Team 4 Tidy-Up
stuff to know about at St. Joe’s

Kelly Fitzpatrick
Pediatric Practice Rounds
October 22, 2012

October 22, 2012
LABOUR AND DELIVERY

- Hep B/Hep C screening
- HIV screening
- HSV
- GBS screening
- Maternal Graves
- Maternal Anti-Ro
hepatitis B

Hepatitis B Screening Policy
Hep B&C Neonatal Immunization Protocol

CDC Hepatitis B guidelines (2009)
1. Promote safe and timely care.
2. Appropriately immunize babies born to mothers who are Hepatitis B Surface Antigen (HBsAg) positive or unknown at time of delivery.

Mothers without laboratory documentation of HBsAg status on admission to Birthing will have blood drawn for HBsAg screening.

Obstetrical Admission to the Birthing Unit order-set:
13. Validate maternal Hepatitis B status. If not on chart, draw HBsAg and ensure mother’s MRP. If positive or unknown, ensure mother’s MRP orders the required Hepatitis B prophylaxis on the newborn Order set.

To order a stat Hep B test, go into HBO STAR and into the Labour and delivery pannel.


To facilitate specimen processing, phone Virology x36021 to inform them a specimen is coming.

When maternal HBsAg is positive or unknown at time of birth:

In Birthing, PRIOR TO TRANSFER to 3OBS:

1) Ensure a physician has:

obtained written consent from the newborn’s substitute decision maker (mom or dad) for vaccine (+ HBIG if known positive),

AND

initialed the appropriate order(s) on the newborn order set.

Newborns Admitted to Maternal Newborn Unit order-set:
(Neonatal ) Hepatitis B Vaccine (HBV) 0.5 mL IM to left thigh within 12 hours of birth for positive or unknown maternal HBsAg

Hepatitis B Immune Globulin (HBIG) 0.5 mL to right thigh within 12 hours of birth or as soon as possible when maternal HBsAg is resulted as positive

2) Fax order(s) to Pharmacy
hepatitis B

- if HBsAg positive- give Hep B vaccine and HBIG within 12 hrs
- if HBsAg unknown-send maternal serology stat-give vaccine but wait on serology to give HBIG
- if Hep C positive-nothing
- may breast feed
**HIV**

- maternal serology sent stat - call virology ahead
- bathe baby ASAP-prior to any IM injections
- HIV serology, CD4, HIV PCR, CBC, diff
- start AZT and niverapine intrapartum and post partum
- SIS follow up
herpes simplex virus

- usually primary infection but if recurrent consider C/S
- moms masks to cover cold sores, gloves to cover whitlow, may breast feed
- Asymptomatic->watch and send at 24-48 hrs urine, stool,rectum, eyes and nose in viral transport medium
- Symptomatic-> fluid from vesicles, scraping base of vesicles, swab mouth, nasopharynx, stool culture, rectal swab, CSF
herpes simplex virus

- IV acyclovir x 14 days
- IV acyclovir x 21 days if meningitis, disseminated
- watch ins/outs
- trifluidine if ocular involvement
Group B Strep

- Prophylaxis to GBS positive
- GBS Unknown < 37 weeks, ROM > 18 hrs, temp > 38
- GBS bacteriuria in pregnancy
- previous affected child
GROUP B STREP (GBS) PROTOCOL
FOR HEALTHY NEONATES
GREATER THAN 35 WEEKS

PLEASE CIRCLE ALL APPROPRIATE BOXES

Maternal GBS Status

- Negative
- Unknown
- Positive

Intrapartum Risk Factors Present?
- Delivery at least 37 weeks
- Rupture of Membranes (ROM) greater than or equal to 18 hrs
- Intrapartum maternal temp greater than or equal to 38°C
- Previous infant with invasive GBS
- GBS bacteriuria in current pregnancy

- Routine Clinical Care
- Elective C/S, NO ROM, NO labour, regardless of GBS status
- Appropriate IV Antibiotics greater than 4 hours prior to delivery

- Observe for 46 hrs **

FOOTNOTES:
1. Any neonate with signs of neonatal sepsis requires a full diagnostic evaluation by Pediatrics.
2. Babies born to mothers with diagnosed chorioamnionitis require diagnostic evaluation and treatment by a Pediatrician.
3. The ** denote 'if greater than 37 weeks gestation, observation may occur at home after 24 hours if other discharge criteria have been met and the caregivers are able to comply fully with instructions for home observation. If any of these conditions are not met, the baby should be observed until at least 48 hours and until discharge criteria are met.

Birthing Unit Printed Nurse: __________________________
Signature: ____________________
Initials: __________
Discipline: _______

Maternal Child Unit Printed Nurse: __________________________
Signature: ____________________
Initials: __________
Discipline: _______
maternal grave’s disease

- 0.1-0.4% of pregnancies-1-5% of infants affected
- follow maternal TRAB, cord TRAB
- vitals q6
- tachycardia, goiter, hyperexcitability, poor weight gain, hepatomegaly
- TSH, FT4, FT3 at 48 hrs and 5-7 days
- treat with PTU, propanolol, Lugol’s solution-iodine
maternal anti-Ro

- if antenatal anatomy and rhythm normal: ECG at 24-48 hrs and then repeat at 3-4 mo, consider referral to Toronto
- if antenatal concerns: ECG and call cardiology at birth to decide about ECHO
- if inadequate antenatal investigations: ECG within 48 hrs, call cardiology to decide re further investigations, timing
RESUSCITATION ROOM

- NRP Drugs
- NRP Guidelines
- BLES administration
- Cooling
- Placental investigations
Lesson 1: Equipment Check
Performance Checklist

- Warm, clear airway if necessary, dry, stimulate
- HR below 100 bpm, gasping, or apnea?
- Labored breathing or persistent cyanosis?
- PPV, S PO2 monitoring
- Clear airway S PO2 monitoring
- Consider CPAP
- Targeted Pre-ductal S PO2

- 1 min
- 2 min
- 3 min
- 4 min
- 5 min
- 10 min
- 60-65%
- 65-70%
- 70-75%
- 75-80%
- 80-85%
- 85-95%

The Performance Checklist Is a Learning Tool
The learner uses the checklist as a reference during independent practice, or as a guide for discussion and practice with a Neonatal Resuscitation Program (NRP) instructor. When the learner and instructor agree that the learner can perform the skills correctly and smoothly without coaching and within the context of a scenario, the learner may move on to the next lesson’s Performance Checklist.

This Equipment Check Performance Checklist includes only the most essential supplies and equipment for neonatal resuscitation. You may wish to add supplies or additional safety checks to meet your unit’s standards or protocols. When the learner knows the routine and supplies are present and functioning, the Equipment Check should take approximately 1 minute to complete.
## Neonatal Resuscitation Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Route</th>
<th>1 kg</th>
<th>2 kg</th>
<th>3 kg</th>
<th>4 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine</td>
<td>IV Route</td>
<td>0.1 ml</td>
<td>0.2 ml</td>
<td>0.3 ml</td>
<td>0.4 ml</td>
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<tr>
<td>1:10,000</td>
<td>(Preferred route)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>0.1 mg/ml</td>
<td>(0.01mg/kg)</td>
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<td></td>
</tr>
<tr>
<td>q3-5 minutes</td>
<td>ETT Route</td>
<td>1 ml</td>
<td>2 ml</td>
<td>3 ml</td>
<td>3 ml (max)</td>
</tr>
<tr>
<td></td>
<td>(0.1 mg/kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume Expanders</td>
<td>Normal Saline/ Packed red cells</td>
<td>10 ml</td>
<td>20 ml</td>
<td>30 ml</td>
<td>40 ml</td>
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</table>

### Non-resuscitation drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Route</th>
<th>1 kg</th>
<th>2 kg</th>
<th>3 kg</th>
<th>4 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone</td>
<td>IV or IM</td>
<td>0.25 ml</td>
<td>0.5 ml</td>
<td>0.75 ml</td>
<td>1 ml</td>
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<tr>
<td>0.4 mg/ml</td>
<td>(0.1 mg/kg)</td>
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<tr>
<td></td>
<td><em>Contraindicated in narcotic dependant mothers</em></td>
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<td></td>
<td><em>Not the first corrective therapy for ineffective breathing</em></td>
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<td></td>
<td><em>Must have established effective ventilation</em></td>
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</table>

NRP 2011

<table>
<thead>
<tr>
<th>Glucose</th>
<th>D10W</th>
<th>2 ml</th>
<th>4 ml</th>
<th>6 ml</th>
<th>8 ml</th>
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<tr>
<td></td>
<td>IV bolus</td>
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<tr>
<td>200 mg/kg for documented hypoglycemia</td>
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</table>
BLES administration

- 5 ml/kg of warm, homogenous solution
- CXR to confirm RDS and ETT placement prior to administration via 5FR feeding tube
- watch for chest expansion, O2 sats, gas
- may have transient bradycardia, desats, cyanosis, reflux
- pulmonary hemorrhage, pneumothorax
Referral Physician Guidelines for Therapeutic Hypothermia in Neonatal HIE

INCLUSION CRITERIA
Infant should fulfill all 4 criteria:
1. GA ≥ 35 weeks
2. Less than 6 hours post delivery
3. Evidence of intrapartum hypoxia defined as:
   EITHER Cord or postnatal blood gas within one hour of birth with pH ≤ 7.00 OR base deficit ≥ 16
   OR if pH 7.01-7.15 or BD -10 to -15.9
   OR no blood gas available:
       Evidence of acute perinatal event that may result in HIE (e.g. abruptio placentiae, cord accident, uterine rupture, maternal trauma or cardiorespiratory arrest, late or variable decelerations etc.)
   AND one of the following:
       Apgar score 5 or less at 10 minutes, need for mechanical ventilation or resuscitation at 10 minutes
4. Signs of moderate or severe encephalopathy defined as presence of 3 or more of the items in the 6 categories below OR presence of seizures

Category
Moderate Encephalopathy
Severe Encephalopathy
1. Level of consciousness
   Lethargic
   Stupor or coma
2. Spontaneous activity
   Decreased activity
   No activity
3. Posture
   Distal flexion, truncal extension
   Decerebrate (arms extended and internally rotated, legs extended with feet in forced plantar flexion)
4. Tone
   Hypotonia
   Flaccid
5. Primitive reflexes
   Suck
   Moro
   Weak
   Incomplete
   Absent
6. Autonomic system
   Pupils
   Gaze
chorioamnionitis

- placenta frozen section
- forms available from pathology at MUMC
supraventricular tachycardia

- HR > 200
- narrow complex
- no p waves
- no variability
- ECG–can FAX to cardiology
svt

- need to get ECG machine
- crash cart from CCU
- drug cart
- proximal IV
- ice, adenosine 0.1mg/kg, synchronized cardioversion
NICU

- CPAP
- Mechanical ventilation
- Intubation meds
CPAP

- CPAP at 4-10 cm H2O
- cardioresp, sat monitors- use lowest possible O2-UAC, UVC if FiO2 > 50%
- indicated for RDS, atelectasis, pneumonia, apnea of prematurity, recent extubation, tracheomalacia, TTN, MAS
- contraindicated for upper airway anomalies- cleft palate, choanal atresia, TEF, severe cardiovascular instability, frequent apneas
mechanical ventilation

• for hypoxia, cyanosis, hypoventilation, apnea, cardiovascular collapse
• PAO2<60, PACO2>60, BE>10
• RT and RN to assist
pre-intubation meds

Initiate Intravenous Access
Initiate Appropriate Monitoring

**Sedation Algorithm A**

- **Sedative:** Morphine
  - **Dose:** 0.1mg/Kg IV slowly over 5 min., may repeat x1 in 15 min
  - **Peak:** 5-10 minutes
  - **Duration:** 2-4 hours

- **Anticholinergic:** Atropine
  - **Dose:** 20 mcg/Kg IV over 1 minute
  - **Action:** Rapid onset
  - **Peak:** 12-16 minutes
  - **Duration:** action last 6 hours

  Ensure infant deeply sedated

- **Muscle Relaxant:** Succinylcholine
  - **Dose:** 2mg / Kg IV
  - **Action:** < 1 min
  - **Peak:**
  - **Duration:** 4-6 minutes.

**Sedation Algorithm B**

- **Sedative:** Fentanyl
  - **Dose:** 2-3 mcg / Kg IV slowly (30 seconds)
  - **Action:** 30-60 seconds
  - **Peak:** 1-2 minutes
  - **Duration:** 30-60 minutes
  - **Plasma half-life:** 2-4 hours

- **Anticholinergic:** Atropine
  - **Dose:** 20 mcg/Kg IV
  - **Action:** Rapid onset
  - **Peak:** 12-16 minutes
  - **Duration:** action last 6 hours

  Ensure infant deeply sedated

- **Muscle Relaxant:** Succinylcholine
  - **Dose:** 2mg / Kg IV
  - **Action:** < 1 min
  - **Peak:**
  - **Duration:** 4-6 minutes.

*** Note: Naloxone (for opioid reversal)
- **Dose:** 0.1-0.2 mg/kg/dose
NICU

• car seat trend
• ROP screening
• head ultrasounds
• thyroid screening
• vacuum protocol
• NAS
growth monitoring

• new initiatives:
• growth curves placed in front of chart
• please measure, record and plot: weight, length, head circumference on Mondays
• adjust TFI on Mondays and Thursdays during rounds
car seat trend

- prem or term with respiratory distress requiring intervention
- 90 mins with <2 episodes
- sats >90%, 90% of the time
thyroid screening

• for babies <30 and/or <1500 gm
• check T4 and TSH at 4 weeks
• normal free T4 at 28-40 wks = 10-33 pmol
• normal free T4 at 2-20 post-term = 12-30 pmol
• normal TSH < 10
• treat with thyroxine and call endo if normal T4 and TSH > 20; low T4 and TSH > 20 or T4 < 9
ROP screening

- babies < 31 weeks or <1250 gm
- first check at 31-32 weeks corrected
head ultrasound screening

- document from July 2005
- if <30 6/7 -> DOL 5-7 to look for IVH, DOL 7-14 to look for IVH or PVL from 4 wks antenatally
- 2nd U/S DOL 21-28 to follow up IVH that may have occurred
- 3rd U/S 36-40 wks CA to look for PVL
- if 31-32 6/7 -> one U/S at term to exclude PVL
vacuum protocol

- risk of subgaleal hemorrhage between epicranial aponeurosis of scalp and periosteum of bone
- can hold 260 ml blood
- check HC and HR at 30 mins, 2, 4, 6, 12, 18, 24 hrs then Q6x 24-48 hrs
- watch for pallor, lethargy, increasing HC by > 0.5 cm, bogginess
- consider CBC at 4 & 12 hrs-Hct <45%, neuro vitals
bronchopulmonary dysplasia

- grade 1→O2 for >28 days and room air at 36 wks PMA
- grade 2→O2 for >28 days and extra O2<30% at 36 weeks PMA or D/C
- grade 3→ O2 for 28 days and extra O2>30% at 36 weeks PMA or D/C
bpd

- at 36 weeks PMA
- needs CXR
- gas
- ECG
- head U/S
- ECHO
- renal ultrasound
neonatal abstinence

- antenatal consults with social work, family life
- for tour, birth plan, written care plan and booklet to parents
- baby with mom for 4 hours then to L2N
- no drug screen needed if mom has provided a urine sample
- breast feed unless marijuana with opiates, any poly-drug use
- initiate Finnigans
NAS

• marijuana-watch x 72 hrs
• cocaine watch x 72 hrs- no head/renal U/S needed
• opiates watch x 72 hrs
• methadone watch x 5 days
NAS

- treat if finnegans 3>8 or 2>12
- increasing morphine, consider phenobarb once at maximum
- on cardioresp monitor once starts morphine until second wean
- treat with morphine q4 hrs
- consider wean by 10% of dose every 48 hrs
- infant-parent, public health, +/- CAS, peds clinic
3 OBS

- hypernatremia
- hypoglycemia
- hyperbilarubinemia
hypernatremia

- for wt loss > 7.5% at < 48 hrs - vigilance of breast feeds, elimination and overall status
- for wt loss of 10% > 48 hrs, consider serum electrolytes, monitor breast feeds
hypernatremia

- Na+ 140-145: no intervention, monitor BF
- Na+ 145-149: at 10% wt loss, monitor BF, voiding, stooling, overall status, consider supplementation
- Na+ 150-155: recommend supplementation, repeat at 6-8 hrs
- Na+ 155-160: call pediatrics, consider NICU transfer, supplement, urine and stool output, repeat at 4-6 hrs
- Na+ > 160: bolus 10-20 cc/kg, correct slowly
hypoglycemia

- hypothermia <36.5, newborn illness (resp, sepsis)
- maternal hypertension treated with anti-hypertensive, any maternal beta blocker
- any maternal diabetes
- prem < 37 weeks
- LGA or SGA
- prem < 37 wks
- cold stree, hypothermia < 36.5
Newborn Hypoglycemia Clinical Guidelines

1. Ongoing newborn assessment and timely interventions should not be limited by these guidelines; at any point the newborn is symptomatic or otherwise unwell, notify MD or MW
2. If baby is unable to feed at any point in these guidelines, Notify MD or MW, consider use of MD protocol A

Newborn baby

Symptomatic

Is the baby symptomatic or otherwise unwell?

YES

• Notify MD or MW
• Check WBG immediately
• Investigate cause
• Rx underlying condition

Consider use of MD protocol A/B based on newborn Condition and causative factors

Asymptomatic

Routine care & initial feed within 60 minutes of birth

is the baby at risk?

YES

Routine care and initial feed within 60 minutes of birth. Check WBG at 2 hours post-birth

WBG < 1.0
• Notify MD
• Use MD protocol B

WBG 1.0-1.7
• Asymptomatic
• Supplement 5-10 ml/kg

WBG ≥1.8–2.5
• Asymptomatic
• Feed now

Recheck WBG 60 minutes PC

WBG < 1.8
• Notify MD or MW
• Use MD protocol A

WBG 1.8–2.5
• Supplement 5-10 ml/kg
• WBG q3h AC feeds for maximum of 24 hours

WBG ≥2.6
• Asymptomatic
• Feed q 2-4 hourly, WBG AC
• If remain > 2.6 x 1; discontinue WBG checks
• Preterm & SGA newborns do not require retest after 36 hrs provided stable levels & intakes achieved
• IDM or LGA newborns do not require retesting if WBG > 2.6 at > 12 hours post birth

NO Risk

Routine care & feed on demand as long baby remains well

Legend:
WBG = whole blood glucose
MD = Medical Doctor
MW = Midwife
AC = before feeds
PC = After Feeds
EBM = Expressed Breast Milk
SGA = Small for Gestational Age
LGA = Large for Gestational Age
IDM = Infant of a Diabetic Mother
MD Protocol A

Start Infusion with D10W @ 80cc/kg/day (5.5 mg glucose/kg/min)

Check WBG after 30 Minutes

- WBG < 1.8: Go to MD protocol B
- WBG 1.8-2.5: Increase IV infusion to 6-8 mg/kg/min, Check BG in half hour, then every 2 hours. May start to wean IV 12 hours after stable BG is and feeding established.
- WBG > 2.6: Continue checking BG every 2 hours. May start to wean IV 12 hours after stable WBG and feeding is
hypoglycemia

MD Protocol B

Consider 200mg/kg (2cc/kg) D10W bolus, IV infusion of 6-8 mg/kg/min

Recheck WBG in ½ hour

BG <1.8

Bolus 200mg/kg (2cc/kg) D10W and Increase infusion to 8-10 mg/kg/min

BG 1.8-2.5

Increase infusion to 8-10 mg/kg/min

BG ≥ 2.6

Continue checking BG every 2 hours. May start to wean IV 12 hours after stable BG and feeding is established.

Recheck BG in ½ hour, then hourly. May wean IV once BG stable for 12 hours

Consider glucagon and increase infusion to 10-15 mg/kg/min if continued low WBG
hypoglycemia

- supplements-bottle, NG
- D10W->D12.5W-> D15W
- TFI to 120 cc/kg/day
- glucagon, diazoxide, steroids
- critical sample if glucose < 1.8-glucose, insulin, GH, cortisol, T4, TSH, gas, lactate, urinary ketones, plasma ketones, pyruvate, FFAs, serum organic and amino acids
hyperbilirubinemia

HAMILTON REGIONAL HOSPITALS
Hyperbilirubinemia Screening Assessment for Newborns
38 or More Weeks Gestation

BILIRUBIN NOMOGRAM

\[ X_1, X_2, X_3, X_4 \text{ = Billirubin Level} \]

Gestational Age: _____ weeks
Mother's Blood Group: _____
Baby's Blood Group: _____

COOMBS TEST (See reverse for algorithm)
BILIRUBIN LEVEL IS ABOVE THE LOW INTERMEDIATE RISK ZONE and MOTHER IS BLOOD GROUP O

<table>
<thead>
<tr>
<th>Coombs Test Ordered</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coombs Test (DAT)</td>
<td></td>
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</tr>
<tr>
<td>NEGATIVE</td>
<td></td>
<td>POSITIVE</td>
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<table>
<thead>
<tr>
<th>Date (yyyy/mm/dd)</th>
<th>Time (hh:mm)</th>
<th>Age in hours</th>
<th>Bilirubin ( \mu \text{mol/L} )</th>
<th>Bilirubin Screening Response Code</th>
<th>Name of MRP / Midwife notified</th>
<th>Init.</th>
</tr>
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<tbody>
<tr>
<td>X_1</td>
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**Nomogram Risk Zone**

- **Low Risk Zone**: LRZ
  - Routine care - No Coombs test required

- **Low-Intermediate Risk Zone**: LIZ
  - Routine care - No Coombs test required

- **High-Intermediate Risk Zone**: HIZ-N
  - Follow Coombs test algorithm (see reverse) to determine if Coombs test is required.

- **High Risk Zone**: HRZ-N
  - Routine care with provider consider a follow-up TSB if there is clinical concern
  - Follow-up assessment including TSB at 24 to 48 h

**Bilirubin Screening Response Codes: 38 or more weeks' gestation**

- TSB bloodwork appt verbally confirmed with parent
- OHP lab requisition completed
- Jaundice teaching sheet given and discussed

<table>
<thead>
<tr>
<th>Initial</th>
<th>Printed Name</th>
<th>Signature &amp; Designation</th>
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**TSB = Total Serum Bilirubin**
**Hyperbilirubinemia**

**HAMILTON REGIONAL HOSPITALS**

Hyperbilirubinemia Screening
Assessment for Newborns

35 - 37 6/7 Weeks Gestation

Gestational Age: ____ weeks
Mother’s Blood Group: ____
Baby’s Blood Group: ____

**COOMBS TEST (See reverse for Algorithm)**

BILIRUBIN LEVEL IS ABOVE THE LOW RISK ZONE and MOTHER IS BLOOD GROUP O

Coombs Test Ordered

- Yes
- No

Coombs Test (DAT)

- NEGATIVE
- POSITIVE

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**BILIRUBIN NOMOGRAM**

\[ X^1, X^2, X^3, X^4 = \text{Bilirubin Level} \]

<table>
<thead>
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<th>Date (yyyy/mm/dd)</th>
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<td>( X^1 )</td>
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**Nomogram Risk Zone**

- **Low Risk Zone**
  - LRZ: Routine care - No Coombs test required

Follow Coombs test algorithm (see reverse) to determine if Coombs test is required.

**Bilirubin Screening Response Codes: 35 - 37 6/7 weeks’ gestation**

- **Low-Intermediate Risk Zone**
  - LIZ: Routine Care

- **High-Intermediate Risk Zone**
  - HIZ-N: Follow-up assessment including TSB at 24 to 48 h

- **High Risk Zone**
  - HRZ-N: Further testing or treatment required

**Initial all applicable responses**

- TSB: Total Serum Bilirubin

- Bloodwork: Yes

- OHP Lab requisition completed: Yes

- Jaundice teaching sheet: Yes

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**Initials** | **Printed Name** | **Signature & Designation**
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HYPERBILIRUBINEMIA - COOMBS TEST ALGORITHM

When a Coombs test needs to be done as part of the newborn hyperbilirubinemia assessment, please follow the algorithm below based upon the mother’s blood group:

**MOTHER O -ve**

- Babies of all Rh negative mothers will automatically have their blood group done at time of birth by Transfusion Medicine Lab to determine if mother needs another dose of Rh immune globulin.

**MOTHER O +ve**

- When the Transfusion Medicine Lab receives an order to do a Coombs test, the Lab will do the baby’s blood group first.

**MOTHER A* or B**

- Coombs Test IS NOT required.

* A = A +ve and A -ve  
B = B +ve and B -ve

**Routine Care**

- Follow-up appointment within 48 hours after discharge with MD or MW if infant is greater than 48 hours of age on discharge  
  **or**  
- Follow-up appointment within 24 hours after discharge with MD or MW if infant is less than 48 hours of age on discharge

If the baby is in the LRZ or LIZ risk zone and there is no clinical concern, then the TSB result does not need to be reported to the MD/MW and the baby may be discharged as per **Routine Care** outlined above.

**Follow-up assessment including TSB at 24 to 48 h**

- Follow-up assessment: babies require appointment with MD, MW or BANA within 24 - 48 hours of discharge,  
  **and**  
- Follow-up TSB at 24 to 48 h:
  - In region: all babies requiring pre-ordered blood work should have appointment booked in BANA  
  Out of region: all babies requiring pre-ordered bloodwork may have an appointment booked in BANA or an outpatient clinic in their community.

**Further testing or treatment** – a repeat TSB should be done or intensive phototherapy should be initiated as per MD / MW order  
**BANA** = Breastfeeding and Newborn Assessment Clinic

**Bilirubin Risk Zone** | **Predictive Bilirubin Risk Zone Levels at Follow-up**
---|---
Low Risk Zone | • 94% remain in Low Risk Zone  
  • 6% may jump to Low Intermediate Risk Zone
Low-Intermediate Risk Zone | • 2% may jump to High Risk Zone  
  • 5% may jump to High Intermediate Risk Zone
High-Intermediate Risk Zone | • 13% may jump to High Risk Zone  
  • 57% remain in High Risk Zone
High Risk Zone | • 4% may jump to Very High Risk Zone  
  • 86% remain in High Risk Zone

714508 (2008-04)
Phototherapy and Exchange Transfusion Guidelines in Premature Infants
(<35 weeks gestation and/or <2500grams)

1. Use total serum bilirubin. Do not subtract direct or conjugated bilirubin.
2. Use gestational age rather than birthweight if gestational age is accurate.
3. Start phototherapy when total serum bilirubin (TSB) is equal or below the line according to gestation or weight.
4. In the presence of risk factors use one line lower (use gestation below) until <1000grams.
5. Risk Factors: isoimmune hemolytic disease, G6PD deficiency, asphyxia, sepsis, acidosis, hypoalbuminemia
6. Discontinuing phototherapy: discontinue phototherapy when the bilirubin level falls below the level at which it was initiated.

References:
PHOTOTHERAPY & EXCHANGE TRANSFUSION GUIDELINES

GUIDELINES FOR PHOTOTHERAPY IN HOSPITALIZED INFANTS OF 35 OR MORE WEEKS' GESTATION

- Use total bilirubin. Do not subtract direct reacting or conjugated bilirubin.
- Risk factors: isoimmune hemolytic disease, G6PD deficiency, asphyxia, significant lethargy, temperature instability, sepsis, acidosis, or albumin < 3.0 g/dL (if measured).
- For well infants 35-37 6/7 wk can adjust TSB levels for intervention around the medium risk line. It is an option to intervene at lower TSB levels for infants closer to 36 weeks and at higher TSB levels for those closer to 37-6/7 wk.
- It is an option to provide conventional phototherapy in hospital or at home at TSB levels 2-3 mg/dL (35-50 mmol/L) below those shown but home phototherapy should not be used in any infant with risk factors.

GUIDELINES FOR EXCHANGE TRANSFUSION IN INFANTS 35 OR MORE WEEKS' GESTATION

- The dashed lines for the first 24 hours indicate uncertainty due to a wide range of clinical circumstances and a range of responses to phototherapy.
- Immediate exchange transfusion is recommended if infant shows signs of acute bilirubin encephalopathy (hypotonia, arching, retarcollosis, opisthotonus, fever, high pitched cry) or if TSB is >5 mg/dL (85 μmol/L) above these lines.
- Risk factors: isoimmune hemolytic disease, G6PD deficiency, asphyxia, significant lethargy, temperature instability, sepsis, acidosis.
- Measure serum albumin and calculate B/A ratio (See legend).
- Use total bilirubin. Do not subtract direct reacting or conjugated bilirubin.
- If infant is well and 35-37 6/7 wk (median risk) can individualize TSB levels for exchange based on actual gestational age.
care of the late pre-term

• 34-36 6/7 weeks
• at risk for: resp distress
• temperature instability
• hypoglycemia
• feeding challenges
• jaundice/hyperbilirubinemia
St. Joseph's Healthcare

SCREENING PROTOCOLS

Gestational Age: ___________ Birthweight:

Issues: 1.  
2.  
3.  

All Babies:
☐ Sucrose guidelines as per protocol

Term > 37 weeks:
☐ Hearing Result: L________ R
☐ Car Seat if respiratory distress Passed:
☐ Bili at 24 – 48 hrs Result: 
☐ Newborn screen done at 48 hrs Drawn:
☐ O₂ ~ 92 – 98% parameters Maintained:

36⁰ – 36⁶:
☐ Hearing Result: L________ R
☐ Car Seat trend Passed:
☐ Bili at 24 – 48 hrs Result: 
☐ Newborn screen done 5-7 days Drawn:
☐ O₂ ~ 88-95% parameters Maintained:
☐ Hypoglycemia Protocol – 36 hrs Completed:
O₂ ~ 88-95% parameters maintained:

Hypoglycemia Protocol – 36 hrs Completed:
Synagis Scoring Result:

32° – 32°:
Hearing Result: L R
Car Seat trend Passed:
Bili at 48 hrs & Day 5 of life Result:
Newborn screen done 5-7 days Drawn:
O₂ ~ 84-93% parameters maintained:
Synagis Application Completed:
Head Ultrasound at 1 month Completed:
Calcium and phosphate at 1 month Result:
CBC & Retics at 1 month Completed:

31° – 31°:
Hearing Result: L R
Car Seat trend Passed:
Bili at 48 hrs & Day 5 of life Result:
Newborn screen done 5-7 days Drawn:
O₂ ~ 84-93% parameters Maintained:
Synagis Application Completed:
Head Ultrasound at 1 month Completed:
Calcium and phosphate at 1 month Result:
CBC & Retics at 1 month Completed:
ROP Exam at 4 weeks of age Completed:
☐ Newborn screen done 5-7 days  Drawn:
☐ O₂ 84-93% parameters  Maintained:
☐ Synagis Application  Completed:
☐ Head Ultrasound at 5 – 7 days of life  Completed:
☐ Head Ultrasound at 21 – 28 days of life  Completed:
☐ Head Ultrasound at term corrected  Completed:
☐ Calcium and phosphate at 1 month  Result:
☐ CBC & Retics at 1 month  Completed:
☐ ROP Exam at 4 weeks of age  Completed:
☐ TSH & T₄ at 1 month and/or < 1500 grams  Completed:

< 290 weeks:
☐ Hearing  Result:  L  R
☐ Car Seat trend  Passed:
☐ Newborn screen done 5-7 days  Drawn:
☐ Synagis Application  Completed:
☐ Head Ultrasound at 5 – 7 days of life  Completed:
☐ Head Ultrasound at 21 - 28 days of life  Completed:
☐ Head Ultrasound at term corrected  Completed:
☐ Calcium and phosphate at 1 month  Result:
☐ CBC & Retics at 1 month  Completed:
☐ Bilirubin at 48 hrs and DOL 5  Completed:
☐ ROP Exam at 4 wks or 32 wks corrected  Completed:
☐ TSH & T₄ at 1 month  Completed:
☐ Assess BPD: Ultrasound  Completed:
☐ ECHO  Completed: