

Healthy Pregnancy and Healthy Children: Opportunities and Challenges for Employers

The Business Case for Promoting Healthy Pregnancy

This issue brief provides an overview of the costs and complications of pregnancy. It also presents opportunities employers have to improve the health of their beneficiaries and reduce healthcare costs through the implementation of pregnancy-tailored benefits, programs, and policies.

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Introduction

Approximately, 6 million women become pregnant each year¹ and most are beneficiaries of employer-sponsored health plans. In 2005, 63% of all women in the United States were covered by job-based health coverage, either through their own employer or their spouse's employer.² In the past 20 years, the percentage of new mothers in the workforce has increased by more than 80%. Currently, 56.4% of women who have an infant younger than 1 year of age are employed outside the home³ and new mothers are the fastest growing segment of the U.S. workforce.⁴ One-third of working mothers return to work within 3 months of the birth of their child and two-thirds return to work within 6 months.⁵

Employers incur the high costs of pregnancy-related healthcare. Pregnancy and **neonatal** claims are often employers' highest ticket items.⁶ **Increased utilization of high-cost diagnostics, increases in preterm births, multifetal pregnancies, and high rates of cesarean sections** are making employers aware of the need to focus on **pregnancy-related costs**.⁷ Beyond the direct medical costs of pregnancy, employers contend with issues of **absenteeism, short- and long-term disability, and the loss of institutional knowledge** due to retention problems following pregnancy.

Savvy benefit managers are educating themselves on the special medical needs of pregnant women and are improving the health of women before, during, and after pregnancy through comprehensive preconception, prenatal, and postpartum benefits; healthy pregnancy programs; and health promoting policies. Smart programs tailored to the needs of pregnant women are hitting the mark.

The following sections provide the evidence and rationale for promoting health at each stage of pregnancy, and present opportunities employers have to improve the health of their beneficiaries and reduce healthcare costs.

Key Definitions⁸:

Preconception: Occurring prior to conception.

Prenatal: Occurring, existing, performed, or used before birth.

Antenatal: A synonym for prenatal.

Perinatal: Occurring in, concerned with, or being in the period around the time of birth.

Postnatal: Occurring or being after birth.

The Value of a Healthy Pregnancy

Preconception Period

The **preconception period** is the 1-year period before a woman becomes pregnant. Preconception health is important because the health of a woman's body *before* pregnancy affects the viability of the pregnancy and the health of the future infant. Preconception health care is preventive care; it includes appropriate vaccinations, adequate exercise, disease management, and enriched

Health care during the preconception period focuses on nutrition, immunizations, and the effective management of existing chronic diseases.

nutrition.⁹ Good preconception health reduces pregnancy complications, birth defects, long-term developmental issues, and speeds postpartum recovery.⁹ Preconception care is also **cost-saving**. A recent prospective analysis of comprehensive preconception care found that every for every \$1 spent on preconception care, \$1.60 is saved in maternal and fetal care costs.¹⁰ Other studies have shown that preconception care can save as much as \$5.19 for every \$1 invested. Cost-savings mainly result from

the reduced rate of **neonatal intensive care unit (NICU)** hospitalizations among infants born to mothers who received preconception care.¹⁰

The physical health of both the woman and the man *before* pregnancy affect the health of their future baby. There are specific things women can do to improve their chances of a healthy pregnancy.

What women can do¹²:

- Take a multivitamin with 400 micrograms (mcg) of folic acid every day before pregnancy.
- Get a pre-pregnancy checkup, including a dental checkup.
- Eat healthy food, maintain a healthy weight, and stay fit.
- Stop smoking and avoid secondhand smoke.
- Stop drinking alcohol.
- Not use illegal drugs.
- Avoid infections.
- Avoid hazardous substances and chemicals.
- Talk to a healthcare provider about their family history (including history of birth defects).
- Avoid stress.

The challenge in providing health care for the preconception woman lies in accurately identifying the preconception period. Only 51% of pregnancies are intended; thus, half of women do not have the opportunity to get recommended preconception care before they conceive.⁹ **Approximately 40% of unintended pregnancies—pregnancies either mistimed or unwanted—are carried to term.**¹¹ Since intention does not always precede pregnancy, all women of **childbearing-age** (women aged 15 to 44 years) are considered to be in the preconception period.

Pregnancy

Broken into three trimesters, a normal pregnancy lasts between 38 and 42 weeks from the woman's last menstrual period. Pregnant women are advised to seek prenatal care; eat a healthy diet, get regular exercise and maintain a healthy weight; avoid tobacco, alcohol, and environmental toxins; and reduce stress.^{9, 12, 13} Although some pregnancy complications are genetic, many common problems are preventable. Pregnant women can lower their risk of complications if they adhere to healthy pregnancy guidelines.

Prenatal Care

Prenatal care includes preventive screening and counseling; diagnostic testing and procedures; and growth and weight monitoring. Evidence shows that comprehensive prenatal care is associated with reduced incidence of low birthweight and infant mortality. Death rates from pregnancy complications are three to four times higher among women who receive no prenatal care compared to women who receive basic prenatal care.¹⁴ For women at high risk of pregnancy complications, prenatal care is both life-saving and cost-saving. **For every dollar spent on prenatal care, employers can expect savings of \$3.33 for postnatal care and \$4.63 in long-term morbidity costs.**¹⁵

Healthy Pregnancy Essentials

Eliminate

- Alcohol and drug use
- Tobacco use

Prevent

- Infectious diseases
- Accidents
- Domestic violence

Manage/ Address

- Weight gain
- Stress
- Mental health problems

Improve

- Nutrition
- Physical activity

Pregnancy Complications

There is a wide variety of pregnancy complications. Some complications are acute and limited (e.g., influenza, infection with listeria): they affect the health of the woman and the viability of her pregnancy, but long-term effects are mild or rare. Other complications, such as **gestational diabetes**, **have both immediate and long-term risks**. These risks can affect the pregnant woman and her future health, or the short- and long-term health of her baby. From both the health perspective and the cost perspective, complications that result in short- *and* long-term problems for *both* woman and child are the most concerning.

Pregnancy Complications¹⁶

- Alcohol use
- Bleeding disorders
- Drug use
- Ectopic pregnancy
- **Gestational diabetes**
- Group B streptococcus
- HIV/AIDS
- Listeria
- Maternal depression
- Obesity
- Placental abruption
- **Preeclampsia** (pregnancy-related hypertension)
- Sexually transmitted infections (STI's)
- Tobacco use
- Toxin exposure
- Toxoplasmosis
- Urinary tract infections
- Yeast infections

Common Pregnancy Complications^{17, 18}

Anemia is a blood disorder caused by insufficient red-blood cells for carrying oxygen to organ tissues. Anemia can result in iron deficiency, which is associated with preterm birth and low birthweight.

Gestational diabetes is a type of diabetes that occurs only during pregnancy. Gestational diabetes can lead to excess growth, low blood sugar, respiratory distress syndrome, and jaundice in newborns, and increases a child's risk of developing type II diabetes later in life. Gestational diabetes puts pregnant women at risk of preeclampsia. It also puts women at risk of developing type II diabetes. Approximately 20% to 50% of women with gestational diabetes develop type II diabetes later in life.

Maternal Obesity increases a woman's risk for birth defects (especially neural tube defects), labor and delivery complications, fetal and neonatal death, maternal complications (e.g., hypertension, gestational diabetes, and preeclampsia), and delivery of large-for-gestational-age (LGA) infants. Obese women are also at increased risk for infertility.

Pregnancy induced hypertension (PIH) /preeclampsia is a condition characterized by high blood-pressure and excess protein in the urine after 20 weeks gestation. Complications of preeclampsia may include lack of blood flow through the placenta, destruction of red blood cells, elevated liver enzymes, and low platelet count. Preeclampsia can lead to eclampsia, a disorder that results in severe seizures, which cause organ damage for the mother and brain damage or death for the infant.

Prenatal depression is a serious mental illness interfering with a pregnant woman's ability to work, sleep, eat, and care for herself.

Labor and Delivery

The onset of regular and frequent contractions commences the labor phase of pregnancy. In an ideal circumstance, a baby is carried beyond 38-weeks—to full-term—and the infant is delivered vaginally. A healthy pregnancy increases the chance that a pregnancy will be carried to term.

There are approximately 4 million live births in the United States each year.

An unhealthy pregnancy (a pregnancy affected by complications or risk behaviors) may lead to **preterm birth and/or low birthweight**. By definition, birth before 37 weeks is “preterm”: birth between 34 and 36 weeks is considered “late preterm” and “very preterm” births occur before 32-weeks gestation.¹⁹ A low birthweight diagnosis requires a baby to be born weighing 5 lbs. 8 oz or less (2500 g).²⁰

Top 3 Neonatal Complications^{18, 21}

Jaundice: A common condition in which the newborn's liver is not developed enough to process bilirubin, causing the baby to appear yellowish. Newborns with jaundice require monitoring because high bilirubin levels can cause brain damage.

Anemia: A blood disorder caused by insufficient red-blood cells for carrying oxygen to the organ tissues. Anemia can lead to stunted growth in neonates.

Sepsis: A rare but serious infection usually caused by bacteria originating in the lungs, intestines, urinary tract, or gallbladder. If left untreated, the infection progresses rapidly leading to organ damage and death.

Infertility and the Impact of Infertility Treatment on Healthy Pregnancies

One in ten couples in the United States has difficulty conceiving a child.²² Clinical guidelines suggest that couples should seek assistance for infertility if they have trouble getting pregnant after 12 months of trying if the woman is 35 years of age or younger. If the woman is over age 35, a couple should seek assistance after 6 to 10 months of trying without successful conception.²³

Causes of Infertility²³:

Infertility can be caused by a wide variety of underlying problems, and couples often experience more than one reason for infertility:

- Aging (fertility declines as men and women age).
- Cancer treatment.
- Certain chronic illnesses, such as diabetes or Hodgkin's disease.
- Damage to the reproductive organs.
- Exposure to radiation and certain chemicals, such as pesticides.
- Genetic conditions.
- Problems with ovulation (a woman's ability to produce an egg).
- Problems with sperm (amount, quality, or both).
- Sexually transmitted infections (STIs) and other reproductive infections.
- Tobacco, alcohol, or drug use.

Treatment options²³:

After a thorough evaluation and diagnosis of infertility, treatment options include:

- Medications to assist with releasing an egg (ovulation).
- Surgery to repair part of the reproductive system. For example, scars in a fallopian tube can block eggs from traveling from the ovaries to the uterus.
- Insertion of sperm from the man or a donor into the woman's uterus (called artificial insemination or intrauterine insemination [IUI]).
- Assisted reproductive technologies (ART), which involve surgically removing a woman's eggs, fertilizing them with sperm in the laboratory, and then reinserting the fertilized egg into her uterus. In vitro fertilization (IVF) is an ART procedure.

Recommendations to Employers Regarding Infertility Benefits

Employers are increasingly providing coverage for infertility treatments. These treatments are expensive, and they can also put women at-risk for pregnancy complications and other reproductive health problems. Employers who provide infertility coverage should follow these guidelines to reduce cost, manage risk, and protect the health of beneficiaries:

- Mandate that network fertility centers inject the minimum number of eggs necessary to achieve a viable single birth. Multifetal pregnancies, common in women undergoing infertility treatment, are at high risk for complications and 61.9% result in preterm births.¹ ART-induced pregnancies account for less than 1% of births in the United States; however, they account for 17% of twins and 38% of triplets or higher-order multiples.²⁴ By selecting "fertility centers of excellence," large employers may be able to reduce the complications and unintended consequences of multifetal pregnancies.
- Set an age limit for infertility treatment.
- Set an annual or lifetime maximum for infertility treatment or set a maximum number of attempts per lifetime. Depending on their resources and philosophies, large employers have selected lifetime maximum amounts between \$15,000 and \$100,000; many clinical guidelines suggest a maximum of three attempts per lifetime.²⁵
- Work with your health plan(s) to establish clinical indications for ART and other infertility treatments.
- Provide education and support services (e.g., health coaching, education materials, expert consultations) to women and their partners considering infertility treatment. Health coaches can help women and their families make informed decisions and better communicate with care providers.²⁶

The Epidemiology of Birth in the United States

In the United States, population birth statistics show a move away from full-term vaginal births, toward preterm and low-birthweight births and cesarean delivery. Between 1996 and 2004, preterm births rose 14% in the United States. Over the past 10 years, the cesarean section rate increased a dramatic 50% (http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_12.pdf).²⁷ In 2005, the U.S. cesarean section rate hit 31.8% (http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_12.pdf); slightly more than double the rate experts believe is medically necessary.²⁷ Although these shifts are not entirely understood, trend drivers for poor birth outcomes include changes in the practice of obstetrics and population demographics.^{28, 29}

Preterm Birth: An Overview of the Problem

The United States has a high rate of both preterm births and low birthweight births. Of the 81,562 babies born each week in the United States, 10,440 are born preterm and 6,769 are born with a low birthweight diagnosis.¹ Preterm birth occurs in approximately 12.8% of live births, and over 10% of newborns covered by employer-sponsored health plans are born prematurely.¹

Ten percent (10%) of total dollars spent on hospital stays for children and adolescents fall within the neonatal period, accounting for approximately \$4.6 billion in annual charges.¹⁵

Preterm birth is a complication of pregnancy that is particularly dangerous for newborns. Infants who are born prematurely suffer from a host of medical problems, including respiratory and cardiac distress, jaundice, feeding difficulties, hypoglycemia, temperature instability, and sepsis. These health problems can be caused by a lack of physical development; for example, respiratory problems can occur when an infant is born before its lungs are fully developed. Problems can also result from injury to the infant's immature central nervous system (e.g., intrauterine growth retardation, cerebral hemorrhage and infarction, hypoglycemia, septicemia, asphyxia) during gestation, labor, or delivery.³⁰

Premature babies are at considerable risk for long-term impairment, including physical disability, cerebral palsy, mental retardation, and attention-deficit and hyperactivity disorder (ADHD).^{31, 32}

Medical experts estimate that a quarter of infants leaving neonatal intensive care units (NICUs) have chronic health problems.^{31, 32} These chronic problems, including developmental delays and disabilities, put premature babies at risk for a variety of poor social outcomes as they age including the inability to hold employment, extended residence in a parent's household, lowered socio-economic status,³⁰ lower cognitive test scores, and behavioral problems.³³

Demographic Issues

Preterm labor and low birthweight are affected by demographic factors such as smoking status, maternal age, maternal nutritional status, and racial and ethnic disparities:

- Approximately 20% of childbearing-age women smoke in the United States.³⁵ Women who smoke during pregnancy are at an increased risk for preterm labor and low birthweight babies.

Medical and Environmental Risk Factors for Preterm Birth³⁴

- African-American racial designation
- Multifetal pregnancy
- Periodontal disease
- Polygenetic illnesses
- Polymicrobial bacterial infections
- Poverty
- Previous preterm delivery
- Uterine or cervical abnormalities

- Maternal age is steadily increasing in the United States due to a host of factors including delayed marriage, additional schooling, economic pressures, and career choices. Age is an important factor in pregnancy health. There is a high risk of birth defects and infertility associated with advancing maternal age. Infertility treatment increases the likelihood of a multifetal pregnancy, which in turn increases the likelihood of cesarean delivery, preterm labor, and low birthweight.²⁸
- Studies have found that a high carbohydrate/low protein diet is associated with reduced fetal and placental growth.³⁶ Maternal nutrition during pregnancy affects child, adolescent, and even adult health by impacting both intrauterine growth and chronic disease risk.³⁷
- African-American women are twice as likely to have a premature baby as are women in any other racial or ethnic group.³⁸

Cesarean Deliveries: An Overview of the Problem

A **cesarean section (c-section)** is a surgical procedure used to deliver a baby. A surgeon makes an incision through a pregnant woman's abdomen and uterus and removes the fetus. Although many c-sections are literally life-saving, the procedure is increasingly being performed on low-risk women without medical indication. This trend is alarming because an unnecessary c-section introduces risks without associated benefits. Maternal risks include infection, hemorrhage, and blood clots. C-sections also require a longer recovery time than vaginal births do, and increase the risk for difficulty establishing breastfeeding, breathing problems in the newborn, severe and longer-lasting postpartum pain, and many other adverse effects. In addition, it is an expensive procedure contributing to the high cost of pregnancy-related medical care.²⁸

The dramatic increase in the c-section rate is thought to be a confluence of the following factors:

- Changes in the practice of obstetrics, for example an increase in the use of epidurals and labor inductions.
- Health system pressures, such as the increasing cost of malpractice insurance for obstetrician-gynecologists (OB-GYNs).
- Demographic changes that lead to more high-risk pregnancies.

Practice Issues

In recent years, changes in the practice of obstetrics have led to increasing rates of primary and secondary c-sections. Practice changes include a greater reliance on epidurals for pain management, reliance on electronic fetal monitoring, high rates of labor induction, and a decrease in the number of vaginal birth after cesarean (VBAC) procedures. Many of these changes are a result of health system pressures such as malpractice lawsuits and the increasing cost of malpractice insurance for OB-GYNs, reimbursement issues, and hospital policies that favor intensive interventions (including c-section, continuous fetal monitoring, and pharmacologic pain management) over natural childbirth.

- Epidurals slow the second phase of labor, the period when the baby descends into the birth canal. Delays in phase II present the risk of asphyxiation, brain damage, or death to the infant. To avoid dire consequences, OB-GYNs frequently chose to deliver infants by c-section rather than continuing with vaginal labor.
- Electronic fetal monitoring (EFM) has been shown to increase the c-section rate by 40% without associated benefits.
- When labor is induced before a baby is ready to be born, induction is associated with

an increased risk for c-section and NICU admission. Between 1989 and 2002 **the rate of labor induction increased by more than 200%** (in 1989 only 9% of labors were induced, by 2006, 22.5% of pregnant women underwent an induction procedure <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5844a2.htm>).^{29, 32}

- When a woman has a child by c-section and then experiences a subsequent pregnancy, there is a choice to deliver the second child vaginally or by c-section. When the child is delivered vaginally, the birth is called a **VBAC (a vaginal birth after cesarean)**. In the early 1990's, the popularity of VBAC procedures rose and, consequently, the c-section rate declined. However, in subsequent years, the trend has reversed.²⁸ The small risk of uterine rupture underpins the argument over the safety of VBACs. Not wishing to face law suits, pay high malpractice costs, or risk harm to patients, hospitals and physicians shy away from the practice. In fact, some hospitals have policies against VBACs, despite strong evidence to show that in most cases they are safe and successful (women with a history of cesarean and no history of VBAC are able to deliver a subsequent child vaginally 67% of the time; women with a history of cesarean and a prior successful VBAC are able to deliver vaginally 87% of the time).³⁹ Instead, hospitals and physicians elect to schedule pregnant women with a prior history of cesarean for another c-section.
- Elective c-sections (c-sections performed for the convenience or preference of a patient or provider) also contribute to the rising number of c-sections,²⁹ although the number of patient-preferred elective c-sections is lower than once thought.⁴⁰

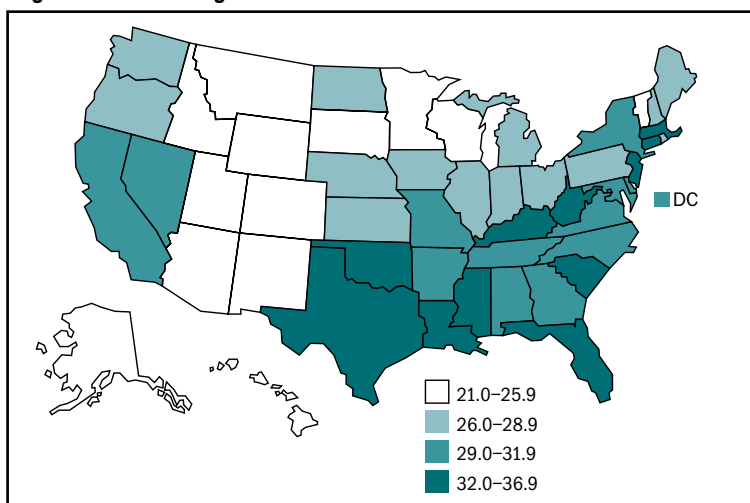
Demographic Issues

Demographic changes also impact the patterns, risks, and costs of pregnancy. Demographic drivers of the upward c-section rate include age and maternal weight:

In certain parts of the country, practice changes and demographic shifts have led to cesarean section rates that are more than double the estimated medical need of 15%.

- Women over the age of 40 have a 77% higher rate of cesarean delivery than women under 30.⁴¹
- Obese women and women who gain excessive weight during pregnancy are at higher risk for a cesarean delivery.⁴¹

Figure 4A: Picturing Cesarean Births Across the United States



Source: Centers for Disease Control and Prevention. QuickStats: Percentage of All Live Births by Cesarean Delivery — National Vital Statistics System (United States, 2005). Atlanta, GA: Centers for Disease Control and Prevention; 2006. Accessed on June 11, 2007.

Geographic Variation

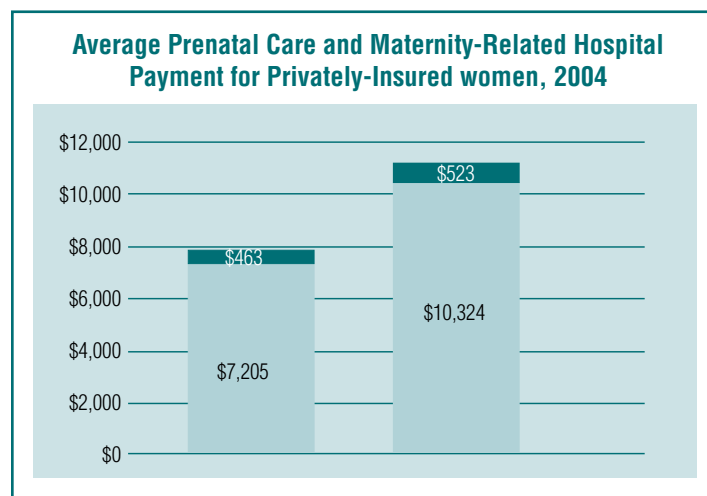
Figure 4A shows the geographic variation in c-sections across the United States. Rates are highest in the South and along the East Coast. In these areas, changes in the practice of obstetrics and demographic shifts have had the most profound impact on pregnancy and delivery.

Creating the Value Proposition for Investing in Healthy Pregnancies

Pregnancy-Related Healthcare Costs

Pregnancy and childbirth account for nearly 25% of all hospitalizations in the United States.⁴²

Among women with employer-sponsored health coverage who delivered a baby in 2004, prenatal care and maternity-related hospital payments *combined* averaged \$7,737 for a vaginal delivery and \$10,958 for a cesarean delivery (these figures include patient out-of-pocket costs).⁴² Payments are a true measure of cost for employers; however, it should be noted that payments are substantially lower than charges due to negotiated provider and facility discounts. The higher cost of a cesarean delivery includes \$2,090 in additional hospital expenditures and \$723 in additional payments for professional fees resulting from the longer length of hospital stay.⁴² These estimates do not include the highest cost and most complicated deliveries (outliers) and are thus conservative estimates.



Source: Thomson Healthcare. *The Healthcare Costs of Having a Baby*. Santa Barbara, CA: Thomson Healthcare; June 2007.

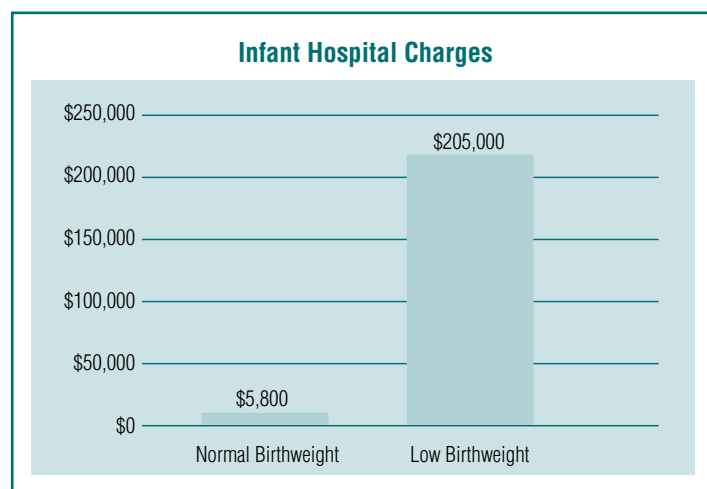
preterm birth/low birthweight, including **absenteeism, productivity declines, and long-term disability.**

- Absenteeism may result for both parents if the mother and/or baby have an increased length of stay in the hospital, or if the infant requires extra doctors' appointments or suffers from a chronic condition. A complicated birth may also cause additional stress for parents. Stress can reduce a person's ability to be productive at work. Lost household and labor market

Complications of Pregnancy

Annually, over \$1 billion is spent on hospitalizations related to pregnancy complications.⁴³ Preterm birth is one of the most expensive complications of pregnancy. In 2005, preterm birth cost the United States at least \$26.2 billion, or **\$51,600 for every infant born prematurely.**⁴⁴ Nearly half of all charges related to prematurity fall in the laps of employers and other private insurers.⁴⁵

In addition to excess medical costs, employers face indirect costs related to

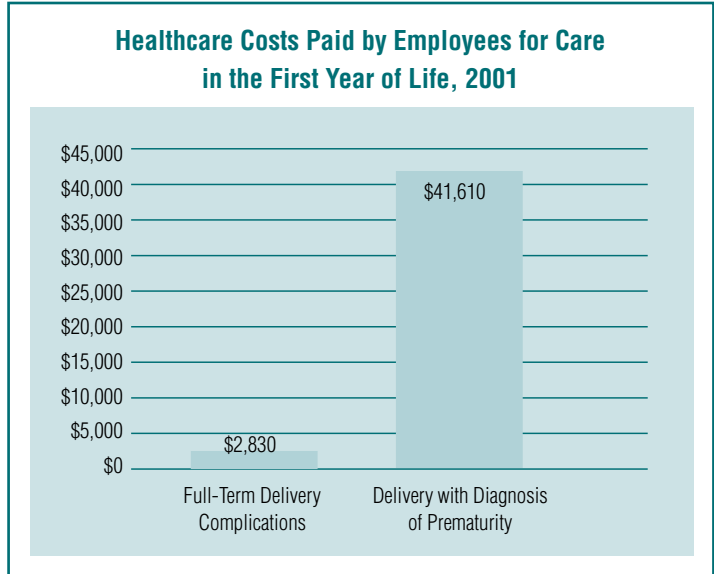


Source: Cuevas ZKD, Silver DR, Brooten D, Youngblut JM, Bobo CM. The cost of prematurity: hospital charges at birth and frequency of rehospitalizations and acute care visits over the first year of life: a comparison by gestational age and birthweight. *Am J Nurs*; 105(7):56-64.

Preterm birth costs the U.S. economy \$26.2 billion annually in medical, educational, and lost productivity costs.¹

productivity associated with preterm births totaled \$5.7 billion in 2005.⁴⁵

- Complications of pregnancy account for 4,039 cases of short-term disability per million covered lives. In 2004, the average length of a pregnancy-related short-term disability is 7 days.⁴⁶
- Complications of pregnancy account for 203 cases of long-term disability per million covered lives. The major causes of long-term disability are: twin pregnancy, premature labor, antepartum hemorrhage, postpartum hemorrhage, and other complications. Most cases resolve within 1 year.⁴⁶



Source: March of Dimes. *Costs of Maternity and Infant Care*. White Plains, NY: March of Dimes; June 2007

Costing Out an Unhealthy Pregnancy

Analyzing your company's medical claims will help you better understand the cost of pregnancy complications in your population. Standard metrics related to pregnancy outcomes may be able to help you identify beneficiary risk profiles, healthcare access problems, or other issues. Claims data, paired with the following information, can help you develop a value proposition for investing in healthy pregnancies²⁸:

- Number/rate of preterm births.
- Rate of cesarean delivery.
- Rate of NICU admissions and re-admissions.
- Rate of labor induction.

To learn more about pregnancy-related costs, tract the following diagnosis and procedure codes:

Diagnosis Codes²⁸

- 640-648: Complications mainly related to pregnancy.
- 650-659: Normal delivery and other indications for care in pregnancy, labor and delivery.
- 660-669: Complications occurring mainly in the course of labor and delivery.
- 670-677: Complications of the puerperum (after childbirth).

Procedure Codes²⁸

- 73.0: Labor induction by artificial rupture of the membranes.
- 73.1: Other induction of labor.
- 73.4: Medical induction of labor.
- 74.0-74.9: Cesarean section.

Improving Health While Reducing Costs

A pregnancy beset by complications is more costly to employers than a healthy pregnancy; and sick mothers and newborns are more costly to employers than healthy ones. Facilitating healthy pregnancies is in the best interest of both employers and employees.

For more information on evidence-informed pregnancy benefits, refer to the Plan Benefit Model in Part 2.

There are several ways employers can improve beneficiaries' odds of having a healthy pregnancy and a healthy birth:

- Provide comprehensive, evidence-informed benefits.
- Remove financial barriers to essential care by providing **first-dollar coverage** (zero cost-sharing) for preventive services, including preconception, prenatal, and postpartum care.
- Offer pregnancy-related health promotion programs.
- Select and incentivize high-quality healthcare providers in plan provider and facility networks.
- Include racially and ethnically diverse providers, as well as providers with language competencies, in plan provider and facility networks.

Because the prevention and early detection of pregnancy-related health problems avoid serious illness for mother and child, large employers are likely to benefit from worksite education and health promotion initiatives that provide employees with information about healthy pregnancies and essential healthcare services.

The following recommendations can assist employers in developing, implementing, and evaluating pregnancy-tailored benefits, programs, and policies.

Practical Solutions for Employers: Innovative Strategies

Employer Checklist

Healthcare Benefits

- ✓ Ensure that your health plans provide comprehensive preconception, prenatal, and postpartum care services. Ask your plans if they provide innovative services such as doulas/birth assistants, breast pumps, lactation consultation support, or other services.
- ✓ Reduce or eliminate copays/coinsurance for preventive care.
- ✓ Make sure that your plans cover comprehensive contraception options (e.g., hormonal pills, sterilization, IUDs, etc). Reduce or eliminate copays/coinsurance on these interventions, which help prevent unintended pregnancies.
- ✓ Ask your health plans to develop and maintain a referral list of pregnancy care centers and fertility clinics with good outcomes (e.g., low cesarean section rates for hospitals, responsible implantation practices for fertility centers). Improved outcomes and lower costs are realized

Employers should take action in order to ensure beneficiaries are as healthy as possible before, during, and after pregnancy. Health improvement will increase the likelihood of employees returning to full productivity following birth, and reduce the excess medical costs associated with pregnancy, postpartum, and neonatal care.

when beneficiaries seek care with high-quality providers. For pregnant women, key measures of provider quality are: a low primary c-section birth rate, a low labor induction rate, high prenatal care satisfaction, a high VBAC rate, and a low maternal/child morbidity and mortality rate.⁴⁷

Communication and Education

- ✓ Develop special information packets about healthy pregnancy. Disseminate this information (in more than one language, if appropriate) to beneficiaries of childbearing-age during open enrollment.
- ✓ Link employees to outside clinical and education resources, especially if there is employee concern over privacy issues.
- ✓ Help beneficiaries establish a relationship with a prenatal care provider in a medical home. Encourage women to choose a birth setting with low rates of intervention, and discuss her goals and preferences with her care provider.

Health Promotion Programs

- ✓ Employer-based pregnancy education programs can facilitate healthy behaviors. Pregnancy education programs should:
 - Encourage good preconception health and the management of preexisting chronic conditions. Women should receive preconception counseling and support regarding exercise, healthy eating, weight control; health maintenance; STI prevention; abstinence from tobacco, alcohol, and illicit drugs; and information on appropriate birth spacing.²⁸
 - Educate employees and their partners on the signs of preterm labor and risk factors for prematurity and low birthweight. Prenatal classes and distributed literature are an ideal venue for these messages. Health coaches, EAP staff, case managers, and online resources can increase the bandwidth of the message.
- ✓ Include pregnancy-related health issues in existing wellness programs or develop new programs specific to pregnancy concerns. Examples could include:
 - Tobacco cessation during pregnancy: Smoking during pregnancy is associated with a wide variety of complications and risks.
 - Stress reduction: Studies indicate that stress levels during pregnancy have a major impact on the health of the child, and impact preterm birth and low birthweight.⁴⁸
 - Nutrition counseling: Support and guidance in food selection during pregnancy improves maternal and child health.³⁷
- ✓ Offer on-site well-baby/pregnancy education counselors or provide phone access to similar services. If this isn't possible, work with your EAP to include pregnancy support information in existing resources.
- ✓ If your company has on-site medical faculties, consider including basic preconception and prenatal care services.

Policies

- ✓ If your company hasn't already moved to a tobacco-free worksite, implement a smoking ban to protect women from secondhand smoke.
- ✓ Educate beneficiaries on maternity leave, FMLA, parental leave, and other support policies your company may offer.
- ✓ Support women who choose to breastfeed their infants by providing a worksite lactation program.
- ✓ Provide incentives for healthy pregnancy behaviors. For example, provide rebates or reimbursements for breast pumps, child car seats, parenting classes, or birthing classes.

Overcoming Challenges to Health Promotion

Remove Barriers to Participation

- Make classes and services convenient and accessible to as many beneficiaries as possible.
- In addition to offering programs at as many company locations as possible, employers should consider offering staggered hours. After-hours availability will increase the likelihood of women being able to attend program activities without compromising productivity. It will also allow women employed at other campuses to participate.
- Consider offering pregnant employees the opportunity to meet with counselors or educators one-on-one at home as well as at the worksite or in local healthcare facilities.

Offer Multiple Modes of Contact

- Since employees may be located on- or off-site and few non-employee beneficiaries have contact with the worksite, it is important to communicate healthy pregnancy information through a wide variety of formats: emails, phone calls, flyers, posters, webinars, podcasts, intranet postings, etc.
- Distribute information whenever and wherever beneficiaries look for health information.
- Like many other types of health promotion programs, successful healthy pregnancy programs use multiple formats to effectively communicate health information. A bilingual format is the most important format for reaching the broadest audience in the modern workplace.

Understand the Beneficiary Population

- To gauge the needs of your preconception and pregnant beneficiaries and understand how best to serve them, assess their basic characteristics. An awareness of key demographic factors impacting pregnancy health—age, stress level, dietary choices, race, language competencies, literacy level, and socio-economic status—can help employers develop relevant and tailored programs.
- Other important factors to consider are beneficiaries' preventive care-seeking behaviors, and level of concern regarding privacy and confidentiality. Many women are wary to let their supervisors know they are pregnant or intend to become pregnant. Offering health promotion programs through a third-party vendor may alleviate some of these concerns.

Understand the Corporate Culture

- Every company is different and each woman will experience her pregnancy within the context of her individual work environment. Understanding the corporate culture will allow an employer to gauge what features of a healthy pregnancy program will work most effectively in their particular population.

Pregnancy-Related Care Around the World

Large U.S.-based companies are increasingly becoming globalized. As such, corporations are considering the unique health risks employees face in different parts of the world. Women of childbearing-age work in most developed and developing countries, and in most industry sectors. As a result, companies are looking for the best ways to provide high-quality pregnancy care beyond the U.S. border. The following section highlights issues facing pregnant women on a global level, and presents strategies companies can use to promote health.

Global Pregnancy Risks

Pregnancy risks vary greatly around the world. Depending on the region, a pregnancy could be at risk due to³⁶:

- Baseline nutritional problems, such as anemia or protein deficiency.
- Cultural norms that permit women to use tobacco, alcohol, or drugs during pregnancy.
- Environmental exposure to toxins.
- Infectious diseases, including HIV, STIs, and hepatitis B.
- Lack of access to clean drinking water and nutritious food.
- Lack of access to prenatal care.
- Malaria.
- Parasites and complications from diarrhea.

These risks can contribute to pregnancy complications such as preterm birth, low birthweight, and maternal or infant mortality. Since pregnancy-related risks and complications vary from region to region, it is important for employers to understand pregnancy health risks in the local environment.

Other Issues

Prenatal care: Access to pregnancy care providers is limited in some parts of the world. Inability to access medical care hinders women from receiving essential prenatal care,³⁷ and can put women at risk for a host of pregnancy complications and poor birth outcomes. Even when women have access to care, its value is not always well understood. For example, in some cultures, the matriarch is responsible for making pregnancy-related decisions, many of which are not medically informed. Culturally competent employee education about the value of perinatal care can be helpful.

Cesarean deliveries: C-section rates are on the rise, not only in the United States but also in other parts of the world. Drivers for this trend include rising maternal weight and local physician practice style. There is also a positive and significant correlation between the gross national product per capita and the rate of c-section. Rates are also higher in private versus public hospitals.⁴⁹

Nutrition: A woman's nutritional status, both before and during pregnancy, significantly impacts her health and the health of her future infant.³⁶ Emphasizing proper nutrition may motivate preconception and pregnant beneficiaries to eat the most nutritious foods possible. Many of the nutrients women need during pregnancy such as iron (from meats), folate (from fortified grains or fresh vegetables), and calcium (from dairy products) may be difficult to acquire in some parts of the world due to supply chain problems, cost barriers, or other issues, including intra-familial food distribution. Providing employees with a list of locally available nutritious foods could help women integrate healthy food into their diets. Providing pregnant beneficiaries with prenatal vitamins can also help improve their nutrition.

Infections: All women are at risk for infection during pregnancy. Treating infections early has been shown to reduce preterm labor, morbidity, and mortality.³⁶ Yet women in certain parts of the world may lack access to even the most basic medications used to treat infections.³⁶ Further, contaminated or counterfeit medications are a concern in the global market. Providing beneficiaries with a list of trusted pharmacies or suppliers may help them purchase safe medications.

Summary Points

- Employers should take action in order to ensure beneficiaries are as healthy as possible before, during, and after pregnancy. Health improvement will increase the likelihood of employees returning to full productivity following birth, and reduce the excess medical costs associated with pregnancy, postpartum, and neonatal care.
- Comprehensive health benefits, incentives, and clear communication can increase beneficiary utilization of preventive preconception, prenatal, and postpartum care.
- Employers can leverage existing wellness/health promotion programs and healthcare benefits to improve the health of pregnant beneficiaries. Making simple changes to existing programs (e.g., exercise, weight management, and tobacco cessation) can broaden their reach and effectively support women in pregnancy health promotion.

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Healthy Pregnancy and Healthy Children: Opportunities and Challenges for Employers

The Business Case for Protecting and Promoting Child and Adolescent Health

This issue brief provides the business case for protecting and promoting child and adolescent health. It includes an overview of children’s key health issues, information on the economic and workplace burden of children’s illness, and important prevention opportunities. It also provides guidance on how employers can support improved family health.

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Introduction

In 2008, there were 73.9 million children in the United States between 0 and 17 years of age, accounting for 24% of the U.S. population.¹ Approximately 12.8% of all children under the age of 18 have a chronic and severe health problem that requires more intensive or specialized care than children normally require.²

Employers are concerned about child health and health care for several reasons.

- 1. Employers provide healthcare coverage to more than half the children in the United States.** Almost all large employers provide dependent healthcare coverage. Most large employers provide healthcare coverage for qualifying dependents from birth through age 19, and many provide coverage for young adults aged 20 to 25, so long as the dependent is enrolled in school.³ In 2007, 54.2% of children had employer-sponsored health coverage through a parent or legal guardian.⁴
- 2. A substantial proportion of employee lost work time can be attributed to child health problems.** Employees who have access to innovative work/life benefits such as on-site childcare and flexible working arrangements, may be able to minimize lost productivity when their children are ill. Research also shows that when the parents of chronically ill children receive help and support from their employers, they are better able to concentrate on their jobs, and remain with their companies longer.
- 3. Many common and costly child health problems, including injuries, substance abuse, unintended pregnancy, and sexually transmitted infections, are preventable.**

There is a strong business case for both comprehensive child health benefits and innovative work/life benefits that help parents balance work and home

Improving the health of children will likely benefit an employer's bottom line by reducing both direct healthcare costs and indirect costs, such as lost productivity.

The following sections highlight the most critical issues in child and adolescent health, and present opportunities employers have to improve the health of these beneficiaries and reduce healthcare costs.

Child and Adolescent Illness and Injury: Direct and Indirect Costs for Employers

Healthcare Costs

In 2006, **national healthcare expenditures** for children and adolescents totaled \$99 billion.⁵ Among children who used any type of healthcare service in 2006, the average medical expense was \$1,560 per child.^{5,6} However, among children with a special health care need, the average medical expense is much higher—sometimes as much as three times higher—than for children without special health care needs.⁷ As is common in adult populations, a relatively small proportion of children are responsible for the bulk of total medical expenditures. For example, while the average per child healthcare expenditure was \$1,115 in 2006, the median expense was only \$316.⁶

Workplace Burden

Child and adolescent illness and injury are a major cause of employee absence.

- Working parents with young children in childcare typically miss 9 days of work annually due to child illness.⁸
- The parents of elementary-school-aged children miss up to 13 days of work annually due to child illness.⁸
- The parents of children with special health care needs are particularly vulnerable to lost work time. When asked about their experience during the previous year, parents of special needs children report an average of 20 missed school/childcare days, 12 doctor or emergency department visits, and 1.7 hospitalizations.⁹

An **acute illness** is characterized by signs and symptoms that are of rapid onset and short duration (a week or less). Examples of acute illnesses include colds, flu, and ear infections.

A **chronic illness** impacts a child's health for 3 months or longer. Examples of chronic illnesses that affect children include asthma, diabetes, juvenile rheumatoid arthritis, cystic fibrosis, spina bifida, emotional or behavioral disorders, and congenital heart diseases.

Family-Friendly Benefits

Employees with sick children who receive help and support from their employers are usually better able to concentrate on their jobs, and remain with their companies longer. Employee retention is a key driver of customer retention, which in turn is a key driver of company growth and profits.

Access to quality childcare at the worksite is very important to employees. Employers benefit from this arrangement because it: (a) increases employee productivity, (b) lowers absenteeism, (c) reduces the number of employees who leave the job, and (d) increases company profits and value. For example:

- Sixty-three percent (63%) of employees with sick children stated that their productivity improved when they used the childcare program at their company.⁸
- Fifty-four percent (54%) of employers stated that childcare services reduced missed workdays by as much as 20% to 30%.¹²
- Childcare programs can reduce employee turnover by 37% to 60%.¹³

Most large employers also offer **employee assistance programs (EAP)** and **work/life benefits**. These programs may provide services at the worksite, via phone, or contract with providers in the community. Examples of EAP and work/life benefits include¹⁴:

- Childcare referrals.
- Counseling services.
- Education programs.
- Legal services.
- Referrals to mental health providers for ongoing care.
- Wellness programs for employees and sometimes family members.

The **Family Leave and Medical Leave Act (FMLA)** of 1993 applies to employers with 50 or more employees. FMLA provides employees with up to 12 weeks of unpaid leave annually, and covers a broad spectrum of health-related problems. Employees may take leave for the birth or adoption of a child; to care for a seriously ill parent, spouse, or child; or to address their own health needs. Throughout the duration of the leave, the employee's job and healthcare benefits are protected.

Although FMLA is of great benefit to employees, it is also very costly for employers. According to the United States Department of Labor, 50 million Americans took FMLA leave in 2000.¹⁵ A study by the Employment Policy Foundation (EPF) reported that costs for companies with employees who took leave under FMLA in 2004 totaled nearly \$21 billion dollars.¹⁵ These financial losses were caused by costs for labor replacement, lost productivity, and continued funding of employees' healthcare benefits.¹⁵

These missed work days result in lost productivity costs for employers.

- Employee absences due to childcare breakdowns cost businesses in the United States approximately \$3 billion every year.⁸ Many childcare breakdowns are a result of illness or injury: schools, childcare centers, nannies, and other care providers typically do not accept children when they are ill, so parents must stay home from work in order to care for their child.
- Costs are highest among the parents of children with special health care needs. One study found that mothers of children who had a developmental delay or disability (e.g., cerebral palsy, autism) lose around 5 hours of work weekly, which totals 250 hours per year and results in lost productivity costs of \$3,000 to \$5,000 a year (assuming an hourly employee cost of \$12 to \$20, including fringe benefits).¹⁰

In addition to absenteeism, child illness can result in parents being late to work, reduced concentration at work (lost productivity), and in extreme cases, an early exit from the workforce.¹¹

Child Health Promotion and Disease Prevention

Children pass through an identifiable sequence of physical, cognitive, and emotional stages as they grow and develop.¹⁶

The major **stages of development** are:

- Infancy: birth to 11 months
- Early childhood: 1 to 4 years
- Middle childhood: 5 to 10 years
- Adolescence:
 - Early: 11 to 14 years
 - Middle: 15 to 17 years
 - Late: 18 to 21 years

The PlanBenefit Model (provided in Part 2) was specifically designed for children aged 0 to 12 years, and adolescents aged 13 to 21 years.

Well-Child Care

Well-child care is preventive care for children and adolescents. The *Bright Futures Guidelines* for promoting health in infants, children, and adolescents recommend that children visit a primary healthcare provider during¹⁷:

- Infancy—newborn; within 1 week; 1, 2, 4, 6, and 9 month visits.
- Early Childhood—1 year; 15 months; 1.5, 2, 2.5, 3, and 4 year visits.
- Middle Childhood—annually.
- Adolescence—annually.

Some children may require more frequent well-child visits for preventative health care.^{18, 19}

Regular well-child visits help to ensure that a child is growing and developing normally.

During preventive healthcare visits, a primary healthcare provider should:

- Assess a child's growth and development.
- Administer immunizations according to the recommended schedule for the child's age.

- Refer the child to a specialist if the child is experiencing physical or developmental problems.
- Instruct parents about the nutritional needs of the child at each stage of life.
- Discuss how the child is performing in school.
- Provide surveillance and screening for developmental delays, behavioral problems, and mental health issues, and note if the child's behavior is typical for his or her age.
- Counsel parents with children who are experiencing minor behavioral problems, or who are not getting along with other children. Refer parents to mental health specialists if their child is exhibiting serious behavioral problems, or their child has become withdrawn or depressed.
- Provide anticipatory guidance—the discussion of age-appropriate strategies to ensure good health.

Well-child visits are essential to prevent, detect, and manage problems before they develop into more serious or chronic conditions.

The Economic Benefit of Prevention and Early Detection

One of the primary purposes of well-child care is to identify children affected by a physical, mental, or developmental problem as early in life as possible. Approximately 16% to 18% of children in the United States are diagnosed with disabilities that include speech-language impairments, mental retardation, learning disabilities, and emotional/behavioral disturbances.²⁰ Yet, only 20% to 30% of children with disabilities are diagnosed and start treatment before beginning school.²⁰

Children with disabilities who enter early intervention programs prior to starting kindergarten are more likely to complete high school; enter and remain in the workforce; and avoid teen pregnancy, delinquency, and violent crimes. Research has shown for every dollar spent on early intervention services for children with disabilities, \$13.00 are saved.²⁰

Employers also benefit from the early detection of child health problems. Children who receive early intervention services are better able to function later in life. Improved functionality can help to lower employee absenteeism and reduce turnover because children who are able to care for themselves, attend school, and perform developmentally-appropriate tasks require less care from their parents.

Well-child visits are also designed to help parents learn how to care for their children and address common problems. For example, healthcare providers teach parents about nutritional requirements, how to prevent injuries, and how to properly discipline children with behavioral problems.²¹ Such guidance may reduce parental stress, improve productivity, and reduce lost work days due to child illness.

In addition, well-child visits can benefit the health of parents (employees). Recently, well-child care visits have been used to detect intimate partner abuse (the new term for domestic violence), and screen for maternal depression.²² Parents may also personally benefit from health education and injury-prevention counseling conducted during well-child visits (e.g., motor vehicle safety, food safety, etc).

Key Health Risks: Children

While most children are generally healthy, all children face health risks. Business Group membership surveys show that large employers are particularly concerned with child health risks that are serious (i.e., they result in long-term or permanent problems) and costly to treat or manage. In 2005, the Business Group asked its large-employer members to name the most “problematic” health conditions that affected their child and adolescent beneficiaries (refer to Figure 4B on page 24). Respondents reported that for children aged 0 to 12 years preterm birth, asthma, diabetes, injuries, and infections were the most problematic conditions; for adolescents aged 13 to 18 years, the most problematic conditions were asthma, behavioral health problems, injuries, and obesity.³

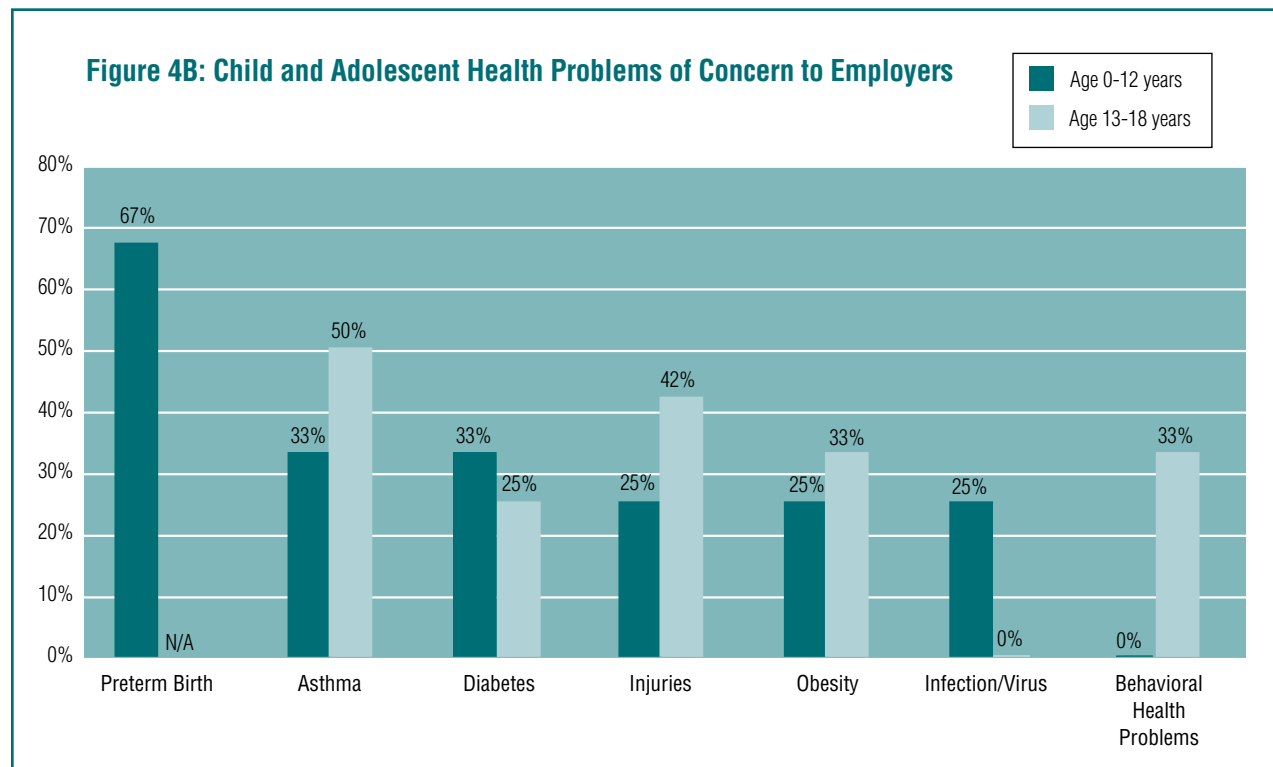
Vaccine Preventable Diseases

Health Impact

Immunizations have a powerful positive impact on the overall health of children. Childhood immunization²¹:

- Is generally safe;
- Protects children from a number of potentially serious and even deadly childhood diseases;
- Prevents outbreaks of infectious diseases and the spread of epidemics; and
- Is one of the only defenses against many childhood infections, such as chicken pox, polio, and measles.

Childhood immunizations have eliminated or nearly eliminated many infectious diseases that affected children in the past.



Source: National Business Group on Health. *Maternal and Child Health Benefits Survey*. Washington, DC: National Business Group on Health; January 2006.

Clinical studies demonstrate that immunization has produced a dramatic decline in the incidence of childhood infections. For example:

- During the first 6 years of use, the influenza vaccine reduced the incidence of invasive *Haemophilus influenzae* disease by 95% in children under 5 years of age.²³
- Before the varicella (chicken pox) vaccine was available, 4 million cases, 11,000 hospitalizations, and 100 deaths were caused by chicken pox each year.

Typically a child with chicken pox misses 5 to 6 days of school.²⁴

It is critically important to maintain a high vaccination rate in order to prevent a resurgence of potentially deadly infectious disease. For example, if the measles vaccine was no longer available in the United States, 3 to 4 million measles cases would develop every year, which could result in more than 1,800 deaths, 1,000 cases of encephalitis, and 80,000 cases of pneumonia.²⁵

The immunization rate for children of all ages in the United States is high. However, certain groups of children, such as racial and ethnic minorities and those who live in low-income families, have lower rates.²⁶

Further, many children, from all types of backgrounds, delay their immunizations and are therefore susceptible to disease—and a risk to other children—for a period of time. For example, more than 24% of toddlers in the United States are missing one or more recommended immunizations.²⁷ These children are vulnerable to serious illnesses, including polio, measles, mumps, rubella, diphtheria, tetanus, pertussis, invasive *Haemophilus influenzae* type b infection, hepatitis B, and varicella because they have not completed the recommended vaccination series.²⁸

Economic Burden

Society benefits when *all* children receive recommended immunizations. Vaccines are **cost-effective**, and most routine child vaccines are **cost-saving**. The routine childhood vaccination program saves nearly \$10 billion in direct medical costs and \$43 billion in societal costs for every **birth cohort** immunized.²⁹ Many **cost-benefit analyses** indicate that vaccination against most common childhood diseases results in large returns on investment: for every dollar spent on vaccination, between \$10 and \$18 are saved in medical and indirect costs.^{23,30}

Most important to healthcare payers is the fact that the introduction of new vaccines has led to a substantial and immediate decline in medical spending for some conditions. For example, in 1995, a vaccine to protect against varicella (chickenpox) was added to the routine childhood immunization schedule. Between 1994 and 1995, the year before the vaccine was introduced, the total estimated direct medical cost of varicella hospitalizations and ambulatory visits reached \$85 million. By 2002, the cost of varicella declined to \$22.1 million.²⁹

All 50 states have some form of school-based immunization requirement. These crucial requirements have greatly contributed to the success of immunization programs in the United States. School-based immunization programs have also reduced racial, ethnic, and socioeconomic disparities in immunization rates.

Prevention Opportunities

To encourage timely immunization, employers should provide coverage for all recommended vaccines at no cost to beneficiaries (i.e., no copays or coinsurance). The Advisory Committee on Immunization Practices (ACIP) provides national recommendations on immunizations. These recommendations change from time to time. For the most up-to-date set of recommendations, visit the ACIP website at: <http://www.cdc.gov/vaccines/pubs/ACIP-list.htm>.

SIDS

Sudden infant death syndrome (SIDS) is defined as the sudden unpredictable death of an apparently healthy infant under 1 year of age, with no detectable cause after a thorough case investigation.³¹ SIDS is the leading cause of infant death between 1 month and 1 year in the United States; most deaths happen when infants are between 2 months and 4 months of age.³²

Infants born to mothers who smoked during pregnancy are twice as likely to die of SIDS than infants whose mothers did not smoke. Approximately 14% of SIDS deaths are caused by smoking during pregnancy; in 2001, 299 infants died as a result of smoking-induced SIDS.³³ Infants who are exposed to tobacco smoke following birth are also at a greater risk of developing SIDS than other infants.

Health Impact and Economic Burden

An infant death that leaves unanswered questions causes intense grief for parents and families. Parents may require counseling to overcome feelings of guilt and grief, and they may require extended time off in order to recover from the loss.

Prevention Opportunities

Employers can help prevent SIDS deaths by educating employees on risk factors for SIDS, including sleeping positions and tobacco use.

- The American Academy of Pediatrics (AAP) recommends positioning infants in the supine position (laying on their back) during the first few months following birth. Placing infants in the prone position (laying on their tummy) is associated with an increased incidence of SIDS. Deaths from SIDS have decreased by more than 53% since 1992, which is when the American Academy of Pediatrics (AAP) first recommended that caretakers place infants on their backs.^{16, 34, 35}
- Tobacco use treatment is critical for preconception, pregnant, and postpartum women. Approximately 21% of American women of childbearing age smoke and 10.7% of women in the United States admit to smoking during pregnancy.³⁶ Tailored smoking cessation programs are proven to help women reduce or eliminate their tobacco use, and tobacco cessation treatment for pregnant women is considered one of the most cost-saving preventive services. Clinical trials have shown that \$3 are saved in healthcare costs for every \$1 invested in treatment.³⁷

Employers should offer comprehensive tobacco use treatment benefits (screening, counseling, and medication); and instruct their health plans to actively educate preconception and pregnant women on the dangers of tobacco use and available treatment services.

Asthma

Asthma is a chronic inflammatory disorder of the large and small airways. It is classified in four ways: mild intermittent, mild persistent, moderate persistent, and severe persistent. Nobody knows exactly why some children develop asthma. It may be inherited, and it is usually associated with allergies.¹⁶ Asthma affects approximately 8.3 million children in the United States,³⁸ and the rate of asthma is increasing population wide. The death rate among children with asthma under the age of 19 has increased 80% since 1980.³⁹

Health Impact and Economic Burden

Asthma is one of the most common and expensive chronic diseases of childhood: students with asthma miss nearly 13 million school days each year due to illness⁴⁰ and asthma accounts for almost 500,000 hospitalizations annually.⁴¹

As a group, asthma, pneumonia, and acute bronchitis are responsible for nearly \$3 billion dollars in healthcare expenditures each year.⁴⁴

- Asthma costs the U.S. economy an estimated \$19.7 billion each year. This includes \$14.7 billion in direct health care costs and \$5 billion in direct costs such as lost productivity.⁴²
- The cost of treating asthma in a child or adolescent is approximately \$3.2 billion annually.⁴³
- Asthma is responsible for approximately 14 million lost school days each year.⁴⁴

Prevention Opportunities

Many asthma-related hospitalizations and emergency department visits are avoidable.⁴⁴ Appropriate medication and treatment regimens can help children avoid asthma flare-ups and crises. To encourage the appropriate management of childhood asthma, employers should⁴⁵:

- Remove financial barriers to care by reducing or eliminating copays and coinsurance on controller medications and asthma-related office visits.
- Provide comprehensive tobacco use treatment benefits. Women who smoke during pregnancy are more likely to deliver infants with respiratory problems, including asthma, and parents who smoke in their homes are more likely to have children that suffer from asthma.
- Consider providing coverage or subsidizing non-medical devices and equipment that are important for asthma management, such as mattress and pillow covers, air vent filters, and dehumidifiers.
- Educate employees on asthma and asthma management at health fairs or as part of health promotion programs.
- Develop innovative incentives to reward treatment compliance.

Upper Respiratory Infections

The most common types of upper respiratory tract infections (URIs) in children are: nasopharyngitis, pharyngitis, tonsillitis, influenza, and otitis media.¹⁶

- Respiratory infections are the most common reason for acute illness in children.⁴⁶
- Children have an estimated three to eight colds a year.³⁸
- Infants and young children, particularly children from 6 months to 3 years of age, develop more severe respiratory tract infections than older children.¹⁶

Health Impact

Respiratory infections cause pain and discomfort for children, result in restricted activity days or missed school days, and are easily transmitted to other children and adults. Children who develop respiratory infections during infancy are also at greater risk of developing bronchial obstruction during their first 2 years, and asthma at 4 years of age.⁴⁷

Economic Burden

In addition to direct medical costs, URIs result in lost productivity and absenteeism costs for employers. Studies suggest that parents lose 1.2 hours of work time each time their child under the age of 12 gets a cold.⁴⁸ In total, children's colds are responsible for \$230 million dollars of lost productivity each year.⁴⁸

Prevention Opportunities

Children with URIs are frequently treated with antibiotics, despite the fact that antibiotics are not indicated for such infections. Treating children with URIs with antibiotics can be harmful because it⁴⁴:

- Decreases the effectiveness of currently prescribed antibiotics against bacterial respiratory organisms.
- Increases the child's risk of developing a drug-resistant URI.

Despite the known dangers of using antibiotics to treat URIs, an estimated \$227 million dollars are spent each year to treat patients with URIs.³⁸ Employers should educate their beneficiaries on the appropriate use of antibiotics, and should work with their health plans and pharmacy benefit managers (PBMs) to develop strategies to curb inappropriate prescription patterns.

Employers also have opportunities to help prevent the spread of URIs through employee education. For example, employers could provide prevention information in new parent classes, in existing health promotion programs, at health fairs, in open enrollment materials, or at the worksite. These materials should remind parents to teach their children to¹⁶:

- Thoroughly wash their hands.
- Use a tissue to cover their noses and mouths when coughing and sneezing.
- Put soiled tissues into a wastebasket.
- Avoid sharing cups, spoons, dishes, and towels with other children and adults.
- Avoid other children who are ill.

Injuries (Children and Adolescents)

Childhood Injuries

Unintentional injury is the leading cause of death for children 1 to 4 years of age. In 2000, unintentional injury caused nearly 41% of all deaths among children aged 5 to 9 years. Fifty-six percent (56%) of these injuries resulted from motor vehicle crashes.^{49, 50}

Adolescent and Young Adult Injuries

Unintentional injury is also the leading cause of death for children 10 to 24 years of age.⁵⁰ Among young people aged 10 to 24 years, 17,743 died as a result of unintentional injuries in 2006. Almost seven of 10 of these deaths resulted from motor vehicle crashes.⁵¹ Other unintentional injuries included poisoning, drowning, fires/burns, and falls.

Over 857,392 youth aged 10 to 24 were treated in emergency rooms for injuries sustained from violence in 2008.⁵²

Health Impact and Economic Burden

Injuries seriously impact the lives of children and their families. Injuries can result in long-term health problems, severe disabilities, and even death. In addition, childhood injuries cause enormous economic losses to families, employers, and society as a whole. Lost productivity is a major cost of injury. When children and adolescents are injured, parents may be forced to stay home from work to care for their child. This affects both the family's income and the employers' profit. Children, disabled from an injury, may be unable to work in the future.

Injury costs can be separated into resource and productivity costs.

- Resource costs are related to caring for injury victims and managing the aftermath of injury incidents. They are dominated by the medical costs of injuries.
- Productivity costs value wage work and housework that children and adolescents will be unable to do because of their injury, as well as the work that parents or other adults forego to care for injured children.

Injury is the leading cause of medical spending for children aged 5 to 14.⁵³ Over 9 million children are treated for injuries each year, and the estimated direct and indirect costs total \$300 billion annually.⁵⁴ For every child injured, the total cost is more than \$12,700, including \$650 in medical costs, more than \$1,000 in future earnings lost and nearly \$11,000 in lost quality of life.⁵³

Five injury causes account for nearly 80% of lifetime resource and productivity costs:⁵⁵

- Falls.
- Motor vehicle crashes on public roads.
- Other motor vehicle or cycle crashes.
- Victims struck by or against something.
- Cutting or piercing.

Prevention Opportunities

Fortunately, most injuries among children can be prevented if parents and caretakers follow simple guidelines for each age group. For example, the consistent use of car seats in automobiles is essential for the safety of young children. Many adolescent injuries can be prevented through education and risk-reduction counseling. Employers have opportunities to educate parents on safety guidelines. Employers also have the opportunity to support injury prevention guidance in the healthcare setting through benefit design and communication.

Adolescents

As children grow into adolescents they experience rapid physical, cognitive, and emotional changes. In fact, the rate of growth in adolescence is second only to the rate of growth in infancy. Due to rapid growth and other physical and mental changes, many health-damaging behaviors (e.g., smoking) and health problems first emerge during adolescence. For these reasons, preventive healthcare is particularly important during this time period.

Well-Child Care for Adolescents

Annual preventive healthcare visits (well-child care) are recommended for adolescents aged 11 to 21 years.¹⁷ Despite the recommendation that older children and adolescents should have one preventive visit per year, only 69.1% of children aged 10 to 14 years and 63.3% of children aged 15 to 17 years received a well-child visit in 2007.⁵⁶

In fact, only three quarters (73%) of adolescents see a primary care provider at least once a year for any reason.⁵⁷ Adolescents who miss preventive healthcare visits may go untreated for health and developmental problems, delay necessary immunizations, and miss opportunities to receive risk-reduction and healthy lifestyle counseling.^{58, 59}

Approximately 25% to 30% of adolescents are considered at risk of adverse health outcomes based on the reported prevalence of health-damaging or risk-taking behaviors (e.g., smoking, driving without a seatbelt, binge drinking).

Risk-reduction and healthy lifestyle counseling is particularly important for adolescents because the effects of the behaviors adolescents practice can have a profound affect on their current and future health. Experimenting with tobacco, alcohol, or drugs, or engaging in risky sexual behaviors can create long-term or even permanent health problems.⁶⁰ Positive health behaviors such as taking precautions to prevent injury, choosing healthy foods, and getting regular exercise can help an adolescent set the stage for a lifetime of good health.

The American Medical Association (AMA), American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP) all recommend that adolescents receive health education and risk-reduction counseling services during the course of well-child care. Health education counseling can help adolescents⁶¹:

- Prevent injuries (through seat belt use),
- Reduce their risk of heart disease and diabetes later in life (through tobacco cessation, good nutrition, and adequate exercise); and
- Prevent or reduce certain risky behaviors (such unsafe sexual behaviors).

The most serious, costly, and widespread adolescent health problems—unintended pregnancy, sexually transmitted infections, violence, suicide, unintended injuries, and the use of alcohol, tobacco, and other drugs—are potentially preventable. In fact, nearly three quarters of adolescent mortality is due to preventable causes.⁵⁷

The Cost of Adolescent Health Problems

Each year in the United States, at least \$33.5 billion is spent on preventable adolescent health problems. This estimate only includes direct medical costs associated with six adolescent health problems: unintended pregnancy, sexually-transmitted infections, alcohol and other drug use, motor vehicle injuries, other unintentional injuries, and outpatient mental health visits. When the long-term costs of preventable adolescent health problems are included, the estimate increases to over \$700 billion a year.^{57, 62} Long-term costs include:

- The value of lost productivity and workdays due to illness.
- Disability.
- Premature death.
- Legal costs associated with crime and risky behaviors.
- The cost of treating pelvic inflammatory disease and infertility due to sexually transmitted infections (STIs).
- Societal costs associated with adolescent pregnancy and childbirth.

These analyses do not include the costs of treating many other preventable conditions such as measles or tuberculosis; nor do they account for the costs of failing to diagnose health problems such as dental caries, asthma, depression, or diabetes until they develop into much larger, more costly problems.

Cost-effectiveness studies that document the savings associated with well-child care and clinical preventive services for adolescents are limited. However, many experts believe that risk identification and behavior change counseling have a significant effect on adolescent health and healthcare costs. For example, the American Academy of Pediatrics (AAP) estimated that it would have cost \$4.3 billion to provide comprehensive clinical preventive services to all 10- to 24-year-olds in 1998. If these services could prevent just 1% of the \$700 billion in preventable long-term costs explained above (i.e., \$7 billion), the provision of preventive care would “save” more than \$2.7 billion in healthcare costs, even after subtracting the amount required to provide preventive services to all adolescents.⁶²

Adolescents: Key Health Risks

Mental Health

Research studies suggest that between 14% and 20% of children and adolescents—about 1 in every 5—have a diagnosable mental, emotional, or behavioral disorder.

An estimated 10% of children have a disorder severe enough to cause some form of impairment and 5% to 7% of children have a severe emotional disturbance (SED) that causes extreme functional impairment.⁶⁴

Anxiety disorders, mood disorders (such as depression), and disruptive disorders (such as attention-deficit/hyperactivity disorder) are the most common mental or behavioral disorders among children and adolescents. Depression affects 1% to 2% of school-aged children and 3% to 8% of adolescents.⁶⁵ Eating disorders and substance abuse disorders also affect adolescents.

Most mental illnesses begin in childhood or adolescence. Half of all individuals who have a mental illness during their lifetime report that the onset of symptoms occurred by age 14, and three fourths report that symptoms appeared before they turned 24.⁶³

Children and adolescents from all backgrounds experience mental health problems. Adolescents are at greater risk for developing mental health problems when certain factors occur in their lives or environments, these factors include:

- Alcohol and other drug use.
- Discrimination.
- Emotional abuse or neglect.
- Exposure to violence.
- Frequent relocation.
- Harmful stress.
- Loss of a loved one.
- Physical abuse.
- Poverty.
- Trauma.

Eating Disorders

Teens' food choices are often influenced by social pressures to be thin, the desire to gain peer acceptance, or to assert independence from parental authority. A teenager with an eating disorder diets, exercises, and/or eats excessively as a way of coping with physical and emotional changes. The three most common types of eating disorders are anorexia, bulimia, and binge eating.

Treatment for adolescent mental health problems typically includes individual or family talk therapy (psychotherapy), and psychotropic medication. The use of psychotropic medications has dramatically increased over the past two decades, and medication has become the predominant form of treatment for both adults and children with mental illness. The rate of antidepressant use among children under the age of 18 increased 66% between 1998 and 2002.⁶⁶ Between 2002 and 2005, the prevalence continued to increase over 9% annually.⁶⁷

Health Impact

Mental, emotional, and behavioral disorders are common problems that adversely affect the lives of millions of American children and their parents. These disorders disrupt a child's family life, decrease his/her ability to learn, and impede making friends and social contacts. Resulting problems can include:

- Poor peer relationships.
- Increased risk of substance abuse.
- Increased risk of suicide.
- Increased risk of delinquency and violence in adolescence and adulthood.

Unless properly diagnosed and consistently treated, children and adolescents with mental health and behavioral problems are at risk for more serious disorders or co-occurring disorders that can become disabling in adulthood.⁶⁸ Untreated mental illness is also a major risk factor for suicide.

Teen Suicide

Suicide, the third leading cause of death for adolescents in the United States, accounts for 11.2% of all adolescent and young adult deaths. In 2003, 4,232 youth aged 10 to 24 years took their own lives. Eighty-six percent (86%) of these suicides occurred among males, and 54% involved a firearm. For every teen suicide death, there are 10 other teen suicide attempts.⁶⁹

Economic Burden

The economic burden of mental, emotional, and behavioral disorders among youth includes direct medical costs (e.g., prescription antidepressants, counseling visits, hospitalization); and indirect costs such as lost productivity, disability and work loss, special education, and criminal justices system costs. Mental, emotional, and behavioral disorders among youth also result in lost work time for parents. Such disorders can lead to stress, **work cut-back**, absenteeism, and in certain instances, an early exit from the workforce.

Two-thirds of young people with mental health problems do not get the help they need. Untreated mental health problems can lead to school failure, family conflicts, substance abuse, violence, and even suicide.

Each year an estimated \$11.8 billion is spent on treating mental illness, behavior problems, and emotional disturbances among children aged 1 to 18 years. Roughly half of this cost (\$6.9 billion) is for the treatment of adolescents aged 13 to 18 years.⁷⁰

Children with mental, emotional, and behavioral disorders have higher medical claims than their peers, even peers with other serious health problems. For example, children with depression average \$3,795 in healthcare expenditures, more than five times the amount of children without a mental illness (\$754). Children with depression also use significantly more emergency room and inpatient care services than their peers.⁷¹

Prevention Opportunities

Mental, emotional, and behavioral disorders are most effectively treated when they are addressed early. Unfortunately, two-thirds of young people with mental health problems do not get the help they need.⁷²

Employers can assist employees who are parents of children with mental, emotional, and behavioral disorders by providing robust mental health benefits; providing employee assistance services; offering education opportunities; and providing flexible work arrangements, when feasible.

To address the needs of families, employers should:

- Provide comprehensive mental health benefits, including inpatient and outpatient care, prescription medications, and specialty services for the seriously mentally ill. Mental health benefits should be equal to physical health benefits (i.e., there should not be day or visit limits on mental health services).
- Consider adding specialty mental health services for children with serious emotional disturbance, such as therapeutic nursery care.
- Consider adding early intervention services for mental health and substance abuse problems. This typically includes health plan coverage for the treatment of sub-clinical conditions and DSM-IV V-code conditions. Please refer to the Plan Benefit Model (Part 2) for additional information.
- Provide employee assistance services and educate beneficiaries on the services available. Most EAPs provide short-term counseling services. Other helpful benefits include:
 - Childcare referrals.
 - Referrals to family network or support group organizations.

- Referrals to mental health providers for ongoing specialized care.
- Consider adding information on child and adolescent mental health to existing health promotion, wellness, and health education programs. Discussing mental health issues reduces stigma, helps link families with care services, and provides support for families struggling with mental health problems. For example, find a way to recognize national mental health and substance abuse awareness days and months (i.e., National Depression Screening Day or National Alcohol & Drug Addiction Recovery Month).

Substance Use and Abuse

Substance abuse refers to the abuse of alcohol, illicit or prescription drugs, or both. Approximately 22.2 million Americans aged 12 years and above experienced a substance abuse or substance dependence disorder in 2008. That same year, 1.9 million youth aged 12 to 17 years had a drug or alcohol problem severe enough to require specialized treatment; yet only 143,000 (7.4%) received treatment.⁷³

Substance	Rate of Use by Age, 2005			
	12-13 years	14-15 years	16-17 years	18-20 years
Alcohol use	4.2%	15.1%	30.1%	51.1%
Binge drinking	2.0%	8.0%	19.7%	36.1%

Source: Substance Abuse and Mental Health Services Administration. *Results From the 2008 National Survey on Drug Use and Health: National Findings*. Office of Applied Studies, NSDUH Series H-36, DHHS Publication No. SMA 09-4434. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2009.

Health Impact

Substance abuse contributes to a wide range of health problems, including HIV, hepatitis C, suicide and depression, motor vehicle-related injuries, birth defects, and many other problems. For adolescents, it is also a particular risk factor associated with sexual activity and unintended pregnancy. Due to their developing bodies and brains, children and adolescents are also particularly susceptible to some of the negative effects of alcohol and substance abuse.

- Alcohol use contributes to the three leading causes of death for 15- to 24-year-olds: motor vehicle-crashes, homicides, and suicides.⁷⁴
- Alcohol abuse is the third leading preventable cause of death in the United States,⁷⁵ and it is a factor in approximately one-third of all deaths from motor vehicle crashes.⁷⁶ In 2008, an estimated 7.2% of 16- to 17-year-olds, 16.7% of 18- to 20-year-olds, and 26.1% of 21- to 25-year-olds reported driving under the influence of alcohol at least once during the past year. Males were nearly twice as likely as females (16.0% vs. 9.0%) to report drunk driving.⁷³

Substance	Rate of Use by Age, 2003	
	12-17 years	18-20 years
Any illicit drug	11.2%	23.3%
Marijuana	7.9%	
Prescription drugs	4.0%	
Inhalants	1.3%	
Hallucinogens	1.0%	
Cocaine	0.6%	

Source: Substance Abuse and Mental Health Services Administration. *Results From the 2008 National Survey on Drug Use and Health: National Findings*. Office of Applied Studies, NSDUH Series H-36, DHHS Publication No. SMA 09-4434. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2009.

Mental illness and substance abuse are intertwined. Many people with undiagnosed mental or emotional disorders ‘self-medicate’ with alcohol or drugs in order to control or escape their thoughts or feelings.⁷⁷⁻⁷⁹ Some researchers and clinicians also believe that mental health and substance abuse problems have common underlying genetic and environmental causes.⁷⁷

Economic Burden

The economic burden of adolescent substance abuse is significant for employers, families, and communities. Employers pay for the direct medical costs associated with substance abuse; they also bear the lost productivity costs that result when parents of substance-abusing children require care. Much of the direct cost of adolescent substance abuse results from injuries. For example, in 2008, 132,254 alcohol-related emergency department visits were made by patients aged 12 to 20 years.⁸¹

Substance Use: Quick Facts⁸⁰

- Alcohol is the most commonly used substance, and marijuana is the most widely-used illicit drug, among adolescents.
- Substance use more than doubles between 8th grade and 12th grade.
- One in four twelfth graders report binge drinking and 12% smoke cigarettes daily.

Prevention Opportunities

Employers can help address adolescent drinking and drug use through benefit design, employee education, and support services.

- Employers should provide substance abuse treatment benefits for all beneficiaries, including inpatient detoxification and outpatient drug and alcohol programs.
- Employee education can help parents learn how to raise a drug-free child. EAP, health promotion, or wellness programs can provide a venue for speaking to employees about healthy parenting techniques. Research shows that parents and siblings are a major influence in a teen’s decision to start or increase drug or alcohol use. In fact, teen perceptions of immorality, parental disapproval, and harm to health are far more powerful deterrents to teen smoking, drinking, and drug use than legal restrictions on the purchase of cigarettes and alcohol, or the illegality of using drugs like marijuana, LSD, cocaine, and heroin.⁸²
- Existing EAP services can help employees cope with the stress of adolescent substance abuse. Employers should consider working with their EAP to better communicate existing services (e.g., legal advice, family counseling services) that are available to help families struggling with substance abuse.
- If support services aren’t feasible internally, consider developing a list of community resources that could help employees cope with substance abuse and the effects it has on families.

Obesity and Physical Activity

Obesity is an epidemic in the United States: in the past 20 years, the proportion of children classified as obese more than doubled, from 6.9% in 1980 to 17% in 2006. The rate among adolescents aged 12 to 19 more than tripled, increasing from 5% to 17.6% in that time.⁸³ Adolescents are considered overweight when their BMI is at or above the 95th percentile of a sex-specific age/ growth chart.

Poor eating habits during the teen years may lead to both short- and long-term health consequences including obesity, osteoporosis, and sexual maturation delays.

Health Impact

Poor eating habits during the teen years may lead to both short- and long-term health consequences including obesity, osteoporosis, and sexual maturation delays.⁸⁴ Sustained obesity puts adolescents and young adults at high risk for several chronic diseases including hypertension, type II diabetes, and cardiovascular disease.

Economic Burden

The economic burden of obesity in the United States is substantial. In 2006, the average health care expenditure for the obese population was \$5,148, compared to \$3,636 for the overweight population and \$3,315 for the normal weight population. The annual cost of obesity was over \$300 billion in that year.⁸⁵

Prevention Opportunities

Employers have many opportunities to help their employees raise healthy-weight children. Some ways your company can address child and adolescent obesity are listed below.

Education and Health Promotion⁸⁶

- The most important overweight prevention for babies and toddlers is breastfeeding.⁸⁷ Include the benefits of breastfeeding in prenatal programs and support new mothers breastfeeding when they return to work.
- Encourage employees to engage in healthier eating habits and more active lifestyles. When parents set good examples, it will be easier for children to reach their health goals.
- Increase awareness of unhealthy behaviors and environmental factors that can stimulate overeating. Provide information on healthy eating habits that can help parents monitor and control the type and amount of food children are eating.
- Distribute nutrition and physical activity educational materials during open enrollment.
- Reimburse employees for gym memberships or facilitate participation in on-site programs
- Offer family-centered weight loss and maintenance classes.
- Fund or provide subsidies through health reimbursement accounts (HRAs) for employees who achieve weight goals.

For more information on tailoring health promotion and disease management programs to meet the needs of children and adolescents, please refer to Fact Sheet #2 in Part 5.

*Health Benefit Coverage*⁸⁶

- Provide coverage for obesity screening, counseling, and treatment.
- Provide coverage for nutrition counseling.
- Ensure that network providers screen children and adolescents for overweight and obesity during well-child care. Screening can help identify children who are at risk for becoming overweight and can help identify those who may need further assessment or treatment for a weight problem.

Unintended Pregnancy

In the United States, approximately 7% of women aged 15 to 19 years become pregnant each year.⁸⁸ Over two-thirds of pregnancies among women under age 18, and over half of pregnancies among women ages 18 and 19, are unintended, meaning that they are either unwanted or mistimed.⁸⁹ Despite decreasing rates, more than three in 10 adolescent girls become pregnant at least once before reaching 20 years of age.⁹⁰

Health Impact

Approximately 57% of adolescent pregnancies end in live births, 27% end in abortion, and 16% result in miscarriage or stillbirth.⁹¹ Pregnancies that are carried to term are at-risk for poor outcomes due to a variety of factors, including:

- **Age.** Very young girls are at risk for a host of pregnancy-related complications.
- **Baseline health status.** Women with unintended pregnancies are less likely to practice healthy preconception behaviors (e.g., eliminating alcohol use, taking folic acid) and are thus at an increased risk for birth defects and other problems.
- **Co-occurring risks.** Girls who experience an unintended pregnancy are also at a higher risk of substance abuse and STIs, both of which are risk factors for poor pregnancy outcomes.

Economic Burden

The social and economic consequences of teenage pregnancy are substantial. In 2004, teen childbearing costs United States taxpayers over \$9 billion.⁹² Induced and spontaneous abortions among teenagers cost more than \$180 million each year.⁹³

Unplanned pregnancies, compared to planned pregnancies, often result in higher total medical claims cost because women whose pregnancies are unintended are less likely to take folic acid supplements or to breastfeed, and are more likely to continue smoking during pregnancy. The poor health outcomes associated with these behaviors lead to higher obstetric claims.^{94, 95}

Parents may also lose work time in order to care for their pregnant child and/or their grandchild after it is born. The stress of an unplanned adolescent pregnancy may also reduce an employee's productivity, and lead to stress or depression.

Prevention Opportunities

In order to reduce unintended pregnancy, employers should provide comprehensive contraception coverage for employees and dependents. Employers should also consider removing cost barriers by eliminating cost-sharing requirements on contraceptive medications, devices, procedures, and office

visits. Expanding coverage and removing cost barriers is particularly important for adolescents because many can not afford to pay for contraceptives out-of-pocket.

All methods of contraception are cost-saving from the societal perspective and most are also cost-saving from the private-payer perspective. For example, after one year of use, private-sector savings from adolescent contraceptive use range from \$308 (implant) to \$946 (male condom).⁹³

Sexually Transmitted Infections

Each year, approximately 4 million teens in the United States—one in four sexually active teens—get a sexually transmitted infection (STI).⁹⁶ Many STI's can be cured; others have treatable symptoms, but cannot be cured.

- Genital chlamydia is the most common bacterial STI in the United States, and 46% of newly reported infections occur in sexually active 15- to 19-year-old girls.⁹⁷
- Human papillomavirus (HPV), previously termed genital or venereal warts, is a sexually transmitted viral infection. Treatment of genital warts does not eradicate the disease. An estimated 24 million Americans are infected with HPV, and as many as 1 million new infections occur annually. Genital HPV infections are the most common sexually-transmitted diseases in the United States, and HPV types 16 and 18 are the cause of about 70 percent of cervical cancers worldwide. There will be an estimated 11,270 new cases and 4,070 deaths from cervical cancer in the United States during 2009, according to the National Cancer Institute at the National Institutes of Health. A vaccine to prevent HPV was recently released in the United States and is recommended for all women aged 9 to 26 years.⁹⁸
- Other STIs include: gonorrhea, syphilis, herpes simplex virus, and hepatitis B.

The USPSTF and the CDC recommend that all sexually active women under the age of 24 be screened for chlamydia annually.¹⁰¹ Yet seven out of 10 sexually active 16 to 20-year-old females enrolled in managed care plans did *not* receive a test for chlamydia or other genital infection in the past year.⁹⁶

Health Impact

STIs can cause pain and discomfort, and some can lead to long-term health problems. Young women who go untreated for an STI are 2 to 5 times more vulnerable to long-term diseases such as sterility and certain cancers that may not appear until years after the initial infection.⁹⁹ Infection with some STIs also increases a person's susceptibility to other STIs, including HIV.

Economic Burden

In 2000, 9 million new STI infections occurred among adolescents and young adults; these infections resulted in \$6.5 billion in direct healthcare costs. HIV and HPV were the most costly STIs, and accounted for 90% of the total economic burden of STIs.¹⁰⁰

Prevention Opportunities

The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians routinely screen *all* sexually active females age 24 and younger for chlamydia (as well as at-risk women over age 24 who are pregnant)¹⁰¹, all sexually active at-risk women for gonorrhea, and all men and women at risk for HIV and syphilis.¹⁰² The Centers for Disease Control and Prevention (CDC) recommends that all people between the ages of 13 and 64 be screened at least once during their lifetime for HIV.¹⁰³

Screening for STIs is particularly important because many STIs do not cause detectable symptoms until the disease is advanced. Despite the importance of screening, screening rates remain unacceptably low: only one-third to one-half of primary care physicians report regularly screening sexually-active young women for STIs.¹⁰⁴⁻¹⁰⁶

In general, screening at-risk adolescents and adults for STIs is either cost-saving or cost-effective.¹⁰²

Employers can support STI prevention, early detection, and treatment by offering robust clinical preventive service benefits, reducing cost barriers, and educating beneficiaries on the importance of sexual health.

- Healthcare benefits should include primary care counseling to prevent STIs, screening to detect STIs, and treatment.
- Employers should instruct their health plans to actively educate providers on the importance of screening at-risk adolescents. The benefits of screening should be regularly communicated to plan participants.

Children with Special Health Care Needs

Children with special health care needs (CSHCN) are children “who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.”² CSHCN have a wide range of physical, mental, emotional, or behavioral disorders including **congenital anomalies**, severe physical disabilities, complex organ system disease such as cystic fibrosis, sickle cell anemia; and more common conditions, including depression and severe asthma.

The majority of children with special needs (61.6%) are covered by employer-sponsored health plans.¹⁰⁸

Approximately 13% to 15% of children in the United States have special health care needs.¹⁰⁷ One in five households with children in the United States includes at least one child with a special health care need and, in any given company, it is estimated that 8.6% of employees care for a child with a special need.¹⁴

The prevalence of special health care needs increases with age. Only 8% of children under the age of 5 years have an identified special need, whereas 14.6% of children aged 6 to 11 years and 15.8% of adolescents aged 12 to 17 years have a special need.²

Healthcare Costs

In 2000, national healthcare expenditures for children and adolescents totaled \$67 billion. Although children with special health care needs make up less than 20% of the population, they account for 41% of all child health expenditures.⁶ In fact, medical expenses for children with special needs are over double the cost of children without chronic problems.⁶

Unique Problems and Concerns

Children with special health care needs are an important part of an employer's beneficiary population because they:

- Experience complex, chronic, and severe health problems, which can be difficult to manage.
- Use more healthcare services than other children and thus have higher overall healthcare expenditures.
- Experience more sick days and require additional office visits and hospitalizations than other children, which results in lost productivity and absenteeism for their parents.

Healthcare Concerns

Access to adequate health care is critical for families caring for a child with a special need. By definition, CSHCN require healthcare services of a different type, intensity, or scope than their peers. Children with chronic conditions enrolled in employer-sponsored health coverage programs typically face high deductibles and cost-sharing (due to their increased service use). Many also face annual or lifetime limits on their benefits. Further, many traditional employer plans use a definition of "medical necessity" that excludes treatment for congenital anomalies, rehabilitation for developmental delays, and other services critical for CSHCN.¹⁰⁹ These barriers prevent children with special needs from accessing necessary care. In order to maximize the range of covered services and minimize out-of-pocket costs, some families of CSHCN pursue a strategy of double coverage, or joint private-public coverage.¹⁴

The Maternal and Child Health Benefits Advisory Board developed a new definition of "medical necessity" that addresses the unique needs of children, including those with special needs. For more information, please refer to the Plan Implementation Guidance Document in Part 2.

Work-Life Balance Concerns

Most employed parents worry at times about their children, and thus are sometimes less efficient on the job. However, employed parents of children who are very ill or disabled deal with constant and often intensive stress, both at work and at home. Such pressures can limit parents in their ability to function at work. In extreme cases, parents may be forced to cut back their hours or leave the workforce altogether in order to provide full-time care for their child.

Some of the stresses that cause parents to lose productive work-time, cut back on their hours, or leave the workforce include the following¹⁴:

- Physically caring for a sick child, which can cause exhaustion, illness, and higher medical claims.
- Worrying about the well-being of the child, which may result in a mental health problem such as depression.
- Finding quality childcare services.

- Making numerous telephone calls to healthcare providers for appointments or guidance; taking the child to appointments with care providers and for various procedures.
- Consulting with the child’s teachers about the child’s educational needs.
- Assisting the child through hospitalizations and following discharge.
- Working with other family members to provide the child with as much support as possible.

Parents of children with chronic health conditions experience greater financial hardship, reduced employment, poorer mental health, and increased stress compared to the parents of children without special needs.¹⁴

The Business Case for Work/Life Benefits

Research has shown that work/life supports on the job are related to positive work outcomes for parents of children with special needs. Positive work outcomes include: increased job satisfaction, a stronger commitment to the employer, and improved retention.¹⁴

Key components of a supportive workplace for employees with CSHCN include an understanding and supportive supervisor, comprehensive health coverage, work schedule flexibility, an employee assistance program (EAP), and access to childcare.¹⁴

Health and work/life benefits can assist employees dealing with special needs issues. Benefits important to employees who have children with special needs include¹⁴:

- Comprehensive and affordable health insurance.
- Flexible work arrangements and use of leave time.
- Supportive work environments.
- Clear and accessible information about company benefits and how to access them.
- Information about community resources and services and public benefit programs.

Employer Actions^{8, 14, 110}

What can employers do to assist employees who care for children with special needs? Below is a summary of some important steps that companies can take to support families with CSHCN.

Provide comprehensive healthcare benefits:

- Services that may be particularly important to CSHCN include:
 - Durable medical equipment and medical foods.
 - Home health services.
 - Mental health services.
 - Dental care.
 - Vision care.
 - Laboratory and diagnostic testing.
 - Prescription drugs.

Supporting families caring for CSHCN can be accomplished without adding new benefits. Programs and benefits exist in many companies that can be adapted for families at no cost, or very low cost—such as flexible work arrangements.

- Educational testing/screening and interventions.
- Review your company's cost-sharing, flex-benefit, and case management policies and programs and make sure they support children with special health care needs. If cost barriers are a problem in your population, consider reducing or eliminating copays/coinsurance on essential care services, prescription drugs, etc.
- If your company doesn't already offer child-tailored disease management programs, ask your vendors how they can better address the needs of children and adolescents in existing programs.

Clearly communicate benefits and solicit input from employees:

- Have health plan customer service agents or member services representatives teach employees with children who are ill about healthcare benefits that apply specifically to their situation.
- Provide all employees with information on relevant benefits such as FMLA, sick leave policies, and healthcare benefits.
- Establish an employee resource or a company-wide diversity council that regularly meets to give input on policies and benefits.
- Consider including parents of special needs children in benefit design discussions for particular topics (e.g., autism benefits).

Provide flexible work environments:

Flexibility is essential for employees coping with the unpredictability of multiple medical conditions and numerous healthcare appointments. Flexibility is possible in most jobs; however, it may require employees and managers to work together to find the right solution.

- Develop policies that allow emergency time off, shift trades, and flexible hours.
- Allow employees to use paid time off (PTO), paid sick time, or incidental absence days to care for their child.
- When flexible work arrangements are possible, allow employees with ill children to work from home or even from a child's hospital room if necessary.
- Start a childcare program at the workplace, if feasible. Remember that childcare programs can reduce job turnover by 37% to 60%. If your company already provides on-site childcare, consider offering special needs education and training to company-sponsored childcare staff.
- Provide employees with a quiet room they can use during breaks to contact healthcare providers, teachers, and childcare providers.

Tailor EAP and health promotion programs:

- Provide childcare resource and referral services to employees either through an internal or outsourced EAP or partnership with a nonprofit referral agency in the community. Ensure that your company's resource and referral vendor offers access to a childcare database of providers with special needs expertise.
- Consider adding special needs issues to existing health promotion and wellness programs.
- Provide information to employees on your State's Title V Children with Special Health Care Needs Program.

Educate management on the issue:

- Provide executives, supervisors, and human resources staff with information about (a) CSHCN; (b) the physical and emotional impact of caregiving on parents, and (c) the special problems which employees with very sick children face as they juggle home and work responsibilities.
- Orient new managers and supervisors about the importance of assisting employees with children who have special needs.

Provide education and support, when feasible:

- Create opportunities for employees who have children with special needs to gain support from each other.
- Provide employees with information on local support groups for parents with special needs children. If there is sufficient demand at the worksite, consider launching a support group by providing meeting space at a company location.
- Conduct seminars in the workplace (after hours) for families of children with special needs on topics such as financial planning, finding appropriate childcare, and managing stress, or refer families to community resources.

Summary Points

- Well-child care is preventive healthcare for children and adolescents. One of the primary purposes of well-child care is to identify children affected by a physical, mental, or developmental problem as early in life as possible.
- All children face health risks; yet, many child health problems are preventable.
- Child and adolescent illness and injury are a major cause of employee absence and lost productivity. Employers have opportunities to reduce preventable health problems through benefit design, communication, and employee education.
- Children with special health care needs are an important part of an employer's beneficiary population. These children experience complex, chronic, and severe health problems, which can be difficult to manage; they use more healthcare services than other children and thus have higher overall healthcare expenditures; and they experience more sick days than other children, which results in lost productivity and absenteeism for their parents.
- Employees with sick children who receive help and support from their employers are usually better able to concentrate on their jobs, and remain with their companies longer. Employee retention is a key driver of customer retention, which in turn is a key driver of company growth and profits.
- Improving the health of children will likely benefit an employer's bottom line by reducing both direct healthcare costs and indirect costs, such as lost productivity.

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Healthy Pregnancy and Healthy Children: Opportunities and Challenges for Employers

Primary Care and the Medical Home: Promoting Health, Preventing Disease, and Reducing Cost

This document provides an overview of the importance of primary care services; the medical home model; and guidance on how employers can support both through beneficiary education, benefit design, and reimbursement practices.

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Introduction

The previous issue briefs, *The Business Case for Promoting Healthy Pregnancy* and *The Business Case for Protecting and Promoting Child and Adolescent Health* provided an overview of the health problems women and children face, and the resulting employer costs. Employers have the opportunity to address these problems in a number of ways. Part 2 recommended benefit design changes, Part 3 included tools for healthcare strategy-setting, and Part 5 provides information on health promotion programs, health education campaigns, and incentives. Investing in primary care and the primary care delivery system is another proven strategy.

The Medical Home

Many employers are focusing on preventive health in order to promote the health of beneficiaries and prevent costs that occur when beneficiaries develop chronic conditions or suffer preventable injuries. Primary care providers are essential in the prevention, detection, and management of chronic diseases and injuries: they provide continuous and comprehensive care, and are the entry point to the healthcare system.

Primary care providers are especially important in the care of children. Well-child care, the foundation of health care for children, requires multiple visits for screenings, counseling, anticipatory guidance, immunizations, and other services. The American Academy of Pediatrics (AAP) recommends that children receive 26 well-child visits from birth to age 21.² Ensuring a child is up-to-date on preventive care can be difficult, particularly when a child has special needs, complex medical conditions, or multiple providers.

Approximately 90% of children in the United States have health coverage (public or private), yet less than 80% of insured children have a regular source of care.¹

Fragmentation in care for children is common, and often due to:

- Change in their parent's employment.
- Change in health plan options, for example a change in plan administrators or network composition.
- Change in levels of coverage, for example when a parent opts to add or eliminate dental coverage.

In these circumstances, beneficiaries may be forced to choose a different care provider. As a result, their medical records can become scattered and the helpful provider-patient rapport is truncated.

The need for continuity of care and a single source of information about a child's medical history led to the idea of the medical home. The medical home concept was pioneered by the American Academy of Pediatrics (AAP) in 1967. It was originally intended to provide children with special health care needs care that was accessible, continuous, comprehensive, family centered, coordinated, compassionate, and culturally effective.³ Over time, the concept was applied to all children and then to adults. Today, the term "**medical home**" refers to a partnership between a patient, his or her family, and their primary healthcare provider.⁴

A medical home is not a building, house, or hospital, but rather an approach to providing comprehensive primary care. A medical home is defined as primary care that is accessible, continuous, comprehensive, family centered, coordinated, compassionate, and culturally effective.⁵

Principles of the Patient-Centered Medical Home (Supported by the American Academy of Family Physicians and the American College of Physicians)⁶

Personal physician - each patient has an ongoing relationship with a personal physician trained to provide first contact, and continuous and comprehensive care.

Physician directed medical practice – the personal physician leads a team of individuals at the practice level who collectively take responsibility for the ongoing care of patients.

Whole person orientation – the personal physician is responsible for providing for all the patient's health care needs or arranging care with other qualified professionals.

Care is coordinated and/or integrated across all elements of the complex healthcare system (e.g., subspecialty care, hospitals, nursing homes) and the patient's community (e.g., family, public and private community-based services). Care is facilitated by registries, information technology, and health information.

Quality and safety are hallmarks of the medical home:

- Evidence-based medicine and clinical decision-support tools guide decision-making.
- Physicians in the practice accept accountability for continuous quality improvement through voluntary engagement in performance measurement and improvement, patient feedback is obtained and used, and practices go through a voluntary recognition process to demonstrate that they have the capabilities to provide patient centered services consistent with the medical home model.
- Information technology is utilized appropriately to support optimal patient care, performance measurement, patient education, and enhanced communication.

Enhanced access to care is available through systems such as open scheduling, expanded hours, and new options for communication between patients, their personal physician, and practice staff.

Payment appropriately recognizes the added value provided to patients who have a patient-centered medical home. The payment structure should be based on the following framework:

- It should reflect the value of physician and non-physician staff work that falls outside of the face-to-face visit associated with patient-centered care management.
- It should pay for services associated with coordination of care both within a given practice and between consultants, ancillary providers, and community resources.
- It should support adoption and use of health information technology for quality improvement.
- It should support provision of enhanced communication access such as secure e-mail and telephone consultation.
- It should recognize the value of physician work associated with remote monitoring of clinical data using technology.
- It should allow for separate fee-for-service payments for face-to-face visits. (Payments for care management services that fall outside of the face-to-face visit, as described above, should not result in a reduction in the payments for face-to-face visits).
- It should recognize case mix differences in the patient population being treated within the practice.
- It should allow physicians to share in savings from reduced hospitalizations associated with physician-guided care management in the office setting.
- It should allow for additional payments for achieving measurable and continuous quality improvement.

The Business Group Strongly Supports Primary Care

The Board of Directors of the National Business Group on Health strongly supports:

- Primary care as foundational to a high-quality, efficient, and effective healthcare delivery system.
- Payment policies that recognize the value of primary care and primary care like services.
- The concept of an “advanced medical home”, as appropriate.
- Growth in health information technology (HIT) to support and enable efficiency, quality, and safety in practices of all sizes.
- Educational and loan programs that encourage physicians and other health professionals to work in primary care.

As a Nation, and as employers making payment decisions and pressing for needed payment reform under Medicare, Medicaid, and SCHIP, the Business Group believes we should:

- Direct resources to disease prevention, health promotion, and needed primary care;
- Ensure the availability of portable, personal health records;
- Support reforms, tools, and resources to enable and encourage people to have a medical home; and
- Target capital resources to underserved areas and truly needed facilities and equipment.

Why Primary Care is Important

Primary care is defined as integrated and accessible care from physicians, nurse practitioners, or other qualified providers who are accountable for a wide range of personal health care needs, who have a relationship with patients, and practice in the context of the family and community.⁷

Despite the United States having the highest per capita health expenditures in the world, it ranks at the bottom or near bottom of a wide array of health measures.⁸

One reason for our low ranking is a lack of emphasis on primary care services. Countries that emphasize primary care (namely Denmark, Finland, Netherlands, Spain, and the United Kingdom) have better health outcomes, such as reduced rates of low birthweight, neonatal mortality, child mortality, and injury-related deaths.⁸ Countries with a stronger orientation towards primary care also have fewer years of life lost (a reduced rate of premature mortality); and a lower incidence of influenza, pneumonia, asthma, bronchitis, and heart disease.⁹ The lowered rate of illness means lower healthcare expenditures. Even in the United States, cities that have a higher-than-average proportion of primary care practices experience lower in- and out-patient care costs.¹⁰

Despite the United States having the highest per capita health expenditures in the world, it ranks at the bottom or near bottom of a wide array of health measures. The United States spends 40% more per capita on health care than any other Western industrialized nation.¹¹

Countries that support and incent primary care services have lower mortality rates, fewer years of life lost due to preventable causes, and lower per capita healthcare expenditures.

Case Examples

Developmental Screening

Developmental screening (conducted during routine well-child visits) is an important preventive service.¹² Medical homes, as compared to other types of care delivery systems, improve the delivery of screening. The American Academy of Pediatrics (AAP) released a policy statement in 2006 recommending that providers screen children for developmental delays at 9, 18, and 30 months and evaluate, diagnose, and treat children who screen positive for problems.¹² The identification of developmental delays allows for early intervention, which benefits children and their families.¹² Medical homes that utilize electronic medical records are able to (a) effectively track a child's progress over time and identify symptom patterns, (b) improve collaboration among multiple providers, and (c) aid providers and families in making future appointments and managing referrals to specialists.¹²

Immunizations

Ensuring that children are up-to-date on their immunizations is vital. By the age of 2 most children will require 27 immunizations, and by age 18 most children will have received 35 vaccinations.¹³ Unfortunately, many children miss or delay immunizations leaving them vulnerable to serious disease for a period of time. Research shows that children in medical homes receive more on-time vaccinations than children seen in other care delivery models.¹⁴ Medical homes promote timeliness by keeping up-to-date records and reminding parents of their children's immunization needs.

Adverse Drug Events

According to the Agency for Healthcare Research and Quality (AHRQ), over 770,000 people are injured or die each year in hospitals from adverse drug events.¹⁵ Patients who experience an adverse drug reaction spend an additional 8 to 12 days longer in the hospital and cost an extra \$16,000 to \$24,000 compared to those who received high-quality care. Nationally, the hospital cost of medical errors totals between \$1.56 and \$5.6 billion each year.¹⁵ Since the majority of drug-related medical errors occur in the ordering and administration stages, 28% to 95% of adverse drug events can be prevented by using computerized systems.¹⁵ A computerized medical home houses a patient's information in its system and if a drug is ordered that the patient is allergic to or that might interact with another medication, the provider or pharmacist is alerted before the patient is harmed.¹⁶ E-prescribing systems reduce the amount of transcription errors by eliminating illegible prescriptions; they can also calculate dosages based on the patient's weight and height (a point of particular importance for children) and pregnancy status.¹⁷ Many of these systems can also help reduce drug costs and increase compliance to purchasers' preferred drug prescription programs by identifying when a prescribed medicine is covered by the patient's pharmacy plan and if a generic is available.¹⁷

Employer Actions

To encourage and support the medical home concept, employers should consider changing their benefit design and reimbursement practices. Employers should also educate their beneficiaries about the benefits of care continuity.

Benefit Design

- Strive to create a stable network of primary care providers, including pediatricians, family physicians, pediatric and family nurse practitioners, and general practitioners. Also strive for continuity among providers who deliver primary care like services such as prenatal care (obstetrician-gynecologists), and mental health services. Changes in coverage and changes in a plan's provider network can interrupt continuous care.
- Direct health plan administrators to select providers for their networks who practice within the medical home model.
- Provide incentives for beneficiaries and providers to foster stable relationships.

Education and Communication

- Provide information to beneficiaries about the importance of primary care, for example:
 - Provide employees who are parents with immunization and well-child care schedules, and a list of zero-cost preventive services.
 - Instruct your health plans to provide beneficiaries with information about selecting a qualified primary care provider in their area. Ask the plan to highlight providers that offer medical-home-modeled services.
- Help beneficiaries choose quality health care, by providing tools that will allow them to:
 - Select a provider who has been given high ratings in care quality, has adequate training, values and promotes preventive services, and works with patients to make healthcare decisions.¹⁸
 - Understand how to choose treatments based on their diagnosis, the benefits and risks of the intervention, recent scientific evidence, and cost.¹⁸
 - Find a suitable hospital that is accredited, rated highly by State and local organizations, has experienced physicians and nurses, and monitors and improves the quality of care it provides.¹⁸

Reimbursement

Instruct plan administrators to provide better reimbursement for primary care services. Too few young physicians are entering the primary care field and many established physicians are retiring as the trend towards specialty care devalues their care and lowers their profits.¹⁹ Improving reimbursements is one way to encourage physicians to start or continue in primary care practices. Some insurance companies and health plan administrators use the “pay for performance” system, which aims to enhance the quality of care patients receive by rewarding primary care providers for the delivery of preventive care through bonuses or reimbursements.²⁰

Summary Points

- Primary care providers are essential in the prevention, detection, and management of chronic diseases and injuries: they provide continuous and comprehensive care, and are the entry point to the healthcare system.
- Preventive health care is critical for children and adolescents and is best provided in a medical home. Children who receive well-child care in a medical home are more likely to receive on-time immunizations, more likely to be screened and treated for developmental problems, and less likely to suffer an adverse drug event than their peers treated in different models.
- Countries that support and incent primary care services have lower mortality rates, fewer years of life lost due to preventable causes, and lower per capita healthcare expenditures.
- To encourage and support the medical home concept, employers should consider changing their benefit design and reimbursement practices. Employers should also educate their beneficiaries about the benefits of care continuity.

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Healthy Pregnancy and Healthy Children: Opportunities and Challenges for Employers

A Case Study on Employee Engagement: Marriott International, Inc.

Company Background

Marriott International Inc., is a leading lodging company with nearly 2,900 lodging properties in the United States and 68 countries around the world. Its heritage can be traced to a root beer stand opened in Washington, DC in 1927.

As a leader in the competitive hospitality industry, Marriott understands the importance of employee health and productivity. Marriott believes its associates are its greatest asset; and as a leader in the service industry, Marriott knows that its success rests upon engaging those associates. Marriott's robust health benefits package seeks to engage associates by meeting the needs of their families. Jill Berger, Vice President of Marriott's Health and Welfare benefits, explains: "Health benefits are a very important part of our compensation package to attract and retain talent. One of our core values is if we take care of our associates, they will take care of our guests."

"We have learned that good health leads to better productivity on the job. We want to encourage and support our associates and their families in getting the essential care they need."

**- Rebecca Main,
Director, Benefit Plans**

Marriott provides medical, prescription drug, vision, and dental coverage to 150,000 covered associates and dependents in the United States. Approximately 80% of benefits-eligible associates are enrolled in Marriott's medical plans, and most associates have a choice between a PPO/POS and HMO. Most of Marriott's medical plans are self-insured.

Education and Communication:

The First Steps Toward Engagement

Marriott knows that health education and communication are critical. Effective health communication is particularly important because Marriott's associates speak many different languages and come from diverse backgrounds. "Continuity of care is also a challenge, as too often people wait to get care until they experience symptoms of an established disease" notes Berger. "We'd like to see more of our associates develop a relationship with a doctor," explained Main, "then the point of entry into the healthcare system would not be the ER."

Evidence shows that beneficiaries with chronic disease benefit from continuous care delivered in a medical home.

Know Your Numbers

To educate beneficiaries on the importance of preventive care, Marriott designed a preventive health education and communication campaign: "Know Your Numbers." The program, launched in 2007, encourages all beneficiaries to visit a primary care provider and be assessed for four key health indicators: glucose level, blood pressure, lipids profile, and body mass index (BMI). These four numbers give a snapshot of a person's health status and can predict his/her risk of diabetes, cardiovascular disease, and obesity.

Six percent (6%) of beneficiaries in Marriott's self-insured plans generate 60% of claims costs. Cardiovascular disease and diabetes are a large part of these claims.

Marriott developed the Know Your Numbers program in order to encourage beneficiaries to take charge of their health, know their health risks, and address chronic conditions as early as possible. The program has three objectives:

1. Educate beneficiaries on the importance of health assessment;
2. Motivate beneficiaries to visit a provider for preventive care; and
3. Encourage beneficiaries to form a *relationship* with a primary care provider.

For more information on health literacy and effective health communication techniques, refer to Fact Sheet #1 in Part 5.

The program was championed by the benefits department at Marriott's corporate headquarters in Washington, DC. Beneficiaries were mailed an informational postcard and brochure, and Marriott's newsletter also included stories on the program. To ensure that program materials were consumer-friendly, Marriott followed its health literacy guidelines:

- Health communications are simple and actionable and are specifically tailored for people without a background in health care.
- Support from on-site HR professionals during annual enrollment.
- Access to web-based portals to help associates understand benefits materials and plan variations during annual enrollment.

Removing Barriers to Care

The Know Your Numbers campaign is based on knowledge transfer. Marriott, with a keen understanding of barriers to care, knew it needed to address access and cost issues if the program were to succeed in getting beneficiaries to the doctor. To remove potential cost barriers, Marriott eliminated copays on all preventive services effective January 1, 2007, where it could. Marriott's health plans decide which preventive services qualify for the zero cost-sharing policy; each year they review the U.S. Preventive Services Task Force (USPSTF) recommendations and American Medical Association (AMA) guidelines on clinical preventive services and set their reimbursement algorithms accordingly.

Results

Because the program is so new, reliable outcome data is not yet available. In a few years, Marriott expects its claims data will show that the program led to an:

- Increase in preventive care (office visits, procedures, and medications/immunizations);
- Decrease in ER visits; and an
- Increase in the number of associates who select a primary care provider and see that provider at least once per year.

Employee feedback has been positive. Associates like the way Marriott has communicated the program; they feel it is easy to understand, straightforward, and actionable. They particularly like the case-study approach that features the stories of real people who went to the doctor, identified a risk or problem, and prevented serious illness through relatively simple lifestyle changes.

Unanticipated Challenges

As could be expected with any complex benefit change, Marriott encountered challenges in administration and implementation. Jill Berger notes, "Administering the program has been a bit challenging. For years, copays went up and up and now they are going away. It's a culture change, not just for us and for our associates, but for the health plans and providers as well."

Marriott instructs its beneficiaries on what to say and do when a provider balks at the \$0-copay for preventive services. Aetna, one of the first Marriott-sponsored plans to promote the Know Your Numbers program, redesigned their standard beneficiary identification card. "Preventive service office visit copay: \$0" is clearly marked on the front of the card. Marriott hopes that as more employers adopt zero cost-sharing policies for preventive care, health plans and providers can resolve the administrative hurdles.

Cost-Effectiveness

Marriott considered cost-savings and cost-offsets in its decision to launch the Know Your Numbers program and the zero cost-sharing policy, and expects to see a positive return on investment in just a few years time.

Next on the Horizon

The Know Your Numbers program is just one of many innovative benefit programs at Marriott.

- In November, 2006, Marriott released a comprehensive, free smoking cessation program for associates and dependents.
- In 2007, Marriott introduced a personal health record (PHR) through ActiveHealth Management for beneficiaries in all of its self-insured plans. The PHR will be promoted during this year's annual enrollment.

Next, Marriott hopes to expand its value-based purchasing strategies. Currently, Marriott offers copay reductions for certain drugs for highly prevalent chronic conditions such as hypertension and diabetes.

Advice from Marriott

Marriott's programs address the unique characteristics of their population. Yet the goals of health communication, employee engagement, and quality are universal. Marriott suggests that employers interested in promoting essential preventive care follow these action steps:

1. Examine claims and enrollment data in order to identify your top problem areas. Look for:
 - *Access.* How many beneficiaries have not selected a primary care provider? What percent of your beneficiaries do not see a primary care provider in the course of a year? How many beneficiaries have a claim for an ER visit yet do not have a claim for follow-up care?
 - *Excess costs or major changes in cost from one year to the next.* What are your highest-cost conditions or diagnoses? Are any of these conditions preventable (e.g., influenza) or modifiable (e.g., diabetes)?
 - *Utilization metrics.* Compare your utilization metrics to the HEDIS metrics. For example, what percent of your child beneficiaries receive routine well-child care? What percent of your pregnant beneficiaries receive early (first trimester) prenatal care?
2. Contract with health plans that are willing to support your healthcare strategies.
3. Develop a business case for investing in prevention and health promotion. Use your own data and look to the literature to estimate cost-savings.
4. Don't forget about administration. Sometimes the most difficult challenges are administrative; be sure to coach your plans to advise and educate providers and facilities on benefit changes.

“We know that if we can get more associates to engage in preventive care and form a relationship with a primary care provider, we will improve quality and save money for both the company and the associate.”

**- Jill Berger, Vice President,
Health and Welfare**

Healthy Pregnancy and Healthy Children: Opportunities and Challenges for Employers

AOL's WellBaby Program: An Employer Case Study

Company Background

AOL, a large media company located just outside of Washington, DC, takes a proactive approach to controlling pregnancy-related healthcare costs by offering all employees and their families access to a comprehensive well-baby program.

AOL recognizes that healthy mothers and babies result from good preventive care that begins before conception and extends into early childhood.

AOL's WellBaby Program provides preconception, healthy pregnancy, and lactation programs that promote optimal health behaviors through awareness, education, counseling, and incentives. This program has helped AOL reduce or control its pregnancy-related health costs in a number of key areas.

Initial Impetus

AOL created the company's WellBaby Program out of concern for the health and well-being of their beneficiaries. An analysis of healthcare cost data identified the need to reduce high-risk pregnancies and sick-baby claims. AOL recognized that early intervention and health promoting activities (e.g., new parent education, breastfeeding education) have the ability to improve health and reduce healthcare costs.

AOL's Pregnancy-Related Cost Concerns

- Costs associated with preterm birth.
- Costs associated with low-birthweight babies.
- Absenteeism due to disability and complications.
- Job retention.
- Sick-baby care in the first year of life.

Business Case

Containing high healthcare costs, minimizing absenteeism due to pregnancy complications and episodic childhood illness, and retaining employees following the birth of a child drive the business case for AOL's WellBaby Program. The program's return on investment (ROI) is realized from both direct and indirect costs-savings.

Direct Cost-Savings:

- Reduced utilization of high-cost pregnancy care.
- Fewer neonatal intensive care unit (NICU) days: AOL saved an estimated \$782,584 in NICU costs in 2005.
- Shorter hospital stays for mother and baby.
- Fewer sick-baby visits to the pediatrician.
- Fewer pregnancy-related short-term disability claims.

Indirect Cost-Savings:

- Reduced absenteeism and presenteeism.
- Improved retention (reduced turnover).
- Increased breastfeeding rate and duration.

History

AOL's WellBaby Program was launched in 2003 when AOL identified the need for an intensive health promotion program for expectant mothers. Prior to 2003, AOL provided contracted telephonic counseling and health education services for pregnant women, and sponsored a few classes per year for expectant and lactating mothers, usually off-site. In 2003, the company established a working relationship with Inova HealthSource of the Inova Health System. Inova staff agreed to provide on-site programming to give the WellBaby Program a more visible presence. AOL was able to leverage the Inova staff's institutional knowledge, understanding of company culture, and existing relationships with employees. Together, AOL and Inova substantially revised the existing program to include a higher level of personal interaction, additional classes and content areas, expanded counseling services, and greater availability.

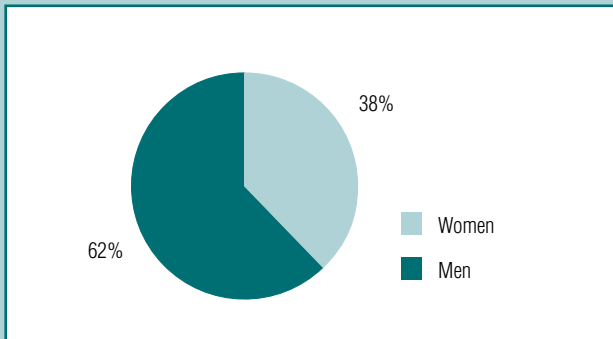
AOL human resource staff developed the WellBaby Program over a 3-month period with the following goals in mind:

- Lower the healthcare costs related to pregnancy and childbirth.
- Focus on preconception, prenatal, pregnancy, and lactation issues facing employees and their partners.
- Increase timely, appropriate, proactive interventions to decrease costly utilization.
- Increase employee productivity by decreasing absenteeism and impairment.
- Provide incentives for participants to engage in health promoting activities.

Maternal Health at AOL: A Snapshot

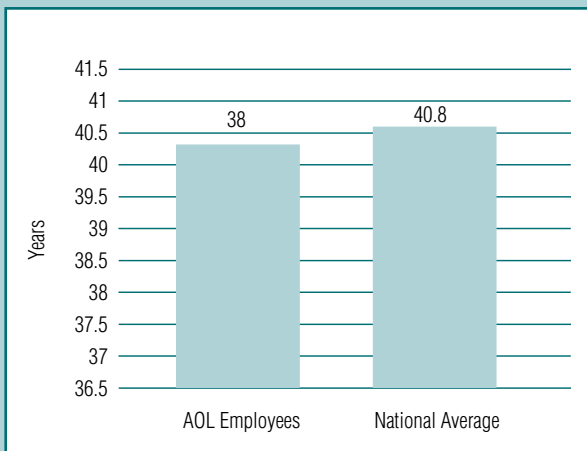
Large female population:

38% of benefit-eligible employees at AOL are women.



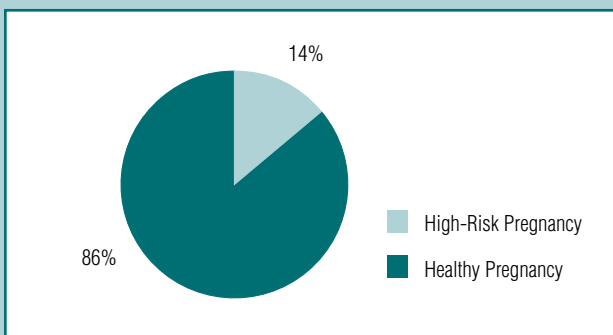
Young population:

The average AOL employee is 38 years old; spouses are a few years younger.



Growing average family size: The average family size grew by 2.5% in 2006, an upward trend consistent with prior years.

Many high-risk pregnancies: 86% of program participants are categorized as high-risk.



Due to the availability of an infertility benefit, which allows older women and women with preexisting health problems to become pregnant, AOL has a higher-than-average rate of high-risk pregnancies.

Description of the Program

AOL's WellBaby program includes three components: a preconception program, a pregnancy program, and a lactation program. Each program addresses the specific health issues and topics relevant to having a *healthy* baby.

The WellBaby Program provides a high-touch, high-tech approach to pregnancy health promotion.

Preconception Program

AOL's preconception program is intended for couples planning a pregnancy, as well as those planning to undergo infertility treatment. A care manager assigned to the woman and her partner assesses the woman's health history and makes individual recommendations and referrals. As a part of the preconception program, AOL provides a monthly newsletter, free and confidential webinars on key issues, and private consultations on the following topics:

- The science of getting pregnant.
- Preconception planning.
- Pregnancy.
- Nutrition and healthy lifestyle choices.
- Infertility treatment.
- Financial and emotional considerations.

Pregnancy Program

The pregnancy program is designed to educate and support pregnant employees, beneficiaries, and non-beneficiary dependants and their families. This program supports improved birth outcomes for the AOL family by combining education on health benefit offerings with health screenings, and guidance on preventive care.

Care managers provide support to improve the adoption of healthy behaviors, and increase prenatal and postpartum treatment compliance. They also work to improve the comprehension and retention of health information provided by the program and the woman's personal physician. For example, pregnant women receive same day or next-day phone calls if the care manager is aware of a problem (e.g., missed appointment, test result indicating a problem with the fetus). WellBaby staff assess the problem, and if needed, make sure the participant contacts her physician for additional information. Care managers immediately answer any questions about the care or treatment recommended by the woman's physician. In some cases (and with the woman's permission), the care manager schedules appointments and contacts her healthcare provider to make sure the woman gets necessary follow-up care.

Lactation Program

The lactation program assists employees and their infants in breastfeeding as long as possible. Women are enrolled in the program for as long as they breastfeed, and participation often continues through an infant's first year of life. The program provides worksite lactation benefits, comprehensive on- and off-site lactation counseling, group lactation classes, and tailored support.

Worksite lactation benefits include lactation rooms in every building on the AOL campus, two types of hospital-grade breast pumps in each room, and flexible break times to pump throughout the workday. Participants are also eligible to receive in-person consultations on breastfeeding and breastfeeding techniques in their homes or at the worksite.

Health education and support messages on breastfeeding are sent through Instant Messenger (AIM), emails, telephone calls, and the monthly WellBaby newsletter. In addition to breastfeeding support, the education messages include information on incorporating solid food into a baby's diet, and weaning the baby from breast milk. Helpful tips are also provided on working while breastfeeding.

Outline of WellBaby Program Components

Registration

- A WellBaby Program staff member gathers basic information from the beneficiary:
 - Name
 - Email
 - Phone number--both home and work
- A welcome email and overview of the program is sent to the participant.
- An initial welcome phone call is placed and the participant is screened for pregnancy risk factors.

Tailored Support and Health Education

- A care manager contacts each participant.
- Referrals to "physicians/centers-of-excellence" are provided on an as needed basis:
 - Physicians with extensive cultural knowledge for various groups.
 - Fertility centers with responsible implantation practices.
 - Maternal-fetal specialists for participants with a high-risk assessment.
- A monthly newsletter that includes health education information on a variety of pregnancy-related topics is sent to all participants; materials are also available at an on-site office.
 - Information from the March of Dimes and the Centers for Disease Control and Prevention (CDC).
 - Materials developed specifically for participants by program staff.
- Participants are invited to attended education baby classes in-person, by conference call, or in webinar format on preconception, prenatal, postpartum/new baby care, and a new parents group.

Follow-Up

- Care managers contact each participant immediately after the birth of their child:
 - In hospital for participants delivering at local hospitals.
 - Visits to high-risk perinatal/ NICU babies at local hospitals.
 - Phone call for patients delivering at other area hospitals.
 - Participants are encouraged to contact their care manager whenever needed.
- Care managers contact each participant 2 months after the delivery of their child. At this time, care managers:
 - Screen for postpartum depression.
 - Provide lactation support.
 - Assess treatment compliance.
 - Discuss the participant's postpartum visit and the importance of follow-up treatment for conditions identified during pregnancy.
 - Provide advice on family planning.

Lactation Support

- A lactation room is provided in every building and includes two types of breast pumps.
- Lactation classes are available.
- Certified lactation consultants are available to assist participants on- or off-site.

Program Incentives

- Participants earn points for participation in activities. Points can purchase gift cards at baby stores or a high-quality breast pump for use at home.

Program Outreach

- Advertisements for WellBaby classes are posted and placed on a company-wide schedule of events.
- Advertisements are also sent out via email.
- Instant Messenger (AIM) and the telephone are used for direct communication with participants.
- Benefits packet fliers distributed during open enrollment include WellBaby program information.

Program Achievements

AOL analyzes the following data points annually in order to assess the achievements of the WellBaby program:

- Number of women enrolled in the program.
- Number of prenatal visits.
- Number of prenatal prescriptions filled.
- Number of cesarean deliveries.
- Number of preterm births.
- Number of NICU days.
- Breastfeeding rate.
- Utilization of pregnancy-related healthcare services.

Since 2003, the program has succeeded in:

- Increasing program enrollment and re-enrollment for subsequent pregnancies.
- Reducing the number of premature births.
- Reducing the number of low-birthweight babies.
- Reducing child morbidity.
- Increasing the use of prenatal care.
- Increasing the fill/re-fill rate of prenatal prescriptions.
- Increasing the breastfeeding rate. In 2005, 80% of participants breastfed; in 2006 84% breastfed.

Lessons Learned

AOL continually revises its WellBaby program to meet the needs of participants. Since the program's re-design in 2003, AOL has learned the following key lessons:

- *Be visible.* Let beneficiaries know the program is available.
- *Utilize independent contractors.* Anticipate privacy concerns and provide an extra layer between the employee and company management.
- *Follow-up.* Circle back with participants to clarify recommended treatment and increase treatment compliance.
- *Value high-touch care.* Both male and female employees respond well to in-person and personalized communication. Participants appreciate communication customized to their specific needs.
- *Enlist key players* in program development activities, such as:
 - Pregnant and lactating employees.
 - Spouses and family members of pregnant women.
 - WellBaby staff.
 - Benefits staff.
 - Employee assistance program (EAP) staff.
 - Local physicians, nurses, and counselors.
 - Local hospitals.
 - Disability managers.

Program Success

The success of the WellBaby program is based on the close relationships between the WellBaby coach, individual care managers, and program participants.

Care managers provide individualized care and tailor the program to each participant's unique needs. Through regular, proactive contact, the care manager continually assesses the woman's needs, addresses challenges, and encourages healthy behaviors. Additionally, the care manager assists with problem-solving as issues arise. This in-depth interaction ensures participant engagement. AOL's visible commitment to the program and to the health of all beneficiaries further promotes engagement.

Tips for Overcoming Barriers to Success

AOL's WellBaby program has been tremendously successful, but it did face challenges. Below is a list of these challenges and the solutions AOL developed to ensure continued program success.

<p>Language/Cultural Challenges: Pregnant women may not understand prenatal care recommendations because they do not speak English.</p>	<ul style="list-style-type: none">• Distribute health literature from reliable sources in multiple languages.• Select program providers with cultural understanding and experience.• Employ providers with foreign language competencies.• Maintain a backup translator list.
<p>Privacy Concerns: Pregnant women may not use counseling or education services because they fear pregnancy discrimination from their employer.</p>	<ul style="list-style-type: none">• Use contractors to build an extra layer between employee and management for pregnancy issues.• Advise participants of HIPAA compliance.• Create a pregnancy-friendly corporate culture.
<p>Participant Compliance: Pregnant women may not follow care recommendations because they experience barriers to getting the recommended care/treatment.</p>	<ul style="list-style-type: none">• Set protocols for contact intervals.• Keep record of recommendations given.• Follow-up the next day after appointments or pregnancy-related events.

Conclusion

AOL's experience shows that providing high-quality education, tailored counseling and support services, and incentives encourages beneficiaries to take a more proactive role in pregnancy and infant health. By promoting and supporting self-care, AOL is able to control direct and indirect costs, and improve the health of the entire AOL family.

Answering the following questions can help your company understand the benefits of investing in pregnancy health.

Key Questions to ask when Considering a Well-Baby Program

- What percent of your company's health claims are pregnancy-related?
- What percent of your company's employee population are women of childbearing-age (women aged 18 to 44 years)?
- How many women of childbearing-age are enrolled in your company's health plans?
- What percent of beneficiaries give birth to low-birthweight babies? Is this number higher than the national average of 8% per year?
- What percent of beneficiaries give birth prematurely? Is this number higher than the national average of 12.5% per year? (Prematurity is defined by the March of Dimes as birth before 37 weeks gestation.)
- What is your retention rate for women following the birth of a child? Is retention following birth a concern to your company?
- Are you seeing high claims for sick-baby care in the first year of life?
- Are sick babies keeping your employees out of work?
- Would a well-baby program attract highly-skilled workers?
- Under what circumstance might a well-baby program add value to your organization?