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Violent Crime and Socioeconomic Stressors

The Accumulation of Risk Factors in Nine Virginia Localities

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Risk Factors – An Introduction

Why does a person become involved in violent crime? The answer to that question will vary from one offender to another, but research has identified a number of factors that place someone at greater *risk* of committing a violent offense.

These risk factors do not ensure that an individual will become an offender. Indeed, most people do not become violent despite having risk factors in their lives. Nonetheless, the presence of these factors, which occur in numerous aspects of a person's life-- economic, family, education, social, biological, and health – does increase the risk that a person will one day commit a violent crime. For example, males are more likely than females to become violent offenders, and children raised in poverty are more likely than other children to eventually become violent offenders.

There is no one factor that will cause someone to become a violent offender (either as a child or an adult). Rather, it is the accumulation of multiple factors in a person's life that has the greatest impact on his (or, less often, her) risk of violent offending (Wasserman et al., 2003).

It is difficult, if not impossible, to look at a locality and determine how many risk factors are present in an individual child's life. However, if one surveys a broad range of data sources, one can get a sense of how common certain factors are in a given city or county. It seems plausible to suggest that if a given locality has many risk factors (relative to other localities), then a higher percentage of that locality's population would be at increased risk of violent offending.

To see how this might occur we looked at violent crime and risk factors in nine Virginia cities and counties, including the City of Richmond, two of its neighboring counties and six other localities.

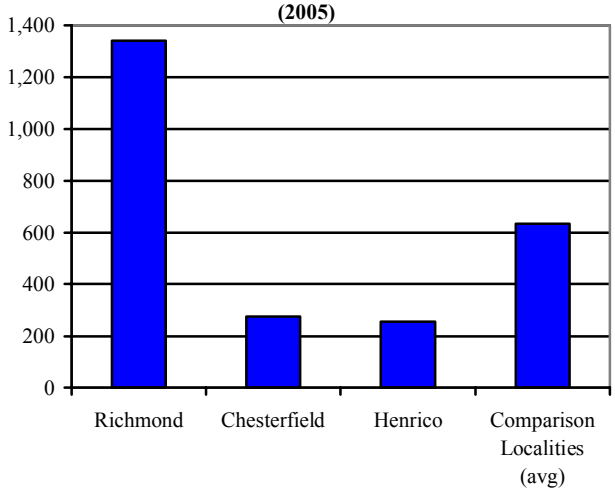
Violent Crime Rate

In 2005, the locality with the highest rate of murder, robbery, aggravated assault, and forcible rape and other forcible sex offense incidents was the City of Richmond, with a rate of 1,340 offenses for every one hundred thousand people in the population. Perhaps this high rate of violent offending could in part be explained by the prevalence of risk factors in the city.

Before examining those factors, consider Richmond's violent crime rate in the context of surrounding localities. The neighboring counties of Henrico and Chesterfield each had about one-fifth of Richmond's violent crime rate, with Henrico having 257 incidents per hundred thousand and Chesterfield having 276 incidents per hundred thousand (Fig. 1).

There's an obvious objection to this comparison: The City of Richmond's population is condensed into a relatively small urban area, while the population in the counties is more spread out. Richmond's population density is three times higher than Henrico's and more than five times higher than Chesterfield's. One cannot reasonably expect similar crime statistics. It would be better to compare localities with a similar population size and density.

Fig. 1: Violent Crime Offenses, Rate per 100,000 (2005)



At the time of the 2000 U.S. Census, seven localities in Virginia had more than 100,000 people and population densities of more than 100 people per 100,000 square meters of land. Other than Richmond, those localities included the cities of Norfolk, Newport News, Hampton, Alexandria, and Portsmouth, and Arlington County. The 2005 violent crime rate for these six localities (averaged) was 633 – less than half the rate of the city of Richmond.

Why should Richmond's violent crime rate be so much higher than these similar localities? Of course, part of the answer is that these localities are not really similar to Richmond, other than in population size and density. A broader examination of Richmond, its neighboring counties, and these comparison localities suggests that Richmond's high violent crime rate is linked to the high number of risk factors found in the population.

Risk Factors: Economic, Family, Education, and Health

Socioeconomic factors are commonly linked to crime rates in the public's mind, and research bears this connection out (Sampson, 1995; Freeman, 2001). The City of Richmond demonstrates this connection. Table 1 compares Richmond, Chesterfield, Henrico, and the average of the comparison localities on a wide range of measures. Economic, education, family status, and health factors are presented here, drawn from multiple sources. These data describe various years, ranging from 1999 to 2004. Nevertheless, they provide a compelling argument that the City of Richmond's crime rate is tied to the social conditions its population is experiencing. In every case, Richmond's scores indicate higher risk than the neighboring counties and the average of the comparison localities.

For example, Richmond's 2004 unemployment rate of 5.6% was higher than Chesterfield's (3.2%), Henrico's (3.4%), and the average of the comparison localities (4.4%). But these numbers actually mask the extent of the problem. Unemployment rates refer to the percentage of people who are in the labor force but are unable to find work; they do not take into account those who, for one reason or another, do not participate in the labor force. In 2000, 43% of the working-age population in Richmond was either not in the labor force or was unable to find employment, compared to 30% for Chesterfield, 32% for Henrico, and an average of 35% for the comparison localities. Lower employment levels lead to lower family income. In 1999, Richmond's median income for families with children was less than half of Chesterfield's and Henrico's, and was one-third lower than the average of the comparison localities.

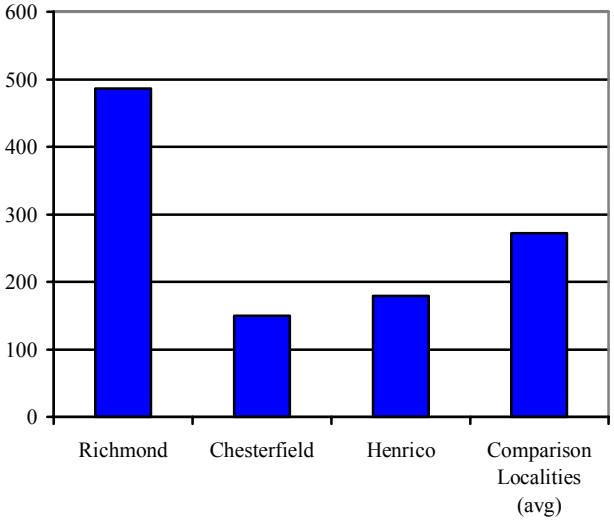
Table 1: Crime and Socioeconomic Factors

	Richmond	Chesterfield	Henrico	Comparison Localities* (avg)
Violent Crime Offenses, Rate per 100,000 (2005)	1,340.4	276.4	256.6	633.3
Population (2000)	197,790	259,903	262,300	163,215
Population per 100,000 sq meters of land (2000)	127.1	23.6	42.5	184.3
Percent of Labor Force Unemployed (2004)	5.6%	3.2%	3.4%	4.4%
Percent Age 16+ Unemployed or Not in Labor Force (2000)	42.6%	30.2%	30.2%	35.2%
Median Income for Families with Children (1999)	$28,714	$63,752	$57,736	$43,072
Males Released from Prison, per 10,000 Males in Population (2000-2004)	486.4	150.4	179.2	271.8
Percent of Children Under Age 18 Living in Poverty (2003)	30.2%	9.0%	10.5%	18.9%
Percent of Students Receiving a Free or Reduced-Price Lunch (2004)	68.8%	22.4%	27.5%	50.9%
Percent of Kindergartners Identified as Requiring Early Intervention Reading Initiative (2003)	29.6%	18.2%	18.5%	23.4%
Percent of Third Graders Failing English SOL (2002)	46.5%	14.1%	15.2%	35.3%
Percent of Students Failing to Graduate on Time (2003-04)	48.2%	15.2%	13.5%	36.4%
Percent of Students Dropping Out of School (2003-04)	15.3%	1.0%	1.9%	2.1%
Violent and Threatening School Incidents per 1,000 Students (2003-04)	200.9	34.6	22.8	53.5
Percent of Population Age 25+ Who Did Not Graduate High School (2000)	24.8%	11.9%	13.4%	17.0%
Births to Mothers with No High School Diploma (2002)	29.0%	12.0%	10.0%	17.0%
Births to Unmarried Mothers, as Percentage of All Live Births (2004)	61.0%	26.6%	30.2%	38.7%
Low Birth Weight Babies, as Percentage of All Live Births (2004)	12.2%	7.7%	9.1%	9.1%
Teen Pregnancy, Rate per 1,000 Females Age 10-19 (2004)	75.9	17.2	18.9	41.7
Children in Foster Care, Rate per 1,000 (2004)	11.0	2.0	2.0	6.5
Founded Reports of Suspected Child Abuse and Neglect, Rate Per 10,000 Households with Children (2000)	121.5	67.5	37.4	90.3
Lead Poisoning in Children Under Age 15, Rate per 10,000 (2003)	50.3	1.3	3.2	4.1
Asthma Hospitalizations for Children Under Age 6, Rate per 100,000 (2001)	1,237.5	642.5	588.6	299.9

* Selected localities had population size of more than 100,000 people and a population density of more than 100 people per 100,000 square meters of land, as reported by the 2000 Census. This describes six localities (other than the City of Richmond) in Virginia. These comparison localities are: the cities of Norfolk, Newport News, Hampton, Alexandria, and Portsmouth, and Arlington County.

One group of individuals that have difficulty finding employment is offenders released from prison. Between 2000 and 2004, the Virginia Department of Corrections released over 50,000 offenders from secure confinement. About 90% of these offenders were males. In Richmond, the rate of these released male offenders per 10,000 adult males in the overall population was more than three times as high as in Chesterfield, almost three times as high as in Henrico, and about four-fifths higher than the average of comparison localities (Fig. 2). In addition to these individuals being difficult to employ, they also can provide negative role models for children. Studies have found that children who know many adult offenders are more likely to become violent before the age of 18 (Hawkins et al., 2000).

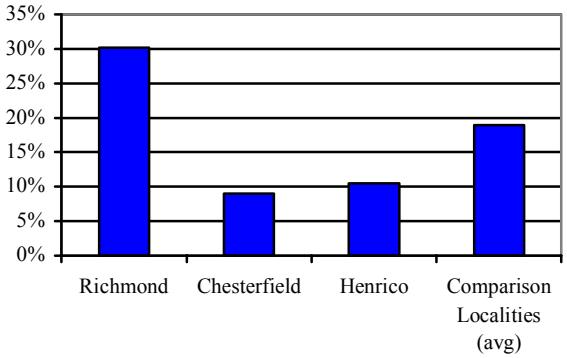
Fig. 2: Male Prisoners Released, per 10,000 Adult Males in Population (2000-2004)



Economic differences between the localities become starker when poverty measures are included. The official poverty measure produced by the U.S. Census Bureau reports the minimum dollar amount needed for individuals, couples or families to purchase food and meet other basic needs. In 2003, about three out of every ten children in Richmond lived in poverty. That is a poverty rate about three times higher than Chesterfield's and Henrico's, and almost two-thirds higher than the average of the comparison localities (Fig. 3). Economic deprivation increases the risk that young people will engage in delinquent or violent behavior, and other negative behaviors including teen pregnancy and dropping out of school (Browning et al., 1999; Browning and Loeber, 1999; Hawkins et al., 2000; Moore and Redd, 2002).

Another poverty measure is the percentage of students in a locality receiving a free or reduced-price lunch through the National School Lunch Program (NSLP). "These data can be used as a rough estimate of the percent of poor children in each locality," says the advocacy group Voices for Virginia's Children. In 2004, two out of three Richmond students were in the NSLP, about three times higher than in Chesterfield or Henrico, and more than a third higher than the average of the comparison localities.

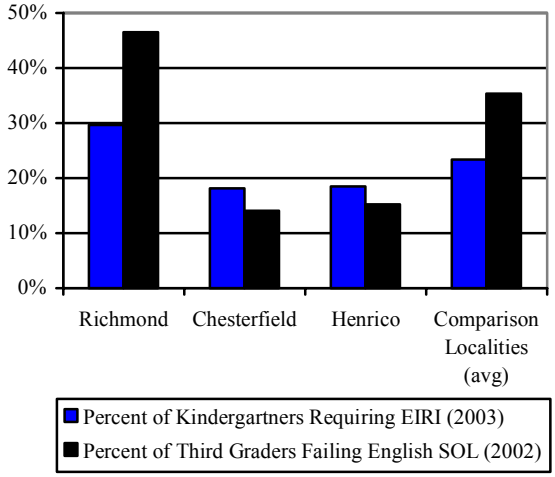
Fig. 3: Percent of Children Under Age 18 Living in Poverty (2003)



The data on school lunches demonstrate that a high proportion of Richmond's student body is economically disadvantaged. How might this impact their school performance? Studies indicate that socioeconomic status is highly correlated with cognitive achievement even in kindergarten (Lee and Burkham, 2002). Indeed, the Richmond schools consistently demonstrate greater problems with cognitive skills, academic achievement, and school behaviors.

The differences are clear as early as kindergarten. In 2003, the percentage of kindergarteners identified as requiring the Early Intervention Reading Initiative (EIRI) in Richmond was 63% higher than Chesterfield's, 60% higher than Henrico's, and 26% higher than the average of the comparison localities (Fig. 4).

Fig. 4: Educational Difficulties in Kindergarten (2003) and Third Grade (2002)

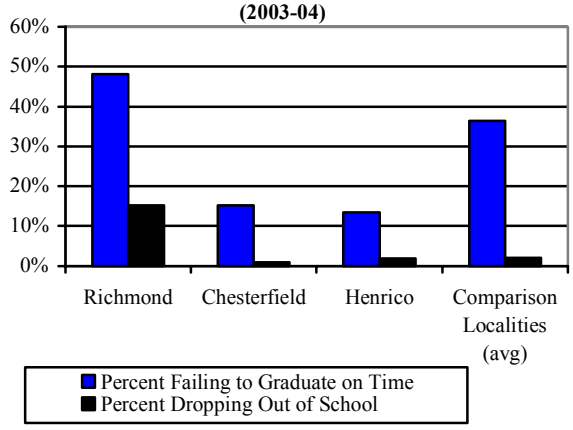


This performance gap grows as students progress through the school system. In 2002, almost half of Richmond's third graders failed the English Standards of Learning exam. This was more than three times higher than the failure rate for Chesterfield and Henrico, and a third higher than the average for the comparison localities (Fig. 4). Academic failure has consistently been identified as a predictor of violent or delinquent behavior (Browning et al., 1999; Browning and Huizinga, 1999; Hawkins et al., 2000).

The academic difficulties that students face have an impact on their eventual graduation from high school. In the 2003-04 school year, about half of Richmond's students failed to graduate on time (9th graders in the 2000-01 school year failed to graduate by 2003-04). Again, this was more than three times higher than in Chesterfield and Henrico, and a third higher than the average of the comparison localities (Fig. 5). Of those students who did graduate, 36% of Richmond graduates had no plans for what they would do after graduation (including continuing education, finding employment, or joining the military), compared to just 2% of Chesterfield graduates, 18% of Henrico graduates, and an average of 14% of graduates in the comparison localities.

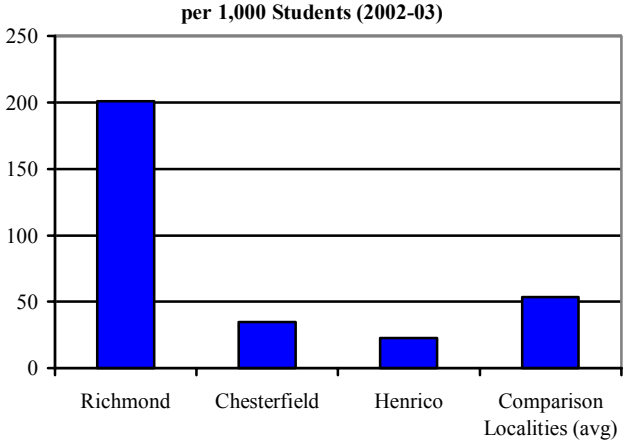
Some of the students who failed to graduate on time may have delayed graduation, but many have dropped out of school entirely. In 2003-04, 15% of Richmond's students in grades 7-12 dropped out of school, compared to 1% in Chesterfield and 2% in Henrico and the comparison localities (Fig. 5). Dropping out of school before the age of 15 is a predictor of violence (Hawkins, 2000).

Fig.5: Delayed Graduation and Dropout Rates (2003-04)



Multiple factors are likely to be involved in a school district's dropout rate. One factor could be the level of violence in the schools. In 2003-04, Richmond's schools reported about six times as many violent and threatening incidents per 1,000 students as Chesterfield, nine times as many as Henrico, and almost four times the average of the comparison localities (Fig. 6).

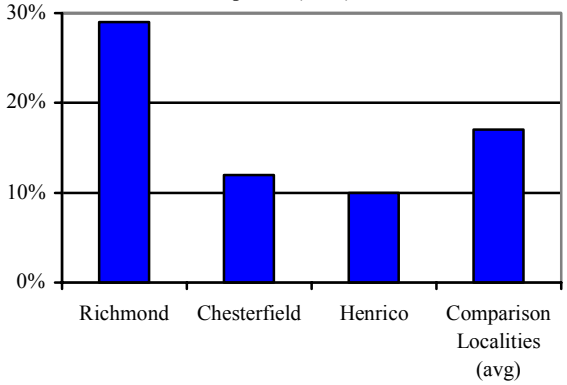
Fig. 6: Violent and Threatening School Incidents per 1,000 Students (2002-03)



What are the effects of a high dropout rate on a locality? One obvious effect is a higher proportion of high school dropouts among the working-age population. In 2000, the percentage of Richmond's residents age 25 or older who had not graduated from high school was 108% higher than Chesterfield's, 85% higher than Henrico's, and 46% higher than the average of the comparison localities. High school dropouts are less likely to be employed, compared to individuals who complete high school (Caspi et al., 1998).

The impact spreads beyond the work force, into the next generation. In 2002, 29% of new births in Richmond were to mothers with no high school diploma. That was 142% higher than in Chesterfield, 190% higher than in Henrico, and 71% higher than the average of the comparison localities (Fig. 7). Maternal education has been positively linked to children's academic achievement (Duncan and Magnuson, 2005).

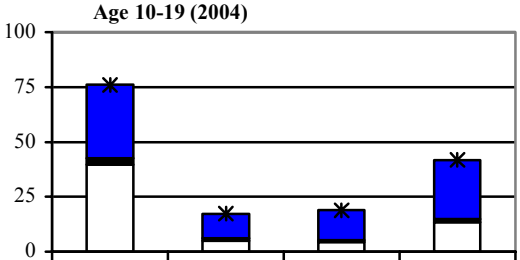
Fig. 7: Births to Mothers with No High School Diploma (2002)



Beyond maternal education, there is the fact that most babies in Richmond are born to unwed mothers. In 2004, more than six out of every ten babies in Richmond were born to unmarried mothers. That was over twice the unmarried birth rate for Chesterfield and Henrico, and 58% higher than the average rate for the comparison localities. Though in some cases these children may still grow up in a home with both biological parents, most spend some or all of their childhood in a single parent home. Parent-child separation, and living in a single-parent family, has been linked to increased chances of later violence in those children (Hawkins et al., 2000). Youth living with single parents (either father or mother) have been found to be at greater risk of becoming victims of violence (Lauritsen, 2003). Certainly single mothers are at an economic disadvantage; in Richmond, not only did single mother households in 1999 earn 71% less than married-couples with children, they also earned 44% less than other female householders. These differences were similar for other localities.

One reason why so many of these mothers are unmarried and under-educated is that they are still teenagers themselves. In 2004, Richmond's teen pregnancy rate of 76 per 1,000 females age 10-19 was more than four times higher than Chesterfield's and Henrico's, and almost twice as high as the average of the comparison localities (Fig. 8). Children of adolescent mothers are at greater risk for incarceration, poverty, foster care placement, and abuse and neglect (Maynard and Garry, 1997).

Fig. 8: Births to Teenage Mothers, Rate per 1,000 Females Age 10-19 (2004)

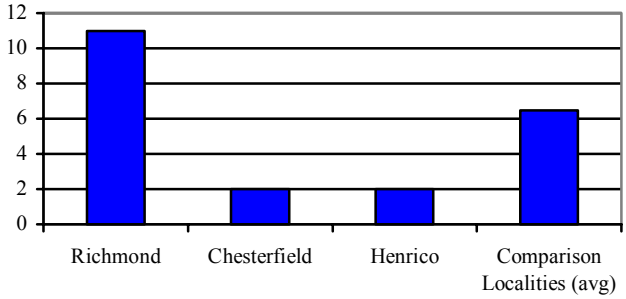


	Richmond	Chesterfield	Henrico	Comparison Localities (avg)
Live Births	33.3	11	13.8	26.9
Natural Fetal Deaths	3.1	1.2	0.7	1.3
Abortions	39.6	5.0	4.4	13.5
Total Teen Pregnancy Rate	75.9	17.2	18.9	41.7

In Richmond, about half of these teen pregnancies resulted in a live birth, while most of the rest resulted in an abortion. Richmond's teenage *live birth* rate was almost twice as high as Henrico and Chesterfield's overall teenage *pregnancy* rate.

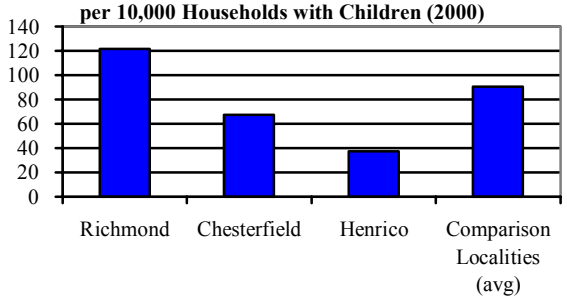
Not all children live with their biological parents, teenage or otherwise. In Richmond, in 2004, the rate of children living in foster care was more than five times as high as in Chesterfield and Henrico, and 69% higher than the average of comparison localities (Fig. 9). Studies have shown that adults who had been placed in out-of-home care as children had higher rates of dropping out of school, receiving public assistance, homelessness, arrest, and chemical dependency, as well as poorer physical and mental health (McDonald et al., 1996).

Fig. 9: Children in Foster Care, Rate per 1,000 Children (2004)



This is not to suggest that children should never be placed in foster care. Obviously, some children are in abusive or neglectful family situations, and may need to be removed. In Richmond, in 2000, the number of founded reports of child abuse and neglect per 10,000 households with children was almost twice as high as in Chesterfield, more than three times higher than in Henrico, and a third higher than the average of the comparison localities (Fig. 10). Evidence suggests that children who are abused or neglected have a greater likelihood of becoming violent offenders (Hawkins et al., 2000).

Fig. 10: Founded Reports of Child Abuse/Neglect, per 10,000 Households with Children (2000)

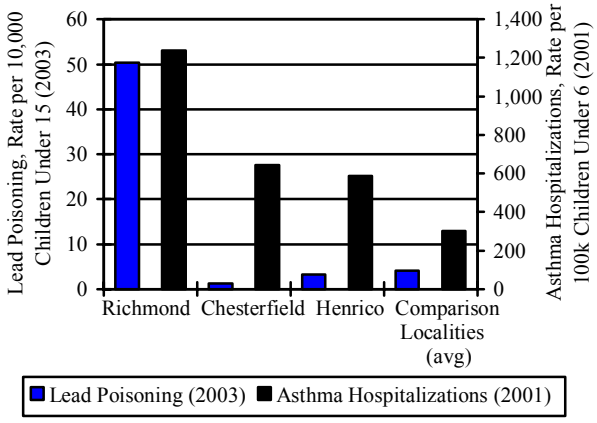


Child abuse and neglect is one of the risks for children of teen parents. Another such risk is an increased chance of having low birth weight babies. Low birth weight babies are at increased risk for various health and development difficulties. In 2004, twelve percent of Richmond births (regardless of the mother's age) involved a low birth weight baby. This was 58% higher than in Chesterfield, and 34% higher than in Henrico and 34% higher than the average of the comparison localities. Low birth weight children are at greater risk of having

cognitive and school performance problems, and they are more likely to exhibit hyperactive and aggressive behavior (Reichman, 2005).

Richmond children seem to be at higher risk for other health problems as well. For example, in 2003, Richmond health agencies reported a rate of new lead poisoning cases among children age 14 and younger that was more than ten times higher than Henrico's and the average of the comparison localities, and almost forty times higher than Chesterfield's (Fig. 11). Higher lead levels have been associated with delinquency and aggressive behavior in youth (Schettler et al., 2000; Dietrich et al., 2001; Needleman et al., 2002), as well as cognitive dysfunction and school failure (Needleman, 2004). Furthermore, lead exposure at the community-level (measured by air lead concentrations) has been associated with increased homicide rates, even after controlling for various socioeconomic factors (Stretesky and Lynch, 2001).

Fig. 11: Lead Poisoning (2003) and Asthma Hospitalizations (2001)



Richmond children also have greater problems with asthma. In 2001, children under age 6 in Richmond were hospitalized with asthma-related problems at a rate that was about twice as high as in Chesterfield and Henrico, and more than three times higher than the average of the comparison localities (Fig. 11). In various studies, children with asthma had increased risks for behavior problems, learning disabilities, and school absences (Currie, 2005).

Racial Disparities

It is well established that in the United States, race and socioeconomic status are closely associated (see, for example, Lee and Burkham, 2002). However, this seems to be particularly true for the city of Richmond.

Consider the economic differences for families, across race and locality. Families are an appropriate comparison, because they provide the environment in which the vast majority of children are raised, and because limiting analysis to families eliminates such "households" as college roommates, which can skew economic indicators. In this analysis "White families" and "Black families" are identified according the race of the householder, as reported in the 2000 Census.

In 1999, 4.4% of White families (non-Hispanic) in Richmond lived below the poverty line, compared to about 2% in Chesterfield and Henrico, and 3.7% on average in the comparison localities. But 24% of Black/African-American families in Richmond were below the poverty line, compared to 7% in Chesterfield, 10% in Henrico, and 18% on average in the comparison localities.

The median income for White families in Richmond was 123% higher than the median income for Black families. In comparison, the median income for White families in Chesterfield, Henrico, and the average of the comparison localities was 22%, 46%, and 91% higher, respectively, than that of Black families.

Relative to White families, a greater proportion of Black families are in economic distress. Relative to the other localities examined, a greater proportion of Richmond's Black families are in economic distress.

What does this suggest for Richmond? To the extent that any of the health, safety, education, and family problems noted above are correlated with economic distress, Black families in Richmond seem to be at greater risk than White families in Richmond or families of either race in the other localities. Given that most children are raised in families, Black children in Richmond appear to be at a particularly high risk for the health, safety, education, and family problems associated with economic distress.

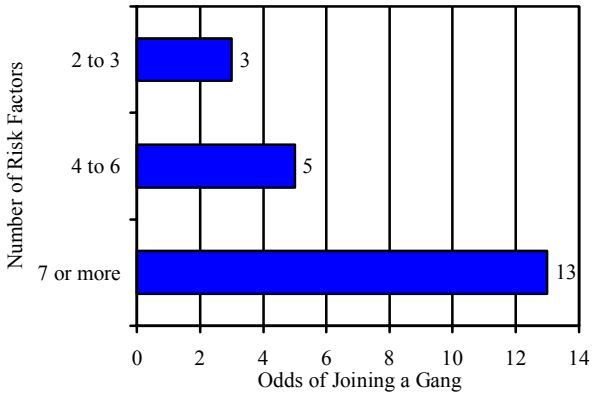
Accumulation of Risk Factors

For any of the individual socioeconomic factors examined here, Richmond's higher risk level might not be a matter of concern. On its own, a high rate of child poverty might not impact violent crime rates. The same could be true for high dropout rates, or high rates of births to unwed mothers. Certainly a high unemployment rate does not automatically lead to increased violent crime, any more than a high rate of kindergarteners needing special reading assistance.

However, these factors are occurring together, stacking one upon another in the same city, in the same period of time. Research has clearly demonstrated that risk factors have a cumulative effect; the more risk factors an individual child is exposed to, the greater the likelihood that the child will become a violent offender (Elliott et al., 2000; Hawkins et al., 1998; Wyrick and Howell, 2004). Youth with seven or more risk factors were thirteen times more likely to join a gang, compared to youth with fewer than two risk factors (Fig. 12) (Hill et al., 2001). In another study, youth exposed to more than

five risk factors by the age of fourteen were ten times more likely to commit a violent act by age 18, compared to youth with fewer than two risk factors (Herrenkohl et al., 2000).

Fig. 12: Odds of Joining a Gang at Ages 13 to 18, by Number of Childhood Risk Factors Present at Ages 10 to 12, Seattle Social Development Project Sample



Note: The odds are expressed as comparisons with youth had no risk factors or only one factor. Source: Hill et al., 2001

These studies refer to individual youth, not to localities. However, youth in Richmond are clearly more likely to be exposed to a larger number of risk factors, when compared to youth in other localities examined here.

Exposure to multiple risk factors does not condemn someone to a life of crime. Most young people in Richmond and elsewhere will not become violent offenders. But the greater the number of risk factors in their lives, the greater the chance that they will commit violent crimes. With a greater proportion of youth exposed to a substantially higher number of risk factors for violent offending, it does not seem surprising that Richmond has a much higher rate of violent crime than the other localities examined here.

What Can Be Done?

It seems clear that a successful campaign against violent crime in Richmond will require efforts beyond basic policing and incarceration. To reduce the likelihood of future offending, an effective policy will need to address the widespread prevalence of risk factors.

Generally speaking, there are two ways to address the presence of risk factors in a person's life. The first is to work to reduce or eliminate those factors. For example, provide educational assistance to a youth who is currently failing in school.

A second way to address risk factors is to develop and strengthen *protective* factors in a person's life. Protective factors serve to insulate a person from the risk factors in his or her life. Some protective factors include a stable home environment, strong parental involvement with children, and strong bonding to school (Hawkins et al., 2000).

Specific program recommendations are beyond the scope of this article. However, there are a number of sources where one can find programs that target many of the issues included here. Some of those sources include:

- The federal Office of Juvenile Justice and Delinquency Prevention produces an online "Community Guide to Helping America's Youth." The guide provides a program tool that allows users to identify problem areas ("risk factors") that a community or organization wishes to address. The tool then lists a number of programs that address the particular risk factor. The guide can be found at www.helpingamericasyouth.gov.
- The DCJS Juvenile Services section provides links to sources listing model programs to address risk factors. Information about model programs, and grant funding, can be found at www.dcjs.virginia.gov/juvenile.
- The Virginia Governor's Office for Substance Abuse Prevention has developed a Social Indicators database that provides locality-level information on a broad range of social factors, as well as links to programs that can address these factors. The database can be found at www.data.gosap.governor.virginia.gov.
- The Federal Reserve Bank of Minneapolis has recommended the development and expansion of high-quality early childhood education as a means of addressing a number of issues noted here. They present research indicating that high-quality early childhood education can improve the results of further education, enhance the local economy by providing a more capable workforce, and reduce crime. Their early childhood development studies can be found at www.minneapolisfed.org/research/studies/earlychild/.
- Fight Crime: Invest in Kids, an organization of law enforcement professionals and violent crime victims, has developed Youth Violence Prevention Plan. The plan seeks to assure children and families access to:
    1. Quality after-school programs
    2. School readiness programs
    3. Child abuse and neglect prevention programs
    4. Appropriate interventions for early offenders

  Information on suggested programs, examples in other states, and research supporting the plan can be found at www.fightcrime.org.

References

Browning, K. and Loeber, R. 1999 (February). Highlights of findings from the Pittsburgh Youth Study, *OJJDP Fact Sheet.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Browning, K., Thornberry, T.P., and Porter, P.K. 1999 (April). Highlights of findings from the Rochester Youth Development Study, *OJJDP Fact Sheet.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Caspi, A., Wright, B.E., Moffitt, T.E., and Silva, P.A. 1998. Childhood predictors of unemployment in early adulthood, *American Sociological Review*, 63(3): 424-451.

Currie, J. 2005. Health disparities and gaps in school readiness, in *School Readiness: Closing Racial and Ethnic Gaps,* edited by S. Mclanahan. Princeton, NJ. Princeton University and The Brookings Institution.

Dietrich, K.N., Ris, M.D., Succop, P.A., Berger, O.G., and Bornschein, R.L. 2001. Early exposure to lead and juvenile delinquency, *Neurotoxicity and Teratology,* 23: 511-518.

Duncan, G.J., and Magnuson, K.A. 2005. Can family socioeconomic resources account for racial and ethnic test score gaps?, in *School Readiness: Closing Racial and Ethnic Gaps,* edited by S. Mclanahan. Princeton, NJ. Princeton University and The Brookings Institution.

Elliott, D.E., Hatot, N.J., and Sirovatka, P. (eds). 2000. *Youth Violence: A Report of the Surgeon General*. Washington, D.C. U.S. Department of Health and Human Services.

Freeman, R. B. 2001 (March). Does the booming economy help explain the fall in crime?, in *Perspectives on Crime and Justice: 1999-2000 Lecture Series.* Washington, D.C. National Institute of Justice.

Hawkins, J.D., Herrenkohl, T.I., Farrington, D.P., Brewer, D., Catalano, R.F., and Harachi, T.W. 1998. A review of predictors of youth violence, in *Serious and Violent Juvenile Offenders*, edited by R. Loeber and D.P. Farrington. Thousand Oaks, CA. Sage Publications, Inc.

Hawkins, J.D., Herrenkohl, T.I., Farrington, D.P., Brewer, D., Catalano, R.F., Harachi, T.W., and Cothern, L. 2000 (April). Predictors of youth violence, *OJJDP Fact Sheet.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Herrenkohl, T.I., Maguin, E., Hill, K.G., Hawkins, J.D., Abbott, R.D. and Catalano, R.F. 2000. Developmental risk factors for youth violence (abstract), *Journal of Adolescent Health,* 26(3): 176-186.

Hill, K.G., Lui, C. and Hawkins, J.D. 2001 (December). Early precursors of gang membership: A study of Seattle youth, *Juvenile Justice Bulletin.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Lauritsen, J.L. 2003 (November). How families and communities influence youth victimization, *Juvenile Justice Bulletin.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Lee, V.E., and Burkham, D.T. 2002. *Inequality at the Starting Gate.* Washington, D.C. Economic Policy Institute.

Maynard, R.A. and Garry, E.M. 1997 (January). Adolescent motherhood: Implications for the juvenile justice system, *OJJDP Fact Sheet.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Moore, K.A. and Redd, Z.R. 2002 (November). Children in poverty: trends, consequences, and policy options, *Child Trends Research Brief.* Washington, D.C. Child Trends.

Needleman, H.L. 2004. Lead poisoning, *Annual Review of Medicine,* 55:209-22.

Needleman, H.L., McFarland, C., Ness, R.B., Fienberg, S.E., and Tobin, M.J. 2002. Bone lead levels in adjudicated delinquents, *Neurotoxicity and Teratology,* 24: 711-717.

McDonald, T.P., Allen, R.I., Westerfelt, I., and Piliavin, I. 1996. *Assessing the Long-Term Effects of Foster Care: A Research Synthesis.* Washington, D.C. CWLA Press. (abstract)

Reichman, N.E. 2005. Low birth weight and school readiness , in *School Readiness: Closing Racial and Ethnic Gaps,* edited by S. Mclanahan. Princeton. Princeton University and The Brookings Institution.

Sampson, R.J. 1995. The community, in *Crime,* edited by Wilson J.Q. and Petersilia, J. San Francisco. ICS Press.

Schettler, T., Stein, J., Reich, F., Valenti, M., and Wallinga, D. 2000 (May). *In Harm's Way: Toxic Threats to Child Development.* Cambridge, MA. Greater Boston Physicians for Social Responsibility.

Stretsky, P.B., and Lynch, M.J. 2001. The relationship between lead exposure and homicide, *Archives of Pediatric and Adolescent Medicine*, 155: 579-582.

Wasserman, G.A., Keenan, K., Tremblay, R.E., Coie, J.D., Herrenkohl, T.I., Loeber, R., and Petechuk, D.. 2003 (April). Risk and protective factors of child delinquency, *Child Delinquency Bulletin Series.* Washington, D.C. Office of Juvenile Justice and Delinquency Prevention.

Wyrick, P.A. and Howell, J.C. 2004 (September). Strategic risk-based response to youth gangs, *Juvenile Justice,* IX(1): 20-29.

Data Sources

Violent Crime Offenses, Rate per 100,000 (2005): Counts of murder, robbery, aggravated assault, and forcible rape and other forcible sex offense incidents, and population data used to calculate rates, were taken from 2005 Crime in Virginia, Virginia State Police

Population (2000): 2000 Census, U.S. Census Bureau website

Population per 100,000 sq meters of land (2000): Population and area data were taken from the 2000 Census, U.S. Census Bureau website

Percent of Labor Force Unemployed (2004): (Virginia Employment Commission, Virginia Electronic Labor Market Access)

Percent Age 16+ Unemployed or Not in Labor Force (2000): 2000 Census, U.S. Census Bureau website

Median Income for Families with Children (1999): 2000 Census, U.S. Census Bureau website

Males Released from Prison, per 10,000 Males in Population (2000-2004): Prison release data received from the Virginia Department of Corrections in response to a data request; population data taken from the 2000 Census, U.S. Census Bureau website

Percent of Children Under Age 18 Living in Poverty (2003): U.S. Census Bureau, Housing and Household Economic Statistics Division, Small Area Estimates Branch

Percent of Students Receiving a Free or Reduced-Price Lunch (2004): Virginia Department Of Education, School Nutrition Programs, Superintendent's Report (online)

Percent of Kindergartners Identified as Requiring Early Intervention Reading Initiative (2003): Curry School of Education, The University of Virginia, via the Annie E. Casey Foundation's online database – Community-Level Information for Kids

Percent of Third Graders Failing English SOL (2002): Virginia Department Of Education, Superintendent's Report (online)

Percent of Students Failing to Graduate on Time (2003-04): Virginia Department Of Education, Superintendent's Report (online)

Percent of Students Dropping Out of School (2003-04): Virginia Department Of Education, Superintendent's Report (online)

Violent and Threatening School Incidents per 1,000 Students (2003-04): Violent and threatening incidents include: Battery Against Staff; Battery Against Student; Malicious Wounding; Bullying; Fighting With Injuries; Fighting Without Injuries; Robbery; Rape And Attempted Rape; Sexual Battery Against Student; Threat-Intimidation; Firearms, Rifles And Other Firearms; Other Weapons. Rates based on Student enrollment in Fall 2002. All data retrieved from Virginia Department Of Education, Superintendent's Report (online)

Percent of Population Age 25 or Older Who Did Not Graduate High School (2000): 2000 Census, U.S. Census Bureau website

Births to Mothers with No High School Diploma (2002): Virginia Department of Health, via the Annie E. Casey Foundation's online database – Community-Level Information for Kids

Births to Unmarried Mothers, as Percentage of All Live Births (2004): Virginia Department of Health

Median Income for Single Mother Families, Female Householders with No Children, and Married Couples with Children: 2000 Census, U.S. Census Bureau website

Low Birth Weight Babies, as Percentage of All Live Births (2004): Virginia Department of Health

Teen Pregnancy, Rate per 1,000 Females (2004): Virginia Department of Health

Children in Foster Care, Rate per 1,000 (2004): Virginia Department of Social Services, via the Annie E. Casey Foundation's online database – Community-Level Information for Kids

Founded Reports of Suspected Child Abuse and Neglect, Rate Per 10,000 Households with Children (2000): Count of founded reports of abuse/neglect obtained from Virginia Department of Social Services, count of households with children obtained from the 2000 Census, U.S. Census Bureau website

Lead Poisoning in Children Under Age 15, Rate per 10,000 (2003): 2003 Annual Report, Summary of Surveillance Data for Virginia Children with Elevated Blood Lead Levels, Virginia Department of Health

Asthma Hospitalizations for Children Under Age 6, Rate per 100,000 (2001): Virginia Department of Health via the Annie E. Casey Foundation's online database – Community-Level Information for Kids

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