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ABSTRACT

Using recent economic data on state spending and information about childhood brain development, this Kids Count mini-report offers a snapshot of where Arkansas stands on early education and spending on such programs. The report examines the next steps, challenging conventional wisdom in order to explore the best path for improving child outcomes in Arkansas. The report's sections are: (1) "Brain Growth and Spending on Kids: What's the Connection?"; (2) "What Investment Has Arkansas Made in Early Education?"; (3) "The Impacts of Early Education on Children"; (4) "Quality Early Education and Child Care"; (5) "Changing Our Priorities: Strategies for Better Early Childhood Care"; and (6) "Caring for Our Youngest Citizens: What Can You Do To Help?" The report recommends promoting good parenting, health care for children, and good early childhood care; targeting preventive early childhood programs to more high-risk children; and securing and maintaining funding for young children. (EV)

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Brain Development & Early Childhood

A. Rossi

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March 2000

By J. Chris Rule, Health Policy Analyst
Arkansas Advocates for Children & Families
103 E. 7th St., Suite 931
Little Rock, AR 72201
501/371-9678
www.aradvocates.org

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INTRODUCTION

ANYONE WHO HAS HELD an infant or young child in her arms understands how precious and vulnerable children are in their early years of life. Over the years, researchers have discovered many of the ways children learn and develop, as well as what is important in the early training they receive. Recently, new scientific studies have documented what occurs in the brain during a child's first years of life, and are now predicting what can give a child the best chance of success in achieving an independent quality of life.

Early brain development is critical to positive or negative outcomes for children and adults. The first days and years of life are experienced in a way very different from later years. The biological changes, the formulation of new cells, new neurological pathways, and imprints from new experiences during these formative years have profound and lasting impacts on a child's life. Scientists have used advanced imaging technology to illustrate how rapidly a child's brain grows during the first three years of life. This technology has enabled them to see the results of early nurturing and a stimulating and rich environment on the brain's development.[1] This information must inform parents and policy-makers as they struggle to respond to changes in child-rearing practices and shifts in the patterns of work that have moved more and more mothers into the workforce. These changes are seen most dramatically in the dynamics of by whom and how young children today are reared. Policy-makers are confronted with a task of marrying the research with reality and determining the best methods for supporting families in the development of their children, particularly during their critical formative years between birth to age 5.

In the last 20 years, more and more women are entering the workforce during child-bearing years, and while some delay having children, many still have children but entrust the care of their infants with others. Nationwide, almost two-thirds of all mothers work, and on average, the typical infant will be in some type of child care before she is 5 months old and spend more than 30 hours a week in care.[2] In Arkansas, 65 percent of mothers with children under 6 work full- or part-time.[3]

Many of Arkansas' first babies of the millennium may be starting out at a disadvantage. According to the Annie E. Casey Foundation's 1999

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Kids Count Data Book, almost 1 out of 4 (23%) of the state's children will be born into families living in poverty. Sixteen percent of them will face multiple risk factors in their families (poverty, lack of health insurance, parents without steady full-time employment, or single-parent households) which are likely to subject even the most resilient child to a life of unfulfilled potential and despair.[4] These "at-risk" children are most in need of the benefits that a comprehensive, high-quality, early child care experience can provide. But their parents, who are acutely aware of the realities of living paycheck to paycheck, lack the financial stability to afford quality care. An Arkansas family pays an average of $3,418 per year per child for child care.[5] With a state median wage of $8.59 an hour (half the workers in Arkansas earn below this amount), single-parent families with one or two children will pay 18 to 27 percent of their income on child care.[6]

The reports on brain development, coupled with the realities of poverty and work in Arkansas, give an urgent tone to the conversation about public support for early childhood programs. Although the findings from brain science are still emerging, the disturbing reality is that young working parents with children under age 6 not being able to afford quality early child care may have long standing consequences for all Arkansans. Adequate financing for quality early childhood programs will be part of the challenge to give children the best start possible.

Using recent economic data on state spending and information about childhood brain development, this mini-report offers a snapshot of where Arkansas stands on early education and spending on such programs. It will examine next steps and challenge conventional wisdom to discover the best path for building strong children and a better Arkansas.

Brain Growth & Spending on Kids: What's the Connection?

From birth to age 3, several of life's most critical developmental events occur. The rapid rate of brain development parallels the dramatic maturational events occurring in this early phase of a child's life. Brain research from the last two decades has demonstrated:

- In the first months of fetal life, 100 billion brain cells are created.
- By 8 months, these brain cells form trillions of synapses, or connections, with other brain cells.
- The brain is 70 percent developed by age 1, and achieves 90 percent of total growth by age 3.[7]
- Increase in brain size occurs not only through the addition of new brain cells, but also as a result of changes in cell size and maturity and in the complexity of the synaptic connections between the brain cells.
- Individual synaptic connections form critical nerve networks, and these networks form the structural basis of the child's ability to see, hear, speak, learn and experience emotions.
- The brains of newborns and infants who spend their early years in deprived, abusive or traumatic environments show distinct patterns of developmental delay; and in extreme cases, the children die.[8]

This period of rapid brain growth also corresponds to other important developmental milestones, including parental attachment, emotional regulation, language development, and early socialization, motivation and motor skills, such as walking. In addition, a child's unique temperament helps influence how parents and caregivers will respond to her. The complex interplay between a child's inborn predisposition and the surrounding environment will be the foundation for her later development. Some of our more important human attributes — patterns of interpersonal and moral development; positive social and antisocial behavior; and empathy, self-confidence and a sense of responsibility for oneself and for others — develop from the quality and amount of interaction with others during a child's early years.[9]

One of the most important and surprising findings for scientists studying the developing brain over the last few decades has been how malleable it is.[10] In study after study, the brain has shown a remarkable ability to physically change and adapt in response to what it learns. Whether looking at adults recovering from a stroke or toddlers suffering from seizures, researchers have discovered the brain has a degree of plasticity, or changeability, that allows it to regain functions or learn new ways of responding. What does this plasticity mean to parents and care givers about the

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significance of the years from birth to 3? While not minimizing the importance of the first three years of life, it also means that a child's brain will continue to change and adapt as the child grows. As Jerome Kagan, renowned child development expert, said, "It's sexier to say it's all over at age 2, but it's wrong."[11] As medical science continues to test these new and emerging theories about the developing brain, policy-makers must be prepared to apply this knowledge to reap the full benefits of early childhood education for our children.

In the field of science, new theories never come without their critics. A recent book by John Bruer, *The Myth of the First Three Years*, has raised questions about some of the claims that link brain research and child development. Dr. Bruer cautions parents and policy-makers from buying into the recent hype generated by the media, certain national organizations and some members of the scientific community. He argues, and rightfully so, that parents have positive ways they can impact their child's development throughout their lives. While convincing in his analysis of what brain science has and has not contributed to the debate on early childhood development, Dr. Bruer acknowledges that a child's early years represent "critical periods" when sensitive developmental foundations are formed. Certain "windows of opportunity" exist during a child's early years that become much more difficult to reopen as the child gets older.[12]

During these early opportunities in a young child's brain development, particular skills emerge and the potential for developing these skills is lost after a set amount of time. Dr. Bruer notes that while brain research has shown that these sensitive periods exist in children, they are only for such faculties as vision, and to a lesser degree, language. Moreover, the malleability and plasticity of the brain's circuits change throughout the life span, thus allowing humans to continually learn new skills.

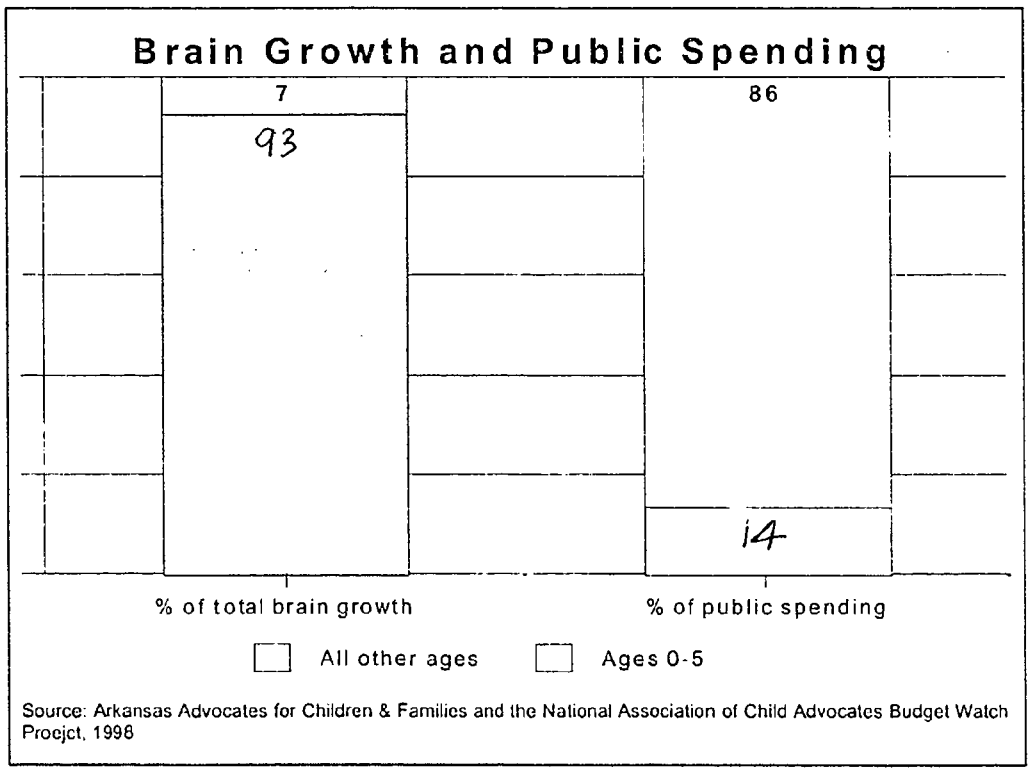
Bruer's major contribution in this debate is that while early brain development is important, we must not forget that parents and other influences will affect a child's ability to learn throughout life. While Bruer's point is an important one, it is not a sufficient argument against the need to invest in early brain development, or in children generally. The research on early brain development and prevention strongly indicates that when all factors are weighed, an investment in young children is one of the smartest decisions a parent and community can make.

What Investment has Arkansas Made in Early Education?

How does the volume of research on the young child's developing brain relate to the level of state and federal spending on children? Consider this: *almost 45 percent of children born in Arkansas are insured by Medicaid, so our state starts to invest in the health and well-being of approximately 15,500 children each year at the earliest possible moment of their lives.*[13] This statistic underscores the harsh economic realities that many Arkansas children face the moment they enter the world.

Health care through the Medicaid program, immunizations through the Department of Health, and nutritional services through the Women Infants and Children (WIC) program are part of the state's promise and responsibility to improving the well-being of children. However, after helping many children in those first few days and weeks of life, state spending virtually stops until children reach school age. The chart below compares the rate of brain development in children and the amount of public spending on children in Arkansas based in 1996.[14]

Only 14.3 percent of all public spending in Arkansas was on children under age 6, a period representing one-third of childhood. Total annual



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per child public expenditures for children ages 0-5 is $1,974, including expenditures for such programs as early childhood education, child welfare, health and nutrition programs.[15]

Some of the spending on children ages 0-5 is targeted to programs that serve special populations under 6 years of age, such as babies born to teen mothers or families with incomes below the poverty level. Recent additions to this level of funding came during the 1999 legislative session, including $2 million over the next two years to pilot a nurse home-visiting program and more money for the Children's Trust Fund, a fund that supports the prevention of child abuse.

Total annual per child public expenditures for children ages 6-18 in Arkansas was $5,478. The increase in average expenditures for older children is largely the result of public school spending. *Therefore, 85 percent of the state's spending on children occurs after a child turns 6.*

These budgetary findings pose a distinct challenge for policy-makers: At what point in a child's life should they target public spending and investment? This analysis indicates that more resources need to be dedicated to the state's youngest children. Other states have made long-term commitments to the funding of early intervention and educational programs, and research has demonstrated that it pays important dividends later in the child's life.

The Impacts of Early Education on Children

Targeted early childhood intervention has been shown to have dramatic impacts on at-risk children. Along with the positive impacts on the children, these programs are like a savings account for taxpayers because the program reduces other public sector costs as the child grows.

A 1998 study by the RAND corporation evaluated the costs and benefits of early childhood intervention programs.[16] This study concluded that upfront investments in early childhood programs can benefit at-risk children and families and result in long-term savings to society. This study compared the later savings to taxpayers to the per-child program costs of early intervention services to low-income, predominantly minority children. One of the programs studied was the Perry Preschool Program in Ypsilani, Mich.

In the mid-1960s, children were enrolled in the Perry Preschool Program for one to two years, and today they are in their early 30s. The Perry Program was an intensive, enriched preschool program that also included weekly home visits by the teacher. The per child savings in the Perry Program was $25,000, while the per child cost was $12,000.[17] This translated into a net taxpayer benefit of $13,000. The savings came from a variety of sources, including less grade repetition, less special education services, reductions in juvenile crime and child welfare system costs, and increased tax revenues due to increased earnings (see chart below).

A large longitudinal study that was recently released by researchers at the universities of North Carolina and Alabama confirms many of the findings from the Perry Preschool study. Called the Abecedarian Project, this study followed 111 children for 20 years. As youngsters, they were provided high-quality child care from birth until kindergarten. The results were impressive. The children in the study scored higher on periodic tests of mental development from age 1 and up, compared to children that did not receive the same early intervention program. The children in the study also outperformed the comparison group in reading and math achievement tests.[12] Other results included: children in the treatment group were twice as likely to still be in school at age 21 compared to the control group (40% to 20%); the children in the treatment group were more than twice as likely to have graduated from

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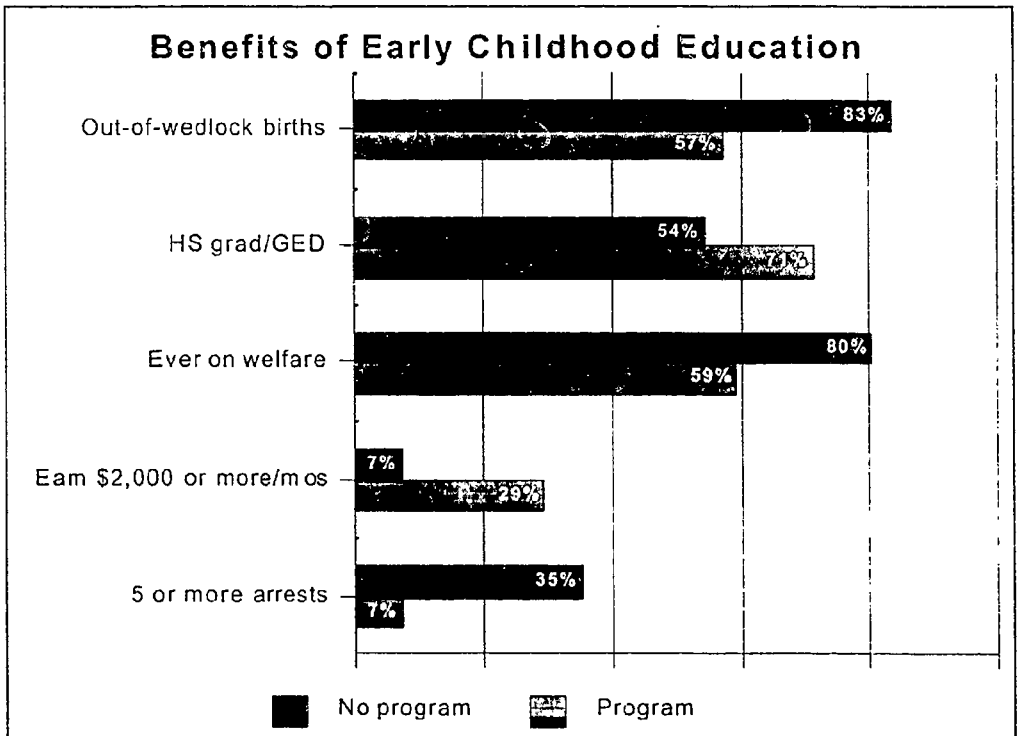
or be currently attending a four-year university; and children in the intervention group were on average 1 year older than the control group when their first child was born.

Additional reports from states note the economic and labor force benefits of subsidizing early childhood education for families. A report from Florida found that employees in retail trade jobs, especially in grocery stores and fast food restaurants, were much more likely to receive child care subsidies than the rest of the workforce. This study found that nursing home and other health care workers, temporary business services, and the public administration industry jobs also had a high number of employees who received subsidies.[19] Retail service jobs and nursing home and other health care jobs are some of the fastest growing labor markets in Arkansas. This trend is likely to continue because people over 50 already account for more than 25 percent of Arkansas' overall population.

A North Carolina study found similar patterns in workers who make use of these subsidies. It also found that a community that is educating and training specific technical, paraprofessional or professional workers should consider providing subsidies during the training phase to



Source: High/Scope Educational Research Foundation (1998). Perry Preschool Project.

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move workers into these types of jobs quicker, thus limiting the amount of time they would need the subsidy.[20] These reports also point out the cost of subsidizing early childhood care is almost always recouped in the federal, state and local taxes collected from working parents, as opposed to having parents receive the subsidy and direct welfare cash assistance.

Home visitation and early intervention programs have produced mixed results. A recent review that evaluated several home visiting and early intervention models suggests that policy-makers need to have gradual expectations for these programs and to combine them with other child-focused approaches to increase the family's chance at a positive outcome.[21]

The amount of state spending on early childhood intervention programs in Arkansas is not enough to affect many of the state's poor children. In the last two years, however, the Arkansas Legislature provided supplemental funding for children in federally-funded early education programs in addition to the money it has provided in child care vouchers.

While savings similar to those in other states are not guaranteed in Arkansas, the state is taking a step in the right direction. Early intervention programs in Arkansas, such as Head Start, HIPPY and Arkansas Better Chance (ABC), have been critical in preparing young children effectively for school. They are designed to help children and parents overcome challenges they face in an environment with increasingly scarce resources. By putting additional funding into these types of programs, Arkansas makes a profound statement about how it intends to plan for the future. Decisions about quality early education will be among the most important choices policy-makers face in the next decade.

Quality Early Education and Child Care

Quality matters in everything we purchase. However, until recently, Arkansas parents probably knew more about the quality of their refrigerator than they did about the quality of their child's early education program. Hopefully, this will change with new efforts by the Division of Child Care and Early Childhood Education to improve monitoring and reporting of child care programs across the state. The Division is also educating parents about what makes for a good quality child care center or in-home setting and how they should look for this in their community.

This information is sorely needed because almost 7 out of 10 children (69%) under the age 6 in Arkansas live in families where at least one parent is working. Thirty-two percent of children under age 13 live in low-income families with working parents; the national average is 21 percent, making Arkansas the second highest in the country in this percentage.[22] As mentioned earlier, low-income working parents seeking quality care for their preschool-aged children face considerable economic barriers in Arkansas.

In many areas of the state, the issue of quality has not received the attention it deserves because of problems with availability. Although the number of licensed early child care facilities has increased in recent years, there is a shortage of facilities that meet quality standards. There is also wide variation in terms of access across the state. For example, Pulaski County has the highest number of licensed facilities, but the next highest county, Washington, has roughly one-third of Pulaski's total. Twenty-four counties have 15 or fewer facilities. This type of variation strains families in rural Arkansas trying to find quality care in their area.

A high-quality child care setting is the determining factor for success. A young child's brain thrives throughout the day in an appropriate, stimulating and high-quality learning environment, as opposed to a neglectful or low-quality one. Providing such an environment places a premium on having quality care givers. The following key elements contribute to a quality child care environment:[23]

Competitive compensation and staff retention Quality early childhood staff enter into the job with a passion for working with children;

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keeping them there takes competitive pay and benefits. Arkansas pays its child care workers a median hourly wage of $5.39 and its preschool teachers a median hourly wage of $5.68.[24] National surveys of child care staff have indicated that 60 percent of them have no health insurance coverage. These low wages and poor benefits contribute to high turnover in these fields. In settings with high staff turnover, a child's learning, language and socialization goals suffer.

Training and Professional Development While competitive compensation and benefits can help keep child care and preschool teachers in their jobs, adequate initial and ongoing training would make them better at helping children. Arkansas requires 10 hours annually of training before allowing workers to care for and instruct children, although in the Arkansas Better Chance preschool programs all workers must have at least a certificate in child development.[25] By comparison, a hair stylist is required to log 3,000 hours of training before he or she can be licensed.

Standards Arkansas has developed and adopted a high set of regulatory and quality standards for its licensed child care facilities. However, this state accreditation is not a requirement for licensure, and so only 341 of the state's approximately 3,300 licensed day care homes and centers have been accredited by Arkansas' new quality-approved standards.[26] An accreditation also exists from the National Association for the Education of Young Children (NAEYC), and 80 centers in the state carry this accreditation (these are included in the 341 state-licensed facilities). Arkansas' standards are in line with NAEYC, so if a facility has national accreditation, it does not need state accreditation. Studies have shown that accredited programs usually have higher overall quality ratings and lower adult-child ratios.

Changing Our Priorities: Strategies for Better Early Childhood Care

Quality care for kids is essential, but the gap between the cost of high-quality care, the incomes of low- and middle-income families, and the investment of the public and private sectors requires us to look hard at current early childhood education financing in Arkansas. Currently available data suggest parents with low and moderate incomes cannot afford to buy the quality care their kids need. Arkansas can hardly afford not to develop and finance a better early childhood educational system for the children of the next century.

Low-income working parents need help paying for quality care, and the greater public should invest in the early childhood programs that serve Arkansas' children. This type of investment will pay social, physical and economic dividends for the entire state well into the future. Policy-makers and state officials must utilize knowledge about early childhood brain development and apply it constructively to the cost-effectiveness of targeted early childhood intervention programs:

Promote Good Parenting A parent who talks and reads to her baby and provides loving touches and nurturing is stimulating positive brain development. Assuming that new parents will develop good parenting skills based on trial and error or some inborn ability is short-sighted. All the services in a community from health care, child care, and recreation centers, to schools, businesses and the news media must share in the goal of providing formal and informal parenting education.

Promote Health Care for Children Before the ARKids First program, more than 1 out of every 6 Arkansas children did not have health insurance. Today, more than 50,000 previously uninsured children now have access to preventive health care. Parents need help in understanding the importance of immunizations, well-child visits and how to use preventative care. Getting children established in a "medical home" is the first and best step to giving kids a healthy start.

Promote Good Early Childhood Care Increasing training requirements for workers and enhancing quality standards has already started in Arkansas, but more needs to be done. Making quality child care more accessible to children in low-income families in the state's rural areas is critical to improving these families' opportunities for success. Ensuring that all available welfare-to-work funding is utilized to help families access quality care is a way that this can be promoted.

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Target Preventive Early Childhood Programs to More High-Risk Children More programs have to be funded and tailored to the specific needs and services available in rural Arkansas communities. Risk factors commonly accumulate in families and those children at greatest risk will benefit most from targeted early interventions. Arkansas should set a goal of offering early intervention programs to all babies identified as high risk, and stick to it. Expanding other preschool programs like Head Start and Success by Six are wise investments in our children.

Secure and Maintain Funding for Young Children Arkansas tends to fund programs on a trial basis and not sustain the funding over time; enact programs with no funding; or take funding away from other program areas that affect children in order to fund something new. The state's past investments in early childhood education have been minimal, and they have flattened over time. These patterns often undercut a program's chance at success. It also illustrates a weak overall commitment to changing and improving the educational, social and health status of Arkansas' children, especially those in low-income working families. New funding sources and multiple funding streams must be developed and maintained to improve the outcomes of Arkansas' young children. Unspent federal money for welfare reform could help meet existing child care needs.

Caring For Our Youngest Citizens: What Can You Do to Help?

It is time for Arkansans to ask: What kind of return are we getting from our public dollar when it comes to expenditures on children? This question concerns lawmakers, child advocates and families, alike. The answers and the solutions to this question will determine if Arkansas is a state committed to the well-being of all its children.

The issue of adequately financing the care of our youngest citizens is central to their future progress. Everyone has a role to play. Please join Arkansas Advocates for Children & Families and the Kids Count Coalition in an effort to address this key challenge. Here are some ways you can help:

- Working parents can educate themselves about quality child care issues and requirements. Information is available from the Division of Child Care and Early Childhood Education at http://www.state.ar.us/childcare, or phone 501/682-4891. The Division works with child care providers to make sure children are in high-quality, safe and nurturing environments.

- Non-working parents or parents who are sharing the care of their children with a spouse or relative can educate themselves about what can make a quality home environment. The Division of Child Care or local DHS offices can educate parents and guardians about what kinds of vouchers or child care subsidies might be available. Parents needing child care can search for a quality center in their area at http://www.state.ar.us/childcare, or by calling toll free 1-800/445-3316.

- Grandparents should educate themselves about the issues and use their wisdom to speak out to policy-makers and the public to affect change.

- Early childhood care givers can involve parents in determining policies of the program and in the evaluation measures that the program should expect. Parents should volunteer at their child care center, serve on their center's board of directors, or form parent advisory committees.

- Child advocates can monitor new developments in the areas of potential funding and of the professional/scientific literature, as well as the implementation of new program or funding strategies in use by other states. They can promote the types of successful public-private partner-

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ships that need to be forged to achieve success.

- Businesses need to realize that the benefits of subsiding care are more than just economic. They need to consider offering child care options as an employee benefit. Business leaders can work with the public sector to examine and introduce innovative financing strategies.

- Elected officials need to make early childhood education a major fixture in their legislative agendas. They must be aware of all the benefits that will come from the new ways of funding programs that serve children and families during the crucial 0-3 ages.

- The governor must show the budgetary leadership by reexamining the state's priorities, and putting more of the state's resources into position to help children during these most vulnerable years. Expected revenues from the 1999 tobacco settlement can be put to excellent use by improving the health of the state, and thus freeing up dollars that can be used for early childhood education.

- The public must become more educated about these issues and speak out to their elected officials and to the leaders in their communities. During elections, ask the candidates specifically what they will do to improve early education and child care in the community and state.

CONCLUSION

WORKING TOGETHER, we can impact the future of our children. The explosion of research on early brain development will continue as advances are made in medical technology, and these emerging research findings will have an increasingly important impact on public policy debates around a host of child and adolescent issues.

With more long-term studies producing results like the Abecedarian Project, it should become easier for other researchers, advocates, and most importantly, families to inform and educate policy-makers about the benefits of early educational intervention. The impact of welfare reform will continue to ripple through Arkansas communities ensuring that more families will need quality child care.

This demand for services has already been felt by the Division of Child Care and Early Childhood Education — data from the pre-welfare reform year of 1996 shows that 6,464 children received quality child care. In 1999, the number of children receiving child care rose to 22,236, and 3,945 children are currently on the waiting list.[27] This represents an increase of 344 percent. The need for out-of-home care will continue to increase. This is especially true for children in poor and working poor families as businesses continue to demand more from workers, and the service sector economy continues to dominate the workforce.

Infants and young children can and should continue to expect lasting fiscal attention from future meetings of the General Assembly. Legislators always want results from the money they allocate for programs, and they are continually frustrated when Arkansas never seems to rise against other states in the comparative rankings of child well-being indicators. But ask this question: Has there been a sustained, increasing financial commitment for even one generation of children in the state? We can and should do better. We owe it to all the children who will be the future great citizens of this state.

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