

# Reducing Newborn Office Visits and Improving Satisfaction through Parent Education and Learning Communities

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## Introduction

First-time parents have many questions about caring for their newborns, including concerns that are not addressed during the standard follow-up visits two days and two weeks after childbirth.<sup>1</sup> These questions often bring the parents into the physician's office, but in many instances these visits are unnecessary and the issue could have been resolved by phone or by e-mail. In my clinical experience, parents are often annoyed when they realize that this is the case; they feel that they have wasted their time and money. At the same time, unnecessary visits increase costs and overburden physicians with visits that do not require their specialized training, leading to job dissatisfaction and burnout. Thus, the Kaiser Permanente (KP) health care system is adversely affected by these unnecessary visits.

Educational programs can empower patients by teaching them when it is necessary to come in for a visit and when they can wait a situation out or try home remedies. Group education is an efficient way to educate patients and parents.<sup>2-4</sup> It offers an opportunity for clinicians to reach more than one person at a time while providing parents the chance to learn and feel support from others in a situation similar to their own.<sup>5,6</sup>

Numerous types of pediatric office visits can be handled by inexpensive patient-education programs or parents sharing knowledge with each other. These include routine questions from new parents, particularly at key child-development milestones, and questions about newborn rashes, breastfeeding, constipation, and upper respiratory infections.

At KP San Jose (formerly Santa Teresa), we conducted a pilot program targeted at parents of newborns to test the hypothesis that education, specifically group education with phone follow-up, could serve to reduce the frequency of unnecessary office visits while simultaneously increasing member satisfaction with KP's newborn care experience.

## Methods

### Newborn Classes and Participants

Fourteen classes were offered from September 5 to October 25, 2007, each at 11 AM. Classes were held at that time so that parents could meet the goal of an 11 AM discharge from the hospital after giving birth, then immediately attend the class.

Participants were recruited in their hospital rooms on the day of discharge from the hospital. In addition, signs announcing the class were posted in the labor and delivery room and the Mother-Baby Unit during the two weeks before the start of the pilot. The nurses, charge nurses, and I went to each mother's hospital room 30 minutes before each class to encourage parents to attend. Study control subjects were recruited by randomly selecting medical record numbers of babies born on those days during the pilot study period when the class was not offered. Because this was done as a quality-improvement project and not as a research study, no institutional review board approval was necessary.

### Interventions

Parents in the control group received the standard discharge teaching and handouts from nurses while in the hospital. The mothers and newborns returned for a visit one to two days after discharge from the hospital. After this visit, the next routine well-child visit was scheduled at two to four weeks after childbirth (Figure 1).

In the intervention group, parents received discharge teaching from nurses but while still in the hospital also participated in a group class and received a 17-page handout with color photographs entitled *The First Two Weeks with Your New Baby: What You Really Need to Know*. Newborns were seen for the follow-up visit at days one and two as usual, but in addition, their parents were given the opportunity to participate in conference calls with other parents beginning one week

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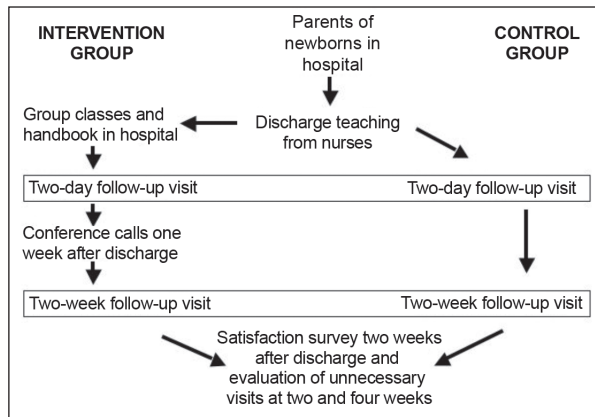


Figure 1. The study design.

after leaving the hospital. Each parent could participate in more than one call. The calls were moderated by a pediatrician (the author), and during the calls, the parents could ask questions, voice concerns, and learn from other parents going through the same experiences. Finally, they had their next usual well-child check at two to four weeks after birth (Figure 1).

I surveyed both groups by phone two weeks after discharge to assess their satisfaction with their experience in the hospital and to evaluate how likely they would be to recommend KP as a place to have a baby. I also performed a chart review for babies of those responding to the survey to see if there was a difference between the two groups in the number of unnecessary visits in the first two weeks and four weeks after hospital discharge. Unnecessary visits were defined as any visit that resulted in no prescription or where the baby was healthy and the situation could have been handled with education or over the phone. Visits were excluded if they were initiated by a physician, resulted in a prescription or admission to the hospital, or were coded as jaundice or a weight check. Outcome variables were satisfaction with the experience and service in the hospital and the number of unnecessary visits in the first four weeks after discharge from the hospital.

**Table 1. Number of children for each mother who completed the questionnaire<sup>a</sup>**

Group	First child	Second child	First or second child	Third or later child
Intervention (n = 60)	43 (72%)	13 (22%)	56 (93%)	4 (7%)
Control (n = 60)	21 (33%)	25 (43%)	46 (77%)	14 (23%)

<sup>a</sup>A first-time mother of twins in the intervention group is included in the "First child" column and "First or second child" column.

**Conference Calls**

There were seven follow-up conference calls scheduled, one call per week from September 13 to November 1, 2007, each at 6:30 PM. Parents were given the call-in number during the hospital class. To protect confidentiality, they were given a unique identifier number to use when they called. All parents were e-mailed and/or called the night preceding the call as a reminder of the service.

**Follow-Up Questionnaire**

Members of the control and intervention groups were contacted two weeks after their discharge from the hospital to participate in a six-question phone survey to assess satisfaction with their experience in the hospital. They were asked to answer the questions on a 5-point scale, with 1 being the lowest level of satisfaction and 5 being the highest.

Questions 1 and 2 assessed the participants' satisfaction with the educational materials that they received in the hospital about how to care for a baby in general and about breastfeeding and breastfeeding support specifically. Question 3 asked how prepared parents felt to care for the new baby after having read the educational materials received in the hospital.

Questions 4 through 6 were the Member Patient Satisfaction (MPS) questions and asked how satisfied the participants were with their care in the hospital and since they had left the hospital and how likely they were to recommend KP as a place to have and to care for a new baby. Participants in the intervention group were also asked to rate the usefulness of the class and handbook and the conference calls (if they participated). All participants were given the chance to make comments about their experiences and ideas for potential improvements.

**Cost-Savings Analysis**

Office visits were estimated to cost \$114 each. This number included the cost of a call to the call center as well as the overhead costs of a visit including supplies and staffing (Michelle Su, personal e-mail communication, 2008 Jan 8).<sup>a</sup> Cost savings were calculated as follows:

$$\frac{(\text{Total savings} - \text{cost of pilot})}{\text{total savings}} \times 100$$

The return on investment was calculated as follows:

$$\frac{(\text{Total savings} - \text{cost of pilot})}{\text{cost of pilot}} \times 100$$

**Statistical Methods**

Statistical analysis was performed using SAS (version 9.1; Cary, NC, US). Median scores from each survey item (or from the mean of several items) were compared between the intervention group and study control subjects using the Wilcoxon two-sample test. Statistical significance was set at  $p < 0.01$ . A first-time mother of twins was classified as having one child for analysis of maternal experience. Survey results were counted once for the mother of twins, whereas both twins contributed to the analysis of the number of unnecessary visits.

**Results**

**Participation**

Parents of a total of 62 newborns (including one set of twins) participated in the 14 classes offered from September 5 to October 25, 2007. Of the 61 classroom participants, parents of 11 newborns (18%) participated in the conference calls, and the participation in the calls ranged from one to four mothers or sets of parents. Forty percent of those who used the service (five mothers or sets of parents) participated in two or more of the calls. In the second week of the study, we added e-mail reminders the night before each call, which seemed to boost attendance: The first week, no parent participated in the phone calls, whereas after the e-mail reminders, a minimum of two mothers or sets of parents participated in each conference call except during the last week, when only one parent called.

We were able to reach 60 of the original 61 mothers or sets of parents in the intervention group for completion of the follow-up survey at two weeks. We spoke with parents of 60 newborns in the control group. There were more first-time mothers in the intervention group (43 vs 20 in the control group) and more mothers with three or more children in the control group (4 vs 14 in the intervention group; Table 1). The two sets of parents that we were unable to reach did not differ in age or parity from the remainder of the intervention group.

The most common subjects of questions in order of frequency were breastfeeding, umbilical cord care, sleeping schedules and sleep practices, colic and gassiness, and rashes and other newborn skin conditions.

**Satisfaction with Service**

For each survey respondent, the mean of their six survey question responses was computed as well as the mean for the three MPS questions (questions 4–6). The median of the mean survey scores (all questions) in the intervention group was 15% higher than in the study control subjects (median, 4.8 in the intervention group, vs 4.2 in the control group;  $p < 0.001$ ; Table 2). Five of the six individual questions also showed significant differences between the groups; the median score for question 3 was numerically higher in the intervention group but did not reach statistical significance ( $p = 0.022$ ). The median of the mean MPS scores was also significantly higher in the intervention group ( $p < 0.0001$ ).

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<b>Question</b>	<b>Control: 25th, 50th, 75th percentile</b>	<b>Intervention: 25th, 50th, 75th percentile</b>	<b>p value</b>
1. How happy were you with the information you received when you left the hospital about how to care for your baby in the first two weeks?	3.5, 4.0, 5.0	4.0, 5.0, 5.0	0.0012
2. How happy were you with the information you received about how to get support for breastfeeding if you had questions?	3.0, 5.0, 5.0	5.0, 5.0, 5.0	0.0010
3. How prepared were you for issues that came up in the first two weeks with your baby?	3.0, 4.0, 5.0	4.0, 5.0, 5.0	0.0222
4. How supported did you feel by KP in helping with the first two weeks with your baby?	4.0, 4.0, 5.0	5.0, 5.0, 5.0	<0.0001
5. How happy are you with the care you received at KP during the first two weeks of your baby's life?	4.0, 4.0, 5.0	5.0, 5.0, 5.0	<0.0001
6. How likely are you to recommend KP as a place to have and care for your baby?	4.0, 4.0, 5.0	4.0, 5.0, 5.0	0.0004
Mean of 4–6	3.7, 4.0, 5.0	4.5, 5.0, 5.0	<0.0001
Mean of 1–6	3.6, 4.2, 4.7	4.5, 4.8, 5.0	<0.0001

<sup>a</sup>Questions were answered on a 5-point scale, with 1 being the lowest score and 5 being the highest. KP = Kaiser Permanente

Questions	First baby <sup>a</sup>	Second baby <sup>a</sup>	First and second baby <sup>a</sup>	At least third baby <sup>a</sup>
Mean of questions 1–6	4.5 vs 4.8; p = 0.0033	4.1 vs 4.8; p = 0.0048	4.2 vs 4.8; p <0.0001	4.3 vs 4.8; p = 0.1592
Mean of questions 4–6	4.6 vs 5.0; p = 0.0199	4.0 vs 5.0; p = 0.0018	4.0 vs 5.0; p <0.0001	4.2 vs 4.8; p = 0.1689

<sup>a</sup> The first number in each cell is the median (50th percentile) score for the control group and the second number is the median score for the intervention group.

Because participation was voluntary, there was naturally a self-selection for first-time parents in the intervention group, which could potentially skew the data. However, satisfaction was significantly higher in the intervention group than among study control subjects for women who had two children, as well as for first-time parents (Table 3).

Although the feeling of preparedness was higher in the intervention group as a whole (median, 5.0) than in the study control subjects as a whole (median, 4.0), the feeling of preparedness in first-time parents was not significantly different between intervention and study control subjects (median, 4.0 in controls and in intervention group; p = 0.14).

In intervention parents, the score for the usefulness of the class ranged from 3 to 5, with a median score of 5. The usefulness of the conference calls was scored a perfect 5. A sampling of comments can be found in Table 4.

### Reduction in Visits

We then looked at whether additional information and support significantly reduced the number of unnecessary visits in the first two weeks, second two

weeks, and overall four weeks after discharge. We excluded from analysis data for three control-group women whose babies did not appear to have received any care from KP after discharge. Top reasons for visits in both the intervention and control groups included questions about gas, umbilical cord issues, eye discharge, rashes, and feeding. Of note, these were also among the most common topics handled on the conference calls.

Overall, there were 52% fewer unnecessary visits by parents in the intervention group (14 visits) than by those in the control group (29 visits) during the first four weeks after discharge (Table 5). Among parents who participated in at least one follow-up conference call, there was an even greater reduction in office visits. Those parents who participated in multiple conference calls had no unnecessary visits in the first four weeks after discharge.

### Call Center Use

We also looked at the number of calls to the advice center in both groups in the four weeks after discharge from the hospital. The ratio of calls (46) to babies (61) in the intervention group (75%) was slightly lower than in the control group (44 calls for 57 babies, or 77%). The difference did not reach statistical significance. However, we included only the calls that led to an appointment and did not investigate the advice-only calls. There might have been a larger effect on call volume reduction if these calls had been included.

### Cost-Savings Analysis

The intervention group made 15 fewer office visits than the control group did. At the estimated cost of \$114 per visit, this represents a total savings of \$1710. The cost of the pilot program was \$1815. This cost includes the price of making the booklets and other handouts, the fliers advertising the class, and paying for the author's time to teach the classes during regular clinic office hours and to conduct the conference calls in the evenings. We therefore did not achieve an overall cost reduction in this pilot.

**Table 4. Examples of feedback about the classes and handbook**

Feedback from intervention group
<ul style="list-style-type: none"> <li>• "Second baby at Santa Teresa [Now the San Jose Medical Center]. Everything was 100% better this time. Book very helpful. I looked over it a lot."</li> <li>• "Learned a lot during the class."</li> <li>• "More than I expected."</li> <li>• "Refer to book constantly."</li> <li>• "Had a question but saw the answer in the book."</li> <li>• "Refresher is good. Even though this was my second [baby], everyone treated me like it was my first. I was appreciative."</li> </ul>
Feedback from control group
<ul style="list-style-type: none"> <li>• "I wish there was a class on parenting like 'Parenting for Dummies.'"</li> <li>• "First appointment should be earlier than two weeks; too long to wait; should be something in between two days and two weeks with a pediatrician."</li> <li>• "Wanted more information. Felt left in the dark."</li> <li>• "Would like a follow-up call after the first visit."</li> <li>• "Would like a direct number to get answers."</li> </ul>

**Discussion**

Study data were limited and the conclusions here are only preliminary. However, this pilot study suggests that when parents are provided with a class, a reference booklet, and the opportunity to ask questions at regularly scheduled calls, they will avoid making unnecessary office visits. This reduced use of office visits has the potential to provide substantial cost savings.

I offer the following recommendations on the basis of my experiences during the pilot study for future attempts at replicating this program. These recommendations are based on an extrapolation of the findings, but I hope that they will provide leadership for next steps and challenge others to both implement and improve on the findings.

First, the classes should be offered daily and be taught by licensed vocational nurses but supervised by physicians. There should be ample advertising and information about the classes on the Mother-Baby Unit so that the parents know that the classes exist and could ready themselves in advance to attend one before going home. Second, the follow-up phone calls should be offered at a variety of times and days throughout the week, thus providing more opportunities to use the service. More clinicians should participate in the calls, allowing more times to be offered without significantly affecting any one clinician’s schedule; this would also increase the possibility that parents would have the opportunity to go through the experience with their own physician, thereby creating a stronger bond. Finally, prescheduling and automated reminders should be used to increase participation. Therefore, the parents would receive an automated phone call and an e-mail reminder before each call.

This very simple approach of group classes and conference calls substantially affected patients’ enjoyment of the KP birthing experience and served to

decrease the number of unnecessary and potentially frustrating visits. We have provided the framework for a fast, low-cost way to harness technology and the power of groups to increase patient satisfaction and lower cost by reducing unnecessary visits. ❖

<sup>a</sup> Data Consultant, The Permanente Medical Group

**Disclosure Statement**

*The author(s) have no conflicts of interest to disclose.*

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**More clinicians should participate in the calls, ... parents would have the opportunity to go through the experience with their own physician, thereby creating a stronger bond.**

<b>Group</b>	<b>Weeks 1–2: no. of children (no. of visits, range)</b>	<b>Weeks 3–4: no. of children (no. of visits, range)</b>	<b>Weeks 1–4: no. of children (no. of visits, range)</b>	<b>Total no. of unnecessary visits in weeks 1–4</b>
Control group (60)	11 (1, 4)	9 (1, 3)	18 (1, 7)	29
Intervention group total (61)	8 (1, 1)	6 (1, 1)	12 (1, 2)	14
Class only (50)	7 (1, 1)	5 (1, 1)	10 (1, 2)	12
Class and 1 call (7)	1 (1, 1)	1 (1, 1)	2 (1, 1)	2
Class and ≥2 calls (4)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0