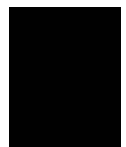


**DRUG-AFFECTED INFANTS IN WASHINGTON STATE:
Services for Pregnant, Postpartum, and Parenting Women**

**Sylvie McGee
Linda Rinaldi
Debby Peterman**

December 2002



***Washington State
Institute for
Public Policy***

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EXECUTIVE SUMMARY

The 2001 Washington State Legislature directed the Washington State Institute for Public Policy (Institute) to “evaluate outcomes across state health and social service pilot projects and other national models involving women who have given birth to a drug-affected infant, comparing gains in positive birth outcomes for resources invested...”¹ This report addresses this legislation and examines five questions:

- What is the risk of prenatal substance abuse?
- How are key programs structured?
- What positive birth outcomes are associated with specialized treatment programs?
- What are the costs associated with achieving positive birth outcomes?
- What programs are most effective at achieving positive birth outcomes?

What Is the Risk of Prenatal Substance Abuse?

Prenatal substance abuse is known to produce negative birth outcomes in some infants. These outcomes include lower birth weight, lower gestational age, and increased use of costly neonatal intensive care unit services. Research on drug-affected infants continues to examine immediate and long-term neurobehavioral impacts of prenatal exposure, such as abnormal sleep patterns, problems with alert responses, increased irritability, and long-term decreased cognitive abilities. Effects on birth outcomes vary by type of drug, timing and dosage, and other risk factors, including use of multiple drugs, poor nutrition, lack of prenatal care, stress, and the mother’s health.

How Are Key Programs Structured?

There is a general consensus in the treatment community and in the literature that treatment programs should be gender specific and offer comprehensive, wrap-around services that address the needs of children and families as well as women’s needs for social, medical, and mental health services.

Wrap-around services typically include medical care, mental health services, therapeutic child care, parenting education, support groups, transportation, and housing assistance. There is no clear consensus in the literature on the optimal arrangement of services—residential vs. outpatient, long-term vs. short-term. Some studies, however, suggest that length of stay in treatment and staying in treatment through delivery are associated with improved birth outcomes.

¹ Chapter 7, Section 608, Laws of 2001.

What Positive Birth Outcomes Are Associated With Specialized Treatment Programs?

For infants, the positive birth outcomes most frequently reported include the following:

- Increased full-term deliveries;
- Increased gestational age of infants;
- Increased birth weight; and
- Reduced admissions and shortened stays in neonatal intensive care units.

For mothers, positive outcomes include reduced substance abuse, reduced criminal involvement, increased employment, and increased child custody.

What Are the Costs Associated With Achieving Positive Birth Outcomes?

Costs of providing specialized treatment to pregnant substance abusing women have not been widely documented in the literature. Washington State programs are still in the process of being evaluated, and a final cost-effectiveness study conducted on national programs by the Center for Substance Abuse Treatment (CSAT) is not yet available.

In addition to providing treatment (inpatient and/or outpatient) services, other services for pregnant substance abusing women must be included in estimates. Some of these services, notably medical and mental health, are available to pregnant substance abusing women through other state programs and do not represent new costs.

What Programs Are Most Effective at Achieving Positive Birth Outcomes?

The evidence from program evaluations is not yet sufficient to fully determine what programs are most effective at achieving positive birth outcomes. However, findings to date, particularly from the CSAT-funded programs, suggest:

- Comprehensive programs for pregnant substance abusing women have shown positive birth outcomes and reduced long-term costs, although specific components of treatment modalities have not been evaluated.
- Comprehensive treatment, especially residential, is more costly, but recent studies indicate it results in higher benefits in terms of avoided costs to society. Alternative treatment programs with limited interventions may improve immediate positive birth outcomes (such as birth weight), and thereby reduce neonatal hospital costs, but have less of an impact on the long-term costs and outcomes for substance abusing pregnant women.

I. INTRODUCTION

Purpose and Key Questions

The 2001 Washington State Legislature directed the Washington State Institute for Public Policy (Institute) to undertake an evaluation of “outcomes across state health and social service pilot projects and other national models involving women who have given birth to a drug-affected infant, comparing gains in positive birth outcomes for resources invested....”² This report responds to that request and addresses five key questions:

- How are the key programs for this population structured?
- How are key programs structured?
- What positive birth outcomes are associated with key programs?
- What are the costs associated with achieving positive birth outcomes?
- What programs are most effective at achieving positive birth outcomes?

Literature and Sources

In order to address these questions, the research team undertook a literature review that builds on the extensive work completed in 1999 by the Research and Data Analysis Division (RDA) of the Washington State Department of Social and Health Services (DSHS).³ RDA’s study reviewed over 400 articles on program design, utilization, outcomes, and costs of programs for substance abusing pregnant, postpartum, and parenting women published through 1997. An additional 200 articles published subsequent to RDA’s study were reviewed for this report, again focusing on program design, characteristics of pregnant and parenting women in treatment, birth outcomes, outcomes of treatment, and cost savings resulting from treatment.

In addition to reviewing published literature, interviews were conducted with program administrators, treatment providers, and evaluators both in Washington State and in other communities. These interviews yielded additional, unpublished data and manuscripts, as well as allowing the development of context for understanding the scope of services and the limitations of the data available. The following individuals were interviewed:

- Laurie Cawthon, M.D., and Yvette Farmer, Ph.D., from RDA provided the following: an overview of the Comprehensive Program Evaluation Project (CPEP), known as Safe Babies, Safe Moms; updated data on pregnant and postpartum women using services; and a context for understanding the data used in the 1999 report and the criteria that were applied to the 1999 literature review.

² Chapter 7, Section 608, Laws of 2001.

³ Research and Data Analysis, *A Comprehensive Program for Alcohol and Drug Abusing Mothers and Their Young Children* (Olympia, WA: Research and Data Analysis Division, Department of Social and Health Services, January 1999).

- Therese Grant, Ph.D., at the University of Washington, heads the statewide evaluation of the Parent-Child Assistance Program (P-CAP). She provided cost data and analyses that have been completed to date on this program.
- Sue Green, M.P.A, C.D.C.C, N.A.C.C., administers Women’s Programs for the Washington State Department of Social and Health Services. She provided program information, cost and reimbursement information, and utilization rates for Washington State programs.
- Felix Rodriguez, Ph.D., Research Investigator for Washington State University based with the Division of Alcohol and Substance Abuse Services, shared an unpublished draft report that examined key factors in the lives of pregnant, postpartum, and parenting women using both specialized and non-specialized publicly funded treatment services.
- James Herrell, Ph.D., M.P.H., Center for Substance Abuse Treatment (CSAT) Cross-Site Project Officer, provided the latest information from the CSAT demonstration program evaluation, including fact sheets on services, pregnancy outcome and client retention, and research articles proposed for publication.
- Kenneth Burgdorf, Ph.D., with Caliber Associates, principal investigator in the evaluation of CSAT demonstration projects, was generous in sharing information about the evaluation, methods of determining costs, and insights into the preliminary findings.
- Noreen Mattis, RN, M.Ed., provided program and cost information on Rhode Island’s Project Link.
- Donna Caldwell, Ph.D., with the National Perinatal Information Center (NPIC), provided an unpublished report on the cost-benefit analysis completed for Project Link.

Relevance of the Available Literature

The literature on programs for pregnant, postpartum, and parenting women in treatment for substance abuse is, as illustrated by the number of articles reviewed, extensive. However, for the purposes of answering the questions that were posed for this report, the literature has several distinct limitations, most linked to the structure and funding of the programs in question.

Factors used to measure treatment success in these programs vary. Measures include retention and/or engagement in treatment, improved birth outcomes (infant morbidity and mortality), reduction or abstinence from use of substances, and improvements in other areas (decreased criminal convictions, homelessness, and unemployment). The literature review for this report focused primarily on direct birth outcomes (pre-term delivery, birth weight, gestational age, APGAR scores, admissions, and length of stay in neonatal intensive care units).

The gold standard for evaluation of treatment programs is assignment of subjects to randomized controlled trials. However, these studies are costly, and none were found in this review. Instead, four evaluation models predominated in the program studies reviewed:

- Comparison of outcomes for treatment completers and non-completers;
- Comparison of outcomes for participants in treatment compared with those who decline treatment;
- Comparison of outcomes for treatment participants with national or statewide birth outcomes for either the general public or women identified as drug-using during prenatal care or at birth; and
- Pre- and post-treatment behavior and test findings for participants.

RDA identified a number of the same limitations with regard to study design. The 1999 report also noted that there were few outcome studies prior to 1998 because treatment programs for pregnant substance abusing women were not developed until the late 1980s and early 1990s. Ten quantitative studies related to program outcomes for drug abusing mothers and their children were discussed in the report. Most of the studies examined outcomes for specific treatment components: comprehensive case management, parenting training, home visitation, and massage. Only one study focused on outcomes from a comprehensive treatment program. Based on its literature review, RDA concluded that the characteristics of a comprehensive program that would most likely yield positive outcomes include family-focused services, a continuum of services from pregnancy through early childhood, coordinated services, individually tailored chemical dependency treatment, and parenting skills training and family relationship enhancement.

Lack of Experimental Design. The single largest pool of programs providing treatment for pregnant, postpartum, and parenting women were the 50 programs nationwide funded in 1993 and 1995 by the federal Center for Substance Abuse Treatment (CSAT). These programs participated in a cross-site evaluation conducted by Caliber Associates under contract to CSAT. CSAT and Caliber Associates have prepared a number of articles and fact sheets on participants and programs, which are included in the literature review. In addition to published reports, both shared pre-publication drafts of current analyses, which provided a depth of detail on participants and program outcomes not otherwise available.

However, nowhere in the literature is classic random-assignment to treatment and control group studies found. Services for pregnant substance abusing women are funded, at the national and state levels, as service demonstration projects, not as experimental projects. As a result, reference groups for outcome analyses are typically samples of convenience drawn from other data sources (for example, Medicaid utilization and state alcohol and drug program data). In a number of studies, the comparison group for birth outcomes is drawn from participants' birth experiences prior to initiating treatment. Each of these comparison group approaches introduces methodological problems—selection bias, lack of matched samples, and reporting issues—which make it difficult to measure the actual effects of treatment.

Lack of Literature Comparing Treatment Models. Few articles specifically compared treatment models. In addition, where treatment models were compared, there was often overlap in the elements of treatment included in each model. No articles broke down the

elements of treatment provided and examined their effect. The 50 CSAT-funded programs had, at their core, a common set of objectives and required components. However, each program was individualized to the community in which it was developed, the resources available in the community, and the policy priorities of the community and agency in which it was located. The literature discussing outcomes, by and large, discussed those outcomes in the context of one or several programs of the same type and structure, rather than across program types. This bears directly on the capacity to answer the question: *What program(s) are the most effective in achieving positive birth outcomes?*

Lack of Consistency in Outcome Measures. In Caliber's literature on the programs funded by CSAT, there is consistency of outcome measures reported, since all programs participated in the cross-site evaluation. Across the whole of the literature reviewed, however, there is a great variety in outcomes measured.

Actual birth outcomes measured ranged from low birth weight and pregnancy complications to APGAR scores and head circumference. The most consistently reported birth outcomes are low birth weight, gestational age, and admission to and utilization of neonatal intensive care units. Because of their prevalence in the literature, these outcomes are reported in this review. However, they are insufficient for fully understanding the impact of prenatal or postnatal treatment on children's outcomes because they are time-limited, and, as is discussed in Section II, they do not reflect outcomes thought to be related to prenatal exposure that surface later in the child's life.

Presence of Confounding Factors. Virtually all the data in the literature are drawn from publicly funded programs, which introduces a bias and significant source of confounding factors. Women in publicly funded treatment are poor, usually unemployed, and lack private insurance. Their pregnancies are marked not only by substance abuse, but by lack of self-care, lack of prenatal care, poor nutrition, smoking, homelessness, and stress that may affect their pregnancy and their children. Overall, the literature drawing on these programs has not been able to separate these confounding factors.

Lack of Cost Data. Few of the programs reviewed in the literature provide cost data on program implementation. Further limiting the usefulness of cost studies, programs consist of varied elements, and costs are typically aggregated across all elements. Therefore, program marginal costs are not known. In programs in Washington State, understanding the cost data is complicated by the fact that, to date, published reports on programs are limited, none include explicit cost-benefit analyses, and, where data exists on participants, both pregnant and parenting women are included in the analyses.

Despite these limitations, there are data in published, in-press, and draft articles that provide a picture of the work being accomplished in the treatment of pregnant, postpartum, and parenting women, allowing some cautious conclusions to be drawn.

This review provides some context for the discussion through a brief overview of what is known about birth outcomes of infants exposed to drugs prenatally and the problems experienced by substance abusing women that may affect their newborns. This is followed by a discussion of the programs in place in Washington State and four key programs across the nation. Limited data on costs are discussed and conclusions presented, based on the literature and programs in place.

II. PRENATAL SUBSTANCE ABUSE AND BIRTH OUTCOMES

Research on prenatal exposure to drugs has answered some questions but left many more unanswered. Much of the current (since 1992) research has focused on identifying the effects of cocaine on the developing fetus. Early reports on cocaine exposure were alarming. The stereotype of “crack babies” dominated the news for a period of time. Subsequent research has largely dispelled earlier alarming findings on prenatal substance abuse that were based on poor methodologies, mostly failure to control for confounding factors.

Poly-drug use is common among pregnant substance abusing women. Women who use cocaine frequently use other illegal substances and commonly use tobacco and alcohol, all of which have been shown to affect birth outcomes. Factors other than drug use, such as poor nutrition, maternal stress, maternal health, socioeconomic factors, violence in the home, and age may all have an effect on immediate birth outcomes⁴ and complicate research on prenatal substance abuse.

Despite these problems, recent improvements in research methodologies coupled with recent longitudinal studies following infants have addressed many of the study design problems. The effects of cocaine on the developing fetus are still debated,⁵ although evidence is now pointing to subtle effects on the developing central nervous system.⁶ While research continues to isolate the effects of cocaine, existing evidence demonstrates negative effects of substance abuse, including alcohol, during pregnancy.

In understanding the costs associated with drug-affected infants and, therefore, the relative cost-benefit of treatment programs, it is important to bear in mind that the majority of research both on birth outcomes and on program outcomes has been focused on three drugs: alcohol, cocaine, and heroin. Research on the impacts of methamphetamines and appropriate treatment models is still in early stages.

Birth Weight, Size, and Gestational Age. Cocaine and other drugs used during pregnancy can lower birth weight, shorten the gestation period, and result in smaller size and smaller head circumference. Size and gestational age have been linked to dosage, timing (trimester) of use, and the mother’s psychological distress.⁷ Independent of drug use, both maternal diet and prenatal visits are also predictive of birth weight.

Low birth weight can result in substantially higher hospital costs. Some studies have analyzed admissions and length of stays in neonatal intensive care units (NICU), comparing

⁴ L. L. LaGasse et al., “Interpreting Research on Prenatal Substance Exposure in the Context of Multiple Confounding Factors,” *Clinics in Perinatology* 26, no. 1 (1999).

⁵ D. A. Frank et al., “Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure: A Systematic Review,” *JAMA* 285, no. 1 (2001).

⁶ L. C. Mayes, “A Behavioral Teratogenic Model of the Impact of Prenatal Cocaine Exposure on Arousal Regulatory Systems,” *Neurotoxicology and Teratology* 24 (2002).

⁷ L. T. Singer et al., “Effects of Cocaine/Polydrug Exposure and Maternal Psychological Distress on Infant Birth Outcomes,” *Neurotoxicology and Teratology* 24 (2002).

babies born to substance abusing mothers with non-exposed infants.⁸ The hospital costs are considerably greater for drug-exposed infants because of longer stays and more use of hospital resources, including NICU diagnostics, hematology, ultrasound, and other services. Poly-drug use has been shown to increase the cost even more, particularly cocaine in combination with other drugs.⁹

Withdrawal From Drugs. Studies are not finding persistent levels of toxicity or evidence of withdrawal among babies exposed to cocaine. However, withdrawal from heroin and methadone (neonatal opiate abstinence) is frequent and includes irritability, tremulousness, excessive crying, vomiting, diarrhea, and respiratory problems. The risk of infant sudden-death syndrome is three to four times that of non-exposed infants. Increased medical supervision is sometimes required during withdrawal and can contribute substantially to hospital costs.¹⁰

Complications of Pregnancy. Substance abusing mothers can also experience more complications in pregnancy and delivery, including vaginal bleeding, abruptio placenta, placenta previa, premature rupture of membranes, need for treatment because of syphilis, gonorrhea, hepatitis, and psychiatric, nervous, and emotional disorders. Hospitalization costs for substance abusing women have been found to be higher than costs for non-substance abusing women.¹¹

Neurobehavioral Impact. Substance abuse during pregnancy is thought to impact the developing brain and central nervous system. Recent studies have found evidence of vascular and other damage to the central nervous system. Evidence among newborns includes abnormal sleep, abnormal reflexes, problems with alert responses, abnormal state regulation, poor autonomic stability, increased irritability, and jitteriness.

One concern is that cocaine (and possibly cocaine in combination with alcohol, tobacco, and marijuana) and other drugs affect the ability of the child to learn and that neonatal exposure has long-term consequences, such as decreased cognitive abilities, which in turn lead to a greater need for special education services.¹² Decreased cognitive functioning has also been associated with pre-term births,¹³ and substance abuse during pregnancy has been associated with low birth weight and pre-term deliveries.

⁸ C. S. Phibbs et al., "The Neonatal Costs of Maternal Cocaine Use," *JAMA* 266, no. 11 (1991); D. S. Svikis et al., "Cost-Effectiveness of Treatment for Drug-Abusing Pregnant Women," *Drug and Alcohol Dependence* 45 (1997).

⁹ T. Joyce et al., "The Impact of Prenatal Exposure to Cocaine on Newborn Costs and Length of Stay," *Health Services Research* 30, no. 2 (1995).

¹⁰ K. Kaltenbach et al., "Opioid Dependence During Pregnancy: Effects and Management," *Obstetrics and Gynecology Clinics of North America* 25, no. 1 (1998).

¹¹ C. R. Bauer et al., "The Maternal Lifestyle Study: Drug Exposure During Pregnancy and Short-Term Maternal Outcomes," *American Journal of Obstetrics and Gynecology* 186, no. 3 (2002).

¹² B. M. Lester et al., "Cocaine Exposure and Children: The Meaning of Subtle Effects," *Science* 282, no. 23 (1998).

¹³ A. T. Bhutta, "Cognitive and Behavioral Outcomes of School-Aged Children Who Were Born Preterm: A Meta-Analysis," *JAMA* 288, no. 6 (2002).

Incidence of Substance Abuse by Mothers in Washington State

The First Steps Database, created in Washington State in 1990 as a monitoring tool for agencies implementing First Steps,¹⁴ contains information from birth certificates and Medicaid claims for Washington residents. Data from First Steps and other information systems in Washington provide a statewide picture of substance use during pregnancy and birth outcomes for women for whom Medicaid claims were filed.¹⁵

In the six-year period from 1989 to 1995, 6 percent of Washington State Medicaid-paid births were identified as infants exposed to drugs or alcohol during pregnancy. This underestimates the true percentage, because it includes only women with an episode of treatment during pregnancy or those with a diagnosis of substance abuse on the Medicaid claim. A more reasonable estimate, based on national literature, is that between 10 percent and 12 percent of babies born in Washington each year are exposed to illicit drugs during pregnancy, that is, between 8,000 and 10,000 births.¹⁶

Exposure to drugs and alcohol during pregnancy does not necessarily result in measurable adverse outcomes at birth. A smaller percentage of infants can be considered drug-affected; that is, there is a disorder that can be linked specifically to drugs and/or alcohol abuse during pregnancy. Between 1 percent and 1.2 percent of births each year in Washington are estimated to be drug-affected. This is supported by national literature and the First Steps database. In the years 1989 to 1995, 1.2 percent of Medicaid-paid births in Washington were drug-affected. These were specifically linked to substance abuse (drugs or alcohol) during pregnancy.¹⁷

Medical costs during the first year of life for drug-exposed infants were 47 percent higher (in 1992 dollars) than costs for infants not exposed to drugs and not diagnosed as drug-affected. The average medical cost during the first year for drug-affected infants was three times the average costs for infants not exposed during pregnancy. Data from the First Steps database (1994–95) indicates evidence of repeated negative birth outcomes: excluding first births, 53 percent of women delivering drug-exposed infants had previously given birth to a drug-exposed infant, and 27 percent of women delivering drug-affected infants had previously given birth to a drug-affected infant.

The most recent data from the First Steps database are for 1999. Preliminary reports show that 6 percent of women receiving Medicaid who gave birth in Washington were identified as substance abusing (1,775 women). Of those, 31 percent were in treatment during the prenatal period, although type of treatment is not defined. Women who were identified as substance abusing and entered treatment after delivery had the highest percentage (18 percent) of babies with low birth weights (compared with 5 percent for non-substance

¹⁴ First Steps is a DSHS program designed to assist low-income pregnant women obtain health and social services.

¹⁵ Data include information from the following: TARGET (Treatment and Report Generation Tool), DSHS Division of Alcohol and Substance Abuse; and CAMIS (Case and Management Information System), DSHS Division of Children and Family Services.

¹⁶ L. Cawthon, *Substance Use During Pregnancy: Prevalence, Effects and Costs* (Olympia, WA: Department of Social and Health Services, Research and Data Analysis, 1997).

¹⁷ Ibid.

abusing Medicaid women and 4 percent of all non-Medicaid births). These are likely women who deliver with poor birth outcomes and are identified as substance-abusing at the time of delivery.

III. PREGNANT SUBSTANCE ABUSING WOMEN: A LIFETIME OF RISKS

In addition to the chemical effects of drugs on unborn children, there are a number of other factors that affect the outcomes of children born to substance abusing women. In a study of children whose mothers were treated in federally funded Residential Women and Children/Pregnant and Postpartum Women (RWC/PPW) programs between 1996 and 2000, the authors summarize the situation of children born to substance abusing women seen in publicly funded treatment:

From the time of their conception and continuing throughout childhood, their environment has been characterized by an accumulation of factors known to place children at increased vulnerability for physical, academic and social-emotional problems. The majority of these children experienced pre-natal exposure to alcohol, other drugs, and cigarette smoke, and nearly a quarter of these children had health problems at birth. After birth, the life course tends to be littered with obstacles to success, such as low income status, low maternal education, maternal mental illness, instability in caregivers, residential instability, child abuse and neglect, little father involvement, and experiences in foster care.¹⁸

The data available at the national and state level confirm this grim assessment.

Family History of Abuse. Substance abusing women often come from families with histories of substance abuse and/or childhood abuse. Analysis of data on the 2,746 mothers served nationally in federally funded RWC/PPW programs found 58 percent were victims of child abuse, and 74 percent reported victimization by non-family members. In Washington State, a study of pregnant, postpartum, and parenting women enrolled in treatment during 1998 showed 73 percent of women receiving this specialized residential treatment had been victims of domestic violence.¹⁹ (Washington's PPW program is described in Section IV.)

As adults, these women often live in situations where they continue to be victimized. Many RWC/PPW women reported currently living with a partner who is abusing substances; of those women living with a partner, 45 percent reported that their partner frequently was drunk, and 58 percent reported their partner used illicit drugs. Seventy-nine percent reported that family members were involved with alcohol and/or drug activities, and 43 percent reported they had fewer than two friends who did not use drugs.

Maternal Mental Health Problems. Studies also show a high level of co-occurring psychiatric problems among substance abusing women, with depression being the most common. Again, analysis of data from the 50 RWC/PPW programs revealed that 58

¹⁸ N. A. Conners, et al., *Children of Mothers With Serious Substance Abuse Problems: An Accumulation of Risks* (Fairfax, VA: Caliber Associates; Washington, D.C.: Center for Substance Abuse Treatment, Unpublished, 2002).

¹⁹ F. I. Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women (PPWs) Admitted to Publicly Funded Substance Abuse Treatment in Washington State, 1998* (Olympia, WA: Department of Social and Health Services, Division of Alcohol and Substance Abuse, Unpublished draft, 1999).

percent of women receiving treatment had a history of mental illness, and 30 percent had attempted suicide. In Washington State, 26 percent of women in these specialized residential services reported a history of mental health treatment in the year prior to admission, and half of these reported they were on prescribed psychotropic medications when they entered treatment. In addition, 14 percent reported one or more inpatient hospitalization days for mental health disorders in the prior year. These rates were consistent with those for women receiving treatment across treatment modalities.²⁰

Criminal Justice Involvement. Involvement with the criminal justice system is common for pregnant substance abusing women. In the review of data from national RWC/PPW programs, 66 percent of women had a history of arrest, and 52 percent were involved with the criminal justice system at entry into the program. These percentages are similar to those in Washington State, where 58 percent of 1998 program participants had involvement with the criminal justice system at program entry, and 65 percent had a history of arrests in the year prior to treatment.²¹

Child Abuse or Neglect. The extent to which children of substance abusing mothers are subject to abuse or neglect is reported in numerous studies. Analysis of data on RWC/PPW participants demonstrates this problem. A majority of the women with children in these programs (55 percent) were involved with the child welfare system. Overall, 42 percent had had at least one child removed from their care by the child welfare system. Few children had relationships with their fathers—nearly one-third had not seen their father during the year prior to treatment entry, and another 15 percent saw their father two times or less during that year. Where there was parental contact, it was complicated by the fact that over half the fathers reportedly used drugs. Only a minority (13 percent) made child support payments.²²

While some children were placed by child welfare, others were placed by the mother with their grandparents. This was not always a satisfactory solution: 32 percent of custodial grandmothers and 54 percent of custodial grandfathers were reported by mothers as having been drunk when the mother was a child; 18 percent of grandmothers and 24 percent of grandfathers were involved with drugs other than alcohol; and 8 percent of custodial grandmothers and 23 percent of custodial grandfathers had spent time in jail or prison.²³

In 1998, 69 percent of Washington State program participants in specialized residential treatment had one or more children under the age of 18 not living with them. Data were not available, however, to identify whether placement in another living situation was due to intervention by the state or placement of the child by the mother.²⁴

Lack of Prenatal Care. Numerous studies document the failure of substance abusing women to receive adequate prenatal care. A number of factors lead to this failure: lack of general self-care, poor nutrition, residential instability that takes precedence over prenatal

²⁰ Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women*.

²¹ Ibid.

²² Connors, *Children of Mothers With Serious Substance Abuse Problems*.

²³ Ibid.

²⁴ Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women*.

care, lack of health care insurance or benefits, fear of being identified as substance abusing, and fear of losing custody of their children or their infant at birth.

The Department of Social and Health Services (DSHS) reports that in 1999, the latest year for which data are available, fewer than half the substance abusing women with Medicaid-paid births began prenatal care in the first trimester of their pregnancy. Over 10 percent either received their first prenatal care in the third trimester or had no prenatal care at all.²⁵

Unstable Living Environment. In the national review of RWC/PPW participants, 89 percent of women were unemployed, 71 percent relied on public assistance as their income, and 32 percent had been homeless in the two years prior to entering treatment.²⁶ Analysis of Washington State 1998 data reveal 84 percent of women in this program were unemployed—this number excludes the 12 percent who described themselves as homemakers. Seventy percent reported they relied on public assistance as their primary source of income, and 20 percent reported no income at program entry. Given that 52 percent lacked even a GED, their prospects for employment and self-sufficiency were limited.²⁷

Finally, 32 percent of women entering treatment lacked a regular home—they variously reported their residences as homeless, institutionalized or hospitalized, transient quarters, or jail/prison.²⁸

Long-Term and/or Poly-Drug Substance Abuse. Among women receiving specialized residential treatment in Washington in 1998, 66 percent were classified as using drugs other than alcohol or marijuana—indicating use of cocaine, crack, methamphetamines, and opiates. Mothers who use cocaine/crack or methamphetamines often use other substances, including tobacco and alcohol, both shown to have effects on birth outcomes.²⁹ Among pregnant and parenting women in Washington State in 1998, 82 percent enrolled in treatment reported they were smoking cigarettes.³⁰

In addition, the majority of women had a long history of substance abuse. In the RWC/PPW study, on average, women had used drugs for 16 years.³¹ Among 1998 participants in Washington State's specialized services, all were under age 20 at first use, and 58 percent had their first use of drugs before age 15. Forty percent had used needles to inject drugs, placing them at increased risk of HIV/AIDS, hepatitis C, and other blood-borne infections.³²

²⁵ RDA, *A Comprehensive Program*.

²⁶ H. W. Clark, "Residential Substance Abuse Treatment for Pregnant and Postpartum Women and Their Children: Treatment and Policy Implications," *Child Welfare* 80, no. 2 179-198.

²⁷ Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women*.

²⁸ Ibid.

²⁹ S. L. Wenzel, et al., *Prenatal Cocaine Exposure: Scientific Considerations and Policy Implications* (New York: New York Academy of Sciences and RAND, RAND MR-1347-DPRC, 2001).

³⁰ Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women*.

³¹ Clark, "Residential Substance Abuse Treatment."

³² Rodriguez, *Profile of Pregnant, Postpartum, and/or Parenting Women*.

Exhibit 1
Summary of Maternal Characteristics Affecting the Newborn

Characteristics of Substance Abusing Pregnant Women	Percent in Washington State*
Victims of Domestic Violence	73%
One or More Children Under 18 Not Living With Them	69%
Unstable Living Environment	
Unemployed	84%
Rely on Public Assistance	70%
Have Not Completed High School	52%
Lack a Regular Home	32%
Criminal Justice Involvement	
Involvement at Time of Admission to Treatment	58%
History of Arrest One Year Prior to Treatment	65%
Long-Term and/or Poly-Drug Substance Abuse	
Poly-Drug Users	66%
Cigarette Smokers	82%
Lack of Prenatal Care	
Began Prenatal Care in 1st Trimester	<50%
Began Prenatal Care in 3rd Trimester or Had No Prenatal Care	>10%
Mental Health Problems	
History of Mental Health Treatment One Year Prior to Admission	26%
One or More Inpatient Hospitalization Days in Prior Year	14%

* Women receiving specialized PPW residential treatment (Rodriquez 1999)

Many of these characteristics affect the health of the baby, the health of the mother, the delivery process, and the mother's ability to succeed in treatment. These same factors also present significant barriers to treatment recruitment, retention, and completion.

IV. TREATMENT SERVICES

Washington State Programs and Services

Two programs in Washington currently assist pregnant substance abusing women obtain treatment. The Comprehensive Program Evaluation Project (CPEP) is administered by the Department of Social and Health Services (DSHS) and the Department of Health (DOH). The Parent-Child Assistance Program (P-CAP) is administered by the Division of Alcohol and Substance Abuse (DASA) within DSHS.

Comprehensive Program Evaluation Project. CPEP—also known as Safe Babies, Safe Moms—provides a comprehensive array of services. CPEP is available to low income (less than 200 percent of federal poverty level), high-risk, substance abusing pregnant, postpartum, and parenting (PPW) women at three sites in Washington: Benton and Franklin Counties,³³ Whatcom County, and Snohomish County. However, pregnant women are prioritized for intake. Services available to CPEP enrollees include the following:

- Long-term specialized residential treatment—up to 180 days—with an intensive rate of individual and group treatment contacts;
- On-site therapeutic child care;
- Targeted intensive case management;
- Access to medical care, social services, and other benefits through case management;
- Access to transitional housing at treatment completion;
- Continuing case management through housing support services for up to three years.

While services are available only to residents of the targeted counties, enrollees may receive their residential treatment services at any long-term residential treatment facility providing PPW services. CPEP participants have access to 153.5 beds for adults and 123.5 beds for children statewide. Of these, 30 adult and 30 children's beds are set aside for CPEP participants at two facilities: Rivercrest Villa in Kennewick serves women in Benton and Franklin Counties; Evergreen Manor in Everett serves women in Snohomish and Whatcom Counties.

Parent-Child Assistance Program. P-CAP provides advocacy services to high-risk substance abusing pregnant and parenting women to assist them in accessing the services they need. P-CAP is part of the array of services provided by DASA, and pregnant women are one of DASA's priority populations. While P-CAP does not directly provide treatment services per se, its services are intended to increase access to treatment for pregnant women, and therefore are included in this discussion.

³³ The CPEP program serving Benton and Franklin Counties is located in Kennewick.

P-CAP services are delivered through a para-professional home visitation model that offers referral, support, and advocacy for women accessing needed services. These services include treatment for substance abuse as well as family planning, child welfare, child care, transportation, legal, housing, food, and other family and child services. Frequency of contact between case managers and participants varies based on client need.

Women enrolled in P-CAP can receive services up to the third birthday of the target child. P-CAP services are available at four sites: King County, Pierce County, Yakima County, and Spokane County, which includes services to the Spokane Indian Reservation and Grant County. Each site has 90 slots available.

Services Provided to Pregnant, Postpartum, Parenting Women

In Washington State, pregnant, postpartum, and parenting women are served by an array of services that may include one or more of the following:

- Targeted Intensive Case Management;
- Residential Treatment;
- Therapeutic Child Care;
- Housing Support; and
- Non-Specialized Treatment.

Which elements a particular pregnant woman will participate in depends on her pregnancy status; whether she is accompanied by one or more children; the extent and severity of her drug abuse or dependence, using assessment criteria developed by the American Society for Addiction Medicine (ASAM); her geographic location; and her willingness to enter residential treatment.

Targeted Intensive Case Management. These specialized case management services are available for up to three years, follow the participant over an extended follow-up period (even in the event of relocation), and have a high rate of contact. These services are only available with CPEP

Residential Services. Residential services provide up to 180 days of treatment with higher rates of service contact and specialized treatment content, including counseling for victims of domestic and sexual abuse. Beds for women and their children are available in ten facilities statewide in Everett, Seattle, Tacoma, Selah, Yakima, Kennewick, Spokane, and Sumner. Women receiving residential services may have their children with them during treatment. While enrolled, women may receive:

- Long-term residential treatment with intensive treatment contacts, including curriculum addressing issues such as domestic violence, childhood sexual abuse, mental health issues, and parenting skills; and
- Therapeutic child care services.

Some residents are able to obtain transitional housing at treatment completion and participate with ongoing housing support services. However, women receiving residential services do not necessarily have access to housing support services due to the limited number of transitional housing units available.

Therapeutic Child Care Services. Therapeutic child care includes developmental assessment, play therapy, behavior modification, individual counseling, and family intervention to modify parenting behavior and/or the child's environment. Therapeutic child care services may be provided to the children of women in residential care. In addition, therapeutic child care is available to women in outpatient treatment if lack of such child care prevents them from participating in treatment and if a provider is available in their area. Currently, therapeutic child care services are available in Seattle and Yakima.

Therapeutic child care is distinguished from community-based child care by its focus on addressing deficits that may be associated with exposure to substance abuse in utero or in the home. These services include the following:

- A developmental assessment that uses recognized, standardized instruments to determine the child's developmental status and needs;
- A combination of play therapy, individual counseling, and behavioral modification to address the child's individual needs;
- Self-esteem building; and
- Family intervention and parenting training to improve parenting behavior and the child's environment.

Therapeutic child care services are provided for a minimum of eight hours a day, five days a week. In addition, child care is provided round-the-clock in licensed foster homes if the parent is enrolled in intensive inpatient services that do not have the capacity for housing children with their parent.

Housing Support Services. Housing support services provide up to 18 months of case management targeted to increasing income, housing stability, and monitoring treatment and recovery compliance. Housing support services are provided to residents of both treatment provider transitional housing programs and community-based transitional housing programs. Housing support services are available for women participating in CPEP; women leaving residential care may also receive these services depending on their location, their continued participation in recovery, their assessed need for services, and the availability of open slots.

Housing support services provide a minimum of five contacts monthly with a case manager for goal-oriented and problem-solving assistance. In addition to helping women develop a plan to access needed services, case managers also monitor participation in outpatient substance abuse treatment as well as participant substance abuse. Case managers also develop a child care/child development plan with each participant to ensure that children's needs are being met.

Case managers focus on services such as prenatal and postnatal medical care, financial assistance, social services, vocational services, child care, and permanent housing resources. A small amount of funds (\$250) may be allocated to direct assistance in obtaining permanent housing, with the funds paid directly to landlords, utility companies, or providers of household supplies.

Non-Specialized Treatment. Non-specialized treatment includes inpatient and/or outpatient chemical dependency treatment in non-specialized settings for both men and women. Treatment is typically provided in groups, supplemented by one-on-one counseling sessions focused on building a plan for recovery and reintegration in the community. The curriculum is not specialized and lacks the intensive focus on domestic violence, sexual abuse, sex-role, and parenting issues that is present in the specialized curriculum used in services for pregnant, postpartum, and parenting women.

Frequency of treatment contacts is determined by the individualized treatment plan developed based on ASAM assessment. Three levels of non-specialized treatment are available:

- **Intensive inpatient** services typically last 28 days. At completion, again dependent on the individual treatment plan, participants may be referred to a recovery house, outpatient treatment, or community-based recovery supports such as Alcoholics Anonymous (AA) or Narcotics Anonymous (NA). Intensive inpatient services are provided statewide.
- **Intensive outpatient** and **outpatient treatment.** Treatment length and intensity of contact varies based on the participant's individual needs. The primary difference between intensive and regular outpatient treatment services is the frequency of participation. Intensive outpatient and outpatient treatment services are provided statewide.

To What Extent Are These Services Used by the Target Population?

The capacity of each of the services to pregnant, postpartum, and parenting women is described in the program and service descriptions above. The question of actual utilization, however, is more complicated.

In the first year of the current biennium (July 2001 through June 2002), all the specialized pregnant, postpartum, and parenting women programs reported operating at between 95 percent and 100 percent of capacity. Currently, DASA has opted to fund all programs remaining tobacco free at 95 percent of capacity, regardless of actual capacity. The program manager for these programs estimates an actual capacity utilization rate, statewide, at 90 percent.³⁴

³⁴ Sue Green, Women/Special Services Lead, Division of Alcohol and Substance Abuse Services, Washington State Department of Social and Health Services.

How Are These Services Funded and by Whom?

Costs of Treatment Services. Exhibit 2 illustrates the core treatment costs paid by DASA for pregnant, postpartum, and parenting women receiving services. (A more complete discussion of costs is included in Section V.) These costs do not include services that women may, in fact, use as part of their overall treatment plan, such as prenatal and postnatal maternal care, maternity support services provided by public health departments, well-baby and child medical care, educational and vocational services, housing subsidies provided by housing authorities and non-profit housing providers, and basic needs support such as food, clothing, and utility subsidies.

Exhibit 2
Core Costs of Treatment

	Cost and Basis	Incurred for Participants in:
Estimated Average Costs		
Targeted Intensive Case Management	\$5,182* per family, based on total contracted costs divided by families served	CPEP
P-CAP	\$5,930* per client per year	P-CAP
Reimbursement Rates		
Residential Services	\$106.29 per client per day	CPEP and residential services
Housing Support Services	\$13.79 per client per day	Some participants leaving residential services, some participants in non-specialized treatment
Therapeutic Child Care	\$49.60 per child per day	CPEP and residential services, some participants in non-specialized treatment
Non-Specialized Treatment	Varies widely based on individual treatment plan	Some residents receiving housing support services; some participants in P-CAP

* Amounts may include other costs, such as indirect funds.

Distribution of Costs Among Funding Sources. As noted above, the overall costs borne by state, federal, local, and private sources in addressing the needs of pregnant and parenting women in recovery can be varied and extensive. It is beyond the scope of this study to identify and quantify those costs across all potential service systems. It suffices to say that actual overall costs of recovery from substance abuse are significant for most pregnant and parenting women in publicly funded treatment. Typically, their needs go beyond treatment and aftercare for substance abuse to include services that will help them overcome poverty, lack of education and/or vocational preparation, and childhood and adult trauma.

Currently, actual substance abuse treatment services are largely state-paid. In the early 1990s, the federal government invested significantly in treatment services for pregnant, postpartum, and parenting women. However, this investment largely ended in 2000, and the financing responsibility for these services reverted to the state level. Exhibit 3 identifies the relative distribution of funding for these services. Percentages represent the number of participants supported by each funding source.

Exhibit 3
Source of Funding for Treatment Costs

	State		Federal	Agency	Other*
	Title XIX (Medicaid)	Other			
Residential Services	65%	35%			
Non-Specialized Long-Term Residential		91%			9%
Non-Specialized Intensive Inpatient	16%	79%	<1%	<1%	4%
Non-Specialized Outpatient	51%	44%	2%	1%	2%
Non-Specialized Recovery	4%	94%	<1%	<1%	2%
Housing Support Services			100%		
Therapeutic Child Care	50%	50%			
P-CAP		59%	41%		

* Typically, "Other" reflects partial private pay or insurance coverage.

What Outcomes Are Targeted?

The outcomes targeted vary. The extent to which these outcomes are tracked, reported, and data analyzed vary also. The outcome measurements and evaluation plans of each the programs and services are discussed below.

Comprehensive Program Evaluation Project. CPEP is the subject of ongoing evaluation by DSHS's Research and Data Analysis Division (RDA). To date, RDA has published a process evaluation describing program implementation, characteristics of women served in the first year, and data collection forms used in the programs.³⁵

A number of data elements related to birth outcomes are tracked in the CPEP project, including birth weight, 1 and 5 minute APGAR scores, Neonatal Intensive Care Unit (NICU) use, gestational age of the newborn, pregnancy complications, and method of delivery. However, the four primary outcomes being measured in RDA's evaluation are birth weight, utilization of family planning services, CPS involvement, and pre- and post-treatment scores on a standardized and validated measure of parenting stress.

³⁵ Yvette Farmer, Laurie Cawthon, and Elizabeth Salazar, *Comprehensive Program Evaluation Project: Program Development and Implementation* (Olympia, WA: Department of Social and Health Services, Research and Data Analysis, November 2000).

Evaluation findings for women enrolled in CPEP from January 2000 through June 2002 are in the process of being finalized, and RDA anticipates having results available for dissemination by the end of 2002 or early 2003.

Parent-Child Assistance Program. The University of Washington's Fetal Alcohol and Drug Unit has recently completed a study of P-CAP in which they describe outcomes for participants at two time intervals: first, between program enrollment and exit at three years; and again between exit and follow-up, on average 2 1/2 years after exiting the program.³⁶ It should be noted that such pre-post comparisons do not separate the effect of treatment from improved outcomes that naturally occur over time.

The study found a number of statistically significant improvements between enrollment and exit among P-CAP participants:

- Increase in current abstinence from drugs and alcohol for at least six months at time of interview (0 percent at enrollment vs. 31 percent at exit, $p < .01$).
- Increase in regular use of a family planning method (2 percent at enrollment vs. 76 percent at exit, $p < .001$).
- Increase in use of a more reliable family planning method, such as Depo Provera, Norplant implant, intrauterine device, or tubal ligation (0 percent at enrollment vs. 44 percent at exit, $p < .001$).

The following statistically significant improvements were found between program exit and post-program follow-up:

- Increase in abstinence from alcohol and drugs for at least 6 months at the time of interview (31 percent at exit vs. 51 percent at follow-up, $p < .05$).
- Decrease in number of mothers with a subsequent pregnancy (51 percent during program vs. 29 percent during follow-up, $p < .05$).
- Decrease in number of mothers with a subsequent birth (27 percent during program vs. 9 percent during follow-up, $p < .05$).
- Increase in permanent housing (58 percent at exit vs. 80 percent at follow-up, $p < .01$).
- Decrease in number of mothers jailed during the interval (67 percent during program vs. 39 percent at follow-up, $p < .01$).

This study did not include a randomly assigned control group, and it is not clear that the positive outcomes are entirely attributable to the P-CAP program.

Residential Services. No evaluations have been conducted on residential services. A new evaluation by DASA, part of a larger federally funded WESTAT study, will compare women admitted to specialized PPW services between 1994 and 2000 with postpartum and parenting women enrolled in non-specialized treatment services. Because the reference groups for this study include women in non-specialized treatment, pregnant women are

³⁶ T. M. Grant et al., "Post-Program Follow-up Effects of Paraprofessional Intervention With High-Risk Women Who Abused Alcohol and Drugs During Pregnancy," *Journal of Community Psychology* (2002, in press).

excluded by design from the evaluation. This evaluation will examine outcomes for employment, medical expenditures, income, and criminality.

Housing Support Services. This program is not currently subject to an evaluation. However, contractors currently report the following data to DASA:

- Completion of treatment or other reason for leaving treatment; and
- Exit status for employment, school enrollment, or vocational training participation.

Therapeutic Child Care. No formal evaluation of therapeutic child care is currently underway. Data being collected within the overall CPEP evaluation will yield some measures of mother’s stress in their parenting roles, but, at present, no other measures are included in the evaluation that bear on children’s development beyond birth outcomes.

Non-Specialized Treatment. A number of studies have been completed by RDA on the impact of non-specialized treatment services on outcomes for participants. These studies examined cost savings to the state, particularly Medicaid costs, of providing treatment through the Alcoholism and Drug Addiction Treatment and Support Act (ADATSA) program. These studies, however, yield little data applicable to the current question of the cost effectiveness of providing services to pregnant substance abusing women.

National Treatment Programs

Substance abuse treatment programs have been developed nationally to serve pregnant and postpartum women. Along with findings from RDA’s report, the four national programs for which more recent evaluations of treatment outcomes and cost benefits have been completed are described (see Exhibit 4).

Exhibit 4
Elements of Four Programs Evaluated for Costs and Outcomes

Program	Clients	Services
Center for Substance Abuse Treatment (CSAT) 50 demonstration sites across the U.S.	Pregnant and parenting women	Residential care (6 and 12 months) treatment, counseling, health care, and ancillary services
Project Link (Providence, Rhode Island)	Pregnant women	Intensive outpatient or outpatient therapy, case management, home visiting, and ancillary services
Arkansas Center for Addictions Research, Education, and Services (AR-Cares) (Little Rock, Arkansas)	Pregnant and parenting women	Residential and outpatient treatment, mental health, health care, case management, and ancillary services
Center for Addiction and Pregnancy Program (CAP) (Baltimore, Maryland)	Pregnant women with medical or psychosocial problems resulting from inability to control drug use	Residential (7 days) outpatient treatment, mental health, health care, family planning, therapy, and ancillary services

As noted earlier, RDA completed an extensive literature review in 1999. The findings from this review revealed a number of program design issues considered important in creating programs for substance abusing pregnant women:

- Comprehensive programs are thought to be the most successful.
- Programs that address only the needs of mothers or children are incomplete.
- Early intervention programs provide a model of individualized, comprehensive services.
- Comprehensive program examples involve children and parents.

Recent studies appear to support these findings. Four programs that have recently been evaluated for birth outcomes and costs are discussed here. Each of these programs offers a comprehensive set of services designed to address the psychosocial, physical, and environmental needs of pregnant substance abusing women. Most programs offer an array of services that can be combined to address the individualized needs of pregnant women and their children.

Types of Services Provided

Residential Programs. In 1993, the federal Center for Substance Abuse and Treatment (CSAT) led the effort to develop an effective treatment protocol for pregnant substance-using women: the Treatment Improvement Protocol (TIP). TIP—developed by experts in medicine, substance abuse treatment, and social services—identified a comprehensive treatment model. The model includes “medical intervention and health services, structured substance abuse treatment, psychological counseling, life skills training, and other social services coordinated through a case management approach.”³⁷

In fiscal years 1993 and 1995, the federal government awarded funding for the establishment of residential treatment projects for substance abusing pregnant and parenting women to expand services and to evaluate the effectiveness of comprehensive, long-term residential treatment. Twenty-six Residential Women and Children (RWC) and 24 Pregnant and Postpartum Women (PPW) demonstration sites were created and funded for a five-year period. Program requirements include the following:

- Gender-specific and culturally appropriate treatment services;
- Provision of on-site residential care for clients’ infants or young children to enable clients to maintain supervised parenting relationships throughout their treatment; and
- Provision of comprehensive services for both clients and their children, such as substance abuse treatment, prenatal, pediatric, medical, mental health, vocational, parenting, legal, nursery/preschool, and transportation.³⁸

³⁷ E. M. Howell et al., “A Review of Recent Findings on Substance Abuse Treatment for Pregnant Women,” *Journal of Substance Abuse Treatment* 16, no. 3 (1999): 195-219.

³⁸ U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *Benefits of Residential Substance Abuse Treatment for Pregnant and Parenting Women* (Washington, D.C.: SAMHSA, Center for Substance Abuse Treatment, 2001).

Beyond these requirements, the structure and treatment characteristics of the demonstration projects varied with regard to location, populations served, program size, and treatment programs. Some programs treated women and children while others focused on pregnant and postpartum women only. Some were six-months in duration, and others lasted 12-months. Treatment models varied, with some including therapeutic approach, others based on 12-step models, and still others adopting cognitive/behavioral models of treatment. Some projects targeted specific, underserved populations. Policies with regard to relapse were not consistent from site to site.

Outpatient Substance Abuse Treatment. Many of the outpatient treatment programs for substance abusing women are linked to prenatal care programs. Research suggests that pregnancy may offer a unique opportunity to engage substance-abusing women in treatment.³⁹ Programs generally offer prenatal care services with linkages to substance abuse treatment programs, substance abuse support groups, or substance abuse counseling either on-site or through referral. Other services may include withdrawal and detoxification, case management, parenting education and support, transportation, and child care.

One such program, the hospital-based Project Link in Providence, Rhode Island, integrated intensive outpatient substance abuse treatment with maternal and child health care. Project Link patients are assessed for treatment needs, and individualized treatment plans are developed accordingly. Women receive therapy services and social supports and are linked to community services to address additional individual needs. Transportation and child care are provided.

Combination Residential and Outpatient Substance Abuse Treatment. The majority of programs for substance abusing pregnant women offer both residential and outpatient treatment. Most provide case management, coordination, and referral to services as add-ons to their treatment programs. Other add-ons include a broad range of services that may include parenting education, counseling and support, child care, transportation, and mental health services.

One program, the hospital-based Center for Addiction and Pregnancy (CAP), consisted of one week of residential care followed by intensive outpatient services through labor and delivery. In addition to these substance abuse treatment services, CAP provides mental health, obstetrics and gynecological care, family planning, and pediatric services in a single hospital-based treatment site.

Another program, AR-Cares in Little Rock, Arkansas, offers residential and outpatient comprehensive substance abuse prevention and treatment services to low-income pregnant and parenting women and their children. The program evolved over time in response to specific needs of women and children. Originally an outpatient program, AR-Cares added residential services of varying intensities in response to the need for housing and social support for women in treatment. On average, women stayed in the intensive residential program for 15 weeks. Child care and transportation, often barriers to women's

³⁹ D. L. Haller et al., "Perinatal Substance Abusers: Factors Influencing Treatment Retention," *Journal of Substance Abuse Treatment* 14, no. 6 (1997).

participation, were added. The program also shifted from individual to family-focused treatment planning. AR-Cares wanted to become a one-stop model for these women. In addition to being a licensed substance abuse treatment provider, AR-Cares is licensed for mental health, child care, and early intervention. Case managers assist with accessing public assistance, education, employment, housing, and other services needed by clients.

Evaluation of National Programs

Each of the four national programs has been evaluated for birth and maternal outcomes and, to some extent, cost. None of the evaluations is based on random assignment to experimental and control conditions. In addition, the findings discussed for the CSAT demonstration programs are based on unpublished reports and presentations. These findings should be considered preliminary. Exhibit 5 summarizes the evaluation approaches for the four national programs.

Exhibit 5
Summary of Evaluation Approaches for National Programs

Program/Study	Comparisons	Outcomes Measured
CSAT Demonstration Programs (Burgdorf 2002)	739 completers; 77 non-completers. 1997 national vital statistics; 18 studies on prenatal exposure to cocaine and birth outcomes; pretreatment birth outcomes.	Infant mortality Low birth weight Prematurity Treatment retention
CSAT Demonstration Programs (Herrell 2002; cross-site findings presentation materials)	1,181 women enrolled; data at one year pre-treatment and 6 months post-treatment.	Abstinence at six months Arrests Employment Children in foster care Length of stay Cost
Project Link (Sweeney 2000)	Substance abusing women, 87 enrolled in treatment during pregnancy and 87 enrolled postpartum (comparison group).	Toxicology screen at birth Low birth weight Very low birth weight Gestational age Prematurity APGAR scores NICU admissions Newborn hospitalizations
Project Link (Schwarz 1996)	Substance abusing women, 61 enrolled in treatment during pregnancy and 76 enrolled postpartum (comparison group).	Low birth weight Gestational age Neonates' hospital length of stay Length of stay in NICU NICU admissions Cost
CAP (Svikis 1997)	100 pregnant substance-abusing women enrolled in treatment; 46 pregnant women receiving care at the same hospital but not receiving treatment.	Low birth weight Very low birth weight Gestational age APGAR scores NICU admissions NICU length of stay NICU costs
AR-Cares (Connors 2001)	72 pregnant and parenting women in treatment in 3 groups: graduates, dropouts before 30 days, and dropouts after 30 days.	Relapse Employment Arrests Parental distress Family cohesion
AR-Cares (Whiteside 1999)	72 pregnant and parenting women in treatment; 23 women who refused treatment (comparison group).	Alcohol and drug use Premature labor Maternal infections Mothers' hospital stay Gestational age Head circumference

CSAT Demonstration Programs

In 1995, a cross-site study of the 50 RWC/PPW sites was undertaken to collect, pool, and evaluate client and child data collected at four points: (1) admission to treatment, (2) quarterly during treatment, (3) at discharge, and (4) six months after discharge. This cross-site study was designed to compare programs and determine overall effectiveness. Data from the demonstration sites are the basis for a number of evaluation studies, most of which are still preliminary and have not yet been published.

One evaluation, Burgdorf et al., is based on data for 739 women at 32 sites who entered treatment and stayed through delivery and on 77 women who entered treatment but left and delivered babies outside the treatment program.⁴⁰ Additional comparisons relied on national vital statistics (using 1997 data), averages drawn from 18 published studies on birth outcomes linked to prenatal exposure to cocaine, and maternal reports of arrests and infant deaths in the year preceding treatment.

Birth Outcomes. The CSAT demonstration projects found the following significant birth outcomes:

- *Lower infant mortality:* 56 percent lower incidence of infant mortality for women in treatment; 0.4 percent of women who delivered while in treatment compared with 1.2 percent of self-reported previous live births for all 10,816 women who entered the RWC/PPW programs.
- *Fewer low birth weight deliveries:* 83 percent risk lower incidence of low birth weight deliveries for women who did not leave treatment before delivery; 6 percent of women who delivered while in treatment and 14 percent for women who left treatment before delivery.
- *Fewer premature deliveries:* An estimated 73 percent risk reduction for women who did not leave treatment prior to delivery; 7 percent for women who delivered while in treatment compared with 21 percent for women who left treatment before delivery.
- *Infants treated in Neonatal Intensive Care Units (NICU):* While fewer infants born to women who stayed in treatment were admitted to NICU compared with infants born to women who did to stay through delivery (12 percent compared with 16 percent), the findings were not statistically significant.

Treatment Retention. Women who stayed in treatment through delivery had better birth outcomes than those who left treatment early, regardless of the trimester during which treatment began. This may be due to improved nutrition through delivery, late-term abstinence, reduced stress, or better prenatal and medical care. Individual program components were not evaluated.

In addition to these post-treatment changes, the study examined several factors to determine which were predictive of women staying in treatment through delivery. Variations in treatment models and other project-level variables were not predictive, nor was type or

⁴⁰ K. Burgdorf et al., *Birth Outcomes for Pregnant Women in Residential Substance Abuse Treatment* (Caliber Associates and Center for Substance Abuse Treatment, unpublished, 2002).

severity of addiction. Women who entered treatment in the third trimester of pregnancy were more likely to remain through delivery. Women who had children present or were in contact with their children were also more likely to remain in treatment through delivery.

As mentioned, several reports evaluating the CSAT demonstration sites are currently being prepared. Only a few were available for this report. Herrell summarized the major findings of the cross-site evaluation and shared them for this report.⁴¹ These are based on data for 1,181 mothers who participated in the CSAT demonstration programs.

Maternal Outcomes. It should be noted that such pre-post comparisons do not separate the effect of treatment from improved outcomes that naturally occur over time. The following maternal outcomes were noted:

- *Reduced substance abuse:* 62 percent were alcohol and drug free since discharge (at six-month follow-up).
- *Criminal involvement reduced:* 13 percent were arrested six months after treatment compared with 56 percent the year before treatment.
- *More women were employed:* 37 percent were employed in the previous 30 days compared with 7 percent at treatment entry.

Length of Stay. Women who stayed in treatment longer than six months had greater abstinence at follow-up, were more frequently employed, had fewer arrests in the follow-up period, and had fewer children in foster care (and, perhaps, greater motivation to succeed). Herrell's findings mirrored findings from two other national studies, CSAT's National Treatment Improvement Evaluation Study (NTIES) and the National Institute on Drug Abuse's Drug Abuse Treatment Outcomes Study (DATOS). All three studies showed similar gains in abstinence with longer stays (longer than six months) and similar rates of abstinence—between 68 percent and 71 percent.⁴²

Treatment Costs and Cost Savings. The average cost of treatment for a mean stay of 161 days was \$25,744. This was fairly evenly distributed among costs for the mother (38 percent), for the child (30 percent), and for housing (32 percent). In fact, therapeutic child care and other interventions for the child or children represented a substantial portion of program costs, on average.

Estimates of cost savings for this group were as high as \$84,875 per family. While the client was in treatment, the estimate offset costs included foster care payments, criminal costs, and TANF benefits. The estimates also included cost savings in the 12 months following treatment: foster care payments, cost of crime, TANF payments, future treatment costs, and fewer emergency room admissions. The researchers also included long-term savings due to reduced low birth weight.

⁴¹ J. M. Herrell, *RWC/PPW Cross-site Findings*, (Presentation by the Center for Substance Abuse Treatment, 2002). Unpublished.

⁴² L. Greenfield et al., *Effectiveness of Long-Term Residential Substance Abuse Treatment for Women: Findings From Three National Studies* (Caliber Associates and Center for Substance Abuse Treatment, unpublished, 2002).

Treatment costs and cost savings were linked to length of stay. The highest estimated cost savings was for treatment lasting longer than six months. With the exception of long-term savings because of reduced low birth weights, the savings are accrued during treatment and the one year following.

Project Link

Two evaluations were completed for Project Link. Neither was a randomized control study. Comparison was made between women who enrolled in Project Link while pregnant and those who enrolled postpartum. Statistically significant differences were found on a number of birth outcomes in both studies. Sweeney's study found that those enrolled while pregnant were less likely to have a positive toxicology screen at birth (22 percent vs. 57 percent), had higher mean birth weights (390 grams heavier on average), fewer low birth weight babies (20 percent vs. 40 percent), fewer very low birth weight babies (2 percent vs. 10 percent), a two-week longer gestational age, higher APGAR scores, less prematurity, fewer admissions to neonatal intensive care units (NICU), and shorter stays in the hospital (8.7 days vs. 18.5 days).⁴³ A number of the same birth outcomes were found by Schwarz in the 1996 cost study. Schwarz also found a significant difference in length of stay in NICU and a cost savings for births to mothers enrolled in treatment while pregnant.⁴⁴

Schwarz completed an analysis of costs and savings associated with Project Link midway during the project. The average length of participation in this outpatient program was 14 weeks for women who enrolled prior to delivery and 13.6 weeks for those who enrolled postpartum.⁴⁵

Outcomes and Cost Comparison. It must be noted that women who enrolled in Project Link postpartum were not significantly different from prenatally enrolled women with regard to age, race, education, income, age of initiation of drug use, frequency of use, or relationships with partners or family members with drug use. However, since women self-selected for enrollment, there does appear to be a difference in motivation to alter risk-taking behavior or unhealthy lifestyles. Women who enrolled postpartum refused referral or treatment during their pregnancy. The following outcomes and cost comparisons were found for Project Link:

- Infants born to women enrolled during pregnancy had higher birth weights and longer gestational periods. Babies born to mothers enrolled postpartum were 5.6 times more likely to have gestational ages less than 37 weeks.
- Babies of mothers enrolled prior to delivery had shorter hospital stays (8.8 days compared with 20.7 days) and fewer days in NICU (6.3 compared with 21.9 days) compared with women who enrolled postpartum.
- The average hospital charges for babies born to mothers in treatment before birth were \$6,576, and those for babies born to mothers enrolled postpartum were

⁴³ P. J. Sweeney et al., "The Effect of Integrating Substance Abuse Treatment With Prenatal Care on Birth Outcome," *Journal of Perinatology* 4 (2000).

⁴⁴ R. M. Schwarz et al., *Project Link Cost-Benefit Analysis, Final Report* (National Perinatal Information Center, unpublished, 1996).

⁴⁵ Schwarz, *Project Link Cost-Benefit Analysis*.

\$17,596. (Again, note that women who enrolled postpartum self-selected and appear less motivated to alter risk-taking behavior or unhealthy lifestyles.) Therefore, the difference in hospital charges shown may not be attributable to the treatment.)

- Average cost for pregnant clients in 14 weeks of treatment was \$6,608 (1994 dollars); average cost for clients who enrolled postpartum was \$6,419, with a slightly shorter average treatment duration of 13.6 weeks.

Center for Addiction and Pregnancy (CAP)

In his evaluation of the Center for Addiction and Pregnancy (CAP), Svikis compared pregnant substance abusing women not in drug abuse treatment with those enrolled in the CAP program.⁴⁶ This evaluation found many outcomes similar to those discussed above.

Birth Outcomes. Babies born to mothers participating in CAP had better clinical outcomes than those not receiving drug abuse treatment. They had fewer positive toxicology screens (37 percent vs. 63 percent), higher birth weights (400 grams higher), a longer average gestational age (3 weeks longer), higher APGAR scores at 1 and 5 minutes, shorter hospital stays, and fewer admissions to the NICU. However, given the nature of the study and the women involved, there is no way to determine whether these positive outcomes are due to drug treatment or to the increased amount of other medical services women received while in treatment.

Cost Savings. Ten percent of babies born to mothers in treatment were admitted to NICU for an average of 6.6 days compared with 26 percent of comparison group babies who were admitted for an average of 38.9 days. Mean NICU cost per treatment group infants was \$900 compared with \$12,183 for comparison group infants. The comparison figures were influenced by one extremely long stay (167 days); however, differences remained significant when that infant was excluded. When total NICU costs were included, the average cost saving for CAP clients compared with those not in treatment was \$4,644 per mother/infant pair.

Arkansas Center for Addictions Research, Education, and Services (AR-Cares)

Connors recently completed an evaluation of one component of the AR-Cares program, the Women and Children's Recovery Center, which offers residential care for women and their children.⁴⁷ Connor's study compared three groups of women at follow-up: (1) women who completed the treatment program, (2) those who dropped out before 30 days, and (3) those who dropped out after 30 days. Again, because of the comparison groups used, it is difficult to know how much of the difference in outcomes is attributable to treatment.

Maternal Outcomes. At follow-up, women who graduated from the program were:

- Less likely to relapse (15 percent for graduates vs. 50 percent and 61 percent for dropouts).

⁴⁶ Svikis, "Cost-Effectiveness of Treatment."

⁴⁷ Connors, *Children of Mothers With Serious Substance Abuse Problems*.

- More likely to be employed (70 percent for graduates vs. 30 percent and 36 percent for dropouts).
- Less likely to be arrested (19 percent for graduates vs. 50 percent and 44 percent for dropouts).

Whiteside-Mansell also evaluated outcomes from the AR-Cares program.⁴⁸ She compared 72 pregnant and parenting women in treatment with 23 pregnant women who refused treatment. Those in treatment had a lower incidence of premature labor and maternal infections and a shorter average length of hospital stay (2.3 days vs. 5 days). The infants of women enrolled in treatment had higher gestational ages (38 weeks vs. 36 weeks) and larger head circumferences.

While these findings are statistically significant, neither study of AR-Cares used a randomly selected control group. Whiteside-Mansell also had a very small sample size, and the length of the study did not allow for later follow-up.

⁴⁸ L. Whiteside-Mansell et al., "The Development and Evaluation of an Alcohol and Drug Prevention and Treatment Program for Women and Children: The AR-CARES Program," *Journal of Substance Abuse Treatment* 16, no. 3 (1999).

V. COSTS AND BENEFITS OF TREATMENT

National Data on Costs

Research on the costs and benefits of substance abuse treatment is fairly recent and somewhat limited. This is a topic of increasing interest, however, and more studies are being funded. Unfortunately, lack of controlled studies, lack of uniformity in the population, varying treatment models, and the complexity of defining outcomes complicates research in this area.

Responding to the need for systematic evaluation, CSAT funded a review of literature on cost effectiveness and cost benefit analyses for substance abuse treatment.⁴⁹ The report on their findings concludes that there is “increasingly strong evidence that substance abuse treatment does pay for itself.”⁵⁰

However, research on treatment during pregnancy is especially limited. The CSAT literature review identified just two studies on this topic. One is the CAP study by Svikis, in which he identified significant savings in NICU costs for babies born to women in treatment compared with babies born to women who were not in treatment.⁵¹

The second study, of a Massachusetts program, compared treatment and birth weights for five treatment modalities (detoxification only, methadone only, outpatient only, residential only, residential and outpatient) between 1992 and 1997.⁵² While infants in all modes of treatment experienced an increased birth weight (compared with detox alone), Daley found a near linear relationship between amount of treatment received and birth weight. The most costly treatment (combination of residential and outpatient) resulted in the highest average infant birth weight (total health care costs of \$32,884; average birth weight 3,072 grams). Outpatient treatment was substantially less costly (average health care cost of \$17,068; birth weight 3,026 grams). Birth weight was most closely associated with mother’s weight gain during pregnancy and reduced drug use.

Benefits. In a subsequent article, Daley examined the level of criminal involvement (as reported by women at nine-month follow-up) for women who were in treatment in each of the five modalities.⁵³ She found the net economic benefits (avoided costs to society of crime minus treatment cost) were greatest for women in the residential programs. Overall, 70 percent of the women had been arrested prior to entering treatment. This suggests that reduced involvement in crime is potentially a substantial savings to society.

⁴⁹ H. J. Harwood et al., *Cost Effectiveness and Cost Benefit Analysis of Substance Abuse Treatment: A Literature Review* (Washington, D.C.: U.S. Department of Health and Human Services, Center for Substance Abuse Treatment, 2002).

⁵⁰ *Ibid.*, 25.

⁵¹ Svikis, “Cost-Effectiveness of Treatment.”

⁵² M. Daley et al., “The Costs of Crime and the Benefits of Substance Treatment for Pregnant Women,” *Journal of Substance Abuse Treatment* 19 (2000).

⁵³ M. Daley et al., “The Impact of Substance Abuse Treatment Modality on Birth Weight and Health Care Expenditures,” *Journal of Psychoactive Drugs* 33, no. 1 (2001).

Studies are beginning to identify longer-term cost benefits associated with treating substance abusing women in pregnancy. However, identifying and measuring such outcomes is complex. Short-term interventions have been found to increase birth weight and decrease medical costs at birth. However, when longer-term costs of continued substance abuse or associated criminal activity are factored in, emerging evidence suggests longer stays in treatment result in better outcomes.

While research is still incomplete on this topic, findings to date suggest:

- Comprehensive programs for substance-abusing pregnant women have increased positive birth outcomes and reduced costs, although specific components of treatment modalities have not been evaluated.
- Length of stay in treatment, in particular for longer than six months, has been associated with greater degree of abstinence, reduced criminal involvement, greater employment, and fewer children living in foster care.
- Mothers whose children were present in treatment, or at least accessible to the mother during treatment, were more likely to remain in treatment.
- Babies of mothers who delivered while in treatment had higher birth weights than babies whose mothers were not in treatment.
- Comprehensive treatment, especially residential, is more costly but may result in greater benefits in terms of avoided costs to society. Treatment programs with limited interventions may improve immediate birth outcomes (birth weight) and thereby reduce neonatal hospital costs, but they have less of an impact on the long-term costs and outcomes for substance abusing pregnant women.

Treatment Costs in Washington

Information on treatment costs in Washington was not readily available. In addition, other than P-CAP, formal evaluations have not been completed on the programs in Washington State. CPEP, which actually includes three distinct pilot projects, has just completed the first full year of enrollment. While a process evaluation has been completed, it is premature to evaluate the program.

As with the national research, information on the cost-effectiveness of Washington State programs is limited. The following describes the limited information that is available on costs, projected savings, and program outcomes.

CPEP. CPEP is a comprehensive program for alcohol and drug abusing mothers and their young children. In 1999, the expectation was that the average cost of treatment per woman fully involved in treatment over a three-year period would be \$50,251 (\$24,563 state portion). A substantial amount of this cost was in services (medical, TANF, etc.) already provided to the women; thus, the additional cost represented by the program was only estimated at \$34,270 (\$21,037 state portion).

On the cost-savings side, relying on published literature, data contained in the First Steps database, and other state databases and reports, potential benefits of treatment were calculated in several areas. Detailed justification for assumptions are provided in RDA's 1999 plan:⁵⁴

- Mother-related measures included medical and public assistance, subsequent births, avoided births, and criminal justice.
- Dependency system measures included child welfare referrals and out-of-home placements.
- Child-related measures included medical and public assistance, juvenile justice, special education, and births to teen females.

These measures were quantified and calculated through the life of the program child and subsequent children (all birth to age 19). In all, the savings per mother/child (cost savings minus costs) were calculated to be \$28,317 (\$13,974 state portion).

P-CAP (Parent-Child Assistance Program). The estimate on average cost per year per client of \$5,930 in 2002 was obtained from the program manager.⁵⁵ Services are available for a three-year period. The outcome evaluation (pre/post-treatment comparison), completed by the University of Washington, found an increase in abstinence, family planning, and permanent housing and a decrease in subsequent pregnancies and involvement with the criminal justice system.⁵⁶

⁵⁴ Research and Data Analysis, *A Comprehensive Program for Alcohol and Drug Abusing Mothers and Their Young Children* (Olympia, WA: Department of Social and Health Services, 1999).

⁵⁵ Therese Grant, Ph.D., Director, Parent-Child Assistance Program, Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine.

⁵⁶ Ernst, "Intervention With High-Risk Alcohol and Drug-Abusing Mothers."

CONCLUSION

A number of studies suggest that improved birth outcomes can be achieved through substance abuse treatment for pregnant substance abusing women. Evidence from the literature and from programs and services that address the Legislature's key questions is summarized in this section.

How Are Key Programs Structured?

There is a general consensus, as reflected in CSAT's Treatment Improvement Protocols (TIP), as well as in their funding guidelines for Residential Women and Children and Pregnant and Postpartum Women (RWC/PPW) programs, that treatment programs should be gender specific and should offer additional wrap-around services that address the needs of both children and families as well as the women's social, medical, and mental health needs.

The wrap-around services most frequently included are medical care, mental health services, therapeutic child care, parenting education, support groups, transportation, and some or all of the following social services: legal assistance, housing assistance, and employment assistance.

In Washington State, the specialized treatment to which pregnant, postpartum, and parenting women are directed—CPEP and residential services—are residential. CPEP, the preferred option for women in the counties served by these pilot projects, includes intensive case management, long-term residential treatment with a gender-specific structured treatment curriculum, on-site therapeutic child care, and access to transitional housing. Residential services provide long-term residential treatment with a gender-specific structured treatment curriculum and on-site therapeutic child care but lack the access to transitional housing provided by CPEP, unless other community resources for transitional housing are available. A third approach—the Parent-Child Assistance Program (P-CAP)—relies on case management to help women access the services they most need. However, only 15 percent of pregnant women in Washington State are assigned to specialized services—the majority receive intensive outpatient and outpatient services, which typically lack the wrap-around case management associated with comprehensive specialized programs.

There is no clear consensus in the literature on the optimal arrangement of services—residential vs. outpatient; long-term vs. short-term more intensive programs. A number of studies suggest both length of stay in treatment and delivery of the child while in treatment are positively associated with improved birth outcomes.

What Positive Birth Outcomes Are Associated With Key Programs?

The positive birth outcomes most frequently reported in the literature to date include the following:

- Increased full-term deliveries;
- Increased gestational age of infants;
- Increased birth weight; and
- Reduced admissions and shortened stays in neonatal intensive care units.

Substance abusing mothers also achieved positive outcomes:

- Reduced substance abuse;
- Reduced criminal involvement;
- Increased employment; and
- Increased child custody.

Although not the focus of its evaluation, one study also reported increased use of birth control among women who completed treatment programs.⁵⁷ Additional data on this question is forthcoming in late 2002 or early 2003 in the RDA's initial analyses of CPEP. However, the evidence regarding subsequent births to substance abusing women is currently inadequate for conclusions to be drawn about the effectiveness of treatment programs specifically for pregnant substance abusing women.

What Are the Costs Associated With Achieving Positive Birth Outcomes?

Costs associated with positive birth outcomes have not been widely documented in the literature to date. Washington State programs are currently undergoing evaluation; however, results of these evaluations are not yet available. In general terms, costs associated with positive birth outcomes include the following:

- Direct costs of providing chemical dependency treatment in both residential and outpatient settings, as appropriate to the individual women based on the American Society of Addiction Medicine (ASAM) individualized assessment.
- Provision of on-site comprehensive services, including therapeutic child care and parenting education, mental health services, and prenatal care.
- Provision of additional supportive services, on-site or through referral, including transportation, legal, educational, and job placement services.

It is important to note that substance abuse treatment, mental health, prenatal, and other medical care services are all currently available to pregnant substance abusing women

⁵⁷ Grant, "Post-Program Follow-up Effects."

through a variety of providers. The comprehensive treatment model relies on those existing services necessary to meet these needs.

What Programs Are Most Effective at Achieving Positive Birth Outcomes?

The evidence from program evaluations is not yet sufficient to fully answer this question. However, findings to date, particularly from the CSAT-funded programs, suggest:

- Comprehensive programs for substance-abusing pregnant women have shown positive birth outcomes and reduced long-term costs, although specific components of treatment modalities have not been evaluated.
- Comprehensive treatment, especially residential, is more costly but results in higher benefits in terms of avoided costs to society. Treatment programs with limited interventions may improve immediate birth outcomes (such as birth weight), and thereby reduce neonatal hospital costs, but may have less of an impact on the long-term costs and outcomes for pregnant substance abusing women.

CSAT is completing an analysis of costs and cost-benefits of the national demonstration sites. Their report is anticipated in the next year. Despite data collection problems, the report will attempt to address the extent to which client outcomes are associated with specific services received in treatment and the extent to which certain project approaches are effective for clients with differing needs.

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