

First Breath Program Results - 2006

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Summary

The Wisconsin Women's Health Foundation's First Breath Program continues to excel in its efforts to help pregnant women in Wisconsin quit smoking. In 2006, First Breath enrolled 1,472 women into the program, 7.5% more women than in 2005. Enrolled women remain predominantly of non-Hispanic white race, with a low income and low education level.

The self-reported quit rate while pregnant of 37.8% is the highest ever reported. The smoking abstinence rate immediately post-delivery of 34.7%, however, remains in the same range as in prior years. To date, 1,009 women have quit smoking through the First Breath program, which has resulted in considerable savings in costs to the health care system. Medicaid is the one area that we have reliable data to estimate cost savings. To date, First Breath has generated a cost savings of \$1,002,663 to the Medicaid program alone.

Goals

Enrollment Projections

- 2003 – 400 women
- 2004 – 900 women
- 2005 – 1,400 women
- 2006 – 2,100 women
- Total: 4,800 women served over four years

Provide training to 600 prenatal care providers over the next four years.

Assure that women receive ongoing, consistent messages from health care providers on smoking cessation.

Create at least one First Breath site in each Wisconsin county over the next four years.

Establish a 25% prenatal quit rate among this population and substantially reduce smoking among an additional 30% of women who are unable to quit.

Decrease the rate of postpartum relapse by 50%.

Results: January 1, 2006 through December 31, 2006

Relative to Program Goals

Enroll 4,800 women in the four-year period between 2003 and 2006. As of year-end 2006, 4,637 women were enrolled in First Breath, slightly short of the four-year goal. Enrollment numbers increased rapidly in 2003 and 2004 as the program grew in sites across the state. In 2005 and 2006, enrollment leveled off as the program shifted focus to quality maintenance of existing sites rather than growth through new sites statewide.

2,100 women will be enrolled by year-end 2006. In 2006, 1,472 women were enrolled in First Breath. Even though this is below the 2006 program goal of 2,100, enrollment this year exceeds that of previous years. The focus continues to be on service to existing sites rather than growth through new sites. Therefore, the emphasis should be on total enrollment rather than this shortfall.

600 prenatal care providers will be trained between 2003 and 2006. In 2003, approximately 140 new individuals received training at three training sessions in 2003. In 2004, 87 new individuals received training at two training sessions. In 2005, approximately 30 new individuals received training at two training sessions. In 2006, approximately 109 new individuals received training at eight training sessions. The total number of providers trained over the four year period was 366, 61% of the total goal. However, this is not inconsistent given that the last two years of the goal period the program focus was not on expansion of sites or training of new providers.

Assure that women receive ongoing, consistent messages from health care providers on smoking cessation. While information that bears on this goal is not available, it remains an emphasis of the program. Examples of First Breath outreach to health care providers include presentations, posters and exhibits at local and statewide conferences, contact with the First Breath client's prenatal care provider, and the First Breath Tobacco Practices Survey of Wisconsin Clinicians of Women of Reproductive Age.

Create at least one First Breath site in each Wisconsin county over the next four years (2003-2006). The First Breath program is currently located in 108 sites in 60 counties. Implementing the program in each of the 72 counties will be an ongoing goal.

Establish a 25% prenatal quit rate among this population and substantially reduce smoking during pregnancy among an additional 30% of women who are unable to quit. In 2006, First Breath was able to exceed these goals. The prenatal quit rate of 37.8% exceeds the program goal of 25%, while the 32% smoking reduction rate exceeds the program goal of 30%.

Decrease the rate of postpartum relapse by 50%. This goal was to reduce the relapse rate found in the pilot study by 50%. A comparison of the statewide program relapse rate to the pilot study relapse rate is inappropriate because the relapse rate during the pilot study was tracked for 12 months. The relapse rate collected now occurs soon after delivery. This goal should be altered for future evaluation purposes. The relapse rate now collected occurs soon after delivery, and in 2006 was recorded at 27%.

Client Enrollment Information

Of the 1,472 enrollees, the majority are non-Hispanic white (80.8%), 77% are Medicaid recipients, and 73.6% have a high school or less education level. The percentage of women who are not employed is 48.9%. Compared to previous years, the client population has remained fairly consistent with no major differences.

Enrollment Smoking Information

- Of the 1,409 enrollees, the majority (60.2%) had started smoking within the age range of 11 to 15 years.
- Three months prior to getting pregnant, 42.4% of the women were smoking 11 to 20 cigarettes per day with 27.4% having their first cigarette of the day immediately (within five minutes) upon waking up.
- 20.9% of the women had already quit smoking at the time they were enrolled. This percentage is comprised of 21% Caucasian, 13% African-American, 27% Native-American, and 31% Hispanic-Latina.
- Of those women still smoking at enrollment, the majority (27.8%) were smoking one to five cigarettes per day.
- 77.6% of enrollees had previous quit attempts, with 34.3% attempting to quit during a previous pregnancy.

Of the women with previous quit attempts:

- 28.7% have had one previous quit attempt
- 30.8% have had two previous quit attempts
- 19.6% have had three previous quit attempts
- 6.9% have had four previous quit attempts
- 3.5% have had five previous quit attempts
- 10.3% have had greater than 5 previous quit attempts

The Nicotine Patch has proven to be the most popular medicine women have used to help them quit (21.7%; 4.3% while being pregnant), followed by:

- Nicotine Gum (14.6%; 2.8% while being pregnant)
- Zyban/Wellbutrin (12.2%; 2.1% while being pregnant)
- Nicotine Inhaler (2.4%; 0.5% while being pregnant)
- Nicotine Lozenge (2.1%; 0.5% while being pregnant)

Changes women have made since learning that they were pregnant:

- 47.0% have cut down a lot,
- 22.1% have quit smoking, and
- 21.1% have cut down a little.

When asked what they want to happen with their smoking:

- 80.1% want to quit for good,
- 10.1% don't know what they want,
- 4.8% want to only cut down, and
- 4.5% plan on quitting only until their baby is born.

Prenatal Follow-up Smoking Information

When women were asked how they would describe their current cigarette smoking, 37.8% reported not smoking at their last prenatal visit (an increase from previous years). Of these women:

- 26% of the Hispanic-Latina population reported not smoking,
- 18% of the Caucasian population reported not smoking,
- 15% of the African-American population reported not smoking, and
- 8% of the Native-American population reported not smoking.

Of the 546 women who were still smoking:

- 22.6% were smoking one to five cigarettes per day,
- 19.1% were smoking six to 10 cigarettes per day,

- 11.5% were smoking as little as one puff and up to a few cigarettes on some, but not every day,
- 8.1% were smoking 11 to 20 cigarettes per day,
- 0.5% were smoking 21 to 30 cigarettes per day, and
- 0.5% were smoking 31 to 40 cigarettes per day.

The women are surveyed on how their smoking has changed during their pregnancy, whereby the woman indicates the number of cigarettes smoked during each trimester. The data results show that there was an increase in the number of women who reported not smoking from the time of their first trimester to their third trimester. The number of cigarettes women were smoking per day in their first trimester decreased by their third trimester.

When asked what they want to happen with their smoking after their baby is born:

- 41.6% want to remain quit,
- 27.9% want to quit,
- 20.7% want to do better than now (want to quit or smoke less),
- 5.0% don't know what they want to happen with their smoking,
- 4.3% want to stay where they are at, and
- 0.3% are looking forward to smoking again.

Most providers spend one-half to one hour (36.6%) or one to two hours (23.8%) providing smoking cessation assistance to each client. The average number of prenatal contacts (contacts can be an office appointment, home visit, or phone call) a provider has had with a First Breath client is five contacts.

Postpartum Smoking Information

Postpartum data was collected on 883 women.

When the women were asked how they would describe their current cigarette smoking:

- 34.7% reported not smoking at their last postpartum visit.
- 14% of the Hispanic-Latina population reported not smoking,
- 13% of the Caucasian population reported not smoking,
- 7% of the African-American population reported not smoking, and
- 6% of the Native-American population reported not smoking.
- 24.7% were smoking one to five cigarettes per day, and
- 20.6% were smoking six to 10 cigarettes per day.

Once their baby is born, 34.2% of women want to remain quit followed by 26.4% who are not yet quit, but want to. The percentage of women who are very confident and know that they have the skills to achieve their goals with their smoking is 46.8%, followed by 39.1% who feel somewhat confident. There are 38.4% of women who feel their doctor has been helpful and supportive in working with them on their smoking.

Related to secondhand smoke, the majority of women (89%) responded that their baby is not regularly exposed to cigarette smoke in the home or in the car. The majority of women (68.3%) also responded that other people never smoke around their baby.

Fifty-seven women (6.6%) recall using the Wisconsin Tobacco Quit Line. The average number of postnatal visits providers have had with their First Breath clients is one visit (49.9%).

Outcomes

The ultimate objective is smoking cessation. However, the First Breath program has adopted a harm reduction perspective and recognizes that complete cessation only during pregnancy or even reduction, is beneficial, although not as much as permanent cessation. Collected data can be used to explore both cessation and smoking reduction.

It should be noted that all references to quit rates are self-reported quit rates that have not been biologically verified. In addition, the stated quit rate or cessation rate describes the percent of First Breath clients who reported at a given data point that they have not smoked in the past week. This may include clients who had already quit at the time of enrollment, with enrollment being at any time during pregnancy. In this case, it was the goal of First Breath to provide support and encouragement to help the client stay quit throughout the pregnancy and avoid relapse after delivery.

Cessation and Smoking Reduction

Figure 1 presents the smoking cessation rate across the data collection points. Three months prior to getting pregnant, 0.3% of the women reported they were not smoking, 20.9% had already quit by the time of First Breath enrollment, 37.8% had quit prior to giving birth and 34.7% were not smoking postpartum. This 37.8% prenatal quit rate exceeds the program goal of 25%, and has increased slightly from 2005 (35.9%).

Additionally, 32% of the women who were unable to quit were successful at reducing their smoking during pregnancy. This 32% exceeds both the program goal of 30% and the 2005 year-end percentage of 29%.

Prenatal Cessation

Data was analyzed on a total of 632 women who had both enrollment and prenatal smoking measurements taken focusing on the last data point before delivery. There were 148 women (23%) who reported not smoking at enrollment. Of these, 131 women (89%) were still not smoking before delivery and 17 women (11%) relapsed before delivery. Of the remaining 484 women who reported they were still smoking at enrollment:

- 21% (103 women) did quit smoking prenatally,
- 38% (184 women) reported that their smoking stayed the same from enrollment to prenatal,
- 26% (126 women) reduced their smoking from the time of enrollment to prenatal, and
- 15% (71 women) increased their smoking from enrollment to prenatal.

Success with Their Smoking Plans

Analysis was done on how successful women have been with their plans for their smoking. For this analysis, data was used from the Enrollment Survey question 'When pregnant, some women quit smoking for good; some quit only until the baby is born; some don't quit but do cut down. What do you want to happen for you?' and compared it to the smoking status reported at the appropriate time period. Data was collected on a total of 514 women for this analysis. This includes women who were enrolled in 2005, but had prenatal and postpartum smoking measurements taken in 2006. Results to the question responses are as follows (see Figure 2):

1. I want to quit for good (enrollment data compared to last postpartum smoking status data measurement). Of those 369 women who chose this response:
 - 17.9% (66 women) reported smoking at enrollment, but not smoking at postpartum.
 - 22.2% (82 women) reported not smoking at enrollment and were not smoking at postpartum.
 - For 25.7% (95 women), their smoking status stayed the same from the time of enrollment to postpartum.

- 18.2% (67 women) reduced their level of smoking from the time of enrollment to postpartum.
- For 9.5 (35 women), their level of smoking increased from the time of enrollment to postpartum.
- 6.5% (24 women) reported not smoking at the time of enrollment, but were smoking at postpartum.

2. I want to quit only until the baby is born (enrollment data compared to last prenatal smoking status data measurement). There were 31 women who chose this response and of those 31:

- 22.5% (7 women) reported smoking at the time of enrollment, but were not smoking at their last prenatal measurement.
- 64.5% (20 women) reported smoking at the time of enrollment and were still smoking at their last prenatal measurement.
- 9.7% (3 women) reported not smoking at the time of enrollment and were still not smoking at their prenatal measurement.
- 3.2% (1 woman) reported not smoking at the time of enrollment, but was smoking at her last prenatal measurement.

3. I want to only cut down (enrollment data compared to last data measurement regardless of whether it was prenatal or postpartum). There were 39 women who chose this response and of those 39:

- 38.5% (15 women) were successful at reducing their smoking from time of enrollment to their last data measurement.
- For 56.4% (22 women), their smoking either increased or it stayed the same from time of enrollment to their last data measurement.
- 5.1% (2 women) reported not smoking at the time of enrollment and were still not smoking at their last data measurement.

4. I don't know what I want (enrollment data compared to last data measurement regardless of whether it was prenatal or postpartum). There were 75 women who chose this response and of those 75:

- For 45.3% (34 women), their smoking level stayed the same from the time of enrollment to this last data measurement.
- For 21.3% (16 women), their smoking level increased from the time of enrollment to their last data measurement.
- 14.7% (11 women) reported smoking at the time of enrollment, but were not smoking at their last data measurement.
- 12.0% (9 women) reported that their smoking level decreased from the time of enrollment to their last data measurement.
- 6.7% (5 women) reported not smoking at the time of enrollment and were still not smoking at their last data measurement.

Harm Reduction

It is important to analyze harm reduction because it may be a more sensitive outcome than simple cessation rate. For example, over time the First Breath program may be getting better. This might first become evident in growing amounts of harm reduction of smoking cessation. The harm reduction impact of the First Breath program can be investigated by comparing self-reported smoking levels across the four time periods (three months before pregnancy, at enrollment, at third trimester, and at postpartum). When there were multiple measurements for a given time period (such as two third trimester records), which is encouraged but not required, the latest measurement was used in this analysis. For the harm reduction analysis, responses to the amount of smoking over the past week were coded in the following manner:

Score

- * I have not smoked at all, not even a puff = 8
- * As little as one puff and up to a few cigarettes on some days, but not every day = 7
- * 1-5 cigarettes per day = 6
- * 6-10 cigarettes per day = 5
- * 11-20 cigarettes per day = 4
- * 21-30 cigarettes per day = 3
- * 31-40 cigarettes per day = 2
- * Greater than 40 cigarettes (or greater than 2 packs) per day = 1

Therefore, the higher the harm reduction score, the lower the harm from smoking. Rising scores over time indicate harm reduction, while falling scores indicate increases in harm.

The following parametric analyses treat this data as interval even though it is best considered ordinal. While doing so is not uncommon, the following analyses could be questioned on statistical grounds.

The results from this question were analyzed in a repeated measures analysis of variance (ANOVA). The results are based on those 383 clients who had measures at all four points in time. Results are graphed in Figure 3. The overall F ratio was highly significant ($p < .01$) indicating that harm reduction increased across time. Each possible trend test (linear, quadratic, and cubic) was also significant ($p < .01$). This suggests that harm reduction grew across time (linear trend), but also leveled off (less increase) at the later points in time.

Relapse Rate

Of the 383 women for which there was pre- and post-delivery smoking status information, 158 (41%) had quit prior to giving birth. Of those, 115 (73%) reported not smoking post-delivery. Thus, the relapse rate is 27%. This is quite low, but should be viewed in the context that smoking status was measured fairly soon after delivery. Relapse rates will typically increase over time.

Delivery Outcomes

There were 743 women who delivered babies in 2006. Of those women, 97% reported delivering healthy babies and the remaining 3% reported delivering babies with abnormalities. Ten of those were premature deliveries and six women delivered twins. The remaining eight reported their babies having conditions of underdeveloped lungs, situs invertis organs on opposite side of body, severe heart murmur, profound hearing impairment, and bilateral ureteropelvic junction obstruction. There were two infant deaths (SIDS). Twenty-three women reported having miscarriages.

First Breath Program Cessation Rates: 1/1/06–12/31/06

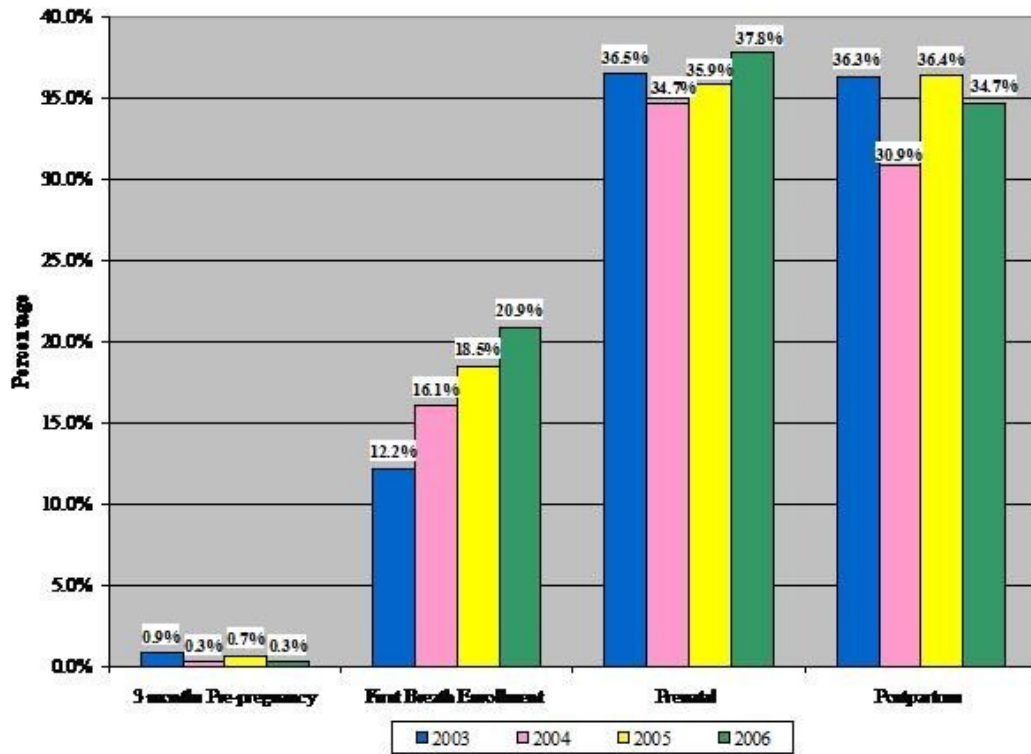


Figure 1

Success With Smoking Plans

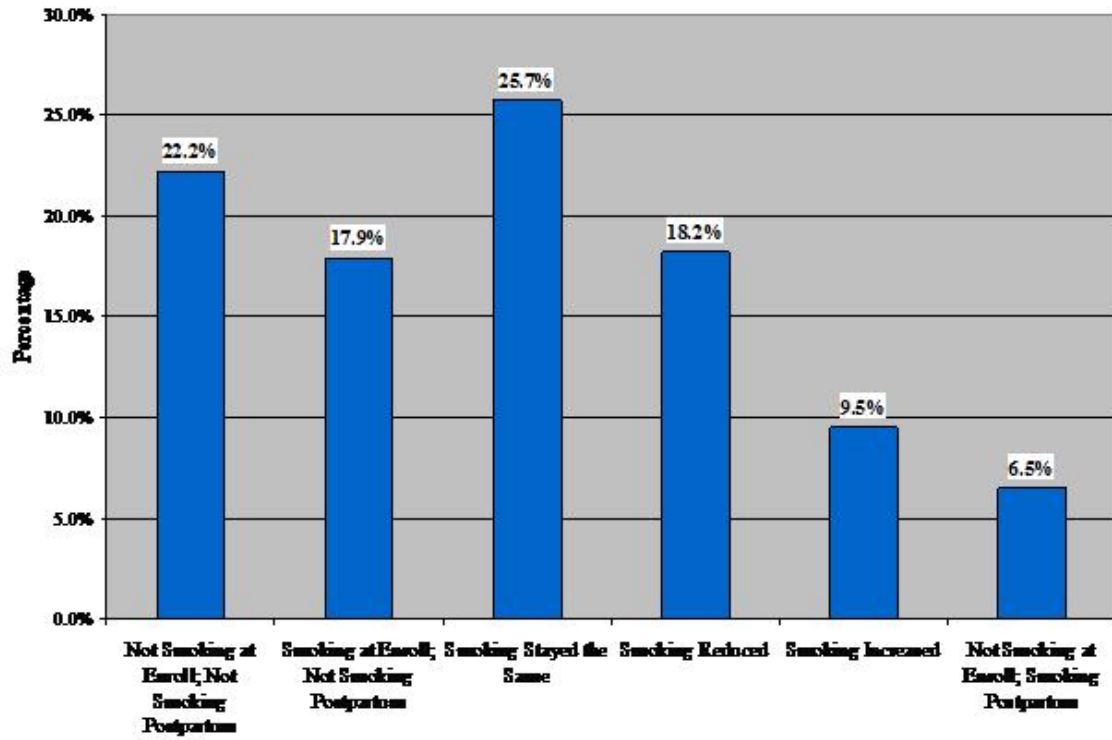


Figure 2

Harm Reduction Across Four Points in Time

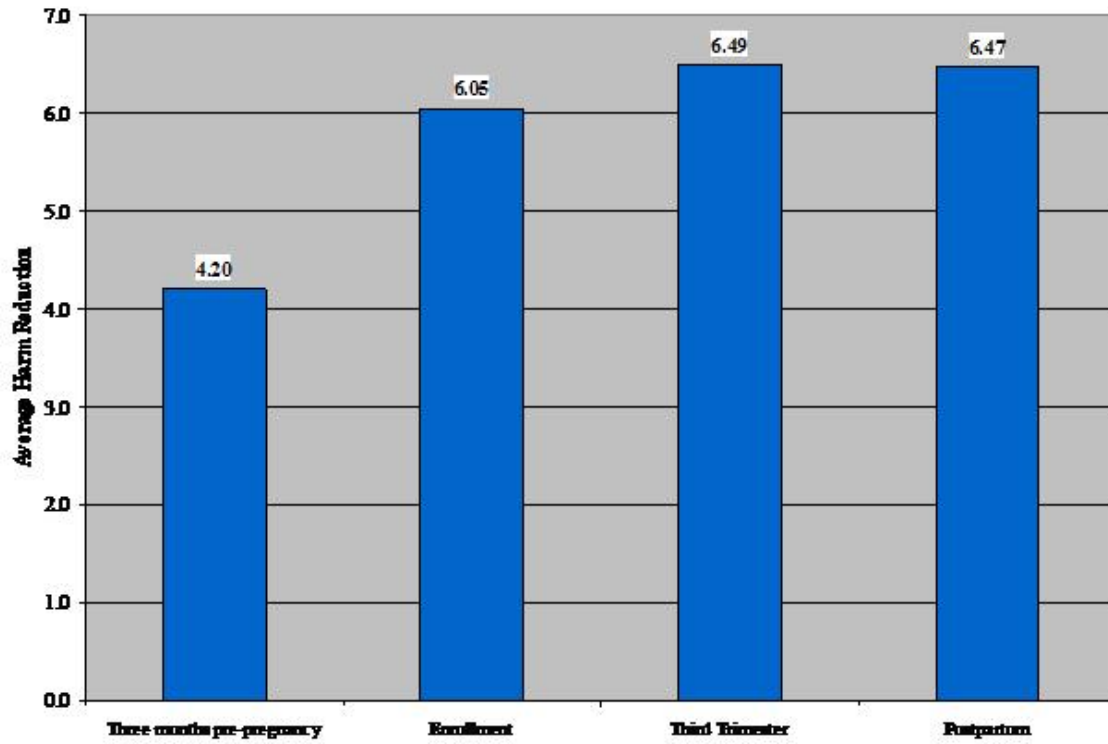


Figure 3