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Postpartum Safety and Satisfaction Following Early Discharge

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ABSTRACT

Two Ontario sites were involved in the evaluation of an obstetrical discharge program. Before program implementation, a group of eligible women were enrolled as the preprogram control group (n=542). During the program, eligible women who agreed to early discharge (ED) became the ED group (n=319), and those opting not to go home early but consenting to participate in the evaluation became the concurrent group (n=456). All groups were mailed a self-administered postpartum questionnaire.

On demographic characteristics, safety and satisfaction, the ED group was comparable to the concurrent group. Hospital readmission rates did not differ across groups after stratification by site or hospital. Multiple classification analyses revealed a similar pattern for overall satisfaction levels.

This unique ED program, which allowed pre- or postnatal enrolment and did not require an initial home assessment, appears to be a safe, effective and flexible approach to obstetrical care.

ABRÉGÉ

Deux sites en Ontario se sont prêtés à l'évaluation d'un programme de sorties du service d'obstétrique. Avant la mise en oeuvre du programme, un groupe de femmes admissibles a été constitué comme groupe témoin (n=542). Pendant le programme, les femmes admissibles qui ont accepté une sortie anticipée (SA) ont constitué le groupe SA (n=319) et les autres, ayant choisi de ne pas rentrer à la maison plus tôt mais ayant accepté de participer à l'évaluation, ont constitué le groupe concurrent (n=456). À tous les groupes on a envoyé un questionnaire à remplir soi-même lors du postpartum.

Au plan des caractéristiques démographiques, de la sécurité et de la satisfaction, le groupe SA se compare au groupe concurrent. Les taux de ré-hospitalisation ne sont pas différents d'un groupe à l'autre après stratification par site ou hôpital. Les analyses de classification multiple ont indiqué une tendance analogue des niveaux généraux de satisfaction.

Ce programme original de SA avec inscription pré ou postnatale, sans exigence d'évaluation préalable à domicile, semble représenter une approche sécuritaire, efficace et souple pour les soins obstétriques.

Postpartum Safety and Satisfaction Following Early Discharge

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The length of hospital stay (LOS) has decreased dramatically over time in Ontario. In the 1920s and 1930s, when hospital births became more common, a stay of 12 to 14 days was typical.[1] The average LOS in 1992 was approximately 3.0 days.[2]

Early discharge (ED) has been defined as hospital discharge within 48 hours after a normal birth. Programs that included ED have been introduced to provide more family-centred care[3-6] in response to parental preferences,[7-9] to provide alternative forms of care[5,10] and also as a response to other economic and political factors.[11]

With regard to patient safety and satisfaction, ED programs in the literature appear to have resulted in positive outcomes. However, the majority of these studies were descriptions of single groups, and sample sizes tended to be small. Four randomized trials have been completed to date[3,12-14] and they have shown that when compared with the group given late discharge, women discharged early showed similar rates of hospital readmission[3,12,14] and of referral to a physician or nurse,[13,14] and experienced equivalent or higher levels of satisfaction.[3,14]

Given that many of the ED programs were being used by fewer than 10% of eligible women,[15] the Ontario Ministry of Health invited agencies to submit proposals for pilot projects or evaluations of existing programs. Hospitals, public health units, colleges, universities and other agencies were invited to participate, and two Ontario sites were chosen for the demonstration project.

A representative from the Ministry of Health (JR), members of the evaluation team (EH, JW) and various health professionals in the two sites worked together to develop, implement and evaluate this ED program. Throughout the program, an attempt was made to provide flexibility and choice to new families while ensuring safety to mother and baby.

Safety was measured by the number of visits to a physician or hospital emergency department and reports of hospital readmission, and satisfaction was measured through a mailed postpartum questionnaire. It was hypothesized that the early discharge group would show improvement or at least be comparable to two comparison groups on the outcomes of interest.

METHOD

Subjects

Subjects were recruited in the two study sites mainly through hospital postpartum units. Site 1 was located in northeastern and site 2 in southwestern Ontario. Site 1 consisted of a single hospital (hospital 1) and site 2 included three county hospitals (hospitals 2, 3 and 4). Eligibility was restricted to those women without previous medical or obstetrical complications who had or were expected to have a normal vaginal birth.

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The program

The hospitals involved, together with the local health units, the Home Care Program, the Victorian Order of Nurses, Visiting Homemakers and other agencies and consumers, developed and implemented the early discharge protocol at each site. Early discharge was defined as discharge from the hospital as early as six hours after the delivery. Criteria (Appendix A) were developed to assess eligibility at the time of discharge.

In order to maintain the flexible nature of the program, mothers could decide either pre- or postnatally whether they wished to participate. For a high proportion of mothers (42%), the decision was made during their postpartum stay.

Community services available to the mother and her family in the ED program included a lactation consultant, home visits by a nurse, a homemaker, a 24-hour hospital telephone line, and information about community-based resources for parents. Mothers decided which services they felt they would need in the immediate postpartum period at home. Homemaking could be provided without the provision of professional nursing services. A nurse-coordinator at each site was responsible for assessing patient eligibility and coordinating community-based services.

Study design

The design was chosen by members of the Women's Health Bureau of the Ontario Ministry of Health. The interrupted time series design included a comparison between the ED and concurrent comparison group as well as an additional preprogram comparison group for whom early discharge was not an option.

In phase one, the preprogram phase, those women who would have been eligible for ED and who agreed to participate were asked to sign a consent form. Approximately two and a half weeks later, they received a self-administered questionnaire to complete and return. The questionnaire was adapted from that used by Carty and Bradley[14] and was rated at a grade 4 to 5 literacy level by the Grammatik IV software program (Reference Software International, San Francisco, CA). The questionnaire asked mothers about their satisfaction with their hospital stay, their needs during the first week postpartum, the help they received and breastfeeding. The questionnaire was pretested on a voluntary group consisting of ante- and postpartum women, interested consumers and members of the planning group from site 1.

During the second phase, the women who had agreed to participate and were discharged early were mailed the postpartum questionnaire and became the ED group. Those who opted for the traditional LOS and consented to fill out the questionnaire became the concurrent group.

Data collection instruments were submitted for ethics approval by the hospitals involved prior to study implementation.

TABLE I
Demographic Characteristics of Groups Involved in Evaluation of an Early Discharge (ED) Program

Factor	Preprogram	Concurrent	ED	p value
Age (mean ± standard deviation)	27.6±4.8	27.5±4.4	27.8±4.9	ns*
Parity (% primiparous)	43.5	44.1	37.5	ns
Marital status (% married)	85.8	85.5	85.6	ns

* ns=non-significant differences across groups at a significance level of 0.05

TABLE II
Summary of Physician or Hospital Contact or Readmission in First Week After Delivery

Service/Event*	Preprogram	Concurrent	ED	p value
Visit to doctor, after hours clinic or hospital emergency department (across both sites)	51.2	50.4	49.2	ns†
Site 1/hospital 1	52.5	53.1	54.1	ns‡
Site 2 (all hospitals)	50.0	48.8	46.5	
Hospital 2	52.2	48.7	45.8	
Hospital 3	64.4	47.4	55.6	
Hospital 4	43.7	49.1	43.6	
Mother readmitted to hospital	0.5	0.7	0.5	ns†
Baby readmitted to hospital	0.2	0.6	0.5	ns†

* Percentage receiving the service or event
† ns=non-significant differences across the three groups at a significance level of 0.05
‡ ns=non-significant difference between ED and concurrent groups, after stratifying by hospital or by site

Analysis

In all analyses, women enrolled in this project remained in their original study group regardless of their LOS. Descriptive statistics were calculated to compare the three study groups on demographic characteristics; chi square analyses were used for categorical data, and analysis of variance was used for interval data. Tukey's B test was used for any post-hoc comparisons of group means.

Multiple classification analysis (MCA) was used to measure differences in satisfaction levels across groups while controlling for differences due to the site or the individual hospital, and the Mantel-Haenzel procedure was used for the stratified analysis of categorical data.

The analysis involved a two-part approach. Initially, comparisons were made between the ED and concurrent groups, and in the case of a significant finding, a comparison was also made between the ED and preprogram groups. Unless otherwise indicated, a two-tailed significance level was set at 0.05.

RESULTS

Enrolment and response rates

During phase one, 1,886 births occurred, and 1,378 (73%) mothers were eligible to participate (Figure 1). Approximately 74% chose to participate, and 542 usable questionnaires were returned, for an overall response rate of 53%. These respondents represent the preprogram group. Response rates differed across the two sites, with 83% of questionnaires returned from site 1 and 40% from site 2.

During phase two, 2,217 births occurred in the two communities, and 1,400 of the women (63%) were eligible for ED.

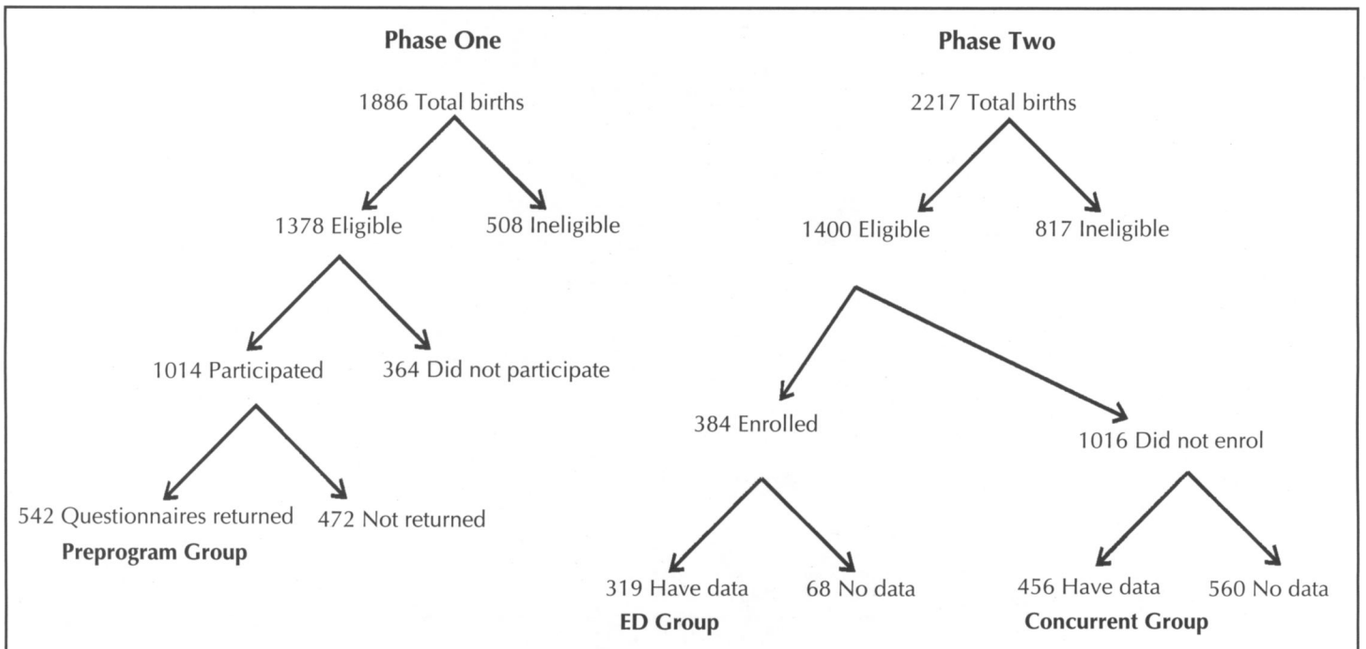

Figure 1. Flow chart of the two phases in the evaluation of an early discharge (ED) program

TABLE III
Summary of Satisfaction Scores

	Preprogram	Concurrent	ED	F value	p value
Total satisfaction*	89.4±11.3 (40-108)	90.7±11.3 (46-108)	91.4±11.2 (44-108)	3.3	0.04
Community					
Site 1	86.7	88.7	90.4	31.3†	0
Site 2	91.9	91.9	92.0		
Hospital					
Hospital 1	86.7	88.7	90.4	24.0‡	0
Hospital 2	93.8	94.0	90.9		
Hospital 3	97.1	95.8	95.7		
Hospital 4	89.0	88.9	90.9		

* Mean ± standard deviation (range); ED score significantly greater than preprogram group score
† ANOVA after controlling for the effects of site; p>0.05 for the comparison across study groups
‡ ANOVA after controlling for the effects of hospital; p>0.05 for the comparison across study groups

Among this group, 384 (27%) chose to enrol in the ED program. An additional 1,016 women agreed to complete the questionnaire but chose the routine LOS, and became the concurrent comparison group.

Clinical data from hospital records were obtained for 319 (83%) of those who enrolled in the ED group and for 456 (45%) of those in the concurrent group.

Description of the study groups

All of the women in the groups were similar in age, and the majority (86%) were married or living in a common-law relationship (Table I). Most were English-Canadian (73%) and had an average of 13.5 (SD=2.8) years of formal education.

Hospital and clinical outcomes

The average postpartum LOS in the hospital was significantly shorter for the ED group: 2.7 days for mothers and 2.7 for their babies, compared with the concurrent group (3.5 and 3.4 days) and the preprogram group (4.2 and 4.1 days).

Approximately 50% of women had some postpartum contact with a physician, and the proportions were not different across the study groups (Table II). The Mantel-Haenzel (M-H) odds ratio (OR) for the two sites was 1.1 (95% confidence interval: 0.8-1.4) with an M-H chi square of 0.06, which was not significant. When stratified by hospital, the adjusted M-H OR comparing the ED and concurrent groups was 1.1 (0.8-1.5) which was also nonsignificant.

There were no significant differences across groups in terms of readmission rates of mothers or their babies (Table II).

Postpartum services received

Approximately 42% of ED mothers had a telephone conversation with a public health nurse, compared with 33% in the concurrent control group and 35% in the preprogram group, a difference that was statistically significant. The proportion of ED mothers receiving a home visit by a public health nurse was also significantly higher than that in the other two groups (ED: 38%, concurrent: 22%, preprogram: 23%). This was also true for visits (13%, 2%, 1%) and telephone conversations (33%, 11%, 7%) with nurses from the Victorian Order of Nurses, use of a special hospital phone number for new mothers (32%, 13%, 9%) and homemaking services (18%, 3%, 2%).

Satisfaction

The questions about satisfaction with postpartum care involved three main areas: confidence in newborn care, evaluation of postpartum care and evaluation of the hospital environment. The Cronbach's alpha

reliability coefficient was found to be 0.90 for both phase one and two, indicating a high degree of internal consistency. An overall satisfaction score was created by summing across individual questions. A higher score indicated a higher level of satisfaction.

Analysis of variance showed an overall significant difference in mean group scores (p=0.04), and Tukey's B was significant at the 0.05 level when the preprogram and ED groups were compared (Table III). Thus, the ED group was significantly more satisfied than the preprogram comparison group according to this summary measure, although the actual magnitude of the difference (two points) was quite small. Multiple classification analysis revealed that satisfaction was significantly different across sites and hospitals, but did not vary by study group.

DISCUSSION

The purpose of this project was to evaluate an ED program in terms of its relative safety and patient satisfaction. The ED program was unique in many ways. For example, the program provided women with the flexibility to enrol either pre- or postnatally, it did not require that women choosing to receive homemaking also receive visits from a nurse, it did not require an initial home assessment, and it provided new families with a range of community-based and other services from which to choose. The entire process was geared to the needs and interests of the new family and differed from many previous programs, in which the intervention was predetermined and often inflexible.

Patient satisfaction in this project was comparable across groups and was found to be quite high, since 80% said they would choose the same type of care during a subsequent pregnancy. Although these values appear to be encouraging, it has been shown that women tend to prefer the care they have received, regardless of what the care involved.[16]

Making comparisons across studies with regard to satisfaction is problematic, as the instruments used are often very different.[17] Carty and Bradley[14] found higher satisfaction scores among those discharged within 48 hours, with mean differences ranging from 12 to 17 points, differences more pronounced than in the current project. However, these differences in satisfaction may be partially explained by the fact that their questionnaire was much longer than the one used in this study, and their study design included random allocation to ED.

We did not collect information on the nonrespondents, and it is possible that they differed from the women who returned completed questionnaires. This may have important implications for our measurement of satisfaction: as Ferris et al.[17] have pointed out, those returning completed questionnaires tend to be more satisfied than those who do not. The women in the ED group had a higher response rate than the controls; however, their overall satisfaction score of only two points higher implies that response bias may have been adequately controlled.

This type of clinical manoeuvre is subject to a number of discharge criteria, which are intended to ensure safety yet at the same time restrict eligibility. As well, personal preferences play an important role, since certain women value ED more than others and for different reasons.[18] These results can be generalized to women having a normal, uncomplicated vaginal birth, who in fact represent the majority of childbearing women in Ontario.

In conclusion, the ED program with home follow-up appears to provide a feasible, safe and effective alternative to traditional discharge procedures. Although the study sites represent only two Ontario communities, it is highly possible that early discharge programs could be implemented province-wide. This type of program could be highly successful if the necessary components of cooperation, flexibility, consumer involvement, community follow-up and support are put in place by all those involved.

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APPENDIX A
Discharge Criteria

Mother

1. No medical complications of pregnancy
   Exclude from program if:
   - PIH >150/190
   - insulin-dependent diabetic
   - postpartum haemorrhage
   - 4° laceration
2. Vaginal delivery or uncomplicated low forceps delivery
3. Episiotomy intact
4. Vital signs within normal limits/stable and temp. <37°C
5. Hgb 90-100
6. Single birth
7. Rhogam given if indicated
8. Able to care for baby (has necessary knowledge of feeding and care)
9. Age 18 years or older*
10. Some home support
11. Voiding well
12. Ambulating independently
13. Assessed by physican and discharged
14. Signed physician referral to home care with orders*

Baby

1. Negative Coombs—unless cleared by physician and bilirubin <230µmol/L at discharge
2. > 36 weeks gestation
3. Birth weight >2.5 kg
4. Circumcision — no complications and voided once
5. NBST done
6. No congenital defects requiring medical management
7. Physical examination completed by physician and all findings normal, e.g., vital signs, cry, elimination, feeding well

* This criterion was not strictly adhered to throughout the study.

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