Résumé

Mise en œuvre, utilisation effective et portée d'un programme provincial de soins dans le postpartum

Wendy Sword, Susan Watt et Paul Krueger

Cet article analyse, sur la base d'une enquête transversale, la mise en œuvre et la portée, dans cinq localités de la province canadienne de l'Ontario, d'un programme appelé Hospital Stay and Postpartum Home Visiting Program. Comparant les résultats de la présente enquête, entreprise après la mise en œuvre du programme, à ceux d'une enquête précédente, les auteurs étudient en outre les changements concomitants touchant la satisfaction à l'égard des services et les indicateurs de santé maternelle et infantile. Les deux enquêtes ont été menées, d'une part, au moyen d'un questionnaire à remplir soi-même, distribué à l'hôpital, et, d'autre part, d'une entrevue téléphonique structurée quatre semaines suivant le congé. On rapporte des différences statistiquement significatives entre les sites relativement à la possibilité de choisir un séjour hospitalier de 60 heures, le pourcentage des femmes s'étant vu offrir un séjour prolongé variant de 11,7 % à 81,2 %. On n'a toutefois observé aucune différence significative relativement au taux d'acceptation (21,1 %-39,4 %) chez les femmes à qui on a offert ce choix. Le constat est le même en ce qui concerne l'offre d'une visite à domicile par une infirmière de santé publique (91,5 %-96,6 %), alors que l'on a observé des différences significatives relativement à la mesure dans laquelle les femmes ont réclamé une visite; entre 21,1 % et 39,4 % des femmes à qui l'on a proposé une visite à domicile ont accepté l'offre. On a constaté peu de changements entre la première enquête et la deuxième sur le plan de la satisfaction à l'égard des services et des indicateurs de santé. Ces conclusions soulèvent certaines questions quant à l'utilité du programme dans sa forme actuelle et mettent en lumière la nécessité de poursuivre les recherches à ce sujet.

Mots clés : postpartum, indicateurs de santé, satisfaction à l'égard des services, enquête

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Implementation, Uptake, and Impact of a Provincial Postpartum Program

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This paper examines implementation and uptake of the Hospital Stay and Postpartum Home Visiting Program at 5 sites in the Canadian province of Ontario using a cross-sectional survey. It also examines concomitant changes in satisfaction with services and maternal and infant health indicators by comparing the findings of this survey, administered after policy implementation, with those of a previous survey. In both surveys, data were collected via a self-administered in-hospital questionnaire and a structured telephone interview at 4 weeks post-discharge. There were statistically significant differences in implementation of the 60-hour hospital-stay option across sites, with between 11.7% and 81.2% of women having been offered an extended stay. However, there were no significant differences in acceptance rates (21.1–39.4%) among those women given this option. There were no statistically significant differences in the offer of a home visit by a public health nurse (91.5–96.6%), but there were significant differences in uptake of a visit. Between 21.1% and 39.4% of those women who were offered a home visit accepted. When compared to the previous survey findings, there were few changes in client satisfaction with services and health indicators following program implementation. This study raises questions about the utility of the postpartum program as currently implemented and highlights the need for further research.

Keywords: postpartum, universal program, health indicators, satisfaction with services, survey

Background

In 1999 the Ontario Ministry of Health and Long-Term Care implemented the Hospital Stay and Postpartum Home Visiting Program. This policy change was intended to afford all women the option of a 60-hour stay in hospital following an uncomplicated vaginal delivery and a telephone call from a public health nurse within 48 hours of discharge, with the offer of a home visit (Ontario Ministry of Health and Long-Term Care, 2002). Introduction of the program was in keeping with the recommendations of the Canadian Paediatric Society and the Society of Obstetricians and Gynaecologists of Canada. A statement issued jointly by these groups recommended that women have the choice of staying in

hospital for a minimum of 48 hours after a normal vaginal birth, and that discharge within 2 days of delivery be part of a program that includes community nursing follow-up in the home and appropriate ongoing assessment of the mother and baby (Canadian Paediatric Society, 1996a).

Several studies have examined length of stay in relation to health outcomes for women and their newborn infants following vaginal delivery, with a focus on the safety of shortened stays. With adequate follow-up in the community after discharge, a shorter hospital stay does not appear to have an adverse effect on maternal and infant health outcomes (Braveman, Egerter, Pearl, Marchi, & Miller, 1996; Grullon & Grimes, 1997). Commonly examined outcomes include readmission to hospital (Dalby, Williams, Hodnett, & Rush, 1996; Madden et al., 2002), which is a proxy measure of health status, and breastfeeding duration (Madden et al., 2003; Mandl, Brennan, Wise, Tronick, & Homer, 1998). The findings of studies that did not consider postpartum follow-up similarly suggest no association between a shorter stay and risk for most adverse outcomes, including postpartum depression (Thompson, Roberts, Currie, & Ellwood, 2000), maternal readmission (Liu et al., 2002; Yanicki, Hasselback, Sandilands, & Jensen-Ross, 2002), and termination of breastfeeding (Quinn, Koepsell, & Haller, 1997; Yanicki et al.). Although one study found a slight increased risk for early breastfeeding discontinuation among women with shorter hospital stays (Heck, Schoendorf, Chavez, & Braveman, 2003), other research has indicated that a longer stay is a risk factor for early discontinuation (Sheehan, Krueger, Watt, Sword, & Bridle, 2001). The findings of studies that examined the relationship between a shorter stay and infant readmission have been inconsistent (Edmonson, Stoddard, & Owens, 1997; Lee, Perlman, Ballantyne, Elliot, & To, 1995; Liu et al., 2000; Lock & Ray, 1999; Malkin, Border, & Keeler, 2000; Sword et al., 2001; Yanicki et al.).

There is a paucity of recent research on short-term, low-intensity nurse telephone contact and home visitation in the postpartum period. Four randomized trials have shown very few differences in clinical outcomes associated with various approaches to follow-up. Edwards and Sims-Jones (1997) found that a telephone contact increased use of parent-infant support groups but was no more effective in producing infant-care behaviour changes than a mailed information package with or without a clerk telephone call. In another study, women were randomized to receive either a nurse home visit or hospital clinic follow-up and group visit within 72 hours of discharge (Escobar et al., 2001; Lieu et al., 2000). There were no significant differences between groups in clinical outcomes measured at 2 weeks post-discharge (breastfeeding discontinuation, maternal depressive symptoms, maternal or infant rehospitalization, maternal or infant urgent clinic visits). The home visits were

associated with higher maternal satisfaction but were more costly. Gagnon, Dougherty, Jimenez, and Leduc (2002) randomly assigned women to receive either community nurse or hospital nurse follow-up, which included telephone contact at 48 hours postpartum and a visit at 3 to 4 days postpartum either in the woman's home or in a hospital clinic. There were no significant differences between groups in any of the outcomes measured at 2 weeks postpartum (daily breastfeeding frequency and infant weight gain, maternal anxiety, and post-discharge satisfaction with services). A randomized trial by O'Connor et al. (2003) compared two public health nurse follow-up programs: a telephone screen on the first working day following the mother's discharge, and two home visits scheduled within 10 days of discharge. No differences were found between groups in maternal confidence at 2 weeks postpartum or in infant health problems or breastfeeding rates at 2 and 4 weeks postpartum. However, the total costs of health services were higher for the home-visit group.

The Hospital Stay and Postpartum Home Visiting Program introduced in Ontario is unique in that it is a provincial policy rather than an agency-initiated program. It is intended to provide the option of a longer than usual stay for all women and a continuum of care from the hospital to the community through collaborative planning between local hospitals and public health units (Ontario Ministry of Health and Long-Term Care, 1999). The goal of this universal program is to afford women and their infants the support they need to make a healthy transition during the first few weeks postpartum, and to provide all families with access to information and support (Ontario Ministry of Health and Long-Term Care, 1999).

Our research focused on implementation and uptake of the program as well as changes in satisfaction with services and maternal and newborn infant health indicators since its introduction. This study is unique in that it is the first to examine a government policy related to length of stay and universal postpartum follow-up in the community. The outcomes that we chose to examine are similar to those that have been included in previous studies and are amenable to change. The study adds to the limited body of research on satisfaction and health outcomes associated with short-term, low-intensity follow-up. The specific research questions were: *To what extent has the Hospital Stay and Postpartum Home Visiting Program been implemented? To what extent do women accept each of the program's components? Have there been concomitant changes in satisfaction with postpartum services in hospital and in the community since the policy change? Have there been concomitant changes in maternal and newborn infant health indicators since the policy change? How might variations in program implementation and other factors account for the findings?*

Methodology

The primary methodology was a cross-sectional survey. We carried out two postpartum surveys, separated in time by a province-wide intervention. We conducted The Ontario Mother and Infant Survey (TOMIS) from 1997 to 2000, with data collection being completed prior to the introduction of the Hospital Stay and Postpartum Home Visiting Program. This survey provided pre-policy implementation baseline data. The objectives of TOMIS II were to examine implementation and uptake of the universal program as well as changes in maternal and infant health outcomes, satisfaction with services, service use, and costs of care following its implementation. The quantitative survey methods for TOMIS II were the same as those for TOMIS (Sword et al., 2001), which allowed for an appropriate comparison of data at two points in time. The same study sites, sample size, eligibility criteria, recruitment strategy, and instruments were used for the two surveys. A qualitative component was added in TOMIS II to explore variations in program implementation and other factors that could help explain the findings. The ethics review committees of the university and the hospitals involved in the study granted ethics approval.

Setting

Five Ontario hospitals were purposefully selected for TOMIS to provide a cross-section of mothers and newborn infants with diverse characteristics and access to varying health and social services. The five study sites used in TOMIS participated in TOMIS II. These were: Site 1 – suburban teaching centre, metropolitan catchment area, 3,900 annual births; Site 2 – central east regional centre, urban and rural catchment areas, 1,500 annual births; Site 3 – central south regional centre, urban and rural catchment areas, 4,500 annual births; Site 4 – urban teaching hospital, metropolitan catchment area, 2,700 annual births; and Site 5 – central north regional centre, urban and rural catchment areas, 2,000 annual births.

Sample

Participants in TOMIS II included the first 250 eligible, consenting women from each site, for a total of 1,250 participants. This sample size was determined to be large enough to allow for the examination of many variables together and was in keeping with the generally accepted guideline of 30 subjects per variable (Burns & Groves, 1997). Women were eligible if they (a) had given birth vaginally to a single live infant, (b) were being discharged from hospital at the same time as their infant, (c) were assuming care of their infant at the time of discharge, and

(d) were competent to give consent to participate. Women were excluded if they (a) had an infant who required admission to a neonatal intensive-care or special-care nursery for more than 24 hours, or (b) were unable to communicate in one of the study languages: English, French, Chinese, and Spanish.

Recruitment

In order to minimize disruption and reduce the possibility of subject and data loss, a site research assistant was hired and trained to coordinate recruitment and data collection at each hospital. Participant recruitment for TOMIS II began in October 2001 and was staggered across sites. Data collection was completed in August 2002. Study information sheets were posted in outpatient and inpatient settings to alert patients that they might be approached to participate. All women delivering at each site during the recruitment period were assessed for eligibility. A study worksheet to guide eligibility assessment and a consent form were attached to patients' charts. Those women deemed eligible received an information letter and were later approached by the site research assistant or nursing staff for consent while in hospital. The site research assistant was responsible for tracking all deliveries during the recruitment period; coordinating recruitment; ensuring that consent forms were signed; and ensuring distribution, completion, and collection of self-administered questionnaires.

Data Collection

Quantitative. Women who consented to participate in the study completed a self-administered questionnaire before hospital discharge. This questionnaire focused primarily on socio-demographic information. At 4 weeks after discharge, trained interviewers administered a structured telephone interview. This interview included questions regarding length of hospital stay, satisfaction with length of stay, satisfaction with services, maternal and infant health, and infant feeding, taken primarily from the 1990 Ontario Health Survey (Ontario Ministry of Health, 1992). The interview schedule also incorporated previously developed instruments, including the Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden, & Sagovsky, 1987) and a modified Health and Social Service Utilization Questionnaire (Browne, Gafni, Roberts, Goldsmith, & Jamieson, 1995). The EPDS is a valid indicator of postpartum depression with the following psychometric properties: sensitivity 86%, specificity 78%, positive predictive value 73%, split-half reliability 0.88, and alpha coefficient 0.87 (Cox et al.). The Health and Social Service Utilization Questionnaire measures service use, as recalled by patients, which has been found to have adequate levels of agreement with clinic records; the

observed agreement ranges between 0.72 and 0.99 and Kappa ranges from 0.48 to 0.89 (Browne, Arpin, Corey, Fitch, & Gafni, 1990).

The self-administered questionnaire and telephone interview schedule were developed specifically for the postpartum surveys. The instruments were deemed to have content validity when reviewed by a multidisciplinary team of health and social services professionals. The few items created for each instrument (e.g., satisfaction questions) were not tested for criterion validity, construct validity, or reliability. The necessity for clarification of some wording and item redundancy and the need to capture information regarding implementation and uptake of the new postpartum program led to minor modification of the instruments for TOMIS II. Professional interpreters translated the English version into the other study languages, and a person fluent in the language and familiar with medical terminology checked each translation.

Qualitative. In conjunction with presentations of site-specific study findings, focus groups were conducted with community-based and hospital-based service providers and administrators at each site to gather detailed descriptions of program implementation and related issues in specific locales. On average, 10 to 12 individuals participated in each focus group. A semi-structured interview guide was used to maintain a focus on the research objective. Follow-up questions and probes were used as necessary to encourage the provision of rich information. The focus-group interviews were audiotaped and later transcribed verbatim.

Data Analysis

Quantitative. All data from the self-administered questionnaires and the structured telephone interviews were entered into and analyzed using SPSS 11.5. Descriptive statistics were used to describe the characteristics of participants and implementation and uptake of the postpartum program. Frequency counts and percentages or means and standard deviations were calculated for categorical and continuous variables, respectively. For each site, characteristics of women who completed the telephone interview were compared with those who were lost to follow-up at 4 weeks post-discharge. Chi-square analyses (for categorical variables) and *t* tests (for continuous variables) were used to test for statistically significant differences between these two groups. Chi-square analyses and *t* tests/ANOVA were similarly used to determine whether there were any statistically significant differences in participant characteristics across study sites (TOMIS II), in the characteristics of participants in TOMIS and TOMIS II at each site, and in implementation and uptake of the postpartum program across sites. Chi-square tests also were used to test for statistically significant differences in satisfaction with services and

maternal and infant health indicators obtained in TOMIS and TOMIS II, with these calculations being completed for each site.

Qualitative. The qualitative data were analyzed using an inductive approach. Initially, two research assistants independently coded the focus-group interview transcripts. The transcripts were read and reread, and phrases and sentences that described specific aspects of program implementation were given a descriptive code. The research assistants reached consensus on a preliminary coding scheme. Subsequently, they looked for similarities in the data and assigned the same code to data that had some common characteristic. The emergent themes, which captured the most significant features of program implementation structures and challenges, were reviewed and validated with the principal investigator.

Findings

Participants

A total of 1,250 women (250 per site) were recruited for TOMIS II and completed the in-hospital questionnaire, with 890 (61.2–82.8% per site) participating in the follow-up telephone interview at 4 weeks post-discharge. A profile of the women who took part in the survey and their infants is presented in Table 1. There were no statistically significant differences in any of these variables between women who completed the telephone interview and those who did not, suggesting that those lost to follow-up were similar to those who participated in the interview.

Statistically significant differences were found among sites for all of the variables except mean length of gestation and first live birth (which are less likely to vary by site given the inclusion criteria), thereby reflecting the diversity in the sample we had sought with the purposeful selection of sites (Table 1). Only a few statistically significant differences were found when TOMIS and TOMIS II participants were compared. At each site except Site 3, only one variable was found to be significantly different. At Site 1, TOMIS II participants had higher levels of education ($p = 0.05$), birth weights were lower at Site 2 ($p = 0.02$), incomes tended to be higher at Site 4 ($p = 0.05$), and more participants indicated their ethnicity as Canadian at Site 5 ($p = 0.02$). Site 3, on the other hand, had three statistically significant variables, namely marital status (less likely to be married, $p = 0.03$), language spoken at home (more likely to speak a language other than English or French, $p < 0.001$), and highest level of education (less likely to have completed college or university, $p = 0.02$). However, given the number of statistical tests performed, chance alone (at $p = 0.05$) may account for most of these differences.

Implementation and Uptake of the Postpartum Program

There were wide and statistically significant differences in implementation of the 60-hour-stay option across sites, with between 11.7% and

Table 1 *Characteristics of TOMIS II Study Participants*

Characteristics	Site 1 ($n = 250$)	Site 2 ($n = 250$)	Site 3 ($n = 250$)	Site 4 ($n = 250$)	Site 5 ($n = 250$)
Maternal age in years (mean ± *SD*)★	31.7 ±4.9	28.8 ±5.1	29.3 ±5.2	29.7 ±5.7	27.0 ±5.1
Gestation in weeks (mean ± *SD*)	39.5 ±1.4	39.7 ±1.4	39.7 ±1.4	39.4 ±1.7	39.4 ±1.3
Birth weight in grams (mean ± *SD*)★	3344 ±452	3525 ±516	3564 ±485	3404 ±682	3517 ±557
	%	%	%	%	%
Marital status★★					
Married	88.8	71.3	79.9	78.3	59.3
Common law/ living with partner	6.0	21.9	14.5	12.3	27.8
Never married/separated/ widowed/divorced	5.2	6.9	5.6	9.4	12.9
Family income★★[a]					
< $20,000	12.1	14.7	7.4	28.5	23.8
$20,000 to $39,000	18.2	20.7	13.0	18.4	19.7
$40,000 to $59,000	17.3	29.7	23.4	16.7	18.8
$60,000 to $79,000	16.0	17.2	22.1	13.6	17.0
> $80,000	36.4	17.7	34.2	22.8	20.6
Born in Canada★★	37.6	93.6	81.1	34.1	96.8
Self-reported ethnicity★★					
Canadian	26.9	94.3	79.2	37.0	93.6
Other than Canadian	73.1[b]	5.7	20.8	63.0[c]	6.4
Language spoken at home★★					
English/French	55.2	99.6	86.0	63.9	99.6
Other than English/French	44.8[b]	0.4	14.0	36.1[c]	0.4
Highest level of education★★					
Less than high school	4.5	9.7	11.6	17.1	13.4
High school	9.7	13.3	14.1	20.8	10.2
Some community college/ technical school	5.3	14.5	10.4	8.6	13.4
Completed community college/ technical school	19.8	33.5	24.1	17.6	29.7
Some university	10.1	5.6	9.6	6.9	5.3
Completed university	50.6	23.4	30.1	29.0	28.0

★ ANOVA indicated a statistically significant difference across sites ($p < 0.05$).
★★ Chi-square test indicated a statistically significant difference across sites ($p < 0.05$).
[a] 8.4% of the total sample did not report family income.
[b] 26.9% of the total sample at Site 1 "Chinese"; 15.5% "Jewish"; 23.6% spoke Chinese at home.
[c] 11.9% of the total sample at Site 4 "South Asian"; no predominant language "Other than English/French."

Table 2 ***Implementation and Uptake of the Universal Postpartum Program***

	Site 1 ($n = 171$) %	Site 2 ($n = 186$) %	Site 3 ($n = 207$) %	Site 4 ($n = 173$) %	Site 5 ($n = 153$) %
Offered a 60-hour stay★	11.7	41.9	81.2	39.9	52.3
Accepted a 60-hour stay[a]	21.1	39.4	30.4	31.3	21.3
Received a phone call within 48 hrs of discharge★	74.0	75.0	64.2	71.7	80.0
Received a phone call at all★	88.8	97.8	87.8	81.4	94.7
Offered a home visit[b]	95.3	91.5	96.6	95.6	94.4
Accepted a home visit★[a]	76.2	44.7	40.8	72.1	65.9

★ Chi-square test indicated a statistically significant difference across sites ($p < 0.05$).
[a] Acceptance is reported for those offered a 60-hour stay or a home visit.
[b] Offer is reported for those who received a phone call.

81.2% of women reportedly having been offered an extended hospital stay (Table 2). Policy implementation challenges identified by focus-group participants included limited capacity due to recent downsizing and reorganization of catchment areas for obstetrical units, which in some instances was compounded by a recent increase in the number of deliveries. At sites where physical capacity was an issue, care providers acknowledged that they did not routinely offer an extended stay but rather made clinical judgements in determining an appropriate length of stay for each woman admitted to their unit.

In spite of the variations in the offer of a 60-hour stay, there were no statistically significant differences in acceptance among women who were offered an extended stay (Table 2). Rates of acceptance ranged from 21.1% to 39.4%. Analysis of responses to an open-ended question about reasons for accepting or declining a longer stay revealed that 31.7% of study participants stayed longer for reasons related to their own health (e.g., high blood pressure, pain), whereas 39.8% cited infant health reasons (e.g., jaundice). Fewer participants (20.2%) reported accepting an extended stay due to breastfeeding difficulties. Women declined an extended stay because they "wanted to go home" (39.5%), felt ready to go home/did not need a longer stay (25.0%), were uncomfortable in hospital/dissatisfied with the care received (16.0%), had other children at home (10.2%), or for other reasons (9.3%).

Implementation and uptake rates for the postpartum home visiting component of the universal program were higher than those for the hospital stay option. Many of the study participants (64.2–80.0%) reported having received a telephone call from a public health nurse within 48

hours of discharge (Table 2). The differences across sites were statistically significant. Focus-group participants attributed this variation to the fact that not all health units had the resources to provide weekend service and at some sites there was not always timely transfer of information between the hospital and the health unit. The vast majority of women (81.4–97.8%) reported having received a public health telephone call at some time following their discharge but not necessarily within 48 hours (Table 2). Again, there were statistically significant differences by site in ever having received a telephone call. Between 81.1% and 85.3% of women who received a call stated that it was helpful. Responses to an open-ended question revealed that women perceived it to be helpful primarily because public health nurses provided reassurance, advice and/or support (47.8%) and answered questions (26.5%).

There were no statistically significant differences by site in the offer of a home visit to those women contacted by telephone, with between 91.5% and 96.6% of participants reportedly having received an offer (Table 2). However, there were statistically significant differences by site in acceptance of a home visit among those women who were offered a visit. As few as 40.8% and as many as 76.2% of women across sites accepted at least one public health nurse visit. Most women who accepted a visit received one visit (52.3–95.6%), with the rest of the sample receiving mostly two visits. Between 1.5% and 15.6% of women received more than two home visits. The mean age of the infant at the time of the first visit varied across sites and ranged from 5.1 to 14.2 days. Between 8.3% and 50.7% of those who accepted a home visit were not seen until the infant was 2 weeks of age or older. The majority of participants who received visits reported that they were helpful (90.3–95.7%). Similar to the telephone calls, the most commonly cited benefits of the home visits, identified through use of an open-ended question, were reassurance, advice and/or support (79.2%) and answering of questions (16.4%).

Satisfaction With Services

Overall, women were satisfied with their length of stay; between 83.0% and 91.8% reported that their stay in hospital was "probably" or "definitely" the right length for them. The fact that most women found the public health nurse follow-up to be helpful is an indicator of satisfaction with this service. However, when we compared mothers' satisfaction ratings of postpartum services in TOMIS and TOMIS II, there were no differences in ratings of services in the hospital. There was a statistically significant improvement in ratings of community-based services only at Site 5, where more women rated these services as good or excellent rather than fair or poor in TOMIS II (Table 3).

Table 3 *Satisfaction with Postpartum Services in Hospital and in the Community Pre- and Post-policy Implementation Across Study Sites*

	Site 1		Site 2		Site 3		Site 4		Site 5	
	TOMIS (*n* = 164) %	TOMIS II (*n* = 171) %	TOMIS (*n* = 199) %	TOMIS II (*n* = 186) %	TOMIS (*n* = 209) %	TOMIS II (*n* = 207) %	TOMIS (*n* = 136) %	TOMIS II (*n* = 173) %	TOMIS (*n* = 165) %	TOMIS II (*n* = 153) %
Rating of postpartum services in hospital										
Good/excellent	61.1	65.9	85.4	88.1	80.7	82.1	73.5	73.7	80.0	80.9
Rating of postpartum services in the community										
Good/excellent	84.7	90.3	89.9	95.5	91.1	93.1	91.5	90.3	79.5	90.5★

★Chi-square test indicated a statistically significant increase ($p < 0.05$).

Table 4 *Comparison of Health Indicators at 4 Weeks Post-discharge Pre- and Post-policy Implementation Across Study Sites*

	Site 1		Site 2		Site 3		Site 4		Site 5	
	TOMIS ($n = 164$) %	TOMIS II ($n = 171$) %	TOMIS ($n = 199$) %	TOMIS II ($n = 186$) %	TOMIS ($n = 209$) %	TOMIS II ($n = 207$) %	TOMIS ($n = 136$) %	TOMIS II ($n = 173$) %	TOMIS ($n = 165$) %	TOMIS II ($n = 153$) %
Maternal health status[a]										
Very good/excellent	58.6	45.9★	60.3	65.1	59.3	66.7	59.6	48.5	70.3	58.8★
Infant health status[b]										
Very good/excellent	82.3	82.4	86.4	88.7	85.2	89.3	79.4	76.0	86.7	87.5
Breastfeeding continuation[c]	86.6	85.3	82.4	88.1	83.9	85.3	77.1	90.0★★	75.7	74.6
EPDS score > 12[d]	15.2	13.1	9.0	4.8	4.3	5.8	9.6	15.2	12.7	10.5
Hospital readmission										
Mother	1.2	0	2.0	1.1	0	2.4★★	0	4.1★★	1.2	1.3
Infant	6.7	4.1	3.0	5.9	1.4	3.4	4.4	4.1	5.5	5.2

★ Chi-square test indicated a statistically significant decrease ($p < 0.05$).
★★ Chi-square test indicated a statistically significant increase ($p < 0.05$).
[a] Self-reported.
[b] As reported by mother.
[c] Continuation rates at 4 weeks post-discharge for women who initiated breastfeeding.
[d] A score of ≥ 12 is indicative of postpartum depression.

Health Indicators

There were few changes from TOMIS to TOMIS II noted in the following health indicators: maternal self-reported health status, health status of infant as reported by mother, breastfeeding continuation at 4 weeks post-discharge, postpartum depression, and maternal or infant readmission to hospital (Table 4). The only statistically significant differences in self-reported maternal health status were found at Sites 1 and 5 where, compared to TOMIS, a lower percentage of women in TOMIS II reported their health to be very good or excellent rather than good, fair, or poor at 4 weeks post-discharge. There were no significant changes in infant health status as reported by the mother. There was a statistically significant increase in breastfeeding continuation among those women who initiated breastfeeding at Site 4. Focus-group participants commented on the lack of adequate physician support for breastfeeding in many communities as a factor in explaining the finding. The incidence of postpartum depression did not change significantly at any site. There was a statistically significant increase in readmission of mothers during the first 4 weeks post-discharge at Sites 3 and 4 (0–2.4% and 4.1%, respectively) but no change in infant readmission at any of the sites. Maternal readmissions were primarily for reasons related to childbirth (e.g., retained placenta, uterine infection).

Discussion

The findings of this study clearly demonstrate that the 60-hour hospital stay option was not being offered universally. Implementation of the hospital stay component varied widely from site to site and, as reported by focus-group participants, was directly related to the physical capacity of postpartum units. Acceptance rates were less variable, with approximately 30% of the total sample accepting an extended stay. Women's decisions about length of stay were influenced by perceptions about their own and their infant's health, adequacy of breastfeeding, their level of desire or readiness to go home, and the extent to which they were uncomfortable or dissatisfied in hospital. The vast majority of women were satisfied with the length of time spent in hospital, and focus-group participants viewed maternal decisions about discharge timing as appropriate. These findings highlight the importance of allowing flexibility in length of stay whereby women's needs and preferences are the guiding factors.

There was less variation in implementation of the postpartum home visiting component, with relatively high rates overall for both the telephone call and the offer of a home visit. As such, this aspect of the postpartum program is reaching most women at some point after discharge from hospital, albeit not always in a timely manner. Well over 90% of

women were offered a home visit, but acceptance of the visit varied from site to site. It may be that differences in participant characteristics across sites accounted in part for the variation in uptake. Focus-group participants commented that women who are first-time mothers or breastfeeding for the first time are more likely to accept a home visit. Uptake of the home visit was higher than that of a 60-hour hospital stay, with between 40.8% and 76.2% of women accepting a visit.

In spite of the flexibility in length of stay afforded some women and the enhanced postpartum follow-up in the community, there was no change in satisfaction with services except at one site, where more women rated community-based services higher in TOMIS II. Similar to the findings of van Teijlingen, Hundley, Rennie, Graham, and Fitzmaurice (2003), women in both TOMIS and TOMIS II were, for the most part, satisfied with the services they received. Van Teijlingen et al. argue that measures of patient satisfaction should be used with caution because they can reinforce the status quo rather than lead to new and possibly more desirable kinds of care. Measuring satisfaction between sites and over time, as we did, allows for meaningful comparative bases for interpretation (Larsen, Attkisson, Hargreaves, & Nguyen, 1979). It is important to note, however, that level of client satisfaction is influenced by aspects of the care received as well as by client expectations, psychosocial characteristics (including self-perceived health status), and demographic characteristics (Sitzia & Wood, 1997; Thi, Briancon, Empereur, & Guillemin, 2002).

Even though the public health follow-up enhanced access to nursing support post-discharge, there were few improvements in the health indicators measured. The only statistically significant improvement was breastfeeding continuation, at Site 4. This finding is inconsistent with the results of a Cochrane systematic review, which found clear evidence for the effectiveness of professional support in extending breastfeeding duration (Sikorski, Renfrew, Pindoria, & Wade, 2003). However, the comment by focus-group participants about the lack of physician support is in keeping with evidence suggesting that although physicians promote breastfeeding they do no always have the training in specific strategies to address breastfeeding problems (Freed, Clark, Curtis, & Sorenson, 1995). We cannot necessarily attribute lack of significant change in breastfeeding continuation to characteristics of the postpartum program, because continuation is influenced by multiple factors, including not only health-provider attitudes and support but also personal factors and social environment (Bick, MacArthur, & Lancashire, 1998; DiGirolamo, Grummer-Strawn, & Fein, 2003; Scott, Landers, Hughes, & Binns, 2001; Sheehan et al., 2001; Sikorski et al.; Williams, Innis, Vogel, & Stephen, 1999).

The contact by nurses provided an opportunity to assess maternal health and link women with appropriate resources, yet there were no statistically significant changes in rate of postpartum depression. The focus-group findings reveal lack of routine screening for postpartum depression, which is a barrier to identification and treatment (Gold, 2002). In addition, many communities lack adequate services for women who experience postpartum mood disorders. These issues most likely are reflected in the study findings. The poorer self-reported maternal health rating at two sites is unexplained, as are the higher maternal readmission rates at two other sites.

Implementation characteristics of the Hospital Stay and Home Visiting Program itself might account for the absence of improvements in satisfaction and health indicators. The program, particularly the hospital stay component, was not being offered to all women as intended. Further, the public health follow-up was not always implemented in a timely manner, with some women and infants not being visited by a nurse until the third week postpartum or later. In most cases, families received only one visit. Thus the home visits might have been too late or the intervention not sufficiently intensive to effect changes in health indicators. The results of a systematic review of the effectiveness of nurse home visiting suggest that the effects of home visiting are mediated by the intensity of the intervention, with greater treatment differences being associated with higher intensity (Ciliska et al., 1996). Poor timing of visits also can hamper their effectiveness (Ciliska et al.).

This study raises questions about the utility of a province-wide postpartum program as currently implemented. The strengths of this study are its large and diverse sample, its use of an established methodology that allowed comparison of research findings, its use of multiple methodologies, and its inclusion of women whose principal language was not English. However, it is not without its limitations, which suggest a need for caution in interpreting the findings.

One limitation of the study was its use of a volunteer sample of medically low-risk women and infants following vaginal delivery from five hospitals, which somewhat limits generalizability of the findings. It also included measurement of outcomes at a single point in time after hospital discharge, which might have been too early to expect change in some health indicators, such as postpartum depression. Furthermore, there may have been important changes in health outcomes for women, infants, and families not measured in this study. For instance, because the universal postpartum program is part of the Healthy Babies, Healthy Children Program, it provides the opportunity to link at-risk families with early childhood intervention services that have the potential to foster improved outcomes for children. Another limitation is the lack of psychometric

testing of some components of the data-collection tools. Finally, there might have been other factors or baseline differences between TOMIS and TOMIS II participants, known and unknown, that impacted the findings regarding satisfaction with services and health indicators.

In spite of these limitations, the findings provide insight into implementation and uptake of the postpartum program, and highlight important gaps in the continuum of care from hospital to home. Issues raised by focus-group participants included the need for earlier transfer of information between hospitals and health units, as well as the need for adequate resources to provide public health follow-up 7 days a week. Its timing might be particularly important in areas that are under-serviced by family physicians, in which case the public health nurse could be the first person seeing the mother-infant dyad postnatally. It has been recommended that (a) newborn infants discharged within 48 hours after birth be evaluated by a physician or other qualified professional within 48 hours of discharge, and (b) all infants be seen by a physician within 1 week of discharge from hospital (Canadian Paediatric Society, 1996b). However, the mean age of the infant at the time of the initial home visit across all sites was 9 days. It is therefore important that public health units be provided sufficient resources to overcome barriers to the provision of home visits in a timely manner.

Early breastfeeding discontinuation is another issue requiring attention given that approximately 15% of women in TOMIS II had discontinued breastfeeding by 4 weeks post-discharge. Because many factors affect breastfeeding duration, efforts to extend length of breastfeeding need to be multifaceted as health professional support alone might not be sufficient. A peer support program is one strategy to consider given such programs have demonstrated effectiveness in extending breastfeeding duration (Dennis, 2002).

The study findings also suggest that women's mental health in the postpartum period warrants more attention. Symptoms of depression are often overlooked by women and their care providers for various reasons, including lack of specific inquiry about affective distress (Gold, 2002). Postpartum follow-up should include screening for depression using a tool such as the EPDS (Cox et al., 1987) or the Postpartum Depression Screening Scale (Beck, 2001). These instruments could easily be integrated into routine evaluation of women by public health nurses and clinicians in primary-care settings, and thereby facilitate identification of women who are in need of further evaluation and treatment (Gold).

Future analysis of TOMIS II data will include examination of maternal characteristics associated with acceptance of a longer stay and acceptance of a home visit, any changes in health outcomes and service use associated with uptake of each program component, and whether there

are subgroups of women who benefit more from the postpartum program (e.g., low-income women, immigrant women). We also will determine which factors are associated with poorer health outcomes and identify the most important predictors of these outcomes. In addition, cost analyses will be carried out to determine costs of care pre- and post-policy implementation and to examine factors associated with higher costs of care.

This and other studies have considered a limited number of outcomes in the early postpartum period (Egerter, Braveman, & Marchi, 1998). Because postpartum health, in general, has been framed within a medical model, our understanding of health issues lacks the comprehensiveness required to identify a range of relevant health indicators. A study by Rogan, Shmied, Barclay, Everitt, and Wyllie (1997), for example, highlighted isolation as one of the problems experienced by new mothers, yet social and relationship issues are typically not addressed in postpartum studies. More research is required in this area. Qualitative approaches would be most appropriate for examining women's postpartum health experiences, perceptions of what health means, and their perceptions of the relative importance of various dimensions of health. The findings could be used to identify and develop research instruments that adequately capture postpartum health indicators.

Research also is needed to examine various approaches to postpartum follow-up and support in the community. There has been a significant body of research addressing interventions for high-risk groups, but there is little to inform the development of services at a population level. Studies to date have typically examined practices such as telephone visits/screening and nurse visits in the home or in a clinic. However, there may be other types of support that are appropriate and acceptable to women. The increasing number of health information sources and peer support groups available on the Internet suggests that alternative approaches to service delivery are worthy of examination. Use of health-related resources on the Internet has the potential to improve health status by enhancing knowledge and the quality of health-related decisions, access to health services, and emotional well-being (Cline & Haynes, 2001; Crandall, Zitzelberger, Rosenberg, Winner, & Holaday, 2001; Eng et al., 1998). Timing of postpartum follow-up is another area that warrants further research. For instance, women who have numerous informal supports in place in the early postpartum days might benefit more from a postponed or second assessment when these supports are less accessible and women are faced with caring for themselves and their newborn infant on their own.

Other researchers have questioned the benefits of a universal postpartum home visiting program and suggested that services should target the

neediest families, which could be identified through careful telephone assessment (O'Connor et al., 2003; Olds et al., 1999). Studies could address whether particular subgroups of women and families benefit more from a specific type of follow-up intervention or support. Postnatal home visits, for example, might be especially beneficial to socio-economically disadvantaged and adolescent mothers and their children (Ciliska et al., 1996; Hodnett & Roberts, 2003; Koniak-Griffin et al., 2003). As noted by Egerter et al. (1998), because postpartum practices and outcomes are influenced by characteristics of mothers, infants, and providers, a randomized control trial may be the only approach that can adequately determine the independent effects of different follow-up practices. Longitudinal follow-up beyond the first 2 to 4 weeks postpartum is important to capture a range of appropriate outcomes. Only through rigorous research to determine what postpartum interventions are effective for which groups, implemented at which points in time, can evidence-based programs and policies be developed.

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