A Literature and Data Review of Teen Pregnancy Prevention Programs

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Executive Summary

The importance of teen pregnancy prevention continues because, despite the substantial drop in teen pregnancy in the US since 1991, as of 2004, the US has manifested the highest teen pregnancy rate and teen birth rates among developed countries. The USA rate has been two to six times higher than Western Europe. This prevalence has prevailed even though sexual activity rates are similar or higher among Western European teenagers than among teenagers in the United States. An array of social costs is imposed on American society due to teen pregnancy. These negative societal impacts require public expenditures for social programs or cause social harms such as crime.

Prepared under contract for the Christiana Care Health Services, this report addresses two dimensions of prevention programs directed at preventing teen pregnancy and limiting teen sexual behavior: (1) a review of literature pertaining to prevention programs and, (2) data applicable to prevention programs is identified.

There is a wide array of teenage pregnancy preventions programs. The goals of the programs can be divided into two main groups: programs that address teen's *sexual* risk factors (sex education with abstinence focus, sex education with conception component and comprehensive sex education) and programs that address teens' *social* risk factors (early childhood and development programs).

- Sex education with abstinence focus: These efforts are directed at teen sexual risk factors and have a primary or overarching goal of preventing teen pregnancy by specially addressing the way in which sexual beliefs and values of teenagers can be oriented to avoid sexual behavior that could result in pregnancy.
- Sex education with conception component: While abstinence is advocated, these programs also focus on sexual risk factors with a central goal of preventing harms to individual health, specifically STI/HIV/AIDS, which result from risky sexual behavior by teens.
- Comprehensive sex education. A wide array of teen prevention activities are rendered including increased access to family planning, contraception services, and sex education for teenagers.

- Early childhood development programs. These programs are focused on a wide range of risk behaviors. With these programs, teen pregnancy prevention and related sexual activities are among many social goals that are pursued.

Highlights of the review of teen pregnancy prevention literature are as follows:

- The determination of whether any of the prevention programs realize their goals requires conducting a rigorous research inquiry into their outcomes. The achievement of outcomes indicates that a program realizes efficacy or it is efficacious.
- The outcomes, or goals, of prevention programs are dissimilar within the separate prevention program designs. In particular, the goals of programs with abstinence focus are inconsistent and incompatible with the goals of other prevention programs.
- Prior to 2000, rigorously evaluated abstinence-only programs did not confirm the achievement of efficacy, i.e., gains in their own declared measured outcomes.
- A major recent study of four abstinence only programs was not supportive of this type of program. The findings reveal that there was no statistical significance in stated measured outcomes between control and treatment groups (i.e., respectively non-participants and program participants).
- Evaluation of youth development programs manifest inconsistent results across programs, i.e., the achievement of outcomes were dissimilar for various programs.
- The most efficacious prevention programs are comprehensive sex education ones. Efficacy gains have been verified for a considerable proportion of these types of programs.
- The diversity of outcomes and their affirmation for concluding efficacy would not allow confirmation of which programs are the most functional for society.
- Programs for which the evaluations have attributed efficacy should be replicated in order to assess the transferability of the intervention.
- Additional analysis of the positively evaluated programs should be undertaken to encompass a longer time frame for a follow-up of participants.
- Recently researchers have indicated that efficacy may be inadequate to assess what programs are effective from a societal perspective and have instead adopted

the methodology of Cost Benefit Analysis (CBA) to evaluate various dimensions of the teen pregnancy problem and teen sexual behavior. As a policy evaluation framework, CBA determines whether a prevention program (intervention) would generate or has generated improvement in the welfare of society. This societal welfare gain is determined by an assessment of whether the costs of an intervention are less than the value of the benefits that the intervention produces. Benefits are merely the monetary values assigned to the positive outcomes that result from (or expected of) the prevention program.

- Hoffmann (2006) estimates that teen child bearing costs to taxpayers is at least $9.1 billion annually in 2004 due to federal, state, and local programs directed at the social needs caused by negative impacts of teen pregnancy and births. This translates into an estimated $1,430 average annual cost for a child born to teen mothers that could be saved if one birth was prevented. However, Hoffman did not consider the contribution of any interventions (or their costs) to the reduction of the number of pregnancies. Therefore the amount of benefits (cost savings) that could be generated by prevention programs was not calculated in his analysis.
- One major cost benefit analysis (AOS, 2003) did review seven prevention programs and concludes that only one of these selected programs generated benefits greater than costs. That is, only one program produces social welfare that exceeds the financial costs that are incurred to implement the interventions.

The review of teen pregnancy prevention data reveals the following:

- Several national data bases exist available to conduct analyses regarding the social economic and demographic factors associated with sexual actions or negative outcomes of sexual behavior by teens.
- Data for monitoring the status of teen pregnancy exists at the state level through the Delaware Division of Public Health.
- A list of outcome (goal) variables is suggested along with the impact (independent) variables for monitoring the efficacy of a teen pregnancy prevention program. The variables collected should be based on a rigorous research-based scientific methodology and will depend on the specified goals of the prevention program.

I. INTRODUCTION

A. Purpose of Report

This report addresses two dimensions of prevention programs directed at preventing teen pregnancy and limiting teen sexual behavior. First, a review of literature pertaining to prevention programs is conducted. Second, data applicable to prevention programs is identified. The discussion of these dimensions includes reference to the State of Delaware where information is available.

With respect to the literature review, the purpose of this report is not to present an evaluation of individual prevention programs. There is a considerable, if not plethora of, literature on prevention programs involving teen pregnancy and detrimental teen sexual behavior; this literature manifests a substantial array of discourse and analysis involving the content, objectives, and efficacy of prevention programs.[1] This literature encompasses (1) many works that advocate policy approaches to the teen pregnancy problem especially prevention or provide commentary on policy or the teen pregnancy problem, (2) a large number of publications involving empirically-based research on separate prevention programs, teen pregnancy and sexual behavior, and (3) many articles that are reviews of completed prevention program evaluations. Because of the extensiveness and direction of past literature, the objective of the present literature review is: (a) to provide a compilation of prevention programs, especially since 2000, according to research-based dimensions, and (b) to place prevention programs activities within the context of a public policy evaluation that will provide a basis for appraising the appropriateness of government financing for various types of prevention programs.

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[1] As a concept, efficacy indicates the extent to which a prevention program achieves its stated direct outcomes. Effectiveness is not used unless Teen Pregnancy Prevention Program are assessed with respect to the impact of program costs on the achievement of objectives. This distinction is drawn from the literature on cost-effectiveness (CEA) and cost—benefit analysis (CBA). Both methodologies entail economic evaluation of program performance.

Available data pertaining to teen pregnancy, its prevention, and teen sexual behavior is identified. The existing data inquiry will entail a description of both state and national data sources. After the available data has been determined, this report will briefly address the relevancy of data for prevention programs performance and any additional data that should be collected.

B. Format of Report

The report has the following order of discussion. First, a brief description is given of the scope of the teen pregnancy problem that has provided the bases for implementing prevention programs. Second, a short presentation is made regarding the types and purposes of prevention programs. Third, the literature encompassing prevention programs is reviewed according to the three approaches: advocacy, reviews, and empirical research. This effort encompasses a cursory commentary and a tabular display of very large number of studies that were obtained from review of the prevention program literature by advocates, individual scholars, research organizations, and program implementers. Fourth, the final section is a consideration of data that pertain to teen pregnancy, teen sexual behavior, and prevention programs.

II. SCOPE OF THE TEEN PREGNANCY PROBLEM

In the United States, the prevalence of pregnancy and birth rates among female teenagers and its consequential social costs presents a substantial justification for implementing prevention programs. The following profile of the teen pregnancy problem is taken from several studies and sources which are cited in the text.

A. Prevalence of Teen Pregnancy

Nationwide, birth rates and pregnancy rates among teenage women have decreased substantially since 1992, (Hoffman, 2007).

1. A 36% decrease in teen pregnancy rate has occurred in the US between 1990 and 2002.
    - In 2001, it was estimated that approximately 900,000 teenagers become pregnant in the United States (Kirby, Emerging Answers, 2001).
    - In 2001, approximately 51% of adolescent pregnancies ended in live births, 35% ended in induced abortion, and 14% resulted in miscarriage or stillbirth, [2]
    - In 2001, it was estimated that more than 40% of adolescent girls have been pregnant at least once before 20 years of age (Kirby, Emerging Answers, 2001).
    - Most of the pregnancies in 2001 were among older teenagers (i.e., those 18 or 19 years of age). (Kirby, Emerging Answers, 2001; Martin, J., et al., 2002).
2. Between 1991 and 2002 in the US, the birth rate among teenagers has decreased every year, [3], Hoffman, 2007); the rate has decreased 35% for 15- to 17-year-olds and 20% for 18- to 19-year-olds, [4]

[2] Kirby Emerging Answers, 2001; Jaskiewicz, et al., 1994; Haffner, D., Facing Facts, ed., 1995; Moore, K. et al., 1998; Martin, J. et al., 2002.
[3] Kirby, Emerging Answers, 2001; Martin, J., et al., 2002; Ventura, S., et al.; Mon Vital Stat Rep., 1997.
[4] Medical Institute for Sexual Health, 2002

- There has been a 33% decline in teen 15-19 birth rate (per 1,000 teens aged 15-19) between 1991 and 2004 (Hoffman, 2007).
- In 2004, there were 420,000 births to teens.
- In 1991, the birth rate was 61.8 births for every 1,000 15-19 year old girls, and in 2004 it was 41.1 births for every 1,000 15-19 year old girls, representing a 33% decline.
- In Delaware, the birthrate was 60.4 in 1991 and 43.5 in 2004, indicating 28.0% decrease.
- Although birth rates have been decreasing steadily for white and black teenagers since 1991, the first year that birth rates decreased for Hispanic teenagers was 1996; Hispanic adolescents also have had the highest overall birth rates and smallest decreases in 2000.[5]
- Since 1991, if a teenager has had one infant, she has been at increased risk of having another baby. Approximately 75% of adolescent births are first births.[6]

Despite the substantial drop in teen pregnancy in the US since 1991, as of 2004, the US has manifested the highest teen pregnancy rate and teen birth rates among developed countries. The USA rate has been two to six times higher than Western Europe (Hoffman, 2007). This prevalence has prevailed even though sexual activity rates

[5] Ventura, S. et al., Mon Vital Stat Rep., 1997, Ventura, S. et al., Natl Vital Stat Rep., 2000
[6] Kirby, Emerging Answers, 2001; Jaskiewicz, J & McAnarney, 1994; Warren, C., et al., 1994; Warren, C. et al., 1994; Elo I. et al., 1999.

are similar or higher among Western European teenagers than among teenagers in the United States.[7]

B. Costs of Teen Pregnancy

Recently Hoffman (2007) has estimated an array of social costs that teen pregnancy and birthrates have imposed on American society. The social costs—which are described in more detail in subsequent sections, -- are negative societal impacts that require public expenditures for social programs or cause social harms such as crime. Hoffman estimates that teen child bearing costs to taxpayers is at least $9.1 billion annually in 2004 due to federal, state, and local programs directed at the social needs caused by negative impacts of teen pregnancy and births. This figure does exclude financial and social costs of prevention programs, an important distinction to be discussed later. The same classes of social costs were estimated to be $7 billion annually in 1990 (Kids Having Kids: Economic Cost and Social Consequences of Teen Pregnancy). Because of the 33.3% decline in the teen birthrate from 1991 through 2004 in the US, the annual savings in 2004 due to this trend has been $6,820,000,000 nationwide. In Delaware, the 28.0% decline between 1991 and 2004 has resulted in $16,000,000 savings in 2004 (Hoffman, 2007).

[7] Alan Guttmacher Institute, 2001; Forrest, J., 1993; Hofferth, S. & Hayes, C., eds., 1987; Ventura, S., et al., Mon Vital Stat Rep., 1997,; Spitz, A., et al., 1996.

III. TYPES AND ORIENTATION OF PREVENTION PROGRAMS

A. Purpose of Prevention Programs

Since the 1990s, substantial federal and state government financing has supported prevention programs whose purposes have been to influence teen sexual behavior. Considerable financial contributions to these efforts have also been made by non-profit organizations. National non-profit organizations have also played a prominent role in the design and dissemination of prevention programs to community organizations and schools. School systems and community organizations have been the primary organizational structures through which prevention programs have been conducted. Prevention programs have also been delivered through hospitals, clinics, non-profit community-based organizations, and religious and professional counseling sites.

Some prevention programs are concerned mainly with preventing teen pregnancy. These efforts are directed at teen sexual risk factors and have a primary or overarching goal of preventing teen pregnancy by specifically addressing the way in which sexual beliefs and values of teenagers can be oriented to avoid sexual behavior that could result in pregnancy. Second, some prevention programs have also been focused on sexual risk factors with a central goal of preventing harms to individual health, specifically STI/HIV/AIDS, which result from risky sexual behavior by teens. The thrust of these programs is to provide comprehensive sex education for teen participants to minimize risky sexual behavior. Third, other efforts to influence teen sexual behavior have been part of more comprehensive social programs which address an array of teen social risk factors besides sexual ones, and include other health, social, and economic goals.

Unfortunately, the nomenclature that describes these prevention programs has not been consistent among advocates, commentators, and researchers. Many individuals and organizations commonly refer to <u>any</u> program that is directed at teen sexual behavior as being teen pregnancy prevention programs. Other advocates, commentators and researchers make a distinction among programs based on their central purpose and program content. The nomenclatures that will be maintained throughout this review are adapted from Kirby's (2001) descriptions of prevention programs.[8]

The combination of the central purpose and program content has resulted in the following types of prevention programs that are used to conduct the health care interventions.[9]

1. <u>Programs Directed at Teens' Sexual Risk Factors</u>

    a. Short-term Interventions. This type of intervention generally occurs in hospitals, and medical clinics, family planning clinic, school-based clinic, and school provided contraception. The duration is very short encompassing only one to two hours of service activity. The services are provided by health professionals such as physicians, nurses and trained counselors who provide advice and information on reproductive health care directed at the specific needs and sexual behavior of clients, as well as access to and provision of contraception items, especially condoms. Thus, these interventions are comprised of the service components of both sex education and contraception information and dissemination.

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[8] The basic dimensions of this discussion come from Kirby, Emerging Answers, 2001.
[9] Interventions are organizational actions directed at a ameliorating or eradicating particular illness(es) or social harm(s).

b. Two types of prevention programs have been delivered mostly in a school curriculum, and secondarily through provision by community organizations. Virtually every teenager receives some sort of intervention since the federal government funding of these prevention programs through the 1996 federal welfare law that made $86 million available from federal and state sources for abstinence until marriage programs.

   i. Sex education with abstinence focus. These programs are also often referred to as "abstinence only" programs. No information on contraception is given. The focus is on virginity or the benefits of abstinence, and abstinence pledges are frequently solicited. Emphasis is placed on building social skills and self esteem of teen participants, and the negative outcomes of sexual activities.

   ii. Sex education with conception component. These prevention programs are referred to as abstinence plus, or comprehensive sex education programs. Considerable differences prevail in the content of services among programs. Abstinence is described as safest approach to avoid pregnancy and sexually transmitted diseases/illnesses STD/STI/HIV[10]. HIV education is also a service component. This program is more concerned with mitigating risky sexual behavior among teens. Some programs discuss conception and birth controls inclusive of condoms. Many programs also encourage contraception among who choose to be active (i.e., high risk).

[10] The terminology of both sexually transmitted diseases (STD) and sexually transmitted illness (STI) are used in the prevention program literature with STI being the more current terminology.

c. Community-Based Services with many components. These programs are comprehensive sex education programs that outreach to a geographically wider setting to encompass a community, and services are delivered through a community social-based organization. A wide array of teen prevention activities are rendered including increased access to family planning, contraception services, sex education for teenagers, training in parent /children communication, and media campaigns.

2. Programs Directed at Teens' Social Risk Factors

a. Early Childhood and Youth Development. These programs are focused on a wide range of risk behaviors (inclusive of sex, drugs, alcohol, and crime). They employ multiple networks of service providers. Many programs serve higher risk individuals as the targeted population, and generally service delivery is quite intensive with a central aim of developing protective factors to mitigate the social risk dimensions that induce risky behavior among their clients. With these programs, teen pregnancy prevention and related sexual activities are among many social goals that are pursued.

The classes of prevention programs are described as "pure" types when in reality there is considerable variation in service components (program content) within the types. The types are not mutually exclusive because programs with different purposes manifest some similarity in their service delivery content.

B. *Prevention Program Goals and Outcomes*

As would be expected, the goals of prevention programs are not consistent across programs. Moreover, the goals of prevention programs are dissimilar within the separate prevention programs designs. For abstinence only programs, the ostensible primary goal has been preventing teen pregnancy among those individuals enrolled in their programs. Preventing teen pregnancy is an implicit goal for some comprehensive programs and youth development programs but for others, it is a secondary goal but a positive by-product of program interventions directed at mitigation of risky sexual behavior.

However, the goal(s) of prevention programs must be and have been translated into various outcomes to be achieved in order to assess the performance of the programs. The outcomes provide measurement of the results that are expected to be obtained by the prevention program interventions. Put differently, outcomes (supposedly) measure the extent to which desirable ends or favorable activities occur as a consequence of the program intervention. Outcomes are typically measured in changes in a quantity, an amount or some value of selected ends or activities. Changes or gains in an outcome allow the determination of whether a prevention program is effective, or what we have termed as efficacious in this review. That is, an evaluation of the performance of a prevention program is based on the extent to which an amount of the outcome has been achieved. Some of the major and most common outcomes that have been utilized by prevention program are listed on Table 1.

The importance and applicability of these outcomes and their contribution to program performance will depend upon the purpose of the prevention program. With the focus on abstinence only, the various outcomes should indicate gains in abstaining from

sex by teens participating in the programs. In this way teen pregnancy is (expected to be) avoided. The pursuit of strategies to have teens abstain, however, reflected by the pertinent abstention measured outcomes could be incompatible with the measures of programmatic effectiveness of some comprehensive sex education and youth development programs which have as outcomes various indications of achieving "appropriate" safe sexual activity. This is so because for some comprehensive sex education and youth development programs, outcomes are associated with reduction in risky sexual behavior but forsaking of sexual activity is not a major purpose of these programs. Nevertheless, prevention of teen pregnancy could be a positive impact of comprehensive sex education and youth development programs, although this goal may not be a declared outcome, or one that is intentionally pursued since their strategies of "safe sex" could prevent pregnancy among teens. Put differently, achievement of outcomes of comprehensive sex education and youth development programs could be effective strategies, -- i.e., considered to be intermediate goals -- that prevent teens from becoming pregnant whether or not they are a part of program design. The determination of whether any of the prevention programs realized their goals requires conducting a rigorous research inquiry into their outcomes. This topic is taken up in literature review section.

TABLE 1

COMMON OUTCOMES (FAVORABLE IMPACTS) OF PREVENTION PROGRAMS

Abstinence Programs	*Comprehensive and Development Programs*	
Prevention of pregnancy (Decrease in rate of pregnancies)	Prevention of pregnancy (Decrease in rate of pregnancies)	Increase knowledge of pregnancy risk
Increase contraceptive use at first intercourse	Increase in consistent contraceptive use among the sexually active teens at every intercourse	Increase knowledge of STI/HIV/AIDS risk
Increase in rates of sexual abstinence	Increase contraceptive use with intercourse	Increase knowledge of health consequences of STI/HIV/AIDS
Increase in rates of expectation to abstain from sexual activities	Prevention of STDs/HIV/AIDS	Increase knowledge of birth control for pregnancy protection and prevention of STI/HIV/AIDS
Increase knowledge of pregnancy risk	Increase contraceptive use at first intercourse for protection against STI/HIV/AIDS	Increase knowledge of pregnancy risk from unprotected sex
Increase in rate of capability to refuse	Increase contraceptive use for all intercourse for protection against STI/HIV/AIDS	Increase knowledge of STI/HIV/AIDS risk from unprotected sex
Increase in self esteem	Increase in STI/HIV/AIDS prevention-related behaviors (i.e., increased condom purchasing, increased voluntary condom carrying)	Decrease rates of unprotected sex
	Increase in the substitution of lower-risk sexual behaviors for high-risk behaviors	Decrease rates of reported STI
	Decrease in the number of sexual partners	Decrease in the frequency of sexual intercourse
	Postponement/delay of sexual intercourse	Decrease in the frequency of sexual activities
	Postponement/delay of sexual activities	Decrease in the frequency of sexual intercourse
		Decrease in the frequency of sexual activities

C. *Catalogue of Prevention Program*

1. Nationwide Perspective

Table 2 gives a very comprehensive listing of different types of prevention programs that have been conducted in the US from 2000 to 2007. The prevention programs are presented according to their classification of: (a) abstinence only programs, (b) comprehensive sex education and STI/HIV/AIDS prevention programs, and (c) youth developmental programs that focus on many social risk factors. Each program is identified by the type of organization used to deliver the services (program content), -- i.e., school or community, -- and a brief description of the program content or purpose. It appears that abstinence only programs are delivered predominantly through school systems. The delivery of comprehensive sex education programs are carried out equally by school systems and community organizations. For youth development programs, the most prevalent organizational setting is community organizations. Whether any of these programs have been determined to be "effective" is addressed in the Literature Review section.

TABLE 2

NATIONWIDE PREVENTION PROGRAMS

Program	*Setting*	*Description*
Abstinence		
Abstinence by Choice	School	Abstinence program
Adolescent Pregnancy Prevention	School	9-week (18 classroom hours) primary prevention intervention for young adolescents
Family Accountability Communicating Teen Sexuality (FACTS)	Community	Abstinence program
Healthy for Life	School	Peer pressure resistance, abstinence promotion, encourages future contraception use, 7th and 8th grades
Human Sexuality-Values & Choices	School	Promotes sexual abstinence, middle school
Making A Difference: Abstinence Approach	Community	HIV education program, abstinence approach to teen pregnancy, STDs
Managing the Pressures before Marriage	School	Abstinence promotion, 8th grade
McMaster Teen Program	School	Problem solving, decision making, teen pregnancy, parenting, 7th and 8th grade
My Choice, My Future!	School	Character based abstinence until marriage education
Not Me, Not Now	Community	Mass communications program to promote abstinence through paid advertising, middle school
Operation Keepsake	Community	Abstinence program
Postponing Sexual Involvement	School	Peer-led sex education, middle school
Project Taking Charge	School	Part of home economics class which includes information on anatomy, STIs, and stressing abstinence, 7th graders
Recapturing the Vision	School	Centers on identifying personal strengths and resources, developing strategies for fulfilling personal and career goals, and building critical skills that will help teenagers achieve positive goals and resist negative influences
Sex Can Wait	School	Program included role playing and cooperative learning with the aim to promote abstinence, 5th - 12th grade
Sex Respect	School	Abstinence program
Taking Charge	School	Promoted abstinence only, 7th grade
Teen Aid	School	Abstinence program
Teens in Control	School	Abstinence program
Values and Choices	School	Abstinence program
Virginity Pledge Programs	School	Abstinence program
Youth Asset Development Program (YADP)	School	Abstinence education, other topics such as drinking, driving, personal safety, the responsibility of making mature decisions and the impact their decisions have on family and friends.
Comprehensive		
Aban Aya Youth Project	School	Comprehensive program (values, self-esteem, decision making, health, etc.) to promote abstinence aimed at African-American 5th - 8th grade
A Clinic-Based AIDS Education Program for Female Adolescents	Community	Dissemination of information on HIV/AIDS prevention, females 13 - 21 years old

Program	*Setting*	*Description*
Adolescents Living Safely	Community	HIV prevention program to augment traditional services available at shelters for runaway youth, ages 11 to 18
AIDS Prevention and Health Promotion among Women	Community	Clinic based, group sessions to promote sound sexual health plan
AIDS Prevention for Adolescents in School	School	HIV/STI prevention curriculum, 8th grade
Aids Risk Reduction Education and Skills Training (ARREST)	Community	HIV education program, 12 - 16 year olds, African Americans and Latinos
ASSESS for Adolescent Risk Reduction	Community	Health care providers, risk behavior discussion
Be Proud! Be Responsible	Community	HIV prevention curriculum, 13 - 18-year-old youth
Becoming a Responsible Teen	Community	HIV prevention, sex education, and skills training curriculum, ages 14 - 18
California's Adolescent Sibling Pregnancy Prevention Project	Community	Individualized case management, sex education, ages 11 through 17
Children's Aid Society's Carerra Program	Community	Youth development program, comprehensive sex education, ages 13 through 15
Client Centered Model	Community	Education, skill building, counseling, mentoring, advocacy, values and attitudes about teen sexual activity and pregnancy, coping skills and goal setting, links to family planning services, participation in social or recreational activities; 14 - 17 year olds
Conservation and Youth Services Corps	Community	Academic and vocation education w/some support services
Draw the Line; Respect the Line	School	Sex education program to promote delaying initiation of sex, 6th - 8th grades
Facts & Feelings	Community	Video and newsletter on teen sexual behavior, grades 7th and 8th
Family Life Education	School	Lectures on birth control, anatomy, physiology. 7th and 8th grade
Focus on Kids	Community	Encourage participants to adopt behaviors that would reduce their risk of contracting HIV, 9 - 15 year olds
Get Real About Aids	School	HIV risk reduction curriculum, grades 9 - 12
Health Care Program for First Time Adolescent Mothers and their Infants	Community	Clinic-based program providing comprehensive services to adolescent mothers
Healthy Oakland Teens	School	HIV Prevention, 7th grade
Information-Motivation-Behavioral Skills HIV Prevention Program (IMB Program)	School	Goal is to increase HIV prevention knowledge and behavior, high school
Making A Difference: Safer Sex	School	HIV education program, abstinence approach to teen pregnancy, STDs, condom use
Making Proud Choices	Community	HIV prevention curriculum emphasizing safer sex, information about both abstinence and condoms, ages 11 - 13
McMaster Teen Programme	School	Problem solving, decision making, teen pregnancy, parenting, 7th and 8th grade
Nurse-client transactional intervention	Community	Identify contraceptive benefits and adherence regime, 16 - 18 year old females
Peer Counseling	Community	Compliance with oral contraceptives, 16 - 18 year old females
Peer Power Project	School	Increase knowledge, enrichment activities, 7th grade
Poder Latino	Community	Peer education workshops on HIV awareness and prevention, Latino adolescents, ages 14 - 19
Postponing Sexual involvement, Human Sexuality	School	Peer-led sex education and sex education curriculum, 7th – 8th grade

Program	*Setting*	*Description*
Project SNAPP	School	Sexual activity risks, birth control options, assertiveness training, 7th grade
Protection Express Program	School	Program that used peer education and role playing with the goal to delay sexual initiation and promote condom use
Queens Hospital Center's Teenage Program	Community	Clinic-based program providing comprehensive services to adolescent mothers
Reach for Health Community Youth Service	School	Health promotion curriculum, 7th – 8th grade
Reducing the Risk	School	Sex education curriculum, grades 9th – 12th
Rochester Aids Prevention Program (RAPP)	School	AIDS prevention, middle school
Safer Choices	School	HIV/STI and teen pregnancy prevention curriculum 9th -10th grade
School/Community Program for Sexual Risk Reduction among Teens	School	Sex education integrated into biology, science, social studies, and other courses, K -1 2th
School/Community Program for Sexual Risk Reduction among Teens	Community	School-linked health center (SLHC) across the street from a high school and down the street from a junior high school, junior and senior high school students
Self Efficacy Training	Community	Reproductive health intervention, improve contraceptive use, prevention of STDs, 15 - 18 year old females
SiHLE: Health Workshops for Young Black Women	Community	STI/HIV/AIDS prevention for African-American adolescents
Tailoring Family Planning Services to the Special Needs of Adolescents: New Adolescent Approach Protocols	Community	Family planning clinic-based intervention, with offering of more information, social support and counseling, hopes to increase regular contraceptive use
Teen Incentive Project	School	Teen sexuality, family planning, 9th grade
Teen Outreach Program (TOP)	School	Teen pregnancy and school dropout prevention program, high school
Teen Talk Program	School	Discussions about facts, feelings, sexual responsibility
Washington State: Client-Centered Pregnancy Prevention Program	School	Education, support, and information to avoid early sexual activity and pregnancy, 14 - 17 year olds
What Could You Do?	Community	Video, STD risk-reduction intervention for adolescent females
Youth Aids Prevention Program	School	Lectures on HIV/Aids, Pregnancy and STI Prevention, 7th and 8th grades
Developmental		
Abecedarian Project	School	Full-time educational intervention in a high quality child care setting, from infancy through age five
Escuelitas	School	Provide an organizational and social structure that supplements the formal, social institutions of schools and families
Job Corps	Community	Academic and vocation education with some support services
JOBSTART	Community	Academic and vocation education with some support services
Learn and Service America	Community	Service learning activities
Quantum Opportunities Program	Community	Youth development approach, also focused on sex education, 9th – 12th grade
Seattle Social Development Project	School	Providing social competence training, grades one through six
Summer Training and Education Program (STEP)	Community	Work and life skills. Sexual component of decision making and responsible sexual behavior. 14 - 15 year olds
Working on the Right Direction	School	9th grade

D. Delaware Perspective

The most recent prevention programs that have been undertaken in Delaware are shown in Table 3. The prevention programs are presented in terms of purpose and program design (delivery components). In Delaware, there is spectrum of different types of programs that are available to both schools and communities and social organizations. A telephone survey of the program providers did not yield any comprehensive responses about their performance evaluation efforts. Those programs for which responses were obtained show that (a) only two have built in evaluation components (of undetermined scope and quality), (b) only two have required data collection, and three did not, (c) a mixed picture about voluntary data collection, and (d) only one provider has a follow-up (of undetermined scope and quality) of former participants. All these elements are crucial for conducting rigorous scientific-based evaluation of program performance.

TABLE 3

DELAWARE PREVENTION PROGRAMS FOR TEENS

Program Designs	*Definition*	*Programs in DE*	*Required to collect data*	*Evaluation Component*	*Types of Data Collected*	*Follow-up of Clients*
Short Term	These programs generally take place in a hospital or clinic setting and have a targeted counseling component.	A Resource Center for Youth	Yes	Yes	STD data	None
		Planned Parenthood	Yes		STD data, pregnancy data	
		Volunteers for Adolescent Pregnancy Prevention				
		Support Services through Title X funds				
Abstinence Focus	Programs that implicitly or explicitly include an abstinence focus and do not provide information about contraceptives.	Ask Pat Program: Faith, Hope & Love Church				
		Smart Moves: Boys and Girls Club Delaware				
		Moral Reconation Therapy: Caanan Full Gospel				
		A Door of Hope	No	Yes	Demographic, pregnancy intention, outcome, service statistics, distribution of goods	Yes, counsel
		Professional Counseling Resources, Inc.				
Comprehensive Contraception Component	Programs that vary in the prominence and nature of the contraceptive components.	The Alliance for Adolescent Pregnancy Prevention			State data	
		A Resource Center for Youth				
		Planned Parenthood Education Department				
		Girls, Inc.	No	No	None	None
		School-based wellness center personnel				
Developmental Multi-Component	Programs that aim to reduce risky behavior.	Teen Hope				
		Delaware Adolescent Program Inc.	No	No	None	None
		Rites of Passage				
		The Office of Prevention and Early Intervention				

IV. LITERATURE REVIEW

An extensive review of the teen pregnancy prevention literature was conducted in which publications were surveyed from 2000 to 2007. The literature from this period is voluminous. The meaning of prevention programs were construed very widely to include all types of prevention programs designs inclusive of programs concerned with only sexual risk factors of teens to programs with a focus on social risk factors. These types of prevention programs were defined in section 3: Short term Interventions, Abstinence Only Comprehensive Sex Education, and Early Childhood and Youth Development programs as shown on Tables 2 and 3.

The literature review reveals three different approaches to the subject. The literature can be classified into three major groupings: (1) advocacy and information, (2) reviews, and (3) empirical research. Separate displays for each type of literature have been prepared in tabular form in which the characteristics of the class of literature are summarized.

A. *Advocacy and Information*

First, a sizeable amount of literature on teen pregnancy prevention and sexual behavior is devoted to advocacy and commentary, and the provision of information about what they consider the pertinent issues. These writings entail statements of the problem and recommendations of policy positions and/or types of social actions that are needed to address the issue. Some articles consider abstinence strategies whereby teenagers are encouraged to abstain from sexual relations in order to prevent unwanted pregnancies and out-of-wedlock births. Other authors argue for a variety of sex education approaches inclusive of contraception, and other support the provision of contraceptives. These presentations will not be appraised; the citations of the works are given with a brief description of their content in Table 4.

TABLE 4

ADVOCACY AND INFORMATION LITERATURE, 2000-2007

Article Citation	*Purpose/Findings*
Advocacy Articles	
Ahmed F. H.; et al., (2005). Reducing unintended pregnancy and unsafe abortion in Uganda. Research in Brief, New York: The Alan Guttmacher Institute, (No. 1).	The purpose of the report is to increase awareness of, and attention to, Ugandan women's reproductive health care needs.
Dailard, Cynthia; (2002). Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding. The Guttmacher Report on Public Policy.	Describes the abstinence only programs funded by Federal government and Bush's goal that abstinence only be funded equally as contraceptive use. Argues that money should be put into comprehensive programs.
Dailard, Cynthia and Turner Richardson, Chinué (2005). Teenagers' Access to Confidential Reproductive Health Services. The Guttmacher Report on Public Policy.	Public policy developments at the state and federal level suggest teenagers' access to confidential services will remain under attack in the months and years to come.
Kalmuss, Debra, et al., (2003). Preventing Sexual Risk Behaviors and Pregnancy among Teenagers: Linking Research and Programs. Perspectives on Sexual and Reproductive Health, 35(2): 87-93.	Commentary suggests ways to reduce teenage pregnancy from lit review, and suggest research on prevention to be designed to inform the development of program policy.
Kartoz, Connie R., (2004). "New Options for Teen Pregnancy Prevention". American Journal of Maternal/Child Nursing, 29(1): 30-35.	This article examines contraceptive methods currently available to adolescents and highlights newer products that may help meet some of the unique contraceptive needs of sexually active teens.
Kirby, Douglas, (2001). Understanding What Works and What Doesn't In Reducing Adolescent Sexual Risk-Taking. Family Planning Perspectives, 33(6): 276-281.	Commentary based on review in *Emerging Answers* - argues that the norms of the individuals or groups with whom adolescents are connected or with whom they interact affect adolescents' sexual behavior and that greater connectedness w/family, community leads to less sexual risk taking.
Lawlor, Debbie A. and Shaw, Mary, (2002). Too much too young? Teenage pregnancy is not a public health problem. International Journal of Epidemiology, 31: 552-554.	Argues that teenage pregnancy is not a public health problem but rather a reflection of norms. Social and economic consequences of pregnancy at any age are sources of concern.
Troccoli, K., (2006). Terms of Engagement: How to Involve Parents in Programs to Prevent Teen Pregnancy. Washington, DC: National Campaign to Prevent Teen Pregnancy.	Author states that teens who are closely connected to their parents are more likely to delay sexual activity, have lower rates of sexual activity overall, have lower rates of sexually transmitted diseases, pregnancy and childbearing; and to have higher rates of contraceptive use than their peers who are not as closely connected to their parents. Few reviews of teen pregnancy prevention programs have focused on parental involvement.
Weinberger, Daniel R.; Elvevag, Brita; and Giedd, Jay N., (2005). *The Adolescent Brain: A Work in Progress*, National Campaign to Prevent Teen Pregnancy.	Neurobiological factors should be one part of the wider universe of factors that are considered when trying to understand teen sexual behavior, decision-making and pregnancy.
Information Articles	
Alford, Sue; Leon, Jacqueline; and Sugland, Barbara W., (2004). Science Based Practices: A Guide for State Teen Pregnancy Prevention Organizations, Washington, DC: Advocates for Youth.	Provides overview of science-based practices and benefits of using in teen-pregnancy research.

Article Citation	*Purpose/Findings*
American Academy of Pediatrics, Committee on Adolescence, (2005). Adolescent pregnancy—current trends and issues. Pediatrics, 116(1): 281-286 and 516–520.	Provides current trend information on: Sexual Activity, Contraceptive Use, Trends in Adolescent Childbearing, Adolescent Parents and their Partners, Rates of Unmarred childbearing, Unintended Versus Intended Pregnancy, Comparison with International Statistics, Medical Risks of Adolescent Pregnancy, Psychosocial Complications of Adolescent Pregnancy, Children of Adolescent Parents, Adolescent Pregnancy Prevention, Clinical Considerations for the Pediatrician.
Cassell, Carol; et al., (2005). Mobilizing communities: An overview of the Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. Journal of Adolescent Health 37: S3–S10.	Community Coalition Partnership Programs for the Prevention of Teen Pregnancy (CCPP): Descriptive overview of the program origins, intentions, and efforts over its planning and implementation phases, including specific program requirements, needs and assets assessments, intervention focus, CDC support for evaluation efforts, implementation challenges, and ideas for translation and dissemination.
Greenberg, Mark, et al. (2003). Enhancing School-Based Prevention and Youth Development Through Coordinated Social, Emotional, and Academic Learning. American Psychologist, 58(6/7): 466–474.	Growing research shows that school-based prevention and youth development programming can positively influence social, health, and academic outcomes.
Guttmacher Institute, (2006). Contraception Counts: Ranking State Efforts; In Brief, No. 1.	Using national and state databases provides state numbers for: Pregnancies, Births, Abortions, Need for Publicly Supported Family Planning Services, Availability of Publicly Supported Family Planning Services, Family Planning Laws and Policies, Public Funding for Family Planning Services.
Kegler, Michelle; et al., (2003). An Asset-based youth development model for preventing teen pregnancy: illustrations from the HEART of OKC project. Health Education, 103(3): 131-144.	Healthy, empowered and responsible teens of Oklahoma City (HEART of OKC): Describes the CDC funded demonstration project for teen pregnancy prevention based on positive youth development approach. Specifically describes the needs and assessments and development phase of this project.
Nicoletti, Angela, (2004). Perspectives on Pediatric and Adolescent Gynecology from the Allied Health Professional: Teen Pregnancy Prevention Issues. Journal of Pediatric Adolescents Gynecology, 17: 155–156.	Description/Summary of Kirby's Emerging Answers.
Sherrow, Genevieve, et al., (2003). Man2Man: A Promising Approach to Addressing the Sexual and Reproductive Health Needs of Young Men. Perspectives on Sexual and Reproductive Health, 35(5): 215-219.	Man2Man program; Philadelphia; Description of scope of program, lessons learned from focus groups and cost estimation.
Stahler, Gerald Jay and DuCette, Joseph P, (1991). Evaluating Adolescent Pregnancy Programs: Rethinking Our Priorities. Family Planning Perspectives, 23(3): 129-133.	Describes the "ideal" impact evaluation design; barriers to impact evaluations and recommended strategies.

B. *Reviews*

A second class of literature is comprised of review articles. These works provide appraisal and/or description of researched-based efficacy studies of abstinence only, comprehensive sex education, and youth development programs. These writings have been published in professional journals, books and book chapters, reports, and monographs. Generally the purposes of these works are to convey to an audience (government decision-makers, program implementers, and potential participants – teens --- and their interested parties – parents) what programs work so that "successful" programs can be adopted.

These reviews describe the types of prevention programs and present findings by researchers who have evaluated the performance of various programs. The focus of the reviews is on how well the prevention programs achieve its stated outcomes, i.e., efficacy. The authors reviewed a number of studies together. That is, these separate reviews, in fact, describe the results of several research-based studies of prevention programs in one review article.

Each author utilized their own evaluation criteria to include an empirical study of a program in their review. These evaluation criteria varied slightly among review authors, but generally the criteria required the reviewed empirical studies to apply principles of scientifically rigorous research-based methodologies to an efficacy evaluation. The components of appropriate researched–based analysis are discussed in the section on Efficacy Evaluations.

The reviews are presented in the Appendix Table 1 according to each review author. Immediately below, Table 5 is presented that shows a different perspective. The reviewers (author) are cross-classified with the separate prevention program that was

originally evaluated empirically for efficacy. As Table 5 shows (on the horizontal axis), most reviews were undertaken between 2000 and 2004. However, most of the researched-based studies (shown along the first column) were undertaken in the 1980s and 1990s, with about 10% in early 2000s. The shaded areas with notation signify that the evaluated program was judged to be efficacious with the notation showing the positive outcome(s) that yielded the efficacy. Comments about the authors' findings are postponed until the section below on "Efficacy Evaluations" in which original empirical research on the efficacy of prevention programs from 2000 to 2007 will be considered.

TABLE 5

REVIEWS OF PREVENTION PROGRAMS - AN EFFICACY PERSPECTIVE

Program	Author(s)	Results of Review[1]
	Abstinence Programs	
Abstinence By Choice 1990s	Kirby, (2002)	No impact
Family Accountability Communicating Teen Sexuality (FACTS) 1998	Kirby, (2002)	No impact
Healthy for Life	Manlove 1,(2004); Manlove 2, (2004)	No impact
Human Sexuality-Values and Choices 1987	PASHA[2]	Reduced pregnancy
Making A Difference: Safer Sex 1998	Kirby, (2001); Manlove 1, (2004); CDC, (2002)	Delayed sexual initiation and increased condom use
McMaster Teen Program	DiCenso, (2002); Manlove 2, (2004)	No impact
Operation Keepsake	Kirby, (2002)	No impact
Project Taking Charge 1991 1993	Kirby, (2002); PASHA[2]	Kirby does not list any impact, PASHA lists decrease in pregnancy
Sex Can Wait 1990s	Marsiglio, (2006)	No impact
Sex Respect	Kirby, (2002); Manlove 2, (2004)	No impact
Taking Charge 1990s	Marsiglio, (2006)	No impact
Teen Aid	Kirby, (2002); Manlove 2, (2004)	No impact
Values and Choices	Kirby, (2002); Manlove 2, (2004)	No impact
Virginity Pledge Programs	Kirby, (2002); Collins, (2002)	No impact
	Comprehensive Programs	
A Clinic-Based AIDS Education Program for Female Adolescents, 1990 1992	PASHA[2]	Enhanced STD/HIV/ AIDS Prevention, increased condom use
Adolescents Living Safely, 1991	Alford, (2003); PASHA[2]	Decreased frequency in sex and number of sex partners, increased condom use, PASHA: Enhanced STD/HIV/ AIDS Prevention
AIDS Prevention and Health Promotion among Women, 1993	PASHA[2]	Enhanced STD/HIV/ AIDS Prevention
AIDS Prevention for Adolescents in School, 1993	Alford, (2003); PASHA[2]	Alford: decreased number of sex partners and increased condom use; Alford and PASHA: enhanced STD/HIV/AIDS Prevention
Aids Risk Reduction Education and Skills Training (ARREST), 1993	PASHA[2]	Enhanced STD/HIV/ AIDS Prevention
ASSESS for Adolescent Risk Reduction, 1999	PASHA[2]	Enhanced STD/HIV/ AIDS Prevention
Be Proud! Be Responsible, 1992	Alford, (2003); Leah, (2004); Manlove, (2003); Collins, (2002); CDC, (2002)	Decreased frequency of sex and # of partners, increased condom use

Program	Author(s)	Results of Review[1]
Becoming a Responsible Teen, 1995	Alford, (2003); Kirby, (2001); Leah, (2004); Manlove, (2003); Manlove, (2004); Collins, (2002); CDC, (2002)	Delay of sexual initiation, decreased frequency of sex, increased condom and contraception use
California's Adolescent Sibling Pregnancy Prevention Project, 2003	Alford, (2003) and Kirby, (2001)	Delay of sexual initiation, reduced pregnancy, increased contraception use
Children's Aid Society's Carerra Program, 1990s	Alford, (2003); Kirby, (2001); Manlove, (2003); Manlove 2, (2004); Marsigilio, (2006)	Delay of sexual initiation, increase condom and contraception use, reduced pregnancy
Client Centred Model, 1990 1992	DiCenso, (2002)	No impact
Conservation and Youth Services Corps, 1997	Kirby, (2001)	No impact
Draw the Line; Respect the Line, 2000	Manlove 1, (2004); Manlove 2, (2004); PASHA[2]; Marsigilio, (2006)	Delay of sexual initiation, decreased frequency of sex. PASHA also lists: decreased STD/HIV/AIDs and reduced pregnancy
Facts & Feelings	Leah, (2004); Manlove 2, (2004)	No impact
Focus on Kids, 1997	Leah, (2004); Manlove, (2003); Manlove 1, (2004); PASHA[2]; CDC, (2002)	Increased condom use. PASHA also lists: decreased pregnancy and STD/HIV/AIDS
Get Real About Aids, 1994	Alford, (2003); PASHA[2]; CDC, (2002)	Alford and CDC: Decrease in number of sex partners and increased condom use, PASHA also lists: decrease in STD/HIV/AIDS
Health Care Program for First Time Adolescent Mothers and their Infants, 1992	PASHA[2]	Decrease in repeat pregnancies
Healthy Oakland Teens	Manlove 2, (2004); Collins, (2002)	Collins lists delay in sexual initiation; however, Manlove does not list a positive outcome for this program
Information-Motivation-Behavioral Skills HIV Prevention Program (IMB Program), 2002	PASHA[2]	Enhanced STD/HIV/ AIDS Prevention
Making A Difference: Abstinence Approach, 1998	Kirby, (2001); Leah, (2004); Manlove, (2003); Manlove 1, (2004); Manlove 2, (2004)	Delayed sexual initiation and increased condom use, Leah does not list a positive outcome for this program
Making Proud Choices, 1998	Alford, (2003); Leah, (2004); Manlove, (2003); CDC, (2002)	Decreased frequency of sex and increased condom use. Alford also lists delay of sexual initiation
Not Me, Not Now	Kirby, (2002)	No impact
Nurse-client transactional intervention	DiCenso, (2002)	No impact
Peer Counseling	DiCenso, (2002)	No impact
Peer Power Project	DiCenso, (2002)	Increased contraception use, reduced pregnancy
Poder Latino, 1993 1994	Alford, (2003); Manlove 2, (2004); PASHA[2]	Alford and Manlove list delay of sexual initiation and reduced number of partners; PASHA lists STD/HIV/AIDS prevention.

Program	Author(s)	Results of Review[1]
Postponing Sexual Involvement, 1990, 1993	Alford, (2003); DiCenso, (2002); Kirby, (2002); Leah, (2004); Manlove, (2003); Manlove 1, (2004); Manlove 2, (2004); Marsigilio, (2006)	Alford and Marsigilio are the only reviewers that list efficacy. Alford: delayed sexual initiation, reduced frequency of sex, and increased contraception use. Marsigilio: delayed sexual initiation.
Postponing Sexual involvement, Human Sexuality, 2000	Alford, (2003); Manlove 1, (2004); Manlove 2, (2004)	Delayed sexual initiation and increased contraception use
Project SNAPP	DiCenso, (2002); Leah, (2004); Manlove 1, (2004); Manlove 2, (2004)	No impact
Protection Express Program, 1990	Marsiglio, (2006)	Increased condom use
Queens Hospital Center's Teenage Program, 1991	PASHA[2]	Reduced repeat pregnancies
Reach for Health Community Youth Service, 1999 2002	Alford, (2003); Kirby, (2001); Leah, (2004); Manlove 1, (2004); Manlove 2, (2004); PASHA[2]; Marsiglio, (2006)	Alford, Manlove: Delayed sexual initiation and frequency of sex. Kirby: Reduced pregnancy; PASHA: reduced pregnancy, increased contraception use, decreased STD/HIV/AIDs. Leah does not list positive outcomes
Reducing the Risk, 1991, 1998	Alford, (2003); Kirby, (2001); Leah, (2004); Manlove 2, (2004); PASHA[2]; Collins, (2002); Marsiglio, (2006); CDC, (2002)	Delayed sexual initiation, increased contraception use. PASHA also lists decreased STD/HIV/AIDS and pregnancy
Rochester Aids Prevention Program (RAPP), 1990s	Manlove 2, (2004); Marsiglio, (2006)	Delayed sexual initiation
Safer Choices 1999, 2000, 2001, 2001	Alford, (2003); DiCenso,(2002); Kirby, (2001); Leah, (2004); Manlove 2, (2004); PASHA[2]; Collins, (2002); CDC, (2002)	Increased contraception use, delayed sexual initiation. PASHA also lists decreased STD/HIV/AIDS and pregnancy
School/Community Program for Sexual Risk Reduction among Teens, 1987, 1994, 1999	Alford, (2003); PASHA[2]; Marsiglio, (2006)	Alford: Delayed initiation of sex, increased condom use, reduced pregnancy. PASHA: reduced pregnancy, Marsiglio: delayed sexual initiation
Self Center (School Linked Reproductive Health Center), 1984, 1986, 1988, 1995	Alford, (2003); PASHA[2]; Marsiglio, (2006)	Delayed initiation of sex, increased contraception, reduced pregnancy
Self Efficacy Training	Kirby, (2001)	No impact
SiHLE: Health Workshops for Young Black Women	PASHA[2]	STD/HIV/AIDS Prevention, increased condom use, decrease in # of partners
Tailoring Family Planning Services to the Special Needs of Adolescents: New Adolescent Approach Protocols, 1991	PASHA[2]	Reduced pregnancy
Teen Incentive Project	DiCenso, (2002); Leah, (2004)	Leah: decrease in frequency of sexual intercourse, increased contraception use. DiCenso doesn't list any positive outcomes

Program	Author(s)	Results of Review[1]
Teen Outreach Program (TOP) 1990, 1997, 2001	Alford, (2003); DiCenso, (2002); Kirby, (2001); Leah, (2004); Manlove, (2003); Marsiglio, (2006)	Reduced pregnancy
Teen Talk Program, 1987, 1990, 1992	DiCenso, (2002); Leah, (2004); Manlove, (2003); Manlove 2, (2004); Marsiglio, (2006)	DiCenso and Leah do not list any positive outcomes. Manlove: delayed sexual initiation, increased contraception use, reduced pregnancy. Marsiglio: delayed sexual initiation and increased condom use in males
Washington State: Client-Centered Pregnancy Prevention Program	Manlove, (2003); Manlove 2, (2004)	Decreased frequency of sex, increased contraception use
What Could You Do?	PASHA[2]	STD/HIV/AIDS Prevention
Youth Aids Prevention Program, 1995	Leah, (2004); Manlove 1, (2004); Manlove 2, (2004); PASHA[2]	Leah: increased contraception use, Manlove: decreased frequency of sex and increased condom use; PASHA: STD/HIV/AIDS Prevention
Developmental Programs		
Abecedarian Project, 2002	Alford, (2003); Kirby, (2001)	Reduced pregnancy
Job Corps	Kirby, (2001)	No impact
JOBSTART	Kirby, (2001)	No impact
Learn and Service America	Manlove, (2003)	Reduced pregnancy
Quantum Opportunities Program, 1994 1995	Manlove, (2003) and PASHA[2]	Reduced pregnancy
Seattle Social Development Project, 1999, 2003	Alford, (2003); Kirby, (2001); Manlove 2, (2004); Marsiglio, (2006)	Alford, Manlove and Marsiglio: Delayed initiation of sex, decreased number of partners, increased condom use, reduced pregnancy. Kirby: reduced pregnancy
Summer Training and Education Program (STEP)	DiCenso, (2002)	No impact
Working on the Right Direction	Leah, (2004)	No impact

[1]Shaded cells indicate that reviewers felt evaluations showed some positive impact.
[2]The Program Archive on Sexuality, Health & Adolescence, http://www.socio.com/pasha.htm. This website is maintained by Sociometrics who state that programs have been reviewed by a Scientific Expert Panel for inclusion on this list. Sociometrics makes these programs available for purchase.

C. Research – Based Studies.

The third class of literature is empirical studies in which researched-based evidence is brought to bear regarding teen sexual behavior and teen pregnancy prevention programs. Three types of empirical studies that can be delineated based upon the purpose of the research. First, numerous studies have been concerned with the determinants (causes) of teen sexual behavior and their consequences in order to make recommendations for prevention activities. A second group of studies, denoted here as evaluations, have been conducted very recently to scientifically evaluate the efficacy of prevention programs**.** A third group of empirical studies, entails scientific evaluation of different prevention programs concerned with the social welfare gains and losses to society due to teen pregnancy and the efforts and resources used for prevention programs. The three different researched-based perspectives are surveyed below.

1. Determinants and Impact Studies

A number of empirical analyses have been conducted to explore the socio- economic factors that influence teen sexual behavior and/or what factors account for various results regarding teen pregnancy and sexual behavior. As shown on Table 6, most of these studies utilize national data sets to explore the socio-economic determinants of sexual behavior impacts. Others studies use "original" collected data from surveys. In most studies, advanced statistical techniques are employed to test hypotheses. The focus is on the following impacts (dependent variable): contraceptive use, pregnancy prevalence, sexual abuse, out-of-wedlock births, birth control methods and pregnancy outcomes, pregnancy rates, and parenting behavior and choices. In general, the research purpose of many of these studies is to assess how societal forces and/or the social, economic and demographic characteristics of individuals influence their sexual behavior and their sexual behavioral outcomes, and to utilize the findings for policy recommendations,

especially for prevention program designs. The issues and considered impacts of the studies are very diverse and individualistic in their research objectives. Consequently the content of the Table 6, especially the columns “Evaluation Outcome (dependent variable)” and “Purpose/Findings”, provide a concise summary of the results of these studies.

TABLE 6

DETERMINANTS AND IMPACTS STUDIES 2000-2007

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Bankole A; et al., (2006). Unwanted Pregnancy and Induced Abortion in Nigeria: Causes and Consequences, New York: Guttmacher Institute.	Original database-Community-based survey cross-sectional survey. Hospital-based survey.	Abortion.	Education level Wealth Factors.		Unwanted pregnancy is common in Nigeria, for a number of reasons. Induced abortion is widespread, and its practice takes many forms. Unsafe abortions often put women's life and health in jeopardy. Action on many fronts is needed to reduce levels of unwanted pregnancy and unsafe abortion in Nigeria.
Bruckner, Hanna; Martin, Anne, and Bearman, Peter S., (2004). Ambivalence and Pregnancy: Adolescents' Attitudes, Contraceptive Use and Pregnancy. Perspectives on Sexual and Productive Health, 36(6): 248-257.	National database-National Longitudinal Study of Adolescent Health - first 2 waves.	Contraceptive consistency and pregnancy.	Attitudes towards pregnancy, age, race, ethnicity, maternal education, income, family structure, closeness with mother, religiosity, risk status, self-esteem, length of sexual career, number of sexual partners, prior pregnancy, attitudes toward contraception.	Bi-variate and multi-variate analysis.	Authors state that pregnancy prevention program should give out information about pregnancy and opportunities to discuss pregnancy so the adolescents can form opinions. Positive attitudes towards contraception should be emphasized. Effective contraception is impacted by such attitudes.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Chervin, Doryn D.; et al., (2005). Community capacity building in CDC's Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. Journal of Adolescent Health 37: S11–S19.	Original database - multi-component post-test-only evaluation administered through In-person interviews (N=364) with a sample of CCPP project staff, evaluators, and community and agency members from each of the 13 CCPP communities.				Centers for Disease Control and Prevention's Community Coalition Partnership Program (CCPP): To describe lessons learned about building a community's capacity to prevent teen pregnancy through strengthening of partnerships, mobilization of community resources, and changes in the number and quality of community programs. Authors found that increased partner skills, program improvements, and new programs did not appear to be sufficient to affect community capacity
Corcoran, Jacqueline; Franklin, Cynthia, and Bennett, Patricia, (2000). Ecological factors associated with adolescent pregnancy and parenting. Social Work Research, 24(1): 29-39.	Original database- convenience sample of 105 teenagers attending pregnancy prevention programs in southwestern United States.	Pregnant and parenting, and non pregnant and non parenting	Gender, race, religion, family structure, present living situation, age group, grade level, income, mothers occupation, fathers occupation, McMaster Family Assessment Device questions, problems with alcohol, problems with drugs, depression, self-esteem, and personal stress	Logistic regression analysis, Hosmer and Lemeshow goodness-of-fitstatistic	The central purpose of this research was to discover, using Bronfenbrenner's conceptual framework of an ecological systems model, the combination of factors that successfully predicted pregnancy and parenting status. Of the 62 non pregnant or nonparenting subjects, 53 (85.5 percent) were correctly classified. Of the 43 pregnant or parenting subjects, 33 (7 6.7 percent) were correctly classified. Overall, 86 of the 105 participants (82 percent) were correctly classified with the final prediction model.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Crosby, Richard and Holtgrave, David R. (2006). The protective value of social capital against teen pregnancy: a state-level analysis. Journal of Adolescent Health, 38: 556–559.	National/State database-state-level teen pregnancy rates for 1999 - Alan Guttmacher Institute, poverty - U.S. Census Bureau; income equality - ratio of mean income for the top earning 1/5 families to the bottom 1/5 from U.S. Census Bureau.	State-level rates of pregnancy for girls 15 – 19 years old.	Social capital (Putnam's social capital index dealing w/supportive interaction in community), income inequality, poverty.	Regression, correlation analysis.	To investigate whether social capital may explain differences in teen pregnancy rates in the contiguous United States. This research suggest that social capital may explain differences between states with respect to teen pregnancy rates and indicate further research in this area.
Darroch, J.; Frost, J.; Singh, S.; and The Study Team, (2001). Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made? Alan Guttmacher Institute, Occasional Report No. 3.	National Database-part of The Alan Guttmacher Institute's (AGI) cross-national study. Teenage Sexual and Reproductive Behavior in Developed Countries.	Pregnancy.	Population, size and density, and political, economic and social perspectives and structures.		The focus of this executive summary is on what the United States can learn from the other countries; many of the insights gained may also be useful to them. The findings suggest that improving adolescents' prospects for successful adult lives and giving them tangible reasons to view the teenage years as a time to prepare for adult roles rather than to become parents are likely to have a greater impact on their behavior than exhortative messages that it is wrong to start childbearing early.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Darroch, Jacqueline E; Landry, David J.; and Singh, Susheela, (2000). Changing Emphases in Sexuality Education in U.S. Public Secondary 1988-1999. Family Planning Perspectives, 32(5): 204-211 and 265.	Nationally representative survey of 3,754 teachers in grades 7-12 who are often responsible for sex ed, subset of 1,767 teachers who taught sex ed - 1999. Results compared w/similar survey performed in 1988.	Sex education topics taught: abstinence, birth control, abortion, sexual identity, condom use, STDs, peer pressure.	Grade.	Trend analysis, comparison of means.	Goal of study was to assess the status of sexual education teachings in school in 1999 compared to 1988. Authors found that sex ed was more focused in 1999 on abstinence and less on comprehensive matters (such as birth control) and teachers feel that students aren't receiving information that they need.
Finer, L. and Henshaw, S., (2006). Disparities in Rates of Unintended Pregnancy In the United States, 1994 and 2001. Perspectives on Sexual and Reproductive Health, 38(2): 90–96.	National database- National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics (NCHS).	Intensity of Pregnancies, Pregnancy Outcomes, Contraceptive Use.	Intenseness for the entire population of women aged 15 - 44 and for subgroups of women by age, relationship status, income, education, and race and ethnicity.	Exploratory tabulations.	Of the 6.4 million pregnancies in the United States in 2001, 4.0 million resulted in births, 1.3 million in abortions and 1.1 million in fetal losses. The proportions of pregnancies that were intended (51%) and unintended (49%) were almost identical. Of the 3.1 million unintended pregnancies, 44% ended in births, 42% in abortions and 14% in fetal losses; theses accounted for 22%, 20% and 7% of all pregnancies, respectively. Of the 3.3 million intended pregnancies, 80% (representing 41% of all pregnancies) resulted in births; the remainder resulted in fetal losses.
Gallagher, Kaia M.; Stanley, Amie; Shearer, Darlene; and Mosca, Ceilia, (2005). Implementation of youth development programs: promise and challenges. Journal of Adolescent Health, 37: S61–S68.				Surveyed 28 site representatives by telephone.	Community Coalition Partnership Program for the Prevention of Teen Pregnancy 13 youth development projects: Description of scope of efforts, the content of the projects, and expected outcomes.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Goodson, Patricia; et al., (2006). Is Abstinence Education Theory Based? The Underlying Logic of Abstinence Education Programs in Texas. Health Education & Behavior, 33(2): 252-271.	Original database - Authors examined the logic underlying 16 abstinence-only-until-marriage programs in Texas during 2001 and 2002), interviewed 62 program directors and instructors.			Case study methodology, frequency distribution.	Authors studied abstinence-only-until-marriage programs in this Texas sample. Most of the programs (except 2) were not based on scientific theories of adolescent development or behavior change theories. Despite that, authors suggest that program staff members are able to explain how their programs lead to abstinence.
Huang, Chien-Chung, (2005). Pregnancy Intention from Men's Perspectives: Does Child Support Enforcement Matter? Perspectives on Sexual and Reproductive Health, September, 37(3): 119–124.	National – National Longitudinal Survey of Youth 1982–2002 waves.	Wanted or unwanted pregnancy.	Child support enforcement index (summative rating of standardized scores from variables measuring numbers of state child support legislation, amount of expenditure on enforcementper case and degree of implementation performance), age, race, education, employment status, religion, number of siblings, family structureat age 14, whether a foreign language was spoken in the home during childhood, mean local unemployment rateand the state's maximum welfare benefit (in 2001 dollars).	Multinomial logit analysis.	Strengthening child support enforcement may have a positive impact on preventing unwanted pregnancies.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Hussain, R.; Bankole, A.; Singh, S.; and Wulf, D., (2005). Reducing Unintended Pregnancy in Nigeria. The Alan Guttmacher Institute.	Original and National databases - Federal Office of Statistics, Nigeria, and IRD/Macro International, United States. Second survey was conductedby the National Population Commission, Nigeria, and ORCMacro.	This report compares the childbearing aspirations of Nigerian women with their actual experience. It focuses on the high level of mistimed and unwanted births occurring in Nigeria as a result of low levels of contraceptive.	Gender, education level, married, unmarried, sexual activity, age, contraceptive usage among married and unmarried women, family planning discussions, adultery.	Stratified, two-stage cluster design.	Authors state that there is a widespread lack of knowledge about contraceptive methods and where to obtain them; disapproval of family planning by many; women's perceptions about the side effects associated with modern contraceptive methods; and stigma that restricts women's access to contraceptive services.
Jacoby, Mark; et al., (1999). Rapid Repeat Pregnancy and Experiences of Interpersonal Violence Among Low-Income Adolescents. American Journal of Preventative Medicine16(4): 318-334.	Original database - Case-control study using retrospective chart review - 100 women aged 13 – 21 who received prenatal care at one independent nonprofit health center that serves adolescents and their children from June 1994 through June 1996.	Number and timing of pregnancies, occurrence of physical or sexual abuse; other psychosocial risk factors.	Race, income level, marital status.	Chi-square, t-test, analysis of variance, and Mann-Whitney U tests.	The experience of interpersonal violence is correlated with rapid repeat pregnancy among low-income adolescents. Authors state that the study strongly suggests a need for extensive screening for partner and family violence among pregnant and postpartum adolescents, and follow-up safety planning support in combination with family planning interventions.
Johnson, Kirk A. and Robert Rector, (2004). Adolescents Who Take Virginity Pledges Have Lower Rates of Out-of-wedlock births, Washington, DC: Heritage Foundation.	National Longitudinal Study of Adolescent Health (Add Health) 2001	Out-of-wedlockbirths.	Socioeconomic status, race, religiosity, and school performance, religiosity, self esteem index.	Multivariate logistic regression.	Virginity Pledge: Authors state that adolescent girls that had taken pledge 40% less likely to have a child out of wed-lock.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Kapinus, Carolyn A. and Gorman, Bridget K, (2004). Closeness with Parents and Perceived Consequences of Pregnancy Among Male and Female Adolescents. The Sociological Quarterly, 45(4): 691-717.	1994-1995 National Longitudinal Study of Adolescent Health, American adolescents in grades 7 - 12 (aged 12 to 18) from 134 middle and high schools.	Continuous measure of perceived consequences of pregnancy.	Two constructed measures of how close adolescents feel to their parents, family type, gender of teen, time spent w/parent(s), parental control, parental education aspirations for child, sexual experience, parent income, parent education, attachment to school, drug use, birth order, race/ethnicity, native-born.	Weighted means, OLS regression.	Authors state that their research shows that adolescents' attitudes towards pregnancy consequences are strongly impacted by parental messages about educational aspirations, teen sexual activity, and contraceptive use.
Kramer, Jane; et al., (2005). Coalition models: Lessons learned from the CDC's Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. Journal of Adolescent Health 37: S20–S30.	Original database - interviews w/staff, coalition, members; coalition member survey.				To describe the models created by the 13 communities in the Centers for Disease Control and Prevention's Community Coalition Partnership Program (CCPP), and the relationship between key organizational features of the coalitions and the perception by coalition members of interim and community-wide outcomes. The authors found that despite members' high ratings, by the end of the funding period most coalitions were no longer functioning.
McNulty, Molly, (2003). Adolescent Health Spending and Measures in State Title V Maternal and Child Health Programs. Journal of Public Health Management Practices, 9(4): 326-337.	State database - states' applications and annual reports required by Congress to ensure accountability for use of Federal Title V MCH block grant funds.	Performance measures required by federal govt. The measure for pregnancy prevention was: birthrate for 15-17 yr olds.		Qualitative textual analysis and analysis of funds.	Funds earmarked for primary preventative care ranged from a high of 77% (DE) to a low of 0% (AZ, DC and KY). Half of states have state negotiated funds to prevent teen pregnancy and unprotected sex among teens.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Rickert, Vaughn; et al., (2007). Depo Now: Preventing Unintended Pregnancies among Adolescents and Young Adults. Journal of Adolescent Health, 40: 22–28.	Original database- prospective, non-blinded, randomized trial in Manhattan with sexually active 14 - 26 year olds. N=333.	Unintentional pregnancy, satisfaction with birth control method.	Age, race, education, reproductive history.	Chi-square tests, logistic regression analysis.	To determine the effectiveness of the Quick Start approach to DMPA initiation vs. the bridge method.
Rosengard, Cynthia; et al., (2006). Concepts of the Advantages and Disadvantages of Teenage Childbearing Among Pregnant Adolescents: A Qualitative Analysis. Pediatrics, 118(2): 503-510.	Original database- qualitative survey of 247 pregnant adolescents during first pre-natal visit, Rhode Island (convenience sample).	Advantages and disadvantages of adolescent pregnancy.	Age, ethnicity, intention of current pregnancy, and pregnancy/parenting history.	Comparison of percentages and means.	As pregnant adolescents are not the same, differences in pregnancy and childbearing along developmental, cultural, attitudinal, and experiential lines should be taken into consideration when creating pregnancy-prevention messages.
Russell, Stephen T and Lee, Faye, (2004). Practitioners' Perspectives on Effective Practices for Hispanic Teenage Pregnancy Prevention. Perspectives on Sexual and Reproductive Health, 36(4): 142-149.	Original database- Individual interviews of 58 pregnancy prevention practitioners who work primarily w/Mexican American female teenagers in California.			Qualitative methods.	Summary of practitioners' interviews: Knowledge of Hispanic culture essential. Activities that encourage educational and career achievements as critical. Involvement of male partners and family important.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Santelli, J.; Morrow, B.; Anderson, J. and Duberstein Lindberg, L., (2006). Contraceptive Use and Pregnancy Risk Among U.S. High School Students, 1991 - 2003. Perspectives on Sexual and Reproductive Health, 38(2): 106-111.	National database- National Youth Risk Behavior Survey (YRBS), which is conducted by the Centers for Disease Control and Prevention (CDC).	Teenagers' contraceptive use.	Types of contraceptives used, withdrawal, no method.	The survey uses a three stage, clustered sample and over samples minority youth to produce national estimates for high school students. The sample is limited to youth who are enrolled in school and present on the day of the survey. Changes in pregnancy risk were assessed using weighted least-squares regression.	Authors state that data suggest that the improved use of contraceptives and the declining risk of pregnancy among high school students cannot be explained by increases in use of any single contraceptive method but is more a result of complex set of changes in use of methods, including greater use.
Santelli, John S.; et al., (2007). Explaining Recent Declines in Adolescent Pregnancy in the United States: The Contribution of Abstinence and Improved Contraceptive Use. American Journal of Public Health, 97(1): 150-156.	National Survey of Family Growth, 1995 (N=1396) and 2002 (N=1150).	Adolescent pregnancy rates.	Contraceptive use, age, race/ethnicity.	Bootstrapping procedure to calculate confidence intervals for percentage changes.	Research finds that declining pregnancy rates primarily impacted by improved contraceptive use.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Santelli, John S.; et al., (2004). Can Changes in Sexual Behaviors Among High School Students Explain the Decline in Teen Pregnancy Rates in the 1990s? Journal of Adolescent Health, 35: 80–90.	National data base-National Youth Risk Behavior Survey; National Survey of Family Growth; National Vital Statistics.	Decline in estimated pregnancy rate over time.	Caucasian, African-American, Hispanic, Ever had sex, contraceptive use, type of contraceptive.	Weighted least squares regression (SUDAAN).	Use of school-based behavior data reflects well the pregnancy experience for school-age black and Hispanic adolescents, but does not track well with the pregnancy risk of white adolescents. Care should be taken in attributing changes in pregnancy rates to changes in behavior, given broad confidence intervals around these estimates.
Shearer, Darlene L.; et al., (2005). Selecting, implementing, and evaluating teen pregnancy prevention interventions: Lessons from the CDC's Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. Journal of Adolescent Health 37: S42–S52.	Original from surveys, interviews, N=30.	Decision-making processes and barriers.	Type of intervention, type of hub agency.	Descriptive analysis, contingency tables, chi square.	Five categories of interventions: reproductive health services, reproductive health education, parent-child communication, male involvement, and programs for pregnant and parenting teens. Summaries 13 communities' experiences with teen pregnancy prevention interventions (selecting, implementing, and evaluating) within the CDC Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. The study findings were that the actions of coalition depend a lot on the make up of the coalition.
Sieving, Renee; Eisenberg; Marla E; Pettingell, Sandra and Skay, Carol, (2006). Friends' Influence on Adolescents' First Sexual Intercourse. Perspectives on Sexual and Reproductive Health, 38(1): 13-19.	National database-National Longitudinal Study of Adolescent Health (Add Health).	Vaginal Intercourse.	Gender, family structure and romantic relationships, youth's friends who were sexually experienced, friendship variables.	Logistic regression analysis.	Authors state that the higher the proportion of a youth's friends who were sexually experienced, the greater the odds of sexual debut.

Research Studies					
Article Citation	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Statistical Method*	*Purpose/Findings*
Tabi, Marian M., (2002). Community perspective on a model to reduce teenage pregnancy. Journal of Advanced Nursing, 40(3): 275–284.	Original database-convenience purposive sample of 43 African American teens and adults. Data was collected through demographic questionnaires, structured individual and focus group interviews.			Qualitative study.	The purpose was to validate community members' perspective on teen pregnancy prevention with elements of an educational-career youth developmental model (ECYDM) to reduce teenage pregnancy among African American teens in two inner city urban communities.
Zavodny, Madeline, (2001). The Effect of Partners' Characteristics on Teenage Pregnancy and Its Resolution. Family Planning Perspectives, 33(5):192-199, and 205.	National database-1995 National Survey of Family Growth.	Non-marital pregnancy; pregnancy outcome.	Race, religious affiliation, frequency of church attendance, mother's employment, mother's education, 2 parent family, partner's race, partner's religious affiliation, partner's mean years of education at first intercourse, importance of religion to partner, women older or younger than partner, woman and partner same religion.	Descriptive statistics, logistic and OLS regression.	Authors state that the characteristics of teenage females and their partners appear to play a role in nonmarital teenage pregnancy and its outcome. However, the estimated relationships between one partner's characteristics and the probability of a non-marital pregnancy and its resolution are little affected by whether the other partner's characteristics are also taken into account.

2. Efficacy Evaluations

A second set of empirical studies has been focused on efficacy. Many researchers in the area do not use the term of efficacy, rather they use effectiveness for the determination of the performance of prevention programs. As a concept, effectiveness indicates the extent to which a prevention program achieves its stated direct goals or outcomes. Efficacy is substituted for effectiveness, since effectiveness is used for assessment of outcomes with respect to the impact of program costs on the achievement of objectives. This distinction is drawn from the literature on cost—benefit analysis (CBA). This methodology entails economic evaluation of program performance which is discussed below.

Like the cited works in Table 6, the efficacy evaluations that are presented in Table 7 are research-based studies that have been published in peer reviewed journal or professional sources since 2000. (A more detailed version of the studies since 2000 is given in Appendix Table 2.) That is, the empirical studies have employed scientific research principles to conduct the analysis. Scientific rigor for evaluation entails and requires the following principles and procedures.

First, the outcomes of the prevention programs should be delineated. There must be specific measurements of variables that represent the expected quantitative measured outcome(s) of the intervention. However, the outcomes specified for different prevention programs would vary according to the purpose of the prevention program. For example, the outcomes of abstinence only programs would be concerned with activities involving the rates of abstaining from sexual behavior and enhancement of resistance to engagement in sexual activities. For comprehensive sex education programs, outcomes would entail measurement of rates of STIs, safe sex, and reduction in risky sexual activities.

Second, an evaluation should apply a research design that allows the outcomes to be attributed validly to the prevention intervention. The most valid approach would be to apply an experimental design, in which teen respondents would be randomized into either a treatment group or a control (or comparison) group so that the two groups would be matched by social, economic, and demographic factors. The former would receive the (dosage of) the intervention and the latter would not. A secondary approach would be a quasi-experimental design when random assignment cannot occur –e.g., school grades—but the treatment and control groups are closely matched or statistical methods are used to control for differences between the groups.

Third, the sample size of the two groups should be large enough to permit assessment of statistical significance of the intervention and its outcomes. (This is referred to as having effect size.) Statistical techniques should be applied to confirm or refute statistical significance. Fourth, there should be a sufficient follow-up period after the intervention. This length of time should allow the determination of whether the intervention has longer-term and lasting impacts.

The studies shown on Tables 6 and 7 illustrate the results of pertaining to the efficacy appraisal of the prevention programs. However, several general observations on the findings will be drawn.

a. Prior to 2000, rigorously evaluated abstinence only programs (presented in Table 5) did not confirm the achievement of efficacy. That is, the evaluation did not yield any statistically significant effects.
b. The abstinence programs evaluated prior to 2000 are not representative of abstinence only programs implemented after 2002, most of which are funded by the federal government (National Campaign to Prevent Teen Pregnancy, 2005; Kirby 2001 & 2002).

c. A major recent study of four abstinence-only programs located in four different geographical areas in the US conducted by Trenholm, et al., 2007 of Mathematica, Inc. (shown on Table 7) was not supportive of abstinence only programs. The study evaluated attitudes, knowledge, and behavior over a four to six years follow-up. The findings reveal that there were no statistical significance between control and treatment groups with respect to (a) abstentions from sex, (b) the number of partners for those individuals who had sex, (c) the initiation of sex at the same age, and (d) engagement in unprotected sex.

d. The evaluation of youth development programs before and after 2000 manifest inconsistent results across program. Some programs showed no contribution to efficacy, while others had mixed findings, i.e., some gains to the treatment group and no differences between them for some outcomes within an evaluation.

e. The most efficacious prevention programs are comprehensive sex education ones. Efficacy gains have been verified for a considerable proportion of these types of programs.

There are some caveats to be offered due to the researched–based findings.

a. Programs for which the evaluations have attributed efficacy should be replicated in order to assess the transferability of the interventions.

b. Additional analysis of the positively evaluated programs should be undertaken to encompass a longer time frame for a follow-up of participants. Little is known about the intensity and the longevity of the impacts of the intervention dosages that occur overtime. Ideally, the time period that should be studied

should follow participants from the time they received their intervention until they become 20 years old.

c. A judgment cannot be readily made about which program or programs are more efficacious for two reasons. First, prevention programs have many different goals and especially outcomes. Second, even where the expected outcomes are the same, the empirical results are dissimilar even for similar interventions.

d. The diversity of outcomes and their affirmation for concluding efficacy would not allow confirmation of which programs are the most functional for society. That is, it is unclear what program(s) would offer the most gain to society that would make their adoption worthwhile for purpose of adoption as public policy. This issue is addressed in the next section on empirical studies that have utilized cost benefit analysis approach.

TABLE 7

SUMMARY OF EVALUATION ARTICLES, PUBLISHED 2000-2007

Program	*Evaluation Author*	*Results of Analysis*
	Abstinence Only	
Abstinence Only Program	Blake, (2001)	Lower intensions to become sexually active, greater self-efficacy to refuse sex
Families United to Prevent Teen Pregnancy (FUPTP)	Trenholm, (2007)	No impact
My Choice, My Future!	Trenholm, (2007)	No impact
Recapturing the Vision	Trenholm, (2007)	No impact
Teens in Control	Trenholm, (2007)	No impact
Teen Pregnancy Prevention Program	Monahan, (2002)	Increased intentions to become sexually active, increased ability to refuse sex
	Comprehensive	
Adolescent oriented maternity program	Steven-Simons, (2001)	Lower level of teenage pregnancy
California's Adolescent Sibling Pregnancy Prevention Project	East, (2003)	Lower level of teenage pregnancy and pregnancy-related risks
Childrens Aid Society's Carerra Program	Philliber, (2001), and Philliber, (2002)	Lower level of teenage pregnancy, increased contraception use, decreased sexually active
Client Centred Model	McBride, (2000)	Little or no impact
Focus on Kids	Wu, (2003)	Increased condom use
Healthy for Life	Piper, (2000)	No impact
In Your Care	Didion, (2004)	Increased intention to delay childbearing, belief that cost of pregnancy negative
Postponing Sexual involvement, Human Sexuality	Aarons, (2000)	Increased virginity for females, contraceptive knowledge for males, and contraceptive use
Reach for Health Community Youth Service	O'Donnell, (2002)	Increase of delay of sexual initiation
Safer Choices	Basen-Engquist, (2001) and Coyle, (2001)	Increased condom use
Seattle Social Development Project	Lonczak, (2002)	Decreased number of sex partners and pregnancy, increased condom use, decreased STDs and onset of sexual intercourse
	Developmental	
Teen Outreach Program (TOP)	Allen, (2001)	Lower level of teenage pregnancy
Abecedarian Project	Campbell, (2002)	Lower level of teenage pregnancy
Escuelitas	Méndez-Negrete, (2006)	Weak results
Postponing Sexual Involvement Program (PSIP)	Yampolskaya, (2004)	Academic and career related outcomes impacted positively
Youth Asset Development Program (YADP)	Yampolskaya, (2004)	Academic and career related outcomes impacted positively

3. Cost Benefit Analysis Studies

The studies cited above have had a focus primarily on efficacy of prevention programs. Very recently, however, researchers have indicated that efficacy may be inadequate to assess what programs are effective from a societal perspective. These researchers have adopted the methodology of Cost Benefit Analysis (CBA) to evaluate various dimensions of the teen pregnancy problem and teen sexual behavior. Four recent studies that have employed CBA are summarized on Table 8.

CBA is a policy evaluation framework. It determines whether a policy alternative (prevention program intervention) would generate or has generated improvement in the welfare of society. This societal welfare gain is determined by an assessment of whether the costs of an intervention are less than the value of the benefits that the intervention produces. The costs are the opportunity costs which include the financial outlays for the intervention and the monetary value of any social harm that the intervention causes. The benefits are a monetary measure of the effectiveness (efficacy) of the intervention. Put differently, the benefits are merely the monetary values assigned to the positive outcomes that result from (or are expected of) the prevention program. Where benefits exceed costs for publicly funded programs (interventions), the value gained for society is greater than the cost incurred for program implementation, and thus the program(s) should be undertaken, or continued. If the benefits are less than the costs, then the program should not be supported, since societal value (welfare gains) to citizens is not as large as the costs they have to pay to implement the program.

There are two major CBAs that have been applied to the issues of teen pregnancy and teen sexual behavior: (a) Hoffman's determination of the social costs of teen pregnancy (2006), and appraisal of seven prevention programs by Aos and his colleagues, (Aos; et al., 2004).

TABLE 8

COST BENEFIT ANALYSES 2000-2007

Cost Benefit Analyses				
Article Citation	*Type of Prevention/ Intervention*	*Database name/description:*	*Evaluation Outcome (dependent variable)*	*Purpose/Findings*
Aos, Steve; et al., (2004). Benefits and Costs of Prevention and Early Intervention Programs for Youth, Washington State Institute for Public Policy.	Teen pregnancy prevention programs included: (1) Teen Outreach Program, (2) Reducing the Risk, (3) Postponing Sexual Involvement, (4) Teen Talk, (5) School-Based Clinics for pregnancy prevention, (6) Adolescent Sibling Pregnancy Prevention Project and (7) Children's Aid Society-Carrera Project.	Evaluations that have scientific evidence that intervention successful on one of the seven outcomes.	Reduce crime, lower substance abuse, improve educational outcomes, decrease teen pregnancy, reduce teen suicide attempts, lower child abuse or neglect, and reduce domestic violence.	Authors wanted to find out if those teen programs with a positive impact were also cost beneficial. Only one teen pregnancy prevention program (TOP) had a positive benefit.
Hoffman, S., (2006). By the Numbers: The Public Costs of Teen Childbearing. Washington, DC: National Campaign to Prevent Teen Pregnancy.	NONE	A large range of sources that facilitate the measurement of benefits.	Numerous monetary measures of negative social impacts that when reduced can produce societal cost savings and thus benefits.	The report provides updated estimates and cost benefit methodology of the public sector costs of teen childbearing in 2004. Costs by state are provided.
Vlassoff; et al.; (2004). Assessing Costs and Benefits of Sexual and Reproductive Health Interventions. The Alan Guttmacher Institute, Occasional Report No. 11.				Authors review the methodology of cost benefit analysis applied to medical interventions. They argue that a more comprehensive approach in the methodology needs to be developed.
Wang, L.; Davis, M.; Robin, L.; Collins, J.; Coyle, K.; and Baumler, E., (2000). Economic Evaluation of Safer Choices, a school-based human immunodeficiency virus, other sexually transmitted diseases, and pregnancy prevention program. Archives of Pediatrics and Adolescent Medicine, 154: 1017-1024.	Safer Choices.	Cost-effectiveness and cost-benefit of an implementation of Safer Choices.		Authors state that although important that the program was shown to be effective in reducing number of STDs and pregnancy and increasing condom use, the cost of the program should be taken into consideration. Taking into account medical costs of pregnancy and STDs, cost of condoms, program implementation costs, the cost of the program for the implementation they were examining, \$2.65 in medical and social costs was saved. Authors warn that cost and cost savings may differ in other settings.

A. *Hoffman's Social Costs Estimates*

Hoffman (2006) is concerned with only with the estimation of the benefits of reducing teen pregnancy in the US. To estimate the benefits, a cost saving (or cost avoidance) approach was undertaken. The basic argument is that society can save financial resources by postponing (reducing) the first birth of a teen of 19 and younger compared to the age 20 - 21 years. More specifically, Hoffman determined the costs of teen childbearing by comparing the costs of pregnancy at age 17 or younger and first birth at age 19 and younger with the social costs that incurred with first birth at age 20 - 21. The initial assumption, which proved correct, is the latter group imposed less financial resource cost to societal members in the form of government programs.

In general, the costs avoided are the resources saved that would have been spent on governmental activities (programs) to deal with the social harms that teen pregnancies and births impose on societal members. That is, financial savings occur because government would expend fewer resources on welfare, health and criminal justice programs that cost societal members since they must pay taxes in order for governments to provide services to deal with the negative impacts of the pregnancies. As a result of saving resources, society would obtain benefits by avoiding the need to spend taxpayers' money.

Hoffman determined the cost savings of teen childbearing for the following activities: (a) health and medical care of children, (b) welfare services of children, (c) loss of income and sale tax revenue because of less earnings by mothers, father, children, (d) incarceration of sons of teen mothers, (e) public assistance for mothers: TANF, Food Stamps, Housing. Most costs are associated with children of teen mothers. The analysis provides three basic estimates: (1) the cost of teen childbearing to taxpayers is at least

$9.1 billion annually in 2004; (2) this total translates to $1,430 average annual cost for a child born to teen mothers; and (3) between 1991 and 2004, the 6,776,230 births to teens in US cumulative public costs $161 billion, but the 33% decline in the teen birth rate during this period yielded increasing annual cost savings with $6.7 million gained by taxpayers in 2004.

One conclusion of the analysis is that timing of the birth makes the real difference. If pregnancy were delayed to 20 - 21 years old, lower social costs would be incurred, and gains to society would be realized. The estimates were conservative since not all costs to the public sector were measured. However, if pregnancies were delayed to the ages of 20 - 21, mothers and fathers would earn more and pay more taxes, and less housing assistance would be required, but there would be some offsets in the use of more public assistance in the form of welfare payments and food stamps. These offsets suggest that other risks factors, aside from sexual ones, are important determinants of social harms. One major implication of the Hoffman work is that substantial gains in cost savings on public services could be realized if prevention program interventions (valued implicitly $1,400 per pregnancy reduced) were effective. However, an appropriate intervention would be, in terms of CBA, only where costs of a program were less than the monetary value of the achieved level of effectiveness, viz., benefits. Hoffman did not consider the impact of interventions and their costs on the amount of benefits that would be generated. However, Aos (2003) did so, as described below.

B. Aos' Evaluations

Aos and his colleagues (2003) have recently conducted a very important evaluation study that contributes significantly to the knowledge about the effectiveness of teen pregnancy prevention programs. The rigorous evaluation of several important teen pregnancy prevention programs were part of a more comprehensive evaluation of

prevention and early intervention programs for youth. The study was conducted by the Washington State Institute for Public Policy under the request of the State of Washington Legislature. The evaluation included seven comprehensive sex education programs: (1) Teen Outreach Program, (2) Reducing the Risk Program, (3) Postponing Sexual Involvement Program, (4) Teen Talk, (5) School-Based Clinics for Pregnancy Prevention, (6) Adolescent Sibling Pregnancy Prevention Project, and (7) Children's Aid Society-Carrera Project.

The programs were selected for a CBA evaluation by examining the scientific research literature on the programs to determine whether there is "credible" evidence on whether the programs worked, i.e., they manifest efficacy. This meant that a program had scientific evidence from at least one rigorous scientific research-based evaluation that measures the outcomes of teen pregnancy reduction and sexual behavior. The programs also must have had the capability of replication. Also, the evaluations must have had well-constructed comparison group that were randomly assigned (experimental design) or non-experimentally assigned (quasi-experimental design) if the evidence indicated that the treatment group and the control group were comparable. After this screening, the studies were assessed to determine whether the programs had scientifically acceptable effect sizes, i.e., the determination that the treatment and the control groups had sample sizes sufficient to affirm statistically significant differences in outcomes between the groups.

The estimation of the program costs was conservative. The costs of the programs were the financial costs to implement the intervention, and were obtained from the program sponsors. The benefits of each program were specified for an array of positive outcomes that were produced by the program intervention. The range of outcomes from which benefits were measured are: (1) crime, (2) high school graduation, (3) test scores,

(4) education, (5) public assistance, (6) child welfare, and (7) child abuse and neglect, (8) teen births under 18, and (9) alcohol, drugs and tobacco use. Thus, estimates were provided for three perspectives: program participants, non participants as taxpayers, and non-participants in other non-taxpayer roles.

The results that the CBA yielded are presented on Table 9. What the findings show is that only one prevention program generates benefits greater than costs. That is, only one program produces social welfare that exceeds the financial costs that are incurred to implement the interventions. As Aos concludes, government decision makers should not undertake the other six programs because the gain in effectiveness is less in value to societal members than the financial costs that must be paid to conduct the programs.

Table 9

Cost Benefit Estimates of Seven Prevention Programs (Per Person)

Teen Pregnancy Prevention Programs	*Benefits*	*Costs*	*Benefits per Dollar Costs*	*Benefits Minus Costs*
Teen Outreach Program	$801	$620	$1.29	**$181**
Reducing the Risk Program	$0	$13	$0.00	**-$13**
Postponing Sexual Involvement Program	-$45	$9	-$5.07	**-$54**
Teen Talk	$0	$81	$0.00	**-$81**
School-Based Clinics for Pregnancy Prevention	$0	$805	$0.00	**-$805**
Adolescent Sibling Pregnancy Prevention Project	$709	$3,350	$0.21	**-$2,641**
Children's Aid Society-Carrera Project	$2,409	$11,501	$0.21	**-$9,093**

Source: Aos, S.; Lieb, R.; Mayfield, J.; M. Miller, M.; A. Pennucci, (2004). Benefits and Costs of Prevention and Early Intervention Programs for Youth. Olympia: Washington State Institute for Public Policy, available at <http://www.wsipp.wa.gov/rptfiles/04-07 901.pdf>.

V. DATA APPRAISAL

Data pertaining to teen pregnancy, its prevention, and teen sexual behavior permit the assessment of three areas of inquiry. They are: (a) research of the determinants of teen sexual activities, practices, and status, (b) the monitoring of teen sexual activities and status, and (c) the evaluation of interventions directed at teen pregnancy prevention and mitigation of negative sexual behavior by teens. The data for these purposes are not mutually exclusive. That is, the same data and data sets can be employed for two or more purposes.

Data is available to conduct analyses regarding the social, economic, and demographic factors associated with sexual actions or negative outcomes of sexual behavior by teens. The data sets permit analysis over time to see if shifts in behavior and outcomes have occurred. The issues can be examined both at the national level and at the state level. The following data sets are continually updated and currently available.

The National Center for Health Statistics of the CDC has made the "National Health and Nutrition Examination Survey, NHANES" available since 1999. (See Table 10). The survey is conducted on the basis of two year increments. The data files comprises variables on sexual encounters, birth control, history of sexual disease, preterm births, pregnancies, contraception (birth control pill use and condom use), and births. With the data compiled in a public use file, investigation can be undertaken to assess the bases of such sexually-related outcomes.

The Youth Risk Behavior Survey (YRBS) is conducted annually in the schools of Delaware (as well as in other states). (See Table 11). The data is available in tabular form. It is also available in disaggregated units by survey respondents (students) so that statistical analysis could be conducted to assess the impact of students' social, economic and demographic characteristics on considerable number of their sexual activities.

Two older data sets that allow determinant studies are available, but the survey is no longer conducted. Both of these surveys (see Tables 12 and 13) are rich in the dimensions of teen sexual behavior. They could yield important historical analyses for comparison to current situations.

The National Survey of Family Growth compiled by the National Center for Health Statistics of the CDC (See Table 12) offers cross-section data at a number of different time periods until 1995. The data provide a vast array of sexual behavioral outcomes, pregnancy, birth, infant and child rearing practices along with many social, economic and demographic variables that would be suitable as independent variables for specifying and testing statistical models of teen sexual outcome.

The National Maternal and Infant Health Survey (MNIHS) Public-Use Data File of 1988, compiled by the National Center for Health Statistics of the CDC, also has an extensive array of teen sexual behavior outcomes: births, fetal deaths, and infant deaths together with social and demographics that could be used as explanatory factors of the outcomes. (See Table 13).

Several currently available data sets would allow monitoring of outcomes of teen sexual behavior. One could prepare profiles on the outcomes of teen sexual behavior.

The Guttmacher Institute compiles the "US Teenage Pregnancy Statistics – National and State Trends by Race and Ethnicity" data set that has been published since 1986, (see Table 14). The data permits tracking over time of such outcomes as pregnancy rates, birth rates, abortions rates, miscarriage, and still births. These outcomes are presented for race, residency, and age of teens both nationally and at the state level.

A very similar data set is prepared by Delaware Division of Public Health. The Delaware Vital Statistics—Annual Report provides estimates of the number of live births,

fetal deaths, induced terminations, pregnancies by age and race, and places of residence. (See Table 15).

The continually updated data sets described above do provide data for monitoring the status and change in some dimensions of teen sexual behavior. And given their collection of socio-economic variables, they can be utilized for determinant studies. However, these data sets are more limited in scope than the (defunct) National Survey of Family Growth and the National Maternal and Infant Health Survey. Initiating these surveys at the national level and by the State of Delaware would provide greater capability to track changes in more types of very relevant sexual behaviors of teens, and would gather considerable more extensive set of independent variable which could contribute to further explanation of teen sexual activities and status.

As with the YRBS on Table 11, the supply of outcome variables that are presented on Table 16 would be useful for monitoring of teen sexual behaviors. These outcomes could manifest decline and could be found to be associated with a number of objective factors verified by determinant studies. However, these determinant studies would not be able to conclude whether prevention programs contribute to the improvement in teen sexual behavior. A major way in which to ascertain the contributions of prevention interventions would be to conduct efficacy evaluation studies with rigorous research-based scientific methodology. However, this effort alone may be inadequate. As Aos findings suggest, cost benefit analysis needs to be undertaken in tandem with efficacy evaluations to confirm whether the efficacy produced by a prevention program does produce gains greater than the program cost. This view is not a rejection of prevention programs but rather a statement that programs should be implemented only if it realizes a gain in welfare to society, i.e., the costs to the taxpayers is less than the benefits to societal members inclusive of the children subject to the intervention.

TABLE 10

CDC National Center for Health Statistics,
National Health and Nutrition Examination Survey
http://www.cdc.gov/nchs/nhanes.htm

Description: Since 1999, NHANES has been conducted as a continuous survey. Public use data files are released in 2 year increments (e.g. NHANES 1999-2000, NHANES 2001-2002, NHANES 2003-2004, etc.) Adolescent data on alcohol use, smoking, sexual behavior, reproductive health and drug use are available as a public release file due to confidentiality concerns *Adolescent data files containing this information will be made available at the* ***NCHS Research Data Center****.*

Sample Size:
1999-2000, 9,965
2001-2002, 11,039
2003-2004, 10,122

Data – selected variables for teen pregnancy

Ever had sex (sexual behavior questionnaire)
Age of first sexual encounter (sexual behavior questionnaire)
Number of sexual partners lifetime (sexual behavior questionnaire)
Number of sexual partners last 12 months (sexual behavior questionnaire)
Number of sexual partners last 30 days (sexual behavior questionnaire)
Use of a condom (sexual behavior questionnaire)
History of sexual diseases (sexual behavior questionnaire)
Ever been pregnant (reproductive questionnaire)
Number of pregnancies (reproductive questionnaire)
Number of pregnancies resulting in a live birth (reproductive questionnaire)
Age at first live birth (reproductive questionnaire)
Birth weight (reproductive questionnaire)
Preterm births (reproductive questionnaire)
Birth control pill use (reproductive questionnaire)
Age of starting birth control pill use (reproductive questionnaire)
Depo-Provera or injectables to prevent pregnancy (reproductive questionnaire)
WIC benefits last 12 months (reproductive questionnaire)

TABLE 11

Youth Risk Behavior Survey (YRBS) – Annual

http://www.udel.edu/delawaredata/Reports.htm
Public high school students, self-administered, anonymous questionnaire
Data presented by age, gender
Forced sexual intercourse
Ever had sexual intercourse
Age of first sexual intercourse
Number of sexual partners, lifetime
Number of sexual partners, last 3 months
Use of alcohol/drugs before sexual intercourse
Use of condom
Contraception use
Gender of sexual partner
Oral sex experience
Sexual transmitted disease
Who would you talk to about sex issues
Number of pregnancies (females)
Number of times partners were pregnant (male)

TABLE 12

CDC, National Center for Health Statistics
National Survey of Family Growth
http://www.cdc.gov/nchs/products/elec_prods/subject/nsfg.htm
http://www.cdc.gov/nchs/about/major/nsfg/nsfgback.htm

Description: One of the major sources of data for many studies/articles on teen pregnancy. Cross-sectional data at different periods (not continuous) and includes some panel data.

Cycles 1-5:
Surveys of Women: 1973-1995: The NSFG was conducted by NCHS in 1973, 1976, 1982, 1988, and 1995. These surveys were based on personal interviews conducted in the homes of a national sample of women 15-44 years of age in the civilian, noninstitutionalized population of the United States. The main purpose of the 1973-1995 surveys was to provide reliable national data on marriage, divorce, contraception, infertility, and the health of women and infants in the United States.

Data:

Respondent file (1995)	**Respondent file (1973, 1976, 1982, 1988, and 1990 reinterview)**
Childhood/young adult living arrangement history Work history Education history Menarche Number of pregnancies Adoption Other children raised Complete marriage & cohabitation history Sexual partner history for last 5 years Sterilization operations Fecundity impairment Contraceptive history Month-by-month method calendar for 1991-95 Use of family planning and other medical services Birth expectations Use of infertility services PID (pelvic inflammatory disease) & other conditions affecting fertility HIV (human immunodeficiency virus) testing Self-reported race Religion Income Health insurance Work shifts Child care Audio-Computer Assisted Self Interview:* Abortions* Number of sexual partners* HIV risk behaviors* Interviewer characteristics Selected variables from 1993 National Health Interview Survey (NHIS) Contextual data* * = Omitted or restricted-use items, not on Public Use Files. Available by application. **Interval (pregnancy) file (1995)** Pregnancy outcomes Prenatal care: Timing and source of payment Breastfeeding Contraceptive use in the pregnancy interval and wantedness of the pregnancy Selected respondent characteristics (for example, race/ethnicity, age)	Marital status Date of birth of: Respondent Husband Date of present marriage Dates previous marriages began and ended and reasons for dissolutions Current pregnancy status Number of pregnancies and births Number of husband's children Number of adopted children Contraceptive method used each month in the 3 years before interview Fecundity and infertility Number of additional births intended Timing of expected births Preferences for number and sex of children Provider of and mode of payment for prenatal care Hospitalization of infant and mother after birth Use of family planning services (source, services received, number of visits) Race observed by interviewer Self-reported race Living with parents in childhood Ethnicity, respondent and husband Educational attainment, respondent and husband Years of education in religious schools (1973, 1976, and 1988 only) Education at time of marriage, respondent and husband Husband's age at marriage (single years) Work for pay before marriage and in intervals between and after births Child care (detail varies) Occupation: 3-digit census categories, respondent and husband Religion Attendance at religious services Employment status, respondent and husband Amount and sources of income earned in last 12 months by respondent, husband, and other family members Interview date 1982 and 1988 only: Age at first intercourse

Interval (pregnancy) file (1973-1990) Open interval Months with no intercourse Contraceptives used Dates began and stopped contraception Regularity of contraception Current contraceptive practice Pregnancy intervals ending in 3 years before interview Number of intervals Order of interval Months without intercourse Contraceptives used Dates began and stopped contraception Regularity of contraception Date interval ended by pregnancy Pregnancy intervals ending in birth Order of interval Date of birth Sex of child Birth weight (pounds, ounces) If deceased, date of child's death Date child last lived with respondent if living Number of months child breastfed All pregnancy intervals Order of interval Contraception in interval Termination of contraceptive for pregnancy Desire for another baby Husband's desire for another baby Desire for pregnancy at that time Husband's desire for pregnancy at that time Date pregnancy ended Outcome of pregnancy	First contraceptive method ever used Duration of oral contraceptive use, brands used, reasons for stopping use (1982 only) Sex education by parents and schools

TABLE 13

CDC, National Center for Health Statistics
1988 National Maternal and Infant Health Survey (NMIHS) Public-Use Data File
http://www.cdc.gov/nchs/products/elec_prods/subject/mihs.htm

The 1988 NMIHS data CD-ROM can only be obtained from NCHS. A 1991 follow up is also available. Data can only be merged at NCHS Data Research Center.

Description: The National Maternal and Infant Health Survey (NMIHS) vital records are linked with data from mothers' questionnaires. The 1988 NMIHS is the successor to earlier NCHS National Natality and Mortality Followback Surveys. The NMIHS data file consists of three independent national files, containing samples respectively, of live births, fetal deaths, and infant deaths occurring in 1988. Each mother named on the vital records for those events was mailed a 35-page mother's questionnaire. Questionnaires were also sent to physicians, hospitals, and other medical care providers associated with these outcomes.

Data – selected variables for teen pregnancy

Mother's Questionnaire
Mother's response status
Any prenatal care visits
Total number of prenatal care visits
Number of weeks pregnant when pregnancy was confirmed
What kind of place gave her prenatal care
Barriers to prenatal care
Use of birth control
Wantedness of this pregnancy
Expect to have more children
Number of additional children expected
Complete pregnancy history (live births, stillbirths, miscarriages, abortions)
Date each pregnancy ended
If live birth, still living or now dead
If deceased, date of death
Number of times married
Date of marriage, status of marriage, and date widowed, divorced, or separated
Mother's educational level
Total family annual income (20 categories)
Mother's racial background
Home pregnancy test use
Prenatal child birth classes
People who lived with mother during pregnancy

Birth certificate file
Data year (1988)
Metropolitan/nonmetropolitan counties
Age of:
- Father (single years, age 10-49)
- Mother (single years, age 10-49)

Apgar scores, 1 and 5 minutes
Father (single years, 0-17)
Mother (single years, 0-17)
Gestation period (single weeks, 17-52)
Hispanic origin of mother and father
Interval in months:
Since last live birth
Since termination of last pregnancy
Live-birth order
Marital status
Month/year:
- Of last fetal death
- Of last live birth

Month of pregnancy prenatal care began
Outcome of last pregnancy
Nativity of mother
Number of prenatal visits
Place of delivery
Plurality
Race of:
- Child (9 categories)
- Father (10 categories)
- Mother (10 categories)

Sex of child
Total birth order

Infant death certificate file
Data year (1988)
Metropolitan/nonmetropolitan counties
Age at death (hours/days)[1]
Date of death[1]
Race (9 categories)
Sex
Underlying cause of death[2]
Each cause
Whether autopsy performed
Hospital and status of decedent
Place of accident
Multiple conditions

Report of fetal death file
Data year (1988)
Metropolitan/nonmetropolitan counties
Age of:
Mother (single years, age 10-49)
Father (single years, ages 10 and over)
Education of:
Mother (single years, 0-17)
Father (single years, 0-17)
Gestation period (single weeks, 17-52)
Live-birth order
Marital status
Month of pregnancy prenatal care began
Number of prenatal visits
Place of delivery
Plurality
Race of:
Fetus (9 categories)
Mother (10 categories)
Father (10 categories)
Sex of fetus
Weight of fetus
Total birth order

TABLE 14

NATIONAL AND STATE TEEN PREGNANCY DATA SETS
Guttmacher Institute, www.guttmacher.org
US Teenage Pregnancy Statistics – National and State Trends and Trends by Race and Ethnicity, Guttmacher Institute, Updated September 2006

Description: Compilation of teenage pregnancy stats from different sources some of which are Guttmacher Institute survey data.

Data:

1. Pregnancy rate, birthrate, abortion rate, abortion ratio 1986 - 2002, age 15 - 19, by race (white, nonwhite, black) and ethnicity (Hispanic).
2. Rates of birth, abortion, pregnancy; numbers of births, abortions, miscarriages, pregnancies, population, 1972 - 2003, ages 15 - 19, 15 - 17, 18 - 19, 14 or younger, younger than 20, 20 - 24.
3. Ranking by rates of pregnancy, birth, abortion and actual rates, 15 - 19, by state and age group, 2000.
4. Number of pregnancies, births, abortions, miscarriages, stillbirths, younger than 20, by age group and state, 2000.
5. Rates of pregnancy, birth, abortion, age 15 - 19, by state, 1986, 1992, 1996, 2000.
6. Rates, birth, abortion, age 15 - 19, by state, by race (nonhispanic white, black, hispanic), 2000.
7. Population estimates, age 15 - 19 by age group and race(non-hispanic white, black, hispanic).
8. Numbers of pregnancies, births, abortions, miscarriages, stillbirths, ages 15 - 19, by race (non-hispanic white, black, hispanic).

Source of National Data: National Center for Health Statistics (NCHS) of the U.S. Department of Health and Human Services (number of births); the Guttmacher Institute (total number of abortions); the U.S. Centers for Disease Control and Prevention (age distribution of women obtaining abortions); and the U.S. Bureau of the Census (population estimates).

Source of State Data: The annual numbers of abortions in each state for 1987, 1988, 1991, 1992, 1995, 1996, 1999 and 2000 were calculated from survey data that the Guttmacher Institute collected from all known abortion providers. Data for other years were interpolated from the Guttmacher Institute numbers, after adjustment for annual trends based on state health department data compiled by the Centers for Disease Control and Prevention. The numbers of teenage abortions by state of residence were calculated from the number of abortions performed in each state for women of all ages (residents and nonresidents), were estimated from the Guttmacher Institute provider surveys. Abortions were assigned to the woman's state of residence on the basis of information provided by state abortion reporting agencies. In 2000, for six states where complete residence-based information was unavailable, a sample of abortion facilities information about the state in which women obtaining abortions said they lived. To estimate the number of nonresidents who had abortions in each state, the percentage was applied of the distribution of women having abortions, by state of residence, to the count of the total number of abortions that took place in each state. Of the state residents having abortions, the proportion who were aged 15 – 17 and 18 – 19 and members of the various racial and ethnic groups were taken from state health department reports. For states with no information on the age of women having abortions in 2000, the proportion of abortions obtained by teenagers was estimated by using several measures, including the national distribution, the distribution from neighboring or nearby and demographically similar states, and historical distributions from the state.

TABLE 15

Delaware Division Of Public Health
Delaware Vital Statistics-Annual Report
http://www.dhss.delaware.gov/dhss/dph/hp/2003.html

Description: Delaware annual vital statistics report based on birth and death records, hospital discharge records.

Data – selected variables for teen pregnancy

Age brackets: <15, 15 - 19, 15 - 17, and 18 - 19
Number of reported pregnancies by age and county, 2003, 2002
Number of live births by age and county, 2003, 2002
Number of fetal deaths by age and county, 2003, 2002
Number of induced terminations by age and county, 2003, 2002
Number of reported pregnancies by age and race, 2003, 2002
Number of live births by age and race, 2003, 2002
Number of fetal deaths by age and race, 2003, 2002
Number of induced terminations by age and race, 2003, 2002
Five year average rate of reported pregnancies by age and race, 1999-2003, 1998-2002
Number of induced terminations of pregnancy by place of residence, age, marital status and race, 2002
Number of induced terminations of pregnancy by place of residence, age, marital status, and Hispanic origin, 2002
Number of induced terminations of pregnancy by place of residence, education, and age of woman
Number of induced terminations of pregnancy by place of residence, weeks of gestation, and age, 2003
Number of induced terminations of pregnancy by place of residence, age, and number of previous pregnancies, 2003
Number of induced terminations of pregnancy by place of residence, age, and number of previous induced terminations, 2003

Table 16

Monitoring Variables		
Variables	**Abstinence**	**Comprehensive**
Dependent Variables		
Pregnancy, #	X	X
Abstinence	X	X
Delayed sexual initiation	X	X
Intention not to have sex	X	X
Number of STDs		X
Condom Usage		X
Contraception Usage		X
Independent Variables		
Academic grades	X	X
Age	X	X
Age at sexual initiation	X	X
Clinic visits, #		X
Condom usage		X
Contraception choice		X
Employment	X	X
Ethnicity	X	X
Family receives public assistance	X	X
Father's education	X	X
Father's employment status	X	X
Gender	X	X
Grade in school	X	X
Involvement in problem behaviors (drugs/alcohol)	X	X
Living arrangements	X	X
Mother's age at first birth	X	X
Mother's education	X	X
Mother's employment status	X	X
Other children in family	X	X
Parent-child communication measurement	X	X
Parents' marital status	X	X
Poverty status	X	X
Presence of father figure	X	X
Presence of mother figure	X	X
Prior pregnancy	X	X
Prior suspensions	X	X
Race	X	X
Religiosity	X	X
Sexually active	X	X
Siblings dropped out of school	X	X
Site	X	X
STDs history	X	X
STDs knowledge		X
Television viewing	X	X
Unmarried pregnant older sister	X	X
Urban vs. suburban	X	X

VI. APPENDIX

APPENDIX TABLE 1

REVIEWS OF PREVENTION PROGRAM EVALUATIONS 2000-2007

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Alford, S.; et al., (2003). SCIENCE AND SUCCESS: Sex Education and Other Programs That Work to Prevent Teen Pregnancy, HIV and Sexually Transmitted Infections, Washington, DC: Advocates for Youth.	(1) Reducing the Risk, (2) Postponing Sexual Involvement, (3) Postponing Sexual Involvement, Human Sexuality, (4) Safer Choices, (5) Reach for Health Community Youth Service, (6) AIDS Prevention for Adolescents in School, (7) Get Real About Aids, (8) School/Community Program for Sexual Risk Reduction Among Teens, (9) Self Center, (10) Adolescent Sibling Pregnancy Prevention Project, (11) Adolescents Living Safely, (12) Becoming a Responsible Teen, (13) Carerra Program, (14) Be Proud! Be Responsible!, (15) Making Proud Choices!, (16) Poder Latino, (17) Seattle Social Development Project, (18) Abecedarian Project, (19) Teen Outreach Program.	Postponement/delay of sexual initiation, reduction in frequency, reduction in number of partners, increase in use of contraception methods, reduction in unprotected sex, decrease in number of pregnancies.	Rural vs. urban, age, average per capita income.	Reviews evaluations that were published in peer-reviewed journals, used an experimental or quasi-experimental evaluation design, included at least 100 teenagers. The 19 evaluations divided into 3 groups: school based; community based and other school based. Twelve programs show significant delay in first-time sex, eight programs show decrease in pregnancy.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Bennett, S. and Assefi, N., (2005). School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials. Journal of Adolescent Health, 36: 72–81.	Compare secondary school based abstinence only programs to abstinence Plus (contraceptive) programs. Interventions include: (1) Family Life Education, (2) Healthy for Life, (3) Managing the Pressures before Marriage, (4) Postponing Sexual Involvement, (5) Project SNAPP, (6) Project Taking Charge, (7) Reach for Health Community Youth Service, (8) Safer Choices, (9) Teen Incentive Project, (10) Youth Aids Prevention Project.	Sexual behavior, contraceptive knowledge, contraceptive use, and pregnancy rates.	Not listed.	Review of published randomized controlled trials of secondary-school-based teen pregnancy prevention programs in the U.S. that used sexual behavior, contraceptive knowledge, contraceptive use, and pregnancy rates as outcomes in order to compare abstinence only programs to abstinence Plus (contraceptive) programs. Couldn't say whether abstinence-only or abstinence-plus programs will prove more effective at altering teens' sexual behavior. Said none of evaluations proved they impacted pregnancy rates; only one program asked about pregnancy rates before and after. Authors thought prohibiting contraceptive education in school-based pregnancy prevention programs prevents students' exposure to information that has the greatest potential to decrease the pregnancy rate.
Collins, C.; Alagiri, P. and Summers, T., (2002). Abstinence Only vs. Comprehensive Sex Education: What are the arguments? What is the evidence? AIDS Research Institute, University of California, San Francisco, Policy Monograph Series.	(1) Healthy Oakland Teens, (2) Virginity Pledges, (3) Safer Choices, (4) Reducing the Risk, (5) Becoming a Responsible Teen, (6) Be Proud! Be Responsible.	Delay of sex, contraception use, frequency of sex.	N/A	A review of research shows abstinence-only programs not affective while comprehensive prevention programs show positive impact on outcomes such as condom use, number of partners, and sexual initiation.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Collins, J.; et al., (2002). Programs-that-Work: CDC's Guide to Effective Programs that Reduce Health-Risk Behavior of Youth. Journal of School Health, 72(3): 93-99.	CDC's "Programs-That-Work" (PTW): (1) Be Proud, Be Responsible, (2) Becoming a Responsible Teen, (3) Focus on Kids, (4) Get Real About Aids, (5) Making a Difference, (6) Making Proud Choices, (7) Reducing the Risk, (8) Safer Choices	Frequency of unprotected sex, frequency of condom use, initiation of intercourse, frequency of intercourse.	Not listed	CDC has identified 8 programs to reduce STDs, HIV, and unintended pregnancy. Article reviews criteria for inclusion and describes programs goals and outcomes. Author discusses constraints of CDC's PTW program: CDC only accepts 2 new programs a year; CDC programs tend to be tested in a specific area -- needs to have replication studies.
DiCenso, A.; Guyatt, G.; William, A.; and Griffith, L., (2002). Primary Care: Interventions to reduce unintended pregnancies among adolescents: systematic review of randomized controlled trials. BMJ (British Medical Journal), 324: 1-9.	Reviews 26 studies with interventions and randomized controlled trials that include (1) Client Centered Model, (2) McMaster Teen Program, (3) Nurse-client transactional intervention, (4) Peer Counseling, (5) Peer Power Project, (6) Postponing Sexual Involvement, (7) Project SNAPP, (8) Safer Choices, (9) Self efficacy training, (10) Summer Training and Education Program (STEP), (11) Teen Incentive Project, (12) Teen Outreach Program, (13) Teen Talk Program.	Pregnancy, use of birth control, intercourse.	Not listed	Reviews the effectiveness of primary prevention strategies aimed at delaying sexual intercourse, improving use of birth control, and reducing incidence of unintended pregnancy in adolescents. Meta-analyses showed no reduction in pregnancies, in fact, 5 studies showed that programs may increase pregnancies.
Guyatt, Gordon H., et al., (2000). Randomized trials versus observational studies in adolescent pregnancy prevention. Journal of Clinical Epidemiology 53: 167–174.	Randomized trials (13) and observational studies (17) of interventions to prevent adolescent pregnancy.	Sexual intercourse, birth control use, responsible sexual behavior, or pregnancy in adolescents.	Randomized vs. observational.	Authors estimated the impact of these trials and found that randomized trials yield greater estimates of impacts of the intervention than randomized trials and they feel that randomized trials should only be used for public policy, acknowledging their bias, when randomized trials are not available.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Kirby, D. (2001). Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy (Summary). Washington, DC: NationalCampaign to Prevent Teen Pregnancy.	Reviews of more than 250 evaluations of teen programs including: (1) Abecedarian Project, (2) Becoming a Responsible Teen, (3) California's Adolescent Sibling Pregnancy Prevention Project, (4) Children's Aid Society's Carerra Program, (5) Conservation and Youth Services Corps, (6) Job Corps, (7) JOBSTART, (8) Making A Difference: Abstinence Approach, (9) Making A Difference: Safer Sex, (10) Reach for Health Community Youth Service, (11) Reducing the Risk, (12) Safer Choices, (13) Seattle Social Development Project, (14) Teen Outreach Program (TOP).	Teen pregnancy, teen sexual risk taking, contraceptive use, delaying sexual intercourse.	School involvement, emotions, sexual beliefs, attitudes, skills.	Review of program evaluation studies that are: (1) completed 1980 or later, (2) conducted in US or Canada; (3) target 12-18 yr olds; (4) experimental or quasi-experimental design; (5) sample size at least 100; (6) measured impact on sexual or contraceptive behavior, pregnancy, or childbearing. Summarizes that there are some effective programs and that communities should try to replicate these programs.
Kirby, D. (2002). Do Abstinence-Only Programs Delay the Initiation of Sex Among Young People and Reduce Teen Pregnancy? National Campaign to Prevent Teenage Pregnancy.	Abstinence programs: (1) Virginity Pledge Program, (2) Not Me, Not Now, (3) Operation Keepsake, (4) Abstinence By Choice, (5) Virginity Pledge Movement, (6) Teen Aid, (7) Sex Respect, Values and Choices, (8) Family Accountability Communicating Teen Sexuality (FACTS), (9) Postponing Sexual Involvement, (10) Project Taking Charge, (11) Teen Aid Family Life Education Program.	Delay of sexual intercourse, pregnancy.	Not listed.	Authors state that there aren't any abstinence-only programs with strong evidence that they either delay sex or reduce teen pregnancy; there are very few rigorous studies of there impact.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Kirby, D.; Lepore, G. and Ryan, J., (2005). Sexual Risk and Protective Factors Affecting Teen Sexual Behavior, Pregnancy, Childbearing And Sexually Transmitted Disease: Which Are Important? Which Can You Change? ETR Associates.	N/A	Pregnancy, prevention of STDs.	Place of birth, community disorganization, family structure, parent education, household substance abuse, family interactions, mother's age at first sex and first birth, older siblings sexual behavior, communication about sex/contraception, age, peers' attitudes, age of partner, partners' attitudes toward sex, race/ethnicity, success in school, religious affiliation/practice, alcohol/drug use, emotional well being, sexual beliefs and attitudes.	Summarizes studies which identify "risk factors" (putting teens at risk for having unprotected sex) and "protective factors" (discourage teens from behaviors leading to pregnancy or STD).
Leah, R.; et al., (2004). Behavioral Interventions to Reduce Incidence of HIV, STD, and Pregnancy Among Adolescents: A Decade in Review. Journal of Adolescent Health, 34: 3–26.	(1) Be Proud, (2) Be Responsible, (3) Making Proud Choices, (4) Making a Difference, (5) Focus on Kids, (6) Reach for Health, (7) Reducing the Risk, (8) Safer Choices, (9) Teen Incentive Project, (10) Teen Outreach Program (TOP), (11) Youth Aids Prevention Program, 12) Becoming a Responsible Teen, (13) Working on the Right Direction, (14) Facts & Feelings, (15) Project SNAPP, (16) Postponing Sexual Involvement, (17) Teen Talk Program	Delay of initiation of sexual intercourse, condom use, contraceptive use, frequency of sexual intercourse, pregnancy.	Not listed	Reviews adolescent sexual risk-reduction programs (24) that were in the 1990s. Analysis of these programs suggest 4 factors that may impact program effectiveness: programs focus on specific skills for reducing sexual risk behaviors; program duration and intensity; content of a total evaluated program including researchers' assumptions of participants' exposure to prior and concurrent programs; and type of training available for facilitators.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
Reviews				
Manlove, J.; Franzetta, K.; McKinney, K., Romano-Papillo, A.; and Terry-Humen, E., (2004). No time to waste: Programs to reduce teen pregnancy among middle school-aged youth. Washington, DC: National Campaign to Prevent Teen Pregnancy. (1)	(1) Draw the Line; Respect the Line, (2) Postponing Sexual Involvement, (3) Human Sexuality, Making a Difference: An Abstinence, (4) Postponing Sexual Involvement, (5) Project SNAPP, (6) Healthy for Life, (7) Focus on Kids, (8) Making Proud Choices, (9) Youth Aids Prevention Program, (10) Aids Risk Reduction Education and Skills Training (ARREST), (11) Reach for Health Community Youth Service	Pregnancy, Adolescent Sexual Behavior	Not listed	Provides detailed descriptions of pregnancy prevention programs for middle school-aged youth that have been shown through research to have a positive impact on adolescent sexual behavior. Contains information on the costs and availability of program curriculum and descriptions of what is covered in each curriculum.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
Reviews				
Manlove, J.; Romano-Papillo, A.; and Ikramullah, E., (2004). Not yet: Programs to delay first sex among teens. Washington, DC: National Campaign to Prevent Teen Pregnancy. (2)	(1) Postponing Sexual Involvement, (2) Sex Respect, (3) Teen Aid, (4) Values and choices, (5) Draw the Line, Respect the Line, (6) Postponing Sexual Involvement, (7) Safer Choices, (8) Teen Talk, (9) McMaster Teen Program, (10) Healthy for Life, (11) Project SNAPP, (12) Postponing Sexual involvement, Human Sexuality, (13) Reducing the Risk, (14) Becoming a Responsible Teen, (15) Making A Difference: Abstinence Approach, (16) Youth Aids Prevention Program, (17) Facts and Feelings, (18) Healthy Oakland Teens, (19) Poder Latino, (20) Rochester Aids Prevention Program (RAPP), (21) Children's Aid Society-Carrera Program (CAS-Carrera), (22) Washington State: Client-Centered Pregnancy Prevention Program, (23) Seattle Social Development, (24) Reach for Health Community Youth Service Learning.	Delay of sex, contraception use, pregnancy, frequency of sex.	Not listed	Review of program evaluations that with the purpose of delaying sex. Identifies five approaches that help adolescents delay sex: youth development, abstinence education, sex education, HIV/AIDS education, and service learning programs.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
		Reviews		
Manlove, J.; Franzetta, K.; McKinney, K.; Romano-Papillo, A.; and Terry-Humen, E., (2003). A good time: After-school programs to reduce teen pregnancy. Washington, DC: National Campaign to Prevent Teen Pregnancy.	(1) Becoming a Responsible Teen, (2) Focus on Kids, (3) Be Proud! Be Responsible!, (4) Making a Difference: An Abstinence-Base Approach, (5) Making Proud Choices!, (6) AIDS Risk Reduction Education and Skills Training, (7) Postponing Sexual Involvement/ENABL, (8) Children's Aid Society - Carrera Program, (9) Quantum Opportunities Program, (10) Washington State Client-Centered Pregnancy Prevention Program, (11) Teen Outreach Program, (12) Learn and Service America	Delay of sex, contraception use, pregnancy, frequency of sex.	Not listed	Provides summary results from reviews of program evaluations; contains practical information on the costsand availability of program curriculum, and lengthy descriptions of what is covered in each curriculum.
Marsiglio, W.; Ries, A.; Sonenstein, F.; Troccoli, K.; and Whitehead, W., (2006). It's a Guy Thing: Boys, Young Men, and Teen Pregnancy Prevention. Washington, DC: National Campaign to Prevent Teen Pregnancy.	School based, co-educational programs: (1) Aban Aya Youth Project, (2) Children's Aid Society's Carerra Program, (3) Draw the Line; Respect the Line, (4) Postponing Sexual Involvement, (5) Protection Express Program, (6) Reach for Health Community Youth Service, (7) Reducing the Risk, (8) Rochester Aids Prevention Program (RAPP), (9) Safer Choices, (11) Seattle Social Development Project, (12) Self Center (School Linked Reproductive Health Center), (13) Sex Can Wait, (14) Taking Charge, (15) Teen Outreach Program (TOP), (16) Teen Talk Program.	N/A	N/A	Three papers that address how boys and young men factor into teen pregnancy trends. Chapter 1: review of research on the attitudes and behavior of young male adolescents regarding sex, contraception, pregnancy, and related issues. Chapter 2: reviews evaluation research on the effectiveness of school-based, coed programs in reducing risky sexual behavior. Chapter 3: qualitative look at the challenges in engaging male adolescents in teen pregnancy prevention and some strategies for overcoming them.

Article Citation	*Type of Prevention/ Intervention*	*Evaluation Outcome (dependent variable)*	*Evaluation Independent Variables*	*Purpose/Findings*
Reviews				
Solomon, J. and Card, J., (2004). Making the List: Understanding, selecting, and replicating effective teen pregnancy prevention programs. Washington, DC: National Campaign to Prevent Teen Pregnancy.	N/A	N/A	N/A	Summarizes different programs that were cited in Effective Program Lists (EPLs) in various different reviews of evaluation programs.
Song, E.; Pruit, B.; McNamara, J.; and Colwell, B., (2000). A Meta Analysis Examining Effects of School Sexuality Education Programs on Adolescents' Sexual Knowledge, 1960-1997. Journal of School Health, 70(10): 413-416.	School sexuality education programs.	Knowledge about sexuality: (1) general sexuality, (2) pregnancy, (3) family life, (4) HIV/AIDS, (5) contraception, (6) STDs.		Reviews evaluations between 1990-1997 that are school based sexuality education programs. Finds, through meta-analysis, that knowledge is increased in 5 areas but not in the sixth - knowledge about STDs. Criticizes prior reviews for not using meta-analysis.

APPENDIX TABLE 2

EFFICACY EVALUATIONS 2000-2007

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Evaluation - Abstinence Only Programs						
Blake, S.; et al., (2001). Effects of a Parent-Child Communications Intervention on Young Adolescents' Risk for Early Onset of Sexual Intercourse. Family Planning Perspectives, 33(2): 52-61.	School based abstinence only curriculum, half the group was given parent-student homework to increase parent-student communication.	N=351 middle students, pre and post-test.	Treatment condition: enhanced program vs. non-enhanced program.	Age, grade, race, ethnicity, average grades, determinants of sexual onset, risk related behaviors, characteristics of parent-child communication, sexual beliefs/intentions.	Experimental, analysis of covariance, difference of means.	Authors state that the enhanced curriculum group reported lower intentions to become sexually active, greater self-efficacy to refuse sex, and less alcohol use in the past month.
Monahan, D., (2002). Teen Pregnancy Prevention Outcomes: Implications for Social Work Practice. Families in Society: The Journal of Contemporary Human Services, 83(4): 431-439.	Three-year federally funded Adolescent Pregnancy Prevention program was designed as a 9-week (18 classroom hours) primary prevention intervention for young adolescents. Participants were recruited from eight urban neighborhoods in a metropolitan community in the state of New York. N=797 treatment group and 464 in the control group.	Original database - revised version of the Teen Pregnancy Prevention Program Computerized Information System (TPPPCIS).	Knowledge score, dating behavior, attitudes about sexuality.	Gender, race, living arrangements, mother's education, father's education, family receives public assistant, other children in family.	Posttest-only design, difference of means.	Results of the intervention suggest that the treatment group, on average, showed more positive attitudes associated with adolescent sexuality than those in the control group.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Trenholm, C.; et al., (2007). Impacts of Four Title V, Section 510 Abstinence Education Programs, Final Report, Mathematica Policy Research, Inc.	Four selected Title V, Section 510 abstinence education programs: (1) My Choice, My Future! in Powhatan, Virginia; (2) Recapturing the Vision in Miami, Florida; (3) Families United to Prevent Teen Pregnancy (FUPTP) in Milwaukee, Wisconsin; and (4) Teens in Control in Clarksdale, Mississippi. N=2,057 youth	Original database.	Sexual behavior (abstinence, unprotected sex, number of partners, pregnancy, births, STDs) and knowledge and perceptions of risks associated with teen sexual activity.	Site, enrollment cohort, date of interview, gender, age, race/ethnicity, presence of mother figure, presence of father figure, parents married, communication w/parents, unmarried sister got pregnant, siblings dropped out of school, religiosity, television viewing, had sex (baseline), perceived consequences of sex (baseline), knowledge of STDS (baseline), expectations to have sex (baseline), ability to resist pressure for sex (baseline).	Experimental design, control group, data collected thru baseline and follow-up survey 4 - 6 years after participating in program. Multivariate regression analysis.	Findings indicate that youth in the program group were no more likely than control group youth to have abstained from sex and, among those who reported having had sex; they had similar numbers of sexual partners and had initiated sex at the same mean age. Program group youth were no more likely to have engaged in unprotected sex than control group youth.
Evaluation - Developmental Programs						
Campbell, F.; et al., (2002). Early Childhood Education: Young Adult Outcomes from the Abecedarian Project. Applied Developmental Science, 6(1): 42-57.	Abecedarian Project.	High risk infants enrolled in this early childhood educational intervention were followed up at age 21., control group vs. treatment group, N=102.	Teenage pregnancy.		Comparison of percentages and means.	This project was an intensive pre-school intervention and participants and control group were measured comprehensively, i.e., on social adjustment, educational attainment, degree of self-sufficiently. Among other findings, the study found that those in the treatment group had a lower level of teenage pregnancy.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Me´ndez-Negrete, J.; Saldana, L.; and Vega, A., (2006). Can a Culturally Informed After-School Curriculum Make a Difference in Teen Pregnancy Prevention? Preliminary Evidence in the Case of San Antonio's Escuelitas, Families in Society: The Journal of Contemporary Social Services, 87(1): 95-104.	Escuelitas ("little schools"), after school program in San Antonio, Texas; comprehensive program. The principle objective of the program is to provide an organizational and social structure that supplements the formal, social institutions of schools and families by providing experiences and activities that support and encourage academic, personal, cultural, and social achievements, while promoting critical thinking and personal growth as life choices.	Original database.	Variables assessing the perceptions of the academic, personal and social skills of the participant (parent, teacher and participant), reading and math scores.	Pre and post.	Descriptive statistics and difference of means test.	Results are mixed. Although some findings do not show the desired results, other data demonstrate positive impacts in the lives of the adolescent females and their caregivers.
Yampolskaya, S.; Brown, E.; and Vargo, A.; (2004). Assessment of Teen Pregnancy Prevention Interventions Among Middle School Youth. Child and Adolescent Social Work Journal, 21(1): 69-83.	Youth Asset Development Program (YADP) and Postponing Sexual Involvement Program (PSIP).	Original database - 237 students (program participants and control schools), Florida, Spring 2000 semester.	Academic related outcomes, career orientation.	Beliefs about sex and family, involvement in problem behaviors, age, gender, race, participation in YADP, participation in PSIP.	Chi-square, analysis of variance, difference of means.	Academic and career related outcomes impacted by participation in programs. Prior studies indicate that academic success, social competence, and bonding to school are associated with reduced teen pregnancy rates, more careful sexual practices, and better health consequences in early adolescents.
Evaluation - Comprehensive Programs						

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Aarons, S.; et al., (2000). Postponing Sexual Intercourse Among Urban Junior High School Students—a Randomized Controlled Evaluation. Journal of Adolescent Health, 27: 236–247.	Reproductive health classes, the Postponing Sexual Involvement Curriculum, health risk screening, "booster" educational activities during the following (eighth grade) school year.	Surveys at baseline (N=522), follow-up at the end of 7th (N=459) and 8th grade (N=422), Washington DC public schools.	Virginity, intention to have sex in the next 6 months, beliefs about sexual activity of peers, birth control use at last intercourse, ability to refuse sex within an established girl/boyfriend relationship, and ability to refuse sex with someone they just met, attitudes toward postponing sex, attitudes toward delaying childbirth, birth control knowledge, parent communication, girl/boyfriend communication, and knowledge of reproductive health services for adolescents.	Gender, age, ethnicity, free-lunch program, household living arrangement, smoking, drinking.	Randomized, controlled evaluation, difference between means, OLS and logistic regression analysis.	The authors report positive intervention effects on virginity for females, contraceptive knowledge for males, and contraceptive use at last intercourse for sexually active females.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Agha, S., (2002). Quasi-Experimental Study to Assess the Impact of Four Adolescent Sexual Health Interventions in Sub-Saharan Africa. International Family Planning Perspectives, 28(2): 67-70 and 113-118.	The 13-month intervention included peer education, youth clubs, mass media advertising and the distribution of informational and educational materials.	Original database - Baseline and post intervention survey data were collected by l'Institut de Recherche et des Etudes de Comportements (IRESCO).			Multivariate logistic regression.	The interventions were associated with improvements in a variety of health perceptions among women; including perceptions of benefits of and barriers to protective behavior; for women, the interventions also had positive impacts on contraceptive use. Effects were much more limited among men.
Allen, J. and Philliber, S., (2001). Who Benefits Most From a Broadly Targeted Prevention Program? Differential Efficacy Across Populations in the Teen Outreach Program. Journal of Community Psychology, 29(6): 637–655.	Teen Outreach Program (TOP).	Multi-site data, grades 9 - 12, randomly and non-randomly assigned, N=1,673 students in TOP and N=1,604 comparison students, pre-test - beginning of school year, exit-test - end of school year.	Teen pregnancy.	Age, grade in school, race/ethnicity, mother's education, 2-parent household, prior suspensions, prior course failures, prior pregnancy, high risk.	Logistic regression.	TOP had a significantly higher impact on the variable pregnancy for those females that were higher at risk (had a previous pregnancy).

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Basen-Engquist, K., et al., (2001). School wide Effects of a Multicomponent HIV, STD, and Pregnancy Prevention Program for High School Students. Health Education and Behavior, 28(2): 166-185.	Safer Choices, a multi-component, behavioral theory–based HIV, STD, and pregnancy prevention program.	Original database - Twenty urban high schools (CA and TX) were randomized, and cross-sectional samples of classes were surveyed at baseline, the end of intervention (19 months after baseline), and 31 months after baseline. N=9,489.	Frequency of sex without a condom, if student had sex in past 3 months, number of partners student had sex with without a condom.	HIV/Aids and other STD knowledge, attitudes about sex and condom use, barriers to condoms, communication w/parents, school climate, race, living arrangements, education of parents, school, grade.	Multilevel linear, logistic, and Poisson (or negative binomial) models.	Program contributed to a decrease in the frequency of sexual intercourse without a condom. Had a positive influence on psychosocial variables related to risk behavior, reduced the number of partners with whom the students had sexual intercourse without a condom. However, the program did not have a positive effect on the prevalence of sexual intercourse among students.
Coyle, K.; et al., (2001). Safer Choices: Reducing Teen Pregnancy, HIV, and STDs. Public Health Reports, 116.	Safer Choices.	Randomized controlled trial, N=3,869 9th grade students tracked from baseline thru 31-month follow-up. Self-report surveys.	Sexual initiation, number of sex intercourse with/without condom, number of sex intercourse partners with/without condom.	Race/ethnicity, gender, GPA, living situation, parent's education.	Linear and logistic multilevel models.	Authors find that the intervention had a positive impact on condom use relating to sexual intercourse and partners.
East, P.; Kiernan, E.; and Chavez, G., (2003). An Evaluation of California's Adolescent Sibling Pregnancy Prevention Program. Perspectives on Sexual and Reproductive Health, 35(2): 62-70.	California's Adolescent Sibling Pregnancy Prevention Program	N=1176 Hispanic 11 - 17 year olds, interview and questionnaire at enrollment and at follow-up.	Pregnancy, sexual initiation, contraceptive use.	Family status, race/ethnicity, speaks Spanish at home, urban/suburban, gender, single mother, 2 parent household, current grade, mother's last grade complete, mother's age at first birth.	ANOVA, logistic regression.	Authors state program appears to be successful at reducing pregnancy and pregnancy-related risks - pregnancy rate of 4% vs. 7% in the comparison group.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Lonczak, H.; et al., (2002). Effects of the Seattle Social Development Project on Sexual Behavior, Pregnancy, Birth, and Sexually Transmitted Disease Outcomes by Age 21 years. Archives of Pediatrics and Adolescent Medicine, 156: 438-447.	Seattle Social Development Project.	Non-randomized controlled trial 5th graders with long term follow-up at age 21, N=349.	Number of sex partners, pregnancy, condom use, STDs, initiation of sex.	Ethnicity, marital status, race, poverty.	Logistic regression, OLS regression, Cox proportional hazard model.	Authors state that all outcome variables were positively impacted, i.e., those in the treatment group reported a lower number of sex partners, lower incidence of pregnancy before 21, increased condom use, a lower rate of STDs and a later onset of sexual intercourse.
McBride, D. and Gienapp, Anne, (2000). Using Randomized Designs to Evaluate Client-Centered Programs to Prevent Adolescent Pregnancy. Family Planning Perspectives, 32(5): 227-235.	Client centered approach at youth site (ages 9 - 13) and teenage site (ages 14 - 17).	Experimental design, randomized assignment to treatment and control group, Washington state, pretest and posttest (average of 7 months between the 2 tests), N=1,732 at baseline.	Sexual initiation, pregnancy, communication w/parents at sex, contraception use.	Site, gender, grades, mother did not finish high school.	Covariance adjustment model, GLM.	Interventions showed little or no impact among sites. Authors feel that rather than abandoning the interventions, that the interventions should be modified.
O'Donnell, L.; et al., (2002). Long-Term Reductions in Sexual Initiation and Sexual Activity Among Urban Middle Schoolers in the Reach for Health Service Learning Program. Journal of Adolescent Health, 31: 93–100.	Reach for Health Service Learning Program (middle school).	Surveys. Baseline=7th grade, follow-up: 10th grade, N=195, urban minority students, random assignment.	Sexual initiation, recent sex.	Gender, ethnicity.	Logistic regression.	Study suggests that program has sustained impact. Students in treatment group reported less sexual initiation and less recent sex.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Philliber, S.; Kaye, J.; and Herrling, S., (2001). The National Evaluation of the Children's Aid Society Carrera-Model Program to Prevent Teen Pregnancy, Philliber Research Associates.	Three-year random assignment evaluation of the Children's Aid Society, Carrera-model teen pregnancy prevention program. The program was tested at twelve sites in seven cities.	Original database-program participants and control group; survey data.	Initiation of intercourse, use of birth control and pregnancy rates, place of health care, grades.	Measure of barriers in teens life, participant or control group, gender, dummy for site, age, race, family living arrangements, sexually active at star.	Multivariate analysis, logistic regression analysis.	Authors found that the program achieves the result of lower pregnancy rates partly by delaying sexual intercourse but chiefly by facilitating the effective use of protection among young women who become sexually active.
Philliber, S.; Kaye, J.; Herling, S.; and West, E., (2002). Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation of the Children's Aid Society-Carrera Program. Perspectives on Sexual and Reproductive Health, 34(5): 244-251.	Children's Aid Society, Carrera-model teen pregnancy prevention program. The program was tested at six sites in New York City.	Original database.	Current sexual activity, use of condom, pregnancy, and access to good health care.	Control group vs. program participants, gender, age, race, family living arrangements, sexually active at start, employed.	Multivariate regression analysis.	Female participants had lower odds than controls of being sexually active, of having experienced a pregnancy. They had higher odds of using a condom or hormonal method. No significant impact was found on males' sexual and reproductive behavior outcomes. Both male and female participants had higher odds of having better health care than controls.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Piper, D.; Moberg, D.; and King, M., (2000). The Healthy for Life Project: Behavioral Outcomes. The Journal of Primary Prevention, 21(1): 47-73.	Healthy for Life Project - Age Appropriate Version and Intensive Version.	Stratified random assignment of cohorts, survey of students annually from 6th – 10th grade, N=2,483.	Sexual intercourse-past month, and other risky behaviors not associated with sexual behavior.	Race, city vs. town, living arrangements, mothers w/college education, fathers w/college education, fathers working full-time, mothers working full-time, age, grade.	Power analysis, ANCOVA, hierarchical, multilevel regression model.	Healthy for Life Project had minimal impacts when compared to the control group. The intensive version was more successful than the Age Appropriate version but not on sexual behavior. Limitation of the study was that there was not a "no-treatment" control group. The control group was exposed to other health promotion and prevention programs during their school. years.
Stevens-Simon, C.; Kelly, L.; and Kulick, R., (2001). A Village Would Be Nice, But It Takes a Long-Acting Contraceptive to Prevent Repeat Adolescent Pregnancies. American Journal of Preventive Medicine, 21(1): 60-65.	Comprehensive, multidisciplinary, adolescent oriented maternity program.	Original database-373 participants in a comprehensive, multidisciplinary, adolescent-oriented maternity program.	Repeat adolescent pregnancy.	Contraceptive choice after pregnancy, number of clinic visits, contact with supportive social workers, return to school, minority race, ethnicity, poverty, Medicaid, education, marital status, age, family size, school experience, behavior.	Logistic regression analysis.	Using a long-acting hormonal contraceptive during the puerperium was associated with pregnancy prevention during the first 2 postpartum years, but frequent clinic visits, contact with supportive healthcare and social service providers, and return to school were not.
Wu, Y.; et al., (2003). Sustaining and Broadening Intervention Impact: A Longitudinal Randomized Trial of 3 Adolescent Risk Reduction Approaches. Pediatrics, 111: e32-e38.	Focus on Kids (FOK) and Focus on Kids with (Informed Parents and Children Together (ImPACT) and FOK plus ImPACT plus boosters.	Longitudinal, randomized, community-based cohort study, low-income black youths, age 12 - 16, N=817, follow-up at 6 and 12 months.	Sexual intercourse, sex without a condom.	Gender, age, grade, school performance, church attendance.	Comparison of means, general linear model.	FOK plus ImPACT showed more impact on the outcomes than just FOK only. FOK plus ImPACT plus boosters were not significantly different.

Article Citation	Type of Prevention/ Intervention	Database name/description:	Evaluation Outcome (dependent variable)	Evaluation Independent Variables	Statistical Method	Purpose/Findings
Didion, J. and Gatzke, H., (2004). The Baby Think It OverTM Experience to Prevent Teen Pregnancy: A Post Intervention Evaluation. Public Health Nursing, 21(4): 331–337.	‘‘In Your Care’’ pregnancy prevention intervention program using Baby Think It OverTM infant simulator.	Original database- Male and female 11th grade students in Midwestern communities, 2 years after participating in program, data collected through surveys (50 completed) and focus groups (6 groups w/6-7 participants).	Realistic attitudes toward parenting, perception of child on goals, decision to have/not have intercourse.	Gender, family structure, marital, risk behaviors.	Chi-square.	Overall, the survey results and focus-group data indicate that students in this sample believed the consequences of pregnancy and teen parenthood to be negative. Adolescents in this sample reported that they intended to delay childbearing.

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