Obstetric Guidelines and Labour Ward Protocols
State of Palestine
Ministry of Health
Women's Health and Development Directorate

Obstetric Guidelines and Labour Ward Protocols

Fourth Edition,
December, 2016
تَقَدِيم:

يُجَرَّبنا في وزارة الصحة الفلسطينية تقديم الطبعة الرابعة من البروتوكول الوطني الخاص بالرعاية الطارئة أثناء الولادة. يأتي إعداد هذه البروتوكولات كاستجابة إلى الحاجة الماسة لتوحيد أداءي العاملين في أقسام الولادة على تعدد نظائرهم ومشاريع الممارسات الطبية التي يتبناها.

تعتبر هذه البروتوكولات أداة عمل موجهة ومزوّرة للعاملين تهدف إلى زيادة نجاعة التدخلات خاصة في حالات الخطيرة لضمان الوصول إلى المخرجات المحدودة للمعالجة وخفض وفيات الأسثات والقليل من المشاكل لدى الأمهات والولد.

وأتي من دراسات العقل أن تكون بروتوكولات الرعاية أثناء الولادة والمحترمة بأعلى مستوى وتحدم الدراسات العالمية وحسب معايير منظمة الصحة العالمية ومن قبل أشهر المختصين بهذا المجال، والموضوعة بين أيدي العالمين الصحيين نتيجة نجاح فريق من الإخصائيين الوطنيين الذين استطاعوا ترجمة المعرفة الطبية المقدمة للتدلاج والفاعل الفلسطيني ونظم وأعمال الفن في مستشفيات فلسطين.

تُتيح وزارة الصحة الفلسطينية نجذل الفكر إلى كل من ساهم بإعداد والإخراج والتربص على البوانيكيات من الخبراء والطبية. وتقدم الوزارة بجذب الفكر لمنتدب الأم المحددة للسكان على الدعم المالي الذي ساعد بتطوير البوانيكيات وإخراجها إلى اليهود.

الدكتور جوايد عياذ
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**Final editing and proofreading:**

- Dr. Abdul-Razak A. El-Kurd
- Dr. Emad A. Abed
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABG</td>
<td>Arterial blood gases</td>
</tr>
<tr>
<td>AC</td>
<td>Abdominal circumference</td>
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<tr>
<td>APH</td>
<td>Antepartum haemorrhage</td>
</tr>
<tr>
<td>APS</td>
<td>Antiphospholipid syndrome</td>
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<td>ARM</td>
<td>Artificial rupture of membranes</td>
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<tr>
<td>BF</td>
<td>Breastfeeding</td>
</tr>
<tr>
<td>BM</td>
<td>Breast milk</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
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<tr>
<td>BP</td>
<td>Blood pressure</td>
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<tr>
<td>bpm</td>
<td>Beats per minute</td>
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<td>BSP</td>
<td>Blood sugar profile</td>
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<tr>
<td>CBC</td>
<td>Complete blood count</td>
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<td>CCT</td>
<td>Controlled Cord Traction</td>
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<tr>
<td>CS (C/S)</td>
<td>Caesarean section</td>
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<td>CTG</td>
<td>Cardiotocograph</td>
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<td>CVP</td>
<td>Central venous pressure</td>
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<td>DAMA</td>
<td>Discharge against medical advice</td>
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<tr>
<td>DIC</td>
<td>Disseminated intravascular coagulation</td>
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<tr>
<td>DM</td>
<td>Diabetes mellitus</td>
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<tr>
<td>dpm</td>
<td>Drop per minute</td>
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<tr>
<td>D/W</td>
<td>Dextrose/water</td>
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<tr>
<td>ECV</td>
<td>External cephalic version</td>
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<td>EDD</td>
<td>Expected date of delivery</td>
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<td>ET</td>
<td>Endotracheal tube</td>
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<td>FBC</td>
<td>Full blood count</td>
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<td>FBS</td>
<td>Fasting blood sugar</td>
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<td>FHR</td>
<td>Foetal heart rate</td>
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<td>Foetal scalp electrode</td>
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<td>GDM</td>
<td>Gestational diabetes mellitus</td>
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<tr>
<td>Hb</td>
<td>Haemoglobin</td>
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<tr>
<td>HBV</td>
<td>Hepatitis B virus</td>
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<tr>
<td>IM</td>
<td>Intramuscular</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>INR</td>
<td>International normalised ratio</td>
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<tr>
<td>IOL</td>
<td>Induction of labour</td>
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<tr>
<td>IUFD</td>
<td>Intrauterine foetal death A36</td>
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<td>IUGR</td>
<td>Intrauterine growth restriction</td>
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<tr>
<td>IV</td>
<td>Intravenous</td>
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<tr>
<td>IVAC</td>
<td>Intravenous Access Control (intravenous infusion pump)</td>
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<tr>
<td>HR</td>
<td>Heart rate</td>
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<tr>
<td>KFT</td>
<td>Kidney function tests</td>
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<tr>
<td>KVO</td>
<td>Keep vein open</td>
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<tr>
<td>LBW</td>
<td>Low birth weight</td>
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<td>LFT</td>
<td>Liver function tests</td>
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<td>LGA</td>
<td>Large for gestational age</td>
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<tr>
<td>LMP</td>
<td>Last menstrual period</td>
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<tr>
<td>LMWH</td>
<td>Low molecular weight heparin</td>
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<tr>
<td>LSCS</td>
<td>Lower segment Caesarean section</td>
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<td>MAP</td>
<td>Mean arterial pressure</td>
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<tr>
<td>MCH</td>
<td>Mother and child health</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NPO</td>
<td>Nil per OS (&quot;Nothing by mouth&quot;)</td>
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<tr>
<td>N/S</td>
<td>Normal saline</td>
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<tr>
<td>OGTT</td>
<td>Oral glucose tolerance test</td>
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<tr>
<td>PAPS</td>
<td>Primary antiphospholipid syndrome</td>
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<tr>
<td>PPBS</td>
<td>Post prandial blood sugar</td>
</tr>
<tr>
<td>PPH</td>
<td>Postpartum haemorrhage</td>
</tr>
<tr>
<td>PPV</td>
<td>Positive pressure ventilation</td>
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<tr>
<td>PRN</td>
<td>Prorenata &quot;as the occasion arises, when necessary&quot;</td>
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<tr>
<td>PROM</td>
<td>Premature rupture of membranes</td>
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<td>PTL</td>
<td>Preterm labour</td>
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<tr>
<td>RBS</td>
<td>Random blood sugar</td>
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<tr>
<td>RL</td>
<td>Ringer lactate</td>
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<tr>
<td>RPC</td>
<td>Retained product of conception</td>
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<td>SB</td>
<td>Stillbirth</td>
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<tr>
<td>SC</td>
<td>Subcutaneous</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>SCBU</td>
<td>Special care baby unit</td>
</tr>
<tr>
<td>SGA</td>
<td>Small for gestational age</td>
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<tr>
<td>SHO</td>
<td>Senior house officer</td>
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<tr>
<td>SLE</td>
<td>Systemic lupus erythematosus</td>
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<tr>
<td>SROM</td>
<td>Spontaneous rupture of membranes</td>
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<tr>
<td>T°</td>
<td>Temperature</td>
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<tr>
<td>U&amp;E</td>
<td>Urea &amp; electrolytes</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<td>U/S</td>
<td>Ultrasound</td>
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<td>Vaginal delivery</td>
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<tr>
<td>VTE</td>
<td>Venous thromboembolism</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>No.</td>
<td>Topic</td>
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<tr>
<td>1</td>
<td>Topic I: Normal Delivery</td>
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<td>1. Admission of women in labor to Labor &amp; delivery Unit</td>
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<td>2. In the Labor Room - The First Stage of Labor</td>
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<td>A. Normal care for women during the active phase</td>
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<td>B. Pain relief for women during active phase of labor.</td>
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<td>C. Partogram</td>
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<td>D. Standing medication orders for labor &amp; delivery.</td>
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<td>3. Slow progress of labor</td>
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<td>A. Slow progress of labor</td>
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<td>B. Oxytocin use during labor</td>
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<td>C. External Foetal monitoring</td>
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<td>D. NICHD Continuous Electronic Fetal Monitoring Stoplight</td>
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<td>E. Augmentation of labor</td>
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<td>4. Second &amp; 3rd Stage of Labour</td>
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<td>A. Preparation for normal delivery</td>
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<td>B. Management of second stage</td>
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<td>C. Normal Third Stage of Labor.</td>
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<td>D. Prevention of Postpartum Hemorrhage (PPH)</td>
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<td>E. Immediate postnatal care after birth</td>
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<td></td>
<td>F. Identification of Babies in Hospital (cot card)</td>
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<td>5. From Delivery Room to Postnatal Ward</td>
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<td></td>
<td>A. Transfer to Postnatal Ward</td>
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<td></td>
<td>B. Postnatal care of mother following caesarean section</td>
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<td>6. In Postnatal Ward</td>
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<td></td>
<td>A. Postnatal care after vaginal delivery</td>
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<td>B. Postnatal care following caesarean section</td>
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<td></td>
<td>C. Removal of sutures / clips / staples drain</td>
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<td>7. Before leaving the hospital</td>
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<td>A. Normal Discharge procedure</td>
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<td>B. Discharge against medical advice</td>
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<td>C. Transfer of a patient to another hospital</td>
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<td>02 TOPIC 2 : Breastfeeding</td>
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<td>1. Promotion of breastfeeding</td>
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<td>A. Immediate initiation</td>
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<td>B. Teaching &amp; counselling of breastfeeding</td>
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<td>C. Procedure of breastfeeding</td>
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<td>D. Maintaining and encouraging breastfeeding</td>
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<td>Care of the breasts</td>
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<td>A. After normal delivery</td>
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<td>Minor Breast Problems</td>
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<td>A. Weak reflex</td>
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<td>B. Flat nipples</td>
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<td>C. Engorgement</td>
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<td>D. Mastitis</td>
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<td>E. Sore nipples</td>
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<td>TOPIC 3: Essential Early Neonatal Care (EENC)</td>
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<td>01. Early essential/Immediate new born care</td>
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<td>02. Neonatal resuscitation flow chart</td>
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<td>Neonatal resuscitation flow chart</td>
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<td>Topic: 4 High risk cases, Part 1, Medical conditions</td>
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<td>A. Anemia in Pregnancy</td>
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<td>I. Patients with viral hepatitis or HIV</td>
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<td>J. Management of sepsis in obstetrics</td>
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<td>5.</td>
<td>Topic 5: High risk cases, Part 2, Obstetric conditions</td>
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<tr>
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<td>A. Management of pre-eclampsia with severe features</td>
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<td>C. Management of Pre-labor Rupture of Membranes</td>
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<td>D. Management of preterm labour</td>
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<td>E. Magnesium Sulphate in Prevention of Cerebral Palsy</td>
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<td>F. Management of Breech Presentation at term</td>
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<td>G. Management of twins labour at term</td>
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<td>H. Management of previous uterine scar</td>
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<td>TOPIC 6: Emergency Obstetrics</td>
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<td>A. Management of Eclampsia</td>
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<td>D. Post Partum Haemorrhage</td>
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<td>Massive Clood transfusion protocol</td>
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<td>E. Ruptured Uterus</td>
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<td>F. Amniotic Fluid Embolism</td>
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<td>G. Shock in obstetric patient</td>
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<td>TOPIC 7: Procedures</td>
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<td>iv drug administration</td>
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<td>Antibiotic prophylaxis in obstetrical procedures.</td>
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<td>Induction of Labour</td>
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<td>1. IOL with PGE2</td>
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<td>3. IOL with Artificial rupture of membranes</td>
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<td>4. IOL with Oxytocin</td>
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<td>5. Management of uterine tachysystole</td>
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<td>6. IOL with cervical balloon</td>
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<td>7. IOL for special cases</td>
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<td>Analgesia – Anaesthesia</td>
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<td>A. Local Anaesthesia</td>
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<td>B. Episiotomy repair</td>
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<td>C. Perineal repair</td>
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<td>D. Preparation for caesarean section</td>
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<td>E. Process in cases of elective or emergency caesarean section</td>
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<td>6</td>
<td>Fetus</td>
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<td>A. Fetal Death</td>
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<td>Placenta</td>
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<td>A. Placental disposal</td>
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<td>08</td>
<td>Quality of Care</td>
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<td></td>
<td>1. Structural approach</td>
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<td>2. Process approach</td>
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<td>3. Outcome approach</td>
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Topic 1: Normal Delivery

- Admission
- 1\textsuperscript{st} Stage of Labor
- 2\textsuperscript{nd} & 3\textsuperscript{rd} Stage of Labor
- Transfer to Postnatal Ward
- Postnatal care
- Discharge
The different topics of this section present the activities performed in different places of the maternity facility. To make the manual more practical, these activities are described according to the place where these activities are achieved.

The Ways inside the Maternity Facility

Admission Room

Labour Room

Delivery Room

Home

Discharge

Postnatal Ward

Transfer

N° of Topic
Topic 1: Normal Delivery

1: In the Admission Room

2. In the Labor Room - 1st Stage of Labor
   a. Normal care for women during the active phase
   b. Pain relief for women during active phase of labor.
   c. The Partogram
   d. Standing medication orders for labor & delivery

3. progress of labor.
   a. Slow progress of labor.
   b. Oxytocin use during labor.
   c. External Foetal monitoring
   d. NICHD Continuous Electronic Fetal Monitoring Stoplight
   e. Augmentation of labor

4: In the Delivery Room - 2nd & 3rd Stage of labor
   a. Preparation for normal delivery
   b. Management of second stage
   c. Normal Third Stage of Labor.
   d. Prevention of post partum hemorrhage
   e. Immediate postnatal care after birth
   f. Identification of babies

5: From Delivery Room to Postnatal Ward
   a. Transfer of the mother
   b. Transfer of the Baby

6: In Postnatal Ward:
   a. Postnatal care after vaginal delivery
   b. Postnatal care following caesarean section
   c. Removal of sutures /clips/staples drain

7: Before leaving the hospital
   a. Normal Discharge procedure
   b. Discharge against medical advice
   c. Transfer of a patient to another hospital
Welcome the woman, Review the referral note or pregnancy card.
Obtain & record demographic, medical, surgical, obstetrical, gynaecological, menstrual & contraceptive history.
Check and record vital signs.  BP - HR - T°
Conduct abdominal exam (asses Fundal height, fetal lie, presenting part, engagement)
Auscultation of fetal heart sounds.
Assess uterine contractions (onset, duration & intensity)
Ask the woman to empty bladder & to give a urine specimen for proteins & urine analysis.

The midwife should decide if the case is low risk /high risk.

High Risks Patients
- Grand multiparas
- History of previous postpartum haemorrhage.
- Antepartum haemorrhage
- PTL
- Suspected foetal macrosomia
- IOL
- Preeclampsia
- Malpresentations
- Multiple pregnancy
- Anaemia (moderate and severe)
- Women with medical disorders during pregnancy.
  i.e. diabetes, cardiac,…etc
- Previous C/S

If Low Risk  \(\rightarrow\) Conduct vaginal exam & assess
(Dilatation, effacement, station & membranes status).

If High Risk \(\rightarrow\) DO NOT do vaginal exam
  Especially if preterm labor or vaginal Bleeding, PROM
  (If that was the case, inform physician immediately)

The midwife should decide if the woman is in labor or not. See Algorithm 1
Algorithm 1  Admission

Admission Exam

History
Abdominal exam
Vital signes, CTG

Low Risk

Assessment by Safe Delivery Team

Labor

- Manage
- Delivery by midwife

Consulte physician

- Discharge
- Routine follow up in OPD clinic

Not in Labor

High Risk

Assessment by doctor

Labor

- Manage
- Delivery by doctor

Not in Labor

- Discharge
- Follow up in OPD clinic
If the woman is low risk, term & in labor:

- Follow up and delivery by midwife
- Inform the woman & the family.
- Withdraw blood for lab tests (CBC & blood type & save)
- Open a file.
- Assess fluid intake.
- Place the woman on external monitor for a baseline CTG for 20 – 30 minutes
- Assess pain tolerance.
- Encourage & support the woman.
- Document all procedures,
- Exam findings, history, lab tests, & vital signs.
- Inform the physician If any deviation from normal.

If the woman is high risk, term & in labor:

- Perform all previous steps necessary for admission.
- Inform the Physician.
- Do NOT perform a vaginal Examamination.
- Place the woman on external monitor for a baseline CTG for 20 – 30 minutes
- Insert IV Canula.
- Conduct actions according to physician’s instructions & per specified high risk guideline.
- Follow up and delivery by doctor.

If the woman is low risk & not in labor,

- Auscultation of fetal heart beats (CTG).
- Inform the physician.
- Document all procedures, exam findings, history, & vital signs.
- Anticipate that the woman may be discharged home after adequate counselling.
- Routine follow up in OPD clinic.

If the woman is high risk & not in labor,

- Inform the physician for complete assessment before discharge
- Follow up in OPD clinic
Algorithm 1 2: Suspicion of late term ≥41 on Admission

Date of last menstruations?

- Known and confirmed by early ultrasound
  - ≥ 41 weeks

- Unknown
  - Date of positive S-BHCG
  - 1st trimester scan
  - Date of first movement

Confirmed gestational age

- ≥ 41 weeks
  - Assessment of fetal wellbeing
    - CTG + Amniotic fluid
    - Routine antenatal care till 41 weeks

- < 41 weeks

Definitions:
- Early term
  - 37+0/7 - 38+6/7
- Full term
  - 39+0/7 - 40+6/7
- Late term
  - 41+0/7 - 41+6/7
- Post term ≥ 42 weeks

Induction of labor
Topic 1: Normal Delivery

Subtopic 2. In the Labor Room – The First Stage of Labor

A. Normal care for women during the active phase

B. Pain relief for women during active phase of labor.

C. The Partogram

D. Standing medication orders for labor & delivery

Subtopic 3. progress of labor

A. Slow progress of labor.

B. Oxytocin use during labor.

C. External Foetal monitoring

D. Fetal distress

E. Augmentation of labor
<table>
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<tr>
<th>Topic 1</th>
<th>Normal delivery</th>
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<tbody>
<tr>
<td>Subtopic 2</td>
<td>Labor Room: First Stage of Labor</td>
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<tr>
<td>A</td>
<td>Normal care during the active phase of the 1st stage</td>
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**Standard Statement:**
All women in the active phase of labor must be assessed, and observed for changes & progress.

**Definition:**
The active phase starts from dilatation of 6 cm till full dilatation of the cervix.

**PROCESS:**

**Labor Support:**
- Encourage the woman to have support from relatives.

**Nutrition & fluids:**
- Allow oral intakes of fluids, some candies & soft food.
- Encourage voiding every 2 hours.
(Note: Catheterization is not mandatory unless indicated.)

**Ambulation & Position:**
- Encourage ambulation if continuous monitoring is not required.
- Encourage the woman to avoid lying in supine position.
- If lying down, encourage a left lateral tilt.

**Hygiene:**
- Offer the woman to have a shower upon admission if she desires & her condition allows that.
- Encourage & assist having warm shower if it is possible.
- Assist the woman in keeping her perineum clean & dry after each vaginal exam.
- Change wet linens whenever appropriate & necessary.

**Artificial rupture of membranes (ARM):**
- ARM is not routine for normally progressing labor.

**Follow-up**
- Follow the progress of labor utilizing the Partogram.
- Conduct vaginal exam in the following conditions:
  - Upon admission.
  - After ARM/SROM.
  - Every 4 hours to assess labor progress or if there is a concern about progress.
- Document: all care procedures, assessment findings, all vaginal exams, intakes & outputs if indicated.
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<th>Topic 1</th>
<th>Normal delivery</th>
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<tr>
<td>Subtopic 2</td>
<td>Labor Room: The First Stage of Labor</td>
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<tr>
<td>B</td>
<td>Pain relief for women during the active phase of labor.</td>
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</table>

**Standard Statement**

All women in the active phase of labor should be supported & provided with as much as alternative methods as available to relief pain during labor.

**PROCESS:**

- Assess the woman’s tolerance of pain during labor.
- Support the woman during labor.
- Use simple alternative comfort measures to assist the woman cope with labor pain.

These simple alternative comforts measures include:

- **Companionship**
- **Continuous midwifery care**, support, encouragement & existence.
- **Changing body positions** (lying down, walking, sitting, rocking ….etc.)
- **Vocalization** i.e. moaning, reading Qura’an, chanting.
- **Breathing exercise** i.e. patterned breathing, slow breathing, light/accelerated breathing, pant-pant-blow…
- **Touch & Massage.**
- **Hot / Cold packs** to lower abdomen, groins or perineum.
- If it is possible: **Warm shower** which may relief her pain & increase her labor contraction intensities.
- **Relaxation techniques.**

- Consider pain relief medication if simple alternative measures doesn't not succeed to alleviate pain.
  - Give pethidine 50-100 mg IM q 2-4 hours or 25-50 mg IV q 2 hours (taking into consideration not to give pethidine if birth is anticipated within the next 2 hours unless the antidote-Narcan- is available.).
  - Fentanyl 50-100 mcg IV hourly is an alternative.
  - Encourage use of epidural anesthesia.
- Document: Alternative measures & any medication given.

**Remember:** Antenatal classes do improve the woman's tolerance of labor pain.
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<td>Subtopic 2</td>
<td>Labor Room: First Stage of Labor</td>
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<td>C</td>
<td>The Partogram</td>
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**Standard Statement**
Utilize the Partogram tool for all women in the active phase of labor to assess & observe for changes & progress.

**Definition**
A tool to assess & interpret the progress of labor.

**PROCESS:**

- **Start a Partogram for every woman starting the active phase of labor**.
- **Record fetal condition including:**
  - Fetal heart rate Q (every) 30 minutes for low risk parturient and Q15 minutes for high risk parturient
  - Amniotic fluid color.
  - Moulding of the fetal head.
- **Use the following features & keys for recording:**
  - **amniotic fluid:**
    - I = Intact membrane.
    - C = Clear liquor
    - B = Blood Stained.
    - M = Meconuim staining.
  - **Moulding:**
    - Grade 0 = Bones normally separated.
    - Grade + = Bones touching each others.
    - Grade ++ = Bones overlapping but easily separated.
    - Grade +++ = Bones overlapping but cannot be separated.
- **Record maternal condition:**
  - BP Q 4 hours.
  - Pulse Q 1 hour.
  - Temp. Q 4 hours.
  - Urine output: Check & record all urine passed for albumin.
  - Drugs administered including Oxytocin.
  - IV fluids.
- **Record progress of labor:**
  - Cervical dilatation (in cm): Q4 hours
  - Descent of the head: abdominally (Fifths palpable per abdomen)
  - Uterine contractions: Q 30 minutes showing strength: weak, moderate, strong & frequency. (# of contractions in last 10 minute)
    - Weak: Less than 20 seconds
    - Moderate: Between 20 & 40 seconds
    - Strong: More than 40 seconds
Parameters to be recorded and frequency

- **Hours**: Refers to the time elapsed since onset of active phase of labor.
- **Time**: Record actual time.
- **Drugs given**: Record any drugs given.
- **Pulse**: Record every 1 hour & mark with a dot.
- **Blood Pressure**: Record every 4 hours & mark with arrows.
- **Temperature**: Record every Q 4 hours.
- **Urine**: Record every time urine is passed.

- A brief outcome of delivery should be given where applicable
### WHO modified Partogram

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<th>Gravida</th>
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| Amniotic fluid |                        |                    |       |
| Moulding       |                         |                    |       |
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| 9               |                         |                    |       |
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| 2               |                         |                    |       |
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| Cervix (cm)     | Alert | Action |       |
| Plot X          |       |        |       |
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| 1               |       |        |       |

| Descent of head | Alert | Action |       |
| Plot O          |       |        |       |
| 10              |       |        |       |
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**PROCESS:**

**General rules**

- Order medicines as stocks run down.

- Check the drug cupboards routinely.

- Administer the prescribed medication to the woman using the following method:
  - Read the correct prescription carefully.
  - Select the required preparation.
  - Check the name and dosage of the drug, the expiry date.
  - Verify the preparation with the woman’s prescription chart.
  - Ensure that the stock balances with the register for certain medication like pethidine.
  - Take preparation and prescription chart to the patient.
  - Confirm identity verbally or check with wrist band
    - Full name and chart number.
  - After administration, record in both register and mother’s notes/Kardex.
  - Unused preparations must be destroyed and recorded as wasted in the register and witnessed by a second person, especially in narcotic drugs.

- Store narcotic drugs (Pethidine) in a locked container all the times.

- Check the narcotic drugs (Pethidine) amount & compare its balance with the register each shift.

**1) Intravenous Therapy:**

The midwife may commence any of the following IV fluids when inserting canula to **KVO or in case of emergency**:

- Ringer Lactate (RL)
- Normal Saline 0.9% (N/S)
2) Anesthetic Agents:
The midwife may use the following local anesthetic agents while suturing tears / episiotomy:
- Local infiltration: Lidocaine 1% or 2% up to 20 ml S/C.
- Local ointment lidocaine spray

3) Oxytocin Agents:
The midwife may administer the following oxytocic agents after normal birth to prevent postpartum hemorrhage as per protocol & guidelines recommendations:
- All women should receive 10 units Oxytocin IM or IV at delivery of anterior shoulder or immediately after delivery of the baby
- Cytotic and Prostaglandins: this should be decided by physician.
- See details in management of third stage of labor.

4) For the newborn:
- Vit K 1 mg IM for the newborn after birth.
- Oxygen for baby in case of apnoea (according to resuscitation guidelines): by face mask
- Intubation is to be performed by the pediatrician

5) Pethidine / Analgesics:
The midwife must obtain a written order if she evaluates that the woman needs a pain relief medication.

**Important Note:** This protocol should be signed separately by the Obstetrician Consultant (Head of the Department) at each hospital and by the midwives.
Topic 1 | Normal delivery
---|---
Subtopic 3 | Labor Room: Progress of labor
A | Slow progress of labor.

| Standard Statement | All women in the active phase of labor should be monitored carefully to prevent slow progress in labor. If slow progress in labor has been identified, it should be managed appropriately. |

**PROCESS:**

- Ensure adequate hydration.
- Ensure adequate relaxation & coping with labor pain.
- Encourage the parturient to empty bladder if not emptied in the last 3 hours.
- Monitor progress utilizing the Partogram
  - *if slow progress noted, inform the Physician.*
- See page 21 (augmentation of labor)

**Under supervision of the physician:**

- Perform amniotomy if the membranes are intact.
- Augment uterine contraction by Oxytocin according to standard regimen (see subtopic 7) in the absence of:
  - obstruction
  - Or fetal distress.
- Ensure adequate analgesia.
- Perform vaginal exam Q 4 hours or if there is a concern about labor progress.

- **LSCS is indicated if:**

  a- *Patient has no cervical changes for 4 hours despite adequate uterine activity.*
  b- *Patient has no cervical changes for 6 hours with ROM and inadequate uterine activity.*
**PROCESS:**

**The midwife will obtain Dr. order before initiating any oxytocin infusion.**

- Perform vaginal exam before commencing oxytocin infusion.
- Commence oxytocin via a dropper machine.
- Follow the following standard regimen when initiating oxytocin

*For more information refer to IOL protocol, see page 195*

**Low dose regimen:**
- Starts at 1-2 mu/min.
- Increase by 1-2 mu/min every 30 minutes.
- Maximum dose 36 mu/min

**High dose regimen:**
- Starts at 2-4 mu/min
- Increase 2-4 mu/min every 15 minutes
- Maximum dose is 36 mu/min

- Keep the woman on continuous fetal monitoring
- Utilize the Partogram to evaluate progress of labor.
- Initiate intake / output chart separate from the Partogram.
- If the oxytocin dosage should be increased above “Max” rates, *slower incremental increases may be used after consultation with the consultant.*
- Reduce oxytocin if good contractions have been established to prevent uterine tachysystole especially in multiparae. *This should be left to the treating doctor to decide on whether to continue on the same rate or to reduce it.*
- Reassess progress by vaginal examination every 4 hours to ensure adequate progress.
- Discontinue oxytocin if:
  - Uterine tachysystole.
  - Prolonged fetal heart decelerations.
  - Persistent fetal bradycardia.

*If oxytocin is discontinued, inform consultant for appropriate further management.*

- **Documentation:** oxytocin initiation including time, dose, amount, type of fluids, rate, & route, vaginal exams, progress, intake & output, contractions assessment & findings, fetal wellbeing.
### Topic 1 Normal delivery

#### Subtopic 3 Labor Room: Intrapartum fetal surveillance

#### C Interpretation of CTG and management

<table>
<thead>
<tr>
<th>Standard Statement</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>All fetuses of women in labor should be monitored appropriately. All women should have a base line CTG monitoring for at least 20-30 minutes on admission.</td>
<td>Normal fetal heart Rate at term is 110-160 bpm. (RCOG guidelines)</td>
</tr>
</tbody>
</table>

### PROCESS:
- Use intermittent external foetal monitoring if the woman is low risk with normal admission CTG.
- Use continuous external foetal monitoring for the following indications.

#### Antenatal

- Abnormal umbilical artery Doppler velocimetry
- Breech presentation
- Multiple pregnancies
- Oligohydramnios
- Rh isoimmunisation

#### Fetal

- Abnormal fetal heart rate on auscultation or admission tracing (20-minute strip)
- Meconium-stained amniotic fluid

#### Maternal

- Anemia
- Antepartum haemorrhage
- Cardiac disease
- Diabetes
- Hypertension (preeclampsia or eclampsia)
- Hyperthyroidism
- Maternal motor vehicle collision or trauma
- Morbid obesity
- Renal disease
- Vascular disease

- Hypertonic uterus
- Induced or augmented labor
- Intrauterine infection or chorioamnionitis
- Post-term pregnancy (>42 weeks’ gestation)
- Preterm labor (< 32 weeks’ gestation)
- Previous cesarean delivery
- Prolonged membrane rupture > 24 hours at term
- Regional anesthesia

- Evaluate the fetal monitoring utilizing DR C BRAVADO

<table>
<thead>
<tr>
<th>DR</th>
<th>C</th>
<th>BR</th>
<th>V</th>
<th>A</th>
<th>D</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>= D</td>
<td>= C</td>
<td>= BR</td>
<td>= V</td>
<td>= A</td>
<td>= D</td>
<td>= O</td>
</tr>
</tbody>
</table>

| = Determine Risk | = Contractions | = Baseline Rate | = Variability | = Accelerations | = Decelerations | = Overall Assessment and written plan |

---

18
(D): Continuous Electronic Fetal Monitoring Stoplight
(NICHD = National Institute of Child Health and Human Development.)

<table>
<thead>
<tr>
<th>Continuous EFM findings</th>
<th>Significance</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. NICHD Category I:</strong> Normal FH Pattern.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Normal baseline FHR (110 to 160 bpm)</td>
<td>Normal pH and foetal well-being</td>
<td>Continue current monitoring method (SIA or continuous EFM)</td>
</tr>
<tr>
<td>2. Moderate variability,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. No concerning (late or variable) decelerations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. With or without accelerations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Category II FHR tracings may represent an appreciable fraction of those encountered in clinical care, and include all FHR tracings not categorized as category I or III.*

| **2. NICHD Category II *: Indeterminate FH pattern* | | |
| FH Patterns that concerning enough to warrant increased frequency in monitoring, but that respond to interventions provided | | |
| Baseline FHR change (bradycardia [< 110 bpm] not accompanied by absent baseline variability, or tachycardia [> 160 bpm] | Tachycardia: medication, maternal anxiety, infection, fever | General measures† Consider expedited delivery if abnormalities persist‡ |
| | Bradycardia: rupture of membranes, occipitoposterior position, post-term pregnancy, congenital anomalies. | |
| Change in FHR variability (absent and not accompanied by decelerations; minimal; or marked) | Medications; sleep cycle; change in monitoring technique; possible fetal hypoxia or acidemia | General measures† Change monitoring method (internal monitoring if doing continuous EFM, or EFM if doing SIA) Consider expedited delivery if abnormalities persist‡ |
### Interpretation and Management of Continuous EFM Findings (Continued):

<table>
<thead>
<tr>
<th>Continuous EFM findings</th>
<th>Significance</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>No FHR accelerations after fetal stimulation</td>
<td>Possible fetal hypoxia or acidemia</td>
<td>General measures† Discontinue oxytocin (Pitocin) Consider expedited delivery if abnormalities persist‡</td>
</tr>
<tr>
<td><strong>FHR decelerations without absent variability</strong></td>
<td>Variable: cord entrapment or prolapse</td>
<td>General measures† Amnioinfusion (for recurrent decelerations if applicable)</td>
</tr>
<tr>
<td></td>
<td>Late: possible uteroplacental insufficiency; epidural hypotension; tachysystole</td>
<td>General measures† Discontinue oxytocin Consider expedited delivery if abnormalities persist‡</td>
</tr>
</tbody>
</table>

3. **NICHD Category III: Abnormal**

- Absent baseline
- FHR variability
- with recurrent decelerations (variable or late)
- and/or bradycardia or Sinusoidal FHR pattern
- Uteroplacental insufficiency; fetal hypoxia or acidemia

General measures† Discontinue oxytocin Expedite delivery by instrumental or abdominal delivery
### Topic 1: Normal delivery

#### Subtopic 3: Labor Room: First Stage of Labor

<table>
<thead>
<tr>
<th>E</th>
<th>Augmentation of labor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Statement</strong></td>
<td>Laboring pregnant women should be augmented if slow progress of labor is detected &amp; those women who undergo augmentation should be assessed, monitored &amp; managed appropriately.</td>
</tr>
<tr>
<td><strong>Definition</strong></td>
<td>The stimulation of the uterus during labor to increase the frequency, duration &amp; strength of contraction (WHO)</td>
</tr>
</tbody>
</table>

---

**PROCESS:**

- Observe the woman in active labor as per protocol for progress.
- If the cervical dilation is < 2 cm for 4 hours then Augmentation is required by:
  - **A- ARM:**
    - ARM should only be performed if:
      - the cervix is at least 6 cm dilated
      - the head is engaged
      - the cervix is well applied to the head
      - & cord presentation is excluded.
    - The midwife must always inform the physician if these conditions are not fulfilled.
  - **B- Oxytocin:**
    - As per protocol (See page 196)

- *If the midwife thinks that augmentation is required, she should inform the physician about the case.*
- Document all assessment findings, observations, time of informing physician, and Oxytocin commencement

**The physician should:**

- Review and assess the case
- Decide the need for augmentation
- Document all procedures, observations & findings.
- Inform the midwife about his decision.
- Document the taken decision.
- Continue observing & assessing the case as per protocol.
Topic 1: Normal Delivery

Subtopic 4: In the Delivery Room the 2nd & 3rd Stage of Labor
Normal Childbirth

A. Preparation for normal delivery
B. Management of second stage
C. Normal Third Stage of Labor.
D. Prevention of postpartum haemorrhage
E. Immediate postnatal care after birth
F. Identification of babies
### Contents of Delivery Trolley

**Top shelf**
- sterile delivery set (scissors, sponge holder, kidney basin, two artery forceps, small bowels, needle holder, gauze, two legging, four drapes.

**Bottom shelf**
- Bottle of chorhexidine solution.
- one pair sterile gloves – size as required
- 2, 5, and 10 ml syringes & needles size G20.
- Ampoule lignocaine 1 %
- Polidine solution.
- Oxytocin
- Methergine.
- Alcohol swab

**Equipment required for infant**
- Incubator warmed or overhead heater warmed wrap.
- Suction catheter G8 or G 10
- Suction bulb
- One labelled cot
- Identification bracelet
- Umbilical clamp
- Weight scale
Topic 1  | Normal delivery
--- | ---
Subtopic 4  | Delivery Room 2nd & 3rd Stage of Labor (Normal childbirth)
B  | Management of second stage

**Standard Statement**
All women in labor should be assessed & monitored closely for any deviation from normal. Women during second stage should be provided with necessary support & encouragement.

**Definition**
Second stage of labor starts with full dilation of the cervix & ends with the complete fetal expulsion.

- Oxygen source
- Thermometer, Syringes 1ml, needles G25
- V it K 1 mg ampoule
- Laryngoscope
- Bag and mask for newborn

**PROCESS:**
- Confirm that the woman has fully dilated cervix (note & record).
- Explain to the woman her progress & how she can help herself to accomplish this stage smoothly.
- Support the woman in her coping with pain & pushing efforts.
- Monitor fetal wellbeing every 15 minutes for low risk & every 5 minutes for high risk patient.
- Monitor mother’s wellbeing: BP every 1 hour, pulse rate, respiratory rate and temperature every 4 hours.
- Empty bladder.
- Encourage the woman to push when she feels the urge to push.
- Advise pushing when the head is visible *since pushing early in the second stage may exhaust the mother & fetus.*
- Assist & guide the woman to push correctly & effectively in the position she likes.
- Inform & praise the woman for effective pushing & throughout the process of 2nd stage *i.e. “progress is good, head is coming…”*
- Observe the perineum for crowning.
- Ask the woman to “blow air” (panting) when the head crowns.
- Perform an episiotomy *if indicated* after *local anaesthetic infiltration at crowning.*
- Guard the perineum during birth; while delivering the head, fingers of the right hand support the perineum, while the second hand applies pressure to the fetal head to avoid too fast expulsion and to help the deflexion of the head.
- Support the perineum as the baby’s head delivers.
- Ask the woman not to push once the baby head delivers.
- Check for cord around the baby’s neck:
  - *If loose cord:* slip it over the baby’s head.
  - *If tight cord or coiled around the neck more than once:* Double clamp it & cut it between the two clamps before unwinding it from around the neck.
- Deliver the baby’s shoulder with the next contraction.
- Deliver one shoulder at a time; first the anterior shoulder, then the posterior shoulder.
- Place the baby on the mothers’ abdomen (skin-to-skin).
- Give IM or IV injection of 10 units syntocinon (oxytocin) to the mother at the delivery of anterior shoulder or immediately after delivery of the baby. *(Refer to the active management)*
- Delay cord clamping for at least 1-3 minutes.
- Deliver the placenta by CCT.
- Perform abdominal massage for the uterus.
- Dry & wipe the eyes & stimulate the baby’s breathing:
  - If the baby is crying & breathing: → leave the baby with the mother.
  - If the baby does not start breathing for 30 seconds: → Ask for help & initiate steps to resuscitate the baby.
- If the baby is kept with his mother, make sure he is warm by placing him skin-to-skin on the mothers’ abdomen & cover with soft cloth blanket & hat to prevent heat loss.
- Initiate breast feeding immediately after birth within the first 30 minutes-1 hour after birth.
- Call the physician if the woman is undelivered:
  - Primigravida: after 3 hours without epidural & 4 hours with epidural
  - Multiparous: after 2 hours without epidural & 3 hours with epidural
- Document: Delivery notes, all medications & procedures, mother’s observations & baby initial observations

**Key points**

- Monitor fetal wellbeing.
- Monitor maternal wellbeing
- Pushing early in the second stage may exhaust the mother & fetus
- Perform an episiotomy if indicated
- Check for cord around the baby’s neck:
- Give iv injection of syntocinon
- If the baby does not start breathing for 30 seconds: → Ask for help
- Prevent heat loss
- Initiate breast feeding immediately
- *Inform the physician if the woman is undelivered:*
Prolonged second stage

Key points for management of 2nd stage

Assessment
- Position of the fetal presenting part
- Perineum
- Cephalopelvic Disproportion

Management
- Change of posture
- Oxytocics
- Instrumental delivery
- Episiotomy
- LSCS

Caution with the great multiparous:
- larger fetus + grand multipara = increased risk of uterine rupture

C-Section indications during the 2nd stage
1. Fetal distress and presenting part above 0 station.
2. Failure of instrumental vaginal delivery
3. Fetal presenting part remains above 0 station
FLOW CHART  

The length of second stage is abnormal

Second Stage is too slow
No progress in fetal head descent

Is pelvis outlet adequate?

Abnormal
C-Section

Normal
Oxytocin

Abnormal

Is Head engaged?

Above 0 station
C-Section

Below 0 station
Vacuum extractor or forceps

Failure when
- Vaccum cup slipped 3 times
- 3 tractions without progress in fetal head descent
- more than 20 mins application time

On the pelvic floor

Normal

Rigid
Episiotomy

Normal

Abnormal
Active management of the third stage of labor includes:

- Oxytocin 10 unit IM or IV injection with the delivery of the anterior shoulder or immediately after delivery of the fetus.
- Delay cord clamping for at least 1-3 minutes.
- Deliver placenta using Controlled Cord Traction (CCT).
- Uterine massage after placental delivery.

PROCESS:

- Reassure the woman.
- Observe & evaluate the woman’s vital signs.
- Clamp & cut the cord after at least 1-3 minutes.
- Collect fetal blood from umbilical cord stamp if indicated.
- Deliver the placenta by Controlled Cord Traction (CCT).
- Perform fundal massage after the placental delivery until the uterus is well contracted.
- Check placenta & membranes for completeness.
- All women having vaginal delivery are at risk of sustaining OASIS or isolated rectal buttonhole tears, they should therefore be examined systematically including a digital rectal examination to assess the severity of damage particularly prior to suturing.
- Repair episiotomy / tear properly under local anaesthesia as per protocol.
- Assist the woman to commence the initial breast feeding.
- Collect fetal blood from umbilical cord stump if indicated.
- Record all procedures & medications administered.
**Topic 1**

**Normal delivery**

<table>
<thead>
<tr>
<th>Subtopic 4</th>
<th>Delivery Room 2(^{nd}) &amp; 3(^{rd}) Stage of Labor (Normal childbirth)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td>Prevention of Postpartum Hemorrhage (PPH)</td>
</tr>
<tr>
<td><strong>Standard Statement</strong></td>
<td>Active management of III stage of labor should be practiced for all cases.</td>
</tr>
</tbody>
</table>
| **Definition** | Active management of the third stage of labor includes:  
  - Oxytocin 10 unit IM or IV injection with the delivery of anterior shoulder or immediately after delivery for the fetus.  
  - Delay cord clamping for at least 1-3 minutes.  
  - Deliver placenta using Controlled Cord Traction (CCT).  
  - Uterine massage after placental Delivery |

**PROCESS**

- Implement active management of third stage of labor.
- Give Oxytocin 10 unit IM or IV injection with delivery of the anterior shoulder or immediately after delivery for the fetus.
- Delay cord clamping for at least 1-3 minutes.
- Deliver the placenta using Controlled Cord Traction (CCT).
  - Clamp the cord close to the perineum using sponge holder.
  - Hold the clamped cord & the end of forceps with one hand.
  - Place the other hand just above the woman’s pubic bone & stabilize uterus by applying counter traction during CCT, to prevent uterine inversion.
  - Keep slight tension on the cord & wait a strong uterine contraction.
  - When uterus becomes rounded or the cord lengthens, very gently pull down the cord to deliver the placenta while continue to apply counter traction to the uterus with the other hand.
- If the placenta does not descend during 30-40 seconds of CCT, do not continue to pull on the cord:
  - Gently hold the cord & wait until the uterus is well contracted again.
  - With next contraction, repeat CCT with counter traction.
- When the placenta is delivered, hold the placenta in two hands & gently turn it until the membranes are twisted.
- Slowly pull to complete the delivery.
- Inspect the placenta carefully for completeness.
- Send the placenta for histopathological examination if indicated (SB, IUGR, chorialmionitis etc…)
- Perform uterine massage to the fundus of the uterus through the woman’s abdomen until the uterus is contracted.
- Repeat uterine massage every 15 minutes for the first hour.
- Document all procedures, medications given, assessment findings.
FLOW CHART: Prevention of Postpartum Haemorrhage

IV Canula at admission

Past history

No risk or minor risk

Risk

Previous history of PPH
Multiple pregnancies
Scarred uterus
Multiparous > 4
Large baby

Active management of third stage

Active management of third stage

Méthergine IM (1 ml : 0.25 mg)
After delivery and exam to confirm complete placental delivery
Oxytocin 40 units in 1000 cc NS at a rate of 250 mm/hour and/or
Misoprostol 800 – 1000 mcg PR

Méthergine is contraindicated in cases with:
- Elevated blood pressure
- Retained placenta
- 2nd twin
- Heart disease
- Severe Bronchial Asthma
FLOW CHART: Examination after 3rd stage

Examination after 3rd stage

- Complete Placenta
  - Contracted uterus
  - No bleeding

- Incomplete membranes
  - Atonic Uterus

- Incomplete placenta

- Abnormal bleeding
  - Empty bladder

Routine care

1. Maintain IV infusion
2. Add 10 UI of Ocytocin

Check the uterus by USS/manually

- Cefazolin 1-2 g IV stat

Examine Cervix and vagina

- Normal
- Abnormal lacerations

- Add Methergine 0.25 mg IM

If Abnormal

Activate PPH management protocol

Check
- Blood Pressure
- Cardiac rhythm
- Vaginal Bleeding
- Tonus of the uterus
- Echography during early post partum

+
Immediate postnatal care after birth

Definition: The postnatal care that is provided to the mother & the newborn during the first hour after birth in the delivery room.

Standard Statement: All women should be closely monitored & observed immediately after birth.

**PROCESS:**

- Congratulate the woman to the new baby affectionately.
- Keep the woman in the labor room for 1 hour after birth for observations.

- Observe, check, record for the followings every 15 minutes:
  - Vital signs
  - Fundal height + uterine contractility
  - Lochia
  - Any bleeding

- Ensure that bladder is empty.
- Initiate breast feeding within the first ½ hour after birth.
- Assist the mother to wear her clothes.
- Discuss with the mother the followings:
  - Selfcare and hygiene especially around the perine.
  - Episiotomy / perineal tear care.
  - Mobility
  - Importance of drinking fluids & proper diet.

  - Danger signs: i.e.
    - heavy bleeding,
    - fever,
    - dizziness,
    - headaches,
    - blurred vision.

- Transfer the woman to the ward after 1 hour or when appropriate after birth via wheelchair.
- Explain the danger signs to the woman
- Document all procedures in medical records.
### Topic 1: Normal delivery

#### Subtopic 4: Delivery Room 2nd & 3rd Stage of Labor (Normal childbirth)

<table>
<thead>
<tr>
<th>F</th>
<th>Identification of Babies in Hospital (cot card)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care Group</td>
<td>All the babies who have been delivered in the hospital</td>
</tr>
<tr>
<td>Definition</td>
<td>Identification of the baby in hospital-cot card</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All details about the baby should be recorded in the cot cards</td>
</tr>
</tbody>
</table>

#### Process:

- Complete a Cot card of the appropriate colour.
- Attach identification bracelet with appropriate colour to the baby’s wrist + leg.

**Record the following details:**

- Mother’s name
- Date and time of delivery
- Type of delivery
- Baby’s weight
- Time of Vitamin K administration
- Newborn sex

- **Attach the card firmly to the baby's cot.**
Topic 1: Normal Delivery

Subtopic 5:
From Delivery Room to Postnatal Ward

Transfer procedures to the Postnatal Ward

a. Transfer of the Mother
b. Transfer of the Baby
## Topic 1: Normal delivery

### Subtopic 5: From Delivery Room to Postnatal Ward

<table>
<thead>
<tr>
<th>A</th>
<th>Transfer of Mother to the postnatal ward</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Care Group</th>
<th>All mothers after birth.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Transfer is moving of the mother from Labor &amp; Delivery to postnatal ward</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Standard Statement</th>
<th>To transfer the mother safely to the Postnatal Ward one hour after birth.</th>
</tr>
</thead>
</table>

### PROCESS:

- Check the fundal height and be sure the uterus is well contracted
- Check lochia for the color and amount
- Check vital signs
- Check perineum for swelling and/or bleeding if there is episiotomy or laceration.

- Assist / encourage the mother to empty bladder if she desires so.
- Inform Obstetric Ward and enquire that if they are ready to receive the delivered woman.
- Urinary Foleys or epidural catheter must be removed before transfer to the ward if any has been applied.
- Assist the mother to move from the birthing bed to the wheel chair. If she has an epidural, we transfer her via trolley.
- Secure the mother on the wheel chair / trolley after the mother gets on it and put the side rails up once the mother is on the trolley

- Avoid any form of injury during transfer e.g.
  1. Keep mother’s hands inside the rails
  2. Secure and adjust I.V. if there is one
  3. Secure urine drainage bag if there is one
  4. Avoid banging the trolley, be observant and move carefully

- Take the mother’s file and belongings with her.
- Transfer the mother to the ward.
Once the mother is in bed, she will be checked for lochia and uterus before leaving her with the ward nurse.

**PROCESS:**

- Keep baby warm and airways clear.
- Carry a mucus extractor with you

- Observe the condition along the way; color, breathing and movements

- Check the baby with the receiving nurse;
  1. mother’s name,
  2. file number
  3. and sex of the baby,
  4. date of birth
  5. & umbilical site.

- Record details in the admission book if the baby is not for discharge

- Make sure the baby's cot card and chart from the delivery suite are complete and the I.D bands are secure before leaving.
Topic 1: Normal Delivery

Subtopic 6: On the Postnatal Ward

A. Postnatal care after vaginal delivery
B. Postnatal care following caesarean section
C. Removal of sutures / clips / staples / drain
<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Normal delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtopic 6</td>
<td>On the Postnatal Ward</td>
</tr>
<tr>
<td>A</td>
<td>Postnatal care of the woman on the postnatal ward.</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All women should be monitored &amp; observed after birth while staying on the postnatal ward.</td>
</tr>
</tbody>
</table>

**PROCESS:**

- Congratulate the mother for the new baby.
- Orient the mother to the ward. e.g. bathrooms, kitchen, nurse's station,…etc

- Continue woman’s observation as followed every 1 hour for 4 hours:
  - Vital signs
  - Fundal height
  - Lochia
  - bleeding.

- Encourage the woman to void frequently & keep bladder empty (record the first void)
- Check perineal stitches, if any every 8 hours.
- Check baby identification each shift and before discharge.
- Assist the mother to have a shower when she desires / can do so.
- Encourage & assist breast feeding on demand.
- Assess breast once every shift for any tenderness, cracked nipples, and engorgement.
- Check the mother & baby blood groups & give anti – D if indicated.
- Discuss with the family their important supportive role for the mother after birth.

- Teach & counsel the mother about the following before discharge:
  - Selfcare & hygiene.
  - Perineal care.
  - Stitches care, if any.
  - Diet & fluids intake
  - Danger signs
  - Breast feeding
  - Baby care including screening for thyroid &PKU/vaccination
  - Mobility & exercise
  - Family planning
  - Sexual activity

- Documentation: Procedures, assessment findings, teachings, …etc
PROCESS:

On admission to the ward:

- Prepare a quiet room to receive the mother on return from theatre.
  Prepare recovery tray, oxygen, suction, drip stand, sphygmomanometer, stethoscope and prepared bed.
- Transfer patient to bed.
- Make sure that the mother is sponged down and dressed.
- Make sure that the mother has a bell at hand to call for help.

Observation on arrival to the ward:

- Assess & record baseline observation for temperature, pulse, respiration, blood pressure, lochia, wound, drain, uterine involution.
- Continue assessing observations 1/4 hourly in the first hour, then 1/2 hourly in the second hour and 4 hourly thereafter.
- Ensure that the woman is in left lateral position until recovery of full consciousness.
- Observe for risk of airway obstruction or regurgitation or silent aspiration of stomach contents.
- Observe dressing every half hour and replace as required
- Put baby to breast feed as soon as possible.

Intravenous infusion:

- Continue IV therapy until patient passed urine and bowel sound have returned. *Only to be discontinued with physician order.*

Breast feeding:

- Assist & encourage breast feeding hourly for first 24 hrs then on demand.

Bladder care:

- Encourage early and regular passing of urine.
- Urinary catheter to be removed 6 hours post operation unless otherwise instructed.

Fluid balance:
- Keep input/output charts including drains and gastric tube if any.
- Keep hourly chart in the first 6 hours and 2 hourly up to next morning round

**Analgesia and Haemoglobin (Hb):**

- Inject Pethidine 50/100 mg PRN every 4-6 hour in the first 24 hr then oral/rectal analgesia as prescribed.
- Check Hb routinely on the 1st post-operative day, and again as instructed

**Hygiene:**

- Daily shower as required.

**Ambulation:**

- Encourage early mobilization after 6-8 hr of post-op and encourage good Posture

**Wound:**

- Remove drain/s within 48 hour provided the 24 hr collection is < 50 ml.
- Uncover and inspect the wound after 24 hours.
- Clean the wound keep it dry and inspect for signs and symptoms of inflammation.
- Remove sutures between the 5th and 7th day unless otherwise instructed by Consultant.

**Upon Discharge:**

- Patient need to be taught about self & baby care, breast feeding, immunization, screening for special diseases, medication, follow up care and family planning.
- Transfer mother back to outpatient clinic.

**Diet:**

- Keep NPO for at least 6 hours.
- Give IV fluid: each 500 ml to run over 4 hours (3L/24 hours), unless otherwise instructed.
- Assess bowel sounds are heard; Oral intake: sips of water can be given 6 hrs after operation.
- If sips are well tolerated, start clear fluids for about 6 hrs; if well tolerated then soft diet can be commenced.
- Once the patient moves her bowel (pass flatus/stool), regular diet is allowed.

**Anti-D injection**
- Anti-D is to be given within 72 hrs in cases of Rhesus Negative mother with a Rhesus Positive baby.

**Bowel care:**

- Two glycerine suppositories to be given on second day if required.
- Prophylactic antibiotic therapy as ordered.

**Thromboprophylaxis/Physiotherapy:**

- Encourage passive leg movement, deep breathing, postnatal exercise and early ambulation.
- Follow VTE prevention protocol
Points to consider:

- The sutures are usually removed between 5-7 postoperative days.
- Check the notes to ascertain the number of sutures/clips/staples to be removed.
- The procedure is explained to the woman
- The woman is asked to use toilet and have a sit bath prior to the removal of any residual perineal suture.
- Ensure the women is in a comfortable position with incision exposed to good light.

Action:

- Prepare the requirement light lamp, trolley contains small dressing pack, disposable dressing scissors, stitch cutter, staple or clip remover, disposable gloves, micropore, and specimen swab tube.
- Hand washing and dry on paper towel
- Clean trolley.
- Wash hands again.
- Open both packs - drop gloves and removal instrument on to sterile field
- Antiseptic hand wash, dry hands on disposable dressing towel.
- Put on gloves using a septic technique.
- Removal of sutures / clips / staples and place them on a small gauze swab

Drain removal:

- Cut retaining suture using a suture cutter.
- In case of vacuum drain: close the drain valve.
- Whilst supporting abdomen around drain site with hand and piece of gauze pull drain out slowly and firmly.
- After procedure, the woman is made comfortable and the trolley cleaned.
- Dispose of staples and clips into sharp box.
- Record procedure in woman's notes
Topic 1: Normal Delivery

Subtopic 7: Before leaving the hospital

A. Normal Discharge procedure
B. Discharge against medical advice
C. Transfer of a patient to another hospital
## Normal delivery

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<td>Before leaving the hospital</td>
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<tr>
<td>A</td>
<td>Normal Discharge Procedure</td>
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</table>

| Care group | Mothers who have reached a state of high-level of wellness. |
| Definition | Leaving the health agency after reaching a state of high-level of wellness |
| Standard Statement | To ensure that all necessary documentation is completed. To ensure all requirements for discharge have been met. For healthy normal delivery: Discharge is to be planned after 24 hours. For C/S: Discharge is to be planned in 2-3 days. |

### PROCESS:
- Write the orders stating the time and date of discharge.
- Prescribe any take home medications.
- Write the discharge summary, the original will be placed in the patients file, a photocopy will be given to the patient and a copy will be faxed to the referral source.
- Arrange for the outpatient clinic appointment if necessary.
- Call the outpatient reception, arrange the date and time.
- Document on an appointment card, which will be given to the woman.
- Complete the nursing record, all charts will be filed in the notes by the ward clerk.
- Notify the accounting department of the woman discharge to settle any outstanding charges (if appropriate).
- Give the woman her discharge summary, outpatient appointment and take home medications, giving instructions how and when to take them.
- Ensure that the woman and relatives have appropriate knowledge and understanding regarding follow up care.
- Enter the discharge date and time in the admission book, 24 hr bed statement and computer.
- Any babies should be carried by the nurse to the reception.
- Instruct the mother about the importance of visiting MCH centre for baby's immunization (especially Guthrie test), as early as possible.
- Check the patient’s file to ensure all entries have been made, documentation is complete with charts and returned to medical record.
- Notify the housekeeping and the information desk of the patients discharge.
- Educate / counsel mother’s before discharge home. (Self-care, baby care, warning signs, diet recommendations, fluid intakes, rest & mobility)

**!! If the patient is immobile, the patient should be taken by wheel chair.**
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<tr>
<td>B</td>
<td>Discharge against Medical Advice (DAMA)</td>
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<tr>
<td>Care Group</td>
<td>Mothers who leave the health agency before reaching a state of high-level of wellness.</td>
</tr>
<tr>
<td>Definition</td>
<td>Mother leaves the health agency against her physician’s order.</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>Any woman wishing to leave the hospital against the advice of the attending consultant has the right to do so after explaining to her any potential risks &amp; signing on a paper on her own responsibility.</td>
</tr>
</tbody>
</table>

**PROCESS:**

- Ensure all efforts have been made to discourage the woman from leaving.
- **Ensure the woman and doctor have signed the discharge against medical advice (DAMA) form.**
- Document in the woman’s file.
- Document in the nursing notes.
- File the discharge against medical advice form in the woman’s file.
- **Follow the discharge procedure.**
- Payment where appropriate will be finalized according to current hospital policy.
- Ensure and document, when the patient leaves the premises.
### Process:

**The physician will:**

*Obtain a written order from the treating consultant*

- Collect any photocopies of laboratory results and any other investigation reports.
- Copies of X-rays will be given to the patient if she requests them *(the patients file must not leave the hospital)*
- Complete the transfer letter.
- Check with the receiving hospital that they are expecting the patient.
- Complete the discharge check list prior to the transfer
- Enter time and date of transfer in the ward register, 24 hr bed statement and computer
- Arrange for an ambulance and nurse escort/contact the hospital supervisor in charge to arrange this.

**The Midwife / Nurse will:**

- Assist in arranging for the ambulance by contacting the nursing supervisor.
- Return the file to the admission office as per current hospital policies.
- Notify the admissions office, information desk, domestic services of the patient transfer.
References

5. Induction of labour, Royal College of Obstetricians and Gynaecologists, evidence-based Clinical Guideline, Number 9, RCOG Clinical Effectiveness Support Unit, June 2001
TOPIC 2: Breastfeeding

1. Promotion of breastfeeding
   A. Immediate initiation
   B. Teaching & counselling of breastfeeding
   C. Procedure of breastfeeding
   D. Maintaining and encouraging breastfeeding

2. Care of the breasts
   A. After normal delivery
   B. After C-section

3. Minor Breast Problems
   Complications during breastfeeding
   A. Weak reflex
   B. Flat nipples
   C. Engorgement
   D. Mastitis
   E. Sore nipples

In a general way, the guidelines are proposed for the whole team. Nevertheless, the prominent role of the midwives both in the promotion of breastfeeding and in the management of minor breast problems must be highlighted. So, this section concerns principally the midwives.
The midwife / nurse will:

- Congratulate the woman for her new baby.
- Establish mother-newborn bonding by placing the newborn on the mother's abdomen (skin-to-skin) after birth for at least 1 hour.
- Assist the newborn to initiate suckling on the breast.
- Assess, supervise, support & instruct the mother while breastfeeding here newborn.
- Inform & discuss with the mother the following appropriate breastfeeding issues at this stage:
  - Importance of early initiation of breast feeding.
  - Importance of colostrums to the newborn.
- Documentation: early initiation, skin-to-skin approach.

Inform & discuss with the mother the following appropriate breastfeeding issues at this stage:
  - Importance of early initiation of breast feeding.
  - Importance of colostrum's to the newborn.
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<td>Promotion of breastfeeding</td>
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<tr>
<td>B</td>
<td>Teaching &amp; counselling of breast feeding.</td>
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<tr>
<td>Care Group</td>
<td>All expecting mothers &amp; who gave birth &amp; exist in labour &amp; delivery suite, postnatal ward or antenatal clinics.</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All pregnant &amp; delivered mothers will receive an appropriate health education &amp; counselling related to breast feeding issues.</td>
</tr>
</tbody>
</table>

**Process:**

**The midwife / nurse will teach & counsel the mother about:**

- Benefits of breast feeding for the mother & the newborn.
- Breast feeding procedure.
- Breast feeding positions & latch on.
- Exclusive breast feeding for the first 4-6 months & its importance for successful maintenance of breast feeding.
- Importance of immediate initiation of breast feeding after birth (within the first 1 hour after vaginal birth and within 4 hours after C/S).
- Possible breast feeding problems & their management.
- Importance of continuing breast feeding even if the newborn is sick or the mother has minor breast problem such as: inverted nipple, sore nipple, or engorgement.
- Importance of eating well balanced diet & lots of fluids while breast feeding.
- Learning from previous breast feeding experiences.
- Manual milk expression

- Acceptable reasons not to breastfeed: HIV, Sepsis, HSV 1
- Continue breastfeeding in case of breast abscess, mastitis, hepatitis B, C or TB
- Documentation: all issues discussed.
Topic 2  Breastfeeding

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<td>C</td>
<td>Procedure of Breastfeeding.</td>
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</tbody>
</table>

Standard Statement: All lactating mothers should be guided to proper breast feeding Procedure.

**PROCESS:**

**The midwife / nurse will:**
- Welcome the mother in the postpartum ward.
- Review her delivery record for mode of delivery & special needs of the baby.
- Assess the history of breast feeding previously.
- Assist the mother to assume comfortable position.
- Place the baby in the mother’s arms if sitting up or next to her if lying down.
- Position the baby so that his / her arms do not interfere with mouth to breast contact, the whole body must face the breast, mouth of a baby opposite to nipple, support baby’s body to keep her high at the breast to prevent hanging at the nipple by placing the newborn on a pillow.
- Have the mother hold her breast with four fingers below the nipple & thumb above.
- Assist the mother to touch her baby’s lower lip with her nipple until baby opens mouth wide.

**The mother will:**
- Bring baby in close contact to her body.
- Removes her hand from around the breast, still supporting the baby’s head to insure proper nipple contact.
- Breast support can be used if the mother feels more comfortable or if she has a large breast.
- Remove the baby from the breast; the mother inserts one finger in to the corner of the baby’s mouth.
- Burp the baby.

**The midwife / nurse will:**
- Observe breastfeeding procedure for at least 5-10 minutes for the 1st time.
- Teach the mother:
  - Advantages of exclusive breast feeding.
  - Importance of proper positioning & attachment.
  - Encourage breastfeeding on demand.
  - Check the mother’s breast each shift for nipple soreness, cracking & engorgement.
  - Duration of breastfeeding should be 10-40 min every 1-3 hours (on demand) (8-12 times/24 hours).
  - Each breastfeed should be on one breast, the next breastfeed should be on the other one.
  - The following situations indicate that the newborn is not attached to the breast:
a) Very long feed (>40 min for most feeds)
b) Very short feed (<10 min for most feeds)
c) Very frequent feeds (>12 feeds over 24 hours for most days)

- Indications of good attachment and positioning:
  a) Mouth wide open.
  b) Less areola visible underneath the chin than above nipple.
  c) Chin touching the breast, lip rolled down and the nose is free.
  d) No pain

- Indicators of successful feedings for the babies:
  a) Audible and visible swallowing
  b) Sustained rhythmic suck
  c) Relaxed arms and hands
  d) Moist mouth
  e) Regular soaked or heavy nappies

- Indicators of successful breastfeeding in women:
  a) Breast softening
  b) No compression of the nipple at the end of the feed.
  c) Women feel relax and sleepy.

- Encourage the mother to ask for help whenever she requires breastfeeding.

- Documentation: frequency, duration, problems, assessment findings.
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<td><strong>Subtopic 1</strong></td>
<td>Promotion of breastfeeding</td>
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<tr>
<td><strong>D</strong></td>
<td>Maintaining &amp; encouraging Exclusive breast feeding.</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All lactating mothers should be supported &amp; counselled how to maintain exclusive breast feeding.</td>
</tr>
</tbody>
</table>

**Process:**

**The midwife / nurse will:**
- Welcome the mother in the postpartum ward.
- Assist, help & support the mother while breast feeding.

- **Counsel the mother on:**
  - Maintenance of breast feeding.
  - Importance ofcolostrums for better immunity.
  - Breast feeding on demand (every 2-3 hours) day & night.
  - Breast feed on demand and on one breast.
  - Breast feed from one breast at each time and, the next feed start from the other one.
  - Proper latch on nipple and areola.
  - Importance of taking care of the breast & nipples.
  - Discuss disadvantages of supplementation especially bottle feeding.
  - Discuss complementary feeding by adding food at the age of 6 months while continuing breast feeding.
  - Explain the effect of exclusive breast feeding as a contraceptive method for the first 6 months after birth.
  - Discuss the protective effect of breastfeeding from infection & other illnesses.

- Emphasize the importance of continuing breast feeding during the illnesses of the child.
- Give the newborns no food or drinks other than breast milk unless medically indicated.
- Practice rooming-in & allow the mother & newborn to remain together for 24 hours a day.
- Give no artificial teats or pacifiers to breast feeding newborns.
- Documentation of all breast feeding counselling & teachings.

Breastfeeding should be exclusive for 6 months
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<td>A</td>
<td>Breast care during breast feeding after normal delivery</td>
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<tr>
<td>Care Group</td>
<td>Breast feeding mothers</td>
</tr>
<tr>
<td>Definition</td>
<td>Care of breast through the period of breast feeding</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All breast feeding mother has the right to be checked for and educated on “how to take care of their breasts and nipples” post delivery</td>
</tr>
</tbody>
</table>

Process:

**The midwife / nurse will:**

- Discuss the importance of having the breast & nipples clean & dry before, after & between each breast feeding session.
- Assist the mother to have a shower in the morning.
- Advise cleaning the breasts with her milk.

**Advice mother not to use Soaps, alcohol, and petrolatum-based preparations as they are causing nipples to crack and moving protective secretions, in addition they may be distasteful to some infants who will then refuse to suckle.**

- Nipples are lubricated with a few drops of expressed colostrums or milk,
- Assist & educate (especially primipara) how to clean & dry the breasts & nipples properly.
- Discuss with the mother importance of proper latch on to protect the nipple from cracks and sores

**Educate the mother on other issues related to breast feeding, body hygiene, proper diet, family planning.**

- Documentation: all procedures conducted.

*In case the breast/nipple needs any special treatment advice accordingly*
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<tr>
<td>B</td>
<td>Assisting Caesarean section mothers with breast feeding</td>
</tr>
<tr>
<td>Care Group</td>
<td>All mothers with healthy living babies post caesarean section</td>
</tr>
<tr>
<td>Definition</td>
<td>Initiation of breast feeding after caesarean delivery within the first 4 hours</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>The mother and the newborn will succeed in initiating breast feeding session by the help of a qualified health care provider</td>
</tr>
</tbody>
</table>

**PROCESS**

*The midwife / nurse will:*

- Asses normal baby for the ability to suck spontaneously
- **Observe and assess the level of consciousness of the woman to choose the right moment for initiation of mother-child relationship**
- Congratulate the mother for her new baby’s safety
- Initiate a friendly atmosphere and initiate a warm discussion focusing on the importance of early bonding between the mother and her child
- Provide a suitable physical and emotional support to make the mother able and desire to hold her newborn
- Discuss with the mother the importance of early breast feeding and its benefit for both her and her child
- **Inform, discuss and instruct the mother on the alternative positions of breastfeeding (lying down or on one side position) while preparing her for the CS or during having a CS incision if possible.**
- Secure a suitable environment and right position with enough support to initiate breast feeding
- Help and observe the mother while nursing her new born
- **Educate the mother on specific issues as frequency of breast feeding, timing, concept of exclusive breast feeding, proper diet, etc**
- Discuss with the husband and the close family members the importance of their help and emotional support.
Subtopic 3.
Minor Breast Problems
Complications during breastfeeding
  A. Weak reflex
  B. Flat nipples
  C. Engorgement
  D. Mastitis
  E. Sore nipples
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<tr>
<td>Subtopic 3</td>
<td>Minor Breast Problems</td>
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<tr>
<td>A</td>
<td>“Weak Suckling Reflex”</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>All newborns with weak suckling reflex will be identified &amp; their mothers will be assisted &amp; guided properly.</td>
</tr>
</tbody>
</table>

Process:

**The midwife / nurse will:**

- Observe & assess at least one feeding for each mother to be able to evaluate & identify problems.

- Inform the mother about the problem of weak suckling reflex her newborn has.

- Reassure the mother about this problem that may need her patience, time & observation.

- Advise & demonstrate to the mother to help her newborn to strengthen this reflex by inserting her clean little finger between & before feedings in to the baby’s mouth & allow him to suck for few minutes.

- Teach & counsel the mother with all breast feeding issues.

- **Documentation:** observations, assessment findings, patient education and written information supplied: teachings.(folders, leaflets, …)
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<tr>
<td>B</td>
<td>Flat nipples</td>
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<tr>
<td>Standard Statement</td>
<td>Women having a flat or inverted nipples should start care during pregnancy.</td>
</tr>
</tbody>
</table>

**Process:**

**The midwife / nurse will:**

- Advise wearing a bra with a whole at the location of the nipple in the last few months of pregnancy. Mechanical Pressure may help to pull the nipple out.

**Immediately after delivery: (within the first ½ an hour)**

- Build mother's confidence-breasts will improve and become softer
- Explain & assist the baby to suckle BREAST not nipple (correct Latch on)
- If difficult Latch on, be patient, & try again.
- Let baby explore breast, skin-to-skin contact
- Help mother to position baby to breast feed with in the first ½ an hour after birth.
- Help her to make nipple stand out more before a feed by 20 cc syringe or pump.

**For the first week or two:**

- Encourage on demand feeding.
- Try different positions to hold the baby e.g. underarm
- Use syringe method or pump to pull out the nipple before feeding.
- If the above didn’t work ,try using nipple shield while breast feeding.
- Express breast-milk and feed with cup for the first few days. Expression should be thorough & frequent.
- Express breast-milk into baby's mouth
**Topic 2**  
**Breastfeeding**

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<td>Breast Engorgement</td>
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</table>

**Care Group**  
Mothers complaining/having breast problems at any time during lactating period

**Standard Statement**  
Same as above. The woman with any breast problem during lactating period should be investigated, diagnosed and managed properly

---

**PROCESS:**

The midwife / nurse will:

**Do not REST the breast**

**If baby able to suckle**

- Feed frequently; help with positioning and attachment, use different positions.
- Start feeding from the engorged breast.
- Breastfeeding with no restrictions and on demand.

**If baby not able to suckle or suckling is not enough to empty the breast:**

- Express milk by hand after each feeding.

**Before feed to stimulate oxytocin reflex**

- Warm compress on breasts or warm shower
- Massage to neck and back
- Light massage of breast
- Stimulate nipple skin
- Help mother to relax

**After feed to reduce oedema**

- Cold / ice compress on breasts
- Encourage wearing a supportive bra to hold the breast in position.
- There is a new recommendation to apply cabbage leaves on the engorged breast that might relieve engorgement.
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<td>D</td>
<td>Blocked duct and Mastitis</td>
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<tr>
<td>Care Group</td>
<td>Mothers complaining/having breast problems at any time during lactating period</td>
</tr>
<tr>
<td>Standard Statement</td>
<td>The woman with any breast problem during lactating period should be investigated, diagnosed and managed properly</td>
</tr>
</tbody>
</table>

**PROCESS:**

**Improve drainage of breast by:**

- **Look for cause and correct**
  - Encourage breast feeding initiation from the affected side.
  - Encourage to continue breast feeding even though there is bloody discharge from the nipples.
  - Poor attachment or incorrect sucking.
  - Pressure from clothes or fingers or position of sleeping or lying down or trauma of the nipple.
  - Large, pendulous breasts draining poorly

- **Advice (whether or not you find a cause)**
  - Frequent breast-feeds initiating from the affected side. (Feeding might clear the blocked duct)
  - Continuing breast feeding even though there is bloody discharge from the nipples if the affected breast is painful start with other one.
  - Gentle massage on lumpy one towards the nipple before and during the breastfeeding.
  - Advise warm compresses before breast feeding & cold compresses after feeding.
  - Change of feeding position.
  - Rest the mother not the breast.

- **If any of these**
  - Symptoms severe, or fissure
  - **No improvement after 24 hours**

  - Refer for Physician check up & management.
- **In case of infection**, prescribe antibiotics & analgesics.
- **In case of breast abscess**, advise surgical treatment (incision & evacuation).
- **In case of fungal infection**, prescribe anti-fungal treatment

Treat in addition to complete rest for the mother not for the breast

### Antibiotics Treatment for infective Mastitis

The commonest bacterium found in the breast is staphylococcus aureus. Therefore it is necessary to treat breast infections with a penicillinase-resistant antibiotic

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<th>Dose</th>
<th>Instructions</th>
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<tr>
<td>Flucloxacillin</td>
<td>250 mg orally Every 6 hours for 7-10 days</td>
<td>Take dose at least 30 minutes before food</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>250-500 mg orally Every 6 hours for 7-10 days</td>
<td></td>
</tr>
<tr>
<td>Cephalosporin</td>
<td>Example: keflex 250-500 mg orally Every 6 hours For 10-14 Days</td>
<td></td>
</tr>
<tr>
<td>Cefaclor</td>
<td>250-500 mg orally every 8 Hours for 10-14 days.</td>
<td></td>
</tr>
</tbody>
</table>
Process:

- Observe & assess the position, latch on & removing the baby from breast.
- Teach correct latch on.
- Teach to break down sucking before taking off the baby off the breast.
- Reduce engorgement-suggest feed frequently, express milk.
- Encourage continuation of breast feeding.
- Wash breasts only once a day & dry very well, and avoid using soap
- Expose the breast to air after massaging a drop of breast milk on the nipple.
- Avoid medicated lotions and ointments Rub hind-milk on areola after feeds

- **If not improved after 24 hours or more/severe symptoms**

- **Refer for Physician check up & management.**

Look for a cause:

- Check attachment
- Examine breasts-engorgement, fissures, Candida
- Check baby for Candida, and tongue-tie

Give appropriate treatment:

- Build mother's confidence
- Improve attachment, and continue breast-feeding
- Reduce engorgement-suggest feed frequently, express milk
- Treat for Candida if skin red shiny, flaky; if there is itchiness, or deep pain during or after feeding, or if soreness persists.
Treatment of Candida of the Breast

Gentian violet paint:
- To baby's mouth: 0.25% apply daily or alternate days for 10-14 days or until 3 days after lesions have healed.
- To mother's nipples: 0.5% apply daily for 10-14 days

OR

Nystatin cream 100,000 IU/G:
- Apply to nipples 4 times daily after breast-feeds
- Continue to apply for 7 days after lesions have healed

Nystatin suspension 100,000 IU/ml:
- Apply 1 ml by dropper to child's mouth 4 times daily after breast-feeds for 7 days, or as long as mother is being treated.

Stop using pacifiers, teats, and nipple shields
References Topic

1. National Unified Reproductive Health Guidelines & Protocols, UNFPA.


9. EAPRO, UNICEF. Supporting families to optimally feed infants and young children in emergencies. 2006


TOPIC 3: Early essential/Immediate new born care (EENC)

1. 0 to discharge care

   Special care is delivered according to sequence time bands

   - First 30 seconds
   - 30 seconds to 3 minutes
   - Within 90 minutes
   - Look at the eyes:
   - From 90 minutes to 6 hours
   - Examination:
   - IF the baby weighs < 1500 g or looks very small
   - the baby weighs < 1500 g or looks very small

2. Newborn resuscitation
   0-30 Seconds
Process:

First 30 seconds
- Call out time of birth.
- Immediately dry the baby (starting within the first 5 seconds after birth), as follows:
  - use a clean, dry cloth and dry the baby thoroughly;
  - wipe the eyes, face, head, front, back, arms and legs; and
  - do a quick check of baby’s breathing while drying (see below).
- Remove wet cloth and place baby in skin-to-skin contact with the mother.
- Cover the baby and mother with a clean warm cloth.
- Cover the baby’s head with a bonnet.

DO NOT:
- do not routinely suction during the first 30 seconds:
- do not suction unless the mouth/nose is/are blocked; and
- do not suction meconium unless the baby is not vigorous.

30 seconds to 3 minutes
1. IF after thorough drying and stimulation (as close to 30 seconds as possible), newborn is gasping or is not breathing:

   Start of positive pressure Ventilation

   - Call for help.
   - Clamp and cut the cord with sterile scissors and with sterile gloves.
   - Transfer to warm, firm surface.
   - Inform the mother in a kind and gentle tone that the baby has difficulty breathing and that you will help the baby to breathe.
   - Start ventilation (see link).
2. IF breathing or crying

**Continue skin-to-skin Contact**

- If baby is breathing normally or crying, avoid manipulation such as routine suctioning that may cause trauma or introduce infection. Postpone routine procedures such as weighing and measurements.
- Continue skin-to-skin contact with the baby prone on the mother’s abdomen or chest.
- Turn the baby’s head to one side.
- Keep the baby’s back covered with a blanket and head with a bonnet.

**NOTES:**

1. **Do not**
   - separate baby from the mother as long as the baby is well – i.e. does not exhibit severe chest in-drawing, gasping or apnoea, or severe malformation – and the mother does not need urgent medical stabilization, e.g. emergency hysterectomy.
   - Do not wipe off the vernix, if present.
   - Do not bathe the baby during the first 24 hours of life.

2. If an identification band is used, place on the baby’s ankle.
3. If the baby must be separated from his/her mother, clamp and cut the cord and put the baby on a warm surface in a safe place close to the mother.
4. **Assist with multiple births**
   - If there is another baby/ies, get help. Deliver the next baby. Manage as in a multifetal pregnancy.
5. **Do appropriately timed cord clamping and cutting**
   - Ensure gloves are sterile when touching or handling the cord
   - if single health worker with double sterile gloves: remove soiled set of gloves prior to touching or handling the cord;
   - if other health worker: wash hands and use sterile gloves.
   - Clamp and cut the cord after cord pulsations have stopped (between 1–3 minutes), as follows:
     - apply a sterile plastic clamp or tie around the cord at 2 cm from the umbilical base;
     - drain the cord of blood by stripping away from the baby;
     - apply the second clamp at 5 cm from the umbilical base (which is 3 cm from the first clamp);
     - cut close to the first clamp or tie using sterile scissors; and
     - apply a second tie if there is oozing blood.
   - Put soiled instruments into a decontaminating solution.
Within 90 minutes

✓ Leave the baby on mother’s chest in skin-to-skin contact, with the head turned to one side and mother in a semi-upright position, or on her side.
✓ Observe the baby. Only when the baby shows feeding cues (e.g. opening of the mouth, tonguing, licking, rooting), suggest to the mother to encourage/nudge her baby towards the breast.
✓ Provide breastfeeding support to ensure good positioning and attachment.

When the baby is ready, advise the mother to:

- make sure the baby’s neck is not flexed or twisted;
- make sure the baby is facing the breast with the baby’s nose opposite her nipple and chin touching the breast;
- hold the baby’s body close to her body;
- support the baby’s whole body, not just the neck and shoulders;
- wait until her baby’s mouth is opened wide; and
- move the baby onto her breast, aiming the lower lip well below the nipple.

- **Look for signs of good attachment and suckling, including:**
  - mouth wide open;
  - lower lip turned outwards;
  - baby’s chin touching breast; and **MORE** of the bottom of the **AREOLA** in baby’s **MOUTH**
  - slow and deep suckling, with some pauses.

**NOTES:**
Breastfeeding is a learned behavior for both baby and mother. Baby will make several attempts to breastfeed before being successful. Health workers should avoid interfering with this process (e.g. manipulating baby’s head and/or body).

**IF** attachment or suckling is not good, try again, and reassess.

Do not leave the mother and baby alone. Monitor breathing and warmth.

**IF** the baby has signs of illness or does not show readiness to feed, i.e. feeding cues within 90 minutes, EXAMINE the baby and MANAGE urgent conditions.

**IF** the breast is engorged, express a small amount of breast milk before starting breastfeeding to soften the areola area so that it is easier for the baby to attach.

**Look at the eyes:**
- Is there minimal discharge?: → Use warm saline compressors
- Are they swollen and draining pus? → Refer/Consult appropriate care
NOTES

- Do not touch the baby unless there is a medical indication.
- Do not give sugar water, formula or other prelacteals.
- Do not give bottles or pacifiers.
- Do not throw away colostrum.
- If the mother is HIV-positive, take measures to prevent mother-to-child transmission. Do counselling and testing.

Additional care:

For a visibly small baby or a baby born at < 36 week:

- encourage the mother to keep the baby in skin-to-skin contact;
- provide extra blankets to keep the baby warm;
- do not bathe the baby; and
- ensure hygiene by wiping with a damp cloth, but only after 24 hours.

IF the mother cannot keep the baby in skin-to-skin contact because of complications:

- wrap the baby in a clean, dry, warm cloth;
- place in a cot;
- cover with a blanket; and
- encourage another family member to keep the baby in skin-to-skin contact or use a radiant warmer if room is < 28 °C.

Prepare a very small baby (< 1500 g or a baby born > 2 months early) for referral.
Keep the baby in skin-to-skin contact or in an incubator while waiting for referral

NOTE: Low-birth-weight (LBW) babies weighing >1200 g who do not have complications should be maintained in skin-to-skin contact with the mother or other family member immediately after birth, after drying them thoroughly to prevent neonatal hypothermia.

From 90 minutes to 6 hours

After the baby has detached from the breast:

- wash hands;
- thoroughly examine the baby;
- put an identification tag around the ankle; and record.
- weigh the baby and
- Give vitamin K prophylaxis: 1 ampoule (1 mg/0.5 ml or 1 mg/ml) once.
- For preterm neonates give 0.4 mg/kg IM (maximum dose, 1 mg).
Explain to the mother that you will be injecting vitamin K to prevent bleeding. Explain to her that there may be soreness at the injection site or other minor side-effects, but that these are uncommon and that the benefits of getting the injections outweigh the risks. Ensure that there is no excessive bleeding before leaving the baby and mother. Wash hands and record the injections.

Examination:

✓ Explain to the mother that you will examine her baby and checking for birth injuries and/or malformations, especially those that need additional care or early referral **Check the baby for**: 

✓ Vital signs | Malformations
---|---
Look at the eyes | Abdomen for distension
Umbilical stump | Skin for cuts or bruises
Birth injuries; bruises, bumps, arm movement | Mouth for cleft lip #/ palate

*For details, please check EENC guidelines*

✓ Inform the mother of your examination findings.
✓ Reassure her or refer as necessary.

IF the baby weighs < 1500 g or looks very small, and:

✓ is not feeding well; or
✓ has any danger signs;

**MANAGE urgent conditions as follows:**

- start resuscitation if necessary (*);
- give first dose of IM ampicillin and gentamicin;
- stop any bleeding; and
- give oxygen, if available.
- Refer for special treatment and/or evaluation if available.
- re-warm and keep warm during referral;
- Help the mother to breastfeed.
- If not successful, teach her alternative feeding methods
Dry cord care: **Instruct women to:**

- Wash Hands
- keep cord stump loosely covered with clean clothes;
- fold diaper below the stump;
- put nothing on the stump;
- wash stump with clean water and soap, only if it is soiled and dry it thoroughly with a clean cloth;
- seek care if the umbilicus is red or draining pus;
- treat local umbilical infection 3 times a day;
- gently wash off pus and crusts with boiled and cooled water, and then soap;
- Consult or refer for appropriate care if pus or redness worsens or does not improve in 2 days.

**NOTES:**

- o not bandage the stump or abdomen.
- Avoid touching the stump unnecessarily.

Additional care for small or twin

**If the baby is delivered:**

- 2 months early or weighs < 1500 g, refer to specialized hospital;
- 1–2 months early or weighs 1500 to less than 2500 g (or is visibly small when scale is not available), see Additional care for a small baby (see page 75

**NOTES:**

- Encourage the mother to keep her small baby in skin-to-skin contact.
- If mother cannot keep the baby in skin-to-skin contact because of complications, another family member (grandmother or father) should be instructed on how to do so.
- Do not bathe the small baby.
- Keep the baby clean by wiping with a damp cloth, but only after 24 hours.
- Measure the baby’s temperature every 6 hours.

**Advice on staying in the facility**

After an uncomplicated vaginal birth, advise the mother that she and her healthy baby should receive care in the birthing facility **for at least 24 hours.**
IF baby is gasping or not breathing after thorough drying and stimulation (for as close as possible to 30 seconds):

- Call for help and explain gently to the mother that her baby needs help to breathe.
- Clamp and cut the cord immediately to allow effective ventilation to be performed.
- Transfer the baby to the resuscitation area (a dry, clean and warm surface).
- Keep the baby wrapped or under a heat source, if available.
- Consider immediate referral at any point, where feasible.

Open airway Clear the airway only if it is blocked

- Position the head so it is slightly extended.
- Only if the mouth/nose are blocked, introduce the suction/tube:
  - first, into the baby’s mouth 5 cm from the lips and suck while withdrawing;
  - second, 3 cm into each nostril and suck while withdrawing;
  - repeat once, if necessary, taking no more than a total of 20 seconds; and
  - do tracheal suctioning, where feasible.

**DO NOT** do routine suctioning of the mouth and nose of babies with:
clear amniotic fluid if they are breathing on their own;
clear amniotic fluid prior to positive pressure ventilation if mouth and 
nose are free of secretions;
meconium staining if they have started breathing on their own, meaning 
that they are vigorous.

Ventilate, if still not breathing

- Start bag/mask ventilation within one minute after birth:
- for babies < 32 weeks, it is preferable to start with 30% oxygen, where feasible.
- Place mask to cover chin, mouth and nose to achieve a seal.
- DO not cover the eyes.
- Squeeze bag attached to the mask with two fingers or whole hand, 
  according to bag size, 2–3 times.
- Observe rise of chest.

IF chest is not rising: first, reposition the baby’s head. 
IF chest is still not rising: check for adequate mask seal. 
IF chest is still not rising: squeeze bag harder.
**IF chest is rising:** ventilate at 40 breaths per minute until baby starts crying or breathing.

**Place mask to cover chin, mouth and nose to achieve a seal**

- **Correct:** Covers mouth and nose, but not eyes
- **Incorrect:** Too large - covers eyes
- **Incorrect:** Too small - does not cover mouth and nose

**Check breathing; and check heart rate every 1–2 minutes of ventilation.**

- Assess chest rise.
- Assess heart rate:
  - if heart rate is < 100 per minute, take ventilation corrective steps (see below); or
  - if heart rate is < 60 per minute, where feasible give supplemental oxygen, **chest compressions**, other ventilatory support and medications.

**Cardiac Compression**

**IF baby fails to improve → follow ventilation corrective steps.**
Ventilation corrective steps
1. Check position of head
2. Check for adequate mask seal
3. Check for blocked airway
4. Check resuscitator bag

At any time, if the baby starts breathing or crying and has no chest in-drawing, → stop ventilating.

→ Observe to ensure that the baby continues to breathe well. Then:

- return the baby to the mother's chest on skin-to-skin contact;
- exclude a second baby, give oxytocin (if not already given);
- wash hands, re-glove and trim the cord, as needed.

IF the baby is gasping or not breathing, or has severe chest in-drawing:

→ continue bag/mask ventilation;
→ continue assessing at regular intervals while transporting; and
→ where feasible, consider supplemental oxygen, chest compressions, other ventilator support and medications.

IF after 10 minutes of effective ventilation, the heart rate remains zero:

- STOP bag/mask ventilation;
- explain to the mother in a kind and gentle tone that the baby is dead;
- give supportive care; and
- record the event.

IF after 20 minutes of effective ventilation, the baby does not start to breathe or gasp and heart rate is < 60 per minute:

- STOP bag/mask ventilation;
- explain to the mother in a kind and gentle tone that despite all attempts you were unable to help her baby to breathe;
- provide comfort care, including warmth and psychosocial support; and
- record the event.

NOTES:

✓ While ventilating, refer and explain to the mother what is happening, what you are doing, and why.
✓ Ventilate, if needed, during transport.
✓ Record the event on the referral form and labour record.
Neonatal resuscitation flow chart

**Immediate newborn care**
- Immediate and thorough drying
- Quick check of breathing
- Skin-to-skin contact covered with blanket and bonnet

**POST-RESUSCITATION CARE**
* Stop ventilation
* Return baby to mother’s chest
* Do routine care
* Record the event
* Monitor baby for breathing difficulties, signs of asphyxia
* Monitor mother for bleeding, breathing and blood pressure problems

**RESUSCITATION**
* Call for help and explain gently to mother
* Clamp/cut the cord using sterile scissors and gloves
* Transfer the baby to the newborn resuscitation area
* Position head/neck
* Only suction if the mouth/nose are blocked or prior to bag/mask ventilation of a non-vigorous meconium stained baby
* Start bag/mask ventilation with air

**Is baby gasping or not breathing?**

**Essential Newborn Care**
Are any of the following present:
- Heart rate < 100?
- Gasping or not breathing?
- Severe chest in-drawing?

**Check breathing and heart rate every 1 or 2 minutes of effective ventilation**

**Is heart rate < 60?**

**Take ventilation corrective steps and continue ventilation**
* Ensure proper seal and effective chest rise for effective ventilation

**YES**

**NO**

* Stop bag/mask ventilation
* Explain gently to the mother that the baby is dead
* If the baby still has a heart rate, provide comfort care
* Provide psychosocial support
* Record the event

**POST-RESUSCITATION CARE**
* Stop bag/mask ventilation
* Explain gently to the mother that the baby is dead
* If the baby still has a heart rate, provide comfort care
* Provide psychosocial support
* Record the event

**After effective, are any of the following present:**
- No heart rate after 10 minutes?
- No breathing and heart rate < 60 after 20 minutes

**THEN**

**THEN**

**THEN**
Reference:


2. ALSO Advanced life support in obstetrics, 2015

3. Gaza Neonatal Network
   
http://egouta.wixsite.com/gazaneonatalnetwork
Topic 4: High risk cases

Part 1 Medical conditions

A. Anemia in Pregnancy  
B. Diabetes  
C. Urinary tract infection in pregnancy  
D. Heart disease  
E. Bronchial Asthma  
F. thrombophilia  
G. Epilepsy  
H. Prophylaxis against thrombo-embolism  
I. Patients with viral hepatitis or HIV  
J. Management of sepsis in obstetrics

Part 2 Obstetrical conditions

A. Management of severe pre-eclampsie  
B. Antepartum Hemorrhage  
C. Management of Pre-labor Rupture of Membranes  
D. Management of preterm labour  
E. Management of preterm labour  
F. Management of Breech Presentation at term  
G. Management of twins in labour at term  
H. Management of previous uterine scar
High risk cases

Part 1 Medical conditions

K. Anemia in Pregnancy
L. Diabetes
M. Urinary tract infection in pregnancy
N. Heart disease
O. Bronchial Asthma
P. Thrombophilia
Q. Epilepsy
R. Prophylaxis against thrombo-embolism
S. Patients with viral hepatitis or HIV
T. Management of sepsis in obstetrics
**Topic 4**  
**High Risks**

<table>
<thead>
<tr>
<th>Sub topics A</th>
<th>Anemia in pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care group:</td>
<td>Pregnant/laboring women with low hemoglobin concentration</td>
</tr>
<tr>
<td>Standard statement:</td>
<td>All patients with anemia needs active management of third stage of labor.</td>
</tr>
<tr>
<td>Definition:</td>
<td>Women with hemoglobin concentration less than 11 g/dl</td>
</tr>
</tbody>
</table>

- **Mild anemia:** Hb 9 - <11 g/dl
- **Moderate:** Hb 7 - 9 g/dl.
- **Severe:** Hb <7 g/dl.

**AIM:** to maintain optimal hemoglobin level for delivery (not applied to hemoglobinopathies)

---

**The Physician must be informed of all cases of moderate & severe anemia**

- Treat & consult with **Medical Specialist/Hematologist** if any known case of:
  - Hemolytic anemia
  - Aplastic anemia
  - anemia of chronic disease,
  - auto immune anemia,
  - anemia with SLE
  - and anemia due to hemoglobinopathies

- Check Complete Blood Count (CBC) at booking antenatal visit.
- Recheck CBC at 28 week gestation and:
  - **if Hb is ≥ 11 g/dl** → No further Hb check is required.
  - **If Hb concentration < 11 g/dl** and CBC indices refer to nutritional anemia → treat according to degree of anemia and gestational age.
  - **If Severe anemia (< 7 g/dl) at any gestational age needs:**
    - Hematological consultation
    - Blood transfusion
    - Further iron/folate supplementation.
I. Mild and moderate anemia before 34 weeks:

- Treat with elemental oral iron (100-200mg elemental iron and Folic acid 350-400 mcg)
- Recheck Hb after 2-4 weeks (Hb should increase by 0.8 g/dl/week),
- if no Hb increase:
  - If Non-compliance and/or intolerance of iron preparation → change iron preparation/confirm compliance) and repeat Hb after two weeks, if no response consider parental iron.
  - If no Hb increase in spite of good compliance and tolerance → double the iron dose and repeat Hb after two weeks → if not increasing → consider causes of anemia other than nutritional and refer for Medical/Hematological evaluation.

II. Mild and moderate anemia after 34 weeks:

- Treat with elemental oral iron 100-200mg elemental iron BID (twice daily) and Folic acid 350-400 mcg OD (once daily)
- Upon admission in labor → cross match two units of Packed RBC (PRBC) to be ready for transfusion if need arise.
- If need for transfusion does not arise during labor → check Hb on the 1st day postdelivery, transfuse if Hb < 7 g/dl, otherwise discharge on therapeutic iron dose and folic acid.
ALGORITHM: Anaemia

1st visit
History of Anaemia

No previous history

Positive history

CBC - Hb

> 11 g

< 7 g

7 - 11 g

Iron Folate

Blood transfusion + Iron / folate

Refer for Hematological evaluation

Re-check At 28 week

Re-check After 2-4 wks

Hb increase

No Hb increase

Intolerance ? Non-compliance

Increase Iron dose

Change Iron preparation

No

Yes

Re-check after 2-4 wks

Hb increase

No Hb increase

If Hb > 11
No further check.
Topic 4  High Risk Cases
Sub topics  Obstetrical Management of patient with Diabetes in pregnancy
B
Care group  Established (pre-gestational) DM/GDM women in pregnancy
Standard statement  DM complicating pregnancy putting the mother and her fetus at increased risk of morbidity and mortality.
Definition  Diabetes complicates 2-5% pregnancies, Pre-existing T1DM and pre-existing T2DM account for 0.27% and 0.10% of births, respectively.
Aim:  To control Diabetes Mellitus (DM) and minimize risk to mother and fetus

Table 1: Abbreviations or Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE</td>
<td>angiotensin-converting enzyme inhibitors</td>
</tr>
<tr>
<td>ARB</td>
<td>angiotensin II receptor blocker</td>
</tr>
<tr>
<td>BMI</td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>CS</td>
<td>Caesarean section</td>
</tr>
<tr>
<td>CSII</td>
<td>Continuous Subcutaneous Insulin Infusions</td>
</tr>
<tr>
<td>DM</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>FPG</td>
<td>Fasting Plasma Glucose</td>
</tr>
<tr>
<td>GCT</td>
<td>Glucose challenge test</td>
</tr>
<tr>
<td>GDM</td>
<td>Gestational Diabetes Mellitus</td>
</tr>
<tr>
<td>HAPO</td>
<td>Hyperglycemia and associated adverse pregnancy outcome</td>
</tr>
<tr>
<td>HbA1C</td>
<td>Glycosylated Hemoglobin.</td>
</tr>
<tr>
<td>MDI</td>
<td>multiple dose insulin</td>
</tr>
<tr>
<td>MDT</td>
<td>Multi-disiplinary team</td>
</tr>
<tr>
<td>OGTT</td>
<td>Oral Glucose Tolerance Test</td>
</tr>
<tr>
<td>PG</td>
<td>plasma glucose</td>
</tr>
<tr>
<td>PPBS</td>
<td>Post Prandial Blood Sugar</td>
</tr>
<tr>
<td>PPPG</td>
<td>Post Prandial Plasma Glucose</td>
</tr>
<tr>
<td>RBS</td>
<td>Random Blood Sugar</td>
</tr>
<tr>
<td>RPG</td>
<td>Random Plasma Glucose</td>
</tr>
<tr>
<td>SMBG</td>
<td>Self-monitoring of blood glucose.</td>
</tr>
<tr>
<td>T1DM</td>
<td>Type I DM</td>
</tr>
<tr>
<td>T2DM</td>
<td>Type II DM</td>
</tr>
<tr>
<td>U&amp;E</td>
<td>Urea and electrolytes.</td>
</tr>
</tbody>
</table>

1. Pre-pregnancy assessment and counseling: Box 1

Pre-pregnancy counseling service should be available for all women planning to conceive, especially those with chronic medical disease

Box 1: Pre-pregnancy assessment and counseling:
• Discuss the importance of a planned pregnancy (contraception)
• Aim for a HbA1c <6.5 %
• Discuss the risk of maternal and fetal complications of a diabetic pregnancy
• Advice for lifestyle modifications
• Folic acid supplements (5 mg/day) from the preconception period until 12 weeks’ gestation
• Review of medications*
• Retinal and renal assessment before pregnancy to determine baseline
• To consider appropriate contraception until optimal glycaemic control has been achieved

*women with T2DM planning pregnancy should change oral hypoglycaemic to insulin for better glycaemic control.

2. **Management in pregnancy**

   i. Pregnant women with type 1 or type 2 diabetes should:
      a. Receive an individualized insulin regimen and glycemic targets typically using intensive insulin therapy
      b. Strive for target glucose values: **Box 2**

      **Box 2 : target glucose values**

      | Target glucose values                        |
      |---------------------------------------------|
      | Fasting PG < 92 mg/dl (5.1 mmol/L)          |
      | 1h postprandial PG < 140 mg/dl (7.8 mmol/L) |
      | 2h postprandial PG < 120 mg/dl (6.7 mmol/L) |

      c. Be prepared to raise these targets if needed because of the increased risk of severe hypoglycemia during pregnancy.
      d. Perform SMBG, both pre- and postprandially, to achieve glycemic targets and improve pregnancy outcomes.

   ii. Women with pregestational diabetes may use aspart or lispro insulin in pregnancy instead of regular insulin to improve glycemic control and reduce hypoglycemia.

   iii. **Detemir or glargine** insulin may be used in women with pregestational diabetes as an alternative to NPH.

2.1. **Diagnosis of gestational diabetes GDM**

   1. All pregnant women should be screened for GDM at 24-28 weeks gestation.

   2. If there is a high risk of GDM (See Box- column B) based on multiple clinical factors, screening should be offered at any stage in the pregnancy.
3. If the initial screening is performed before 24 weeks of gestation and is negative, rescreen between 24 and 28 weeks of gestation.

**Box 3: Risk factors for GDM include:**

1. previous GDM
2. Past history (P/H) of unexplained stillbirth or neonatal death.
3. Age ≥ 35 years
4. BMI ≥ 30 Kg/square meter.
5. PCOS, acanthosis nigricans.
6. P/H of macrosomic baby weight ≥ 4.5 Kg.
7. Patients with polyhydramnios, Pré-eclampsia (PE) or macrosomic fetus in the current pregnancy
8. Patients on steroids treatment
9. First-degree relative with diabetes/family history with high prevalence of diabetes

**2.2. Screening approach**

The one-step approach: (figure 1)

A 75 g OGTT should be performed Is used to screen and diagnose GDM diagnostic test for GDM using the following

> 1 of the following values:

- fasting ≥ 92 mg (5.1 mmol)/L
- 1 hour ≥ 180 mg (10.0 mmol)/L
- 2 hours ≥ 153 mg (8.5 mmol)/L

**2.3. Management during pregnancy Table 2**

A single consultant team in conjunction with a single physician /diabetologist dietician and specialist midwife should care for all pregnant diabetics.

- Teach recognition of Hypoglycaemia as it occurs more frequently in pregnancy; teach how to use glucagon to woman and her family.
- Women should have a written information and contact telephone numbers with direct access to their healthcare providers.
- Receive nutrition counselling from a registered dietitian during pregnancy. Recommendations for weight gain during pregnancy should be based on pre-pregnancy BMI.

**2.4. Women with GDM should:**

a. Strive for target glucose values:

- Fasting PG < 92 mg/dl (5.1 mmol)/L
- 1-hour postprandial < 140 mg (7.8 mmol)/L.
- 2-hour postprandial < 121 mg (6.7 mmol)/L.

  a. Perform self-monitoring of blood glucose (SMBG), both fasting and postprandially, to achieve glycemic targets and improve pregnancy outcomes.

  b. avoid ketosis during pregnancy.

- If women with GDM do not achieve glycemic targets within 2 weeks from nutritional therapy alone, insulin therapy should be initiated.
- Insulin therapy in the form of multiple injections should be used.
- Rapid-acting bolus analogue insulin may be used over regular insulin for postprandial glucose control, although perinatal outcomes are similar.
- For women who are non-adherent to or who refuse insulin, glyburide may be used as alternative agents for glycemic control. Use of oral agents in pregnancy is off-label and should be discussed with the patient.
- Glycaemic control in GDM patient should target levels below 125 mg/dl or 7 mmol/L, this could be achieved with diet control, exercise, metformin and or insulin.

**Figure 1: One step approach for the screening and diagnosis of GDM.**

- All pregnant women between 24 and 28 wks
- **high risk factors of GDM** → screening at presentation regardless the gestational age.

```
75 g OGTT
Check FPG & RPG one and two hours later
FPG < 92 mg/dl (5.1 mmol/l)
FPG > 92 mg/dl (5.1 mmol/l)
1 hr PG > 180 mg/dl (10 mmol/l)
2 hr PG > 153 mg/dl (8.5 mmol/l)
```

- Repeat screening at 24-28 week with 2 hours 75 g OGTT

```
GDM
```

```
Normal
```

- Outpatient control & change of Insulin dose, in certain circumstance is left to consultant discretion.
- Glibenclamide can be used if blood glucose targets are not achieved with metformin in women who decline insulin therapy or who cannot tolerate metformin.

2.5. **Indications for admission:**

| 1) | Patients with complication. |
| 2) | Patients with uncontrolled DM |
| 3) | Patient with DM who needs corticosteroid therapy |

**Table 2: Course of antenatal care for the pre-existing and gestational DM**

<table>
<thead>
<tr>
<th>Gestation (weeks)</th>
<th>A. pre-existing T1DM &amp; T2DM</th>
<th>B. High Risk for GDM</th>
<th>C. None-high risk for GDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-10 weeks or at booking appointment</td>
<td>• Review medications</td>
<td>a. Screen for GDM</td>
<td>• Routine antenatal booking</td>
</tr>
<tr>
<td></td>
<td>• Retinal and renal assessment</td>
<td>b. Either by one step method</td>
<td>• Scan for viability &amp; EGA</td>
</tr>
<tr>
<td></td>
<td>• Scan: confirm viability of pregnancy and estimated gestational age (EGA)</td>
<td>c. Scan for viability &amp; EGA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provide education and counselling regarding the impact of pregnancy on glycaemic control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-24 weeks</td>
<td>• Retinal assessment</td>
<td>• Anomaly scan</td>
<td>• Anomaly scan</td>
</tr>
<tr>
<td></td>
<td>• Anomaly scan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 weeks</td>
<td>• Serial growth scan for fetal growth &amp; amniotic fluid volume monitoring</td>
<td>• Serial scan</td>
<td>• Serial scan</td>
</tr>
<tr>
<td></td>
<td>• Retinal assessment: to detect new onset of diabetic retinopathy</td>
<td>• If GDM was negative (\rightarrow) repeat screen</td>
<td>• Screen for GDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ve (\rightarrow) Column A</td>
<td>+ve (\rightarrow) Column A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-ve (\rightarrow) diet control + Column C</td>
<td>-ve (\rightarrow) Column A</td>
</tr>
<tr>
<td>32 weeks</td>
<td>Serial growth scan</td>
<td></td>
<td>Routine follow up</td>
</tr>
<tr>
<td>36 weeks</td>
<td>Serial growth scan</td>
<td>Discuss birth plan, timing, induction and mode of delivery Analgesia and anaesthesia Management of labour and the immediate postpartum glycaemic control. Advice on breastfeeding</td>
<td></td>
</tr>
<tr>
<td>&gt;38 weeks</td>
<td>Individualised management, risks versus benefits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Advice pregnant women with diabetes who are on insulin or glibenclamide to maintain their capillary plasma glucose level above 72 mg/dl or 4 mmol/litre.

- Prescribe baby aspirin and calcium and vitamin D supplement from 2nd trimester.
- Perform a baseline dating Ultrasound at booking as assessment of fetal growth and timing of delivery is important aspects of care which depend on accurate pregnancy dating.

- Mark the Expected Date of Delivery EDD (by dates if LMP is reliable or U/S) on the Antenatal card and stick to, until delivery.

- A second anomaly scan should be performed at 18-22 weeks including cardiac scan. A third scan at 28 (with measurement of AC), and fourth one between 34-36 weeks as minimum.

- The Insulin dose should be clearly written in the antenatal record.

- Keep HbA1c below 6.5 % especially before 13 weeks’ gestation.

- Antenatal visits of two-week interval from 20 weeks till 34 with FBS, PPBS then weekly till delivery. Kick chart daily from 34 weeks

- Offer pregnant women with diabetes ultrasound monitoring of fetal growth and amniotic fluid volume every 2 weeks from 28 to 36 weeks

- Diabetes should not be considered a contraindication to antenatal steroids for fetal lung maturation, but admission might be indicated if there is concern regarding glycaemic control.

- The patient should be seen by the consultant at least every other visit.

- Consultant should decide about mode & time of delivery.

- Advise pregnant women with type 1 or type 2 diabetes with no other complications to have an elective birth by induction of labour, or by elective caesarean section if indicated, between 37+0 to 38 weeks of pregnancy

- Consider elective birth before 37+0 weeks for women with type 1 or type 2 diabetes if there are metabolic or any other maternal or fetal complications.

- Advise women with GDM to give birth no later than 40 weeks, and offer elective birth (by induction of labour, or by caesarean section if indicated) to women who have not given birth by this time.

2.6. Hospital Management

☐ This is a physician case for management & delivery.

The Midwife must Inform the physician for all cases of DM

- Patients admitted for control blood sugar, should started be started on diabetic diet and Blood Sugar Profile(BSP). Fasting blood Sugar, 1 hour
postprandial (Post lunch, post supper), and pre-bed (FBS, 1 pm, 7 PM, 11:30 PM)

- Appropriate insulin therapy (usually 2-3 fixed dose of long / intermediate acting insulin) with home blood glucose monitoring (before meals and once at bed-time)

- When Insulin is required, has to be given in the morning and/or evening to keep the FBS <92 mg/dl (< 5.1 mmol/l) and the 1 hour Post Prandial at around <140 mg/dl (< 7.8 mmol/l) and 2 hours post prandial at < 120 mg/dl (6.7 mmol/L).

- Sliding scale is a good option for known diabetic patients who need to be shifted from oral hypoglycaemic to Insulin and those with very high levels and receive no Insulin (to avoid hyperglycemic coma).

- Sliding scale helps to calculate the average daily dose in order to give fixed daily doses of mixtard or mixture of short and intermediate acting insulin.

- Where it is possible protocol of MDI with 3 daily injections of long/intermediate acting insulin, one hour post prandial blood sugar monitoring with appropriate dose of rapid acting insulin (aspart or lispro insulin instead of regular insulin) using the sliding scale dosing.

- Sliding, Scale

<table>
<thead>
<tr>
<th>Blood Sugar</th>
<th>Sub cutaneous Regular Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 150 mg/dl</td>
<td>No Insulin</td>
</tr>
<tr>
<td>150 - 200 mg/dl</td>
<td>4 Units</td>
</tr>
<tr>
<td>201 - 250 mg/dl</td>
<td>8 Units</td>
</tr>
<tr>
<td>251 - 300 mg/dl</td>
<td>12 Units</td>
</tr>
<tr>
<td>301 - 350 mg/dl</td>
<td>16 Units</td>
</tr>
<tr>
<td>Level of &gt; 350 mg/dl</td>
<td>you need to consult Physician</td>
</tr>
</tbody>
</table>

2.7. DETECTIONS OF COMPLICATIONS

<table>
<thead>
<tr>
<th>a). Hypoglycemia</th>
<th>(Perspiration, headache, tachycardia, tremor)</th>
<th>Always keep a juice beside the patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>b). Ketoacidosis</td>
<td>(drowsy, stupor or coma. Acidotic breathing, dehydration, urine sugar &amp; ketones).</td>
<td></td>
</tr>
</tbody>
</table>
1) Seek senior & medical help
2) The main 3 goals are:
3) Urgent investigation: serum glucose, bicarbonate, U&E, ABG & urine for sugar and ketones
4) Correct dehydration with normal saline, 6-7 liters might be needed
5) intravenous infusion of insulin at a weight-based fixed rate (0.1 unit/kg body weight) until ketosis has subsided.
6) If blood glucose fall below 250 mg/dL (14 mmol/L), 10% glucose should be added to allow for the continuation of fixed-rate insulin infusion.
7) Insulin Fixed dose & Bicarbonate should be continued until the condition is stable, pH exceeds 7.3, and bicarbonate is greater than 18 mEq/L, the patient is allowed to eat and retain a meal preceded by a subcutaneous (SC) dose of regular insulin.
8) Potassium should be monitored regularly and maintained between 4-5 mg/dl.

2.8. **SPECIAL NOTES IN RAMADAN**

- **In Ramadan**, patients on insulin should be advised not to fast.
- **In Ramadan** and for those who insist to keep their fasting, BSP profile would be altered to:
  - Insulin morning dose to be given before the fasting break (Maghreb Fatour time)
  - evening Dose to be given before sahour time

3. **MANAGEMENT during DELIVERY**

3.1. **Time of delivery:**

- **a. At 38 week:**
  For patients on diet alone and/or those with good control and with no complications.

- **b. At < 37 week:**
  a) Diabetes with complications
  b) Poor diabetic control
  c) Previous stillbirth.
  d) Previous history of macrosomia or shoulder dystocia

- **c. Any time before 37 if any other obstetric indication arises.**

3.2. **Mode of delivery:**

i. **Vaginal delivery:**
• For uncomplicated well-controlled diabetes with estimated fetal weight < 4 Kg
• Cases induced for obstetric indications at > 38 weeks
• Low threshold for CS if no satisfactory progress After 6-8 hours of starting labour

ii. **Emergency Caesarean Section:**

• Previous CS if the fetus is macrosomic,
• Previous difficult delivery,
• Any added obstetric complication (e.g. malpresentation, disproportion)
• Severe pre-eclampsia.

**3.3. Labour**

- Aim is to keep the BS level between 72-126 mg/dl (4-7 mmol/l)
- Continuous CTG during labor.
- The neonatologist should attend all deliveries.

**4.3.1. Diabetic Control for vaginal delivery**

- Immediate Random blood sugar RBS & **hourly** thereafter,
- The result to be obtained urgently: a responsibility of midwife/ SHO
- Women should receive adequate glucose during labour in order to meet their high-energy requirements.
- Incorporate 5 units of regular insulin in 500 ml of 5 % Dextrose/water
- Start at a rate **depending on the RBS & as follows:**

  ✓ If RBS is 72-126 (4-7 mmol/l) give 100 ml D/w 5% per hour =1 Unit of insulin /hour
  ✓ If RBS is > 126 mg/dl (> 7 mmol/l) double the dose 200 ml /hour =2. Units of Insulin per hour.
  ✓ If RBS is <72 mg.dl (<4 mmol/l) half the dose = 50 ml of D/w 5 % = 0.5 unit per hour

**✓ After delivery of placenta :change the rate of i.v. insulin infusion:**
**✓ In pregestational DM: half the rate of insulin infusion**
**✓ In GDM: Stop the insulin and 5% D/W infusion.**

✓ In general patient with GDM does not need extensive glucose monitoring in labour and may not need insulin infusion.

**4.3.2. Postpartum care:**

- Women with pre-gestational diabetes should be carefully monitored postpartum as they have a high risk of hypoglycemia.
- Continue the sliding scale for 24 hours after vaginal delivery.
- Metformin and glyburide may be used during breastfeeding.
Women with TIDM in pregnancy should be screened for postpartum thyroiditis with a TSH test at 6-8 weeks postpartum.

All women should be encouraged to breastfeed since this may reduce offspring obesity, especially in the setting of maternal obesity.

Women with GDM should be screened with a 75 g OGTT between 6 weeks and 6 months postpartum to detect prediabetes and diabetes status.

4.3.2.1. Diabetic control for Elective Caesarean Section (ELSCS):

a) Communicate with the anaesthetist.
b) Schedule her as 1st on the elective list, keep fasting from midnight

c) **omit the morning insulin dose.**

Check fasting blood sugar & electrolytes at 6 am.

- If blood sugar <100mg /dl, start 5% Dextrose IV (125 ml /hour)
- If blood sugar is >100 mg /dl, discuss with anaesthetist.

If general anaesthesia is used for the birth in women with diabetes, monitor blood glucose every 30 minutes from induction of general anaesthesia until after the baby is born and the woman is fully conscious.

**Post CS  start iv fluid with a total of 3L 5% D/W in alternate with N/S in the first 24 hours, Control blood sugar with sliding scale.**

4.3.3. Postpartum care after CS:

Continue the sliding scale for 48 hours after LSCS and/or be able to eat and retain the food, so that she can be returned to her pre-pregnancy treatment of DM, then readjust the insulin accordingly.

At postpartum the patient may be reviewed by a Consultant physician or referred to the diabetic clinic if needed.

**NB:** Suppression of pre-term labour with beta sympathomimetics & Corticosteroids may lead to severe hyperglycaemia and alter the Insulin requirements, these drugs should be avoided whenever possible, however they can be used when absolutely necessary in a carefully controlled clinical setting. Alternative tocolytics can be considered such as Calcium channel blockers: Nifedipine. Steroid is mandatory for PTL management almost at all conditions.
**Topic 4**  
**High Risks**

**Sub topics C**  
**Urinary Tract Infections in pregnancy (UTI)**

<table>
<thead>
<tr>
<th>Care group:</th>
<th>Pregnant women who are at increased risk of UTI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard statement:</strong></td>
<td>Pregnant women, are at increased risk of UTI, women with additional risk factors (e.g., immunosuppression, diabetes, sickle cell anemia, neurogenic bladder, recurrent or persistent UTIs before pregnancy) are at increased risk for a complicated UTI. UTI in pregnancy increases the incidence of preterm birth, low birth weight and increased perinatal mortality.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
<td>Asymptomatic bacteruria, if untreated leads to 70% of symptomatic UTI, (40% of acute cystitis and 30% of pyelonephritis in pregnancy.</td>
</tr>
</tbody>
</table>

**Process:**

At booking visit, screen all pregnant women for asymptomatic bacteruria.

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Empiric treatment</th>
<th>Notes</th>
</tr>
</thead>
</table>
| **ASYMPTOMATIC BACTERURIA** | Positive urine culture ≥ 100,000 CFU/mL with no signs or symptoms | - Cephalexin-500 mg orally 4 times daily 7 days  
- Amoxicillin-500 mg orally every 8 hours 7 days  
- Amoxicillin-clavulanate-500 mg orally every 8 hours 7 days  
- Nitrofurantoin 100 mg orally four times daily for seven days | A urine culture should be performed seven days after completion of antibiotic treatment as a test of cure. Repeat urine culture at each antenatal visit until delivery. |
| **ACUTE CYSTITIS** | Signs and symptoms (e.g. dysuria, urgency frequency, suprapubic pain) AND pyuria (>10 WBC/hpf) AND positive urine culture ≥100,000 CFU/mL | - Cephalexin-500 mg orally 4 times daily for 7-14 days  
- Nitrofurantoin 100 mg orally four times daily for 7-14 days  
OR  
- Cefazolin 1g IV every 8 hours for 7 days if patient unable to tolerate oral therapy | Take a single urine sample for culture before empiric antibiotic treatment is started. A urine culture should be performed seven days after completion of antibiotic treatment as a test of cure. |
<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Empiric treatment</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PYELONEPHRITIS</td>
<td>Signs and symptoms (e.g. fever, flank pain) AND pyuria AND positive urine culture $\geq$ 100,000 CFU/mL Many patients will have other evidence of upper tract disease (i.e. leukocytosis, WBC casts, or abnormalities upon imaging)</td>
<td>Ceftriaxone 1g IV every 12 hours. Once afebrile for 48 hours, patients can be switched to oral therapy (guided by culture susceptibility results) and discharged to complete 10 to 14 days of treatment.</td>
<td>Fever should be managed with antipyretics (preferably, acetaminophen) Nausea and vomiting with antiemetics (doxylamine, and metoclopramide) Preterm labor and delivery are additional risks associated with pyelonephritis. These risks must be evaluated and treated early in the course of admission</td>
</tr>
<tr>
<td>RECURRENT UTI IN PREGNANCY</td>
<td>3 or more uncomplicated UTIs in 12 months.</td>
<td>Nitrofurantoin-50 to 100 mg orally at bedtime (should be avoided near term or when delivery is imminent because of the risk of neonatal haemolysis) or Cephalexin-250 to 500 mg orally at bedtime</td>
<td></td>
</tr>
</tbody>
</table>

References
<table>
<thead>
<tr>
<th>Topic 4</th>
<th>High Risk Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub topics D</td>
<td>Management of Heart disease</td>
</tr>
<tr>
<td>Care group</td>
<td>All pregnant women with diagnosed heart disease</td>
</tr>
<tr>
<td>Standard statement</td>
<td>Heart disease remains one of the major causes of maternal deaths worldwide</td>
</tr>
<tr>
<td>Definition</td>
<td>Heart disease in pregnancy is uncommon, affecting less than 1% of pregnant women. However, it is an important cause of maternal death, Rheumatic heart disease is declining, Advances in the medical and surgical treatment of children with congenital heart disease have led to an increase in the number of women surviving into the reproductive age.</td>
</tr>
</tbody>
</table>

**PROCESS:**

**Woman with heart disease in pregnancy requires a team approach involving:**

- Consultant obstetrician.
- Consultant cardiologist or Obstetric Medical specialist
- Anesthetist and
- if necessary the cardio-thoracic surgeon, and ICU Consultant

1. **Pre-pregnancy management:**

- Assess the severity of the cardiac lesion and cardiovascular reserve
- Discuss maternal and fetal risks
- Review drug treatment, particularly potentially teratogenic drugs.
- Advice against pregnancy and discuss contraceptive options in women with high risks such as Eisenmenger’s syndrome, pulmonary hypertension and Marfan's syndrome with aortic root involvement.
- Offer genetic counseling to women with congenital heart disease or heritable conditions.
- Commence Folic Acid for prophylaxis.

2. **Antenatal Management:**

2.1. **First Antenatal Visit:**

- Pregnant patients with heart disease should be seen at their booking clinic by a Consultant obstetrician.
- Take a full history and examination should be performed, to make a provisional diagnosis.
- Routine investigations should be requested including CBC, urinalysis, and a dating ultrasound.
- A formal referral to cardiologist has to be made requesting confirmation of diagnosis if not made before, using cardiac referral form.
Pregnant patients with cardiac disease should be classified in response to physical activity according to the New York heart association functional classification:

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>No resulting limitation of physical activity</td>
</tr>
<tr>
<td>II</td>
<td>Slight limitation of physical activity</td>
</tr>
<tr>
<td>III</td>
<td>Marked limitation of physical activity</td>
</tr>
<tr>
<td>IV</td>
<td>Inability to carry out any physical activity without discomfort and have orthopnoea.</td>
</tr>
</tbody>
</table>

Such classification is only of value if it indicates the severity of condition at the time of classification or if it is reliable in predicting the outcome of pregnancy.

Risk classification of conditions in patients with congenital heart disease:

High risk conditions:

- NYHA functional classes III and IV
- Significant pulmonary hypertension (defined as >75 mm Hg)
- Marfan’s syndrome with significant aortic root or aortic valve involvement
- Severe or symptomatic aortic stenosis.
- Eisenmenger’s syndrome
- Peripartum cardiopathy
- Coronary artery disease

Intermediate-risk conditions: uncorrected defects with cyanosis:

- Large left-to-right shunt
- Uncorrected coarctation
- Mitral stenosis
- Aortic stenosis
- Prosthetic valves

Low-risk conditions:

- Repaired congenital heart disease without residual cardiac dysfunction
- Small to moderate left-to-right shunts
- Mitral valve prolapsed
- Bicuspid aortic valve with normal aorta
- Pulmonic stenosis
- Aortic or mitral regurgitation with good ventricular function
Termination of pregnancy

- might be considered in high risk conditions
- The decision depends on an individual assessment of the risk of pregnancy and the desire to have a child.
- The decision should be made by a combined committee of a Consultant Cardiologist and a Consultant Obstetricians.
- Seek a religious authorization

2.2. Subsequent Antenatal Care:

- Consultant should see pregnant patients with heart disease every two weeks till 32 week, and weekly thereafter till delivery
- Look for the presence of risk factors for cardiac decompensation and aim for prevention or alleviating their consequences, these include:
  a. Infection (urine culture in each trimester)
  b. Hypertension
  c. Obesity
  d. Anaemia (CBC at each trimester)
  e. Multiple pregnancy
  f. Development of arrhythmia or change of classes to worse.
  g. Respiratory disease

- Patients with cardiac disease who may go into cardiac failure, needs hospital care under joint supervision from cardiologist and obstetrician.
- Assess fetal growth and wellbeing clinically and by using serial ultrasound and cardiococography if indicated and feral Echo in cases of congenital heart disease.

3. Labour:

3.1 General management:
1. Labour should not be induced because of heart disease. IOL is reserved for obstetric indications.
2. Caesarean sections are reserved for obstetric indications and specific cardiac conditions.
3. If IOL is indicated, communicate with cardiologist, and inform the labour ward on duty team including consultant on call.
4. Consultant on duty should review the patient and put the plan of further management...
5. Communicate with cardiologist and anaesthetist for patients who are at risk.
6. Be careful with fluid management not to overloaded.
7. Avoid Methergine in 3rd stage if possible.
8. Keep patient propped up, comfortable and reassured

3.2. First Stage of Labour:
- Maintain the patient in left lateral position to avoid aortocaval compression by gravid uterus in supine position.
- Midwife to set up an IV infusion of 5% Dextrose (500ml) at a rate of 80 ml/hour.
- Midwife should keep a fluid balance in patients with significant heart disease.
- In patients with significant heart disease guidance should be sought from the combined cardiologist/anaesthetist team.
- Establish base line readings BP, pulse rate, Temperature, state of lung bases, Hb, CBC and urinalysis.
- Auscultation of the lung bases must be performed by SHO/Registrar hourly.
- Analgesia is best given as epidural, which provide hemodynamic stability. However, it should still be used with extreme caution in patients with restricted cardiac outputs or right-to-left shunts. Under these circumstances, general anaesthesia is also risky but is probably the safer option.
- Vaginal examination should be limited to an essential minimum.
- Oxygen must be available and should be administrated intermittently or continuously if there is dyspnea or any evidence of cyanosis.
- Preparation for cardiac emergency should be made i.e. drugs (Digoxin, Lasix, Morphine or Pethidine) and instruments (Endo-tracheal tube, Laryngoscope oxygen source).
- Make sure that all the instruments are in working order.

3.3. Second stage of Labour:
- In compensated cases; manage second stage routinely; there is no advantage to perform a routine instrumental delivery in a woman who is going to push the baby easily.
- Shorten second stage of labour; in patients who are symptomatic where instrumental delivery may be advantageous provided that all conditions are fulfilled.

3.4. Third stage of Labour:
- Manage third stage actively.
- Avoid injection of methergine (Ergometrine).
- Inject 10 IU of oxytocin IM or IV at delivery of the anterior shoulder. This can be repeated if indicated.

4. Post Partum Care:
- **CCU Should be available**
- As postpartum period represents an extremely high-risk situation for patients whose grade of disease may deteriorate rapidly intensive monitoring must continue while the patient in the labour ward.
- The patient should be assessed half hourly by the SHO on duty and findings have to be documented.
- On transfer to the post-natal ward continuous care must be ensured by hourly assessment and documentation by the nurses.
Endocarditis prevention

- Antibiotics prophylaxis is not recommended for prevention of endocarditis in patients undergoing obstetrics procedures.
- Any infection in patients at risk of endocarditis should be investigated promptly and treated appropriately.
- Those deemed at risk include valve replacement, acquired valvular heart disease with stenosis or regurgitation, structural congenital heart disease, hypertrophic cardiomyopathy, or previous episodes of infected endocarditis.
- These antibiotics should be given only in the present of suspected sepsis for these cardiac conditions (listed above) for LSCS or other procedures such as repair of third and fourth degree tears, manual removal of placenta, EUA or procedures where antibiotics would be routinely given.

Drug Regimes

1. Standard Regime
   - Intravenous Ampicillin 2 gm + Gentamycin (1.5 mg/kg) (not to exceed 120 mg) within 30 min of delivery
   - IV ampicillin 1 gm 6 hrs after delivery.

2. Alternative Regime: (If the patient is allergic to penicillin)
   - Intravenous Vancomycin 1.0 g over 1-2 hr plus intravenous + Gentamycin 1.5mg / kg (not to exceed 120 mg) within 30 min of delivery.
   - Alternative regime is Teicoplanin 400 mg IV + Gentamycin 1.5 mg / kg (not to exceed 120 mg) within 30 min of delivery.
   - The same dose may be repeated once again 6 hrs after delivery.

Management of acute pulmonary oedema:

- Oxygen by face mask
- Put patient in propped up position (Fowler’s position)
- Morphine 5-15mg IM.
- Input/output chart.
- Furosemide 20-40mg IV
- Digitalis: (In consultation with Cardiologist/Obstetric Medical specialist)
- If not yet delivered, expedite delivery.
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<thead>
<tr>
<th>Topic 4</th>
<th>High Risk Cases</th>
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</thead>
<tbody>
<tr>
<td><strong>Sub topics E</strong></td>
<td><strong>Bronchial Asthma</strong></td>
</tr>
<tr>
<td>Care group</td>
<td>Pregnant / laboring women with bronchial asthma</td>
</tr>
<tr>
<td>Standard statement</td>
<td>pregnancy may improve, worsen or have no effect on the course of bronchial asthma</td>
</tr>
<tr>
<td>Definition</td>
<td>Chronic respiratory tract disease with hypersensitivity and respiratory obstruction. It is the most common chronic disease in young adults, affecting 3% of women of childbearing age.</td>
</tr>
</tbody>
</table>

**PROCESS:**

1. **Pre-pregnancy counseling and management:**
   - Patient should be referred to medical specialist with special interest in asthma
   - Aim to achieve good control of asthma before pregnancy
   - Severely uncontrolled disease may increase the risk of preterm labor, low birth weight, slight increased congenital anomalies, all these risks can be minimized by good control of the disease.
   - Drugs for asthma are safe in pregnancy.
   - Women should be reassured that the reported increased incidence of PIH, Pre-eclampsia and increased delivery by caesarean section in asthmatics is merely due to increased antenatal surveillance.
   - Women should be advised that there is insufficient data to establish whether the recently introduced drug- Leukotriene antagonists are safe in pregnancy.

2. **Management of Asthma in pregnancy:**
   - Management should be under supervision of medical specialist.
   - Aim to achieve a total freedom from symptoms so that the individual life style will not be affected.
   - Emphasis is on prevention rather than treatment.
   - Seek Medical specialist opinion when indicated.
   - Reassure the woman that all drugs commonly used to treat asthma, including systemic steroids, are safe. (~10% active prednisone may reaches the fetus.)
   - Use short acting Betaagonists as normal in pregnancy.
   - Use long acting Betaagonists as normal in pregnancy.
   - Use inhaled corticosteroids as normal in pregnancy.
   - Women on oral corticosteroids should be monitored carefully for infection, GDM and preeclampsia due to an increase in risk.
   - If these complications arise, they should be treated accordingly. Do not discontinue or reduce the dose of oral steroids, the requirement for this drug should be determined by the asthma itself.
   - Maintain patients with infrequent symptoms on ventolin less than once daily.
   - Maintain others women on regular inhaled anti inflammatory medications (usually steroids such as betamethasone)
• If symptoms are not controlled (the most sensitive indicator of inadequate control is breathlessness at night.) the use of high dose inhaled steroids or long acting inhaled B-agonist (Salmetrol) is recommended.
• If symptoms remain uncontrolled: try either Theophylline, inhaled ipratropium or a course of regular steroid tablets.
• Women who have shown significant improvement on leukotriene antagonists, that was not achieved on other medication, may continue these.

3. Management of acute severe asthma:
• Admit the patient and treat vigorously as this could be a life threatening condition.
• Manage patients in the same way as non-pregnant patients.
  - O2 by face mask (maintain O2 Saturation at 94-98%).
  - Nebulized bronchodilator.
  - Oral/or IV steroids.
  - In severe cases: iv aminophylline/or B2-agonist
• If the patient failed to respond to treatment and or/severe deterioration occurs: Pneumothorax has to be excluded by chest X-ray:
  - Chest X-ray should not be withheld because of pregnancy.
  - ionising radiation from single chest x-ray is ~ 0.002 Gy which is < 1/20 the maximum recommended dose in pregnancy: 0.05 Gy

4. Management during labor and delivery:
• Reassure the woman that an acute attack of asthma is extremely rare during labor and delivery.
• You may use prostaglandin E2 for IOL as it is a bronchodilator.
• You may use prostaglandin F2 alpha with caution for obstetric indications (it may cause bronchospasm.
• Women should continue their regular inhalers throughout labor.
• Those on maintenance oral steroids (> 7.5 mg prednisolone daily) or who are being treated with steroids for > 2 weeks should receive parental corticosteroids (100 mg hydrocortisone 6 hourly) during labor. And until 24 hours postpartum.
• You may use any forms of pain relief in labor, including epidural analgesia and entonox may be safely used by asthmatic women:
• Avoid opiates in the case of a severe acute attack in labor.
• If anesthesia is needed, encourage epidural analgesia, because general anesthesia is associated with increased risk of chest infection and associated atelectasis.
• Use active management of third stage to prevent postpartum hemorrhage.
• Exclude history of allergy/sensitivity to NSAID/Aspirin before prescribing these drugs for postpartum pain relief.
5. Breast Feeding:
   - Encourage asthmatic women to breast feed their babies.
   - Reassure them that all inhaled preparations, oral steroids and methylxanthines are safe in breast feeding.
   - Explain that exclusive breast feeding probably reduces the risk of child atopic disease. (I:10. raised to 1:3 if both parents are atopic),
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Sub topics F</strong></td>
<td><strong>THROMBOPHILIA</strong></td>
</tr>
<tr>
<td>Care group</td>
<td>Pregnant women with thrombophilia</td>
</tr>
<tr>
<td>Definition</td>
<td>Thrombophilia in pregnancy is an abnormality of blood coagulation predisposing to thrombosis during pregnancy. Women with known thrombophilia or prior thrombosis have the highest risk of VTE in pregnancy.</td>
</tr>
</tbody>
</table>

Also called: *hypercoagulability * hypercoagulable state

**Classification**

1. **Acquired**: Antiphospholipid syndrome (APS)
2. **Inherited**: *Factor V Leiden mutation (FVL)*
   - Prothrombin G20210A gene mutation (PGM)
   - Protein S deficiency
   - Protein C deficiency
   - Antithrombin deficiency

**Acquired thrombophilia** :

**Antiphospholipid syndrome APS**

**Making the diagnosis:**

Revised Sapporo classification criteria for antiphospholipid antibody syndrome (APS) ≥ 1 of clinical criteria and ≥ 1 of laboratory criteria. Clinical and laboratory criteria should be separated by > 12 weeks and < 5 years.

**Clinical Criteria** :

- Vascular thrombosis including clinical episode of arterial, venous, or small vessel thrombosis in any organ or tissue.
- One or more unexplained deaths of a normal fetus ≥ 10 weeks
- One or more premature birth of normal neonate < 34 weeks due to eclampsia, severe preeclampsia, or placental insufficiency
- ≥ 3 unexplained pregnancy losses before 10 weeks gestation.

**Laboratory criteria** :(on 2 or more occasions ≥ 12 weeks apart)

- Lupus Anticoagulant antibodies in plasma.
- Anticardiolipin antibodies (IgG and/or IgM) in serum or plasma (titer> 40 glycopeptidolipid [GPL] or monophosphoryl lipid A [MPL] or > 99th percentile for normal population).
- Anti-beta2 glycoprotein-I antibodies (IgG or IgM) in serum or plasma (titer > 99th percentile for normal population).
Lupus anticoagulant (LA) testing:
  o Tests should include dilute Russell viper venom time (DRVVT)

Other tests may include:
  • activated partial thromboplastin time (aPTT)
  • modified aPTT
  • dilute prothrombin time

Confirmatory tests may include:
  • Using high phospholipid concentration,
  • platelet neutralizing reagent.
  • Using LA-insensitive reagent.

Whom to screen for APS:

a. One or more unexplained deaths of a normal fetus ≥ 10 weeks gestation.
b. Three or more unexplained pregnancy losses before 10 weeks gestation
c. Personal history of unexplained VTE, new VTE in pregnancy, or history of VTE in women not previously screened.

When to Test?

Laboratory testing is performed remote (at least six weeks) from the thrombotic event while the patient is not pregnant, and not taking an anticoagulant or hormonal therapy.

Management:
  • Start women on 75 – 100 mg Aspirin daily once the pregnancy is confirmed
  • For women with APS who have had a thrombotic event, prophylactic anticoagulation with heparin throughout pregnancy and six weeks postpartum is recommended.
  • For women with APS who have not had a thrombotic event, clinical surveillance or prophylactic heparin used antepartum in addition to 6 weeks of postpartum anticoagulation maybe warranted (expert consensus).
  • For long term management postpartum, patients with APS should be referred to a physician with expertise in treatment of the syndrome such as an internist, hematologist, or rheumatologist.
  • Women with APS should not use estrogen containing contraceptives.
Inherited Thrombophilias:

1. Factor V Leiden
2. Prothrombin G20210A
3. Protein C deficiency
4. Protein S deficiency
5. Antithrombin deficiency

High-risk thrombophilia defined as:

- Antithrombin deficiency
- Double heterozygous for prothrombin G20210A and factor V Leiden
- Factor V Leiden homozygous
- Prothrombin G20210A mutation homozygous

Low-risk thrombophilia defined as:

- Factor V Leiden heterozygous
- Prothrombin G20210A heterozygous
- Protein C deficiency
- Protein S deficiency

Screening for thrombophilia may be considered for:
- Personal history of venous thromboembolism (VTE) associated with a non-recurrent risk factor (for example, fractures and surgery).
- First-degree relative (for example, parent or sibling) with a history of high-risk thrombophilia or VTE before age 50 years in the absence of other risk factors
- Insufficient evidence to recommend screening or treatment for thrombophilias in women with: recurrent fetal loss, placental abruption, intrauterine growth restriction (IUGR), preeclampsia

Screening for inherited thrombophilias (when appropriate) should include:

- Factor V Leiden mutation
- Prothrombin G20210A mutation
- Antithrombin deficiency
- Protein C deficiency
- Protein S deficiency
## Management of different Scenarios of pregnancy with thrombophilia

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Antepartum Management</th>
<th>Postpartum Management</th>
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<tbody>
<tr>
<td>Low-risk thrombophilia without previous VTE</td>
<td>Surveillance without anticoagulation therapy</td>
<td>Surveillance without anticoagulation therapy or postpartum anticoagulation therapy if the patient has additional risk factors (such as first-degree relative with history of thrombotic episode before age 50 years) or other major thrombotic risk factors (such as obesity or prolonged immobility)</td>
</tr>
<tr>
<td>Low-risk thrombophilia with a family history of VTE</td>
<td>Surveillance without anticoagulation therapy</td>
<td>Postpartum anticoagulation therapy or intermediate-dose LMWH/UFH</td>
</tr>
<tr>
<td>Low-risk thrombophilia with a single previous episode of VTE (not receiving long-term anticoagulation therapy)</td>
<td>Prophylactic or intermediate-dose LMWH/UFH or surveillance without anticoagulation therapy</td>
<td>Postpartum anticoagulation therapy or intermediate-dose LMWH/UFH</td>
</tr>
<tr>
<td>High-risk thrombophilia without previous VTE</td>
<td>Surveillance without anticoagulation therapy, or prophylactic LMWH or UFH</td>
<td>Postpartum anticoagulation therapy</td>
</tr>
<tr>
<td>High-risk thrombophilia with a single previous episode of VTE or an affected first-degree relative (not receiving long-term anticoagulation therapy)</td>
<td>Prophylactic, intermediate-dose, or adjusted-dose LMWH/UFH regimen</td>
<td>Postpartum anticoagulation therapy, or intermediate or adjusted-dose LMWH/UFH for 6 weeks (therapy level should be at least as high as antepartum treatment)</td>
</tr>
<tr>
<td>No thrombophilia with previous single episode of VTE associated with a transient therapy risk factor that is no longer present (excludes pregnancy- or estrogen-related risk factor)</td>
<td>Surveillance without anticoagulation</td>
<td>Postpartum anticoagulation therapy (surveillance without anticoagulation therapy is supported as an alternative approach by some experts)</td>
</tr>
<tr>
<td>Scenario</td>
<td>Antepartum Management</td>
<td>Postpartum Management</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>No thrombophilia with previous single episode of VTE associated with transient a risk factor that was pregnancy- or estrogen-related</td>
<td>Prophylactic-dose LMWH or UFH (surveillance without anticoagulation therapy is supported as an alternative approach by some experts)</td>
<td>Postpartum anticoagulation therapy</td>
</tr>
<tr>
<td>No thrombophilia with previous single episode of VTE without an associated risk factor (idiopathic) (not receiving long-term anticoagulation therapy)</td>
<td>Prophylactic-dose LMWH or UFH (surveillance without anticoagulation therapy is supported as an alternative approach by some experts)</td>
<td>Postpartum anticoagulation therapy</td>
</tr>
<tr>
<td>Thrombophilia or no thrombophilia with 2 or more episodes of VTE (not receiving long-term anticoagulation therapy)</td>
<td>Prophylactic or therapeutic-dose LMWH or prophylactic or therapeutic-dose UFH</td>
<td>Postpartum anticoagulation therapy or therapeutic-dose LMWH/UFH for 6 weeks</td>
</tr>
<tr>
<td>Thrombophilia or no thrombophilia with 2 or more episodes of VTE (receiving long-term anticoagulation therapy)</td>
<td>Therapeutic-dose LMWH or UFH</td>
<td>Resumption of long-term anticoagulation therapy</td>
</tr>
</tbody>
</table>

**Abbreviations**: LMWH, low-molecular weight heparin; UFH, unfractionated heparin; VTE, venous thromboembolism.
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<th>Topic 4</th>
<th>High Risk Cases</th>
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<tr>
<td>Sub topics G</td>
<td>Prophylaxis against thrombo-embolism</td>
</tr>
<tr>
<td>Care group:</td>
<td>Women with increased risk for VTE</td>
</tr>
<tr>
<td>Standard statement:</td>
<td>Thromboprophylaxis significantly reduces maternal deaths</td>
</tr>
<tr>
<td>Definition:</td>
<td>Pregnancy is a risk factor for VTE and is associated with a ten-fold increase compared with the risk for nonpregnant women. VTE disease is the major direct cause of maternal deaths</td>
</tr>
</tbody>
</table>

**Pre-existing**
- Previous VTE
- **Thrombophilia**
  A. Heritable
    - Antithrombin deficiency
    - Protein C deficiency
    - Protein S deficiency
    - Factor V Leiden
    - Prothrombin gene mutation
  B. Acquired
    - Antiphospholipid antibodies
      - Persistent lupus anticoagulant and/or persistent moderate/high titre anticardiolipin antibodies and/or β2-glycoprotein 1 antibodies
    - Medical comorbidities e.g. cancer; heart failure; active SLE, inflammatory polyarthritis or IBD; nephrotic syndrome; type I diabetes mellitus with nephropathy; sickle cell disease; current intravenous drug user
    - Age > 35 years
    - Obesity (BMI ≥ 30 kg/m2) either prepregnancy or in early pregnancy
    - Parity ≥ 3 (a woman becomes para 3 after her third delivery)
    - Smoking
    - Gross varicose veins (symptomatic or above knee or with associated phlebitis, edema/skin changes)
    - Paraplegia

**Obstetric risk factors**
- Multiple pregnancy
- Current pre-eclampsia
- Caesarean section
- Prolonged labor (> 24 hours)
- Mid-cavity or rotational operative delivery
- Stillbirth
- Preterm birth
- Postpartum hemorrhage (> 1 liter/requiring transfusion)
<table>
<thead>
<tr>
<th>New onset/transient</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>These risk factors are potentially reversible and may develop at later stages in gestation than the initial risk assessment or may resolve and therefore what is important is an ongoing individual risk assessment</td>
<td>1. Pre-pregnancy counseling and management:</td>
</tr>
</tbody>
</table>

- Any surgical procedure in pregnancy or puerperium except immediate repair of the perineum, e.g. appendicectomy, postpartum sterilization, bone fracture
- Hyperemesis, dehydration
- Ovarian hyperstimulation syndrome (first trimester only) Assisted reproductive technology (ART), in vitro fertilization (IVF)
- Admission or immobility (≥ 3 days’ bed rest) e.g. pelvic girdle pain restricting mobility
- Current systemic infection (requiring intravenous antibiotics or admission to hospital) e.g. pneumonia, pyelonephritis, postpartum wound infection
- Long-distance travel (> 4 hours)

- assess risk factors for VTE in early pregnancy or before pregnancy
- Repeat assessment if the woman is admitted to hospital or develops other intercurrent problems.
- Screen women with previous VTE which associated with nonrecurring risk factor for inherited and acquired thrombophilia ideally before pregnancy.
- Risk assessment should be repeated again intrapartum or immediate postpartum

2. Obstetric thromboprophylaxis risk assessment and management (see algorithm next page)
### A) Antenatal assessment and management (to be assessed at booking and repeated if admitted)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGH RISK</strong></td>
<td>Requires antenatal prophylaxis with LMWH. Refer to trust-nominated thrombosis in pregnancy expert/team.</td>
</tr>
<tr>
<td><strong>INTERMEDIATE RISK</strong></td>
<td>Consider antenatal prophylaxis with LMWH.</td>
</tr>
<tr>
<td><strong>LOWER RISK</strong></td>
<td>Mobilization and avoidance of dehydration.</td>
</tr>
</tbody>
</table>

**Any previous VTE except a single event related to major surgery**

- Hospital admission
- Single previous VTE related to major surgery
- High-risk thrombophilia + no VTE
- Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU
- Any surgical procedure e.g. appendicectomy
- OHSS (first trimester only)

**Obesity (BMI >30 kg/m²)**

- Age >35
- Parity ≥ 3
- Smoker
- Gross varicose veins
- Current pre-eclampsia
- Immobility, e.g. paraplegia, PGP
- Family history of unprovoked oestrogen-provoked VTE in first-degree relative
- Low-risk thrombophilia
- Multiple pregnancy
- IVF/ART

**Transient risk factors:**

- Dehydration/hyperemesis; current systemic infection; long-distance travel

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APL = antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies, 2-glycoprotein 1 antibodies); ART = assisted reproductive technology; BMI = body mass index; DM = diabetes mellitus; FHx = family history; gross varicose veins = symptomatic, above knee or associated with phlebitis/oedema/skin changes; high-risk thrombophilia = antithrombin deficiency, protein C or S deficiency, compound or homozygous for low-risk thrombophilias; IBD = inflammatory bowel disease; immobility = ≥ 3 days; IVDU = intravenous drug user; IVF = in vitro fertilisation; LMWH = low-molecular-weight heparin; long-distance travel = >4 hours; low-risk thrombophilia = heterozygous for factor V Leiden or prothrombin G20210A mutations; OHSS = ovarian hyperstimulation syndrome; PGP = pelvic girdle pain with reduced mobility; PPH = postpartum haemorrhage; thrombophilia = inherited or acquired; VTE = venous thromboembolism.
B) Postnatal assessment and management (to be assessed on delivery suite)

Any previous VTE
Anyone requiring antenatal LMWH
High-risk thrombophilia
Low-risk thrombophilia + FHx

Caesarean section in labour
BMI ≥ 40 kg/m²
Readmission or prolonged admission (≥ 3 days) in the puerperium
Any surgical procedure in the puerperium except immediate repair of the perineum
Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy; nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU

Age >35 years
Obesity (BMI ≥ 30 kg/m²)
Parity ≥ 3
Smoker
Elective caesarean section
Family history of VTE
Low-risk thrombophilia
Gross varicose veins
Current systemic infection
Immobility, e.g. paraplegia, PGP, long-distance travel
Current pre-eclampsia
Multiple pregnancies
Preterm delivery in this pregnancy (<37+0 weeks)
Stillbirth in this pregnancy
Mid-cavity rotational or operative delivery
Prolonged labour (>24 hours)
PPH >1 liter or blood transfusion

HIGH RISK
At least 6 weeks’ postnatal prophylactic LMWH

INTERMEDIATE RISK
At least 10 days’ postnatal prophylactic LMWH
NB If persisting or >3 risk factors consider extending thromboprophylaxis with LMWH

LOWER RISK
Early mobilization and avoidance of dehydration

Antenatal and postnatal prophylactic dose of LMWH:
- Weight <50 kg = 20 mg enoxaparin/2500 units dalteparin/3500 units tinzaparin daily
- Weight 50–90 kg = 40 mg enoxaparin/5000 units dalteparin/4500 units tinzaparin daily
- Weight 91–130 kg = 60 mg enoxaparin/7500 units dalteparin/7000 units tinzaparin daily
- Weight 131–170 kg = 80 mg enoxaparin/10 000 units dalteparin/9000 units tinzaparin daily
- Weight >170 kg = 0.6 mg/kg/day enoxaparin/ 75 u/kg/day dalteparin/ 75 u/kg/day tinzaparin
TIMING OF THROMBOPROPHYLAXIS:

- **Antenatal thromboprophylaxis** should begin as early in pregnancy as practical i.e. once intrauterine normal pregnancy is confirmed by ultrasound.
- **Postpartum prophylaxis** should begin as soon as possible after delivery (but see precautions after use of regional anaesthesia and after postpartum haemorrhage).

AGENTS FOR THROMBOPROPHYLAXIS

Consider Low molecular weight heparins (LMWH) as the agents of choice for antenatal thromboprophylaxis. They are as effective as and safer than unfractionated heparin in pregnancy.

- Unfractionated heparin can be used in the absence of LMWH.
- If the woman is of normal weight, **the dose** for unfractionated heparin should be 5000 units 12 hourly. For LMWH preparations, a once-daily regimen should be adopted using the following doses: enoxaparin 40 mg, dalteparin 5000 iu, tinzaparin 50 units/kg.
- Encourage all women with previous VTE and a thrombophilia, to wear graduated elastic compression below knee stockings throughout their pregnancy and for 6–12 weeks after delivery.
- Advise pregnant women travelling by air or admitted into hospital to use thromboelastic stockings.
- Avoid warfarin during pregnancy (up to 5% risk of teratogenesis). It is safe after delivery and during breastfeeding.

SPECIAL CONDITIONS

1- **Epidural anaesthesia**

- Discuss the implication of treatment with heparin or LMWH for epidural or spinal anaesthesia with the woman before labour or caesarean section.
- To minimise the risk of epidural haematoma,
- Do not use regional techniques until at least 12 hours after the previous prophylactic dose of LMWH or 6 hours after the last prophylactic heparin dose.
- Do not use regional techniques until at least 24 hours after the last dose of a therapeutic regimen of LMWH or 12 hours after the previous therapeutic dose of unfractionated heparin.
- Do not give LMWH/heparin for at least four hours after the epidural catheter has been inserted or removed and the cannula should not be removed within 12 hours of the most recent injection.

2- Delivery by elective caesarean section.

- Give a thromboprophylactic dose of LMWH/heparin on the day before delivery.
- Omit the morning dose on the day of delivery, and perform the operation that morning.
- A thromprophylactic dose of LMWH should be given 4 hours postoperatively and the treatment dose recommenced 8-12 hours later.
- Give prophylactic LMWH/Heparin to patients with low risk for VTE, however, the consultant may decide that full mobilization and good rehydration is enough.
- Discuss the increased risk of around 2% of wound haematoma following caesarean section with both unfractionated heparin and LMWH.

3- Women at high risk of haemorrhage

- Conveniently manage those women - with risk factors for obstetrical hemorrhage - with unfractionated heparin. Those patients include women with major antepartum haemorrhage, coagulopathy, progressive wound haematoma, suspected intraabdominal bleeding and postpartum haemorrhage.
- Reverse the activity of unfractionated heparin given in the last hour with protamin sulphate 1 mg for every 100 unit unfractionated heparin and use half of this dose if Heparin has been stopped in the last hour.
- If a woman develops a haemorrhagic condition while taking LMWH, the treatment should be stopped and expert haematological advice sought.
- Commence/restart thromboprophylaxis as soon as the immediate risk of haemorrhage is reduced in patients who had excess blood loss and/or blood transfusion.
- In these women antiembolism stocking(AES) or intermittent pneumatic compression devices can be used.

4. Patients with prosthetic valve (on Warfarin)

- Require combined care with cardiologist. Use high prophylactic dose LMWH/unfractionated Heparin up to 13 completed weeks of gestation.
- Substitute heparin after 13 weeks with Warfarin and continue up to 36-37 weeks.
- Restart Heparin/LMWH after 36 weeks till delivery.
- If patient goes into labour while on warfarin, check INR: if within normal limits, prepare fresh frozen plasma and give Vit.K to the baby im. If INR is high: give Vit K to the mother.
• Recomence unfractionated/LMWH, high prophylactic dose of heparin in the postpartum period and recommence warfarin on the second or third postnatal day. LMWH should be continued while giving the warfarin until the international normalised ratio (INR) is greater than 2.0.
• The dosage: commence either with previous antenatal dose or 7 mg in the 1st day of treatment, 7 mg on the second day and 5 mg on the 3 day.
• Carry on with Heparin till you get the optimal INR.

5- **Breastfeeding:**

• Advise woman that breastfeeding is NOT contraindicated while receiving warfarin.
**Topic 4**

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<td>Care group</td>
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<tr>
<td>Standard statement</td>
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<tr>
<td>Definition</td>
</tr>
</tbody>
</table>

**PROCESS:**

**Aim:** To control seizures and minimize risk to mother and fetus

1. **Pre-pregnancy assessment and counseling:**
   - Patients with unstable epilepsy or patients who are taking more than one anti-epileptic drug refer to a Neurologist for detailed assessment and counseling.

Counsel and advice women:
- There is increased risk of fetal abnormalities even if on no medication (6%) compared to general population (3%)
- All anti-epileptic drugs are teratogenic with a 2-3 fold increase in risk of congenital anomalies)
- Children have 4% risk of epilepsy (~1% general population)

**If patient fit free for 2 years:**
- Reduce teratogenic risk by withdrawal from anti-epileptic drug. Change to mono-drug therapy, this should be done by neurologist.
- Monitor seizures whilst planning pregnancy.
- Commence daily folic acid 5 mgs at least 12 weeks prior to conception if possible.
- Unstable patients should be evaluated by neurologist.
- Plan pregnancy, 6 months after stopping medications.

2. **Pregnancy**
   - All patients with epilepsy should be referred for hospital booking as early as possible.

**Management at booking appointment**

Establish whether epilepsy stable or not and continue same pre-pregnancy recommendations.

- Advise continuation of folic acid (5mg) throughout the pregnancy,
- Consider changing the drugs time or/and route in case of severe or prolonged vomiting.
- Arrange ultrasound scan at 12 weeks for dating and to check for anencephaly.
- Arrange a detailed anomaly scan at 18-22 weeks excluding:
- Regular combined clinic visits at 28,32,36,40 weeks (to be discussed - standard antenatal care if stable on medication)
• Mothers taking hepatic enzyme-inducing drugs (Phenytoin, Phenobarbitone, Primidone, Carbamazepine and Topiramate) to have vitamin K 20mgs orally from 36 weeks (left to consultant decision because there is no sufficient evidence for this practice).

3. Labor

- Pethidine should not be used for analgesia in these cases.
- Steps should be taken to reduce risks of seizures in labour such as:
  - Adequate analgesia
  - Appropriate care to reduce insomnia, stress and dehydration
- Women should continue their medication during labor
- If necessary medication can be given by naso-gastric tube.
- Up to 5% of epileptic women experience seizures in labor and a further 1-2% in the following 24 hours.
- Seizures occurring during labor should be treated with I/V Diazepam 10 mg followed by slow injections with 2 mg boluses
- In cases of repeated seizures lorazepam 0.1 mg/kg IV.
- Continuous fetal monitoring is recommended in women at high risk of seizures or following intrapartum seizure.

NB:

- Epilepsy per se is not an indication for induction of labor or Caesarean section.
- If recurrent seizures occur near term consider elective LSCS – decision to be taken by Consultant Obstetrician.
- Women taking hepatic enzymes inducing anti-epileptic drugs (phenytoin, phenobarbitone, carbamazepine and topiramate, if pre-term labor ensues, a regular dose of corticosteroid is sufficient.
- Inform Paediatricians (see below).

4. Postnatal

- Babies should have vitamin K 0.1mg / kg IM at birth to reduce risks of hemorrhagic disease
- Babies of women on phenobarbitone often experience withdrawal, they are jittery and irritable – monitor for fits.
- Encourage breast feeding as it is considered safe.
- Drugs need to be decreased slowly to pre-pregnancy doses over 3-4 weeks to avoid toxicity.
- Any woman having a seizure during labor must be observed closely for the next 72 hours.
Risk of seizures is higher postnatally and women with epilepsy have to be advised to avoid triggers of epileptic fits such as sleep deprivation, stress and pain.

5. Contraception

- Women with epilepsy should be provided with reliable contraception to avoid unplanned pregnancy.
- The preferred choices for contraception in women with epilepsy are: the copper IUCD, the levenorgestrel containing IUS or the Depot Medroxyprogesterone injection.
- Prescribe OCP preparations containing at least 50µg oestradiol for women on enzyme inducing anti-epileptic drugs should be
- Women should be advised about the increased risk of contraceptive failure (rising from a general population rate of 0.1 to 3 pregnancies per 100 women years) even at higher doses.
**Topic 4**

**High Risk Cases**

<table>
<thead>
<tr>
<th>Sub topics</th>
<th>Management of patients who are positive for viral Hepatitis, HIV and or have AIDS within the maternity department.</th>
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<tbody>
<tr>
<td>Care group:</td>
<td>Maternity unit health care providers for viral Hepatitis positive HIV positive and or AIDS patients</td>
</tr>
<tr>
<td>Standard statement:</td>
<td>Health care providers in Maternity units are at increased risk of exposure to blood splashes and needle sticks.</td>
</tr>
<tr>
<td>Definition:</td>
<td>Precautions to provide guidance for staff caring for a woman/baby who has infective hepatitis or is known to be carrying hepatitis B Antigen (Australian Antigen) or is known to have or is suspected of having AIDS or HIV infection.</td>
</tr>
</tbody>
</table>

**ACTION:**

- All staff must be aware of the hazards and every effort should be made to identify the woman during the antenatal period.

- Once a woman has been identified as a risk case 'DANGER OF INFECTION' Red labels should be placed in English on the front cover of case notes.

- The Nursing Manager/Infection Control Nurse should also be informed as soon as possible, so that liaison between the various departments/wards to be involved can commence.

**A- CARE DURING THE ANTENATAL PERIOD**

- All women screened positive should be labelled as a high risk pregnancy.
- Gloves should be worn whenever blood or urine samples are taken.
- Vaginal examinations during the antenatal period should be kept to a minimum, and 2 pairs of surgeon's gloves should be worn for this procedure.

**B- INPATIENT ANTENATAL CARE**

- Where possible, admission should be avoided.
- The woman should be allocated an isolated room.
- No further precautions should be taken unless there is loss of liquor/blood when the Hepatitis B procedure should be followed.
C- CARE IN LABOUR AND AT DELIVERY

- The woman should be admitted to and cared for during labour in the first stage room.
- Equipment in the room should be kept to essential items only, eg. Bed, cot, 1 trolley.
- The resuscitaire should be placed outside the room (unless the woman is in premature labour) and only taken into the room if required.
- Disposable linen should be used at all times.
- One midwife should be allocated to care for the woman in labour and the paediatrician and one other qualified assistant should be present at the birth of the baby.
- Entry in and out of the room should be kept to a minimum and restricted to those responsible for the woman's labour and delivery.
- The midwife looking after such a woman must not be involved in the care of others at the same time.

- **Full Barrier Nursing** to be followed at all times. The following protective clothing to be available for any person involved in this woman's care:

  - Plastic apron
  - Disposable gown
  - Surgeon's gloves
  - Goggles / visor
  - Overshoes
  - Mask

- For vaginal examinations and the delivery, disposable equipment should be used whenever possible. A special hepatitis pack containing all disposable gowns, linen etc, is kept and made available all the times in obstetric theatre.
- Monitoring by means of fetal scalp electrode (FSE) should be avoided.
- The woman should only use the first stage room toilet.

D- TRANSFER OF MOTHER TO AND FROM WARD

- A wheelchair or trolley can be used and this should be protected by disposable sheets.

E- POST NATAL CARE

- Same principle as for ante natal care to be followed.

F- CARE OF BABY

- Resuscitation will be undertaken by paediatrician as appropriate
- Manual mucous extractors must not be used.
• The paediatrician will decide when the baby will be warded.
• The baby should be transferred in a cot or incubator.
• The current CDC guidelines of hepatitis B vaccination schedule state that infant born to HBsAg-positive mothers must receive the first dose of the hepatitis B vaccine within 12 hours of birth, they also should receive a dose of hepatitis B Immunoglobulin within 12 hours of birth, the second hepatitis B vaccine dose should be given at 1-2 months of life and the third dose should be completed at 6 months.

G- CAESAREAN SECTION
• Midwifery Manager and theatre staff to be informed as soon as possible
• Depilatory cream to be used to remove hair from operation site (do not shave).
• The trolley used to collect the patient should be protected with disposable sheets.
• The patient should be taken straight into theatre to be anaesthetised.
• Only essential equipment to be left in the theatre.
• The scrub nurse team should wear disposable aprons underneath their sterile disposable gowns and should be double gloved. Goggles or visors should also be worn.
• Unscrubbed staff should be protected with disposable gowns and gloves if they are handling contaminated material. All staff should wear overshoes.
• The theatre table should be protected with disposable sheets.
• Disposable drapes and linen should be used as far as possible.
• Swabs should be counted on polythene sheets on the floor and not on swab rack.
• The surgeon/assistants should try their best to avoid needle stick injuries by avoid touching needles.
• At the end of the operation, scrubbed person must ensure patient's skin is entirely clean of blood and other exudates. A tray containing the following should be placed on the base of the trolley and any spillage en-route to the ward should be mopped up immediately. Tray containing:
  - Disposable gloves
  - Paper roll
  - A clinical waste bag
• The trolley should be disinfected thoroughly with 1.000 ppm Hypochlorite solution using paper roll, rinsed well with water and dried well before being returned to theatre.

H- CARE IN THE COMMUNITY
• The midwife should arrange for the visit to be the last of the daily visits
• Only essential equipment should be taken into the house and this should be disposable whenever possible.
• Disposable gloves and apron should be worn when examining mother or baby.
I- ACCIDENTAL CONTAMINATION/SPILLAGE AND DISINFECTION.

- Any splashes of blood on face or body should be washed thoroughly with soap and water.
- In the event of an accidental injury/needle stick, remove gloves, wash the site of stick/injury with soap and water and then with alcohol, cover the stick site with plaster, put double gloves before continuing surgery. The accident should be documented and reported to the infection control Nurse on a special form for further proper follow up.
- Spilt blood should be dealt with immediately by sprinkling with 10,000 ppm solution of hypochlorite and removed with paper towels. Gloves must be worn for this procedure.
- Suction bottles should be one third filled with freshly made 10,000 ppm solution of hypochlorite before use.
- Disposable gloves and aprons should be worn for all cleaning and disposal procedures.
- Only trained staff should undertake these procedures.
  - All disposable equipment, drapes, swabs, packs, etc. should be placed in clinical waste bags, and double bagged and labelled 'Infected Material'.
  - The placenta should be placed in a clinical waste bag and incinerated along with other items.
  - These bags should be removed from the labour ward /theatre and incinerated without delay.
- Delivery and suturing equipment or Edinburgh Tray and instruments are placed in a water tight bags, sealed bearing 'DANGER OF INFECTION' and returned to CSSD for autoclaving and reprocessing. Tray wraps to be dealt with as infected linens, i.e. placed in special sacks, tied securely at the neck and placed in black nylon, 'INFECTED LINEN' label attached. Laundry porter asked to collect immediately by directly ringing laundry.
- All furniture and fittings washed thoroughly with 1,000 ppm solution of Hypochlorite, rinsed well with water and dried using disposable cloths. The floor should be washed with cotton mop using 1,000-ppm solution of hypochlorite and left to dry. Mop sent to laundry with infected linen. Floor should then be scrubbed in the usual manner. The machines to be washed and dried thoroughly after use.
- The airway and endo-tracheal tube should be discarded into clinical waste bag.
- All other equipment which is not disposable should be autoclaved.
- The anaesthetic machine/ baby resuscitaire should be washed down with 1,000 ppm solution of hypochlorite, rinsed well with water and dried using disposable cloths.
- When terminal disinfection is complete, all staff must remove extra protective clothing and discard into clinical waste bags for incineration.
CONCLUSION

Provided the above policy is adhered to, the risk of infection to hospital staff is minimal.

<table>
<thead>
<tr>
<th>NB. Hypochlorite Solutions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household bleach: 500-750 parts per million (ppm) of sodium hypochlorite solution.</td>
</tr>
<tr>
<td>10,000 ppm (available chlorine): used for blood spillage and other exudates.</td>
</tr>
<tr>
<td>1,000 ppm (available chlorine): used for environmental cleaning and decontamination.</td>
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<tr>
<td>Topic 4</td>
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<tr>
<td><strong>Sub topics: J</strong></td>
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<tr>
<td>Care group:</td>
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<tr>
<td>Standard statement:</td>
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<tr>
<td>Definition:</td>
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</tbody>
</table>

**PRESENTATION**

- Features of infection: fever is usual, with significant tenderness over the uterus and lower abdomen and possible association with offensive vaginal discharge.

**ACTION:**

- Complete history and examination to recognize the underlying obstetric condition: Abortion, chorioamnionitis or puerperal sepsis endometritis, necrotizing fasciitis ,pyelonephritis

- Take blood and urine samples for CBC, LFT, KFT, RBS, aerobic & anaerobic blood cultures, coagulation profile, vaginal and cervical cultures.

- Serum lactate should be measured within 6 hours of the suspicion of severe sepsis. Serum lactate > 4mmol/l is indicative of tissue hypoperfusion.

- Perform an ultrasound scan to check for any Retained Product of Conception (RPC).
- Chest x-ray should be performed if necessary as well as other imaging modalities if indicated.

- oral Penicilins or Cephalosporin  
  - And oral metronidazole.
- or/doxacycline in allergic patient  
  - And oral metronidazole.
- A single agent antibiotic (Co-Amoxiclav) can be used in a dose of 875 mg BID.
• **In more severe cases**: consider intravenous antibiotic:
  - Standard regimen
    - Clindamycin 900 mg and
    - Genamycin 1.5 mg/Kg q8 hourly
  - triple iv antibiotic:
    - Ampicillin/Cephalosporin 2 g/4 hours,
    - Gentamycin 1.5 mg/Kg q8 hourly.
    - And Metronidazole 500 mg Q/8 hours.

• After achieving a good tissue antibiotic concentration, remove septic focus such as (RPC) retained product of conception (incomplete abortion or puerperal sepsis) → avoid excessive curettage which will results in Asherman's syndrome and infection flare.

• **In case of chorioamnionitis**: It is frequently a polymicrobial infection.
  - Triple i.v. antibiotic should be started,
    - Cefoxitin 2 g/6 hrs or Pipracillin 3-4 g/6 hrs
      Or Cefazolin 1 g/4 hours,
    - Gentamicin 80 mg/8 hrs
    - and Metronidazole 500 mg/8 hrs,
      (The latter can be replaced with Clindamycin after delivery)

• The definitive treatment in chorioamnionitis is termination of pregnancy after achieving good tissue antibiotic concentration. Never delay this procedure.

• Aim for vaginal delivery if it looks feasible, no clear evidence for a specific time limit for delivery.

• Deliver by caesarean section for standard obstetric indications.

• Call pediatrician to attend delivery and care for the newborn.

• Continue parenteral antibiotics for 48 hours after fever subsides, after delivery or ERPC.

• Check results of bacterial cultures and change antibiotic accordingly in case of unsatisfactory clinical improvement.

• **Septic syndrome + shock may complicate obstetric septic conditions**, consider this diagnosis if the patient manifest the following typical features:
- profound and prolonged hypotension
- fever or hypothermia
- acidosis
- tachycardia
- hypoxia - which may also cause confusion

- **If Septic shock is diagnosed** → manage as per specific protocol

**Management of septic shock**

- **Start the immediate management measure:**
  - Give 100% oxygen by face mask.
  - **Take blood** for aerobic & anaerobic culture, x-match blood, CBC, LFT, KFT, RBS, coagulation profile.
  - **Set up IV fluids** rapidly (Haemacel)
  - **Start IV antibiotics** if blood culture was taken.
  - Insert Foleys catheter to monitor urine output.

- **Continue vigorous treatment which include:**
  - Call anesthetist to put in a CVP line.
  - **Give IV colloid** - this is continued until the CVP is +5 to +10 cm H20.
  - **Give blood** (PRBC) if the haemoglobin is less than 10 g/dl. Aim for a hematocrit of ≥30%.
  - **Admit into ICU** and consider Swan-Ganz catheter if patient requires ventilation or has heart disease (pressure is maintained at 12-16 mmHg).
  - **Consider combination ionotropic/vasopressor therapy** if blood pressure remains below 90 mmHg despite adequate CVP
    - Renal dose of dopamine (1-5 mcg/kg/min) or/dobutamine infusion (up to a maximum of 20 mcg/kg/min) to achieve this goal.
    - And noradrenaline).
  - **Urinary catheter** - should be > 30 ml/hour/or > 0.5 ml/kg/hour,
  - High doses of corticosteroids are of no established benefit
  - **Continue oxygen if cyanosis develops.**
  - **treat underlying infection/septicaemia/septic focus.**
  - **Consider thromboprophylaxis**
  - Treat sepsis by **parenteral antibiotic**, And **remove septic focus** if any.
References


High risk cases II

Part 2 Obstetrical conditions

A. Management of pre-eclampsia with severe features
B. Antepartum Haemorrhage
C. Management of Pre-labor Rupture of Membranes
D. Management of preterm labour
E. Magnesium Sulphate in Prevention of Cerebral Palsy
F. Management of Breech Presentation at term
G. Management of twins labour at term
H. Management of previous uterine scar

- For all Cases of high risk pregnancies, the following steps must be achieved
- These actions represent the First Step and general rules
- Midwives or paramedical staff usually achieves them
• Receive & admit the woman.
• Inform the physician on duty, the patient should be assessed by physician as soon as possible

• Obtain initial history including; gestational age, complains, onset of bleeding, amount, fetal movements, antenatal care, previous obstetrics history, medical & surgical history.

• Perform abdominal exam assessing for Fundal height, lie, presentation, gestation.

• Check & document fetal heart sounds.
• Check & document initial vital signs. (Temp, BP, Pulse, Respiration)
• Perform USS to assess fetal growth, placenta and amniotic fluid.
• Perform CTG for 20 minutes.
• Withdraw blood for CBC, Blood type & RH, save blood for X-match, PT & PTT, electrolytes, KFT, LFT, urine analysis.

• Observe closely
• Check vital signs especially Pulse & BP every 15-30 minutes, temp every 4 h. Notify Physician if diastolic BP ≥ 110 mm Hg or systolic BP ≥ 160.

• Keep on continues monitoring if possible. If not available, check & document fetal heart sounds every 15 minutes.

• Insert Cannula to K.V.O. & for fluid therapy & medication.
• Maintain strict intake & output records hourly.
• Check urine.
• Keep emergency trolley at bed side.
• Assess for signs / symptoms of worsening hourly:
• Administer medication as per Physician order following medication protocols.

• Encourage Lateral recumbent position.
• Provide support, coaching & encouragement during process of labor & deliver
### Topic 5: High Risk cases.

#### Subtopic A: Management of Pre – Eclampsia with severe features

<table>
<thead>
<tr>
<th>Standard Statement</th>
<th>Severe pre-eclampsia and eclampsia are major causes of maternal and feral morbidity and mortality. Intensive monitoring and active management reduce the risks.</th>
</tr>
</thead>
</table>
| Definition          | **Indicators of severe features:** any of these findings  
1) severe hypertension:  
   - Diastolic BP ≥ 110 mm Hg  
   - or systolic BP≥ 160 mm Hg  
   - Measured by automated oscillometric devices (Dinamap) with the correct size of cuff on 2 occasions at least 4 hours apart (check Dinamap readings intermittently and compare with standard methods.)  
2. **Signs and Symptoms:** headache, visual symptoms, epigastric pain, right upper quadrant abdominal pain and hyperreflexia.  
3) Platelet count < 100,000/micro-litre  
4) Elevated creatinine > 1.1 mg/dl  
5) Elevated liver function test more than twice normal.  
6) Pulmonary edema |

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**The midwife must inform the physician about all cases of preeclampsia**

This is a very serious condition, complications can affect:

- The kidney
- The Hemostatic system
- The Brain
- The Cardio-vascular system
- The Liver
- The Ocular system
- The foetus

**PROCESS:**

1. **Actions: First Step (see Insert)**

2. **In labor ward:** specific actions in case of preeclampsia for paramedical staff

   - Observe closely (Toxemic Chart).
   - Notify Physician if diastolic BP ≥110. or systolic BP ≥160 mm Hg
   - Check urine samples for protein.
• **Assess for signs / symptoms of worsening hourly:**
  - Headache
  - Blurred vision
  - Epigastric pain (Right upper quadrant pain)
  - Change in level of consciousness.
  - Nausea & vomiting

• **Observe closely for signs / symptoms**
  - of abruption placenta
  - & uteroplacental insufficiency.

• Place the patient in a single quite room, decrease environmental stimuli as much as possible with special midwife

• **Do not leave the patient alone.**

• Manage labor as per normal protocol.
• Consider continuous fetal monitoring.
• Notify the pediatrician to attend delivery.
• If asymptomatic, anticipate normal delivery.

  • Observe for signs / symptoms of pulmonary edema,  
  - Chest tightness .
  - Shortness of breath
  - Shallow, rapid respiration.
  - Wheezing
  - Tachycardia
• Watch for signs of DIC & seizures.

**PRINCIPLES OF MANAGEMENT:**

1) **Control of blood pressure**
   - Start antihypertensive drugs if DBP ≥ 110 or SBP ≥160 in 2 occasions 15 min apart
   - Aim to keep blood pressure to safe levels (SBP 130-155 and DBP 80-105)
     - Confirm the BP reading with Mercury Sphygmomanometer.
     When automated oscillometric device is used to record patient’s blood pressure.

2) **Prevent convulsions using MgSo4 as per protocol.**
• Anticonvulsants are indicated if there is:
  a) Severe gestational hypertension
  b) Pre-eclampsia with severe features
  c) Chronic hypertension with super imposed preeclampsia with severe features
  d) Eclampsia
  e) HELLP

3) Treat eclampsia (see protocol.)

• If a patient presents with eclampsia initial management should aim at control of convulsions whilst maintaining the airway and preventing trauma.

4) Restore plasma volume and maintain input/output chart.

NB: Expansion of the plasma volume is left to discretion of the consultant concerned.

5) Perform baseline investigations and monitor progress

6) Prevent complications

7) Consider use of Dexamethasone in preterm if not contraindicated even in severe cases.

8) Plan postpartum management

MANAGEMENT GUIDELINES DURING PREGNANCY:

1) Timing of delivery

Most patients with pre-eclampsia will require delivery once the situation is controlled but MUST be discussed with the Consultant.

   a) AT ≥ 34 weeks gestation or unstable maternal or foetal condition regardless of gestational age delivery soon after maternal stabilization.
   b) At < 34 weeks gestation with stable maternal and foetal condition continues pregnancy should be under taken only in facilities with adequate maternal and neonatal intensive care resources (consultant decision)

2) Fetal Assessment

Assess fetal well-being by CTG and preferably an ultrasound scan (growth and liquor volume) Doppler study is important in deciding further management.

3) Mode of delivery
   • Vaginal delivery preferred
   • Caesarean delivery for
     o Continuous seizures or other emergency
     o Fetal distress
     o Unfavourable cervix with severe prematurity (<30weeks).
4) **Induction**

*Induction* of labour should be in **labour ward** (even if by prostaglandin) with continuous monitoring.

5) **Epidural anaesthesia**

If an **epidural** is used together with antihypertensive agents, preload the patient with 500 ml of N/S to avoid hypotension **BP should be measured** at least every 15 mins.

6) **2nd Stage of Labor**

- Continue close observation especially during the second stage of labor
- **Ventouse/Forceps delivery can be used** for obstetric indication/s

7) **Oxytocin and Methergin**

**Syntocinone Oxytocin** 10 iu i.v. should be given, with delivery of the anterior shoulder. **Methergine is Contraindicated**. i.v. Infusion of oxytocin can be given if necessary after delivery.

8) **3rd Stage of labor**

Active management of third stage should be a routine in this condition as mentioned above.

9) **Corticosteroids**

Consider use of **Dexamethasone** in preterm if not contraindicated, even in severe cases

**RECOGNISE & PREVENT THE FOLLOWING COMPLICATIONS**

1) **Acute renal failure:**
Oliguria is common and may be improved by the treatment of hypovolaemia. Acute tubular and cortical necrosis may occur. If renal function tests are deteriorating request a nephrological opinion. (on call physician).

2) **Coagulopathy**
Mild coagulation abnormalities, particularly low platelet counts are not uncommon. Occasionally, particularly in severe cases disseminated intravascular coagulation (DIC) occurs with reduced platelet count, prolonged prothrombin time, elevated fibrin degradation products, low fibrinogen levels and reduced factor VIII activity. Treatment involves replacement of coagulation factors with **fresh frozen plasma, cryoprecipitate and platelets** as advised by the haematologist whose opinion should be sought early in the case of abnormal clotting studies. Early delivery of the fetus is desirable.
3) Cerebral haemorrhage
is a rare complication. The risk can be reduced by prevention of eclampsia, control of hypertension and correction of coagulation abnormalities.

4) Cardiovascular complications

Hypertensive cardiac failure, cardiomyopathy and coronary artery insufficiency may complicate pre-eclampsia. A cardiologist opinion should be sought.

5) Hepatic complications

Pre-eclampsia may be complicated by hepatic enlargement, haemorrhage and even rupture. Liver failure may occur in severe cases and is treated by supportive therapy. This may present as part of the HELLP syndrome (haemolysis, elevated liver transaminases, low platelet count).

6) Ocular complications

Eclampsia may be preceded by visual disturbance, particularly seeing flashing lights or stars. Retinal haemorrhage or detachment and macular oedema may cause reduced acuity.

MANAGEMENT of PRE-ECLAMPSIA WITH SEVERE FEATURES:

ASSESSMENT
- Transfer the patient to labour ward if diastolic BP≥110mmHg, systolic BP≥160mmHg, on two occasions 15 mins apart.
- Initiate an emergency observation chart for each patient providing a complete record of the patient’s observations, fluid balance and investigation results as indicated below:
  1. Gestational age and size
  2. Amount of amniotic fluid
  3. Uterine irritability or contractions
  4. Fetal condition: clinical and continuous CTG (or check FHS Q/15 mins)
  5. Other pregnancy complications – multiple pregnancy, preterm labour, abruption.
- Record the followings:
  2. Fluid balance, urine output and all fluid intake(max 80-120/hr or at rate of 1 ml/kg/hr)
  3. Monitor urine output hourly (at least 100 ml over 4 hr or 500 ml over 24 hr)
  4. Reflexes (normal, absent, increased with ankle clonus).
  5. Pulse rate (every 15 mins).
  6. Temperature (every 4 hourly).
  7. Optic fundi.
  8. Pulse-oxymetry.
• Investigate the following Lab tests: (1-4 repeated every 12 hours)
  1. **Complete blood count** (CBC) – haemoglobin (N.B high = haemoconcentration) and platelets.
  2. **Coagulation screen** (including FDPs if any other abnormality).
  3. **Renal function tests** – creatinine, urea, uric acid.
  4. Liver function tests and serum protein levels.
  5. MSU for microscopy (evidence of renal disease – granular casts, rule out infection)
  6. Serum electrolytes

• Manage labour as followed:
  1. Consider expediting.
  2. Perform all inductions of labour in labour ward (including PGE2 method).
  3. Preload patients with an additional 500 ml N-saline (0.9%) before epidural.
  4. Consider ventouse/forceps delivery if obstetrically indicated.
  5. Oxytocin (syntocinone) 10 iu IM or IV. **NOT methergine in third stage.**

**TREATMENT REGIMENS FOR PRE-ECLAMPSIA WITH SEVERE FEATURES:**

• Inform physician if systolic. BP≥ 160 OR diastolic .BP≥110)
• If Diastolic BP≥ 110 mmHg or systolic BP≥ 160 commence treatments as follows.

  • **Control of BP:**

  1) **Labetalol** – Not to be used with ASTHMA or CARDIAC PATHOLOGY.
     - If Diastolic BP≥ 110 mmHg or systolic BP ≥160
give labetalol 20 mg (4 ml) IV over 2 min ..
     - If Diastolic BP≥ 110 mmHg or systolic BP ≥160 after 10 mins
give at 10 minutes intervals 40 mg, 80 mg ,80 mg ,80 mgIV to maximum total dose of 300 mg.

  2) **Hydralazine** – **DO NOT mix with dextrose**
     - Dilute 20 mg hydralazine (1 ampoule) in 18 ml water for injections make up to 20 ml with normal Saline.
     - If Diastolic BP≥ 110 mmHg or systolic BP ≥160.
       • Give 5 mg (5 ml) SLOWLY (over 3-4 mins).
       • Check BP after 15 mins
     - **IF** Diastolic BP≥ 110 mmHg or systolic BP ≥160.: repeat the same dose.
       • Maximum dose = 20 mg i.e. 4 times.
3) **Nifedipine**: (be careful if Mgso4 is used as well.)

- 10-20 mg orally. Consider its contraindications.
- Repeat at 30 mins if the Diastolic BP ≥ 110 mmHg or systolic BP ≥160
- Total 3 doses.

### Prevention of convulsions

**Magnesium Sulphate:**

- **Indications for Magnesium Sulphate:**
  a) Severe gestational hypertension
  b) Pre-eclampsia with severe features
  c) Chronic hypertension with super imposed preeclampsia with severe features
  d) Eclampsia
  e) HELLP

- **Contraindications for Magnesium Sulphate:**
  - Renal failure or severe oliguria
  - Cardiac disease

- **Bolus dose**
  - Must be given through a separate cannula.
  - Initially, administer 20 ml (4g) of magnesium sulphate intra-venously as 20% solution over 10 minutes.
  This is to be administered at a rate not exceeding 5ml (1g) per minute. (To avoid complication dilute 4 g MgSO4 in 80 ml of N/S to end up with 100 ml solution and infuse it slowly 10 ml/minute (i.e.100 ml over10 minute)

- **Maintenance dose**
  - Follow this with a maintenance infusion of 5ml (1g) per hour of a 20% solution via a syringe pump. Continue for at least 24 hours after delivery/the last seizure.
  - If convulsions persist give up to 2g (10ml) of the 20% solution intravenously at a rate not exceeding 1g (5ml) per minute.
  - If convulsions persist after 3 additional doses of magnesium sulphate (total 6 grams) intubate the patient

- **Monitoring parameters**
  - In the absence of oliguria do not to monitor the Mg serum level)

Please communicate with the department of biochemistry prior to sending your specimens over.
Hourly assessment of:

1) Presence of patellar reflexes
   - If deep tendon reflexes are absent, further doses of magnesium sulphate should be withheld until reflexes return.

2) Respiratory rate or oxygen saturation
   - Respiratory depression (Respiratory rate below 10 per minute) should be treated with 1g iv calcium gluconate given over 3 minutes.
   - Stop magnesium sulphate if respiratory rate < 12/min

3) Urine output
   - Magnesium is excreted via the kidneys and regular monitoring of serum levels should be considered in women with urine output: <30 ml/hr.

SIDE EFFECTS OF MAGNESIUM SULPHATE:

- Neuromuscular depression can occur in both mother and neonate, it is usually associated with maternal renal dysfunction and prolonged IV administration.
- Respiratory depression occurs in higher serum concentrations of magnesium.
- Hypocalcaemia can also occur secondary to hypermagnesaemia

INTERACTION OF MAGNESIUM SULPHATE WITH OTHER DRUGS:

**Nifedipine:** Profound hypotension has been reported when oral nifedipine has been administered.

TOXICITY:
- Cardiac arrest > 12 mmol/L
- Muscle paralysis > 6 – 7.5 mmols/L
- Signs of Respiratory arrest
  1) Loss of tendon reflexes, weakness, nausea
  2) Flushed, feeling of warmth, double vision > 5 mmol/L
  3) Slurred speech, and sleepy
- **Treatment of overdose** (consultant must be involved)
  1) Stop infusion
  2) urgent magnesium levels (see above)
  3) restart infusion only when levels results are available
  4) Monitor oxygen saturation < 90%
  5) Commence oxygen at 4 L/min
  6) Inform anaesthetist
  7) Consider antidote of 10 ml 10% calcium gluconate iv over 3 min

Note: See management of eclampsia protocol.
Criteria for transfer to ICU

- Persisting convulsions
- BP > 180/120 despite appropriate doses of labetalol/nifedipine
- Pulmonary oedema with oliguria
- Oliguria with normal CVP, unresponsive to frusemide
- Compromised myocardial function
- Neurological impairment requiring ventilation
- Massive blood loss
- Inadequate staffing levels or experience (medical or midwifery) on high dependency units (HDU)
- Other associated morbidities

Early communication with ICU staff on duty is recommended for complicated cases.
**ETIOLOGY**

- **Bleeding from the genital tract after 24 weeks gestation may be due to:**

  - Placenta previa
  - Placental abruption
  - Vasa previa
  - Local conditions of cervix, vagina, vulva
  - Consider other rare lesions e.g. hemorrhoids
  - Bleeding disorders.

**Definitions of APH:**

- Spotting – staining or streaking noted on underwear
- Minor haemorrhage – blood loss less than 50 ml which has settled
- Major haemorrhage – blood loss of 50-1000 ml, with no clinical signs of shock
- Massive haemorrhage - blood loss greater than 1000ml and/or signs of shock.

**PROCESS:**

**ACTIONS: First Step (see Insert page: )**

- Doctor must be informed about every case of genital bleeding
- Keep NPO till further decision form the consultant or Registrar/Senior resident.

**If major or massive bleeding:** First step PLUS the followings,

- Call for help.
- Consider taking obstetric emergency trolley bedside.
- Insert IV Cannula G 14 & initiate Hartmann’s solution/Ringer lactate.
- Insert Foley catheter.
- Measure intake & output Q ½ hour.
• Observe & measure bleeding closely & consider weighing linens & saving soaked pads for review.

• Consider early transfusion of blood and blood products.

**If Minor ante partum hemorrhage** characterized by history of mild APH with minimal blood loss on admission.

**A. General rules**

• Obtain a **detailed history** (noting precipitating factors and amount of blood loss),
  - Time of the onset of bleeding & the activities at the time prior to the bleeding.
  - History of previous episode of bleeding
  - Amount of bleeding
  - Any history of pain, trauma, sexual intercourse & uterine contractions.
  - perform a **general examination**:
    - Check the vital signs immediately.
    - Estimate the blood loss from examination of the patients clothing & her legs & thighs.
    - Immediate assessment of the abdomen regarding:
      - Fundal height
      - Consistency of the abdomen
      - Lie of the fetus
      - Uterine contractions or irritability
      - Uterine tenderness
      - Presence of fetal heart

• **Check gestation.**

• Check & evaluate the **CTG.**

• Check **ultrasound reports for placental site.**

• Perform **gentle speculum examinations**, unless known to have major placenta previa or if no ultrasound report available

• **Check lab results & give anti D** if Rhesus negative.

**B. Specific rules**

• Transfer to ward if no signs of major bleeding, significant uterine tenderness or fetal distress.

• **If term** consider induction of labor after discussing with Consultant.

• **If preterm** give dexamethasone (as per PTL protocol)
ALGORITHM  Ante partum or Pre-partum haemorrhage

If major ante partum haemorrhage: As indicated by a significant vaginal bleeding or bleeding with significant constant uterine tenderness but no signs of imminent maternal shock or fetal distress.

A. General rules: See above

B. Specific rules
• **Catheterize** for accurate monitoring of **urinary output**

• Record observations on **observation chart** and **measure all blood loss** accurately (consider weighing soaked linen) keep all pads for review

• **Inform**
  - Anesthetist
  - Neonatal unit

• **Discuss** with
  - Consultant
  - Hematologist if possible especially if coagulation profile is abnormal.

• **Delivery should be effected.**
  - If no evidence of placenta previa, the cervix is favorable and there is no fetal distress, **induction of labor** may be appropriate, labour often progresses rapidly in the event of APH due to placental abruption.
  - There should be early recourse to **caesarean section** if blood loss increases or if there are subtle signs of maternal shock e.g. increasing tachycardia or fetal distress. Fit young woman maintains their blood pressure despite extensive bleeding
  - In all other circumstances proceed immediately to caesarean section.

• The patient should be **closely monitored** in the labor ward until her condition is satisfactory. Observations continued in ICU observation chart.

• **DO NOT give NSAID** e.g. Ibuprofen/diclofenac: Risk of bleeding & renal shut down.

  If **massive ante partum** indicated by blood loss in excess of 1000 ml or abruption resulting in foetal death, follow the above steps in addition to the followings:
  - **Always inform consultant** in charge and or/consultant on call as early as possible.
  - Collect obstetric emergency trolley.
  - Proceed as above PLUS:

• **Cross match at least 6 units of blood.**
• Give **Oxygen**
• **Blood transfusion** should be started as soon as possible

• If life threatening bleeding other relevant blood groups i.e. (Rh O –ve blood) can be given without cross matching.
• If the patient is showing **signs of coagulation defects**, further steps are taken to obtain blood products i.e.
  - Fresh Frozen Plasma
  - Platelets
  - Cryoprecipitate

• Consider CVP line insertion by the anaesthetist.

• **Deliver by caesarean section immediately if the fetus is still alive.**

• **In the event of fetal death**, the mode of delivery is to be decided by the Consultant.
  - Induction of labor with very careful observation of maternal condition may be appropriate if the maternal condition is stable and if labor progresses rapidly.
  - Even if the fetus is dead immediate caesarean section may well be preferable UNLESS the cervix is found to be at least 4 cm dilated in which case it may be reasonable to perform an ARM and augment labour with oxytocin.
  - A caesarean section may still be necessary unless progress of labor is rapid.

• **Decision for a vaginal delivery** will be considered with an overall view of the patient's clinical scenario.

• If there has been an abruption extensive enough to result in fetal death the patient will always require at least 4 units of blood and 4 unit FFP whatever the initial hemoglobin level and this should be given as soon as the cross match is completed.

• **Coagulation profile** to be repeated every 4 hours in the first 12 hours.

• **After delivery**, maintain an **Oxytocin** infusion of 40 IU in 500 ml of Hartmann's solution at 125 ml/hour (20dpm) for at least 4 hours.
ALGORITHM  Placenta previa Type I or II

placenta previa 1\textsuperscript{st} degree and anterior 2\textsuperscript{nd} degree

Blood Loss Amount?

Minimal blood loss

Gestational age ?

< 37 weeks

Give dexamethsone
Observe
Monitor until 37 weeks

> 37 weeks

Vaginal delivery +
Active management of thirds stage

Excessive blood loss

Vital signs ?

Normal

ARM
if in Labour
± Oxytocics
IOL if not in labour

Failure to progress
Dystocia
Hemorrhage

Pre-shock

Ceasarean
**ALGORITHM  Placenta previa Type III or IV**

placenta previa posterior 2nd degree, III or IV degree

Blood Loss Amount?

- Minimal blood loss
- Excessive blood loss

Gestational age?

- < 37 weeks
- > 37 weeks

Give Dexamethasone
Observe
Monitor until 37 weeks in Hospital

Caesarean
ALGORITHM Abruptio Placenta

General Assessment
Vital Signs
Blood Sample
CBC + Group Rh + Clotting tests

Fetal Status

Dead

DIC ?

YES

Resuscitation
Transfer in ICU

Stabilization
and delivery

NO

Induction

Normal

Failed

Caesarean

Favourable cervix

ARM+oxytocin

Normal

Non favourable cervix

Shock Dystocia

Fetal Distress?

YES

NO

Bishop score

Active management of 3rd stage of delivery

Vaginal delivery
### Topic 5  High Risk Cases

<table>
<thead>
<tr>
<th>Subtopic C</th>
<th>Management of pre-labor rupture of membranes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Statement</td>
<td>Manage as an inpatient - gestational age is the single most important element.</td>
</tr>
<tr>
<td>Definition</td>
<td>premature rupture of membranes is membrane rupture (PROM) occurring before the onset of labour, irrespective of gestation</td>
</tr>
</tbody>
</table>

**The midwife must inform the physician for all cases of PROM**

**PROCESS:**

**First Step Actions** *(see Insert page : )*

**Specific Actions**

- Admit the woman and follow the routine admission procedures.
- **Conduct a detailed history with particular focus on dates.**
- **Perform a complete physical exam** and search for contractions.
- Confirm membranes status by performing a sterile speculum exam, visualizing liquor pooling and colour of liquor
- **Conduct the following investigations:**

  1. Complete blood count
  2. Intracervical and HVS for culture and sensitivity
  3. MSU for culture and sensitivity
  4. Ultrasound assessment of fetal status if labour is not advanced.
  5. If pregnancy reaches 28 weeks, monitor with CTG.

- If labour is inevitable: Inform neonatal unit and check cot state.

**Management of PROM according to Gestational age**

**A. Gestation between 24 - 33+6 weeks**

- Follow the above steps.

- **If not associated with uterine contractions**, conservative management is instituted.

- If the PROM is associated with uterine contractions, **the decision to suppress labour is left to the Consultant descretion** depending on the available neonatal care.

- **TOCOLYSIS**
  Tocolysis in women with PROM is not recommended because this treatment does not significantly improve perinatal outcome.
- **STEROIDS**
  Prescribe **steroids** to enhance fetal lung maturity: Two doses of 12mg betamethazone/dexamethasone should be injected intramuscularly 12 hours apart in the first 24 hours.
  - Consultant may decide to repeat the course especially if PROM occurred before 29 weeks.

**If conservative management is followed:**
- Give a single course of **erythromycin** 250 mg 6 hourly for 10 days. Alternatively, Augmentin 500 mg 8 hourly for 7 days.
- Daily **palpation for tender uterus**, assessment of liquor colour & CTG.
- Weekly **Scan** for estimated fetal weight and biophysical profile (BSP) (estimating liquor volume rarely alters clinical management).
- **If there is any evidence of infection, hemorrhage or fetal distress** then labor should be induced or rarely a caesarean section may be appropriate (**Consultants must be aware of such cases**).
- In the case of suspected sepsis antibiotics should be commenced immediately. If the results of an HVS suggest a specific organism appropriate antibiotics Otherwise commence Ampicillin 2 grams IV every 6 hr and metranidazole 500 mg IV every 8 hrs and Gentamycin (if KFT is normal) 80 mg Iv every 8 hrs
- **Labor will be induced by an Oxytocin infusion** and managed as for preterm labor.

**B- Gestational age >34 weeks**
- Follow the above initial steps of admission.

**Digital vaginal examination is not indicated.** A normal CTG without decelerations effectively excludes cord prolapse and cervical dilatation is very unlikely in the absence of painful regular contractions.

- Give antibiotic in labour in the following circumstances,

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1-</td>
<td>Maternal pyrexia</td>
</tr>
<tr>
<td>2-</td>
<td>Known B haemolytic streptococcus carrier.</td>
</tr>
<tr>
<td>3-</td>
<td>PROM ≥ 18 hrs</td>
</tr>
</tbody>
</table>

  - **Oxytocin should be administered** immediately to induce labor:
  - **Intravenous penicillin 3 g** be given as soon as possible after the onset of labour and 1.5 g four-hourly until delivery.
  - Clindamycin 900 mg should be given intravenously eight-hourly to those allergic to penicillin.
  - Avoid Broad-spectrum antibiotics such as ampicillin if possible, as concerns have been raised regarding increased rates of neonatal Gram-negative sepsis.
- If meconium staining of the liquor, fetal tachycardia or decelerations, consider delivery by LSCS.

**INDUCTION OF LABOR**

a. Perform a vaginal examination; if the fore water bag is intact these should be ruptured as soon as possible.
b. Oxytocin infusion and PGE2 are equally effective in inducing labour in patients with pre-labour rupture of membranes.
c. Labour is preferably induced by PGE2 (Prostin)

See section in Obstetrical procedures: IOL page: 191

**ALGORITHM: PROM**

- PROM
  - Yes
    - Intrauterine infection
    - Placenta abruption
    - Fetal compromise
    - labor
  - NO
    - Term?
      - < 34 wks
        - Antibiotics
        - Corticosteroids
        - Observation
      - ≥34 wks
        - Induction at 34 weeks
    - Normal VD
      - Failure Fetal desstress
        - Caesarean
Topic 5  High Risk Cases

<table>
<thead>
<tr>
<th>Subtopic D</th>
<th>Management of preterm labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Statement</td>
<td>As PTL remains one of the most important causes of bad obstetric outcome, always admit patients and involve consultant.</td>
</tr>
</tbody>
</table>

- Do not suppress labor after 34 weeks in view of the excellent neonatal facilities in Tertiary Hospitals.
- Spontaneous miscarriages between 20 and 24 week gestation are usually managed in the labor ward and should be treated as preterm labor. However, intrapartum fetal monitoring is not usually appropriate and vaginal delivery should be planned regardless of presentation.
- A pediatrician should be informed of the impending delivery, after 22 week gestation although it should be clearly explained to the parents that this is to assess the baby and not necessarily to provide active resuscitation for the baby.

The midwife must inform the physician for all cases of PRETERM Labour

**PROCESS:**
**First Step Actions (see algorithm):**

**Specific Actions**

- All women with suspected preterm labor should be seen by the physician as soon as possible.
- **Check gestation by dates** and scan results.
- Examine to determine **size and presentation** (it may be appropriate to confirm it by ultrasound)
- Evaluate the **CTG**.
- Inform **neonatal unit** and check that vacant cots are available
- The following **investigations** are required
  - CBC.
  - MSU-consider urgent microscopy if there is proteinuria
  - Speculum and intracervical swab (ICS & HVS)- confirm intact membranes at same time
- If the membranes are intact and there are regular painful contractions, a **vaginal examination** is performed on admission by the physician
- If membranes are ruptured refer to **PROM protocol**.
- If the cervix is not dilated, then **contractions should be monitored** either by palpation or cardiotocography.
- A cause for the contractions such as UTI, intrauterine infection, multiple pregnancy, abruption placenta or polyhydramnios should be sought. **The former should be treated.**
If contractions are 3/10 or more commence tocolysis and give steroids

**SUPPRESSION OF PRETERM LABOR (TOCOLYSIS)**

- It is rarely indicated after 34 week gestation and is unlikely to be successful once cervical dilatation is 4 cm or more.
- Only indicated in order to delay delivery by 48 hours to allow Dexamethasone in fetal maturation or to allow in utero transfer.
- Nifedipine Regimen is the first choice.
- Avoid using combination of tocolytic drugs.

**Contraindication for tocolytics:**
- Maternal contraindication to tocolysis (agent specific)
- Any condition where prolongation of pregnancy is contraindicated including but not limited to:
  - IUFD
  - Lethal fetal anomalies
  - Suspected fetal compromise
  - Maternal bleeding with hemodynamic instability
  - Preeclampsia
  - Placental abruption
  - Chorioamnionitis

1. **Regime for Nifedipine Tocolysis:**
   - 20 mg orally followed by 10-20 mg 3-4 times daily for 48 hrs
   - Patient must be monitored for blood pressure and pulse
   - CTG monitoring is essential.

2. **Regimen for indometacin:**
   - 25-50 mg Q6 hrs oral, or rectal for 48 hrs
   - Preferred in polyhydramnios
   - Before 32 week gestational age
ALGORITHM: PRETERM LABOUR:

**Review History**
- Medical, surgical, obstetric, social

**Assess for signs and symptoms**
- Pelvic pressure
- Lower abdominal cramping
- Lower back pain
- Vaginal loss – mucus, blood, fluid
- Regular uterine activity

**Physical examination**
- Vital signs
- Abdominal palpation
- Fetal surveillance – FHR, CTG
- Sterile speculum exam
  - Identify if ROM
  - Visualise cervix, membranes
  - High vaginal swab
  - Low vaginal/anal rectal GBS swab
  - Cervical dilatation
    - Sterile digital vaginal exam
    - ultrasound
    - Fetal growth and wellbeing

**Laboratory**
- High vaginal swabs for MC&S
- One swab (low vaginal – anal) for GBS
- Midstream urine for MC&S

- ROM or
- Contraction regular & painful or
- Further observation or investigation indicated or
- Other maternal or fetal concerns

---

**In utero transfer**
- Aim for in utero transfer wherever possible
- If gestation 23–26 weeks, accept a high level of risk for birth on route (unless it puts mother’s life at risk)
- Coordinate transfer

**Antenatal corticosteroids (<35+0 weeks)**
- Recommend course of Betamethasone (2 doses)
  - 12 meg IV then 2nd dose in 24 hours
  - Consider 2nd dose at 12 hours if PTB likely within 24 hours

**Tocolysis**
- Nifedipine 20 mg oral
- Followed by 10–20 mg 3–4 times daily
- Maintenance therapy 20 mg every 6 hours for 48 hours

**Discuss with Obstetrician/Paediatrician**
- If contraindications exist
- If other options required (Indomethacin, Salbutamol)

**Antibiotics:**
- If established labour or imminent risk of PTB
  - Give intrapartum GBS prophylaxis regardless of GBS status or membrane status
  - If chorioamnionitis (membranes intact or ruptured)
    - Cefazolin 500 mg / IV hourly
    - Metronidazole 500 mg IV every 8 hours
    - If labour does not ensue and no evidence of chorioamnionitis
      - Membranes intact then cease antibiotics
      - PPROM, then convert to Erythromycin 250 mg oral every 6 hours for 10 days

**Prepare for birth**
- Recommend vaginal birth unless there are specific contraindications to vaginal birth or maternal conditions necessitating cesarean section

**Management after threatened preterm labour**
- Plan care according to clinical circumstances
- Maternal and fetal reassessment
- Transfer back to referring hospital where feasible
- Discharge if usual criteria met
- Inform the woman, GP and usual care provider about recommendations for future care

---

# Topic 5

## High Risk Cases

### Subtopic E

#### The role of Magnesium Sulphate in prevention of Cerebral Palsy

**Definition**
Prematurity is a powerful risk factor for the development of cerebral palsy. The risk of cerebral palsy was almost 80 times higher among infants born between 23 and 27 weeks of gestation than the regular incidence of 2-3/1000 birth among term infants.

**Care group**
Women at high risk of imminent (ie, within 24 hours) spontaneous or indicated preterm birth between 24 and 32 weeks of gestation.

**Standard Statement**
In utero exposure to magnesium sulfate before preterm birth appears to decrease the incidence and severity of cerebral palsy in offspring. The mechanism is not well understood, but potential neuroprotective actions include antioxidant effects, reduction in pro-inflammatory cytokines, blockage of glutamate activated calcium channels, stabilization of membranes, increased cerebral blood flow, and prevention of large blood pressure fluctuations.

**Process:**

**Give Magnesium sulphate within 24 hours of preterm birth between 24-32 weeks’ gestation including women with:**
- preterm premature rupture of membranes
- preterm labor with intact membranes
- obstetrically indicated elective preterm birth.

**Dose**
- 4 gram bolus of magnesium sulfate over 20 minutes.
- maintenance dose: 1 gram/hour for 24 hours.

**Timing**
- Administer magnesium sulfate to women with preterm premature rupture of membranes or preterm labor who have a high likelihood of imminent delivery (ie, within 24 hours), or before an indicated preterm delivery.
- If emergency delivery is necessary given maternal or fetal status, it should not be delayed to administer magnesium sulfate.

**Do not give to women with**
- myasthenia gravis.
- myocardial compromise or cardiac conduction defects because of its anti-inotropic effects.
- impaired renal function.
If tocolysis is indicated, careful:
- There is an increased risk of maternal side effects when magnesium sulfate is administered concomitantly with beta agonists or calcium channel blockers.
- Use tocolytics with low side effect profile should be given such as indomethacin & beta-adrenergic receptor agonist Salbutamol.

Monitoring
- closely monitor: Urine output and deep tendon reflexes in all patients.
- Discontinue the maintenance phase of treatment if a patellar reflex is lost, (loss of reflexes being the first manifestation of symptomatic hypermagnesemia), respirations rate less than 12 per minute, and the urine output less than 100 mL per four hours.

Treatment of hypermagnesemia:
- Calcium gluconate 1500-3000 mg IV (15 to 30 mL calcium gluconate [10%]) over 2-5 minutes.

References

2. Institute of Obstetricians and Gynaecologists, Royal College of Physicians of Ireland And Directorate of Strategy and Clinical Care Health Service Executive. ANTENATAL MAGNESIUM SULPHATE FOR FETAL NEUROPROTECTION. Version 1.0, Guideline No.23 Date of publication: April 2013, Revision date: April 2015.


<table>
<thead>
<tr>
<th>Topic 5</th>
<th>High Risk Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subtopic F</strong></td>
<td><strong>Management Breech presentation at term</strong></td>
</tr>
<tr>
<td><strong>Definition</strong></td>
<td>Incidence of breech is 3-4% of pregnancies at term.</td>
</tr>
<tr>
<td><strong>Care group</strong></td>
<td>Pregnant women with persistent breech presentation at ≥ 36-week gestation or presenting with breech presentation in labour.</td>
</tr>
</tbody>
</table>
| **Standard Statement** | - With careful case selection and labor management that follow specific protocols have noted excellent neonatal outcomes.  
- Perinatal mortality occurs in approximately 2 per 1000 births and serious short-term neonatal morbidity in approximately 2% of breech infants.  
- Long-term (2 years) neurological infant outcomes do not differ by planned mode of delivery even in the presence of serious short-term neonatal morbidity. |

Even if a clear management plan is written in the notes, consultant must be informed upon admission of pregnancy with breech presentation as the management needs to be individualised.

**The midwife must inform the physician for all cases of Breech presentation**

**PROCESS:**

**ANTENATAL MANAGEMENT**

Refer women with a breech presentation between 35-36 weeks gestation for obstetric review as near as possible to 36 weeks gestation:

**Specific Actions**

- Obtain **full obstetric history**
- Perform **abdominal exam**.
- Perform ultrasound examination to confirm breech presentation, type of breech, placental localization liquor volume, exclude fetal and uterine anomalies/fetal head extension and/or IUGR.  
- Offer external cephalic version (ECV) at ≥ 36-37 weeks’ gestation provided that there is no contra-indications,
- Obtain an informed consent: (The reported success rates of ECV is 40% in nulliparous and 60% in multiparous.)

**Setting and Consent:**
In the absence of a contraindication to vaginal delivery (see box below), inform a woman with a breech presentation of the risks and benefits of a trial of labor and elective Caesarean section,

a. Obtain an informed consent. A woman’s choice of delivery mode should be respected.
Factors regarded as unfavourable for vaginal breech birth include the following:

- Contraindications to vaginal birth (e.g. placenta praevia, cord presentation, previous caesarean section)
- Clinically inadequate pelvis
- Any presentation other than a frank flexed or neutral head attitude.
- Large baby (usually defined as larger than 3800 g)
- Growth-restricted baby (usually defined as smaller than 2000 g)
- Fetal anomaly incompatible with vaginal delivery.
- Fetal or maternal compromise.
- Lack of presence of a clinician trained in vaginal breech delivery

b. Document the consent discussion and chosen plan and communicate them to labor-room staff.
c. Hospitals offering a trial of labor should have a written protocol for eligibility and intrapartum management.
d. Advise women with a contraindication for a trial of labor (see box above) to have a Caesarean section.

**ECV PROCEDURE (See algorithm)**

**Prior to the procedure**

1. Check a written consent is completed
2. Record maternal baseline observations for pulse, respirations and BP.
3. Perform a CTG for 20 minutes, or cease earlier if the CTG is reactive prior to 20 minutes.
4. Check a formal ultrasound has been performed within 24 hours of the procedure.
5. Ensure the presentation is still breech by ultrasound
6. Confirm the Medical Officer performing the procedure is available in 30 minutes before administering the prescribed 150mg oral Ranitidine and subcutaneous Terbutaline 0.25mg (250 mcg). Following administration of tocolysis monitor the maternal pulse, BP, and the FHR 10 minutely until the ECV is performed.
7. Perform the ECV 30 minutes after tocolysis, or when maternal pulse is > 100 bpm.
8. Perform ECV while the mother awake and facilities for emergency CS delivery are available nearby.
9. Confirm fetal wellbeing with cardiotocography before and after ECV, Ultrasound guidance can be helpful.
10. Do not use regional anaesthesia to facilitate ECV, evidences is insufficient to support its use.
Algorithm for ECV

Woman presents to the Maternal Fetal Assessment Unit for ECV

Midwife ensures the woman has a signed a consent

Maternal observations and ultrasound assessment if not done in the last 24-hours

No contraindication for ECV

Start CTG

CTG Reactive

CTG not Reactive

There is/are contraindications for ECV

Inform Consultant

Administer antacid and tocolytic as prescribed
Perform ECV 30 minutes after tocolysis or when maternal pulse > 100 BPM

Post procedure – (whether successful or not)
1. Monitor the FHR by CTG for 40 minutes.
2. Monitor the maternal pulse, BP, vaginal loss, and pain 15 minutely for 30 minutes.
3. If the mother is Rhesus negative, obtain blood for a Group and Antibody screen (Kleihauer), then administer Anti-D as required
4. Discharge the woman home after 1 hour provided:
   - Maternal observations are normal.
   - There is a reactive CTG
   - There are no signs of labour, abnormal vaginal loss, or abdominal pain
   - The medical team is satisfied with the maternal fetal condition
5. Instruct the woman to contact the hospital, and come in if any of these abnormalities occur.

**If the ECV was not successful (failed) or not attempted:**
- *Council the women and her husband about the mode of delivery:*
- If the decision was for vaginal delivery, and in the absence of fetal and or/maternal contraindications, **allow pregnancy to continue to 40 completed weeks** in the hope of spontaneous onset of labour.
- **Induction of labour is not recommended.**
- Explain to the mother and give her time to discuss the choice with her husband/relatives.
- In planned caesarean section, allow pregnancy to continue to 39 completed weeks
- PROM and pre-term labour are managed as in relevant protocol.

**INTRAPARTUM MANAGEMENT**
- Perform the **routine admission procedures**.
- **Check CBC, Blood type & Rh, save blood for X-match.**
- **Keep consultant informed**

**Selection criteria for trial breech delivery**
The decision regarding mode of delivery will depend on:
- Gestational age,
- Stage of labour or imminent birth,
- Maternal and fetal risks,
- Presence of unfavourable factors for trial of vaginal breech (above box)
- Parental wishes after consultation with the obstetric team

**An intrapartum ultrasound should be performed if possible.**
If Ultrasound is not available deliver all undiagnosed breech presenting for the first time in labour by CS because you may miss diagnose fetal anomalies.

- **Decision for trial of labour in breech presentation should be made by the concerned consultant** or by a registrar after comprehensive discussion with the consultant. Inform Anaesthetist & Neonatologist.

**Labour Management**
- Vaginal breech delivery should be carried out by the **most senior available Doctor** and preferably by the **consultant.**
• **Breech extraction** should never be undertaken except in the case of a second twin or dead fetus.
• **Oxytocin Augmentation is acceptable in presence of dystocia**
• **Forceps** should be available in advance.
• **An Anaesthetist as well as pediatrician should attend the delivery.**
  - Explain the delivery procedure to the patient and her husband
  - Conserve fetal membrane as long as possible and immediate vaginal examination if SROM.
  - Epidural analgesia can be employed.
  - Full dilatation of the cervix should only be confirmed by a senior Doctor or an experienced midwife as this is a very vital step.
  - Keep on continuous electronic fetal heart monitoring.
  - Allow a passive second stage without active pushing to last for 90 minutes, allowing the breech to descend well into the pelvis.
  - Once active pushing commences, allow further 60 minutes and if delivery is not imminent, then, CS is recommended.
  - Effective maternal pushing efforts are essential to safe delivery and should be encouraged.
  - At the time of delivery of the after-coming head should be present to apply supra pubic pressure and engagement of the fetal head.
  - Spontaneous or assisted breech delivery is acceptable. Avoid fetal traction and fetal manipulation must be only after spontaneous delivery to the level of the umbilicus.
  - Nuchal arms may be reduced by the Løvset or Bickenbach manoeuvres.
  - The fetal head may deliver spontaneously, suprapubic pressure, by Mauriceau-Smellie-Veit manoeuvre, or with the assistance of Piper forceps.

- **Stop trial of labour and consider C/S if:**
  1) Rate of cervical dilatation is < 1cm/hr inspite of good uterine contraction.
  2) If the breech fails to descend.
  3) If there is evidence of fetal distress.

- **Preterm breech delivery: Mode of Delivery.**
  - Up to 28 week allow for vaginal delivery if there is no contraindication.
  - 28 – 34 week: Individual Consultant decision
  - 35-37 week: Manage as term breech regarding mode of delivery.

- **There is insufficient evidence to support routine caesarean section for the delivery of preterm breech**
Twin pregnancy is associated with higher perinatal mortality especially in the second twin, and increased maternal morbidity.

**Chorionicity and amnionicity should be informed before delivery**

**Timing of delivery for twins:**
- Monochorionic monoamniotic: elective caeserean section at 34 week after administration of corticosteroids
- Monochorionic diamniotic: delivery at 36-37 weeks for uncomplicated twins after administration of corticosteroids
- Dichorionic diamniotic: delivery at 37-38 weeks for uncomplicated twins

**PROCESS:**

**First Step Actions** (see algorithm)

**Specific Actions**

- **Inform the Consultant about the admission**
- If the first twin is not in vertex presentation, delivery should be done by C/S
- Recommend an epidural analgesia if the woman desired so.
- Continuous foetal monitoring for both twins.
- **Obstetric Registrar, anesthetist, pediatricians** should be present in labor ward during second stage.
- **Oxytocin infusion** prepared for use in second stage (10u in 500 ml normal saline).

**Once the first twin is delivered,**

- Clamp the cord and divide. Do NOT give syntometrine.
- Check presentation/lie of the second twin abdominally and vaginally to assess station of presenting part. Findings can be confirmed by ultrasound Scan.
- Correct lie to a longitudinal lie if applicable.
- If contractions have not recommenced after 5 mins start an infusion of 10 IU Oxytocin added to 500 ml of Hartman’s solution at 12 ml/hr (4dpm) doubling the rate every 5 mins.
- Once the presenting part has descended into the pelvis, perform an ARM and await delivery as appropriate for the presentation.
- If the presenting part fails to descend, consider
  - a controlled ARM for a cephalic Presentation;
  - breech extraction for a breech presentation or persistent transverse lie.

**Breech extraction** should be performed by grasping a foot PRIOR to rupturing the membranes and apart from extreme fetal distress should only be performed by an experienced registrar or Consultant.

- Aim for delivery of the second twin within 20-30 mins of the first if possible.
- Double clamp of twin 2 for postpartum identification

- **The third stage** should always be managed actively.

- After delivery methergine 0.25 mg IM stat should be given if not contraindicated or an infusion of 40u Oxytocin in 1000 ml normal saline should be given at 125 ml/hr for 4 hours or longer if otherwise indicated.

**Algorithm for intrapartum care of twin:**

1. **FIRST STAGE MANAGEMENT**
   - 1. Attach Twin Monitor to detect fetal distress in 1st stage
   - 2. Epidural analgesia/standby anaesthetist in preparation for version/extraction in 2nd stage
   - 3. GXM blood and Insert IV line in preparation for PPH in 3rd stage.

2. **SECOND STAGE**
   - 1. Deliver first twin normally
   - 2. Cut twin 1 cord far away from introitus
   - 3. Obstetrician to be present becos of second stage manoeuvres and PPH.

3. **Twin 2 FHR and Lie:**
   - **- Vertex/Frank breech**
     - 1. Wait till head descended
     - 2. Perform ARM with contractions
     - 3. Oxytocin if no contractions in 5-10min.
   - **- Footling breech Or Fetal distress.**
     - 1. Total Breech Extraction.
   - **- Transverse.**
     - 1. VERSION
       - 1. BCV under FHR monitoring and USG
       - 2. IPV if unsuccessful ECV.

4. **THIRD STAGE**
   - 1. Active management
Topic 5
High Risk Cases

<table>
<thead>
<tr>
<th>Subtopic</th>
<th>Trial of labour after previous one C/S (TOLAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>This will include patients with a previous one lower segment caesarean section.</td>
</tr>
</tbody>
</table>

**The midwife must inform the physician for all cases previous uterine scar**

**TOLAC should be performed in a facility that is capable of performing emergency C/S.**

**PROCESS:**

**First Step Actions:**

**Specific Actions**

Check that a decision for vaginal delivery has been made at a consultant level with consent of the patient after counselling about the advantages and risk of TOLAC (including scar dehiscence).

- If no decision has been made, discuss the case with the Consultant
- **Contraindication for TOLAC include previous classical or T incision C/S, prior uterine rupture and extensive transfundal uterine surgery**
- Inform Anaesthetist
- Perform vaginal examinations 2 hourly to check progress
- **Watch for signs of scar dehiscence**
  - Maternal tachycardia
  - Vaginal bleeding
  - Abnormal CTG
  - Inco-ordinate or cessation of uterine activity
  - Severe lower abdominal pain present between contractions
  - Presenting part getting higher

- Assess the case carefully before using Oxytocin, only consultant to order it
- **Epidural analgesia** could be used as the pain of uterine dehiscence will be felt despite epidural analgesia for labor, however, **do not use epidural opiates** as these may mask the pain of dehiscence /rupture.
- Progress in labor has to be almost ideal without much delay.
- Aim to achieve simple vaginal delivery at full dilatation.
- **Be aware of postpartum bleeding**
- Do not palpate or inspect the previous scar after delivery, as a routine
References:


2) Labor Ward guidelines, Prince Charles Hospital, 2002.


7) Taylor M J, Fisk N M, Multiple Pregnancy, The Obstetrician & Gynaecologist, 2002; 2 (4), P 4-10


TOPIC 6: Emergency Obstetrics

A. Management of Eclampsia
B. Shoulder Dystocia
C. Cord Prolapse
D. Post-Partum Haemorrhage
E. Ruptured Uterus
F. Amniotic Fluid Embolism
G. Shock in obstetric patient

Emergency Obstetrics

<table>
<thead>
<tr>
<th>Emergency process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure IV access</td>
</tr>
<tr>
<td>Hartmann</td>
</tr>
<tr>
<td>Trendelenbourg</td>
</tr>
<tr>
<td>Check</td>
</tr>
<tr>
<td>○ BP</td>
</tr>
<tr>
<td>○ Pulse</td>
</tr>
<tr>
<td>○ Bleeding</td>
</tr>
<tr>
<td>○ Uterus Tonus</td>
</tr>
<tr>
<td>○ Conscience</td>
</tr>
<tr>
<td>Coagulation profile</td>
</tr>
<tr>
<td>Cross match 6 U of blood</td>
</tr>
<tr>
<td>Blood count</td>
</tr>
</tbody>
</table>

- Shock in obstetric patient
### Topic 6  Emergency Obstetrics

#### Subtopic A  Management of Eclampsia

<table>
<thead>
<tr>
<th>Standard Statement</th>
<th>Eclampsia should be managed quickly and accurately, otherwise; it will lead to permanent damage or death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Eclampsia: Occurrence of generalized convulsions in the presence of preeclampsia without other cause. This may occur antenatal, intrapartum or postpartum.</td>
</tr>
</tbody>
</table>

#### PROCESS

1. **if convulsion occur, apply the following **immediate action**:  
   - Call for help  
   - Wedge patient on her **left side**  
   - Maintain **airway** (gag and oral airway between spasms, hold chin).  
   - Prevent inhalation (on side, head down, gentle oropharyngeal suction).  
   - Maintain **oxygenation** and ventilation.  
   - **Prevent trauma**  
   - Call **anaesthetist** for assistance  
   - Collect obstetric emergency trolley
   - **initiate treatment with magnesium sulphate**as per protocol

2. **Follow up management as for pre-eclampsia with severe features**:  
   - Discuss with consultant anaesthetist and obstetrician.

   **2.1. Assess conscious level** once convulsions controlled.  
   - Coma may indicate the onset of cerebral oedema, encephalopathy or intracranial haemorrhage.  
   - **Neurological assessment** (examine to exclude other causes of convulsions).

   **2.2 Management of the pregnancy**.  
   - Usually the pregnancy will require to be terminated but the final decision will depend on the gestation and the maternal and fetal condition  
   - All patients with eclampsia should be managed in ICU.  
   - Magnesium Sulphate is the treatment of choice to prevent convulsions in eclampsia

   **2.3. Management of fluids**  
   - The **Anaesthetist** must be involved in decisions for the intra-venous regime. It’s objective is to establish a safe replacement and maintenance of intra-venous fluids:
- If urine output > 60 mls in first 2 hours ——> give 1000mls N-saline 12hourly (85mls/hour) via IVAC.

- If urine output < 60 mls in first 2 hours ——> give 500mls of Hemacele over 20 mins and continue 85 mls/hour N-saline.

- If output remains < 30 mls /hour (0.5mls/kg/ hour) for a further 2 hours ask to insert a **CVP line**.

- Further fluid management should be guided by CVP
- Monitor for signs of pulmonary oedema (basal crepitations) hourly and consider CXR if present.

- If there is pulmonary oedema give **frusemide 20 mg IV** with a further 20 mg IV if there is no response (this is the **ONLY INDICATION** for frusemide in pre-eclampsia)

- If oliguria continues in the absence of pulmonary oedema consider giving a renal dose of **dopamine 1 – 5 mg/kg/min**

3. **Postpartum management**

- Keep in ICU for 24-48 hrs
- Continue MgSO4 infusion 24 hr after delivery or after last fit.
- The patient should be assessed by a **Consultant** prior to transfer to the ward.
- **Renal function**: Oliguria may persist for some hours following delivery especially following a caesarean section.
- Observe **fluid balance** records accurately. If a diuresis has not occurred within 12 hours ——> investigations of renal function should be carefully reviewed.
- **Manage acute hypertensive episodes** during postpartum as before delivery.
- Discontinue intravenous therapy 24-48 hours post delivery.
- If **oral antihypertensive therapy** is needed for some patients — use Labetalol200 mg twice daily or nifedipine 10 mg t.d.s which will usually be adequate.
- Review the medication after 2 weeks.
- Give next appointment to the consultant 6 weeks later.

- **Prevent thromboembolism by**:
  - Encouraging all patients wearing TED stockings until fully ambulant.
  - Consider giving **LMWH** in those with other risk factors e.g. obesity, and caesarean section. (Refer to VTE protocol)
**Process:**

- Identify the woman at risk such as women with:

  - **Prelabour**
    - History of previous shoulder dystocia,
    - Macrosomia
    - Gestational diabetes
    - Maternal BMI >30
    - IDL,

  - **Intrapartum**
    - Prolonged first stage,
    - Prolonged second stage,
    - & instrumental delivery.
    - Oxytocin Augmentation
    - Secondary arrest

- If shoulder dystocia is anticipated, physician should be available on labor ward.

- Recognize shoulder dystocia when:
  - Fetal head retracts against perineum “turtle sign”
  - Gentle traction does not affect delivery.

**Caution**

**Avoid these manoeuvres**

- Do not pull the head
- Do not push on uterine fundus
- Do not rotate the head
- Do not exert suprapubic pressure vertically

**If shoulder dystocia is diagnosed:** proceed to HELPERR

- H: Call for help, obstetrician, and additional midwife to help, paediatrician, and anaesthesia.
• **E: Evaluate** for the need for episiotomy to add additional room for manoeuvres.

• **L: “Legs”** Perform McRoberts manoeuvre by flexing the woman’s hips sharply so that the thighs are on the abdomen (figure 1) and attempt delivery

![Figure 1.1: The McRoberts’ manoeuvre (RCOG guidelines)](image1)

![Figure 1.2: Suprapubic pressure (RCOG guidelines)](image2)

• **P:** Apply suprapubic pressure by an assistant using CPR-style hand position with continuous then rocking motion for 30-60 seconds (figure 2). (Rubin I) and attempt delivery

• **E I: Enter** the vagina to approach the anterior foetal shoulder from behind & exert pressure on the Anterior shoulder to rotate to oblique position (Rubin II manoeuvre) while continuing McRoberts manoeuvre.

---

**THE ‘ENTER’ MANEUVERS FOR SHOULDER DYSTOCIA CLARIFIED**

(using ‘LOT’ position as an example)

(REMEMBER: Rubin I = “Suprapublic pressure”)

<table>
<thead>
<tr>
<th>Rubin II</th>
<th>If ROT, insert fingers of LEFT hand at ‘7 o’clock’</th>
</tr>
</thead>
<tbody>
<tr>
<td>++</td>
<td>If LOT, insert index &amp; middle fingers of right hand through introitus at ‘5 o’clock’*</td>
</tr>
<tr>
<td></td>
<td>Swing fingers up &amp; apply pressure with fingertips from <strong>behind</strong> the anterior shoulder ++</td>
</tr>
<tr>
<td></td>
<td>If shoulders move into the oblique diameter — attempt delivery</td>
</tr>
</tbody>
</table>

*
Rubin II + Wood Screw

- If no rotation occurs, continue Rubin II and add “Wood Screw”
- Use fingers of the opposite hand to apply pressure to the front of the posterior shoulder**
- This can help rotation in the same direction as Rubin II
- If shoulders now move into the oblique—attempt delivery
- If unsuccessful try to rotate through 180 degrees to deliver

Reverse Wood Screw

- If rotation in that direction cannot be achieved change to “Reverse Wood Screw”
- Slide fingers down to the back of the posterior shoulder***
- Apply pressure to rotate in the opposite direction
- Attempt delivery if shoulders move into the oblique
- If unsuccessful, continue rotation through 180 degrees to deliver

ALL ATTEMPTS AT ROTATION SHOULD BE COMPLETED WITHIN 1-2 MINUTES IF UNSUCCESSFUL - MOVE ON TO OTHER MANEUVERS

- **E II: Enter** the vagina to approach posterior foetal shoulder and rotate shoulder towards symphysis combining with RubinII manoeuvre (Woods Screw manoeuvre).

- **E III: Enter** vagina to reverse Woods Screw manoeuvres by approaching posterior shoulder from behind & rotate foetus in opposite direction form (Rubin II or Woods Screw manoeuvres.)

- **R: Remove** (deliver) the posterior arm first by flexing arm at the elbow & sweeping forearm across foetal chest (figure 3).

- **R: Roll** the woman to “all four” position & deliver the posterior shoulder with gentle downward traction.
If still undelivered, consultant may use the following manoeuvres as a last resort:

- Posterior sling
- Deliberate clavicle fracture (cleidotomy).
- Zavanelli manoeuvre. NB: Zavanelli includes CS
- Muscle relaxation
- Symphysiotomy
- Abdominal rescue

Once delivery is affected, make sure the baby has been examined by a senior paediatrician.
Algorithm for the management of Shoulder Dystocia

CALL FOR HELP
Midwife Coordinator, additional midwifery help, experienced obstetrician, neonatal team and anaesthetist

Discourage pushing
Lie flat and move buttocks to edge of bed

McROBERTS’ MANOEUVRE
(Thighs to abdomen)

SUPRAPUBIC PRESSURE
(and routine axial traction)

Consider episiotomy if it will make internal manoeuvres easier
Try either manoeuvre first depending on clinical circumstances and operator experience

DELIVER POSTERIOR ARM
INTERNAL ROTATIONAL MANOEUVRES

Inform consultant obstetrician and anaesthetist

If above manoeuvres fail to release impacted shoulders, consider
ALL FOURS POSITION (if appropriate)
OR
Repeat all the above again

Consider cleidotomy, Zavanelli manoeuvre or symphysiotomy

Baby to be reviewed by neonatologist after birth and referred for Consultant Neonatal review if any concerns

DOCUMENT ALL ACTIONS ON PROFORMA AND COMPLETE CLINICAL INCIDENT REPORTING FORM.
Program 4: Emergency Obstetrics

<table>
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<th>Topic 6</th>
<th>Emergency Obstetrics</th>
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<td>Sub topics</td>
<td>Cord Prolapse</td>
</tr>
<tr>
<td>Care group:</td>
<td>Pregnant women in labour</td>
</tr>
<tr>
<td>Definition:</td>
<td>Cord prolapsed is defined as the descent of the umbilical cord through the cervix alongside (occult) or past the presenting part (overt) in the presence of rupture membranes.</td>
</tr>
</tbody>
</table>

**CAUTION**

- Be aware of cord presentation before performing ARM.
- Don’t Rupture the membranes if the is not engaged

- Vaginal examination should be routinely performed following spontaneous rupture of membranes to exclude the presence of cord prolapse and if cord felt note whether the cord is pulsating.

- Place the patient in left lateral position, knee chest position or Trendelendburg position.

- Prepare patient for emergency CS, cross match blood.

- Formal consent for CS should be obtained after short counseling, full explanation should be given to the woman and her husband all the time.

- Replace the cord into the vagina in case of frank prolapse with minimal manipulation to avoid cord spasm. A worm saline soaked pack might be inserted at the introits.

- Check fetal heart. (if CS is decided,surgery

- Keep your Consultant/Senior Doctor informed, inform anaesthetist, Theatre staff and Neonatal unit officer.

- If the cervix is fully dilated and the fetus is in cephalic presentation, and delivery is feasible, deliver vaginally immediately. (Vacuum/Forceps may be used to expedite delivery)

- If the cervix is not fully dilated; dislodge the presenting part to keep pressure off the cord and continue doing so until Caesarean section(CS) is in progress or fill the bladder with 500 CC normal saline
If PPH is suspected or diagnosed, the following steps will be followed:

- Call for help
- Maternal resuscitation (CAB)

**Vital functions**
- Assess for airway, breathing & circulation.
- Insert two large-bore i.v. canulae.
- Give oxygen via face mask.

**Exams**
- Lab tests: blood type, X-match, Hb, coagulation profile.
  - Consider blood transfusion, bed side test.
- Make sure the bladder is empty
- Remember the 4 Ts. (Tone, Tissue, Trauma, thrombin)
- Make sure the placenta is complete & no parts are retained in the uterus.
- If placenta is no complete, manually
- Exclude bleeding from episiotomy or perineal tear; if any, repair

**Actions**
- Fluid replacement therapy by consensus, total volume of 3.5 litres of clear fluids (up to 2 litres of warmed Hartmann’s solution as rapidly as possible, followed by up to a further 1.5 litres of warmed colloid if bloodstill not available) comprises the maximum that should be infused while awaiting compatible blood.
- Perform **bimanual uterine massage**.
- As a first line agent, commence 20-40 units of **oxytocin** in 1000 ml N/S infuse 500 ml over 10 min then 250 ml/hr
- As second line agents:
  - a. Carboprost (hemabate) PGF2α 0.25 mg, IM or into myometrium repeated every 15 to 90 min for a total dose of 2 mg.
  - b. (methargine) 0.2 mg, i.m., repeated every 2 to 4 hours
  - c. Misoprostol (cytotec) PGE1 800 to 100 mcg rectal or 600 to 800 mcg sublingually or orally

**Surgical Procedures for PPH**
- EUA and repair of any trauma
b. Uterine tamponade

c. B-Lynch suture

d. Arterial ligation (uterine devascularisation)

e. Radiological arterial embolization

f. Hysterectomy

- **Documentation:** all medications, procedures, manoeuvres,…etc

**If HPP persists, call for the senior consultant and consider other causes of PPH**

**ALGORITHM : Retained placenta**

- **Retained placenta**
  - **No or minor bleeding**
    - Wait max 30 min
  - **bleeding > 1000 cc**
    - Cross match 4 U of blood
    - Coagulation profile
    - Toneelenbourg
    - Rapid IV fluids
    - Transfusion when blood available
  - **bleeding + signs of shock**
    - Under epidural
    - No anaesthesia or epidural no more working
    - Call for **anaesthetist**
      - Prepare anaesthesia set
    - General anaesthesia
    - Ensure IV access if not done
    - IV oxytocin
    - 2 g IV Cefazolin
    - Methylene
    - 4. cefazolin for 48 h
    - Sterile operative field
    - Sterile gloves
    - Vulval disinfection
    - Remove placenta manually
Management of Postpartum Hemorrhage

Active management of the third stage of labor
- Oxytocin (Pitocin) administered with or following delivery
- Controlled cord traction
- Uterine massage after delivery of placenta

Blood loss > 500 mL Postpartum hemorrhage

Brisk bleeding
- Blood pressure falling
- Pulse rising

Bimanual uterine massage
- Oxytocin 20 IU / 1 liter of normal saline
- Infuse up to 500 mL over 10 minutes

Explore lower genital tract
- Consider exploring uterus
- Inspect placenta
- Observe clotting
- Consider CBC
  - Type and cross
  - Coagulation screen

The Four Ts

Soft, "boggy" uterus
- TONE
- Carboprost (Hemabate)
  - 0.25 mg / Ml
- Misoprostol (Cytotec)
  - 1.000 mg rectally
- Methylsyringone (Methergine)
  - 0.2 mg

Genital tract tear
- Inversion of uterus
- TRAUMA
- Suture lacerations
- Drain hematoma > 3 cm
- Replace inverted uterus

Placea retained
- TISSUE
- Manual removal
- Curettage
- Methotrexate

Blood not clotting
- THROMBIN
- Replace factors
- Fresh frozen plasma
- Recombinant factor
- Platelet transfusion

Resuscitation
- 2 large-bore IV needles
- Oxygen by mask
- Monitor blood pressure, pulse, urine output
- Team approach

Blood loss > 1,000 to 1,500 mL
- Massive hemorrhage
- Transfuse RBCs, platelets, and clotting factors
- Support blood pressure with vasopressors
- ICU for anesthesia, hematology, and surgery
- Uterine packing / tamponade procedure
- Vessel embolization, ligation, and compression sutures
- Hysterectomy
Massive transfusion protocol

**Team Leader Responsibilities**
- Team leader should be a registrar or consultant
- Notify Coag Lab and send Coag requests
- Activate protocol by ringing Blood Bank and say "I am activating the Massive Transfusion Protocol"
- Call for each box as required
- Make a decision to cease MTP and contact Blood Bank

**Blood Bank Responsibilities**
- Ensure X-match sample processed ASAP after O-neg release
- Notify NZBS Medical Officer after issuing MTP Box Four
- Thaw next box in advance and await request
- Ensure supply of platelets

**REQUEST, DELIVER AND TRANSFUSE AS BELOW:**

**MTP BOX ONE**
- 2 Whole Blood or 2U RBC and 2U FFP
- Check Coags / Platelets / FBC ABGs / Ca**

**MTP BOX TWO**
- 4 RBC
- 4 FFP
- 3U Cryoprecipitate

**MTP BOX THREE**
- 4 RBC
- 4 FFP
- 1U Platelets
- Check Coags / Platelets / FBC ABGs / Ca**

**MTP BOX FOUR**
- 4 RBC
- 4 FFP
- 3U Cryoprecipitate

and alternate 3 & 4...

**Additional treatment thresholds**
- if PR >1.5 or APTT >40 consider additional 4 units FFP
- if fibrinogen <1g/L consider additional 3U Cryoprecipitate
- if platelets <75 x10^9/L consider additional one pack platelets
- if ionized Ca++ <1mmol/L give 10mls Calcium
CAUTION

NEVER give any Oxytocin drug via any route without written physician prescription.

- Act to prevent rupture uterus from occurrence by:
  - Initiating Oxytocin drugs only if with written prescription.
  - Initiating Oxytocin drugs using dropper machine following the unit protocols & guidelines.

- Care to monitor with extra care and keep a high suspicious index for uterine rupture in patients
  - previous uterine scar,
  - multiparous with or without oxytocin
  - over stimulation of uterus with or without oxytocine
  - in presence of cephalo-pelvic disproportion (CPD) or malpresentation,
  - post administration of prostaglandin,
  - obstructed labour,
  - instrumental deliveries and intrauterine manipulation.

ALERT

- Be aware of signs / symptoms of uterine rupture.
  Uterine rupture is a difficult to diagnose, but the following symptoms (especially in the high risk group) may raise the suspicious index
  - pain,
  - bleeding,
  - signs of shock- (tachycardia precedes hypotension),
  - fetal heart abnormalities,
  - cessation of contractions
  - haematuria,
  - change of fetal position or presentation

ACTION
If uterine rupture is suspected:

- Call for help from medical and midwifery staff immediately, including Anaesthetist and Obstetric Consultant/ Specialist/SHO
- Maternal resuscitation while arranging for urgent laparatomy
- Anticipate massive haemorrhage management.
- Continuously monitor fetal heart (if still present)

- Record
  - maternal BP,
  - Pulse
  - oxygen saturation.
- Record appropriately.

- Ensure iv access with two (14-16g) cannula
- Be prepared to follow the massive haemorrhage protocol

- Take blood for
  - CBC,
  - clotting profile
  - cross match of 6 units of blood.

- Make arrangement for immediate transfer to theatre.

- Keep relative fully informed of the situation, ask them to stay around for possible consent for further surgical management (Hysterectomy).

- Ensure accurate recording.

Post natal care:
- All women need extra assistance and support.
- In the event of Hysterectomy/fetal loss, appropriate management and follow up counselling should be given.
**Topic 6** | **Emergency Obstetrics**
---|---
**Sub topics F** | **Care Following Amniotic Fluid Embolism**
**Definition:** | Amniotic fluid and fetal particulates debris enters the maternal circulation resulting in acute cardio-respiratory embarrassment and coagulation failure.

**PRINCIPLE**
Amniotic fluid embolism is rare (1 in 15000-20000 deliveries), it is associated with a fatality rate (>22%). It should be suspected if the woman experiences the sudden onset of severe chest discomfort and difficulty breathing. She may become pale, cyanosed and have signs of cardio-vascular collapse.

**AIM**
To maintain airways and initiate cardiopulmonary resuscitation with circulatory support.

**ACTION:**
- This is a top obstetric emergency, urgently **call all extra staff** required including Obstetric Consultant, registrar, SHO, Senior Midwife, Midwives, Consultant Anaesthetists and SHO alert haematologist and haematology lab.
- **Administer 40% Oxygen** 8 litres by face mask.
- Set up two **peripheral iv lines** using (16 gauge - grey), collect and send blood for, CBC, coagulation profile, cross match at least 6 unit of blood.
- **Monitor and record** BP, pulse, oxygen saturation levels at 5 minute intervals, under instruction of anaesthetist.
- **Intubation** may be required,
- **Tracheal aspirate** for evidence of amniotic fluid/fetal squamous.
- Insert **Foley’s urinary catheter** draining into urometer (hourly urine volumes). Keep accurate records of fluid intake and output.
- If patient has cardiac arrest: commence CPR with left uterine displacement (LUD)
- If massive haemorrhage ensues: follow the guidelines for management of severe post-partum haemorrhage,
- Keep relatives informed.
- If resuscitation is successful, transfer to ICU to maintain circulation with digoxin and dopamine and other supportive measures.
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<thead>
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<tr>
<td><strong>Sub topics G</strong></td>
<td><strong>Shock in Obstetric Patient</strong></td>
</tr>
<tr>
<td>Care group:</td>
<td>Labouring women</td>
</tr>
<tr>
<td>Standard statement:</td>
<td>The 3 major pathophysiologic mechanism in production of shock: hypovolaemia, cardiac insufficiency, and altered vascular resistance. In obstetric patient: hypovolaemia is the main cause.</td>
</tr>
<tr>
<td>Definition:</td>
<td>Shock is characterised by failure of circulating system to maintain adequate perfusion of the vital organs</td>
</tr>
</tbody>
</table>

Shock is al life threatening condition that require immediate and intensive treatment

**ACTION:**

- **Start the immediate management measure:**
  - Call for help
  - Establish a clear **airway**.
  - Give 100% **oxygen** by face mask.
  - Establish **intravenous access** with two wide pore cannulae,
  - **Take blood for**; blood grouping, Rh typing, x-match blood, CBC, LFT. KFT, electrolytes, RBS, coagulation profile. Blood Culture (if sepsis is suspected)
  - **set up i.v. fluids rapidly** (Haemaccel)
  - insert a **Foley’s catheter** to monitor the urine output.
  - Perform a quick **general examination** and **record vital signs**.
  - **Check for** any
    - vaginal bleeding.
    - discharge.
    - draining liquor and/or meconium.
  - **Call anesthetist** to put in a **CVP line**.
  - give **iv colloid** - this is continued until the CVP is +5 to +10 cm H20.

- **Take a brief history from the patient/family. Especially events preceding shock.**
- **Keep consultant informed.**
Specify the underlying cause of shock:
- Hypovolaemic,
- Sepsis,
- Neurogenic,
- Anaphylactic
- and others

and treat accordingly:
- If shock is associated with signs of infection without significant bleeding → refer to protocol for septic shock.
- If not yet delivered and associated with significant bleeding → refer to the protocol for antepartum haemorrhage.
- If not yet delivered and associated with either significant bleeding or clinical features of infection suspect concealed haemorrhage or rupture uterus → refer to the related protocol.
- If shock occurs after delivery and associated with significant bleeding → refer to the protocol for postpartum haemorrhage.
- If shock occurs after delivery and associated with no significant bleeding → exclude inversion of uterus and treat accordingly.
- If amniotic fluid embolism is suspected → refer to the specific protocol.
TOPIC 7: Procedures

1: IV drug administration

2: Antibiotic prophylaxis

3: Induction of Labour
   1. IOL with PGE2
   2. IOL with PGE1
   3. IOL with Artificial rupture of membranes
   4. IOL with oxytocin
   5. Management of uterine tachysystole
   6. IOL with balloon
   7. IOL for special cases

4: Analgesia – Anaesthesia
   A. Local Anaesthesia
   B. Epidural

5: Surgical procedures
   A. Episiotomy
   B. Episiotomy repair
   C. Perineal repair
   D. Caesarean

6: Fetus
   A. Fetal Blood Sampling
   B. Fetal Death

7: Placenta
   • Placental disposal
<table>
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<th>Topic 5</th>
<th>Procedures</th>
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<tr>
<td><strong>Subtopic 1</strong></td>
<td><strong>Intravenous Drug Administration</strong></td>
</tr>
<tr>
<td><strong>Care Group</strong></td>
<td><strong>All women who are in need for intravenous drug administration during their stay in health agency</strong></td>
</tr>
<tr>
<td><strong>Definition</strong></td>
<td>The introduction of solution into a vein</td>
</tr>
<tr>
<td><strong>Standard Statement</strong></td>
<td>To ensure correct administration To avoid error and ensure patient safety</td>
</tr>
</tbody>
</table>

- **EQUIPMENT REQUIRED**
  - Cleaned tray
  - Alcohol swabs
  - Syringes/needles as required
  - Dry cotton
  - Water for injection for dilution
  - 0.9% Normal Saline for flushing or Heparin flush (as per Policy)

- **PROCESS**
  - Assess the patient's condition with regard to ability to tolerate the drug.
  - Explain the procedure to the patient.
  - Wash your hands and assembles the equipment

  - **Check the medication card for:**
    1. Name of patient + ID number
    2. Drug
    3. Dosage
    4. Route
    5. Time to be given
    6. Doctor's signature

  - Obtain the medication keys from the charge nurse, the medication removed and two nurses will check:
    1. Name of drug
    2. Dosage
    3. Expiry Date

  - Draw up the required amount of drug and dilute it. The amount of fluid to dilute the drug depends upon the Hospital Policy or the pharmaceutical literature.
  - 10 ml of Normal Saline will be drawn up for flushing, or more, if more than one drug is to be given. Heparin flush may also be drawn up if only cannula present
  - Check the medication label again, then proceed to the patient with the drug and the medication card
• Identify the patient, check the name band with the name and I.D. number
• Wash your hands.
• Inspect the insertion site of the cannula, to ensure it is patent and not causing irritation/swelling/redness

• If an intravenous infusion is in progress, confirm it is running as desired
• Clean the injection site with an alcohol swab, the nurse should wait until the alcohol evaporates.

• Switched off the infusion, or the fluid path of a tap as stopcock will be closed
• If only a cannula in situ, 5 ml. of 0.9% Normal Saline should be gently injected.
• If the injection is to be made through a re-sealable latex site, a gauge 23 or 25 needle should be used.
• Inject the drug smoothly in direction of flow at the specified rate and

  • Observe insertion site of the cannula
  • Frequently check blood return
  • Ask the patient for their reaction

• Flush the cannula with 5 ml. 0.9% Normal Saline if another drug has to be given.
• Finally, flush the cannula with 5 ml. 0.9% Normal Saline, or by turning on the flow of an appropriate I.V. infusion
• Restart the infusion as prescribed rate

  • If only a cannula in situ, a heparin flush may be used. Dilution 500 ml. 0.9% NaCl and 5000 units of heparin to ensure continuing patency. Heparin flush must be prescribed by the Doctor. 1 ml. of flushing fluid is required

• Ensure the patient's comfort.
• Sign the medication card.
• Dispose sharps, as per hospital Policy
• Clean the tray.
• Return the keys to the charge nurse

  • If a vial was been re-constituted and not all used it should be dated, timed and initiated at the time of preparation and stored in a refrigerator for the prescribed time.
Antibiotic prophylaxis should be given for all Cesarean section.

Prophylaxis should be administered within 60 min before the start of Cesarean section.

Single dose of a targeted antibiotic, such as 1st generation cephalosporin the first line of antibiotic of choice unless allergy is present.

For women with allergy to cephalosporin and penicillin, Clindamycin with Gentamycin is a reasonable alternatives.

If the producers is lengthy than > one hr or estimated blood loss during surgery >1500 ml an additional dose of prophylactic antibiotics may be given 3to 4 hours after the initial dose.

In patient with morbid obesity BMI >35, doubling the antibiotics dose maybe considered.

This treatment should be prescribed and signed for administration on to the patient’s medicine kardex (treatment sheet).

The midwife must check on the patient’s return from theatre that the patient has received this medication.

If prolonged PROM, swab and culture both maternal and fetal side of placenta and a second dose of iv antibiotic may be considered.
Table 1. Guideline for perioperative antibiotic prophylaxis in obstetrical procedures

<table>
<thead>
<tr>
<th>No.</th>
<th>Procedure</th>
<th>Antibiotic regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emergency or elective caesarean section</td>
<td>A single dose of Cefazolin 1-2 g IV is given 15-60 minute prior to skin incision</td>
</tr>
<tr>
<td>2</td>
<td>If blood loss exceed 1500 ml or the procedure lasts for <strong>more than one hour</strong>, or patient is with uncontrolled DM</td>
<td>A second dose of the Cefazolin 1-2 gm IV is recommended after 3 hours.</td>
</tr>
<tr>
<td>3</td>
<td>Morbidly obese patient (BMI &gt; 35)</td>
<td>Double the dose of Cefazolin (2 gm) is given 60 minute prior to skin incision to allow good distribution at the incision place.</td>
</tr>
<tr>
<td>4</td>
<td>If patient is allergic to Penicillin and Cephalosporin's</td>
<td>A single dose of combination of Metronidazole 500 mg or Clindamycin 600mg + Gentamycin 1.5mg/kg (120mg) IV after clamping the cord.</td>
</tr>
<tr>
<td>5</td>
<td>Manual removal of placenta (MRP)</td>
<td>A single dose of Cefazolin 1-2 g IV is given 15-60 minute before removal of the placenta</td>
</tr>
<tr>
<td>6</td>
<td>Repair of third or fourth degree perineal laceration</td>
<td>A combination of Ceftriaxone 1 g IV and Metronidazole500 mg IV is given intra-operatively and to be repeated 12hrs after procedure.</td>
</tr>
</tbody>
</table>
| 7   | Cervical cerclage                      | a. No antibiotic prophylaxis is recommended before 18 wks gestation  
b. if patient gestational age > 18 weeks a single dose of combination of Cefazolin 1gm + Metronidazole 500 IV is recommended. |
| 8   | Episiotomy                            | Not recommended                                                                    |
| 9   | Operative vaginal delivery (forceps or vacuum extraction) | Not recommended                                                                   |
| 10  | Postpartum evacuation & curettage (E&C) | Not recommended                                                                    |
**Introduction**

Care group: Pregnant women in whom labour and delivery will make the fetus and/or mother benefit from a higher probability of a healthy outcome than if birth is delayed.

Standard statement: IOL should be used, when obstetrically indicated, social indication might be considered.

Definition: Initiation of uterine contractions prior to spontaneous onset, whenever the continuation of pregnancy carries an increased compromise to the mother and/or her baby

**PROCESS:**

- Induction should only be considered when vaginal delivery is felt to be the most appropriate mode of delivery
- Dating should be based on the earliest ultrasound scan confirming gestational age
- If IOL is indicated for women presenting beyond 24 weeks, gestational age should be assessed individually based on the information available, bearing in mind that date of last menstruation might not be accurate. Assessment needs to be made by a consultant.
- Due consideration should be given to maternal preferences and priorities prior to commencement of induction
- If no pregnancy complication/s present → Review at 40 weeks, Offer Membrane sweeping.
  - If sweeping does not induce labor, appropriate fetal surveillance should continue until 40 weeks +7 days when other formal method of IOL should be offered.
  - Fetal surveillance should in the form of CTG and ultrasound measurement of the deepest pocket of liquor (> 2 c m). Patients should be properly counseled.
  - Where and when resources allow, maternal request for induction of labor before 41 weeks should be considered, provided the woman has a favourable cervix. This decision should be individualized in each case and the consultant should be involved, and the woman should be aware that the induction may carry some risk and be postponed without adverse outcome

**Medico-legal issue:**

- The midwife must always refer to a senior consultant before starting an induction
- The decision for induction of labor should be made by a clinician at appropriate senior level with clear indication/s.
- A written informed consent should be obtained.

- **The Bishop cervical score** should be used as a standard objective clinical mean of assessment.
Modified Bishop’s score

Classification:
- Unfavorable score: <5
- Moderately favorable score: 5-8
- Favorable > 8

Methods of induction of labour

1. **Vaginal PGE2 (Prostin)**

   - should be used in preference to using oxytocin when induction of labor is undertaken in either nulliparous or multiparous women with intact membranes, regardless of cervical favorability. In women with PROM, prostin and oxytocin are equally effective.

**PRECAUTIONS:**
- Check the indication of I.O.L., the fetal presentation, lie and exclude any contraindications.
- The order of prostaglandin has to be written clearly in the specified pages of the patient’s file by the treating Consultant.
- Invite the patient to empty her bladder.
- Carry out CTG for 20 minutes if one has not been performed within the last 24 hours, otherwise 10 minutes trace is adequate.
- Repeat CTG one hour after prostin insertion or when uterine contractions have started.

**PGE2 REGIME:**
- Unless otherwise stated, prostin is given following the regime below.
• At all stages, if there are signs of fetal or maternal distress, they should be reported promptly by the medical staff before induction continues.
• Give 3 mg Prostin tablets in the posterior fornix for nulliparous and multiparous women up to para 4.
• Once contractions have been established, or the Bishop’s score is greater or equal to 9, consider ARM rather than the administration of a repeat prostin.
• Repeat dose of 1.5 mg can be given after 6 hours to a total of two doses, (maximum dose limits is 6 mg per induction cycle/day).
• No further prostin is given on the first day
• The treating Consultant should assess the patient the morning next to the 2nd dose.
• If the cervix is favourable, → for ARM in the morning. Communication with the Consultant on call in the labour ward is required.
• Failed IOL is defined as labour not starting after one cycle of PGE2 treatment,(6 mg).
• If the cervix remains unfavourable, recheck indications, and recommence Prostaglandin after one day rest and follow previous steps for another 2 doses of prostaglandin after full explanation and patient agreement.
• If the patient refused second cycle of IOL, caesarean section is the option.
• Failure of 2nd cycle of IOL is an indication for caesarean section delivery.

Other regimen of IOL by PGE2 is acceptable, dose not exceeding 6 mg per cycle.

2. Prostaglandin E1 (PGE1 misoprostol)
• Prostaglandin E1 has been found to be safe and effective in numerous clinical trials for cervical ripening and induction of labor. It has numerous advantages over other prostaglandin compounds including temperature stability and low cost.
• In the absence or shortage of vaginal Dinoproston, low-dose misoprostol remains a good and safe alternative for induction of labour.
• The prolonged experience of this method of induction, and after reseach done on this methode in some hospitals in Gaza Strip, had made th is method of induction as the a first option.

2.1. PRECAUTIONS:
• This method of induction is carried out in hospital only,
• It is forbidden to induce labour with this drug at home or in private clinics.
• No previous Scar ( previous CS, Myomectomy or uterine perforation)
• IOL should meet Obstetric indications.
• IOL should be started after confirming fetal well-being with reactive CTG,
• IOL Should be routinely started at 6:00 am, or at any time if emergent status arises as indicated and clearly stated by the treating Doctor.
1st PGE2
Intra vaginal

In labour
Not In labour after 6 hr

2nd PGE2
Intra vaginal

In labour
3rd Not In labour after 6 hr, ? 3rd PGE2
Intra vaginal

Reassess the woman after 24 hr from starting IOL

Cervix : Favorable
AMNIOTOMY

Cervix: non favourable
Number of Attempts?

1st cycle of IOL

C/S

2nd cycle of IOL

2nd cycle of IOL

Repeat IOL

REST for 24 h

1st cycle of IOL

C/S
2.2. **Dose preparation**
- This medication is available as two concentration 200 mcg and 50 mcg tablets
- Each 200 μg tab is equally divided into 4 fourths, each contains 50 mcg of PGE1

2.3. **Administration:**
- Route of administration: Dose should be given orally (not sublingual or vaginal).
  
  **Note:** review of literature showed that oral use of misoprostol is associated with less frequent uterine tachysystole (hyperstimulation) when compared to sublingual and vaginal route.
  
- Cervical evaluation should be carried out prior to every dose.
- Fetal well being should be confirmed by CTG, one hour after each dose.
- Dose can be repeated Q/6 hours up to 4 doses.
- If no response after 24 hours, re-evaluate next morning, and if fetal/maternal condition is not compromised, allow one day rest, and if the woman does not go into spontaneous labour → start a new another course (up to 4 doses) of IOL with PGE1.
- If fetal/maternal condition are not satisfactory or if the second course of induction was not success ful, go for caesarean section.

3. **AMNIOTOMY**

**DEFINITION:** (It is defined as artificial rupture of the fetal membranes: this refers to forewater amniotomy.)

**GUIDELINES:**
- The consultant concerned should make the decision after adequate counselling of the woman.
- Consultant should communicate with the consultant on call in the labour ward and endorse the case to him.
- The cervical Bishop score should be favourable for a primigravida (> 8) and moderately favourable for a multigravida (> 5).

**PRECAUTIONS:**
- The procedure of amniotomy should be carried out in the labour ward
- Encourage maternal bladder emptying by spontaneous voiding before transfer to the labour ward
- On arrival to the labour ward, the doctor concerned has to reassess the patient, the indication of IOL, gestational age and presentation.
- Commence CTG monitoring before hand.
- An intravenous line has to be sited and blood is taken for haemoglobin estimation if not done recently. Save serum for cross-matching when required.
THE PROCEDURE OF AMNIOTOMY:

- Counsel the patient and aim for better communication to reduce patient’s anxiety and distress as well as ensuring privacy.
- Consider the patient’s concern, appreciate her attitude and try to accommodate her wishes.
- The patient should lie on the dorsal or lithotomy position with some mild degree of left lateral tilt.
- Ensure asepsis by performing vulval toilet and using sterile gloves.
- On performing vaginal examination:
  a. Assess the cervix for Bishop score and write it clearly
  b. Assess forewater status
  c. Exclude any evidence of low lying placenta or presence of umbilical cord loops.
  d. Assess pelvic capacity
  e. Then sweep and stretch the fetal membranes
  f. Rupture the membranes by the amniohook or by a pair of toothed forceps over the presenting part.
  g. Check the presenting part is unchanged as well as its position and station and the cord not palpable.
  h. Note the condition of the amniotic fluid in colour and quantity

4. OXYTOCIN INFUSION:

4.1. AIM: To produce regular uterine contractions

4.2. DECISION: Should be decided by the treating consultant or the consultant on call

4.3. WHERE: Should only be used in the labour ward

4.4. WHEN:

1. in women with intact membranes, amniotomy should be performed prior to commencing of oxytocin infusion if feasible
2. It is advisable not commence oxytocin up to 6 hours after the last prostaglandin dose.
3. Continous CTG is mandatory for patients on oxytocin infusion.

4.4. Oxytocin REGIMEN:

- There are two Oxytocin regimen:
  - low dose regimen: which starts at 1-2 mU/min and increasing the dose every 30 min by 1-2 mU/min
  - high dose regimen: which starts at 2-4 mU/min and increasing the dose every 15 min by 2-4 mU/min
- In both regimen don’t exceed the maximum dose which is 36 mU/min
- Low dose regimen is more physiologic but high dose may shorten labour but more tachysystole
• In previous C/S and grandmulliparous (> Para 5 women) the decision to give oxytocin is only a Consultant decision which should be clearly noted in the patient’s file.

4.5. Equipments:
• Volumetric pump
• 10 units of oxytocin (Syntocinon)
• 500 mL 0.9% sodium chloride

4.6. Preparation
• Add 10 units of oxytocin (Syntocinon) to a 500 mL bag 0.9% sodium chloride this make each ml of solution contains 20 mu oxytocin.
• Label bag with signed “medication added” label
• Document fluid volume and drug on the Fluid Balance Record.

4.7. Administration
• Commence the oxytocin infusion via the Alaris infusion pump (see Table 1 for standard protocol for oxytocin infusion)
• Increase the rate (see below Table of Standard protocol for oxytocin infusion) until reaching goal of four **contractions in 10 minutes, lasting 40 - 90 seconds each** Once 4 contractions in 10 minutes are achieved, maintain infusion rate. The infusion rate should be titrated as required to maintain four contractions in 10 minutes.
• Watch for uterine hyperstimulation, especially in second stage of labour

<table>
<thead>
<tr>
<th>Millilitres per hour</th>
<th>Milliunits per minute</th>
<th>Increment time</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>30 minutes</td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>60 minutes</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>90 minutes</td>
</tr>
<tr>
<td>36</td>
<td>12</td>
<td>120 minutes</td>
</tr>
<tr>
<td>48</td>
<td>16</td>
<td>150 minutes</td>
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<td>180 minutes</td>
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<td>72</td>
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<td>210 minutes</td>
</tr>
<tr>
<td>84</td>
<td>28</td>
<td>240 minutes</td>
</tr>
<tr>
<td>96</td>
<td>32</td>
<td>270 minutes</td>
</tr>
</tbody>
</table>
4.8. Important considerations

- There is no need to stop infusion during procedures such as epidural insertion, consider decreasing rate if needed
- In multiparous women, consider decreasing rate once labour is established In women in second stage labour, consider increasing rate every 20 minutes
- In women with previous uterine scar, consider maximum dose of 20 milliunits/min

5. Management of tachysystole (hyperstimulation) with suspected fetal compromise

See algorithm next page.

- Cease oxytocin infusion
- Inform physician in labour ward.
- Commence intrauterine resuscitation i.e. position woman in left lateral, increase fluids
- Consider acute tocolysis: glyceryl trinitrate (GTN), nifedipine or salbutamol regime (see section 8 below))
- Consider fetal blood sampling (lactates)
- After review recommence oxytocin as per medical instructions (see associated ADHB documents section for intrapartum fetal monitoring)
- Management of hyperstimulation with normal CTG
- Decrease the oxytocin infusion rate until contractions settle Reassess the need for oxytocin infusion

b. Options for acute tocolysis (emergency halting of contractions)

1. Glyceryl trinitrate (GTN) regime
   a) GTN 400 microgram spray, administer one metered spray sublingually
   b) Check blood pressure
   c) Repeat further spray after 5 minutes if hyper-stimulation persists

2. Nifedipine regime
   a. Check no contraindications to tocolysis (e.g. woman asthmatic, vaginal bleeding etc.)
   b. Check blood pressure and pulse following each dose
   c. Initial nifedipine dose: 2 x 5 mg sublingual (pierce capsule prior to administration)
   d. 15 minutes after initial dose give further 2 x 5 mg nifedipine capsules sublingually if still hyper-stimulated
   e. 30 minutes after initial dose give further 2 x 5 mg nifedipine capsules sublingually if still hyper-stimulated
   f. 45 minutes after initial dose give further 2 x 5 mg nifedipine capsules sublingually if still hyper-stimulated
Once tachysystole is resolved

Resume oxytocin half rate.

ALGORITHM of Management of uterine tachysystole

UTERINE TACHYSYSTOLE ALGORITHM FOR USE WITH OXYTOCIN ADMINISTRATION

More than 5 uterine Contractions in 10 minutes

YES

Is fetal hear rate Category I ?

- Maternal reposition (left or right lateral)
- IV bolus 500mL LR
- If uterine activity has not returned to normal 15 minutes after above interventions, decrease oxytocin by half; if uterine activity has not returned to normal after 10-15 more minutes,

NO

Continue to increase oxytocin as ordered

- Discontinue oxytocin
- Notify MD/CNM
- Maternal reposition (left or right lateral)
- IV bolus 500mL LR
- Consider O2 10L/min via nonrebreather mask
- If no response, consider Terbutaline 0.25mg subcutaneous

Once tachysystole is resolved
**Topic 5**  
**Procedures**

<table>
<thead>
<tr>
<th>Subtopic 3</th>
<th>Induction of Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Cervical Balloon</td>
</tr>
</tbody>
</table>

**Care group:** Women with unfavorable cervices for IOL.  
**Definition:** Insertion of an extra-amniotic Foley catheter to effect ripening of the cervix prior to induction of labor

**ACTION:**
- Procedure should be carried out after full counselling of the woman with obstetric indications for induction of labour.
- Review the ultrasound reports to rule out placenta praevia.
- The procedure should be carried out in the labour ward/treatment Room and patient placed on bed in lithotomy position.

- The procedure should be performed under strict sterile conditions by using Vaginal examination pack:
  - disposable size 18-22 Foley’s catheter,
  - sterile Cuscos vaginal speculum,
  - 50 ml syringe and needle,
  - 50-60 mls of normal saline or sterile water,
  - Appropriate antiseptic examination cream, sterile surgical gloves and umbilical cord clip.

- Perform a vaginal examination to evaluate cervical scores.
- Insert the Cuscos vaginal speculum.
- Under direct visualization of the cervix, introduce the Foley’s catheter tip gently into the cervical canal (holding the catheter with a ring forceps may make the insertion easier).
- Make sure that the catheter balloon had passed the internal cervical internal os.
- Start to inflate the balloon with 30-60 ml of sterile N/S or sterile water.
- Pull the Foley’s catheter down to bring the balloon to direct contact with the internal cervical os.
- Spigot (close) the lower end of the catheter by the applying the umbilical clip to prevent ascending infection or dribbling of any discharge which may disturb the women’s hygiene.

- Patient will be returned to her bed in the antenatal ward, and observed for uterine contractions.
- Although the risk of infection is theoretical, keep under closed observation especially for the pulse and
- Routine fetal surveillance will be continued.
- Re-evaluate the cervical condition if the woman expelled the balloon or remove after 12 hours of insertion if not expelled.
**A- I U G R:**

- In cases of severe IUGR with Oligohydramnios, the decision and method would be left to the discretion of the treating consultant.
- It would be preferable to commence IOL in the morning of the on call day of the treating consultant.
- C/S may be considered in severe IGUR and oligohydramios.

**B- I U F D**

- This will be dealt with in the section of events following stillbirth.
- The choice of the method is left to the discretion of the consultant concerned.

**C- PREVIOUS ONE LOWER SEGMENT CAESAREAN SECTION:**

- The decision in this situation is left to the discretion of the consultant concerned.
- Ensure that conditions are suitable for vaginal delivery.
- The method of IOL should be decided by the Consultant concerned.
- The concerned Consultant should start IOL while he/she is on duty.
- Cervical balloon for IOL is a safe option.
- Perform ARM when the cervix is favourable, preferably when contractions were already initiated.
- Continuous monitoring is required during labour.
<table>
<thead>
<tr>
<th>Topic 7</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtopic 4</td>
<td>Analgesia - Anesthesia</td>
</tr>
<tr>
<td>A</td>
<td>Local Analgesia</td>
</tr>
</tbody>
</table>

| Care group: | Laboring women |
| Standard statement: | Local injection of anesthetic agent provides a good form of pain relief in order to perform some obstetrical intervention |

**Definition:**

1. **PERINEAL INFILTRATION:**

- Provides good analgesia for episiotomy, low forceps or ventouse delivery and repair of first and second degree perineal tears.
- Lignocaine HCL, 1% (Xylocain) is the most frequently used agent, which works within few seconds.
- Drape patient in dorsal recumbent position.
- Clean the area.
- Insert a couple of fingers into the vagina first to put the perineal tissues on a slight stretch along the proposed infiltration site.
- Use a long, fine needle on a 20 ml syringe.
- 10-20 ml. of 1% lignocaine is injected fanwise, start from the midline of the posterior fourchette.

- Avoid intravascular injection of lignocaine, which results in dizziness, collapse and hypotension.
- Convulsions have been recorded and treated by IV thiopentone!

2. **PUDENAL NERVE BLOCK:**

- Provides good analgesia for 2nd stage of labor, episiotomy, forceps or ventouse delivery and repair of all degree perineal tears.
- Palpate the ischial spines vaginally. the special 10 cm long needle protected with a guide (spinal needle is a suitable alternative) is slowly advanced toward the ischial spine.
- Penetrate the vaginal wall and advance the needle tip until it lies just below the and beyond the sacro-spinous ligament.
- Aspirate, if not in a vessel, (no blood is recovered),
- Inject 8-10 ml of 1% lignocaine.
- Repeat the same procedure on the other ischial spine.
- You may infiltrate the perineum to make sure that full analgesia is achieved.

- Do not use more than 50 ml (300 mg) of Lignocaine for each individual patient.
### Topic 7

<table>
<thead>
<tr>
<th>Subtopic 4</th>
<th>Procedures</th>
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<tbody>
<tr>
<td>B</td>
<td>Analgesia - Anesthesia</td>
</tr>
<tr>
<td></td>
<td>Epidural</td>
</tr>
</tbody>
</table>

**Care group:** Laboring women

**Standard statement:** Epidural analgesia provides good analgesia for normal, instrumental delivery and Caesarean section.

**Definition:** Local anesthetic (0.125-0.25% bupivacaine) is instilled in the extra dural space acting on compound nerve trunks and leading to conduction blockade. Continuous blocked may be achieved by repeating instillation through a catheter inserted into the epidural space (top up).

### GENERAL

- An excellent and safe anaesthesia for baby and mother
- It is the method of choice in some cases: e.g. hypertension, preterm labour, IUGR and breech & twin delivery.

- A written consent should be secure after full counselling.

### PROCEDURE:

- Should be performed by anaesthetist, or under his supervision
- Put the patient on her left side with legs moderately flexed or sitting.
- Do not flex the spine unduly.
- Infiltrate the skin in the midpoint between L2 to L3 or L3 and L4.
- Insert the sharp long 16-gauge needle and advance it in the middle line till the tough ligamentum flavum is encountered. By experience only, you will feel that the needle is in a space immediately behind the ligament. The syringe empties easily. You may use the hanging-drop technique to estimate the progress of the needle.
- Avoid intrathecal injection. This can be confirmed by the inability to withdraw cerebrospinal fluid, or by a negative somatic anaesthesia following a test injection of 2ml of the anaesthetic drug.
- Inject about 20ml of anaesthetic; slow injection will minimize the likelihood of hypotension.
- Put a large pillow beneath the head and the shoulders of the patient to ensure that the analgesic fluid will extend caudal and thus include the sacral nerves.
- Inject the solution
- Follow VTE protocols for patient receiving anticoagulant

- Observe the mother carefully for:
  1. Prolonged Labour (2nd stage)
  2. Absence of involuntary expulsive efforts and rifling action of the pelvic floor muscles may increase demand for instrumental delivery.
  3. Persistent occipito-posterior position
  4. The side effects (when it becomes spinal):
Epidural Anaesthesia: Side Effects

1. Common Side effects
   - Hypotension
     - which may result in fetal distress
     - or even fetal death
   - Bradycardia
   - Hallucination
   - Backache
   - Paresthesia

2. More serious complications:
   - Respiratory Arrest.
   - Cardiac Arrest.
   - Cardiovascular Collapse.

3. Slow-onset complications
   - Agitation.
   - Vertigo.
   - Blurred Vision
   - Nausea.
   - Tremors.

4. Other Complications of Epidural
   - Sepsis
   - Failure of the technique
   - Bladder atony
   - And increased need for catheterisation.

Management of Complications:

- Prompt recognition and treatment are imperative
  - Call anaesthesiologist
  - Intubate.
  - Maintain a patent airway.
  - Administer Oxygen.
  - Administer Diazepam for convulsions.
  - Vasopressor drugs as indicated.
  - External cardiac massage for cardiac arrest
<table>
<thead>
<tr>
<th>Topic 7</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subtopic 5</strong></td>
<td><strong>Surgical procedures</strong></td>
</tr>
<tr>
<td><strong>A</strong></td>
<td><strong>Medio lateral Episiotomy</strong></td>
</tr>
</tbody>
</table>

**Care group:** Laboring women with obstetric trauma  
**Standard statement:** NO routine episiotomy.  
**Definition:** A surgical incision (episiotomy) made intentionally to increase the diameter of the vulval outlet to facilitate delivery. There are three types of Episiotomies: Median, Medio-lateral and J-aped.

**Action:**

1- **ANAESTHEASIA**  
- While the patient in dorsal recumbent position, inject 10 ml of lignocaine 1% along the track of the proposed incision,  
- Allow time for local anaesthesia to take effect.  
- Some cases may need local infiltration on both sides.

2- **TECHNIQUE:**  
- Place two fingers between the head and the perineum.  
- Make a timed incision (i.e. when the perineum is bulging i.e. with imminent delivery),  
- Use a strong sharp pair of curved scissors, starting interiorly from the midpoint of the posterior fourchette  
- Cut obliquely backwards, outwards and laterally to carry the incision to approximately one inch lateral to anal margin.  
- Protect the anus and the anal canal during the incision, keeping 1 inch away from the anal margin.  
- Pick up with a haemostat any significant bleeder if any.  
- Protect the fetus (during labour).

3- **CAUTION:**  
- Avoid too early or too late incision.  
- Avoid too long incision, which could lead to the ischiorectal fossa which is a potential bleeding site and haematoma formation.  
- Avoid too lateral incision as it may injure Bartholin’s gland and/or result in troublesome bleeding  
- Avoid median episiotomy which is associated with increased incidence of anal sphincter injuries.
### Action:

- Await delivery of placenta
- Put the woman in lithotomy position.
- Maintain adequate local anaesthesia with lignocain spray and/or local injection of 1% lignocain solution.
- **Start with good exposure of the wound under good light source**
- Explore the vagina and perineum for any associated tears.
- Perform rectal exam to exclude 3rd and 4th degree tear
- A Roll of gauze may be inserted in the upper vagina to keep the field clean off bleeding. The tail of the pack should be secured with small clamp.
- Repair episiotomy under strict aseptic technique.
- A loose continuous non locking suturing technique used to appose each layer, is associated with less short term pain compared with the traditional interrupted method
- Vicryl Rapide 2/0 is a suitable suture material for perineal repair.
- Repair the episiotomy in three continuous layers: vaginal wall, perineal muscles and perineal skin.
- Repair the episiotomy in three continuous layers: vaginal wall, perineal muscles and perineal skin.

#### Step 1 Suturing the vagina:
- Identify the apex.
- Insert the anchoring suture 0.5 cm above the apex.
- Repair the vaginal wall with a continuous non locking stitch with approximately 0.5 cm between each stitch.
- Continue to suture until the hymenal remnants are reached, ensuring sutures are not placed in the hymenal remnants.
- Place the needle behind the hymenal remnants and emerge in the centre of the perineal muscle.

#### Step 2 Suturing the perineal muscle
- Check the depth of the trauma.
- Repair the perineal muscles in one or two layers with the same
continuous stitch.
- Ensure the muscle edges are apposed carefully leaving no dead space.
- Visualise the needle between sides to prevent stitches being inserted into the rectal mucosa.
- On completion of the muscle layer, the skin edges should align so that they can be brought together without tension.

**Step 3 Suturing the skin:**
- Reposition the needle
- At the inferior end of the wound commence suturing the skin from the apex of the wound
- Stitches are placed below the surface of the skin; the point of the needle should be repositioned between each side, so that it faces the skin edge being sutured.
- Continue taking bites of tissue from each side until the superior wound edge is reached.
- Sweep the needle behind the fourchette back into the vagina. Pick up a small amount of vaginal tissue to tie off the stitch and cut (the knot is tucked into the vagina to minimise discomfort). Alternatively, the repair may be completed using the “Aberdeen” knot. The Aberdeen knot is a method to secure that ensures that the knot is completely inverted in the mucosa with minimal knot bulk at the surface.
At the conclusion of repair, remove vaginal pack (if any had been used) and perform a P/R digital examination to exclude any transfixing sutures.

Postnatal follow up:
- Examine the perineum few hours later and then next morning.
- If haematoma developed, re-open the wound under GA and evacuate the clots and then secure proper haemostasis before repairing the incision again.
- If sepsis occurs, avoid immediate resuturing and await wound to clear up perfectly before repair with secondary suturing few weeks later.
Perineal Repair

Care group: Laboring women with obstetric trauma

Standard statement: All women having a vaginal delivery should have a systematic examination of the perineum, vagina and rectum to assess the severity of damage and button hole injury prior to suturing because the vast majority of anal sphincter defects are unrecognized at delivery.

All women having instrumental delivery or who have extensive perineal injury should be examined by an experienced obstetrician, trained in the recognition and management of perineal tears.

Definition: Perineal trauma may occur spontaneously during vaginal birth or by a surgical incision (episiotomy) made intentionally to increase the diameter of the vulval outlet to facilitate delivery.

DEFINITION OF SPONTANEOUS TEARS

<table>
<thead>
<tr>
<th>Degree</th>
<th>Trauma</th>
</tr>
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<tbody>
<tr>
<td>First</td>
<td>Injury to the skin only</td>
</tr>
<tr>
<td>Second</td>
<td>Injury to the perineum involving perineal muscles but not involving the anal sphincter</td>
</tr>
<tr>
<td>Third</td>
<td>Injury to perineum involving the anal sphincter complex: 3a: less than 50% of External Anal Sphincter (EAS) thickness torn 3b: more than 50% of EAS thickness torn 3c: Both Internal Anal Sphincter (IAS) and EAS torn</td>
</tr>
<tr>
<td>Fourth</td>
<td>Injury to perineum involving the anal sphincter complex (EAS and IAS) and anorectal mucosa.</td>
</tr>
</tbody>
</table>

The following basic principles should be observed when performing perineal repairs.

- Suture as soon as possible following delivery to reduce bleeding and risk of infection.
- Check equipment and count swabs prior to commencing the procedure and count again following completion of the repair.
- Good lighting is essential to visualise and identify the structures involved.
- Ask for more experienced assistance if in doubt regarding the extent of trauma or structures involved.

Difficult trauma should be repaired by an experienced operator in theatre under regional or general anaesthesia

- Insert an indwelling catheter for 24 hours to prevent urinary retention.
- Ensure good anatomical alignment of the wound and give consideration to cosmetic results.
Rectal examination after completing the repair will ensure that suture material has not been accidentally inserted through the rectal mucosa.

### Management of first, second, third and fourth degree tears

<table>
<thead>
<tr>
<th>1&lt;sup&gt;st&lt;/sup&gt; and 2&lt;sup&gt;nd&lt;/sup&gt; degree tears</th>
<th>3rd and 4th degree tears</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Skill of operator</strong></td>
<td>Repair to be undertaken only by appropriately trained practitioners. An experienced practitioner should always be available to provide training and supervision</td>
</tr>
<tr>
<td><strong>2. Anaesthetic</strong></td>
<td>Implement local anaesthetic e.g. Lignocaine (0.5% 5 mls) or Regional block.</td>
</tr>
<tr>
<td><strong>3. Suture material</strong></td>
<td>Use absorbable sutures such as polyglactin (Vicryl) or + polglycolic acid (Dexon)</td>
</tr>
<tr>
<td><strong>4. Method of repair:</strong></td>
<td></td>
</tr>
<tr>
<td>• Rectal mucosa</td>
<td>continuous locking suture or continuous non-locking sutures</td>
</tr>
<tr>
<td>• Anal sphincter</td>
<td>continuous non- locking suture or interrupted sutures</td>
</tr>
<tr>
<td>• Vagal tissue</td>
<td>continuous subcuticular suture or apposition only</td>
</tr>
<tr>
<td>• Muscle</td>
<td></td>
</tr>
<tr>
<td>• Perineal skin</td>
<td></td>
</tr>
</tbody>
</table>
### 5. Post natal care

<table>
<thead>
<tr>
<th>1st and 2nd degree tears</th>
<th>3rd and 4th degree tears</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Antibiotic prophylaxis</strong></td>
<td><strong>C. Analgesics</strong></td>
</tr>
<tr>
<td>- Ceforaxime 500 mg bid for 5 days</td>
<td>- Analgesia will need to be given regularly</td>
</tr>
<tr>
<td>- Metronidazole 500 mg tds x5days</td>
<td>- Agents which cause constipation should be avoided if possible.</td>
</tr>
<tr>
<td><strong>B. Laxative</strong></td>
<td>- The rectal route should not be used for administration.</td>
</tr>
<tr>
<td>- Lactulose 10 ml bd for at least 10 days</td>
<td></td>
</tr>
</tbody>
</table>

### Documentation must include

1. An Accurate description / diagram of injury
2. Anaesthesia (type and amount)
3. Suture material.
5. Records of P/V&PR examination once repair complete.
6. Final equipment/swab/suture check.
7. Name in print letters(or stamp) and signature
## Preparation for Caesarean Section

**Group Care:** All women requiring an immediate delivery

**Definition:** Preparation for emergency caesarean section.

**Standard Statement:** Quick preparation of woman who needs an urgent Caesarean section

### Process:

- Arrange for quick admission.
- **Insert an intravenous cannula**
- Obtain blood for laboratory work.
- Cross match two units of whole blood unless otherwise instructed.

- **Sign the consent form - if possible.**

- **Assess vital signs and fetal heart rates** or ultrasound.
- Keep patient on nil by mouth (NPO).
- **Prepare skin** according to the local hospital protocol.
- Care of valuables such as jewellery, watch, or money.
- Remove prostheses such as artificial limbs denture, contact lenses.
- Remove of cosmetic such as lipstick, nail polish.
- Assure proper wearing like open gown and cap.

- **Insert a Foley's catheter under aseptic technique.**
- **Complete patients' record,** checking of patient identity
- Assist with transferring patient to surgery.

- **Maintain left lateral tilt** during transfer to surgery
- **Give Oxygen by face mask in case of fetal/maternal distress.**
- **Hand over the needed medication** to be given intra operatively ()

- **Chart notes of pre-operative check list and lab result handed to theatre staff.**
PROCESS:

In cases of elective or emergency caesarean section,

- Receive & admit the woman.
- Check & record vital signs.
- Insert IV cannula G 14 or G 16 and or G18.
- Perform an abdominal exam assessing lie, presentation, & gestation.
- Perform a CTG for 20 minutes.
- Document fetal heart sounds if a CTG is not feasible.
- Nothing by mouth from midnight.
- Withdraw blood for CBC, group & cross match as indicated.
- Ensure pre op checklist is completed.
- Ensure the written consent is ready before going to the theatre.
- Give pre op medication as indicated & per prescription.
- Inform the physician.

For all Caesarean section consider:

1. **Antibiotics**: refer to antibiotic prophylaxis protocol in the emergency cases.

2. **Thromboprophylaxis**: refer to thromboprophylaxis protocol.
Elective Caesarean section

- Decision should be made by Consultant
- Planned CS should not be done before completed 39 weeks, unless consultant decided otherwise
- Check CBC and group and save have been taken and serum is still in blood bank, completing appropriate forms and obtaining the results.
- Book (operative list) with anesthesia, labor and maternity ward

Blood

- Cross match two units of blood as a routine
- Cross match 4 units if:
  c) Anterior placenta over a previous scar
  b) Clotting disorder
  d) Placenta previa

- Admit early morning or the night before according to the hospital protocol.
- Nil by mouth from midnight
- A consultant should be present in theatre if there is a placenta previa or anterior placenta in patients with previous scar.

Urines

- Catheterize patient in theatre with use of a continuous drainage of urine bag.

Emergency caesarean section:

- Discuss with the consultant
- Call
- Obtain enough blood samples for CBC and cross match at least 2 units of blood.
- Site IV line preferably 14G (brown), minimum 16G (grey)+18 G
- Give ranitidine 50 mg in 20 mls saline IV over 2 mins slowly (if not given orally in labor)
- and metoclopramide 10mg IV slowly over 2 mins and sodium citrate 30 mls orally theatre.
- Explain the situation to the patient and her husband as quickly and clearly as possible (document this in the notes)
- Obtain consent.
- Insert Foley catheter under aseptic technique
- Inform pediatricians
- Ensure that pre operative check list is completed
### Topic 7 Procedures

<table>
<thead>
<tr>
<th>Subtopic 6</th>
<th>Fetal Death</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procedures to be followed in the event of still births</strong></td>
<td></td>
</tr>
<tr>
<td>Care group</td>
<td>Pregnant women with intrauterine or intrapartum fetal death.</td>
</tr>
<tr>
<td>Standard statement</td>
<td>Fetal death is a distressing status, requiring sympathy, counseling and precise decision</td>
</tr>
<tr>
<td>Definition</td>
<td>Stillbirth is the delivery of a dead baby at &gt; 24 weeks gestation and/or baby weighing &gt; 500 gm.</td>
</tr>
</tbody>
</table>

**PROCESS:**

#### Psychological support

- Deal with emotional upset / grief – Sensitive counselling as no cause is found in many cases
- Give as much time and support as is necessary to parents to help them come to terms with their predicament and to make any decisions required.
- Minimize the distress of the woman/parents, every care should be taken to explain all events and procedures undertaken

#### Medical issues:

- **Treat underlying cause** if necessary, for instance concealed abruption / severe pre-eclampsia
- Carry out the **Routine investigations**
  - Detailed **fetal ultrasonography** at time of diagnosis to identify structural anomalies / IUGR / hydrops
  - **Maternal FBC, LFT, Clotting, glucose** (? random /fasting blood sugar / GTT depending on suspected aetiology), **Kleihauer test**.
  - **Thrombophilia screen** - antiphospholipid syndrome screen; thrombophilia screen
  - **Viral infection** screen
  - **Fetal karyotype** - amniotic fluid / placental tissue / fetal blood if possible & needed.  
  - **Placental / fetal swabs for culture**, fetal blood for viral infection screen
- **Post-mortem - counsel** with regards to extent of procedure, tissues to be removed and storage of tissue for further analysis / research
• Delivery

- Offer initiation of delivery:
  - Prompt termination is not mandatory
  - Allow time for the woman and her husband to grieve and decide about time of termination depending on their social circumstances and hospital setting.
  - Method of termination depends on gestation age.
  - Advice the woman about the risk of DIC is minimal, unless prolonged fetal death or if associated with placental abruption or severe pre-eclampsia.
  - Provide adequate intra-partum analgesia
  - Keep membranes intact for as long as possible.
  - Avoid operative delivery / perineal lacerations if at all possible.
  - Encourage parents to hold baby if they wish to give name.
  - Obtain photographs / hand and foot prints.
  - Active management of third stage.

• Post-partum

- Discuss post-mortem and other investigations including fetal tissue removal (if applicable).
- Make arrangements for registration / death certificate.
- Manage breast engorgement / lactation - simple analgesia + firm support usually sufficient.
  - If medical treatment is required, give Bromocriptine/cabergoline.
- Inform the local Primary Health Centre.
- Discuss provisional diagnosis.
- In post-natal follow-up discuss:
  - Post-mortem results - if any tissue was sampled.
  - Results of other investigations.
  - Advice plan for subsequent pregnancy.
  - Discuss contraception.
<table>
<thead>
<tr>
<th>Topic 7</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subtopic 7</strong></td>
<td><strong>Placenta Disposal</strong></td>
</tr>
<tr>
<td>Standard statement</td>
<td>Placenta should be disposed following the universal infection control guidelines of the solid wastes taking in to consideration that incineration is the best method to kill microorganisms.</td>
</tr>
</tbody>
</table>

**PROCCESS:**

- Check the file (check if there is a need for pathology or swab culture)
- Prepare the equipments including; receiver, clean gloves, scale, disposable plastic waste bag.
- Wash hands thoroughly.
- Wear gloves.
- Inspect the placenta: Maternal & fetal surfaces & membranes for any missing parts.
- Keep placenta & inform physician if any missing parts or cotyledons.
- Put in a plastic waste bag & tie it.
- Weigh it.
- Dispose the placenta following the infection control guidelines in the hospital.

If needed for Pathology; such as for cases of still birth, labor room neonatal death or any other indicated cases:

- Weigh the placenta while in receiver.
- Subtract the weigh of placenta & receiver from the weigh of the receiver.
- Put the placenta in special container inside formalin.
- Label the container with name, date, time & type of tissue.
- Dispose gloves.
- Wash hands.

- Document: Date, time, weight, inspection results on the woman’s delivery file.
References

1. **Induction of labour**, Royal College of Obstetricians and Gynaecologists, evidence-based clinical guideline number 9, RCOG, June 2001


6. **UpToDate Principals of labour induction**. Deborah A Wing; Charles J Lockwood; Vanessa A Barss. Literature Review current through to July 2012


Quality of Care

Topic 8. Methods of Quality Insurance

- **Subtopic 1**: Structural approach
  - Check-lists
- **Subtopic 2**: Process approach
  - Communication
- **Subtopic 3**: Outcome approach
  - Profiles analysis

The purpose of these guidelines is to improve the quality of care.

These guidelines participate to the general concept of quality development which is essential in health care services. We propose in this section different ways to introduce the methodology of quality development in the usual practice. Three different approaches to assess quality are proposed which are not contradictory but complementary:

- The first one focuses on the necessary preconditions to achieved a good process
- The second one proposes to analyse the different steps of the process itself and to compare them to general standards
- The third one assess the quality of care according to the results in term of mortality, morbidity and general performances.
<table>
<thead>
<tr>
<th>Topic 8</th>
<th>Methods of Quality Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtopic 1</td>
<td>Structural approach</td>
</tr>
<tr>
<td>Standard statement</td>
<td>The structural approach supposes that good preconditions are more likely to result in an appropriate process of care and a favourable outcome than poor preconditions.</td>
</tr>
</tbody>
</table>

In this approach, the input into the health care process is described and compared against established criteria and standards.

The input is defined as all the resources in terms of:
- Health manpower
- Facilities (physical)
- Equipment
- Materiel (supplies)
- Infrastructure
- Organization characteristics (ward system, staff training and qualification, payment method)

The quality of providers assurance programmes involve
- **accreditation (supervised skills)**
- **and certification**

and concern essentially both initial training and continuing education.

It is important for each medical department to have standard lists for:
- Type and number of providers for each care unit according to the number of beds, the type and the severity of the pathologies.
- All disposable materiel (quantity and stock management)
- All permanent materiel (quantity, functionality)

The evaluation process consist to compare regularly
- the actual team
- the equipment with the standard norms
- the materiel
- the registers
- the mode of data collection.

To improve the quality inside a service, **the check-list practice** is very useful and consists to check all the items of a standard list every day for each care room:
- admission room
- labour room
- delivery room
- postnatal ward
- nursery
- resuscitation room
CHECK-LISTS

Check-list for the Admission room

- Sphygmomanometer, stethoscope, thermometers
- Blood sample tubes, Urine cups
- Adult weight scale
- CTG, Sonicaid, U/S
- Side lamp, I.V standard
- Wheel chair, bed, foot stool
- Bed sheets, towels, pillows
- Speculum
- I.V solutions (different types)
- Needles and syringes (different sizes)
- Disposable and sterile gloves
- Gauze, cotton swaps, plaster
- Dip sticks strips
- Soap and running water
- Antiseptic solution, lubricant

Check-list for the Labour room

- Sphygmomanometer, stethoscope, thermometers
- Bed, foot stool
- I.V set, I.V solutions (different types)
- Antiseptic solution, lubricant
- Disposable and sterile gloves
- Gown, towels, bed sheets, pillows
- Amniohook
- CTG
- Perineal pads
- Soap and running water
- Antiseptic solution, lubricant
- Dropper machine
Check-list for the delivery room
(set of delivery)

- Sphygmomanometer, stethoscope, thermometers
- Delivery bed, strippers, foot stool
- Sheets, leggings, gowns, towels
- Infant weight and height scale
- Delivery set (scissors, sponge holder, cup or kidney basin, gauze, forceps, clamps)
- Episiotomy set (tooth forceps, needle holder, gauze, scissors, vaginal back)
- Forceps (different types), vacuum extractor, Amniohook
- Needles and syringes (different sizes), I.V set, I.V solutions (different types)
- Urinary catheter and urine bag
- Disposable and sterile gloves
- CTG
- Identification band, cord clamp
- Emergency trolley, bed side lamp
- Ambubag (adult and infant size), laryngoscope, endotracheal tube, oxygen supply, suction machine, new born resuscitator
- Portable incubator
- Drugs used in labour room for mother and baby
- Clock
- Soap, antiseptic, lubricant
- Gauze, plaster, perineal pads

Newborn
Check the following equipment prior to the delivery for immediate management in the delivery room:

1. Wall suction with regulator, manometer, and suction catheter (10 Fr)
2. Bulb syringe (correct size)
3. Meconium aspirator
4. Resuscitation bag with manometer and mask attached to 100% oxygen source.
5. Laryngoscope with long (#1) and short (#0) blades
6. ET tubes 2.5 mm, 3.0 mm, 3.5 mm and 4.0 mm
7. Stylet (optional)
8. penguin suction
9. tap
Check-list for the postnatal ward

- Sphygmomanometer, stethoscope, thermometers
- Adult and newborn weight scale
- I.V set, I.V solutions (different types)
- Needles and syringes (different sizes), Disposable and sterile gloves
- Dressing set, bed side lamp
- Manual breast pump
- Bed, foot stool, baby coat
- Speculum. Sponge holder, forceps
- Lab culture tubes
- Post natal drugs
- Soap, antiseptic, disinfectant, lubricant
- Bed sheets, towels, gauze, pillows
- Fleet enema

Check-list for the Nursery

- Proper bedding, sheets, cabinets
- Newborn weight and height scale
- Resuscitation equipment and medication
- Oxygen supply and suction machine
- Radiant warmer and phototherapy machine
- Water (hot and cold) and sinks
- Soap and towels or electric hand dryer, hi-gel
- Milk preparation tools
- I.V set, I.V solutions (different types)
- Needles and syringes (different sizes)
- Laboratory specimen collection tubes
- Clean gowns
Check-list for the resuscitation room (1)

NEONATAL RESUSCITATION SUPPLIES AND EQUIPMENT

Equipment and Supplies for Newborn Care

**Suction equipment:**
- Bulb syringe
- Mechanical suction and tubing
- Suction catheters, 5F or 6F, 8F and 10F or 12F
- 8F feeding tube and 20 ml syringe
- Meconium aspiration device

**Bag and mask equipment:**
- Neonatal resuscitation bag with a pressure release valve or pressure manometer (the bag must be capable of delivering 90% to 100% oxygen)
- Face masks, newborn and premature sizes (masks with cushioned rim preferred)
- Oxygen with flowmeter (flow rate up to 10 L/min) and tubing (including portable oxygen cylinders)

**Intubation equipment:**
- Laryngoscope with straight blades, No. 0 (preterm) and No. 1 (term)
- Extra bulbs and batteries for laryngoscope
- Tracheal tubes, 2.5, 3.0, 3.5, and 4.0 mm ID
- Stylet (optional)
- Scissors
- Tape or securing device for tracheal tube
- Alcohol swabs
- CO2 detector (optional)
- Laryngeal mask airway (optional)
Check-list for the resuscitation room (2)

NEONATAL RESUSCITATION SUPPLIES AND EQUIPMENT

Equipment and Supplies for Newborn Care

Medications:

- Epinephrine 1:10 000 (0.1 mg/mL)- 3mL or 10 mL ampules
- Isotonic crystalloid (normal saline or Ringer’s lactate) or volume expansion–100 or 250mL
- Sodium bicarbonate 4.2% (5 mEq/ 10 ml)10 mL ampules
- Naloxone hydrochloride 0.4 mg/ml- 1 ml ampules ;or 1.0 mg/ mL- 2mL ampules
- Normal saline, 30 ml
- Dextrose 10%, 250 ml
- Feeding tube, 5 F (optional)
- Umbilical vessel catheterization supplies
  - Sterile gloves
  - Scalpel or scissors
  - Povidone-iodine solution
  - Umbilical tape
  - Umbilical catheters, 3.5F, 5F
  - Three-way stopcock
  - Syringes, 1, 3, 5, 10, 20, 50 ml
  - Needles, 25, 21, 18 gauge, or puncture device for needle less system

Miscellaneous:

- Gloves and appropriate personal protection
- Radiant warmer or other heat source
- Firm, padded resuscitation surface
- Clock
- Warmed linens
- Stethoscope (neonatal head preferred)
- Tape, ½ or ¾ inch
- Cardiac monitor and electrodes or pulse oximeter and probe (optional for delivery room)
- Oropharyngeal airways (0, 00, 000 sizes or 30, 40, and 50 mm lengths)
In the Process approach, different methods of quality assurance are proposed:

- **Tissue committees** suppose trained pathologist. Physicians are encouraged to send sample of surgically removed tissue to a pathologist to confirm diagnosis
  - In obstetrics and perinatalogy, it is recommended to send samples of placenta in all cases of pathological outcome (IUGR, sepsis, abruptio placenta, …) and to perform autopsy in all cases of stillbirths

- **Clinico-pathological meetings** may improve the quality of care not only as a mean to compare the adequacy between the clinical assessment and the pathological features but also as an excellent vehicle to improve continuing education

- **Clinical Auditing**: data will be collected to assess a specific practice, results of assessment will be compared with standard practice and recommendation for improvement will be concluded.

- **Medical records review** It can be concurrent or retrospective
  
a) **Concurrent**: is conducted during the patient’s course of care to evaluate the appropriateness of a diagnosis, concordance of findings and therapy, and proposed follow-up, in order to achieve the desirable outcome. When guidelines are adopted by consensus, they are the reference to compare the practical attitudes with the explicit criteria and standards. This method constitutes also an excellent mean of continuing training but its value is limited in absence of norms and standards. It can be done by a senior physician

b) **Retrospective**: is conducted after a patient’s discharge and involves examining records of a large number of cases. It focuses generally on the process of care. It presumes the development of a model of good care consisting of criteria pertaining to the medical history, diagnosis, treatment follow-up and rehabilitation. The assessment consists of comparing the actual care against this model, and make recommendation for future improvement of care. This method supposes the establishment of a committee for each speciality or for the entire institution.

- **Treatment protocols**, or “model health care programmes” can be defined as sets of recommended guidelines for measures to be taken by different categories of providers. That is the purpose of this present manual. The most important objectives of the treatment protocols are:
  
a. integration of health service within the care system;
  b. provision of comprehensive care;
  c. increased efficiency of services;
d. education of health professionals and  
e. improved communication.

- **Root Cause Analysis**: this method consists of an in-depth analysis by all the staff of individual cases where a problem and/or a fault has occurred which was at very high risk or fatal for the patient and to propose some remedial actions to avoid the problem in the future. e.g. maternal deaths review, and near miss review.

- **Peer review**: this method consists to analyse and to discuss between members of a same profession (peers) about thematic topics, and to compare different attitudes and/or performances according to diagnosis methods and treatments. It proposes also to compare these actual attitudes to official guidelines or consensus conferences.

- **Patient's satisfaction**: assessing patients views of the care provided to them before leaving healthcare facility using questionnaire.

- **The periodic (daily, weekly or monthly) staff meetings** participate to the quality development process and they can improve the quality of **communication** between the member of the team which is an essential part of the quality of care management.

The greatest challenge of the maternity service is the good standard of communications between physicians, nurses & midwives.
A good communication between the members of the health team is essential to achieve correct management both of simple cases and of severe or complicated situations. So, it is very important to remember the general rules to improve the quality of communication.

- Work in a cooperative and collaborative manner with other health professionals and respect their contribution in the delivery of care.
- Identify & manage problems & conflicts in the daily meeting.
- Recognize the limitation and obligation of each member when delegating task.
- Emphasize similarities and quality care and start with positive point.
- Actively listen and respond to Women & family complains.
- Cooperate to build in staff clinical competence and credibility so ensure that the staff has the clinical preparation necessary to meet the units standard of care.
- Consider the health team member equal partners in health care.
- Ensure health team respect each other.
- Support health team in participating in collaborative effort by words or actions.
- Encourage the attendance of a senior midwife / head midwife / supervisor midwife from the labor ward to participate in the daily morning meeting report for internal audit.
- Encourage the attendance of a senior midwife & nurse from neonatal unit the monthly perinatal mortality regular meetings.
- Establish among the staff a unified, but politely recognized body language
As the purpose of health care is to prevent or to cure the disease or to restore functional capacity, the quality of health care can be measured in terms of the achievement of these objectives. That represents only the efficacy, but to optimize quality of health care, cost-efficiency must be taken into account.

There are several ways to achieve this approach.

We propose here the method of **the maternity services profiles**. This approach supposes a good data collection and statistical quality assurance.

Here are the different steps to achieve the method:

- To involve all maternity services in the process on a voluntary base
- To give for each maternity service an Identity Number (IN) to assure confidentiality of data
- This Number would be known only by the maternity staff
- To choice the most important items to assess quality of care
- The number of item must be limited to the essential ones (see below)
- To give an unequivocal definition of the items, adopted by consensus
- To prepare a good support for the data collection (paper form, computer, …)
- To give instructions to all providers about the manner to collect data
- To appoint a member of the staff to supervise the quality of data collection
- To gather the data in a simple form at a defined frequency (weekly, monthly)
- To envoy the gathered data to a central office in charge of statistical analysis of the data
- This office would be independent from the maternity service but regularly assessed by representatives of the maternity service or the Obstetricians College
- To transfer data in a central computer using a Table programme as Excel Windows
- To present data as histograms for each item and for all maternity services (see below)
- To send the results to each maternity insuring that only the IN appears
- The rapidity of the feed-back is almost important
- To discuss the results during staff meetings
- To propose to change attitudes by the lights of the results

The statistical results are either descriptive statistics or analytic statistics. We give here some examples of descriptive statistics.
# OBSTETRICAL and NEONATAL care:
## ATTITUDES and PERFORMANCES Assessment

**Service:**

### N° of Maternity service

<table>
<thead>
<tr>
<th>Attitudes et performances</th>
<th>Singles</th>
<th>Twins</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of admissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of deliveries (intra &amp; extra muros)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of deliveries extra muros</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of births</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of transfers before delivery (BD) (in utero)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of transfers after delivery (AD) (mother)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of newborns &lt; 2500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of newborns transfers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of transferred mothers accepted (Before Del)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of transferred mothers accepted (After Del)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of stillbirths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of stillbirths (alive at admission)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of newborns dead after delivery and before 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of maternal deaths ***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of non observed labours (complete dilatation)</td>
<td></td>
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<tr>
<td>Number of patients without prenatal visits</td>
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<tr>
<td>Number of Eclampsias ****</td>
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<tr>
<td>Number of Haemorrhages (&gt; 1 litre) ****</td>
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<tr>
<td>Number of sepsis (T°&gt; 38) ****</td>
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<tr>
<td>Number of Abnormal labours (Dystocias) ****</td>
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<tr>
<td>Number of Episiotomies ****</td>
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<tr>
<td>Number of oxytocin infusions ****</td>
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<tr>
<td>Number of Vacuum extractor manoeuvres ****</td>
<td></td>
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<tr>
<td>Number of manually extractions of placenta ****</td>
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<tr>
<td>Number of Forceps manoeuvres ****</td>
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<tr>
<td>Number of Caesarean sections ****</td>
<td></td>
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<tr>
<td>Number of blood Transfusions ****</td>
<td></td>
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<tr>
<td>Number of Hysterectomies / 48 hours ****</td>
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</tbody>
</table>

**only for 3rd level hospitals which receive transferred mothers or babies**

*** number of mothers dead in hospital during delivery or just after delivery

**** number of mothers with that pathology or with that kind of management.

Syntocinone: number of women who have received oxytocine infusion before labour, during labour or during the second stage except syntocinone given at shoulder delivery for prevention of postpartum haemorrhage

**PRESENTATION OF RESULTS:** examples
Caesarean Section in Breech Presentation  Year : 2000

Preterm Deliveries (< 37 weeks)  Year 2000

In Utero Transfers  2000

Reference:

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References

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