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ABSTRACT

The report highlights eight children's programs found to be fiscally effective by evaluations completed in the last 5 years. Each of the programs is addressed in terms of evaluation findings from specific studies. The following eight programs are examined (sample findings in parentheses): (1) WIC-Special Supplemental Food Program for Women, Infants, and Children (reduction in infant mortality, with largest improvements for populations at higher risk); (2) Prenatal care programs such as Maternal and Child Health Services Block Grant (decrease in prematurity, reduction in low birthweight); (3) Medicaid (fewer abnormalities at periodic exams among children who received Early Periodic Screening Diagnosis and Treatment Prevention services than among those not receiving them); (4) Childhood Immunization Program (dramatic declines in the incidence of many diseases; reduction of hearing impairment, retardation, and other problems; (5) preschool education programs, including Head Start (increased success of children who attended preschool compared with those who did not, positive effects for parents and family); (6) compensatory education (narrowing of the achievement gap between Black and other elementary students); (7) P.L. 94-142, the Education for All Handicapped Children Act (increases in number of students served and in available services, benefits to students who have received special education services); and (8) youth employment and training programs (employability and wage gains, prevention of school enrollment declines in Youth Incentive Entitlement Pilot Projects). (CL)

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[COMMITTEE PRINT]

99th Congress
1st Session

HOUSE OF REPRESENTATIVES

OPPORTUNITIES FOR SUCCESS: COST-EFFECTIVE PROGRAMS FOR CHILDREN

A STAFF REPORT

OF THE

SELECT COMMITTEE ON CHILDREN, YOUTH, AND FAMILIES

NINETY-NINTH CONGRESS

FIRST SESSION

AUGUST 1985

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(The name of Representative Lane Evans from Illinois was erroneously omitted from the list of Selected Committee Members.)

LETTER OF TRANSMITTAL

U.S. HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON CHILDREN, YOUTH, AND FAMILIES,
Washington, DC, August 14, 1985.

To: Members, Select Committee on Children, Youth, and Families.

We commend to your attention this staff report, "Opportunities for Success: Cost-Effective Programs for Children."

Each of the eight children's programs highlighted herein have improved the lives of the participating children, and saved public moneys as well. In addition to summarizing each program's human and fiscal benefits, the report includes an annotated bibliography of relevant research.

This document will prove a valuable reference and resource to the Committee as it continues to seek opportunities to improve the lives of America's children and families.

Sincerely,

GEORGE MILLER,
Chairman.

DAN COATS,
Ranking Minority Member.

CONTENTS

OPPORTUNITIES FOR SUCCESS:
COST-EFFECTIVE PROGRAMS FOR CHILDREN

Introduction

This report demonstrates the proven success and cost-effectiveness of eight major children's programs. It provides proof of our ability to improve the lives of millions of vulnerable American children, while reducing the need for later and more costly expenditures.

The fact is that we already know enough to use public policy to benefit children, and do so in a way that returns funds to the federal treasury. We have been able to reduce infant mortality, overcome early learning deficiencies, and provide early educational access for handicapped children, among other examples.

We have not, however, reached millions of the children and families who are eligible for, and could benefit from, these programs. By not reaching out to the unserved children, we are foregoing opportunities for new successes as well as burdening future taxpayers with more costly public expenditures.

Our findings have been drawn from the most current and complete evaluations and research reviews available, most having been completed in the last five years. While we have described the most dramatic findings, in every case they are fully consistent with the weight of the evidence available.

While the programs identified in this report have proven their cost-effectiveness, this does not mean that other programs have not. Some simply have not been evaluated to the extent these have, or in a manner that lends itself to such an analysis. Some programs are too new for adequate longitudinal evaluations to have been completed. Still others have been studied and their effectiveness in meeting specific needs of children and youth has been demonstrated. Since they have not been evaluated strictly for the fiscal savings they effect, we have not included them in this report.

We acknowledge the methodological limitations present in evaluating all programs, including social programs. However, we believe it is extremely important to evaluate the effectiveness of publicly supported programs. In addition to enhancing our understanding of their impact on children and their budgetary implications, program evaluations also help us improve program design and delivery, and there are no programs that cannot be improved.

When the evaluations prove to be as positive as those found in this report, especially during a period of limited federal resources, we should use them to point the way to additional opportunities for sound investments in America's children and their families.

HIGHLIGHTS OF PROGRAM EFFECTS

	BENEFITS FOR CHILDREN
WIC—SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS AND CHILDREN	Reduction in infant mortality and births of low birthweight infants.
PRENATAL CARE	Reduction in prematurity, low birthweight births and infant mortality.
MEDICAID	Decreased neonatal and infant mortality, and fewer abnormalities among children receiving EPSDT services.
CHILDHOOD IMMUNIZATION	Dramatic declines in incidence of rubella, mumps, measles, polio, diphtheria, tetanus and pertussis.
PRESCHOOL EDUCATION	Increased school success, employability and self esteem; reduced dependence on public assistance.
COMPENSATORY EDUCATION	Achievement gains and maintenance of gains in reading and mathematics.
EDUCATION FOR ALL HANDICAPPED CHILDREN	Increased number of students receiving services and more available services.
YOUTH EMPLOYMENT AND TRAINING	Gains in employability, wages, and success while in school and afterwards.

COST BENEFIT	PARTICIPATION
$1 investment in prenatal component of WIC has saved as much as $3 in short-term hospital costs.	3.1 million participants—about ⅓ of those potentially eligible—received WIC services in Spring 1985.
$1 investment can save $3.38 in cost of care for low birthweight infants.	23.9% of live births in 1982 were to mothers who did not begin prenatal care in the first trimester of pregnancy. The rate for white births was 20.7%, for black births 38.5%.
$1 spent on comprehensive prenatal care added to services for Medicaid recipients has saved $2 in infant's first year; lower health care costs for children receiving EPSDT services.	In FY 1983 an estimated 9.5 million dependent children under 21 were served by Medicaid, including 2.2 million screened under EPSDT. In calendar 1983 there were 14.3 million related children in families below the poverty line.
$1 spent on Childhood Immunization Program saves $10 in later medical costs.	An estimated 3.4-3.8 million children were immunized with vaccine purchased under the Childhood Immunization program in FY 1983. In 1983 the total percent of children, ages 1-4, immunized against the major childhood diseases ranged from 74.4 for mumps to 86.0 for diphtheria-tetanus-pertussis. For those 5-14, percent immunized ranged from 86.2 for mumps to 92.9 for DTP.
$1 investment in quality preschool education returns $4.75 because of lower costs of special education, public assistance, and crime.	In 1983, there were 10.2 million children ages 3-5. 5.4 million of them were enrolled in public and non-public pre-primary programs. 442,000 children—fewer than 1 out of every 5 eligible—now participate in Head Start.
Investment of $500 for year of compensatory education can save $3,000 cost of repeating grade.	In 1982-83 4.7 million children—an estimated 50% of those in need—received Chapter I services under the LEA Basic Grant Program.
Early educational intervention has saved school districts $1,560 per disabled pupil.	During 1983-84 4,094,108 children ages 3-21 were served under the State Grant program. The prevalence of handicaps in the population under age 21 is estimated to be 11.4% (9.5-10 million children).
Job Corps returned $7,400 per participant, compared to $5,000 in program costs (in 1977 dollars). FY 1982 service year costs for YETP were $4,700; participants had annualized earnings gains of $1,810.	Between October 1983 and July 1984, 83,426 youths were enrolled in Job Corps, and about 240,000 in JTPA Title IIA; 753,000 youths participated in the summer youth program in 1984. The annualized number of unemployed persons 16-21 years old in 1984 was 2,278,000.

SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)

The Special Supplemental Food Program for Women, Infants and Children was established in 1972 with an amendment to the Child Nutrition Act of 1966. The WIC program distributes funds to States and certain recognized Indian tribes or groups to provide supplemental foods to low-income, pregnant, postpartum, and nursing mothers, and infants and children up to age 5 who are diagnosed as being at nutritional risk. The WIC program provides food benefits which are specifically prescribed according to the nutritional needs of the participant. WIC also provides nutrition counseling and education, and serves as an adjunct to health care for the target population. Funding for WIC is currently authorized under the resolution making continuing appropriations for FY 1985, P.L. 98-473.

More than 3.1 million participants received WIC services in Spring 1985. It is estimated that WIC reaches about one-third of the mothers, infants and children eligible for assistance.

Evaluations of the WIC program over the last decade have resulted in a body of evidence showing that the program greatly benefits needy women, infants and young children and is cost effective. WIC participation has been associated with

Earlier and more adequate prenatal care and improved birth outcomes

- --Increase in birthweight of infants born to program participants
- —Reduction in the incidence of births of low birthweight infants
- —Reduction in neonatal mortality
- —Increase in gestational age and reduction in prematurity among infants born to program participants

Largest improvements for populations at higher risk (teenage, unmarried, Black, and Hispanic origin women)

Cost effectiveness

- —For every $1 invested in the prenatal component of WIC, as much as $3 are saved in short-term hospital costs (Costs for longer-term treatment of disabilities caused by low birthweight are not included in calculated cost/benefit)
- —WIC participation in Missouri associated with the reduction in Medicaid newborn costs of about $100 . . . For every $1 spent on WIC, about 83¢ in Medicaid costs within 30 days of birth are saved

STUDIES

IMPROVED BIRTH OUTCOMES

Schramm, W.F. "WIC Prenatal Participation and Its Relationship to Newborn Medicaid Costs in Missouri. A Cost/Benefit Analysis." *American Journal of Public Health.* Vol. 75. No. 8. August 1985.

Study conducted to "determine if WIC prenatal participation is associated with a reduction in Medicaid costs within 30 days after birth, and, if so, whether the reduction in Medicaid costs is greater than the WIC costs for these women."

"WIC participation was found to be associated with the reduction in Medicaid newborn costs of about $100 per participant; mother's Medicaid costs were not affected. For every dollar spent on WIC, about 83¢ in Medicaid costs within 30 days of birth were apparently saved . . ."

Institute of Medicine. *Preventing Low Birthweight.* Washington, D.C.: National Academy Press. 1985.

As part of its study of issues and programs to prevent low birthweight, the Institute of Medicine (IOM) examined available data on the impact of the Special Supplemental Food Program for Women, Infants and Children (WIC). The IOM concludes that the WIC program provides positive benefits to nutritionally and financially high-risk women. The IOM particularly noted reductions in the incidence of low birthweight births among WIC participants and the finding that early and consistent participation in the program during pregnancy is related to the magnitude of benefit. The IOM recommends "that nutrition supplementation programs such as WIC be a part of comprehensive strategies to reduce the incidence of low birthweight among high-risk women," and that "such programs be closely linked to prenatal services."

Kotelchuck, M., et al. "WIC Participation and Pregnancy Outcomes: Massachusetts Statewide Evaluation Project." *American Journal of Public Health.* 74:1084-1092. October 1984.

WIC participation is associated with improved pregnancy outcomes, including a decrease in low birthweight incidence (6.9% vs 8.7%) and neonatal mortality (12 vs 35 deaths), an increase in gestational age (40.0 vs 39.7 weeks), and a reduction in inadequate prenatal care (5.8% vs 7.0%). Subpopulations at higher risk (teenage, unmarried and Hispanic origin women) have more enhanced pregnancy outcomes associated with WIC participation.

Kennedy, E.T., et al. "The effect of WIC supplemental feeding on birthweight: a case-control analysis." *American Journal of Clinical Nutrition.* 40:579-585. 1984.

Participation in WIC is associated with a 107 gram increase in mean birthweight and a 40% decrease in the incidence of low birthweight ($p = .059$). Teenage, Black and Hispanic women show similar, if not stronger, benefits.

U.S. General Accounting Office. *WIC Evaluations Provide Some Favorable but No Conclusive Evidence on the Effects Expected for*

the Special Supplemental Program for Women, Infants and Children. GAO No. PEMD-84-4. Washington, D.C. January 1984.

GAO report reviewed WIC evaluations and, while noting uneveness in quality of available evidence, concluded that substantial data exist for increases in mean birthweight and decreases in the percentage of low birthweight infants.

Kennedy, E.T., et al. "Cost/benefit and cost/effectiveness of WIC" Unpublished paper. Testimony before the Select Committee on Children, Youth, and Families. U.S. House of Representatives. Prevention Strategies for Healthy Babies and Healthy Children. June 1983.

Researchers conducted review of retrospective medical and nutrition data on 1328 WIC and non-WIC pregnant women in Massachusetts. Analyses showed that participation in WIC was positively and significantly associated with birthweight. Cost-benefit analysis yielded a benefit-cost ratio of as much as 3.1:1 favoring WIC. Every dollar spent on WIC for the prenatal care component can save three dollars in hospital costs. Longer-term costs for treatment of disabilities caused by low birthweight were not addressed in the analyses, but data show that the incidence of handicaps increases as birthweight decreases.

Kennedy, E.T., et al. "Evaluation of the effect of WIC supplemental feeding on birth weight." *Journal of the American Dietetic Association,* 80:220. 1982.

Harvard School of Public Health study showed average gain of 122 grams in birthweight among infants born to WIC participants.

Kotelchuck, M., et al. *Final Report. Massachusetts Special Supplemental Food Program for Women, Infants and Children (WIC) Follow-up Study.* 1982.

Follow-up study found an increase of +23.5 grams in mean WIC effect on birthweight that averaged 110 grams in women participating in WIC for more than six months.

Kotelchuck, M., et al. *Final Report: 1980 Massachusetts Special Supplemental Food Program for Women, Infants and Children Evaluation Project.* Submitted to Food and Nutrition Service, USDA, Washington, D.C. 1981.

Study by Kotelchuck and colleagues at Harvard found positive effect of WIC participation on birthweight of infants born to program participants. Gains averaged 110 grams in women participating in WIC for greater than six months. The study and follow up also found significantly fewer neonatal deaths in infants born to WIC mothers when compared to babies of non-WIC women.

Endozien, J., et al. *Medical Evaluation of the Supplemental Food Program for Women, Infants and Children.* U.S. GPO. 75-123. Washington, D.C. 1976.

Researchers at University of North Carolina reported average gains of + 136 grams in birthweight of infants of program participants.

EFFECTS FOR POPULATIONS AT HIGHER RISK

Institute of Medicine. 1985. *op. cit.*

Kotelchuck, M., et al. 1984. *op. cit.*
Kennedy, E.T., et al. 1984. *op. cit.*

COST EFFECTIVENESS

Schramm, W.F. 1985. *op. cit.*
Kennedy, E.T., et al. 1983. *op. cit.*

PRENATAL CARE

Several public programs provide support for prenatal care services for low-income pregnant women. Major among these are the Maternal and Child Health Services Block Grant, permanently authorized under Title V of the Social Security Act; and Medicaid, permanently authorized under Title XIX of the Social Security Act.

Early and adequate prenatal care has been associated with improved pregnancy outcomes, and the lack of such care with increased risk of low birthweight births and other poor pregnancy results. Research on the effectiveness and value of prenatal care clearly demonstrates

Improved maternal and child health

—Reduction in infant mortality
—Reduction in low birthweight
—Decrease in prematurity
—Most effective reduction in low birthweight births among high risk women, whether the risk derives from medical factors, sociodemographic factors, or both

Cost effectiveness

—Institute of Medicine calculated that for every $1 spent, $3.38 can be saved in the costs of care for low birthweight infants
—Michigan analysis shows that for every $1 spent, $6.12 could be saved in newborn intensive care costs
—Colorado Health Department estimated that $9 could be saved in medical expenses of premature infants for every dollar spent, if comprehensive prenatal care were provided to low-income women

STUDIES

IMPROVED MATERNAL AND CHILD HEALTH

Institute of Medicine. *Preventing Low Birthweight.* Washington, D.C. National Academy Press. 1985.

Review of studies shows that "overwhelming weight of the evidence is that prenatal care reduces low birthweight. This finding is strong enough to support a broad, national commitment to ensuring that all pregnant women, especially those at medical or socioeconomic risk, receive high-quality care."

"Prenatal care is most effective in reducing the chance of low birthweight among high-risk women, whether the risk derives from medical factors, sociodemographic factors, or both."

Institute of Medicine's cost-benefit analysis shows that if the improved use of prenatal care reduced the rate of low birthweight in the target population "from the current 11.5% to

only 10.76%, the increased expenditures for prenatal services would be approximately equal to a single year of cost savings in direct medical care expenditures for low birthweight infants in the target population. If the rate were reduced to 9 percent (Surgeon General's 1990 goal), every additional dollar spent for prenatal care within the target group would save $3.38 in the costs of care for low birthweight infants because there would be fewer low birthweight infants requiring expensive medical care."

Korenbrot, C.C. "Risk reduction in pregnancies of low-income women: Comprehensive prenatal care through the OB Access Project." *Mobius.* Vol. 4. 34-43. 1984.

The OB Access Project provided comprehensive obstetrical services for low-income women, including eight or more prenatal visits, health and nutrition assessment and education, and prenatal vitamins. Project evaluation showed lower incidence of low birthweight births among OB Access Project participants than those who received less intensive, standard or more variable care.

Sprague, H.A., et al. "The impact of maternity and infant care programs on perinatal mortality." *Perinatology-Neonatology.* August 1983.

Evaluation of Maternal and Infant Care (MIC) project in Michigan showed dramatic declines in the rate of perinatal mortality among women receiving MIC services. "For patients whose most recent non-MIC pregnancies resulted in fetal or neonatal death, the rate of more than 300/1,000 was reduced significantly, to 48.8/1,000, under MIC. For those patients whose most recent non-MIC pregnancies did not result in fetal or neonatal death, previous rates of more than 60/1,000 were reduced significantly under MIC to 19.8/1,000."

Bondy, J. "Cost-Benefits of Selected Preventive Care Interventions." In *Colorado's Sick and Uninsured. Background Papers.* Colorado Task Force on the Medically Indigent. Boulder, Colorado. 1984 Also, "Cost-Benefit of Prenatal Care." Memorandum to Task Force Members. 1983.

Colorado study cites findings from local studies showing that women who received early and continuous prenatal care had a prematurity rate of 5%, while women who received no care experienced a prematurity rate of 28%. Further, Colorado Health Department estimated that "if comprehensive prenatal care was provided to low-income women, $9 could be saved in medical expenses of premature infants for every dollar spent." "In terms of long-term state costs for these infants, for every dollar spent in prenatal care, eleven state dollars would be saved."

O'Hare, D. Testimony before the Select Committee on Children, Youth, and Families. U.S. House of Representatives. *Children, Youth, and Families in the Northeast.* July 25, 1983.

Testimony describes effects of MIC-FP program in New York City, which serves almost 10% of pregnant women. Based on a 1980 study of the program, it was estimated that "almost $2 million was saved in hospital costs alone by providing prenatal care and decreasing low birthweight."

ERIC

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Sokol, R., et al. "Risk, Antepartum Care, and Outcome: Impact of a Maternity and Infant Care Project." *Obstetrics and Gynecology.* 56: 150–156, 1980.

Study in Cleveland found that women who received comprehensive prenatal care at the city's Maternity and Infant Care Project experienced 60% less perinatal mortality and a 25% lower rate of preterm deliveries than similar women not enrolled in the project. Maternal and Infant Care Project participants received more patient education, nutrition counseling, social service assessment and intervention, social services for adolescents and special follow-up services for those who miss appointments. Study suggests that these components of care are important for the outcomes.

Kessner, D. (ed.). *Infant Death: An Analysis by Maternal Risk and Health Care. Contrasts in Health Status.* Vol. 1. Institute of Medicine. Washington, D.C.: National Academy of Sciences, 1973.

Landmark study of births in New York City in 1968. Found significant association between adequacy of prenatal care and the percentage of low birthweight newborns in each of risk groups examined, controlling for ethnicity. Gains were greatest for those at highest risk because of sociodemographic or medical risk factors.

COST EFFECTIVENESS

Institute of Medicine. 1985. *op. cit.*

Korenbrot, C. "Comprehensive Prenatal Care as a MediCAL Benefit. Expected Costs and Savings." University of California at San Francisco. 1984.

Study of comprehensive prenatal care program demonstrated cost savings at $2 in the first year of infant's life for every $1 spent on prenatal care in the project.

Taylor, J. "Prenatal and Postpartum Maternity Care as a Cost Containment Measure." Michigan Department of Public Health. Unpublished paper. 1984.

Cost benefit analysis of providing prenatal care shows that for every $1 spent, an estimated $6.12 could be saved in newborn intensive care costs in Michigan.

Bondy, J. 1984 *op. cit.*

O'Hare, D. 1983 *op. cit.*

MEDICAID

Medicaid, permanently authorized by Title XIX of the Social Security Act as amended, is a federal-state matching program providing medical assistance to certain low-income persons who are aged, blind, disabled, or members of families with dependent children. Medicaid represents 55% of all public health funds spent on children. In calendar 1983, there were 14.3 million related children in families below the poverty line; approximately 9.5 million dependent children were served by the Medicaid program. In FY 1984 9.8 million dependent children under 21 received Medicaid services. From April 1984-March 1985 1.9 million children were screened under the Early and Periodic Screening, Diagnosis, and Treatment program (EPSDT). The largest single hospital inpatient service funded by Medicaid is routine newborn deliveries.

Evaluations of the effects of Medicaid coverage show

Improved health outcomes for low-income children and families

—Reduction of neonatal and infant mortality rates
—Fewer abnormalities at periodic exams among children who receive EPSDT preventive services than among those not receiving them.

Cost effectiveness

—Health care costs are lower for children who receive preventive EPSDT services than for those who do not; Ohio Department of Public Welfare found annual Medicaid savings of $250 per EPSDT participant
—Medicaid-supported, comprehensive prenatal care resulted in cost savings of $2 in the first year of infant's life for every $1 spent

STUDIES

IMPROVED HEALTH OUTCOMES

Institute of Medicine. *Preventing Low Birthweight.* Washington, D.C.: National Academy Press. 1985.

IOM review of research on preventing low birthweight concludes:

"Medicaid increases participation in prenatal care by lowering financial barriers to such services. And because participation in prenatal care is associated with improved birthweight, efforts to expand and strengthen the Medicaid program should be part of a comprehensive program to reduce the nation's incidence of low birthweight. Decreasing the participation of pregnant women in the Medicaid program by such means as changing welfare or Medicaid eligibility criteria serves only to

undermine the purpose of the program and, among other things, threatens appropriate use of prenatal care and increases costs for low birthweight infant care. Changes in the program should be dedicated to enrolling more, not fewer, indigent, eligible women in the program and to providing them with early and regular prenatal care of high quality."

Keller, W. "A Study of Selected Outcomes in the Early and Periodic Screening, Diagnosis, and Treatment Program in Michigan." *Public Health Reports.* March-April 1984.

Children receiving EPSDT preventive services exhibit fewer abnormalities at periodic exams than those who do not receive such benefits. Overall health care costs for children participating in the program are significantly lower than for those who do not participate, even when all the costs of administering EPSDT are taken into account.

Korenbrot, C. "Comprehensive Prenatal Care as a MediCAL Benefit: Expected Costs and Savings." University of California, San Francisco. 1984.

Research project involving the provision of comprehensive health care to pregnant women demonstrated improved health outcomes for babies whose mothers participated in the project and cost savings of $2 in the first year of infant's life alone for every $1 spent on prenatal care through the project.

Hadley, J. *More Medical Care, Better Health?* Urban Institute. Washington, D.C. 1983.

State Medicaid coverage policies for pregnant women and children have helped in the reduction of neonatal and infant mortality rates since 1966.

Budetti, P., et al. "Federal Health Program Reforms: Implications for Child Health Care." Milbank Memorial Fund. 1982.

Medicaid represents 55% of all public health funds spent on children.

National Center for Health Statistics. *Advance Data. Expected Principal Source of Payment for Hospital Discharges. U.S. 1977.*

The largest single hospital inpatient service funded by Medicaid is routine newborn deliveries.

COST EFFECTIVENESS

Keller, W. 1984. *op. cit.*

Korenbrot, C. 1984. *op. cit.*

Bureau of Program Operations, Health Care Financing Administration, U.S. Department of Health and Human Services. *Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program Report: Fiscal Year 1983.* September 26, 1983.

Report cites cost-benefit evaluations from several states:

"Bailey of North Carolina's Department of Human Resources, examined costs for 1980-82, after excluding the experience of over 1,000 children residing in mental retardation centers and found that annual Medicaid savings per participant were $29.58, $14.57 and $30.20 for 1980, 1981 and 1982 respectively . . . McMurray of the Ohio Department of Public Welfare examined costs for 1982 and found annual Medicaid savings per participant of $250."

Blackwell, A.G., et al. (Counsel on Behalf of Petitioners) "Administrative Petition to Reduce the Incidence of Low Birth Weight and Resultant Infant Mortality." *An Administrative Petition to the United States Department of Health and Human Services.* July 29, 1983. Also submitted with testimony before Select Committee on Children, Youth, and Families. *Prevention Strategies for Healthy Babies and Healthy Children.* June 30, 1983.

Petitioners' analysis of cost savings showed that the federal government could save more than $361 million per year by providing comprehensive prenatal care to all low-income women.

CHILDHOOD IMMUNIZATION

The Childhood Immunization Program, currently authorized under P.L. 98-555, which amended Section 317(J) of the Public Health Service Act, helps States and localities to establish and maintain immunization programs for the control of vaccine-preventable childhood diseases, including measles, rubella, poliomyelitis, diphtheria, pertussis, tetanus and mumps.

The immunization assessment of the children against the major diseases of rubella, mumps, measles, polio, diphtheria, tetanus and pertussis has shown

Dramatic declines in the incidence of many diseases, because of widespread immunization

- —Decrease in number of reported cases of rubella by 98.7%, compared to pre-vaccine years (pre 1969)
- —Drop in reported cases of mumps by 94.9%, from 105,000 to 5,300, from 1970-1982
- —Decrease in reported cases of measles, polio and diphtheria by more than 99%, from 1960 to 1982
- —Decrease in reported cases of pertussis by 87% and tetanus by 76%, from 1960 to 1982

Considerable variation in immunization by race and by income

Continued serious threat of these major childhood diseases in absence of immunization

- —In 1979 the Swedish government stopped producing the whole cell pertussis vaccine. Since then, Swedish children have not been vaccinated against pertussis, and in 1982 and 1983 a severe whooping cough epidemic broke out
- —Most of the outbreaks of measles during 1983 were among age groups in which there are a number of unvaccinated individuals; in 1984 the incidence of measles was up 69 percent from the preceding year

Cost effectiveness

- —Benefit-cost ratio for the Mumps, Measles, and Rubella (MMR) immunization program is approximately 14:1
- —For every dollar spent on the Childhood Immunization Program, the government saves $10 in medical costs
- —Centers for Disease Control (CDC) study indicated that the $180 million spent on a measles vaccination program saved $1 3 billion in medical and long-term care by reducing hearing impairment, retardation and other problems

Studies

Reductions in Childhood Diseases Because of Immunization

White, C. C., et al. "Benefits, Risks and Costs of Immunization for Measles, Mumps and Rubella." *American Journal of Public Health.* Vol. 75. No. 7. 739-744. July 1985.

Researchers compared the actual and estimated morbidity, mortality, and costs attributable to measles, mumps, and rubella with having or not having a childhood immunization program. "Without an immunization program, an estimated 3,325,000 cases of measles would occur as compared to 2,872 actual cases in 1983 with a program. Instead of an expected 1.5 million rubella cases annually, there were only 3,816 actual cases. Mumps cases were lowered from an expected 2.1 million to 32,850 actual cases. There are comparable reductions in disease-associated complications, sequelae, and deaths."

"Without a vaccination program, disease costs would have been almost $1.4 billion. Based on the actual incidence of disease in 1983, estimated costs were $14.5 million. Expenditures for immunization, including vaccine administration costs and the costs associated with vaccine reactions, totaled $96 million. The resulting benefit-cost ratio for the MMR immunization program is approximately 14:1. The savings realized due to the use of combination rather than single antigen vaccine total nearly $60 million." (Article abstract)

U.S. Department of Commerce. Bureau of the Census. *Statistical Abstract of the United States 1985.* Tables 180 and 181.

In 1983, the percent of children, ages 1-4 immunized against specific diseases stood at 86% for diphtheria-tetanus-pertussis, 76.5% for polio, 77.3% for measles, 76.4% for rubella; and 74.4% for mumps. For children ages 5-14, the percent immunized was 92.9%, 89.6%, 88.6%, 88.9% and 86.2% for the specified diseases respectively.

The decrease in reported cases of diseases dramatically shows the effectiveness of childhood immunizations. In 1960, 918 cases of diphtheria, 14,800 cases of pertussis, and 368 cases of tetanus were reported. In 1982, there were 2 reported cases of diphtheria, 1,900 of pertussis and 88 of tetanus. Polio dropped from 3,190 in 1960 to 8 in 1982; measles from 441,700 to 1,700. Data on reported cases of rubella and mumps available for 1970 show that there were 56,600 cases of rubella and 105,000 cases of mumps that year. In 1982, the reported cases of rubella had declined to 2,300, and mumps to 5,300.

Centers for Disease Control. *Rubella and Congenital Rubella—United States, Reports for 1980-1983; 1983; 1983-84.* Cited in *Morbidity and Mortality Weekly Report.* "Elimination of Rubella and Congenital Rubella Syndrome—United States." 34:51. p. 65. Feb. 1985.

Rubella vaccine was licensed in 1969, and more than 123 million doses of the vaccine have been given since then, "successfully preventing epidemics of rubella and congenital rubella syndrome (CRS) from occurring in the U.S. Compared to pre-vaccine years, the number of reported cases has decreased

98.7% overall, with 90% or higher declines recorded for all age groups."

UNEVEN IMMUNIZATION

University of North Carolina (UNC) Child Health Outcomes Project. *Monitoring the Health of America's Children: Ten Key Indicators.* September 1984.

National Center for Health Statistics data show percent of preschool children "who are adequately immunized against childhood disease varies greatly by race and income. In 1981, the portion of white preschoolers immunized was 10 to 21 percentage points higher than the portion of nonwhites immunized (percent varies by disease for which immunization given). Similarly, in 1979, the portion of poverty-area, central-city preschoolers who were immunized ranged from 12 to 20 percentage points below the portion of nonpoverty, noncentral-city preschool children immunized."

Administration for Children, Youth, and Families (ACYF), Department of Health and Human Services (DHHS) Project Head Start. "Performance Indicator Report System. Annual Report for School Year Ending 1983." Cited in UNC Child Health Outcomes Project. *Monitoring the Health of America's Children: Ten Key Indicators.* September 1984.

"In contrast to the trend for most low-income children, preschoolers participating in the Head Start program have higher than average immunization rates. For program year ending 1983, 93.5% of children in the Head Start program nationwide had complete or up-to-date immunizations."

CONTINUED THREAT OF DISEASE IN ABSENCE OF IMMUNIZATION

Centers for Disease Control. Measles—United States, 1984. *Morbidity and Mortality Weekly Report.* 34:21. p. 308. May 31, 1985.

Centers for Disease Control reported 69% increase in cases from 1983 through 1984. Reported measles cases rose from 1,497 in 1983 to 2,534 in 1984. 874—34 percent—of last year's cases were classified as preventable.

Koshland, D.E. "Benefits, Risks, Vaccines, and the Courts." *Science.* (editorial) Vol. 227. No. 4692. March 15, 1985.

"When DTP vaccine fell into disuse in England and Japan during the 1970's the death rate shot up (for example, during one 2-year period in England 36 children died per 100,000 who were infected with whooping cough)."

Sun, M. "Whooping Cough Vaccine Research Revs Up," *Science.* Vol. 227. March 8, 1985.

In 1979 the Swedish government stopped producing the whole cell pertussis vaccine, and since then, Swedish children have not received pertussis vaccination. In 1982 and 1983, a severe whooping cough epidemic broke out.

American Public Health Association. "Incidence of Measles Fell Again in 1983." *The Nation's Health.* 14 (Apr.): 4. Cited in UNC Child Health Outcomes Project. *Monitoring the Health of America's Children" Ten Key Indicators.* September 1984.

"Most of the outbreaks of measles during 1983 were among preschoolers under age 5 or among college students—age groups in which there are a number of unvaccinated individuals since they have not been caught in the push to ensure all school children are immunized."

Cost Effectiveness

Centers for Disease Control U.S. Department of Health and Human Services. Communication regarding current costs of immunization. August 1985.

The current cost of full immunization series is estimated to be about $31. This includes cost of vaccine (4 doses of polio vaccine at $.804/dose; 5 doses of DTP at $2.21/dose; and 1 dose of MMR at $6.85/dose), and program operation costs which are estimated at about one-third of total cost per series.

White, C.C., et al. 1985. *op. cit.*

UNC Child Health Outcomes Project. 1984. *op. cit.*

Report summarizes several studies concerning cost effectiveness:

"For every dollar spent on the Childhood Immunization Program, the government saves $10 in medical costs. For one million 2-year olds, rubella vaccination would save 9.8 million in net medical costs and an additional $7.4 million in productivity. The cost of lifetime institutional care for a child left retarded by measles is between $500,000 and $1 million. Centers for Disease Control study indicated that the $180 million spent over several years on a measles vaccination program saved $1.3 billion in medical and long-term care by reducing hearing impairment, retardation and other problems."

At government contract prices, the total cost for vaccines necessary to complete a series of immunizations in a child . . . was less than $10 in 1983.

Kaplan, J.P., et al. An update on the benefits and costs of measles and rubella immunization. In proceedings of the symposium, "Conquest of agents that endanger the brain." Baltimore, Maryland, October 28-29, 1982. Cited in *Morbidity and Mortality Weekly Report.* 34:5. p. 65. Feb. 1985.

It is estimated that each case incurs an average lifetime cost of over $200,000.

PRESCHOOL EDUCATION

The number and array of preschool education programs, aimed at meeting developmental and educational needs of preschool children and enhancing the likelihood of later school success, have grown dramatically in recent years. In 1965 Head Start was established as a national program providing enriched early childhood education for low-income children. Head Start also provides a range of other services, including health, nutrition and social services. The program emphasizes parent and community involvement in the development and operation of the program. Head Start is currently authorized under P.L. 98-558.

Research on the effects of early childhood education during the last 20 years reports

Increased school success of children who attended preschool compared with children who had not

—Better grades, fewer failing marks, lower retention in grade, and fewer absences in elementary school
—Less need for special education services
—Improved literacy, and curiosity in school
—Greater likelihood of completing high school
—Greater likelihood of continuing education beyond high school

Increased employability

Reduction in dependence on public assistance

Decreased criminal activity

Improvement in students' self confidence and self esteem

Positive effects for parents and family

Cost effectiveness

—$1 investment in preschool education returns $4.75 in savings because of lower special education costs, lower welfare and higher worker productivity
—Researchers estimate that present value of benefits beyond age 19 exceeds seven times the present value of cost for one year of preschool (1981 dollars)

STUDIES

INCREASED SCHOOL SUCCESS

Reece, C. "Head Start at 20." *Children Today.* Vol. 14. No. 2. March-April 1985.

Discussion of Head Start program as it begins its 20th year of operation states:

"The findings are clear. Head Start produces substantial gains in children's cognitive and language development, school readiness and achievement. Head Start children are far less likely to be held back a grade or assigned to a special education class than similar children who did not attend Head Start, and Head Start children have been found to be more sociable and assertive than comparable youngsters. Children in Head Start obtain markedly higher levels of health care than children not in the program, have fewer absences from school and perform better on physical tests. In many studies, parents of Head Start children report important changes in their educational or economic status leading to greater family self-sufficiency."

Deutsch, M., et al. "Long-term Effects of Early Intervention: Summary of Selected Findings." Unpublished paper. March 1985. Also reported in the New York Times, April 1985.

Study found short- and long-term benefits of enriched preschool program for inner-city, poor children. Program participants showed significant changes in literacy, curiosity, and improved orientation to general environment; 58% of the program participants finished high school compared to 40% of controls; 39% of participants go on to college or specific vocational training compared to 28% of controls; and 49% of program participants gain employment compared to 24% of the controls. Based on results of interviews and personality assessments, program participants showed greater initiative, assertiveness, self-esteem, and ego strength.

Berreuter-Clement, J., et al. *Changed Lives. The Effects of the Perry Preschool Program on Youths through Age 19.* Monographs of the High/Scope Educational Research Foundation. Number Eight. 1984.

The Perry Preschool Study shows that an enriched early childhood education improves school success; increases employability and lowers need for public welfare; helps to prevent criminal activity and is exceptionally cost effective. With regard to school success, persons who had attended preschool had better grades, fewer failing marks, and fewer absences in elementary school; they required fewer special education services and were more likely to continue their education or get vocational training than their no-preschool counterparts.

By age 19, the preschool group's employment experience was significantly better than the experience of the no-preschool group. Study participants who attended preschool were more likely to be employed at the time of the age-19 interview, and they were employed more months of the calendar year in which they became 19.

Researchers calculated that the value of benefits beyond age 19 of participants exceeds seven times the cost for one year of preschool (in 1981 dollars).

Weikart, D. Testimony before the Select Committee on Children, Youth, and Families. U.S. House of Representatives. *Prevention Strategies for Healthy Babies ana Healthy Children.* June 30, 1983.

Testimony reported findings of the High/Scope Perry preschool project, indicating a higher rate of school success and

employment, as well as lower arrest rate and lesser likelihood of appearing on welfare rolls. A summary of the cost-benefit analysis states:

> "For every dollar invested in one year of high quality preschool education for economically disadvantaged children, the returns to society over the lifetime of the subject are approximately: $1 in reduced public school education costs; 50¢ in reduced crime costs; 25¢ in reduced cost of welfare administration (in addition $2.25 in reduced taxpayer's cost of welfare); and $3 in increased lifetime earnings (75¢ in increased tax revenues). . . . Return on investment to society for each $1 is $4.75."

Hubbell, R. *Head Start evaluation, synthesis, and utilization project.* ACYF, DHHS. Publication No. OHDS 83-31184. Washington, D.C., 1983 Report. Final Report pending.

Report shows that Head Start graduates do better in school than those who did not attend Head Start, when considering such factors as non-retention in grade, placement in regular classes as opposed to special education, and teacher ratings.

Lazar, I., et al. *Lasting effects of early education.* Monographs of the Society for Research in Child Development. Vol. 47. Nos. 2-3. Serial No. 195. 1982.

Study of the long-term effects of early childhood education experience on children from low-income families, based on secondary analyses of data from several preschool programs. Results indicate effects in a number of areas: school competence, developed abilities, children's attitudes and values, and impact on the family. Findings include the following:

Children who attended programs were significantly more likely to meet their school's basic requirements;

Across six programs whose data could be pooled for the analysis, there was a significantly lower rate of assignment to special education among children in the early intervention group (13.8%), compared to the control group (28.6%);

Across eight projects, the program group had a lower median rate of grade retention of 25.4% compared to 30.5% in the control group;

Program participants surpassed controls on I.Q. tests for several years after the program had ended;

Children who had attended early education programs were significantly more likely than were controls to give achievement-related reasons, such as school or work accomplishments, for being proud of themselves;

Across all projects, mothers of program graduates were more satisfied with their children's school performance than were mothers of control children. Mothers of program participants also had higher aspirations for their children.

In one State, program families were less likely to use foster care services.

Zigler, E., et al. *Project Head Start.* New York: The Free Press, 1979.

Review of the history and effects of Head Start after 13 years of program operation in 1979. It summarizes aspects of Head Start's success as follows:

"At the simplest level, it has provided nutritious meals, vaccinations, and dental care to children who would otherwise not have had them. The improved physical health of Head Start children is a concrete, exciting, and too often ignored accomplishment.

Many studies of Head Start have focused on the intellectual and academic development of those children who participated, disregarding the children's social and emotional development or the program's impact on communities. Repeated educational evaluations of Head Start have left no doubt that it has striking short-term effects on children's social and cognitive development.

Parents who participated in Head Start were able to exercise control over their own lives by influencing decisions about the care of their children. Many parents gained career training and even employment. Others learned how to affect political institutions. According to the parents' own testimony, their improved self-esteem changed their relations to their children and their communities."

INCREASED EMPLOYABILITY

Deutsch, M., et al. 1985. *op. cit.*
Berreuter-Clement, J., et al. 1984. *op. cit.*

REDUCED DEPENDENCE ON PUBLIC ASSISTANCE AND IN REPORTS OF CRIMINAL ACTIVITY

Berreuter-Clement, J., et al. *Ibid.*

IMPROVEMENT IN STUDENTS' VIEWS OF THEMSELVES AND INCREASED MATERNAL SATISFACTION

Lazar, I., et al. 1982. *op. cit.*

POSITIVE EFFECTS FOR PARENTS AND FAMILY

Reece, C. 1985 *op. cit.*
Lazar, I., et al. 1982. op. cit.
Zigler, E., et al. 1979. *op. cit.*

COST EFFECTIVENESS

Berreuter-Clement, J., et al. 1984. *op. cit.*

COMPENSATORY EDUCATION

Title I of the Elementary and Secondary Education Act (ESEA) of 1965 was the federal government's premier effort to provide compensatory education services to educationally disadvantaged and low income students. In 1981 the program was substantially revised and became Chapter I of the Education Consolidation and Improvement Act, under which the program is currently authorized. 4.7 million students—about 50% of those estimated to be in need—received Chapter I services in 1982-3.

Studies of the effects of compensatory education show

Academic gains

- —Achievement and maintenance of statistically significant gains in reading and mathematics over a year
- —Narrowing the achievement gap between black and other elemetary students
- —Achievement gain drop when Title I assistance terminated
- —Improvement in achievement as a result of substantial parent involvement

Cost effectiveness

- —It costs only $500 to provide a year of compensatory education to a student compared to over $3,000 when a student repeats one grade once

STUDIES

COMPENSATORY EDUCATION RESULTS IN SIGNIFICANT ACHIEVEMENT GAINS

Carter, L. *A Study of the sustaining effects of compensatory and elementary education: the sustaining effects study.* Santa Monica, California, System Development Corporation, January 1983.

U.S. Department of Education-supported study of elementary students in grades 1-6 found that students receiving Title I services gained more in reading in grades 1, 2 and 3 and in math in all grades than similar students who did not receive Title I help.

Mullin, S., et al. "Is more better? The effectiveness of spending on compensatory education." *Phi Delta Kappan.* January 1983.

Authors conclude that evidence shows that Title I/Chapter I projects have a positive but small effect on the achievement of disadvantaged students; and that there is no significant association between achievement gains and project costs per pupil.

U.S. Department of Education, Office of Planning, Budget, and Evaluation Service. *An Evaluation of ESEA Title I—Program Operations and Educational Effects.* A Report to Congress, March 1982.

Cited findings described above. Also noted, based on information collected over three years, that

In reading, students who left the Title I program because of high performance do not fall back noticeably after they ceased participation in Title I.

The amount of regular instruction and tutor/independent work has positive effects on achievement.

National Assessment of Educational Progress. *Has Title I improved education for disadvantaged students?* Denver, Colorado, September 1981.

Title I emerged as primary factor contributing to improved reading performance of youngsters in Title I schools. Black elementary students closed gap with other elementary students by 6 percentage points; and Black 13-year-olds narrow gap with other 13-year-olds by 3.4 percentage points.

General Accounting Office. *Greater Use of Exemplary Education Programs Could Improve Education for Disadvantaged Children.* Report to the Congress. HRD-81-65. September 1981.

When Title I assistance was resumed to 1,195 students after they had been out of the program for at least 1 school year, their achievement rates increased significantly. The rates of achievement gain had dropped when the Title I assistance was initially terminated. The percentage of students keeping up with or gaining on their peers jumped from 6% while out of the program to 78% when assistance resumed.

National Institute of Education. *Compensatory Education Study. A Final Report from the National Institute of Education.* U.S. Department of Health, Education, and Welfare (DHEW). Washington, D.C. 1978.

Study mandated by Congress under the Education Amendments of 1974 to examine purposes and effectiveness of compensatory education programs. Study investigated 6 major areas: fund allocation, service delivery, student development and program administration, parent involvement, and evaluation. Findings indicate that

Compensatory instructional services clearly emphasize the basic skills of reading and mathematics; and appear to be of high quality, as measured by class size, time for instruction, teacher qualifications and use of sound instructional techniques.

Compensatory education students make and maintain significant achievement gains over a year. First graders made average gains of 12 months or 12 percentile points in reading, and 11 months or 14 percentile points in mathematics. Third graders made average gains of 7 months or 9 percentile points in reading and 12 months or 17 percentile points in math.

SUBSTANTIAL PARENT INVOLVEMENT IMPROVES ACHIEVEMENT

Comer, J.P. *School Power.* New York: MacMillan, The Free Press. 1980.

Intensive program, including substantial parent involvement, to change the organization and governance of two New

Haven elementary schools located in low income areas and beset with academic and behavioral problems resulted in significant, lasting gains in student achievement.

Gillum, R. "The Effects of Parent Involvement on Student Achievement in Three Michigan Performance Contracting Programs." Paper presented at American Educational Research Association (AERA) Annual Meeting. New York. 1977. Cited in Henderson, A. (ed.) *Parent Participation-Student Achievement. The Evidence Grows.* National Committee for Citizens in Education. 1981.

School districts which designed and implemented most comprehensive parent involvement programs had students who showed the greatest improvements in reading skills.

COST EFFECTIVENESS

National Center for Educational Statistics, "1983-84 Digest of Educational Statistics" Washington, D.C.: U.S. Dept. of Education, December 1983, p. 83. Cited in *Barriers to Excellence: Our Children at Risk.* National Coalition of Advocates of Students. January 1985.

It costs only $500 to provide a year of compensatory education to a student before he or she gets into academic trouble. It costs over $3,000 when one such student repeats one grade once.

National Coalition of Advocates for Students. *Ibid.*

"When compensatory education prevents one student's repeating a grade, we can provide compensatory education to five other students at no cost. Since students who repeat grades are those most likely to drop out or get pregnant too early even after remaining in school for several extra years, the real social benefit from targeted compensatory education is much greater. Early attention clearly has measurable effects in later years."

P.L. 94-142, EDUCATION FOR ALL HANDICAPPED CHILDREN

The Education of the Handicapped Act authorizes programs to support and improve the education of handicapped children. The largest and best known of these is the State Grant Program, authorized by P.L. 94-142, the Education for All Handicapped Children Act. The purpose of P.L. 94-142, is to assure that every handicapped child aged 3-21 years, residing in a State participating in the program, receives a free, appropriate education in the least restrictive environment.

P.L. 94-142 mandated and first supported evaluation studies in 1976. Evaluations have so far focused on the progress and effects of implementing the Act; there are as yet few reports on program effects. P.L. 98-199, Education of the Handicapped Act Amendments enacted in the 98th Congress, moves the emphasis beyond implementation toward effects on students and cost effectiveness.

There is agreement that while much room for improvement remains, there has been substantial progress in special education programs and services due to P.L. 94-142. Reports point to

Increases in number of students served and in available services

Success by States in implementing the Act

Benefits to students who have received special education services

—Colorado Department of Education follow-up survey suggests that high school graduates who participated in special education programs in Colorado have made positive adjustments in their communities. Nearly 70 percent were working at least part-time and contributing significantly to their own support

Importance and cost effectiveness of early intervention services for handicapped infants and preschoolers in promoting healthy development and decreasing the need for special education

—If intervention for handicapped infants is delayed until age six, education costs to age 18 are estimated at $53,350; intervention at birth is estimated to result in lower education costs of $37,272, a savings of $16,078

—For every $1 invested in high quality preschool programming, there is a $3 reduction in public special education costs

—School districts in Colorado have saved $1,560 per pupil in special education costs because of the INREAL early intervention program

STUDIES

IMPLEMENTATION, SERVICES AND EFFECTS

U.S. Office of Special Education and Rehabilitation Services. U.S. Department of Education. *Seventh Annual Report to Congress on the Implementation of the Education of the Handicapped Act.* 1985.

The number of children with handicapping conditions served in the 1983-84 school year increased slightly over the previous year to a total of 4,341,399, most of whom were served under P.L. 94-142.

Reviews of the effectiveness of preschool education for children with handicapping conditions have demonstrated educational and economic benefits. Further, the earlier the intervention, the greater is the ultimate dollar savings and the higher is the rate of education attainment.

Study of high school graduates who participated in special education programs in Colorado showed that they made positive adjustments in their communities. Nearly 70 percent were working at least part-time. "There was little evidence of financial dependence upon such social programs as welfare. However, the study also found that these former students remain at only marginal levels in the communitie's social, economic, and employment activities."

Students with disabilities in one class in Connecticut who received special education services reported considerable success and satisfactory adjustment in educational, employment and personal areas of their lives since leaving school.

COST EFFECTIVENESS

U.S. Department of Education. *Ibid.*

Garland, C., et al. (eds.). "Early intervention for children with special needs and their families: Findings and recommendations." Westar Series Paper No. 11. Seattle, WA: The University of Washington, 1981. (ERIC Document Reproduction Service No. ED207 278). Cited in U.S. Department of Education. 1985, *op. cit.*

"If intervention began at birth, education costs to age 18 were projected to be $37,272. If intervention was delayed until age six, the cost was projected to be $53,350."

Berrueta-Clement, J., et al. *Changed Lives: The Effects of the Perry Preschool Program on Youths through age 19.* Ypsilanti, Michigan. Monographs of the High/Scope Educational Research Foundation. Number Eight. 1984. Also cited in U.S. Department of Education. 1985. *op. cit.*

Cost/benefit analysis concluded that 2 years of high quality preschool returns three and one-half times the initial investment.

McNulty, B.A., et al. "Effectiveness of Early Special Education for Handicapped Children." Report Commissioned by the Colorado General Assembly. 1983.

Colorado Research Design Study evaluated the program and cost effectiveness of INREAL early intervention and found that, even after subtracting the costs of the preschool special

education program, the school districts saved $1,560 per handicapped pupil and $1,050 per at-risk pupil because of the intervention.

Weiss, Rita S. "INREAL intervention for language handicapped and bilingual children." *Journal of the Division for Early Childhood.* 40–51. 1981.

Analysis of the cost effectiveness of the INREAL intervention in Colorado showed cost savings of nearly $1,300 per child over a 3-year period.

Schweinhart, L.J., et al. *Young Children Grow Up: The Effects of the Perry Preschool Program on Youths through Age 15.* Ypsilanti, Michigan: High/Scope Educational Research Foundation. 1980.

Analysis of cost effectiveness of early intervention showed that for every $1 invested in high quality preschool programming, there is a $3 reduction in public special education costs.

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YOUTH EMPLOYMENT AND TRAINING

An array of interventions and programs are included under youth employment and training. Several were started or enhanced under the large scale demonstration programs created by the Youth Employment Demonstration Projects Act of 1977 and incorporated in the Comprehensive Employment and Training Act (CETA). The major youth employment and training efforts are now permanently authorized under the Job Training Partnership Act, which went into effect in October 1983.

Evaluations of a variety of efforts show that a combination of remedial education, training and well-structured work experience can lead to improvements in employability and wages. Interventions have also been successful in helping students to remain in school. Evidence points to

Employability and wage gains

- —Over $650 (15%) more per year in average earnings, and over three weeks per year more of employment for Job Corps participants in the first four years after program participation
- —Increased employment rate and earnings of program participants served in Youth Incentive Entitlement Pilot Projects, (YIEPP) which guaranteed full-time summer and part-time year-round jobs for youths who were in or returned to school
- —Employment and hourly earnings gains for youth who had completed CETA youth and adult-oriented programs

Prevention of school enrollment declines in YIEPP program

Other benefits

- —Higher college attendance, less dependence on welfare and significant shift from more to less serious crime for Job Corps participants

Cost effectiveness

- —Job Corps is estimated to yield an economic return to society of 46% on the investment and to pay back the investment in about 3 years
- —Youth Employment and Training Program (YETP) program costs under CETA for a service year were $4,700 for FY 1982; participants increased their earnings by an annualized $1,180

STUDIES

EMPLOYABILITY AND WAGE GAINS

Committee on Government Operations. U.S. House of Representatives. *Job Corps Program. Its Benefits Outweigh the Costs.* House Report 99-215. July 1985.

Report discusses reviews of the program, (including studies by Mathematica Policy Research, Inc., the Department of Labor, and the National Research Council's Committee on Youth Employment Programs). Report concludes that Job Corps is a "highly successful anti-poverty program," . . . serving "a more disadvantaged and disenfranchised youth population than other job training programs, . . . with over 75% of all enrollees moving on . . . either to a job or to school."

"Job Corps is not only effective in serving the needs and providing quality job training for the Corps members themselves, but also provides society as a whole with a net social profit of 46¢ of every tax dollar invested in the program."

Westat, Inc. *Continous Longitudinal Manpower Survey. CLMS Follow-up Report No. 13. Postprogram Experiences, with Pre/Post Comparisons, For Terminees Who Entered CETA During FY 1980.* Prepared for Office of Strategic Planning and Policy Development, Division of Performance Management and Evaluation, Employment and Training Administration, U.S. Department of Labor, December 1984.

Department of Labor-supported study of postprogram labor market experiences of individuals who were newly enrolled in CETA programs during FY 1980 showed that youth enrollees in all program activities made "improvements in their employment and earnings. Annualized earnings between the first quarter before entry and the first quarter after termination more than doubled. By the sixth quarter after termination, earnings more than tripled, compared to the immediate preprogram quarter."

Youth who participated in YETP (Title IV-A, CETA) increased their earnings by an annualized $1810—171%—from the fourth quarter before program entry to the sixth quarter after termination. Participants in on-the-job training (OJT) doubled their earnings to $4160 in the same period.

Farkas, G., et al. *Post-Program Impacts of the Youth Incentive Entitlement Pilot Projects.* (YIEPP). New York. Manpower Demonstration Research Corporation, June 1984.

YIEPP guranteed full-time summer and part-time year-round jobs for youths when they were 16–19 years of age, upon their promise to remain in school or return to school if they had dropped out. The program resulted in increases in employment for the target population, with especially large employment effects for Black youths—those at greatest risk for unemployment and other employment problems.

"Preliminary analysis showed that, overall, the program increased the employment rate of 15–16 year old cohort by nearly 19%, for an 84.2% improvement over the comparison group. During the school year, the employment rate of the groups increased by 115% over what it would have been in the absence of the program."

Final analysis also indicated that the program helped youth remain in school, "avoiding the negative effects often associated with youth employment programs without an enrollment requirement."

Program effects for Black youths include significant earning gains during the program and throughout the follow-up period.

Post-program effects were substantially larger for high school graduates than nongraduates.

It was estimated that the increase in earnings, if persistent, would be $746.52 per program participant per post-program year.

Mallar, C., et al. *Project Report: Evaluation of the Economic Impact of the Job Corps Program.* Prepared for Office of Policy and Research, Employment and Training Administration, U.S. Department of Labor. Mathematica Policy Research, Inc. September 1982.

In the first four years out of the Job Corps, participants on average earned over $650 (15%) more per year and were employed over three weeks more a year than nonparticipants; had higher college attendance; had reduction in serious health problems of an average of over one week per year; received less financial welfare assistance, amounting to an average of over two weeks per year; had a reduction in the receipt of Unemployment Insurance of nearly one week per year; and showed a reduction in serious crime. Results appear stable throughout the four years of post-program observation.

The program's economic benefits to society are estimated to be about $7,400 per participant (in 1977 dollars) compared to costs of $5,000, thus yielding a return to society of 46%. It is estimated that the social investment is paid back in about 3 years.

U.S. General Accounting Office. (GAO) *Labor Market Problems of Teenagers Rest ! Largely From Doing Poorly in School.* Washington, D.C. PAD-82-06. March 29, 1982.

GAO study examined teenage unemployment problems. GAO "reviewed several studies made by the Department of Labor and other researchers and found that the need estimates varied widely, from 379,000 to 3.7 million youths." GAO calculated that, as of 1977, those in need of employment and training services were "962,000 economically disadvantaged youths with a high school degree or lower attainment." The report concluded that school performance and attainment are important factors in youth employment.

Congressional Budget Office. (CBO) Congress of the United States. *Improving Youth Employment Prospects: Issues and Options.* February 1982.

Summarizing analyses of employment and training programs for disadvantaged youths, CBO notes that

"Success in the work place is closely related to basic writing, communication, and computational skills.

Work experience alone does not appear to improve the employability of disadvantaged youths, even when the work experience is well supervised and highly supportive.

Substantial gains in employability are possible for disadvantaged youths when they are offered a combination of services, including remedial education, well-structured work experience, and training. Gains in employability appear to be related only to the time spent in education and training activities, although work experience can be

useful as a motivation to continue [e.g., as done in Youth Incentive Entitlement Pilot Project (YIEPP)]." [The estimated cost per service year of providing a part-time job during the school year and a full-time job during the summer months was $4,900 for 1982; YETP (CETA Title IV-A) service year costs were $4,700.]

Study also comments on the effectiveness of Job Corps, stating that, while it is the most expensive of the youth employment programs (costing about $14,000 per full-time, full-year training slot and proportionately less per participant), its benefits have been shown to exceed its costs.

SCHOOL RETENTION

Farkas, G., et al. 1984. *op. cit.*

OTHER BENEFITS

Mallar, C., et al. 1982. *op. cit.*

COST EFFECTIVENESS

Westat. Inc. 1985. *op. cit.*
Mallar, C., et al. 1982. *op. cit.*
Congressional Budget Office. 1982. *op. cit.*

APPENDIX

PROGRAM PARTICIPATION SOURCES

Special Supplemental Food Program for Women, Infants, and Children (WIC)

Food and Nutrition Service. U.S. Department of Agriculture.

Prenatal Care

U.S. Department of Health and Human Services. National Center for Health Statistics. Unpublished data based on Advanced Report of Final Natality Statistics, 1982. *Monthly Vital Statistics.* Vol. 33. No. 6. September 1984.

Medicaid

U.S. Department of Health and Human Services. Health Care Financing Administration. Table 2. Medicaid Recipients by Basis of Eligibility and by HHS Region and State: Fiscal Year 1984.

Childhood Immunization

Select Committee on Children, Youth, and Families. U.S. House of Representatives. *Federal Programs Affecting Children.* p. 167. 1984.

U.S. Department of Commerce, Bureau of the Census. *Statistical Abstract of the United States 1985.* Table 181.

Preschool Education

U.S. Department of Commerce. Bureau of the Census. *Statistical Abstract of the United States 1985.* Table 212.

Reece, C. "Head Start at 20." *Children Today.* Vol. 14. No. 2. March-April 1985.

Compensatory Education

Children's Defense Fund. *An Interim Report on the Implementation of Chapter I.* Washington, D.C. 1984.

Education For All Handicapped Children

U.S. Department of Education. Office of Special Education and Rehabilitative Services. *Seventh Annual Report to Congress on the Implementation of the Education of the Handicapped Act.* 1985.

Kakalik, J., et al. *Services for Handicapped Youth: A Program Overview.* Santa Monica, California: Rand Corporation. 1973.

Youth Employment and Training

Employment and Training Administration. U.S. Department of Labor.

Bureau of Labor Statistics. U.S. Department of Labor. *Employment and Earnings. January 1985.* Table 6. Annual Averages. p. 161.