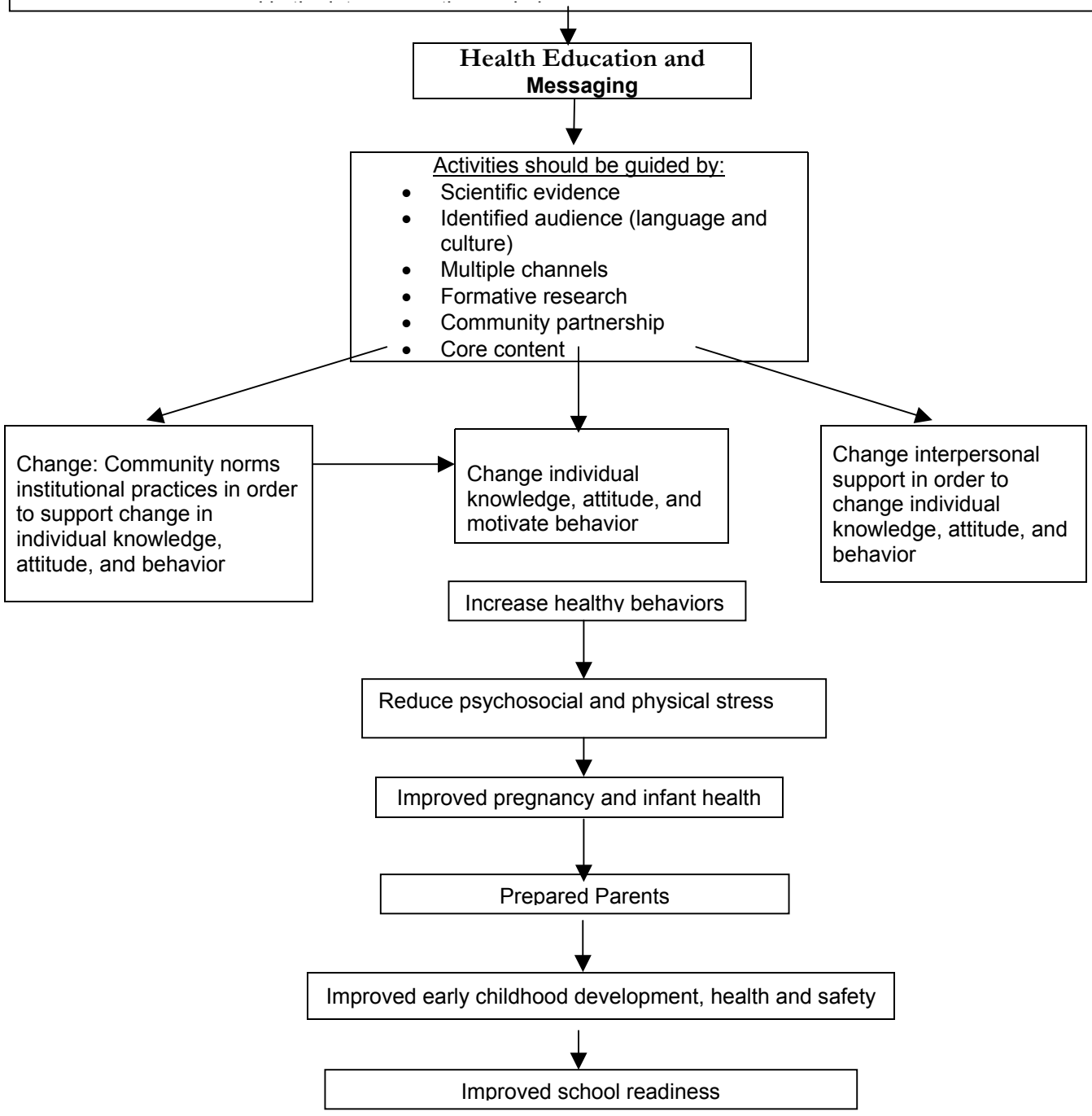
Health Education & Messaging

Definition:

- Health messaging and health education are information and instruction regarding wellness and disease prevention that seeks to influence social behaviors to benefit the audience and the community.

Objectives:

- To provide multi-level health education and messaging aimed at:
  - Promoting *individual* healthy behaviors during pregnancy and the interconception period
  - Enhancing *interpersonal* support for healthy behaviors during pregnancy and the interconception period
  - Changing *institutional* practices and *community* norms to support healthy behaviors before and during



Health Education and Messaging

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings

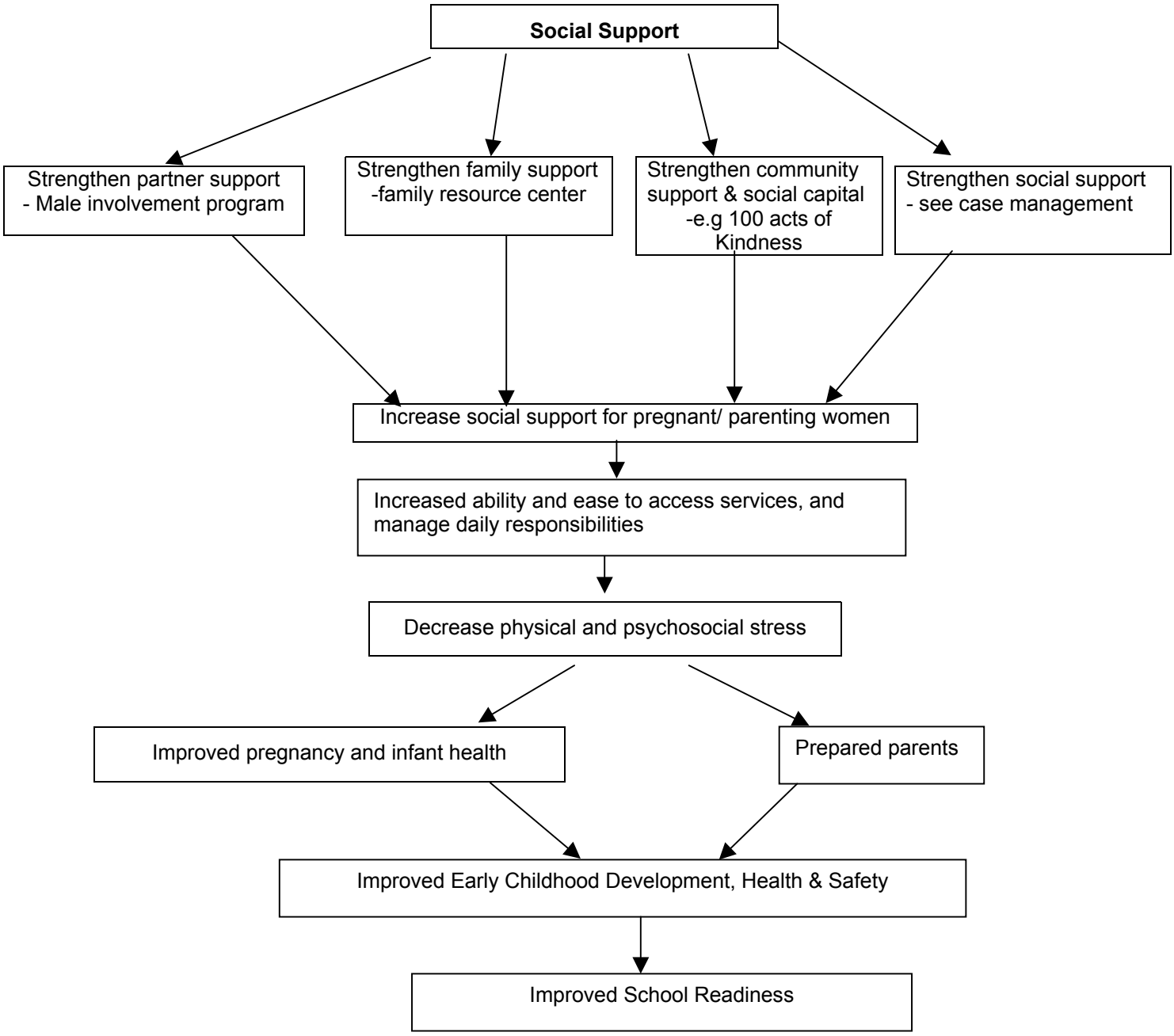
• Health education is primary means for changing individual risk behaviors and promoting healthy behaviors.
• Health education messages are most effective when they occur simultaneously during prenatal visits, classes, and community venues and target pregnant women, their partners and family.
• Health education is most effective when the client is motivated to change. Motivation to change is high during pregnancy.
• Health messaging strategies are most effective when provided through a variety of modalities simultaneously, i.e., individual, public, billboards, radio, etc.
• Health messaging campaigns have been successful in reducing tobacco use, increasing knowledge and health promotion activities for folic acid use, infant sleep positioning, child safety, and cancer screening, among others.
• Established core components of successful health messaging campaigns include:
  ○ Scientific basis
  ○ Identified audience
  ○ Multiple channels
  ○ Formative research
  ○ Community partnership
  ○ Core content
	Level of Evidence: I, II-2, II-3, III
	For the campaigns listed under the impact column.
	*health education was only 1 component in the successful models
		• National Folic Acid Campaign: 44% increase in proportion of women knowledgeable about benefits of folic acid over a 5 year period.[1]
		• National Back to Sleep Campaign: 69% decrease in incidence of SIDS over a 10 year period.[2]
		• Evaluation of health education tools entitled "Kit for New Parents" in San Diego demonstrated after 6 weeks of "Kit" use, parents reported a 34% increase in knowing where to access child care resources and 64% increase in knowledge of where to find help for stress.[3]
		• The West LA Preterm Birth Prevention Program showed at 19% reduction in preterm birth and a cost savings of $1,768 per high risk mother baby pair.[4]
		• "100 Intentional Acts of Kindness Toward a Pregnant Woman" is an innovative health messaging community-based program that uses narrowcasting methodology to change community attitudes toward pregnancy and increase social support for pregnant women. An evaluation of this promising program is underway.
		• Narrowcasting promotes focused messages for specific community needs.
			• Direct savings from health education efforts are difficult to estimate in isolation from other health promotion, and direct service efforts. In general health education is most effective when linked to other interventions such as health care, or case management.
			• Educational materials have been developed and validated for a number of topics related to improving pregnancy outcomes. Types of materials that are available for purchase include: healthy nutrition, weight gain in pregnancy, fetal growth and development, substance use dangers and prevention, tobacco cessation, preterm labor prevention, and others.
			• The primary cost savings from the West LA Preterm Birth Prevention Program were attributed to the educational component.
			• Opportunities for leveraging funds from the American Legacy Foundation may be available for tobacco cessation, narrow cast and broadcast campaigns.

Social Support

Definition: Social support consists of perceived and received emotional support, helpful information, and/or tangible resources.

Objectives:

- To provide women and families with support to better cope with physical and psychosocial stress during pregnancy and/or the interconception period by strengthening:
  - The capacity of partners and families to provide psychosocial support at the interpersonal level
  - Community support and social capital at the community level
  - Case management and service coordination at the systems level



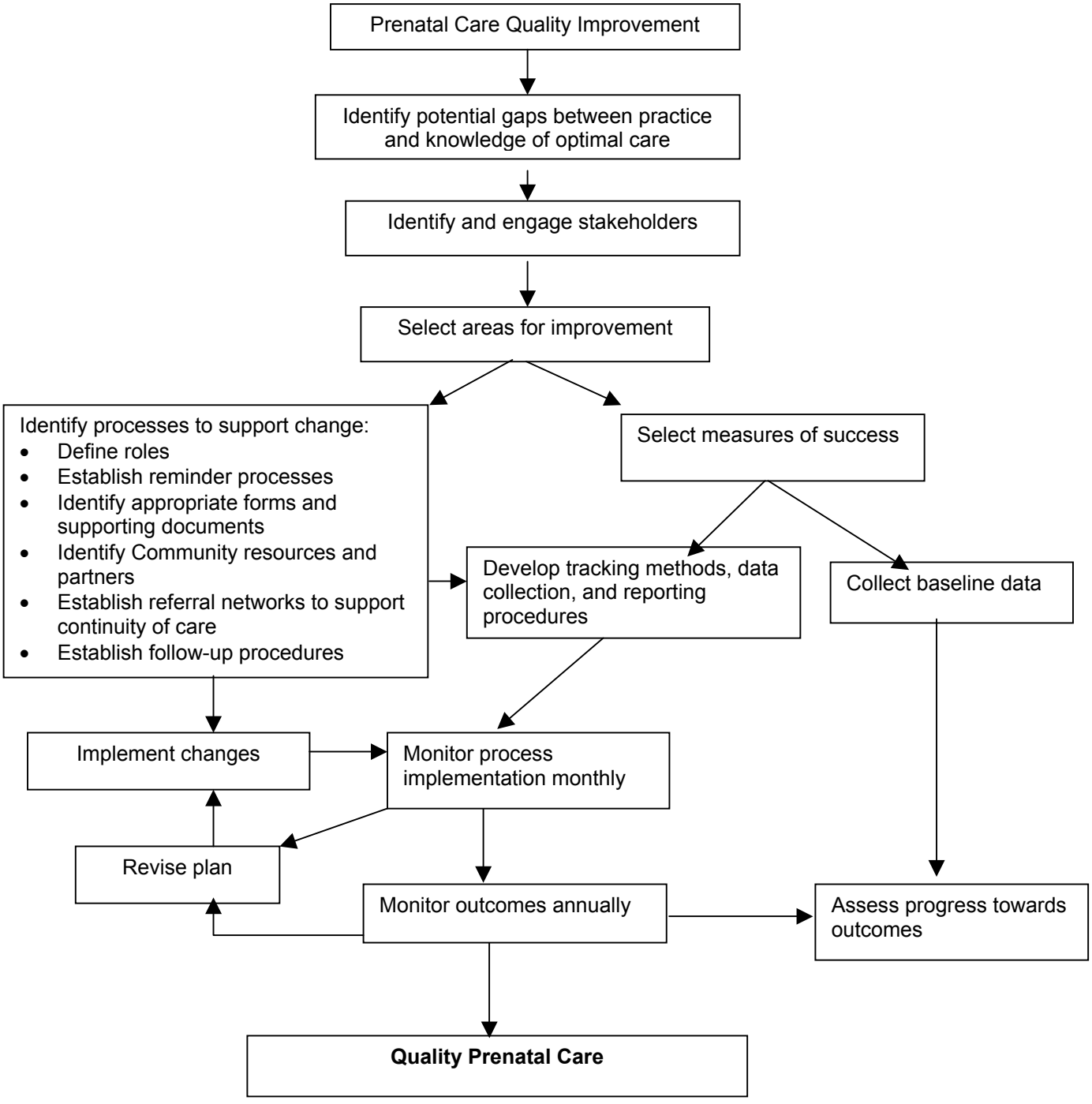
Social Support -

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings

• Social support is a mediator for several pathways proven to reduce stress and depression and promote healthy behaviors such as healthy nutrition, avoidance of substance use, and risky behaviors, among others.
• A growing body of literature links social support to improved pregnancy outcomes.
• Support may be emotional, informational, and/or tangible (i.e., material support). Emotional support and tangible support are the most beneficial in pregnancy.[5]
• Traditionally, social support is given by spouses/partners, family, friends, and community members.
• Additional sources of support include:
  ○ Community, faith-based, and public agencies and services
  ○ Healthcare providers
  ○ Home visiting nurses and paraprofessionals
  ○ Social workers
  ○ Outreach workers
• Single parenthood is a major stressor.[6]
• Capacity for partners, family, & communities to provide psychosocial support needs to be strengthened.
• Increased support for pregnant women from family, friends, and community resources, should reduce stress, depression and increase healthy behaviors during pregnancy.
	Links to Pregnancy Outcomes: Level II-2
	
	Interventions to increase social support:
	Level of Evidence: II-2, III
	Based on studies & programs listed in Reported Impact column.
	
	Reports on benefits from social support interventions that are implemented in isolation from other interventions are inconsistent. While the literature is not conclusive, this may be due in part to study design issues.
		• Social support is one component of home visitation/case management, with women receiving these services reporting improved perceived social support and family communication. The potential impact from this is discussed and referenced in the Case Management section.
		• A few studies specifically evaluated the effectiveness of male involvement and center-based delivery of comprehensive medical and social services (family resource center):
		  ○ Yogman et al. – 6 point increase in mean IQ among African American preterm infants with high father involvement.[7]
		  ○ Seitz et al. – families were more likely to be self-supporting, had higher educational attainment, and children had higher school attendance among families in family support programs; welfare and school cost savings of $40,000 were noted in the single year review at a 10 year follow-up.[8]
		• Victims of domestic abuse reporting higher social support from family, friends and health care providers had reduced anxiety, depression, & improved overall mental health.[9]
		• Results from California's Comprehensive Perinatal Services Program show that women receiving at least one psychosocial assessment each trimester were 50% less likely to have a LBW or PTB compared with women receiving care but who did not receive assessment.[10]
			• Programs that seek to improve support from partners, family, and the larger community are viewed as promising approaches, since there is little research at this time which has evaluated these approaches.
			
			• In general Social Support activities cannot be evaluated separately from other approaches that are provided in programs offering additional services and/or comprehensive care, such as the Black Infant Health Program, and Nurse Family Partnership, Family Resource Centers, and Comprehensive Perinatal Services Program.
			• Costs for individual level services are discussed in the Case Management Section.

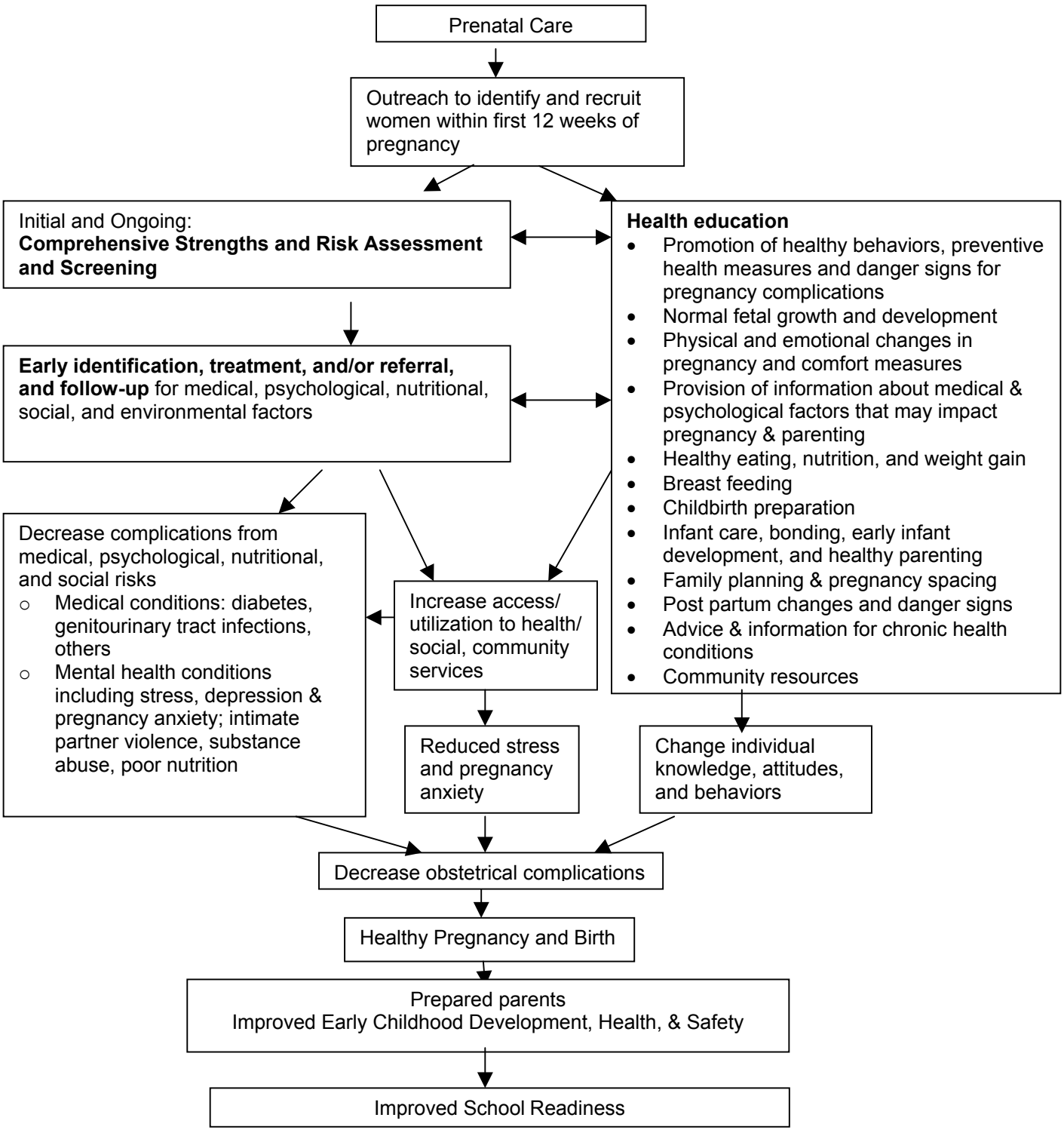
Process for Prenatal Care Quality Improvement

Definition: Organized Initiatives that provide systems level changes in structure, role definition, monitoring, and community linkages to support implementation of best practice clinical guidelines, and promising new strategies.
Objectives: To increase screening, referral and treatment for identified risk factors of poor birth outcomes by assisting organizations to implement the system changes required to support implementation of standard evidence-based clinical practice guidelines.



Quality Prenatal Care

Definition: Provision of comprehensive, client-centered, prenatal care in accordance with best practice clinical, psychosocial guidelines.
Objectives: To increase screening, referral and treatment for identified risk factors of poor birth outcomes by assisting organizations to implement the system changes required to support implementation of standard evidence-based clinical practice guidelines.



Prenatal Care Quality Improvement

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
▪ In prenatal care there exists a gap between what is known to be effective to reduce risk for adverse pregnancy or infancy outcomes and what is currently being done during prenatal care. ▪ Over 95% of women in Los Angeles County receive prenatal care at some point during pregnancy; therefore, there is an opportunity to implement care strategies that can improve pregnancy and infancy outcomes. ▪ Implementation of system level changes to support population-based, culturally competent, evidence-based, supportive interactions between informed, activated pregnant women and prepared, proactive practice teams has the greatest potential to impact large numbers of pregnant women. ▪ The eight areas selected for improvement activities during the prenatal care quality improvement initiative were selected because the each topic is strongly linked to adverse pregnancy outcomes and/or benefits to women and/or infants have been shown from implementation of the best practice guidelines.	Level of Evidence: The level of the evidence varies somewhat for each area selected for focused improvement efforts listed below. Community Identified Need: Each HBLC listed access to quality, culturally competent prenatal care as a priority.	• Methods for healthcare quality improvement have been successfully employed to introduce the rapid and broad-based system and organizational change and development of community linkages that can have a large impact on pregnancy and birth outcomes. • On average at least 70% of participants in collaborative efforts to improve clinical practices implement best practice clinical guidelines. • Research is cited that examines the effectiveness of each single interventions and potential impact for the individual areas for improvement are reported. • Women often experience several of these risk factors simultaneously; therefore it is difficult to extrapolate the full impact that screening and treatment for each of these areas for improvement will have.	The March of Dimes estimates: ○ the average hospital charges for a preterm infant in the year 2000 at $58,000, ○ Compared to $4,300 for the usual infant's stay.[11] Each year in LA County approximately 150,000-160,000 births occur with: • 10,000 low birthweight births, 15,000 high birthweight births 16,000 preterm births If 20 to 30 large prenatal care provider groups or clinics (groups with between 500 to 1,000 births annually), participated in the Prenatal Care Quality Improvement Initiative then between 15,000 and 20,000 pregnant women (9.5% to 12.7% of LAC births) could have the benefits of improved prenatal care in the first funding year. For the 15,000 to 20,000 pregnant women who will receive services in year one, it is conservatively estimated that: • between 800 and 1,100 preterm infants can be prevented, Year 2, another 20-30 teams: ○ A total of 30,000 to 40,000 or up to 25% of all births in Los Angeles County will be receiving improved prenatal care.

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Tobacco Cessation: • Smoking during and following pregnancy is directly linked with multiple adverse outcomes affecting the mother, the fetus, the newborn and growing child. • Smoking cessation screening and counseling can improve cessation rates and reduce low birthweight. • Smoking during pregnancy is often associated with a broader array of behaviors that may adversely affect pregnancy. These include poor nutrition, substance use, depression, and risk taking behaviors, among others. Assistance with the development of skills and support systems that promote changes across multiple health areas are needed to support healthy changes.[12]	**Links to adverse pregnancy outcomes:** Levels I, II-2, III **Tobacco cessation interventions**: Level I • National Consensus Guidelines exist Community Identified Need	**Tobacco cessation interventions**: • Tobacco cessation interventions have been shown to increase cessation rates by up to 45%, with a corresponding 21% reduction of low birthweight births.[13] • Estimates suggest that for every 56 women who receive effective smoking cessation counseling one LBW birth can be prevented.[13]	• The prevalence of smoking during pregnancy in California is 9.8%, if the prevalence in LA County is similar, then an estimated 15,400 births occur annually to women who smoke during pregnancy. • It is estimated that implementation of this tobacco cessation intervention for all women in LAC could prevent 275 LBW births, and reduce the occurrence of LBW from 6.4% to 6.2% in LAC.* • For the 15,000 to 20,000 women cared for in the prenatal care quality improvement initiative a similar estimate suggests that between 25 and 35 LBW births might be prevented by this smoking cessation initiative.* * These calculations are based on Number Needed to Treat calculations.
Prenatal Nutrition: • Nutritional status of the mother is strongly linked to the fetal health, growth and development. • Women who gain less than the recommended amount of weight during pregnancy are almost twice as likely to deliver a low birthweight baby compared to women who gain the recommended amount of weight. • Only 30% to 40% of pregnant women in the U.S. gain the recommended amount of weight during pregnancy.[14] • Among high risk populations participation in WIC programs with counseling, resources and service coordination is associated with increased birthweight.[15]	**Links to Adverse Pregnancy outcomes:** Level I, II-2, III **Nutrition screening and counseling**: High-risk women-Level I Low-risk women-Level III • National Institute of Medicine Guidelines and American Dietetic Association Guidelines exist Community Identified Need	**Nutrition screening and counseling**: • Evaluation of WIC programs 1977 to 1988 demonstrated 25% reduction in LBW and 44% reduction in very LBW.[16] • In a population based study reporting 25% of pregnant women gaining less than recommended weight during pregnancy, estimates suggest that the LBW could be reduced by 12% if women gained the recommended amount of weight.[17] This study estimated that one LBW birth could be prevented for every 30 women who gained the recommended amount of weight.[18]	• While LAC data on weight gain in pregnancy are not currently available, if the prevalence of low weight gain is similar (25%) and if all women gained the recommended amount of weight then and estimated 1312 LBW infants would be prevented and the LBW in LAC would be reduced from 6.4% to 5.6% • If 15,000 to 20,000 women are cared for in the prenatal care quality improvement initiative a similar estimate suggests that between 125 and 167 LBW births might be prevented, and the overall proportion of LBW births in LAC could be reduced from 6.4% to approximately 6.3%

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Domestic Violence ▪ Domestic violence occurs between 1% and 20% on pregnancies, and women may experience increases in frequency and severity of abuse during pregnancy.[19] ▪ Women who are victims of violence are more likely to have difficulty being emotionally available, sensitive and responsive to their children.[20] ▪ Child witnesses of violence are more likely to exhibit depression, anxiety, aggressive behavior, lower levels of social competence, and to have problems with attention and concentration and poorer academic functioning.[20,21] • Survey in California demonstrates that only 9% to 11% of primary care providers screen for domestic violence at the onset of prenatal care.[22] • There is clear evidence that women in prenatal care and victims of violence endorse assessments for violence by health care providers. [23] • Family Violence Prevention Fund Research Committee: "the public health benefit of identifying a history of victimization within the context of other psychosocial health problems and risk behaviors, giving supportive messages to the woman who disclose abuse, and providing appropriate referrals could prevent future injuries, illness, and improve overall quality of care."[23]	**Links to Adverse Pregnancy Outcomes:** Level II-2, III **Domestic Violence screening** Level II, and III • National Consensus Guidelines exist **Domestic Violence Interventions**: Level III* *Three small randomized controlled trials show benefits from screening and interventions, no studies showing harm from screening or interventions were identified.[23] **Community Identified Need**	**Domestic Violence Screening and interventions:** • Identification of victims is increased with staff training and use of systematic screening questions.[23] • Several small studies document that violent episodes were decreased among pregnant women following screening during prenatal care with brief interventions, counseling and outreach interventions.[24,26] Authors report that even brief interventions that included expressing concern for safety and a wallet resource card are beneficial.[24] • Preliminary data reported by the Family Violence Prevention Fund indicates that a 2-minute, two-question screen resulted in decreased frequency of violence and abuse at six and 12 month follow-up.[23] • If the occurrence of domestic violence in LA County mirrors national estimates (between 1% and 20% of pregnant women) then, it is estimated that between 1,540 and 31,500 pregnant women experience domestic violence each year in LAC.	The potential costs for screening are minimal, screening tools have been well tested, and can be administered in under 5 minutes. Guidelines exist to establish similar brief interventions, and referral mechanisms for follow-up. Analyses of "Health Plan data" demonstrate that on average $1,775 more is spent on health care annually per victim of domestic violence compared with health care costs for the "general female population". [26] Victims of violence and children exposed to violent households are more likely to experience chronic physical and mental health conditions including frequent headaches, gastrointestinal problems, depression anxiety sleep problems as well as injuries and death.[23] The interventions that reduce the number of violence episodes, and therefore reduce injury and other health care needs should lead to a reduction in health care expenditures, but this remains to be studied. Potential savings to society are difficult to calculate but can be accrued through reduced health care costs related to injuries, mental health needs, and substance abuse, as well as benefits from improved family functioning and family-child interactions, and reductions in exposure of children to family violence.

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Maternal Depression screening • Estimates suggest that one out of four women is affected by depression.[27] • Maternal depression has a profound effect on health behaviors (nutrition, smoking, substance use), abilities to effectively parent, and consequently on early emotional, cognitive, and behavioral development for children.[28,29] • The degree of risk to children appears related to the length of the mothers' depression. Therefore early identification and treatment is essential.[29] • Screening for depression with mechanisms in place for appropriate referral and treatment will facilitate early care. • Quality improvement programs for depression screening in primary care settings demonstrate increased mental health and employment outcomes over 12 months of study.[30]	**Links to Adverse Pregnancy outcomes: Level II-2** **Pregnant women –** **Maternal Depression screening**: Level III • Screening tools have been developed through research and are being used clinically. Evaluation of clinical use has not been completed. **Non-Pregnant Women-** **Benefits of depression screening and treatment**[30,22,33]: Level I **Community Identified need**	• Treatment is more effective if provided earlier in the depressive episode prior to the condition becoming chronic.[31] • Co-morbidity needs to be addressed along with the depression (i.e., alcohol/ substance abuse, domestic violence). • The majority of women with clinical depression respond at least partially by 3 to 6 weeks after treatment has begun.[31] • In a randomized controlled clinical study of low income, urban, predominantly Latina and African American women in the Washington DC area, 11% of women screened were diagnosed with clinical depression. Women assigned to treatment with either medication or cognitive behavioral therapy showed significantly reduced depression and increased social functioning. Women given a referral to a community mental health provider showed no reduction in depression over time. Fewer than 25% of these women completed the referral to the MH provider. Costs ranged between $650 to $700 per patient for outpatient treatment and support services.[32,33] • Without outreach, care coordination, child care, transportation assistance, and flexible scheduling women were not as likely to receive treatment for depression.[33] • Depression screening and treatment combined with provision of support services and care coordination is a cost effective intervention for low income and other populations.[33]	• Research among LA County WIC recipients in 2000 found 36% of primary English speaking women and 45% of Spanish speaking women reported depressive symptoms on a screening test. • Other reports demonstrate that between 25% and 57% of women receiving "welfare" report significant depressive symptomatology.[28] • Potentially large numbers of women would be screened as positive and require diagnostic evaluation. • If 11% of women in LA County (i.e., numbers similar to Washington DC study) fulfilled the clinical diagnosis for depression then an estimated 17,300 pregnant women would require interventions for depression. • If 15,000 to 20,000 women are cared for in the prenatal care quality improvement initiative and 11% have clinical depression, then between 1,650 and 2,200 women will require treatment, at an estimated cost of between $1,072,500 and $1,540,000. Health insurance may provide reimbursement for treatment, but not for care coordination, outreach, child care, and other support services to assist the woman to attend clinical appointments.

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Maternal Stress screening • Risk of PTB is increased 1.5 to 2-fold for women with high levels of stress in pregnancy.[34] • Psychosocial stress can activate maternal hormonal and genetic pathways initiating the process of preterm labor; stress also alters immune function which may lead to increased susceptibility to infections.[35] • Pregnancy related stress is one of the most significant risk factors for adverse pregnancy outcomes.[34]	**Links to adverse pregnancy outcomes:** Level II-2 **Maternal Stress Screening**: Level II-2 and III Screening tools have been developed through research, but evaluation of use in clinical practice has not been completed. **Maternal Stress Interventions**: Studied as part of comprehensive case-management interventions. Community Identified need Guidelines from California Comprehensive Perinatal Services Programs and American College of Obstetricians and Gynecologists exist.	**Maternal Stress screening** • Health education for childbirth preparation and infant care, support groups and case management services are strategies that have been implemented as means to reduce maternal stress during pregnancy. • Stress reduction, social support, self-efficacy, mastery are important components of case management interventions. Several case management programs demonstrate improved social support, mastery and self-efficacy measures, pregnancy outcomes (see case management section). • While not tied directly to measures of stress, results from the Nurse Family Partnership clinical trials demonstrate increased awareness of community services and resources, increased positive communication between friends, family and baby's father about stresses of pregnancy and family life among women who received home visitation/case management compared with women randomized to standard care.[36] • Korenbrot et al. – In focus group interviews, women who received Comprehensive Perinatal Services Program (CPSP) services stated that the psychosocial services reduced stress.[37]	**Maternal Stress screening** This is viewed as a promising approach, since interventions to reduce stress are not well studied. Estimates of the cost and savings from stress screening are not available. However, evidence demonstrates that women who receive effective case management/home visitation demonstrate behaviors that are associated with reduced stress. Linkages of prenatal screening to referral resources for home visitation/ case management community-based social supports should be effective ways to assist women to manage pregnancy related stress and should yield results similar to those demonstrated in the program evaluations or clinical research trials.

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Infection screening and treatment • Genitourinary infections are often asymptomatic and common (2% to 30% of pregnant women). • Up to 40% of <u>all</u> preterm births are related to infection, with between 60% and 80% of preterm births at the youngest ages (under 30 weeks) attributed to infection.[38] • Treatment of asymptomatic urine infections reduces preterm birth by 40%.[39] Yet, only 50% of LA-prenatal providers screen for infection by the most appropriate method. • Chlamydia and bacterial vaginosis treatment with antibiotics can reduce preterm birth by up to 50%.[40,41]	**Links to Adverse Pregnancy Outcomes:** Level I, II-1, II-2, II-3, III **Infection Screening and Treatment**: Asymptomatic urine infection (ASB): Level I *C. trachomatis*-Level II-3, and III *N. gonorrhoeae*-Level III Bacterial vaginosis-Level I, II-1 (for bacterial vaginosis, demonstration of benefit from screening and treating varies by treatment regimen and risk status of the woman) **Community identified need** Guidelines exist from Centers for Disease Control and Prevention and American College of Obstetricians and Gynecologists	• Evidence from research trials indicate that one preterm birth can be prevented for every 21 women who are treated for asymptomatic urine infections.*[39] • Evidence from research trials indicate that one preterm birth can be prevented for every 10 to 11 women treated for bacterial vaginosis or chlamydia during early pregnancy.*[40,41] * These calculations are based on Number Needed to Treat calculations.	• Estimates suggest that if all women in LAC were screened and treated for asymptomatic urine infections 386 preterm or low birthweight births (or 3.9% of all LBW births) could be prevented. • If all women in LA County were screened and effectively treated for reproductive tract and urine infections (BV, CT, ASB) calculations show that between 2600 and 4200 preterm births could be prevented.* • If 15,000 to 20,000 women are cared for in the prenatal care quality improvement initiative then it is calculated that between 424 and 560 preterm births could potentially be prevented by screening and appropriately treating for urine and reproductive tract infections.* • Costs for screening tests are generally covered by health insurance. Insurance coverage for medications varies.
Periodontal Disease • Several well designed studies link periodontal disease in pregnancy to LBW and PTB.[42,43] • Pregnancy hormonal and immunologic changes may increase susceptibility to periodontal disease.	**Periodontal Disease link to PTB:** Level of Evidence: Level I and II-2. **Screening and Treatment**: Level I* (*single randomized controlled trial) Guidelines from American Academy of Periodontology. Community Identified Need	• A single randomized controlled pilot study demonstrated a trend towards reduced preterm birth prior to 35 weeks gestation among women with moderate to severe periodontal disease who received scaling treatment. Metronidazole treatment was of no further benefit.[43]	This is viewed as a promising strategy. Clinical experts recommend identification and treatment of moderate to severe peridontal disease. Large clinical trials are underway.

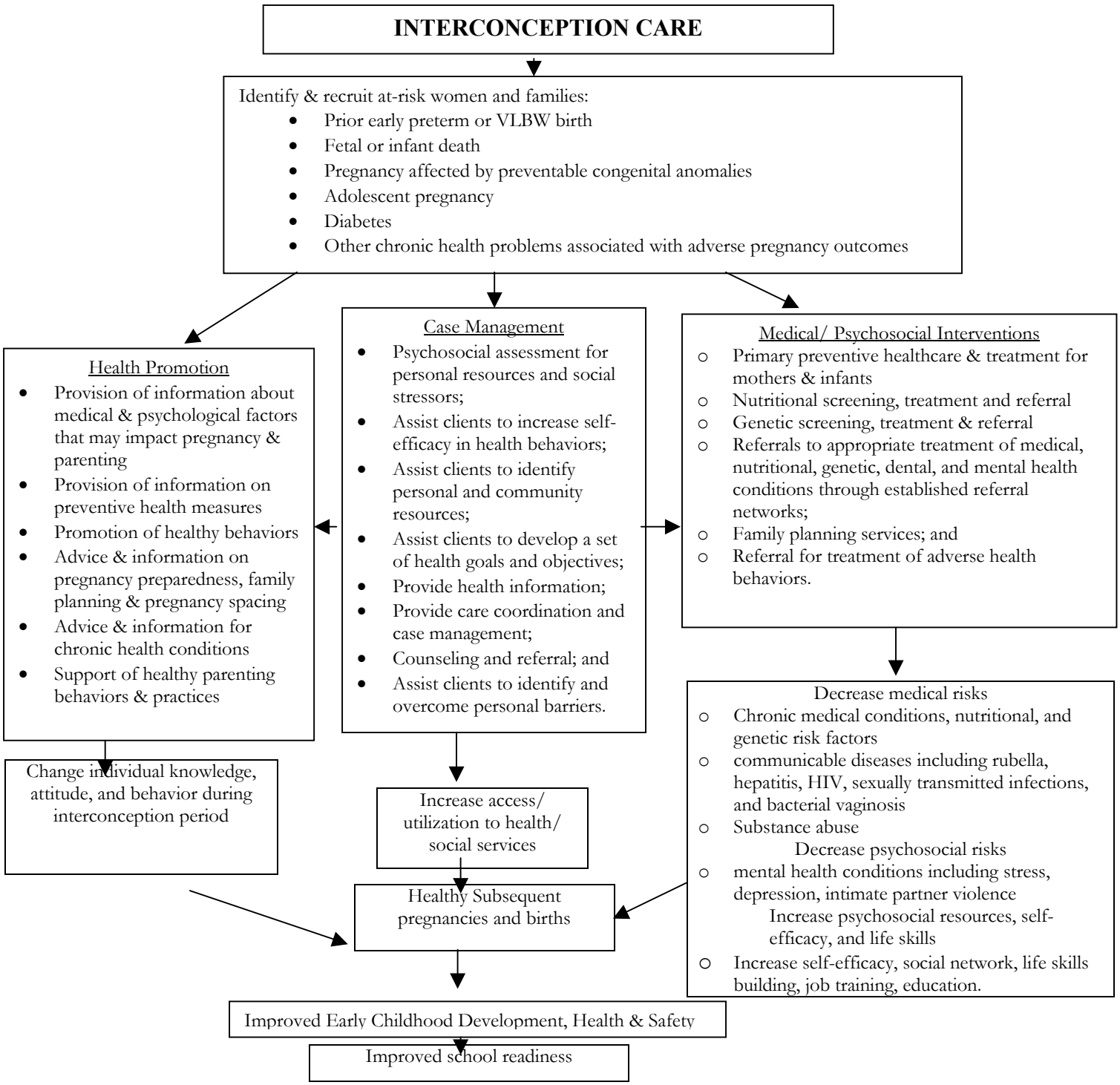
Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
Substance abuse screening and treatment: • Conservative estimates suggest that 11.4% of all births in California are exposed to alcohol or illicit substances.[44] Prevalence varies only slightly between women receiving public and private health insurance.[44] • Substance exposure during pregnancy exposes the fetus to both short term and long term complications related to pregnancy complications, effects of the specific substance, and exposure to associated life-style issues. • Surveys indicate that only 40% of medical care providers ask about alcohol use in pregnancy and only 20% ask about other substance use.[45]	**Links to Adverse Pregnancy Outcomes:** Level II-2, III **Substance abuse screening and treatment**: Level II-3, III • National consensus guidelines exist	Comprehensive, collaborative, family-centered, culturally competent services provided to pregnant women, their children and families demonstrate[46]: • 70% reduction in the number of preterm births • 84% reduction in low birthweight births • 67% reduction in infant mortality. • 75% decline in arrests for alcohol or drug offenses and non-alcohol related offenses • 62% increase in percent of clients reporting employment as a source of income • 39% increase in proportion of clients having custody of one or more of their children. [46]	If all women in LA County were screened for substance abuse and the rate of substance abuse is 11.4%, then this would result in 17,943 women being referred for evaluation and treatment. If 15, 000 to 20,000 women were included in the prenatal care improvement initiative this could result in between 1,700 and 2,300 women referred for evaluation. If treatment is associated with a 70% reduction in the number of preterm births then between 120 and 160 fewer infants will be born preterm among these mothers receiving substance abuse treatment. Comprehensive residential long-term treatment for substance abuse can cost up to $5,900 per person.
Diabetes screening and treatment • Women who have uncontrolled diabetes at the time of conception are 4 to 10 times more likely to have an infant with a serious birth defect.[44] • High blood sugar during pregnancy is associated with pregnancy complications for the mother and fetus. • Infants whose mothers had diabetes during pregnancy (gestational diabetes) are at increased risk for obesity, glucose intolerance, and adult onset diabetes (Type-II Diabetes).	**Links to Adverse Pregnancy Outcomes:** Level I, II-1, II-2, III **Diabetes screening and treatment**: Level I • California consensus guidelines exist	**Diabetes screening and treatment**: • Following implementation of the California Diabetes and Pregnancy Program (CDAPP), congenital anomalies of infants of women with diabetes decreased from 12% to 2%.[47] • Infants of diabetic mothers enrolled in CDAPP are admitted less to the NICU, and those who are admitted spend significantly less time in the NICU.[47] • California studies demonstrate that between $3 and $5 can be saved for every $1 spent on diabetes and pregnancy prenatal care.[48]	**Diabetes screening and treatment**: • An estimated 11,000 births in Los Angeles County are affected by gestational diabetes annually. • If 15, 000 to 20,000 women were included in the prenatal care improvement initiative this could result in between 1,050 to 1,400 women with gestational diabetes receiving comprehensive care and follow-up. • Care for pregnant women with diabetes and gestational diabetes is covered by health insurance.

Interconception Care

Definition: Comprehensive medical and psychosocial care during the time immediately following a birth and through a subsequent pregnancy to improve health and modifiable risk factors and promote healthy birth.

Objectives:

- To provide comprehensive health and social care to improve family health and well-being, and promote subsequent healthy pregnancies and births.



Interconception Care

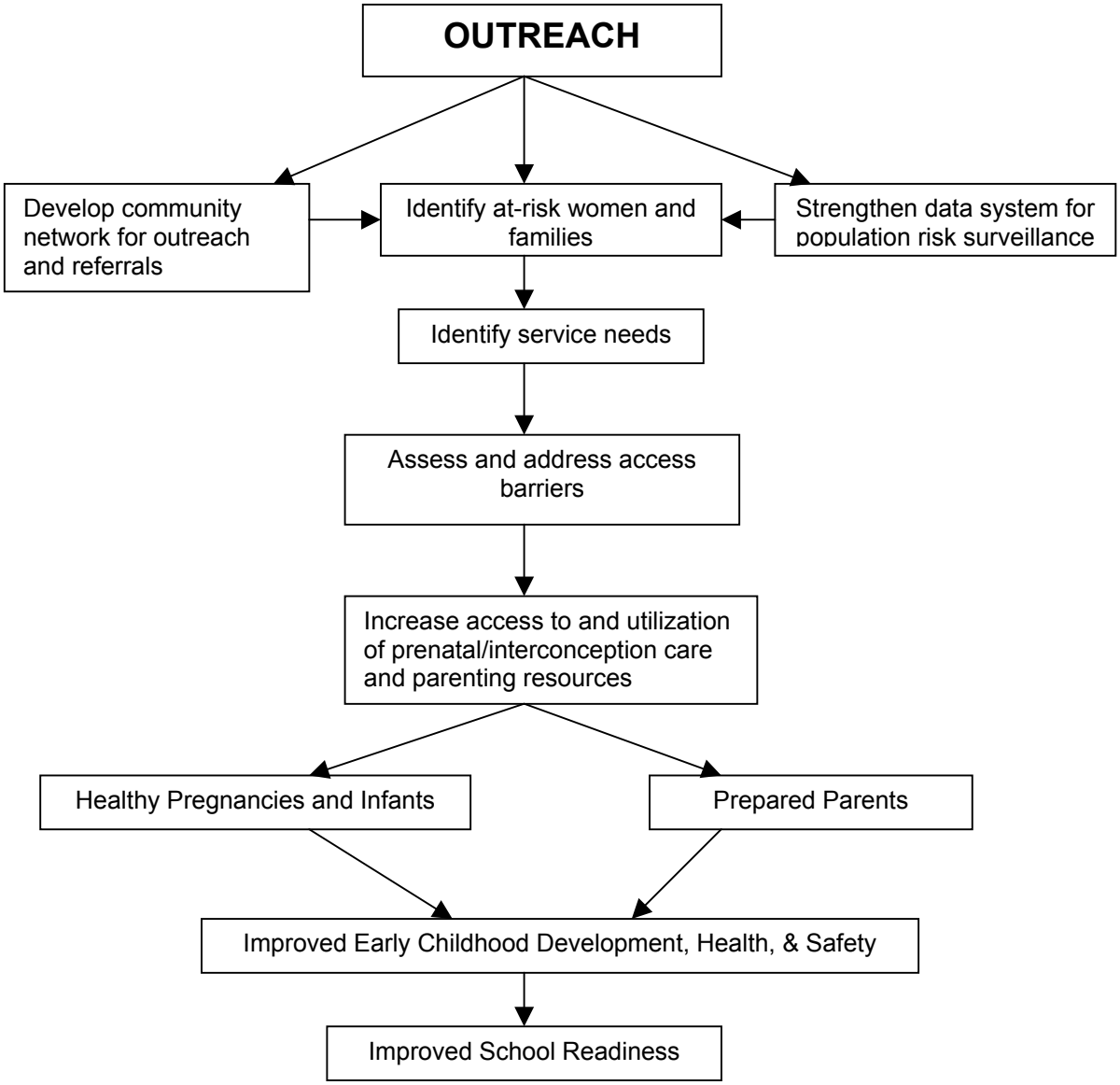
Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
• Women who have had poor birth outcomes are at risk for subsequent poor birth outcomes e.g. women whose first delivery was preterm have approximately 30% recurrent preterm birth rate in their second pregnancy.[49] • Many biobehavioral risk factors (e.g. poor nutrition, substance use, psychosocial stress, asymptomatic infection) are carried from one pregnancy to the next. • The interconception period offers an important window of opportunity for optimizing women's health prior to their next pregnancy. • Presently, most women do not receive interconception care. • Further, many women whose prenatal care was provided for under the Medi-Cal system lose coverage/benefits at 60 days postpartum, even if they have had a poor birth outcome.	**Screening and treatment:** **Level of Evidence: II-1** Based on Interconception Health Promotion Initiative, Denver, CO **Community Identified Need**	Results from a five-year interconception care demonstration program[49]: • Improved compliance with medical care and family planning. • 41% increase in completion of the six week post partum well visit and family planning visit. • Increased pregnancy spacing. • Improved use of prenatal care in subsequent pregnancies. • Women participating for at least six months had 34% fewer subsequent low birth weight infants, and fewer infants requiring NICU admissions. • Women followed for up to two years, 20% had a repeat low birthweight infant compared with 57% of women followed but who declined to participate in the case management program.	This is viewed as a promising approach. Annually approximately 1800 very low birthweight (weighing under 3.3 lbs) infants are born in LA County. If the interconception intervention reduce the number of subsequent preterm or very LBW births from 30% (national average) to 20% (demonstration program) then over two years approximately 600 more infants would be born at healthy birth weights rather than LBW. This would result in significant savings in neonatal health care costs, childhood health care costs and special education.

Outreach

Definition:
A systematic effort to provide services beyond conventional limits, as to particular segments of a community

Objectives:

- To improve access to and utilization of prenatal and/or interconception care for at-risk women and families
- To increase early (first trimester) entry and consistent prenatal care
- To identify and connect at-risk women and families to needed resources and services
- To ensure clients receive referred services through follow-up activities
- To collaborate with community stakeholders to establish a relationship and build trust



Outreach

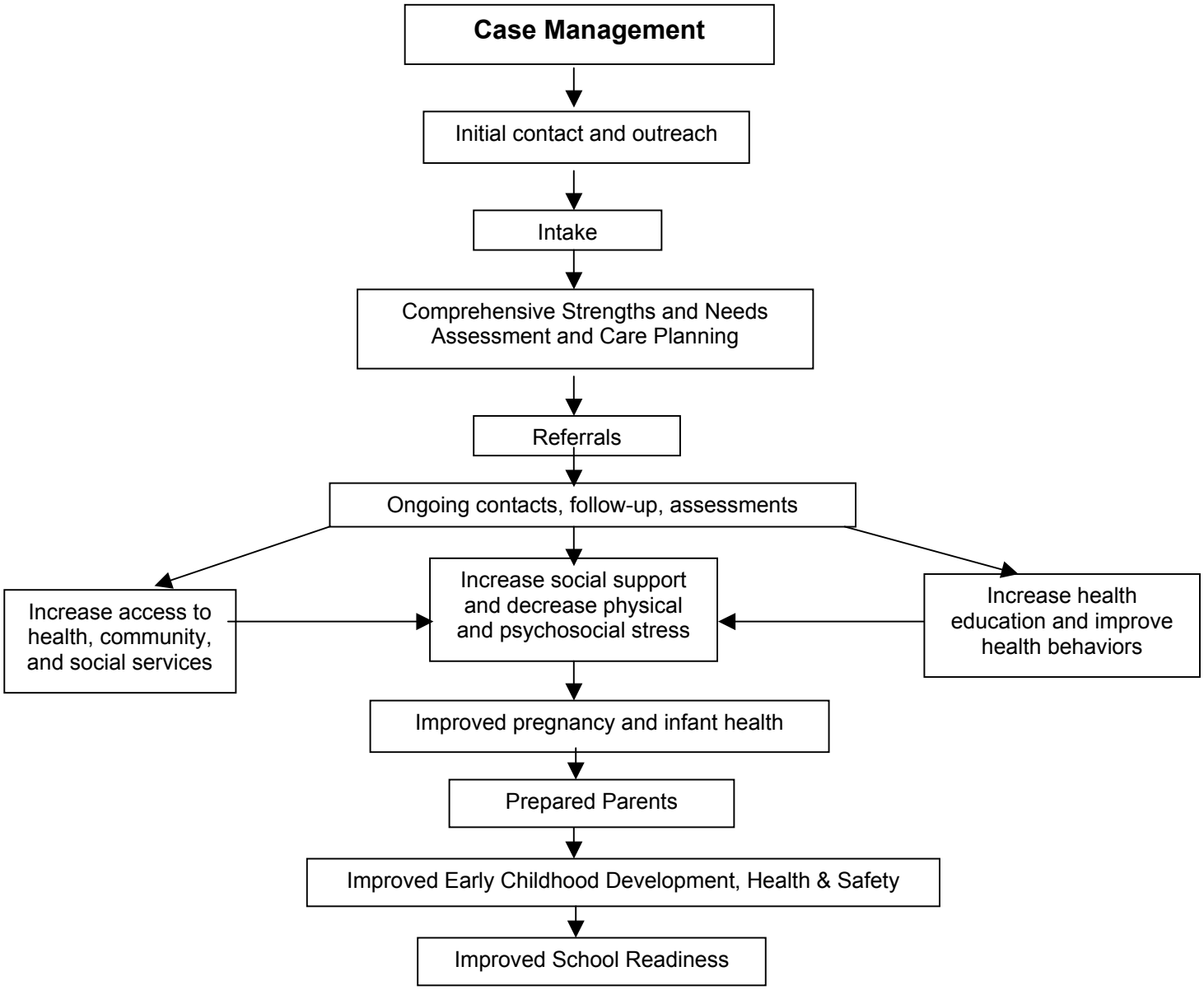
Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings
• Racial-ethnic and geographic disparities exist in first trimester prenatal care access and utilization. ○ SPA 1 – 83% ○ SPA 2 – 89% ○ SPA 3 – 87% ○ SPA 4 – 86% ○ SPA 5 – 91% ○ SPA 6 – 81% ○ SPA 7 – 84% ○ SPA 8 – 86% • Many environmental and social factors can impact a pregnant woman's access to resources and services. • Outreaching to clients is crucial in overcoming barriers such as: ○ lack of access to quality and culturally competent prenatal and other services ○ lack of transportation and health insurance ○ inconvenient hours of operation ○ lack of work leave ○ institutionalized racism and other system barriers • Models that worked: ○ National Healthy Start Program* - increased PNC utilization.[50] ○ LAC/DHS POE Programs* - increased enrollment in health insurance, increased utilization of referral services.[51] *outreach was only 1 component in the successful models	**National Healthy Start program** **Level of Evidence: II-3**	From 2001 to 2002 the LAC/DHS Perinatal Outreach and Education (POE) Programs: • provided outreach services to nearly 4,700 clients, and • held 578 health education classes for over 5,100 clients. The PEO programs noted an 129% increase in the proportion of women who were referred and enrolled in a health insurance program; and among women referred 235% increase in the proportion of women receiving health services over the prior year.[51] POE programs were defunded in 2003, leaving significant gaps in outreach to pregnancy women and families.	Outreach to identify pregnant women with diabetes, depression, and substance abuse and facilitate their entrance into health care and treatment will yield the outcomes and cost savings previously described.

Case Management

Definition:
Assignment of a professional or paraprofessional to provide comprehensive foundation for support and coordination of services for pregnant women and their families.

Objectives:

- To improve access to and utilization of prenatal and/or interconception care for at-risk women and families
- To connect at-risk women and families to needed resources and services
- To ensure follow-up with service plans
- To increase personal and interpersonal health related behaviors To increase consumer empowerment and satisfaction with services
- To increase coordination and collaboration among prenatal care and social service providers
- Assist parents to improve child's health and development by providing healthy parenting practices
- Assist mothers and families to develop a plan for their future, continue education, find employment and become economically self-sufficient



Case Management

Rationale	Level of Evidence & Community Identified need	Examples of Reported Impact & Potential Improvement	Potential Costs and Savings

• A complex maze of prenatal and interconception care services for pregnant women exists in Los Angeles.
• Case management provides a consistent bridge between the complex system and pregnant women who need services.
• Most studies have found that integrated models which include case management have the most impact on birth outcomes.
  • Models that worked:
  ○ National Healthy Start Program[50]* - increased PNC utilization, some showed decreased PTB, and LBW
  ○ Black Infant Health Program* - decreased VLBW, and early PTB[52]
 	
*case management was only 1 component in the successful models
	Level of Evidence:
	
	Nurses, First time mothers (Nurse Family Partnership) **– Level I**
	
	Mixed lay community worker, professional team model (Black Infant Health Model, Healthy Start Programs, Early Head Start, Substance abuse programs)- **Level of Evidence: II-2, II-3**
		The California Black Infant Health (BIH) program is one example of a community-based intervention that uses outreach and tracking, social support and empowerment, case management and the role of men to improve birth outcomes in African American communities.
		• Preliminary evaluation of the BIH programs showed a nearly 20% reduction in very preterm birth and 36% reduction in VLBW rates.[52]
		• From this data it can be calculated that for every 90 women who receive the BIH program one VLBW infant can be prevented.
		
		The LA-Nurse-Family Partnership program demonstrates similar numbers for improved pregnancy outcomes locally with only: 7% of their extremely high risk clients (mean age 17, mean income $10,500) having preterm and 6% LBW births. In comparison, in LA County as a whole, 10.2% of births are preterm and 6.4% are LBW.
		
		Research data for the Nurse Family Partnership, demonstrated:
		○ Reduced LBW among teens
		○ 79% reduction in child abuse through age 4 years
		○ 44% reduction in maternal behavioral problems due to substance abuse
		○ 69% reduction in maternal arrests
		○ 54% fewer arrests among adolescent children
		○ Increased positive parenting practices
		
		Comprehensive substance abuse treatment programs which include informational, emotional, and tangible social support as well as additional comprehensive services demonstrated reduced rates of preterm birth that were 70% to 80% lower than rates in comparator women using illicit substances.[46]
			• Annually approximately 1800 VLBW infants are born in LA County. Reductions in the number of VLBW births would have significant benefits for health care and long term educational costs.
			• Cost for Nurse Family Partnership is estimated at $10,400 over 2.5 years of participation per family. Results from cost analysis demonstrate that costs for the program are returned to society (through reduced need for public assistance, arrests, child abuse, etc) by the time the child is 4 years old.[53]
			• Costs for implementation of the BIH program per family were not available.
			• Early Head Start – also provides comprehensive services beginning in pregnancy; the average cost per child in 2002 is $10,544.[54]

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