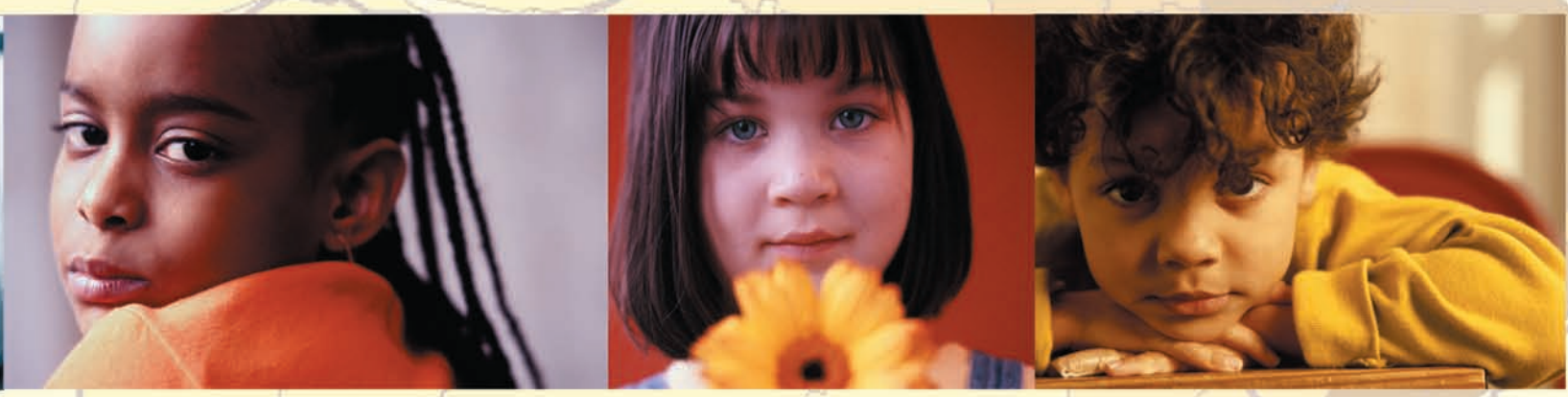
CHILD HEALTH

IN CORE MISSOURI COUNTIES OF THE ST. LOUIS REGION

Overview, Key Findings & Recommendations



Vision for Children at Risk

with support from the

MFH

Missouri Foundation for Health

Contents

About this Report

This report is the result of many individuals working together to ensure accurate reporting of data related to the health of St. Louis children. Vision for Children at Risk would like to thank the following individuals whose expertise was critical in the creation of this report: David Paulsmeyer, Ph.D., MPA of Research Consultants for the detailed data analyses, and Melisa McLean of Foresight, LLC for creating the risk and resource maps. We would also like to thank Byungdeok Kang, Natasha Lee, and A. Christine Shannon, Vision for Children at Risk staff members, for their hard work and assistance with this project. We are grateful to Richard J. Mier, M.D., director of pediatric services at Shriner's Hospital for Children in Lexington, Kentucky and professor of pediatrics at the University of Kentucky College of Medicine, for reviewing this report and making suggestions to strengthen it. Special thanks to the Missouri Foundation for Health for their generous support of this report.

Richard Patton
Executive Director

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Introduction

Vision for Children at Risk (VCR) is dedicated to ensuring that the critical life needs of St. Louis area children are addressed more effectively. *To provide a foundation for that mission, for the past 15 years VCR has conducted research directed to assessing the well-being of children in the St. Louis Metropolitan area. That research focuses on assessing the risks faced by the community's children. To date, VCR's assessment of the status of the community's children primarily has taken the form of the widely used Children of Metropolitan St. Louis report. That report is now in its sixth edition.*

The Missouri Foundation for Health (MFH) has made enhancing the health of children a priority. With the foundation's support, Vision for Children at Risk has turned its attention to assessing the specific issue of child health in the Missouri core counties of the St. Louis metropolitan region. In conducting that assessment, VCR has adopted the MFH perspective of taking a complete approach to health that extends beyond the absence of disease or disability and encompasses factors that contribute to good health, such as education, economic stability, government policy, safety, and environment. MFH's support has allowed VCR to take the next critical step in assessing the well-being of children in the St. Louis area: beginning to systematically assess the community resources available to address risks, as well as assessing the risks themselves.

It is in this framework that VCR has conducted an initial assessment of child health at the core of the St. Louis region. The first task was to determine the factors that constitute and contribute to child health. From that foundation, VCR then developed both a model for assessing health and an initial child health assessment.

This work is intended as a starting point from which to move forward with ongoing and more refined assessment of the health of our children. More critically, the assessment is intended to provide a foundation for action by providing information that is needed so children's health issues can be better understood and addressed more strategically and effectively.

The hope is that the data and information provided by this project will facilitate the efforts of the Missouri Foundation for Health, its grantees, and the broader community to take the steps necessary to improve the health of the community's children.

A. Importance of Child Health and its Implications for the Community

Good health is central to the quality of life of both individuals and communities. It is, arguably, the most important single determinant of overall well-being. While good health cannot be ensured, the opportunity to be healthy can be nurtured and maximized through the steps taken by individuals, families, and communities.

A healthy community provides all its children the opportunity to reach their full potential. Healthy children contribute to the long-term social, economic and physical health of the community in addition to their own well-being and productivity. Research demonstrates that providing for the early health needs of children improves their life-long health and reduces societal costs related to treating illness and health problems.[1]

Promoting health involves first understanding health risks and needs and then developing strategies to address them. To this end, over the past 14 years, Vision for Children at Risk (VCR) has published the *Children of Metropolitan St. Louis (CMSL)*, a comprehensive collection of data on the health and well-being of children in the St. Louis region. In collecting and publishing this information, VCR identified a need for a parallel assessment of the resources available to address health risks and needs identified in the CMSL data.

With support from the Missouri Foundation for Health, VCR spent the past year developing a new approach to systematically assessing child health in the St. Louis region. The first part of the project created a model, starting with a clear vision for child health and adopting a broad definition of child health. Using this framework, VCR conducted an initial analysis of child health in the Missouri part of the St. Louis region, including St. Louis City, St. Louis County and St. Charles County. At the same time, information was collected on available health resources in these areas to enable an analysis of critical child health issues and unmet service needs.

The data and information collected provide a systematic and quantitative profile of socioeconomic conditions, health risks, and resources to address health problems in each of the studied area's 76 zip codes. Statistical techniques indicate a strong relationship between socioeconomic risk and health risks and resources. The findings show the zip code areas with greater/lesser socioeconomic and health risks and proximate resources to address the well-being of children and families. These results provide information that may be used to:

- **Identify high-risk/high need local communities and priority child health problems**
- **Initiate or change policy decisions**
- **Assess the impact of the geographic location of resources on patterns of health conditions**

This approach relies on and benefits from prior research which identified such health access barriers as (1) awareness of available services and how to access them; (2) cost of services and lack of health insurance; (3) service location and geographic access; and (4) cultural competency and language issues. The analysis builds on our understanding of children's health access issues by identifying the underlying factors and challenges in quantitative terms.

VCR feels the framework developed through this research provides a useful and previously unavailable tool for assessing child health in St. Louis.

It is important because:

1. ***It employs a holistic approach, examining health outcomes, as well as socio-economic characteristics, demographics, lifestyle choices, environmental factors, community safety and security, special life needs, community supports, and health resource accessibility;***
2. ***It not only monitors outcomes, but assesses resources available and examines the relationship between needs and resources; and***
3. ***It presents data at the zip code level, a small enough geography to identify areas of critical need and identify the disparities within our community.***

For this research, VCR also created a series of maps identifying health risks and health resources in the community. We believe this is the first local effort to map both risks and resources simultaneously to identify factors contributing to health problems, as well as gaps in service provision.

Even greater than the need for a more comprehensive assessment, however, is the need for effective strategies addressing gaps in child health services. It is our hope that this report positions the community to better understand and more effectively address what needs to be done to meet the health needs of St. Louis area children.

Vision for Children at Risk sees this report as the first step in an ongoing effort to comprehensively address child health needs. Follow-up should include:

1. ***Maintaining the capacity to assess child health on an ongoing basis.***
2. ***Further investigating the relationship between health outcomes and the presence of health resources in the Most At Risk areas.***
3. ***Developing strategies to measure, monitor, and address the most pressing health issues.***
4. ***Using the resource maps and gap analysis to prioritize community needs.***
5. ***Using the report as the platform for creating community action kits responding to identified child health concerns.***
6. ***Developing and implementing specific strategies for improving child health.***

"Good health is central to the quality of life of both individuals and communities. It is, arguably, the most important single determinant of overall well-being. While good health cannot be ensured, the opportunity to be healthy can be nurtured and maximized through the steps taken by individuals, families, and communities."

B. A Model for Assessing Child Health

Through the Missouri Foundation for Health-funded research, Vision for Children at Risk has developed an eight-step model for assessing and promoting child health in the St. Louis region. The first five steps of the model are addressed in this report. The last three steps may be carried out subsequently.

> **"Having a community of healthy children requires individuals, families, community organizations and social institutions to embrace a common vision of child health and take specific actions to achieve it."**

Step 1: Establish a Vision for Child Health

Having a community of healthy children requires individuals, families, community organizations and social institutions to embrace a common vision of child health and take specific actions to achieve it. Working with community stakeholders, health care providers and policymakers, VCR has developed a vision for child health in the region. That vision statement appears on page 5 of this report.

Step 2: Create a Framework for Assessing Child Health

Assessing the health of children in the St. Louis community requires a framework for systematically analyzing key health issues.

In developing such a framework, VCR relied on its work in the community over more than a decade as a leading researcher and advocate for children. Over time, VCR has recognized that there are many factors impacting the overall health of children, and these factors often fall outside the traditional healthcare indices related to pre-natal care, medical service delivery and nutrition. As research has shown, the greatest risk factor in child health is poverty[2], but other factors, including community safety and crime rates, environmental hazards like lead, and the quality and availability of child-care and health care services also contribute to the health of children.

Recognizing that low socio-economic status is the leading predictor of child health outcomes, VCR created a socio-economic status measure to capture the major and minor factors impacting poverty, including income, family structure, employment and education.

As discussed in greater detail later in this report, the SES Measure VCR developed is a composite of several indicators, any one of which is a good proxy for socio-economic status. In combination, however, they account for a broader range of the factors impacting poverty.

Key indicators include:

- **Median Household Income**
- **Percent of Households Headed by Single Mothers**
- **Unemployment Rate**
- **Percent of Families with Children Under Age 18 Living Below the Federal Poverty Level**
- **Percent of Births to Mothers with Less Than 12 Years of Education**

While poverty is a strong predictor of child health, other factors also contribute to health outcomes for children. VCR identified seven umbrella factors – Critical Components – impacting child health. For each component VCR then identified metrics related to that factor so that each of the Critical Components provides a snapshot of one aspect of child health. The Critical Components are:

- **Age and Ethnicity**
- **Healthy Lifestyle**
- **Environmental Risks**
- **Safety and Security in Home and Community**
- **Special Life Needs and Circumstances**
- **Community Supports and Linkages to Promote Health**
- **Access to Health Care**

A Vision for Child Health in the St. Louis Region

All children in the St. Louis metropolitan region will be afforded the opportunity to achieve their optimal state of health. In order to achieve that goal, families, schools, churches, community organizations, health care and social service providers, businesses, and civic leaders will work in concert to ensure that adequate provision is made for addressing the fundamental health-related needs of every child.

Child health will be optimized through a comprehensive approach that promotes the well-being of the whole-child. Through that holistic approach, provision will be made for meeting the basic life needs of children. Risks to child health will be addressed and key health resources provided. The pervasive effects of poverty will not be allowed to undermine child health and well-being.

Children will be safe and secure in their homes, never imperiled by abuse and neglect. Every child will be nurtured and supported by competent, caring adult caregivers. Families and communities will promote healthy lifestyles by providing opportunities for good nutrition and exercise. Unhealthy behaviors in the form of tobacco use, substance abuse, and other risky behaviors will be eliminated.

The communities and neighborhoods in which children live will be free from environmental hazards and community dangers in the form of toxins, peer violence, crime, unsafe places, and adult predators.

The problems of children with special health needs will be addressed. Provision will be made for meeting the health-related needs of young people in life situations that pose special challenges, such as those who are disabled, homeless or in foster care.

Children will be connected to and supported by their communities. Families will be supported in addressing the health and critical developmental needs of their children. Early care and education, quality schools and other community services will link children to needed health resources. Communities will provide opportunities and resources in non-school hours.

Quality, affordable health care will be available to children of all ages and at every developmental stage to prevent health problems and treat illness. Every child will have a medical home and primary care physician. Children will have access to the full range of services addressing physical, mental, and dental health. Barriers to accessing needed health care related to cost, geographic access, and cultural competency will be eliminated.

> **Three issues stood out among those cited by survey respondents: lead poisoning, asthma, and childhood obesity.**

Developing the assessment framework also involved input from community stakeholders, including health care and social service agencies. This was an essential step to ensure the data collected and analyzed are:

1. ***Comprehensive, i.e. provide a full picture of child health;***
2. ***Meaningful to a broad cross-section of the community.***

To create this framework, VCR surveyed eight agencies participating in the Lead Agency Network of the existing St. Louis Metropolitan Children's Agenda. In addition, VCR collected input from 14 health professionals in the area. VCR attempted to involve a broader range of input with the help of the Health Task Force Leader at Metropolitan Congregations United, but the survey of congregation members generated little response. Three issues stood out among those cited by survey respondents: lead poisoning, asthma, and childhood obesity.

With this input, VCR looked at 82 indicators related to health used by 46 different agencies in reporting on child health and well-being (see inset box). The agencies identified issues of importance, providing a broad consensus of what matters in children's health. From this list, 42 indicators were selected as part of the framework and data were collected by zip code for St. Louis City, St. Louis County, and St. Charles County.

It is important to note that the unit of analysis for most of the data is zip codes, but there are a few indicators where data were not available at this level. It is also important to note that while childhood obesity was identified as an important health concern to measure, there is presently no data collected on this issue, highlighting a need for further research.

The resulting framework is a tool that all community organizations and agencies can use to better understand child health in their own zip code and throughout the St. Louis region.

Critical Components	Key Indicators of Child Health	Data Source
1. Age and Ethnicity	• Percent of Population Under Age 5	Claritas Inc., 2003
	• Percent of Population Under Age 18	
	• Percent of Population Under Age 25	
	• Percent of Population Classified as Minority	
2. Healthy Lifestyle	• Percent of Births to Teenage Mothers	Missouri Department of Health and Senior Services, 2001
	• Percent of Births to Mothers who Smoked During Pregnancy	Missouri Department of Health and Senior Services, 2002
	• Percent of Children who Tested Positive for Gonorrhea or Chlamydia	Missouri Department of Health and Senior Services, 2003
	• HIV/AIDS rate per 1,000 children Under Age 25	City of St. Louis Health Department 2004; Missouri Department of Health and Senior Services, 2004
	• Percent of Child Deaths due to Motor Vehicle Accidents	Missouri Department of Health and Senior Services, 1998-2002
	• Percent of Child Deaths due to Suicide	Missouri Department of Health and Senior Services, 1998-2002
3. Environmental Risks	• Percent of Children Tested Under Age 6 with Elevated Blood Lead Levels (10 mg/dL)	Missouri Department of Health and Senior Services, 2003
	• Number of Homes Built Prior to 1980	U.S. Census 2000
4. Safety and Security in Home and Community	• Child Abuse/Neglect Rate per 1,000	Missouri Division of Family Services, 2002 (through November 2002)
	• Percent of Child Abuse/ Neglect Reports that Required Follow-up Services	Missouri Division of Family Services, 2002 (through November 2002)
	• Percent of Child Deaths due to Homicide	Missouri Department of Health and Senior Services, 1998-2002
	• Percent of Emergency Room Visits due to Injuries or Poisoning	Missouri Department of Health and Senior Services, 1996-2000

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(continued from page 7)

Critical Components	Key Indicators of Child Health	Data Source
5. Special Life Needs and Circumstances	• Percent of Births to Married Parents	Missouri Department of Health and Senior Services, 2002
	• Rate of Children Living in Alternative Care per 1,000	Missouri Department of Social Services, 2004
	• Percent of Children Under Age 5 Active in the First Steps Program	Missouri Department of Elementary and Secondary Education, 2003
	• Percent of Emergency Room Visits due to Asthma	Missouri Department of Health and Senior Services, 1996-2000
	• Number of SIDS Deaths	Missouri Department of Health and Senior Services, 1998-2002
	• Percent of Births with Low Birth Weight	Missouri Department of Health and Senior Services, 2002
	• Percent of Births that are Premature	Missouri Department of Health and Senior Services, 2001
	• Five-year Infant Mortality Rate	Missouri Department of Health and Senior Services, 1998-2002
6. Community Supports and Linkages to Promote Health	• Licensed Child Care Capacity	Child Day Care Association, March 2004
	• Average Weekly Market Rate of Licensed Child Care	Child Day Care Association, March 2004
	• Licensed After-School Child Care Capacity	Child Day Care Association, 2003
	• Average Market Rate of Licensed After-School Child Care	Child Day Care Association, 2002
	• Percent of Children Under Age 18 Receiving TANF	Missouri Department of Health and Senior Services, 2003
	• Percent of Children Under Age 18 Receiving Food Stamps	Missouri Department of Health and Senior Services, 2003
	• Percent of Births to Mothers Receiving Food Stamps	Missouri Department of Health and Senior Services, 2001
	• Percent of Births to Mothers Receiving WIC	Missouri Department of Health and Senior Services, 2002
7. Access to Health Care	• Percent of Births with No or Inadequate Prenatal Care	Missouri Department of Health and Senior Services, 2002
	• Preventable Hospitalization Rate per 1,000 Children Under Age 15	Missouri Department of Health and Senior Services, 2000- 2002
	• Percent of Children Under Age 18 Receiving Medicaid/MC+	Missouri Department of Health and Senior Services, 2003
	• Percent of Newborns Receiving Six or More Visits from the Nurses for Newborns Program	Nurses for Newborns Foundation, 2002-2003
	• Percent of Births to Mothers Receiving Medicaid	Missouri Department of Health and Senior Services, 2002

Step 3: Conduct Initial and Ongoing Analyses of Children's Health Status and Needs

Using the preceding framework, analysis of the data identifies critical areas of need for children in the St. Louis region. In particular, the analysis examines where children in the region compare poorly to state and national norms on key health indicators. Geographic areas/zip codes within the St. Louis region where children are not doing as well as their counterparts in Missouri and the U.S. are identified.

VCR conducted a baseline analysis of child health in the St. Louis region, including baseline maps identifying areas of greatest concern by indictor. The results of that analysis are summarized in the Children's Health Tools and Resources section of the report.

Step 4: Inventory and Map Community Resources Related to Child Health

As a companion to the data analysis of critical health needs, a full picture of child health requires a thorough examination of the resources available to address those needs.

For the baseline report, VCR conducted research over the past year to inventory more than 3,000 health-related services in the St. Louis region in 42 categories of service.

Providing a comprehensive detailed analysis on such a broad spectrum of services was not possible within the parameters of this research. However, an attempt was made to comprehensively identify resources and analyze service gaps related to resources that address priority health risks identified through the data analysis.

Information was collected on resources in the following categories:

- **Services that Address Poverty and Basic Life Needs**
- **Mental Health Services**
- **Obesity**
- **Lead**
- **Asthma**
- **Community Health Clinics**
- **Pediatricians**
- **Pediatricians Accepting Medicaid**
- **Dentists**
- **Dentists Accepting Medicaid**
- **Community Health Clinics Providing Dental Services**
- **Hospitals with Pediatric Services**

In subsequent years, it is hoped that resources can be researched comprehensively to provide a more complete picture of what programs and services are meeting child health needs.

Step 5: Identify Critical Needs and Service Gaps

Using information collected in Steps 3 and 4, the next stage in the model for assessing child health involves a gap analysis between critical child health needs and available resources. The Socio-Economic Risks and Children's Health Status section of the full report details the analysis for the baseline study.

Step 6: Prioritize Needs

This Assessment of Child Health is intended to provide the information required to help the St. Louis community identify and prioritize problems and needs related to the health of the area's children. Determination of children's health priorities is not a research task, but rather a community-based process that involves a variety of functions related to agenda and goal setting, program planning and development, and resource allocation and funding. These functions are performed most effectively if they are carried out based on the best available information.

Agencies Contacted in Identifying Indicators of Child Health & Well-being

Advocates for Youth
AFL/CIO
Agency for Healthcare Research and Quality
American Academy of Pediatrics
American College of Preventive Medicine
American Heart Association
American Lung Association
American School Health Association
America's Children-Key National Indicators of Well-Being 2003
Assessing Community Health--Community Survey (DHSS-MO)
Association of Certified Nurse Midwives
Association of Maternal and Child Health Programs
Behavioral Risk Factor Surveillance System
Centers for Disease Control and Prevention
Children's Defense Fund
Children's Safety Network
Childtrends.org
Community Health Assessment Resource Team
Community Health Assessment Resource Team MO
Demographic and Health Surveys
Healthfinder
Healthy Youth 2010
Institute for Community Health
Kids Health-Nemours Foundation
Maternal and Child Health Bureau
Maternal and Child Health Library
Missouri Department of Elementary and Secondary Education
Missouri Department of Health and Senior Services-MICA
Missouri Hospital Association (MO Health Status Highlight)
Missouri Pediatric Nutrition Surveillance System
National Association of County and City Health Officials
National Institute of Child Health and Human Development
National Institutes of Health
National Rural Health Association
Office of the Surgeon General
Report on Health & Well-Being (Peninsula Partnership Council)
Save the Children USA
Social Action for Health and Well-being
The American Economic Review
United Way of America
U.S. Department of Health and Human Services
Virtual Children's Hospital-University of Iowa
Voices for America's Children
Whole Child Project: Manatee County, Florida
World Health Organization

Step 7: Develop Action Tool Kits

Community action to address the priority, unmet health needs of children often can be "jump started" and facilitated by providing key data and information, as well as establishing a framework for strategic policy and program development and implementation. Critical information, along with a structure and process for addressing specific unmet health needs of children, can be packaged as "Action Tool Kits" that will both highlight priority needs and provide the information required to address the issue effectively. One purpose of this Assessment of Child Health is to provide some of the key data and information required to develop Action Tool Kits that will facilitate community efforts to met children's health needs.

Step 8: Implement Specific Child Health Strategies

Vision for Children at Risk and the St. Louis Children's Agenda with the assistance of the Missouri Foundation for Health have started this process by pursuing several strategies related to children's health. Potential strategic areas for further work include asthma, obesity, and lead.

As discussed in the beginning of this report, a community needs to understand its health issues before it can effectively address them. Steps 1-5 of this framework provide a comprehensive analysis of health needs, critical health components, and health services, including a gap analysis identifying disparities. Responding to these gaps will require broader and strategic community engagement and planning.

C. Key Findings of the 2004 Community Assessment of Child Health

Using the Community Assessment of Child Health framework, VCR conducted an assessment of child health for three counties in metropolitan St. Louis – St. Louis City, St. Louis County, and St. Charles County – using data available for the framework indicators.

This assessment creates a baseline for ongoing analysis of the health of children in the St. Louis region. It is important to note that the data used for this report are the most recent available. Some data are from multiple years due to the data's instability (for example, infant mortality rate, SIDS numbers, and death rates). The chart on pages 7 and 8 indicates the source and year for each indicator tracked.

In this section of the report we provide an overview of the analytical technique and key findings. The Children's Health Tools and Resources section of the report includes data tables, risk maps and resource maps with corresponding resource inventories. The final section of the report, Socio-Economic Risks and Children's Health Status provides complete statistical analyses of the data including explanatory charts and tables.

The Key Findings are broken out into four sections:

- **Primary children's health risks and problems**
- **Community resources for addressing children's health**
- **Gaps in children's health resources**
- **Priority children's health issues in the St. Louis community**

Primary Children's Health Risks and Problems

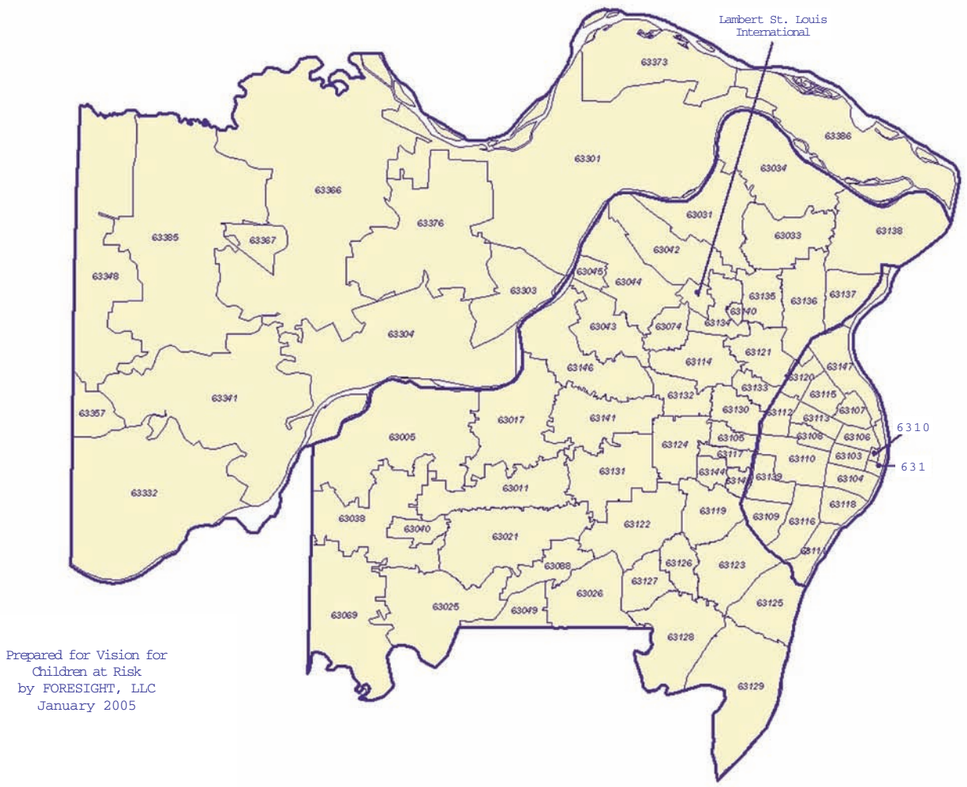
In approaching this assessment, VCR started with the premise that socio and economic characteristics – while not the only predictors – drive health conditions in ways that cannot be ignored.

VCR implemented a two-step process to look at child health:

1. ***Measurement of the socio-economic status of zip codes within the three-county area, followed by categorization of the zip codes into quadrants of health risk based on socio-economic status; and***
2. ***Investigation of the impact of socio-economic status on other factors related to child health, specifically the seven Critical Components identified in the assessment framework.***

As noted earlier, VCR surveyed healthcare professionals and research agencies to identify indicators that correspond to the seven Critical Components of Child Health. Similarly, VCR researched leading indicators for socio-economic characteristics that impact health. The result of this research was to create a Socio-Economic Measure that captures a profile of a child's family, including structure, income, employment status, and education. Research has shown that these characteristics of a child's family are closely related to early and later childhood health and development.

Zip Code Boundaries
St. Louis City, St. Louis County and St. Charles County, Missouri



Prepared for Vision for Children at Risk
by FORESIGHT, LLC
January 2005

The SES Measure created for this study is an index combining the following indicators of socio-economic status:

- **Median Household Income**
- **Percent of Households Headed by Single Mothers**
- **Unemployment Rate**
- **Percent of Families with Children Under Age 18 Living Below the Federal Poverty Level, and**
- **Percent of Births to Mothers with Less Than 12 Years of Education.**

While any one of these indicators is a good proxy for socio-economic status, collectively they create an SES Measure that comprehensively represents the socio-economic status of households in each zip code. Typically, a zip code with a high Median Household Income showed lower risk on the other health indicators and overall is at lower risk for child health problems.

It is important to note that the SES Measure created is a weighted measure of socio-economic indicators where each represents a risk that has implications for the health and development of children. It factors in each of the five indicators considered, so for each zip code, some may rank higher on one risk factor and lower on another but it is the composite rating on the SES Measure that determined overall health risk. Statistical correlation and factor analysis confirm the validity of the SES Measure.

Zip Codes by Health Risk Quartiles based on SES Measure

SES is SES Measure. MHI is Median Household Income.

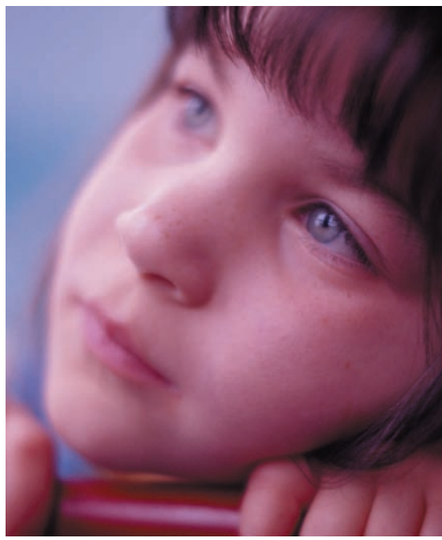
Most At Risk SES: 3.0 – 0.60 MHI: $14,999 - $33,848	**High-Mid At Risk** SES: 0.58 – 0.35 MHI: $28,483 - $52,812	**Low-Mid At Risk** SES: 0.36 – 0.75 MHI: $55,377 - $67,652	**Least At Risk** SES: 0.75 – 1.60 MHI: $77,353 - $144,085
63120	63137	63026	63105
63113	63138	63109	63021
63101	63114	63043	63348
63112	63130	63366	63332
63115	63143	63303	63034
63133	63386	63373	63025
63111	63132	63117	63341
63104	63301	63357	63011
63110	63125	63119	63040
63147	63042	63376	63017
63136	63088	63129	63141
63134	63139	63146	63038
63116	63385	63144	63124
63121	63069	63126	63131
63103	63033	63127	63005
63140	63108	63044	63304
63106	63074	63031	63122
63107	63102	63049	63367
63118	63135	63123	63128

The SES Measure was then used to determine risk for child health and development by zip code. Zip codes were categorized as Most At Risk, High-Mid At Risk, Low-Mid At Risk, or Least At Risk by quartile.

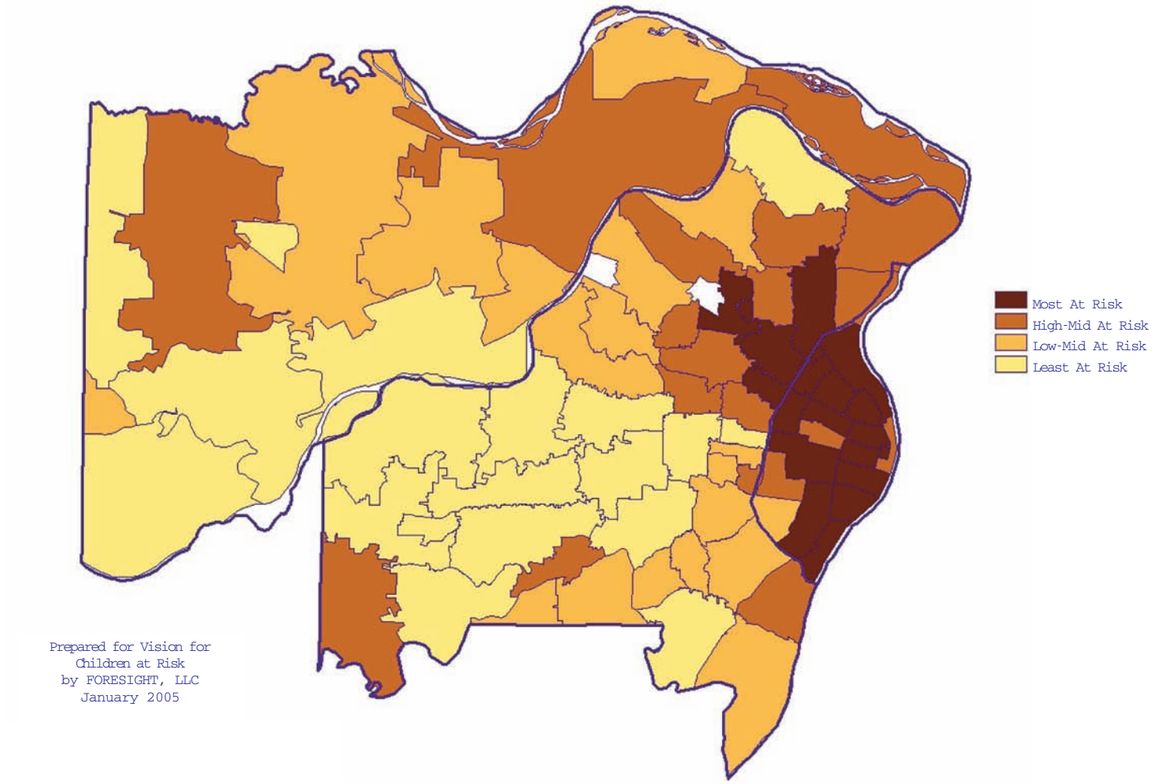
VCR then examined the relationship between socio-economic characteristics and other risk factors for child health and development using the seven Critical Components of Child Health.

The SES Measure-created quartiles were compared to indicators within the seven categories of:

- **Age and Ethnicity**
- **Healthy Lifestyle**
- **Environmental Risks**
- **Safety and Security in Home and Community**
- **Special Life Needs and Circumstances**
- **Community Supports and Linkages to Promote Health, and**
- **Access to Health Care.**



Health Risk Based on Socio-Economic Status by Zip Code



When looking at the risk areas by quartile, the Most At Risk zip codes predominantly are located in St. Louis City.

VCR then used correlation and analysis of variance (ANOVA) to show the relationship between the SES Measure and each of the indicators in the seven Critical Components. These statistics provide a standard for separating out significant findings from the patterns that are likely to be due to chance.

Two major questions were asked when conducting the analysis between the SES Measure and each Critical Component:

1. ***What does the SES Measure tell us about the components of child health?***
2. ***What areas are at greater/lesser risk than expected?***

This analysis provides a broader picture of the health of each zip code and the community as a whole.

Socio-Economic Status

Using the SES Measure, VCR first looked at the socio-economic status of each zip code. The resulting finding is that among the 76 zip codes in the three counties studied, 63140 (Kinloch) is the most at risk zip code in the St. Louis region, while 63005 (Chesterfield) is the least at risk. This corresponded to the Median Household Income indicator, with 63140 and the second most at-risk zip code, 63106 (City of St. Louis—Carr Square, Old North St. Louis, St. Louis Place, and the Jeff-Vander-Lou neighborhoods), reporting the lowest Median Household Income in the area at $14,999, and 63005 reporting the highest at $144,085.

Indicators Comprising SES Measure

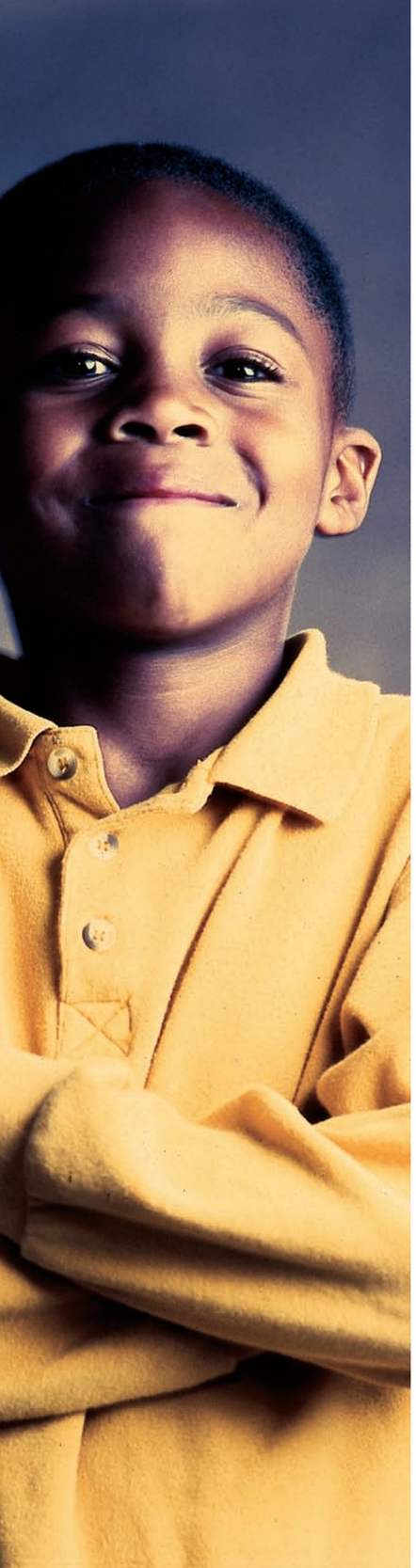
- Median Household Income
- Percent of Households Headed by Single Mothers
- Unemployment Rate
- Percent of Families with Children Under Age 18 Living Below the Federal Poverty Level
- Percent of Births to Mothers with less than 12 years of education

When looking at the risk areas by quartile, the Most At Risk zip codes predominantly are located in St. Louis City. The High-Mid At Risk zip codes are located in the City and in surrounding municipalities, mostly in north St. Louis County and northeastern St. Charles County. The Low-Mid At Risk areas are comprised by the majority of St. Louis County, particularly in the northwest, central-west, and southern parts, and the majority of St. Charles County. The Least At Risk zip codes are located in two areas in St. Louis County, central-mid and southwest.

Critical Component 1: Age and Ethnicity

The first aspect of the analysis is defining the demographic characteristics of the SES Measure. To do this, VCR looked at the age and race characteristics of the population and the risk status of the zip codes as determined by the SES analysis. VCR examined the minority status of each zip code because far too often children of color are disproportionately impacted by risks to their health and well-being.

...far too often children of color are disproportionately impacted by risks to their health and well-being.



Indicators of Age and Ethnicity

- Percent of Population Under Age 5
- Percent of Population Under Age 18
- Percent of Population Under Age 25
- Percent of Population Classified as Minority

Major Findings

The major finding is that the Most At Risk zip codes also have larger percentages of minority and younger populations. The most dramatic and statistically significant difference is ethnic make-up. On average, 78% of the populations in the Most At Risk zip codes are minorities, more than twice the rate of the next highest at risk zip codes.

Age differences are statistically significant but less pronounced than ethnic ones. Populations of Most At Risk zip codes are younger when looking at all three indicators of age. Interestingly, populations in the Least At Risk zip codes are a bit younger than those in the High-Mid and Low-Mid ranges.

Critical Component 2: Healthy Lifestyle

The health of a child is in part dependent on the healthy lifestyle choices made by the child's parent or parents and in part on the lifestyle choices made by the child, as well as by accidents. VCR examined six indicators of the Healthy Lifestyle component.

Indicators of Healthy Lifestyle

- Percent of Births to Teenage Mothers
- Percent of Births to Mothers who Smoked During Pregnancy
- Percent of Children who Tested Positive for Gonorrhea or Chlamydia
- HIV/AIDS rate per 1,000 Children Under Age 25
- Percent of Child Deaths Due to Motor Vehicle Accidents
- Percent of Child Deaths Due to Suicide

Major Findings

In areas where families face more social and economic challenges to meet basic needs, there are more high-risk birth and sexual behavior problems than in areas that are more affluent. These findings are statistically significant.

Child death rates due to motor vehicle accidents and suicides are higher in the Least At Risk, wealthier areas. This pattern, while clear, is just shy of being statistically significant.

Findings by Areas of Greater/ Lesser Risk

INDICATOR: ***Births to teenage mothers: percent of live births***
Most At Risk: Among the most at risk areas, City of St. Louis zip code 63113 has the highest percent of births to teenage mothers (31.0%). In that same high-risk range, zip code area 63101 in the City of St. Louis had the lowest rate (8.0%).
High-Mid At Risk: Zip code 63386 in St. Charles County had the highest rate, 1 out of every 5 births were to teenage mothers. City of St. Louis zip code 63102 in the mid-high SES risk range had no births to teenage mothers recorded in 2001.
Low-Mid At Risk: The 25% reported for St. Charles County zip code 63373 was among the 10 highest in the 3 county area. In this low-mid range, St. Louis County's Sunset Hills zip code 63127 had no births to teenage mothers.
Least At Risk: The highest percent was 7.1 in the Lake St. Louis area in St. Charles County. Among the 19 zip code areas in this least at risk range, four had no births to teenage mothers in 2001. They were 63105 and 63040 in St. Louis County and 63332 and 63341 in St. Charles County.

INDICATOR: ***Smoked during pregnancy: percent of live births***
Most At Risk: One out of four (24.9%) of the mothers in zip code 63111 smoked during their pregnancies. One zip code, 63103, had no record of women smoking during their pregnancies.
High-Mid At Risk: The mid-high at risk zip codes reported the highest rates of smoking during pregnancy in this three-county study. They include 63125 (26.1%), 63386 and 63102, each at the 25.0% rate. In this mid-high at risk range, the lowest rate was 6.1% in zip code 63130.
Low-Mid At Risk: 63044 had the highest rate (15.1%) and three zip codes where no women were reported as smoking during pregnancy: 63373, 63049, and 63357.
Least At Risk: 63348 (Foristell in St. Charles) had the highest rate of women smoking during pregnancy

"The health of a child is in part dependent on the healthy lifestyle choices made by the child's parent or parents and in part on the lifestyle choices made by the child."

In the St. Louis region, particularly in the City of St. Louis, lead is the most prevalent environmental risk facing children, particularly those under age 6.

(11.1%). Two of these least SES at risk areas did not have any reports of women smoking during pregnancy in 2003: 63105 (Clayton) and 63332 (Augusta in St. Charles County).

INDICATOR: ***Percent of children who tested positive for Chlamydia or Gonorrhea***

Most At Risk: 63101 in downtown City of St. Louis had the highest proportion (22.8%) of children who tested positive for Chlamydia or gonorrhea. The lowest rate (2.0%) in the most at risk range, 63103, was another City of St. Louis zip code area.

High-Mid At Risk: The highest rate was 10.5% in 63102 in the City of St. Louis and the lowest in this SES range was 0.5%, Valley Park, 63088.

Low-Mid At Risk: The highest was 1.2% in 63109 and 63117. The lowest rate was 63049 where no child tested positive for Chlamydia or Gonorrhea.

Least At Risk: In the least SES at risk zip codes the highest rate, 1.0%, was in 63034 and four zip codes had the lowest rate (0.1%) in this range. They were 63141, 63005, 63017 and 63038.

INDICATOR: ***Children with HIV/AIDS rate per 1,000***

Most At Risk: The HIV/AIDS rate among children was the highest in 63101 (22.3 per 1,000 children). For this most at risk range, the lowest was 1.5 per 1,000 in 63136 (mostly Jennings).

Mid-High At Risk: The 5.4 HIV/AIDS rate in 63108 was the highest. Three zip codes in this SES range had a rate of zero: 63102, 63385 and 63386.

Mid-Low At Risk: The 2.9 rate of HIV/AIDS infection in 63117 was the highest among the Low-Mid range at risk zip codes. The HIV/AIDS rate was zero in 63126, and 63357, 63366 and 63373.

Least At Risk: In the least at risk SES zip codes the highest rate was 0.9 per 1,000 in 63128 and zero in six of the areas in this SES range: 63025, 63038, 63304, 63332, 63341 and 63348.

INDICATOR: ***Percent of Child Deaths due to Motor Vehicle Accidents***

It is important to note that within each of the four SES groups, there is a lot of variation in the motor vehicle and suicide rates. The motor vehicle accident variance is presumably due to traffic congestion in different parts of the three counties. The total number of deaths must also be considered when examining the data.

Most At Risk: Motor vehicle accidents accounted for two-thirds (66.7%) of child deaths recorded in 63101 in downtown St. Louis. In these most at risk zip code areas, three reported no child deaths due to motor vehicle accidents: 63103, 63104 and 63140.

High-Mid At Risk: The highest rate of child deaths due to motor vehicle accidents (27.5%) was in 63301. In this SES range no child deaths due to motor vehicle accidents were recorded in 63088, 63102 and 63386.

Low-Mid At Risk: Nearly one-third (32.4%) of child deaths were due to motor vehicle accidents in 63303, the highest rate in the low mid SES at risk range. Two zip codes reported no child deaths due to motor vehicle accidents, 63117 and 63373.

Least At Risk: One-quarter of child deaths in 63017 and 63005 were due to motor vehicle accidents. Five in this SES risk range had none reported. They were 63038, 63040, 63124, 63141 and 63367.

INDICATOR: ***Percent of Child Deaths due to Suicide***

Most At Risk: Child deaths due to suicide ranged from 16.7% in 63103 to none in 63101, 63106, 63140 and 63147 among the most at risk zip codes.

High-Mid At Risk: Nearly one out of five (18.5%) of child deaths were suicides in zip code 63108. In this high mid at risk range eight zip codes had none. They were 63033, 63069, 63088, 63102, 63132, 63138, and 63386.

Low-Mid At Risk: In the low mid range at risk zip codes, the 12.5% of child deaths due to suicides in 63117 was the highest. One half-dozen-zip codes had no child suicides: 63373, 63049, 63126, 63109, 63144, and 63127.

Least At Risk: In Clayton, 63105, more than one-quarter of child deaths reported were due to suicide (28.6%). Six reported no suicides: 63034, 63038, 63040, 63124, 63131, and 63367.

Critical Component 3: Environmental Risks

The principal environmental risk examined in this research is lead poisoning or the potential for lead poisoning. In the St. Louis region, particularly in the City of St. Louis, lead is the most prevalent environmental risk facing children, particularly those under age 6.[3]

Indicators of Environmental Risks

- Percent of Children Tested Under Age 6 with Elevated Blood Lead Levels
- Number of Homes Built Prior to 1980

Major Findings

Not surprisingly, the Most At Risk areas also score high in the percentage of tested children who are lead poisoned (10 micrograms/dL) and in the number of houses built before 1980 which therefore, are at risk for lead paint. In the Most At Risk areas, the percent of children tested who are lead poisoned averaged 6.1%. In these areas, housing units built before 1980 are also much more likely to be concentrated. In the Most At Risk area, nine out of ten housing units were built before 1980, compared to half of the housing in the Least At Risk area.

Findings by Areas of Greater/ Lesser Risk

INDICATOR: ***Percent of Children Tested Under Age Six With Elevated Blood Lead Levels***

Most At Risk: Among the Most At Risk zip codes, 63107 in north St. Louis City has the highest incidence of lead poisoning (13.7%) and 63134 the lowest (2.5%).

High-Mid At Risk: Zip code 63108 (Central West End) had the highest rate (4.9%) and three zip codes reported no children who tested positive for lead poisoning: 63102, 63385 and 63386.

Low-Mid At Risk: Zip code 63043 reported the highest percentage of lead poisoning (1.0%) and six zip codes reported no children who tested positive for lead, mostly in St. Charles County: 63049, 63303, 63357, 63366, 63373 and 63376.

Least At Risk: In the Least At Risk area there are seven zip codes who reported no children tested who were lead poisoned: 63021, 63038, 63040, 63332, 63341, 63348 and 63376. All are in south St. Louis County or St. Charles County.

Critical Component 4: Safety and Security in Home and Community

There is no single stronger measure of determining a child's safety in his or her own home than examining the child abuse and neglect rate and those reports that required follow-up services. All children deserve to live in areas where threats to their safety and security are minimal. To determine a community's safety and security, VCR examined child homicide rates and injuries and poisonings requiring medical attention.

Indicators of Safety and Security

- Child Abuse/Neglect Rate per 1,000
- Percent of Child Abuse/Neglect Reports that Required Follow-up Services
- Percent of Child Deaths Due to Homicide
- Percent of Emergency Room Visits Due to Injuries or Poisoning

Major Findings

The Most At Risk areas were more likely to have higher rates of child abuse and higher rates of need for

follow-up services than those at a lower SES Measure. However, the relationships are not statistically significant.

Safety and security in the community are measured by the child deaths due to homicide and emergency room visits due to injuries and poisoning. The highest child homicide rates are in the Most At Risk zip codes (26% average) and much lower in the lower SES risk areas (from a 9% average for the High-Mid range risk category, to about 2% for the Low-Mid and Least At Risk areas).

The rates of emergency room visits for injuries and poisonings follow a different pattern altogether. The rates are much lower in the Most At Risk zip codes (29% average) compared with 40%, 51% and 49% averages in the High-Mid, Low-Mid, and Least At Risk areas respectively.

Critical Component 5: Special Life Needs and Circumstances

The health of a child at the beginning of his or her life may help shape their long-term health status. It is for this reason that VCR examined such vital statistics as parental marital status, SIDS deaths, low birth weight, premature birth, infant mortality rates and emergency room use for asthma. The measures of special life circumstances often provide information on parental behaviors.

Indicators of Special Life Needs and Circumstances

- Percent of Births to Married Parents
- Rate of Children Living in Alternative Care per 1,000
- Percent of Children Under Age 5 Active in the First Steps program
- Percent of Emergency Room Visits due to Asthma
- Number of SIDS Deaths
- Percent of Births with Low Birth Weights
- Percent of Births that are Premature
- Five-Year Infant Mortality Rate

Major Findings

The Most At Risk areas face the greatest challenges related to this component. The exception is children with disabilities where enrollment in First Steps (a program that addresses developmental disabilities) in the Least At Risk areas is higher than that in the higher SES risk areas.

Findings by Areas of Greater/ Lesser Risk

INDICATOR: ***Percent of Births to Married Parents***

Children born to families with two parents are more likely to be provided with such basic material needs as adequate, well-balanced meals, clothing and shelter. Additionally, they frequently have more emotional and intellectual opportunities. Their counterparts in single-parent households are more likely to face greater stress to provide many basic needs and more opportunities for their children to develop and learn.

In the Least At Risk zip code areas, nearly 9 out of 10 (89. 6%) children were born to married couples. The rate drops off to a bit less than 8 out of 10 (78.9%) in the Low-Mid At Risk area. As the SES Measure of risk increases, the rate of births to married women drops off to a bit more than 5 out of 10 (55.8%) in the High-Mid At Risk areas. The rate of births to married women drops to about 2 out of 10 (21.6%) in the Most At Risk zip codes.

INDICATOR: ***Children Living in Alternative Care Rate per 1,000***
The rate of children in alternative (foster) care provides another perspective on families and parenting. These are the children who are in the custody of the State of Missouri. Most are in foster care homes and some are in institutional settings. For a variety of reasons including abuse or neglect and behavioral problems, among others, these children are not living with their biological parent(s), nor have they been adopted.

Average rates of alternative care per 1,000 children are lower in the least at-risk zip code category (7.8) compared with 10.1 among the Low-Mid At Risk zip codes, 29.3 in the High-Mid At Risk area and reach 53.2 in the most at-risk zip codes.

INDICATOR: ***Children with Disabilities***
First Steps offers coordinated services and assistance to young children with special needs and their families. It is designed for children, birth to age three, who have delayed development or diagnosed conditions that are associated with development disabilities. The criteria for a referral to First Steps are that the child exhibits "a significant delay or atypical development in one or more of the following developmental areas: cognition (learning), communication, adaptive (self help), physical, social-emotional."

Children with disabilities are enrolled in the State's First Steps program at higher rates in the Least At Risk zip codes than in the most at risk areas. These data are unlikely to indicate that the rates of children with disabilities are higher in the more affluent areas. Rather, it seems more likely that parents in the more affluent areas are more frequently taking the option to enroll children assessed with a developmental disability into First Steps. Additionally, public school districts in the relatively more affluent areas have longer-lived programs for children with disabilities than other school districts. The latter may mean that the program's legitimacy is established and parents are knowledgeable about and comfortable with First Step's programs.

"...a high rate of emergency room visits is a likely indicator of the need for greater access to primary care."

INDICATOR: ***Emergencies due to Asthma***
The Most At Risk areas are those with the highest rates of emergency room visits due to asthma. As will be discussed in the Critical Component on Access to Health Care, a high rate of emergency room visits is a likely indicator of the need for greater access to primary care. The assumption is that if children have primary health care they will not need, or sharply reduce the need for, emergency services for many illnesses including asthma. If valid, the data show that access to primary care for a child with asthma is a major problem in the zip codes at greater SES risk.

INDICATOR: ***Sudden Infant Death Syndrome (SIDS)***
SIDS is higher in the Most At Risk zip code areas than in the Least At Risk zip codes. There were no deaths due to SIDS in 35 (46.1%) of the zip codes. Of these 35 zip codes, 2 are in the Most At Risk areas, 8 are in the High-Mid range, 11 are in the Low-Mid range, and 14 are in the Least At Risk SES zip code areas.

INDICATOR: ***Vital Statistics: Low Birth Weights, Premature Births and Infant Mortality***
Rates of low birth weight, premature birth, and infant mortality are higher in the Most At Risk zip codes than in the lower at risk areas. For each of these indicators of maternal and child health, the rate in the High-Mid and especially in the Most At Risk zip codes greatly exceeds those in the lower SES risk areas.

The rate for low birth weight babies is higher in the Least At Risk zip codes (a 7.5% average) compared with a 6.8% average of live births in the Low-Mid range SES zip codes. Similarly, the premature birth rates are a bit higher (8.9% of live births) in the Least At Risk areas than in the Low-Mid range areas (8.8% of live births). The infant mortality rates are 4.8 in the Least At Risk and 5.1 in the Low-Mid At Risk zip codes.

Critical Component 6: Community Supports and Linkages to Promote Health

Among the community resources related to health promotion, VCR looked at two major types of programs and services. They are (1) child- and after-school care in licensed facilities, and (2) three public assistance programs: Temporary Assistance for Needy Families (TANF), Food Stamps and WIC. Quality licensed child care is critical not only to ensuring safety during non-parental care, but also to promote brain development that will impact a child's academic and social success. TANF, Food Stamps and WIC provide critical financial supports to families living in poverty. Food Stamp and WIC receipt ensures a family has access to nutritious food.

Major Findings

Indicators of Community Support

- Licensed Child Care Capacity
- Average Weekly Market Rate of Licensed Child Care
- Licensed After-School Child Care Capacity
- Average Market Rate of Licensed After-School Child Care
- Percent of Children Under Age 18 Receiving TANF
- Percent of Children Under Age 18 Receiving Food Stamps
- Percent of Births to Mothers Receiving Food Stamps
- Percent of Births to Mothers Receiving WIC

There does not appear to be a correlation between capacity and cost of child care and after-school care and socio-economic status. As expected, children and pregnant women in the Most At Risk areas are more likely to be enrolled in public assistance programs.

Findings by Areas of Greater/ Lesser Risk

INDICATORS: ***Child and After-School Care Capacity and Cost***
Among the many program opportunities in licensed child care and after-school care for children is health promotion. For example, provision of nutrition and mental and physical health information is mandated in federally funded Early Head Start for children less than 3 years of age and Head Start for children ages 3 to 5.

SES risks are not significantly related to child care or after-school programs capacity, or the costs of after-school care. However, weekly average costs of child care are significantly higher in the more affluent areas, the Least At Risk areas, and lower in those zip codes with higher SES indicators. The rates drop from an average high of $166 per week in the Least At Risk zip codes down to $100 in the Most At Risk areas.

INDICATORS: ***Percent of Children Under 18 Receiving Temporary Assistance for Needy Families (TANF) and Food Stamps; Births to Mothers Receiving Food Stamps and WIC***
Temporary Assistance for Needy Families (TANF) is designed to provide participants with income to benefit children. The primary objective of Food Stamps is to provide resources to meet the nutritional needs of participants. WIC is aimed at low-income pregnant, postpartum and breastfeeding women, infants, and children up to age 5 who are at nutritional risk.

As expected, the rates of participation in these public assistance programs are significantly higher in the Most At Risk zip codes (as high as 63.6%), than in the Least At Risk zip codes (as low as 0.1%)

Critical Component 7: Access to Health Care

Too often, poor pregnant women and children lack access to a medical home that provides comprehensive, continuous, and culturally competent health care. Lack of access to and receipt of this type of health care seriously compromises the health and well-being of a child. For this component, VCR examined two indicators related to access to health care: inadequate prenatal care and preventable hospitalizations, as well as two programs that provide access to health care: Medicaid/MC+ and Nurses for Newborns. Inadequate prenatal care is defined as less than five visits for pregnancies less than 37 weeks, less than eight visits for pregnancies of 37 weeks or longer, or care beginning after the fourth month of pregnancy.

Indicators of Access to Health Care

- Percent of Births with No or Inadequate Prenatal Care
- Preventable Hospitalization Rate per 1,000 Children Under Age 15
- Percent of Children Under Age 18 Receiving Medicaid/MC+
- Percent of Newborns who Received Six or More Visits from the Nurses for Newborns Program
- Percent of Births to Mothers Receiving Medicaid

Major Findings

Two-thirds of hospitalizations in the Most At Risk areas are preventable. Inadequate prenatal care is significantly higher in the Most At Risk areas. Participation in Medicaid/MC+ and Nurses for Newborns programs is generally highest in the Most At Risk areas.

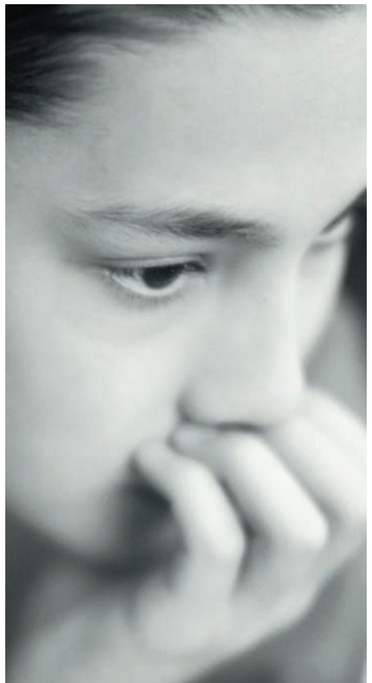
Findings by Areas of Greater/ Lesser Risk

INDICATORS: ***Inadequate Prenatal Care and Preventable Hospitalizations***
Preventable hospitalization indicators are also referred to as “ambulatory care sensitive conditions” (ACSCs) and Prevention Quality Indicators (PQIs). They include selected measures of "diagnoses for which timely and effective outpatient care can help to reduce the risks of hospitalization by either preventing the onset of an illness or condition, controlling an acute episodic illness or condition, or managing a chronic disease or condition.”

The preventable hospitalization indicators are based on measures of hospital inpatient diagnostic data. For this analysis, in consultation with the Missouri Department of Health and Senior Services, 10 of the 24 PQI measures were selected for children less than 15 years of age. They are:

1. ***Asthma***
2. ***Bacterial Pneumonia***
3. ***Chronic Obstructive Pulmonary Disease (Includes chronic non-acute bronchitis, emphysema, bronchiectasis, and chronic airway obstruction. Asthma is not included in this definition.)***
4. ***Dehydration - Volume Depletion***
5. ***Ear, Nose, Throat - Severe Infections***
6. ***Failure To Thrive***
7. ***Immunization Preventable***
8. ***Injury***
9. ***Nutritional Deficiencies (Includes Iron Deficiency Anemia)***
10. ***Poisonings.***

The data show higher rates of preventable hospitalizations in the Most At Risk zip codes. These rates drop off from 67.7% in the Most At Risk zip codes, to 37.1% in the High-Mid range, 21.3% in the Low-Mid risk areas and 18.5% in the Least At Risk SES zip code areas.



The rates of inadequate prenatal care increase from 2.3% of live births in the Least At Risk zip codes, to 3.2% in the Low-Mid range, 9.9% in the High-Mid range areas, and to 18.5% in the Most At Risk zip codes.

INDICATORS: ***Percent of Children Under Age 18 Receiving Medicaid/MC+ and Births to Mothers Receiving Medicaid***
These data show that the Medicaid/MC+ coverage rate for children is significantly higher in the Most At Risk zip codes. On average nearly 3 out of 4 children (72.8%) less than 18 years of age in the Most At Risk areas are participating in this public assistance health care coverage. That compares with nearly 4 out of 10 (37.2%) in the High-Mid areas, about 1 out of 10 (11.6%) in the Low-Mid range, and less than 1 out of 10 (5.5%) of the children less than 18 years of age in the Least At Risk zip codes. The pattern of participation in Medicaid among pregnant women is virtually identical to that for children receiving Medicaid/MC+. The average rates of coverage decrease from 71.5% in

the most at risk SES areas to 38.5% in the High-Mid range, 14.3% in the Low-Mid range, and down to 8.5% in the least at risk SES zip code areas.

INDICATOR: ***Percent of Newborns who Received Visits from the Nurses for Newborns Program***

Nurses for Newborns is a home visiting agency that serves teenage mothers, mothers that are mentally or physically challenged, infants that are sick, and families that are in need in the St. Louis metropolitan area and 29 other Missouri counties. The primary focus is on the prenatal period through 18 months. Medical services are provided as well as assistance to connect low-income families' access to additional medical services and appropriate social and government programs.

The data used in this analysis are based on services to those target populations. One measure is the number of persons who received one or more visits by a nurse for any of the services provided by Nurses for Newborns in 2002 and 2003. The other measure is the number of persons who received six or more visits by a nurse during the same time period. While the number of persons receiving at least one visit indicates the widest scope of services, only those families meeting several criteria are included in the Nurses for Newborns' evaluation

The highest rate of mothers visited at least once by Nurses for Newborns are in the Low-Mid At Risk zip codes (representing 38.7% of live births). That rate is followed by 30.9% in the Most At Risk areas, 21.8% in the High-Mid range and lowest in the Least At Risk areas (5.3% of live births). However, for the participants who are visited six or more times, the average rate is highest in the Most At Risk zip codes (6.2% of live births). That rate drops off to 3.0% in the High-Mid range risk areas, 1.3% in the Low-Mid range, and 1.0% in the Least At Risk areas.

Similarly, the average number of mothers receiving Nurses for Newborns services is highest in the Most At Risk zip codes. That average increases from two in the Least At Risk areas, up to seven in the Low-Mid and High-Mid risk ranges, and reaches 16 in the Most At Risk zip codes.

Community Resources for Addressing Children's Health

After completing an analysis of health risks and needs in the community, VCR collected data on the resources available to address major health issues. The inventory includes more than 3,000 health services in the St. Louis region in 42 categories of service. While providing detailed information on such a broad spectrum of services was not possible within the parameters of this research effort, this report provides details on resources that address priority health risks identified through the data analysis, as well as information on primary health care resources.

The Resource Inventory in the Children's Health Tools and Resources section provides details on the resources identified and researched in-depth. These resources fall into the following categories:

Resources Addressing Key Health Issues

- **Poverty – income maintenance programs, WIC sites, food pantries, emergency shelters/transitional housing facilities**
- **Mental Health**
- **Obesity**
- **Lead**
- **Asthma**

Resources Providing Access to Health Care

- **Community Health Clinics**
- **Pediatricians**
- **Pediatricians Accepting Medicaid**
- **Dentists**
- **Dentists Accepting Medicaid**
- **Community Health Clinics Providing Dental Services**
- **Hospitals with Pediatric Services**

Major Findings

Poverty: The lives of children living in poverty are usually compounded by several risk factors. These include unsafe neighborhoods, inadequate schools, and insufficient access to quality child care, health care, food, and housing. As a result, their health and well-being are likely to be compromised.

There are various kinds of organizations that work with and for families living in poverty. While some organizations do research and advocacy focused on children living in poverty, others work directly with the families themselves.

In assessing services directed to ameliorating the impacts of poverty, Vision for Children at Risk focused on resources that provide direct support to families to help ease their financial burden. To that end, we examined: Income Maintenance Programs which provide TANF and Food Stamp benefits to qualifying families; WIC (Special Supplemental Nutrition Program for Women, Infant, and Children) Sites which provide families with young children and pregnant women vouchers to purchase nutritious foods; food pantries; and emergency housing and transitional housing programs for families and youth.

Mental Health: There are many possible entry points into the mental health system. Mental health services vary according to the method, types, intensity and services, and cover a broad range of diagnoses. Typically mental health services for children focus on family therapy, abuse/neglect issues, social-emotional disturbances, delinquency, and mental illness or disability. Because of the broad range of services, not all resources are available to all children (i.e., mental health services for offenders are not offered to anyone outside of the family court system).

"After completing an analysis of health risks and needs in the community, VCR collected data on the resources available to address major health issues."

Obesity in children is in essence a problem of energy balance. Symptoms of being overweight appear when calories consumed exceed calories expended over a prolonged period of time. Consequently, there are two primary methods of managing energy balance and weight: nutrition and exercise.

Mental health services can also be received through individual private practice psychologists, social workers and psychiatrists. Because of the larger number of private mental health practitioners and the frequently high cost of services, these individuals were not included in the resource inventory.

Mental health advocacy organizations were listed, though most do not provide direct services, only information. The inventory tried to encompass all organizations that provide mental health services as their main function, including residential treatment and outpatient resources.

Though there are many types of services available, access to these services is limited by the complexity of the system, lack of coordination between services, and restricted funding. Children often may not receive the full treatment course from which they would benefit.

Obesity: Obesity in children is in essence a problem of energy balance. Symptoms of being overweight appear when calories consumed exceed calories expended over a prolonged period of time. Consequently, there are two primary methods of managing energy balance and weight: nutrition and exercise. Developing positive nutrition and exercise habits are key to preventing the onset of overweight. When a child has already become overweight or obese, however, targeted diet and exercise treatment programs are necessary. Similarly, for kids who are at especially high risk of becoming overweight, deliberately focused nutrition education and fitness initiatives are likely needed for prevention.

Therefore, exploring the resources available to address the issue of childhood weight can be done in two ways. In the first option, all possible physical fitness opportunities and nutrition provision or education programs can be identified. This may include all sources of recreation for kids (e.g. YMCAs, playgrounds/parks, community centers), all nutrition education sources (dietitians, school nurses, specific food education programs), as well as possibly examining the availability of healthy food options, such as grocers that sell affordable fruits and vegetables. In the second option, resources that are specifically and deliberately addressing weight issues can be identified. In this approach, resources would include all weight treatment programs and targeted healthy eating and activity programs, as well as research centers that exclusively focus on gathering information about obesity. This method allows for a more accurate look at the community's response to the problem of childhood overweight and obesity, and what resources give a comprehensive program for its reduction. For purposes of this analysis, the second method of examining and collecting resources has been utilized.

Lead: There are four main categories of lead services: blood testing, treatment, remediation/abatement, and education/advocacy. Testing for Blood Lead Levels can occur in any doctor's office, clinic or lab. Not all locations possible were listed. Only those atypical locations that were known to provide this service were listed. The Healthy Kids Express also makes testing possible in locations other than hospitals. Many agencies have the Express come by occasionally for this reason. Treatment (chelation therapy) can only be provided in hospitals.

Education around lead is not typically its own separate program. Most of the places that provide testing or remediation services also will provide educational materials. However, a few agencies have funding (usually from the City of St. Louis) to provide formal education programs. The main advocacy organization is the Lead Prevention Coalition. Remediation/abatement is typically done through grants maintained by the City of St. Louis or County Government. The city governments also control any assistance funds available to property owners who meet income guidelines. There are some other private non-profit agencies that have major contracts and provide this service, notably Grace Hill.

In the city of St Louis, lead is a major focus for the city government, and the recently established Lead Safe St. Louis is the office that oversees all the grants and contracts for remediation and keeps track of blood testing numbers.

Asthma: Asthma is a medical condition and can be treated in any pediatrician or general practitioner's office. Asthma disproportionately affects minority populations. Very few hospitals or clinics have any specific treatment center or services in addition to traditional office visits. The Asthma Consortium, Asthma and Allergy Foundation, and the American Lung Association are the main advocacy organizations in the area and all have some direct programming. Information services are available to all, but the direct programming may be limited by location or capacity. Only resources that were specifically geared towards asthma were listed in the resource directory, i.e. not all clinics/doctors were listed.

There is no clear paradigm for assessing resources for asthma prevention. This may include looking at resources for improving housing conditions and increasing nutrition and physical activity.

Community Health Clinics: Children living in poverty frequently have inadequate access to quality medical care. It is often difficult for parents to find a primary care physician who will accept

Medicaid/MC+. Often, when such a resource is found, the pediatrician has limited the number of Medicaid/MC+ patients he or she will see, forcing the parents to take their children to health clinics that serve poor, and uninsured or underinsured families. Although these clinics provide a critical service in our community, children without access to a medical home lack continuous, coordinated health care, which compromises their overall health and well-being. This inventory of community health clinics fills the gap for families who do not have a medical home, yet need to ensure their children receive needed medical services.

Pediatricians and Pediatricians Accepting Medicaid: Due to HIPPA regulations, the Missouri Department of Health and Senior Services does not release the names and office addresses of physicians by specialty who work in the State of Missouri. However, VCR made every effort to compile the most comprehensive inventory of pediatricians possible by utilizing the following resources: the United Health Care provider directory, the St. Louis Pediatric Society list, and visiting 23 St. Louis area hospitals. The inventory of pediatricians is a compilation of these sources. In spite of our efforts, we could not be sure we included all of the pediatricians who practice in St. Louis City, St. Louis County, and St. Charles County in the inventory due to the obstacles presented by the HIPPA regulations.

To determine which pediatricians accept Medicaid/MC+, we used the provider lists from Mercy MC+, HealthCare USA, and Community Care Plus. A major shortcoming of this inventory is that pediatricians often have a limit as to how many Medicaid/MC+ patients their practice will accept due to the paperwork and reimbursement rates associated with the health plans. Even though a pediatrician appears on this list, if they have met their limit of how many Medicaid/MC+ patients they will accept, the pool of doctors that accept Medicaid/MC+ becomes even smaller for those seeking medical care with these pediatricians. If a pediatrician accepts Medicaid/MC+, it is noted along with the area of specialty they practice.

Dentists and Dentists Accepting Medicaid: To compile the list of dentists, we used the directories from the following health care plans: Mercy MC+, HealthCare USA, and Community Care Plus, as well as, the yellow pages. Included in this inventory are dentists who practice general dentistry as well as specialists including orthodontists and oral surgeons. If a dentist accepts Medicaid/MC+, it is noted along with the area of specialty they practice. However, dentists may also limit the number of patients they see who have Medicaid/MC+, forcing patients to access care at the dental clinics listed.

Hospitals with Pediatric Services: Vision for Children at Risk made contact with all 23 hospitals located in the three-county region to determine whether or not pediatric services were provided at each location. Because children can receive medical treatment in departments other than a pediatric ward, the hospitals that are included in our inventory provide medical services to children in one or more of the following settings: pediatric wards, emergency rooms, or maternity wards.

Gaps in Children's Health Resources

Using these resource inventories, VCR created maps of the resources available in each of these 12 categories and compared them to the needs of the community based on maps generated from the data collected for the 2004 risk assessment.

A surprising finding is that most of the resources addressing child health are located in the Most At Risk areas. While the finding varies by category, this shows that proximity to health resources alone is insufficient to address children's health needs. Clearly the resources now present are not adequate to get the job done, or the outcomes would not be as they are. The question remains as to why. It is not clear if the resources are inadequate or if they have insufficient capacity to deal with the scale of the needs in low-income communities.

At the same time, it appears that, even if capacity is not an issue, there are barriers to access preventing greater utilization of health resources. These have been documented in reports by the Regional Health Commission and others, and include lack of insurance, lack of financial resources, lack of transportation, cultural barriers, and fear. Referral practices by hospitals, clinics, and physicians should also be examined.

While the resource inventories identified available resources in 12 of the 42 categories, it appears that a more thorough inventory would yield a similar conclusion: it will take more than simply locating resources in the community to solve the problems of poverty and health access.

"...it will take more than simply locating resources in the community to solve the problems of poverty and health access."

Priority Children's Health Issues in the St. Louis Community

The number one issue to be addressed to improve health outcomes for children in metropolitan St. Louis is poverty. As noted in the literature and as demonstrated in the analysis using the SES Measure in this report, poverty is the strongest predictor of poor health outcomes for children.

As the analysis shows, however, the Most At Risk zip codes may or may not have sufficient resources to address negative health outcomes. In fact, whether or not resources are present does not seem to impact health outcomes for children in at-risk areas. This underscores the need to enhance access to the resources that do exist.

In addition to the impact of poverty on child health and the broad issue of access to health services, three major children's health issues were identified in this report that require regional attention. The three primary children's health issues are lead poisoning, obesity, and asthma. As discussed previously, all of these problems are most prevalent in low-income communities where children's health is compromised not only by poverty, but by environmental and community dynamics that compound these particular health problems. Of particular concern is the lack of good localized data related to these issues, either because it is not tracked or a good localized indicator has not been identified.

Finally, the disconnect between resource availability and health outcomes is one that has perplexed the researchers of this report. Many of the Most At Risk areas are also those with the most resources to address health problems. There is no clear explanation as to why this disconnect exists and how to best address it.

Related issues appear to include:

- **Awareness of available services and procedures on how to access them;**
- **Inability to afford services related to their cost and lack of health insurance;**
- **Service location and access; and**
- **Cultural sensitivity of service providers and language barriers.**

Also factoring into this issue is the question of capacity and utilization rates. It is difficult if not impossible to track the capacity of resources, particularly doctors or dentists, to serve at-risk populations. As noted earlier, a physician may accept Medicaid, but may cap the number of Medicaid patients accepted, and that limit may not meet community need.

It also may be the case that the sheer magnitude and complexity of health problems in the Most At Risk areas simply overwhelm available services.

In addition, there appears to be a lack of public health resources to address child health in a strategic and coordinated way.

Strategic functions for which there are frequently inadequate resources include:

1. ***Research;***
2. ***Public awareness;***
3. ***Service coordination;***
4. ***Planning for broad-based community action;***
5. ***Advocacy for needed resources; and***
6. ***Addressing service gaps through transportation and related strategies.***

D. Recommendations

Vision for Children at Risk hopes this report serves as the first step in ongoing efforts to comprehensively assess and strategically address child health needs in the St. Louis Metropolitan Area. Suggested follow-up includes:

1. ***Maintaining the capacity to assess child health on an ongoing basis.*** The first assessment provides a baseline "snapshot" that is useful only if ongoing analysis is conducted. There are several components to this ongoing research:

   - Identifying indicators and/or improving data collection strategies to better monitor key concerns related to child health in St. Louis for which data is currently unavailable. Support might be secured for ongoing research by the Saint Louis University School of Public Health and the medical schools of Washington University and Saint Louis University, conducted on selected cohorts of children to provide data on key health issues.

   - Further investigating strategic issues that emerged through this research. Specifically, why do some of the Most At Risk zip codes have positive health indicators, while others do not?

   - Completing and regularly updating the resource inventories. This report did not permit thoroughly detailing the more than 3,000 health services and programs operating in the three-county region. Assessing children's health resources and identifying service gaps is a critical need, but a more complex and challenging task than assessing child health risks.

   - Expanding the geography studied to include the entire MSA in order to provide a more accurate picture of the region as a whole.

2. ***Further investigating the mismatch between health outcomes and the presence of health resources in the Most At Risk areas.*** It is not clear if there are capacity issues or utilization concerns or both at play here. Further, it appears that cultural barriers and awareness of resources play a role in accessing services. Realizing the benefits of programs like First Steps and Nurses for Newborns requires initiative on the part of the family. It is unfortunate that more at-risk families are not using these services.

> **"The number one issue to be addressed to improve health outcomes for children in metropolitan St. Louis is poverty."**

"Involving a broader base of people beyond health-care professionals will require significant resources and partnerships in the community."

3. ***Developing strategies to measure, monitor, and address the most pressing health issues.*** As noted, poverty is the leading health issue for area children, but lead, asthma and obesity are all critical related issues that require community attention. All are multi-causal and require interrelated strategic approaches.

- *Asthma:* There is a need to track how many children are diagnosed each year, in addition to the number of related emergency room visits. Involving school districts in collecting data, such as the number of school days missed, would also be valuable.

- *Obesity:* Using the school nursing staff, data should be collected on the Body Mass Index (BMI) of children. Information on nutrition ought to be collected in addition to the data on the number of physical activity classes per week.

- *Lead:* The data collected on lead have been helpful in generating resources and community response. The challenge here is not only the scope of the problem but also the difficulty of mitigating it. Problems related to abatement efforts include limited financial resources and the time and follow-up required to contract out such work.

4. ***Emloying the resource maps and gap analysis to prioritize community needs.*** The results of this report will be shared with healthcare professionals, planners and policymakers in an effort to help motivate and shape community response to the critical children's health issues and communities of high need identified in the report.

5. ***Using the report as the platform for creating community action kits responding to identified child health concerns.*** This includes initiating a significant public education and engagement effort. As noted earlier, public outreach proved difficult for this study; involving a broader base of people beyond health care professionals will require significant resources and partnerships in the community.

6. ***Developing and implementing specific strategies for improving child health.*** Strategies should be developed in concert with community leaders, health care professionals and the broader public.

About Vision for Children at Risk

Vision for Children at Risk brings together people, organizations and resources to work regionally to improve the well-being of children across the St. Louis area, especially those whose fundamental life needs are going unmet. A nonprofit organization, Vision for Children at Risk is founded on the belief that all children deserve a healthy environment in which to grow, and that the health and well-being of children is vital to the overall viability and vitality of the region.

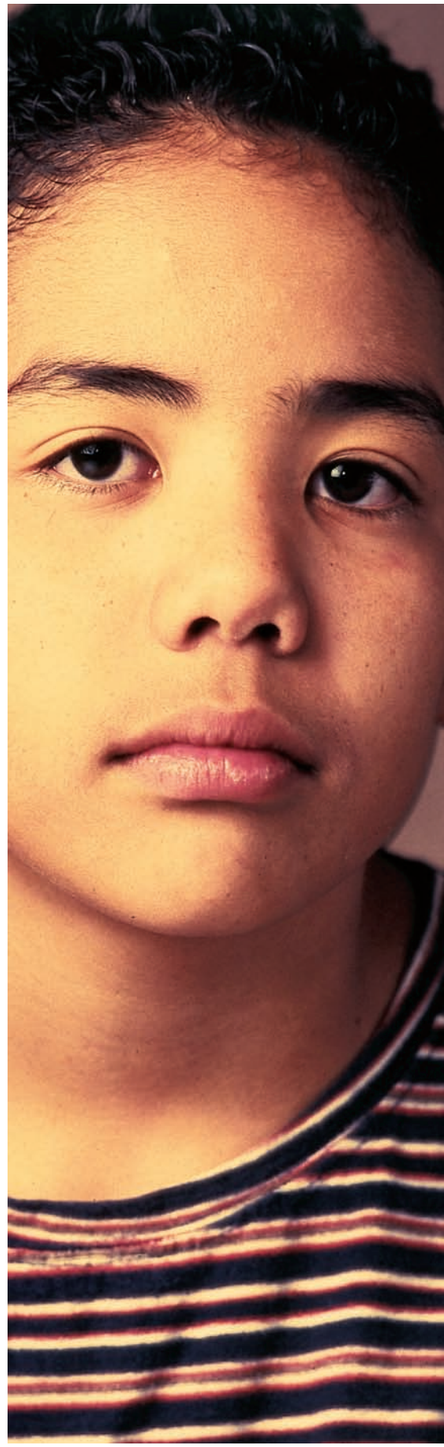
This report is an example of the research conducted by Vision for Children at Risk to assess risk and protective factors affecting St. Louis area children. This information is intended to provide the basis for the community to develop programs and policies addressing the priority needs of children. Other VCR research work includes the biennial Children of Metropolitan St. Louis report detailing the status of child well-being across the full range of factors affecting children.

Regional strategic action for children is carried out through the St. Louis Metropolitan Children's Agenda facilitated by Vision for Children at Risk. The Children's Agenda involves hundreds of children's agencies and community organizations working together voluntarily in strategic initiatives to address critical needs of St. Louis-area young people. The Children's Agenda details over 30 strategies covering the areas of:

- **Family support**
- **Early childhood development**
- **Maternal and child health**
- **Quality education**
- **Youth development and economic opportunity**
- **Safe neighborhoods and juvenile justice**
- **Advocacy and civic engagement**

Programs valued at more than $12 million have been developed through the Children's Agenda and impact tens of thousands of children annually.

Encouraging the St. Louis community to "Invest in Kids" is the third major thrust of Vision for Children at Risk. VCR works to build community support for children's initiatives by engaging political, civic and business leadership. The key strategic message is that investing in programs and services for children is essential to the overall health and quality of life of the St. Louis region.



Full Data Tables and Maps Available

Complete data tables and maps of child health risks and resources produced in this Child Health Risk and Resource Assessment are available for viewing, along with a description of the report's analytic technique. This information may be obtained by visiting the Vision for Children at Risk Web site, www.visionforchildren.org, or the Missouri Foundation for Health Web site, www.mffh.org. Paper copies may be obtained by calling Vision for Children at Risk at (314) 534-6015.

Following is a list of the indicators and resources for which tables and maps are available:

Child Health Risk Factors

Indicators of Socio-Economic Measure
- Median Household Income
- Percent of Households Headed by Single Mothers
- Unemployment Rate
- Percent of Families with Children Under 18 Living Below the Federal Poverty Level
- Percent of Births to Mothers with Less Than 12 Years of Education

Indicators of Age and Ethnicity
- Percent of Population Under Age 5
- Percent of Population Under Age 18
- Percent of Population Under Age 25
- Percent of Population Classified as Minority

Indicators of Healthy Lifestyle
- Percent of Births to Teenage Mothers
- Percent of Births to Mothers who Smoked During Pregnancy
- Percent of Children who Tested Positive for Gonorrhea or Chlamydia
- HIV/AIDS Rate per 1,000 Children Under Age 25
- Percent of Child Deaths Due to Motor Vehicle Accidents
- Percent of Child Deaths Due to Suicide

Indicators of Environmental Risks
- Percent of Children Tested Under Age 6 with Elevated Blood Lead Levels
- Number of Homes Built Prior to 1980

Indicators of Safety and Security
- Child Abuse/Neglect Rate per 1,000
- Percent of Child Abuse/Neglect Reports that Required Follow-Up Services
- Percent of Child Deaths due to Homicide
- Percent of Emergency Room Visits Due to Injuries or Poisoning

Indicators of Special Life Needs and Circumstances
- Percent of Births to Married Parents
- Rate of Children Living in Alternative Care
- Percent of Children Under Age 5 Active in the First Steps Program
- Percent of Emergency Room Visits Due to Asthma
- Number of SIDS Deaths
- Percent of Births with Low Birth Weights
- Percent of Births that Are Premature
- Five-year Infant Mortality Rate

Indicators of Community Supports
- Licensed Child Care Capacity
- Average Weekly Market Rate of Licensed Child Care
- Licensed After-School Child Care Capacity
- Average Market Rate of Licensed After-School Child Care
- Percent of Children Under Age 18 Receiving TANF
- Percent of Children Under Age 18 Receiving Food Stamps
- Percent of Births to Mothers Receiving Food Stamps
- Percent of Births to Mothers Receiving WIC

Indicators of Access to Health Care
- Percent of Births with No or Inadequate Prenatal Care
- Preventable Hospitalization Rate per 1,000 Children Under Age 15
- Percent of Children Under Age 18 Receiving Medicaid/MC+
- Percent of Newborns who Received Six or More Visits from the Nurses for Newborns Program
- Percent of Births to Mothers Receiving Medicaid

Child Health Resources

Resources Addressing Health Issues
- Services that Address Poverty and Basic Life Needs
- Mental Health Services
- Obesity Services
- Lead Resources
- Asthma Services

Resources Providing Access to Health Care
- Community Health Clinics
- Pediatricians
- Pediatricians Accepting Medicaid
- Dentists
- Dentists Accepting Medicaid
- Community Health Clinics Providing Dental Services
- Hospitals with Pediatric Services

[1] **See as examples Lewit, Eugene M.; Donna L. Terman, and Richard E. Behrman,** *Children and Poverty: Analysis and Recommendations* (*Children and Poverty,* **Volume 7, Number 2 – Summer/Fall 1997); and Hillis, Susan D., PhD, MS, Robert F. Anda, MD, MS, Shanta R. Dube, MPH, Vincent J. Felitti, MD, FACP, Polly A. Marchbanks, PhD and James S. Marks, MD, MPH,** *The Association Between Adverse Childhood Experiences and Adolescent Pregnancy, Long-Term Psychosocial Consequences, and Fetal Death* (*PEDIATRICS* **Vol. 113 No. 2 February 2004, pp. 320-327).**

[2] **Oberg, Charles , MD, MPH,** *The Impact of Childhood Poverty on Health and Development* (*Healthy Generations, Volume 4, Issue 1, May 2003,* **Maternal and Child Health, School of Public Health, Division of Epidemiology, University of Minnesota)**

[3] **Proscio, Tony,** *Healthy Housing, Healthy Families: Toward a National Agenda for Affordable Healthy Homes* **(The Enterprise Foundation and the National Center for Healthy Homes, January 2005).**

Vision for Children at Risk

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