AVERTING MATERNAL DEATH AND DISABILITY

A risk reduction strategy to prevent maternal deaths associated with unsafe abortion

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Abstract

Introduction: Worldwide, 13% of maternal deaths are caused by complications of spontaneous or induced abortion, 29% in Uruguay and nearly half (48%) in the Pereira Rossell Hospital. Purpose: This paper describes a risk reduction strategy for unsafe abortions in Montevideo, Uruguay, where over one-fourth of maternal deaths are caused by unsafe abortion. Methods: Although abortion is not legal in Uruguay, women desiring abortions can be counseled before and immediately after to reduce the risk of injury. Women contemplating abortion were invited to attend a "before-abortion" and an "after-abortion" visit at a reproductive health polyclinic. At the "before-abortion" visit, gestational age, condition of the fetus and pathologies were diagnosed and the risks associated with the use of different abortion methods (based on the best available scientific evidence) were described. The "after-abortion" visit allowed for checking for possible complications and offering contraception. Results: From March 2004 through June 2005, 675 women attended the "before-abortion" and 495 the "after-abortion" visit, the number increasing over time. Some women (3.5%) decided not to abort, others were either not pregnant, the fetus/embryo was dead or the woman had a condition that permitted legal termination of pregnancy in the hospital (7.5%). Most women, however, aborted. All women used vaginal misoprostol in the doses recommended in the medical literature. There were no serious complications (one mild infection and two hemorrhages not requiring...
1. Introduction

Objective 5 of the Millenium Development Goals states that maternal mortality should be reduced by 75% between 1990 and 2015. Actions to achieve this goal must include prevention of abortion-related maternal deaths; as globally, about 13% of these deaths are caused by unsafe abortions. It is also a cause of maternal death that can be relatively easily reduced with the right interventions.

In the case of Uruguay, the adoption of appropriate strategies to reduce unsafe abortions is especially important, because in this country the proportion of maternal deaths due to abortion reached 28.7% during the period 1991–2001 [1]. The situation is even worse in the main public maternity hospital in the country, Pereira Rossell Hospital, where about one-fourth of all deliveries in the country are attended. In that hospital, which cares for women of low socio-economic status, almost half of all maternal deaths (48%) were due to abortion. Such a high proportion of maternal deaths resulting from unsafe abortion calls for a response from the professionals responsible for women's care in Uruguay and particularly those from the Pereira Rossell Hospital [2].

Most, if not all, induced abortions in Uruguay are clandestine, as abortion has been a crime since 1938. Uruguayan law declares all voluntary abortion always illegal. Nevertheless, under extenuating circumstances, judges are authorized not to enforce penalties. In practice, however, even though abortion is not penalized when performed in extenuating circumstances (to prevent women's death or serious morbidity, extreme poverty, extra- or premarital pregnancy, or when pregnancy is the result of rape), only exceptionally are abortions carried out in public hospitals. Political changes, such as making abortion laws far less restrictive, may reduce abortion-related deaths, but such legal reforms take time to become effective. Recently, a sexual and reproductive health law before the Senate was unable to gain the necessary votes for passage and, in any case, the President of the Republic threatened to veto it.

In face of that reality, a new strategy of risk reduction was adopted by health professionals working at the Pereira Rossell Hospital. The strategy was inspired by the experience of HIV/AIDS preven-

2. Methods

2.1. The strategy

The strategy of risk reduction aims to minimize the negative effect of certain social behaviors that are known to be dangerous, but are practiced by a group of people that are particularly vulnerable to engaging in such practices. Applying that concept to unsafe abortion, a group of obstetrician/gynecologists founded an NGO called "Iniciativas Sanitarias" and developed the "Sanitary Initiatives Against Unsafe Abortion" (SIAUA).

The planning and organization of the SIAUA started in July 2001. The group is a "health professional association" and included members of the Faculty of Medicine of the University of the Republic; the Medical Union, the Society of Obstetrics and Gynecology and the Association of Midwives of Uruguay. It acknowledges induced abortion as illegal and, hence, pregnancy termination is not part of the care provided by the health system. Nevertheless, induced abortion has a "before" and "after" period. The intervention focussed on those "before" and "after" periods, recommending that women planning abortion have at least one medical visit before and another after the abortion. The public health clinic in which the program was introduced is in the Pereira Rossell Hospital as a subdivision of the Reproductive Health Polyclinic.

All women who were uncertain about the direction they wanted to take with their pregnancy and those who had already decided to abort were referred to the polyclinic. Some women were referred by colleagues and others are self-referred. A public information campaign was conducted. At the before visit, the pregnancy would be confirmed, women would be informed of possible alternatives to abortion and of the risks associated with the different means used in Uruguay to induce abortions. The purpose was not to try to influence the women’s decisions, but to inform them about the
means of social support that exist in the country, legal issues and other issues of which many women may not have been aware.

All women were also invited to attend an "after visit", regardless of their final decisions on continuing their pregnancies. We consider the attendance at the "after" consultation to be a benchmark of the effectiveness of the "before" consultation.

This program was called: "Counseling for a safe motherhood—intervention to protect women from unsafe induced abortion". While some abortions may be averted, those who do abort will do it with the least possible risk and, in some cases, pathologic conditions may be identified that would lead to a legal medical intervention in the hospital.

Another purpose of the "before" visit is to create a friendlier environment for women, preventing psychological aggression or denunciation to police authorities and stimulating the return for follow-up as recommended. The public perception of the program has been highly satisfactory and the preliminary results show this. Inclusion of this at-risk population in the health system generates feelings of calmness and safety in the users, because it avoids the need to resort to more dangerous methods.

Activities were initiated in the Pereira Rossell Hospital in March 2004, after a relatively long period of preparation that allowed for clear definition of the activities to be included in the intervention and the instruments to evaluate its results. A few months after its initiation, in August of the same year, it became an official policy of the Ministry of Health.

An intense information campaign for health professionals was implemented, based on bioethical principles, legal medicine, medical professionalism and concepts of sexual and reproductive health with gender perspective. The gynecology clinics of the Medical University of the Republic function in the Pereira Rossell Hospital and the commitment to the program of the senior staff of these clinics has been of enormous importance.

Before starting the program, its organizers contacted the network of primary health clinics of Montevideo. Health personnel of the clinics were informed about the program and were asked to refer to the Pereira Rossell Hospital any pregnant woman with an unwanted pregnancy and who could be at risk of unsafe abortion. As time passed, women told others and word of mouth became the main mechanism of dissemination of information on the existence of the program.

2.2. The “before visit”

The "before visit" is an opportunity for women to be seen as citizens, with rights, who should be provided with information that guarantees that they will be in a better position to take the best decisions, according to their own situations, environment and values.

During the "before visit", confirmation of pregnancy and of gestational age by ultrasound is carried out, as well as an evaluation of potential maternal or embryonic pathologies. Women may choose to see or not to see the ultrasonic image in real time or in photography. When a normal pregnancy is confirmed, ample opportunity is given to the many women who would like to have the chance to explain why they must consider the possibility of termination. They are informed that the health team is there to help them (within the law), not to judge them. Also they are informed of all possible options such as giving up the newborns for adoption, and the possibility of a pregnancy termination in the hospital if she has any of the conditions in which termination is permitted under Uruguayan law. There is no pressure to adopt any of the alternatives, which are presented as neutrally as possible.

All women with normal pregnancies, with no legal or medical grounds for in-hospital induced abortion, are informed about the risks involved in a clandestine pregnancy termination, according to the gestational age and the means used. The information on risk by method used is based on the best available evidence and includes unsafe procedures commonly used in Uruguay and in many other developing countries, and the safe procedures used in the countries where abortion is legal. Medical abortion with misoprostol is included among the safer procedures. (Mifepristone is not mentioned because it is completely unavailable in Uruguay.) All the scientific information and the legal status of misoprostol is provided (dose, routes, symptomatology, side effects, mechanism of action, effectiveness, Moebius syndrome, problems of use at late gestational ages that might cause premature birth, etc.). Restrictive laws prevent us from giving information on where to buy the appropriate drugs.

All women attending the before visit are invited to an "after visit", for either antenatal or post-abortion care, depending on their decision. If a woman is Rh negative, she is advised to get the anti-Rh immunization which is provided by the hospital.

2.3. The “after visit”

The main condition of this "after visit" is absolute confidentiality. The health care team is perfectly clear that breaking confidentiality would be a serious legal and ethical transgression in their practice.
When a woman reports she has had an abortion, the provider avoids either judging or belittling the problem. Every woman has the support of a multi-disciplinary team that provides medical, psychological and social care and support. A major component of the care is the provision of an effective contraceptive method, according to the freely informed decision of each woman.

If women have an incomplete abortion, we provide uterine aspiration (manual or electric). This happens in 30% of the cases who used misoprostol. (More recently, as we acquire more experience with misoprostol, having now cared for more than 4000 women, the proportion needing uterine evacuation has declined to 18%.)

3. Evaluation

From March 2004 through August 2004, that is, during the period before it became an official policy of the Ministry of Health, care was taken not to record any information that would allow identification of the women, for fear it could be used for criminal prosecution. It was only after the Ministry of Health sanctioned the program as official, starting in September of 2004 until June 2005, that we recorded the characteristics of women participating in the program, their final diagnosis at enrollment, gestational age, previous use of contraceptive methods and obstetric history. The outcome of the pregnancy and the adoption of contraception after abortion were also recorded for those women who attended the "after visit". The number of women who attended the before and the after visits was registered from the beginning of the program.

The associations of the women's characteristics and gestational age with the outcome of pregnancy at the "after visit" were analyzed. The independent variables were age, marital status, employment status, history of previous pregnancies and abortions, and gestational age. The dependent variable was the outcome of pregnancy at the "after visit".

4. Results

The total number of women attending the "before visit" during the 15 months of this evaluation was 675. It increased steadily from 20 during the first 3-month period, March–May 2004, to 59 in June–August and to 220 in September–November. The number of women attending the program stabilized, between 149 and 224 during the two following 3-month periods. The number of "after visits" also increased at a similar rate, from 17 in the first 3 months to 172 in the third 3-month period. After that, it decreased to 72 and 126 in the following periods (Fig. 1).

Almost 75% of the women who attended the "before visit" returned for the "after visit" or were resolved at the hospital (495/675 = 73.4%). Among those for whom there was information 439, or 88.9%, had an induced abortion outside the hospital and 3.5% returned for antenatal care. The remaining 7.5% were not pregnant, had blind ova, a dead embryo/fetus or met a requirement for legal abortion in the hospital.

The odds of having an induced abortion outside the hospital were not significantly different by age, occupation, or number of previous pregnancies or abortions (Table 1). Single women had twice the odds of having an abortion compared with those with a stable partner, but the confidence limits included 1.00. The only variable highly associated with having an abortion was gestational age. Those whose pregnancy was 10–12 weeks had one-third of the odds of aborting compared with those with a pregnancy of <10 weeks. Women with a pregnancy of >13 weeks had one-tenth the odds of aborting compared with the reference group (Table 1).

All of the women who returned for the "after visit" and who had had an abortion said it was carried out it with misoprostol. There was only one case of mild post-abortion infection and two cases of hemorrhage that did not require blood transfusion. There were no maternal deaths or severe complications due to abortion registered among the women who participated in the program, and in fact, there was no maternal death caused by abortion complications during the project period in the Pereira Rossell Hospital, compared with an average of four deaths a year during the preceding 3 years. The number of cases of post-abortion sepsis had been 10 per year during 2001 through 2003 and

![Figure 1](224_L_Briozzo_et_al.png)

Figure 1 Number of before and after visits by 3-month periods.
there were only two in 2004, none among the women participating in the program.

5. Discussion

Maternal deaths due to unsafe abortion can be drastically reduced by making all abortions safe. In countries where abortion laws are very restrictive, as is the case in Uruguay and most countries in Latin America and Africa, the clandestine nature of abortion is the underlying cause of their lack of safety.

The experience of Romania in the 1960s to the 1990s shows the dramatic increase in abortion-related mortality and of general maternal mortality when abortion was made illegal in 1965. It also shows the even more dramatic drop in abortion-related deaths when the abortion law became more permissive in 1990 [3]. The experience in several other countries confirms that decriminalization of abortion is the most effective means to reduce maternal deaths, on the condition that safe abortion services became available [3,4].

### Table 1: Odds ratios for abortion among women with different characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent (N)</th>
<th>Odds ratio</th>
<th>95% confidence limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
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</tr>
<tr>
<td>&lt; 19</td>
<td>85.7 (72/84)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>20–29</td>
<td>90.3 (215/238)</td>
<td>1.56</td>
<td>0.69–3.48</td>
</tr>
<tr>
<td>≥ 30</td>
<td>88.4 (152/172)</td>
<td>1.27</td>
<td>0.56–2.90</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stable partner</td>
<td>81.7 (85/104)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Unstable partner</td>
<td>89.6 (95/106)</td>
<td>1.93</td>
<td>0.82–4.62</td>
</tr>
<tr>
<td>Single</td>
<td>90.0 (153/169)</td>
<td>2.14</td>
<td>0.99–4.64</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>86.5 (141/163)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>89.5 (137/153)</td>
<td>1.34</td>
<td>0.64–2.80</td>
</tr>
<tr>
<td>Employed</td>
<td>88.7 (102/115)</td>
<td>1.22</td>
<td>0.94–1.12</td>
</tr>
<tr>
<td>Unemployed</td>
<td>95.5 (21/22)</td>
<td>3.28</td>
<td>0.43–68.99</td>
</tr>
<tr>
<td><strong>Gravidity</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>0</td>
<td>91.2 (166/182)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>1–2</td>
<td>86.5 (160/185)</td>
<td>0.67</td>
<td>0.32–1.38</td>
</tr>
<tr>
<td>≥ 3</td>
<td>89.8 (106/118)</td>
<td>0.85</td>
<td>0.36–2.01</td>
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<tr>
<td><strong>Previous abortions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>88.8 (373/420)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>≥ 1</td>
<td>89.6 (60/67)</td>
<td>1.08</td>
<td>0.44–2.75</td>
</tr>
<tr>
<td><strong>Gestational age</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>≤ 9 weeks</td>
<td>94.7 (304/321)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10–12 weeks</td>
<td>86.0 (80/93)</td>
<td>0.34</td>
<td>0.15–0.79</td>
</tr>
<tr>
<td>≥ 12 weeks</td>
<td>61.4 (35/57)</td>
<td>0.09</td>
<td>0.04–0.19</td>
</tr>
</tbody>
</table>

Obstetrician/gynecologists, other medical specialists, midwives and other health providers have an important role in providing services and showing the scientific evidence to policymakers and health authorities. Decriminalization of abortion, however, falls beyond the control of the health sector and we cannot depend on the health sector to change the law.

In Uruguay, the Society of Obstetrics and Gynecology, the Medical Union, the Medical Faculty of the University of the Republic, have been strong supporters of liberalizing abortion law, so far without success. This strategy of risk reduction within the climate of restrictive laws is an intermediate step on the road to approval of a law of sexual and reproductive rights. It has never been the intention to modify or delay our objective, which is the approval of such a law. An alternative to a change in abortion laws, which is immediately accessible to obstetricians/gynecologists, is the strategy of risk reduction described here, following the example of similar strategies adopted in HIV control programs [5,6].

Our results show a good and improving reception among women vulnerable to complications of unsafe abortion. The increasing number of women attending the “before visit” suggests that the friendly and neutral approach adopted by the program is successful in reaching the women at risk of an unsafe abortion.

The approach presented here reduces abortion complications by several different mechanisms. First, we found that some women were not even pregnant, which may have made clandestine interventions to evacuate the uterus even more dangerous. Second, some women had embryonic or fetal death; which justified in-hospital emptying of the uterus. Third, some women met the requirement for pregnancy termination within the law, which could be carried out safely in the public hospital. Fourth, after counseling, some women took the free and voluntary decision to continue their pregnancies although it was not intended to influence the women’s decision in any way.

But the most important mechanism of risk reduction appears to be providing scientifically based information on the risks associated with different means to induce abortions. It clearly prevented the use of dangerous means to induce abortion, such as the introduction of sharp, unsterile objects into the pregnant uterus, toxic infusions, etc.

It was no surprise that women preferred to use misoprostol to induce their abortions. Although under adequate conditions vacuum aspiration can be as safe or safer, it was not accessible to the
clientele of the Pereira Rossell Hospital, most of whom had limited economic resources. It was reassuring that, after counseling, none of them used any of the riskier methods, such as the introduction of sharp objects through the cervix.

Misoprostol could not be and was not prescribed by the attending physicians. Women were only provided with the evidence-based information on misoprostol efficacy, risks, side effects, dosage and route of administration, the same way as it is done with all other alternatives for abortion induction. The drug is not approved for induced abortion in Uruguay, but is sold for the treatment and prevention of peptic ulcer. It appears that women adopted several different strategies to obtain the drug and frequently several women worked together to purchase a bottle of 28 tablets sharing the cost.

It appears that our strategy is achieving its purpose of reducing maternal complications and deaths associated with unsafe abortion, through the several mechanisms described above. As death is a rare event, it will take time before it will be possible to verify a statistically significant reduction in abortion-associated maternal mortality. The fact that the rate of complications was minimal among the women participating in the program and that not a single death after abortion has occurred since the program started is suggestive, but not conclusive.

What is perfectly clear, however, is that women who had to go through the difficult and stressful process of deciding to abort and carrying it out, felt better cared for and safer, after participating in the program. The exponential increase in consultations indicates to us an increase in confidence in the service.

The program has not been free of external criticism. The SIAUA team’s strength is based on the conviction that the program follows basic principles of bioethics and recommendations of the Latin American Federation of Societies of Obstetrics and Gynecology (FLASOG) and from the Ethical Committee of FIGO [7].

We believe that the strategy of the SIAUA is creative, effective and feasible in countries where abortion is legally restricted. It reduces the number of induced abortions through neutral information and counseling, prevents the risk of unnecessary termination procedures, and identifies medical problems that require attention, as well as cases where abortion is within the local laws. Even more important, it reduces suffering and complications to women and the cost of treatment to the public health service.

6. Recommendation

We hope that the description of this initiative will stimulate others to adopt or adapt the model to their own situation. The implementation and evaluation of this strategy by others will allow us to confirm or not whether this model can contribute to achieving objective 5 of the Millennium Development Goals.

References