

Report CÉTS 97-6 RE
EVALUATION OF THE RISKS AND BENEFITS OF EARLY POSTPARTUM
DISCHARGE.
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Summary

Introduction

This report stems from consultations by the *Conseil d'évaluation des technologies de la santé* with various individuals in Québec's health-care system for the purpose of identifying assessment priorities in light of the shift toward ambulatory care. During the consultation process, the advantages and disadvantages of early postpartum discharge were identified as a priority assessment subject. The present evaluation examines the effects of early discharge on maternal and neonatal health and well-being and on the organization of nursing care. It provides a brief overview of the current situation in Québec and examines the potential savings attributable to this practice change.

Methodology

The existing literature on this subject was identified by a Medline search from 1969 on, and the bibliographies in the published literature were scanned for pertinent publications not indexed in this database.

The results concerning maternal readmissions and those concerning neonatal readmissions were combined using meta-analysis techniques. The effect measure was the relative risk (RR) or the odds ratio (OR), depending on the study design. The other aspects of early discharge were the subject of a critical review that did not include a quantitative combination of results.

The economic impact of early discharge was estimated from data obtained from the Ministère de la Santé et des Services sociaux du Québec and from current Québec experience.

Early postpartum discharge

Changes in the average length of obstetric stays

In Québec, the average length of stay after a normal delivery decreased by 15% between 1993-94 and 1995-96, from 3.4 days to 2.9 days. During that period, the average stay after an uncomplicated cesarean decreased by 10%, from 5.8 days to 5.2 days. This trend toward shorter stays is observed elsewhere in Canada and in the United States. However, since these figures refer to the duration of the total stay for the care episode, including the stay from the time of admission to labour, not just the postpartum period, the observed differences may be the result of a shorter pre- or postpartum stay.

Background and theoretical conceptual framework

The notion of early discharge already appears in the literature of the 1940s. Although this concept has varied over time and also varies according to the country and culture, most studies define early discharge as leaving 12 to 48 hours after birth. In some programs, however, stays are as short as 2 to 6 hours. The Association des pédiatres du Québec defines early discharge of a normal infant as a stay of 48 hours or less for a vaginal birth and less than 96 hours for a cesarean. In Québec, however, the exact postpartum length of stay cannot be determined because the hospital discharge data in the Med-Écho database do not include the time of birth.

Proponents of early discharge emphasize its advantages: decreased hospitalization costs, a speedier return home with a positive impact on the parent-child relationship, and a decreased risk of nosocomial infections. Those who oppose early discharge warn against the effects on maternal health, both clinical and psychosocial, the risk of neonatal complications and readmissions, the problems relating to feeding, and the risk associated with not detecting early hyperbilirubinemia and certain metabolic diseases, such as phenylketonuria, tyrosinemia and thyroid diseases, and other hereditary or congenital diseases, such as heart defects.

Content of an early-discharge program

An early-discharge program should meet three basic requirements: clearly-defined admission criteria, adequate pre- and postnatal education, and a postdischarge follow-up. The Association des pédiatres du Québec and the Canadian Paediatric Society have issued a series of recommendations in this regard. The postdischarge follow-up can assume various forms, such as one or more home visits, telephone calls, a 24-hour telephone advice line, one or more outpatient clinic appointments, or any combination of the above.

Current situation in Québec

Presently, most Québec hospitals offer the option of early discharge for mothers and newborns, although the manner in which the programs and follow-up are organized differs from one hospital to the next. Generally speaking, there are three modes of organization in Québec: 1) hospitals with an early-discharge program organized in conjunction with the CLSCs (local community social services centres) and community organizations, either at the individual or regional level, with the CLSC responsible for the follow-up; 2) hospitals that have an early-discharge program with a follow-up organized and provided by their obstetrics department with or without an agreement with the CLSCs, the hospital assuming responsibility for the follow-up; and 3) hospitals offering early discharge but with no organized postdischarge follow-up for the mother or child. In such cases, responsibility for the follow-up is not clearly defined. Most Québec hospitals fall in one of the first two categories. Lastly, the evaluation of the clinical and economic outcomes of the early-discharge programs in Québec is just beginning.

Effects of early discharge

Effects on neonatal morbidity and mortality

There is an abundance of literature on this subject, but the studies have significant methodological weaknesses. There are many differences in the definition of early discharge, in the definition of complications and in the readmission criteria. Furthermore, the samples in these studies were generally small. Most of the studies do not take into account the interaction between length of stay and several variables, such as maternal age, parity and family support, and do not consider the possibility of readmission to or a medical visit at another hospital. The studies concern programs with selection criteria and a well-organized postnatal follow-up and which offer or offered early discharge as an option. There was usually dropout bias in the randomized studies, given the possibility of withdrawing from the early-discharge program or the occurrence of complications requiring a longer hospital stay.

On the basis of the available data, a link between early discharge and neonatal mortality and complications cannot be confirmed or ruled out. At the very most, it can be concluded that the most frequent complications are jaundice and feeding-related problems, i.e. malnutrition and dehydration. According to the statistical meta-analysis, the relative risk of neonatal readmission following early discharge is 1.25 (95% confidence interval: 0.97-1.61), but that it would be higher if there were no postdischarge follow-up. Between 70 and 85% of these readmissions were due to jaundice. When interpreting these results, one must, however, bear in mind the methodological weaknesses of the studies concerned and the practice changes being brought about by the new treatment protocols for hyperbilirubinemia.

A few studies have examined the relationship between early discharge and the subsequent use of health services, such as outpatient clinic or emergency department visits. The studies' heterogeneity in terms of design and outcome measures limits the conclusions in this regard, although most of the studies show nonsignificant differences in the risk of outpatient or emergency department visits. Québec studies on the subject would be extremely useful in better determining the results of early-discharge programs and their economic impact.

The data show that between 9 and 29% of neonates miss the follow-up visit. And yet, attending this visit seems essential to maintaining the quality of care, especially in programs that do not include a home follow-up.

Another important point concerns screening for metabolic diseases of the newborn, mainly phenylketonuria, tyrosinemia and hypothyroidism, since the predictive performance of the screening tests can be affected if the specimen is collected too soon after birth. In Québec, the order in which tyrosinemia screening tests are performed is now being changed to enhance the performance of tests carried out on early-collected specimens.

Breast-feeding seems to be associated with hyperbilirubinemia and dehydration, which are the most frequent causes of complications and readmissions, hence the importance of monitoring the quality of breast-feeding. In this regard, although it is impossible to demonstrate a direct effect between early discharge and the quality of breast-feeding, emphasis

should be placed on education and on mother-infant follow-up to ensure adequate breast-feeding during the days following discharge.

Effects of early discharge on maternal morbidity and mortality

Maternal complications and readmissions are rare, and it cannot be concluded from the literature examined that there is an increased risk in the case of early discharge. The readmission rate varies between 0.1 and 1.9%, the reason for readmission being, in most cases, infection or hemorrhage. Our meta-analysis shows the relative risk of readmission following early discharge to be unchanged at 1.19 (95% confidence interval: 0.56-2.53), although the poor quality of the studies included in the meta-analysis makes it difficult to arrive at a categorical conclusion. In other respects, it seems that the incidence and severity of postpartum depression is lower in mothers who are discharged early.

Parent satisfaction

The literature concerning patient satisfaction is not homogeneous when it comes to defining and measuring satisfaction. In addition, although most of the studies examined report a high level of satisfaction, it should be noted that the option of early discharge is *chosen* by parents, which limits the conclusions.

Cost evaluation

The costs were evaluated using data provided by the Ministère de la Santé et des Services sociaux and the results obtained in the current programs in Québec. The estimate is based mainly on the cost of the last day of hospitalization. Given that the obstetric patient load is stable, we can anticipate gross savings of approximately \$13 million per year for an annual total number of 90,000 deliveries. But these savings will not be achieved unless there is a reorganization of services. Also, this figure does not take into account the costs associated with the risks of complications and readmissions, the use of services after discharge or the costs shifted to the families. Furthermore, given the stage of implementation of the early-discharge programs in Québec, a good portion of these savings has already been realized in Québec hospitals.

Impact on the organization of nursing care

Early discharge is leading to major changes in the organization of nursing care. These changes mean that all the education needed to prepare the mother to care for and breast-feed her infant has to be provided within a short period of time. Nurses, thus seeing mothers leave sooner, feel that they are not ready. In the case of well-organized programs including a postpartum follow-up, nurses can have stimulating experiences and perceive a favourable impact.

Conclusions

The main conclusions to be drawn from this assessment are as follows:

1. There is no scientific evidence showing an association between early postpartum discharge and an increased risk of neonatal mortality.
2. There may be an increased risk of neonatal and maternal readmission following early discharge. Although the results obtained are not significant, this possibility cannot be ruled out. **It is essential that early-discharge programs instituted include education for the mothers and training for the health professionals, admission criteria and a postdischarge follow-up.**
3. The data show that up to 29% of infants miss the follow-up visit. This exposes them to additional risks. **It is imperative that the current situation in Québec be assessed and that the follow-up practices be modified accordingly.**
4. The possibility of **not screening an infant for metabolic diseases of the newborn is a major problem.** It will be mitigated in that all newborns will have access to the screening tests at the appropriate time, that the new methods for diagnosing tyrosinemia will be in place and that a follow-up of questionable cases will be carried out.
5. An association cannot, on the basis of the literature analyzed, be established between early discharge and the duration of breast-feeding or patient satisfaction. As for the quality of breast-feeding, which is directly linked to the most frequent causes of neonatal readmission, **emphasis should be placed on pre- and postnatal education and postdischarge follow-up to ensure adequate breast-feeding.**
6. On the basis of the available literature, an association cannot be established between early discharge and increased use of ambulatory services. **Studies need to be carried out in Québec to assess this aspect locally.**
7. An evaluation of the current programs in Québec and databases capable of linking births with services dispensed in an ambulatory setting will be required in order to determine which methods of organization are effective, efficient and suited to the Québec context.
8. The cost evaluation shows **potential savings if there are no maternal or neonatal complications.** Each program will have to determine the extent of the savings based on the amount by which the stay is shortened, the nature of the follow-up, the outcomes in terms of complications and readmissions, and the range of community services required to ensure the continuity of care in light of the specific characteristics of the population to be served.
9. The implications of the types of follow-up options available in Québec should be thoroughly examined to determine adherence to the follow-up, its effectiveness and its consequences on maternal and neonatal health.
10. The impact on the organization of nursing care should be examined in the Québec context.