 30
Total**
White
Black
Other
Hispanic

Health and Disease

Individuals Living with HIV/AIDS as of April 16, 2008 by Census Tract (N=2725)

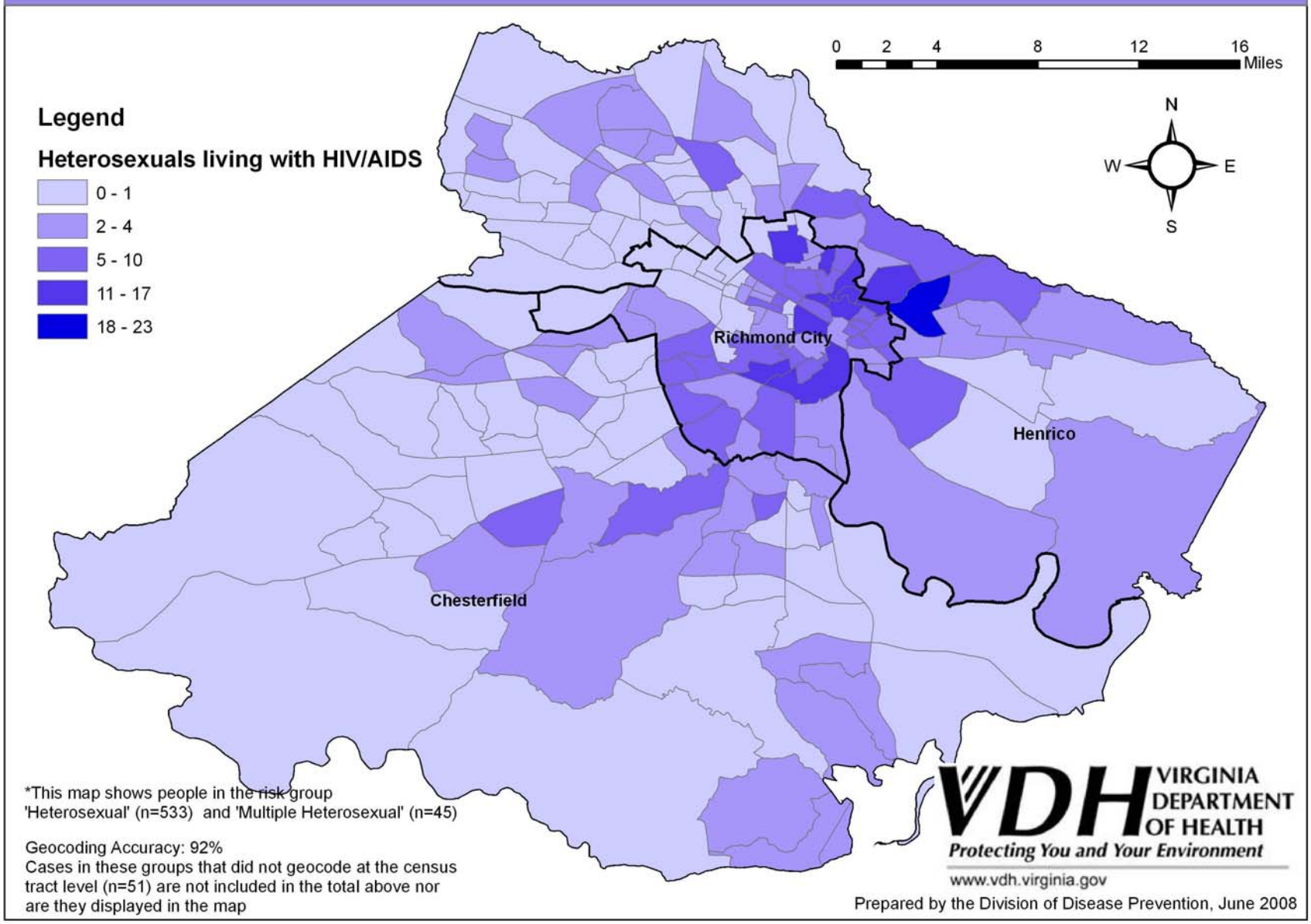


Geocoding Accuracy: 89%
Cases that did not geocode at the census tract level (n=350) are not included in the total above nor are they displayed in the map

Prepared by the Division of Disease Prevention, June 2008

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

Heterosexual* Individuals Living with HIV/AIDS as of April 16, 2008 by Census Tract (N=578)

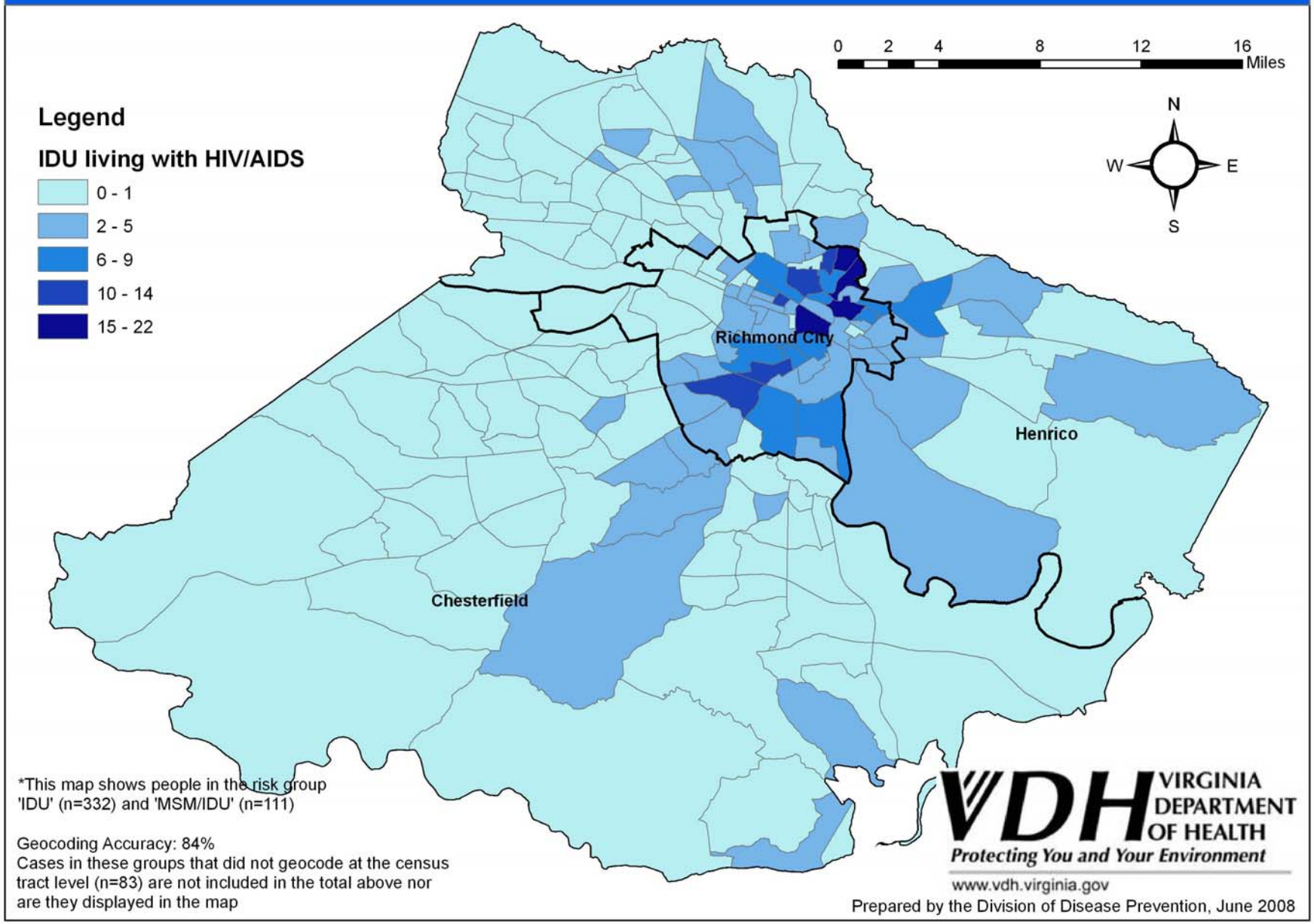


*This map shows people in the risk group 'Heterosexual' (n=533) and 'Multiple Heterosexual' (n=45)

Geocoding Accuracy: 92%
Cases in these groups that did not geocode at the census tract level (n=51) are not included in the total above nor are they displayed in the map

Prepared by the Division of Disease Prevention, June 2008

IDU* Individuals Living with HIV/AIDS as of April 16, 2008 by Census Tract (N=443)



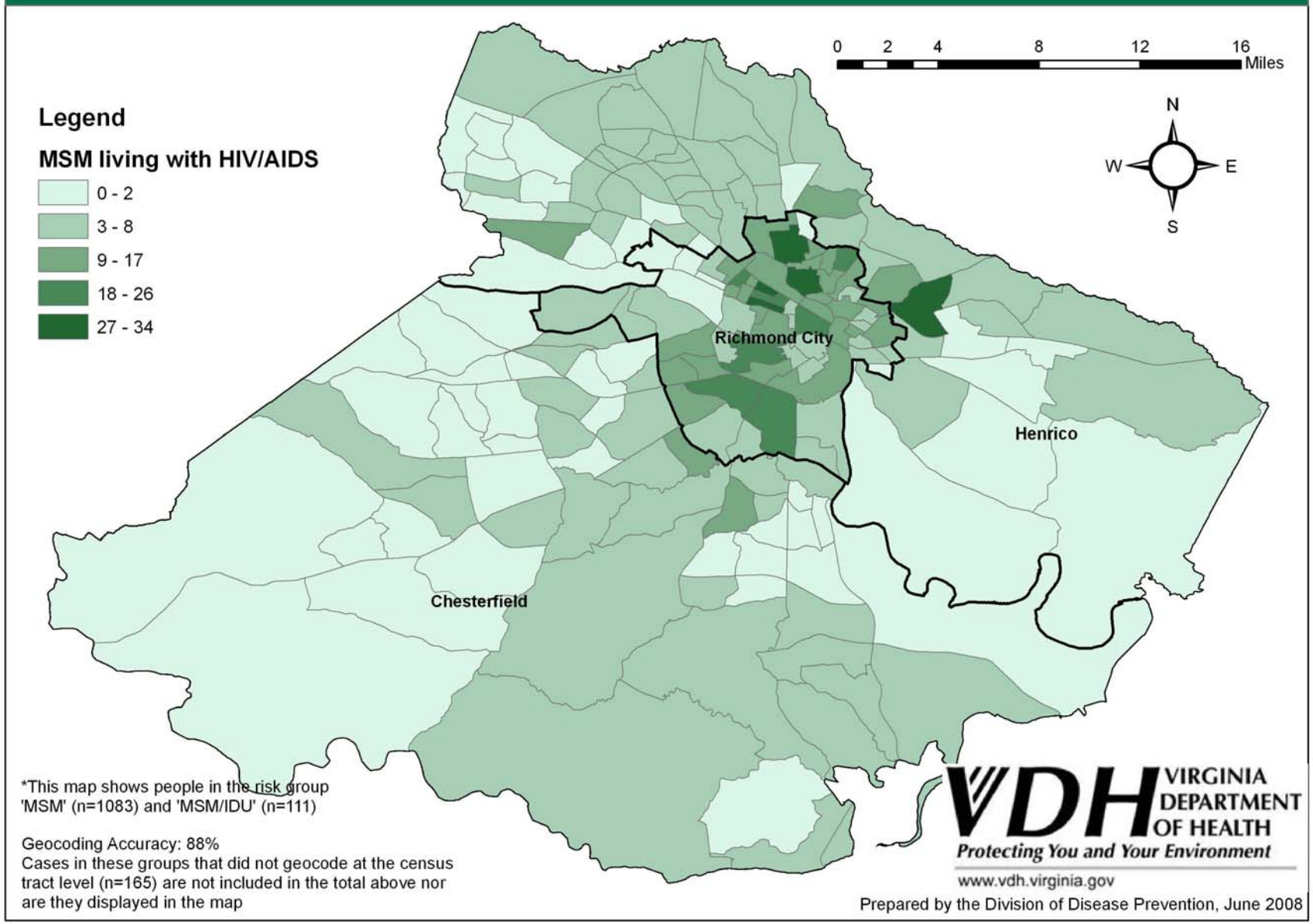
*This map shows people in the risk group 'IDU' (n=332) and 'MSM/IDU' (n=111)

Geocoding Accuracy: 84%
Cases in these groups that did not geocode at the census tract level (n=83) are not included in the total above nor are they displayed in the map

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

Prepared by the Division of Disease Prevention, June 2008

MSM* Individuals Living with HIV/AIDS as of April 16, 2008 by Census Tract (N=1194)



*This map shows people in the risk group 'MSM' (n=1083) and 'MSM/IDU' (n=111)

Geocoding Accuracy: 88%
Cases in these groups that did not geocode at the census tract level (n=165) are not included in the total above nor are they displayed in the map

Prepared by the Division of Disease Prevention, June 2008

Hospital Discharges for Ambulatory Care Sensitive Conditions

- Made up of 12 indicators that measure **adult** hospital discharges for ambulatory care sensitive conditions (ACSC).
- ACSCs represent conditions for which hospitalizations could be avoided if the patient receives timely and adequate outpatient care.
- Also represents conditions for which the risk of acquiring and the risk of complications is strongly influenced by SDOH
- 12 Indicators Include:
    - Diabetes (Short-term and Long-term Complications)
    - Chronic obstructive pulmonary disease
    - Hypertension
    - Congestive heart failure
    - Dehydration
    - Bacterial pneumonia
    - Urinary Tract Infection
    - Angina without procedure
    - Uncontrolled diabetes
    - Adult asthma
    - Lower-extremity amputation among patients with diabetes

Richmond Metro Area
Prevention Quality Indicator
Overall Composite Measure

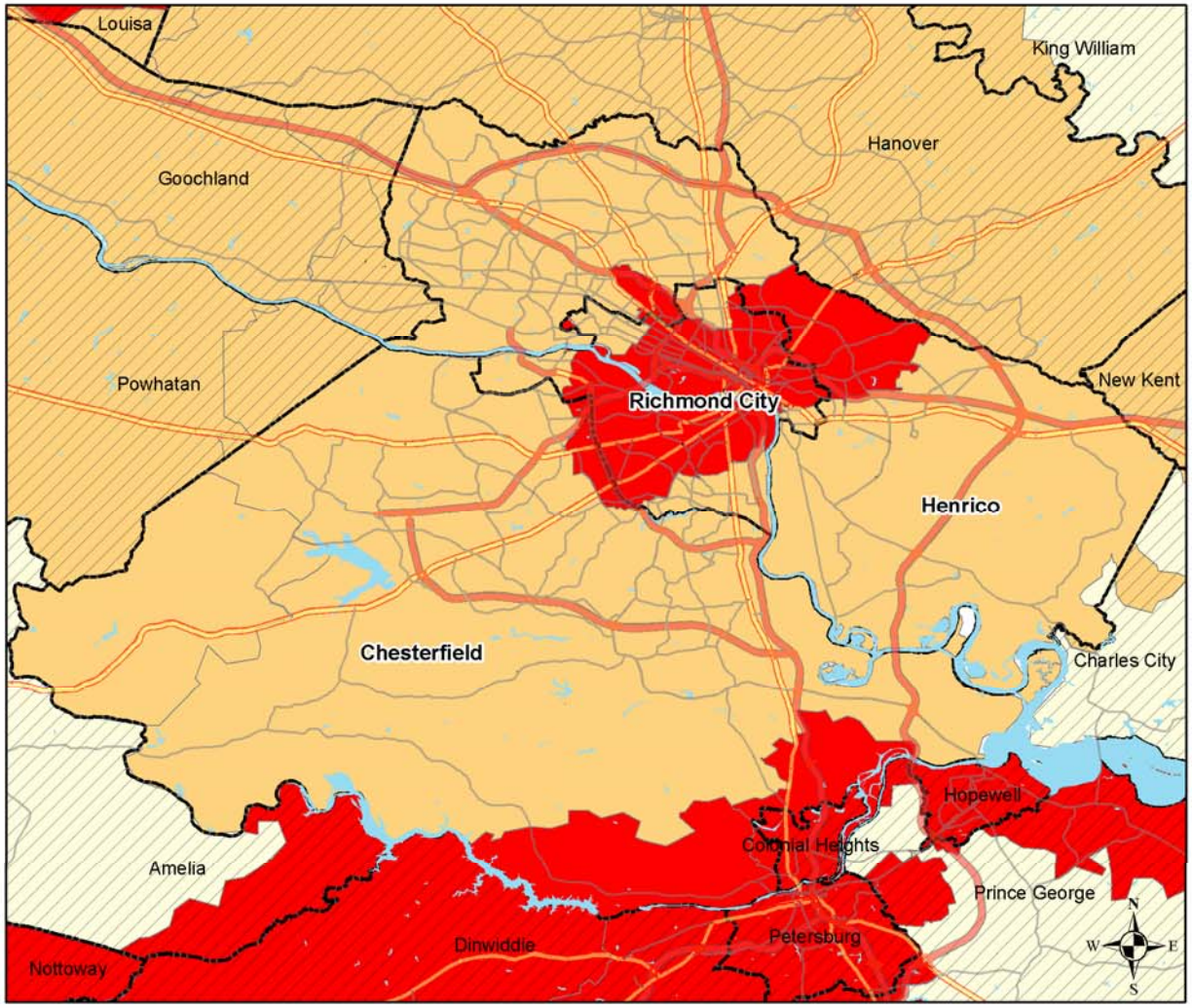
(Includes all PQIs except Low Birth Weight
and Perforated Appendix)
Based on Virginia Hospital Discharge Claims
January 1, 2006 to December 31, 2006

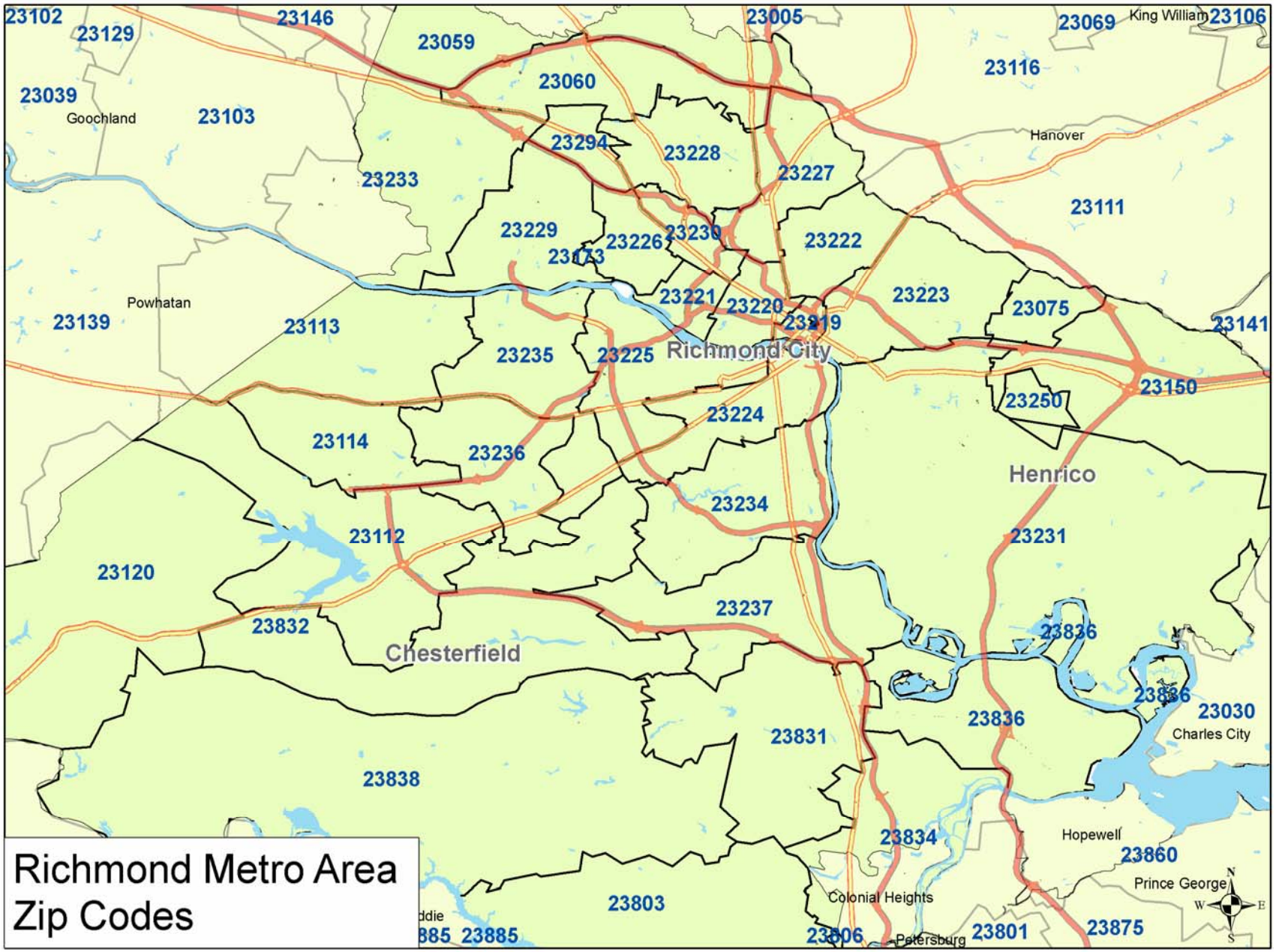
Overall Risk Adjusted Rate

- Below State Rate
- Comparable to National Rate
- Above National Rate

National rate per 1,000 population* is 18.79**
State rate per 1,000 population* is 14.68

* Population age 18 years or older. Rates calculated by zip code.
** Source: Nationwide Inpatient Sample, 2004, AHRQ Website: http://www.qualityindicators.ahrq.gov





Richmond Metro Area
Zip Codes

	Zip	All Cases	Overall Rate	Number of Cases by PQI Code*												Top PQI
				1	3	5	7	8	10	11	12	13	14	15	16	
Chesterfield County	23114	73	660.3	2	2	8	3	12	2	15	12	3	1	13	0	Bacterial Pneumonia
	23838	63	814.0	1	8	5	1	18	2	11	9	2	0	2	4	Congestive Heart Failure
	23112	246	836.0	9	22	15	2	63	14	43	33	7	3	31	4	Congestive Heart Failure
	23836	65	993.4	2	7	6	1	16	6	9	5	1	0	11	1	Congestive Heart Failure
	23113	150	1086.3	3	7	9	0	51	14	28	17	4	2	13	2	Congestive Heart Failure
	23236	214	1169.7	10	25	18	5	56	13	24	31	3	1	20	8	Congestive Heart Failure
	23832	216	1202.1	6	15	13	1	61	11	36	35	5	3	26	4	Congestive Heart Failure
	23831	247	1220.7	7	16	24	4	86	13	37	23	4	4	21	8	Congestive Heart Failure
	23235	279	1235.5	4	22	21	5	94	17	42	26	0	2	37	9	Congestive Heart Failure
	23237	184	1255.6	8	15	18	4	51	11	27	20	1	2	21	6	Congestive Heart Failure
	23234	442	1592.5	24	45	22	12	143	23	70	41	3	2	50	7	Congestive Heart Failure
Henrico County	23294	111	824.4	8	4	8	5	36	6	16	12	0	0	13	3	Congestive Heart Failure
	23233	322	833.3	2	19	36	2	88	26	59	59	4	0	18	9	Congestive Heart Failure
	23060	194	888.2	5	14	16	3	58	14	35	27	4	0	15	3	Congestive Heart Failure
	23226	141	1015.1	3	7	14	0	49	12	29	14	1	1	10	1	Congestive Heart Failure
	23150	105	1170.4	3	16	11	0	27	5	17	7	1	0	7	11	Congestive Heart Failure
	23229	291	1174.0	7	24	31	3	88	19	56	38	1	0	21	3	Congestive Heart Failure
	23075	100	1297.4	7	7	7	4	30	7	16	9	1	0	8	4	Congestive Heart Failure
	23228	443	1682.4	5	51	39	4	125	21	91	60	2	1	32	12	Congestive Heart Failure
	23231	383	1782.9	20	34	24	6	118	13	56	32	4	4	53	19	Congestive Heart Failure
	23227	418	2247.6	6	31	27	3	137	23	76	62	2	2	39	10	Congestive Heart Failure
Richmond City	23221	117	926.4	5	15	9	2	29	5	23	13	0	1	11	4	Congestive Heart Failure
	23220	333	1321.8	26	40	28	10	90	10	44	24	4	8	39	10	Congestive Heart Failure
	23230	98	1798.2	3	11	5	0	35	7	17	9	1	0	7	3	Congestive Heart Failure
	23225	600	1983.3	34	70	36	8	159	33	100	65	3	4	72	16	Congestive Heart Failure
	23223	768	2404.1	34	81	31	26	246	39	99	48	18	14	107	25	Congestive Heart Failure
	23224	553	2532.5	25	47	28	15	178	20	57	59	5	9	89	21	Congestive Heart Failure
	23222	548	2617.6	32	59	22	14	179	23	59	25	9	11	94	21	Congestive Heart Failure
	23219	54	3208.6	1	15	2	0	17	0	4	4	0	2	9	0	Congestive Heart Failure

Source: VHI, 2006, AHRQ for PQI Criteria.

Prevention Quality Indicator (PQI) Codes

1 -Diabetes Short-term Complications
3 - Diabetes Long-term Complications
5 - Chronic Obstructive Pulmonary Disease
7 - Hypertension
8 - Congestive Heart Failure
10 - Dehydration
11 - Bacterial Pneumonia
12 - Urinary Tract Infection
13 - Angina without Procedure
14 - Uncontrolled Diabetes
15 - Asthma
16 - Lower-extremity Amputation among Patients with Diabetes

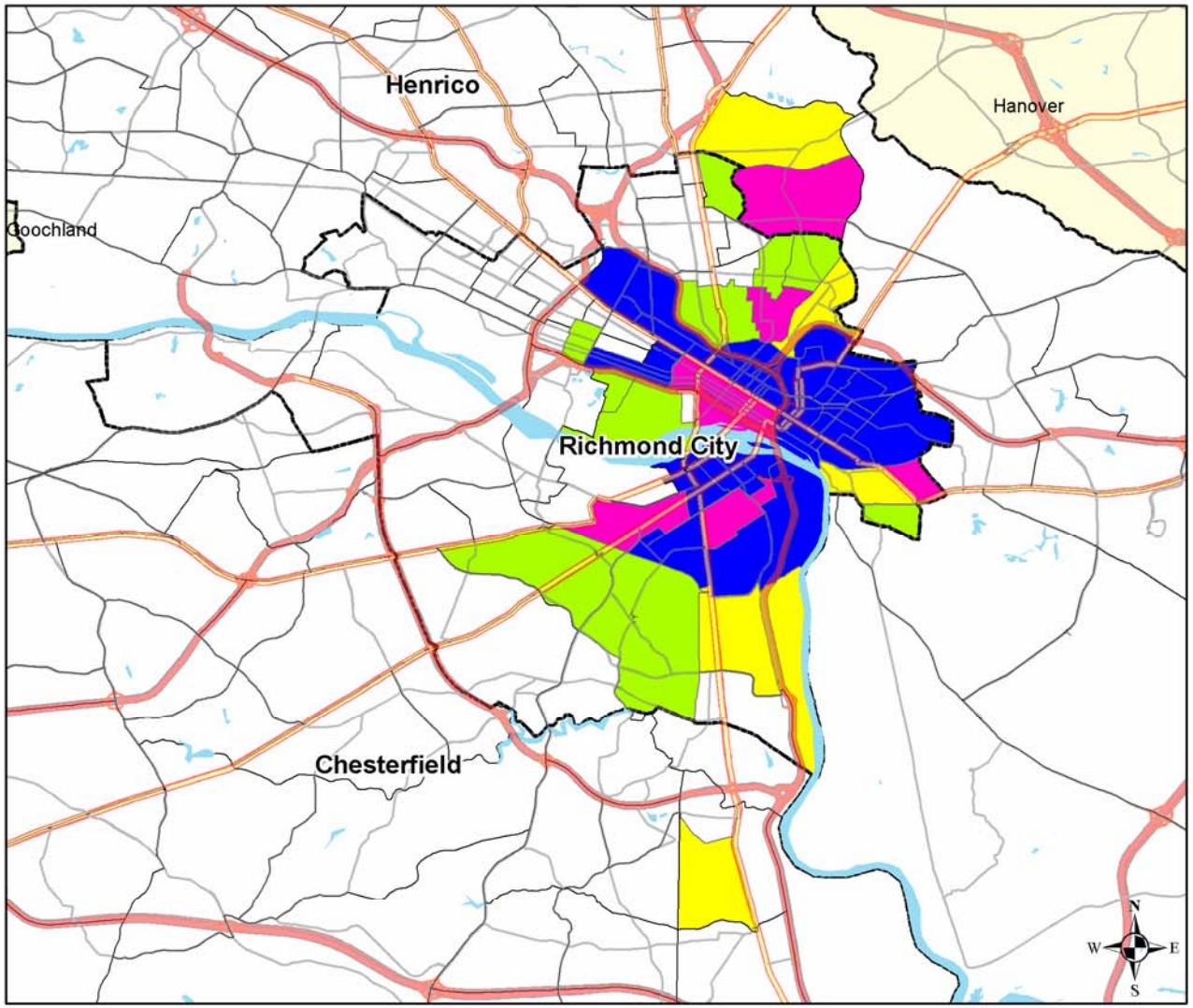
Richmond Metro Area

The History of Poor Census Tracts* 1970-2000

Poor census tracts in the:

- Current decade (2000)
- Last 2 decades (1990-2000)
- Last 3 decades (1980-2000)
- Last 4 decades (1970-2000)

* Poor census tracts--20 percent or more residents were below the federal poverty level as determined by the US Census. [1970, 1980, and 1990 census tracts normalized to Census 2000 boundaries]



Source: Neighborhood Change Database: Geolytics, Inc. Neighborhood Change Database 1970-2000 Tract Data Long Form Release 1.1 [CD-ROM]. Brunswick, NJ: Geolytics, Inc. [Producer and Distributor], 2004.

Richmond Metro Area

Persistent Poverty and Low Birth Weight Rate*

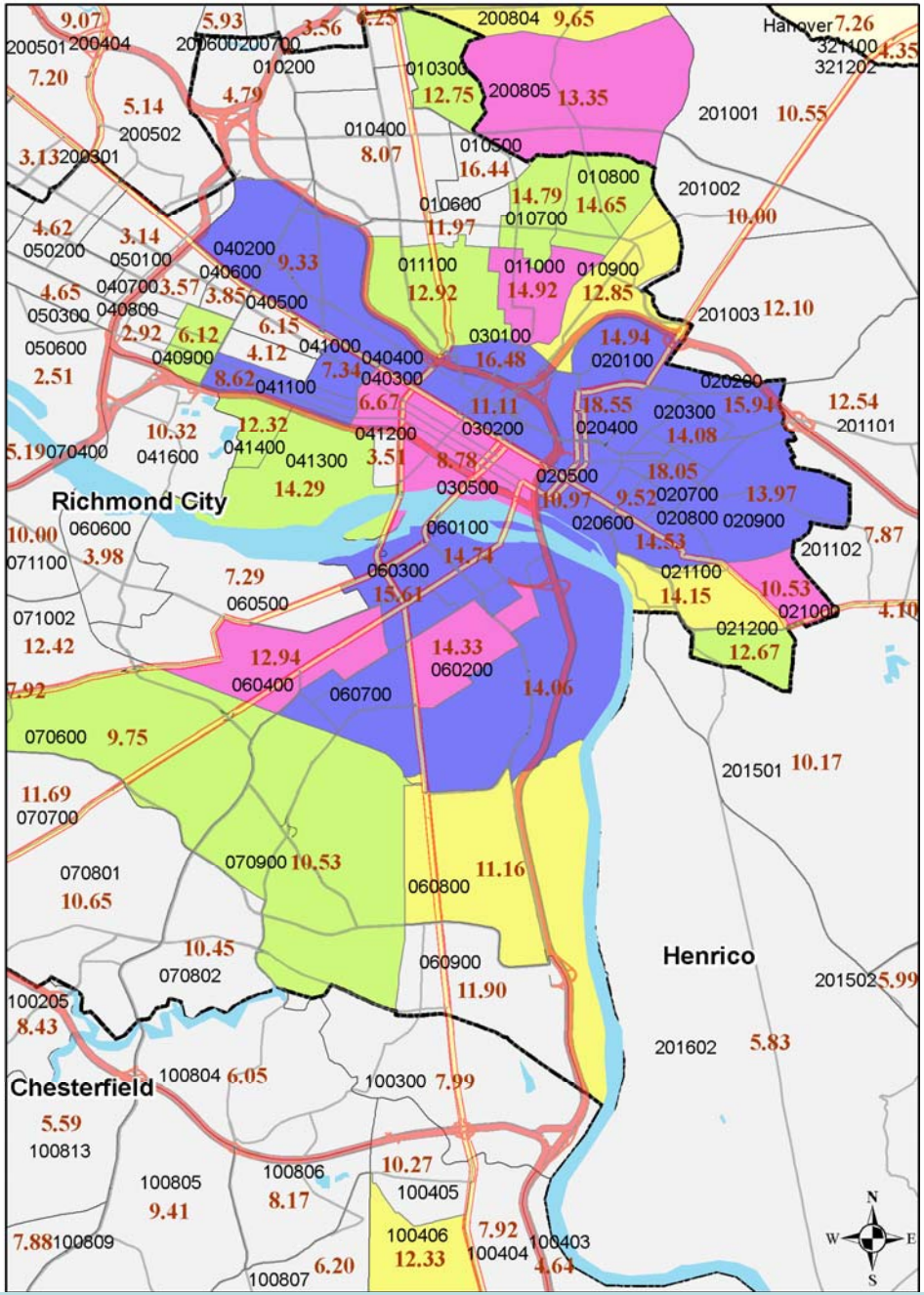
Poor census tracts in the:**

- Current decade (2000)
- Last 2 decades (1990-2000)
- Last 3 decades (1980-2000)
- Last 4 decades (1970-2000)

*Low Birth Weight Rate: (per 100 live births); shown on map. Source: VDH Vital Statistics, (1996-2005, geocoding error rate= 10%); Data consists of singleton births for mothers aged 15-44 years.

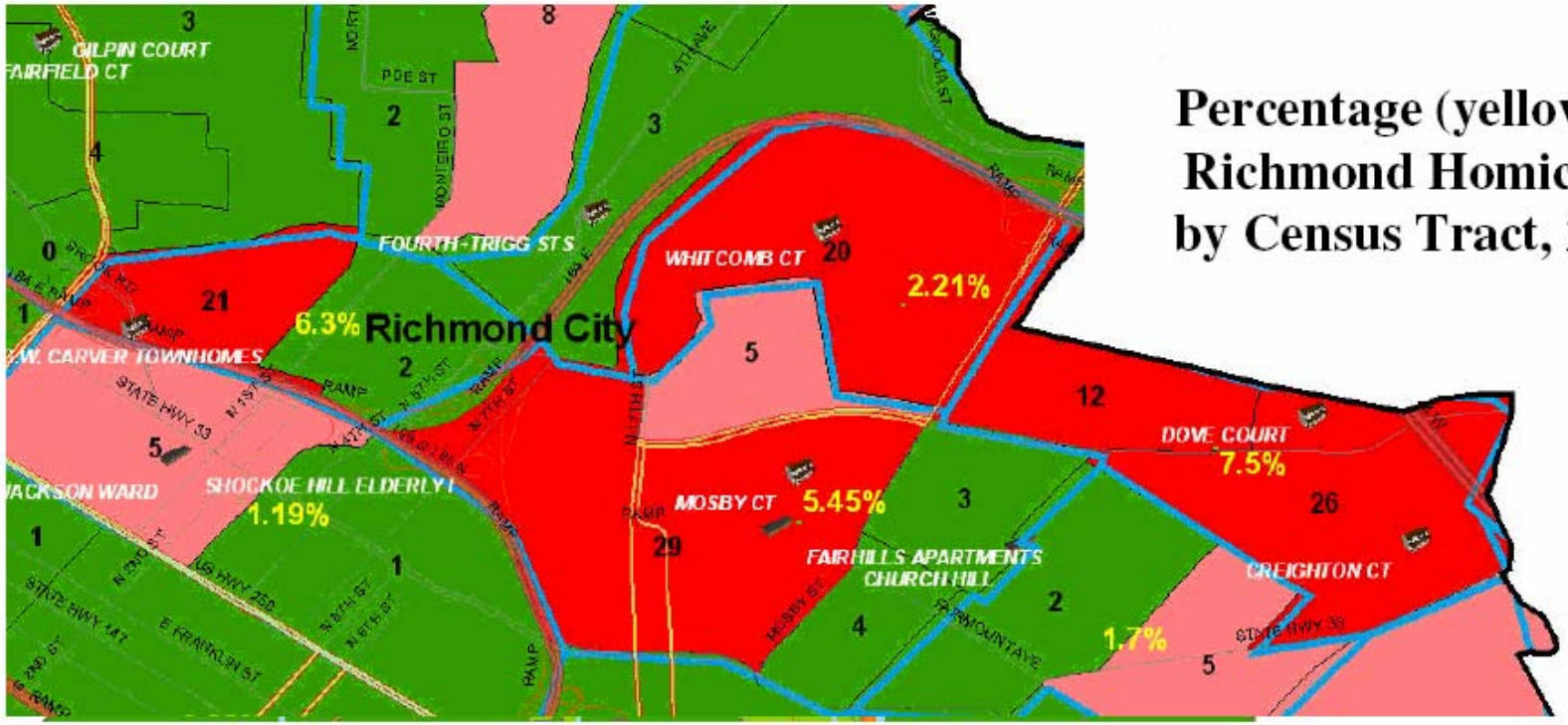
**Poor census tracts--20 percent or more residents were below the federal poverty level as determined by the US Census.

** Source: Neighborhood Change Database: Geolytics, Inc. 1970-2000 Tract Data Long Form Release 1.1 [CD-ROM]. Brunswick, NJ: 2004.

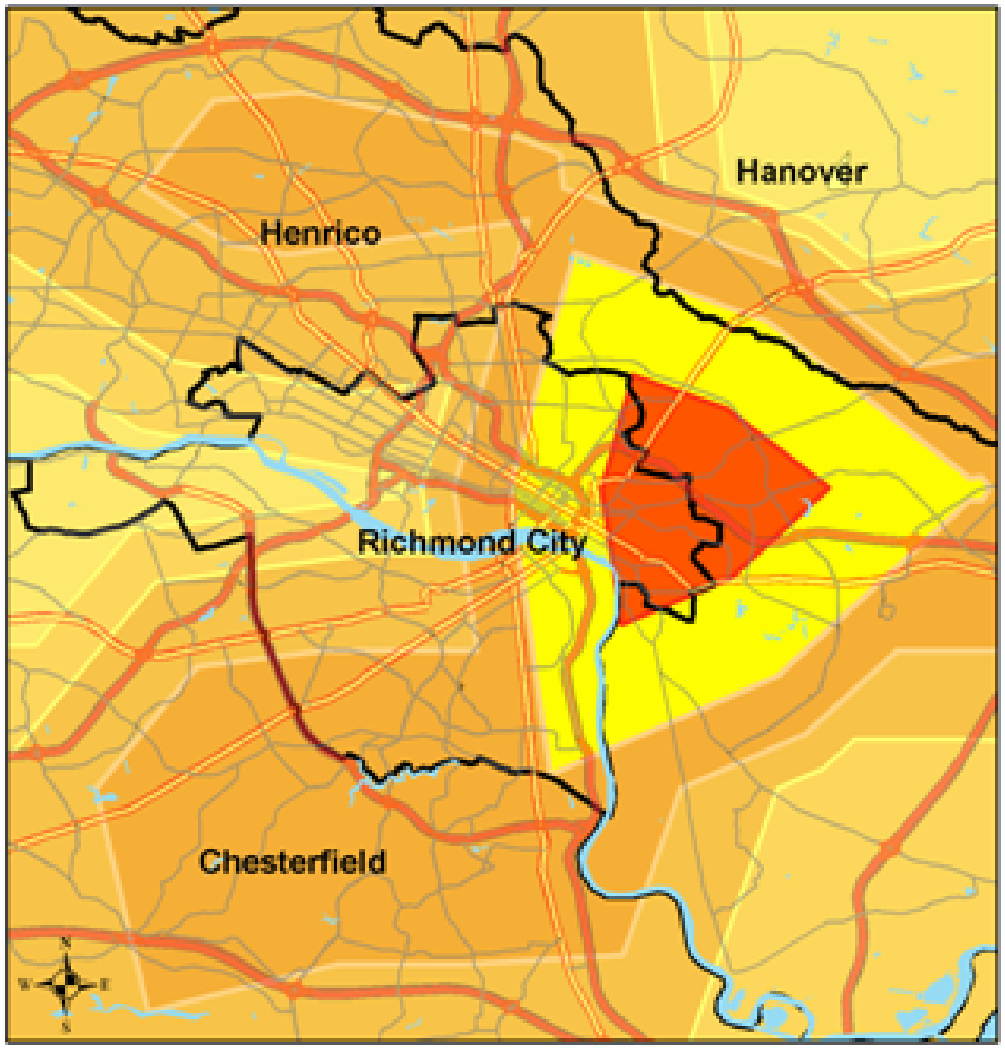


NOTE: THIS MAP SHOWS ALL AREAS WITH SOME PERSISTENCEOF POVERTRY. (ONLY ONE CT IN CHESTERFIELD AND 2 CTS IN HENRICO.)

Richmond, Virginia
Infant Deaths by Census Block Group, 1990-2005



Predictive Kriging Analysis
Infant Deaths by Block Group



Source: VDH Vital Statistics, 1990-2005.

Infant Mortality and Poverty

- 58% of infant deaths in the Richmond Metro Area are directly accounted for by Block Group Poverty Level

High Priority Census Tracts

-

Richmond	Chesterfield	Henrico
	100406	200805
	100407	200804
	100403	201003
	100506	201501
	100300	201202
		200303

Conclusions

- Distribution of SDOH varies across the Richmond region
- Richmond City has a higher rate of poverty and a significant % of racial/ethnic minorities live in high poverty communities
- Adverse SDOH and negative health outcomes cluster in the East End of Richmond, the Fairfield District of Henrico, and a few CTs in Chesterfield

Conclusions

- Data points to multiple health conditions that overlap in high priority areas

- **The common thread is the distribution of SDOH**; therefore, in addition to targeting health care and behavior change, **it is critical to address the SDOH and the policies that determine their distribution**

- **Community-based participatory research** should be the guiding framework for working with communities and neighborhoods, **increasing understanding** of health inequities and their causes, **promoting health**, and **changing public policy** that determines opportunities to be healthy

- GIS and spatial analysis provide critical information to identify high priority target areas, to understand the distribution of resources and opportunities at the neighborhood level, and to link health inequities to policies that determine the distribution of SDOH