

## Minibibliography

### *The Long Term Economic Benefits Of High Quality Early Childhood Intervention Programs*

Revised December 2005

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An extensive body of research indicates that high quality early intervention for at-risk infants, toddlers and young children and their families is a sound economic investment. Studies have found a number of long-term cost savings in terms of decreased grade repetition, reduced special education spending, enhanced productivity, lower welfare costs, increased tax revenues, and lower juvenile justice costs. This minibibliography provides a selection of articles, reports, and book chapters that review some of the major findings on this topic. Some of the included studies focus on services for young children with disabilities, although most address early intervention for children who are at risk for adverse developmental outcomes due to poverty and other environmental factors. Many of the abstracts come from the ERIC database (<http://www.eric.ed.gov/>). The rest are those provided by the source, unless edited by the compilers to comply with copyright or to clarify why a particular reference was included.

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Barnett, W. S. (2004, November). *Maximizing Returns From Prekindergarten Education*. Paper presented at the Conference on Education and Economic Development, Cleveland, OH. Retrieved on November 30, 2004 from [http://www.clevelandfed.org/Research/EdConf2004/Nov/barnett\\_paper.pdf](http://www.clevelandfed.org/Research/EdConf2004/Nov/barnett_paper.pdf)

Abstract: This paper reviews the basis for claims that public investments in prekindergarten education can produce high rates of economic return. It addresses the fact that potential gains are not always realized and identifies policy choices that are likely to affect actual returns. Preschool education is growing steadily in the United States and the author argues that it is time to develop policies to ensure that the public receives an adequate return on its investments. Such policies are needed to guarantee that early education programs are of good quality and to improve educational outcomes, especially for our most disadvantaged young children. [Note: A related PowerPoint presentation is available at <http://nieer.org/resources/files/PreschoolInvestmentReturns.pdf>. A free 7-minute video by the author, *Preschool: America's Best Investment*, features children, parents and researchers who discuss the importance of preschool investment. For more information, go to <http://nieer.org/resources/video/>.]

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Barnett, W. S. (2000). Economics of early childhood intervention. In S. J. Meisels (Ed.), *Handbook of early childhood intervention* (2nd ed., pp. 589-610). New York, NY: Cambridge University Press.

Abstract: This chapter begins with an overview of methodology and terminology, an introduction to cost analysis and a review of cost estimates for early intervention programs. It introduces benefit-cost analysis by way of a detailed example and a brief review of the literature on the long-term benefits of early intervention, emphasizing studies that examine both costs and benefits. Conclusions are drawn regarding the economics of early intervention, and recommendations are made for policy, practice, and promising future applications of economic analysis to early intervention. The chapter also briefly discusses what is known about the economics of early intervention for nonpoor children with disabilities.

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Barnett, W. S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children*, 5(3), 25-50. Retrieved September 3, 2004, from [http://www.futureofchildren.org/usr\\_doc/vol5no3ART2.pdf](http://www.futureofchildren.org/usr_doc/vol5no3ART2.pdf)

Abstract: This article reviews 36 studies of both model demonstration projects and large-scale public programs to examine the long-term effects of these programs on children from low-income families. It includes studies of preschool education, Head Start, child care, and home visiting programs, and focuses primarily on the effects of program participation on children's cognitive development. Results indicate that early childhood programs can produce large short-term benefits for children on intelligence quotient (IQ) and sizable long-term effects on school achievement, grade retention, placement in special education, and social adjustment. [See Table 3 and the report's Conclusions on costs, benefits, and financing.]

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Bruner, C. (2002). *A stitch in time: Calculating the costs of school unreadiness*. Washington, DC: The Finance Project. Retrieved September 22, 2004, from <http://www.financeprojectinfo.org/Publications/stitchintime.pdf>

Abstract: The purpose of this monograph is to assist states and communities in using available information and evidence about the costs and benefits of school readiness when making early childhood investment decisions. It focuses on approaches states and communities can use to make the case for investing in early childhood services and presents several approaches that can be used to estimate the costs of school unreadiness. Examples are included from states and communities that have applied these approaches.

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Business Roundtable, & Corporate Voices for Working Families. (2003). *Early childhood education: A call to action from the business community. Why America needs high-quality early childhood education*. Retrieved September 22, 2004 from <http://www.businessroundtable.org/pdf/901.pdf>

Abstract: In recent years business leaders have realized that in order for America to improve its educational system and develop a world-class workforce, federal and state governments need to make early childhood education programs for 3 and 4 year old children a top priority. This call to action cites research showing that such programs lead to improved education results and ultimately, a stronger workforce and a healthier economy. It includes a set of six principles that define the components of a successful system and high-quality early childhood programs.

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Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science, 6*, 42-57.

Abstract: The Abecedarian Project was a carefully controlled scientific study of the potential benefits of early childhood education for poor children. Children from low-income families received full-time, high-quality educational intervention in a childcare setting from infancy through age 5. This article presents the findings of a longitudinal prospective study concerning intellectual functioning, academic achievement, social adjustment, and degree of self-sufficiency of the participants at age 21. The results support policies favoring early childhood programs for poor children.

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Currie, J. (2001). Early childhood education programs. *Journal of Economic Perspectives, 15*(2), 213-238. Retrieved September 14, 2004, from <http://www.econ.ucla.edu/people/papers/Currie/Currie149.pdf>

Abstract: This paper examines the costs and benefits of early childhood education programs. The author states that a review of the evidence shows that a number of these programs have significant short- and medium-term benefits, especially for more disadvantaged children. Several model programs have led to improvements in educational attainment and earnings and reduced welfare dependency and crime. Although the long-term effects of the Head Start program are not yet known, the author argues that Head Start would pay for itself if it produced even a quarter of the long-term gains of these model programs.

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Federal Reserve Bank of Minneapolis, McKnight Foundation, & University of Minnesota. (2003). *The economics of early childhood development: Lessons for economic policy. Conference proceedings*. Retrieved September 14, 2004, from <http://minneapolisfed.org/research/studies/earlychild/2003conf/>

Abstract: This conference provided a rare opportunity for economists, public policy analysts, medical professionals and educators to share their research on early childhood development. The conference focused largely on the economics of early childhood development, but economists' findings were supported by sociological and biological evidence presented by other speakers. Jack Shonkoff summed up what he saw to be conference points of agreement: (1) The time has come to invest more resources in the development of young children; (2) We have to think in terms of all children, but we need to recognize that some are needier than others; (3) There's a clear understanding that whatever steps are taken, earlier is better than later; (4) The benefits of wise investments in young children will be substantial, and the consequences of poor investments will be costly; (5) Whatever the investment, it must be driven by knowledge; and (6) The returns on investment in young children will depend on the extent to which we match programs and services to needs, and there must be ongoing movement in the knowledge base.

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Friedman, D. E. (2004). *The new economics of preschool: New findings, methods and strategies for increasing economic investments in early care and education*. Retrieved November 30, 2005 from <http://www.earlychildhoodfinance.org/handouts/FriedmanArticle.doc>

Abstract: This report summarizes a variety of economic approaches that can be used to research short- and long-term economic returns of high-quality child care and early education. Research demonstrates significant savings in areas such as special education, school dropout rates, welfare dependency, and crime. Additionally, revenues of the child care industry result in short-term

economic benefits, and child care and early education helps to increase and stabilize parental employment. The report calls for continued research in this area, and active planning and implementation of programs that maximize the economic impact of early care and education.

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Garces, E., Thomas, D., & Currie, J. (2000). *Longer term effects of Head Start*. NBER Working Paper No. w8054. Retrieved September 14, 2004, from <http://papers.nber.org/papers/w8054.pdf>

Abstract: Little is known about the long-term effects of participation in Head Start. This paper draws on unique non-experimental data from the Panel Study of Income Dynamics to provide new evidence on the effects of participation in Head Start on schooling attainment, earnings, and criminal behavior. Among whites, participation in Head Start is associated with a significantly increased probability of completing high school and attending college, and there is some evidence of elevated earnings in one's early twenties. African Americans who participated in Head Start are significantly less likely to have been charged or convicted of a crime. The evidence also suggests that there are positive spillovers from older children who attended Head Start to their younger siblings.

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Gross, R. T., Spiker, D., & Haynes, C. W. (Eds.). (1997). *Helping low birth weight, premature babies: The infant health and development program*. Stanford, CA: Stanford University Press.

Abstract: This book describes the Infant Health and Development Program, a randomized controlled trial involving almost 1,000 infants in eight cities in the United States. The program examined the extent to which a comprehensive early intervention program could improve or prevent adverse outcomes for low birth weight, premature infants. Results demonstrated that at age three, the children in the intervention group had significantly higher IQ scores, greater cognitive development, and fewer behavioral problems than children who did not receive intervention services. The implications of these findings for public policy are discussed. Strategies to minimize the problems of low birth weight children and the potential for long-term savings could have a significant impact on such governmental areas as medical care, education, and social welfare. An assessment of health-services utilization and a cost analysis are included.

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Heckman, J. J., & Masterov, D. (2004). *The Productivity Argument for Investing in Young Children*. Retrieved November 30, 2005 from [http://www.ced.org/docs/report/report\\_ivk\\_heckman\\_2004.pdf](http://www.ced.org/docs/report/report_ivk_heckman_2004.pdf)

Abstract: The author of this paper, a 2000 winner of the Nobel Prize in Economic Sciences, argues that on productivity grounds alone, investing in young children from disadvantaged environments appears to make sound business sense. A growing body of research suggests that early childhood interventions are significantly more effective in the long run than programs that attempt to compensate for early neglect later in life. High quality early care and education programs for disadvantaged children have a strong track record of promoting achievement for these children, improving their labor market outcomes and reducing their involvement with crime. The author discusses how such programs can result in substantial savings to society and promote higher economic growth.

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Karoly, L. A., Greenwood, P. W., Everingham, S. S., Hoube, J., Kilburn, M. R., Rydell, C. P., et al. (1998). *Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions*. Santa Monica, CA: RAND. Retrieved September 10, 2004, from <http://www.rand.org/publications/MR/MR898/>

Abstract: This study quantified the benefits to children and parents participating in nine early intervention programs. It conducted a cost-benefit analysis of the Perry Preschool and the Elmira

Prenatal/Early Infancy Project (PEIP), concluding that public investment in such programs can benefit not only children and their families, but also the taxpayers who fund them. The findings indicated that early intervention programs led to the following advantages for program participants relative to those in the control groups: (1) gains in child emotional or cognitive development or improved parent-child relationships; (2) improvements in educational process and child outcomes; (3) increased economic self-sufficiency, initially for parents and later for children; (4) reduced criminal activity; and (5) improvements in health-related indicators. Government savings were much higher than costs for the Perry Preschool; this was also true for the higher-risk families of the PEIP. For lower-risk participants of the PEIP, however, government savings were not enough to offset program costs. [Two appendices detail the benefit cost analysis.]

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Karoly, L. A., Kilburn, M. R., Bigelow, J. H., Caulkins, J. P., & Cannon, J. S. (2001). Benefit-cost findings for early childhood intervention programs. In L. A. Karoly & et al. (Eds.), *Assessing costs and benefits of early childhood intervention programs: Overview and application to the starting early starting smart program*. Santa Monica, CA: Rand. Retrieved September 3, 2004, from <http://www.rand.org/publications/MR/MR1336/MR1336.ch4.pdf>

Abstract: This chapter reviews the findings of three early intervention programs (the Perry Preschool Program, the Elmira Prenatal/Early Infancy Project, and the Chicago Child Parent Centers) that have been evaluated in terms of costs and benefits. It provides a brief summary of each early intervention program and evaluation findings, as well as results for the cost-benefit analysis. The chapter compares the cost-benefit findings across the programs, focusing on outcomes that can readily be expressed in monetary terms and have the potential to generate dollar benefits, either in terms of savings to government or for the rest of society. These include improved educational outcomes, better labor market performance, reduced dependence on public assistance, and lower levels of criminal activity.

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Lynch, R. G. (2005). *Early childhood investment yields big payoff*. Retrieved November 30, 2005, from [http://www.wested.org/online\\_pubs/pp-05-02.pdf](http://www.wested.org/online_pubs/pp-05-02.pdf)

Abstract: A growing body of research demonstrates that investing in high-quality early childhood development programs can result in positive benefits for children, their families, taxpayers, and the government. This paper provides an overview of the characteristics and benefits of high-quality early childhood development programs. It examines the potential positive impacts of investing in a high-quality, large-scale, publicly funded early childhood development program for all poor three- and four-year-old children nationwide - focusing on future federal, state, and local government budgets, the economy, and crime. The report also describes the potential benefits of early childhood development investment to our nation's Social Security system. A book by the same author, *Exceptional Returns: Economic, Fiscal, and Social Benefits of Investment in Early Childhood Development*, is available at [http://www.epinet.org/books/exceptional/exceptional\\_returns\\_\(full\).pdf](http://www.epinet.org/books/exceptional/exceptional_returns_(full).pdf).

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Masse, L., & Barnett, W. S. (2002). *A benefit-cost analysis of the Abecedarian Early Childhood Intervention*. Retrieved September 3, 2004, from <http://nieer.org/resources/research/AbecedarianStudy.pdf>

Abstract: This study involved a benefit-cost analysis of the Abecedarian Early Childhood Intervention program, an experiment in the provision of intensive services to high-risk children from infancy to five years of age. Outcomes were measured in terms of participant earnings, earnings of future generations, elementary and secondary education costs, smoking and health costs,

maternal productivity and earnings, and receipt of welfare payments. Findings revealed that the program “pays for itself” when all benefits and costs are included in the analysis. The rate of return to the Abecedarian project ranged from 3 to 7 percent, depending on the benefit considered. However, it is unlikely that results could be replicated perfectly in all settings and for all populations.

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Olds, D., Hill, P., & Rumsey, E. (1998). Prenatal and early childhood nurse home visitation. *Juvenile Justice Bulletin No. NCJ-172875*. Washington, DC. Office of Juvenile Justice and Delinquency Prevention. Retrieved September 22, 2004 from <http://www.ncjrs.org/pdffiles/172875.pdf>

Abstract: The Prenatal and Early Childhood Nurse Home Visitation program was designed to help low-income, first-time parents start their lives with their children on a sound course and prevent the health and parenting problems that can contribute to the early development of antisocial behavior. Nurses begin home visits during pregnancy and continue until a child is 2 years old. These visits help pregnant women improve their health, and teach new mothers how to care for their children and provide a positive home environment. This bulletin presents evidence detailing the program’s effectiveness in reducing three major risk factors: (1) adverse maternal health-related behaviors during pregnancy; (2) child abuse and neglect; and (3) a troubled maternal life course. Specifically noted is a 15-year follow-up of the program, which found that adolescents whose mothers received nurse home visits over a decade earlier were 60 percent less likely than comparable peers to have run away, 55 percent less likely to have been arrested, and 80 percent less likely to have been convicted of a crime. The bulletin also shows that cost savings were four times the initial expenditure by the time high-risk children reached age 15.

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Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2002). Age 21 cost-benefit analysis of the Title I Chicago child-parent centers. *Educational Evaluation and Policy Analysis*, 24(4), 267-303. Retrieved September 22, 2004, from <http://www.irp.wisc.edu/publications/dps/pdfs/dp124502.pdf>

Abstract: The Title I Chicago Child-Parent Centers are located in public schools and provide educational and family support services to low-income children from ages 3 to 9. Using data from a cohort of children born in 1980 who participated in the Chicago Longitudinal Study, findings indicated that the measured and projected economic benefits of preschool participation, school-age participation, and extended program participation exceeded costs. The preschool program provided a return to society of \$7.14 per dollar invested by increasing economic well-being and tax revenues, and by reducing public expenditures for remedial education, criminal justice treatment, and crime victims. The extended intervention program (4 to 6 years of participation) provided a return to society of \$6.11 per dollar invested while the school-age program yielded a return of \$1.66 per dollar invested. Economic benefits to the general public, exclusive of individual earnings, also exceeded costs for all three levels of program participation. Findings demonstrate the cost-effectiveness of public early childhood programs. [A related PowerPoint presentation is available at: <http://www.waisman.wisc.edu/cls/SRCD2003.PPT>]

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Roberts, R. N., Innocenti, M. S., & Goetze, L. D. (1999). Emerging issues from state level evaluations of early intervention programs. *Journal of Early Intervention*, 22(2), 152-163.

Abstract: This article synthesizes discussions that occurred among a consortium of professionals responsible for the evaluation of early intervention programs for young children with disabilities and their families and highlights issues emerging from state-level evaluations of early intervention

programs in the context of six different areas: measures, outcomes, service integration, eligibility, funding models, and cost effectiveness.

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Schweinhart, L. J. (2004). *The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions, and Frequently Asked Questions*. Ypsilanti, MI: High/Scope Press. Retrieved November 18, 2004 from <http://www.highscope.org/Research/PerryProject/perrymain.htm>

Abstract: The goal of this study was to identify the long-term effects of a high-quality preschool education program for young children who were born in poverty and at risk for school failure. Results showed that at age 40, adults who participated in a preschool program based on High/Scope's participatory learning approach as 3 and 4 year olds had higher earnings, were more likely to hold a job, had committed fewer crimes, and were more likely to have graduated from high school than a control group of children who did not participate in a comparable program. The study documented an overall return to society of more than \$17 for every tax dollar invested. [Note: A summary of the major findings of the High/Scope Perry Preschool Study through age 27 is available at <http://modelprograms.samhsa.gov/pdfs/FactSheets/HighScope.pdf>]

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Schweinhart, L. J. (2003). *Benefits, costs and explanation of the High/Scope Perry Preschool Program*. Paper presented at the Meeting of the Society for Research in Child Development, April 26, 2003, Tampa, FL. Retrieved September 10, 2004, from <http://www.highscope.org/Research/PerryProject/Perry-SRCD-2003.pdf>

Abstract: The High/Scope Perry Preschool Study is a study of the effects of a high-quality preschool program for children born in poverty. The study has had little attrition on a variety of measures from age 3 to age 41. It found evidence of preschool program effects on children's readiness for school and their subsequent educational success, economic success in early adulthood, and reduced number of criminal arrests through their lives. These benefits add up to a large return on public investment. This study combines the Abecedarian Study and the Chicago Child Parent Centers Study to provide strong, robust evidence of the lasting effects of high-quality preschool programs on young children living in poverty. The continuing challenge is to take such programs to scale so that all preschool programs for young children living in poverty have similar effects.

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Smith, B. J. (1988). *Does early intervention help?* ERIC Digest #455. Retrieved September 9, 2004, from <http://www.ericdigests.org/pre-928/help.htm>

Abstract: Presented in question and answer format, this digest addresses the following questions: What is early intervention? Why intervene early? Is early intervention really effective? Is early intervention cost effective? Are there critical features to include in early intervention? It concluded that both quantitative and qualitative data indicate that early intervention increases the developmental/educational gains for the child resulting in: (1) needing few special education and other rehabilitative services later in life; (2) being retained in grade less often; and (3) in some cases, being indistinguishable from typically developing classmates years after intervention. Long term cost effectiveness is also supported by the data. Characteristics of successful early intervention programs include intervening when the child is as young as possible, involving parents in the child's treatment, and structuring the program to precisely identify child and family objectives and teaching behaviors.

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St. Pierre, R. G., Layzer, J. I., & Barnes, H. V. (1995). Two-generation programs: Design, cost, and short-term effectiveness. *The Future of Children*, 5(3), 76-93. Retrieved September 28, 2004 from [http://www.futureofchildren.org/usr\\_doc/vol5no3ART4.pdf](http://www.futureofchildren.org/usr_doc/vol5no3ART4.pdf)

Abstract: In two-generation programs, services such as early childhood educational programs are offered to children to help them get the best possible start in life, while, at the same time, parents are offered training to help enhance their parenting skills, and education, literacy, or job training to help them become economically self-sufficient. This article describes two-generation programs and how they differ from earlier single-focus approaches to serve children and families. In-depth descriptions of six premier two-generation programs are used to illustrate the variability in content and costs of these programs. The short-term results of these six programs are reviewed and indicate mixed and modest results in promoting the development of children and improving the parenting skills and economic self-sufficiency of parents. The results suggest that effects on children are best achieved by services aimed directly at children, and effects on parents are best achieved by services aimed directly at parents. The article reviews lessons learned and concludes with recommendations for program improvement and future research.

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Vandell, D. L., & Wolfe, B. (2000). *Child care quality: Does it matter and does it need to be improved?* Retrieved September 14, 2004, from <http://aspe.hhs.gov/hsp/ccquality00/ccqual.htm>

Abstract: This report contains a thorough summary of process measures and research studies. The analysis found that children who attend higher-quality child care settings (measured by caregiver behaviors, by physical facilities, by age-appropriate activities, and by structural and caregiver characteristics) display better cognitive, language, and social competencies. There also is evidence of concurrent relations between child care quality and children's performance in other settings. The paper also sets out an economic rationale for public investment that emerges from evidence on the effects of quality child care on children's health and development. To explore further the economic arguments discussed in the paper, an invitational conference in May 2001 brought together a multidisciplinary group of economists, developmental psychologists, child care researchers, and policy analysts in a dialogue about the rationale for public investment in quality child care. [The conference summary is available at <http://aspe.hhs.gov/hsp/cc-rationale02/>]

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Washington State Institute for Public Policy. (2004). *Benefits and costs of prevention and early intervention programs for youth*. Retrieved September 8, 2004, from <http://www.wsipp.wa.gov/rptfiles/04-07-3901.pdf>

Abstract: Does prevention pay? Can an ounce of prevention avoid (at least) an ounce of cure? More specifically for public policy purposes, is there credible scientific evidence that for each dollar a legislature spends on "research-based" prevention or early intervention programs for youth, more than a dollar's worth of benefits will be generated? If so, what are the policy options that offer taxpayers the best return on their dollar? These are among the ambitious questions the 2003 Washington State Legislature assigned the Washington State Institute for Public Policy. The findings are described in this report.

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White, K. R. (1991). *Longitudinal studies of the effects and costs of early intervention for handicapped children. Final report, October 1, 1985 - December 31, 1990*. Logan, UT: Utah State University, Early Intervention Research Institute.

Abstract: This report presents final results of 17 longitudinal studies on the costs and effects of providing alternative types of early intervention services to handicapped children. Part I outlines the contextual, theoretical, and historical factors underlying the conceptualization, design, and

implementation of the studies. Part II summarizes the results of each individual study grouped into the following three categories: (1) effects of varying intensity of intervention; (2) intervention with medically fragile children; and (3) effects of involving parents in intervention. Results for studies in each category are preceded by a review of other research addressing similar issues. Part III presents brief summaries of each of the studies in tabular form. Part IV describes project activities with regard to dissemination, training of graduate students and Advisory Committee meetings.

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Wood, M. E. (1981). Costs of intervention programs. In C. Garland & e. al. (Eds.), *Early intervention for children with special needs and their families: Findings and recommendations*. Seattle, WA: University of Washington.

**Abstract:** This chapter reviews the methodological problems that make it difficult to assess the cost effectiveness of early intervention for infants and toddlers with disabilities. It presents a model for piecing together data from several sources to estimate the average costs and cost savings of early intervention. This model is based on the idea that intervention results in proportional attrition rates from special education into regular education from one educational level to another and it assumes that those going into regular education will remain there. Data collected from several studies is used to show that delaying intervention means more children requiring more services at higher costs, while providing early intervention for the same population means fewer children requiring high cost services. The chapter concludes by stating that early intervention is clearly cost-effective, developmentally for the child, emotionally for the family, and financially for the family and the taxpayers in the community.



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