BARTrial bilirubin normograms for phototherapy and exchange transfusion

**Total Serum Bilirubin (TSB)**
and for Bilirubin:Albumin ratio (BA)

**Birthweight categories**

<table>
<thead>
<tr>
<th>Birthweight Range (g)</th>
<th>BA ratio group</th>
<th>TSB and BA normograms</th>
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<tbody>
<tr>
<td>&lt;1000 g</td>
<td>BA ratio group</td>
<td>TSB and BA normograms</td>
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B:A ratio umol/l / g/l

ET standard and high risk

PT standard and high risk

standard risk

high risk

BA ratio: <1000g
BA ratio: 1000-1250g
BA ratio: 1250-1500g

- **ET standard risk**: 10.4
- **ET high risk**: 8.8
- **PT standard risk**: 6.3
- **PT high risk**: 5.0

**Standard risk**

**High risk**
BA ratio: 1500-2000g

- ET standard risk: 6.3, 7.3, 10.4, 11.6
- ET high risk: 7.3, 10.4
- PT standard risk: 6.3, 7.3
- PT high risk: 11.6

postnatal age (days)
The graph illustrates the change in TSB (umol/l) over postnatal age (days) for ET standard risk and ET high risk, as well as PT standard risk and PT high risk. The TSB values for standard risk and high risk are delineated by different lines, with the standard risk lines being 220, 240, and 290, and the high risk lines being 310. The graph indicates that TSB values increase over time, with the high risk lines reaching higher values compared to the standard risk lines. The TSB value for >2000g is marked on the right side of the graph, with a note stating 'TSB: >2000g'.
Guideline for the use of TSB and BA ratio normograms for phototherapy (PT) and exchange transfusion (ET). TSB in $\mu$mol/L, BA-ratio in $\mu$mol/L / g/L = $\mu$mol/g. TSB 17.1 $\mu$mol/L = 1 mg/L

1. Select appropriate normograms based on birthweight
2. Mark risk status (standard risk or high risk)
3. Mark TSB and BA ratio in normograms
4. Start phototherapy if TSB or BA is > PT-threshold
   Stop phototherapy if TSB and BA < PT-threshold
5. Consider exchange transfusion if TSB or BA reaches ET threshold despite intensive PT

**High Risk** (check daily)
- asphyxia: Apgar score < 3 at 5 min
- hypoxemia: $\text{PaO}_2 < 40$ mmHg (<5.3 kPa) > 2 hrs (recent 24 hrs)
- acidosis: pH < 7.15 >1 hr (recent 24 hrs)
- hemolysis with positive Coombs
- clinical of neurological deterioration (sepsis with use of vasopressors, meningitis, intracranial hemorrhage > gr 2

*based on guidelines published by Ahlfors 1994 and Maisels 2003*
Guideline for the use of TSB nomogram for phototherapy (PT) and exchange transfusion (ET).
TSB in µmol/L. 17.1 µmol/L = 1 mg/L

1. Select appropriate normogram based on birthweight
2. Mark risk status (standard risk or high risk)
3. Mark TSB in normogram
4. Start phototherapy if TSB > PT-threshold
   Stop phototherapy if TSB < PT-threshold
5. Consider exchange transfusion if ET-threshold
   is reached despite intensive PT

High Risk (check daily)
- asphyxia: Apgar score < 3 at 5 min
- hypoxemia: \( \text{PaO}_2 < 40 \text{ mmHg} < 5.3 \text{ kPa} > 2 \text{ hrs} \)
  (recent 24 hrs)
- acidosis: \( \text{pH} < 7.15 > 1 \text{ hr} \) (recent 24 hrs)
- hemolysis with positive Coombs
- clinical of neurological deterioration (sepsis with
  use of vasopressors, meningitis, intracranial
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Based on guidelines published by Ahlfors 1994 and Maisels 2003
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Guideline for the use of TSB and BA ratio nomograms for phototherapy (PT) and exchange transfusion (ET)

TSB in µmol/l and albumin in g/l and B:A ratio in µmol/l/g/l= µmol/g

1. Select appropriate nomogram based on birthweight
2. Mark risk status (standard risk of high risk)
3. Mark TSB and/or B:A ratio in nomogram
4. Start phototherapy if PT-threshold is reached
   - Stop phototherapy if TSB is under PT-threshold
5. Consider exchange transfusion if ET-threshold is reached despite intensive PT

**High risk** (check daily)
- asphyxia: Apgar score < 3 at 5 minutes
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**TSB: 17.1 umol/l = 1 mg/dl**