

# Midwives' Knowledge, Perceptions, Beliefs, and Practice Supports Regarding Tobacco Dependence Treatment

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Clinical practice guidelines and evidence-based reviews confirm the efficacy of tobacco dependence treatment for pregnant women. The purpose of this study was to examine tobacco dependence treatment practices among certified nurse-midwives who treat pregnant women who smoke. Midwives were surveyed to determine knowledge, perceptions, and beliefs about tobacco cessation treatment and to identify practice environmental factors that support treatment practices. Half of all midwives had not heard of the US Public Health Service Guidelines (5 A's) to assist smokers in cessation treatment. We found varying levels of adherence to the clinical practice guidelines. Nearly all midwives routinely *ask*, *advise*, and *assess*; while fewer encourage patients to set a quit date or discuss medication options (*assist*) and perform follow-up activities (*arrange*). Barriers significantly associated with clinical tobacco treatment practice are lack of training and competing priorities in the visit. One-office support, a system in place to provide smoking cessation information and resources, was associated with increased practice. In summary, midwives believe they should be providing tobacco dependence treatment, yet they identify a need for training. The findings of this study also indicate that sustained practice change, which includes the entire practice environment, should be targeted to enhance tobacco dependence treatment. *J Midwifery Womens Health* 2007;52: 451-457 © 2007 by the American College of Nurse-Midwives.

**keywords:** clinician practice-based office supports, midwives tobacco cessation counseling, pregnancy and tobacco treatment, tobacco dependence treatment

## INTRODUCTION

Prenatal care provides an optimum yet challenging opportunity for clinicians to screen for tobacco use and provide cessation counseling to women. Smoking during pregnancy has been shown unequivocally to negatively affect both the health of the mother and the fetus.<sup>1-5</sup> A significant proportion of women who smoke before pregnancy quit spontaneously when they learn that they are pregnant.<sup>6-8</sup> Nevertheless, most pregnant women who smoke are unable to quit smoking without some type of intervention.<sup>9</sup> The percentage of pregnant women who continue to smoke may be underestimated, because smoking during pregnancy carries a social stigma.<sup>10,11</sup> Although smoking rates have declined among women, rates of smoking among pregnant women have not declined at the same rate.<sup>12</sup>

Clinical practice guidelines and evidence-based reviews confirm the efficacy of tobacco dependence treatment.<sup>13-15</sup> The US Public Health Service Guidelines recommend brief clinical interventions for clinicians such as the 5 A's: *ask* smoking status at every visit; *advise* smokers to quit; *assess* readiness to quit; *assist* in quit attempts; and *arrange* follow-up to prevent relapse.<sup>14</sup> Although these guidelines have been proven effective,<sup>15</sup> they have not been universally adopted in practice. Specifically, pregnant women are asked about smoking behavior during prenatal care, but few are offered the counseling and cessation assistance necessary

to help them to quit.<sup>16,17</sup> Previous studies have evaluated adherence to the guidelines by physicians.<sup>18-22</sup> More recent studies have specifically examined obstetricians' smoking cessation treatment practices.<sup>23,24</sup> Less is known, however, regarding the tobacco treatment knowledge, attitudes, and practices of other healthcare professionals who treat pregnant women. Up to this point, little has been written about the specific factors that enable—or barriers that inhibit—midwives' tobacco cessation treatment practice.<sup>25</sup> Midwives, as prenatal care clinicians, have been shown to deliver smoking cessation counseling at higher rates than physicians.<sup>26</sup> Additionally, tobacco cessation interventions for pregnant women delivered by nurse-midwives have been shown to have greater success.<sup>27-32</sup> Pregnant women who smoke have identified the important role of midwives in motivating them to stop or reduce smoking during pregnancy.<sup>28-30</sup>

Although increased knowledge about the clinical practice guidelines is necessary for clinical practice behavior change, it may also be important to understand how the practice environment (e.g., office supports) affects practice behavior, suggesting a dialectic approach to practice change that may enhance tobacco dependence treatment by all clinicians who treat pregnant women who smoke. Thus, the purpose of this study was to determine how New Jersey's certified nurse-midwives (CNMs) provide tobacco screening and cessation counseling to pregnant women who smoke, by assessing midwives' knowledge, perceptions, and beliefs about tobacco cessation practices. To that end, we sought to identify the individual and environmental factors that enable or inhibit CNMs' ability to provide tobacco dependence treatment.

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## RESULTS

### Demographics

Table 2 details the demographic, professional, and tobacco-related characteristics of the sample. The average age of midwives who responded to the survey was 46.4 years (range, 26–77 yrs); nearly all were women (97.5%); and the majority of respondents were white (83.2%). Most midwives reported working either in group practices (41.3%) or in hospitals or with other healthcare providers (36.7%). Midwives spent a mean of 35 hours per week in direct patient care; more than two-thirds (68.6%) of their patients were pregnant; and the mean number of pregnant patients they saw in a typical day was 16. CNMs estimated that about 25% of their patient population smoked. Among responding midwives, 38.9% reported having smoked at least 100 cigarettes in their lifetime, and 5.7% reported some current cigarette use. Only 1 in 5 (21.2%) midwives reported receiving any training in smoking cessation, and 83% reported interest in receiving training in smoking cessation.

### Clinical Tobacco Treatment Practices

Table 1 lists 11 clinical practices examined in this study, and the percentage of time midwives often or always performed the practice. Figure 1 shows a subset of these practices, the 5 A's, and notes adherence to the US Public Health Service Guidelines.<sup>14</sup> More than half of all midwives (53.1%) in this study had not heard of the US Public Health Service Guidelines to assist smokers in cessation treatment. Additionally, we found varying levels of adherence to the clinical practice guidelines (5 A's) among CNMs (Figure 1). Nearly all (99.5%) midwives routinely *ask* patients if they smoke. Additionally, 98% routinely ask their patients how much they smoke. Midwives also explained the dangers of tobacco use (94.9%) and *advise* smokers (99%) to stop smoking. Midwives reported routinely asking their patients if they are interested in quitting smoking (*assess*; 86.8%). Less frequently, however, do they encourage patients to set a quit date (44.3%) or discuss medication options (36.3%), such as nicotine replacement or bupropion SR (*assist*). Midwives reported even lower rates of follow-up activities (*arrange*; 24.5%) to monitor their patients' progress or provide referral for smoking cessation treatment (37.7%). Nonetheless, they often reevaluate their patients' tobacco use at each visit (74.7%).

### Barriers to Tobacco Dependence Treatment Practices

Table 3 describes the perceived barriers to delivering tobacco treatment. The most commonly perceived barriers involved perceptions about patients, including perceived resistance to advice (81.1%) and a perceived lack of patient interest (78.1%). Approximately three quarters are concerned about competing priorities in the visit

**Table 2.** Demographic, Professional, and Tobacco-Related Characteristics of Certified Nurse-Midwives in New Jersey (N = 193)

Characteristics	Results
Midwives' age, y mean (SD)	46.42 (8.5)
Midwives' age, n (%)	
26–30	11 (5.7)
31–40	31 (16.1)
41–50	92 (47.7)
50–77	54 (28)
Gender, n (%)	
Female	186 (96.4)
Male	5 (2.6)
Race/ethnicity, n (%)	
White	159 (82.4)
Black	14 (7.3)
Hispanic	8 (4.1)
Asian/Pacific Islander	3 (1.6)
Other	7 (3.6)
Practice type, n (%)	
Solo	10 (5.2)
Group	80 (41.5)
Multi-specialty	4 (2.1)
Hospital/other health care provider	69 (35.8)
Federal or state agency	12 (6.2)
Other	15 (7.8)
Years at present practice, y mean (SD)	6.26 (5.6)
Hours of patient care per week, n (%)	
0–20	36 (18.7)
21–40	114 (59.1)
51–100	40 (20.7)
Number of patients treated per day, n (%)	
1–10	66 (34.2)
11–20	82 (42.5)
21–30	33 (17.1)
31–40	6 (3.1)
Percentage of patients who are pregnant, n (%)	68.59 (26.9)
What % of your patients smoke? n (%)	
0–10%	53 (27.5)
12–20%	43 (22.3)
25–30%	47 (24.4)
35–40%	16 (8.3)
42–50%	16 (8.3)
60–75%	4 (2.1)
Have you smoked at least 100 cigarettes? n (%)	
Yes	77 (38.9)
No	61 (61.1)
Do you currently smoke? n (%)	
Every day	5 (2.6)
Some days	6 (3.1)
Not at all	182 (94.3)
Have you had cessation training? n (%)	
Yes	41 (21.4)
No	151 (78.6)
Would you want cessation training? n (%)	
Yes	156 (80.8)
No	32 (16.6)

(72.9%) and their lack of training (72.8%). Fewer midwives, yet still more than half of the sample, reported that the cost of medications (63.4%), reimbursement for smoking cessation (59.7%), and a lack of time (48.8%) were major barriers.

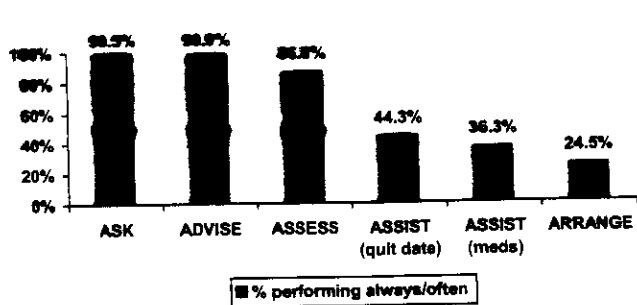


Figure 1. Midwives' adherence to clinical practice guidelines (the 5 A's).

### Office Systems for Tobacco Dependence Treatment

Four specific questions regarding office systems were examined in the survey to determine what supports exist to assist midwives with tobacco treatment services. The majority (89.9%) of midwives reported that their practices have a system in place to screen and document smoking status. Many (64.0%) reported that they have a system to cue or prompt clinicians to counsel about smoking behavior. More than half (56.3%) reported that their practice has a system in place to provide smoking cessation related materials and resources. Lastly, less than a third (31.6%) reported working in practices that have someone other than a physician available to conduct smoking cessation treatment counseling sessions.

### Association of Barriers and Supports with Tobacco Treatment Practices

In order to evaluate the impact of barriers on tobacco treatment practice, barriers were examined with the "clinical tobacco treatment practice score" (see analytic plan), to determine whether any barriers were associated with clinical tobacco treatment practice. We examined associations between the clinical tobacco treatment practice score and each specific barrier. Barriers (Table 3) significantly associated with clinical tobacco treatment practice were lack of training ( $F = 12.83$ ;  $df = 1$ ;  $P < .001$ ) and competing priorities in the visit ( $F = 8.66$ ;  $df = 1$ ;  $P = .004$ ).

Additionally, we examined the four office systems to determine if any of the four office support systems were associated with the overall clinical tobacco treatment practice score. The only office support that was significantly associated with increased practice was whether the practice had a system in place to provide smoking cessation information and resources ( $\chi^2 = 9.734$ ;  $P = .002$ ). Those midwives who were more likely to provide tobacco dependence treatment worked in practices where the office had a specific system in place to provide smoking cessation information and resources to assist pregnant women.

### CASE SCENARIO: USE OF NICOTINE REPLACEMENT THERAPY

A survey item was included, modified from Oncken,<sup>34</sup> to determine utilization of nicotine replacement therapy (NRT) in a theoretical case of a pregnant woman who smokes 20 cigarettes per day and is unable to quit. The case was designed to lead to considering using NRT as recommended by current practice guidelines from the Public Health Service<sup>14</sup> and the American College of Obstetricians and Gynecologists.<sup>35</sup> Fewer than 1 out of 5 (19.5%) midwives reported that they would prescribe NRT for pregnant women who smoke 20 cigarettes per day and who are unable to quit without the use of pharmacotherapy. Among them, approximately half (9%) would prescribe NRT sometimes, often, or always; more (12%) would recommend over-the-counter NRT; and fewer (6%) would prescribe bupropion SR (Wellbutrin).

### Bivariate Analysis of Covariates and Practice Behavior

Other variables, such as age, years in practice, years in current setting, total number of hours performing patient care, and midwives' smoking status were examined to determine if any of these characteristics were associated with practice behaviors.  $\chi^2$  analysis produced no statistical significance among all other covariates and the clinical tobacco treatment score.

### DISCUSSION

Many studies have examined physician adherence to the clinical practice guidelines,<sup>18-22</sup> and more recently we have seen papers that describe physicians' tobacco cessation counseling practices with their pregnant patients,<sup>23,24</sup> but this study is the first to evaluate midwives' adherence to clinical practice guidelines within the context of both individual factors and environmental supports. Midwives reported varying levels of adherence to the recommended tobacco dependence treatment guidelines. Reassuringly, midwives in this study reported, almost universally, that they asked about smoking status and advised pregnant women to quit. Nonetheless, the rates of assisting and arranging follow-up are not opti-

Table 3. Barriers to Screening and Tobacco Cessation Counseling Practices Reported by Certified Nurse-Midwives in New Jersey

Barriers	% Agree
Patients resistance to advice	81.1
Lack of patient interest	78.1
Competing priorities in the visit (e.g., acute illness)	72.9
Lack of training or experience in smoking cessation	72.8
Lack of community resources for referral	63.4
Cost of medications	63.4
No or limited reimbursement for smoking cessation	59.7
Lack of time	48.8

mal. Considering that these practitioners are critical to delivering tobacco dependence treatment for pregnant women, these rates need to be improved.

Based on the findings of this study, more training is needed for midwives in the area of tobacco dependence treatment. Training will enhance confidence and provide them with the necessary skills to more effectively deliver cessation treatment services in their practices. In our sample, only 21% of midwives reported previous training, yet 80% were interested in such. Tobacco cessation training directly focuses on brief motivational interviewing techniques to reduce burdens on time constraints for clinicians, a barrier identified in this study. Training would also help reduce misconceptions of other barriers (e.g., a belief in patients' lack of interest and resistance).

Midwives are a very important clinical group to train for tobacco dependence treatment.<sup>27-31</sup> Because midwives see many pregnant women (typically 16 per day in this sample), the potential impact on a large number of pregnant smokers is significant. Finally, considering that nearly 6% of midwives in this sample reported current tobacco use, training and education could potentially influence these practitioners to attempt to quit smoking themselves. It is likely that healthcare providers who do not smoke or have recently quit smoking may be more effective at helping their patients quit smoking.

This study identified that in order to successfully increase tobacco treatment practices by CNMs, and perhaps other prenatal clinicians as well, there is a need for a dialectic approach to practice change. As is the case for meaningful and sustained behavior change, and as this study demonstrates, both educational and environmental strategies are needed to increase tobacco treatment practices for pregnant women.

Although only slightly more than 50% of midwives reported that their offices have a system to provide cessation materials and resources, this system was associated with increased rates of tobacco treatment practice. The environment, as shown in this study, either enhances or is a barrier to performing clinical tobacco treatment practices. This study supports the importance of system-based interventions in adhering to clinical practice guidelines. The guidelines recommend the utilization of system-based interventions<sup>13</sup> to improve tobacco dependence treatment, and other studies have demonstrated the benefits of utilizing office-based strategies.<sup>36,37</sup> Tobacco cessation treatment should be viewed within the context of quality improvement and thus include targeting the entire practice environment, as well as including all practice clinicians and staff in participating in tobacco cessation treatment training.

Overall, this study identified lower rates of assisting with cessation treatment and arranging follow-up. Factors that are associated with low rates of more advanced practices (e.g., assisting and arranging) include low confidence and a lack of training. Midwives are generally

confident in their ability to screen for nicotine dependence, but are not as confident about their ability to treat nicotine dependence with pharmacologic support. Only 1 in 5 reported confidence in their ability to recommend medications. While this translates into a low rate of practice (20%) in utilizing NRT, studies have not shown that NRT is more effective than either cognitive or behavioral approaches,<sup>14</sup> nor is there sufficient evidence as to the safety of NRT in pregnancy.

In summary, these findings suggest that comprehensive training for midwives is the essential next step to ensuring that pregnant women who smoke and are attended to by CNMs will receive the tobacco dependence treatment they need. In this study, CNMs identified too many other priorities in the visit as a barrier to tobacco dependence treatment practice. Training will enhance confidence and provide midwives with the necessary skills to more effectively deliver cessation services in their practice. One such skill included in tobacco dependence training is brief motivational counseling. Thus, learning how to deliver tobacco dependence treatment can aid midwives with issues related to time management. CNMs are a very important clinical group to train for tobacco dependence treatment; they are successful at adopting behavioral interventions. The overwhelming majority of respondents in this study believe that tobacco treatment is part of their role. They see many pregnant patients who are smokers. CNMs perform more prenatal care services than nurse practitioners and advanced practice nurses<sup>38</sup> and, therefore, are among the essential clinicians to provide cessation treatment. CNMs also see more Medicaid clients, who are more likely to be dependent on tobacco, as previous studies have demonstrated.<sup>38</sup> They are in need of training however, and more importantly, more than 80% reported that they desire training.

These findings should be considered together with several limitations, including the investigation of self-reported behaviors and the resulting potential for response bias. Specifically, self-reporting of tobacco treatment practices are not direct measures of these practices. It is possible that subjects self-report either an under- or overestimation of their true behaviors. It is worth noting though, that this was an anonymous survey and that there were no incentives for respondents to report inaccurate information. Although we obtained an 86% response rate, it is possible that there are important differences between those who chose to respond from those who chose not to respond. The CNMs in this study were from one state, and therefore the findings may not generalize CNMs in all states. Also, subjects in this study were predominantly female and white. It is unclear if these findings would fully apply to midwives of other demographics.

While the limitations are worth noting, they are outweighed by the strengths of this study, particularly the

high response rate of 86%. Additionally, the information provided by the midwives showed that there was congruence in the area of training. One in five believed they lack sufficient training in tobacco dependence, while 4 out of 5 reported they would like additional training. The findings of this study also indicate that training alone may not be sufficient. Other studies conducted among family practices indicate that in order to have sustained practice change, such as the implementation of preventive guidelines, the entire practice and its environment must be addressed.<sup>39-41</sup> Our findings lend support to a dialectic approach that engages clinicians and their entire practice environment with tobacco dependence treatment training and office system supports.

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### "Still a Midwife"

I am a midwife.  
 I am "with woman."  
 My hands may only know the memory of catching babies,  
 But I AM a midwife.  
 I may miss at times the energy of labor  
 And the intensity of birth,  
 But I am *still* a midwife, and am still "with woman."  
 I am with her as she discovers the joy of having become pregnant.  
 I am with her as I hold her while she weeps for a baby lost.  
 I am with woman as I welcome new midwives into this sisterhood.  
 I may at times long for the perfect cry of a new life,  
 Or remember the primal scent of childbirth,  
 But I am still a midwife, and am still "with woman."  
 I am with woman as she sits; wide-eyed and frightened, waiting for her first pelvic exam.  
 I am with woman as I teach her to embrace her health.  
 My place of practice may not be a delivery room, or a birth center. . .  
 But I still have the heart and hands of a midwife  
 And forever will be "with woman."  
 -Jennifer H. Meyers