



Policy Options to Support Children from Birth to Age Three

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Executive Summary

Overview

Extensive research has demonstrated that the period from birth through age three is critical to a child’s development. Depending on circumstances, children can begin with a great start, or they can begin to fall behind, and some of the children who fall behind early will never catch up. Early investment can help to ensure that all children get off to a great start. An extensive research base demonstrates that early investment is far more effective at improving outcomes for at-risk children than later remediation. Early investment can provide lifelong benefits to children, including improving their health and increasing their education attainment and future earnings. In addition, research has demonstrated that early investment pays substantial returns to taxpayers through lower expenditures on special education, grade retention, and welfare programs, through increased tax payments, and through a reduction in crime.

Investing in our children through high-quality, research-based early childhood programs may be the single most effective, and taxpayer friendly, economic development strategy that Michigan can pursue.

This report identifies places where targeted investments are most likely to produce the best outcomes for Michigan’s children and for the state as a whole.

Michigan’s At-Risk Population

We find that approximately 260,000 Michigan children from birth to age three are at risk, representing 56 percent of children in this age range. We define children as “at risk” if they are at heightened risk of falling behind their peers before they reach kindergarten. Research suggests a number of risk factors negatively correlated with school readiness including:

- Children from low-income families
- Children with developmental delays or disabilities
- Children of parents with low educational attainment
- Children experiencing severely adverse situations
- Children in non-English-speaking homes

Being in a low-income family puts children at risk, and the lower the household income, the greater the risk. This report contains estimates using a variety of income levels as the definition of low income. The estimate of 260,000 uses our preferred income threshold of 185 percent of the poverty line, the same threshold used for reduced-price school lunches and Medicaid.

Process

To identify promising opportunities for investing in at-risk children, we considered the following criteria:

- Opportunities identified by experts and supported by a solid research base
- Opportunities that have standardized models, are replicable, and can be evaluated
- Opportunities to serve the neediest children first
- Opportunities where parent engagement is a key component
- Opportunities with a demonstrated rate of return

Based on these criteria, we identified four program areas for targeted investment: home visiting programs; access to medical homes; high-quality child care; and preschool for three-year-olds.

*Our review of the research leads us to conclude that **home visiting is the most promising option for investing additional resources***

Investment Options

Home Visiting

Our review of the research leads us to conclude that **home visiting is the most promising option for investing additional resources**. Home visiting programs are voluntary programs that link parents with trained service providers (such as a nurse or social worker) who coach families on how to best address the challenges they face and teach ways to improve the home environment for children. The research base supporting home visiting is remarkable for its breadth and quality, and for the positive results these programs have demonstrated.

An evidence-based home visiting program has a clear, consistent program or model that is based on research. Evidence-based programs have been standardized so that communities that follow the standardized models can be confident that their results will be comparable to those in the empirical research.

Home visiting programs have been shown to be beneficial to mothers and their children, as well as delivering a return on investment to taxpayers. Benefits of home visiting programs include improvements in maternal and child health, increased family economic self-sufficiency, and reductions in juvenile delinquency, family violence, and crime.

Options

If policymakers wish to expand home visiting programs, the following steps would be effective.

1. **Provide grant funding to implement evidence-based home visiting models.** Provide funding to ensure that a variety of evidence-based models are available in communities, so that children with a diverse set of risk factors can be served.

Rationale: There is ample evidence that investments in evidence-based, home visiting programs generate a return on investment. Different home visiting models are most appropriate for children with different risk factors. Funding a variety of programs helps ensure that families can be placed in the program most appropriate for their specific needs.

Cost: Providing funding for an additional 5,000 children per year would cost an estimated \$25 million per year, while providing funding for an additional 10,000 children would cost \$50 million per year.

2. **Fund technical assistance.** Fund dedicated staff who can provide technical assistance to local communities.

Rationale: Local communities need support to implement effective and efficient home visiting efforts. Technical assistance can help local communities implement current best practices. In addition, technical assistance can help communities with specific tasks such as creating screening programs to direct families into the home visiting model most appropriate for their risk factors, and fully leveraging any available Medicaid matching dollars.

Cost: Funding technical assistance will cost less than \$1 million per year.

3. **Serve the neediest children first.** Create criteria to ensure that limited state funding dollars are used to serve the neediest children first.

Rationale: While there is ample evidence that home visiting programs provide a return on investment, limited capacity and the high program cost ensure that, in the short run, many at-risk children will not be served. Eligibility criteria should be put in place to ensure that limited program dollars are allocated to those with the highest need. For example, requiring that children have two or more risk factors, or using a more restrictive income threshold will help ensure that dollars are targeted to the neediest families.

Cost: This activity is part of technical assistance and should not have a separate cost.

4. **Assist communities in developing outreach programs.** Provide both technical assistance and financial support to develop outreach programs connecting families to the home visiting program that best meets their needs.

Rationale: Home visiting programs are voluntary. At-risk families will need to be informed about the potential benefits of home visiting and then connected to the program in their community that best addresses their needs. Technical assistance and financial support will help communities build efficient programs.

Cost: Much of this activity can presumably be done as part of technical assistance and by leveraging existing Medicaid outreach programs. Some additional financial support may be needed, but costs should be relatively low (less than \$1 million).

Access to Medical Homes

We also find strong evidence that providing young children with access to a medical home is an effective investment strategy. Children that have a “medical home” have an ongoing relationship with a personal, primary care physician. The physician and other providers in the practice consider the needs of the whole child, provide enhanced access, and coordinate or integrate specialty care as needed. Access to a medical home has been shown to reduce emergency department use, hospital admissions, overall healthcare costs, and to improve the quality of care for children.

Programs that provide support to medical providers and families to enable them to maintain a relationship have been shown to increase the number of children who have access to a medical home. One such program is the Children’s Healthcare Access Program (CHAP) in Kent County.

Options

If policymakers want to increase the number of children with access to medical homes, expanding CHAP programs in Michigan would be an effective strategy. The following steps would be effective in expanding CHAP programs.

- 1. Provide matching grant funding.** Provide matching grants to communities to assist them in creating and running CHAP programs.

Rationale: Communities will need financial assistance to start and run CHAP programs; however, running a successful CHAP program requires the coordination of local community resources. Requiring communities to provide matching funds helps to ensure that the local community capacity is in place and that the local community supports the program.

Cost: Michigan has an estimated 84,000 at-risk children from birth to age three without a medical home. Covering these children and other Medicaid-eligible children through CHAP programs would cost an estimated \$10 million per year, assuming local infrastructure is in place. If state funding is provided via matching grants, the state cost would be less than \$10 million, but local costs will increase by a commensurate amount.

- 2. Fund technical assistance.** Create a resource center that can help communities navigate the technical challenges of establishing and effectively running a CHAP program. For example, the technical center can assist local community leaders with the exploration and negotiation of arrangements for maximizing federal Medicaid matching dollars.

Rationale: A central technical resource center can ensure that best practices are communicated to all CHAP communities, and a technical resource center can assist local communities in addressing common problems.

Cost: Technical assistance could be provided for less than \$1 million per year.

- 3. Invest in long-term evaluation.** Provide funding to evaluate CHAP programs.

Rationale: Maintaining support for CHAP funding and support for the continuing participation of community partners will require evidence that the program is effective and provides a return on investment. Generating this evidence will require program evaluation.

Cost: Evaluating CHAP programs statewide would cost an estimated \$0.5 million to \$1 million. This is not an annual cost, but a cost that would be incurred each time an evaluation was completed. Program evaluations would likely be needed every three to five years.

High-Quality Child Care

A growing body of research has documented the link between high-quality child care and long-term outcomes for children. Studies have shown that positive child care environments promote child progress in both academic skills (such as reading, math, and cognitive skills) as well as social skills (such as motivation and reduced behavioral problems). The Michigan Department of Education administers Michigan’s child care subsidy program known as the Child Development and Care (CDC) program. The evidence linking high-quality child care to improved outcomes suggests the possibility that additional targeted investment in the CDC program can lead to significantly improved outcomes for children.

It is critical that any CDC program investment focuses on high-quality care. When considering strategies, policymakers should be mindful of two important issues. First, high-quality child care is expensive. Second, it is difficult to measure the quality of child care. Although Michigan has taken positive steps toward identifying high-quality care with the Great Start to Quality rating system, work regarding how to identify high-quality care is ongoing.

Options

If policymakers want to increase the delivery of high-quality child care to at-risk children, the following steps would be effective.

- 1. Continue to expand investment in tiered reimbursement.** Funding increases in the CDC program should be focused on increasing the reimbursement rate for programs that receive a high score in the Great Start to Quality System.

Rationale: High-quality child care is expensive. Increases in the reimbursement rate will help at-risk children access high-quality care. In addition, increasing the reimbursement rate for high-quality care creates an incentive for care providers to increase their quality.

Cost: Bringing reimbursement rates for children from birth through age three to federal benchmarks would cost \$73 million. The number of families served in the CDC program has fallen sharply since 2005. If reimbursement rates were raised to the federal benchmarks and the number of children served by the program was increased back to the 2005 level, the cost would be \$400 million.

Limiting rate increases to child care providers who receive the highest quality ratings would further limit the cost increase. If Michigan were to increase reimbursement rates for those currently served by three- and four-star quality rated programs to the federal level, the initial cost increase would be \$15 million to \$20 million per year. In addition, Michigan does not need to move fully to the federal benchmark. Any increase in tiered reimbursement rates would help improve access to high-quality child care.

- 2. Evaluate the Great Start to Quality System.** Validate that the state’s child care rating system provides the highest ratings to providers that are most successful at improving child development, learning, and school readiness.

Rationale: Parents and taxpayers need to be confident that the Great Start to Quality System accurately measures the quality of child care. Michigan’s successful Race to the Top Early Learning Challenge application included a validation of the state’s child care rating system in terms of linkages to child development, learning, and school readiness. Results will need to be carefully examined to ensure that “high-quality” providers under Michigan’s system are actually providing care that leads to improved outcomes.

Cost: Michigan’s successful Race to the Top Early Learning Challenge grant application included \$2.4 million for this activity.

- 3. Fund an awareness campaign for Great Start Connect.** Provide resources to ensure that parents are aware of the state’s web resources that provide information on provider quality.

Rationale: The Michigan Department of Education’s web resource (www.greatstartconnect.org), allows parents to access local child care providers’ ratings. Many parents are unaware of this resource, though, and many providers do not participate. Increasing awareness will help connect parents with the highest-quality care and will create incentives for providers to participate.

Cost: Funding an effective awareness campaign will cost an estimated \$1 million to \$2 million per year.

Preschool for Three-year-olds

At-risk children in Michigan have access to preschool at age four through the Great Start Readiness Program; however, publicly supported preschool programs for three-year-olds in Michigan are far more limited. The research supporting preschool for three-year-olds is not as strong as the evidence supporting other early childhood programs. While some studies show a second year of preschool providing significant benefits, other studies fail to find a significant or lasting impact. Therefore, policymakers may wish to create a pilot program for three-year-old preschool in Michigan prior to providing broader coverage, so that the state can evaluate if this opportunity warrants more significant investment.

Options

If policymakers are interested in expanding access to publicly funded preschool for three-year-olds, the following steps would be effective.

- 1. Fund a preschool pilot.** Fund a pilot program providing preschool to three-year-olds and carefully evaluate the results to establish if a second year of preschool provides a significant enough return to warrant additional investment.

Rationale: While some studies suggest that a second year of preschool can provide significant long-term benefits to at-risk children, the research is not yet conclusive. A pilot program would provide a second year of preschool for some at-risk Michigan children and would provide an opportunity to evaluate the effectiveness of this investment opportunity.

Cost: Assuming a per student cost of \$3,625, preschool could be provided for 1,000 three-year-olds at a cost of \$3.6 million per year. Providing preschool for 5,000 three-year-olds would cost an estimated \$18.1 million per year. Covering the full at-risk population of three-year-olds would cost an estimated \$174 million per year.

Call to Action

The Importance of Early Investment

Policymakers in Michigan and elsewhere have turned their attention to investing in young children because research demonstrates the importance of early experiences to development. During the first years of children's lives, experiences help determine the hardwiring of their brains and set the stage for the remainder of their lives. Science has demonstrated the power of early experiences, relationships, and health on brain development and the important social skills that develop during the earliest months of life. It has also demonstrated the capacity to improve developmental outcomes through early interventions (1).

Carefully controlled studies have shown that early interventions can improve short-term outcomes including children's health, school readiness, and reductions in child maltreatment, but they can also improve longer-term outcomes including reduced crime, lower substance abuse rates, and improved educational attainment and workforce outcomes.¹

The case for early intervention is well stated by the authors of *From Neurons to Neighborhoods*:

What happens in the first months matters a lot... Compensating for missed opportunities, such as the failure to detect early difficulties or the lack of exposure to environments rich in language, often requires extensive intervention, if not heroic efforts, later in life. Early pathways, though far from indelible, establish either a sturdy or fragile stage on which subsequent development is constructed.
(1, p. 384)

1 See for example: S. Avellar, D. Paulsell, E. Sama-Miller, and P. Del Grosso. *Home Visiting Evidence of Effectiveness Review: Executive Summary*. Office of planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. 2013., and James Heckman and Dimitriy Masterov, "The Productivity Argument for Investment in Young Children." National Bureau of Economic Research, Working Paper 13016., April 2007.

Preparation for a New Economy

The consequences of failing to make early investments in children are greater today than they were in the past. For most of the 20th century, Michigan had an abundance of high-paying, low-skill manufacturing jobs that propelled millions of individuals into the middle class. The output of our education system was less important, because workers who did not complete high school, or otherwise had low skill levels, still had ample opportunity to live a middle-class life. Things have changed, however. A higher skill level is needed today to secure most jobs that pay a middle-class wage. The output of our education system has become much more critical. Much of the recent interest in reforming K–12 education, including increasing the rigor of the curriculum, adopting rigorous education standards, improving teacher quality, and developing better assessment tests, is due to the recognition that we need to increase the preparation of our students to ensure their success in tomorrow's workforce.

Many of the states we compete with have a head start. Michigan ranks 35th among states in college attainment, 32nd in eighth grade reading proficiency, 37th in eighth grade math proficiency, 38th in fourth grade reading proficiency, and 42nd in fourth grade math proficiency² (2). We need to improve our performance and provide our children the skills needed to compete for the high-paying jobs of the future.

While recent changes to the K–12 system are a good start to reforming our system, we need to start earlier. We know how critical the first years of a child's life are, and that this is the time when investment pays the greatest return. Remediation is expensive and difficult, so we need to make the strategic investments necessary to ensure that our children are on track at birth, are ready to learn when they arrive at kindergarten, and that they never fall behind.

2 Reading and math score rankings are from the National Assessment of Education Progress (NAEP) as reported in *Stalled to Soaring: Michigan's Path to Educational Recovery*. Education Trust-Midwest. April 2014.

Return on Investment

There are strong moral grounds for investing in at-risk children. Equal opportunity is a deeply held American value; however, it is the compelling evidence on the return to investment from early childhood programs that has primarily attracted the attention of policymakers. Carefully controlled studies have shown the economic return produced by investing in young children. Investment in children from birth to age three can deliver short-term benefits including increased school readiness and lower grade retention and special education referrals, and longer-term benefits including greater education attainment, higher labor-force participation and earnings, and reduced crime. Nobel laureate James Heckman summarizes the evidence of the rate of return from three well-studied early intervention programs that followed the subjects into adulthood. He finds an annual rate of return of 16 percent—4 percent for program participants and 12 percent for society at large (3). Investing in early childhood may be the most effective economic development strategy we can take as a state.³

The challenge for policymakers is ensuring that the programs they fund produce similar rates of return to those found in studies. Fortunately, many programs have clear models that have been extensively studied and are supported with empirical research demonstrating the rate of return. Policymakers can have confidence that if programs are implemented with fidelity to the studied models, the results will be similar.

The Time to Act

Our challenge is clear. Michigan needs a comprehensive approach to improving the skills of our children, so that they are ready to compete in the workforce of tomorrow. Success will require early investment. Remediation is expensive and difficult. We need to invest early to ensure that our children are on track, and work to prevent them from ever falling behind.

Policymakers have taken an important first step by ensuring that high-quality preschool is available to our four-year-olds through the Great Start Readiness Program; however, we need to start even earlier. The first years of

a child's life are the most critical to that child's future development, and targeted investment during this period can pay lifelong dividends. Each year we wait, we miss the opportunity to invest in a cohort of young children. Early investment is the single most important step we can take to improve the lives of these children and to improve the future economic development of our state. The time to act is now.

Purpose of This Report

This report is aimed at helping Michigan policymakers target resources in ways that are most likely to produce the best outcomes for Michigan's children and for the state as a whole. We took several steps to identify the most promising areas for investment. We interviewed state and national experts to gain their insights and reviewed the academic literature on early childhood programs. In our research, we looked for programs and initiatives with a strong evidence base showing that policymakers could expect a rate of return on their investment of public resources. We gave priority to models that were standardized, replicable, and that could be easily evaluated. We sought opportunities to serve the neediest children first. And we insisted that support for parent engagement be a key component of any investment strategy.

We have identified four areas where targeted investments can have a substantial impact on the lives of young children:

- Home visiting programs
- Access to medical homes
- High-quality child care
- Preschool for three-year-olds

In this report, we will provide estimates of the number of Michigan children at high risk, and outline the case for additional investment in each of those four program areas. For each of these areas we present the supporting research; Michigan's current efforts in the program area; Michigan's current unmet needs; opportunities for expanding or reforming the program; the costs and funding associated with the program; and what we know about the expected rate of return on investment.

This report does not identify funding sources for investing in new programs. One option is to redirect existing dollars from Michigan's current programs, but this would require identifying programs where the return on investment is low or the programs are not effective. Identifying

³ For a comparison of the rate of return for early childhood investment compared to investments made by local economic development programs see: Timothy Bartik, *Investing in Kids: Early Childhood Programs and Local Economic Development*. W.E. Upjohn Institute for Employment Research. 2011.

whether a program is ineffective requires the program to be thoroughly evaluated. Program evaluation is important for assessing whether tax dollars are being used effectively, but it is an involved task beyond the scope of this report. This report is focused exclusively on identifying research-based program areas where Michigan can invest to achieve a demonstrated return.

We hope that this information will serve as a guide for policymakers seeking a research-based path toward improving the lives of Michigan's young children.

Michigan's At-Risk Population

Early Childhood Risk Factors

Michigan has an estimated 465,000 children at or below the age of three.⁴ We find 56 percent of those children (260,000) to be at risk, using our preferred threshold defining low income, 185 percent of the poverty line.⁵ We define at-risk children as those who are at heightened risk of falling behind their peers in terms of school readiness as they reach kindergarten. Research suggests a number of risk factors that negatively correlate with school readiness for young children. We examine available data and empirical research to estimate the number of children in Michigan that fall into one or more of the following risk factors:

We find 56 percent of Michigan children at or below age three (260,000) to be at risk, using our preferred threshold defining low income, 185 percent of the poverty line.

Children from Low-Income Families: Historically, academic achievement by children living in low-income households has lagged behind that of their peers living in higher-income households, and that achievement gap appears to have widened in recent decades (4). Children from low-income families may be less ready for school because their parents have had fewer financial resources to invest in their upbringing. In addition, parents of poorer children tend to have less education, higher rates of single and teen parenthood, poorer health, and other factors that increase the risk that their children will not be ready for school when they reach kindergarten (5).

Children with Developmental Delays or Disabilities: Research indicates that around one in six children in the U.S. have some type of developmental disability (6). Regardless of social status, these children are at risk of falling behind their peers in terms of their development throughout their schooling.

Children of Parents with Low Educational Attainment: Early childhood development depends heavily on the development of strong, positive relationships with adults, particularly with parents; however, parents who have a limited education themselves are less likely to be equipped to provide a stimulating environment for their children (and are more likely to struggle financially). Research has demonstrated that educational attainment by parents at the point their children reach middle childhood is a significant predictor of future educational and occupational achievement for those children (7).

Children Experiencing Severely Adverse Situations: A growing body of research has examined the long-run impacts to children of exposure to severely adverse situations.⁶ These “toxic” experiences can include events such as living in poverty, the death of a parent, living with someone struggling with mental illness or substance abuse, or witnessing domestic violence in the home. Research indicates these children suffer long-term consequences that are both physical and emotional and are at increased risk of low academic achievement, drug use, teen pregnancy, juvenile delinquency, and adult criminality (8). In this report, we define a child as at risk if they have experienced three or more of these adverse situations.

Children in Non-English-speaking Homes: National trends suggest that more and more children are being raised in homes by adults with limited or no English proficiency. In 1980, roughly 11 percent of the U.S. population aged five and over spoke a language other than English in their homes. By 2010, that percentage had grown to over 20 percent (9). This trend presents additional challenges to the educational system, as studies indicate that children from non-English-speaking households tend to score lower on academic achievement tests as they enter school (10).

⁴ Population based on the 3 percent three-year American Community Survey for 2010 through 2012.

⁵ The methodology for this estimate is presented in this report's Appendix.

⁶ These adverse situations are also often referred to as “toxic stress.”

Number of At-Risk Children in Michigan

At what income level should children be considered at risk? The likelihood a child will be ready for school by age five rises with household income. Seventy-five percent of children from households with incomes above 185 percent of the poverty line are ready for school by age five. For households with incomes at or below 100 percent of the poverty line, just 48 percent of children are ready for school at age five, and for those with incomes between 100 and 185 percent of the poverty line, 59 percent are ready for school at age five (5).

Exhibit 1 presents estimates of the number of at-risk children using different definitions of “low-income.” These estimates also include children who are at-risk due to one of the other risk factors presented above. For example, using 185 percent of the poverty line as the income

threshold, we find that an estimated 260,000 children are at-risk either because they are low income, or because they have one of the other risk factors: they have developmental delays or disabilities, their parents have low education attainment, they have experienced three or more severely adverse events, or they come from a non-English-speaking household. The estimates represent an unduplicated count, so if a child experiences more than one risk factor, they are only counted once.

Our preferred estimate of the number of at-risk children in Michigan uses household income at or below 185 percent of the poverty line. This is the income cutoff used for Medicaid and reduced-price school lunches. At this income level, 56 percent of Michigan children (260,000) are defined as at risk.

Exhibit 1. Estimate of At-Risk Michigan Children Age 0 to 3

Percentage of poverty line	Programs using this threshold	MI At-Risk Children Age 0 to 3	
		Number	Percent
100%	Head Start	190,000	40.9%
130%	Food Assistance Free Lunch	215,000	46.1%
150%	State Emergency Relief	232,000	49.8%
185%	Medicaid Reduced Lunch	260,000	55.9%
200%		271,000	58.3%

NOTE: Number of at-risk children includes children based on definition of low income and children with other risk factors such as children in households with low education attainment, children in non-English-speaking homes, children with developmental delays, and children with three or more adverse experiences.

Where Should Michigan Invest?

Overview

As has previously been discussed, carefully controlled studies have shown that early interventions can improve short-term outcomes including children’s health, school readiness, and reductions in child maltreatment, and they can also improve longer-term outcomes including reduced crime, lower substance abuse, and improved educational attainment and workforce outcomes. Early interventions that partially remediate the effects of adverse environments can pay a large economic return. In this research, we seek to identify opportunities for policymakers to achieve these large economic returns through strategic investment in Michigan’s young children.

quality of child care, and serve the neediest children first. Experts that mentioned health care pointed out the importance of providing children with a medical home. We used the guidance provided by these experts to direct our investigation into the academic research on early childhood programs and initiatives.

Programs Supported by a Solid Research Base

A remarkable amount of research demonstrates the efficacy of high-quality early childhood programs. In many of the studies, children are randomly divided into treatment and control groups, allowing for high-quality statistical evaluations of program results. These longitudinal studies investigate how high-quality early childhood programs can improve outcome measures such as school readiness and special education referrals. The best of these studies follow children for decades, and are able to demonstrate early childhood investments providing benefits to program participants into adulthood. These benefits include increases in education attainment, workforce participation and earnings, and lower criminal activity. The ability of these studies to capture longer-term outcomes helps to establish the full rate of return for early childhood investments.

Models That Can Be Standardized or Are Replicable and Can Be Evaluated

A common concern in public policy is whether a successful pilot program can be replicated or delivered at scale. Many early childhood programs, particularly home visiting programs, have carefully designed and evaluated methodologies. Policymakers who implement these programs with fidelity to the evaluated models can have confidence that they will see similar returns to those identified in published research. Some programs have demonstrated promising results that justify additional pilot demonstrations and evaluation.

Opportunities to Serve the Neediest Children First

The Office of Great Start established several guiding principles in its plan for creating a high-quality, collaborative, and accountable system for early childhood service delivery in Michigan. One of these principles is that



Investments in early childhood programs provide benefits to both program participants and taxpayers.



Are there opportunities for Michigan to invest in programs with a solid research base demonstrating their effectiveness? Public resources are scarce, and there are many competing demands for funding, including roads, K–12 education, and higher education. If Michigan is going to invest significant additional resources into programs supporting children from birth to age three, it needs to be strategic and seek the opportunities that provide the greatest return. The four program areas presented in this paper meet this test. They represent opportunities policymakers should consider as they seek to improve the lives of Michigan’s children by investing in programs that work.

Methodology

Promising Opportunities Identified by Identified by Experts

As a starting point for identifying promising opportunities for investment, we consulted with state and national experts in early childhood. These experts touched on several themes that helped guide our later work. In particular, they pointed out the importance of programs that help parents develop better parenting skills, improve the

children with the greatest need must be served first. Any investment in early childhood programs and initiatives should adhere to this principle.

Inclusion of Parent Engagement as a Key Component

The importance of parent engagement in successful early childhood programs cannot be overstated. Parents are the most important caregiver in children's lives. Programs can succeed or fail based on the parents' commitment to the program. Further, most early childhood programs are voluntary and rely on parent participation. Parents have diverse needs and come from a wide variety of backgrounds. Successful programs will engage parents early and in a manner that respects their personal, cultural, and spiritual beliefs. Effective outreach is critical to ensure that programs provide real opportunities for parents and do not create a stigma for participants.

Demonstrated Rate of Return

Investments in early childhood programs provide benefits to both program participants and taxpayers. In this study, we have sought to identify investment opportunities where the return on investment is a net gain for taxpayers. In other words, we have sought to identify programs where the financial benefit to taxpayers is greater than their initial investment.

Investments in early childhood programs can provide financial benefits to taxpayers in a number of ways. By intervening early and supporting our youngest children, taxpayers can potentially save money through reduced grade retention and special education costs, reduced welfare payments to program participants, increased tax payments due to the higher earnings of program participants and savings relating to a reduction in the number of crimes committed by program participants.⁷

The positive rate of return for a program is not always readily apparent since this return is often identified only through careful empirical research. Drawing conclusions is often further complicated because the rate of return to early childhood investments manifests itself through reduced spending across a wide range of programs and services, and some of the benefits, such as increased tax payments made by program participants later in life, do not materialize for decades.

The financial return from a program should not be the only criterion used when assessing the merits of a program. For example, a program that supports food and nutrition for hungry children may warrant significant investment of state resources regardless of the level of financial return it provides; however, any program that returns financial benefits to taxpayers greater than the costs they pay is certainly a program that policymakers should put at the top of the list of programs they consider.

Potential Areas for Strategic Investment

Based on the criteria presented above, we have identified four areas as outstanding candidates for additional investment. These four program areas are home visiting, access to medical homes, high-quality child care, and preschool for three-year-olds. Each of these investment areas is defined briefly below and then is explored in greater depth later in the paper.

While each of these areas offers an opportunity to make a strategic investment that will make a meaningful difference in young Michiganders' lives, it is important to recognize that investment in these areas will not address all of the needs of Michigan's high-risk children. Many of these children experience complex problems and have needs that can only be fully addressed through a comprehensive system-wide approach to delivering early childhood services. The opportunities reviewed below represent critical areas where careful study has shown that upfront investment can provide lifelong dividends to high-risk children and to the taxpayers of Michigan, but they do not represent an end-all solution to the problems of Michigan's at-risk children.

⁷ Although the returns from early childhood investments may not materialize for an extended period, these returns are large enough that the net present value of the benefits still exceed the costs.

Home Visiting Programs

Home visiting programs are voluntary programs that link parents with trained service providers (e.g., nurses, social workers) who coach families on how to best address the challenges they face and teach ways to improve the home environment for children. The research base supporting home visiting is remarkable for its breadth and quality, and for the positive results these programs have generated.



Access to Medical Homes

Children that have a medical home have an ongoing relationship with a personal primary care physician. The physician and other providers in the practice consider the needs of the whole child, provide enhanced access, and coordinate or integrate specialty care as needed. Access to a medical home has been shown to reduce emergency department use, hospital admissions, overall health care costs, and to improve the quality of care for children.



Programs that provide support to medical providers and families to enable them to maintain a relationship with a medical home have been shown to increase the number of children who have access to a medical home. One such program is the Children's Healthcare Access Program (CHAP) in Kent County.

High-quality Child Care

A growing body of research has documented the link between high-quality child care and long-term outcomes for children. Studies have shown that positive child care environments promote child progress in both academic skills (e.g., reading, math, cognitive skills) as well as social skills (e.g., motivation, lack of behavioral problems). Michigan has a child care subsidy program known as the Child Development and Care (CDC) Program. The evidence linking high-quality child care to improved outcomes suggests the possibility that additional investment in the CDC program can lead to significantly improved outcomes for children.



Preschool for Three-year-olds

Through the Great Start Readiness Program, at-risk children in Michigan have access to preschool at age four; however, publicly supported preschool programs for three-year-olds are far more limited.



Some studies have found that adding a second year of preschool can lead to larger and more persistent achievement effects than one year of preschool. The research supporting preschool for three-year-olds is not as strong as the evidence for some early childhood programs. While some studies show that a second year of preschool provides significant benefits, other studies fail to find a significant or lasting impact. Therefore, policymakers may wish to create a pilot program for three-year-old preschool in Michigan prior to providing broader coverage, so that the state can evaluate if this opportunity warrants a more significant investment.



Home Visiting Programs

Overview

A vast array of research has documented the importance to young children of healthy, nurturing, stable relationships with adult caregivers. The rapid physical and social development that occurs in children from birth to age five makes these strong relationships even more critical during the early years of life (11). Yet an increasing number of young children are growing up without the full benefits of such relationships, and scientific research suggests this lack of nurturing results in developmental deficits that can have significant and long-lasting effects well into adulthood.

One intervention strategy that has proven effective in helping young children overcome some of these early disadvantages is providing children and their primary caregiver with a high-quality, research-based home visiting program. Home visiting programs are voluntary programs that link parents with trained service providers (such as a nurse or social worker) who coach families on how best to address the challenges they face and

teach ways to improve the home environment for children. Various home visiting models support families with an array of different needs and challenges. The common thread among programs is their core goal of improving the home environment for children in a manner that minimizes existing developmental risks and maximizes the ability of parents and caregivers to support their children's emotional and physical needs.

Home visiting stands out among other social programs in that an extensive volume of research has documented its effectiveness in combating the challenges faced by vulnerable families. A meta-analysis of 55 different studies

Home visiting stands out among other social programs in that an extensive volume of research has documented its effectiveness in combating the challenges faced by vulnerable families.

of home visiting programs conducted by James Bell Associates found that families receiving home visiting services fared better than unserved comparison group families in areas ranging from parenting behavior, parental life outcomes, child health, child cognitive and reading development, and child social competence (12).

In an effort to channel resources to evidence-based programs, new federal funding for home visiting is provided through the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV). In FY 2013, the program provided over \$300 million grants to states and eligible U.S. territories. Funding came in the form of formula grants—based on child poverty rates—to develop and support home visiting generally, as well as competitive development grants for states to undertake efforts to improve and expand existing home visiting efforts. To date, Michigan has been awarded \$34.4 million in MIECHV grants.⁸

The federal program requires states to engage in a needs assessment to identify communities with high service needs. Further, the program requires that at least 75 percent of funding be allocated to federally-approved evidence-based programs. Fourteen different national home visiting models currently meet the federal evidence-based standard. Up to 25 percent of MIECHV funding can be used to support other promising approaches to home visiting, as long as the relevant state commits to a rigorous evaluation of the program. The MIECHV program was originally authorized through September 2014, but Congress recently approved a short-term extension of the program through March 31, 2015.

Supporting Evidence

Home visiting programs have been the subject of extensive research and evaluation, and evidence supporting their effectiveness across a wide range of child and family outcomes is perhaps as strong as for any comparable program. In order to identify home visiting models with sufficient evidence of effectiveness to achieve evidence-based status under MIECHV, the U.S. Department of Health and Human Services contracted with Mathematica Policy Research to undertake a review and assessment of research literature. The review was limited

to research that met certain protocols (for example, randomized controlled trials) and each study was rated as high, moderate, or low in terms of its design capacity to provide unbiased estimates for one or more of eight outcome domains specified in the MIECHV legislation: child health, maternal health, family economic self-sufficiency, linkages and referrals, maternal health, positive parenting practices, reductions in child maltreatment, and reductions in juvenile delinquency, family violence, and crime.

Studies that received either a high or moderate rating and measured outcomes in at least one of the outcome domains were used in evaluating program models. Models were deemed as evidence-based if they either: (1) had at least one high/moderate study find favorable, statistically significant impacts in two or more of the eight outcome domains; or (2) had at least two high/moderate studies find one or more favorable, statistically significant impacts in the same outcome domain.

This section briefly summarizes some of the research studies looking at evidence-based home visiting programs that are currently active in Michigan.

A randomized controlled trial involving a Nurse Family Partnership (NFP) program in Memphis, Tennessee, indicated the program had positive effects on both mothers and children involved in the program. As part of follow-up reporting occurring when children reached six years of age, mothers that received home visits had had fewer subsequent pregnancies, longer intervals between births of the first and second children, and longer relationships with current partners than mothers in the nonvisited comparison group. The home visited mothers also relied on fewer months of welfare and food stamp



A 2013 evaluation funded by the Pew Center on the States estimated the societal return on investment for the Nurse Family Partnership program ...

The report concluded that investment in NFP, in present value terms, resulted in around \$3.50 in public sector savings for every \$1 in costs.



⁸ This data has been confirmed in an email from Amy Zaagman, Executive Director, Michigan Council for Child and Maternal Health from August 5, 2014.

payments since the prior follow-up evaluation, when children were four-and-a-half years old. Children visited by nurses demonstrated higher intellectual functioning and receptive vocabulary scores and fewer behavior problems (13). In a follow up study involving the same youth at 12 years old, NFP youths reported fewer days of cigarette, alcohol, and marijuana use during the previous 30-day period and were less likely to report having certain internalizing behavioral disorders than the comparison group that did not participate in home visiting. For children born to mothers with low psychological resources, nurse-visited children scored higher on achievement tests in reading and math than their comparison group counterparts. This last result was a persistent finding from the follow-up at age six (14).

A recent follow-up study of the Memphis program found reduced rates of mortality for NFP participants. Children who participated in NFP were found to have reduced mortality through age 20. None of the children participating in NFP died from preventable causes, compared with 1.6 percent of the children who did not receive home visits from nurses. Additionally, mothers who did not receive home visits were three times more likely to die than nurse-visited mothers (15).

Another study linked NFP to improved life outcomes for the next generation of mothers. The study followed 310 19-year-old youth whose mothers participated in an NFP program based in Elmira, New York and found that women who were in the home-visited group as children were less likely to have been arrested and convicted of crimes than women in the study's comparison group. The difference for men who participated in the program as children was not statistically significant. Furthermore, the home-visited women who were born to unmarried, low-income mothers had fewer children and as a result also had reduced Medicaid usage when compared to their comparison group counterparts with the same risk factor (16).

Evaluations of the Healthy Families New York (HFNY) program—which is based on the national Healthy Families America (HFA) model—found the program had significant positive effects on measures related to child maltreatment and participating children saw positive academic outcomes. At the point when children reached seven years of age, mothers who participated in HFNY employed less physical abuse and more nonviolent discipline strategies than did mothers in the study's control

group. For mothers that had experienced a prior substantiated child protective services (CPS) report, those participating in HFNY subsequently saw lower rates of confirmed CPS reports for any type of abuse and neglect and lower rates of initiated preventative, protective, and placement services due to abuse/neglect concerns. HFNY children were more likely to be participating in gifted programs and less likely to be receiving special education services than children in the control group (17).

A cost benefit analysis of the Healthy Families New York found **net government savings of \$12,395 per family** by the time the child reached seven years old—a **return of \$3.16 per dollar of program investment.**

A statistical analysis of seven different Early Head Start (EHS) programs that employed home visiting showed both short-term and long-term positive outcomes for participating children and their families in areas including social and parenting skills and family self-sufficiency. Early Head Start children displayed higher levels of engagement with parents during play when they reached 36 months of age. At kindergarten entry, these children showed fewer social behavior problems, more positive approaches to learning, and higher rates of attendance in formal preschool and pre-K programs. EHS families demonstrated more supportiveness, lower levels of distress, and increased self-sufficiency when children reached 36 months; they were also found to have more books in their homes, engage in more teaching activities, and have higher household incomes when children reached kindergarten age. The research suggested that positive outcomes were stronger for programs that were fully implemented in accordance with the national model (18).

Finally, while Michigan's Medicaid-funded Maternal Infant Health Program (MIHP) has not been evaluated by Mathematica to meet the federal evidence-based definition, it does meet Michigan's definition of evidence-based (see below). A 2013 study suggests the program has positive effects on health care utilization for both women and infants participating in the program. The study found that MIHP mothers were more likely to receive adequate prenatal care and had a greater likelihood of receiving an

appropriately timed postnatal visit compared to similarly situated women not participating in MIHP. Furthermore, infants participating in MIHP were more likely to receive the appropriate number of well-child visits over their first year of life compared to matched nonparticipant infants (19).

Michigan's Current Programs

Following the federal government's lead, the state legislature and governor enacted legislation in 2012 to strengthen the link between funding and outcomes for home visiting programs. Public Act 291 of 2012 required that all state-supported home visiting programs be either "evidence-based" or "promising" as defined in the act.⁹

"Evidence-based programs" must be based on a clear, consistent program or model and that:

- (1) are research-based and have undergone rigorous empirical testing;
- (2) follow a program manual or design that specifies the purpose, outcomes, duration, and frequency of home visiting services;
- (3) employ well-trained and competent staff;
- (4) demonstrate strong links to other community-based services;
- (5) operate within an organization that ensures compliance with home visitation standards; and
- (6) operate with fidelity to the program or model.

The act defines "promising programs" as those that meet most of the evidence-based requirements but may not yet have the rigorous empirical research base. Instead, these programs must have data or evidence that demonstrate positive outcomes and have an active or planned evaluation that will provide the more rigorous testing needed to move to the "evidence-based" standard.

There are four home visiting programs operating in Michigan that meet the federal evidence-based standard and one additional program that meets at least the state standard.

Early Head Start – Home Visiting: This program is federally-approved as an evidence-based program and supports both center-based child care services and home-based services for eligible families, with services beginning during pregnancy and continuing until the eligible child reaches the age of three. Eligible families typically either (1) have incomes at or below the federal poverty level or (2) are eligible for intervention services under Part C of the Individuals with Disabilities Education Act because their child has or is at risk of experiencing developmental delays. Home-based services under the program comprise both weekly home visits between the family and a trained home visitor as well as two group "socialization activities" each month that involve both parents and their children. The program aims to (1) promote healthy prenatal outcomes for pregnant women, (2) enhance the development of very young children, and (3) promote healthy family functioning.

Healthy Families America (HFA): HFA is federally-approved as an evidence-based program. Services are delivered through local HFA sites, which establish target populations for services. All sites, however, are required by the program model to use an assessment tool to determine the presence of identified factors (e.g., poverty, single parent, domestic violence, substance abuse) that suggest an elevated risk in the home for child maltreatment or other adverse childhood experiences. The program provides home visits at least weekly until children reach six months of age, after which the frequency of visits is based on family needs. Visits begin prenatally or within the first three months of a child's life and continue until the child reaches at least three years of age, with services sometimes continuing until the child is five years old. Local sites can develop additional support activities (e.g. fatherhood programs, parent support groups) based on community needs. The program lists the following eight goals: (1) reducing child maltreatment; (2) increasing utilization of prenatal care; (3) improving parent-child interactions and school readiness; (4) ensuring healthy child development; (5) promoting positive parenting; (6) promoting family self-sufficiency and decreasing dependency on welfare and other social services; (7) increasing access to primary care medical services; and (8) increasing immunization rates.

⁹ See <http://legislature.mi.gov/doc.aspx?2012-HB-5572> for the public act and related analyses.

Maternal Infant Health Program (MIHP): Medicaid-eligible families in Michigan can receive home visiting services through the state’s Medicaid-funded Maternal Infant Health Program, which meets the state’s definition for evidence-based programs. Maternal and infant needs are assessed through the use of evidence-based risk identifiers. Based on identified needs, mothers and their infants (up to age one) receive up to 18 home visits (nine during pregnancy and nine following birth) by a team that includes a registered nurse and a licensed social worker, and can include a dietician and mental health specialist when needs are identified in these areas. Infants with special needs can receive up to 18 additional visits beyond the standard visits. The program also facilitates communication with the family’s existing health care providers in order to coordinate and encourage an appropriate care plan both before and after birth. Services are administered by over 160 different provider agencies across the state with goal of promoting healthy pregnancies, positive birth outcomes, reduced infant mortality, and improved health, well-being, and development for both pregnant women and infants.

MIHP is an entitlement program, meaning eligible families who apply are guaranteed to be served, as opposed to the other home visiting programs that may have a limited number of funded slots. MIHP is by far the largest home visiting program in Michigan, serving approximately 30,000 Michigan families per year compared to less than 10,000 for the other home visiting programs combined. There are approximately 50,000 Medicaid paid births in Michigan each year (20). This means that MIHP served approximately 60 percent of the families whose child-birth expenses were covered by Medicaid.

Nurse Family Partnership (NFP): The NFP is a federally approved evidence-based program and provides one-on-one home visits between a registered nurse and first-time, low-income mothers beginning early in pregnancy and continuing until the participating child reaches age two. Early intervention is emphasized with home visits beginning as early as 14-16 weeks into a pregnancy and no later than the end of the 28th week of pregnancy. Weekly home visits are conducted during the pregnancy and through the first six weeks following the child’s birth. Visits then become biweekly until the child is 20 months old and conclude with four monthly visits. The NFP has three goals: (1) improving prenatal health and outcomes, (2) improve child health and development, and (3) improving economic self-sufficiency.

Parents as Teachers (PAT): The PAT model is federally approved as an evidence-based program and combines one-on-one home visits with developmental screenings and regular group meetings for families. Local PAT affiliates select the target population and eligibility requirements for participation. Trained parent educators conduct the home visits on at least a monthly basis using structured visit plans and guided planning tools. Families demonstrating two or more high-need characteristics are offered bi-monthly visits. Affiliates also offer monthly group connection meetings and develop a local resource network for families in accordance with model requirements. PAT serves families for at least two years, with some affiliates focusing on children from birth to age three and others permitting services through kindergarten entry. The four goals of the program are to (1) increase parent knowledge of early childhood development and improve parenting practices, (2) provide early detection of developmental delays and health issues, (3) prevent child abuse and neglect, and (4) increase children’s school readiness and school success.

Unmet Need

Concrete data on the number of families currently being served by home visiting programs in Michigan is limited. Michigan has 260,000 at-risk children three years old or younger. Home visiting programs serve an estimated 40,000 households per year, suggesting an unmet need for home visiting programs of 220,000 children per year. However, home visiting programs are voluntary programs. Even if funding were available, some eligible families would likely decline to participate. Achieving a high participation rate would likely require significant additional resources and significant outreach.

Cost of Providing Services

The costs of home visiting programs vary significantly. Average costs differ across each of the major home visiting models. Even within a given model, costs can vary by location depending upon the number of families served, the average number of visits provided to each family, and the number of families who do not complete the program.

The exhibit below lists both program-reported cost data as well as cost data compiled as part of a recent study conducted by Mathematica Policy Research for a sample of programs using the four national models currently in use in Michigan. Annual costs per family are highest within

the Early Head Start—Home visiting program (which was not reviewed as part of the Mathematica research) followed by the Nurse Family Partnership, Healthy Families America, and Parents as Teachers. Costs estimated as part of the Mathematica research—which was based a review of 25 agency sites across 13 states—tended to be higher than general cost estimates provided by national offices. Both the Mathematica study and national office information, however, acknowledged significant variance in annual costs.

The average cost per child served by MIHP is significantly lower than the average cost of the other home visiting programs, \$700 to \$800 per year on average, but this cost is not directly comparable due to differences in the services provided.

Expanding home visiting programs to cover Michigan’s unmet need would be extremely challenging due to the high cost of the programs. Many of these programs cost several thousand dollars per child per year. Assuming an average program cost of \$5,000 per child, it would cost approximately \$1 billion to provide home visiting services to all of these children.

A number of important caveats need to be considered with respect to this estimate. First, program capacity is limited. The number of children served would need to increase significantly over several years to allow additional

capacity to be put in place. Second, due to the voluntary nature of the programs, many eligible families would not participate even if they had access to home visiting programs. The outreach and education required to build participation rates in home visiting programs would also take several years.

Given the high upfront cost of these programs, policymakers may wish to use a more restrictive definition of need to determine eligibility when expanding these programs to ensure that the neediest children are served first. One option would be to limit the program to children who had two or more risk factors, which applies to roughly 60 percent of at-risk children in Michigan.

Alternatively, a more restrictive definition of household income could be used to determine program eligibility. For this report, we define a child as at-risk if their household income is less than 185 percent of the poverty line. Policymakers could restrict access to those children living in households with income below 130 percent of the poverty line, the eligibility threshold for food assistance, or to those below 100 percent of the poverty line. There are 260,000 at-risk children three years old or younger in Michigan using a threshold of 185 percent of the federal poverty line, while there are 215,000 with incomes below 130 percent of the federal poverty threshold and 190,000 below 100 percent of the federal poverty threshold.

Exhibit 2. Annual Costs Per Family of Home Visiting Services

	Program-Reported		Mathematica	
	Average	Range	Weighted Avg.	Range
Nurse Family Partnership	\$4,500	\$2,914–6,463	\$7,596	\$4,228–13,692
Healthy Families America		\$3,214–3,892	\$5,270	\$2,848–10,502
Parents as Teachers	\$2,652		\$2,415	\$2,122–2,622
Early Head Start - Home Visiting		\$9,000–12,000		

SOURCES: Burwick, Zaveri, Shang, Boller, Daro, and Strong, Costs of Early Childhood Home Visiting: An Analysis of Programs Implemented in the Supporting Evidence-Based Home Visiting to Prevent Child Maltreatment Initiative, Mathematica Policy Research, 2014.

HFA: <http://homvee.acf.hhs.gov/document.aspx?rid=3&sid=10&mid=5>

NFP: www.nursefamilypartnership.org/assets/PDF/Fact-sheets/NFP_Benefit_Cost.aspx

PAT: <http://homvee.acf.hhs.gov/document.aspx?rid=3&sid=16&mid=5>

EHS-HV: <http://homvee.acf.hhs.gov/document.aspx?rid=3&sid=8&mid=5>

Finally, it is important to keep in mind that while the up-front cost of expanding home visiting is high, there is extensive research showing that investing in high-quality, research-based home visiting programs saves money in the long run.

Return on Investment

While research has documented the potential for positive benefits from evidence-based home visiting programs, policymakers need to weigh these benefits against program costs when making policy decisions regarding new investments in home visiting. Recognizing the importance of cost-benefit comparisons, a number of studies have sought to quantify the return on investment for home visiting programs.

A 2013 evaluation funded by the Pew Center on the States estimated the societal return on investment for the Nurse Family Partnership program based on review of 30 NFP evaluation reports. The study estimated that the present value of societal benefits of the program equated to \$9.50 for each dollar of program costs. Much of the benefits were related to estimated reductions in infant deaths, child maltreatment rates, and youth crime. Societal benefits include benefits both to program participants and to the general public, which is a broader measure than the return directly back to government for

the investment of public resources. Looking specifically at public sector costs and benefits, the study found the program resulted in cumulative public sector average savings of \$36,910 through the 18th birthday of the child served—with savings accruing primarily through lower Medicaid and child welfare costs and, to a lesser degree, criminal justice, special education, and public assistance costs (e.g. Temporary Aid for Needy Families (TANF) and food assistance). The report concluded that investment in NFP, in present value terms, resulted in around \$3.50 in public sector savings for every \$1 in costs (21).

A similar cost-benefit analysis of the Healthy Families New York (HFNY) suggests the program generated net public savings of \$628 per woman served. The study measured these impacts across two subgroups of participants: mothers who had at least one prior substantiated child protective services report prior to HFNY participation were part of the Recurrence Reduction Opportunity (RRO) subgroup; other young, first-time mothers with placed in the High Prevention Opportunity (HPO) subgroup. The cost-benefit analysis found that for women in the RRO subgroup, net government savings were \$12,395 per family by the time the child reached seven years old—a return of \$3.16 for each dollar of program investment. Net savings were somewhat smaller (\$1,020 per family) for women in the HPO subgroup (22).

Options

If policymakers wish to expand home visiting programs, the following steps would be effective.

- 1. Provide grant funding to implement evidence-based home visiting models.** Provide funding to ensure that a variety of evidence-based models are available in communities, so that children with a diverse set of risk factors can be served.

Rationale: There is ample evidence that investments in evidence-based home visiting programs generate a return on investment. Different home visiting models are most appropriate for children with different risk factors. Funding a variety of programs helps ensure that families can be placed in the program most appropriate for their specific needs.

Cost: Providing funding for an additional 5,000 children would cost an estimated \$25 million per year, while providing funding for 10,000 additional children would cost an estimated \$50 million per year.
- 2. Fund technical assistance.** Fund dedicated staff who can provide technical assistance to local communities.

Rationale: Local communities need support to implement effective and efficient home visiting efforts. Technical assistance can help local communities implement current best practices. In addition, technical assistance can help communities with specific tasks such as creating screening programs to direct families into the home visiting model most appropriate for their risk factors, and fully leveraging any available Medicaid matching dollars.

Cost: Funding technical assistance will cost less than \$1 million per year.
- 3. Serve the neediest children first.** Create criteria to ensure that limited state funding dollars are used to serve the neediest children first.

Rationale: While there is ample evidence that home visiting programs provide a return on investment, limited capacity and the high upfront program cost ensure that in the short run, many at-risk children will not be served. Eligibility criteria should be put in place to ensure that limited program dollars are allocated to the highest need children. For example, requiring that children have two or more risk factors, or using a more restrictive income threshold will help ensure that dollars are targeted to the neediest families.

Cost: This activity is part of providing technical assistance and does not have a separate cost.
- 4. Assist communities in developing outreach programs.** Provide both technical assistance and financial support to develop outreach programs connecting families to the home visiting program that best meets their needs.

Rationale: Home visiting programs are voluntary. At-risk families will need to be informed about the potential benefits of home visiting and then connected to the program in their community that best addresses their needs. Technical assistance and financial support will help communities build efficient programs.

Cost: Much of this activity can presumably be done as part of providing technical assistance and by leveraging existing Medicaid outreach programs. Some additional financial support may be needed, but the costs should be relatively low.



Access to Medical Homes

Overview

Early investment in children's health is essential to their future well-being. The impact of socioeconomic factors on children's health is significant, and researchers have begun to establish the relationship between a child's early social and physical experiences and disparities in health over the life course—from early childhood to adulthood (23, 24, 25).

Public policy approaches for improving health and reducing these health disparities have focused on increasing access to medical care for vulnerable populations by expanding health care coverage and subsidizing services delivered by safety net providers. As a result of these efforts, a growing number of Michigan citizens now have access to health care coverage, which will provide significant benefits, especially for vulnerable children and their families.

Medical homes for children can be a key component of a successful early childhood system that focuses on early learning; health, mental health and nutrition; family support; and special needs and early intervention. Access to a medical home has been shown to reduce emergency department use, hospital admissions, and overall health care costs, and to improve quality of care for children. And programs that provide support to medical providers and families to enable them to maintain a relationship with a medical home have been shown to increase the number of children who have access to a medical home.

Children who have a medical home have an ongoing relationship with a personal, primary care physician. The physician and other providers in the practice consider the needs of the whole child, provide enhanced access, and coordinate or integrate specialty care as needed. Medical homes serving young children differ from medical homes

for adults in that they must “have a two-generation focus that responds to children’s health in the context of their families; supports parents in being the child’s first nurse, nutritionist, and mental health specialist; and strengthens the family’s ability to provide care for their children in a way that supports healthy development” (26).

The proportion of children without access to a medical home is higher among populations with low incomes and among racial and ethnic minorities—the children who are most vulnerable to poor health outcomes. Families who should be benefitting from their new, covered status must still overcome significant obstacles, such as limited transportation, lack of providers willing to care for them, language barriers, and difficulty navigating the health care system. For young children who are at risk of poor health outcomes, services and support must be provided to enable their families to overcome otherwise insurmountable barriers to health and health care.

Recognition of the importance of a medical home for *all* children as a means to improving health outcomes has grown dramatically since the beginning of the 21st century. The American Association of Pediatrics has urged physicians to “strive to attain a medical home *for every child* in their community” (27, p. 184–186, italics added).

ancillary services, or managed care payments. Some of the studies show increases in preventive services such as higher rates of health screenings, and improvements in patient outcomes such as diabetes or blood pressure control. Improvements in access to primary care and enhanced patient communication also have been documented (29, 30). Several evaluations have shown that patient-centered medical home initiatives have produced a net savings in total health care expenditures for the patients served by these initiatives (31). Studies of medical homes have analyzed a variety of different approaches and interventions using different measures of success, but studies have generally attributed positive results to one or more of the core principles of a medical home (such as an ongoing relationship with a personal physician, care delivered by a team of professionals with collective responsibility for the care of the patient, a whole person orientation, or coordinated and/or integrated care) (32).

There also is significant research documenting the effectiveness of medical homes for children in particular. In the 1990s, when development of the medical home concept was focused on the needs of children with complex conditions or illnesses, studies examined and showed the benefits of a medical home for these children. In the early part of the 21st century, researchers began to explore the benefits of a medical home for all children. Vaccination coverage rates have been shown to be higher among children who have a doctor, nurse, or physician assistant who provides ongoing routine care (33). The 2007 National Survey of Children’s Health shows that children who do not have a medical home are almost four times more likely to have unmet health care needs, almost three times more likely to have unmet dental needs, and also are slightly more likely to have gone without preventive medical and dental care visits (34). In a study designed specifically to determine the benefits of a medical home for the majority of the pediatric population—those children who do not have special health care needs—the medical home was associated with increased preventive care visits, decreased outpatient sick visits, and decreased emergency department sick visits. The medical home also was associated with better odds of parents reporting “excellent or very good” child health, and an increase in health-promoting behaviors such as being read to daily, helmet use, and decreased screen time (35).

In a 2012 survey of pediatricians conducted by the AAP, approximately three-fourths of the respondents agreed

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The American Association of Pediatrics has urged physicians to “strive to attain a medical home for *every child* in their community”

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Supporting Evidence

Several evaluations document the benefits of medical homes for the population at large—including children. In 2004, in a special supplement to the journal *Pediatrics*, Starfield and Shi conclude that “A medical home... provides better effectiveness of services as well as fewer disparities and more equity in health across population subgroups” (28). In the past decade, the evidence has been growing that medical homes have a positive impact on the cost, utilization, and quality of care; use of prevention services; patient health outcomes; and patient satisfaction. Peer-reviewed and industry-generated evaluations show reductions in emergency department use, hospital admissions, and costs such as pharmacy,

that having a patient- and family-centered medical home for children (36):

- Improves children’s health care
- Encourages patient use of preventive care
- Decreases unnecessary or preventable emergency department use and hospitalizations
- Reduces health care costs by avoiding duplication or unnecessary testing and services

Evaluations of medical homes published in recent years support earlier findings and show reductions in emergency department visits for children, increased well-care visits for children, improved quality of care measures for family and children’s health, managed care cost savings, and reductions in total costs of care for children (29, 30).

Michigan’s Current Programs

There are several programs and demonstration projects underway in Michigan that are designed to support and accelerate adoption of the medical home model for populations of all ages. These include the Michigan Primary Care Transformation demonstration project (MiPCT), and the Michigan Blue Cross Blue Shield patient-centered medical home program, and Physician Group Incentive Program. The Children’s Healthcare Access Program (CHAP) is the only program in Michigan designed to increase access to and utilization of a medical home for children in particular.

Michigan’s CHAP began in 2008 as a partnership between First Steps, a nonprofit organization that is working to strengthen and coordinate early childhood services in Kent County; Priority Health, a west-Michigan-based managed care plan that provides commercial and Medicaid coverage; the Helen DeVos Children’s Hospital in Grand Rapids; and the Heart of West Michigan United Way. Since then, the partnership has expanded to include multiple pediatric and family practices, the Asthma Network of West Michigan (ANWM), the Great Start Collaborative of Kent County, the Early Childhood Investment Corporation, the Michigan Chapter of the American Academy of Pediatrics, and more recently, the Molina Health Plan. CHAP continues today under the auspices of Health Net of West Michigan, part of a merger and renaming with the Kent Health Plan.

The goal of the Children’s Healthcare Access Program (CHAP) in Kent County is to improve the health of children who are enrolled in Medicaid by providing better

quality care, improving health outcomes, and reducing costs.

The CHAP model is more than an initiative to transform physician practices or a project to demonstrate the value of a medical home model. CHAP is designed to work on three levels—the family, provider, and system—to achieve results for children.

- Family-level strategies include parent education, home-based asthma education and case management, care coordination, patient navigation, referral to community resources, and interpretation and transportation services as needed.
- Provider-level strategies include technical assistance to improve office efficiency and enable practices to provide the components of a medical home, opportunities to participate in special projects (such as FitKids360 (a childhood obesity program), an oral health coalition, and a behavioral health workgroup) to address specific health issues, and opportunities to learn and share information about best practices.
- System-level strategies have included increasing access to primary care through enhanced reimbursement and physician incentives provided by Medicaid health plans (37).

While ideal components of a pediatric medical home include care that is comprehensive, family-centered, and coordinated with other health care and community resources, primary care practices are not typically equipped to assess or address the myriad of social factors that contribute to health issues for the child and family (38). The CHAP model fills a significant gap for both the pediatric practices and the families they serve by providing parent education, care coordination, patient navigation, referral to community resources, and interpretation and transportation if necessary. During the three-year period 2009 through 2011, CHAP served an average of about 2,000 children per year with tangible services; 55 percent of these children were five years old or younger.

Support may include outreach to increase awareness of available services, assistance with transportation, follow-up home visits on missed appointments and scheduled laboratory tests, and education on appropriate use of health services. Linking families to community resources is done through home visits, faxed or electronic referrals to community resource providers, and telephone contacts. The CHAP model improves access to care by connecting children with a medical home, assisting families

in making the best use of health care services, and helping families with young children maintain a relationship with a medical home.

The CHAP team that provides these support services has grown to include two registered nurses, one licensed practical nurse, two community health workers, three social workers, and a behavioral health patient navigator. Four of the CHAP staff members are bicultural, and three are bilingual (Spanish/English) (39).

Kent County CHAP has supported other Michigan communities interested in developing a similar program. In 2011, CHAP partnered with the Early Childhood Investment Corporation (ECIC) to create the MI-CHAP collaborative as a statewide implementation strategy. Through the collaborative, CHAP provided technical assistance to several counties; contributed to an informational video about CHAP; and created and presented a CHAP Toolkit with detailed, step-by-step instructions on how to implement the CHAP model in a community. The Wayne Children's Healthcare Access Program (WCHAP) received funding from the Kresge and W. K. Kellogg Foundations to develop and implement a CHAP and began providing services in October 2011. Other counties in various stages of the assessment and planning phase include Saginaw, Ingham, Genesee, Macomb, Kalamazoo, and a four-county region in northwest Michigan (37). But funding through the ECIC to support MI-CHAP has since been discontinued.

The WCHAP is operational and provides care coordination and community linkages for pediatric practices; parent education on the importance of well-child visits, immunizations, and reduced use of the emergency department; family support through clinic and home visits; and outreach and education with families, community groups, providers, and other professionals. WCHAP includes asthma case management, obesity, maternal and infant health, oral health, and behavioral health as specialty areas.

Unmet Need

The National Center for Medical Home Implementation (NCMHI) promotes the pediatric medical home and has provided tools and resources for families, physicians, medical practices, public health practitioners, and others involved in the development and implementation of medical homes at the community, state, and national levels.

The NCMHI also works closely with national and state leaders of the American Academy of Pediatrics (AAP) to instill the principles of the patient- and family-centered medical home throughout the AAP through mechanisms such as webinars, medical home champions within AAP state chapters, strategy forums, and AAP interdepartmental workgroups (36).

Efforts of the AAP, the NCMHI, and others to promote pediatric medical homes may be working. Over 90 percent of pediatricians surveyed in 2012 by the AAP reported offering services that support a family-centered care partnership, such as same-day scheduling, telephone access, urgent phone advice callbacks, and multi-language education materials. Eighty percent reported that their patients and families are "actively involved" in health care decision-making (36).

At the national level, however, only 58.2 percent of children aged five or younger receive care comprising five components of a medical home (that is, a usual source of care; a personal physician or nurse, all needed referrals for specialty care; help as needed in coordinating health and health-related care; and family-centered care). Children in Michigan fare only slightly better; only 63.5 percent of children aged five or younger have access to a medical home (40). And access for children with special health care needs is even more limited, with only 45.2 percent of Michigan CSHCN five or younger receiving coordinated, ongoing, comprehensive care within a medical home (41).

Large racial and ethnic disparities exist in access to a medical home. Non-Hispanic white children are most likely to have a medical home, and Hispanic children are least likely. Black, non-Hispanic children fare only slightly better than Hispanic children. Children in families in which English is the primary language are twice as likely to have a medical home as children in families whose primary language is not English. Income level is also associated with medical home access. Children who live in families with lower income are less likely to have a medical home (34).

The estimates generated in this report on the need for early childhood programs suggest that 260,000 children from birth to age three are living in families with income at or below 185 percent of the federal poverty level and meet one or more of the "high-need risk" factors. Applying the percentages available from the 2011/12 National

Survey of Children’s Health for all children from birth to age five, it can be estimated that a minimum of 36.5 percent of these children—95,000—do not have access to a medical home. The actual number is most likely higher since research shows that children in families with low income or living in non-English-speaking homes (high-need risk factors) are less likely to have access to a medical home.

Cost of Providing Services

The CHAP model in Kent County cost an average of \$558,740 per year across the first three years (43). This includes total expenditures to provide a range of services, including telephone counseling, family education, asthma case management, transportation, and connections to community resources. CHAP also works with medical practices and providers and other agencies to improve the quality of medical homes and coordination of resources, as well as support communication among community partners.

The annual expenditures for CHAP do not include reimbursements made by the health plans to participating providers for medical care of children, such as for sick child visits. Prior to the increased reimbursement rates for primary care that were tied to the expansion of Medicaid coverage under the Affordable Care Act, the CHAP model negotiated enhanced reimbursement and performance incentives through Priority Health to encourage physicians to offer services to more Medicaid-eligible children and improve the quality of their care. From 2009 to 2011, the enhanced Medicaid reimbursement averaged \$281,400 per year (43). Since approximately 18,000 children in Kent County were covered under CHAP, the enhanced reimbursement was equal to approximately \$16 per child covered. These reimbursements reflect improved access to and delivery of medical care. As such, they are not considered part of the direct cost of providing CHAP services.

Since its inception, the Kent County CHAP has pursued a diversified funding strategy to support services for families and children. During the initial years, almost all revenue was in the form of grants from multiple foundations, Heart of West Michigan United Way, and Priority Health. Now CHAP continues to receive some foundation grant support, but Priority Health and Molina health plans contract with CHAP for outreach, family education, and support services provided to their members, using either a per-member-per-month fee or case rate for each child served. In addition, through its partnership with the Asthma Network of West Michigan, CHAP is exploring options for billing health plans for reimbursable services such as asthma services provided by community health workers and group education done as part of the Fit Kids obesity prevention program. Local dollars spent on CHAP outreach and enrollment activities are counted as matching funds for Medicaid funds channeled through

Applying national statistics to Michigan suggests that approximately 95,000 children age three years old or younger do not have access to a medical home.

Approximately 18,000 children in Kent County are covered by CHAP and roughly 2,500 receive tangible services.¹⁰ Assuming that the age distribution for CHAP is similar to Medicaid, approximately 25 percent of these children would be three years old or younger, suggesting 4,500 children from birth to age three are covered and 625 received services.¹¹ CHAP in Wayne County will cover approximately 25,000 children, of which 2,500 to 3,000 will receive direct services (42). Assuming 25 percent of these children are three years old or younger implies 6,250 children from birth to age three will be eligible and 625 to 750 will receive direct services.

Applying national statistics to Michigan suggests that approximately 95,000 children age three years old or younger do not have access to a medical home. CHAP in Kent County and Wayne covers approximately 10,750 children three years old or younger (equivalent to 11 percent of the estimated number that do not have a medical home in Michigan) leaving approximately 84,000 uncovered.

10 Total eligible children in Kent County provided by Maureen Kirkwood, Children’s Healthcare Access Program, Health Net of West Michigan. Children receiving “tangible services” have been referred, and the CHAP team has been able to make contact and have at least one substantive, live conversation with the parent or caregiver.

11 Medicaid age distribution from the *Green Book Report of Key Program Statistics June 2014*, Michigan Department of Human Services, page 60.

the Kent County Health Department. And in 2014 following the implementation of the Affordable Care Act, CHAP merged with the county health plan and inherited a fund balance, accompanied by a potential new source of revenue from the three local acute care hospitals. As a result of the merger, CHAP is now part of Health Net of West Michigan, and is currently in the process of expanding the CHAP model to serve adults.

Annual spending on CHAP in Kent County is approximately \$224 for every child receiving tangible services. As noted, though, only a fraction of the children eligible for services with CHAP actually require tangible services. The direct cost per covered child is approximately \$20. The enhanced Medicaid match provided by Priority Health added an additional \$16 per child to the cost. While Michigan currently has approximately 84,000 children without a medical home, a CHAP program would cover all Medicaid-eligible children. Michigan has approximately 1 million children under 18 on Medicaid, suggesting CHAP type services could be provided to all Medicaid-eligible children under eighteen for approximately \$36 million per year. Restricting eligibility to children three years old or younger would significantly reduce this cost, potentially to under \$10 million per year. It should be noted, however, that medical home programs help connect children to community resources. Some children may live in communities where these resources are not available. In these communities, system building will need to occur before an effective CHAP program can be put in place.

Return on Investment

CHAP was based on the successful Colorado Children’s Healthcare Access Program (CCHAP), which had already documented fewer emergency department visits, more preventive care visits, and lower Medicaid costs for children with a medical home supported by CCHAP compared to children in practices that were not supported by CCHAP (44). As in the Colorado model, findings from evaluation of the first three years of the CHAP demonstration project in Kent County show that it has achieved important outcomes for children, including:

- A 43 percent decrease in emergency department visits for children one to five years of age who received direct support services from CHAP after one year of program involvement
- A 45 percent decrease in inpatient hospitalization rates for children one to five years of age

- A 24 percent increase in children who are up-to-date on their well-child visits by the age of 15 months
- Improvements in asthma care, control, and management for children who received asthma services

CHAP also has expanded access to medical care for children on Medicaid, creating 1,445 new openings for Medicaid children in primary care practices in the first three years of the program. CHAP has been shown to facilitate integration of services and coordination of care among health care practice partners and community organizations. And practices participating in CHAP increased their use of the Asthma Network of West Michigan, a provider of asthma case management services for children and a CHAP partner.

Cost-benefit analyses conducted for CHAP show that, in as little as two years, for every dollar spent, the program returned \$1.05 in savings to the health care system in fewer emergency department visits and fewer hospitalizations, and savings to families in reduced school absenteeism.¹² The analyses did not take into account other social benefits to the families or society, or other health benefits for children that will most likely occur because of improved access and more effective and regular care. Because health care costs for children are typically low, the evaluators posit that the cost benefits of CHAP are apt to be greater over time as poor health and its associated, significant costs to the individual and society are avoided (37).

Cost-benefit analyses conducted for CHAP show that, in as little as two years, for every dollar spent, the program returned \$1.05 in savings to the health care system in fewer emergency department visits and fewer hospitalizations, and savings to families in reduced school absenteeism.

¹² The CHAP program evaluation presents a number of savings estimates based on a variety of assumptions. The savings total presented here is the average across the seven models presented in the analysis.

Other researchers caution that short-term outcomes, such as emergency department utilization and hospitalization, are infrequent in healthy children, and therefore reduction in emergency department utilization is not the best measure of return on investment for programs intended to improve child health. Measurement of increases in more common health outcomes for children are recommended as a better match for the intent of the medical

home model to meet all aspects of a child's health and well-being (35). As Maureen Kirkwood, Executive Director, Health Net of West Michigan, points out, "Children are cheap when it comes to health expenditures. We won't see significant health care cost savings for children right away. The real benefit is in better health for children that pays off in healthy development over the long term" (45).

Options

If policymakers want to increase the number of children with access to medical homes, expanding CHAP programs in Michigan would be an effective strategy. The following steps would be effective in expanding CHAP programs.

1. **Provide matching grant funding.** Provide matching grants to communities to assist them in creating and running CHAP programs.

Rationale: Communities will need financial assistance to start and run CHAP programs; however, running a successful CHAP program requires the coordination of local community resources. Requiring communities to provide matching funds helps to ensure that the local community capacity is in place and that the local community supports the program.

Cost: Michigan has an estimated 84,000 at-risk children from birth to age three without a medical home. Covering these children and other Medicaid-eligible children through CHAP programs would cost an estimated \$10 million per year, assuming local infrastructure is in place. If state funding is provided via matching grants, the state cost would be less than \$10 million, but local costs will increase by a commensurate amount.

2. **Fund technical assistance.** Create a resource center that can help communities navigate the technical challenges of establishing and effectively running a CHAP program. For example, the technical center can assist local community leaders with the exploration and negotiation of arrangements for maximizing federal Medicaid matching dollars.

Rationale: A central technical resource center can ensure that best practices are communicated to all CHAP communities, and a technical resource center can assist local communities in addressing common problems.

Cost: Technical assistance could be provided for less than \$1 million per year.

3. **Invest in long-term evaluation.** Provide funding to evaluate CHAP programs.

Rationale: Maintaining support for CHAP funding and support for the continuing participation of community partners will require evidence that the program is effective and provides a return on investment. Generating this evidence will require program evaluation.

Cost: Evaluating CHAP programs statewide would cost an estimated \$0.5 million to \$1 million. This is not an annual cost, but a cost that would be incurred each time an evaluation was completed. Program evaluations would likely be needed every three to five years.



High-Quality Child Care

Overview

Almost 57 percent of all children under four years of age in Michigan are being raised in households where all parents in the home are working, according to U.S. Census data. Despite parental employment, approximately 22 percent of these same children live in families with incomes below the federal poverty level, and 41 percent live in families with incomes low enough (below 185 percent of the federal poverty level) to qualify the child for Medicaid and reduced-price school lunches (46). These lower-income families also find themselves challenged by the rising costs of child care. A recent report estimates that the average weekly cost of child care for families with an employed mother has risen by 70 percent between 1985 and 2011, even after adjusting for inflation. For families with children younger than five years old, this means the average cost of child care is about \$9,300 per year (47).

Child care subsidies are available to eligible families to

help offset the costs of child care. The federal Child Care and Development Fund (CCDF) program provides funding to states to provide child care subsidies on behalf of eligible children whose parents or guardians are either working or participating in other eligible activities such as job training and education.¹³ In addition, states receive federal funds under the Temporary Assistance for Needy Families (TANF) block grant to finance programs that provide public assistance and promote family self-sufficiency, and federal law allows states to shift up to 30 percent of TANF funding towards CCDF child care subsidy activities.

CCDF funding, as well as any supplementary TANF dollars, may be used to support child care subsidies on behalf of children under the age of 13, although states

¹³ The CCDF also provides grant funding to U.S. territories and federally recognized tribal governments.

have the option of providing support for children aged 19 or younger who have a physical/mental condition under certain circumstances. Eligible children must also reside with a family whose income does not exceed 85 percent of the state median income of a same-sized family. States have flexibility, however, in defining this income threshold, and many, including Michigan, limit subsidies to families that meet a lower threshold. Subsidies are provided on a sliding fee, with family copays increasing with income.

Reimbursement rates to child care providers within the program are also established at the state level. States establish maximum reimbursement rates, and providers receive either the maximum rate or their actual fee as charged to nonsubsidized families, whichever is less. States are required by federal law to conduct a local market rate survey every two years in order to determine prevailing market rates for child care in different areas of the state. Regulations suggest—but do not require—that states set maximum reimbursement rates at levels equivalent to the 75th percentile of relevant market rates—in other words, rates that equal or exceed the charged market rate of 75 percent of the providers in the related market area. The only requirement within federal law and regulations is that states establish rates that ensure equal access for subsidy-eligible children to comparable child care services provided to children whose families are not otherwise subsidy-eligible. States include the rationale used to determine the sufficiency of their rate structure within a two-year state CCDF plan submitted to the federal government.

Parents using child care subsidies are allowed to pick their own child care provider. Broadly speaking, child care providers may be: (1) regulated center-based, group home, and family child care providers; (2) relative child care providers at least 18 years of age; and (3) other non-relative child care providers. While Michigan is prohibited from establishing rules or requirements that effectively exclude any category of care or provider type or that have the effect of limiting parental choice between these various provider types, the state may reimburse at different rates depending on the type and quality of care provided.

The CCDF program was created mainly as a public assistance program designed to ensure adequate care for children to help allow their parents to participate in the workforce. Given the evidence of the importance of early care,

however, we recommend that this program also focus on enhancing the quality of child care as opposed to simply ensuring some basic level of supervision.

Supporting Evidence

A growing body of research has documented the link between high-quality early child care and positive long-term outcomes for children. Studies have shown that positive child care environments promote child progress in both academic skills (e.g., reading, math, cognitive skills) as well as social skills (e.g. motivation, lack of behavioral problems). The impact of lower quality child care has been ambiguous, at best; and at worst, lower quality care has been correlated with negative outcomes for children, particularly with regard to social development.

A growing body of research has documented the link between high-quality early child care and positive long-term outcomes for children.

Early evidence of the importance of high-quality child care was established in the Cost, Quality, and Child Outcomes in Child Care Centers Study initiated in 1993. Researchers followed children receiving child care in a random sample of 401 different full-day child care centers in California, Colorado, Connecticut, and North Carolina from their time in child care through second grade. Researchers found children in higher-quality centers performed better on both measures of cognitive and social skills through kindergarten and, in many cases, through second grade. Further, for children whose mothers had low educational attainment, linkages between high-quality care and positive outcomes for math skills and social behavior were even more pronounced and persisted through second grade (48).

A 2009 study of the introduction of subsidized, universally accessible child care in Norway examined the impacts of child care over a longer time horizon. Researchers found that the provision of child care increased the likelihood that children would complete high school and attend college (49). Further, the expansion of child care was found to improve earnings (particularly among children from low-income households), reduce future welfare dependency, and result in delays in having children and family formation.

A 2010 study sponsored by the National Institute of Child Health and Human Development (NICHD) added to existing research by looking specifically at the type and quality of child care provided (50). The report examined longitudinal data on children from birth through age 15 and found that higher quality child care from birth to age four and a half—as measured through periodic observational assessments—was associated with improved cognitive-academic achievement at age 15. In addition, the measured impact increased at higher levels of quality, suggesting stronger returns as quality was improved. The study also detected that more hours in child care and more center-based care were related to a greater incidence of reported emotional/behavioral problems (e.g. risk-taking, impulsivity). However, children who received higher-quality care were found to have less of these externalizing behaviors.

That high-quality child care relates to positive long-run outcomes is further supported by another study that examined pre-kindergarten programs in 11 states (51). The research focused exclusively on children from low-income households and assessed the quality of teacher-student interactions using an assessment tool known as the Classroom Assessment Scoring System (CLASS). Similar to the NICHD research, the study found children in classrooms with higher-quality interactions had higher levels of social skills, fewer behavioral problems, and improved reading, math, and language skills. In lower-quality classrooms, the quality of teacher-student interaction was not predictive of social skills and actually predicted higher levels of behavioral problems. Again, this suggests not only that outcomes improve with higher-quality care and instruction, but that these positive benefits are magnified as care quality increases.

More recently, researchers from the University of California-Irvine found evidence that the continuity of high-quality child care throughout the early childhood years can also enhance child outcomes. The study examined the effects of high-quality and low-quality child care across two developmental periods (infant-toddler and preschool) (52). Researchers found that high-quality care during the infant-toddler period was associated with both higher cognitive development and memory scores at 24 months and with higher language, reading, and math scores at 54 months. Further, children who received high-quality care during both periods exhibited the highest academic scores at 54 months.

A 2005 study of two- to four-year old children from low-income neighborhoods in Boston, Chicago, and San Antonio and who were regularly in child care (at least ten hours per week) examined the impact of care quality and hours in care on child cognitive and behavioral outcomes, which were tested at an average interval of 16 months (53). The study found that children who spent a high number of hours in high-quality care had the lowest problem behavior scores in all areas. Conversely, children spending large amounts of time in low-quality care had the highest scores for externalizing behavior problems.

Overall, research findings suggest the critical importance of **high-quality** child care for young children. Michigan should look to structure child care programs and policies to encourage high-quality care in order to maximize the benefits, and minimize the detriments, of care to low-income children served by state programs.

In evaluating the effectiveness of child care programs, one key issue may remain unresolved. Metrics for “child care quality” remain untested and may not be fully adequate. Most states have now adopted a Quality Rating and Improvement System (QRIS) aimed at evaluating the quality of child care provided by different providers and providing this quality information to parents to help them make informed care decisions. This market-based strategy for enhancing child care quality is one focus of the federal government’s Race to the Top Early Learning Challenge, with \$1 billion being distributed to states over the last few years to enhance early learning programs; however, recent studies have questioned whether the ratings generated by state QRIS systems are correlated with learning outcomes.

One recent report suggests that on the whole, these ratings were not significant predictors of child outcomes in math, pre-reading, language, and social skills in their analysis of nine different state systems (54). In testing three of the most frequently-used quality indicators (staff qualifications, staff-child ratios, and family partnerships), they found weak and inconsistent effects on outcomes between children attending high-rated versus low-rated programs. A measure of learning environment as determined through use of the Early Childhood Education Rating System-Revised (ECERS-R) demonstrated a positive, but general insignificant correlation with outcomes. The only indicator that proved to be consistently significant in predicting all four learning outcomes was

teacher-child interaction as measured through the Classroom Assessment Scoring System (CLASS).

Michigan’s QRIS system, called Great Start to Quality, rates the quality of care delivered by child care providers based on a point structure, where providers earn points across a number of categories related to staffing levels and qualifications, family and community engagement, management and personnel policies, environmental factors, and curriculum and instructional practices.¹⁴ Michigan’s successful Race to the Top Early Learning Challenge application included using the CLASS as well the Preschool Quality Assessment, another quality measurement tool, to validate the rating system in terms of linkages to child development, learning, and school readiness. Results of the validation will need to be carefully examined to ensure that “high-quality” providers under Michigan’s system are actually providing care that leads to improved outcomes. Some states have incorporated quality measures such as CLASS directly into the rating systems; Michigan may wish to consider the doing the same if existing indicators are not strongly correlated with outcomes.

Michigan’s Current Programs

The Michigan Department of Education administers Michigan’s child care subsidy program, known as the Child Development and Care (CDC) program. During fiscal year 2012–13, the program provided child care subsidy support on behalf of 81,015 Michigan children at a cost of just over \$135 million. State subsidies are available to children from eligible low-income households while parents or guardians are (a) engaged in employment or some other approved work-related activity (e.g. job training); (b) family preservation activities aimed at preventing the out-of-home placement of children in the home; or (c) high school completion.

Hourly reimbursement rates to child care providers under the program are tiered based on family income and provider type. Exhibit 3 below outlines the applicable 2013 reimbursement rates for a family of three. Families of three that qualify for state cash assistance through the Family Independence Program (equivalent to annual income of around \$9,780—about 50 percent of the federal poverty guidelines) would receive support equal to the

Exhibit 3. Michigan Reimbursement Rates, Children 2 1/2 Years or Younger

	Sliding Scale—Household Income as % of Poverty				
	up to 50%	51–113%	114–116%	117–119%	120–122%
Provider Type	Full rate	95%	90%	80%	70%
Licensed Centers	\$3.75	\$3.56	\$3.38	\$3.00	\$2.63
Group/Family Home	\$2.90	\$2.76	\$2.61	\$2.32	\$2.03
Unlicensed—Tier 2	\$2.20	\$2.09	\$1.98	\$1.76	\$1.54
Unlicensed—Tier 1	\$1.35	\$1.28	\$1.22	\$1.08	\$0.95

SOURCE: Michigan Department of Education

NOTE: Unlicensed Tier 2 Providers are required to complete ten hours of prescribed training to qualify for enhanced reimbursement.

¹⁴ An outline of Michigan’s quality standards can be found at www.greatstarttoquality.org/resources

program’s maximum hourly subsidy rate, which ranges from \$3.75 for licensed center-based care to \$1.35 for certain unlicensed individuals acting as care providers. That maximum rate also applies to families of three that are deemed categorically eligible for child care support because the child is a foster child or the family is receiving family preservation services.

Otherwise, reimbursement rates decrease as family income increases. As Exhibit 3 shows, families of three with incomes between 51 percent and 113 percent of the federal poverty guidelines qualify for a subsidy equal to 95 percent of the maximum hourly rate for their provider type. That percentage of the maximum rate falls progressively as income increases; families at the highest level of income eligibility (those with incomes between 120 percent and 122 percent of the poverty guideline) receive a subsidy equal to 70 percent of the maximum rate. Families of three with incomes above 122 percent of the federal poverty guideline would generally be ineligible for child care subsidies unless they were determined categorically eligible.

A recent interstate comparison of child care policies conducted by the National Women’s Law Center indicates that Michigan has both relatively stringent income eligibility requirements and relatively low reimbursement rates for child care services.

Exhibit 4 compares Michigan with six of its Midwestern neighbors in terms of income eligibility levels for a family of three. Michigan’s income eligibility ranks sixth among the seven states. A family of three with income above 122 percent of federal poverty guidelines, or above 39 percent of the state’s median income level, would not be eligible for child care support. Nationally, only three states—Missouri, Ohio, and Nebraska—had lower eligibility standards. Conversely, ten states (Alaska, Maine, New Hampshire, Hawaii, District of Columbia, Nevada, Connecticut, North Carolina, California, and Massachusetts) have income limits that exceed 200 percent of the poverty level (55).

Exhibit 4. Child Care Income Eligibility Limits for a Family of Three

	Income Limit in 2013		
	Dollar amount	% Federal poverty rate	% of State median income
Pennsylvania	\$38,180	195%	58%
Wisconsin	36,131	185	55
Illinois	35,328	181	52
Minnesota	33,786	173	47
Indiana	24,240	124	41
Michigan	23,880	122	39
Ohio	23,172	119	38

SOURCE: Schulman, K. and Blank, H., *Pivot Point: State Child Care Assistance Policies 2013*, Washington, D.C.: National Women’s Law Center, 2013.

Similarly, Michigan's reimbursement rates to child care providers fall below those of most other states. Exhibit 5 compares Michigan's 2013 reimbursement rate for one-year-old children in center-based care with the same Midwestern neighbors. The federal government recommends that reimbursement rates be set to 75 percent of the market rate. Michigan has the lowest reimbursement rate of any of the Midwest states; the \$650 per month reimbursement equates to only 65 percent of the federal benchmark. Nationally, only seven states and the District of Columbia offered lower reimbursement to child care centers as a percentage of the recommended 75th percentile market rate. Michigan's rates compared even less favorably when looking at the relevant center-based reimbursement rates for four-year old children. Here, Michigan's \$433 per month reimbursement rate is only 46 percent of the 75th percentile market rate, placing Michigan second to last in the nation above only Missouri.

Michigan's reimbursement rates to child care providers fall below those of most other states.

Unmet Need

For the last seven years, state spending in Michigan on child care services has plummeted. For FY 2007, total payments were just below \$416 million and covered an average of 106,062 children each month. By FY 2013, spending had fallen to \$135 million, a 67 percent decline from FY 2007. Similarly, the average monthly number of children served dropped to 43,246. Exhibit 6 outlines both annual fiscal year total payments for child care as well as the average monthly number of children served by the program.¹⁵

Exhibit 5. Child Care Reimbursement Rates—Center-Based Care for One-year-olds

State	City/county/region	Monthly reimbursement rate	75 th Percentile market rate	Market rate year	State rate as % of 75 th percentile
Pennsylvania*	Philadelphia	\$902	\$909	2012	99.2%
Indiana*	Marion County	814	905	2011	89.9
Wisconsin*	Milwaukee County/ Dane County	955	1,152	2010	82.9
Illinois*	Group 1A	1,007	1,299	2010	77.5
Minnesota*	Hennepin County	1,126	1,464	2012	76.9
Ohio*	Cuyahoga County (Cleveland)	713	966	2012	73.8
Michigan	Statewide	650	1,000	2011	65.0

SOURCE: Schulman, K. and Blank, H., *Pivot Point: State Child Care Assistance Policies 2013*, Washington, D.C.: National Women's Law Center, 2013.

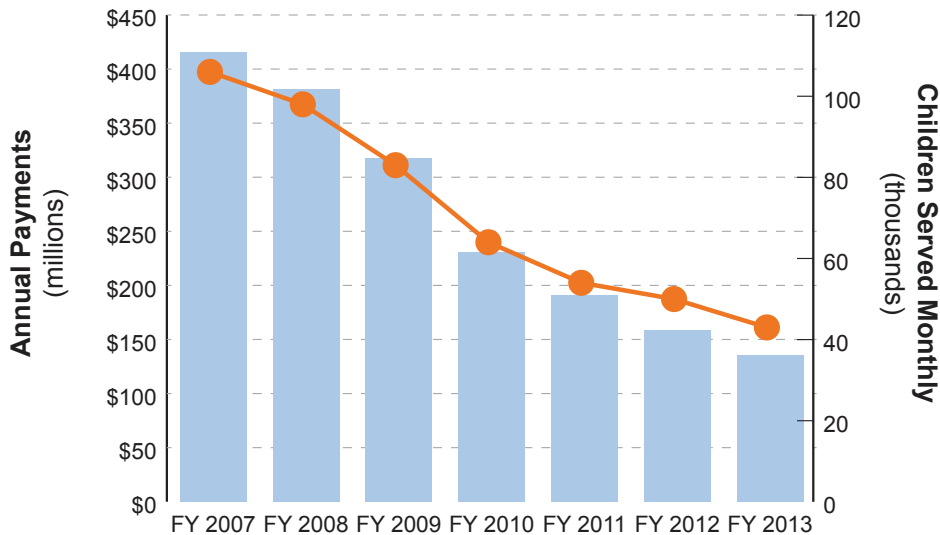
¹⁵ The data on monthly children served reflect the number of unique children served on average in a given month of the year. Since many children move on and off of the CDC caseload from month to month, the number of unique children served during the entire fiscal year is significantly higher than this monthly average. This explains the difference between these monthly figures and the 81,015 children noted earlier that were served overall during FY 2013.

These declines were likely driven by a number of factors. Most prominently, a performance audit by the Michigan Office of the Auditor General in July 2008 suggested lax oversight over program payments, including potential improper payments for services not delivered (56). The audit prompted changes to the child care payment process, including case reviews and significant new time and attendance reporting requirements for child care providers and parents. The new compliance burden likely reduced improper payments, but may also have reduced program participation, particularly the use of unlicensed care. In addition, state policies were revised shortly thereafter to limit the number of hours in care that could be reimbursed to 80 hours during any two-week pay period, down from the previous limit of 100 hours.¹⁶ Finally, these oversight and policy changes coincided with the start of the severe economic recession, which likely decreased the number of eligible low-income parents that maintained employment and thus also decreased the number needing child care services during work hours.

The end result: today, Michigan is spending \$280 million less per year on child care services than it was seven years ago, and the program’s caseload is still falling. Available data suggest that program need is growing, however. When poverty is defined as living at or below 100 percent of the federal poverty level, the analysis suggests that 108,000 Michigan children (23 percent of all such children) from birth to age three meet both the “high need” definition and have all available parents engaged in employment. Using a 185 percent of poverty threshold (income eligibility for Medicaid) in defining high need, the number of children from birth to age three with high need rises to 145,000 (31 percent of all such children).

Today, Michigan is spending **\$280 million less per year on child care services** than it was seven years ago, and the program’s caseload is still falling.

Exhibit 6. Child Development and Care Program, Caseload, and Payment Trends



SOURCE: Table prepared by Citizens Research Council using data from the Michigan Department of Human Services’ *Annual Report of Key Program Statistics* (2007–2013).

¹⁶ For FY 2015, the limit has been increased to 90 hours.

State data indicate that only 19,292 children from birth to age three received subsidy support from the Child Development Care program in April 2014—significantly less than the number in high need, according to the data analysis (57). This suggests a significant unmet need for subsidized child care.

Cost of Providing Services

High-quality child care is expensive and raising Michigan’s current reimbursement rates to align with the federally-recommended 75th percentile market rate would be costly. The CDC program currently serves around 48,000 children (19,292 children from birth to age three). Raising reimbursement rates to the recommended level for all children would cost an estimated \$123 million per year. Some of these costs could be mitigated if rate increases are limited to child care services provided on behalf of young children. Our analysis suggests an annual cost of \$99 million to raise rates for children five years old or younger. The annual cost decreases a little more (to \$73 million) when rate increases are limited to care provided to children from birth to age three. The analysis assumes the rate changes will induce a shift toward center based care that is more consistent with national norms, which adds to these costs. Federal CCDF data indicate that 65 percent of subsidized care nationally is delivered by centers; in Michigan, only 34 percent of care was center based in 2012.

Still, this applies the rate changes only to children currently served by the program. As noted earlier, CDC caseloads have plunged in Michigan in recent years. In September 2005, the program served 158,513 children—more than three times the number served as of April 2014. Implementing both rate increases reflective of the 75th percentile market rate and reforming eligibility and outreach efforts to restore caseload levels to their previous norms greatly expands the estimated annual cost increases. The rate increases combined with a tripling of the current caseload of children served would cost an estimated \$687 million annually, or around \$397 million per year if these reforms are focused on children from birth to age three.

In all these cases, cost estimates assume that the rate increases are applied to all applicable children in the program. Restricting rate enhancements to providers that meet specified quality standards would significantly reduce upfront costs, as most providers would not yet

qualify for the enhanced rates. In this case, the figures above represent an upper-bound on annual cost increases that would only be realized if all providers achieved the relevant high-quality designation.

Return on Investment

While the link between high-quality child care and positive academic, cognitive, and social outcomes for children is strong, little research is available quantifying the actual return on investment for high-quality services. One such study was commissioned by Colorado’s Early Childhood Leadership Commission. The commission developed the Colorado Early Investment Model as an online tool to evaluate investments in early childhood programs. The model’s estimated impacts are derived from the results of national peer-reviewed research on the outcomes of specific early childhood programming, modified to fit the demographics and specific programming in Colorado. As part of the project’s research, the model was used to evaluate the impact of increasing the quality of existing child care programs—keeping total enrollment constant. Specifically, the study evaluated the return on investment of moving all children currently in one-star or two-star programs under Colorado’s quality rating improvement system into three-star programs. The results suggested that the \$84 million investment in higher-quality programming would boost the overall return on investment in child care programs from \$9.42 per dollar invested under the current system to \$13.82 per dollar invested. The increase in the rate of return results from projected gains in educational outcomes including higher graduation rates and college attainment, and grade retention and special education costs; reduced usage of the criminal justice and child welfare systems; increased tax revenue generated by income gains; and decreased reliance on public welfare systems.



Funding increases in the CDC program should be focused on increasing the reimbursement rate for programs that receive a high score in the Great Start to Quality System.



Options

If policymakers want to increase the delivery of high-quality child care to at-risk children, the following steps would be effective.

1. **Continue to expand investment in tiered reimbursement.** Funding increases in the CDC program should be focused on increasing the reimbursement rate for programs that receive a high score in the Great Start to Quality System.

Rationale: High-quality child care is expensive. Increases in the reimbursement rate will help at-risk children access high-quality care. In addition, increasing the reimbursement rate for high-quality care creates an incentive for care providers to increase their quality.

Cost: Bringing reimbursement rates for children from birth through age three to federal benchmarks would cost \$73 million. If reimbursement rates were raised to the federal benchmarks and the number of children served by the program was increased to the 2005 level, the cost would be \$400 million.

Limiting rate increases to child care providers who receive the highest quality ratings would limit the cost increase. If Michigan were to increase reimbursement rates for those currently served by three- and four-star quality rated programs to the federal level, the initial cost increase would be \$15 million to \$20 million per year. In addition, Michigan does not need to move fully to the federal benchmark. Any increase in tiered reimbursement rates would help to improve access to high-quality child care.

2. **Evaluate the Great Start to Quality System.** Validate that the state's child care rating system provides the highest ratings to providers that are most successful at improving child development, learning, and school readiness.

Rationale: Parents and taxpayers need to be confident that the Great Start to Quality System accurately measures the quality of child care. Michigan's successful Race to the Top Early Learning Challenge application included a validation of the state's child care rating system in terms of linkages to child development, learning, and school readiness. Results of the validation will need to be carefully examined to ensure that "high-quality" providers under Michigan's system are actually providing care that leads to improved outcomes.

Cost: Michigan's successful Race to the Top Early Learning Challenge grant application included \$2.4 million for this activity.

3. **Fund an awareness campaign for Great Start Connect.** Provide resources to ensure that parents are aware of the state's web resources that provide information on provider quality.

Rationale: The Michigan Department of Education's web resource (www.greatstartconnect.org), allows parents to access local child care providers' ratings. Many parents are unaware of this resource, though, and many providers do not participate. Increasing awareness will help connect parents with the highest-quality care and will create incentives for providers to participate.

Cost: Funding an effective awareness campaign will cost an estimated \$1 million to \$2 million.



Preschool for Three-Year-Olds

Overview

Michigan recently enacted a significant expansion to the Great Start Readiness Program (GSRP), the state's high-quality preschool program for four-year olds. With the expanded funding, Michigan now ensures that at-risk children have much better access to high-quality preschool when they are four years old. Publicly supported preschool opportunities in Michigan are limited for at-risk three-year-olds. While the research base for a second year of preschool is more limited than the research base for the first year of preschool, research does suggest that a second year of preschool can benefit at-risk children, especially with respect to kindergarten readiness.

Supporting Evidence

While some studies show a second year of preschool providing significant benefits, the supporting evidence for three-year old preschool is not as strong as the evidence supporting other early childhood programs. A study comparing the 2006 and 2009 data from the Head Start Family and Child Experiences Survey found that participants in Head Start at age three had higher vocabulary scores than participants starting at age four (58). The Abbott preschool program in New Jersey showed increased achievement scores across all cognitive areas and found that two years of preschool starting at age three had more persistent benefits than a single year of preschool (59).

While some studies show a second year of preschool providing significant benefits, the supporting evidence for three-year old preschool is not as strong as the evidence supporting other early childhood programs.

A Head Start Impact Study from 2010 compared results from Head Start participants at age four and three, finding that 55 percent of four-year-olds could recognize all their letters by the end of kindergarten compared to 65 percent of children that started Head Start at age three (60).

A Stanford evaluation of several early education opportunities and their associated effects found that, in the context of age of entry, the largest gains were found in children who entered a program at ages two or three, regardless of income level. These children showed significantly more gains than those starting at age four, and this was true for cognitive gains in both reading and math (61).

Several studies have found that children who participated in preschool as three-year-olds are more likely to have higher reading skills than children who participated in kindergarten alone, and found that these gains are higher for children from low-income families, for English-language learners, and for minorities (62).

Evaluations from a Head Start impact study found that, for three-year-olds, the strongest effects were for African-American and Hispanic children. A study which reviewed outcomes from Oklahoma’s expanded preschool programs, found that while benefits to school readiness were seen across all ethnicities, the largest gains were for Hispanic participants. The study also found that benefits for nonwhite participants were larger among three-year-olds than among four-year-olds (63).

In addition, the Head Start study found that three-year-old participants with special needs made considerable gains in math and social-emotional development by the end of first grade, compared to similar children who did not participate in Head Start at age three (64, p. 12).

Evidence suggests that while preschool provides considerable short-term benefit to children, some of these advantages tend to fade over the course of K–12 education, evidenced by the test scores of nonparticipants often catching up some time after the elementary years. Despite some test score convergence, three-year-olds who attend preschool experience significant long-term benefits through adulthood.

Long-term benefits are primarily identified from longitudinal and intensive studies of programs. Preschool participation, regardless of if children spent one year or two

in the programs, not only leads to academic gains in the early elementary years, but personal and social benefits during adulthood. One study found that children who attended preschool were less likely to require special education services during elementary school than their peers who did not attend preschool: An eight-year follow-up found that only 11 percent of children attending preschool had been assessed as requiring services, as compared to 40 percent of children who did not attend preschool (64).

As opposed to the strong evidence that supports benefits of expanded preschool, a handful of studies provide evidence that questions the benefits of three-year-old preschool. Often, these studies cite that participating children showed no achievement gains over comparison groups, or gains that were statistically insignificant. In addition, there are studies showing programs of poor quality actually have negative effects on participants (65). In order to develop programs that produce statistically significant and long-term benefits to children, attention should focus on establishing high-quality components.

Michigan’s Current Programs

Michigan’s publicly funded preschool offerings for three-year-olds are very limited. The National Institute for Early Education Research estimates that 3 percent of three-year-olds have access to the state’s preschool for four-year-olds under federal requirements from the Individuals with Disabilities Education Act (IDEA). The federal Head Start program also enrolls an estimated 11 percent of Michigan’s three-year-olds (66).

Michigan’s publicly funded preschool offerings for three-year-olds are very limited.

Outside of federally supported programs, Michigan’s three-year-olds have access to privately run preschools and programs offered by local school districts. Programs from local school districts do not receive state funding and are designed, implemented, and funded at the local level. Without state funding or state mandated preschool, enrollment and cost data for private and local entities are not available.

Unmet Need

The relatively small proportion of Michigan three-year-olds eligible for public preschool programs suggests a substantial unmet need.

The unmet need in Michigan depends on the income level used to define when children are “at risk.” Using our preferred definition of 185 percent of the poverty threshold, Michigan has approximately 65,000 at-risk three-year-olds. An estimated 16,400 of these children are currently covered by publicly supported preschool programs, leaving an unmet need of 48,600 children.

Cost of Providing Services

Covering the at-risk three-year-old population would cost approximately \$175 million assuming a cost of \$3,625 per slot, the same cost as the GSRP. If the income threshold were expanded to 250 percent of the federal poverty line, the same threshold used for GSRP, the cost would rise to \$220 million. Restricting the program to those at or below 130 percent of the poverty line would lower the cost to \$114 million.

There may be some children covered under either IDEA or Head Start who do not meet the definition of “at-risk” used in this research. This would result in the cost of providing preschool being somewhat higher than the estimates provided here. In addition, if the state were to provide three-year-old preschool, it might choose to provide additional services to children who currently qualify under IDEA or Head Start rather than excluding them from state preschool funding.

Return on Investment

Evidence supporting the return on investment for preschool is powerful. Estimates range from three to seven dollars saved for every dollar spent (64). However, in some of these studies the children attend one year of preschool and in some two years. Most studies do not try to differentiate the additional benefit gained from attending two years of preschool compared to just one. As a result, the research support for a second year of preschool is far more limited than the research base for preschool in general.

Reynolds (1995) finds that a second year of preschool significantly increased school readiness, but that the benefits faded over time (67). While some studies do find the benefits of preschool fading over time, this may be due to additional services being provided to children who did not attend preschool.

More encouraging is the more recent study of the Abbott Preschool Program (60). This study found adding a second year of preschool led to larger persistent effects on achievement over those attending one year of preschool. The fifth grade follow-up study found that students who had received a second year of preschool instruction did significantly better on both reading and math assessments, and experienced reduced grade retention and special education placement rates. The Abbott program study did not follow the students long enough to have fully calculated the return on investment, but the authors speculate that “a substantial return on the state’s investment might be expected for the Abbott program based on its comparable results so far” (60, p. 20).

Options

If policymakers are interested in expanding access to publicly funded preschool for three-year-olds, the following approach would be effective.

1. **Fund a preschool pilot.** Fund a pilot program providing preschool to three-year-olds and carefully evaluate the results to establish if a second year of preschool provides a significant enough to warrant additional investment.

Rationale: While some studies suggest that a second year of preschool can provide significant long-term benefits to at-risk children, the research is not yet conclusive. A pilot program would provide a second year of preschool for some at-risk Michigan children and would provide an opportunity to evaluate the effectiveness of this investment opportunity.

Cost: Assuming a per-student cost of \$3,625, preschool could be provided for 1,000 three-year-olds at a cost of \$3.6 million. Providing preschool for 5,000 three-year-olds would cost an estimated \$18.1 million. Covering the full at-risk population of three-year-olds would cost an estimated \$174 million per year.

Conclusion

Based on factors negatively correlated with school readiness upon kindergarten entry, more than half of Michigan children from birth to age three are at risk, presenting a daunting challenge for policymakers. There are reasons to be optimistic, however. A compelling and growing research base indicates that early investment in children can provide life-long dividends both to those children and to the taxpayers supporting those investments. Early investment is far more effective and less expensive than remediation.

In response to strong evidence of its success, policymakers recently dramatically expanded funding for the Great Start Readiness Program (GSRP), Michigan's high-quality four-year-old preschool program. This investment will pay dividends for years to come. This research paper identifies four additional program areas for policymakers who seek to build on the success of GSRP to consider: home visiting programs, access to medical homes, high-quality child care, and preschool for three-year-olds. Investments in these areas make sense for those committed to improving the lives of Michigan's young children, and they make sense for those interested in the economic future of our state.

APPENDIX

Methodology for Estimating the Number of At-Risk Michigan Children from Birth to Age Three

METHODOLOGY:

Data and Research Sources

The methodology for estimating the number of at risk Michigan children three years old or younger is presented in this appendix. The analysis below draws on both survey data and on the results of scientific research on the incidence of certain identified risk factors. The primary data used in the analysis come from the American Community Survey (ACS). Data on all Michigan children three years old or younger were compiled using the Integrated Public Use Microdata Series (IPUMS) through the University of Minnesota’s Minnesota Population Center (46). Data were drawn from the three-year ACS sample covering the years 2010 through 2012 and representing three percent of the entire Michigan population. The ACS survey contains direct information on a number of the risk factors noted above, including family income as a percentage of the federal poverty level; educational attainment of the parents and head of household for each child in the sample; and English-speaking ability of the parents and head of household for each child in the sample.

The ACS data are analyzed to estimate the number of children from birth to age three who demonstrate “high need” for some form of early childhood services. We define a “high-need” child as a child living in a household with any one or more of the following characteristics:

- **Low family income:** We evaluate the number of high-need children across a range of different poverty level thresholds that are tied to eligibility for a number of public assistance programs (e.g. food assistance, Medicaid, free and reduced-price school lunch).
- **Low educational attainment of household adults:** This includes children in households where all parents present in the household along with the head of the household (if not a parent) have not acquired a high school diploma or GED.
- **Non-English-speaking adults in the household:** This includes children in households where all parents present, as well as the head of the household (if not a parent) reported in the survey in that they either speak no English or speak English but “not well”.

The ACS data do not contain information on the two remaining risk factors related to developmental disabilities and adverse experiences. Estimates for the prevalence of these factors among young children in Michigan were drawn from published research.

Developmental Delays: The analysis draws on the results of a 2008 study by researchers from the University of Denver and the University of Colorado-Denver which suggests an overall nationwide incidence of developmental delays of 13.8 percent for 24-month old children (68). The study examined data from the Early Childhood Longitudinal Study, Birth Cohort, with developmental status based on assessments and criteria used to determine eligibility for federal Part C early intervention services. Further, the authors find that poverty status is statistically significant for this age group, with incidence of delays rising to 17.9 percent for children in families living below the federal poverty level versus 12.7 percent for families living at or above the poverty level. For this study, we integrate these poverty-based estimates into our base ACS survey data.

Severely Adverse Experiences/Toxic Stress: A 2013 Child Trends report estimated that almost one out of every eight children has experienced three or more “negative life experiences” associated with negative impacts on health and child development (69). Examples of these experiences include economic hardship, abuse and neglect, death of a parent, divorce/separation of parents, witnessing domestic or other neighborhood violence, living with someone with a mental illness or substance abuse problem, and incarceration of a household member. Researchers used data from the 2011/12 National Survey of Children’s Health to study the incidence of these negative experiences. Their analysis showed differences in the percentage of youth having experienced three or more severely adverse experiences across age levels and family income levels, which are outlined in the exhibit below. For children five years old or younger, they find that 5.2 percent have been exposed to three or more severely adverse experiences. For this study, we use this percentage as our baseline estimate and assume a proportional increase in the percentage for families at or below the federal poverty level (6.2 percent) and a proportional decrease (2.6 percent) for families above 200 percent of the federal poverty level.

Estimating the Need for Early Childhood Programs

Integrating the published estimates of the incidence of developmental delays and adverse experiences with the ACS data, we estimate that approximately 1 out of every 2 children from birth to age three in Michigan meet one or more of the “high-need” risk factors. The estimated

proportion depends upon the definition of poverty applied. Using 100 percent of the federal poverty level as the threshold, just under 41 percent of the three-year-old or younger population meets the definition of “high need” – an estimated 190,454 children. The proportion increases if a broader definition of poverty is utilized. For instance, if the definition includes all children that meet the Medicaid income eligibility criteria (185 percent of the federal poverty level), an estimated 259,933 young Michigan children (almost 56 percent of the total population) meet the definition of “high need.” The results

are outlined in the table below which reviews the estimates for “high-need” children across different poverty thresholds.

In Exhibit A-1, the estimated count of “high-need” children reflects an unduplicated count of children from birth to age three. If a child meets any one of the risk factors, the child would appear in this count. Since some children fall into more than one of the risk categories, however, the total estimated count is less than the sum of the counts for each risk factor.

Exhibit A. Percentage of Children with Three or More Adverse Experiences, Based on Data from 2011/2012 National Survey of Children’s Health

Age	Percent	Poverty Level	Percent
0 to 5	5.2%	100% or less	13.8%
6 to 11	13.0	101 – 200%	11.6
12 to 14	15.3	Above 200%	5.9
15 to 17	18.0		

SOURCE: Child Trends, Indicators on Children and Youth, July 2013

Exhibit A-1. Children Aged Zero to Three

	Poverty Level Used in Poverty Definition									
	100%		SNAP Free Lunch 130%		State Emergency Relief 150%		Medicaid Reduced Lunch 185%		200%	
ACS risk factors Poverty or Adults < HS or Adults non-English	139,485	30.0%	168,779	36.3%	189,312	40.7%	223,436	48.0%	236,994	50.9%
Developmental delay	65,616	14.1	65,616	14.1	65,616	14.1	65,616	14.1	65,616	14.1
Three or more adverse experiences (toxic stress)	19,383	4.2	19,383	4.2	19,383	4.2	19,383	4.2	19,383	4.2
Estimated “High Need”	190,454	40.9%	214,698	46.1%	231,691	49.8%	259,933	55.9%	271,168	58.3%

SOURCE: Table prepared by Citizens Research Council using data from the Integrated Public Use Microdata Series (see reference 46), Prevalence of Developmental Delays and Participation in Early Intervention Services for Young Children (Rosenberg, Zhang, and Robinson), and Child Trends, Indicators on Children and Youth.

The estimates of high-need children help to define the potential need for various early childhood programs and services. But, who are these high-need children? Exhibit A-2 provides a data profile of the children that meet the definition of high need using 100 percent and 185

percent federal poverty level thresholds. Information for the profiles is pulled from the ACS data. For comparison purposes, similar profile information is provided in the last column of the table for all Michigan children from birth to age three.

Exhibit A-2. Profile of High-Need (At-Risk) Michigan Children Aged Zero to Three

	High Need				All Children	
	At or below 100% poverty		At or below 185% poverty		Number	%
	Number	%	Number	%		
Total children	190,454	100.0%	259,933	100.0%	465,283	100.0%
Gender:						
Male	97,476	51.2%	134,541	51.8%	239,692	51.5%
Female	92,978	48.8	125,392	48.2	225,591	48.5
Race:						
White/non-Hispanic	99,542	52.3%	145,630	56.0%	304,037	65.3%
White/Hispanic	13,888	7.3	17,380	6.7	25,807	5.5
Black	52,142	27.4	64,057	24.6	81,066	17.4
Native American	1,260	0.7	1,730	0.7	2,835	0.6
Other race	14,891	7.8	19,790	7.6	30,661	6.6
Mixed race	8,731	4.6	11,346	4.4	20,877	4.5
Income:						
0 to 50% poverty	59,477	31.2%	59,477	22.9%	59,477	12.8%
51% to 100% poverty	66,896	35.1	66,897	25.7	66,896	14.4
101% to 150% poverty	14,286	7.5	55,523	21.4	55,523	11.9
151% to 200% poverty	11,262	5.9	39,503	15.2	50,739	10.9
200%+ poverty	38,533	20.2	38,533	14.8	232,202	50.0
Health Insurance:						
Medicaid	139,961	73.5%	185,826	71.5%	224,389	48.2%
Other insurance	41,340	21.7	62,113	23.9	223,085	47.9
No insurance	9,153	4.8	11,994	4.6	17,809	3.8
Parent/Adult Educational Attainment:						
8th grade or less	8,108	4.3%	8,108	3.1%	8,487	1.8%
High school/no diploma	32,594	17.1	32,594	12.5	32,594	7.0
Diploma or GED	46,285	24.3	65,430	25.2	85,886	18.5
Some college/associate's	69,760	36.6	106,903	41.1	171,127	36.8
Bachelor's or more	33,707	17.7	46,898	18.0	167,189	35.9

SOURCE: Table prepared by Citizens Research Council using data from the Integrated Public Use Microdata Series (see reference 46), Prevalence of Developmental Delays and Participation in Early Intervention Services for Young Children (Rosenberg, Zhang, and Robinson), and Child Trends, Indicators on Children and Youth.

A number of differences stand out when comparing the high-need populations with the population at large. First, the high-need population is disproportionately nonwhite. While white, non-Hispanic children make up a slight majority of the high-need population (52.3 percent of the high-need/100 percent poverty group and 56 percent of the high-need/185 percent poverty group), they represent almost two-thirds of the total population of children aged 0 to 3. In contrast, black and Hispanic white children both make up a greater share of the high-need population than of the overall population.

The high-need population is also highly dependent on Medicaid for health insurance. Overall, the ACS data suggest that just under half of Michigan children from birth to age three rely on Medicaid for health insurance; however, among the high-need group, over 70 percent of these children depend on Medicaid for their health care needs. And despite the availability of Medicaid to low-income households, a greater percentage of children in the high-risk population lack health insurance altogether—4.8 percent of the 100 percent poverty and 4.6 percent of the 185 percent poverty group as compared to 3.8 percent of the overall population.

Since both income and educational attainment are risk factors used to define high need for early childhood programming, it is not surprising that children in the high-risk groups tend to be in lower-income families with lower parental and adult educational attainment. Still, it is worth noting that while half of children aged to 0 to 3 in Michigan live in households at or above 200 percent of the federal poverty line, only 15 percent to 20 percent of the children in the high-risk groups meet this criterion. Further, while more a one-third of these children on the whole live in households with a four-year college graduate, only about half as many of the high-risk children are in the same situation.

Finally, it is useful to examine the overall prevalence of risk factors among these high-need children as a gauge for the severity of risk that some young Michigan children face. How many are experiencing just one risk factor, and how many are living in environments characterized by multiple factors? Exhibit A-3 reviews the prevalence of risk among the high-need children. Again, we use 100 percent and 185 percent federal poverty level thresholds to define two groups of high-need children

at varying degrees of poverty. Regardless of the poverty threshold used, just over three out of every five high-need children are experiencing at least two of the risk factors examined, and more than 20 percent of each group are experiencing at least three risk factors.

Looking at the prevalence of these factors across all Michigan children from birth to age three, the data and analysis suggest that around one in ten Michigan children from birth to age three live with the presence of at least three risk factors. Depending upon the threshold used in defining poverty risk, between one in three and one in four of these young children in Michigan experience a minimum of two risk factors.

Clearly, many Michigan children are facing risks with the potential to inhibit healthy physical and social development. This research provides policymakers and stakeholders with a careful analysis of available data to estimate the actual size of this high-need population among young Michigan children. Policymakers can use these data to compare the number of children served by various programs with the potential need for these services.

Exhibit A-3. Prevalence of Risk Factors in Michigan Children Aged Zero to Three

	High Need At or below 100% poverty			High Need At or below 185% poverty		
	Number	% of High Need	% of all children	Number	% of High Need	% of all children
Total children	190,454	100.0%	40.9%	259,933	100.0%	55.9%
One risk factor	68,193	35.8%	14.7%	98,982	38.1%	21.3%
Two risk factors	79,486	41.7	17.1	107,522	41.4	23.1
Three risk factors	35,398	18.6	7.6	44,790	17.2	9.6
Four risk factors	6,851	3.6	1.5	8,046	3.1	1.7
Five or more factors	526	0.3	0.1	593	0.2	0.1

SOURCE: Table prepared by Citizens Research Council using data from the Integrated Public Use Microdata Series (see reference 46), Prevalence of Developmental Delays and Participation in Early Intervention Services for Young Children (Rosenberg, Zhang, and Robinson), and Child Trends, Indicators on Children and Youth.

NOTES: Risk Factors Considered: (1) Poverty (as defined in table) (4) Only one adult in household (2) No adults with English proficiency (5) Child with developmental delay (3) No adults with high school diploma (6) Child exposed to “toxic stress”

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