Pathological Jaundice in Newborn

- Any visible jaundice on first day
- For < 35 weeks jaundice on day 2
- Yellow palms or soles of feet

Jaundice lasting more than 3 weeks after birth

- Start phototherapy
- Estimate total serum bilirubin
- Check blood group of baby & mother

Check total serum bilirubin cut offs (Panel 1)

- Bilirubin ≥ exchange level
  OR
- Signs of kernicterus (lethargy or floppiness, not feeding, convulsions, opisthotonus)

- Bilirubin ≥ phototherapy level

- Bilirubin < phototherapy level

- Bilirubin ≥ exchange level
  OR
- Conjugated bilirubin >2mg/dl (34 umol/l)

- Estimate conjugated bilirubin
- Conjugated bilirubin >2mg/dl (34 umol/l)

- REFER for exchange transfusion
- Continue phototherapy pending transport

- REFER for specific diagnosis

Determine probable diagnosis of Jaundice – See Panel 2

Panel 1: Total serum bilirubin cut offs for phototherapy or exchange transfusion

<table>
<thead>
<tr>
<th>Age</th>
<th>Phototherapy</th>
<th>Exchange transfusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy babies</td>
<td>Babies with risk factors*</td>
</tr>
<tr>
<td>Day 1</td>
<td>Any visible jaundice</td>
<td></td>
</tr>
<tr>
<td>Day 2</td>
<td>255 (15)</td>
<td>170 (10)</td>
</tr>
<tr>
<td>Day ≥3</td>
<td>306 (18)</td>
<td>255 (15)</td>
</tr>
</tbody>
</table>

*The values are expressed in umol/l (mg/dl) in parenthesis

*Gestation <35 weeks or weight<2000 grams, sepsis, hemolysis, asphyxia, sick baby

For additional / next level management please refer to WHO Guidelines (Managing Newborn Problems and Pocket Book of Hospital Care of Children), http://www.ontop-in.org/sick-newborn/, http://www.newbornwho.cc/
Panel 2
Specific Diagnoses and Treatment

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Counseling and Actions</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cephalhematoma/ extensive bruises</td>
<td>Takes 4-6 weeks to disappear</td>
<td>○ Phototherapy, if bilirubin level above the cut-off</td>
</tr>
<tr>
<td>Hemolytic jaundice (ABO or Rh incompatibility, G6PD deficiency; previous family history, hepato-splenomegaly, pallor)</td>
<td>○ Recheck Hemoglobin on follow up 2-4 weeks</td>
<td>○ Exchange transfusion if bilirubin above the cut off</td>
</tr>
<tr>
<td></td>
<td>○ Anti-D prophylaxis for Rh incompatibility</td>
<td>○ Promote feeding optimally</td>
</tr>
<tr>
<td></td>
<td>○ Avoid drugs &amp; chemicals in G6PD deficiency - Sulfas, antimalarial, aspirin, fava beans, mothballs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>○ If the cause of jaundice is Rh factor incompatibility, advice mother regarding future pregnancies</td>
<td></td>
</tr>
<tr>
<td>Prematurity</td>
<td>Frequent feeding</td>
<td></td>
</tr>
<tr>
<td>Neonatal hepatitis</td>
<td>In case of clay or white colored stool, high colored urine staining the clothes, baby needs referral</td>
<td>Need specific management (Referral to higher center)</td>
</tr>
</tbody>
</table>

Panel 3
Tips for delivering safe and effective phototherapy

1. Protect the eyes with eye patches/covers
2. Keep the baby naked with a small nappy to cover the genitalia
3. Place the baby as close to the lights as the manufacturers’ instructions allow.
4. Use white cloth or aluminum foil around the light source to reflect light back onto the baby, making sure not to impede the airflow that cools the bulbs
5. Do not place anything over the top of the phototherapy unit. This may block air vents or light and items may fall on the baby
6. Encourage frequent breastfeeding. Unless there is evidence of dehydration, supplementing breastfeeding or providing IV fluids is unnecessary
7. Change position from supine to prone after each feed in order to expose the maximum surface area of baby to phototherapy
8. Keep diaper area dry and clean
9. Phototherapy does not have to be continuous and can be interrupted for feeding, clinical procedures, and to allow maternal bonding
10. Monitor temperature every 4 hours and weight every 24 hours. Giving frequent feeding will prevent excessive weight loss and temperature from rising
11. Measure serum bilirubin every 12-24 hours. Visual assessment of jaundice during phototherapy is unreliable
12. Change tube lights every 6 months (or usage time >1200 hrs) whichever is earlier; or if tube ends blacken or if tubes flicker. Life of Compact Fluorescent lamps is 3000 hours while that of LED bulbs is 30,000 to 50,000 hours