

Newborn health factors determining eligibility for hospital discharge within 24 hours after birth.

Background

Nursing research at the Montfort Hospital is studying the possibility of developing a new model of care in which healthy mothers and newborns can be discharged within 24 hours after birth. Newborn health factors including birth weight, APGAR scores and hypoglycaemia have a major influence on the decisions made by health professionals surrounding the appropriate time for safe discharge. While the prevalence of individual factors is reported in the literature, the cumulative rates of such factors at the Montfort Family Birthing Centre remain unknown. This project analyzed the cumulative rates of newborn health factors by collecting anonymous data from the Montfort Hospital electronic and paper charts.



Figure 1.

Research Questions

1. What factors influence health professional decision-making regarding the discharge of infants during the first 24 hours after birth?
2. What proportion of newborns are eligible for early discharge from hospital within 24 hours of birth?

Methodology

The data were collected using a chart audit tool developed by the research team from the Nursing Best Practice Research Centre at the University of Ottawa in collaboration with an interprofessional clinical team at the Montfort Hospital. After extensive consultation with clinical experts, exclusion criteria for newborns represented in following tables, were established based on risk factors from the third trimester of pregnancy and around the time of labour and birth. An excel spreadsheet was used to calculate summary statistics of each factor by analyzing data from the hospital paper and electronic record systems. To assure a degree of consistency between the 2 chart abstracters, a training session consisting of 5 cases was followed by an inter-rater reliability testing session of 6 cases was held. The data from 22 charts of newborns born at the Montfort Hospital during the same month was used to calculate the proportion of neonates who would be eligible for a study for early hospital discharge.

Results

Out of 22 newborns, 15 (68%) would be eligible to participate in subsequent research studies because they did not fall under the following exclusion criteria.

Table 1 - Data at Birth

Infant Criteria	Indicators for exclusion	Additional details	Exclusions
Gestational age	<37 weeks completed		0
APGAR at 5 min	Score of < 7		0
Follow-up with newborn care provider (Family physician or Pediatrician)	No newborn care provider	Family Physician = 12 Pediatrician = 9	1

Table 2 – Medical considerations

Infant Criteria	Indicators for exclusion	Additional details	Exclusions
Hypoglycemia	Yes	On hypoglycemic protocol	2
Admitted to special care nursery	Yes		0
Sepsis	Evidence of temperature instability or Antibiotic use		0
Congenital Anomalies	Yes	Tongue tie = 1 Heart murmur = 1	2

Table 3 – Birth weight and growth

Infant Criteria	Indicators for exclusion	Additional details	Exclusions
IUGR	Yes		0
LGA	>90 th percentile		1
SGA	<10 th percentile		1

Table 4 – Results

Total	Total Inclusions	Total Exclusions	Percentage Included
N = 22	15	7	86%

Discussion

Preliminary data suggest that of newborns born at the Montfort Hospital, the prevalence of health factors impeding early discharge was 7 out of 22 (32%).

A limitation of this UROP project is the small sample size due to the fact that the study is still in an early stage. The completion of all the chart audits for the pilot project will yield a sample size of **approximately 200 mother-newborn dyads**. A larger sample will provide a more valid estimate of the cumulative presence of these multiple factors.

The inter-rater reliability testing during chart audit training clarified the importance of planning for consistent data (reliability) when collecting research data. Inconsistencies were found to relate to the times at which events were documented by health professionals. For example, the time at which a discharge was documented was mistaken for the time at which the discharge actually occurred, half an hour prior. In addition, there was confusion between a progress note discharge time, the mothers primary language, the nature of newborns care provider and the history of consults. Among 6 cases there was only one that presented an aspect of inconsistency that would have altered the decision to exclude the candidate. However, the other inconsistencies might impact potential health care as well as type of health care providers.

A strength of the project is my opportunity to learn research methodology and to better understand charting requirements for mothers and newborns. The researchers' attention to inter-rater reliability testing was also a strength. I have gained an increased understanding of the work involved in obtaining an acceptable degree of consistency between two individuals codifying criteria for the same project.



Figure 2.

Conclusion

The main newborn factors influencing health care professional decisions surrounding the time of safe newborn discharge were determined to be: (1) the presence or not of a follow-up newborn care provider; (2) orders for newborn hypoglycemic protocol; (3) the presence or suspicions of congenital abnormalities; and (4) the classification of birth weight as being either large or small in relation to gestational age. Analysis of the data reflects that 15 out of 22 infants (68%) born at the Montfort Hospital during the same month were eligible for a safe early discharge from hospital. The infants eligible for a safe early discharge would be potential candidates for subsequent research studies involving early postpartum discharge within 24 hours of birth. The data may also be useful for public health programming for the Healthy Babies Healthy Children home visiting program.

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