

## ORIGINAL ARTICLE

# Deliveries by caesarean sections on request of women: legal-medical evidence

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## Abstract

**Introduction:** In Italy the use of caesarean delivery has a rising trend moving away from European standards appeared on Euro-Peristat on maternal and child health, presenting the highest percentage of use of this procedure with significant regional differences. This study have analyzed the most recent data of a Sicilian reality about normal delivery and caesarean sections carried out in a hospital situated in Messina (Italy).

**Materials and methods:** A total number of 1,573 medical records from 1st January 2011 to 31st December 2013 were analyzed and data gathered were statistically examined to describe general and specific parameters of the sample making use of Epi Info 7.1.4 software (CDC Atlanta – USA). Chi-square test was used to show any statistic differences among studied population.

**Results:** Overall data showed that were carried out 38.27% of spontaneous deliveries, 7.06% of induced labor, and 54.67% of caesarean deliveries. There were no significant statistical differences between recourse to caesarean section and vaginal delivery in relation to nationality, age, level of education and/or work. The enrolled group, based on the parameters examined, was divided into appropriate caesarean section, in 79.49% of cases, inappropriate in 7.20% (mother's request) and unjustified in 13.31% (with no indication, incomplete medical record). An examination of the anesthetic medical records showed that the caesarean section was considered to be urgent in 31.74% of the cases; however in 17.92% of these cases there is no information in the medical records justifying the use of emergency procedures.

**Conclusion:** The reported data from the study that we conducted, lead to medical-legal and juridical considerations, especially as regards the use of caesarean delivery on the woman request. The complexity of the phenomenon requires the development of a variety of intervention strategies, not only for issues related to the reduction of health care costs, but also with regard to the clinical risk management and medical legal aspects related to the several profiles of professional responsibility.

## Key words

Caesarean section, Guideline on delivery, Mother's choice, Appropriateness

## 1 Introduction

In recent years caesarean sections have become more and more frequent in industrialized countries <sup>[1]</sup>. In Italy a greater number of caesarean sections are carried out compared to other countries and although this issue has been the subject of lively health-policy debate for several years, there has not yet been a significant reversal of this trend which rose from 11% in 1980 to 37.7% in 2011 <sup>[1-3]</sup>.

This percentage differs significantly from the European standards published in the Euro-Peristat report on maternal and child health <sup>[3]</sup> in December 2010. In the comparison with other European states, Italy has the highest rate of caesarean deliveries, followed by Portugal with 34.8%, Switzerland 33%, Germany 31.4%, Spain 24.9% and France with 20.2% while other countries have values under 20%, Belgium 19.9%, Slovenia 19.4%, Sweden 16.2%, Netherlands 15.6% and Iceland 14.7% <sup>[1]</sup>.

A marked variability is seen when comparing the values of the Italian regions as the lowest values are observed in the North and the highest in the South, ranging from 23.6% in Friuli Venezia Giulia to 24.4% in Tuscany and 60.4% in Campania. In this context, Sicily reached an overall percentage of 49.3% even if different values are observed between the various provinces of the island (ranging from 37.13% in Ragusa, to 53.72% in Messina and 55.19% in Palermo) <sup>[4]</sup> and according to the various types of administration of the place of birth and amount of activity, with the percentage of caesarean deliveries well above the national average in maternity wards with a low number of deliveries. This variability appears to be largely due to inappropriate care practices which do not comply with the clinical guidelines based on evidence of effectiveness.

For this reason we decided to carry out an analysis on the medical records of one of the university hospitals of the island, taking into account the data reported in scientific literature and the guidelines laid down by the Italian Ministry of Health <sup>[5-8]</sup>; thus identifying the conditions for which a caesarean section is foreseen or required in respect to the conditions for which it does not appear to be objectively-clinically necessary to carry out an operation of this kind.

## 2 Materials and methods

Fifty percent of the total number of medical records referring to spontaneous deliveries and caesarean sections carried out in the hospital between 1st January 2011 and 31st December 2013 were extrapolated at random. Subsequently, the mother's parameters were examined for each medical record; nationality, age, BMI (according to the method used by Oxford University:  $1.3 \times \text{weight}[\text{kg}]/\text{height}[\text{m}]^{2.5}$ ), level of education, occupation, number of pregnancies, diseases from which the woman was suffering, parameters related to the pregnancy and the fetus. The percentages of infant and maternal mortality were also taken into account as well as any complications which arose following birth. The medical records were lastly examined in order to identify possible breastfeeding issues. The data gathered, for which permission was granted by the Ethics Committee and the Executive Board to carry out the study, were processed statistically (chi-square test) with the EpiInfo 7.1.4 program of the "Center for Disease Control and Prevention" (CDC - Atlanta - USA).

## 3 Results

A total number of 1,573 medical records were examined. An initial examination showed that 38.27% of the deliveries were spontaneous, labor was induced in 6.7% of the cases while 54.67% were caesarian deliveries. Table 1 shows the demographic characteristics of the total sample analyzed. The ethnic structure of the sample shows that 91.8% were Italian women, 2.8% were Sri Lankans and 1.65% came from Romania; with smaller percentages of women of other nationalities. This figure confirms the ethnic groups present in the city up to our case study. The sample was mainly composed of women with an average age of 31.6, 24.35% of whom had obtained a degree, 30.32% had a level 2 high school diploma, 17.74% had a level 1 middle school diploma and 0.76% had attended elementary school. In 26.86% of the cases, the data

regarding the women's level of education are not reported in the medical records examined. Regarding the body mass index, 30.71% of the women were found to be overweight, 27.08% were obese (19.23% mildly, 5.09% moderately and 2.16% severely), 12.33% of the women were of normal weight while 2.23% were underweight. It was not possible to take this datum into account in 27.65% of the cases due to lack of information in the medical record. Regarding the number of pregnancies, 53.40% were first-time mothers. The sample was divided into the following categories concerning occupational status: unemployed (6.74%), housewives (37.38%), workers (6.29%), clerical employees (18.31%), freelance professionals (6.61%), merchants (4.45%), health workers (8.71%), teachers (9.66%). In 1.84% of the cases this datum is not reported in the medical record.

**Table 1.** General characteristics of the sample

Items		%
Nationality	Italy	91.8
	Sri Lanka	2.80
	Romania	1.65
	Other	3.75
Mean age (yrs)		31.6
Qualification	Bachelor's degree	24.35
	High school	30.32
	Secondary school	17.71
	Primary school	0.76
	Unknown	26.86
Work	Housewife	37.38
	Employed	18.31
	Teacher	9.66
	Personal health	8.71
	Freelance	6.61
	Worker	6.29
	Unemployed	6.74
	Trader	4.45
	Unknown	1.84
	Weight	Under weight
Normal weight		12.33
Over weight		30.71
Mild obesity		19.23
Moderate obesity		5.09
Severe obesity		2.16
Unknown	27.65	
Primipara		53.40

Table 2 shows the data on the demographic characteristics of the sample according to mode of delivery carried out.

**Table 2.** Demographic characteristics of the sample and mode of delivery

Items	Type of delivery frequency (%)		
	Spontaneous	Induced	Caesarean
Frequency	38.27	7.06	54.67
Nationality	Italy	89.53	93.69
	Sri Lanka	1.99	1.80
	Romania	2.66	1.80
	Other	5.82	2.71

(Table continued on page 87)

**Table 2.** (continued.)

Items	Type of delivery frequency (%)			
	Spontaneous	Induced	Caesarean	
Age (yrs)	15-24	12.79	9.91	5.81
	25-34	56.31	57.66	49.53
	35-45	30.90	32.43	43.96
	> 45	0	0	0.70
Qualification	Bachelor's degree	24.25	24.32	24.42
	High school	32.39	27.93	29.19
	Secondary school	18.11	21.62	16.98
	Primary school	1	0.90	0.58
	Unknown	24.25	25.23	28.84
Work	Housewife	37.21	40.54	37.09
	Employed	17.28	15.32	19.42
	Teacher	9.80	10.81	10
	Personal health	8.47	8.11	8.60
	Freelance	8.14	7.21	6.74
	Worker	6.31	6.31	6.40
	Unemployed	5.81	6.31	5.81
	Trader	5.48	2.70	3.95
Weight	Unknown	1.50	2.70	1.98
	Extreme thinness	1.83	1.80	1.98
	Under weight	0.10	0.10	0.58
	Normal weight	14.62	7.21	11.40
	Over weight	31.06	36.94	29.65
	Mild obesity	17.11	21.62	21.51
	Moderate obesity	2.82	9.91	6.05
	Severe obesity	0.67	1.80	3.25
Number of pregnancy	Unknown	31.89	20.72	25.58
	0	53.16	56.76	52.91
	1	34.88	24.32	36.16
	2	8.64	15.32	8.26
	3	2.16	3.60	1.63
	≥ 4	1.16	0	1.04

Table 3 reports the main reasons for which a caesarean delivery was deemed to be appropriate for the population under study.

**Table 3.** Main reasons of caesarean delivery

	Caesarean sceneries (%)	Appropriate (%)	
Repeat caesarean	40.35	40.35	YES
Preterm delivery	11.40		
Macrosomia	2.56		
Multiple gestation	4.65		
Break + other abnormalities associated	12.12	48.75	YES
Premature rupture of membrane	6.40		
Placenta previa	1.51		
Fetus-pelvic disproportion	8.14		
Infections	1.97		
Mother's request	7.20	20.51	NO
Unknown	13.31		

Table 4 reports the main reasons for carrying out a caesarean section on women who had not previously been subjected to this delivery procedure.

**Table 4.** Main reasons of caesarean section in first delivery

	Caesarean sceneries (%)	Justified choice (%)	
Preterm delivery	14.42		
Macrosomia	3.51		
Multiple gestation	7.21		
Break + other abnormalities associated	12.67	60.42	YES
Premature rupture of membrane	8.38		
Placenta previa	1.56		
Fetus-pelvic disproportion	10.53		
Infections	2.14		
Mother's request	12.09	39.58	NO
Unknown	27.49		

Concerning post-partum complications, 41.09% of the women who gave birth by natural childbirth and 43.2 of those who were induced had membrane lacerations. An episiotomy was performed for 52.16% of the women who gave birth by natural delivery and 44.14% of those who gave birth with induced labor. Concerning post-operative complications, 12.23% cases of anaphylactic shock and 1.39% cases of infection in the site of surgery were observed in the women who underwent a caesarean section. During the study period, maternal mortality was equal to 0 while infant mortality involved 0.82% babies born with natural childbirth; 0.50% born with induced labor and 1.39% babies delivered by caesarean section. It is important to note that 1.97% babies delivered by caesarean section reported injuries from scalpel due to the caesarean section procedure (see Table 5).

**Table 5.** Complications of delivery in the sample

	Complications of delivery (%)		
	Spontaneous	Induced	Caesarean
Membrane lacerations	41.9	43.2	---
Episiotomy	52.16	44.14	---
Anaphylactic shock	0	0	0.23
Infection in the site of surgery	0	0	1.39
Maternal mortality	0	0	0
Infant mortality	0.82	0.50	1.39
Scalpel injuries	0	0	1.97

An examination of the anesthetic medical records showed that the caesarean section was considered to be urgent in 31.74% of the cases; however in 17.92% of these cases there is no information in the medical records justifying the use of emergency procedures.

Furthermore, the results showed no significant statistical differences in the choice of the caesarean section in relation to nationality, age, level of education and/or occupation in respect to natural childbirth. On the other hand a significant difference ( $p < .05$ ) was observed when comparing a caesarean delivery to natural childbirth concerning BMI which is one of the factors that justifies a caesarian section as well as other parameters of the guidelines (see Table 2). In fact, by cross-checking the "urgent" births, it was observed that caesarian sections were not justified in 17.92% of the cases.

By examining the data regarding women subjected to caesarean sections (860) we can see also that 40.35% (347) gave birth in this way as they had previously given birth by caesarean section. For the remaining 59.65% (513) the choice is motivated as reported in Table 3.

Table 3 shows that the caesarian section is not adequately justified in 39.57% of the cases either because it was requested by the woman (12.09%) or because there is not sufficient evidence in in the medical record (27.49%) as it was incomplete or missing.

## 4 Discussion

Assuming that the aim of this study was to evaluate the appropriateness of the caesarean section in relation to what is established by the national guidelines, the retrospective study of the medical records concerning caesarian sections carried out during the study period enabled us to divide the sample into appropriate caesarean sections in 79.49% of cases (motivated by health problems regarding the mother or fetus or due to previous caesarean delivery) inappropriate caesarian sections in 7.20% (mother's request) and unjustified caesarian sections in 13.31% of the cases (with no indication, incomplete medical record). Please note that caesarean delivery on request of the mother is established at birth and reported in the medical records examined.

The data obtained from the study suggests that further legal and scientific considerations should be made especially in the case of a caesarian delivery requested by the woman<sup>[9]</sup>. Although it is believed that a caesarean section on request should be regarded as an operation without indication, it may not be right to refuse a caesarean section on request in virtue of the general criteria for the legitimacy of medical treatment: the indication of treatment, the adequacy of treatment and informed consent (according to the criteria constitutionally guaranteed by the right to health care and the self-determination of the patient)<sup>[10]</sup>. It is important to note that the decision to accept the request of a woman concerning a caesarean section might well be imposed by the doctor in a sort of defensive approach for fear of possible repercussions in the event of litigation<sup>[10, 11]</sup>. The data relating to the request for caesarean by the woman has made the authors aware of another issues of a more personal nature (doctor-patient relationship, lack of childbirth preparation courses, healthcare facilities for painless childbirth) or as reported by others (*i.e.*, pregnant women's perception of pregnant of care provided by the hospital which does not meet the standard of reference). The data correlates well with the current trend of caesarean delivery at national level with significant differences in the percentages observed between the hospitals located in the north and south<sup>[2, 3]</sup>.

As we can see from the study concerning infant mortality, there is a greater risk for babies delivered by caesarean section even if the figure could be justified for reasons of urgency. However, as already mentioned, no evidence of urgency can be found in most of the medical records examined.

Regarding the post-partum trend, there is no actual data obtained by laparotomy supporting the theory that puerperal women found breastfeeding difficult to achieve. In fact, maternity ward procedures have various feeding methods mixed for all babies regardless of how they were delivered. However, it is a well-known fact that in the case of caesarean births many factors can negatively prevent or delay the onset of breastfeeding<sup>[12]</sup>.

Finally, it is important to bear in mind the issues concerning the professional responsibility of medical staff if one considers the occurrence of any adverse event and/or errors causing harm to the patient or the fetus and/or baby caused by a procedure which is not in compliance with the guidelines also in relation to the regulations established by Law 189/2012<sup>[13, 14]</sup>. Another important issue is the fact that of the many of the medical records were not filled in properly which prevented us from obtaining any kind of justification for carrying out a caesarean delivery. This issue calls for the attention of a legal medical examiner if one considers that in the event of a possible litigation for alleged malpractice the only useful document for the doctor in question is the medical record reporting the procedures carried out.

## 5 Conclusions

In accordance with studies carried out by other authors, the complexity of the phenomenon requires the implementation of a series of strategies which are able to combine health programs aimed at discouraging the excess of medicalization with

educational initiatives aimed at changing the attitudes and influencing the behaviour of healthcare professionals and women<sup>[6-8]</sup>.

On the other hand, since a surgical procedure in itself can be quite risky, the caesarean section should not be underestimated and should only be carried out in compliance with the conditions laid down in the guidelines. The data related to the guidelines plays a crucial role in our country if we consider the current legislation concerning responsibility: the doctor “is not criminally liable in case of mild negligence”. However, it is clear that in an evaluation context the limitation of liability foreseen by the current legislation should only be considered in the event of incompetence, since the health guidelines only include rules of expertise: and therefore not when the health care worker has behaved in a negligent or reckless way.

By examining the documentation and referring to the national Ministerial guidelines, there appears to be a lack of shared procedures between hospital managements and maternity units concerning the clinical conditions that justify caesarean delivery. The shortage and/or lack of information in the medical records examined which could enable us to identify useful elements that justify caesarian sections demonstrates the inadequacy of the policies regulating health records.

In light of the considerations expressed above, it is essential that those involved in the process (doctors, midwives, senior management executives) are aware of the need to reduce the number of caesarian section operations, not only for economic reasons (motivations concerning the reduction of health care costs), but also regarding the possible clinical risks involved and the legal-medical risks linked to the various aspects of professional liability. For this reason, a training team has been set up in agreement with the hospital management composed of representatives (doctors and midwives) from the Gynecology and Obstetrics Operating Units and the Forensic Medicine and the Health Departments who have been assigned the task of drawing up a shared procedure and organizing training programs for both healthcare professionals and mothers.

## References

- [1] Euro-Peristat project. European perinatal health report. 2010. Available from: [www.europeristat.com](http://www.europeristat.com).
- [2] ISTAT – National Institute of Statistics (Italy). Annals of Demographic Statistics. 2011. Rome, Italy.
- [3] Ministry of Occupation, Health and Social Welfare. Activity of hospitalization. 2012. Rome, Italy. Available from: [http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_2094\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_2094_allegato.pdf).
- [4] Ministry of Health, Department of Quality. Certificate of attendance at birth - Analysis of births. 2010. Available from: [http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_2024\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_2024_allegato.pdf)
- [5] Guidelines for Appropriateness of caesarean sections. 2012. Available from: [http://www.snlg-iss.it/cms/files/LG\\_Cesareo\\_finaleL.pdf](http://www.snlg-iss.it/cms/files/LG_Cesareo_finaleL.pdf).
- [6] Niino, Y. The increasing caesarean rate globally and what we can do about it. *BioScience Trends*. 2011; 5(4): 139-150. PMID: 21914948. <http://dx.doi.org/10.5582/bst.2011.v5.4.139>
- [7] Ostovar, R., Rashidian, A., Pourreza, A., Rashidi, B.H., Hantooshzadeh, S., Ardebili, H.E., *et al*. Developing criteria for caesarean section using the RAND appropriateness method. *BMC Pregnancy and Childbirth*. 2010; 10: 52. PMID: 20840776. <http://dx.doi.org/10.1186/1471-2393-10-52>
- [8] Ostovar, R., Pourreza, A., Rashidian, A., Rashidian, A, Rashidi, B.H., Hantooshzadeh, S., *et al*. Appropriateness of caesarean Section using the RAND appropriateness method criteria. *Archives of Iranian Medicine*. 2012; 15(1): 8-12. PMID: 22208436.
- [9] Torloni, M.R., Betrán, A.P., Montilla, P., Scolaro, E., Seuc, A., Mazzoni, A., *et al*. Do Italian women prefer caesarean section? Results from a survey on mode of delivery preferences. *BMC Pregnancy and Childbirth*. 2013; 13: 78. PMID: 23530472. <http://dx.doi.org/10.1186/1471-2393-13-78>
- [10] Chervenak, F.A., McCullough, L.B., Levene, M.I. An ethically justified clinically comprehensive approach to periviability: gynaecological, obstetric, perinatal, and neonatal dimensions. *J Obstet Gynaecol*. 2007; 27: 3-7. PMID: 17365448. <http://dx.doi.org/10.1080/01443610601133605>

- [11] Chervenak, F.A., McCullough, L.B. The professional responsibility model of obstetric ethics and caesarean delivery. *Best Practice e Research Clinical Obstetrics and Gynaecology*. 2013; 27: 153-164. PMID: 23059404.  
<http://dx.doi.org/10.1016/j.bpobgyn.2012.09.001>
- [12] Prior, E., Santhakumaran, S., Gale, C., Philipps, L.H., Modi, N., Hyde, M.J. Breastfeeding after caesarean delivery: a systematic review and meta-analysis of world literature. *Am J Clin Nutr*. 2012; 95: 1113-35. PMID: 22456657.  
<http://dx.doi.org/10.3945/ajcn.111.030254>
- [13] Chervenak, F.A., McCullough, L.B., Brent, R.L. The professional responsibility model of obstetric ethics: avoiding the perils of clashing rights. *Am J Obstet Gynecol*. 2011; 205: 315. PMID: 21831353. <http://dx.doi.org/10.1016/j.ajog.2011.06.006>
- [14] Law 189/2012. Available from: <http://www.senato.it/service/PDF/PDFServer/DF/286269.pdf>.