Evidence-based maternal and perinatal healthcare practices in public hospitals in Argentina

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and on behalf of the AMBA Perinatal Network Research Group 1

Aims: To investigate the use of beneficial maternal and perinatal healthcare practices in a network of public maternity hospitals in Argentina. Method: A multicenter, prospective, descriptive study of 6661 deliveries in 9 hospitals. The use of 5 obstetric care practices that reduce maternal and perinatal morbidity and mortality was evaluated. Results: Median use rates for the selected practices were: continuous support for women during childbirth (17.9%); corticosteroids for preterm birth (35.3%); avoidance of episiotomy in primiparous women (41.2%); iron and folate supplementation (52.5%); active management of third stage of labor (93.5%). Conclusion: There is limited use of the selected evidence-based maternal and perinatal practices in public hospitals in Argentina and a large variation in their use among and within hospitals. Efforts should be made to increase the use of these evidence-based practices.

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Avoided episiotomy in primiparous (avoided episiotomy) [14]; continuous support for women during childbirth (support) [15]; active management of the third stage of labor (AMTSL) [16]; and routine use of episiotomy in primiparous women [17]. Use of episiotomy is described as “avoided episiotomy” to indicate the restrictive use of episiotomy for preventing perineal lacerations in primiparous women. Active management of the third stage of labor was defined as prophylactic administration of oxytocin during or immediately after delivery for preventing hemorrhage; it does not include other components of AMTSL. We based this decision on evidence of oxytocin use on maternal hemorrhage and also on the difficulties in obtaining information about cord traction and time of cord clamping in the clinical records. The selected practices are described in Table 2.

The outcomes were the use of the 5 selected practices (iron and folate, corticosteroids, support, AMTSL, and avoided episiotomy) in the hospitals. The prevalence of use for each practice was calculated for each hospital (for avoided episiotomy, the rate was calculated as 100 minus the percentage prevalence of episiotomy use). Median and interquartile ranges were reported as summary measures and are presented as box-plot graphs.

Data were analyzed using Epi Info version 3.3.2 (Database and statistics software for public health professionals, Centers for Disease Control and Prevention, Atlanta, GA, USA) and STATA version 8.0 (Stata Corporation, College Station, TX, USA).

The protocol was approved by the Ethics Committee of the Durand Hospital. Hospitals included in the study provided a written agreement of participation. The confidentiality of all the information was guaranteed.

In addition, to compare our findings with those of other studies, we did a comprehensive nonsystematic bibliographic search of similar studies from different low-income countries and regions. We searched for articles in two relevant electronic databases (Medline and Lilacs) that were reported between January, 1997 (when RHL started) and May, 2008. We searched for the following medical subject heading (MeSH) terms: maternal–child health centers; clinical practice patterns; utilization review; quality of health care.

### 3. Results

During the study period, data on 6661 births were collected in the 9 hospitals (range, 395–1615 births), which represents 82.3% of the total births that occurred in the participant hospitals. The characteristics of the women and hospitals included in the study are presented in Table 3. In Argentina, there were more physicians than midwives in most of the participating hospitals. Missing data accounted for less than 5% for each of the selected practices, except for iron and folate, for which it was 10.5% (Table 4).

### Table 1

Maternal and perinatal health indicators $^a$.

<table>
<thead>
<tr>
<th>Low birth weight rate $^b$ (%)</th>
<th>Preterm rate $^c$ (%)</th>
<th>Perinatal mortality rate $^d$ (%)</th>
<th>Early neonatal mortality rate $^e$ (%)</th>
<th>Adolescent pregnancy $^f$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>7.5</td>
<td>8.1</td>
<td>13.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Buenos Aires Province</td>
<td>7.8</td>
<td>8.7</td>
<td>12.6</td>
<td>5.8</td>
</tr>
<tr>
<td>of Buenos Aires City</td>
<td>6.8</td>
<td>7.7</td>
<td>7.6</td>
<td>3.6</td>
</tr>
</tbody>
</table>


$^b$ Low birth weight: number of live births with birth weight less than 2500 g/total live births.

$^c$ Preterm rate: newborns of gestational age less than 37 weeks/total live births.

$^d$ Perinatal mortality rate: (late fetal deaths plus early neonatal deaths)/(live births plus late fetal deaths).

$^e$ Early neonatal mortality rate: neonatal deaths less than 7 days of age/total live births.

$^f$ Adolescent pregnancy: number of neonates delivered from adolescent mothers (less than 20 years old)/total live births.

### Table 2

Description of selected maternal and perinatal practices.

<table>
<thead>
<tr>
<th>Practice (abbreviation)</th>
<th>Description</th>
<th>Indicator (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron and folate supplementation in pregnancy (iron and folate)</td>
<td>Routine intake of supplements containing iron sulfate ($\geq 100$ mg) and folic acid ($\geq 350$ mg) daily during pregnancy to prevent anemia</td>
<td>Number of mothers who received iron and folate supplementation during pregnancy divided by the total number of births</td>
</tr>
<tr>
<td>Prophylactic corticosteroids for preterm birth (corticosteroids)</td>
<td>Prenatal betamethasone or dexamethasone (24 mg) administration for women at risk of preterm spontaneous or induced delivery to prevent neonatal respiratory distress syndrome</td>
<td>Number of mothers who delivered newborns with gestational age $\leq 35$ weeks of amenorrhea and who received at least one dose of prenatal corticosteroids divided by total deliveries with gestational age $\leq 35$ weeks at birth</td>
</tr>
<tr>
<td>Continuous support for women during childbirth (support)</td>
<td>Psychosocial support during labor and delivery provided by specialized hospital staff, relatives, or another person chosen by the patient</td>
<td>Number of mothers who received continuous support during labor and delivery divided by the total number of births</td>
</tr>
<tr>
<td>Active management of the third stage of labor (AMTSL)</td>
<td>Defined as prophylactic administration of oxytocin during or immediately after delivery to prevent hemorrhage</td>
<td>Number of mothers who received oxytocin during or immediately after delivery to prevent hemorrhage divided by the total number of vaginal deliveries</td>
</tr>
<tr>
<td>Avoided episiotomy in primiparous (avoided episiotomy)</td>
<td>Avoided episiotomy: the restrictive use of episiotomy in primiparous women to prevent perineal lacerations.</td>
<td>100 – (the number of primiparous women who received episiotomy divided by the total number of primiparous vaginal deliveries excluding deliveries with forceps)</td>
</tr>
</tbody>
</table>
Median utilization prevalence of 3 practices was below 50%; support 17.9% (interquartile range [IQR] 7.9%–31.8%); corticosteroids 35.3% (IQR 27.8%–45.5%); and avoided episiotomy 41.2% (IQR 17.0%–53.4%). The median utilization prevalence of iron and folate was 52.5% (IQR 41.0%–68.4%), and AMTSL had the highest prevalence at 93.5% (IQR 90.1%–99.0%) (Fig. 1).

There was a large variation in the use of practices among and within hospitals, and none of the hospitals showed a uniformly high pattern in the use of the practices. Among hospitals, the use of support ranged from 0.7% to 66.6%; administration of corticosteroids from 3.7% to 65.0%; avoided episiotomy from 13.1% to 78.1%; iron and folate supplementation from 34.7% to 88.4%; and AMTSL from 37.8% to 99.8% (Table 4). As an example of the variation in the use of practices within each institution, one hospital showed a utilization prevalence of 0.7% for support and 99.8% for AMTSL.

In the bibliographic search, we found 6 studies on the use of maternal and perinatal practices in low-income countries: 3 from Latin America, 2 from Africa, and 1 from Asia (Table 5). There was a large variation in the use of maternal and perinatal practices among these studies. Use of support ranged from 9.5% (Brazil) to 90% (Uruguay); administration of corticosteroids ranged from 10.2% (Cameroon) to 42.3% (Uruguay); avoided episiotomy ranged from 7% (Egypt) to 23% (Chile); iron and folate supplementation ranged from 47.7% (Uruguay) to 94.8% (Cameroon); and AMTSL ranged from 10% (Uruguay) to 71.5% (Cameroon).

4. Discussion

This study shows that some beneficial maternal and perinatal practices are not used systematically in public hospitals in Argentina. Use of 4 of the 5 selected practices was below 60%. There was a large variation in the use of the selected practices among and within the participant hospitals. The practice with the highest use was AMTSL, which ranged from 37.8% to 99.8% among the hospitals.

The main strengths of the study were the use of a common data collection system in all of the hospitals, as well as a central network coordination that supervised data quality. The hospitals participating in this study are representative for the public sector of the Buenos Aires Metropolitan Area (AMBA) since they attend approximately half of the deliveries in Ciudad Autónoma de Buenos Aires. A potential weakness of the study is that AMTSL was defined only as the administration of oxytocin and did not include other components of AMTSL.
We observed a large variation in the use of practices among several studies performed in low-income countries. A study undertaken in 15 university-based obstetric centers in 10 low-income and high-income countries showed a prevalence use of 24.6% for AMTSL and a significant variation between and within countries [18]. Observational studies on the use and variation in practices can be an important tool for establishing a baseline that allows new interventions to be implemented to improve the quality of obstetric and perinatal care [19].

The results of the present study are of great concern considering that the training needs of professionals are met by continuing pre- and postgraduate education programs. One of the AMBA Perinatal Network’s activities performed before the data collection period was the training of 3 professionals per hospital in the critical appraisal of scientific literature and in the development of evidence-based guidelines. Moreover, there are national, provincial, and municipal policies and norms that clearly state that these beneficial practices should be used and that episiotomy should be avoided. Also, in Argentina, there are national, provincial and municipal laws that establish the right of women to be accompanied during labor [20]. All these hospitals have enough supplies of drugs, such as corticosteroids, iron and folate supplements, and oxytocin, to implement these interventions.

Traditional approaches for improving translation of research findings into practice that are mainly focused on improving availability and presentation of evidence together with continuing medical education courses and conferences have been shown to have little impact on changing professional behavior [8]. Innovative strategies are needed to increase the use of evidence-based practices and consequently achieve an improvement in the quality of care.

The results of the present study show the gap between scientific evidence and clinical practice. The prevalence of beneficial interventions to improve maternal and perinatal outcomes is low, and harmful practices are still used, despite the wide dissemination of information about their usefulness in the participant hospitals. Studies promoting the use of selected beneficial maternal and perinatal practices that reduce maternal and neonatal mortality and morbidity could contribute toward reaching Millennium Development Goals 4 and 5. New strategies are needed to improve the use of evidence-based practices in maternal and perinatal health care.

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**References**


