MAKING PROGRESS ON

TIPPING THE SCALES:
Weighing in on Solutions to the Low Birth Weight Problem in Colorado

Update 2011
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1. View slides sequentially, OR
2. Click on specific items that interest you.

To **view the slides sequentially**, scroll up or down with your mouse, click the forward ▶️ or back ◀️ buttons at the bottom of each slide, or use the up and down arrows in the scroll bar on the right side of your screen.

**TRY IT NOW...**
References and Definitions:
Throughout this document, you will occasionally find shaded text. When you hover your mouse cursor over these shaded areas, you can see a note pop up. These notes contain definitions and reference information for certain terms and abbreviations.
The menu bar is available on every page to help you navigate through the document. Clicking on a link takes you to another page in the document allowing you to view specific items that interest you.

A yellow box with underlined purple text will link you to another page in this document. Move your cursor over the yellow box and click to activate the link.

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Great! You are ready to start exploring the document. Click the box below to get started, or choose one of the options from the menu bar above.
TWELVE YEARS LATER

In 2000 the Colorado Department of Public Health and Environment published a report, *Tipping The Scales: Weighing In on Solutions to the Low Birth Weight Problem in Colorado*. The report used Population Attributable Risk (PAR) analysis to determine which risk factors were associated with the most low weight births.

In 2010, the PAR analysis was repeated to find out if previous risk factors for low birth weight in Colorado changed.
Low birth weight (LBW) is defined as an infant weighing 5 pounds 8 ounces or less at birth.

LBW infants have a higher mortality rate than normal weight infants.

LBW infants can incur high health care costs through neonatal intensive care, repeated hospitalizations and increased illnesses throughout life.

LBW infants are at increased risk of obesity in childhood and adulthood.
Low Birth Weight Rates

2008 US LBW Rate: 8.2 percent
2008 CO LBW Rate: 8.9 percent
Healthy People 2020 Goal: 7.8 percent

[1] 2010 Results
[2] Interventions
[3] Next Steps
LEADING CONTRIBUTORS TO LBW

**Modifiable Risk Factors**
- Inadequate weight gain
- Smoking
- Short interval between pregnancies
- No prenatal care
- Alcohol use

**Non-modifiable Risk Factors**
- Premature rupture of membranes
- Eclampsia/Pregnancy induced hypertension
- Maternal black race
- Less than 18 years of age
- Hydramnios
- Abruptio placenta
- Placenta previa
- Altitude greater than 10,000 feet above sea level
- Incompetent cervix

2000 Methods & Results

Next Steps

What Can I Do?
2000 TIPPING THE SCALES

METHODOLOGY (1995 – 1997 BIRTH DATA)


Used information from birth certificates on maternal height, weight gain and smoking status during pregnancy.

See the Results
# 2000 Tipping the Scales Results


<table>
<thead>
<tr>
<th>Factor (Risk)</th>
<th>Population Attributable Risk</th>
<th>Percent of Mothers with the Risk Factor (Prevalence)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate maternal weight gain</td>
<td>12.8 %</td>
<td>25.7 %</td>
<td>1 in 8 low weight births</td>
</tr>
<tr>
<td>Smoking (any time during pregnancy)</td>
<td>11.9 %</td>
<td>11.6 %</td>
<td>1 in 8 low weight births</td>
</tr>
<tr>
<td>Combined inadequate weight gain and/or smoking</td>
<td>34.4 %</td>
<td>34.0 %</td>
<td>1 in 3 low weight births</td>
</tr>
</tbody>
</table>
Two preventable factors topped the list of contributors to low birth weight: inadequate maternal weight gain and smoking.

One in every 8 low weight births could be attributed to mothers not gaining enough weight during pregnancy.

One in every 8 low weight births could be attributed to mothers smoking during pregnancy.

One in every 3 low weight births could be attributed to mothers who do not gain enough weight and/or smoke during pregnancy.

Used information from a revised birth certificate containing new data on maternal height, prepregnancy weight, weight gain and smoking status during pregnancy.
# 2010 PAR Analysis Results
(2007 – 2009 Birth Data)

<table>
<thead>
<tr>
<th>Factor (Risk)</th>
<th>Population Attributable Risk</th>
<th>Percent of Mothers with the Risk Factor (Prevalence)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate maternal weight gain</td>
<td>12.9 %</td>
<td>18.7 %</td>
<td>1 in 8 low weight births</td>
</tr>
<tr>
<td>Smoking (any time during pregnancy)</td>
<td>7.1 %</td>
<td>8.7 %</td>
<td>1 in 14 low weight births</td>
</tr>
<tr>
<td>Combined inadequate weight gain and/or smoking</td>
<td>19.4 %</td>
<td>26.2 %</td>
<td>1 in 5 low weight births</td>
</tr>
</tbody>
</table>
Two preventable factors topped the list of contributors to low birth weight: inadequate maternal weight gain and smoking.

One in every 8 low weight births could be attributed to mothers not gaining enough weight during pregnancy.

One in every 14 low weight births could be attributed to mothers smoking during pregnancy.

One in every 5 low weight births could be attributed to mothers who do not gain enough weight and/or smoke during pregnancy.

Comparison to 2000 Results
## 2010 Compared to 2000 Results

<table>
<thead>
<tr>
<th>Factor</th>
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<td>34.4 %</td>
<td>19.4 %</td>
<td>34.0 %</td>
</tr>
</tbody>
</table>
The population attributable risk (PAR) of inadequate weight gain was the same in 2010 as in 2000: 1 out of 8 low weight births could be attributed to inadequate maternal weight gain.

The percentage of mothers who did not gain adequately appears to have dropped from 25.7% to 18.7%. The decline may be due to improved BMI measurement available from birth certificates revised in 2007 rather than to a decrease in prevalence.
The PAR of smoking declined 40% between the two analyses. In the 2000 study, 1 out of 8 low weight births was attributable to smoking. In 2010, 1 out of 14 low weight births was attributable to smoking.

The percentage of mothers who smoked during pregnancy dropped 25% from the 2000 to 2010 study.
When both inadequate weight gain and smoking were considered, the PAR fell from 34.4% in the earlier study to 19.4% in the later study. In the 2000 analysis, 1 in every 3 low weight births could be attributed to smoking and/or inadequate prenatal weight gain. In the 2010 analysis, 1 in every 5 low weight births was attributable to one or both factors.

The percentage of mothers with either inadequate weight gain or smoking as a risk factor, or both, fell from 34.0% in the 2000 results to 26.2% in the 2010 results.

Over a 12-year period inadequate weight gain remained the largest contributor to the number of low weight births in Colorado, while smoking dropped dramatically as a contributing factor.
CONCLUSION (2007 – 2009 BIRTH DATA)

If all women with singleton births during 2007-2009 had gained an appropriate amount of weight during pregnancy, the low birth weight rate could have been decreased from 7.0% to 6.1%.

If all women with singleton births during 2007-2009 had not smoked during pregnancy, the low birth weight rate could have been decreased from 7.0% to 6.5%.

If all women with singleton births during 2007-2009 gained an appropriate amount of weight AND did not smoke, the low birth weight rate could be decreased from 7.0% to 5.6%.
<table>
<thead>
<tr>
<th>Healthy Baby Campaign</th>
<th>Program Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Marketing Campaign</td>
<td>• <strong>Website created</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>Campaign materials developed</strong></td>
</tr>
<tr>
<td></td>
<td>• 815 providers received education about prenatal weight gain counseling.</td>
</tr>
<tr>
<td></td>
<td>• 32 health care practices incorporated prenatal weight gain counseling protocol into clinic practice.</td>
</tr>
<tr>
<td></td>
<td>• 5,000 consumers received weight gain education materials.</td>
</tr>
<tr>
<td></td>
<td>• 10 local health agencies incorporated Healthy Baby campaign concepts into public health programs.</td>
</tr>
</tbody>
</table>
### Program Interventions Addressing Inadequate Weight Gain Since 2000

<table>
<thead>
<tr>
<th>Healthy Baby Campaign</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• The study found a statistically significant decrease in the state inadequate weight gain rate that occurred in 2005.</td>
</tr>
<tr>
<td></td>
<td>• There was a significantly steeper drop in the inadequate weight gain rate for the nine counties participating in the 2004 campaign pilot program compared to the drop in the inadequate weight gain rate for the 55 Colorado counties where no formal provider training took place.</td>
</tr>
</tbody>
</table>
### Tobacco Cessation Policy Advancement

<table>
<thead>
<tr>
<th>Tobacco Cessation</th>
<th>Program Interventions</th>
</tr>
</thead>
</table>
| Policy Advancement | • In 2004, Colorado voters approved a tax increase on cigarettes and other tobacco products. The tax began in January 2005, and included a 64 cent increase on a pack of cigarettes to a total of 84 cents and a 20 percent increase on other tobacco products.  
• In July 2006, the Colorado Clean Indoor Air Act was enacted, prohibiting smoking in nearly all public establishments in Colorado.  
• In September 2009, the Medicaid tobacco cessation medication benefit was expanded from once per lifetime to twice per year. |
### Tobacco Cessation Program Interventions

#### Client and Provider Education

- In January 2008, the [Baby & Me Tobacco Free](#) program began providing vouchers for free diapers to low-income women who complete smoking cessation classes and participate in carbon dioxide monitoring during pregnancy and up to one year postpartum.
- In November 2009, [Smoking Cessation Clinical Guidelines for Pregnant and Postpartum Women](#) were developed.
- In May 2010, the [Colorado QuitLine](#) (1-800-QUIT-NOW) began to offer a specialized tobacco cessation counseling program tailored to the needs of pregnant women.
- In October 2010, a social marketing campaign was launched with a focus on tobacco cessation interventions for Medicaid clients and pregnant women, including referrals to the [Colorado QuitLine](#) and use of the Medicaid tobacco cessation benefit.
**Update Healthy Baby campaign materials.**

**Promote appropriate gestational weight gain, which can decrease risk factors that contribute to early childhood obesity.**

**Educate consumers about the importance of appropriate weight gain during pregnancy.**

**Raise awareness of health care providers about the importance of incorporating prenatal weight gain recommendations into clinical practice protocols.**

**Provide technical assistance to local agencies that serve pregnant women about appropriate prenatal weight gain.**

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**Tobacco Cessation Next Steps**
Promote tobacco cessation campaign for pregnant women.

Continue Colorado QuitLine’s specialized tobacco cessation program for pregnant women.

Advocate for and support policies and best practices that reduce smoking initiation by young women.

Support policies that eliminate smoking in multi-unit housing.

Encourage private and public health plans to provide an evidence-based tobacco cessation for their membership.

Educate the public and healthcare providers of the tobacco cessation benefits available to them as a result of the Health Care Reform Act.
WHAT CAN I DO?

HINT: Click on one of the links to be taken directly to that section.

2010 Results  Interventions  Next Steps  What Can I Do?
Counsel women about nutrition and weight issues prior to pregnancy.

Counsel all pregnant women, using culturally appropriate messages, about nutrition and appropriate weight gain during pregnancy.

Use the Preconception and Interconception care clinical practice guidelines to improve the health of women before and between pregnancies.

Use the 2009 Institute of Medicine’s recommendations for prenatal weight gain.

Calculate a pregnant woman’s BMI and discuss target weight gain range during pregnancy, with special attention to teens and women who are underweight at the initial visit.

Follow a woman’s rate of weight gain and total amount of weight gained during pregnancy.

Refer women who are underweight or who do not gain appropriately to a registered dietitian or nutrition educator early in pregnancy.
### What Health Care Providers Can Do to Address Tobacco Use

<table>
<thead>
<tr>
<th>2010 Results</th>
<th>Interventions</th>
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<th>What Can I Do?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask every woman about smoking status at every office visit.</td>
<td>Develop a personal commitment to helping reproductive age and pregnant women stop smoking.</td>
<td>Implement a tobacco-user identification system in the prenatal record.</td>
<td></td>
</tr>
<tr>
<td>Counsel all women about the health risks of smoking, including secondhand exposure to tobacco smoke.</td>
<td>Inform women that cessation, not reduction, is associated with the best reduction in low weight births.</td>
<td>Provide brief tobacco cessation counseling and refer smokers to the Colorado QuitLine (1-800-QUIT-NOW).</td>
<td></td>
</tr>
<tr>
<td>Assess readiness for quitting and encourage smoking cessation prior to pregnancy.</td>
<td>Provide follow-up and FDA-approved pharmacotherapy to maintain postpartum smoking cessation.</td>
<td>Refer patients to case management/home visitation programs proven to assist in smoking cessation.</td>
<td></td>
</tr>
</tbody>
</table>
Advocate for and support the use of Colorado preconception and interconception care clinical practice guidelines.

Promote positive messages about weight and body image among adolescents.

Promote the use of the Institute of Medicine (IOM) recommendations as the standard for prenatal weight gain.

Support the development of community education/social marketing campaigns to inform consumers about the importance of appropriate weight gain during pregnancy.

Advocate and support multidisciplinary approaches to prenatal care.

Promote and support prenatal care for all women.
### What Policy Makers Can Do to Promote Tobacco Cessation

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Advocate for and support the use of <a href="#">Colorado preconception and interconception care clinical practice guidelines</a>.</td>
<td>Support and direct the development of community education and social marketing campaigns to inform consumers about the risks of smoking during pregnancy and exposure to tobacco smoke.</td>
<td>Support policies that eliminate smoking in outdoor common areas and expand smoke-free perimeters around building entrances to protect people from exposure to secondhand tobacco smoke.</td>
<td>Support smoking cessation hotlines to provide 24-hour, 7 day-per-week assistance and support for smokers trying to quit.</td>
</tr>
<tr>
<td>Support tobacco cessation counseling and treatment reimbursement to health care providers.</td>
<td>Support and promote the use of Best Practice recommendations for smoking cessation during pregnancy.</td>
<td>Support policies that reduce tobacco advertising to young women and communities of color.</td>
<td>Support policies that raise the price of tobacco products.</td>
</tr>
<tr>
<td>Support and advocate for multidisciplinary approaches to smoking cessation during pregnancy.</td>
<td>Support policies that reduce tobacco advertising to young women and communities of color.</td>
<td></td>
<td></td>
</tr>
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</table>
WHAT WOMEN CAN DO ABOUT APPROPRIATE WEIGHT GAIN

Work to develop a healthy weight before pregnancy.

Be knowledgeable about body mass index (BMI) and the amount of weight gain that is appropriate during pregnancy.

Commit to eating a healthy diet during pregnancy.

Access prenatal care early in pregnancy.
WHAT WOMEN CAN DO TO QUIT TOBACCO USE

2010 Results

Interventions

Next Steps

What Can I Do?

- Quit smoking before pregnancy.
- Commit to being smoke-free during and after pregnancy.
- Be honest with providers about tobacco use before and during pregnancy.
- Get partners and family members involved and committed to smoking cessation.
- Seek assistance from providers and support systems for tobacco cessation.
- Call the QuitLine (1-800-QUIT-NOW) for smoking cessation counseling and assistance.
- Avoid exposure to tobacco smoke.

Women – Weight Gain
Encourage providers to use and reimburse for services related to the Colorado preconception clinical practice guidelines and reimburse for preconception care interventions.

Encourage and reimburse multidisciplinary approaches to preconception and prenatal care, including nutrition counseling services.

Provide reimbursement for all contraceptive methods.

Emphasize the importance of pregnancy planning and the need to begin a pregnancy at a normal weight.
Encourage providers to use and reimburse for services related to the Colorado preconception clinical practice guidelines and reimburse for preconception care interventions.

Inform enrollees about the risks of smoking and encourage cessation for all reproductive-age women.

Provide reimbursement to providers for smoking cessation counseling and follow-up.

Provide reimbursement for prescription and non-prescription smoking cessation aids.
The population attributable risk analysis could be done only with information collected on the birth certificate. Therefore, it does not provide information on every possible factor that affects low birth weight. The value of the analysis, however, lies in what it does reveal, and what it can suggest as public health interventions. Interventions can focus on helping pregnant women to understand the importance of adequate weight gain during pregnancy and on encouraging women to be nonsmokers, either before or during pregnancy.

Continued on next page...
Indeed, if all women can gain adequately and none smoke during pregnancy, the state’s singleton low birth weight rate has the potential to drop significantly, and a serious health problem in Colorado can be greatly reduced.
CONTACTS

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- Indira.Gujral@state.co.us