Risk Factor Prevalence in Marion County

A Report to the
Early Intervention Planning Council

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Introduction

In order to make educated decisions about programming and focus of intervention efforts, estimates regarding the prevention needs of Marion county youth must be assimilated and analyzed. Such estimates would indicate not only the children currently receiving services but also the children whose early childhood experiences put them at greater risk for needing services later in life. Because many such risk factors and experiences do not manifest themselves until later in life, and because these risk factors are not always visible to service providers until they are acute, systemic prevention programs and early intervention for children with high risk indicators can be challenging to implement. The effects of such efforts, however, have been proven effective and, we believe, is the best hope for solving some of the downstream effects which continue to challenge our county.

Because estimates of risk at very early stages of childhood development are rare and differ significantly from community to community, we have here provided preliminary draft estimates regarding the number of children and youth in each age category that may be at elevated risk for juvenile delinquency and other unfavorable behaviors, based on local community data.

We emphasize that all children are a vulnerable population and require positive action to help them succeed in life. The level of intervention that deals with all children is *systemic prevention,* which involves implementation of programs for all children and families. The focus of interest in the population estimates provided here, however, focus on the second level of intervention, *early intervention*. The policy focus for early intervention is children and youth who have had experiences that make them particularly vulnerable to downstream problems. The estimates provided here are derived from information we have regarding the third level of intervention, *progressive intervention/treatment*, which focuses on children and families that continue to need assistance, and about whom more information is available.

The estimates we provide are based on a detailed review of empirical research that shows links between a variety of risk factors and juvenile delinquency[1]. This review resulted in a detailed database which includes risk factors, age of vulnerability to risk factor, and supporting research, and is available for your use. The age categories presented are based on careful literature review and the recommendation of a panel of experts assembled for the purpose of advising the EIPC.

The figures are preliminary draft estimates only, and are intended for use as a ***conceptual tool only*** in considering populations of at-risk children and youth in Marion County. We will continue to revise these estimates as new data become available and will reissue this report. Data measures for children with downstream issues were identified, and simple rate calculations were used to determine what percent of children in each preceding or subsequent age group are likely to develop this particular downstream issue. This method is relatively intuitive. In essence, it takes prevalence rates among the whole population and extrapolates them backward to determine how many children in any given age group are likely to develop the problem, if all rates stay the same and other population risk factors stay constant. The purpose of these numbers is to provide a tool for calculating the level of unaddressed need among each specific age group.

[1] Benson, J. (2006). *Risk and protective factors for youth at risk in Marion County: A literature review.* Indianapolis, IN: Center for Urban Policy and the Environment.

Methods

Data measures for risk factors were identified, where possible, at the county level. Where rate data was not available for Marion County, state-level data and in few cases, national-level data were used as proxies. Population risk rates were derived using occurrence in populations where risk factors are observed. Where diagnosis/treatment was the only available data for risk factors, peak diagnosis rates were used. Simple rate calculations were performed for each age population. Unless age-based data were available, age clustering and prevalence were assumed constant.

The simplicity of the rate calculations used in these estimates results in some inaccuracies. These inaccuracies do not diminish the utility of the tool in conceptualizing the prevention and early intervention needs of the children in Marion County, but these estimates should not be considered durable and reliable. One assumption of these estimates is that rates of occurrence do not change over time. We know this to be false.

If rates of a particular risk factor have been *falling* over time, then these estimates are *conservative* for populations that are older than the target age group. If rates of a particular risk factor have been *rising* over time, then these estimates are *inflated* for populations that are older than the target age group. Risk rates for populations too young to be faced with a particular experience (such as teen pregnancy) are included, showing the number of children expected, through whatever combination of life events, to be at risk for that particular factor, assuming constant rates over time. These estimates assume that exposure to a particular experience or risk factor (such as abuse or low birth weight) remains a risk factor throughout childhood and early adulthood.

It is important to recognize that many, if not most, of the factors listed here are factors that have high comorbidity rates. That is, some children are likely to have several of these risk factors at once. Many of these risk factors increase the susceptibility of children to other of these risk factors, including delinquency. This data does not represent comorbidity rates or clustering that occurs among factors. That is, there is expected to be great overlap between the groups of children at-risk for developing each individual downstream problem.

Adverse Childhood Experiences Study

During the time period of the 1980s and early 1990s information about risk factors for disease had been identified. However, it was also clear that risk factors were not randomly distributed in the population: Persons who had one risk factor tended to have one or more others, as is the case with the risk factors of interest to the EIPC. The Adverse Childhood Experiences (ACE) study, like the EIPC, was interested in how early childhood experiences or risk factors combined to cause downstream effects. The primary ACE study question is, "If risk factors for disease, disability, and early mortality are not randomly distributed, what influences precede the adoption or development of them?"

By providing information to answer this question, researchers hoped to provide scientific information that would be useful for the development of new and more effective prevention programs. Our question is fundamentally similar: What influences and/or risk factors precede the development of juvenile delinquency and other adverse behaviors?

Risk factors of interest in the ACE study are also factors that increase risk of juvenile delinquency, such as abuse, neglect, exposure to violence, and other factors of interest to the EIPC. We therefore present some information from the ACE Study to provide additional context for the risk rate estimates, and to give some idea of the overlap among risk factors. The indicators used in the ACE study include self-reported measures of emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, exposure to violence in the home, exposure to substance abuse, mental illness in the home, parental separation or divorce, incarceration of a household member, and some other medical indicators. These are fundamentally similar to the kinds of early risk factors that we expect to be mitigated by prevention and early intervention efforts, and to require additional protective factors and treatment in order to help prevent downstream effects of these upstream experiences. There are some drawbacks to using the ACE information—first, the ACE study does not include all indicators in which we have interest. Second, the measurement and definition of ACE indicators differ from available data for Marion County. ACE study measures are also self-reported, and therefore are likely to differ significantly from the agency reporting rates to which we have immediate access. Nonetheless, the ACE overlap information is useful for interpreting the risk factor information we have collected. The number of observations in the ACE study is also very high, which increases confidence in the external validity of their overlap measures.

ACE Overlap Figures
N=17,337
36.1 percent reported **no** adverse childhood experiences.
26.0 percent reported **1** adverse childhood experience.
15.9 percent reported **2** adverse childhood experiences.
9.5 percent reported **3** adverse childhood experiences.
12.5 percent reported **4 or more** adverse childhood experiences.

Cumulative ACE Figures
36.1 percent reported **no** adverse childhood experiences.
63.9 percent reported **1 or more** adverse childhood experiences.
37.9 percent reported **2 or more** adverse childhood experiences.
22.0 percent reported **3 or more** adverse childhood experiences.
12.5 percent reported **4 or more** adverse childhood experiences.

Future Directions

We believe the estimates and information provided here is a useful starting point for recognizing the upstream need for prevention and early intervention programs at various stages of childhood development. We hope in the future to provide even more accurate, detailed, and useful information including the use of deidentified agency-level data to develop more accurate estimates of the current need at the intervention and treatment level of service. We hope also to develop more sophisticated estimates regarding comorbidity in risk and overlap in treatment, more detailed information about which risk factors cluster with which other risk factors, Marion county-specific demographic detail including age, race, and gender clustering, and some systematic comparison of risk rates to rates of observation and treatment.

Table 1: Rate-based Population Risk Estimates

Risk Factor	%	Total	Perinatal	Pre-school	Primary school	Middle school	High school	Young adult	Notes
			0	1-4	5-9	10-14	15-19	20-24	
Total Marion County population by age	100	308,000	14,701	56,676	62,324	63,430	55,702	55,167	1*
BIRTH RELATED									
No first trimester prenatal care	24	72,688	3,469	13,376	14,708	14,969	13,146	13,019	2**
Nonmarital births	49	151,228	7,218	27,828	30,601	31,144	27,350	27,087	2
Low birthweight	9	27,103	1,293	4,987	5,485	5,582	4,902	4,855	3
Single mother/No high school diploma	8	24,638	1,174	4,534	4,986	5,074	4,456	4,413	2
Mother used drugs in month before birth	9	26,180	1,250	4,817	5,298	5,392	4,735	4,689	4
Children born to teen mothers	7	20,328	970	3,741	4,113	4,186	3,676	3,641	3**†
POVERTY									
Children living in poverty	18	56,365	2,690	10,372	11,405	11,608	10,194	10,096	3
Free lunch/textbook eligible	38	116,116	5,542	21,367	23,496	23,913	21,000	20,798	5
ACADEMIC									
Delayed graduation	48	147,839	7,056	27,204	29,916	30,446	26736	26,480	3
Failure to graduate high school	11	33,572	1,602	6,178	6,793	6,914	6,072	6,013	5
Suspensions and expulsions	33	101,332	4,837	18,646	20,505	20,868	18,326	18,150	5††
MENTAL HEALTH									
Diagnosed learning disability	7	22,483	1,073	4,137	4,550	4,630	4,066	4,027	6‡
Diagnosed emotional disturbance	3	7,700	368	1,417	1,558	1,586	1,393	1,379	6‡
Suicidal	13	40,040	1,911	7,368	8,102	8,246	7,241	7,172	7
Attempted suicide in past 12 months	8	25,872	1,235	4,761	5,235	5,328	4,679	4,634	7
ALCOHOL AND DRUG USE									
Past month illicit drug use	21	64,680	3,087	11,902	13,088	13,320	11,697	11,585	8
Binge drinking	29	89,012	4,249	16,379	18,012	18,331	16,098	15,943	8
Lifetime use of cocaine	8	23,716	1,132	4,364	4,799	4,884	4,289	4,248	8
ABUSE/NEGLECT									
Substantiated abuse or neglect	2	4,620	221	850	935	951	836	828	9†
Experienced abuse or neglect	5	14,667	221	1,071	2,006	2,957	3,792	4,620	9

Table 1: Rate-based Population Risk Estimates (continued)

Risk Factor	%	Total	Perinatal	Pre-school	Primary school	Middle school	High school	Young adult	Notes
VIOLENCE									
Carries weapon	19	59,136	2,823	10,882	11,966	12,179	10,695	10,592	7
carries gun	6	17,864	853	3,287	3,615	3,679	3,231	3,200	7
Physical fighting	36	110,572	5,278	20,347	22,374	22,771	19,997	19,805	7
Dating violence	9	28,336	1,352	5,214	5,734	5,836	5,125	5,075	7
DELINQUENCY									
Arrest rate	2	6,560	313	1,207	1,328	1,351	1,186	1,175	10†
One or more risk factors (ACE study rate)	64	196,812	9,394	36,216	39,825	40,532	35,594	35,252	11
Four or more risk factors (ACE study rate)	13	38,500	1,838	7,085	7,791	7,929	6,963	6,896	11

Red Text: Original data, rate, or estimate
Orange Text: Expected population to be at risk for developing this factor
Blue Text: Expected population to have experienced this risk factor

Table 2: Notes and Sources

Reference Number	Year	Data Level	Source
1	2004/2003	County	US Census Bureau (population estimates) /IYI Kids Count (birth rate)
2	2003	County	IYI Kids Count
3	2004	County	AECF CLIKS Data
4	2006	National	NDIC
5	2004	County	IYI Kids Count
6	2003	County	Marion County Public Schools
7	2005	National	CDC High School Youth Risk Behavior Surveillance Report
8	2004	State	Indiana Prevention Resource Center
9	2004	County	Indiana Department of Child Services Demographic Trends Report
10	2006		CDC Adverse Childhood Experiences Study
11	2004	State	Indiana Criminal Justice Institute

* Perinatal population estimate is based on total live births. Preschool is total for 0-4 minus total live births.
** Assumes single births
† Converted from per thousand measurement
†† Used school population total (all schools) from IYI Kids Count data in determining rate
‡ Treated at school only

Resources

Adverse Childhood Experiences Study (2006). Electronic resource accessed on October 17, 2006 from the Centers for Disease Control at http://www.cdc.gov/nccdphp/ace/index.htm

Integrating Mental Health in Schools: Schools, School-Based Centers, and Community Programs Working Together. A Center Brief. (2000). Health Resources and Services Administration: Washington, D.C.