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**POPULATION VARIABLES SELECTED BY *EARLY ON*[®] THAT
MAY INFLUENCE THE NUMBER OF CHILDREN SERVED IN THE
MICHIGAN EARLY CHILDHOOD SYSTEM**

Estimated Prevalence Report

November 2006

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Introduction

Michigan's *Early On*[®] Redesign Team within Michigan's early intervention system identified estimated prevalence as a critical issue to be addressed within the scope of the redesign process. In order to complete the redesign process, it is critical to understand the potential number of vulnerable infants and toddlers that could be eligible for Early On and the resources, both personnel and financial, that will be needed to appropriately serve those infants and toddlers. In addition to the redesign process, an additional impetus for this study was the requirement of the Office of Special Education Programs (OSEP) that states evaluate the current percentage of children in service and establish a target to be served. Based on the December 1, 2005 child count, states serve an average of 2.40% of all children age zero to three in Part C systems. While some states have believed that the national average was the target for all states, OSEP has been very clear that it simply represents the number of children in service and does not represent what should be. The OSEP directive is that each State must establish a unique target based on specific state conditions with consideration for each state's eligibility.¹

The importance of estimating how many children should be served (estimated prevalence rate) in a state Part C system cannot be understated. This information is fundamental for:

- Benchmarks and planning;
- System design;
- Financing;
- Identifying resource and support needs;
- Quality assurance;
- Equity;
- Well being of children; and
- Long and short term service gap identification

¹ State Performance Plan Indicator 6: Percent of infants and toddlers birth to 3 with IFSPs compared to: A. Other States with similar eligibility definitions; and B. National data. (20 U.S.C. 1416(a)(3)(B) and 1442) " **Measurable and Rigorous Target**"

Although the question of the exact percentage of children that should be served is quite complex and is truly without a clear or definitive answer at this point in time, the process that Michigan has engaged in will do much to further the discussion and the understanding of this issue and will help Michigan plan appropriately for future growth.

This report is composed of five sections:

- a) Section 1 provides a framework for the discussion of estimated prevalence;
- b) Section 2 reviews the status of *Early On* and the work of the Eligible Population Task Force;
- c) Section 3 describes a modeling approach for estimating prevalence;
- d) Section 4 identifies other uses of the information; and
- e) Section 5 documents how Michigan *Early On* will use this information.

This report should be used as a springboard for discussion at the state and community level and to support the development of the local planning process for both *Early On* and the broader early childhood system in Michigan

Section 1: The Concept of Estimated Prevalence

The premise of the estimated prevalence model used for Michigan is rooted in the notion that all **communities** within a state Part C system should serve the same **percentage of children except for** accounting (**indexing**) for community differences in **population characteristics** that are likely predictors of participation in early intervention. There are a number of other factors that affect the success of locating and identifying eligible children (Child Find), such as conducting the enrollment process (evaluation and assessment), and ensuring the provision of needed services including service coordination (the IFSP² process). These factors might include:

- Funding;
- Local system structure and visibility;
- Availability of providers; and
- Community knowledge.

These factors, among others, constitute the items to be reviewed if the number of children identified and served falls short of an estimated prevalence projection.

Components of the Estimated Prevalence Model

The components of the estimated prevalence model are identified in Figure 1 and are detailed below:

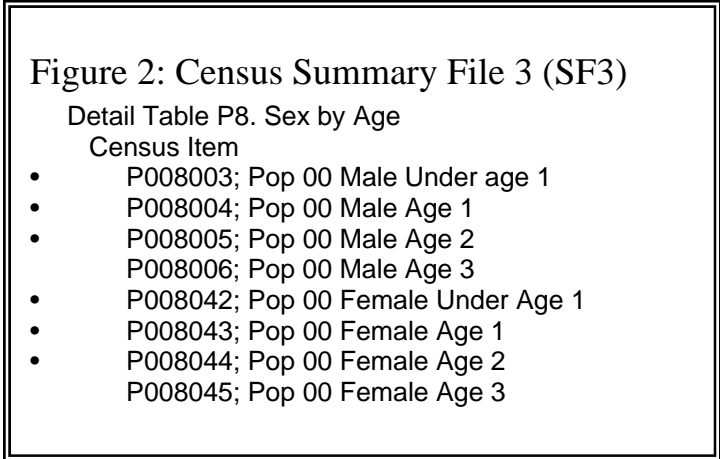
1. Community: A geographic basis to define community is necessary and must be universal across all components of the model. The ability to break the geographic boundaries to the lowest possible level is sometimes the most helpful in understanding the data, particularly for those providing service at the local level.

- Figure 1: Components of the Model
1. Community
 2. Percentage of children currently in service
 3. Population variables that are predictors of participation in early intervention
 4. Computation of an index
 5. Estimated prevalence projection

² IFSP: Individualized Family Service Plan

Most Early On data is readily available at what is the Intermediate School District (ISD) level. However other state and national data that are helpful in understanding community differences are reported at the county level. To accommodate this prevalence study, county data was combined to approximate the ISD service areas

2. Percentage of Children served: The first step in determining the percentage of children served is to establish the age specific population. Age specific census data, generally updated in the fall of each year, creates the population count for the preceding year. The population is computed by summing each relevant age specific Census item listed in Figure 2. The Census uses distinct Federal Information Processing Codes (FIPS) codes at a county level. Population counts are tallied for the birth to 3 age groups and the birth to age 4 groups listed. These counts are used as the denominators for the percentage of children served. The total for Under Age 1 through Age 2 makes up the denominator when using the Child Count (one-day or “point



in time”). The total for Under Age 1 through Age 3 is used when looking at an aggregate count over the year. The one-day or “point in time” count is typically performed on December 1st of each year to coincide with the federally mandated Child Count reporting requirement for all

Part C systems.

The percentage of children served is computed by dividing the number of children age birth to three in service by the total potential birth to three population. Since no benchmark exists for what that percentage to be served is, the working assumption of the model is that the percentage of children in service should be equivalent to the communities currently serving at the highest level. It is essential to review the eligibility determination practices and other relevant information for the communities serving at the highest levels. This establishes that the children in service meet the current

eligibility definition. It is also helpful to hear if the community believes that more children remain to be served.

3. Population Variables: Two groups of variables, namely social risk factors and health risk factors are associated with potential eligibility for Part C. States identify which variables are most likely predictors of participation in early intervention based on the state's eligibility criteria. These variables are summed to create a community total representing the multiple risk factors.

4. Indexing: An index is created by dividing the percentage of children in service by the sum of selected variables, then identifying the highest number. This highest index value is then applied universally to each community variable total. For the community serving as the universal index, the result, when multiplied by the birth to three population, should yield the same as the number of children currently in service. Careful review of the communities serving as the basis for the universal indexes should be done to establish credibility for the number or numbers if several communities have percentages that are relatively close. A review might include:

- o A historical review to see if the high percentage is an anomaly or is an established pattern of service.
- o An interview with those responsible for the Child Find and eligibility determination processes to judge if the procedures used are consistent across communities, and to identify what may be different between communities as well.

For the Early On study, discussions took place to validate the number of children served and to assure that no issues of over-identification existed. The questions that formed the basis of the discussions are listed in Figure 3. The number of children served for the community or communities whose numbers are used for indexing is important since a key assumption within the model is that all other community estimates are computed on that number. If the penetration or enrollment rates are among the highest levels in the state, it is important that issues of over identification do not exist. Conversely, if more children should be served in the communities used in the index, the model results will be weaker and project a lower level of children to be served than

what should be. The items listed below and clustered by category were used in formal interviews with five communities in Michigan.

As a result of the discussions, several common characteristics emerged to describe success factors attributed to the Michigan communities serving at the highest levels and include:

- a. Small community;
- b. The person and/or the organization are well known by the physician community;
- c. Communication back to the referral source about the outcome of the referral exists;
- d. Stable program; and
- e. Longevity of the primary contact person.

Figure 3: Interview Discussion Items

Referral

- Is there a broad array of referral sources?
- What are the referral patterns?
- How aggressive is the child find effort?
- What kind of training occurs for potential referral sources?
- How do you examine/review that over identification of children is not playing a part in the number of children being served?
- What is the ratio of children referred to the number of children actually eligible?

Eligibility Determination

- Describe the process of determining child eligibility.
- Who is primarily responsible for determining eligibility?
- Is a standardized process for eligibility determination used?
- What kind of training occurs for persons determining eligibility?
- How often is informed clinical opinion used?

Finance

- Are there pockets of special considerations?
- What are the service patterns?
- Financial considerations?
- Other community partnerships?

Section 2: The Status of *Early On* and the Work of the Eligible Population Task Force

Michigan's current definition of eligibility for Part C is detailed in Figure 4. Unlike many states, Michigan has not specified a level of delay required for eligibility. With this "broad" definition of eligibility, Michigan ranks 28th overall in the percentage of the birth to three population served. Michigan served

Figure 4: Michigan Eligibility Criteria

Developmental Delay

(A) Children who are developmentally delayed are those from birth through age two years whose development is delayed in one or more of the following areas:

- (1) Cognitive development;
- (2) Physical development, including vision and hearing;
- (3) Gross and fine motor development;
- (4) Communication development;
- (5) Social or emotional development; and/or
- (6) Adaptive development.

Established Conditions

(A) Children with established conditions are those from birth through age two who have a diagnosed physical or mental condition that has a high probability of resulting in developmental delay.

(B) The categories of established conditions are (but not limited to):

- (1) Chromosomal anomaly/genetic disorder;
- (2) Neurological disorder;
- (3) Congenital malformation;
- (4) Inborn error of metabolism;
- (5) Sensory disorder;
- (6) Atypical developmental disorder;
- (7) Severe toxic exposure;
- (8) Chronic illness; and
- (9) Severe infectious disease.

2.20% of the birth to 3 population in 2005.

Comparisons of the percentage of infants and toddlers served within the Michigan Part C system, shown in Table 1, illustrate the variation between communities. Within the overall 2.16% of children in service for Michigan in 2004, the low percentage of .85% is in the Oakland ISD and the high is 5.48% at Gogebic-Ontonagon ISD.

The differences in the Michigan enrollment are consistent with the research of Dunst and Hamby³ that eligibility alone does not account for the difference in percentage of children in service.

³ Dunst, CJ; Hamby, DW; States' Part C Eligibility Definitions Account for Differences in the Percentage of Children Participating in Early Intervention Programs; Snapshots; Volume 1, Number 4, September 2004

Table 1: Percentage of Children in Service For Michigan ISDs on 12-1-2004			
Within 1 standard deviation of the mean		Below 1 standard deviation of the mean	
Allegan County ISD	3.7	Alpena-Montmorency-Alcona ESD	1.60
Berrien County ISD	3	Barry ISD	1.69
Branch ISD	3.5	Huron ISD	1.45
Calhoun ISD	2.74	Mecosta-Osceola ISD	1.74
Charlevoix-Emmet ISD	2.39	Oakland ISD	0.85
Clare-Gladwin ISD	2.72	Oceana ISD	1.35
Clinton County RESA	2.75	St. Clair County ISD	1.41
COOR ISD	2.7	Tuscola ISD	1.74
COP ISD	2.21	Washtenaw ISD	1.64
Copper Country ISD	2.31	Wayne County RESA	0.87
Eastern Upper Peninsula ISD	2.04		
Eaton ISD	2.32		
		Above 1 standard deviation of the mean	
Genesee ISD	2.12	Bay-Arenac ISD	4.22
Gratiot-Isabella RESD	3.9	Delta-Schoolcraft ISD	5.41
Iosco County ISD	3.77	Dickinson-Iron ISD	4.1
Jackson County ISD	2.84	Gogebic-Ontonagon ISD	5.48
Kalamazoo Valley ISD	2.16	Hillsdale County ISD	5.32
Kent County ISD	2.49	Ingham ISD	4.13
Lapeer County ISD	3.15	Ionia County ISD	4.25
Lenawee ISD	1.83	Midland County ESA	4.74
Lewis Cass ISD	3.77	Monroe County ISD	4.27
Livingston ESA	2.03	Ottawa Area ISD	4.09
Macomb ISD	1.91	Saginaw ISD/ERC	4.33
Manistee ISD	3.47	Van Buren ISD	4.36
Marquette-Alger ISD	3.27		
Mason-Lake ISD	2.47		
Menominee County ISD	3.47		
Montcalm Area ISD	3.65		
Muskegon Area ISD	2.77		
Newaygo ISD	2.16		
Sanilac ISD	2.55		
Shiawassee RESA	2.78		
St. Joseph County ISD	2.16		
Traverse Bay Area ISD	3.41		
Wexford-Missaukee ISD	3.56		

The service areas on the left side of the chart are those where the percentage of enrolled children is within 1 standard deviation (S.D.) from the mean (n=35 or 61%). The service areas on the top right represent communities below 1 S.D. from the mean; the communities listed on the bottom right (are more than 1 S.D. from the mean.

It is important to think about why the differences in the service areas might exist. The groupings around standard deviation help us to know what might be considered within a more normal range, identifies "outliers" and often points us to questions that are helpful in getting to

the "story behind the story." Looking at this data on an annual basis would be a valuable activity for stake-holders in the Michigan Part C system.

In May 2005, a stakeholder group, identified as Michigan's Eligible Population Task Force, was formed and began working with Karleen Goldhammer and Maureen Greer, national consultants for this project.

The Eligible Population Task Force met several times to:

1. Understand the concept of estimated prevalence;
2. Understand possible models for predicting an estimated prevalence;
3. Work with a model based on appropriate and available information;
and
4. Review the outcomes within the context of Michigan's Part C system.

The Task Force was charged to review the estimated prevalence work and recommend to the Leadership Team and the State Interagency Coordinating Council (SICC), the population variables that should be incorporated into a formula for estimating the percentage of children that may have a developmental delay and could potentially be eligible for *Early On*.

The Eligible Population Task Force reviewed the variables included identifying some of the factors that make some variables more appropriate for use than others. The Task Force agreed to the following principles when selecting the model variables.

- Population-based rather than participatory counts. For example, birth statistics should rely on Vital Statistics information where the source is all births, meaning that the information is a true prevalence factor. This is different from the number of children participating in early intervention since this number only represents the number of children found.
- The information should be readily available with a long history of collection. This ensures some stability in the information and should facilitate trend analysis and reliability.
- The quantity of information for both the numerator and denominator need to be sufficient enough in size to be statistically reliable. If there are low population numbers within the county areas, it might be better to consider a variable with three (3) to five (5) year averages and information with more occurrences.

The variables listed in Table 2 were identified by the Task Force for possible inclusion in the Michigan model.

Identifiers	County FIPS code
	County name
	ISD Code
Michigan Natality statistics	% of births to teen parents
	% of births to women with < high school education
	% of births to women >35
	% of births to women who smoked
	% of births to unmarried women
	% of births that were low birthweight (< 2500g)
	% of births that were very low birthweight (< 1500g)
	% of births that were preterm (<37 weeks)
	Rate/1000 for infant mortality
CPS data	% population aged 0-4
	# of substantiated abuse/neglect CPS cases (meeting CAPTA criteria)
	Rate/1000 of substantiated CPS cases
	Rank for rate of CPS cases
Other descriptive data	Rate/1000 of live births with reported birth defects
	% of 0-18 year olds insured by Medicaid
	% of 0-18 year olds insured by MICHild (SCHIP)
	% of children aged 0-17 living in poverty
Ethnicity	% White
	% Black or African American
	% Native American/Alaskan
	% Asian
	% Hawaiian/Pacific Islander
	% of Hispanic/Latino origin
<i>(Note: data is from 2003 unless otherwise specified)</i>	

The Eligible Population Task Force requested additional analysis regarding the correlations between the proposed variables. In addition, they requested that a stepwise regression analysis with the proposed variables be performed. These requests presented challenges such that neither could be done. The analysis group did find several articles⁴ suggesting that more variables might

⁴Bravemant, P MD, MPH, Cubbin, C., PhD, Egerter, S., PhD, Chideya, S., MD, MPH, Marchi, K., MPH, Metzler, M., RN, Posner, S., PhD (2005). *Socioeconomic Status in Health Research: One Size Does Not Fit All*. JAMA, December 14, 2005—Vol 294, No. 22.

in fact make sense. This is particularly true when looking at socioeconomic variables in Health Care Research. An article by Bravenmane, et al, published in the Journal of the American Medical Association in December 2005, suggests that researchers provide a justification for why one variable was selected over another. Based on the literature review, the analysis group identified that:

- Different socio-economic measures cannot be assumed to be interchangeable
- The correlations are generally not strong enough to justify using education as a proxy for income (or vice versa)
- The association between racial/ethnic groups and health outcomes/indicators can depend on which socio-economic measures are used as covariates;
- While standard measures may not reflect important and relevant aspects of SES, racial/ethnic differences are likely to reflect unmeasured socioeconomic differences; and
- Birth weight and gestation are far from perfectly correlated and that both data sets are useful in assessing newborn prognosis.

Association between measures of Socioeconomic Status and Low Birth Weight, Small for Gestational Age, and Premature Delivery in United States: National Center for Health Statistics, Office of Analysis and Epidemiology, 1993
Low birth weight and Intrauterine Growth Retardation: From data to action: CDC Public Health Surveillance for Women, Infant and Children

Section 3: The Modeling Approach Recommended for the Michigan *Early On* System

After reviewing all of the research, The Eligible Population Task Force recommended the use of six (6) different variables identified in Table 3.

Poverty	Source: Bureau of the Census, Small Area Income Estimates; Poverty rate children 0-17 (2002)
Low Birthweight (< 2500 grams)	Natality statistics from Michigan 2003 resident birth files
Mother < High School education at time of child's birth	Natality statistics from Michigan 2003 resident birth files
Birth Defects	Birth Defects Cases among Resident Live Births - Cases Diagnosed within 2 years of Birth by Residence County and Birth Year; Michigan Resident Birth Cohorts - 1999 through 2002
Preterm birth (< 37 weeks)	Natality statistics from Michigan 2003 resident birth files
Race (non-white population)	Ethnicity - US Census 2000 (http://factfinder.census.gov/servlet/GCTTable?_bm=n&_lang=en&mt_name=DEC_2000_PL_U_GCTPL_ST2&format=ST-2&_box_head_nbr=GCT-PL&ds_name=DEC_2000_PL_U&geo_id=04000US26)

Data by county was re-computed for comparative purposes to approximate ISD boundaries. Data for all six variables by ISD are included in Table 4.

Service Area	Poverty Index 2002	Low Birth Weight 2003	<12 Yrs Education 2003.	BDR99 99-02	Preterm Birth 2003	Race/Ethnicity 2000
Allegan County ISD	9.9%	7%	15.70%	4.4%	9.51%	6.53%
Alpena-Montmorency-Alcona ESD	17.9%	7.46%	14.24%	5.5%	11.19%	1.79%
Barry ISD	9.0%	6.90%	14.90%	4.5%	10.99%	2.61%
Bay-Arenac ISD	13.8%	7.78%	16.60%	6.2%	11.26%	5.00%
Berrien County ISD	17.5%	8.60%	22.40%	2.9%	11.14%	20.31%
Branch ISD	15.0%	5.40%	27.00%	4.6%	7.34%	6.63%
Calhoun ISD	16.2%	8.30%	24.40%	3.7%	10.57%	16.07%
Lewis Cass ISD	15.8%	8.90%	26.10%	3.5%	11.48%	10.81%
Charlevoix-Emmet ISD	10.3%	5.44%	9.76%	4.7%	7.44%	4.77%

Table 4: Community Variables						
Service Area	Poverty Index 2002	Low Birth Weight 2003	<12 Yrs Education 2003.	BDR99 99-02	Preterm Birth 2003	Race/Ethnicity 2000
COP ISD	14.4%	8.38%	13.94%	5.6%	13.21%	3.48%
Eastern Upper Peninsula ISD	15.9%	3.48%	12.85%	5.1%	8.06%	22.40%
Clare-Gladwin ISD	20.6%	7.03%	27.61%	5.4%	13.80%	4.60%
Clinton County RESA	6.6%	6.00%	8.20%	7.2%	10.20%	3.60%
Delta-Schoolcraft ISD	14.0%	8.61%	11.40%	3.4%	12.39%	3.49%
Dickinson-Iron ISD	11.7%	5.83%	11.94%	1.7%	7.22%	2.59%
Eaton ISD	9.1%	7.20%	12.70%	7.3%	12.48%	9.75%
Genesee ISD	18.8%	9.50%	18.60%	4.4%	9.26%	24.71%
Gogebic-Ontonagon ISD	16.6%	5.43%	15.75%	2.4%	6.52%	4.82%
Traverse Bay Area ISD	10.5%	8.20%	12.91%	5.1%	9.77%	3.73%
Gratiot-Isabella RESD	13.4%	7.03%	14.16%	5.5%	11.31%	7.66%
Hillsdale County ISD	14.6%	8.60%	24.50%	4.2%	8.78%	2.44%
Copper Country ISD	14.3%	3.76%	8.07%	2.6%	7.52%	7.65%
Huron ISD	15.4%	8.30%	11.40%	6.7%	11.68%	1.98%
Ingham ISD	14.2%	7.60%	17.40%	7.8%	12.42%	20.54%
Ionia County ISD	10.5%	5.70%	16.60%	5.6%	11.96%	8.04%
Iosco County ISD	21.1%	5.80%	19.20%	6.0%	9.82%	3.08%
Jackson County ISD	14.3%	8.30%	16.50%	6.8%	11.57%	11.46%
Kalamazoo Valley ISD	13.6%	9.00%	14.50%	5.6%	12.90%	15.43%
Kent County ISD	11.6%	7.20%	20.30%	5.5%	10.78%	16.87%
Lapeer County ISD	8.4%	4.90%	14.80%	4.0%	7.94%	3.83%
Lenawee ISD	9.8%	5.20%	17.30%	4.9%	9.98%	7.49%
Livingston ESA	4.0%	5.20%	6.10%	10.0%	9.45%	2.87%
Macomb ISD	8.7%	7.80%	10.80%	6.4%	11.15%	7.34%
Manistee ISD	15.6%	11.80%	18.10%	3.3%	16.32%	5.84%
Marquette-Alger ISD	11.8%	5.76%	8.53%	6.3%	9.55%	5.85%
Mason-Lake ISD	18.8%	7.08%	16.22%	3.7%	9.36%	7.36%
Mecosta-Osceola ISD	16.9%	6.01%	20.57%	4.8%	9.08%	5.56%
Menominee County ISD	13.2%	10.50%	18.80%	0.8%	7.03%	3.76%
Midland County ESA	9.7%	6.70%	9.20%	5.4%	13.12%	4.50%
Monroe County ISD	8.9%	7.50%	14.10%	4.9%	12.10%	4.58%
Montcalm Area ISD	15.2%	6.20%	19.10%	5.7%	9.53%	5.17%
Muskegon Area ISD	17.5%	8.50%	21.30%	3.4%	11.12%	18.75%
Newaygo ISD	15.3%	7.80%	20.70%	3.5%	8.56%	5.20%
Oakland ISD	7.0%	7.80%	8.00%	6.8%	9.83%	17.25%
Oceana ISD	18.5%	5.40%	28.30%	2.6%	10.05%	9.63%
Ottawa Area ISD	6.2%	5.80%	12.20%	4.5%	9.69%	8.48%
COOR ISD	21.2%	5.21%	23.43%	5.3%	9.82%	2.51%

Table 4: Community Variables						
Service Area	Poverty Index 2002	Low Birth Weight 2003	<12 Yrs Education 2003.	BDR99 99-02	Preterm Birth 2003	Race/Ethnicity 2000
Saginaw ISD/ERC	18.6%	8.80%	18.70%	7.7%	10.01%	24.67%
St. Clair County ISD	11.4%	7.90%	17.60%	5.4%	11.99%	5.04%
St. Joseph County ISD	14.7%	5.60%	27.80%	3.6%	9.14%	6.51%
Sanilac ISD	16.4%	8.10%	20.80%	4.5%	12.18%	3.10%
Shiawassee RESA	11.7%	6.70%	14.50%	4.5%	10.60%	2.61%
Tuscola ISD	14.1%	9.00%	16.20%	5.8%	12.98%	3.95%
Van Buren ISD	17.4%	6.80%	23.60%	4.6%	9.92%	12.08%
Washtenaw ISD	8.3%	7.70%	9.70%	10.7%	9.81%	22.60%
Wayne County RESA	22.6%	10.70%	24.10%	7.9%	13.58%	48.30%
Wexford-Missaukee	16.5%	6.65%	20.67%	5.0%	9.35%	2.64%
State of Michigan	14.2%	8.2%	16.90%	6.3%	11.20%	19.85%

Index: The index is computed by dividing the percentage of children served (Child Count divided by total population) for each community against the summary percentage of the selected variables. The highest index value is selected as the universal index and is applied to the summed variables for each community. For the indexed community with the highest value, the result when multiplied by the population should yield the same as the percentage of children currently in service.

The index creates a measurement of the community differences based on easily obtained information that has its basis in the relationship between the selected variable and an increased likelihood of participation in early intervention.

Table 5 shows the sum of each individual variable in the table above, the December Child Count, the Index and the estimated prevalence rate that reflects the individual ISD characteristics.

The model computes an estimate of the minimum number of vulnerable children that could have a developmental delay based upon service levels that exist today and that accommodates for community differences. Not all of these children will have a delay that meets the eligibility criteria of *Early On*.

The stakeholder group reviewed at least six (6) different models and found that, when community prevalence estimates were high or low, the finding carried without regard to the specific community variable selected. While the model may not be an exact predictor of children who should be served by *Early On*, it is a good place to begin the discussion of both *Early On* and the broader early childhood community.

Table 5: Index Computation and Estimated Prevalence

Service Area	Sum	12-1-2004 Child Count % in service	ISD Index	State Index	Estimated Prevalence Percentage
Allegan County ISD	53.0%	3.70%	0.0697	0.101496	5.4%
Alpena-Montmorency-Alcona ESD	58.0%	1.60%	0.0275	0.101496	5.9%
Barry ISD	48.9%	1.69%	0.0345	0.101496	5.0%
Bay-Arenac ISD	60.7%	2.22%	0.0365	0.101496	6.2%
Berrien County ISD	82.9%	3.00%	0.0361	0.101496	8.4%
Branch ISD	65.9%	3.50%	0.0530	0.101496	6.7%
Calhoun ISD	79.3%	2.74%	0.0345	0.101496	8.0%
Lewis Cass ISD	76.6%	3.77%	0.0492	0.101496	7.8%
Charlevoix-Emmet ISD	42.4%	2.39%	0.0563	0.101496	4.3%
COP ISD	59.0%	2.21%	0.0374	0.101496	6.0%
Eastern Upper Peninsula ISD	67.8%	2.04%	0.0300	0.101496	6.9%
Clare-Gladwin ISD	79.0%	2.72%	0.0344	0.101496	8.0%
Clinton County RESA	41.8%	2.75%	0.0657	0.101496	4.2%
Delta-Schoolcraft ISD	53.3%	5.41%	0.1014	0.101496	5.4%
Dickinson-Iron ISD	41.0%	4.10%	0.0999	0.101496	4.2%
Eaton ISD	58.5%	2.32%	0.0396	0.101496	5.9%
Genesee ISD	85.3%	2.12%	0.0248	0.101496	8.7%
Gogebic-Ontonagon ISD	51.5%	5.48%	0.1063	0.101496	5.2%
Traverse Bay Area ISD	50.2%	3.41%	0.0679	0.101496	5.1%
Gratiot-Isabella RESD	59.0%	3.90%	0.0660	0.101496	6.0%
Hillsdale County ISD	63.1%	5.32%	0.0842	0.101496	6.4%
Copper Country ISD	43.9%	2.31%	0.0526	0.101496	4.5%
Huron ISD	55.5%	1.45%	0.0261	0.101496	5.6%
Ingham ISD	80.0%	4.13%	0.0516	0.101496	8.1%
Ionia County ISD	58.4%	4.25%	0.0727	0.101496	5.9%
Iosco County ISD	65.0%	3.77%	0.0580	0.101496	6.6%
Jackson County ISD	68.9%	2.84%	0.0412	0.101496	7.0%
Kalamazoo Valley ISD	71.0%	2.16%	0.0304	0.101496	7.2%
Kent County ISD	72.3%	2.49%	0.0344	0.101496	7.3%

Table 5: Index Computation and Estimated Prevalence					
Service Area	Sum	12-1-2004 Child Count % in service	ISD Index	State Index	Estimated Prevalence Percentage
Lapeer County ISD	43.9%	3.15%	0.0718	0.101496	4.5%
Lenawee ISD	54.7%	1.83%	0.0334	0.101496	5.5%
Livingston ESA	37.6%	2.03%	0.0540	0.101496	3.8%
Macomb ISD	52.2%	1.91%	0.0365	0.101496	5.3%
Manistee ISD	71.0%	3.47%	0.0488	0.101496	7.2%
Marquette-Alger ISD	47.8%	3.27%	0.0683	0.101496	4.9%
Mason-Lake ISD	62.5%	2.47%	0.0395	0.101496	6.3%
Mecosta-Osceola ISD	62.9%	1.74%	0.0276	0.101496	6.4%
Menominee County ISD	54.1%	3.47%	0.0641	0.101496	5.5%
Midland County ESA	48.6%	4.74%	0.0975	0.101496	4.9%
Monroe County ISD	52.1%	4.27%	0.0819	0.101496	5.3%
Montcalm Area ISD	60.9%	3.65%	0.0599	0.101496	6.2%
Muskegon Area ISD	80.5%	2.77%	0.0343	0.101496	8.2%
Newaygo ISD	61.0%	2.16%	0.0353	0.101496	6.2%
Oakland ISD	56.7%	0.85%	0.0149	0.101496	5.8%
Oceana ISD	74.5%	1.35%	0.0181	0.101496	7.6%
Ottawa Area ISD	46.9%	4.09%	0.0872	0.101496	4.8%
COOR ISD	67.5%	2.70%	0.0400	0.101496	6.8%
Saginaw ISD/ERC	88.5%	4.33%	0.0489	0.101496	9.0%
St. Clair County ISD	59.3%	1.41%	0.0237	0.101496	6.0%
St. Joseph County ISD	67.4%	2.16%	0.0320	0.101496	6.8%
Sanilac ISD	65.1%	2.55%	0.0391	0.101496	6.6%
Shiawassee RESA	50.6%	2.78%	0.0549	0.101496	5.1%
Tuscola ISD	62.0%	1.74%	0.0280	0.101496	6.3%
Van Buren ISD	74.4%	4.36%	0.0586	0.101496	7.6%
Washtenaw ISD	68.9%	1.64%	0.0238	0.101496	7.0%
Wayne County RESA	127.1%	0.87%	0.0068	0.101496	12.9%
Wexford-Missaukee	60.8%	3.56%	0.0585	0.101496	6.2%
State of Michigan	76.7%	2.12%	0.0276	0.101496	7.8%

This computation identifies a cohort of children that could have a developmental delay based on the community currently serving at the highest levels, and that accounts for community differences. The estimated prevalence percentage (which does not include many children with diagnosed medical conditions) is considered a minimum threshold since we have confidence that the community serving at the highest levels is not

reaching all potentially eligible children. The universal index was applied to the summary percentages of variables to identify the percentage that should minimally be served. The birth to three population number is multiplied by the percentage in order to estimate the number of children to be served. This number is estimated at 7.8% for Michigan as a whole, with varying percentages across the geographic locations ranging from a low of 3.8% (Livingston ESA) to a high of 12.9% (Wayne County RESA).

Section 4: Uses of Information

While estimating prevalence is an important step, a significant next step is the discussion that is provoked by reviewing the information. The difference between the number of children currently in service and the estimated number of children that may have a developmental delay creates the anticipated growth. ***No community would be expected to move from the current number in service to the projected number without rigorous planning and discussion.*** Generally, the projection should be reviewed by those knowing the community best. The discussion should include the validity of the estimated number and may also include the discussion items listed earlier in Figure 3.

Community-based discussions are recommended as an excellent opportunity to share the prevalence estimate with *Early On* stakeholders and other community members, including but not limited to:

- ISD administrators and staff;
- Early Head Start/Head Start administrators and staff;
- Part C providers;
- Health care providers; and
- Other community resources.

These meetings generally focus on a global discussion about the community in general, coupled with a review of the data produced in the summary report. Do community partners verify the indicators and data based upon their knowledge of the community? From their experience in the community and integration of these data, a discussion of local challenges may yield opportunities for the identification of effective intervention strategies. For example, they may be better able to define the barriers to effective referral and work to identify interagency coordination issues that may be preventing early referrals to *Early On*. They may also identify specific characteristics in their community that may lend themselves to the use of different variables in the estimated prevalence model.

Talking with the public school special education personnel as well as early childhood/elementary faculty is always helpful to the Part C system in identifying the type and location of children who have come into the Part B system without the benefit of *Early On*. What could have been done to identify these children earlier? While not all children can necessarily be identified prior to the age of three, this discussion can highlight the type of disabilities that are not being referred to *Early On* and determine if there are strategies to assist in earlier referral and identification.

The estimated prevalence data may help to guide Child Find efforts by identifying “pockets” of the state – either geographically or by population – that are underserved. It may help local planners to better target outreach and engagement activities, to focus informing meetings on particular referral sources, etc. These data also highlight the considerable diversity of the state, and the relationship of this diversity to training, personnel recruitment, etc.

Other uses of these data include:

- Grant application planning:
 - Child Find and intake activity,
 - Provide for additional review at the community level , and
 - Establish a targeted growth plan using the estimated prevalence number.

The use of these data to help local planners effectively target their activities to needs, establish measurable outcomes, and be accountable cannot be stressed enough. It is only through the continued examination of the data that validation will be improved. Each community should be able to establish growth targets, and match activities and strategies that would be most effective in achieving the desired growth.

- Evaluation of system resources (people, time and money)
 - Provider availability
 - Targeted Child Find efforts
 - Funding designated to support varying levels of enrollment locally

- o Allocation strategies designed to support required activities in an appropriate and proportionate manner

The careful coordination of all Part C components is critical. For example, in planning an aggressive outreach and Child Find campaign, local planners will want to be sure that there are adequate personnel to respond to the anticipated influx of referrals. Resources need to be approached in a planned manner in order to ensure that they are appropriately distributed and utilized.

- Data analysis and verification
 - o Validity of Child Count numbers
 - o Relationship between Child Count and aggregate count (turnover ratio)

Problem identification, analysis and solutions are best discovered by the people most close to the situation. Local planners should routinely examine enrollment, both through the “point in time” Child Count as well as the “rolling” or aggregate number of children and families participating in general. Are children coming into and moving out of the system? If so, why? Viewing the data from a population perspective, particularly by child age and time of referral, can help to identify regional variations and provide an opportunity for cross-training and support with other communities or regions that have developed successful strategies to solve similar problems. If turnover is an issue, it is helpful to know this since it is costly to have children entering, leaving and re-entering the system from a personnel standpoint.

- Quality assurance

Data is a critical key to monitoring continuous quality improvement, and assists to hold people at all levels accountable for their decisions and responsibilities. If families are leaving *EarlyOn*, local planners should find out why. If referrals are not being received from a specific referral source or for a specific population or region, local planners should find out why. Overall early intervention has been lax in demonstrating real outcomes. Accountability is key to maintenance of funding, growth in

resources and sustained viability. Data provides the foundation to the development of quality improvement plans that are realistic and will result in meaningful improvement. Data also helps state and local planners to evaluate their efforts – beyond the “feel good” evaluation approach, into true accountability.

How will Michigan utilize this information

While this report has identified a variety of ways that the information related to estimated prevalence could be used, it is important that there is a clear understanding of how *Early On* will utilize this information.

The estimated prevalence report will be used to:

- Estimate the number of children that could have a developmental delay and to understand the size of the potentially eligible population);
- Identify the gap between who is currently being served and who could potentially be served;
- Leverage existing funds and advocate for new funding to help fill service gaps and meet compliance requirements;
- Inform the Early On system redesign efforts and strengthen connections with the broader early childhood system;
- Support the recommendation that the ECIC use the prevalence study in their work of supporting the development of comprehensive early childhood systems; and
- Estimate the potential numbers of children who will not meet the Early On eligibility criteria and will need to be served through other community resources.

Section 5: Conclusion:

This report, together with the activity that occurred throughout 2005 and 2006, provokes interesting dialogue, at the state and local level, regarding the potential number of vulnerable children that may need to be served, either by *Early On* or other community resources. It will be important to continue the dialogue and to ensure that needed data is gathered on an ongoing, routine basis and reported at the state and local level. The information will become even more powerful with review over time, and should be critically important to key planners at the state and local level for strategic planning purposes and to ensure that resources are utilized appropriately and that infants and toddlers and their families receive the supports that they need to achieve "A Great Start for every child in Michigan: safe, healthy, and eager to succeed in school and in life."

APPENDIX A

National Issues Related to Eligibility Criteria

Part C Eligibility Criteria: National

Federal regulations allow each participating state or territory to define their eligibility criteria within the broad context as detailed in Figure 1. While eligibility

Figure 1: Federal Eligibility Definition

1. Children who have a diagnosed medical or physical condition having a high probability of resulting in developmental delay. (Required)
2. Children experiencing developmental delays. (Required)
3. Children who are at-risk of experiencing a substantial delay. (Optional)

categories 1 and 2 are required, only eight (8) states and/or territories currently exercise the optional "at-risk" category.

From a national perspective, this difference in eligibility definition must be considered for a comparison between states. Individual state definitions range from what might be

considered as "broad" eligibility criteria with language simply stating that a delay in one or more areas of development is sufficient to determine eligibility, with no quantification or further description (such as "substantial delay"), to a level of eligibility which might be considered quite restrictive or "narrow." One example of this would be a 50% delay in one area of development required for eligibility. According to the Office of Special Education Programs (OSEP), Michigan is aligned with a more "broad" eligibility definition for its Part C system since there is no established criterion. This presents a challenge for both providers and families primarily given the diversity of child acquisition of developmental milestones.

Nationally, the number of children birth to age three for 2004 is 12,113,299⁵ with the number of children in service under Part C systems for 2004 at 279,154⁶. The national average of children in service based on the "point in time" count (as of 12/1/2004) was 2.3%, ranging from a low of 1.28% for Alabama to a high of 7.09% in Hawaii when including children at-risk. The national average based on the 12/1/2003 Child Count and the population 0 through 2 based on the 2003 census is 2.25% (271,599/12,050,313=2.25); virtually unchanged from 2002.

⁵ <https://www.ideadata.org/docs/2004PopbyAge.doc>

⁶ https://www.ideadata.org/tables28th/ar_6-1.xls

Research conducted by Dunst and Hamby⁷ studied the differences in the percentage of children served in Part C systems across the country. The study looked at both the definition of eligibility and the practice of determining eligibility based upon the use of informed clinical opinion. The study looked at data from 1994 through 2002 and found “that differences in eligibility definitions and criteria account for some but not all the variability in the percentage of the infant and toddler population served in early intervention programs.”

Table 1 identifies states with reasonably similar eligibility definitions⁸ and shows the percentage of children in service based on the number of children in service for the respective year. It is clear from these tables that the definition of eligibility is not the sole factor influencing the number of children to be served in any Part C system.

Table 1: Observations:

- Under Part C of the IDEA, the Governor of each state or Territory must identify the Lead Agency responsible for the system. Approximately half of all Lead Agencies are within Departments of Health, 24% are within Departments of Education⁹, 12% within Developmental Disability Agencies, with the remainder in a variety of other state agencies. States with Lead Agencies designated as the Department of Education, as illustrated in Table 1, are more likely to have a lower percentage of children in service.
- States within the Northeast Region are likely to serve higher percentages of children in their Part C system.
- States within the Southern Region are likely to serve at lower levels of children in their Part C system.
- Michigan is one of 28 states which are considered to have broad eligibility criteria.

⁷ Dunst, CJ; Hamby, DW; States' Part C Eligibility Definitions Account for Differences in the Percentage of Children Participating in Early Intervention Programs; Snapshots; Volume 1, Number 4, September 2004

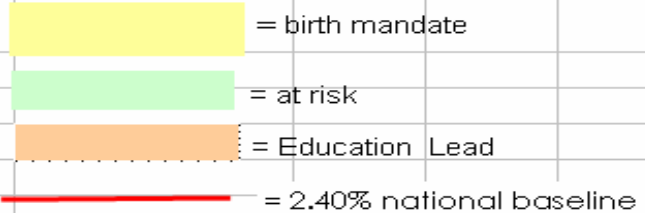
⁸ Categories developed by the Office of Special Education Programs (OSEP).

⁹ States with a Department of Education Lead Agency are marked with an (ED) on the chart in Table 1.

IDEA Part C: Percentage of All Children Served, December 1, 2005

Broad Eligibility (N=24)		Moderate Eligibility (N=13)		Narrow Eligibility (N=15)	
Hawaii	6.71	New York	4.33	Connecticut	3.16
Massachusetts	5.90	Rhode Island	4.09	N Dakota	3.02
Wyoming	4.31	Indiana	4.04	Idaho	2.90
West Virginia	4.28	Illinois	3.00	Maine	2.89
New Mexico	3.73	Delaware	2.94	Montana	2.21
Pennsylvania	3.31	S Dakota	2.91	Oklahoma	2.03
Vermont	3.20	Puerto Rico	2.58	Utah	1.87
New Hampshire	2.96	New Jersey	2.53	S Carolina	1.87
Wisconsin	2.88	Kentucky	2.17	Tennessee	1.80
Maryland	2.88	Alaska	2.09	Oregon	1.78
Kansas	2.62	Colorado	1.85	DC	1.68
Ohio	2.47	Minnesota	1.56	Nebraska	1.67
Iowa	2.35	Missouri	1.47	Arizona	1.61
Arkansas	2.25			Nevada	1.36
Michigan	2.20			Georgia	1.34
California	1.99			Guam	No Data
Texas	1.93				
North Carolina	1.85				
Florida	1.80				
Washington	1.79				
Louisiana	1.76				
Virginia	1.72				
Alabama	1.39				
Mississippi	1.34				
Virgin Islands	No Data				
Northern Marianas	No Data				
American Samoa	No Data				

Eligibility categories were established by the Office of Special Education Programs (OSEP) as of October 28, 2005.
Source: Table 6-1 www.ideadata.org



WHAT'S OUT THERE?

A subject matter search through the National Early Childhood Technical Assistance Center (NECTAC) web site resulted in the retrieval of several articles. The most applicable was the summary of a presentation by Dr. Colleen Boyle from the Centers for Disease Control (CDC), describing an "epidemiological model" to compute the number of children to be served within an early intervention. The process, described in Figure 2, provides a scientific model for answering the question. Several challenges exist with using this model that may prevent states from experiencing a practical use of the model.

Figure 2: Epidemiological Model

1. Diagnosed Condition

- a. Find a prevalence rate for different disabilities. Examples include congenital infections, chromosomal anomalies and central nervous system defects.
- b. Apply the birth prevalence rate of each condition to the birth cohort.
- c. Repeat this procedure for other diagnosed conditions and sum the results.

2. Developmental Delay

- a. Determine the prevalence rate of developmental disabilities in older children (ages 3 through 9)
- b. Subtract the rate of children with diagnosed conditions. (Assumes they are counted in the prior step)
- c. The resulting rate will provide a minimum number of infants and toddlers estimated to have developmental delay.

Example: Birth defects programs show a prevalence rate for Central Nervous System defects as 2.5/1000 and the birth cohort is 5,000 live births, then at least 13 infants within the cohort year should be picked up by Part C

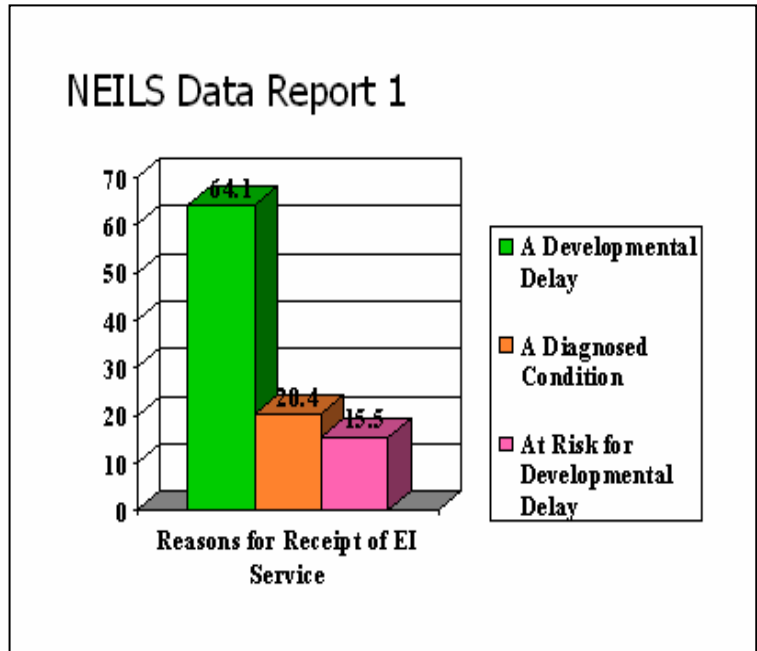
In addition, there is a lack of data regarding very young children with developmental delay. The best national study for this methodology is one that involves 5 counties around Metropolitan Atlanta (Georgia) with children ages 3 to 9 years of age. This study reports that the overall percentage of children with developmental delay is 18%. What does this imply? How can we know if this information is relevant to the rest of the country? What are the general demographic factors involved in the Georgia study; how similar are these to other locales? Is this relevant for children ages birth to three?

National Early Intervention Longitudinal Study (NEILS): The NEILS is a nationally representative study following 3,338 children from participation in Early

November 2006

Intervention through kindergarten. This study summarized the categories of eligibility for children receiving early intervention services. It reported that more than 64% of children participating in early intervention services were doing so as a result of eligibility due to developmental delay.

Based on the discussion of the data in the NEILS report, developmental delay is a major eligibility category where very little is known about its prevalence in infants and



very young children. Until a study is done to understand the prevalence of developmental delay in the birth to three cohort, it seems nearly impossible to get to the number using a scientific model. The remainder of this report will focus on the model used by the Eligible Population Task Force which is presented as an alternative to a scientific method and establishes a minimum threshold of children (or estimated prevalence) to serve as an alternative to establishing prevalence.

The impact of the population of children eligible for Part C under the category "developmental delay (only)" will vary from state to state given the diverse eligibility criteria and diverse characteristics of the states. While the impact of children eligible under "existing medical conditions" may have some consistency from state to state, the combination of these two conditions provides a complicated mix of questions and challenges at the state and national levels.

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