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MCH Innovations Database Practice Summary & Implementation Guidance

Baby & Me Tobacco Free Program

A tobacco dependence treatment program for the prenatal and postpartum population.



Location

Nationwide



Topic Area

Birth Outcomes; Substance Use; Telehealth



Setting

Community; Clinical; Virtual



Population Focus

Women & Maternal Health;
Perinatal Health



NPM

NPM 14.1: Smoking –
Pregnancy



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Section 1: Practice Summary

PRACTICE DESCRIPTION

Overview

The Baby & Me Tobacco Free Program's (BMTFP) mission and vision is "to inspire and empower pregnant people and their families to overcome nicotine dependence and support communities in disrupting the generational impacts of tobacco." It is an evidence-based tobacco treatment program designed to help pregnant people quit tobacco products. By providing counseling support and resources to pregnant people, the goal is that they will quit tobacco and maintain cessation throughout the postpartum period and beyond.

BMTFP serves pregnant people who currently use tobacco products and those that quit in preparation for or during their pregnancy. Counselors treat all forms of tobacco and/or nicotine use, including e-cigarettes. Eligibility for the program requires that the pregnant person be 36 weeks or less gestation. Once a pregnant person enrolls in the program they receive counseling, biomarker feedback, and incentives during the prenatal and postpartum period. A tobacco user who resides with the pregnant participant is also able to enroll in the program, to (1) reduce the risks of secondhand smoke exposure and create a tobacco free environment; (2) remove a common barrier associated with relapse (living with someone who smokes); and (3) assist an additional tobacco user in their quit attempt.

The program is implemented, and enrollment occurs via telehealth and/or by locally certified agencies. Local agencies certified to conduct the BMTFP include local departments of public health, community-based health centers, physician offices, WIC offices, and other health and human service organizations that serve the pregnant population. The telehealth implementation model is provided solely by the National BMTFP and its staff.

Practice Foundation

BMTFP is a psychosocial intervention that incorporates a multifaceted comprehensive approach to counseling. Our program has its own developed curriculum which incorporates many counseling strategies to support cessation and enhance relapse prevention. We use cognitive behavioral therapy techniques to provide participants with a personalized quit plan. A quit plan involves setting quit dates, learning the importance of goal setting, and identifying triggers. BMTFP counselors use an array of motivational interviewing skills to teach the basics of stress management, in addition to problem solving techniques. While BMTFP provides intratreatment support to participants we also emphasize and encourage participants to seek external treatment support. We help participants identify additional support systems outside of the program and refer them to other treatment resources as appropriate.

BMTFP is guided by multiple theories and theory-based methods to help pregnant people and their family's quit tobacco. The program is primarily based on the constructs of *The Transtheoretical Model*, which posits that changes in behavior occur as individuals progress through the six stages of change. The program uses this theory, in combination with motivational interviewing, to identify the stage of change a pregnant person is in and to assess their readiness to quit tobacco. Processes of change related to this theory are also utilized to help stimulate and maintain change among those who are ready to quit tobacco. Consciousness raising, counterconditioning, and contingency/reinforcement management enhance the motivation to quit.



Pregnancy is an ideal window to treat tobacco use disorder and concurrent with the *Life Course Framework*. During pregnancy, individuals are much more likely to consider behavioral changes, making it an opportune time to encourage them to make a quit attempt. Pregnant people often have an increased perception of risk and the desire to obtain positive personal outcomes prompts strong emotional responses. Pregnancy often redefines a persons' self-concept and social role. Pregnancy is a critical period at which tobacco treatment interventions could lead to substantial public health benefits, not only by directly enhancing the health of women and children, but also by disrupting the generational impact of tobacco use. *Social Support Theory* and *The Social Ecological Model* are also underscored throughout the program as a qualifying support partner who resides with the pregnant person is also encouraged to enroll in the program.

Theories of learning and self-regulation are embedded within the essential elements of the program. Participants attend prenatal/postpartum counseling sessions where they receive support, tobacco treatment education, and carbon monoxide (CO) testing. The use of CO testing as biomarker feedback provides positive reinforcement that motivates participants to continue their quit journey. Positive reinforcement and feedback increase their self-efficacy to quit tobacco during pregnancy. The program also offers incentives for being tobacco free. This contingent reward further acts as positive reinforcement to maintain cessation.

An additional theory that comes into play during the program is *Relapse Prevention Theory*. An assumption of this theory is that relapse events are preceded by a high-risk situation, or an event that causes vulnerability, which results in reverting back to the target behavior. Whether a high-risk situation results in a lapse depends on the person's capacity to enact an effective coping response. Utilizing effective coping strategies increases self-efficacy, which decreases the possibility of relapse. Using this theory, the program helps participants identify high-risk situations and stress in their own lives and to identify and practice alternative coping strategies other than using tobacco to prevent a relapse from occurring.

CORE COMPONENTS & PRACTICE ACTIVITES

The core components of BMTFP are based on the multiple theories and theory-base methods as outlined above, in addition to the recommendations from the *Clinical Practice Guidelines, Treating Tobacco Use and Dependency* (HRSA, 2008). The BMTFP model is based on three core components: (1) individual counseling, (2) biomarker feedback, and (3) contingency management.

Core Components & Practice Activities		
Core Component	Activities	Operational Details
Individual Counseling	Conduct intensive one-on-one evidence-based counseling repeatedly over an extended period.	<ul style="list-style-type: none"> Conduct 4 prenatal and 6 postpartum sessions, in person or via telehealth. Program curriculum incorporates various counseling strategies to treat tobacco use and prevent relapse such as Cognitive Behavioral Therapy, Motivational Interviewing, etc.



<p>Biomarker Feedback</p>	<p>Test to verify tobacco status using a carbon monoxide (CO) monitor and/or saliva test.</p>	<ul style="list-style-type: none"> • Test participants at every session to monitor progress towards cessation and validate smoking status. • CO breath test levels and correlation to tobacco free status depend on whether participant is prenatal/postpartum. • Allows counselor to provide personalized and tailored treatment plans. • Local implementation model uses an in clinic handheld monitor. Telehealth implementation model uses remote personal CO monitors. • Saliva tests are used as an alternative testing method if participants use e-cigarettes or smokeless tobacco.
<p>Contingency Management</p>	<p>Distribute incentives to participants which act as a motivational reward to help achieve and maintain cessation.</p>	<ul style="list-style-type: none"> • Distribute vouchers (restricted gift cards) to participants, primarily at sessions in which they test tobacco free. • Vouchers come in the form of a physical or electronic gift card. • Cadence of voucher distribution, dollar value, and items that can be purchased are tailored to each individual funder and vary by implementation.

HEALTH EQUITY

BMTFP was designed to help reach those disproportionately affected by poverty. Most program participants are young, first-time mothers, with over 70% having Medicaid insurance. The program is integrated into the areas, locations, and services that low-income populations already utilize, such as WIC, prenatal clinics, and public health department offices. In addition, the program has adopted a telehealth model to reach rural and low-income underserved geographic areas. The program is free to all pregnant persons within the areas we serve. We provide program materials in Spanish and offer translation services.

Utilizing proven models and theories, BMTFP enhances health literacy by promoting participant education about tobacco use and its effects during pregnancy, sharing reliable health information and where to find it, and empowering participants to use the tools they have learned to inform their health-related decisions and actions.

BMTFP promotes health equity by providing equitable access to high quality and well-coordinated tobacco treatment services for all pregnant people. Our program has and will continue to engage groups that have a higher risk for tobacco dependence. The continued improvement of tobacco treatment will advance health



equity by addressing disparities associated with tobacco use, secondhand smoke exposure, and access to treatment, ultimately reducing the burden of tobacco-related disease.

EVIDENCE OF EFFECTIVENESS

Most states implementing this program have an internal summary evaluation and report at the end of each funding cycle, though the amount of detail varies. Included in this section of the application are summary reports from three states: New York, Tennessee, and Colorado, which were published for public dissemination.

NEW YORK: The Baby & Me Tobacco Free Program underwent a three-year research analysis from 2006 to 2009 by the New York State Department of Health's Tobacco Control Program. As a pilot program, the independently researched data was reported by Anne M. Gadomski, MD, MPH, Bassett Research Group. Results were published in the *Maternal and Child Health Journal*, "Effectiveness of a Combined Prenatal and Postpartum Smoking Cessation Program," January 2011.

Settings included 22 sites (WIC offices and prenatal clinics) in upstate New York. A quasi-experimental design was used to evaluate this intervention, that included four face-to-face prenatal sessions with a Facilitator who did smoking cessation counseling, carbon monoxide testing and random saliva cotinine testing. Three implementation models were studied: multi-tasking counselors at fixed sites (Models 1 and 2) versus itinerant smoking cessation specialists (Model 3). Outcomes included biochemically validated abstinence rates during pregnancy and postpartum. Logistic regression was used to identify predictors of postpartum abstinence and program dropout. Proportional hazards regression was used to compare implementation models. Of the 777 pregnant women who enrolled in the program, 588 were eligible for the postpartum program.

Program Outcomes

- Using intention to treat analysis, the prenatal quit rate was 60% while the postpartum quit rates varied by model from 32 to 64% at 6 months.
- Postpartum, Model 3 showed consistently better quit outcomes than the other models.
- Predictors of abstinence at 6 months postpartum are: older (OR = 1.07, 95% C.I. 1.02-1.12), lower baseline carbon monoxide level (OR = 0.69, 95% C.I. 0.49-0.97), Model 3 (OR = 4.60, 95% C.I. 2.80-7.57) and attending more prenatal sessional (OR = 3.52, 95% C.I. 2.19-5.65).

Conclusions

BMTFP is a novel individual-level treatment approach designed to improve smoking cessation effectiveness because it includes evidence-based components, provides continuity and counseling long-term, appeals to low-income women and is feasible in real world settings.

TENNESSEE: Outcome data collected from the Tennessee Department of Health was published in the *Maternal and Child Health Journal*, "Effects of Incentive-Based Smoking Cessation Program for Pregnant Women on Birth Outcomes," in September 2016, and showed an 11% reduction in low birthweights among participants.

Of 95 counties, 86 chose to implement BMTFP. Linked program and birth certificate data from 866 pregnant smokers who participated in the program and 11,568 pregnant smokers who were eligible for but did not enroll in the program were analyzed. The program consisted of 4 prenatal smoking cessation counselling sessions, 12 postpartum follow-up visits, breath carbon monoxide measurements to monitor smoking status, and rewards of diaper vouchers for quitting smoking. Logistic regression models were used to examine the associations of program participation with infant low birth weight and preterm birth.

Program Outcomes



- Reduced number of cigarettes smoked per day: 3.1 cigarettes per day for participants who attended at least 3 prenatal sessions compared to 8.4 cigarettes per day for non-participants
- Reduced rate of low birthweight birth with 4.9% low birthweight for participants who attended at least three prenatal sessions compared to 11.6% for non-participants
- Reduced hospital charges for care of newborns estimated at \$1.9M

Unlike randomized trials which investigate the efficacy of interventions in well-controlled settings, this study evaluated the effectiveness of a statewide, incentive-based smoking cessation program administered in “real world” community settings. The results of the study are generally in agreement with those of the trials, suggesting that it is feasible to translate trial findings on incentive-based cessation interventions into real world settings. Unique features of the study included a low-income study population from a state with a high rate of maternal smoking (14.3%), the use of diaper vouchers and incentives with potentially added health benefits and greater public acceptability, and the finding on improving birth weight that could have important implications.

Conclusions

This study found, for the first time, that successful participation in the BMTFP was associated with significantly decreased odds of having a low birthweight infant.

COLORADO: Evaluated by the University of Colorado School of Public Health. Results were published in Public Health Nursing Journal, “Impact of an incentive-based prenatal smoking cessation program for low-income women in Colorado”, October 2019.

Prospective observational cohort with nonequivalent population control groups. Program participants (n = 2,231) linked to the birth certificate to ascertain birth outcomes compared to two reference populations from Pregnancy Risk Assessment Monitoring System (PRAMS) and Colorado live births based on the birth certificate. Measurements included tobacco cessation metrics in the third trimester of pregnancy, neonatal low birth weight (<2,500 g), preterm birth (birth at <37 weeks’ gestation), neonatal intensive care unit (NICU) admission and maternal gestational hypertension. Cost-savings and return on investment (ROI) were projected using average Medicaid reimbursement.

Program Outcomes

- Infants of mothers enrolled in the program had a lower risk of low birthweight (RR = 0.86; 95% CI = 0.75, 0.97), preterm birth (PTB) (RR = 0.76; 95% CI = 0.65, 0.88) and neonatal intensive care unit (NICU) admission (RR = 0.76; 95% CI = 0.66, 0.88) compared to the birth certificate population, corresponding to a ROI of \$7.73 and an individual cost savings of \$6,040.
- Compared to PRAMS, infants of enrolled mothers had a lower risk of PTB (RR = 0.72; 95% CI = 0.53, 0.99) and NICU admission (RR = 0.45; 95% CI = 0.32, 0.62), corresponding to an ROI of \$2.79 and an individual cost savings of \$2,182.

Conclusions

Findings indicate a reduction in preventable smoking related adverse birth outcomes among women who participated in BMTFP and suggest health care savings.



Section 2: Implementation Guidance

COLLABORATORS AND PARTNERS

The implementation of this program nationwide would not be possible without our funders, local agencies, healthcare providers, community partners, and of course the pregnant people enrolled in our program. We collaborate with others because we can't do this work alone; our success is driven by our ability to come together to build a society free from the burden of tobacco.

Practice Collaborators and Partners			
Partner/ Collaborator	How are they involved in decision-making throughout practice processes?	How are you partnering with this group?	Does this stakeholder have lived experience/come from a community impacted by the practice?
Funders	Funders provide funding, decide program implementation type, identify physical implementation sites, support expansion, and sustainment of the program.	Funders and national program staff meet on an ongoing basis to monitor program progress and outcomes.	In most cases, yes. Funding generally comes from the state/local area where the program is being implemented. However, funding sources do vary.
Community Based Organization & Facilitators	Local agencies and their trained staff provide the intervention to program participants. They provide services to enrollees and inform the national office of programmatic needs.	National program staff facilitate virtual meetings to discuss program updates, progress, barriers, and successes with local agencies and remains continuously available for all implementation needs.	Yes. These agencies and facilitators live and work in areas that reflect the ethnic, cultural, and socioeconomic characteristics of the communities they serve. They oversee the operations of the programs that serve the pregnant population.
Healthcare providers & Community partners	Critical in identifying eligible pregnant persons and referring them to the program. Provide	We provide an online referral system so that staff can refer eligible clients. National program staff	Yes. Healthcare providers and other community partners that serve our target population do so within the areas that are most impacted



	continuation of care and cessation support.	conducts educational trainings on brief tobacco treatment intervention. We also provide updates on participant referral statuses, if applicable.	by tobacco use and dependence.
National Facilitators	Facilitators provide direct services to participants via virtual platform.	Facilitators regularly meet with program management to share participant feedback, progress, barriers, and successes.	Yes. Our Facilitators come from various backgrounds including practitioners, public health workers, lived experience, and work closely with or are from the communities served.
Enrolled program participants	These individuals are the recipients of BMTFP services. Motivation and confidence level assessed during each session which informs facilitator objective for the session.	Participants receive counseling at a minimum of 4 prenatal and 6 postpartum sessions.	Yes. Pregnant and postpartum participants are the population receiving services.

REPLICATION

The program was originally developed in and for Chautauqua County, NY in 2002, with initial expansion to other neighboring counties within the state. Between 2008-2020, the program model continued to evolve, and its services expanded to multiple states nationwide. In response to the 2020 pandemic, a telehealth implementation model was developed to continue to serve the programs mission. While state and geographic areas of implementation vary year-to-year based on funding and other resources, the program has been implemented at one time or another at almost 400 local agencies, in 22 states across the United States. We continue to focus our efforts on scale and sustainability so that more families nationwide can benefit from the program.

INTERNAL CAPACITY

Significant internal capacity is required to implement this program. Key personnel, materials, and responsibilities required for in-person program implementation include:

- a. Secure funding to implement the program
- b. Execute contract with the national program office
- c. Garner support from agency leadership, ideally a subject matter expert
- d. Train a minimum of two staff to become certified program Facilitators



- e. Have access to adequate technological resources
- f. Collect and input programmatic data
- g. Conduct outreach/marketing activities and foster relationships with community partners
- h. Order program materials and manage/pay invoices
- i. Conduct the Baby & Me Tobacco Free Program model
- j. Garner referrals and manage the online referral system (if applicable)
- k. Communicate with national program staff
- l. Participate in QA/QI activities to ensure program fidelity

Telehealth implementation can only be conducted by the national BMTFP office, which is equipped with all the above, including additional personnel in the form of health/program/development directors, program facilitators, data and analytic experts, and account managers. In addition, telehealth staff are nationally certified in tobacco treatment and carry out advanced technology responsibilities. Telehealth services are only offered to those states and/or agencies with active contracts.

PRACTICE TIMELINE

For more information on this practice’s timeline and specific practice activities, please visit our website and submit a ‘Contact Us’ form.

PRACTICE COST

Program cost is dependent upon several factors including implementation model (in-person or telehealth), implementation process, and projected number of clients served. Costs for the program include training and ongoing program support, data and technical assistance, outreach materials, counseling session fees, testing equipment, and incentives. For more information, please visit our website and submit a ‘Contact Us’ form.

Budget			
Activity/Item	Brief Description	Quantity	Total
Training	<p>Training includes education on tobacco treatment, program structure/protocols, and program curriculum.</p> <p>Required to become a certified program Facilitator.</p>	Number of agency staff that will conduct the program.	Varies



	Applicable to in-person model only.		
Data and Technical Support	Data management software for collection of data and reporting. Infrastructure to create and manage online referral system. Implementation support and oversight.	-	Varies
Supplies and Materials	Testing equipment, program manuals, incentives, shipping.	Determined based on implementation model, implementation process, and number of participants projected to enroll.	Varies
Marketing & Outreach	Costs associated with promoting the program.	-	Varies
Tobacco Treatment Counseling Fee	Fee charged to conduct individual counseling sessions with enrolled participants. Applicable to telehealth model only.	Dependent on number of participants served.	Varies
Total Amount:			Varies

LESSONS LEARNED

- The program produces better outcomes when leadership at the local and state levels are involved, and when broad community support from tobacco treatment advocates is present. In addition, implementation within agencies that already serve the prenatal/postpartum population is ideal for engagement and retention.



- A considerable amount of work is needed to identify and educate healthcare entities and maternal child health advocates on the clinical recommendations for treating tobacco use among pregnant and postpartum people.
- Offering telehealth services has allowed the states we operate in the opportunity to serve a wider geographic area. Enrollment rates have increased, and pregnant people are provided easy access to tobacco treatment services.
- Local agencies implementing the program often operate with less staff, experience high staff turnover, and/or have an ongoing transition of staff roles and responsibilities. This means that many are unable to devote adequate and quality time to conduct the program. Our telehealth model eliminates the need for agencies to devote staff time to deliver BMTFP, thus allowing them to focus on other public health initiatives and lessen the workload on an already constrained workforce, all while still addressing the issue of tobacco use among their prenatal/postpartum clients.
- Ongoing barriers faced by those experiencing low socioeconomic status such as access to technology (smart phone, laptop, internet access) which is needed to conduct virtual sessions with participants. Digital literacy barriers also exist.
- Silos between and within local state offices of tobacco control and maternal child health departments create barriers to coordinating efforts to address prevention education within the pregnant population.
- A main barrier that continues to exist is the need to consistently find ways to sustain the program long-term with leadership changes and funding stream instability and variation.

NEXT STEPS

Our main goal is to have this program become the standard of care and that it is available for free to any pregnant person (locally, state-wide, nationally, and globally). While we continue to provide and foster local site implementation options, programmatic efforts are primarily focused on promoting and expanding the telehealth implementation model. Our team is working on identifying and engaging with statewide perinatal quality collaboratives, managed care organizations, and community health workers to provide screening education and referral information. We are also committed to partnering with external social services resource networks to streamline external referrals.

RESOURCES PROVIDED

The program's design has proven effective in decreasing the number of participants who use tobacco during and after pregnancy, improving birth outcomes among babies born to those enrolled in the program, and reducing hospital costs for the care of newborns. Three quasi-experimental design studies have been conducted in New York, Colorado, and Tennessee and published in scientific journals.

- Gadomski, A., Adams, L., Tallman, N., Krupa, N., Jenkins, P. (2011). Effectiveness of a combined prenatal and postpartum smoking cessation program, *Maternal and Child Health Journal*, 15: 188-197. DOI 10.1007/s10995-010-0568-9.
- Polinski, K.J., Wolfe, R., Peterson, A., et al. (2019). Impact of an incentive-based prenatal smoking cessation program for low-income women in Colorado. *Public Health Nursing Journal*, 00:1-11.



- Zhang, X., Devasia, R., Czarnecki, G., Frechette, J., Russell, S., & Behringer, B. (2017). Effects of incentive-based smoking cessation program for pregnant women on birth outcomes, *Maternal and Child Health Journal*, 21(4), 745-7. DOI 10.1007/s10995-016-2166-y.

For more information and to contact us visit our website: <http://www.babyandmetobaccofree.org/>

