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### FREQUENTLY CALLED NUMBERS

#### Laboratory

<table>
<thead>
<tr>
<th>Service</th>
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<tbody>
<tr>
<td>Blood Culture (Micro)</td>
<td>2-9234</td>
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<tr>
<td>Blood Bank (Blood Types)</td>
<td>2-9356</td>
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<tr>
<td>Chemistry</td>
<td>2-7090</td>
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<tr>
<td>Hematology</td>
<td>2-9621 or 2-6311</td>
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<tr>
<td>Serum HSV PCR (LabCorp)</td>
<td>866-279-3709; Can also call Mailouts 2-9271</td>
</tr>
<tr>
<td>CSF HSV PCR (UCSD)</td>
<td>619-543-3798</td>
</tr>
<tr>
<td>Viral Cx’s (UCSD Virology Lab)</td>
<td>858-657-8785</td>
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<tr>
<td>UCSD Genetics Lab</td>
<td>858-534-1352 or 4308</td>
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<tr>
<td>Plasma HSV PCR (Rady’s)</td>
<td>858-966-7457</td>
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#### Clinics and Ancillary Services

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<td>Portable X-Ray</td>
<td>619-453-6228 or 453-6385</td>
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<tr>
<td>Ultrasound</td>
<td>2-8785, pager 619-453-6351</td>
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<tr>
<td>Fluoroscopy (Upper GI, VCUG)</td>
<td>2-8686 or 8746</td>
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<tr>
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<tr>
<td>General Pediatrics</td>
<td>2-5858</td>
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<tr>
<td>GenPeds Duty Pager (“Blue Team”)</td>
<td>619-379-6613</td>
</tr>
<tr>
<td>NHCP Nursery</td>
<td>760-725-6185</td>
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<td>NHCP Appointments</td>
<td>760-725-1578</td>
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<td>3-North</td>
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<td>3-East</td>
<td>2-9946</td>
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<tr>
<td>NICU</td>
<td>2-8910 Resident’s Room 2-8913</td>
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<td>2-North (Newborn Clinic)</td>
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<td>Audiology</td>
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<td>PerkinElmer Genetics (Newborn Screens)</td>
<td>412-220-2300</td>
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<tr>
<td>Elaine Hamilton</td>
<td>Pager 619-602-6778 Office 2-5421</td>
</tr>
<tr>
<td>Dr. Ruff</td>
<td>Pager 619-602-1483 Office 2-5744</td>
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<tr>
<td>Dr. Andersen</td>
<td>Pager 619-218-5714 Office 2-5294</td>
</tr>
<tr>
<td>Dr. Welsh</td>
<td>Cell 412-983-5250</td>
</tr>
<tr>
<td>Lactation Wormline</td>
<td>2-5261</td>
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<tr>
<td>Peds Surgery Pager</td>
<td>619-822-5495 (days) or 619-453-7102 (night)</td>
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#### Other

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<td>Impax/Carestream</td>
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<tr>
<td>Essentris</td>
<td>2-9166</td>
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<tr>
<td>Frank Padilla</td>
<td>619-414-3130</td>
</tr>
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Welcome to the Newborn Nursery at the Naval Medical Center San Diego. Please plan for a fast-paced and rewarding rotation where you will have the chance to interact with the newest of pediatric patients.

General Information

Expectations:
- Plan to pick up the newborn signout sheet from the NICU at 0600, then plan to meet with the OB team at 0645 to review potential discharges for the day.
- You will be requested to read and discuss certain articles as part of your rotation. See the monthly schedule for topics/dates, and the sharepoint site for the list of articles.
- On the first day of your rotation, please review your monthly schedule for call dates, “golden” weekends, continuity clinic dates, and planned absences. These should be posted to assist with daily assignments.
- You will be assigned a variety of patients. The key is flexibility. You may always ask to participate in the care of a newborn who is not assigned to you for the sake of learning. Keep an overview of all the infants – you are your own best judge of the types of patients you need to see.
- Only maroon scrubs may be worn on duty in the nursery. They may not be worn to continuity clinic or to the parking lot. When leaving the unit, please be sure your scrubs are appropriately covered with a white coat (per the Command policy).
- You MUST wear an NMCSD approved RED name badge at all times when on the Unit. The badge should be obtained prior to the first day of your rotation.
- You will be asked to present each of your patients to a staff for review. The staff may be a nurse practitioner or physician.
- You will generally be scheduled one patient per hour. Please monitor you time and if needed, work with your staff to adjust the assignment accordingly.
- You should plan to attend all morning report conferences at 0740 Mon-Fri.
- Performance evaluations should include at least one patient evaluation, one SCO for circumcision consent, one SCO for discharge teaching, one SCO for physical exam, one ancillary staff evaluation (nursery nurse), and one patient evaluation.

General Advice:
- You are on the front line for crib safety for the infant. Make sure the infant is not propped on pillows or lying on a fluffy blanket with a risk to suffocate. All stuffed animals should be outside the crib. Babies should never be left on the mother’s bed unattended. Be wary of giving an infant to a mother who appears sleepy.
- Babies may be examined in the parent’s room or in the Infant Assessment Room. Please ensure appropriate lighting is used.
- Always ask the parent(s)’s permission before removing an infant from the parent’s room.
- Prior to taking an infant away from the parent check that the five digit number on the mother’s armband and the one on the infant match.
- Babies may only be transported in a crib and never carried by hand on the Unit.
- NEVER leave an infant unattended for any reason.
- Please return the infant to the parents dressed and secured in the crib.
What to do if an Infant Chokes

Infants frequently spit up in the first 1-2 days following delivery. This is usually due to swallowed amniotic fluid and/or blood, and generally resolves as the infant begins to feed and stool well. Generally babies who sleep on their backs and are neurologically normal handle their secretions well, but there may be times when you will be called upon to intervene if an infant is choking. Remember your ABC’s.

Airway

Clear the infant’s airway using the green bulb syringe if available. Gently suction any oral secretions you see present by placing the bulb syringe in the corner of the mouth. Remember to also GENTLY suction the infant’s nose, as babies are obligatory nose-breathers.

If no bulb syringe is present, roll the infant to his/her side or flip the infant over your outstretched hand with the head lower than the body. By gravity, the liquid occluding the infant’s airway should drain out. You may also use the corner of a blanket or t-shirt to assist in wiping secretions from the front of the mouth. Remember, do not sweep the back of the throat in an infant.

Breathing

Assess the infant’s breathing pattern & color. If the infant is dusky, immediately proceed to the infant assessment room where blow-by O2 and wall suction are available. DO NOT RUN WITH THE INFANT IN YOUR ARMS. Quickly place the infant in his/her crib and walk rapidly to the Assessment Room. Babies tend to hold their breath as an exhalation (not an inhalation), so they may become dusky easily.

Babies will sometimes sound mildly congested after spitting up. These are usually transmitted upper airway sounds from the nose and are normal. You should reassure the parents. However, if the infant has retractions, increased work of breathing (nasal flaring), tachypnea or rales/rhonchi, or oxygen desaturation immediately ask the staff for assistance in evaluating the baby.

Circulation

Rarely will you need to assess the infant’s heart rate with a choking episode. However, if the infant is blue and floppy with a palpable brachial heart rate <60, begin immediate resuscitation measures and call a code.

A choking episode is scary for everyone involved, but especially the parents. It will be your job to reassure them, but also to educate them regarding their care of a choking infant.
Guidelines for the Newborn History and Physical

Pointers on History Gathering

- Remember to review the maternal H&P. It is sometimes helpful to also review the mother’s labs in CHCS, any documented ultrasound or radiograph reports.
- The Newborn Admission Note should be reviewed for the gestational age, method of delivery, APGARS, size determination (LGA, AGA, SGA-symmetric or asymmetric), HepB vaccine, eye prophylaxis and Vitamin K administration, and any voids/stools in L&D. Vital signs should be reviewed on the vital signs flowsheet.
- The history should help you determine areas for specific examination (e.g., shoulder dystocia, tachypnea, maternal diabetes, forceps use, etc.) in addition to your routine exam.
- Generally, breastfeeding mothers are discouraged from routinely supplementing their babies.

Pointers on Newborn Physicals

- You may examine an infant in the crib or under a warmer, but please remember babies become cold easily so they should remain covered whenever possible.
- Always ensure your hands and stethoscope are clean. You may wear gloves if desired.
- When measuring the head circumference, measure the widest portion.
- You may examine the infant in any order, but generally try to check the heart and eyes when the infant is quiet. For ease of presentation (and to help you remember all the systems), however, plan to go head-to-toe when describing the physical findings.
- When you return the infant to the parent, recheck the bands to ensure the correct baby is with the correct parent.
- Babies should be kept on their back in the crib (“Back-to-Sleep”).
- Babies are weighed at 24 hours of life (HOL) and at 0400 daily. If you are discharging a baby whose last weight is more than 12 hours from your exam, please re-weigh the baby and chart your findings on the Infant Flowsheet.
- Record any Transcutaneous Bilirubin (TCB) results on the Lab Flowsheet. Generally if the baby has stayed more than 36 hours, a TCB should be done as a second point of reference for clinic followup (FU).
- Head circumferences are generally done at birth and again at discharge unless otherwise indicated by the physical exam findings.
- To lessen the risk of “accidents” keep the diaper on unless examining the genitalia.
- Always discuss your findings with the parents. Even transitional issues should be addressed as applicable.
Discharge Planning

All infants born at the Naval Medical Center San Diego will stay a minimum of 24 hours. Each infant will receive a newborn screen, a weight check and a serum total & direct bilirubin at the 24hol mark. These results should ideally be reviewed by a provider prior to discharge. Generally, the criteria for determining lengths of stay will be as follows:

**DEFINITION:**
1. Early discharge: <26 hours of life
2. Routine discharge: 26-48 hours of life
3. Late discharge: >49 hours of life

**SCREENING PARAMETERS:** Regardless of the length of stay, prior to discharge, ALL infants must be screened for and meet the following criteria:

- Stable vital signs for a minimum of 12 hours prior to discharge
- Infant has urinated and passed at least one stool spontaneously
- Infant has completed the minimum of successful feedings
- Weight loss determined within 12 hours of discharge
- Physical exam reveals no abnormalities that require continued hospitalization
- Circumcision site (as applicable) shows no excessive bleeding for at least 2 hours
- The clinical significance of jaundice has been assessed
- The mother’s knowledge, ability and confidence to care for her infant have been documented
- Adequate maternal/infant support systems are present
- Maternal Syphilis & Hepatitis B status are known or if pending, need for FU is documented
- Infant’s blood type and DAT status are known for infants of mothers who are Rh negative or blood type O+
- Newborn meds (Vitamin K, eye prophylaxis, HepB vaccine) were given (unless refused by the parent in which case a refusal form should be placed in the NB Medical Record)
- Hearing screen has been completed and outpatient follow-up documented as needed
- Family, environmental and social risk factors have been assessed
- Outpatient follow-up care has been scheduled

**1. Infants who meet the following criteria are eligible for EARLY (<26hrs) discharge:**

- Uncomplicated pregnancy
- Uncomplicated vaginal delivery
- Normal neonatal transition
- APGARS of at least 7 at 5 minutes
- Gestational age 37-42 weeks
- Growth appropriate to the gestational age
- Delivery time before 1800 the previous day is suggested
- 24 hour weight loss of less than 7%
- 24 hour bilirubin level of <8.0mg/dl (total) and <1.0mg/dl (direct) (Note: higher bili levels may be eligible for early discharge but should be reviewed by a provider first.)
- Meets all screening criteria as noted above
2. Infants who meet the following criteria will be eligible for Routine (26-48 hrs) d/c:

- Minor complications of pregnancy (e.g., hypertension, minor hemorrhage)
- Uncomplicated cesarean section or instrumented vaginal delivery
- Gestational age 37-42 weeks
- Minor complication of neonatal transition including resolved alteration of normal vital signs
- APGAR of at 6 or less at 5 minutes
- Size is appropriate or large for gestational age
- Size small for gestational age or low birth wt (<2500gms) with no significant wt loss
- Assessment and intervention for any 24hol wt loss >/= 7%
- 24 hour bilirubin level ≥ 8.0mg/dl (total), but with <1.0mg/dl (direct), or with subsequent rate of rise determined to be <0.2mg/dl/hour. Additional testing may be warranted before discharge.
- Resolution of any criteria noted in the screening parameters

3. Infants who meet the following criteria will be eligible for LATE (>49hrs) discharge:

- Moderate complications of pregnancy
- Complicated cesarean or vaginal delivery
- Gestational age 35⁰⁰ - 36⁰⁶ weeks are recommended to stay 60-72 hours for observation to rule out feeding issues or risk for jaundice
- Complications of neonatal transition including sepsis or chorio work-ups
- Resolution of any physical exam findings requiring increased length of stay
- Resolved hyperbilirubinemia, wt gain issues or feeding concerns
- Passage of a carseat test as applicable (gestational age <37wks, BW <2500 gms)
- Resolution of any criteria noted in the screening parameters

**Discharge Teaching**

- Temperature Instability: Rectal temp of ≥ 100.4 (38C) or <97.7 (36.5C) – Go to the Emergency Room. No Tylenol or bath for elevated temp.
- Sleep Position: Back-to-sleep
- Tummy Time: When awake place the infant on his/her tummy (one of the infant’s first developmental milestone is pushing the chest up with the elbows)
- Normal care of the circumcised or uncircumcised penis: See handouts
- Normal vaginal secretions: Can include blood and mucus
- Feeding: Every 2-3hours even if formula fed
- Weight loss: <10% is normal. Babies should regain birthweight by 2weeks of age.
- Signs of Illness: Decreased interest in feeding, crying, irritability, decreased output, fever.
- Cord Care: Alcohol x1/day until off or simply keep area dry. The cord is generally off by 2wks of age.
- Bathing: Sponge bath only until cord is off x24hrs. Shampoo for the hair is fine.
- Carseat use (rear facing, back seat, never where there is an airbag).
- Smoking households; smoke & carbon monoxide detectors
- Pets: May be jealous of infant. Never leave a pet alone with a new baby.
- Sibling rivalry.
- Water heater safety.
Physical Exam Checklist

- **Vital Signs**: Last Temperature, Current Heart Rate, Current Respiratory Rate
- **Gestational Age**: May perform a modified Ballard exam if needed to confirm the age
- **Weight**: Note the last weight and if >12hours since your exam, weigh the baby
- **General Appearance**: Size, color, activity.
- **Skin**: Milia, petechiae, erythema toxicum, pustular melanosis, blue-gray macules (Mongolian Spot), nevus simplex
- **Head**: Document sutures (open, overlapping), fontanel size and fullness, moulding, caput, cephalohematoma, bruise, scalp electrode site, bruising, vacuum or forceps marks
- **Eyes**: Red reflex, subconjunctival hemorrhage, any discharge or erythema, any abnormal slant
- **Ears**: Ear position and rotation, any pits or tags, any abnormal shape
- **Nose**: Patency of BOTH nostrils, milia
- **Mouth**: Palate, uvula shape and position, mucocele, Epstein’s pearls
- **Neck**: General tone and appearance, excess nuchal fold
- **Chest**: Size and symmetry, any supernumerary nipples, nipple spacing, any retractions, point of maximum impact (PMI), rhythm disturbances
- **Heart**: S1, S2, any murmur or gallop, brachial & femoral pulses, precordial activity
- **Lungs**: Auscultation for air movement, symmetry, rales, rhonchi, grunting
- **Abdomen**: Appearance (distention, flat, rounded), bowel sounds, liver and/or spleen tip, other organomegaly, diastasis recti
- **Umbilicus**: Number of vessels, appearance, discharge, erythema, odor
- **Genitalia**: Sex of infant, hydrocele, hernia, penile torsion, epi/hypospadias, ability to void, location of testes, hymenal tag, vaginal discharge
- **Anus**: Patency, location (anteriorly placed)
- **Spine**: Sacral dimples, hair tufts, overlying birthmarks, curvature
- **Extremities**: Hand position (clinodactyly), palmar creases, extra digits, flexible positional deformities of the legs or feet, hip stability (Ortalani, Barlow maneuvers)
- **Neuro**: Tone, activity, head lag, shoulder strength, position at rest, suck, Moro, grasp, plantar reflex, asymmetric tonic neck reflex, jitteriness
Checklist of Common Physical Findings in the Newborn

- Caput succedaneum
- Large Fontanel
- Overriding Sutures
- Cephalohematoma
- Split sutures
- Scalp Monitor Site
- Subconjunctival Hemorrhage
- Variations in Red Reflex by Ethnic Group
- Posterior Ear Rotation
- Preauricular Pit or Tag
- Milia
- Nasal Congestion
- Epstein's Pearls
- Mucocele of the Gums
- Facial Nerve Palsy
- Clavicle Fracture
- Breast Hypertrophy
- Heart Murmur
- Tachypnea
- (not so common: Grunting)
- (not so common: Retractions)
- Supernumerary Nipple
- Umbilical Hernia
- Sacral Dimple
- Hip Click
- Vaginal Discharge
- Hymenal Tag
- Hydrocele
- Undescended Testis
- Penile Torsion
- Flexible Deformity of the Legs/Feet
- Single Palmar Crease
- Brachial Plexus Injury
- Erythema Toxicum
- Jaundice
- Nevus Simplex or Flameus
- Blue-Gray Macule (Mongolian Spot)
- Pustular Melanosis
- Nevus Sebaceous
- Petechiae
- Hemangioma
- Jitteriness
- Newborn Muscle Tone
Common Abnormal Findings

Prenatal Hydronephrosis/Pelviectasis
- Prenatal diagnosis of hydronephrosis
  14-27wk ultrasound: >4mm; >/= 28wks: >7mm; any caliectasis.
- Abnormal findings that should prompt a urology consult: solitary kidney, renal mass, malpositioned kidney, ureterocele, bladder wall thickening, dilated posterior urethra, megaureter, ectopic ureter, ureterocele, concern in male infants for posterior urethral valves.
- Obtain an inpatient ultrasound prior to discharge
- SFU Grade 0, 1 or 2: Repeat u/s in 4-8 wks, no antibiotic prophylaxis
  SFU Grade 3: Start amoxicillin prophylaxis, repeat u/s and VCUG in 4-6wks
  SFU Grade 4: Start abx prophylaxis, rpt u/s & VCUG 2-4 wks, consult urology.
- All infants requiring antibiotic prophylaxis are given amoxicillin at a dose of 20mg/kg to be given as a single dose each evening before bed. You may start this as an inpatient & be sure to provide outpatient prescriptions. As a reminder, amoxicillin must be kept refrigerated and is only “good” once reconstituted for 14 days, so be sure to give multiple refills.

Chordee / Penile Torsion >90 degrees
- These patients should be referred to Pediatric Urology or Pediatric Surgery for surgical correction/circumcision. Please enter the CHCS consult prior to discharge.
- In general, the surgery is not performed until the infant is six months of age, although in some cases the correction may be done within the first month.

Vomiting
- Emesis is not uncommon for the first 1-2 days.
- Generally this is from swallowed amniotic fluid and/or maternal blood and resolves without intervention
- Bilious emesis or emesis consisting of bright red blood, with or without abdominal distention, and should prompt you to discuss your findings immediately with a staff provider.

2-Vessel Cord
- Infants with a two vessel cord are at risk for associated renal anomalies
- Outpatient renal ultrasound & VCUG may be considered.

Breech lie prior to delivery or Subluxable Hips
- Generally these babies are scheduled for a hip ultrasound at 6wks corrected gestational age
- In the event that you feel an infant requires an inpatient eval, the ortho resident may be contacted (619-954-6797).
- Call the Orthopaedic clinic at 532-8448 & send an e-mail to Tenaya Holden (Tenaya.holden@med.navy.mil) to schedule follow-up.
Expectations for Being On Call

In general, the infants on the Mother-Infant Unit are healthy and transitioning without incident. However, that being said, ANY infant is at risk to develop issues overnight. Your night on call will generally consist of attending deliveries, monitoring the infants in the “normal” nursery including the follow-up (FU) labs (i.e., the 24hr bili result, dexes, infant blood types) and reviewing other specific issues provided at check-out (i.e., additional bili’s or TCB’s, cbc’s, retic counts, etc.). As an intern, ALL decisions you make should be supervised by your senior resident or staff attending. When time permits, you may assist in the management of NICU patients, but this is NOT your primary responsibility.

Deliveries
- Peds is generally called for all c/sections, shoulder dystocias, meconium deliveries, preterm infants, instrumented deliveries (forceps or vacuum) and maternal narcotic use within one hour prior to delivery
- When attending a delivery, PLEASE be respectful of the parents and maintain a quiet environment. When possible, stand by the warmer, and be respectful if watching the actual birth.
- Remember your key points from NRP: Airway, breathing, circulation
- ALWAYS, write a timely note regarding the infant’s condition and actions taken in the newborn resuscitation note.
- Whenever possible, at least twice during the night review maternal risk factors for ALL babies born overnight that might affect the infant’s care (i.e., GBS treatment, need for dex’s or blood types, maternal thrombocytopenia or thyroid disease, etc.). This should include even those deliveries you did not attend. When possible, please update the infant status board with appropriate information.

Nursery Calls
- The nursing staff may page you for ANY concerns they might have.
- **You are responsible for assessing the infant in a timely manner.** If you will be delayed more than 5-10 minutes from the call, please instruct the nursing staff on any immediate actions you want taken (i.e., an O2 sat, a dex for a low temp) and let them know when you might be able to evaluate the infant. Remember to be respectful – even though you may not always feel that the call is an emergency, the nursing staff is trying to give outstanding care to the infant by notifying you of any abnormalities or concerns.
- Place an “on-call” note in the newborn medical record regarding your evaluation and plan.
- In the event of a disagreement between your assessment and the nursing staff assessment (usually regarding respiratory status), the nursing staff has a “two challenge rule”. They may ask for assessment by the senior resident or the staff attending. This should not be viewed as a personal affront. **Anytime you make a change in the infant’s management plan OR evaluate the infant for any reason, please be sure you inform/educate the parents accordingly, and place a note in the Newborn Medical Record (NMR).**
Laboratory checks – general rules of thumb
- A 24hr bili should show a total bili <8.0 and a direct bili <1.0. If the results are higher than these values, you might want to review the history or exam for potential hyperbili issues that might place the infant lower on the risk factor assessment curve.
- Review cbc for hematocrits <40 or >65, WBC counts <10.0 or >35.0, or platelets <150K. For concerns regarding any lab, check with your senior resident or staff attending.

Phototherapy (also see Hyperbilirubinemia)
- There is a standard Essentris order set for phototherapy.
- We use the NeoBlue lights on high intensity with the NeoBlue “Cozy” bed.
- For infants >2.5Kg an open crib may be used for phototherapy providing the infant can maintain a normal temp. Otherwise an isolette may be used.
- At risk infants (those who are above the curve for therapy) should have a repeat bili after the initiation of lights. This may be 6-24hours later depending on the initial rate of rise and risk factors.
- For those infants at lower risk, who you expect to remain on phototherapy overnight may generally have a bili checked at 0500
- Any infant on phototherapy should have at least one cbc & retic checked.
- Please be sure to place an on-call note in the newborn medical record (NMR) for any lab results you checked regarding an infant under phototherapy.
- If you have initiated phototherapy on a patient, again, please place a note in the NMR regarding your decision making process (why you started lights) and your expected management plan (when the next labs should be checked)
- ALWAYS be sure you discuss the initiation of phototherapy with the parents and/or update them accordingly.

NICU TOW’s (Transfers)
- Babies may be transferred both to and from the NICU at any time.
- Babies who are TOW’d TO the NICU for care should have their ward orders discontinued prior to admission to the NICU. These infants should have a TOW note placed in the NMR addressing the reason for transfer.
- Babies who are TOW’d FROM the NICU should have a TOW Note on the NMR (not the NICU summary), a plan of care, AND notification regarding the TOW to the newborn nursery team. If an infant is TOW’d from the NICU overnight, PLEASE ensure that the following day’s nursery team knows about the infant’s history and expected management plan. The nursery team member should write an accept note in the NMR and update the infant’s orders.
- In ALL CASES where an infant is moved for any reason (to or from the NICU), please be sure to inform the parents and discuss the plan of care with them.
Group-B Strep

SVD & GBS+ Mom
1. Needs ONE dose of penicillin, ampicillin or cefazolin (Ancef) at least 4hrs prior to delivery
2. Vancomycin, Clindamycin and Erythromycin (even with sensitivities) are NOT considered adequate treatment as no data is available regarding the percentage of drug which crosses the placenta, and whether or not this is protective for the infant.
3. For inadequate treatment:
   a. If >/= 37wks and ROM <18hours, vital signs q4h x48hrs
   b. If <37wks or ROM >18hrs, then obtain cbc and blood culture; no antibiotics unless symptomatic.

SVD & GBS Unknown
1. Gestational age >37wks AND symptomatic after birth
   a. Obtain cbc and blood culture, start ampicillin and gentamicin
2. Gestational age >37wks AND asymptomatic after birth.
   a. Screen for risk factors: ROM >18hrs, fetal or mat tachycardia, mat fever
      1) If risk factors, consider cbc/bcx but no antibiotics unless symptomatic
   b. If no risk factors, vital signs q4h and routine care
3. Gestational age <37wks AND symptomatic
   a. Obtain cbc and blood culture, start ampicillin and gentamicin
4. Gestational age <37wks AND asymptomatic
   a. Obtain cbc and blood culture but no antibiotics

C/Sec & GBS+
1. Screen mom for contractions, cervical changes, any ROM. If present: 
   a. >/= 37wks then vital signs q4h x 48h
   b. <37wks or ROM >18hrs screen with cbc and bcx; no antibiotics unless symptomatic
      Infant needs 48hr observation period prior to discharge with v/s q4h.
2. If symptomatic, screen with cbc/bcx and give amp/gent

C/Sec & GBS unknown
1. Gestational age >37wks and symptomatic
   a. Screen for symptoms, prolonged ROM, maternal fever, maternal or fetal tachycardia. If present, infant needs cbc, blood ex, amp/gent.
2. Gestational age >37wks and no risk factors or symptoms = routine care
3. Gestational age <37wks and mother inadequately treated prior to delivery
   a. Infant needs cbc, blood culture & 48hr observation period, no antibiotics unless symptomatic

Ampicillin Dose: 100mg/kg/dose given IV q12h (up to seven days of life)
Gentamicin Dose: 4mg/kg/dose given IV over ½ hr q24h for term newborns
Neonatal Thermoregulation

Newborns should maintain a rectal temperature between 36.5-37.9°C

Hypothermia
- Always check a dex
- Infants should ideally be warmed on servo control mode (set to a skin temp of 36.5-37.0°C to start)
- If being warmed by skin-to-skin with the parent, but sure to recheck the rectal temp in 15min
- If the infant has two separate instances of rectal temps <36.5°C, or takes longer than 30min to warm with no other explanation, consider screening with cbc, manual diff, blood culture, and starting ampicillin and gentamicin.

Hyperthermia: An elevated temp of 38.0°C or above is always concerning!!

Temp >/=38.0°C Rectally & Age <2hours of life
- Check for environmental factors (hot room, overbundled, on a warmer without servo control). Environmental causes should rapidly improve (i.e. within 15min) when corrected
- Assess maternal fever (>100.4) and/or diagnosis of chorio
- Check for maternal (>110) or fetal tachycardia (>160) prior to delivery
- If any factors other than environmental issues are discovered, screen with cbc/bld cx and start ampicillin and gentamicin

Temp >/=38.0°C Rectally and Age >2 hours of life
Fevers in infants older than 2hrs are very concerning for sepsis; As such obtain:
- CBC & Blood Culture
- Radiographs as indicated by clinical presentation
- HSV PCR (plasma and CSF)
- CSF for Gram Stain & Culture (Tube #1), Glucose & Protein (Tube #2), Cell count & Diff (Tube #3) and HSV PCR (Tube #4) (consider Enterovirus PCR)
- Consider urinalysis and urine culture
- Surface Viral Cultures (minimum eye, nasopharynx, rectum, & any concerning skin lesions)
- Liver Function Tests
- Consider C-Reactive Protein after 24hol
- Start Ampicillin, Gentamicin and Acyclovir
- These infants may TOW to the NICU for further observation PRN
Neonatal Hypoglycemia

The following babies should be fed within 1 hour of birth (breast or formula) and then screened with a minimum of two accuchecks (dex). These should preferably be ac (before a feed), but the first may be pc when the infant fed at <1hol in L&D.

- Large for Gestational Age
- Small for Gestational Age
- Preterm <37 weeks
- Maternal Terbutaline or other tocolytics or beta blockers (i.e., labetalol)
- Maternal Diabetes (on insulin or oral hypoglycemic agents)
- Cold Stress (rectal temp <36.5): One dex at the time of the low temp
- Midline defects
- Wide spaced or narrow set eyes
- Low birth weight (<2500 grams)

If the above 2 dex are EACH >45, no further action needs to be taken unless the infant becomes symptomatic.

For any dex <45, the infant should be fed immediately (if this is a pc dex, the infant should not be re-breastfed, but should rather be given formula). A pc dex should be obtained approximately 30-45 minutes after feeding completion. For any dex <=25 the infant should be sent to the NICU for immediate care. For a dex of 26-44 & asymptomatic, the infant may be refed x1, but must show a trend upward in the glucose level to stay on the floor. Any infant with a dex <45 at any time, must complete the hypoglycemia protocol as specified below:

The hypoglycemia protocol consists of two consecutive ac dex levels and then ac dex q6hours x4. If all these are >=45, the infant is considered to have passed the dex protocol. For any dex <45 at any point in the protocol, the protocol starts over again with feeding, a pc dex, then consecutive ac’s x2 and then an ac dex q6hx4.

If any dex is <25 or for two or more consecutive dex’s <=45 not showing an upward trend, the infant should be transferred to the NICU for immediate evaluation and/or IV fluid resuscitation.

**Special circumstances: For any dex >140mg/dl, or for any change in the consecutive dex value >= 45mg/dl, at least one additional dex should be checked. When a dex was checked for hypothermia (<36.5R) and is >44mg/dl a second screening dex is not needed.**
Hyperbilirubinemia

Infants may develop hyperbilirubinemia for a variety of reasons. The most common reasons in the early newborn period include ABO incompatibility (see separate section), familial risk (i.e. a parent or other child who required phototherapy at birth), late preterm status (<37wks) or inadequate feeding. Less common reasons include G6PD deficiency, biliary atresia and red cell defects (i.e., hereditary spherocytosis or elliptocytosis).

All infants are screened with a total and direct bilirubin level at 24 hours of life. In general, this value should be <8.0/1.0. Please refer to the Bhutani risk factor curve in the Appendix for risk stratification. For those infants whose 24hr bilirubin is 8.0 or above (except in the case of ABO incompatibility), may either be discharged home with a 24hr clinic follow-up OR have a repeat serum bilirubin checked in 12 hours. You may consider using the transcutaneous bilirubin (TCB) meter to determine the follow-up value, but be aware that this is a screening tool, and does not replace a serum value when indicated (i.e. a TCB value of 12.0 or above, or a rate of rise in the bili of >0.2mg/dl/hr). For all infants, a direct bilirubin level of 1.0 or above is abnormal and should warrant follow-up testing.

Decisions for treatment should only be based on a serum bilirubin value and should not be based on a TCB result. When initiating phototherapy, term infants of normal weight may be placed in an open crib. Low birth weight babies, late preterm babies or those infants with a history of temperature instability may benefit from phototherapy in an isolette. Of note, “bili blankets” are not available for home use.

All infants who are breastfeeding and develop hyperbilirubinemia may benefit from a lactation consult, and occasionally from supplementation. Supplementation is NOT an absolute requirement, however.

In general, infants should remain under the phototherapy lights with standard eye protectors for 1.5-2.5 hours at a time. Infants may be removed for feedings of ½ hr duration, but should be placed back under the phototherapy as soon as possible upon completion of the feeding.

You will find that there are a variety of ways to approach the treatment of hyperbilirubinemia and the discontinuation of phototherapy. Please check with your individual attending provider for his/her preferred method of care.
ABO or Rh Incompatibility

- Infants whose mothers are either blood type O, who are Rh negative or who have antibodies to a minor blood group (i.e., Anti-M or JKA antibody) may give birth to an infant at risk for hemolytic disease.
- These infants should have a blood type and direct antiglobin titer (DAT or Coomb’s) test completed within 6 hours of birth (sent on the cord blood).
- Wherein the infant is DAT positive, an initial check of the hematocrit, bilirubin and reticulocyte count should be completed by 6 hours of age. Serial studies are then continued depending on the values obtained at the six hour mark. **Note:** Infants with ONLY Anti-D antibody due to maternal RhoGam do not require further screening
- In general, a normal hematocrit is 40-65, the reticulocyte count should be <6.0 and the bilirubin levels should remain below treatment criteria on the curve. Infants >38wks who are DAT+ (except for Anti-D only) have at least one risk factor so their risk line should be adjusted to the middle line of the curve. Wherein a second risk factor for preterm status, on antibiotics, etc. exists use the lowest line on the curve. Infants 35-37th and well are the middle curve, or with risk factors are on the lowest curve.

Prenatal Presentation Late to Care or Inadequate Care
(defined at care at >20 weeks gestation or less than 5 prenatal visits)

- Mothers may present to care late for a variety of reasons. Some do not raise issues of concern, but others might.
- In general, if there is a concern for illicit drug use in the mother, a urine and meconium drug screen may be obtained on the infant and social work may be consulted.
- If the explanation is reasonable (transfer of care from overseas or from a private provider, failure to obtain TriCare coverage), then no automatic screening is indicated.

Maternal h/o Depression / Anxiety / SSRI use

- Infants whose mothers took SSRI’s within two weeks of delivery are at risk for pulmonary hypertension and withdrawal symptoms.
- Pulmonary hypertension may manifest as tachypnea, differences in pre/post ductal saturations >10 or persistent oxygen saturation <90%. These infants will require extensive NICU support.
- Withdrawal symptoms may include jitteriness, mild tachypnea with normal oxygen saturations, difficulty feeding and slight irritability. Generally these symptoms improve over time.
- Mothers with a history of general anxiety or depression are at higher risk for the development of postpartum depression and should be screened accordingly.
- For any concerns regarding bonding or ability to care for the infant, a social work consult should be initiated and the OB team should be advised.
Single Active Duty &/or Dependent Daughter
(Social work indications, Drug Screen indications, Discharge planning)

- Generally speaking, teenage mothers who are dependent daughters, or mothers who are concurrently single and active duty are at higher risk for parenting concerns.
- Dependent daughters must obtain a letter from the Secretary of the Navy (SecNav status) in order for their infant to be eligible for care at a military facility after discharge. In the event that this letter can not or has not been obtained, the mother should be instructed to apply for MediCal coverage (note: MediCal is retroactive to discharge, so any 1-2 day follow-up visit would be covered).
- Single active duty mothers are at risk for deployment at 1 year postpartum. Mothers will need to provide a medical power of attorney which authorizes a guardian to provide a medical care for the infant in the event of a deployment. These forms may be obtained at medical records any time in the first year.
- We generally recommend that Social Work see any dependent daughter or Single Active Duty mother with regards to ensuring that appropriate resources are available to assist the parent.
- A urine or meconium drug screen may be obtained on the infant should a concern regarding possible drug use be elicited.
- In ALL cases where a drug screen or social work consult is requested, the parent MUST be informed (but need not consent to the drug screen). The parent should be counseled that this is not meant to reflect negatively on the parent. Parents should be advised that a social work consult is meant to ensure appropriate resource availability and is NOT being requested to judge their parenting ability.

Surrogacies, Adoption or VA OB

- Presently dependent wives (not active duty) may carry a surrogate pregnancy for another couple who may not be associated with the military or who may reside overseas.
- In general, the intended (legal) parents should be present for the birth and should be prepared to provide care for the infant from the time of birth.
- The infant’s records will be logged under the birth mother, however, the NMR should be completed to include the intended parent’s name(s) and contact information.
- The infant’s immunization card and the newborn screening chit should be completed in the intended (legal) parent’s name with their contact information.
- Adoptions must have a social work evaluation completed either prenatally or prior to delivery and require a judgment of paternity from the court system prior to discharge.
- VA OB infants are only eligible for 7 days of care at NMCSD including the day of birth. Please ensure that the parent has plans for follow-up Pediatric care after this interval. Social work is available to assist with referrals as needed.
- If emergency consent is needed and the legal parent is not available, consult the legal department for the correct course of action.
Small for Gestational Age

- Infants who are born small for gestational age should be divided into one of two categories – symmetric (with a head circumference and weight near the same growth percentile), or asymmetric (only the weight is low).
- In general, asymmetric SGA babies are born as a result of some type of placental insufficiency (maternal hypertension for example) and not as a result of a more concerning etiology.
- Symmetric SGA babies require a more extensive work-up/evaluation, especially if their measurements reside at the 3rd percentile or less.
- Common conditions resulting in symmetric SGA presentation include maternal TORCH infection (especially rubella, toxoplasmosis or CMV) or congenital anomalies
- When the infant is a symmetric SGA, the following studies should be ordered:
  1. Head ultrasound (primarily looking for calcifications)
  2. Ophthalmology evaluation (to r/o chorioretinitis)
  3. Maternal TORCH titers (note: this requires too much blood to draw on the infant) (testing includes toxoplasmosis, rubella, CMV, herpes)
  4. Urine CMV shell vial x3 (may consider serum CMV PCR)
  5. Chromosomes & Genetics consult (if also dysmorphic features)

Large for Gestational Age

- Often these infants are born either to diabetic mothers or to mothers with excessive weight gain during pregnancy
- Infants of diabetic mothers are at risk for hypoglycemia and cardiac issues.
- All infants are screened with at least two glucose (accucheck) tests
- These infants may be discharged as early as 26 hours of life when feeding well with an otherwise normal exam, and two normal screening dex’s

Cleft lip and/or palate

- These patients are referred to the craniofacial team for care.
- Ensure that if the mother is breastfeeding, she has been seen by the lactation service prior to discharge
- If bottle feeding, obtain a Haberman/Special Needs feeder. This is a squeeze type bottle with a longer nipple which allows the parent to give additional formula and lessens the need for the infant to establish a suck.
Abstinence Scoring

Infants may exhibit withdrawal symptoms from maternal chronic opiate or methadone use, maternal SSRI use, excessive maternal caffeine or nicotine intake during pregnancy and other substances (i.e., heroin, etc.). Generally speaking, withdrawal usually begins at >24hr of life. Symptoms may include sleeplessness, recurrent emesis, jitteriness or tremors, temperature instability (high or low), tachypnea, nasal flaring, sneezing, poor feeding, high-pitched cry, restlessness, frequent stooling, irritability and difficulty calming. Infants who are at risk for withdrawal may be scored on the Modified Finnegan Neonatal Abstinence Scoring Sheet (see appendix E). Scoring is done with each check of the vital signs (q3-4hrs). For those infants who score 8 or above on 2 consecutive checks, a transfer to the NICU for further care is warranted.

Carseat Testing

- Carseat testing is recommended for infants born at <37wks gestation or whose birthweight is <2500 gms.
- The test consists of placing the infant into the carseat (appropriately secured with tight straps), and then monitoring the infant for any evidence of oxygen desaturation over the period of 1 hour.
- Carseat tests may be extended past one hour if the parents are anticipating traveling for over one hour. Under no circumstances, should an infant be left in a carseat for >2.5 hours.

<table>
<thead>
<tr>
<th>Failure criteria</th>
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<tbody>
<tr>
<td>1. <strong>Any oxygen saturation below 90% for &gt; 20 seconds</strong></td>
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<tr>
<td>2. <strong>Any oxygen saturation below 80% at any point in time</strong></td>
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<tr>
<td>3. <strong>Heart rate &lt; 80 bpm</strong></td>
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<tr>
<td>4. <strong>Apnea &gt; 20 seconds</strong></td>
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<tr>
<td>5. <strong>Any desaturation requiring physical assistance to correct</strong></td>
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Breastfeeding Pointers

- Mothers who desire to breastfeed should be afforded the opportunity to begin nursing within one hour of delivery as the mother’s condition and infant’s status permit.
- Most infants will learn to latch during the first day, and should not be “forced” to the breast. For the infant having difficulty latching, the infant should be placed skin-to-skin with the mother and encouraged to “self-latch”.
- Mothers should be encouraged to nurse their infants every 2-3 hours, and should not permit long sleep periods for the first two weeks of life. That being said, many infants will have a 6-12 hour long “sleepy period” in the first 24 hours of life during which they may only “snack” at the breast. Reassure the mother that this is normal.
- The early milk is colostrum, and while not abundant, is sufficient to feed most infants.
- Most infants will void 1-2x per day for the first 1-2 days and pass 2-3 stools each day initially. When the milk “comes in” these volumes will increase. Any infant who has not voided or stooled in a twelve hour period warrants further evaluation.
- Mothers should be discouraged from giving routine formula supplements unless medically indicated for poor weight gain, maternal illness resulting in an inability to feed the infant for a given duration of time, or due to dehydration or poor urine/stool output in an infant being treated for hyperbilirubinemia.
- Infants will have their weights checked at 24 hours then again at 0400 daily. A concerning weight loss would be >7% at 24 hours of life. At any point, a 10% weight loss is very concerning. All infants should be weighed within 12 hours of discharge.
- There should be minimal discomfort associated with breastfeeding. Any mother who is complaining of excessive pain with feeding should have a lactation consult placed.
- Lactation services are available Mon-Saturday. To initiate a consult, open a “Lactation Consultation” note in Essentris and include the reason for the consult. This will prompt the lactation consultants to assess the concerns.
- The ENT department and/or Dr. Joel Ruff may be consulted for ankyloglossia (tongue tie).
Hepatitis B Surface Antigen + Mother
**Infants > 2 kilograms**

Maternal Surface Antigen Positive
Give Hepatitis B Immune Globulin & HepB vaccine within 12 hours of birth AFTER a bath is given

Maternal Surface Antigen Unknown
Bathe the infant as soon as possible after birth
Ensure maternal testing is sent
Give Hepatitis B Vaccine within 12 hours of birth AFTER the bath
Hepatitis B Immune Globulin should be given with 7 days unless the maternal test result is known to be negative.

Medication or Newborn Screen Refusal
At times, parents will request to decline Hepatitis B vaccine, Erythromycin eye prophylaxis and/or Vitamin K administration. Erythromycin prophylaxis is mandated by California State Law, and parents declining the instillation of the ointment must sign a Medication Refusal Form. Vitamin K and Hepatitis B vaccine are not mandated by law, but the newborn medical record must include documentation of the risk/benefit counseling which occurred and the parents’ declination of the vaccine. Parents should be given the Hepatitis B vaccination recommendations. Any male infant who did not receive vitamin K at birth is not eligible for a circumcision secondary to the increased risk of bleeding. There is a special form for refusal of the newborn screen. All refusal forms are available in the infant assessment room.

Social Work
- Social Work consults may be obtained anytime there is concern regarding the parent/child interaction
- Presently, social work consults are available routinely Mon-Fri, but only emergently on weekends or holidays
- In general social work consults are generated for Dependent Daughters
  - History of maternal depression or anxiety with/without medication use
  - History of maternal postpartum depression with a prior pregnancy
  - Single Active Duty Mother
  - Adoptions or Surrogacies
- Consults should be ordered in Essentris, or in CHCS when inpatient social work is not available
Newborn Screening

All infants are screened at 24 hol for the following abnormalities:

- Amino acid deficiencies
- Fatty acid (acylcarnitine) disorders
- Biotinidase deficiency
- Congenital adrenal hyperplasia (CAH)
- Cystic Fibrosis
- Congenital Hypothyroidism
- Galactosemia
- Hemoglobinopathies
- G6PD deficiency (not routinely screened but can be added to the request)

Newborn metabolic screening is utilized to detect abnormalities prior to the onset of symptoms. For many of these tests, a delay in diagnosis can cause irreversible morbidities and as such, early diagnosis and treatment are essential. Testing is done utilizing a dried filter paper blotter. Testing is conducted through Perkinelmer Genetics. Ideally infants should be feeding prior to the testing, however, since many of the tests are DNA specific, the accuracy of the screen may be intact. Screens drawn at <24 hol (even by one minute) will need to be redrawn. At any time that a newborn screen is sent outside the normal interval (i.e., looking for a specific condition), please send an e-mail to Elaine Hamilton (Elaine.Hamilton@med.navy.mil). All abnormal results are reported to the NMCSD newborn screen coordinator. Infants born outside the NMCSD system will have their testing completed through the California Newborn Screening Program.

Reasons for Transfer of Infants to the NICU:

- Birthweight less than 2000 grams (2kg)
- Gestational age <36 weeks
- Need for IV fluids or medications other than ampicillin, gentamycin or acyclovir
- Dex <25
- Any oxygen requirement
- Unable to PO feed because of tachypnea or increased work of breathing
- Apnea or persistent grunting
- Signs of withdrawal (abstinence score >8 x2)
- Suspected subgaleal hemorrhage
- DAT positive infant with continually rising bilirubin despite adequate phototherapy
Hour specific Bhutani curve

- **High Risk Zone**
- **95th percentile**
- **75th percentile**
- **40th percentile**
- **Low Intermediate Risk Zone**
- **Low Risk Zone**

**Total Serum Bilirubin (mg/dL)**

**Age (h)**

1mg/dL = 17.1 micromol/L
- 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 < 3.0g/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 35 wks 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 (35-50mmol/L) below those shown but home phototherapy should not be used in any infant with risk factors.
Plot growth in terms of completed weeks of gestation.

(abstinence scoring)
(daily assessment form)