



## Is the Quality of Care in Twins and in Singletons Related?

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**Abstract.** We investigated if it is possible to use the data collected in twins to identify areas with high rates of operative deliveries, preterm deliveries and low birthweight infants in singletons. Our data correspond to all deliveries registered in Belgium in 1983. A significant correlation was found between the rates of cesarean sections in twins and in singletons. A significant correlation was also found between the rate of deliveries at a gestational age of less than 32 weeks in twins and the rate of deliveries at less than 37 weeks in singletons. However, correlations between other preterm rates, low birthweight rates and vacuum extraction or forceps rates, were nonsignificant. We conclude that the use of twins as tracers of the quality of care in singletons is of limited value.

**Key words:** Twin delivery, Birthweight, Preterm delivery, Cesarean section

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Frequency of obstetrical interventions and of perinatal mortality/morbidity are frequently used to assess the quality of perinatal care [2]. Such indicators can be used to identify areas with overintervention and bad perinatal outcomes. Unfortunately, the comprehensive data necessary for such measurement are not always available for all births. As population-based twin registers exist in some regions, areas characterised by poor twins management could be identified. This same tool could be used to identify areas with poor results in singletons. In this paper, we investigated if it is possible to use twin data to identify areas with high rates of operative deliveries, preterm deliveries, and low birthweight newborns in singletons.

## MATERIALS AND METHODS

Our data cover the 1120 twin deliveries and the 115,693 single deliveries registered in Belgium in 1983 [5]. The data provided by the birth certificate were used. Rates of cesarean section, vacuum extraction and forceps, preterm and low-birthweight births, were analysed according to the province where the birth occurred. Data from two adjoining provinces with low birthrates (Namur and Luxembourg) were grouped.

Preterm singletons were defined as singletons with a gestational age of less than 37 completed weeks. For twins, two different preterm definitions were applied: births with a gestational age of less than 37 completed weeks and births with a gestational age of less than 32 completed weeks. This latter may prove to be a better indicator for twins. Low birthweight singletons had birthweights of less than 2500 g. In twins two definitions were used: less than 2500 g and less than 1500 g. All rates included livebirths and stillbirths.

Cesarean section rates were computed for the second twin. Rates of vacuum and forceps extraction and low-birthweight rates were computed for the first ( $T_1$ ) and second twin ( $T_2$ ).

Statistical analysis was performed by Spearman's rank correlation ( $r_s$ ) [6].

## RESULTS

Results concerning cesarean sections and preterm births are presented in the Table. A significant correlation was found between the rates of cesarean sections in twins and singletons, those provinces with the highest rates in twins having also the highest rates in singletons. However, the correlation between the rates of vacuum and forceps extraction in the  $T_1$  and in singletons was nonsignificant ( $r_s = -0.02$ ). The correlation between the same rates in the  $T_2$  and singletons was also nonsignificant ( $r_s = 0.55$ ). The table also shows that no correlation was found between the rates of birth with a gestational age of less than 37 weeks in twins and in singletons. However, when the cut off level of 32 weeks

Table - Rank correlation ( $r_s$ ) of the rates ( % ) of three indicators in twins (T) and in singletons (S) in eight provinces

Rank <sup>a</sup>	Cesarean section		Preterm births			
	T	S	T < 37 weeks	S < 37 weeks	T < 32 weeks	S < 37 weeks
1	25.5	9.9	42.1	4.0	8.5	5.2
2	21.6	8.5	41.2	4.7	7.3	5.1
3	21.5	8.7	40.0	5.2	6.5	4.7
4	20.3	8.1	39.6	4.7	6.3	4.0
5	19.9	7.5	38.9	4.6	5.9	4.7
6	17.6	6.3	38.7	4.5	5.7	4.5
7	13.5	7.9	38.6	5.1	5.3	3.9
8	13.2	6.8	36.8	3.9	3.9	4.6
$r_s$	8.06 (P < 0.01)		0.3 (NS)		0.74 (P < 0.05)	

<sup>a</sup> Rank of the provinces according to rates in twins

was applied to twins, a significant correlation was found with the rate of singletons delivering at less than 37 weeks (Table).

Correlation between the rates of infants weighing less than 2500 g were not significant when either  $T_1(r_s = -0.20)$  or  $T_2(r_s = -0.14)$  were compared to singletons. Comparable results were found when the 1500 g cut off level was used for  $T_1(r_s = 0.14)$  and  $T_2(r_s = -0.48)$ .

## DISCUSSION

In this study, twins have been used as "tracers" [4] of the quality of perinatal care. The method is based on the assumption that a properly selected set of health problems can serve as tracers for assessing the entire range of activities involved in the provision of health services to a specified population [3]. Process and outcome indicators are used to assess the quality of the care given to the selected tracers. The basic assumption that the way a physician or a team of physicians administers care for major problems is representative of quality of care in general [4] has been demonstrated in the case of routine prenatal care [1].

Likewise, our results show that areas with high rates of cesareans in singletons could be identified using twins as tracers. Besides, we found a correlation between the rate of deliveries with a gestational age of less than 32 weeks in twins and the rate of births at less than 37 weeks in singletons. This last result was an isolated finding as other rates of preterm and low-birthweight births in twins were not correlated with corresponding rates in singletons. Moreover, areas with high extraction rates (vacuum or forceps) in singletons were not identified using twins as tracers. Data on perinatal mortality were not available because of problems of linkage between death and birth certificates.

Multinational studies could be conducted to confirm our results, at the EEC level for example.

Our results indicate that the utilisation of cesarean sections has a common pattern in twins and in singletons. The use of twins as tracers of the quality of care in singletons is less effective for variables other than the route of delivery.

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