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## Early Discharge and Home Care After Unplanned Cesarean Birth: Nursing Care Time

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### Abstract

**Objective**—This study examined the mean nursing time spent providing discharge planning and home care to women who delivered by unplanned cesarean birth and examined differences in nursing time required by women with and without morbidity.

**Design**—A secondary analysis of nursing time from a randomized trial of transitional care (discharge planning and home follow-up) provided to women after cesarean delivery.

**Setting**—An urban tertiary-care hospital.

**Patients**—The sample ( $N=61$ ) of black and white women who had unplanned cesarean births and their full-term newborns was selected randomly. Forty-four percent of the women had experienced pregnancy complications.

**Interventions**—Advanced practice nurses provided discharge planning and 8-week home follow-up consisting of home visits, telephone outreach, and daily telephone availability.

**Outcome Measure**—Nursing time required was dictated by patient need and provider judgment rather than by reimbursement plan.

**Results**—More than half of the women required more than two home visits; mean home visit time was 1 hour. For women who experienced morbidity mean discharge planning time was 20 minutes more and mean home visit time 40 minutes more.

**Conclusions**—Current health care services that provide one or two 1-hour home visits to childbearing women at high risk may not be meeting the education and resource needs of this group.

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National strategies to control health care costs have resulted in earlier hospital discharge of many patient groups. Earlier discharge may reduce hospital charges and return patients to their families sooner. However, complications after discharge may go undetected and require readmittance to the hospital and more acute care visits (Britton & Britton, 1984; Jansson, 1985; Rogers et al., 1990; Schwartzberg, 1982). To maintain good patient outcomes while lowering hospital charges, a number of programs of early hospital discharge and home follow-up have been developed for groups of patients at high risk who use a high volume of services (Brooten et al., 1986; McCorkle et al., 1989). Women delivering by unplanned cesarean birth represent such a group.

Almost one in four women who give birth in the United States do so by cesarean birth (Taffel, Placek, & Korsary, 1992). The hospital stay after cesarean birth has decreased from a mean of 6.1 days in 1982 to 4.0 days in 1992 (Commission on Professional & Hospital Activities, 1991; 1993). One recent report suggested a 2-day length of stay for women after delivery by cesarean birth, provided they had no complications during pregnancy and delivery and after delivery (Strong, Brown, Brown, & Curry, 1993). Many early discharge programs for high-risk groups have home follow-up services that differ in length, services, and provider (Meissier, 1993).

**Data are needed on the nurse's time required for home follow-up of childbearing women at high risk when care is based on patient need and provider judgment rather than the reimbursement plan.**

For women delivering by cesarean birth, most follow-up services have included one or more home visits by a nurse. The number and length of visits often are dictated by reimbursement systems (Brooten, 1995). Institutions or agencies providing these services usually have a standard fee and maximum time for the visit based on the projected needs of that patient population. However, home visits of varying lengths of time may be necessary, depending on the needs of individual patients and the complexity of their care. Currently, little data are available on the following: (a) the time required by nurses to provide home care to different patient groups; (b) differences in nursing time required within those groups, depending on patient morbidity; and (c) the number and length of home visits or other contacts when dictated by patient need and provider judgment rather than patterns of reimbursement. The purpose of this study was to examine the average time nurses spent planning for early hospital discharge and providing home care to women who delivered by unplanned cesarean birth. It also examined differences in nursing care time required for patients with and without morbidity when dictated by patient need and provider judgment.

## Methods

This study was conducted as part of a larger study on early hospital discharge and advanced practice nurse (APN) discharge planning and home follow-up of women who had an unplanned cesarean birth (Brooten et al., 1994). The larger study was a randomized clinical trial in which one group of women who had an unplanned cesarean birth received routine care and hospital discharge. Participants in this study were women in the second group ( $N=61$ ), who were discharged from the hospital 1–2 days earlier, depending on the condition of each patient. Women in this group received discharge planning, teaching, and home follow-

up for 8 weeks after hospital discharge by a perinatal clinical nurse specialist (advanced practice nurse). Participants had to be English speaking and have healthy newborns.

After obtaining the patients' informed consent, the APNs contacted the women in the hospital within 24 hours of their cesarean birth. Twenty-four hours after delivery was chosen as the consent time to allow for a reduction in the effects of the anesthesia and analgesia and still to provide adequate time for interventions by the nurse specialist before discharge.

In the hospital, the nurse specialist evaluated the woman's and newborn's readiness for discharge, coordinated discharge planning, and evaluated the home environment to support recovery and recuperation. The nurse specialist assessed the woman's ability to assume self-care and care of her newborn; to understand signs and symptoms of maternal and newborn infection; to understand limitations on physical activity; to understand maternal and newborn dietary needs, normal bowel function, and amount and duration of expected vaginal bleeding; and when to resume sexual activity. The nurse specialist also evaluated the woman's reaction to the unplanned cesarean birth, her coping ability, support systems, and perceived needs regarding convalescence and parenting. The home environment was evaluated for basic utilities, facilities for newborn care, and assistance in the home, if required. Referral for assistance with basic supports was made by the nurse specialist as needed.

The nurse specialist coordinated discharge planning with the mother, physician, the mother's primary nurse, and when needed, social service personnel. The specialist also coordinated or provided patient education, helped establish a time for the day of discharge, coordinated plans for medical follow-up of the mother and newborn, and made referrals to community agencies when necessary.

After the mother and newborn were discharged from the hospital, the APNs made at least one home visit during the 1st week and another during the 2nd week. During the home visits, the APNs conducted a physical examination of the mother and newborn, including healing of the incision, uterine involution, appropriateness of activity level, maternal and infant sleep patterns, and feeding and elimination. The specialist also evaluated the emotional status of the mother, her coping with convalescence and parenting, support systems available, family adjustment to the infant, and basic services. The plan for maternal and infant follow-up medical care was reviewed and appointments were confirmed.

In addition to the home visits, the nurse specialists contacted the family by telephone twice weekly for the first 2 weeks after discharge, then weekly for the next 6 weeks. The purpose was to monitor maternal and newborn physical status and maternal emotional status, reinforce teaching, and confirm medical follow-up appointments. An APN was available by telephone from 8:00 a.m. to 10:00 p.m., Monday through Friday, and from 8:00 a.m. to noon on weekends to respond to the mother's concerns and questions.

All interactions of APNs with the mothers and their families during the hospitalization and throughout the 8-week follow-up period were recorded in logs maintained on each family. The time spent in direct care and indirect care with each family was recorded. Direct care time covered teaching, counseling, providing physical care, telephone communication, making referrals, time spent with families during home visits and clinic visits, travel time to and from home visits, and hospital and rehospitalization visits. Indirect time included time spent charting, filing, completing forms, and other administrative functions. All time was recorded in minutes.

## Sample

The sample of 61 women was drawn from mothers delivering at a large, urban tertiary referral center (see Table 1). Most women were married, had more than a high school education, and had private health insurance. The racial distribution of the sample was approximately half blacks and half whites. Forty-four percent of the women experienced pregnancy complications, including pre-term labor, diabetes, pregnancy-induced hypertension, and second trimester bleeding. Thirteen women (21%) had complications after being discharged from the hospital. Twelve women had febrile morbidity, and 1 woman had a wound separation.

## Results

Data are presented on nursing direct care time spent with all patients and nursing direct care time spent with patients who had and did not have complications after delivery (see Table 2). For this study, extensive chart recordings described, almost verbatim, interactions of the nurse and patient. This was done for future work linking the process of care with patient outcomes and cost of care. The amount of charting was much greater than would occur normally in providing a home care service. Therefore, indirect time (charting, filing, administrative activities) was documented and analyzed for 10% of the sample. The mean indirect time was 253 minutes.

Although many of the distributions are skewed, the greatest mean nurse direct care time was spent in home visits. This use of nursing time was followed by telephone time, travel to and from home visits, and time spent with patients during their hospitalization when the nurse was teaching, counseling, and coordinating discharge planning.

In comparing how nurses spent direct care time with patients with and without morbidity, home visits and telephone time were found to have consumed the most nursing time. Nurses spent a total mean time of approximately 40 more minutes on home visits and 20 more minutes during hospitalization with patients with morbidity compared with those without morbidity. The increased home visit time with patients who had morbidity was offset somewhat by a 15-minute greater mean time spent on the telephone with patients who did not have morbidity.

The study protocol included 2 home visits and 10 telephone calls per patient by the APN. Thirty-one patients received more than two home visits for concerns about the woman's or the newborn's care that required additional physical evaluation: staple removal, monitoring of a health problem, and monitoring during an interruption of telephone service. Of the 31 patients who received more than two visits, 8 had complications after delivery, and 23 experienced no physical morbidity. The mean nursing time per home visit for all patients, based on a total of 185 visits, was 62 minutes. The mean nursing time spent per home visit to patients with morbidity was 61 minutes (total of 47 visits) compared with a mean nursing time of 63 minutes for patients without morbidity (total of 138 visits). Data indicated that large amounts of home visit and telephone time were spent with women who had problems with abuse, depression, incision healing, language barriers, colicky newborns, umbilical cord healing and linking women with resources for infant care.

Although the study protocol included 10 telephone calls per patient, 51 women received more than this number. Of these, 10 experienced postpartum morbidity and 41 did not. The mean nursing time spent per telephone call for all patients, based on a total of 798 telephone calls, was 13 minutes. The mean nursing time spent per telephone call to patients with morbidity was 12 minutes (total of 170 telephone calls) compared with a mean nursing time of 14 minutes for patients without morbidity (total of 628 telephone calls).

## Discussion

These results document the amount of nursing care time spent in discharge planning and follow-up of women who had an unplanned cesarean birth when such cases are determined by patient need and provider judgment. Forty-four percent of the women in this study had pregnancy complications in addition to the unplanned cesarean birth. Twenty-one percent of the women also had physical complications after delivery. All of the latter were febrile morbidity, except one in which the woman had a wound separation. Thus, the women experienced complicated pregnancies, deliveries, and postpartum periods.

The APN mean time in the hospital of 121 minutes, which focused on discharge planning, is almost identical to the 124-minute mean time reported by Naylor (1990) in a study of comprehensive discharge planning of elderly patients conducted by clinical nurse specialists. Reporting on APN follow-up of mothers from low socioeconomic backgrounds who delivered full-term infants, Norr, Nacion, and Abramson (1989) noted a mean of 96 minutes of APN time consumed in the hospital in this program. Work reported by Damato et al. (1993) on APN early discharge and home follow-up of very-low-birth-weight infants indicated a mean of 390 minutes of APN time consumed during the hospital portion of that program. The current study mean of 189 minutes of APN home visit time is difficult to compare with other reported work. The Norr group (1989) reported a mean of 96 total minutes after discharge, which included one home visit and a clinic visit. Damato et al. (1993) reported a mean of 1,253 minutes (20.88 hours) of APN time after discharge; included were one visit before discharge and five home visits, as well as telephone calls and clinic visits for very-low-birth-weight infants who were followed for 18 months.

**Large amounts of nurses' home visit and telephone time were spent helping mothers who had problems of abuse, depression, incisional healing, and newborn care and linking these women to resources.**

**Nurses spent approximately 40 minutes more during home visits and 20 minutes more during hospitalization with women who experienced morbidity.**

Whereas in the current study, the home follow-up protocol included 2 home visits and 10 telephone calls, slightly more than half of the women received more than 2 home visits, and all but 10 women received more than the required number of telephone calls. A greater percent of the women with morbidity received more than 2 home visits (62% versus 48%), whereas a greater percent of women without morbidity received more than 10 telephone calls (85% versus 77%). In addition, the mean time per home visit for patients with morbidity was 10 minutes less than that for patients without morbidity requiring more than two home visits; patients with morbidity had a mean greater number of visits per patient (4 versus 3).

Despite these comparisons, it is clear that women without morbidity consumed large amounts of nursing time during home visits and by telephone. This time was spent teaching infant care and parenting and making referrals to community resources. This finding is consistent with the comments of Stulginsky (1993) who noted the intense psychosocial needs of patients receiving home care in a period of shortened hospital stays. Failure to address the teaching and resource needs of patients discharged earlier may result in increased acute care visits and hospital readmittance, resulting in increased health care costs and decreased patient satisfaction. In the larger study of which this is a part (Brooten et al., 1994), despite a significantly reduced length of stay compared with the control group, women cared for by the advanced practice nurses were significantly more satisfied with their care. In addition, no women were readmitted to the hospital, fewer women required acute care visits to the hospital or outpatient clinics, and health care costs were reduced significantly.

The greater overall mean nursing time spent with women with morbidity, however, has cost implications for home care services contracting with tertiary-care centers that care for high-risk groups. These findings, based on patient need and provider judgment, indicate that mean home visit time within the overall group was 189 minutes and for women with morbidity was 220 minutes. Overall mean time per telephone call (13 minutes) was longer than the 9 minutes reported by Phillips (1993) with surgical patients.

Health care services that provide one or two 1-hour home visits to high-risk groups of childbearing women and their families may not be meeting their needs for education and resources. This maybe reflected in acute care visits, hospital readmittance, and patient level of satisfaction with health care plans. In addition, the problem is further intensified if the agency is providing care to a group with high rates of morbidity and is being reimbursed at a rate established for a lower percentage of patients with morbidity. This situation is comparable with that found in variations in inpatient care required by patients within specific diagnostic-related groups. Although measures of nursing resource use (time) have been used in inpatient settings (Ballard, Gray, Knauf, & Uppal, 1993), little data have been reported in home care.

In conclusion, it is clear that home visits by nurses to women after unplanned cesarean birth are needed in this period of early hospital discharge. It is clear that telephone follow-up is an important adjunct.

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Table 1

Group Characteristics ( $N = 61$ )

<b>Mother</b>	
Age	
Mean ( <i>SD</i> )	29 ( $\pm 6$ )
Range	18–41
Educational level	
<High school	9(15%)
High school	20 (32%)
>High school	32 (53%)
Marital status	
Married	41(67%)
Unmarried	20 (33%)
Race	
Black	29 (47.5%)
White	29 (47.5%)
Other	3 (5%)
<i>Family</i>	
Insurance	
Medicaid	20 (33%)
Private	41(67%)
Income	
<\$5,000–\$9,999	18(29%)
\$10,000–\$24,999	13 (22%)
>\$25,000	30 (49%)
<i>Infants</i>	
Birth weight (g)	
Mean ( <i>SD</i> )	3,305 ( $\pm 483$ )
Range	2,420–4,680
Gestational age (weeks)	
Mean ( <i>SD</i> )	39 ( $\pm 1.5$ )
Range	36–42



**Table 2**

Total Mean Nurse Specialist Direct Care Time Per Subject by Category

	<b>In Hospital</b>	<b>Home Visit</b>	<b>Travel</b>	<b>Telephone</b>
All Patients (n = 61)				
<i>M</i>	121	189	141	175
<i>SD</i>	±75	±89	±91	±66
Range	35–350	65–495	15–420	55–345
With Morbidity (n = 13)				
<i>M</i>	137	220	131	163
<i>SD</i>	±106	±129	±82	±50
Range	45–350	90–495	28–306	119–259
Without Morbidity (n = 48)				
<i>M</i>	117	181	144	178
<i>SD</i>	±64	±74	±93	±70
Range	35–325	65–359	14–420	55–345

*Note.* Time is indicated in minutes.