NEWBORN NURSERY SURVIVAL GUIDE

(Revised June 2010 by Dr. S.Kadiwala & Dr. N.Sharma)
(Revised June 2011 by Dr. R. Courtney, Dr. A. Ebadi, & Dr. N. Cacho)
(Revised February 2013 by Dr. Chantel Walker)
(Revised March 2015 by Dr. Alissa and Dr. Makker)
(Updated 6/16 per Dr. Alissa)
(Updated 6/17 per Dr. C. Silva and Dr. Alissa)
Updated 6/19 per Dr. Alissa, Patty, and Erika
Updated 6/20 per Dr. Alissa, Patty, Erika and Dr. Ward
Updated 6/21 by Patty, Erika and Dr. Alissa
Updated 6/22 by Patty and Dr. Alissa
Updated 6/23 by Patty, Erika and Dr. Alissa
Updated 7/25 by Patty, Erika and Dr. Alissa

This manual, now in its eighth revision, is designed for use by the pediatric residents created by residents and updated by attendings for the UF-Jacksonville Pediatric Residency Program. The recommendations in this manual are specific for the practice in this program. Please understand that this is not a mini-textbook or outline of general newborn care. Residents are responsible to look up their own information. The purpose of this manual is to assist pediatric house officers by:

a) Providing guidelines for management of newborns that require immediate attention
b) Providing information to help them in their daily work

There is little discussion of pathophysiology, pharmacology and infectious disease processes. Certain important and common problems are not covered at all. If at any time you are unsure about the contents provided in this guide, please refer to more comprehensive texts, or contact the on-call attending.

Phone Numbers:

Patty Williams	(904)424-2939	Kelly Arnold	(618)201-8501
Dr. Alissa	(904)994-7427	Erika Baker	(904)907-7521
Chrissy Raiford	(904)4424-9927	Kaliegh Conway	(352)231-6539
Gabriela Fratila	(904)899-3855	Sabrina Greene	(813)401-0400
UF Health Peds ED	244-7118	Dr. Adawi:	(904)649-4711
Nursery Desk	244-2555	Dr. Nandula	(248)982-0597
NP/PA call room	244-5109	Dr. Patel	(201)850-3046
NICU	244-5100	Dr. Driscoll	(904)393-4414
3N	244-6109	Dr. Shah	(551)689-7272
Stepdown	244-3330	Dr. Abubakar	(832)3405685
L&D	244-6127	Dr. Sharma	(904)306-3979
Lab	244-6040	Dr. Sheen	(347)962-1072
Nemours	697-3600	Dr. Ingyinn	(904)393-0889
Attending call room	244-3348	Dr. McDaniel	(469)348-5070
Dr. Spierre (rehab)	633-0926	Dr. Lavilla	(623)202-2214
Chief Pager	498-0153	Dr. Dial:	(904) 343-9244

Attending Neo phone number (best way of reaching the attending on call) (904)627-9090

Room Numbers
Nursery call room 4-7661 (between delivery OR and triage). Uses code 4213.
NICU call room (residents) 4-5116

Schedule
NBN weekday regular shift 7A-5P
NBN weekday admit shift 7A-7P
NBN weekend admit shift 7A-7P
NBN weekday and weekend night shift 7P-7A

At night, the PGY-1 or 3 on call will cover NBN signout, NBN phone calls, NBN admissions, and discharges. NICU seniors are expected to attend all deliveries with the nursery resident after hours, provide oversight to the nursery intern as and when they need it. This includes helping them with sick neonates, procedures if needed, interpreting labs and providing guidance where management decisions are concerned. The nursery resident also bears the responsibility of reviewing any management decisions and test results with their senior counterpart in the NICU. It is the responsibility of the newborn resident to check up on things, not the NICU resident.

First 2 weeks of rotation: Day team – 2 interns navy resident; Night shift – PGY3 resident
Third week: Day team – navy resident + intern A; Night shift – intern B
Fourth week: Day team – Navy resident + intern B; Night shift – intern A
Nursery Weekend nights will be covered by PGY1(already done at least 1 NBN mo)/PGY2/PGY3 on electives.

Continuity clinic: You will attend afternoon clinic once a week during day shift when you are short.

Table Of Contents:

Expectations

- At the start of your shift, write your name & pager number on the white board located on 3N
- Have resuscitation set up for each delivery you are called to.
- Attend all deliveries that are called out and complete a delivery note.
- All admissions must have Admission H&P and Ballard (if first prenatal US is done >26/6 weeks GA) completed in the computer.
- Be familiar with the standing orders.
- If you are called about an infant, evaluate/examine and **document** it in a progress note ***(why you were called, your examination, your findings, and what actions were taken).***
- Fill out a procedure note for any procedures performed on an infant.
- If at any time you are concerned about the infant, ***PLEASE CALL THE ATTENDING!***
- In the nursery, it is the resident's responsibility to call for consults. You MUST call UFID immediately when a child is born with a HIV positive mother during the day and wait until the next morning when child is born after 5pm, just be sure it does not get forgotten!

Day Shift:

- After morning sign out, you must obtain circumcision consents, examine babies and complete progress notes for babies assigned.
- Obtain circumcision consent for babies on the lists you can obtain from 3N. Ideally, consent should be done between 7am – 8am so that procedures are not delayed due to lack of valid consent.
- Circumcisions usually begin between 8:30-9
- Residents must attend
    - Morning report on Tuesdays & Thursdays from 8:00 AM – 8:30 AM
    - Grand Rounds on Wednesdays from 8:00 AM – 9:00 AM
    - Daily noon Conference from 12:00 – 1:00 PM M-F

Night Shift:

- Sign-out should not take more than 30 minutes so please organize your thought as much as possible
- Make a note of all those "to follow" events and highlight them as you go through the list.
- Update L&D Board: This does not only means putting in any new laboring women that may have shown up since it was last updated, but also make checklists for each one for orders you know each baby will need. For example, mom is O+, GBS+, has depression, and history of THC use: make check boxes to order T&C, SRC, CM consult, and UDOA. This also helps you a lot when writing your H&Ps.
- Responsible for all admits (orders, delivery note, H&P). For baby who is born:
    - Before 11pm, → Send Delivery Note and H&P to in-house attending.
    - After 11pm → Send Delivery note to in house attending, H&P goes to the day attending.
- Deliveries and H&Ps: Try and do your delivery notes as soon as you can. You have 2 to get the H&P done while mom and baby bond. **DO NOT** ever interrupt infant/ mother skin to skin in the first golden hour and **DO NOT** ever interrupt an infant's breastfeeding. You can prep your entire H&P minus the physical in the meantime. Do not sign the note until all of baby's measurements and at least one set of vital signs shows up in the note. If you get behind on more than 2 H&Ps and the night doesn't seem like it will slow down, call your senior for help -- that's what they are there for. If it is after 4AM and you are drowning, just do what you can, Patty or Erika will be there soon and can see any new babies born after that.
- Complete discharge summaries for the next day starting at midnight. You **DO NOT** need to see or addend DC summaries on babies staying an extra day for maternal reasons. You **DO** need to see and addend DC summaries for babies staying for their own reasons (phototherapy, weight issues, etc).
- Try to get all discharges done that are scheduled to go home the next day. (Cap admissions and discharges at total of 12 notes)
- If unable to get to all discharges, leave the late discharges to the day team.
- ID consults for **syphilis, HSV with active lesions and HIV.** After 5 PM be sure to ask the day team to call ID during day shift. For details about when to consult ID, refer to the handout in the front of this book.

- During the morning sign out, it is very important to give specific information about the babies to be discharged, especially weight changes if >=8%, 40hr bilirubin >11, if heart murmur at the discharge exam, referred hearing test, and pending labs, etc…

Forms: You can ask the clerks to print them out for you

- UDOA consent (in FormFast)
- Circumcision consent (in FormFast)
- Donor Milk Consent Form (in FormFast)
- Lumbar puncture consent form (in FormFast)

Common Night Call Questions ***(remember to always assess the baby and DOCUMENT!!)***

- The baby has not stooled since birth
  - Remember infants can take up to 48hrs to have first stool
  - If baby is symptomatic ex frequent emesis, order KUB and call the attending on call
  - Rectal stimulation (can use a thermometer, delay it as much as possible for the day team)
  - Glycerin chip *(last resort)*

- The baby has not urinated within 24 hours: no workup or supplement needed if baby is alert and active when awake

- Baby has not urinated between 24-48 hours
  - Supplement PO with donor breast milk for exclusively breast fed
  - Look at **fetal** US to ensure there were no renal abnormalities
  - Consider renal US after you discuss it with your **daytime** attending
  - It is not uncommon for an exclusive breastfeeder not to void for the first 30 hours. (it is almost always a missed urine by the new parents or the nurse changed the diaper and forgot to document)

- The baby has a poor suck
  - Consider syringe feeding
  - Get accucheck if the baby has had poor PO intake
  - Consult OT in the morning

- Infant is not vigorous
  - Stimulate infant
  - If concerned, bring to transition/observation bed, place on monitor, obtain accucheck and continue to assess
  - Ask if mom is on magnesium (look at hypermagnesium page#28)
  - Consider sepsis work up: BCx +/- CBC and call your attending

- Infant spitting up with/after feeds
  - Examine the abdomen
  - Consider accucheck
  - Reflux precaution
  - May need to observe feed; if no concerns, reassure parents
  - If concerned, bring infant to transition/observation bed and monitor feeds.
  - If bilious, call the attending immediately and order a stat KUB in meanwhile

- Infant has increased work of breathing (respiratory distress)
  - Place infant on pulse oximeter and assess oxygenation – if hypoxic, bring to transition/observation bed
  - Start infant on blow by/ nasal cannula and watch oxygenation

- Consider CXR, and sepsis workup
- Please refer to respiratory distress section Page #27for guide

Talking with Mom: Highly important

- You should go speak with the mother to clarify anything in her history that can affect the baby (ie: HIV history if she is HIV positive, etc). But be sure to respect her HIPPA and privacy. You should **always** ask all the visitors out of the room – even the father of the infant (except for one consent only which is for donor milk. Mom's signature can be obtained while visitors are in the room). Never assume the father knows anything (especially things like STD, drugs, etc.). If you nicely state that it is routine to speak with mom in private because you have a few routine questions about her medical history, most families kindly step out of the room. And if a family member doesn't want to leave, most mothers realize what you are there to talk about and they will choose if the family can stay or not. Document what was discussed, especially if any family member stays in the room. Must inform mother of all tests that are performed. For any consents, **only the mother is allowed to sign**, unless parents are married.
- You must explain to the mother what she is consenting for. For DOA consent, you must state:" this test is to check your infant's urine for drugs and if the results are positive for any drugs, DCF MIGHT be contacted" (do not say who will call DCF, whoever makes the call to DCF should always be anonymous)
- Do not push any mother to consent anything.

Moving toward Baby Friendly:

- Baby must go straight to mom's chest after delivery if baby cries immediately at the perineum. However, if baby does not cry immediately at the perineum, take the baby to the warmer and assess/resus. Take the baby to mom's chest immediately as soon as baby recovers and stabilizes.
- Baby should stay on mom's chest for one full hour with no interruption like vitals or physical exam (ie. if baby is placed on mom's chest at 10 min of life for some reason, ex: baby was floppy and required few minutes' stimulation, the one hour will end at one hour 10 minute of life). This is called: the golden hour.
- Every baby will have an admission order for breast feeding regardless of mom's preference. However, if mom requests formula feeding, a formula order **should not** be written until mom is educated about the risk of formula feeding and the numerous benefits of breastfeeding and a note to prove the mother's education should be documented. The best timing is to educate **every** mom during labor or during assessing the baby for admission.
- When a mom of an older baby (1-48 hours old) is concerned that she does not have enough milk supply, please explain to mom that baby's stomach's capacity is the size of a grape (due to maternal amniotic fluid and mucous in the stomach) and baby does not need more than teaspoon of colostrum every feed. If baby is voiding and stooling properly, provide a positive encouragement to mom that her milk supply is enough since baby is voiding and stooling.
- Discuss with mom if she would like to supplement her infant with donor milk and consent her for it.
- If mom insists to proceed with formula, please respect that and order her formula
- Baby must stay in mom's room **at least** 23 hours/ 24 hours per day
- If at the night of discharge, baby was found to have lost 10%or more, leave this issue to the day team to be managed. Also leave updating mom with her baby's weight to the day team as well. (ie. There could simply be an error in the admission's weight, especially when it is out of the proportion) however, since baby's weight **is** done in mom's room, if she has concerns about any weight issues, assess, reassure and address that baby will be reevaluated in the morning.

Who can go to the NBN?

- Patient must be ≥2,000 grams and ≥35 wk to go to NBN

- Please call attending on all <35wk, or <2000g infants for transfer to NICU or Stepdown

- Consider transferring a baby to the **transition/observation bed** located in the stepdown unit if:
  - Require oxygen after c section (likely TTN)
  - Patient condition deteriorating (more details in the next section of common night call questions)
  - Persistent hypoglycemia, if accucheck is ≤30 after the second oral glucose gel.
  - If an experienced NBN nurse is concerned about an infant's condition

- There is no need to write any transfer order or to change the nursery admission orders to transfer a baby to the transition/observation bed. A baby in the transition/ observation bed is a nursery baby. Unless a decision was made to be transferred to NICU, this given baby is a nursery baby.

- Update the neonatologist that a given baby is transferred to the transition/observation bed and for what reason.

- Baby's length of stay in the transition/observation bed should not exceed 4 hours. Thus, at 4 hours baby should go back to mom if stabilized and improved or go to NICU if hasn't stabilized and improved.

- Room 314 in 3N is a room for borders babies, ex, if a baby is detained by DCF or a baby that is placed for adoption and biological mom does not want her baby to stay with her in the same room.

Epic Notes Templates:

- .NBN (choose from history&physical, delivery note, progress note, discharge summary, and discharge instructions)
- discharge addendum you can find it at .UFH addendum
- Prior to admitting babies, complete relevant **problems list**
- **SRC calculation: .NSRC**

Every new baby will need:

1. Problem List
2. Admission & Orders
3. Delivery Note* (only if we were called to the delivery)
4. H&P

Problem List:

- Click on *Problem List.* And add as many problems as you can that pertain to baby.
- Every newborn has to have one of the problems below

Liveborn infant by cesarean delivery	Z38.01
Liveborn infant by vaginal delivery	Z38.00

- Addition pertinent examples of problems if exist:
  - Breech presentation
  - SGA/LGA
  - Maternal GBS exposure
  - Tobacco use
  - Inadequate prenatal care
  - Hydrocele
  - Mongolian spot
  - Lanugo
- You can always add on to the problem list if anything new comes up during baby's hospital stay.

Admit & Newborn Orders:

- Click on *ADT Navigator*, then click on *Med Rec-Sign &…*
  - **Service:** Neonatology

- **Admitting Diagnosis:** term/preterm infant
- **Level of Care:** Med Surg
- **Estimated Length of Stay:** 2 midnights or longer
- **Post Discharge Plan:** Discharge to Home
- **Admitting Provider & Update Attending to:** in house attending
- **Desired Bed Placement:** JX 3N OBSTETRICS NUR

- Select *Ped Newborn Nursery Admission Orders*. Select all your orders carefully.
  - **Vital Signs:**
    - *Pulse oximetry* change *** to 24 hours

  - **Patient acuity**
    - Level I for all term healthy babies
    - Level II Admission Status(Billing Level) for
      - Premature <37 wks
      - SGA
      - Phototherapy
      - Hypoglycemia Patients requiring antibiotics
      - Any infant requiring more than routine care
      - HIV

  - **Nutrition:**
    - PO Breast Feeding ***(every baby starts with breastfeeding unless there is a contraindication)***
    - PO Formula Feeding: Type of formula – similac 20 kcal, or neosure 22kcal *(if <2500g or <36 GA)*

  - **Laboratory:**
    - Mom's blood type O and/or Rh neg check off → Cord blood evaluation
    - POCT bili: calculate 40 hour bili, fill in date & time; click yes
    - **Urine Drugs of Abuse:** don't check it off unless mom has signed the consent form for it.

  - **Consults:**
    - Case Management: specify why
    - UF Peds ID: *make sure to call before 5 PM, after 5 PM tell day team at sign out to call the ID service*

- Click next until *Summary* tab. Then click *sign & hold*

Discharge Orders:

- Go to flowsheet-> Make sure infant is voiding, stooling, eating appropriately and has <10% weight loss
  ADT navigator
  - Problem list. Update and mark as reviewed
  - Reason: stable
  - Details. Click none of the above and add to text box **.prob** to insert problem list
  - ->Click NO for "Did patient have any of following- Stroke, CHF, CAP etc"?
  - ->Uncheck Daily weights
  - ->Check Regular diet
  - ->Notify physician: delete adult info. Insert into text box **.nbndischarge**
  - ->Uncheck stroke and warfarin education
  - ->Follow up- insert in text box the patient's follow up PCP, date and time
  - ->Sign
- Go to Discharge summary note that was written by night resident
- Make the night shift resident's signature, date and time editable so it does not refresh
- After making night shift resident signature editable, click refresh
- Start at top of note and make sure everything is updated/correct
- Make sure updated weight is after midnight

- Update pending studies

Delivery Notes:

- Click on Notes, then click New note
  - Type: Progress Note
  - Check off Cosign Required and choose in house attending
- **.nbndeliverynote**
  - Under **Additional Comments:** explain the events at birth, why you assigned the apgars, the details of resus, etc.
- Review the delivery information, sometimes it doesn't completely auto-populate, has the incorrect ROM time, failed to document use of vacuum, resuscitation, etc.
  - If there is a discrepancy, then call the L&D nurse and ask them to update the delivery chart.

H&P

- Click on Notes, then click New note
  - **Type:** H&P
  - Check off Cosign Required and choose attending*

** Night shift: Before 11PM send to in house attending, after 11PM send to day attending.*

- Note template to use: **.nbnhistoryandphysicaljx**
  - Press F2 through the note
  - Admission Exam:
    - Make sure to **bold physical exam findings.** For example:
      - Head: open fontanelles, **overriding sutures, caput**
      - Skin: no edema, rash, **Mongolian spot, milia**
    - If red reflex was not done, document that it was deferred.
    - ALL boys, should have documented:
      - Penile shaft length in physical exam
      - If infant is ok for circumcision (must be ≥2 cm)
  - Under the Plan**:**
    - Include blood type work up, SGA/LGA/infant of diabetic mother/preterm work up, GBS work up, etc.

- **Always proofread your note, to make sure everything is documented correctly. i.e. measurement and weight.**

Discharge summary Note:

- Click on Notes, then click New note
  - **Type:** Discharge Summary
  - **Date of Service:** make sure to **change date for after midnight**
  - Check off **Cosign Required** – select the day time attending (it's on the calendar)

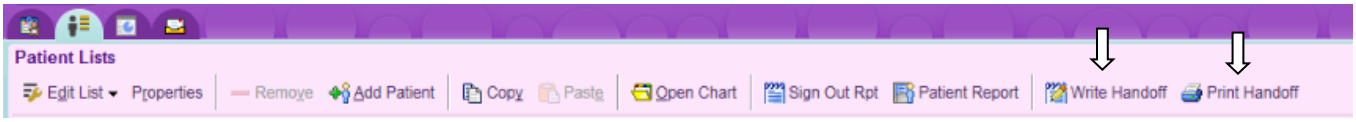
- Note template to use: **.nbndischargesummaryjx**
  - Go thru using F2 and making sure all information is accurate and filled in. The note will not always auto populate information.
  - **Prenatal care, pregnancy complications,** etc. look at the delivery note under progress notes tab.
  - **Admission physical exam:** look at the H&P note. Make sure to change the red reflex if it was deferred.

- **Nutrition** is on the sign out sheet
- **Physical exam findings**: make sure you bold any findings not in the template, document head circumference *(if HC < 10% on fenton growth chart, mention in hospital course)*
- **Anticipatory Guidance:** remove whatever doesn't pertain to patient
- **Problem list:** there should be at least 2 problems – delivery method and term age of baby; update the problem list and refresh the note
- **Hospital Course:** you will have to go thru the H&P and progress notes. Make sure to include a summary of everything that happened:
  - Hypoglycemia protocol
  - SGA/LGA/preterm/infant of DM
  - GBS exposure/treatment/ROM
  - Resuscitation
  - Social work consultation
  - Phototherapy, etc.
- **F/U pediatrician should be in sign out sheet (during weekends if no appointment date and time available, you must have at least a pediatrician's name)**
- **Baby's 24 hour SpO2** should auto populate, if not Flowsheets →Vital Signs complex. Make sure to document which extremities too.
- **Baby's 40 hour bili** can be found in the results review tab.
- **Studies pending.** If any labs are pending such as bili, urine CMV, blood cx, etc, document here.
- **Special Follow Up needed.** It may be none, or it may be a follow up ultrasound, ID consult etc.

- Discharge addendum note (if baby is staying in the hospital after the day of discharge for a reason related to the baby (phototherapy, poor feeding, or abx) .ufhnewborndischargeaddendum

SIGN OUT SHEET

- Once you log in to Epic, choose Department: JX V Neonatology.
- Go to your nursery patient list.
  - If you don't have it set up yet, go to System List > Units JX > 3N obstetrics NUR
- To access the "tree". Mouse over a patient name and click once, above your patient list will appear the following tabs.



- Click on Write Handoff. A side window will open up. Type in the service: Neonatology.
- You will have all the sign out sheet information pop up, there are 7 boxes:

1. **Pt. Info:**
   - Under Dispo – D/C, Note, Admit with date
   - Refresh prior to sign out to update the room

2. **Maternal Notes:**
   - PNC: go to Summary > Maternal Data > Link to Mother's Chart > Summary > Prenatal Care
   - < 3 – consult case management for inadequate PNC

3. **Maternal Labs:**
   - Most found under Summary > Maternal Data; or go to mom's chart
   - GBS: document if treated, how many doses and if adequate (> 4 hrs prior to delivery); go to mom's chart MAR
     - Check the protocol

4. **Delivery Info:**
   - If ped's was called, document why? Meconium, breech, shoulder dystocia, etc.

5. **Pt Notes:**
    - AGA/SGA/LGA – use Fenton growth chart
    - Earliest US: go to mom's chart, then prenatal care notes or mom's H&P
    - Physical Exam: only document unique findings

6. **To Do:**
    - Press F2 and add all the things baby will need – bili, voiding, stool, case management, hip ultrasound etc.
    - Update the To Do by checking off everything that gets completed.

7. **Labs & Weight**
    - Cord pH & BE, Blood type, Wt. change

- At the top of each box is a mini toolbar that has a refresh button. If it doesn't appear it will be under the More tab. Refresh the boxes when updating the tree, to auto populate labs. **Beware,** it will not always auto populate, you'll just add in what's missing.
- **YOU MAY USE ABBREVIATION IN THE HANDOFF LIST BUT NONE IN THE EPIC NOTES**

Print Handoff

- First, organize your patient list in alphabetical order. Then mouse over a patient name, click once, the toolbar will appear above your patient list. Click Print Handoff. The printer is JF-3LND-P002.

GESTATIONAL AGE

- LGA
    - Defined as > 90th percentile for weight of gestational age (see growth chart in epic Fenton boy or girl).
    - Level II status for admission

- SGA
    - Defined as < 10th percentile for weight of gestational age (see growth chart in epic Fenton boy or girl).
    - Newborn on exclusive breastfeed **should** continue breast feeding, though supplementation with donor breast milk is recommended if baby has persistent hypoglycemia(only if mom wants to continue exclusive breast feeding) otherwise formula supplementation is ok only if persistent hypoglycemia and mom is not interested of exclusive breastfeeding (always document why the baby is on formula)
    - Breast feeding is the best form of nutrition
    - Level II Status for admission
    - If baby is on formula feed, start Neosure if <2500 grams, otherwise regular formula
    - Car Seat Evaluation (CSE) prior to discharge if <2500 grams
    - If you have a reason for SGA (ex. tobacco use or HTN) there is no need for a workup.
    - If no apparent reason for SGA *consider* a workup
        - Urine CMV
        - Urine DOA

- Preterm <37 weeks
    - Coded as Level II Status for admission

- Breastfeeding is the best form of nutrition
- Follow Hypoglycemia protocol
- Follow the donor milk path (as of the SGA status)
- If baby is on formula feed, start Neosure if <2500 grams, or <36 GA. Otherwise regular formula
- Car Seat Evaluation (CSE) prior to discharge home

- Term 37-42 weeks

- Post term >42 weeks

PHYSICAL EXAM

- Prior to the rotation please review the Stanford University newborn exam photo gallery you find online.
- Add your physical exam findings to the problem list.

MATERNAL INFECTIOUS DISEASE

COVID 19 and other URI viruses:

- Strictly follow the Infection Control signs on the door regarding isolation.
- No reasons to test the infants for respiratory viruses.

Tuberculosis

- PPD positive
  - Negative CXR
    - Ok to have the infant room-in with mother
  - Positive CXR
    - Isolate the baby from the mother.
    - Discuss CXR findings with OB/mother to determine if she's been treated, when and if adequately treated
    - Discuss with OB to begin treatment
    - UFID consult
- Detailed and thorough history needed from mother regarding PPD status
- Family contacts must be tested (or have proof of testing) prior to infant discharge

Flu

- If mom has influenza suspected or confirmed, keep the baby with his/her mother but mom has to wear a facemask all the time and perform hand washing every time she handles her baby.
- Mom and baby are placed on droplets isolation
- If mom is very sick (high fever) and she can't take care of her baby, baby will be separated from mom as soon as he/she is born and will be taken care of in room 314 until mom improves or gets discharged.
- Once baby gets back to mom's room, he/she can't leave the room until discharge and all procedures including circumcisions should be done inside the mom's room

HIV

Many mothers will have an HIV test early in pregnancy. But all mothers must have a 3rd trimester HIV. If there is no 3rd trimester test done, call the Ob resident to have it ordered.

- If an infant is born to an **HIV Positive Mother (**Use HIV ORDER SET IN EPIC)

Labs to do at birth

- Use HIV ORDER SET
- CBC with differential
- Urine CMV
- HIV 1 RNA PCR **qualitative**
- Be sure to check mother's Hep C status

Medication

- Zidovudine should be started immediately (within 6 hours after birth) (dosage from Pediatric Dosage Handbook)
  - ≥35 weeks
    - 4 mg/kg PO q12 hrs (to be taken for 4-6 weeks after discharge)
- Patient **MUST** have filled prescription **IN HAND** at time of discharge

Nutrition

- **ALL** infants **MUST** be formula fed (in the USA). New guidelines are in place to allow some mothers with HIV (when undetected viral load) to breastfeed their infants, however, **ONLY** per ID recommendations.
- If mom's medical records does not specify that she is allowed to breastfeed per ID and MFM recommendations, please don't allow breastfeeding until ID clears mom to breastfeed her infant.

Consults

- Consult ID between 8a-5p. If an infant is born after 5 pm and the mother has not been treated for HIV (new diagnosis or non-compliant), call your attending on-call to check if additional treatment is indicated for the infant.

Hepatitis B

- If maternal status is positive, infant needs to receive HBV and HBIg **prior to discharge**
  - Must give HBV within 12hrs of delivery (write a nursing communication order)
  - HBIg should be given soon after delivery (Although term babies have up to 1week to receive it)
- No UF Peds ID consult is needed

Hepatitis C

- Infant born to a Hep C positive mom requires no testing at birth
- UF Peds ID consult
  - HCV PCR check at **2 months of life** when HCV Ab+ with positive viral load detected during pregnancy and when HIV-HCV coinfected)
  - No need to check HCV PCR when viral load undetected during pregnancy even if AB+
  - Provide parents with the Hep C handout which is kept inside the book in the front.

Rubella

- Non-Immune - no workup. Evaluate for signs/symptoms of congenital rubella syndrome.
  - Microcephaly, cataracts, deafness, 'blueberry' rash, PDA, seizure, hepatosplenomegaly

Chlamydia

- Inadequately treated
  - No work up.
  - Inform/ educate parents what symptoms to watch for:
    - Staccato cough/ respiratory symptoms for 2-19 weeks,
    - Conjunctivitis usually at DOL 7-14
    - Document your education

Gonorrhea

- Infant can have conjunctivitis in first week of life (DOL3-7)
- If mom's GC test is positive, check to see if she had a test of cure (TOC)
  - If TOC negative – no further workup
  - If TOC not done/undetermined/positive
    - Rocephin 125mg IV/IM x 1 dose
    - Preterm/LBW Infant: 50mg/kg/dose IV/IM x 1 (maximum of 125mg/dose)

Syphilis (CDC Guidelines)

- Signs: Saddle nose, rash on palms, soles, and face, FTT. (likely, appear later than newborn period)

- History
  - Obtain a clear and concise maternal history including
    - Place of prior treatment for syphilis
    - Number of PCN injections received prior to delivery, number of weeks between injections.
    - Ask and document maternal TPA results and RPR titers history and treatment.

  - Adequate Treatment:
    - Mom is adequately treated if she received 3 doses of PCN on a weekly basis (7-10 days interval), greater than 30 days before delivery **PLUS** demonstrates a 4-fold drop in titers **AND** baby's titers cannot be higher than Mom's. (equal or less titers are okay)
    - Mom's TPA and titers may always be positive (ie: 1:1). If her TPA and titers are positive but she has documented adequate treatment during pregnancy (if treated prior to pregnancy, collect TPA on the baby) and a 4 fold drop in titers, you can simply check the baby's TPA. If baby's TPA is negative or if TPA is positive but RPR titers equals or less than mom's F/U baby's RPR at age 6 weeks.
    - Consider TPPA which is the confirmatory test for TPA in case you have suspicion that TPA is false positive.
    - If ID recommends one dose of IM Penicillin G, the order is for Bicillin 50,000 U/kg once. PLEASE DON'T ORDER THIS DOSE WITHOUT ID APPROVAL.

  - Inadequate treatment:
    - Obtain the following labs: (check the order tab in the newborn nursery admission order set)
      - TPA, RPR and CBC
      - CSF for: VDRL (first priority), if enough sample, order cell count, culture, protein and glucose
      - Long bone radiographs at 8 days of life
      - Liver Function Test
    - Start Penicillin G (50,000 U/kg/dose IV q 12hrs for 7 days then Q8hr for 3 more days)
    - Consult UF Peds Infectious Diseases (have to repeat RPR 6 weeks of life)

CMV: (infant's urine results positive for CMV):

- Order head US
- CBC and CMP
- Make sure hearing screen is done
- Consult UF Peds ID
- Refer for an outpatient ophthalmology exam.

Genital Herpes: (see algorithm page 17-18)

<u>Questions to ask:</u>

- You must go speak with the mother and clarify her herpes history (especially if it isn't thoroughly documented in the Ob notes).
- Are there any active lesions at the time of delivery?

- Has the mother been treated for HSV during pregnancy? (i.e. on Acyclovir starting at 35 weeks gestation)
- Any outbreaks during pregnancy?

  - Is this a primary or secondary outbreak? *(important to note regarding transmission)*
  - When was last outbreak prior to delivery?
  - If the history is unclear, ask OB to obtain maternal serum HSV IGG/IGM to differentiate primary vs secondary lesion

Delivery (either vaginal or c-section w/ or w/o ROM) with **Active Lesions at the time of delivery. (However if the active lesion was within 4 weeks from the delivery time request OB to obtain an HSV PCR DNA assay and culture from cervical swab and follow the algorithm below if any further workup is needed).**

- Note that c-section delivery reduces but **DOES NOT** eliminate the risk of neonatal HSV disease
- Ensure that OB sends the following labs in mother:
  - Swab lesion and send HSV PCR and assay, along with HSV serology
- When an individual with no HSV-1 or HSV-2 antibody acquires either virus in the genital tract, a first-episode primary infection results.
- If a person with preexisting HSV-1 antibody acquires HSV-2 genital infection (or vice versa), a first-episode nonprimary infection ensues.
- Viral reactivation from latency and subsequent antegrade translocation of virus back to skin and mucosal surfaces produces a recurrent (secondary) infection.
- Asymptomatic Infant (2% chance of transmission to infant of mothers with secondary lesions, 57% of mothers with primary lesions, and 25% of infants delivered to women with first-episode nonprimary infection)
  a. Follow the algorithm carefully
  b. Mothers with primary infection, consult UFID (call ID 8am-5pm)
  c. Monitor the baby closely
  d. Labs to do on the baby at 24 hours of life: (in **secondary** lesion)
     1- **Surface PCR** *(*NOTE: *Ask PCA (tech) to obtain culture tubes/media and plastic swabs from lab. Do not use wooden spatula to collect samples, use ONLY the plastic swab provided in the package)*. **MD has to do it not RN. Use the same swab to swab conjunctiva, mouth, nasopharynx and rectum, also, scalp electrode if present.** this test is ordered as HSV PCR source: surface

     2- HSV PCR in serum: it is ordered as : HSV PCR source: serum.

If patient has any positive surface PCR or serum HSV PCR do the following:

ii. Obtain CSF for cell count, chemistries, and HSV PCR source: CSF
iii. Send Serum ALT (positive if more than twice upper limits of normal)
iv. Consult UFID (call ID 8am to 5pm)
v. If baby is symptomatic (baby with active lesions) or elevated LFT or positive CSF HSV PCR), call NICU attending and send baby to NICU to start IV acyclovir, for a duration per ID recommendation.
vi. If baby is asymptomatic, treat the baby with IV Acyclovir until mom is discharged, then transfer the baby to NICU to continue IV Acyclovir at 60 mg/kg/day divided in 3 doses for duration decided per UFID

e. Labs to do on the baby at 24 hours of life: (in primary lesion)
   1. Surface PCR (as explained previously)
   2. HSV PCR in serum (as explained previously)
   3. CSF for HSV PCR, chemistries and cell count (done in our lab)
   4. LFT
   5. Start IV Acyclovir per the algorithm below

Delivery with history of Primary or Secondary HSV but no active lesions at the time of birth

- No work up necessary

Whether it is primary or secondary HSV, if no active lesion within the last 4 weeks prior to delivery: no workup needed on the baby. Proceed to the 2 tables below only if mom has an active HSV lesion in the last 4 weeks prior to delivery.

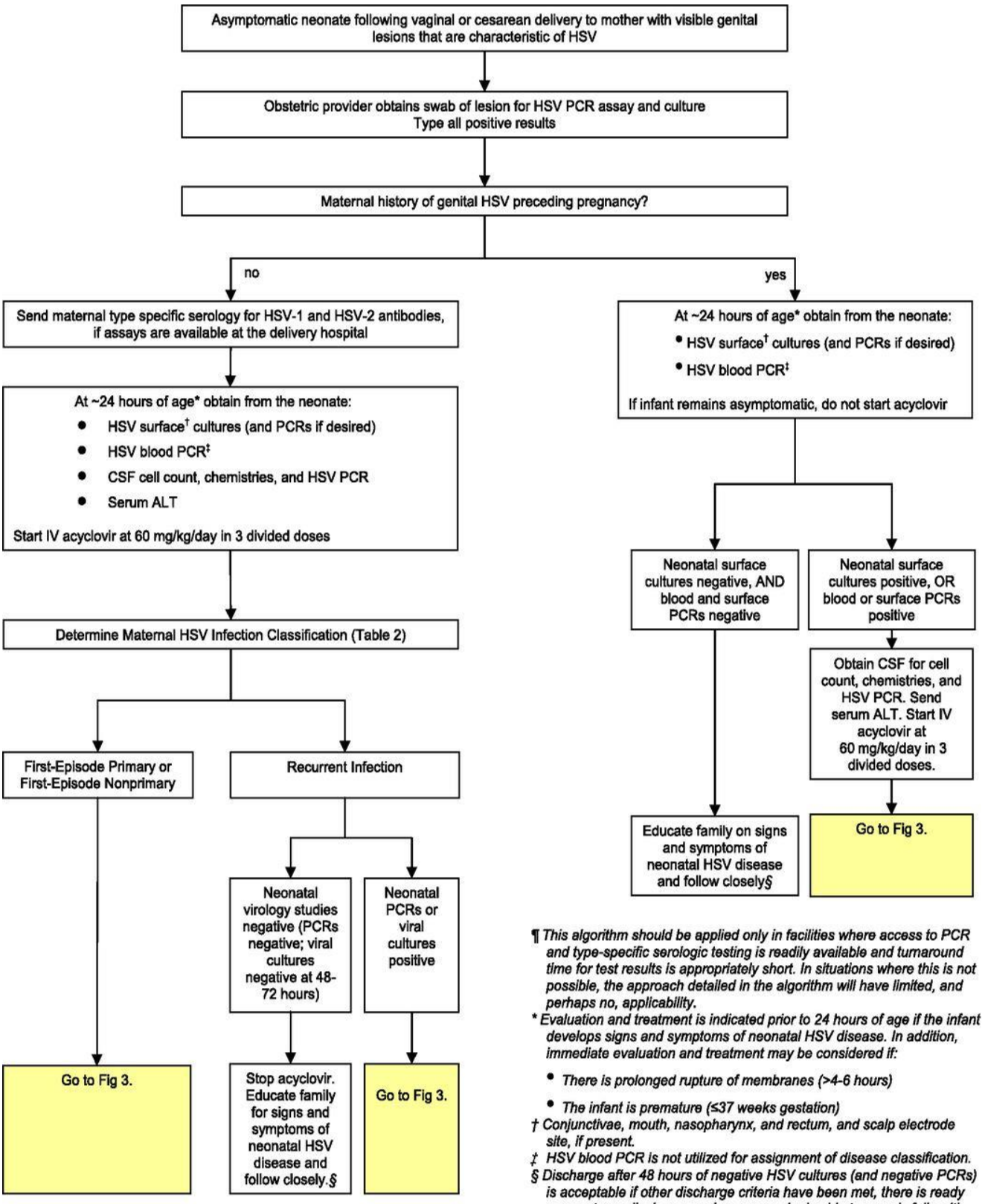
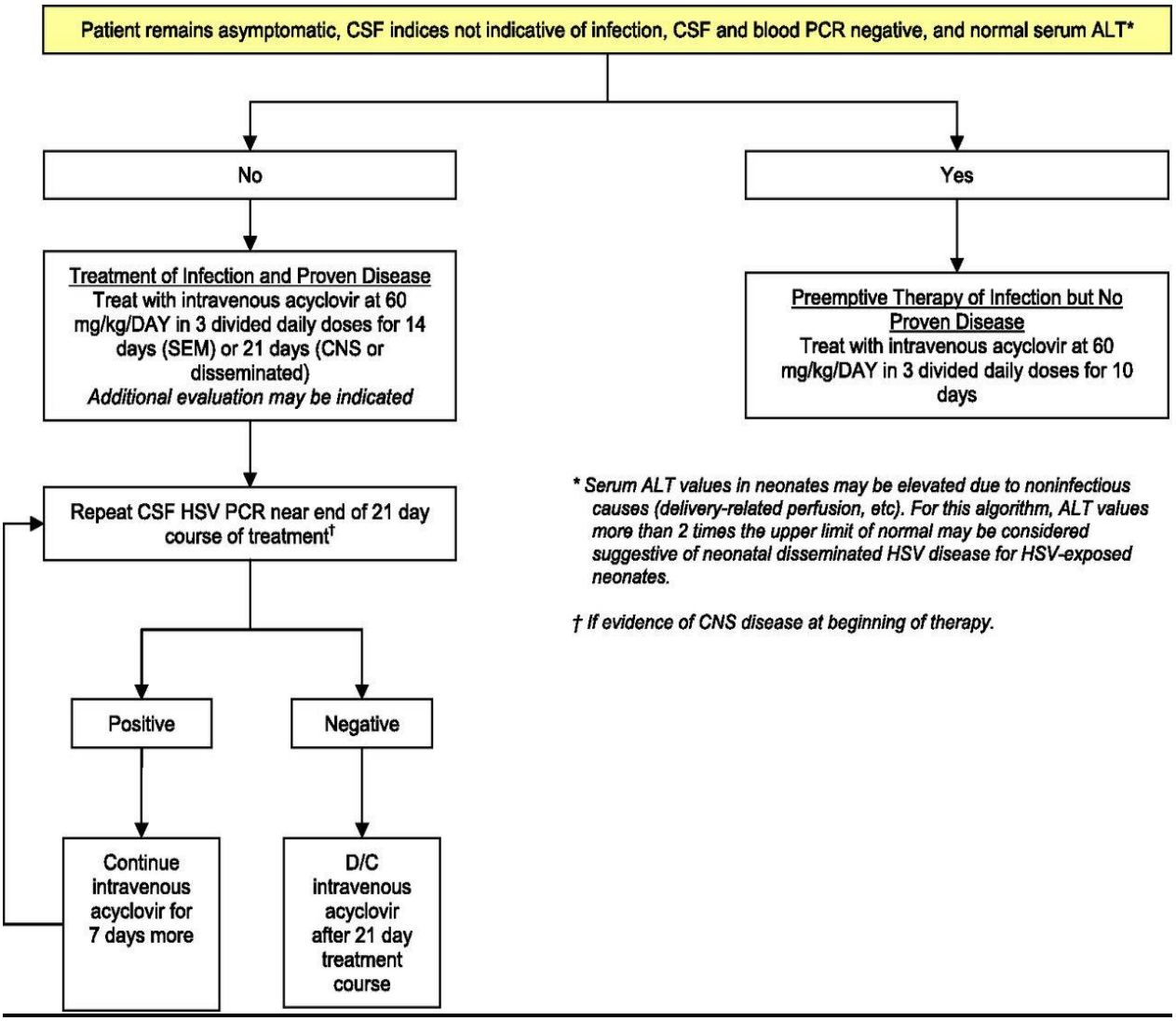


Figure 3 next page

Figure 3


Patient remains asymptomatic, CSF indices not indicative of infection, CSF and blood PCR negative, and normal serum ALT*
No
Yes
Treatment of Infection and Proven Disease
Treat with intravenous acyclovir at 60 mg/kg/DAY in 3 divided daily doses for 14 days (SEM) or 21 days (CNS or disseminated)
Additional evaluation may be indicated
Preemptive Therapy of Infection but No Proven Disease
Treat with intravenous acyclovir at 60 mg/kg/DAY in 3 divided daily doses for 10 days
Repeat CSF HSV PCR near end of 21 day course of treatment†
Positive
Negative
Continue intravenous acyclovir for 7 days more
D/C intravenous acyclovir after 21 day treatment course
* Serum ALT values in neonates may be elevated due to noninfectious causes (delivery-related perfusion, etc). For this algorithm, ALT values more than 2 times the upper limit of normal may be considered suggestive of neonatal disseminated HSV disease for HSV-exposed neonates.
† If evidence of CNS disease at beginning of therapy.

Sepsis and GBS please refer to sepsis guidelines on following page

Sepsis Risk Calculator (SRC)

When to use the Sepsis Risk Calculator

Document your calculations in the patient note and "the tree". Use the smart text: .NSRC

When using the Sepsis Risk Calculator (SRC) follow the recommendation for workup if needed. USE the CDC incident for sepsis (0.5/1000 live births). For Classification of Infant's Clinical Presentation per SRC, refer to the next page (20)

- Any preterm infant (< 37 weeks)
- Prolonged rupture of membranes (> 18 hours)
- GBS unknown or Positive
- Maternal Chorioamnionitis
- Any other situation that increases the risk for neonatal sepsis

SRC does not need to be applied in the following:

Situations if infant appears healthy: *see below*

a) If mother is positive GBS with a scheduled C/Section (NO ROM and NO Labor) regardless of maternal GBS status
b) Maternal UTI → untreated or no TOC

Early Signs of Sepsis

- Temperature instability
- Respiratory distress/apnea
- Bradycardia/Tachycardia
- Poor feeding
- Hypoglycemia
- Vomiting
- Abdominal distention
- Skin mottling

Late Signs *(if seen, call attending immediately)*

- Conjugated hyperbilirubinemia
- Hepatosplenomegaly
- Petechiae
- Hypotension
- Seizures

Medications: (check the order tab in the newborn nursery admission order set)

- Gentamicin 4mg/kg/dose IV q 24hr
  - If Gentamicin is on shortage, you can use Tobramycin at 4mg/kg/dose IV q24
- Ampicillin 50mg/kg/dose IVq 8hr

*Remember to **ALWAYS** draw Blood culture prior to starting antibiotics*

SRC Classification:

Classification of Infant's Clinical Presentation

Clinical Exam	Description
Clinical Illness	1. Persistent need for NCPAP / HFNC / mechanical ventilation (outside of the delivery room) 2. Hemodynamic instability requiring vasoactive drugs 3. Neonatal encephalopathy /Perinatal depression ▪ Seizure ▪ Apgar Score @ 5 minutes < 5 4. Need for supplemental O_2 ≥ 2 hours to maintain oxygen saturations > 90% (outside of the delivery room)
Equivocal	1. Persistent physiologic abnormality ≥ 4 hrs ▪ Tachycardia (HR ≥ 160) ▪ Tachypnea (RR ≥ 60) ▪ Temperature instability (≥ 100.4˚F or < 97.5˚F) ▪ Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O_2 2. Two or more physiologic abnormalities lasting for ≥ 2 hrs ▪ Tachycardia (HR ≥ 160) ▪ Tachypnea (RR ≥ 60) ▪ Temperature instability (≥ 100.4˚F or < 97.5˚F) ▪ Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O_2 Note: abnormality can be intermittent
Well Appearing	No persistent physiologic abnormalities

DRUGS: See appendix F page 33 for list of drugs and their detection time in urine samples.

- Supportive care as indicated by the type of drug involved.
- Some tests can be false positives or some mother's may be on one of these drugs as a prescription
  - (for example, ambien can cause positive benzo screen, ADHD meds can cause positive methamphetamine screen, Fioricet can cause false positive barbiturate screen, Zantac can cause false positive amphetamine screen, etc) so you must take a detailed history.
- **Unless mom has positive UDOA for an illegal drugs on admission or within one month prior to delivery, don't prevent mom from breast feeding unless a new UDOA obtained on mom and or baby and returns positive for an illegal drugs.**

Cocaine

- Cocaine can show up in mother's urine for 2-5 days after use.
- Children born to mothers with cocaine can come out with symptoms (irritability, poor feeding, etc) due to the acute effects of the drug (but you don't see the typical prolonged withdrawal seen with narcotics
- They can have low birth weight and microcephaly.
- Do NOT allow breastfeeding
- Consult social services-DCF usually gets involved
- Obtain urine drug screen on infant *(have consent signed first)*

SSRI's

- Carefully document mother's chronic use or use at all during the pregnancy, and reason for using
- Get Social Services consult

Marijuana

- Obtain urine drug screen on infant *(have consent signed first)*
- Get social Services consult
- Mother may breastfeed, however she has to be counseled to quit THC use and counseling should be documented.

Methadone

- Carefully document mother's chronic use and reason for using along with the dosing.
- Obtain Social Service consult and ensure patient is seen by social worker prior to discharge
- Obtain urine drug screen on newborn *(have consent signed first)*
- Baby is allowed to breast feed
- Baby will be transferred to stepdown unit for at least 7 days observations and NAS(Neonatal Abstinence Scoring) when mom is discharged. (exact duration depends on baby's requirement for Morphine if severe withdrawal symptoms)
- As soon as possible, inform mom that her baby is going to have a prolong stay due to her Methadone use. Because it is very common that mom was never informed of it or she denies that she was informed.. When mom is informed, document it.

Suboxone:

- Same as Methdone except that you need to order Buprenorphine test separately when you order DOA.

When to check UDOA

- Maternal drug use
- Inadequate prenatal care (PNC <3 visits)
- As part of workup for SGA of unknown etiology
- Mom has to consent for UDOA on their babies. If mom refuses, you only obtain UDOA against mom's refusal if the baby is having multiple withdrawal symptoms (ex. Jittery, watery diarrhea, poor feeding, fussy, hyperthermia)
- **Don't order UDOA unless you obtain consent from mom**

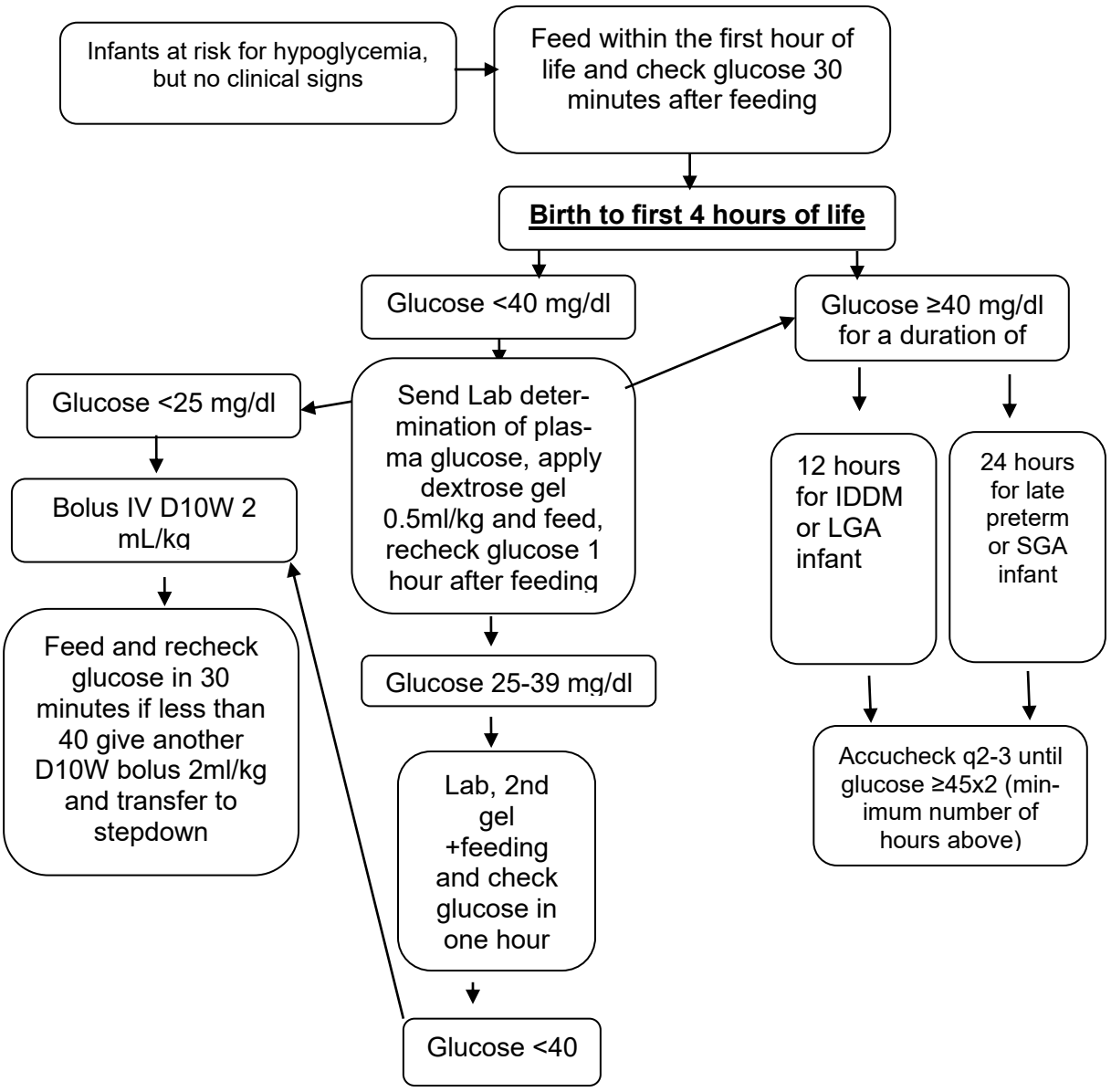
Neonatal Glucose Monitoring Protocol

1. Signs and symptoms of hypoglycemia: irritability, tremors, jitteriness, exaggerated Moro reflex, lethargy, hypotonia, tachypnea, cyanosis poor feeding, apnea, eye rolling, seizures, weak/poor cry. Some infants may have hypoglycemia and NO signs.
2. Categories of infants who are at risk for neonatal hypoglycemia and merit careful glucose screening include:
    a. LGA (large for gestational age)
    b. SGA (small for gestational age)
    c. Preterm Infant (35 0/7 to 36 6/7)
    d. Infants born to mothers with gestational or insulin dependent diabetes
    e. Sepsis
    f. Persistent hypothermia
    g. Other infants (physician order)
3. Consent mom who is willing to exclusively breast feed her baby, for donor milk immediately after you identify that the baby is at risk for hypoglycemia, for supplementation in case of hypoglycemia episodes.
4. If possible, it would be the best to consent moms who are actively in labor if they have diabetes or premature labor for donor milk, prior to delivery.
5. Laboratory determinations of plasma glucose are more accurate than bedside tests that use reagent strip glucose monitors. A confirmatory serum glucose test should be sent for any hypoglycemia results per the table below. However, by the time serum glucose value returns from the lab, baby should've been already managed for that particular hypoglycemia episode and the serum glucose value would be just to confirm.
6. If serum glucose value results come back normal, restart the protocol over because serum glucose is more accurate than accucheck.
7. Always remember to document everything that has happened
8. Mothers with no PNC or no GTT done, ask OB or mom herself about PMH and check her A1C or accucheck done during this hospitalization. If no PMH of diabetes plus/or normal A1C/ accucheck, in addition to asymptomatic baby, no hypoglycemia protocol will be needed for the baby. (just because mom does not have adequate PNC, does not place the baby at risk for hypoglycemia, F/U clinically)
9. If toward the end of the protocol (12 hours or 24 hours) a baby had glucose less than 45, follow the algorithm and recheck accucheck per the protocol. Then you need to have 3 accucheck numbers >= 45 even if you extend the protocol more 12 or 24 hours. YOU DO NOT NEED TO RESTART THE PROTOCOL ALL OVER AFTER AN INTERVENTION, MEANING, DON'T PUT THE BABY IN ANOTHER WHOLE12 OR 24 HOURS.
10. If baby is **older than 24 HOL** and still on the protocol for the reason mentioned in bullet #9, the normal BG level is ≥50 and baby will need 3x normal values of Accucheck **≥50.**
11. Baby might have up to 4 **total** oral gel before you proceed to IV D10 bolus. (if baby requires a second IV D10 bolus, baby should be transferred to the NICU ASAP)
12. If baby has a normal glucose after a low requiring an intervention, start back at the top of the protocol for intervention and continue to count the total number of gels/ boluses (#11)
13. Please refer to algorithm in the next 2 pages

If baby is symptomatic and glucose <40 mg/dl, give IV D10W

At any time if Accucheck is less than 25, give IV D10 regardless of the symptoms

While waiting for the IV to be place you should give infant glucose gel and/or feed

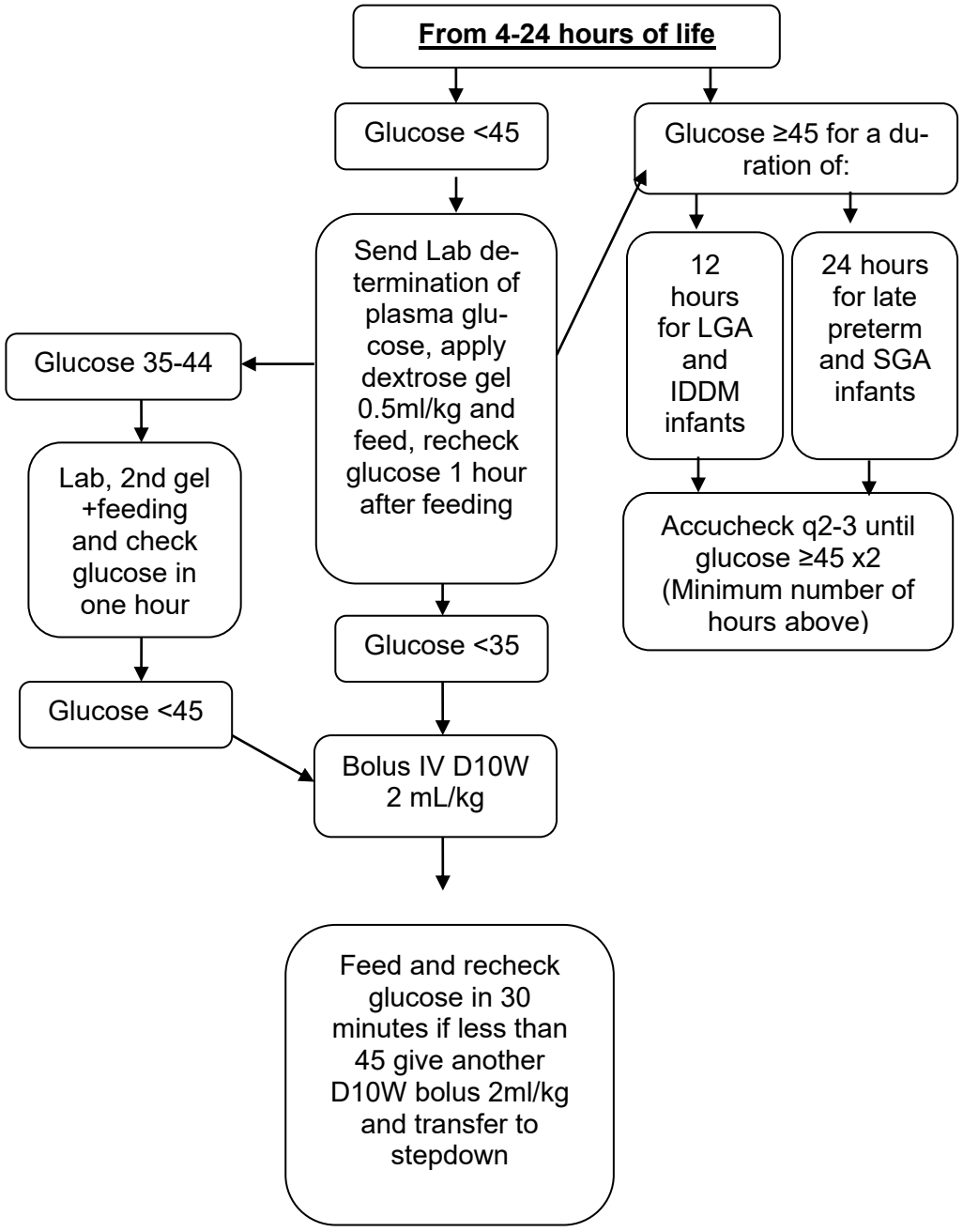


Symptoms of hypoglycemia include: Irritability, tremors, jitteriness, exaggerated Moro reflex, high-pitched cry, seizure, floppiness, cyanosis, apnea, and poor feeding

If baby is symptomatic and glucose <40 mg/dl, give IV D10W

At any time if Accucheck is less than 25, give IV D10 regardless of the symptoms

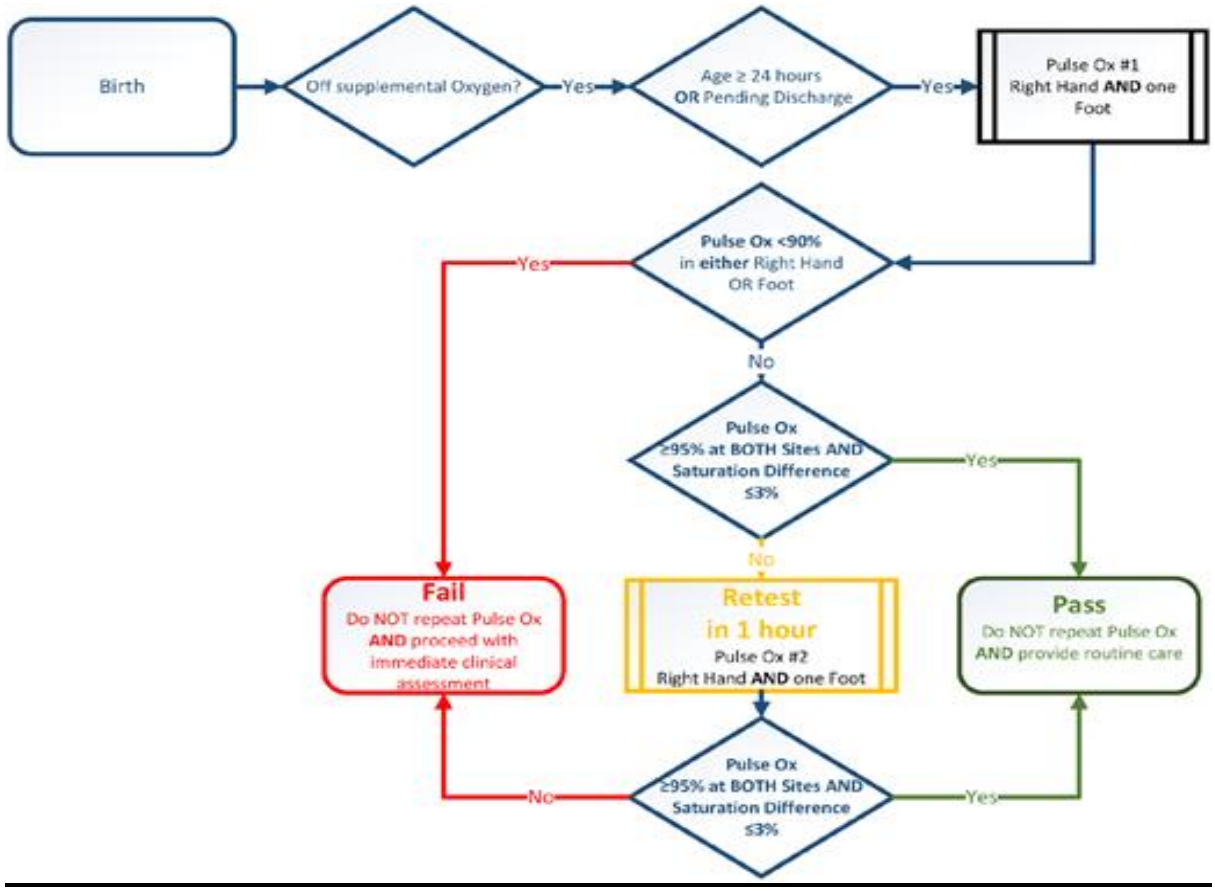
While waiting for the IV to be place you should give infant glucose gel and/or feed



Symptoms of hypoglycemia include: Irritability, tremors, jitteriness, exaggerated Moro reflex, high-pitched cry, seizure, floppiness, cyanosis, apnea, and poor feeding

Pulse Oximetry Screening to Detect Congenital Heart Defects
Screening ≥ 24 hours of Birth

(Screen must be 5-10min in length)
O2 sat probe must be placed on preductal (RUE) and postductal (RLE, LLE)



When fail
Call Attending
Obtain ECHO
Call cardiologist for reading
8-5pm
(633-4110)
If fail after 5pm, refer to neo

Always document in pulse oximetry value and location in DC summary and on sign out sheet

Mon-Fri ECHO can be done and read same day
Sat/Sun echo can be done same day, call the cardiologist between 8-11am to notify him/her that there is an echo to be read.
Call clerk on 3N to page the echo tech

When ordering the ECHO please be very specific as to the reason for the ECHO i.e newborn with oxygen saturation <95% at 24 hours of life, concern for congenital heart disease. For any SaO2 <90 immediately notify the attending for possible congenital heart disease

How to interpret an O2 sat at 24 hours
Immediate failure if any extremity have <90%
Retest in one hour (once only) if both extremities have less than 95% O2 sat or if there is >3% difference between pre and post duct O2 sat.
Pass if both: at least one extremity spo2 ≥95% **and** the difference between RUE and lower extremity ≤ 3

Car seat evaluation:

Consider the car seat evaluation a fail if:
Any desat of less than 88%
Apnea of ≥20 sec
Bradycardia ≤80

If the baby fails, the test can be repeated after 24 hours. A car bed may be ordered if the infant does not pas

OTHER CONCERNS

Bilious Emesis

- ***Bilious emesis is considered obstructive until proven otherwise***
- Examine newborn abdomen
  - Measure abdominal girth
  - Check for bowel sounds
  - Palpate abdomen and note for any abdominal rigidity
- Order STAT Abdominal series to rule out obstruction.
- Keep baby NPO. May need to place NG tube (this requires transfer to NICU-SD).
- Obtain an accucheck especially if there is increased emesis or prolonged NPO duration.
- **ALWAYS discuss situation with attending and/or senior resident**

Respiratory Distress (any newborns with persistent respiratory distress must go to NICU)

- Newborn demonstrates increased work of breathing
  - Tachypnea
  - Retractions
  - Nasal flaring
  - Grunting
  - Desaturations
  - Cyanosis
  - Assess/Observe/transfer infant to transition/observation bed
  - Notify attending of the transfer to transition bed
  - Place on pulse ox
    - If the patient is desaturating,(SpO2 <90%) begin blow by/ NC O2
      - If the infant has been managed for >4hrs in the transition/observation bed, call the attending and discuss transferring infant to the NICU.
  - Consider ordering:
    - CBC (evaluate IT ratio) and blood culture
    - CXR AP **and** lateral
    - CBG
    - Accucheck

Breech Presentation

- hip US at 6 weeks
- Write the order in epic at the time of discharge via ADT navigator. When ordering the generic discharge order, there is a space to enter additional discharge orders at the bottom. Enter: infant hip US, date: in 6 weeks. Expiration date: 3 months. Department: jx radiology ultrasound cc (2 places). Sign and symptoms: breech presentation. Mom needs to know that the radiology department will contact her with the exact date and time so it is preferable to enter mom's cell# in the order as well.

Abnormal Hip Exam:

- Hip clicks are benign even if bilateral and no workup is needed, just document it in your physical exam
- Hip clunks are not benign even if one sided. No hip US needed before 4-6 weeks per AAP guidelines.
- For sooner intervention that waiting for hip US at age 4-6 weeks, refer to Pediatrics Orthopedics at Nemours. Give mom Nemours phone number 697-3600**.**

Hypermagnesium

- Defined as serum concentration >2.5 mEq/L
- S&S – floppy/hypotonic, lethargic, respiratory depression, poor feeding, GI hypomotility (can mimic obstruction)
- If a mom has received Magnesium during labor obtain a Magnesium level on infant if symptomatic
- Place infant on pulse oximetry and monitor saturation
- If tone does not improve and/or newborn continues to require oxygen discuss baby with attending
- Usually Mg level decreases with time, however if toxic level (>10) and severe symptoms may need transfer to NICU for further monitoring
    - No real treatment to quickly lower Mg level except supportive care
- Assess the newborn's suck and the ability of infant to safely PO feed if Mg level is elevated

Hyperbilirubinemia

- For any transcutaneous bili >10 at 40 HOL, always send serum bili.
- Please refer to BILITOOL.ORG for management and interventions. Follow bilitool instructions strictly. Please don't forget to verify the gestational age when plotting in bilitool and the bili curve in Epic.
- Be aware that you can enter multiple bili and HOL values in the bilitool to guide you through rate of rise.
- Be aware that if the recommendations on bilitool is to follow bilirubin in 4-24 hours and the infant is due for discharge on a weekend, use your judgement and try to leave the decision for the day team attending and APP.
- Always start **double** phototherapy (bili blanket with overhead lights).
- Before you start phototherapy for any reason, update mom and document the mother's update and the time phototherapy started
- While on phototherapy
    - Must send **serum** bilirubin once on phototherapy because TC bili is not accurate at this point
    - Monitor hydration status (remember, bilirubin is typically conjugated then excreted in the stool. Phototherapy alters the molecule so it can be excreted in the urine without conjugation. Thus, the more baby drinks, the more he/she excretes bilirubin). (consider donor milk for exclusive breast feeders if not they are not feeding well instead of supplementing with formula).
    - Baby should not be out of lights (i.e. For feeding) for more than 30 minutes at a time.
    - Infant has to room-in with mom during phototherapy.
    - Once on phototherapy, follow Tbili levels every 6 hours for coombs positive babies and every 12 hours if not coombs positive and submit results on the "bilitool
    - Continue phototherapy for at least 12 hours for babies with no risk (full term, AGA) and for at least 24 hours for babies at risk (coombs positive, G6PD deficiency, temperature instability, sepsis)
    - Order f/u bili, (at least 6 hours after stopping phototherapy in coombs positive babies) to ensure the child's bilirubin doesn't rebound. (rebound is increase of bilirubin more than 0.2 per hour)
    - **Consider** f/u bili 6 hours after stopping phototherapy in babies who are not coombs positive if bilirubin level at the time of stopping phototherapy was borderline and not significantly improved.
- Send Type and Coombs for any infant with mother that is Rh negative or O type (positive or negative)
- If coombs positive order:
    - Tbili now and q6
        - Follow Bilitool recommendations, strictly, to decide if phototherapy is needed
        - Retic count
        - Hgb/Hct

Cardiac Issues

- For all late systolic, holosystolic, continuous, diastolic, and all systolic murmurs that are > II/VI
    - Order ECHO
    - If murmur I-II/VI, Check 2 limb blood pressures pre and post ductal, RUE and any other limb preferably RLE (any difference in systolic pressure ≥20 and diastolic pressure ≥10 between upper and lower extremities consider abnormal and an echo should be warranted)

- Check pulse ox see guidelines

When to consult case management (Social Services)

- Teen pregnancy (any mother <18 years old)
- PNC < 3 visits
- Maternal HIV
- Adoptions
- Homelessness
- Domestic abuse
- An history of maternal drug use
- Any history of maternal psychiatric issue (anxiety, depression, bipolar disorder, etc)

Level II Admission Status (Billing Level)

- Premature <37 wks
- SGA
- Phototherapy
- Hypoglycemia
- Patients requiring antibiotics
- Any infant requiring more than routine care
- HIV

Maternal Thrombocytopenia

- Review maternal records for cause of thrombocytopenia
- Order platelets on baby if maternal thrombocytopenia is induced by autoimmune disease: ITP, SLE, etc
- Order platelets on baby if maternal thrombocytopenia is less than 100k regardless of the cause.
- If baby has thrombocytopenia, examine the baby and document it
- If platelets less than 80k, no saphenous stick
- If platelets ≤ 50k, and/or any signs of bleeding please call attending immediately

Extra digit:

- If bone involvement is unlikely, clinically or per x ray, refer baby to Nemours surgery. Parents to call 697-3600 to schedule an appointment for extra digit removal.
- If bone involvement is likely, obtain x ray to the hand. If bone exist, refer baby to Nemours Ortho. Parents to call 697-3600 to schedule an appointment for extra digit removal.

Sacral Dimples

- Order sacral US if:
  - Baby has a dimple with other cutaneous findings (hair patches tuft of hair, tag, hemangioma, cutis aplasia, etc) or abnormal neurological findings (decreased tone in lower extremities, etc).
  - Dimple is >2.5 cm above the anus, dimple is >5mm in diameter, or there are multiple dimples.

Hearing

- All babies must undergo a hearing test OAE prior to discharge
- If infant fails hearing test on the day of discharge, **order CMV test via saliva.**
- If for some reason, baby did not undergo a hearing test, or failed a hearing test prior to discharge but no hearing retest appointment is given, document in the discharge summary that Audiology will contact mother to schedule an appointment for hearing retest and update mom.
- No infant should go home without a CMV test (urine or saliva) when hearing test is failed or not done.

Ballard

- IF first prenatal US is done >27/6 weeks GA, baby's Ballard score is the actual baby's gestation because third trimester US is very non sensitive and Ballard is more accurate than a third trimester US.
- Rule: keep maternal documented gestational age if your ballard score is within 2 weeks (+/-) from the documented maternal gestational age in the mother's chart.

Urinary Tract Dilation (Hydronephrosis) in prenatal US

If bilateral:

- Renal US to the baby during the newborn period and notify the attending when the US is officially read.
- Renal function test to be done >24 HOL
- Consider VCUG after discussing it with the attending or/if recommended by the radiologist

If unilateral:

- Infant will need a renal US at age 3-4 weeks (make sure to mention this plan in every note: H&P, progress note and DC summary).

Pelvic Urinary Tract Dilation (Pyelectasis) in the prenatal US

- Renal US at 4 weeks of age as an outpatient.
- Place the order in epic at discharge in ADT navigator (same steps explained in breech presentation in the previous page)

2 vessels umbilical cord:

- No workup needed for the baby

Preauricular tags, pits, sinuses

- No renal US needed for the baby unless there is a family history of renal problems
- If baby fails hearing screen twice, discuss with the day team attending if renal US is needed.

Brachial plexus paralysis

- Good physical exam to r/o humerus or clavicle fracture
- Order x ray to clavicle, humerus or both if crepitus felt or if OB inform you that pop was heard during delivery
- Order inpatient OT
- Refer patient to physical therapy Dr. Spierre at age one week, phone number 633-0926

Bradycardia

- If you get called for a HR<100 go assess the baby
- Order a spot pulse ox
- If stimulating the baby increase the HR, this is a reassuring sign
- IF HR<90 with normal O2 saturation and well looking baby, order an EKG to r/o heart block (ie. maternal lupus or prolong QTc)
- If baby has a heart block, inform the attending right away
- If the baby has a prolong QTc (QTc>450) repeat EKG in few hours if QTc >500, inform the attending.
- If baby is in any distress, or if O2 sat is low, inform the attending.
- If EKG showed normal sinus rhythm with not prolong QTC and baby is well. Reassure the parents and document your finding.

Polycythemia:

- If the lab calls you with a hematocrit ≥65, assess the infant. No further workup needed if infant is asymptomatic (no plethora and no respiratory distress).
- If a peripheral **venous** sample results in ≥70, **or** if the baby is symptomatic (respiratory distress, lethargy, irritability, cyanosis, apnea, seizure, jitteriness) inform your attending.

Cleft palate:

- Consult OT. Infant would need a special feeding bottle.
- If the lesion is not large and interfering with feed , baby can be discharged home
- Call the cleft palate clinic at (904)202-4081 soon after birth (8am-5pm)to arrange a follow up as an outpatient

Subgaleal Hemorrhage:

- Subgaleal hemorrhage is a rare but potentially lethal condition found in newborns. It is caused by rupture of the emissary veins, which are connections between the dural sinuses and the scalp veins.
- It is commonly caused by vacuum extraction and by forceps use
- If subgaleal hemorrhage is suspected, infant needs to be transferred to NICU to closely observe frequent measurement of HC and vital signs including blood pressure, and H&H

Abnormal cord gas:

- Repeat capillary blood gas on the baby one hour after delivery if base excess (BE) is more than -12 in arterial cord blood gas. Even if baby is clinically stable. However, if baby is not clinically stable, call your attending immediately.
- If the repeat blood gas is persistently showing BE more than -12, call your attending, even if baby is clinically looking stable, and order arterial blood gas one hour after the capillary blood gas.

Breastfeeding:

- It is the best nutrition for the infants for the first 6 months of life per AAP and WHO
- Every infant will have an order of breastfeeding when admitted to the nursery
- DO NOT order formula before educating the new mother of the importance of exclusive breastfeeding.
- DO NOT rely on the nurses for breastfeeding education
- On day zero or one of life, the day team to educate the mother on what to anticipate during the nights and that cluster feeding is normal and it does not mean that the infant is starving or mom does not have supply. Cluster feeding is a natural development.
- Cluster feeding is the main reason for the new mother to give up breastfeeding.
- It is much harder to convince mom that cluster feeding is normal at 2:00 am.
- It is much easier to educate her about cluster feeding when she is alert and awake after breakfast

Maternal Thyroid Conditions

- Hypothyroid- if not Grave's- no intervention needed. Newborn screen will be done and results sent to PCP.

- Hyperthyroid: if not Grave's- no intervention needed. Newborn screen will be done and results sent to PCP.

- Hyperthyroid- specifically ask about history of Grave's disease. If mother has **Grave's**, the antibodies can cross the placenta and cause neonatal thyrotoxicosis. It is ideal if mother with Grave's disease has TRAB (Thyrotropin receptor antibodies) measured during pregnancy, but this is not always done. Obtain TRAB from cord blood (this is a send out lab and results will take several days) if mothers TRAB is unknown or positive, newborn physical exam and vitals are the most important part of assessment.

Signs of neonatal hyperthyroidism include tachycardia, arrythmia, poor feeding, hyperactivity, irritability. Educate caregiver on these signs as they can present after being discharged. TSH, T3, FT4 are obtained after 12 hol, on day 3-5, and on day 10-14.

Maternal Lupus or Sjogren's syndrome:

- order EKG on the infant during the hospital stay (can be ordered with the admission orders).

PLACENTAL BLOOD DRAWING PROCEDURE
(not routinely done)

Justification:

Premature infants frequently require multiple blood sampling for laboratory and other studies. Blood loss in a premature infant is a major contributing factor for anemia, hypotension, and, by association, intraventricular hemorrhage. Eliminating even one blood withdrawal may have significant benefits. Additionally, avoiding the pain associated with venipuncture has positive benefit in the overall effort for infant pain relief. Obtaining blood from the placenta for culture for infants avoids a painful percutaneous procedure with potential complications. Significant blood remains in the placenta after delivery and is an excellent source for initial laboratory studies, of which the accuracy of results has been demonstrated.

Materials:

- 5 ml sterile syringe
- 21g needles
- Blood culture bottle
- Purple top blood collection tube (0.5 ml volume)
- "PKU" state metabolic screening card

Personnel:

- The procedure will be performed by the nursery resident attending the delivery.

Procedure:

- Identify an appropriately large placental surface vessel for access (do not use a cord vessel).
- Dry the area with sterile 4x4 gauze, repeat 2 times.
- Thoroughly Prep the area with two chlorhexidine swab sticks and allow to dry.
- Sterilely attach the needle to the syringe and draw a minimum of 4 ml of blood. (Note: the amount of blood drawn may be adjusted according to the studies needed. I.e., HIV tests on exposed infants may require more blood.)
- Place 1 ml of blood into the culture bottle.
- Place 0.5 ml of blood into the purple top tube
- Slowly drop blood onto each of the five circles of the state lab card to completely fill each circle. **Do not touch the filter paper area or allow it to come into contact with any surface before or after applying blood. Fold the white flap with the biohazard label on the reverse side of the card up to cover the back side of the filter paper then place the card on a clean surface or on the transport isolette when the baby is transported to the NICU or Nursery.**
- (Ob staff will continue to draw blood for type and screen as in past)
- Label specimens with baby's label generated at the L&D clerk station immediately after birth.
- Write the following on the labels: 1) date, 2) time, 3) your initials, and 4) **PLACENTA.** In case of multiple births it is critical that specimen "A" remains identified with baby "A", and "B" with "B", etc. Use of separate lab specimen bags with identifying information is encouraged.
- Order appropriate labs in EPIC as a **stat** and hand carry the blood to the lab for processing. When you tell the receiving lab personnel it is placental blood they will process ASAP.

Panda Warmer Set up

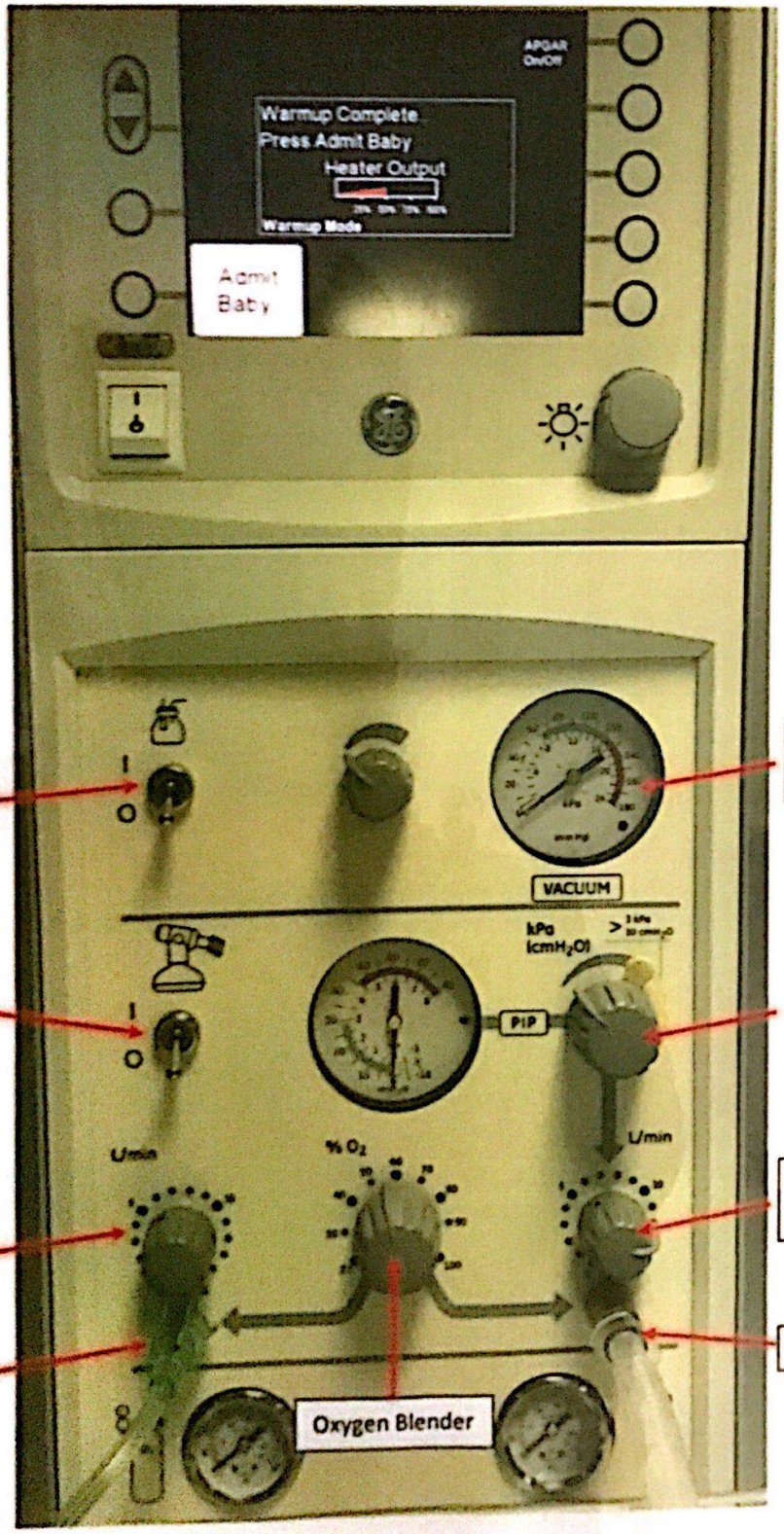
- Warmer is to be left on pre-warm… Turn warmer on and it will automatically go to pre-warm. **DO NOT** push “ADMIT PATIENT” until infant is being admitted.

- Flip suction switch ON to obtain suction and adjust your setting to the desired (mm HG) **NEVER** > 100mm HG. Make sure there is a suction catheter available.

- Pulse Oximeter is placed on the infant **BEFORE** attaching the probe to the machine. Turn on at the control panel for the pulse oximeter also to be DONE BEFORE attaching infants’ probe. Use a Posey which helps to avoid interference from the light.

- **To set up the T-Piece and Ambu / Nasal Cannula**

1. Turn the switch on for the T-Piece, oxygen and ventilation component
2. Term and Preterm Mask available at the bedside
3. Self-inflating Ambu and mask should be available and hooked up to the flow meter (1st knob and adapter) this is also where you would attach a cannula if desired.
4. Oxygen concentration / Blender (middle knob) initially should be set at room air (21%) and adjusted as needed. This blender adjusts both the T-Piece and Ambu.
5. The **PEEP / PIP** knob is labeled, once you have the T-Piece hooked up and the mask is in place, you are ready to set the PIP and PEEP. NEVER turn PIP knob > 30 cmH2O (past the yellow stop)
   A. Occlude the mask with your hand (NOT through the plastic bag)
   B. Liter flow (3rd knob) should be set > 10 to achieve the flow you will need for the T-Piece pressures
   C. You are now ready to set up 1st your **PEEP** (CPAP) at 5cm H2O. This is done by the Blue knob on the top of the T-Piece and the mask occluded with your hand
   D. Next with the mask still occluded you will set your **PIP** to achieve 20cm H2O when tested. You do this by turning slowly (knob above the liter flow knob labeled PIP.


Warmup Complete
Press Admit Baby
Heater Output
Warmup Mode
Admit Baby
APGAR
VACUUM
PIP
kPa
cmH2O
L/min
% O2
L/min
Suction Switch
Ventilation Switch
Flow Meter (Liters per Minute)
Self-Inflating Ambu Nasal Cannula Port
Never Greater Than 100 mmHg
PIP Knob
Liters per Minute Greater than 10
T-Piece Port
Oxygen Blender

Intubation

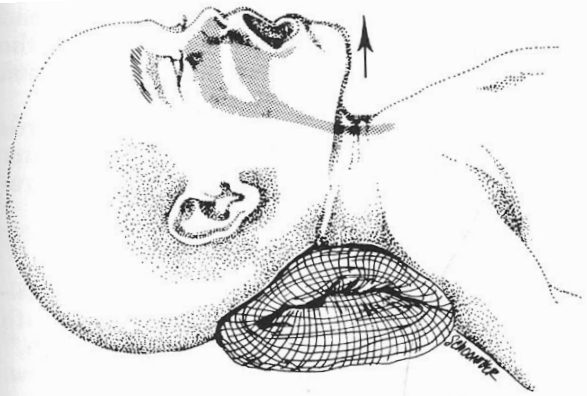


FIG. 37-2
Appropriate sniff position for intubation. Note that the neck is not hyperextended; the roll provides stabilizing support.

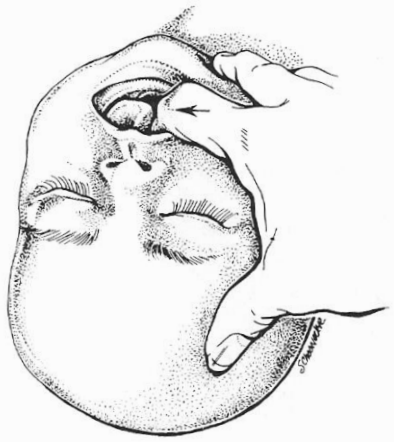


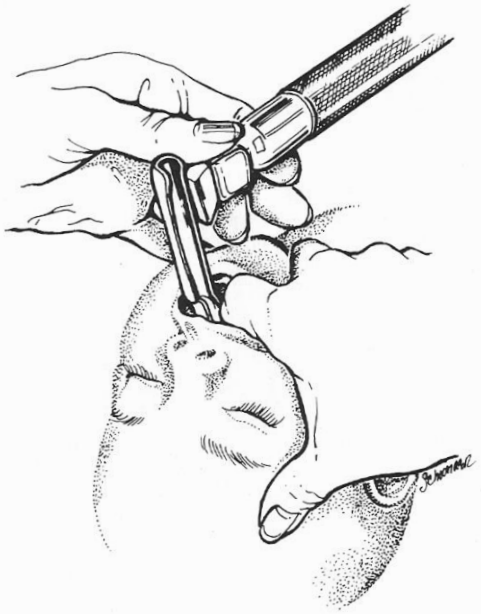
FIG. 37-3
Open the mouth and push the tongue with the forefinger while stabilizing the head with the thumb and other fingers.

E. Technique

Endotracheal Intubation

1. Sit at patient's head or elevate bed.
2. Extend baby's neck moderately, pulling chin into "sniff" position (Fig. 37-2).
3. Clear oropharynx with gentle suctioning.
4. Empty stomach.
5. Ventilate and preoxygenate baby as indicated by clinical condition. Follow heart rate and $P_{tc}O_2$ or continuous oxygen saturation.
6. Hold handle of laryngoscope in left hand with thumb and first two fingers; stabilize hand with fifth finger resting on patient's cheek.
7. Open baby's mouth, and push tongue left with back of right forefinger. Steady head with rest of right hand. Avoid using blade to open mouth (Fig. 37-3).
8. While visualizing, insert blade midline until tip is between base of tongue and epiglottis within the vallecula (Fig. 37-4).
9. Open mouth further by pulling on laryngoscope handle. Simultaneously tilt blade tip upward slightly to elevate epiglottis and visualize glottis. Use base of tongue as pivot point, rather than maxilla. Avoid extreme tension or tilt on laryngoscope (Fig. 37-5).
10. Suction as needed.
11. Have assistant palpate suprasternal notch with index finger, applying gentle pressure if desired.[3]

FIG. 37-4
Pass the laryngoscope carefully along the finger to the back of the oropharynx.



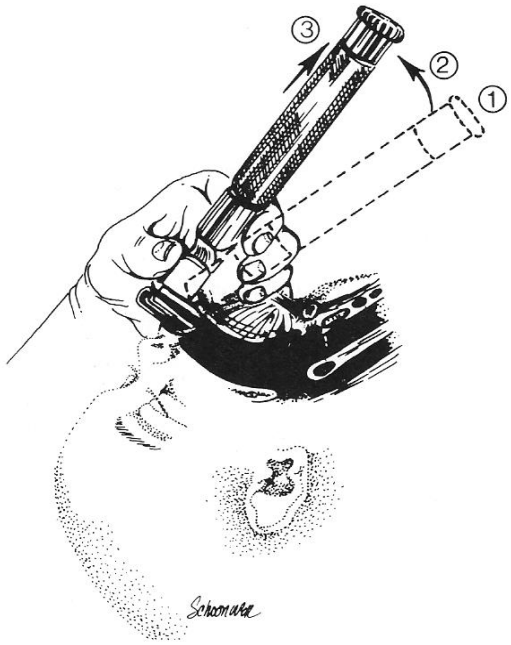


FIG. 37-5
With the laryngoscope at the proper depth, tilt the blade with the tongue as the fulcrum; at the same time, pull on the laryngoscope handle to move the tongue without extending the infant's neck.

12. Hold tube with concave curve anterior, and pass it down right side of mouth, outside the blade, while maintaining visualization (Fig. 37-6).
13. As infant inspires, pass tube through cords 2 cm into trachea or until immediately after tip passes under assistant's finger in suprasternal notch (Fig. 37-7).[3]
14. Confirm position of tube within trachea.
    a. Auscult and observe chest movement.
    b. Observe respiratory wave pattern on oscilloscope to determine that artificial breath is at least as large as spontaneous breath.[40]
15. Suction ET tube with sterile catheter, following technique described in Chapter 39, Tracheal Suctioning.
16. Attach appropriate mechanical device.
17. Readjust FiO_2 as per baby's requirements.
18. Fix tube as per selected technique (see sections on tube fixation).
19. Obtain radiograph on initial intubation or as needed after fixing tube. When proper length from lip is determined, repeated radiographs are unnecessary if neck is stable (Figs. 37-8, 37-9).
20. Cut off excess tube length, and reattach adapter firmly after correct intratracheal depth is confirmed.

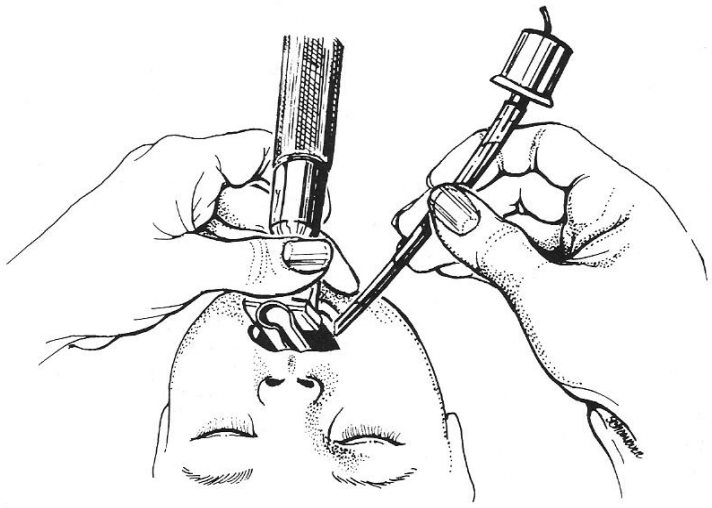
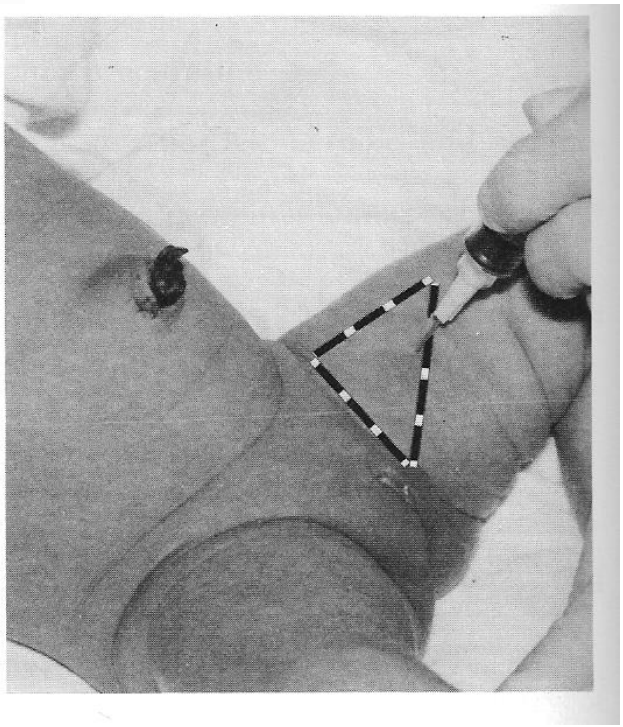


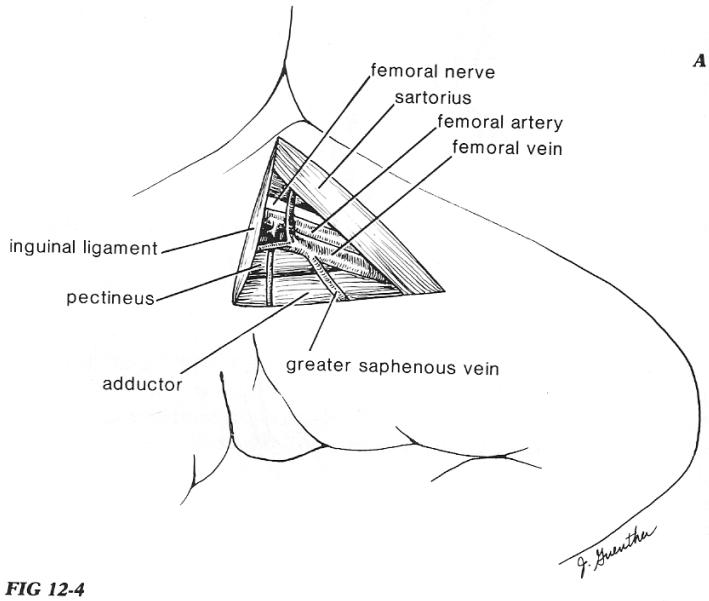
FIG. 37-6
After visualizing the glottis, pass the ET tube into the oropharynx, but not within the curve of the laryngoscope blade.

Saphenous Stick: Used only after multiple unsuccessful attempts to obtain peripheral blood.

Proximal Greater Saphenous Vein[7]

1. Have assistant hold infant's thighs abducted with knees slightly flexed.
2. Locate femoral triangle (Fig. 12-4, *A*).*
   a. Proximal boundary inguinal ligament
   b. Lateral boundary: medial border of sartorius muscle
   c. Medial boundary: medial border of adductor longus muscle
3. Enter skin and then vein at point ≃⅔ along line joining inguinal ligament to apex of triangle (Fig. 12-4, *B*).
   a. Use relatively steep angle (60–90 degrees).
   b. After entering skin, advance 1 mm to 4 mm with gentle suction until blood return is achieved.
4. See technique for general venipuncture.





A

FIG 12-4
(A) Anatomy of the femoral triangle as defined in the text. (Adapted from Plaxi
arella RL: Greater saphenous vein venipuncture in the neonate. J Pediatr 93:1C
Position of the femoral triangle on the abducted thigh.

Circumcision – General Considerations
Circumcisions are done by the Pediatric residents on Monday through Thursday mornings. The Ob residents perform the circumcisions on Friday through Sunday mornings.

It is the job of the pediatric resident on Sunday through Wednesday night to determine which babies are eligible for circumcision the next morning (the 3 North nurses will have a list of which baby has gotten insurance approval for circumcision), to inspect each baby to ensure the penis qualifies for circumcision, and to have the mother sign consent. If for some reason a child qualifies for a circumcision but it can not be done by discharge (ie: no staff available to do the circumcision, etc), will have to be done as an outpatient. No longer offer post discharge circumcisions.

Initial Evaluation
Explain the risks and benefits of the procedure to the parents and obtain informed consent. Contraindications include hypospadias, penile torsion, severe glandular adhesion, chordee, a penile scrotal web, and a very small penis. If there is any doubt about the child's health or if a penile abnormality exists, it is wise to postpone and seek appropriate consultation. **In general, a penis must be at least 2 cm to qualify for circumcision.**

Following Up
Tell the infant's caretaker to unwrap the penis and clean with each diaper change. They can continue to apply petroleum jelly to the tip and in the diaper with each diaper change for the next 24 to 48hrs. After 48hrs, they may discontinue this process, but should keep the penis as clean as possible. Tell the caretaker to call their PCP if there is any sign of infection, bad odor, excessive redness, pus, or abnormal bleeding. It is normal for the penis to ooze slightly for 1 day.

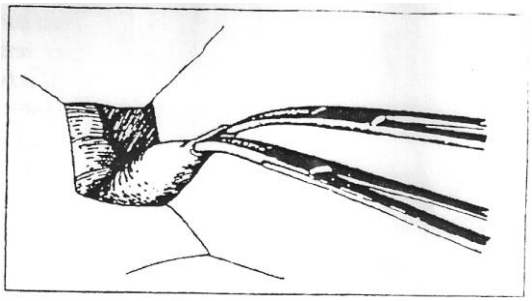
Circumcision – Mogen Technique
The Mogen clamp, long used for ritual Jewish circumcision offers a quick, easy, accurate way to accomplish the procedure.

The question of whether neonatal circumcision should or should not be performed routinely is controversial. Advantages cited by its supporters include lower rates of urinary tract infection, penile cancer, penile infections, sexually transmitted diseases, and possibly, AIDS. In addition, circumcision is said to facilitate penile hygiene.

Disadvantages include possible bleeding, infection, wound separation, operative injury, removal of an improper amount of foreskin, meatal problems, penile adhesions, inclusion cysts, and concealed penis.

The Mogen clamp is the instrument of choice for ritual Jewish circumcisors. Used correctly, the Mogen clamp provides a satisfactory result with remarkable speed; in experienced hands, the time from beginning the procedure to 'foreskin removal' can be less than 30 seconds. The instrument is easy to operate and requires no dorsal incision or sutures. Unlike with other devices, one size is sufficient.

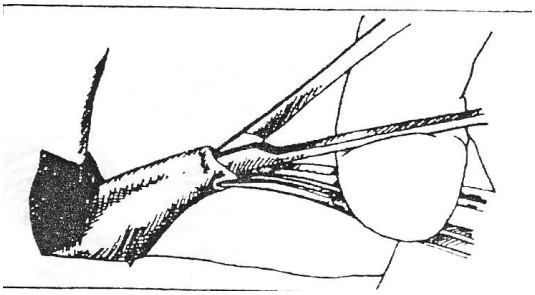
There is a nice video on the Stanford School of Medicine website showing the Gomco technique (note that there are minor differences in the video from the way we do it.)
http://newborns.stanford.edu/Mogen.html



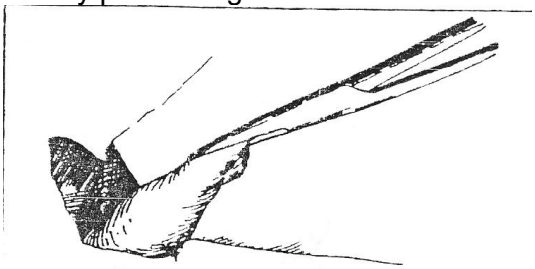
Surgical Technique

The steps for performing the procedure are as follows:

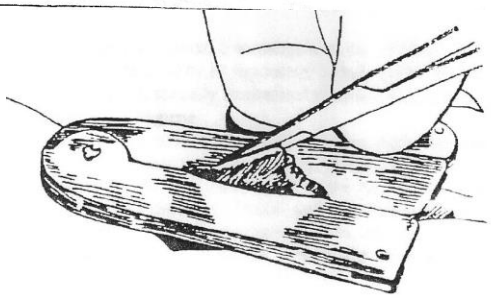
- Place the baby in a restraining device
- Clean and prepare the area with povidone iodine (Betadine)
- Administer local anesthesia (Lidocaine without Epinephrine)
- Place a sterile, fenestrated drape over the penis
- Attach two curved hemostats at the 10 and 2-o'clock positions



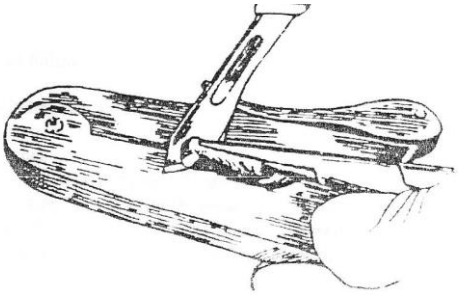
- Dilate the foreskin and loosen adhesions by inserting a straight hemostat and spreading it. Continue dilating the foreskin until it has been loosened, from the glans to the level of the corona. Be careful not to injure the frenulum by going too far ventrally. Never close your hemostat until you have removed it from beneath the foreskin, lest you accidentally pinch the glans.



- Retract the foreskin to visualize the coronal sulcus and inspect the glans. If the penis appears normal, replace the foreskin and remove the curved hemostats. If an abnormal meatal location is visible, discontinue the procedure and consult a urologist.
- Press down on the foreskin and insert the straight hemostat at the dorsal midline. Close the hemostat when the tip is 5mm from the corona, to guage the amount of foreskin and mucosa to be removed. Take your scissors and cut along the clamped line.



- Grasp the foreskin laterally between the thumb and index finger and pull it toward you. This step causes the glans to retract, avoiding glandular injury. Place the Mogen clamp dorsiventrally at approximately a 45 degree angle.
- Lock the clasp and remove the foreskin and mucosa with a scalpel. For hemostasis, leave the clamp in place for 1 minute.
- Remove the clamp.

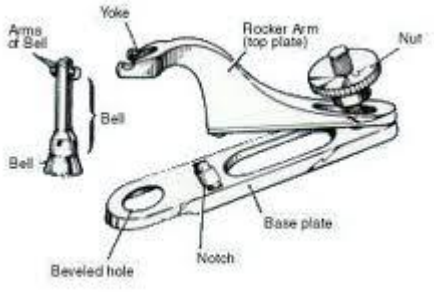


- Break the seal created by the clamp by applying slight downward pressure on the skin of the penile shaft.
- Free the glans of any remaining adhesions or smegma.
- Apply petroleum jelly over the tip of the penis. Cover the penis with a sterile 4x4 inch gauze pad covered with sterile lubricant.

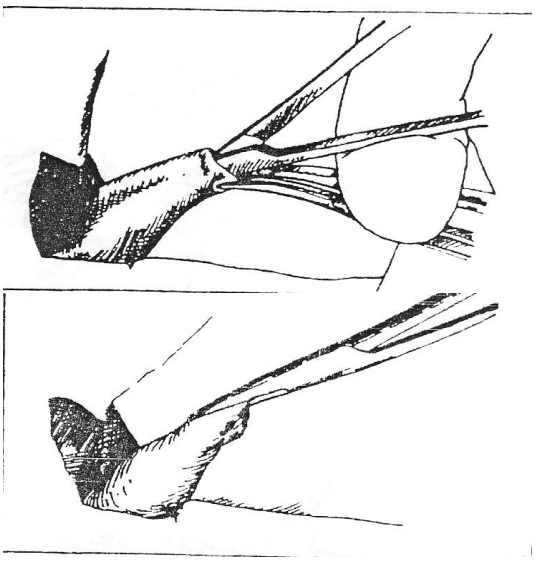
Circumcision – Gomco Technique

There is a nice video on the Stanford School of Medicine website showing the Gomco technique (note that there are minor differences in the video from the way we do it).

http://newborns.stanford.edu/Gomco.html



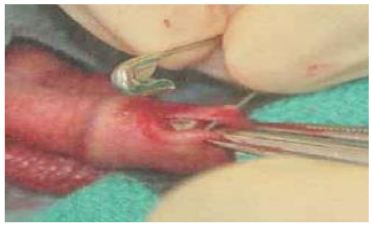
The Gomco clamp is composed of a bell that fits into a base plate with top plate. Before beginning, inspect your Gomco clamp to ensure the size of the bell fits the baby and that the size of the bell and both plates match.



Surgical Technique

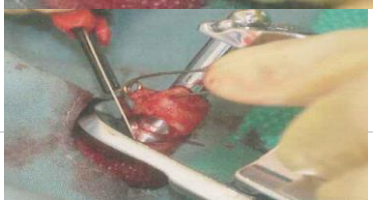
The steps for performing the procedure are as follows:

- Place the baby in a restraining device
- Clean and prepare the area with povidone iodine (Betadine)
- Administer local anesthesia (Lidocaine without Epinephrine)
- Place a sterile, fenestrated drape over the penis
- Attach two curved hemostats at 10 and 2-o'clock positions
- Dilate the foreskin and loosen adhesions by inserting a straight hemostat and spreading it. Continue dilating the foreskin until it has been loosened, from the glans to the level of the corona. Be careful not to injure the frenulum by going too far ventrally. Never close your hemostat until you have removed it from beneath the foreskin, lest you accidentally pinch the glans.
- Retract the foreskin to visualize the coronal sulcus and inspect the glans. If the penis appears normal, replace the foreskin and remove the curved hemostats. If an abnormal meatal location is visible, discontinue the procedure and consult a urologist.
- Press down on the foreskin and insert the straight hemostat at the dorsal midline. Close the hemostat when the tip is 5mm from the corona, to guage the amount of foreskin and mucosa to be removed. Take your scissors and cut along the clamped line.



- Retract foreskin and inspect for remaining adhesions. If present, you can reduce them with gentle pressure with straight tool.
- Place bell over glans of the penis and pull the foreskin back over the bell.
- Place the safety pin through the top edges of the cut foreskin to keep the bell from falling out.
- Slip the base plate over the penis and slide the pin through. Use a clamp to ensure that foreskin is pulled through evenly on all sides.

- Attach the top plate being careful that the bump on the top plate falls securely within the notch on the bottom plate and that the arms of the bell fall securely within yoke. Double check that foreskin is even on all sides.
- Keep the clamp centered on the penis. It is heavy and can pull or damage the penis if it falls to the side.
- Use your scalpel to cut the foreskin free. Make sure to have clean edges. You may wish to keep the clamp apparatus in place for five minutes before removing to ensure against bleeding.
- Unscrew the nut and disassemble the Gomco clamp. You can use a piece of gauze to softly slip the foreskin off the bell if it adheres.



- Check for bleeding. Apply petroleum jelly over the tip of the penis. Cover the penis with a sterile 4x4 inch guaze pad covered with sterile lubricant.

LACATION 101

Milk Composition

Colostrum

- Definition: thick yellowish fluid present in the breast for the first 5-7 days after birth
- Rich in beta-carotene (precursor of vitamin A) gives colostrums its yellow color
- Provides lactose to prevent hypoglycemia and facilitates the passage of meconium
- Present in breast by 20th week of pregnancy, immediately available to newborn for first few days of life until milk "comes in." Typically 40-50ml available first day, newborn's stomach capacity is 20ml.

Mature Milk

- 7-10 days after delivery
- Consists of water (87%), lipids, proteins, carbohydrates (lactose), minerals, vitamins, and enzymes
- Two components
    - Foremilk- proteins 0.9% and fat 1.7%
    - Hindmilk- proteins 0.7% and fat 5.5%

Benefits of breast feeding

- Lower risk of allergic diseases including atopic dermatitis, rhinitis, reactive airway disease, and food allergies
- Increase IQ scores
- Oxytocin increase - Mother baby bonding, decrease postpartum blood loss, result in more rapid uterine involution

Contraindications to breastfeeding

- Galactosemia
- Mom infected with HIV
- Use of Radioactive compounds
- Maternal drug use

Lactogenesis

- Elevation of estrogen and progesterone during pregnancy prevent prolactin from stimulating milk secretion. Removal of placenta causes estrogen and progesterone levels to fall dramatically, whereas prolactin remains elevated; thus signaling the breast to produce milk.
- Suckling releases prolactin and oxytocin. Oxytocin stimulates the myoepithelial to contract around the alveoli sending the milk down through the ductus to lactiferous sinuses. Milk ejection reflex sensed as "pins and needles" feeling or a flush of heat.

Attachment

- Correct attachment is the most important factor for preventing problems
- To attach begin by eliciting the rooting reflex by touching the baby's lips with the nipple, wait until infant has a wide-mouth (similar to a yawn), then latch. Infant should have his mouth wide open and bring his tongue down and forward over the lower gum to pull the nipple/areola into his mouth.

- Suckling is rhythmic pattern, chin touches the lower part of the breast and the nose nearly touches the upper portion of breast. There is more areola visible above the upper lip than below the lower lip.

How do you know if the baby is getting milk?

- Nutritive suckling- 1:1 suck per swallow ratio
- Wet diapers 6 or more/24hrs, frequent stool diapers- 3-4/24hrs
- Content between feeds
- Average weight gain ¾-1oz/day or 5-7oz/week.

Duration and frequency of feeding

- Signs of hunger
  - Waking up
  - Bringing hand to mouth
  - Rooting
  - Mouthing movements, smacking lips
  - Crying is late sign of hunger
- Frequency
  - DOL 1 baby is sleepy and will feed less. Day 2, baby will feed more. Typically feed 2-3oz every 2-3hrs for formula fed and 20-30min

Feeding Problems

- Inverted nipples
  - Can breastfeed, no special management is required during pregnancy, after delivery breast pump might be useful to help evert the nipples.
- Candidiasis
  - Treat mom and baby simultaneously. May present with itching and late onset shooting, burning pain in breast, areola may appear pink and shiny.
  - Tx: continue to breastfeed, good hand washing, ibuprofen for pain, apply antifungal medication, treat baby's oral thrush.
- Engorgement
  - Most common reason is infrequent or ineffective milk removal
  - Tx: milk removal, moist warm packs or warm shower, gentle massage and hand expression, more frequent feedings, cold pack after feeding, chilled whole cabbage applied to engorged breasts to relieve edema.
- Mastitis
  - Bacterial infection in breast, can present with flu-like symptoms and/or localized heat, redness, and tenderness. Mother usually complains of breast pain, fever, and headache.
  - Tx: continue to breastfeed, antibiotics for 24 hrs, ibuprofen.

APPENDIX F – MATERNAL DRUG USE – APPROXIMATE TIMES OF DETECTION

Approximate values for detection periods

Substance	Urine	Hair	Blood / Oral Fluid
Alcohol	6–24 hours [3]	up to 90 days	12–24 hours
Amphetamines (except meth)	1 to 3 days[4]	up to 90 days	12 hours
Methamphetamine	3 to 5 days[5]	up to 90 days	1–3 days[5]
MDMA (Ecstasy)	24 hours	up to 90 days	25 hours
Barbiturates (except phenobarbital)	1 day	up to 90 days	1 to 2 days
Phenobarbital	2 to 3 weeks[6]	up to 90 days	4 to 7 days
Benzodiazepines	Therapeutic use: up to 7 days. Chronic use (over one year): 4 to 6 weeks	up to 90 days	6 to 48 hours
Cannabis	3 to 7 days, up to >30 days after heavy use and/or in users with high body fat [7]	up to 90 days [7]	2–3 days, up to 2 weeks in heavy users[7]
Cocaine	2 to 5 days with exceptions for certain kidney disorders	up to 90 days	2 to 5 days
Codeine	2 to 3 days		
Cotinine (a break-down product of nicotine)	2 to 4 days	up to 90 days	2 to 4 days
Morphine	2 to 4 days	up to 90 days	1 – 3 days
Heroin	3 to 4 days[8]	up to 90 days	1– 2 days
LSD	24 to 72 hours (however tests for LSD are very uncommon)	up to 3 days[*citation needed*]	0 to 3 hours
Methadone	3 days	up to 97 days	24 hours
PCP	3 to 7 days for single use; up to 30 days in chronic users[9]	up to 90 days	1 to 3 days[9]

.