

The Use and Overuse of Cesarean Sections in Mexico

Leslie Farlan*

The internationally accepted standard for cesarean section rates per percentage of live births per country, as outlined by the World Health Organization and the Pan American Health Organization, is 10-15% of the country's birth rate. Mexican national health care data from 2006 estimates the cesarean section rate to be at approximately 37.6% of all births. This makes Mexico one of the highest users of cesarean section globally. High rates of cesarean section increase the health risks for both mothers and children. This paper will explore the reasons why cesarean sections have become so prevalent in Mexico. In doing so, it will consider the clinical, financial, and psychosocial factors that contribute to Mexico's overutilization of cesarean sections.

INTRODUCTION

The use of cesarean section has been increasing steadily worldwide for the past two decades. Mexico stands out as a leader in the Americas and in the world for high use of cesarean sections. While in many cases cesarean sections can save lives and reduce birth defects, overutilization of cesareans can lead to increased morbidity and mortality for both the infant and the mother.¹ The international average for cesarean section rates per percentage of live births per country, as outlined by the World Health Organization (WHO) and the Pan American Health Organization in 1985, is between 10-15% of the country's birth rate.² While this rate was decided upon in 1985, it is still seen as the accepted cesarean section rate internationally.³ In 1991, the Mexican Official Standard for the Care of Pregnancy, Delivery, Puerperium, and Newborns stated that the ideal rate for the country should fall around 20% of the national birth rate. However, the actual rate is still much higher.⁴

Throughout the 1990s, the national Mexican cesarean section rate was projected to encompass 30% of all births within hospitals.^{4,5,6} From 1995 to 1996, the cesarean rate was calculated at 31.3%.⁵ By 1999, the national cesarean section rate was slightly above 35% of births, with 53% of private sector births and 38.2% of public institution birth being by caesarian section.⁷ This upwards trend has continued within the past decade, with cesarean section rates rising from 32.53% in 2001 to 36.42% in 2005.⁸ The most recent national data available from 2006 estimates the national cesarean section rate to be 37.6% of all births.⁹

MEDICAL DANGERS

While the use of cesarean sections is crucial for safely delivering complex and high risk births, its overuse is dangerous and potentially harmful both to the mother and child.¹ Cesarean section is a major abdominal surgery and like any significant surgery, it increases the risk for medical complications and death for the mother. A study by Waterstone and colleagues found that cesarean section quadruples a mother's risk for morbidity compared to vaginal birth.¹⁰ According to the World Health Organization's 2005 Global Survey on Maternal and Perinatal Health in Latin America, which included Mexico, cesarean delivery was positively and significantly associated with severe maternal morbidity and mortality compared to vaginal birth, even after adjustment

for confounding risk factors.¹ There are often complex long term and short term complications from a cesarean section. Common short term complications for cesarean section include excessive blood loss, blood clots, infection, injury to bladder, bowel or adjacent organs, pulmonary embolism, and fever. Long term complications can include infertility, ectopic pregnancy, miscarriage, placenta accrete, placenta previa, and death.¹¹ Cesarean delivery also comes at high risk to the baby. Cesarean delivery was associated with increased fetal mortality rates and higher admittance into intensive care for 7 days or longer, even after adjustment for preterm delivery.¹ A study by MacDorman and colleagues concluded that the neonatal mortality rate for infants delivered by cesarean section (1.77 per 1,000 live births) was higher than vaginal delivery (0.62 per 1,000 live births).¹²

CLINICAL FACTORS

On a national level, the reasons given by a provider for why a cesarean section was given between 1998- 2001 included dystocia (32.3%), previous cesarean section (15%), fetal distress (15%), breech presentation (8.5%), maternal request (6.3%), emergency (3.1%), and other (19.7%).¹³ In many circumstances, the increased use of medical technology to aid in birth can change and alter the natural process of birth such that a cesarean section may be necessary.

INDUCED LABOR VIA PITOCIN AND OXYTOCIN

The hormone oxytocin is released naturally during labor when the baby produces pressure on the cervix and pelvic floor tissues. Hormone bursts induce labor contractions, which aid in cervical dilation and limit blood loss.¹⁴ In the hospital setting, the drug Pitocin (synthetic oxytocin) is given to patients to induce the same contractions. According to the WHO and the Pan American Health Organization, "The induction of labor should be reserved for specific medical indications. No region should have rates of induced labor higher than 10%."²² However, few physicians follow this standard. Studies of obstetricians in Mexico City have shown that Pitocin is given to the majority of mothers who come into the hospital to speed up and regulate delivery.¹⁵

Oxytocin is normally released in bursts as opposed to

*Author Contact: L. F. (BS 2010) University of Chicago, Class of 2010, Address correspondence to: Leslie.Farlan@gmail.com

Pitocin, which is administered at constant rate through an intravenous drip.¹⁴ As such, Pitocin use can create circumstances in which a cesarean section may be needed. The WHO 2005 Global Survey on Maternal and Perinatal Health found that 28% of women with induced labor had to have an emergency cesarean section.¹ Another study found that 19% of nulliparous women (women who had never before given birth) who were given Pitocin compared to 10% of nulliparous women who were having natural contractions underwent cesarean sections.¹⁶ This study also found that labor induction (via Pitocin drip) caused an increase in the risk of instrumental delivery and shoulder dystocia. Another study, which traced 65,000 births, found that labor induction also increased cesarean rates in nulliparous women, with relative risks of cesarean delivery with labor induction of 1.38 for nulliparous women, compared to 1.0 for parous women with no previous cesarean.¹⁷ Furthermore, Cammu and colleagues found similar conclusions regarding a correlation between labor induction and cesarean section. Their research concluded that significantly more mothers who were induced using Pitocin had first-stage dystocia (stalled pregnancies, which later required cesarean section).¹⁸ Induction of labor can also lead to decreased uterine blood flow, hyperstole, hypostole, and uterine hypertonia. These situations can cause premature separation of the placenta, fetal distress, rupture of the uterus, and hemorrhaging - conditions which may require cesarean section.¹⁵

ELECTRONIC FETAL HEART MONITORS

The electronic fetal heart monitor (EFM) is another example of medical technology that is often overused in Mexico. This overuse can increase the number of cesarean sections performed. The electronic fetal heart monitor is now considered the standard of care to evaluate fetal health during labor.¹⁹ EFM is used routinely on all high risk pregnancies throughout Mexico and when resources are available, EFM is used as a monitoring device on low risk pregnancies.¹⁵ While fetal surveillance can be useful in high-risk pregnancies, improper use can be problematic due to common technological defects in the electronic fetal heart rate monitor. Banta and colleagues note, "There is, at best, limited evidence of the benefit of EFM, while there is substantial evidence of harm and significant financial costs."¹⁹ One potential harm that Banta et al. describe is the increase in cesarean section rate caused by electric fetal heart rate monitors. The WHO outlines that there is little evidence for the positive effect of fetal monitoring and it should only be carried out in cases related to high perinatal mortality rates.² The correlation between cesarean section rate and EFM usage may be a result of subjective interpretations of how to read EFM results and the false positive EFM readings of fetal distress. Consequently, doctors may suggest unnecessary cesarean sections and potentially increase the cesarean section rate.²⁰

PRIOR CESAREAN SECTIONS

It is widely accepted among medical professionals that once a woman has a cesarean section, she must continue to have cesarean sections. Roughly 15% of all cesarean sections

in Mexico are performed because the mother has had a prior cesarean section.¹³ A second cesarean section is often recommended because doctors fear scar rupture if the mother were to deliver the baby naturally. However, according to the international conference on appropriate technology for birth, "There is no evidence that caesarean section is required after a previous caesarean section birth. Vaginal deliveries after a caesarean should normally be encouraged wherever emergency surgical intervention is available."²² Nevertheless, repeat cesarean sections are considered the standard of care by many medical practitioners in Mexico.⁶ A Mexican national health survey found that 80% of women who had a cesarean section with their first birth had a cesarean with their second birth.²¹

DYSTOCIA

One of the most common reasons doctors cite for reasons to induce cesarean section is failure to progress, or dystocia. Dystocia was responsible for 32.3% of all cesarean sections in Mexico between 1998 and 2001.¹³ Dystocia can occur due to uterine contractions that are not sufficient to induce natural labor, cephalopelvic disproportion (when the woman's pelvis is not large enough for a baby to pass through), malpresentation of the infant, or blockage of the birth canal.²² Dystocia can also be difficult to diagnose. Over-diagnosis of dystocia is believed to account for some of the increase in cesarean section rates. A study in Los Angeles and Iowa found that 68% of all unplanned cesarean section were caused by dystocia. Additionally, this study found that many of these cases did not conform to the published standards for dystocia diagnosis. For example 16% of the cesareans performed due to lack of progress were still in the latent phase of labor according to ACOG guidelines. Similarly, 36% of cesarean sections that were denoted as not progressing did not have a prolonged second stage of labor.²³ In Mexico, guidelines exist for practitioners to determine when dystocia is occurring.¹⁵ However, studies such as this suggest that even when there are clearly defined criteria for diagnosing dystocia, guidelines are not necessarily followed and may contribute to caesarian section use.

FINANCIAL FACTORS

Many believe that the Mexican increase in cesarean sections is influenced by the reimbursement structure for physicians who perform cesarean sections privately. The price of a cesarean section in 2001 was found to be between 3,900 - 13,000 pesos (approximately 520 - 1,733 U.S. dollars).⁶ Physicians may be encouraging unnecessary cesarean sections in order to make a larger profit. Additionally, private Mexican insurance companies are believed to have contributed to the cesarean section rate by only reimbursing cesarean section deliveries and not vaginal deliveries (this policy has recently changed).²⁴ Such policies could have affected how cesarean section was viewed by a generation of women and doctors. While reimbursement structures for private doctors and insurance companies may have influenced cesarean practices for the upper socio-economic brackets, this reason does not explain the increase in cesarean within the majority of the population that does not have insurance.

SOCIAL FACTORS: STANDARD OF CARE

Besides monetary and medical factors, social and cultural ideas about cesarean section have been influential in making the practice of elective cesarean section socially and culturally acceptable, and in some instances preferred as a mode of childbirth. Cesarean sections are becoming more popular within Mexican society because they minimize the pain associated with labor and can be scheduled to accommodate the needs of the family and the mother.²⁵ In higher socio-economic levels, cesarean sections are considered ideal for delivery and are often requested. There is a perception that cesarean births are the safest mode of birth available and that natural birth is dated or old fashioned.⁶ In some states within Mexico, there is also a social significance associated with the luxury of having a cesarean section. An interview with an obstetrician in Monterey conveyed this notion, "My maid has natural births" he stated, "but Mrs. X of the upper class doesn't."²⁵ This perception of cesarean birth as the ideal mode of birth for upper class women supports the finding that the majority of births in private hospital settings are cesarean births.²

SOCIAL FACTORS: GENDER AND POWER RELATIONS

An analysis of gender power relations within Mexico may also help to explain the high rates of cesarean section. Traditionally, in Mexican culture, men seek to embody the concept of machismo, which expresses the characteristics of virility, power, and authority. A Mexican woman's gender identity is often explained using the term marianismo, which embodies the characteristics of moral purity, subordination to men, and domesticity.²⁶ These gender relationships are important to understand within the context of cesarean section in Mexico as, although more women are entering medical school in Mexico, the majority of practicing physicians are still male.²⁷ A recent study in the United States found that minority women are more likely to give birth by cesarean section than white or Asian women, controlling for clinical indicators. Women who are unmarried and who have little education are more likely to have cesarean sections than women who are married and have high education levels.²⁸ The author of the study credits stereotypes and social distance between the doctor and the patient for potential reasons as to why physician convenience overrides patient care in these contexts.²⁸ She also states that these patients may be more likely to not question the doctor's recommendations because of the power relationship between the patient and the provider.²⁸ A study in Italy focusing on education and cesarean sections found that mothers with a primary degree had a 24% higher risk of cesarean section than mothers with a university degree when age, birth weight, and presentation were accounted for.²⁹

The way that social power relations impact cesarean section rates is a phenomenon that may be especially important when evaluating cesarean section in Mexico. Theoretically, in a medical system where female patients are subordinate to male doctors, cesarean sections could be accepted in excess because of these gendered relations of power. When the doctor is clearly in power over the patient, the patient will be less likely to question a cesarean section if one is suggested, and in turn, the doctor may be more willing to perform a cesarean

section because it is the easiest thing for him to do.

CONCLUSION

The discourse surrounding the use and overuse of cesarean section as a method of birth is a complex and multi-faceted issue that is influenced by multiple medical, social, and financial factors. The medicalization of the birthing process through drugs and technology has significantly contributed to the high cesarean section rate. Financial incentives surrounding cesarean section as opposed to vaginal birth have also influenced the conversation on cesarean section. Lastly, psychosocial issues, such as doctor convenience, patient-doctor power relationships, and cultural acceptance, may all contribute to the high cesarean section rate in Mexico.

The problem of overuse and misuse of cesarean section in Mexico must be reduced in order to save lives of infants and mothers, as well as reduce medical spending. It is estimated that in 1996, excessive cesarean section in Mexico were projected to have cost public health-care institutions \$12,204,774 USD.⁴ Since public health-care institutions are funded in part or in whole by the government, the people and government of Mexico are subject to millions of lost dollars each year by paying for unneeded cesarean sections.

Additionally, stricter guidelines related to Pitocin and EFM's, as well as national standards regarding dystocia diagnosis and the medical necessity of cesarean section, if followed, could help to greatly reduce the number of cesarean sections in Mexico. An increased focus on patient autonomy and the dangers of cesarean section for the infant and mother in public health campaigns could help to change the social factors that influence cesarean section rates. Nevertheless, cesarean section overuse remains multifaceted and in order to reduce the rates in Mexico, a united effort must be made by the government, the medical community, public health officials, patient's rights groups, and the mothers themselves for substantial change to occur.

ACKNOWLEDGEMENTS

I would like to thank Mujeres Enlazadas (<http://www.mujeresenlazadas.org/>), the University of Chicago Human Rights Internship Program, and Dr. Lianne Kurina for their guidance and support for this research.

References

1. Villar, J, et al, "Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America," *The Lancet* 367: 1819- 1829.
2. World Health Organization, "Appropriate Technology for Birth." *The Lancet* 326 no. 8452 (24 August 1985): 437-438
3. Chalmers, Beverley ,Viviana Mangiaterra, and Richard Porter, "WHO Principles of Perinatal Care: The Essential Antenatal, Perinatal, and Postpartum Care Course," *Birth* 28 (2001) vol 3: 206
4. Gonzalez-Perez, Guillermo et al, "Cesarean section rates in Mexico in 90's: A socio-epidemiological perspective", Presented at 128th Annual Meeting of the APHA, Monday, November 13, 2000 - 5:00 PM, Abstract #15130 < http://apha.confex.com/apha/128am/techprogram/paper_15130.htm>
5. Belizán, José M. et. al., "Rates and Implications of Cesarean

- Sections in Latin America; Ecological Study” *British Medical Journal* 319 (27 November 1999): 1397-1402.
6. Gonzalez-Perez, Guillermo J. et. al., “Caesarean Sections in Mexico: Are There Too Many?” *Health Policy and Planning* 16, no. 1 (2001): 62-75
 7. Puentes-Rosas, Esteban et al, “Las cesáreas en México: tendencias, niveles y factores asociados,” *Salud Publico de Mexico*. 46 (2004):16-22.
 8. “Salud: México 2001-2005, Información estratégica por entidad federativa,” Electronic resource, 27, August 2009
< <http://www.salud.gob.mx/unidades/evaluacion/saludmexico/saludmexico.htm>>
 9. “Salud: Mexico 2006,” Electronic Resource, 27, August 2009, <<http://www.salud.gob.mx/unidades/evaluacion/saludmexico/saludmexico.htm>>
 10. Waterstone M, Bewley S, Wolfe C. Incidence and predictors of severe obstetric morbidity: case-control study. *BMJ* 2001; 322: 1089-94.
 11. Udy, Pamela. “The Physical Impact of Cesareans,” *Midwifery Today* 88 (Winter 2008). Electronic resource. < http://www.midwiferytoday.com/articles/physical_impact_csec.asp> Accessed 5 June 2009.
 12. MacDorman, M.F., Declercq, E., Menacker, F., Malloy, M.H, “Infant and neonatal mortality for primary cesarean and vaginal births to women with “no Indicated risks,” United States, 1998-2001 birth cohorts,” *Birth*, 33((2006): 175-182.
 13. Stanton, Cynthia and Carine Ronsmans, “Recommendations for Routine Reporting on Indications for Cesarean Delivery in Developing Countries,” *Birth* 35 no 3 (2009): 204-211.
 14. Weiss, Robin Elise. “Pitocin FAQs”. *Childbirth*. Electronic Resource.<<http://www.childbirth.org/articles/pit.html>> Accessed June 6, 2009.
 15. Castro A, Heimburger A, Langer A. Cesarean sections in Mexico: a qualitative study with women and health care professionals. Mexico: Population Council Regional Office for Latin America and the Caribbean, Safe Motherhood Committee of Mexico, 1998: 1-42
 16. Dublin S, Lydon-Rochelle M, Kaplan RC, et al “Maternal and neonatal outcomes after induction of labor without an identified indication” *American Journal of Obstetrics & Gynecology*.183 no.4 (2000).183:986-994
 17. Coonrod DV, Bay RC, Kishi GY. “The epidemiology of labor induction: Arizona, 1997.” *American Journal of Obstetrics & Gynecology*. 182 no6 (2000):1355-1362.
 18. Cammu H, et al. “Outcome after elective labor induction in nulliparous women: A matched cohort study”, *American Journal of Obstetrics & Gynecology*. 186 (2002) : 240-244
 19. Banta, David H and Stephen B. Thacker, “Historical Controversy in Health Technology Assessment: The Case of Electronic Fetal Monitoring.” *Obstetrical and Gynecological Survey*. 56 no.11 (2001)
 20. Dildy, G.A. “The physiologic and medical rationale for intrapartum fetal monitoring.” *Biomedical Instrument Technology*. 33 no 2 (1999): 143-151
 21. Secretaría de Salud. Encuesta Nacional sobre Planificación Familiar 1995. Mexico City: Secretaría de Salud; 1996.
 22. Shearer, E.L. “Cesarean Section: Medical Benefits and Costs,” *Social Science and Medicine* 37 no. 10 (1993): 1223-1231.
 23. Gifford, D.S. S Morton, M Fiske, J. Keeler and K. Kahn. “Lack of Progress in Labor as a Reason for Cesarean” *Obstetrics and Gynecology*. 95 no 4 (2000)
 24. Sañudo, Martha and Inmaculada de Melo-Martín, “Monterrey, C-Section Capital of Mexico: Examining the Ethical Dimensions,” *International Journal of Feminist Approaches to Bioethics* Vol 2, 1 (2009): 148-164.
 25. Zarembo, Alan. “The New Latin Labor” *Newsweek*. Electronic Resource. 26 March 2001. < <http://www.newsweek.com/id/80233>> Accessed June 1, 2009.
 26. Huck, James D. Mexico: A Global Studies Handbook. ABC-CLIO: 1998
 27. Knaul F, Julio Frank and Ana Mylena Aguilar. “The Gender Composition of the Medical Profession in Mexico: Implications for Employment Patterns and Physician Labor Supply.” *JAMWA*. 55 no. 1
 28. Roth, Louise Marie. “Unequal Motherhood: Race-Ethnicity and Socio-Economic in Cesarean Sections in the United States.” *University of Arizona*. January 30, 2009: 1-34.
 29. Cesaroni, Guilia, Francesco Forastiere and Carlo A. Perucci. “Are Cesarean Deliveries More Likely for Poorly Educated Parents? A Brief Report from Italy” *Birth* 35 no 3 September 2008: 241-244.