

Supplemental Information

METHODS

The study was approved by the Department of Human Services–Health Services/Multnomah County Public Health Institutional Review Board of Oregon. We randomly assigned WIC participants to 1 of 3 study arms of telephone peer counseling program among WIC recipients in Oregon. The intervention began during pregnancy and continued postpartum. The goal was to evaluate the impact of the counseling program on breastfeeding initiation, duration, and exclusivity on an intention-to-treat basis.

Sample Size

The number of mother-infant pairs required was based on achieving a 10 percentage point difference in the prevalence of breastfeeding at 6 months postpartum between the intervention and control groups. The expected difference was based on a meta-analysis that found a mean difference of 13 percentage points at 4 to 6 months postpartum.²⁶ We calculated that 523 mother-infant pairs per group ($n = 1569$) would be needed given a 2-tailed test with the probability of a type 1 error of 0.05 and 90% power. We set out to recruit ~1900 women in anticipation of a 20% rate of loss to follow-up. Participant flow is shown in Fig 1.

Enrollment

LWAs applied to the state office to be a potential study site. To be considered, LWAs had to have a large enough caseload to help meet enrollment goals and at least 15% of participants who spoke Spanish. Because no LWA in the state had a peer counseling program,

they also had to specify how they would hire and supervise peer counseling staff as well as their proposed rate of pay. Six of 34 LWAs expressed interest and 5 were selected. One withdrew before the start of the study due to a lack of support for the project on the county level. Women were recruited at 4 LWAs: 2 were in counties classified as metropolitan areas despite great differences in population and 2 were rural.

All mothers presenting for a new pregnancy visit and who indicated that they intended to breastfeed or who were undecided were offered the opportunity to participate. In Oregon, this offer was extended to essentially everyone because 90% of WIC participants initiate breastfeeding and it is safe to assume that the figure for intention is higher given that some who want to breastfeed do not end up doing so for any number of reasons. Given that almost 11 000 women presented for a new pregnancy visit during this time, the number of women who indicated that they had no intention to breastfeed was so small that no effort was made to count this group. Importantly, there were no exclusions because of age, multiple gestations, known risk factors, or previous birth history. We did exclude all women ($n = 179$) presenting for a new pregnancy visit in 1 LWA (Hood River) after December 2005 because a new peer counselor could not be replaced. We counted these women as exclusions.

Peer Counselors

Each LWA hired its own peer counselors if counselors met the following criteria: had personally breastfed at least 1 in-

fant for a minimum of 6 months, were currently or had been a WIC client within the past 5 years, were able to devote at least 10 hours per week to peer counseling, were able to access transportation to bring them to the clinic several times per week, and were fluent in Spanish if serving Spanish-speaking participants. In addition, each peer counselor had to be able to attend a 3-day training session in Portland, Oregon, as well as continued training with the local peer counseling coordinator. The training provided by the state WIC program was grounded in the Loving Support curriculum. The training covered technical breastfeeding topics, methods of providing peer support, scope of practice, and the benefits of breastfeeding. After the training, peer counselors continued to receive instruction at their LWA, which included shadowing and supervised breastfeeding counseling experiences.

We did not assess peer counselor knowledge before training. However, we did have desired competencies and suggested interview questions that local agencies used when making their hiring decisions. We felt that not having previous peer counseling program gave us the cleanest slate for conducting an RCT. Although peer counselors generally improve their counseling skills with time, the training and support they received before being assigned a caseload were on par with or superior to peer counselors serving in community-based organizations. State-provided training was provided as necessary to bring new peers up to speed. We did lose a number of peers during the study. The first dropped out 2 weeks after the initial training because she was offered

a full-time job. This dropout occurred before the counselor was assigned any participants, so it did not impact the study. The second counselor to drop out had a medically fragile child and decided it was too much to take on. Her caseload was passed on to her replacement. In short, being a peer counselor is the only realistic option for a small percentage of WIC participants. The part-time hours coupled with a relatively low rate of pay make the job unthinkable for those who are sole income earners. Additionally, a few women had limited formal work experience and the demands of the job were not a good fit.

Intervention

Women assigned to the control group received the standard WIC breastfeeding promotion and support and did not have contact with a peer counselor. Participants assigned to a peer counselor received a packet of information from the state office that included the booklet "An Easy Guide to Breastfeeding," a 2-page information sheet on the importance of exclusive breastfeeding, and a flyer featuring a photo of their assigned peer counselor with her special welcome message. In addition, at 1 month before the expected due date, participants were given a luggage tag meant to be attached to the bag they packed for the hospital, featuring their peer counselor's name and phone number and asking them to call when they gave birth. They also received a reminder that exclusively breastfeeding mothers received extra foods from WIC. Women assigned to the low-frequency peer counseling group were scheduled to receive 4 planned, peer-initiated contacts: the first after initial prenatal assignment, the second 2 weeks before the expected due date, and the third and fourth at 1 and 2 weeks postpartum, respectively. Women in high-frequency treatment group were to

receive 8 scheduled calls. The first 4 calls were the same as those in low-frequency treatment group and the last 4 calls were scheduled at months 1, 2, 3, and 4.

Postpartum Contact Schedule

We designed a report that peer counselors and coordinators could run directly from our data system (Oregon WIC Information System Tracker [TWIST]) that would automatically generate a list of mothers' names and scheduled calls due for any given week or month. The call schedule was calculated from the mother's enrollment date and her expected delivery date. Once we obtained the infant's date of birth, the report automatically recalculated the postpartum call dates. We recognized that early contact in the postpartum period was critical and the peer counselor call lists were intended to support timely postpartum calls. Peer counselor coordinators also ran these lists to check peer counselor compliance with these call dates. We did collect data on each call's scheduled date and the actual date on which the peer counselor made contact if she was able to do so. However, because there was not a difference between outcomes, we opted not to go into that detail. Nonetheless, contacting mothers as quickly as possible after birth was very important to us. In reality, not all expected due dates are accurate, infants arrive early, phone numbers change, and new mothers are often so overwhelmed that responding to a peer counselor's call just is not a priority. Therefore, not all mothers were reached during the first week postpartum, but every effort was made to do so.

Ascertainment of Breastfeeding

Ascertainment of breastfeeding status was only conducted during a certification visit that did not differ in frequency

for study participants and nonparticipants. Peer counselors did not have access to the screen and questionnaire that are used to determine breastfeeding initiation and duration because that information is limited by their security roles in TWIST. A more likely explanation is that women in the treatment arm participated in WIC longer because of their interaction with a peer counselor. Simply having the peer counselor call and leave messages may have served as a reminder to the mother to keep her WIC appointments or reschedule one she had missed. The longer a woman participates in WIC the more likely we are to ascertain the duration of any breastfeeding. In contrast, exclusive breastfeeding ceases earlier than nonexclusive breastfeeding. As a result, the number of missing cases for exclusive breastfeeding is half as large as those for nonexclusive breastfeeding.

Missing Data

Outcome and demographic information were obtained through the administrative system (TWIST) given the size of the study population. Use of an administrative system for data collection increased the risk of missing data for women that left the state or dropped out of WIC. Breastfeeding duration, for example, cannot be determined until a woman stops breastfeeding. Thus, breastfeeding duration was missing for women who reported breastfeeding at their last WIC recertification visit but then left WIC before their next scheduled recertification appointment. There were fewer missing data on exclusive breastfeeding duration, which tends to end earlier in the postpartum period. As a check against differential loss of data, we tested for covariate balance across treatment arms for women with known values of exclusive and nonexclusive breastfeeding duration.

Interactions Between Study Participants

Contamination caused by interactions between participants or inadvertent face-to-face contact between peer counselors and participants is a reasonable concern when randomization occurs at the individual client level and not at the clinic level. Oregon WIC uses its TWIST data system to automatically generate participant appointments ~6 weeks ahead of time. Participants can specify if they have a preference for morning or afternoon or a particular day of the week and that is recorded in TWIST. Because Oregon WIC participants have set appointment times versus a “next-up” schedule that is used in some WIC programs, it is rare to wait more than 10 minutes for your appointment to begin. Therefore, waiting room conversation time is limited. Some mothers may go to an LWA together but that would mean that their appointments would have to be on the same day and around the same time, which is less likely given that the first postpartum appointments are autoscheduled on the basis of a woman’s expected due date. Mothers do

share information with one another, whether they obtain it from the Internet, their doctors/midwives, La Leche League leader, or another source. However, randomization ensures that whatever routine interactions occur between those in the treatment arms also occurs between the controls and thus should not confound the results. With regard to women in the treatment arms, we were extremely clear that peer counselors could not have telephone or in-person contact with women who were not in the peer counseling groups. In addition, our peer counselors were not allowed to also be part-time WIC certifiers (in contrast to what occurs in some WIC peer counseling programs) and they made their phone calls to participants from home.

TABULATIONS FROM THE NATIONAL IMMUNIZATION SURVEY PRESENTED IN THE DISCUSSION

We used the public use files from the National Immunization Surveys (NIS) from 2005, 2006, and 2007 to evaluate the differences in breastfeeding between Hispanics and non-Hispanic whites. The NIS is a random digit di-

aling telephone survey conducted annually and sponsored jointly by the National Center for Immunization and Respiratory Disease and the National Center for Health Statistics, Centers for Disease Control and Prevention.¹ The survey is designed to measure vaccination coverage rates of children 19 to 35 months of age in all 50 states, the District of Columbia, and selected metropolitan areas. Household heads also are queried about breastfeeding practices, and these data are now used to monitor breastfeeding rates in the United States. The NIS also contains basic demographic and socioeconomic data including whether the child ever received WIC benefits. The timing of receipt of WIC benefits is not reported (http://www.cdc.gov/nchs/nis/about_nis.htm; last accessed April 18, 2014).

Supplemental Tables 10 and 11 below show the prevalence of exclusive breastfeeding for at least 3 months on the basis of the authors’ tabulations of the combined NIS surveys in 2005–2007. The number of respondents is also shown in each cell. The data are weighed by the survey weights provided by the NIS.

SUPPLEMENTAL TABLE 10 Prevalence of Exclusive Breastfeeding for at Least 3 Months Among Hispanics by Whether the Interview Was Conducted in English or Spanish and Whether the Respondent’s Child Was Ever Enrolled in WIC

| Child Ever Enrolled in WIC | Language of Interview | |
|----------------------------|----------------------------------|----------------------------------|
| | English (Number of Observations) | Spanish (Number of Observations) |
| No | 0.433 (4229) | 0.466 (838) |
| Yes | 0.251 (5417) | 0.480 (7107) |

Weighted data from NIS 2005–2007. Source: http://www.cdc.gov/nchs/nis/about_nis.htm (last accessed April 22, 2014).

SUPPLEMENTAL TABLE 11 Prevalence of Exclusive Breastfeeding for at Least 3 Months Among White Non-Hispanics by Whether the Interview Was Conducted in English or Spanish and Whether the Respondent’s child Was Ever Enrolled in WIC

| Child Ever Enrolled in WIC | Language of Interview | |
|----------------------------|----------------------------------|----------------------------------|
| | English (Number of Observations) | Spanish (Number of Observations) |
| No | 0.483 (33 805) | 0.343 (44) |
| Yes | 0.230 (12 695) | 0.176 (98) |

Weighted data from NIS 2005–2007. Source: http://www.cdc.gov/nchs/nis/about_nis.htm (last accessed April 22, 2014).

SUPPLEMENTAL REFERENCE

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