



**Columbia University Work|Life  
Breastfeeding Support Program**  
Process and Outcome Evaluation Proposal  
Evaluation of Health Programs

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## I. Executive Summary

The Office of Work|Life at Columbia University Breastfeeding Support Program Process and Outcome Evaluation Proposal was created through a transparent process that directly involves the program staff and Columbia's Mailman School of Public Health graduate students. This plan highlights a process and outcome evaluation in response to the needs of the program's staff in improving program performance and quality of services.

The plan includes an overview of the breastfeeding program with a focus on the lactation rooms, the program's evaluation purpose, evaluation questions and design, evaluation limitation, and recommendations. The plan follows the presentation of a logic model as a foundation for process and outcomes evaluation and a presentation of a set of proposed recommended initiatives. Four main recommendations emerged during the evaluation development:

- **Document Analysis of Previous Survey Open-ended Questions:** Leverage a codebook to analyze the 6-month Breastfeeding Support Program survey
- **In-depth Interviews with Current Users:** Leverage key informant interviews with active users to inform user needs that enrich the program's lactation room operations
- **Additional Questions Added to the Existing Survey Tool:** Support the outcomes evaluations with questions targeted toward health and work outcomes.
- **Retrospective Analysis of Administrative Records:** Identify the number of absences, resignations, and withdrawals among lactating women who do and do not use the lactation rooms

To make these recommendations feasible and actionable, this plan draws from an evaluation approach that is informed by the Centers for Disease Control and Prevention's (CDC) framework for program evaluation.

These recommendations are unified by the goals of the breastfeeding program, that are: 1) to provide a deeper understanding of user needs in order to make programmatic changes geared towards quality improvement; 2) to expand the knowledge base of adherence to breastfeeding guidelines and retention towards healthy feeding behaviors; 3) to support a healthy climate/environment to improve work and school outcomes such as enhanced productivity, decreased absenteeism rate, and increased retention rate.

## **II. Program Overview**

### *Breastfeeding Support Program*

The Breastfeeding Support Program is sponsored by the Office of Work|Life at Columbia University and is designed to make it easier for mothers to express milk while they are on campus. The mission of this program is to make Columbia University an environment that is supportive of mothers so that women are able to effectively manage their academic, professional, and familial responsibilities. The program has existed for seven years and has lactation rooms in all of the campuses that belong to Columbia University (Morningside, Manhattanville, Columbia University Medical Center, and the Lamont-Doherty Earth Observatory). As of 2017, there are 16 private lactation rooms and 23 pumping spaces. Private lactation rooms that are equipped with hospital-grade breast pumps, educational materials, breastfeeding workshops, and lactation support groups are the main components of the Breastfeeding Support Program. Through this program, women have the opportunity to purchase discounted breast pump accessories.

The Breastfeeding Support Program was initially created in 2008 as a response to the New York State Labor Law § 206-C which requires all employers to provide private lactation rooms and permit lactating women to use unpaid break time or paid meal time to nurse their infants. This program is also designed to align with the mandates in the Patient Protection and Affordable Care Act which

state that employers must provide women with nursing breaks. An important goal of the Breastfeeding Support Program is to help women follow nursing guidelines created by the American Academy of Pediatrics, which recommend women to exclusively breastfeed their infants during the first six months of their life and to continue breastfeeding throughout their infant's' first year of life. The overarching aim of the Breastfeeding Support Program is to improve the health and well-being of mothers and their infants.

### *Target Population*

The Breastfeeding Support Program is available to any woman who works or studies at Columbia University. In 2017, 363 women actively used the private lactation rooms. The most frequent users of the lactation rooms are officers of administration, Non-Union, and Union staff and they represent approximately 32 percent of the active user population. Doctoral, Masters, and Professional students are the second largest active user group and they represent 26% of the active user population. A significant share of Postdocs and Officers of Instruction also utilize the private lactation rooms with their representation as 17 and 15 percent, respectively. Undergraduate students are the least represented group in the active user population.

### *Key Stakeholders*

Office of Work|Life staff, Columbia University Department administrators, Board of Trustees at Columbia University, and lactating mothers are the primary stakeholders of the Breastfeeding Support Program since they are directly involved with either the management Columbia University as an institution or the Breastfeeding Support Program itself. In addition, the private lactation rooms are primarily funded in collaboration with the School Departmental Offices. Other secondary stakeholders would be the New York State administrative office that oversees adherence to the New York State Labor Law § 206-C and national oversight agencies that monitor implementation of the Patient

Protection and Affordable Care Act. These secondary stakeholders are important at a peripheral level because the Breastfeeding Support Program is designed to satisfy requirements set by both of these agencies.

### **III. Evaluation Purpose**

The purpose of this process and outcome evaluation is to understand how private lactation room use is distributed throughout the different Columbia University campuses and how the Breastfeeding Support Program impacts users' well-being. The process component of this evaluation will be oriented around assessing users' existing needs and satisfaction regarding the private lactation rooms. This information is essential because it will equip program staff with information on how to effectively address users' concerns to improve service delivery. The outcome component of this evaluation will focus on users' adherence to breastfeeding guidelines and work productivity. These two outcomes will be the focus of this evaluation since they focus on behavioral goals of the Breastfeeding Support Program. The program staff of the Breastfeeding Support Program already have written annual reports of the program's accomplishments, utilization, feedback, and areas for improvement using data elicited from a survey administered through Survey Monkey.

However, the focus of these previous surveys was primarily on accessing process measures of the program such as reach, room and service utilization, and satisfaction with the rooms, services, and policies. The program's impact on behavioral outcomes has not been explicitly evaluated. This evaluation plan will provide insight on how well the Breastfeeding Support Program supports women to follow breastfeeding guidelines, and be productive at work or school. The outcome evaluation aims to determine if women who engage in the Breastfeeding Support Program through the lactation rooms have positive health and work outcomes. According to the Office on Women's Health (OWH), U.S. Department of Health and Human Services (2017), supporting nursing mother at work and in school

lowers absenteeism rates and increase retention rates, long-term indicators studied in this program's logic model. Cigna insurance company found that women who breastfed saved \$60,000 per year in lower absenteeism rates (OWH, 2017). Ortiz et al. (2004) showed in a study with several companies with lactation support programs that they retained around 94% of their employees after maternity leave, compared with the national average of 50%.

The information gained from this evaluation will be valuable for providing the Office of Work|Life administrative staff with evidence to present to decision and policy makers at Columbia University on the effects of the Breastfeeding Support Program. In addition, data from this evaluation will allow the program staff to make meaningful comparisons with federal and state laws regarding time and space to express milk. Evidence on the effects the Breastfeeding Support Program has on lactating mothers may be used to support advocacy efforts to institute a school-wide policy that a private lactation room is included in every construction project. Conclusively, the results of this evaluation will be used to further the mission of Columbia University to provide a supportive work and academic environment for mothers and families.

#### **IV. Evaluation Questions**

While the Breastfeeding Support Program has several distinct components, this evaluation plan will focus on the private lactation rooms since future policy work will focus on expanding the reach of private lactation rooms around Columbia University. The evaluation questions are intended to guide the evaluation plan and reflect the purpose of the evaluation to examine users' needs and satisfaction, and the program's impact on nursing behaviors and work productivity. We differentiated the evaluation questions based on whether they target process or outcome measures. The process evaluation component will consist of a geographical analysis that will estimate how much time users spend away from work to access and utilize a lactation room, as well as an assessment of users' needs and

satisfaction related to the private lactation rooms. The outcome evaluation portion is divided into two distinct categories: health and work outcomes. The primary health outcome that this evaluation will examine is users' adherence to the national breastfeeding guidelines. The work outcomes that this evaluation will analyze are related to productivity, absenteeism, retention, and sentiments towards Columbia University. The following are the evaluation questions:

## **Process Evaluation**

### *Needs and Satisfaction*

- What are lactation room users' existing needs regarding the lactation rooms?
- How satisfied are lactation room users with the lactation rooms?

## **Outcome Evaluation**

### *Health outcome*

- What percent of lactation room users are able to achieve the 6-month exclusively breastfeeding recommendation?

### *Work Outcomes*

- How are users' time away from work impacted by the location of the lactation rooms?
  - Sub-questions
    - What was the absenteeism rate of lactation room users who work at Columbia University and other workplaces over the past 3 years?
    - What were the retention rates of lactation room users who work at Columbia University and other workplaces over the past 3 years?
    - How have users' work or school productivity levels changed attributed to the use of lactation rooms?



- How has employee morale and loyalty to Columbia University changed attributed to the use of lactation rooms?

#### **IV. Evaluation Design**

*The Framework for Evaluation in Public Health* designed by the Centers for Disease Control presents a systematic methodology by which to evaluate programs (Appendix A). The standards that guide this framework are utility, feasibility, propriety, and accuracy. The standards are intended to ensure that evaluation is of high quality and satisfies the needs of the program. The steps of this evaluation framework are 1) Engage stakeholders; 2) Describe the program; 3) Focus the evaluation design; 4) Gather credible evidence; 5) Justify conclusions; and 6) Ensure use and share findings. The steps of the evaluation framework are intended to be followed in an iterative manner.

The evaluation proposal team engaged stakeholders by meeting with the program staff to understand their expectations for the evaluation. Stakeholder engagement will be consistently integrated in this evaluation by gathering information from program users. Subsequent sections of this evaluation plan will describe in depth the evaluation design, data collection tools, and dissemination recommendations. In addition, each of the components of the evaluation were designed to ensure that they are relevant, accessible to use, ethically appropriate, and will gather credible and reliable information. For this evaluation plan, we propose using a codebook to conduct a systematic document analysis of previous open-ended responses from the Breastfeeding Support Program semi-annual surveys, performing in-depth interviews with key informants, and adding questions that examine relevant health and work outcomes to the existing 6-month program survey.

#### **Rationale for Qualitative Methods**

Qualitative methods are most appropriate for this process evaluation because the Columbia Work|Life Office already has abundant quantitative data on usage of its breastfeeding program. The

office, however, lacks information on the program's impact and how the program can be improved, according to its users. Interviews would provide informative themes about likes and dislikes of the program and how the program is being utilized compared to its mission. Narrow, loaded questions disallow respondents from providing insight beyond the interviewer's assumptions, therefore, flexible open-ended questions will be utilized instead. Since this interview will be conducted on current users segmented by level of usage, The Office of Work|Life team will be able to receive valuable insight into what motivates or inhibits use of lactation rooms and other services. Themes generated from document analysis of the surveys that already exist can be used to inform the design of an in-depth interview guide. The in-depth interviews with key informants can follow a semi-structured format so that there is a degree of standardization.

The strengths of performing document analysis of the existing surveys and in-depth interviews with room users are that users' unique experiences will be captured and elements of the lactation room can be prioritized based on users' needs. This information will help personalize the evaluation and help the program staff and administrative decision makers understand the personal impact that the lactation rooms provide. Another strength is that discrepant cases can be explored thoroughly to understand those users' experiences.

Since there is already a population of users who enjoy commenting on their use of lactation rooms to the Office of Work|Life, we anticipate in-depth interviews to be a successful measure to use with this population as well. It would allow mothers to be further empowered by being active participants in the improvement of the services they use. Since the aims of this evaluation and the mission of the Breastfeeding Support Program is to improve the health of mothers in the Columbia community, the population will likely be receptive to the interviews.

### **Data Collection: Measures, Indicators, and Sources**

This section presents the details of data collection for the evaluation of the Breastfeeding Support Program. The data elements, sources, and methods of data collection are discussed for the process and outcome evaluations, respectively. With this evaluation plan, the evaluators will discuss data collection procedures from recruitment to qualitative and quantitative data analysis.

### *Process Evaluation*

This process evaluation aims to determine whether the program is operating as is intended in accordance to its inputs, activities, and outputs. The primary objectives of the process component of this evaluation are to understand users' existing needs regarding the lactation rooms and examine how satisfied the users are with the rooms. By providing information on the implementation of the program, the process evaluation will help the program staff assess the distribution of resources as well as make meaningful comparisons with federal and state laws regarding time and space to express milk. This type of evaluation prepares the staff to study broader outcomes of the program related to health and economic implications of long-term breastfeeding. For more information about this process, review the program's logic model (Appendix B: Logic Model). Exhibit 2.1 presents the required data elements, sources, and data collection methods for the key research topic areas addressed in the program's process evaluation.

<b>Exhibit 2.1</b> <b>Process Evaluation: Required Data Elements, Sources of Data, and Data Collection Methods</b>		
<b>Evaluation Questions</b>	<b>Indicator</b>	<b>Source of Data (Method)</b>
<b>Needs:</b> What are lactation room users' existing needs regarding the lactation rooms?	Reported needs (e.x. resolution of problems related to goal attainment and infant-feeding status)	Thematic analysis of surveys & in-depth interviews
<b>Satisfaction:</b> How satisfied are lactation room users with the lactation rooms?	User satisfaction with lactation room, in terms of with service logistics, interpersonal aspects of service, information, and support	Thematic analysis of surveys & in-depth interviews

	(disaggregate: very satisfied, satisfied, neutral, dissatisfied, very dissatisfied)	
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### *Outcome Evaluation*

Exhibit 2.2 presents the required data elements, sources, and data collection methods for the key research topic areas addressed in the program's outcome evaluation.

<b>Exhibit 2.2</b> <b>Outcome Evaluation: Required Data Elements, Sources of Data, and Data Collection Methods</b>		
<b>Evaluation Questions</b>	<b>Indicator</b>	<b>Source of Data (Method)</b>
<b>Health outcome:</b> What is the percentage of lactation room users who are able to achieve the 6-month exclusively breastfeeding recommendation?	% of women who achieve 6-month recommendation	Survey
<b>Work outcomes:</b> How are users' time away from work impacted by the location of the lactation rooms? <ul style="list-style-type: none"> <li>What is the absenteeism rate of lactation room users who work at Columbia University and other workplaces within 1-3 years?</li> <li>What is the retention Rates of lactation room users who work at Columbia University and other workplaces within 1-3 years?</li> <li>How have user's work or school productivity levels changed (increase, decrease, or remain unchanged) attributed to using lactation rooms?</li> <li>How has employee morale and loyalty to Columbia University changed (increase, decrease, or remain unchanged) attributed using lactation rooms?</li> </ul>	Users' satisfaction/perceptions of lactation rooms on on-the-job readiness  Absenteeism rate (sliding scale 0-100%)  Retention rate (sliding scale 0-100%)  Productivity levels (sliding scale 0-100%). Reference point  Change in employee/student morale and loyalty towards their work/school activities	In-depth interviews  Columbia's Employment records, School Records (for Current Students)  Columbia's Employment records, School Records (for Current Students)  Survey  In-depth Interviews

## **Data Collection: Procedures**

There are a range of methods to use to collect data meaningful to evaluate the progress of process and outcomes indicators. This section provides a brief description of recruiting participants and evaluating data acquired through qualitative and quantitative data collection methods.

### **Recruitment of Participants**

The evaluators recommend keeping the current recruiting method for program surveys in tact by utilizing email invitations to connect users listed in the program's database to the online survey hosted on Survey Monkey. The program staff are encouraged to recruit active users when recruiting for both the surveys and in-depth interviews. We acknowledge that there may be a limitation in selecting for only active users since the database of users does not collect information on when individuals stop using the rooms.

The evaluators recommend recruiting lactation room users for the in-depth interviews in two ways. One way, if the program staff currently provide printed or online sign-up sheets on Google Docs or other online platforms, then the authors recommend recruiting via purposeful sampling. A potential recruitment method would be to place flyers for interviews in the lactation rooms, places to buy or rent breast pump accessories, at affiliated employee and student health offices at Columbia, lactation workshops, and program presentations. Interview participants will be given a \$15 value incentive to interview participants as an appreciation for their time and in hopes of increasing participation rates. Program staff can determine the most appropriate type of reward given their knowledge of the target population in order to capture as many interviews as possible.

Another way to recruit participants is to employ a Usage Log (Appendix C). The log will highlight traffic flow data (frequency of access/use) and qualitative feedback on lactation room hygiene and upkeep. Program staff will collect this information by exporting the usage log excel sheet to evaluate baseline scheduled appointment and actual appointment attendance. The data from this excel sheet can then be used to sample users based on how often they use the lactation rooms. There are three categories of participants that could be recruited using this method:

- **High-frequent Users:** users who use a lactation room 4 or more times a day
- **Medium-frequent Users:** users who use a lactation room 2 or 3 times a day
- **Low-frequent Users:** users who use a lactation room only 1 time a day

## **Qualitative Approaches**

### *Document analysis*

The program's staff keeps an archive of historical records of past surveys over the past three years. Analysis of these survey results will provide insight on trends in users' behaviors, needs, satisfaction, as well as general program operations. Specifically, the open-ended responses of the survey items will be analyzed to elicit themes. Examples of questions on the survey that allowed for comments were the following: "Was this room your preferred location?" and "Would any of the following improve your comfort level in the lactation room?" A preliminary codebook that can be used to guide the document analysis is displayed in Appendix D.

### *In-depth interviews with key informants*

This type of interview format focuses on one individual or a very narrow group of users who are selected because they share a common experience, trait, play a specific role, or have the capacity to reflect on a particular perspective that is critical to the Breastfeeding Support Program. Themes that arise from the document analysis should inform the development of the in-depth interview guide. The

interview guide should follow a semi-structured format and employ “probes” to delve deeper into a topic of interest. The preliminary interview guide is in Appendix E. The interviews can be conducted either through telephone or in-person by a designated staff member or an outside evaluator who is trained to conduct the interviews. The interviewees will be asked if they consent to having their interview being audio-recorded and having the results used for programmatic purposes. A staff member can transcribe the interviews or transcription can be outsourced to a professional transcription service provider.

## **Quantitative Approaches**

### *Surveys*

Columbia’s Work|Life Breastfeeding support program has a historical record of using surveys to capture quantifiable results from their target audience. They are administered online via SurveyMonkey and distributed using the email list of program users. The surveys include predominantly closed-ended questions and include sections that ask for additional comments to allow respondents to expand on their answers to certain questions. We recommend adding specific questions that will elicit information on users’ breastfeeding behaviors and productivity at work and school to the existing survey tool that is administered every 6 months in order to assess health and work outcomes. The questions that we recommend adding to the survey are in Appendix F.

### *Retrospective analysis of administrative records*

In order to examine rates of absenteeism and retention among students and employees, we recommend that the Office of Work|Life requests access to Columbia University departmental employment and student records for the past 3 years. Using the user database, the program staff should examine how many work or class absences were reported among the subset of lactation room users after they started to use the lactation rooms. The program staff can also utilize the administrative

records to identify how many school withdrawals or resignations among the subset of lactation room users were reported over the past 3 years.

## **Data Analysis**

General statistical analysis is already available in Survey Monkey for quantitative data, however, there are questions from previous surveys that allowed for open comments. We recommend the use of NVivo for qualitative analysis of the comment responses from the past 3 years of survey data. This would greatly assist in the development of a framework for the interviews. The analytical tools that are available in SurveyMonkey can be used to analyze the results of the new questions. This analysis can be performed when the next 6-month program survey is being examined.

The in-depth interviews responses should be audio recorded and then stored electronically to allow ease of transcription and analysis. Responses from the interviews should then be read by multiple people before beginning an analysis to code themes and trends to allow for inter-rater reliability. The first question on the interview guide is designed to be a screener question to gauge the frequency of participants' self-reported lactation room use. This will allow the transcript reviewers to stratify the results based on how frequently the respondents use this the lactation rooms. This segmentation of users may add depth and relevance to the findings.

While reading surveys, readers should make sure to highlight or note evident themes to assist in the development of a coding framework. We have created a preliminary codebook for the Office of Work|Life team in order to guide note-taking and theme identification, but any new themes that are identified during the document analysis stage should be added iteratively into the interview guide. Some of the themes that we anticipate emerging include: impact on productivity and satisfaction with



the quality and service of the lactation rooms. These ideas for themes are identified from typical concerns that lactating mothers have in the workplace (DHHS, 2015).

Descriptive analyses of data generated from the retrospective analysis of administrative records can be conducted to examine the trends in absenteeism and retention among lactation room users over the past three years. The reference group for this analysis will be employees or students who requested maternity leave but never requested for access to a lactation room managed by the Office of Work|Life. This analysis will allow for a comparison in work outcomes to be made between lactating mothers who do and do not use the lactation room service.

## **VI. Strengths and Limitations**

Notable strengths of this evaluation plan are that it will further knowledge about the lactation room users' needs and satisfaction, as well as the program's impact on breastfeeding guideline adherence and productivity at work and school. The dual nature of this evaluation which includes a process and outcome component will allow the program's activities and outcomes to be thoroughly examined. Knowledge of the quality of program's services and its impact on relevant health- and work-related outcomes will provide the program staff with evidence to present key decision makers and administrative leaders at Columbia University on how and why the Breastfeeding Support Program is relevant for lactating women at Columbia University.

The data collection tools that were selected for this evaluation will help the program staff acquire relevant information that can be used to further improve quality and achieve intended results. In particular, the document analysis of the previous survey results will allow the program staff to have time to reflect over their existing program data in a novel manner. The in-depth interviews will strengthen the validity of this evaluation because they will capture users' unique experiences, as well as allow for critical insight into how the program can be further improved. The semi-structured nature

of the in-depth interviews will allow the interviewers to ask for clarification as needed, which will enhance the clarity and credibility of the findings. The survey is suitable for examining nursing behaviors and productivity because the questions will be standardized, which will strengthen the reliability of this tool and allow for generalizations to be made about other lactation room users. We recommend incorporating pilot tests when implementing this evaluation in order to enhance the relevance and utility of the evaluation plan.

Key limitations of this evaluation plan include a potentially low response rate, as well as recall and sampling biases. Historically, the response rate for the Office of Work|Life Breastfeeding Support Program 6-month surveys has been less than 20%. This is a fairly low to moderate response rate and could lead to sampling biases. This evaluation plan proposes using a broad recruitment strategy that targets multiple venues that lactation users commonly frequent in order to increase engagement in evaluation efforts. In addition, an incentive will be offered to interviewees in order to increase participation rates in the in-depth interviews. Overall, the recruitment efforts will focus on increasing users' engagement and power to shape the Breastfeeding Support Program to satisfy their needs and concerns. Respondents who participate in the survey may be more likely to either be highly engaged in the program's services, have very negative experiences that they would like to express, or may be more committed to breastfeeding. Sampling biases would limit the credibility of the findings. Therefore, it is important to be cautious when making generalizations about the survey results to other lactation room users. Eliciting responses about the users' previous behaviors may lead to recall bias, since they may not have accurate recollections of their past experiences and activities. Recall bias can be mitigated by providing specific time frames as probes to provide respondents with contextual cues to remember past events.

## **VII. Recommendations**

This evaluation plan highlights three main recommendations that emerged during the evaluation plan development as listed below. The authors recommend a timeline that corresponds to Appendix G. Evaluation Timeline. It includes the first three months to implement the usage log, if desired, conduct the document analysis, and review the interview guide and train all interviewers on this format. The next four to six months will focus on piloting the evaluation plan and recruiting participants. The subsequent 6 months are dedicated towards analyzing interview and survey results, and implementing changes as necessitated.

We envision that the program staff will need to invest in a qualitative data analysis software, train an interviewer, fund recruitment materials, secure venue space to perform interviews, and continue financing a subscription to SurveyMonkey. If the program staff do select the option of implementing a usage log to assist with monitoring traffic flow, then they will also have the expense of paying for a subscription package of a scheduling software. We understand that some of the proposals presented in the evaluation plan may not be compatible with the program's current infrastructure and resources. Therefore, we recommend that the program staff use this plan as a general framework and iteratively modify it to enhance its feasibility according to their resources and needs.

When preparing the evaluation findings for formal presentations to key decision makers and administrative leaders at Columbia University, we recommend that the program staff select a variety of narratives and quotes from the in-depth interviews that provide a broad overview of the personal impact that the lactation rooms have on users. We also recommend that the program staff present the trends in adherence to breastfeeding guidelines, absenteeism, retention, and self-reported productivity in comparison to national trends and results at other universities with similar lactation support programs. Making relevant comparisons with findings in other settings will help provide context to what the Office of Work|Life observes at Columbia University.

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## Appendix

### Appendix A. CDC Framework



## Appendix B. Breastfeeding Support Program Logic Model

<b>Inputs</b>	<b>Activities</b>	<b>Outputs</b>	<b>Short-Term Outcomes (in 6 months)</b>	<b>Medium-Term Outcomes (in 1 year)</b>	<b>Long-Term Outcomes (in 5 years)</b>
Breastfeeding Advisory Committee	Maintain sanitation and equipment in lactation rooms	# of educational materials distributed	Women understand the importance of breastfeeding	Women have increased access to breastfeeding equipment and private lactation rooms at Columbia University	↑ Retention rates in the workplace ↓ turnout rates
Office of Work Life staff	Provide a discount rate for breast pump accessories	# of breastfeeding-related workshops delivered	Lactating women are able to effectively breastfeed		↓ Absenteeism rates during work
Lactation consultants & support groups	Design and distribute educational materials	# of women who attended	Lactating women are aware of the private lactation room locations and how to access them	90% of faculty, staff, and students exclusively breastfeed their babies for the first 6 months of their baby's life and continue breastfeeding through the 1 <sup>st</sup> year of their baby's life	↓ Medical costs and health insurance claims for breastfeeding employees and their infants
Private lactation rooms	Design and implement breastfeeding-related workshops	# of women who met with a lactation consultant	Lactating women know how to purchase breast pump accessories and get reimbursement through a flexible spending account		↑ productivity
Lactation room furnishings (fridge, sink, etc.)	Train lactation consultants on how to conduct breastfeeding-related workshops and provide breastfeeding advice	# of women who purchased breast pump accessories			↑ Employee morale and loyalty to Columbia
Medela Symphony Hospital breast pumps		# of women who attended lactation support groups		90% of babies born to faculty, staff, and students are exclusively breastfed during the first 6 months of their life and continue to be breastfed during the 1 <sup>st</sup> year of their life	
Breast pump accessories	Establish lactation support group and train moderators	# of women who use lactating rooms to express, store, and collect breast milk	90% of lactating women regularly use the lactating rooms to express, store, and collect breast milk		
Program budget					
Rooms for support groups and workshops	Design and implement a marketing strategy to increase awareness and engagement with the Breastfeeding Support Program				

Marketing & educational materials					
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### Contextual Factors

The Breastfeeding Support Program is an initiative led by the Office of Work|Life at Columbia University as a response to the New York State Labor Law (§ 206-C). The program is open to all lactating women who are faculty, staff, and students at Columbia University.

## Appendix C. Usage log Template

### i) Online User Agreement

#### Lactation Room User Agreement

The Breastfeeding Mothers' Room offers breastfeeding women who work, take classes, and are visiting Columbia University's campuses, a private place to express their breast milk. Located in the morningside and medical campuses, the lactation rooms will be open 24/7. Although appointments are not always necessary, there is a sign-up sheet the follows this form to secure a time period to use the room. Each user should sign this "User Agreement."

When using the Breastfeeding Mothers' Room, I, \_\_\_\_\_[add First and Last name]\_\_\_\_\_, agree to observe scheduling and housekeeping procedures outlined below:

- I understand the lactation room is open, by appointment or availability, 24/7, and the access code will be given to me upon submitting this form and signing up for a time slot.
- I understand that the electric breast pump in the lactation room is provided for my use during work hours as a convenience and must not be removed.
- I will leave the lactation room in order after using it and will report any problems or broken equipment to the staff on the feedback sheet accompanying the sign-up sheet.
- I am responsible for bringing my own personal pump kit that connects to the electric breast pump.
- I am responsible for bringing my own personal cooler to store and transport my own milk.
- I understand that the Breastfeeding Mother's Room is a public service provided for breastfeeding women of - \_\_\_\_\_ (local agency or company) and staff members will not be responsible for any losses, injuries, or other damages that I might experience as a result of using the Breastfeeding Mothers' Room or any equipment in the room.
- I have read and understand the items above.

**Name** \_\_\_\_\_

**Date** \_\_\_\_\_

- ii) **Online Sign-up Sheet** with Feedback comments (Tracking Baseline and Actual Attendance)
- iii) **Automatic appointment reminders** (Located in the Lactation Rooms)

[« Back to My SignUps](#)
Work | Life Lactation Room Sign Up
Preview SignUp

[Details](#)
[Spots](#)
[Participants](#)
[Messages](#)
[Reports](#)
[Invite](#)
[Collect Money](#)
[Settings ▾](#)
[Help ?](#)

Spots <sup>1</sup>
Calendar View
List View
Filled: 0 of 621
+ Create New Spot

Today
◀ December 2017 ▶

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	1	2
3	4	5	6	7	8	9 0/27 ○ C
10 0/27 ○ C	11 0/27 ○ C	12 0/27 ○ C	13 0/27 ○ C	14 0/27 ○ C	15 0/27 ○ C	16 0/27 ○ C
17 0/27 ○ C	18 0/27 ○ C	19 0/27 ○ C	20 0/27 ○ C	21 0/27 ○ C	22 0/27 ○ C	23 0/27 ○ C
24 0/27 ○ C	25 0/27 ○ C	26 0/27 ○ C	27 0/27 ○ C	28 0/27 ○ C	29 0/27 ○ C	30 0/27 ○ C
31	1	2	3	4	5	6

### Usage log

If there are multiple employees and students simultaneously using the lactation support rooms, then there are three key methods that the program's staff can implement to monitor the utilization rate of the lactation rooms. The evaluators recommend the third method to track traffic flow and cleanliness with

[▼ to use a lactation room](#)
8:30am – 9:00am
1 of 1
🗨 (0)
ET
MY SPOTS ▾

**COMMENTS**

**Me:** Please add more paper towers.
 

4 minutes

**SIGNED UP**

ET Eval Team
 

1 Spot



a Usage log.

**Current Method: First-come, first-served basis with an “Occupied” sign’** outside the room’s door. This is currently the method that the program employs and the one that the authors of this evaluation plan recommend. Currently, the lactation rooms require users to email the Work I Life team to provide a passcode to access the rooms as outlined in this process:

<http://worklife.columbia.edu/accessing-lactation-rooms>. This method can be a barrier for users as it is an added process step to using the rooms feasibly.

**Ideal Method: Electronic sign-in;** users will need to swipe their Columbia University student/staff ID into the card reader/scanner in addition to entering the room code for entry. This allows users to log in their pumping times daily or weekly and for program staff to analyze preferred feeding times.

Although this is the most ideal solution to automate tracking via technology, it is the most expensive

since  
it

« Back to My SignUps

Work I Life Lactation Room Sign Up

Preview SignUp

Details Spots Participants Messages Reports Invite Collect Money Settings ▾ Help ?

Spots <sup>1</sup> Calendar View List View

+ Create New Spot

Filled: 0 of 621

Previous 1 2 3 Next

Show: Upcoming Spots

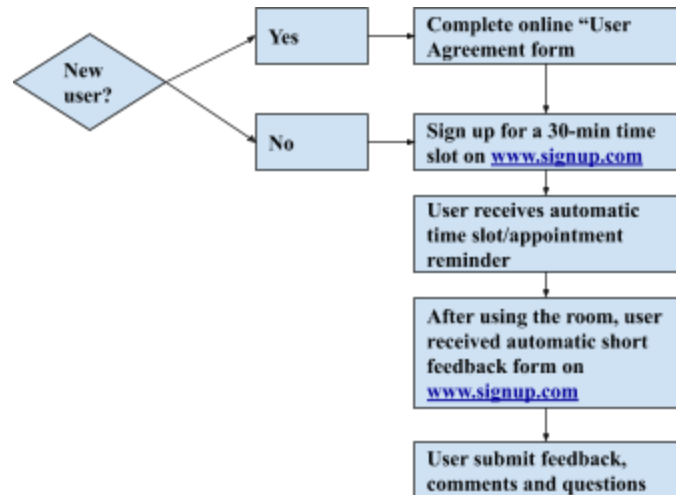
Sat Dec 9, 2017		0/27	+ Add View Copy Delete Lock
to use a lactation room	0/1	6:00am – 6:30am	Edit Assign Comment Delete
to use a lactation room	0/1	6:30am – 7:00am	
to use a lactation room	0/1	7:00am – 7:30am	
to use a lactation room	0/1	7:30am – 8:00am	
to use a lactation room	0/1	8:00am – 8:30am	
to use a lactation room	0/1	8:30am – 9:00am	
to use a lactation room	0/1	9:00am – 9:30am	
to use a lactation room	0/1	9:30am – 10:00am	
to use a lactation room	0/1	10:00am – 10:30am	

s#/2153702/participants

requires acquiring card scanners or iPads if the former isn’t available

**Recommended Method: Email notices for online lactation room sign-up;** these reminders are sent to employees or students who are using these rooms to sign up on [www.signup.com](http://www.signup.com) for a time slot to express milk and/or breastfeed their infants. This system is beneficial because the sign-up sheet will allow users to schedule times to use the room, have privacy and to organize a scheduled break from her work of classes, and allocated 15-30 minutes for a time slot for pumping and feeding. In addition,

it will allow users to check who sign up for each spot and allow participants to swap spots, and keep room comments to be visible and transparent holding the program accountable. In terms of evaluation, this usage log will enable program staff to have quantifiable method to to evaluate planned attendance (for users who sign-up) and actual attendance (for users who use the rooms), measure traffic flow to all lactation rooms on campus, and monitor cleanliness attributes of the room. Data from the usage log should be analyzed within three months after its implementation to identify trends in traffic flow and utilization of the private lactation rooms. This information will contribute to the geographical analysis of room utilization. The process to signing up is demonstrated below:



1. Submit online "User Agreement" form
2. Sign-up for a lactation room time slot and add comments/feedback:  
<http://signup.com/go/mTCkueh>
3. User received automated appointment reminder and can sync their appointments to their personal and work calendars
4. After accessing the lactations rooms, users will receive an automated short, 2-question feedback form from [signup.com](http://signup.com) about their lactation room experience (whether attended or not, and comments on room cleanliness)

## Appendix D. Codebook for analyzing the 6-month Breastfeeding Support Program surveys

Code Name	Definition	Example
Trouble accessing a room	Participants' concerns in obtaining access to a room due to congestion or an inconvenient location	"I would prefer to use Uris or Mudd because they are closer, but they are almost always booked at the times I need."
Preference of an alternative facility/room	Participants express a preference to use locations other than the private lactation rooms	"I ended up using my personal office more because it was too hard to get away."
Appreciation of lactation rooms	Participants identify aspects of the private lactation rooms that they enjoy and benefit from	"Yes, I could not have the same comfort, privacy or efficiency. Without these, I would not have been able to exclusively breastfeed for as long as I have."
Dissatisfaction with the quality of lactation rooms	Participants identify aspects of the private lactation rooms that they disapprove of	"It gets pretty messy in there. Should be wiped down daily."
Impact on productivity	Participants explicitly express how using a room or not using a room would influence their productivity at work or school	<p>"When I have privacy in the office, I can pump while working."</p> <p>"The lactation room was critical to being able to return to work..."</p>

## **Appendix E. In-depth Interview Guide**

### **In-depth Interview Guide with Key Informants**

**Introduction:** The Work Life Office at Columbia University is seeking to improve the experience of working mothers on campus through the provision and improvement of the services we provide. In order to complete this mission, we rely on input from the population we serve. We greatly appreciate your thoughts and time dedicated to this effort.

In order to facilitate transcription of interviews to review later, we would like to audio record this interview. Your identity and responses will remain anonymous. Do we have your permission to record the interview?

If “yes,” then proceed.

1. How many times per day do you use the lactation rooms?
2. How does the provision of services from the breastfeeding program meet your needs as a working mother?
3. How does the quality of the services we provide compare to your expectations?
4. How does use of the lactation rooms impact your productivity at work or school?
5. How has your morale at Columbia University changed since using the lactation rooms?
6. Would you recommend use of the lactation rooms to other mothers at Columbia? Why or why not?

Closing remarks: Thank you for your time. Feel free to contact our office at 212-854-8019 if you have any questions or feedback.

## Appendix F. Survey Questions

Rate your productivity at school or work before you started to use a private lactation room on a scale of 0-100% (0% = no productivity and 100% = full productivity)

Rate your productivity at school or work after you started to use a private lactation room on a scale of 0-100% (0% = no productivity and 100% = full productivity)

How long did you breastfeed or provide your milk for your infant? \_\_\_\_\_ \_years \_months  
\_weeks\*

How old was your baby when you first introduced any foods or drinks other than breastmilk?  
\_\_\_\_\_ \_months \_ weeks \_days\*

\* Office on Women's Health in the U.S. Department of Health and Human Services. (2017, September 28). *Lactation Support Program Feedback Form for Breastfeeding Employees*. Retrieved from Women's Health:  
[https://www.womenshealth.gov/files/documents/bcfb\\_lactation-feedback-form-employees.pdf](https://www.womenshealth.gov/files/documents/bcfb_lactation-feedback-form-employees.pdf)

## Appendix G. Evaluation Timeline

Time period	Actions
<b>Months 1-3</b> <i>August-October</i>	Implement usage log ( <i>optional</i> ) Conduct document analysis Review results from document analysis Revise interview guide Train interviewers Recruit program users Pilot test interview guide Pilot test survey Request access to administrative records
<b>Months 4-6</b> <i>November-January</i>	Evaluate usage log findings ( <i>optional</i> ) Recruit program users Conduct in-depth interviews Distribute survey Review administrative records & data cleaning
<b>Months 7-9</b> <i>February-April</i>	Analyze interview results Analyze survey results Implement changes based on usage log ( <i>optional</i> ) Descriptive analyses of administrative records
<b>Months 10-12</b> <i>May-July</i>	Formulate findings and present to relevant stakeholders

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