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## **Abstract**

Although cesarean sections can prevent maternal and perinatal deaths, they are also related to higher morbidity and mortality, both for women and newborns, when performed inappropriately. In Mexico City, the proportion of births delivered by cesarean section has increased recently at a rate that much exceeds the proportion of indications for cesarean section while infant and maternal mortality remains high in rural areas where cesarean sections are largely unavailable. This article provides an ethnographic analysis, based on in-depth interviews and participant observation, of perceptions and expectations of cesarean section among health care providers in public hospitals in Mexico City. Our study suggests that many cesarean sections in Mexico City are provider-driven and by-products of the medicalization of birth.

### **Key words:**

Cesarean section – Labor– Mexico – Quality of care – Medical anthropology – Sterilization or Tubal Sterilization.

## Objectives

Mexico has one of the highest cesarean section (CS) incidences in the world (1): the rate increased in public hospitals from 13% in 1990 to 25% in 1997, and from 25% to 37% in Mexico City (2), while the national average in private hospitals was 52% in 1997 (3).<sup>1</sup> During the same period of time, maternal mortality was relatively stable, fluctuating around 50 deaths per 1,000 registered live births (4, 5). Ironically, obstructed labor, the leading cause of maternal mortality in Mexico, accounted for 39% of maternal deaths – 48% in the states with highest incidence of maternal deaths: Chiapas, Hidalgo, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, and Veracruz (6). Many of these obstructed labor deaths could have been prevented by a timely cesarean section. Because the increase in cesarean sections has not led to improved maternal mortality, it appears that some are performed without an absolute medical indication, and that resources for reproductive health services are unequally distributed in the country. This dichotomy poses certain type of questions regarding the appropriateness of CS that the investigators try to answer throughout the paper.

The proportion of cesarean sections in Mexico far exceeds the World Health Organization (WHO) recommended maximum of between 10% and 15% (7) or the recently determined safe incidence of between 6% and 8% in countries with universal and de facto access to quality health care (8). While these figures are somewhat arbitrary, they provide a useful indication of an expected range that takes into account the incidence of complications requiring a CS, such as obstructed labor (due to such conditions as cephalo-pelvic disproportion or transverse lie), placenta previa, pregnancy induced hypertension, or fetal

hypoxia. Although cesarean sections can prevent maternal and perinatal deaths, when performed inappropriately they are also associated with a higher proportion of morbidity and mortality for both women and newborns, as has been seen in Mexico City (8, 9, 10, 11) and elsewhere (12, 13).<sup>2</sup> Based on previous studies, cesarean sections have a relative risk of early neonatal deaths adjusted for maternal risk in Mexico City of 2.02 (8); elsewhere, that of respiratory complications is estimated at 6.54 (12).

A study comparing the use of cesarean sections within and between Latin American countries found (1) a positive and significant correlation between the gross national product per capita and the incidence of cesarean sections. In addition, for those countries for which there was data, the use of CS was systematically higher in private than in public and social security institutions: 41% compared to 17% in Paraguay, 59% to 33% in Colombia, 52% to 27% in Mexico, 36-45% to 15-21% in Argentina, 36% to 20% in Brazil, and 59% to 29% in Chile. Given that poor women are at higher obstetric risk (14) and they do not benefit equally from improvement in medical and surgical care, this variability needs to be explained by factors outside the clinical realm.

In order to understand the multiple factors that explain the increase of surgical births, we undertook a study of the perceptions of cesarean sections among health care providers in Mexico City.<sup>3</sup> The study was developed in 1998 to inform the design of the ELAC (Latin American Study of Cesarean Sections), a randomized controlled clinical trial aimed at testing whether a second opinion protocol could decrease the incidence of cesarean sections in Latin American hospitals. The clinical trial took place during 18 months in 1999-2000 in Argentina,

Brazil, Cuba, Guatemala, and Mexico.<sup>4</sup> The primary objective of this article is to contribute to the understanding of the social and cultural forces that have led to the increase in cesarean sections in Mexico City, in order to recommend appropriate public health measures that would reduce the number of unnecessary surgeries and improve both health outcomes and the quality of care in public hospitals.

## **Methods**

This study was undertaken in four public hospitals in Mexico City from May to August of 1998. Three ethnographic techniques were used to obtain information: in-depth semi-structured interviews, unstructured interviews, and participant observation.<sup>5</sup> Semi-structured individual interviews, lasting approximately one hour each, were conducted in two third-level hospitals – the first with 3,600 births a year and a 38% incidence of cesareans, and the second with 8,100 births a year and 19% CS incidence. Nine obstetrician/gynecologists (OB/GYN) were interviewed, including four senior obstetricians and five residents out of a total of 41 (three second-year residents, one third-year, and one fourth-year). Three of the staff physicians interviewed also had their own private practice. The interviews included questions on indications for CS and the decision-making process involved, use of medical technology at the time of birth, training of residents, prenatal care, and use of contraceptive methods during the hospital stay. In addition, twenty women who had delivered by cesarean section, ten of their relatives, and twelve nurses were interviewed in the two above-mentioned hospitals.<sup>6</sup>

Participant observation and unstructured interviews were conducted in two other hospitals to provide some information about the context in which births take place, as a complement to the in-depth interviews. One of the hospitals had 4,900 births and a CS incidence of 26%, and the other had 10,200 births and a 43% CS incidence. Participant observation included interactions between the first author and women in labor, both in vaginal and CS deliveries, by staying by their bedside and providing them with company and conversation when appropriate. It also included spending shifts with obstetricians at the maternity wards and accompanying them during their work. The contents of the information obtained through these techniques were transcribed and analyzed using qualitative analysis software (Nudist 4).

Our main findings are presented in four sections. Firstly, we explore how the medicalization of birth, accompanied with inappropriate use of medical technology, contributes to the increase of cesarean sections. Secondly, we analyze the link between cesarean sections and the sterilization of women. Thirdly, we present some explanations of how physicians create the demand for cesarean sections when there is no medical indication and, finally, how some obstetricians benefit from cesarean sections.

## **Results**

### *The Medicalization of Birth*

The body of literature in medical anthropology on the study of birth has grown exponentially since Brigitte Jordan's landmark study, *Birth in Four Cultures*, in 1978 (15).

Although birth is socially shaped, as Jordan explained, the profession of obstetrics intertwines with local conditions and converts birth in a technical process dominated by the biomedical model. It is this process which is defined as medicalization of birth (16, 17, 18, 19), and which has come to dominate birth in Mexico (20). In this section we examine, with an ethnographic approach, the use of medical technology and its relation to the process of birth in public hospitals in Mexico City.

a. Use of medical technology

Oxytocin

The majority of women who enter the delivery room are given oxytocin to induce, regulate, and shorten their labor. All of the residents and two senior obstetricians made similar arguments for the use of oxytocin: “It’s a good option for the patient, especially to shorten the delivery time”; “We apply it to regulate, not diminish, labor, so that it doesn’t last so long”; “Oxytocin doesn’t have to be used, but generally is”; “in a patient who has one contraction every 10 minutes, we’ll give her oxytocin so that her contractions accelerate to three or four in 10 minutes – a more regular labor.” Even the most experienced obstetrician of the group commented: “I agree 100% with augmenting labor.” Only one senior obstetrician explained that oxytocin “is a therapeutic medical resource which we should use to resolve any problem of contraction dystocia.” The indiscriminate use of this drug is an example of how a pharmaceutical agent, created to be used under very precise indications, ends up medicalizing physiological cases and contributing to the increase of cesarean sections among nulliparous women, as several studies show (21, 22, 23).

In spite of the existing tendency to use oxytocin systematically, the OB/GYNs interviewed recognize that if labor induction or augmentation is not accompanied by good control during labor, or if it is applied in the active phase of labor for uterine fatigue or as a prolonged analgesic, it can produce such secondary effects as: hyperstole (increase in uterine contractions), hypostole (arrest of the contractions), or uterine hypertonia (excessive tension of the uterus, or failure to relax). These situations can create fetal suffering, premature rupture of the placenta and hemorrhaging, all of which are absolute indications for a cesarean section, and may even lead to a hysterectomy. The possibility that the use of oxytocin might require an emergency cesarean section justifies in turn the use of an epidural, in anticipation of a potential surgery. This circular reasoning is heard over and over again in the context of medicalized obstetric care.

### Epidural block

All of the physicians interviewed, with the exception of one, were in favor of using a block on all of their patients. For some of them “the epidural block is the most beautiful thing in obstetrics”; “I give a block to 100% of my patients. Why? Because we live in the 20<sup>th</sup> century, at the dawn of the 21<sup>st</sup>, and the Biblical promise of pain during childbirth does not hold true any longer.” According to those criteria, an epidural block is given to all women except when the anesthetic is not available in sufficient quantities, often without informing the woman in labor. When its use must be rationed, priority is given to primiparous women because they are considered to be the least prepared to confront the pains of childbirth.

The interviewed obstetricians mentioned some of the complications that can arise as a result of an epidural block: a delay in the progression of labor, the determent of women from “cooperating” and pushing during the second stage of labor, or the slowing of the fetal cardiac rhythm, which can in turn provoke fetal distress.<sup>7</sup> One OB/GYN claimed that “if the woman is not closely watched, generally the indication for a c-section increases.” But the principal line of reasoning is that “giving an epidural block does not have any repercussion or change on the patient’s prognosis; it simply *helps us* to shorten or diminish the pains.” Therefore, even while recognizing the complications that a block can cause, trust in medical technology outweighs the fear that the delivery will become complicated or difficult.

#### Electronic fetal monitoring

The obstetricians explained that, when available, electronic fetal monitoring (EFM) during labor should be performed every 20 to 30 minutes on almost all women (combined with monitoring by a Pinard fetoscope every hour), while EFM is offered on a permanent basis only to high-risk pregnancies. Discourse about this method among obstetricians reflects a double standard. On the one hand, OB/GYNs say that there are specific indications for its use, which should be reserved for high-risk situations: post-term pregnancy, diabetes, pre-eclampsia, fetal risk, prior stillbirth, rupture of membranes, fetal distress, and fetal cardiac arrhythmia. On the other hand, physicians explain that if there were a larger number of electronic monitors (and a sufficient quantity of register paper), they would use it with all women during labor: “when we have the resources, we use them.” A few physicians

recognized that this device has its failures and can actually increase the proportion of cesarean sections because it permits detection of fetal pathologies more often than the Pinard fetoscope – running the risk that the number of false positives could also be greater, as has been shown in several clinical trials (24, 25).

### Forceps

None of the physicians interviewed use forceps, although some of the senior adjunct obstetricians have received training in their use. Routine hospital practice is to perform a CS when otherwise forceps could have been indicated. The perception of some obstetricians is that using forceps (especially without adequate training and practice) can be more traumatic than performing a cesarean section. Some believe that “even when forceps are applied well, they will surely leave sequelae”; “when we have the opportunity to do a cesarean section, we prefer that way to the use of forceps”, or, as the most experienced obstetrician explained, “I prefer to do a bad c-section over an excellent use of forceps, and you can write that down.”

The other OB/GYNs think that if forceps are applied well, they can cause less damage than a cesarean section, especially if during the expulsion period, the OB/GYN has to push the fetus back into the uterus in order to perform a CS. In spite of those arguments, these OB/GYNs do not apply forceps because they have fallen into disuse, are generally viewed as antiquated technology, or the obstetricians are afraid of, adverse to, or unsure about putting pressure on the fragile head of the newborn.

b. Women's "failure to cooperate"

All of the obstetricians interviewed mentioned that some women do not "cooperate" or "collaborate" in the delivery: "it is very important that women have information about the progress of their labor and delivery because that way they *collaborate with us* more. When the patient is more cooperative, I mean, *when she accepts the measures that we're using with her*, she doesn't get desperate and knows that the doctor knows what he is doing; in fact, I think she feels more trust"; "When the patient participates in an active way with full knowledge of what she's doing, *then she really feels like she's helping with the birth of her baby, that she's collaborating with her baby's birth, and this definitely helps us.*" This notion of cooperating with the physician puts obstetricians at the center of birth and women on the periphery, as illustrated by this physician's comments. The physician's appropriation of the central role during childbirth further justifies medical intervention.

However, many physicians recognize that an "uncooperative" attitude can be positively transformed with more information dispensed to the mother before and after childbirth, and can be dissipated with more support during delivery: "In public institutions we don't have as much time as we would like to attend the patient, to explain what her labor and delivery will be like; however, Lamaze courses are good, because then women know what's going to happen and they're not afraid of what they're getting into and they *cooperate* more."

Despite recognizing the advantages of transmitting information during labor, physicians make very few efforts to ensure communication: "we handle a lot of serious cases, and we give them slightly higher priority in terms of receiving information. In normal situations patients are

given basic information only about the conditions they arrive in.” The lack of information increases the fear that women experience during labor, which may prolong the period of expulsion, worsen the fetal prognosis, and end up as an indication to perform a cesarean section. Physicians perceive this “lack of cooperation” especially among women who were misdiagnosed with the need of a cesarean section during prenatal visits, and are later told that they can have a vaginal birth. This reflects how the expectation of a cesarean section can actually lead to the performance of one.

The result is that medical technology, including a cesarean operation, replaces the absence of prenatal control and birthing courses, the presence of a companion during childbirth, and other measures that ensure the quality of hospital care. “The kind of support that we can offer to the patient is company, not leaving her alone. We carry out completely that responsibility, since the patient is being monitored continually, either medically or *electronically*.” The absence of something as “low tech” as the support and company of another person during childbirth could mean that a cesarean section, analgesics, or EFM become the best solution (26).

#### c. Indications for a Cesarean Section

The obstetricians interviewed mentioned many indications for performing a cesarean section, which they classified into absolute and relative indications. The absolute indications include cephalo-pelvic disproportion (CPD) or dystocia, breech or abnormal presentation, complications related to the placenta or the umbilical cord, two or more previous cesarean

sections, pregnancy induced hypertension, fetal distress, some congenital malformations, twin or multiple pregnancy, and short birth interval. <sup>8</sup> The relative indications include unconfirmed CPD, failure to progress during labor, the woman's age (too young or too old) and "maternal suffering, or lack of preparation to confront childbirth." The majority of these indications, especially the relative ones, are not a part of the Mexican Official Guidelines (27) or international evidence-based recommendations (28, 29). Most likely, the two indications that are most closely related to the epidemic of unnecessary cesarean sections are CPD and a previous cesarean section.

#### Cephalo-pelvic disproportion (CPD)

The obstetricians interviewed and observed did not have uniform criteria to diagnose CPD, which often fall within the same category as dystocia and macrosomia,<sup>9</sup> and they did not know how to use the Friedman curves – the partogram – correctly (30). This creates the possibility for residents to misdiagnose a CPD and indicate a cesarean section.

Undoubtedly, the desire to perform CS has to do in part with the need for medical residents to practice surgical techniques, especially if they will later go into their own private practice: "Here the benefit to the medical resident is acquiring surgical skills, which could be the 'justification' for a resident who wants to operate more than attend a normal childbirth [...] If there are too many cesarean sections, it's because this is a teaching hospital"; "because it's a teaching hospital, medical residents cook up factors, indications – that's possibly what brings us up to that percentage of c-sections." Therefore, even if obstetricians and those in

training in public hospitals do not receive a direct financial incentive to perform cesarean sections, the experience gained as a skilled surgeon is a potential benefit in the mid- and long-term of their professional careers. Misdiagnosing CPD provides the opportunity to gain this surgical experience.

### Previous Cesarean Sections

Even though all of the OB/GYNs interviewed dutifully explain that a prior cesarean section is not an indication for a subsequent one, almost all of them practice repeat CS anyway. We compared this information with that of the 1995 Mexican health survey (31); a statistical analysis showed that approximately 80% of women giving birth to a second child after a previous CS had a repeat CS. The time period that the OB/GYNs in our study considered short varied between 12 and 24 months, and they used medical literature as the reference to use “short birth interval” as an indication for a CS, even though prior to 2000 there were no conclusive studies relating short birth interval and risk.<sup>10</sup>

More often, however, repeat CS are prescribed because the OB/GYNs do not have information about what sort of uterine scar the patient has, due to the lack of previous care at that hospital and the difficulty of gaining timely access to clinical records. As the risk of uterine rupture is greater for women with a previous classical uterine incision than for a low transverse incision (32), and the external scar does not reflect the internal one, OB/GYNs often prefer to avoid the risk and operate. Consequently, the first cesarean section sets the tone and momentum for additional cesarean sections.

### *Transcervical Sterilizations*

Female sterilization or surgical contraception is the most frequently used contraceptive method in Mexico: 27% of fertile-aged women are sterilized (or 41% of all users of modern contraceptive methods); the second most popular method is the intrauterine device or IUD, used by 15% of fertile-age women (or 22% of all users) (31). In some public hospitals in Mexico,<sup>11</sup> surgical contraception and IUDs are offered post-partum or transcervical because obstetricians perceive that the majority of women do not attend the hospital for postnatal care. However, the physicians interviewed seldom actively promote return visits: “I would prefer to give the patient an appointment one month following birth and insert an IUD then. The problem is that if patients here don’t even come for prenatal care, much less will they come to have an IUD inserted.” Therefore, the moment of birth, whether vaginal or cesarean, becomes the golden opportunity for OB/GYNs to offer a contraceptive method, even though it is not recommended in international guidelines (33). In some contexts, the high frequency of sterilizations realized during a cesarean section could indicate a lack of access to other contraceptive methods or an unethical provision of them. These practices can additionally deter women from seeking hospital attention during birth; this behavior has been documented in the state of Chiapas (34, 35, 36, 37).

In our study we have observed that health professionals place more pressure on women undergoing a cesarean section to be sterilized than they do to women during or after vaginal delivery. We contrasted that information with a logistic regression model that we

developed using the health survey from 1995 (31), which showed how the predicted probability of sterilization is much higher (OR=3.68 [3.66, 3.69]) for women having a cesarean section than for women delivering vaginally, after controlling for age, parity, and type of hospital (38). The main explanation put forward by OB/GYNs is that the woman is already cut open and the surgical sterilization does not present an additional risk. Secondly, they rightly argue that the body of a woman is not capable of supporting various cesareans, due to the risk of uterine rupture; therefore, women who have undergone multiple CS should put a permanent end to their fertility. However, the claim that women should not have more than one, two or three cesarean sections may depend more on the physician's perception of the ideal number of children than on actual medical literature; one physician stated "Why three? First of all, because physically a woman's body cannot bear more than that, and secondly, three is the ideal number of children."

As one adjunct obstetrician says, when a woman has had three cesarean sections "we give her, in a few seconds, the information about the risk of uterine rupture. We propose the definitive method at the third cesarean; we are obligated to insist that she get her tubes tied. We insist by saying, 'look, your uterus can burst, and you'll make orphans of your babies.' It's difficult to make our society believe that you can have just one child. So, at the second cesarean we propose the idea, but we don't insist, and at the third, we have to insist. When, in spite of insisting on the risks and benefits of surgical contraception, they say no, the patients have to sign a paper that says they decided not to be sterilized against the advice of the

physician. In general we insist a little bit more with c-section deliveries because of the ease of going ahead and combining the surgical procedures.”

### *Perception of Women’s Demand for Cesareans*

Women who receive prenatal care in the private sector but give birth in public sector hospitals – so that the operation will be less expensive – or receive prenatal care in different public health centers, frequently arrive with the idea that they need to have a cesarean section as told by either their private OB/GYN or by the generalist at the health center: “the private physician says ‘it’s going to be a c-section’ and the patient is stuck with that idea.” If the attending physicians, after a re-evaluation, tell them that it will be a normal delivery, women may think that they are not receiving proper care and are incurring a greater risk. Regardless of the final delivery outcome, these cases illustrate how some health care providers create the expectation of a cesarean section: “patients buy into the supposition that the baby has to be born by cesarean – a large number of them – because other doctors told them so. Patients are then fixated on the idea and come to us requesting an operation, not necessarily with a precise indication for one; if they say that they were told that they would have to be operated and aren’t, they think that the baby is going to die or that the patient herself will die. If there is a fetal death of unknown cause, they’re going to accuse us of not having operated; so the malpractice suit that the patient could bring against us is included in the decision-making process.”

In truth, malpractice lawsuits are exceedingly rare in public hospitals in Mexico,<sup>12</sup> as wealthier and more educated women – who might threaten to sue the physician in the case of a complication during vaginal delivery – tend to deliver in private hospitals. The health professionals interpret the existence of some lawsuits to mean that women themselves are begging to have a cesarean section,<sup>13</sup> when in reality the demand is initially created and further substantiated by medical practitioners.

At the same time, the obstetricians point out that in the private sector women request cesarean sections during the prenatal visits, even when there is no medical indication. This occurs among women who deliver in social security or private hospitals: “if they came for prenatal care, generally they’re middle class, because other types of people [the poor] come directly during labor, without having had even one or two prenatal visits”; “those who ask for a cesarean are generally middle class, because poor patients generally don’t ask for it”; “a woman who wants a cesarean is a woman who knows about the reproductive process, how the evolution of her pregnancy should be, and has generated a series of fears and anxiety. She sees it as the immediate solution to childbirth. In some way she’s misinformed. There is a generalized idea that children who are born by cesarean are at lower risk than children delivered vaginally.” Physicians explain that women want cesarean sections because they are afraid of either the pain of childbirth or losing their sexual capacity.

### *How Some Obstetricians Benefit from Cesarean Sections*

As in the private sector, obstetricians in the public sector do not strictly adhere to official labor and delivery guidelines. Those who have a private practice actually earn more money performing cesarean sections than attending vaginal births. Still, many OB/GYNs insist that in their private practice they are satisfying women's needs: "at an institutional level, official guidelines are followed; at the private level, the one who pays makes the orders." Nonetheless, all but two of the physicians interviewed – both of whom work also in the private sector – claim that the patient's request for a cesarean section in a public hospital does not enter into their decision to operate: "Here in public hospitals we work according to official guidelines. In our own offices we also work closely with certain norms, but we have more flexibility. As for the patient who requests a cesarean, we practice what we call *elective c-sections*<sup>14</sup> – by that I mean when there is no medical indication. We see this more frequently in private practice." This might suggest the existence of a medical double standard – private versus public practice – while attitudes and practices in both the public and the private health sectors remain interrelated and, in fact, feed off of each other.

When patients in the private sector do not request a cesarean section, the slightest deviation from "normal" pregnancy can still be converted into a medical indication for a CS: "the private physician can demonstrate that there is some anomaly, some alteration that will therefore influence the decision to perform a cesarean." Consequently, obstetricians in the

private sector may create expectations of a cesarean section even when women do not explicitly request it.

The likelihood of the need for a cesarean section is increasingly present in public hospitals, where health professionals “prepare the patient psychologically from the time of her admission, more than anything for trial of labor, but also to make her aware that, if necessary, a surgical procedure will be performed.” This attitude among physicians creates an expectation for a cesarean section among women, presenting it as a normal health care process. Sometimes, health professionals in public hospitals present the opportunity to have a cesarean section to their relatives and friends as something favorable: “there are patients here whom the nurses and other workers know, who arrive here so that the OB/GYN on duty can perform a cesarean section; they come here without being in labor and that way a c-section is performed”; “daily there has to be at least one women operated on because of a personal recommendation.”

Among the highest socioeconomic groups, the cesarean section has little by little become the standard way to give birth. People from other social groups may try to imitate this tendency – even if they are physicians themselves – with the belief that if more privileged women prefer it, it must be better. This sociological process, based in distinction theory, has been described in relation to other public health problems, such as when pediatricians discourage breastfeeding, the most recommended form of infant feeding in the absence of maternal conditions such as being HIV+ (39).

The reasons why physicians create this demand for unnecessary operations might be explained by way of scheduling convenience, economic benefits, and the complete confidence

in the superiority of medical intervention: “the majority of doctors tend to perform a cesarean section in order to avoid the personal stress they feel when managing labor and, in private practice, also for the economic aspect, obviously. A lot of doctors don’t like to handle labor and opt for a cesarean section without any indications”; “The physician who, for convenience, doesn’t want to monitor the patient during eight or nine hours of labor, watching over the uterine activity to make sure that there won’t be any problems, opts for a cesarean section. With a c-section, once the baby is well you can get a good night’s sleep”; “It’s more of an effort for a gynecologist to wait for normal birth, which takes more time, more effort. For my own professional security, I operate without waiting for complications.” “Sometimes, just the fear that something is going to get complicated, makes us prefer to do a cesarean section even though it’s not totally indicated, and that’s the cause of an excess of cesareans”; “a cesarean section can be so exquisite, mastered so well, so well managed that it can be performed with minimal risks, and with great benefits for the private physicians. Another advantage that we see in private practice is that we don’t have to supervise labor. So if one looks at it in terms of cost-benefits, a c-section takes one hour and normal delivery takes ten or eleven hours in the delivery room. Occasionally, we don’t even have the kind of resources we need to adequately monitor fetal conditions; in certain labor situations with high-risk pregnancies, we choose not to submit them to the risk, and to abbreviate the birth period.” Therefore, when physicians resolutely argue that the current number of cesarean sections performed is “the number that should be” because they are all medically indicated, their argument seems to be inconsistent with the daily reality of the operating rooms.

## **Conclusions**

This article challenges the idea that the epidemic of cesarean sections in Mexico City is driven by women's requests. We argue that the systematic use of medical technology, justified by the underlying idea that a woman's body is incapable of giving birth without medical intervention, is largely directed towards the convenience of healthcare professionals rather than for the benefit of women in labor, as we have presented previously (40). We also argue that obstetricians, for their own reasons, create the opportunity for CS by offering them to women of higher socioeconomic groups as a distinctive way of giving birth under the guise of allowing women to avoid the inconveniences caused by normal childbirth, or by presenting cesarean sections as a frequent outcome in cases of relative, non evidence-based, indications for the surgery. By offering cesarean sections to wealthier women, OB/GYNs contribute to the creation of a distinctive way of giving birth which results in, by analogy, an iatrogenic epidemic. We can hypothesize that if CS became the usual way of giving birth among poor Mexican women, the upper and, eventually, the middle class would seek to deliver vaginally as a way of placing a social mark.<sup>15</sup>

Perhaps the one factor that serves as an iatrogenic catalyst for the rest is that obstetricians treat all pregnant women or women in labor as high-risk cases by default. As one resident said: "If there is no indication for cesarean, then it should be normal delivery." This is part of a process of medicalization of birth in which medical technology (labor induction with oxytocin, epidural block, induced rupture of membranes, episiotomy (41)) is used

systematically for what are considered normal births as defined by the World Health Organization (28). The use of electronic fetal monitoring, which is not a routine practice due to shortages of electronic monitors, is undoubtedly following the same process as monitors become more available. These practices go against the Mexican official guidelines for obstetric care (27), the recommendations of both the Safe Motherhood Committee and the World Health Organization (28), and current standards of practice from evidence-based medicine (29). The cost of these medical technologies in public hospitals is covered by hospital budgets, and neither patients nor physicians seem to lose or benefit in financial terms – at least directly.<sup>16</sup> They seem to confirm experiences documented in other settings: in a study done in Brazil, the author concluded that “medical practitioners have appropriated cultural values regarding the female body and sexuality, reinforced a blind fascination with technology, and medicalized women’s fear of labor to justify their preference for surgical births.” (42)

The analysis of the results indicates that these practices, and especially the systematic use of medical technology, are promoted more for the convenience of health care professionals than for the benefit of women in labor. One adjunct physician commented: “The ideal is to give anesthesia, because although the contractions diminish a little bit, the patient perceives less pain, and hence cooperates more. If we induce her labor with drugs like oxytocin and stand by her side, the delivery comes along nicely with a lot of cooperation.” In this medicalized view, there is also the underlying idea that a woman’s body is incapable of giving birth without medical intervention, either because the uterine contractions do not occur at a regular speed (justification for augmenting or inducing birth with oxytocin), or that the woman is not

prepared to accept the pain, becomes desperate, and does not relax her muscles sufficiently to permit vaginal dilation (justification to use an epidural block). Other explanations for medical intervention are that the woman's water did not break at the appropriate time (justification to perform an amniotomy<sup>17</sup>) or that the vaginal canal did not permit the newborn to come through without tearing (justification for an episiotomy).

The obstetricians and nurses always manage labor at the same pace, regardless of the number of women in labor at any one time. This accelerated patient care precludes treating the patient in a more personal manner and informing her about the natural evolution of her labor. This perception of time pressure also justifies labor induction, whether with a cesarean section or with oxytocin. Finally, it promotes an intervention cascade: because oxytocin augmentation or induction is associated with more painful contractions, it creates the need to use epidural blocks; the anesthesia, in turn, decreases contractility, which can become an indication for a cesarean section (43, 44).

The principal problems shown in this study are, first, that within maternity wards there is a lack of agreement on the weight of relative indications for performing a cesarean section. In other words, there is discrepancy among physicians as to the timing and importance of relative indications. Most OB/GYNs interviewed expressed the personal benefit in terms of time and stress savings, together with financial incentives for those who work in private practice.

Second, the medicalization of birth may not only affect the quality of medical training, but the types of training offered, which do not follow updated evidence-based

recommendations (29). For instance, current training promotes routine episiotomy (surgical incision into the perineum) but does not include training in the use of forceps or in external version at term for cases of fetal malpresentation.<sup>18</sup> Because OB/GYNs expect to perform a certain number of cesarean sections during their career, they may often look for more opportunities to perform CS when supervised in residency. Physicians are often prone to make questionable or hasty diagnoses of CPD and failure to progress for fear of complicating a normal delivery.

Third, the overuse or misuse of drugs and other medical technology can actually obstruct the progress of labor and create the conditions for a cesarean section. Fourth, the over-application of cesarean sections in primiparous women creates a tendency for prescribing a repeat surgical intervention. Although OB/GYNs interviewed recognized that one previous cesarean section is not an absolute indication for a subsequent one, they also justify a repeat operation by virtue of “short birth intervals” and uncertainty about the type of previous uterine incision. Some physicians would rather intervene surgically rather than allow a risky vaginal delivery, even when the risks of uterine rupture or other conditions are very low. Likewise, women may have been conditioned to believe that they are unfit for vaginal delivery.

We argue that a country with a homogeneous low maternal and perinatal mortality, and with high access to prenatal and delivery care, would require a lower overall incidence of cesarean sections – because only women with an absolute indication of cesarean section will obtain one. Meanwhile, a country, like Mexico, with a concentration of maternal and perinatal deaths in areas with difficult access to health care, usually rural areas, would need to have a

higher overall incidence to account for the inequalities in health care access between urban and rural areas, and between the rich and the poor.<sup>19</sup> However, the interpretation of the aggregated statistics of CS in Mexico may cover the fact that social inequalities preclude poor women from obtaining timely quality obstetric services.

From a public health perspective, the CS epidemic in Mexico, as in other Latin American countries, has social and medical implications that are difficult to accept. Besides increasing the risk for maternal and child mortality and morbidity, it contributes to greater costs in the health sector, longer hospital stays, crowding, and inappropriate use of medical and health personnel resources (45), which could otherwise be used to provide quality obstetric and midwifery care to areas with high rates of maternal mortality. In some contexts, the high frequency of sterilizations realized during a cesarean section could indicate a lack of access to other contraceptive methods or an unethical provision of them. The existence of such a high incidence of cesarean sections also raises questions about the unnecessary medicalization of birth.

New recommendations that could result in a decline in the percentage of unnecessary cesarean sections should be implemented while promoting interventions that aim at increasing access to cesarean deliveries in areas where women die at childbirth.<sup>20</sup> The debate around decreasing the number of cesarean sections cannot continue to ignore the fact that for many women in the world and their families, having access to a timely cesarean section is not a matter of convenience but a matter of life or death.

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## Endnotes

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<sup>1</sup> In Mexico, a country with a population of about 95 million, access to each system of health care is closely linked to employment. Over 40 million people, mostly uninsured and poor, receive care in centers and hospitals of the Ministry of Health; about 48 million, mostly employees in the public and private sectors and self-employed persons, receive care through the social security system or similar health insurance (which are partly funded by the Federal Government); and an undetermined segment of the population receives private care (46).

<sup>2</sup> Women who have cesarean sections are in a greater risk of infections (endometrium, urinary tract, surgical wounds and peritonitis), requiring blood transfusion (due to hemorrhaging), having damage to the bladder, the urethra and rectum, extension of the incision to adjacent structures, lesions to the uterine cavity, severe paralytic ileus, pulmonary embolism, deep vein thrombosis, atelectasis (after general anesthesia), subsequent uterine rupture (although with a low, transversal uterine incision the percentage is lower than with the classic incision) (13), subsequent placenta previa (9), and death (12, 13). CS are also associated with greater risks for newborns: low birthweight (less than 2.5 kg) due to errors in the gestational age calculation, respiratory distress syndrome and other respiratory illnesses, borderline or abnormal neurological examination at four months of age, lesions at birth, admission to neonatal intensive care, and a low Apgar score. There are additional complications such as effects of drugs in the neonate, neonatal acidosis due to maternal hypertension, depression due to general anesthesia, inadvertent maternal-fetus transfusion, neonatal embolism, bronchial aspiration of amniotic liquid, premature separation of the placenta after maternal distress, reduced production of

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catecholamines compared to newborns delivered vaginally (13), iatrogenic respiratory distress syndrome (10, 13), and death (8, 11). In a recent study in Mexico, 10% of infant mortality was related to an excess of cesarean sections, mainly due to respiratory complications (47).

<sup>3</sup> For a detailed ethnographic study conducted in Yucatán, Mexico, see Good Maust (48).

<sup>4</sup> The ELAC was coordinated by the Latin American Center for Perinatology, in Uruguay, in collaboration with the Human Reproduction Program at the World Health Organization (WHO) and the Free University of Brussels. The designated institution to implement the ELAC in Mexico was The Population Council Regional Office for Latin America and the Caribbean.

<sup>5</sup> Our research procedures were in accordance with ethical standards of Population Council, the committees on human experimentation of all the participating hospitals, and with the Declaration of Helsinki of 1975, as revised in 1983.

<sup>6</sup> The analysis of the interviews with women who delivered by CS and their family members has been reported previously (49).

<sup>7</sup> The association between epidural anesthesia and risk of cesarean section remains controversial. A recent study conducted in the United States did not establish such link, but related the use of the epidural to a prolonged second stage of labor (50).

<sup>8</sup> The birth interval refers to the time period between a previous cesarean section and the conception of the current pregnancy.

<sup>9</sup> Cephalopelvic concerns “the fetal head and the maternal pelvis; especially the size of the pelvic outlet through which the fetal head will pass during delivery. Disproportion refers to

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the fact that the fetal head appears to be too large to pass safely through the pelvic outlet.

Dystocia means difficult labor and “may be produced by either the size of the passenger (fetus) or the small size of the pelvic outlet” due to a variety of fetal and/or maternal causes.

Macrosomia means “unusually large body” (51).

<sup>10</sup> More recent studies suggest that interdelivery intervals of less than 19 months in patients who underwent a trial of labor after one previous cesarean section were associated with a decreased rate of success in vaginal delivery in patients who underwent induction, a difference not found in those with spontaneous labor (52), and with an increased risk of symptomatic uterine rupture compared with that for longer interdelivery intervals (53). Interpregnancy intervals less than 6 months and longer than 59 months are associated with an increased risk of adverse maternal outcomes (54), and interpregnancy intervals were inversely associated with the likelihood of uterine scar failure during subsequent labor (55).

<sup>11</sup> Within the public system, hospitals of the Social Security and Services Institute for Government Employees (ISSSTE) system, which serve the population of public sector workers such as teachers and police agents, are an exception, as they promote postnatal visits and it is then when women are offered contraceptive methods (Carlos Brambila, personal communication).

<sup>12</sup> The Report of Activities of the National Commission of Medical Arbitration (CONAMED) for 1999 received this distribution of complaints: 19.7% against the Mexican Institute of Social Security (IMSS), 21% against private care, 20.2% against ISSSTE, and 9.7% against public hospitals (56).

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<sup>13</sup> This process has also been described in Brazil (57, 58).

<sup>14</sup> Although “elective cesarean section” is the medical term referring to indicated cesarean sections performed out of emergency situations (*electiva* in Spanish), it is also confusingly being used, by extension, to refer to cesarean sections that don’t have a medical indication (*elegida* in Spanish).

<sup>15</sup> Distinction theory could contribute to explain why poor women in Pelotas, Brazil, are increasingly asking for cesarean sections (59).

<sup>16</sup> In this paper we do not analyze how manufacturers of medical equipment and pharmaceutical products may provide incentives to hospitals or may influence prescription behaviors of health professionals, but undoubtedly this is an area that merits further exploration.

<sup>17</sup> Rupture of the fetal membranes to induce labor.

<sup>18</sup> External manual manipulation of the fetus at the end of pregnancy intended to improve its position and passage through the birth canal.

<sup>19</sup> If we deducted the percentage of unnecessary cesarean sections performed in Mexico from the national average, we could obtain a ratio below the minimum recommended – and thus indicate a higher risk of infant and maternal mortality in women who lack access to obstetric care.

<sup>20</sup> Recommendations could include: 1) Establish cesarean decision-making protocols in a systematic manner in hospitals, attempting to include private hospitals as well, and have medical associations adopt them both in public and private hospitals, as it has been done

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elsewhere (60). The establishment of decision-making protocols, such as the second opinion protocol, was recently tested in five Latin American countries during the ELAC study, which makes use of available resources to reinforce the systematic use of established guidelines aimed at improving the quality of care. 2) Create a registration system for the causes of CS at a local, institutional and national level. Individual cases should be reported during weekly seminars at each hospital and during monthly seminars within hospital systems, and used in university classes and medical schools as case studies. Discuss the idea of establishing a national cesarean section surveillance system for both public and private hospitals – including cases of maternal deaths due to access barriers to the CS. The various results should be published in peer-reviewed journals to disseminate all aspects of the controversy, contribute to the informed debate and lead to a greater awareness of the problem. 3) Building on the previous suggestions, interested international organizations, NGOs and government institutions could work with medical schools and teaching hospitals to offer the full array of labor and delivery management techniques, giving ample opportunity for vaginal deliveries. 4) Promote prenatal care sessions, i.e. offer psycho-prophylactic courses in public hospitals, during which women and their partners receive information about labor, delivery, and newborn care, and offer incentives for postpartum and postnatal visits during which women would be offered contraceptive methods and children would be immunized. 5) Redesign the labor and delivery rooms – with the use of portable screens or curtains – to increase privacy and allow for a relative or person of the woman’s choice to be present. 6) Calculate the health system and patient costs that unnecessary cesarean sections represent, both in financial terms and in morbi-mortality rates,

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for both private and public insurance schemes. 7) Equalize the reimbursement fees and reward schemes that physicians receive for cesarean sections and vaginal deliveries in private practice so that economic and scheduling incentives will be independent of birth outcomes. Both public and private hospitals need to be included in any public health policies aimed at arresting this epidemic.