The rate of cesarean deliveries has increased dramatically in recent years in many obstetric units worldwide from a low 5% in the 1960’s to a high of 25% in the 1990’s. Cesarean section (CS) is now the most frequently performed operation in the United States. History of a previous CS has become the most frequent common reason for performing a cesarean operation. The obstetric unit of the Armed Forces Hospital, Riyadh (RAFH), Saudi Arabia is no exception. The CS have increased from 7% in 1979 to 13% in 1998, and forceps deliveries have decreased from 25% in 1979 to 0.5% in 1998. The aim of this study was to review all cases of previous one CS who were cared for and delivered at RAFH obstetric unit, determine the final method of delivery, indication for the repeat CS, and outline how this repeat CS can be reduced.

**Methods.** Retrospective analysis of hospital records of all women with previous one cesarean section who had either a repeat cesarean section or delivered vaginally after cesarean section.

**Results:** Between 1990 and 1998, 61,060 mothers were delivered. Two thousand five hundred and seventy eight patients had one previous cesarean section. They represented 3.5% of the total number of deliveries. Nine hundred and sixty eight (37.5%) cases had repeat cesarean section. Of the 1610 (62.5%) mothers who achieved vaginal delivery, 102 (6%) had ventouse, 42 (3%) had forceps and 22 (1%) had an assisted breech delivery. Rupture of uterine scar was reported in 15 cases. There were no maternal or perinatal deaths.

**Conclusion:** Patients with one previous cesarean section are three times more likely to have a cesarean section as compared to mothers with unscarred uterus. Reducing the overall cesarean section rate is possible through a closer look at the primary indication for the first cesarean section. A protocol is needed to allow more cases with one or more previous cesarean section to have trial of vaginal delivery under close monitoring and involve the senior staff more in the diagnosis and management of cases of dystocia and the use of Oxytocin when indicated.

**Keywords:** Cesarean section, breach, perinatal deaths, ventouse, forceps.

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Table 1 - The incidence of CS and final method of delivery of all women with previous one CS (RAFH 1990-1998).

<table>
<thead>
<tr>
<th>Year</th>
<th>90</th>
<th>91</th>
<th>92</th>
<th>93</th>
<th>94</th>
<th>95</th>
<th>96</th>
<th>97</th>
<th>98</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total deliveries</td>
<td>6263</td>
<td>4580</td>
<td>6848</td>
<td>6925</td>
<td>7002</td>
<td>7246</td>
<td>7711</td>
<td>7590</td>
<td>6895</td>
<td>61060</td>
</tr>
<tr>
<td>Total CS</td>
<td>594</td>
<td>421</td>
<td>640</td>
<td>772</td>
<td>805</td>
<td>916</td>
<td>956</td>
<td>1015</td>
<td>907</td>
<td>7026</td>
</tr>
<tr>
<td>%</td>
<td>9.5</td>
<td>9.0</td>
<td>9.0</td>
<td>11.0</td>
<td>11.5</td>
<td>13.0</td>
<td>13.0</td>
<td>13.0</td>
<td>13.0</td>
<td>11.5</td>
</tr>
<tr>
<td>Total Prev CS x 1 Cesarean section</td>
<td>201</td>
<td>140</td>
<td>312</td>
<td>272</td>
<td>254</td>
<td>316</td>
<td>285</td>
<td>389</td>
<td>409</td>
<td>2578</td>
</tr>
<tr>
<td>Total Prev CS x 1 Vaginal delivery</td>
<td>64</td>
<td>53</td>
<td>85</td>
<td>86</td>
<td>98</td>
<td>102</td>
<td>141</td>
<td>193</td>
<td>146</td>
<td>968</td>
</tr>
<tr>
<td>%</td>
<td>68.0</td>
<td>62.0</td>
<td>73.0</td>
<td>68.0</td>
<td>61.0</td>
<td>68.0</td>
<td>50.5</td>
<td>50.0</td>
<td>64.0</td>
<td>62.5</td>
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<tr>
<td>Final method of delivery</td>
<td>SVD</td>
<td>Forceps</td>
<td>Ventouse</td>
<td>Breech</td>
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<tr>
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<td>13</td>
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<tr>
<td>91</td>
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<tr>
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<td>96</td>
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<tr>
<td>97</td>
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<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>98</td>
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<td>4</td>
<td>3</td>
<td>6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1444</td>
<td>42</td>
<td>102</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CS: Cesarean section  
SVD: Spontaneous vaginal delivery

Table 2 - Indications for repeat CS in women with previous one CS.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetal distress</td>
<td>23</td>
</tr>
<tr>
<td>Dystocia</td>
<td>28</td>
</tr>
<tr>
<td>Antepartum hemorrhage</td>
<td>7</td>
</tr>
<tr>
<td>Elective</td>
<td>51</td>
</tr>
</tbody>
</table>

Results. Figure 1 shows analysis of the obstetric population. During the period of the study, 61060 mothers were delivered, 20% of which were primips. There were 7026 (11.5%) CS deliveries, 1682 (3%) ventouse and 488 (1%) forceps carried out. Two thousand five hundred and seventy eight patients had a diagnosis of previous one CS and they form the basis of this report. They represented 3.5% of the total number of deliveries. Of the 2196 cases of breech presentation seen in labor, 833 (38%) cases response in frequency and amplitude of contractions. The integrity of the lower uterine segment scar is not verified by postpartum exploration. Epidural analgesia is available on request whenever indicated as it is to other parturient patients.

Table 3 - Obstetric complications in all women with previous one CS.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruptured uterus</td>
<td>15</td>
</tr>
<tr>
<td>Maternal deaths</td>
<td>0</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>0</td>
</tr>
</tbody>
</table>

Riyadh Armed Forces Hospital 1990-1998
Figure 1 - Analysis of obstetric population (Riyadh Armed Forces Hospital 1990-1998).
Reducing cesarean sections: A multidisciplinary approach

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ended up in CS. Two hundred and nineteen (45%)
mothers of the primip breech were delivered by CS
as compared to 614 (36%) multiparas who ended in
CS. Fifty six percent of the total CS performed were
first CS and 44% were repeat CS.

Table 1 shows the incidence of CS and final
method of delivery of all women with previous one
CS between 1990 and 1998. Of the 2578 patients
with one previous CS, the final method of delivery
was repeat CS in 968 (37.5%) cases. Of the 1610
(62.5%) mothers who achieved vaginal delivery, 102
(6%) were ventouse, 42 (3%) were forceps and 22
(1%) cases had an assisted breech delivery. Table 2
shows the indications for repeat CS. CS was
performed as an elective procedure in half (51%) of
the cases. Fifteen mothers sustained ruptured uterus
in labor (Table 3). The incidence of uterine rupture
with previous one CS was 1:172. Repair of uterus
was carried out in all cases. None required
hysterectomy and there were no fetal or maternal
deaths.

Discussion. The old dictum 'once a cesarean
always a cesarean' has been gradually replaced by a
recommendation for vaginal birth after cesarean
section.\(^1\) "Elective repeat" has become the most
common indication today for a CS.\(^1^,\(^2\) Repeat CS is
the most common indication overall for CS in the
United States, while failure to progress is the most
common indication in nulliparous women.\(^4\)
Obviously, a reduction in the primary CS rate would
have a significant effect on the need for subsequent
operative delivery, and therefore could have a large
impact on the overall CS rate.

Although the safety of CS has been accompanied
by an increase in its incidence, the abdominal route is
not entirely devoid of complications as maternal
morbidity and mortality, anesthetic risks, blood loss
and pulmonary embolism.\(^5\) If there was no
contraindication to labor and vaginal delivery, there
is no contraindication to cervical ripening, induction
of labor or augmentation of labor in the presence of a
uterine scar. Oxytocin and epidural analgesia can be
used safely in patients that previously underwent CS
and are allowed a trial of labor, provided that the
mother and fetus are under strict surveillance.\(^6^,\(^7\)
In properly selected patients, a trial of labor after
previous CS constitutes the best and safest form of
obstetric management and can achieve up to 84.5%
successful vaginal delivery.\(^8^,\(^9\) Vaginal PGE\(_2\) for
induction of labor in patients with previous CS is safe
and effective with 68% achieving vaginal delivery,
even with unfavorable cervix at the time of
Prostaglandin treatment.\(^10\)

Patients with twin gestation and those with breech
presentation and previous CS birth who undergoes
trial of labor can achieve a vaginal delivery of 72%
and 79%.\(^1^,\(^1^2\) These patients are sectioned electively in
this institution. Despite this strict policy - 22 cases
had successful assisted breech delivery with no
complications. If CS rate to stay steady or to drop,
the management of this group of patients has to be
considered.

Flamm et al\(^1^3\) successfully performed external
cephalic version (ECV) after 36 weeks gestation
without major complications in 82% of 56 women
who had one or two previous CS. Of these 65%
delivered vaginally. Larger studies will be needed to
establish the safety of this promising new approach.

The use of the W.H.O. partograph in the
management of breech labor reduces prolonged labor
and (among multigravida) cesarean section, and
improves fetal outcome.\(^1^4\)

Physicians in the United States, facing increased
medical-legal pressures performed fewer vaginal
breech deliveries and fewer mid pelvic forceps
deliveries.

The main reason for rising CS is lower threshold to
perform CS across the board. We are trying to
practice safe obstetrics: the safety of the mother and
her baby are of utmost importance. Our aim should
be always safe motherhood. Medico-legal
implications dictates no more difficult vaginal
deliveries either breech or instrumental. The
nonreassuring fetal status is diagnosed more
frequently because of wide variations in the
interpretation of continuous electronic fetal
monitoring. Continuous fetal oximetry and fetal PH
and fetal ECG have been tried together or singly.
The perfect method of fetal monitoring in labor has
yet to be invented. Dystocia as an indication for CS
is being diagnosed more frequently.

Trial of scar can be safely attempted in patients,
with clinically adequate pelvis, with one or two
previous low transverse cesarean deliveries, with no
other uterine scar or previous uterine rupture with the
availability of adequate monitoring of mother and
foetus and the availability of anaesthesia and
personnel for emergency cesarean delivery.\(^1^5^,\(^1^6\)
It should not be attempted in patients with prior
classical or T-shaped incision or transfundal uterine
surgery, contracted pelvis, medical or obstetric
complications that preclude vaginal delivery, and
inability to perform immediate emergency cesarean
section either due to the unavailability of surgeon,
anesthetist or sufficient staff or facility.

The incidence of urine rupture in scarred uterus
with one previous CS is 1:172 as compared to 1:7849
intact uteri.\(^1^7\) Fifteen mothers sustained rupture of
the scarred uterus with no fetal or maternal deaths.

In conclusion, reducing the overall cesarean
section rate is possible through reducing the primary
cesarean birth and allowing more patients with prior
one cesarean scar and twins or breech presentation to
have trial of labor and involving the seniors more in
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the diagnosis and management of cases of dystocia and the use of Oxytocin when indicated.

References