Short report: Reducing length of hospital stay for newborns in Saskatchewan

Is it safe?

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The 1996-1997 Annual Report of the South Central Health District of Saskatchewan[1] indicates that the average length of stay in hospital for newborns has decreased over the past 5 years. This reflects both Canadian and American trends.[2-4]

Few studies consider rural areas, however, and national data are likely skewed by the large proportion of urban births. Concerns do exist about the safety of early release. In Ontario, between 1987 and 1994, while the average newborn stay decreased from 4.5 days to 2.7 days, the readmission rate during the first 2 weeks of life increased from 12.9 to 20.7 per 1000.[5] American data show similar results.[6,7]

METHOD

This study assessed newborn length of stay and readmission rates in a rural Saskatchewan hospital during a 3 month period in both 1993 and 1998. To date, few studies have considered the perspective of a small rural setting. The study was performed at the hospital in Weyburn, a community in the South Central Health District. The hospital serves a population of 20 000 people and is the only remaining hospital in the district following hospital closures in the 1990s. Information was obtained by chart analysis from January to March 1993 and January to March 1998.

Infants transferred to other institutions were excluded. Average stay was found for all births and for infants delivered vaginally. The percentage of short stays (< 2 days) and the percentage of long stays (> 4 days) were determined. Because newborns with a birth weight greater than the 90th percentile have higher rates of perinatal morbidity due to birth trauma and experience longer hospital stays, newborn length of stay was determined for newborns ≤ 4000 g (≤ 90th percentile) and those > 4000 g (> 90th percentile). Newborns < 2500 g are at increased risk; however, none of the subjects in this study fall into this category.

Readmission was defined as admission of a discharged newborn to hospital within 6 weeks of birth. Readmissions for phenylketonuria and thyroxine testing were excluded, as these are standard screening tests. Readmission rates for infants within 2 weeks, within 4 weeks, and within 6 weeks of birth were determined. Statistical analysis was carried out by comparing means and χ^2 tests.

RESULTS

None of the newborns born during either study period died. One newborn in the 1993 period and two newborns in the 1998 period were transferred due to prematurity and perinatal complications. **Table 1** shows that the average stay for newborns decreased from 3.9 days in 1993 to 2.8 days in 1998 ($P < .05$). There was a decrease in hospital stay between 1993 and 1998 in both the ≤ 4000-g group and the > 4000-g group, although a greater decrease was found among the smaller newborns. There were significant differences in the percentage of infants released in 2 days or less and the percentage of infants staying 4 days or more ($P < .05$). There was no significant difference in number of readmissions in the 1993 period and the 1998 period (**Table 2**).

Table 1. Length of newborn hospital stay

BIRTH CHARACTERISTICS	1993 N	1993 DAYS	1998 N	1998 DAYS
All births	35	3.9 ± 0.22	34	2.8* ± 0.15
Vaginal	30	3.6 ± 0.22	33	2.8* ± 0.17
BIRTH WEIGHT				
≤ 4000 g	28	3.9 ± 0.26	26	2.7* ± 0.18
≥ 4000 g	7	3.9 ± 0.42	8	3.1* ± 0.39

**Statistically significant ($P \leq .05$).*

DISCUSSION

The South Central Health District of Saskatchewan has seen a significant decrease in average length of stay for newborns without an increase in readmission rates during the first 6 weeks of life. The change in newborn length of

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Table 2. Length of stay and readmission within the first 6 weeks after birth

		READMISSION RATES		
		1993		1998
TIMING	N	% OF TOTAL BIRTHS (JANUARY TO MARCH)	N	% OF TOTAL BIRTHS (JANUARY TO MARCH)
LENGTH OF STAY FOR ALL BIRTHS (DAYS)				
• ≤ 2 d	3	8.6	12	54.3*
• ≥ 4 d	19	54.3	6	17.7*
TIME OF READMISSION				
• Weeks 0-2 after birth	4	11.4	2	5.9
• Weeks 0-4 after birth	6	17.1	3	8.8
• Weeks 0-6 after birth	6	17.1	4	11.8

**Statistically significant ($P \leq .05$) by the χ^2 test.*

stay in this rural area is consistent with changes seen in urban areas in other parts of Canada.[2] The question of the safety of early release is important. Our readmission rates differ from readmission rates in Ontario from 1987 to 1995.[5] With our small sample size and low rate of readmission, we might have missed a difference in readmission rates (type 2 error). A difference in the region under study, however, cannot be ignored.

Several problems might arise if newborns are discharged too soon. Breast milk might not come until the second or third day after birth, contributing to feeding difficulties.[4] Jaundice peaks around 3 days after delivery and, if newborns are discharged too early, can also be missed.[4] With careful care following release, these problems can be dealt with quickly and safely.

CONCLUSION

In a rural community, the patient-physician relationship is closer, as physicians are closely integrated to the community in which they practise. Weyburn physicians have effectively used public health nurses to address issues arising from early discharge. An Ontario study looking at an early discharge program involving public health nurses concluded, "the early discharge program with home follow-up appears to provide a feasible, safe, and effective alternative to traditional discharge procedures."[8] With proper care and planning, early discharge need not raise concerns, permitting the health care system to save funds while allowing mothers and their babies to return to a more comfortable environment.

Editor's key points

- In a small, rural hospital in Weyburn, Sask, newborn length of stay in hospital decreased significantly from 1993 to 1998.
- There was no increase in hospital readmission rates during that period.
- The authors suggest that close physician-patient relationships and active follow up by public health nurses have prevented an increase in readmissions.

Points de repère du rédacteur

- Dans un petit hôpital rural de Weyburn en Saskatchewan, la durée du séjour des nouveau-nés à l'hôpital a diminué de façon significative de 1993 à 1998.
- Il n'y a pas eu d'augmentation du taux de réadmission à l'hôpital durant cette période.
- Les auteurs estiment que les relations étroites entre médecins et patients et le suivi actif de la part des infirmières de santé publique ont contribué à prévenir une hausse du taux de réadmission.

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Competing interests

None declared.

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