NICU rotation

For residents and medical students

Updated on 6/16/2025

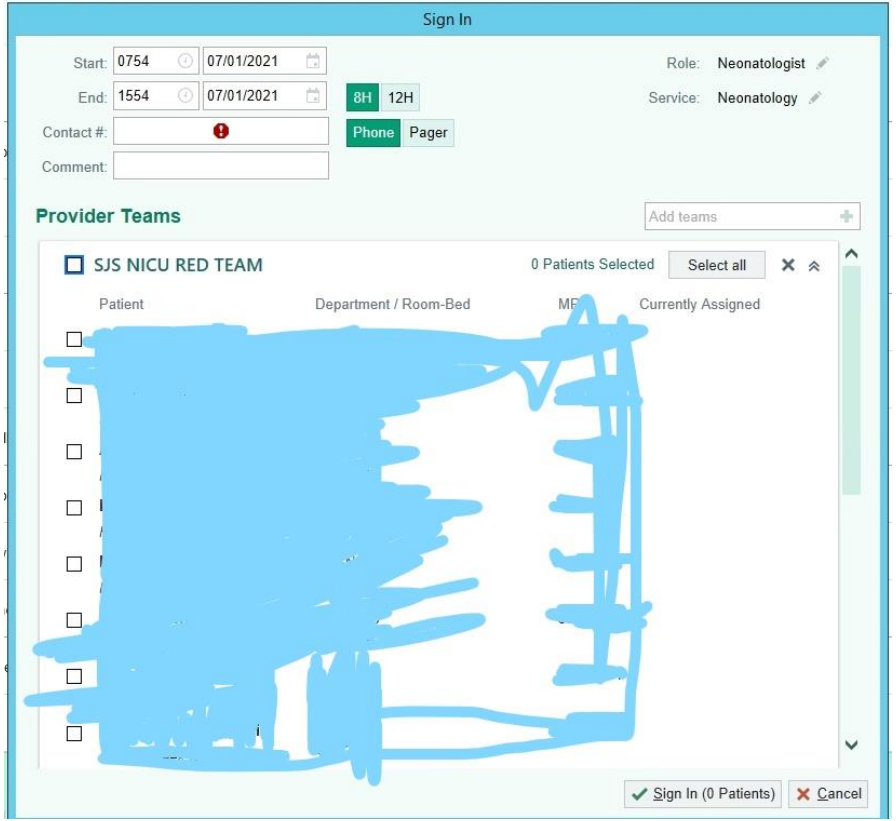
Rotation requirements

- Carol Jo Vecchie Women’s Center - 4th floor
- Please try to get access to EPIC before starting your rotation.

Resident

- Pediatric residents get a sign-out from the NNP at 7 AM, Please be in the room by 6:55 AM
  - Short call – 7 AM till 5 PM
  - Long call – 7 AM till & PM
- Make sure that you have at least 10 hours off between shifts
- Make sure that you have at least 24 hours off between rotations
- Please make sure to **continuously update** your patients' **discharge summaries,** especially before signing off to the following residents

Residents must sign in/out with their names for the patients



Please use the below smart phrases in the NICU

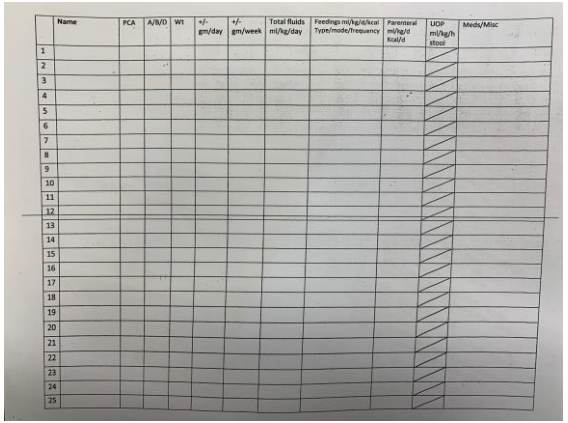
- .DNHP – NICU H&P
- .NICUDISCHARGESUMMARYAPR21
- .NICUSJSDELIVERYATTENDANCENOTE
- .NICUSJSINTUBATION
- .NICUSJSLUMBARPUNCTURE
- .NICUSJSNEWBORNCONSULT
- .NICUSJSPROCEDURENOTE
- .NICUSJSPROGRESSNOTE
- .NICUSJSCIRCUMCISION
- .NICUSJSUMBILICALLINEINSERTION

Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
7:00 Sign out from NNP	7:00 Sign out from NNP	7:00 Sign out from NNP	7:00 Sign out from NNP	7:00 Sign out from NNP
8:00 Resident Round or Pediatric/NICU M&M	8:00 Journal club (third Tuesday of the month)	8:00 Resident Round	8:00 Pediatric grand round	8:00 Resident Round
9:30 - 12:00 NICU Round	9:30 - 12:00 NICU Round	9:30 - 12:00 NICU Round	9:30 - 12:00 NICU Round	9:30 - 12:00 NICU Round
	14:30 Discharge Round	12:30 MFM/NICU meeting	12:30 - 1500 Resident Core Conferences	

What do you need for the rotation....

- NICU Resident/NNP Guidelines (PDF)
  - Ask Elisia Hopkins or Amber Davis, neonatology office specialists, about the PDF.
- Rounding sheet
  - Present on the desk in the purple working area in the NICU or in the conference room where the residents sit



	Name	PCA	A/B/D	Wt	+/- gm/day	+/- gm/week	Total fluids ml/kg/day	Feedings ml/kg/d/kcal Type/mode/frequency	Parenteral ml/kg/d Kcal/d	UOP ml/kg/h stool	Meds/Misc
1											
2											
3											
4											
5											
6											
7											
8											
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The bedside nurse starts with overnight events and social concerns.

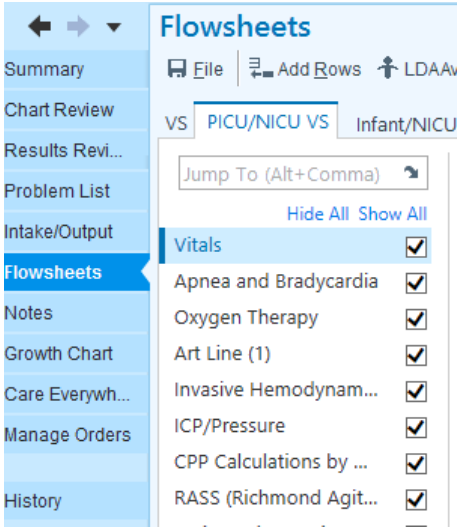
Then, your presentation should be in the following format ...

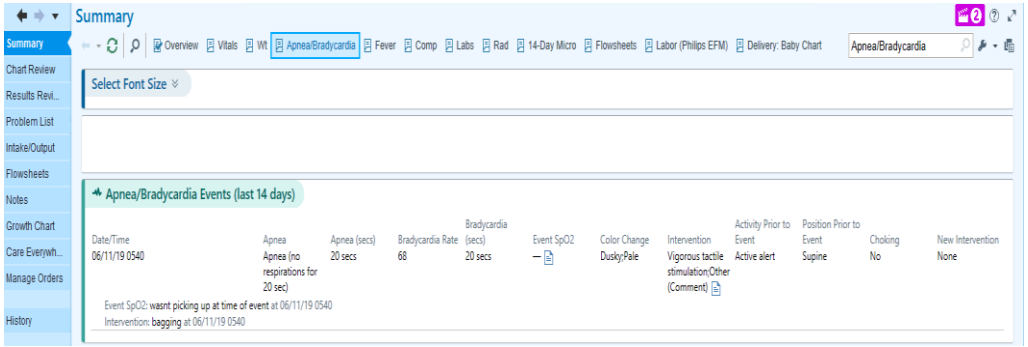
Age in days and gestational age (GA)

- Age in days
  - Example: 2 days old, 5 days old …
- Corrected Gestational Age (cGA) or Post Conceptual Age (PCA) or Postmenstrual Age (PMA)
  - Example: A newborn is born at 30 weeks and 5 days. The newborn is 4 days old. The newborn's cGA is 31 weeks and 2 days
    - PS: Epic may have a different calculation

Apnea, Bradycardia and Desaturation

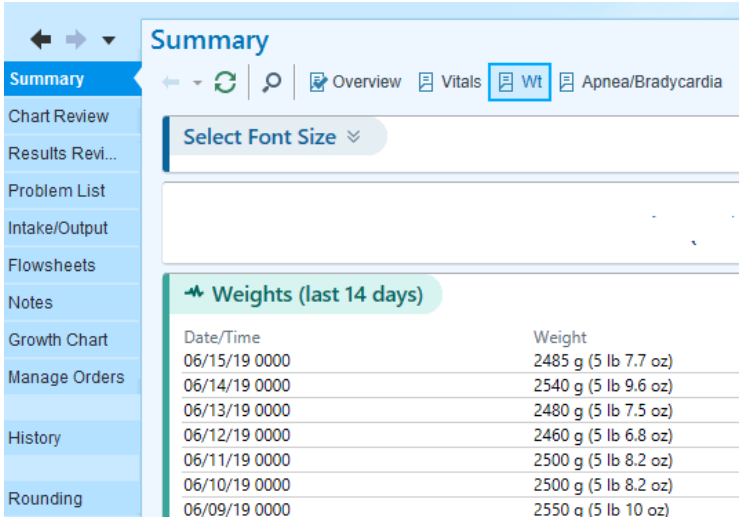
- Bedside nurse
- Charted in epic
  - Summary → Apnea/Bradycardia tab
  - Flowsheets → PICU/NICU VS → Apnea and Bradycardia

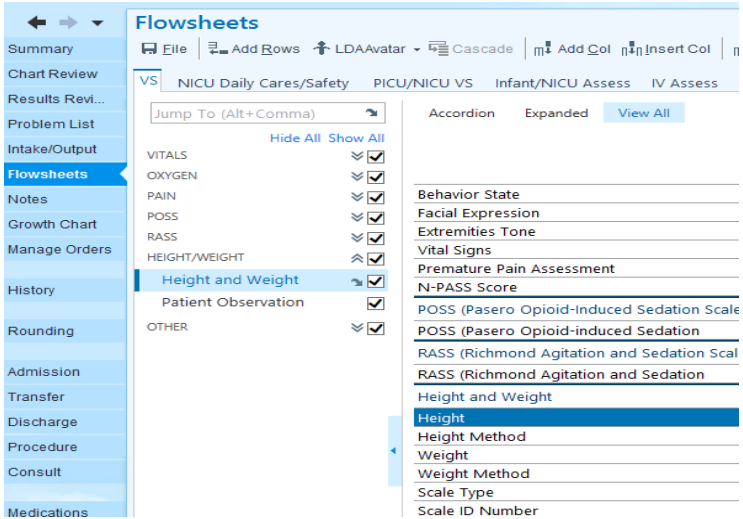




Weight

- Current weight in grams (gms)





Compare weights

- Change per day
  - Example
    - The newborn gained 30 gms compared to yesterday's weight
    - The newborn lost 10 gms compared to yesterday's weight

- Change from birth or per week
  - Example
    - The newborn gained 30 gms compared to birth weight
    - The newborn gained 200 gms over a week
  - You compare the weight to birth weight for the first week of life then per week
  - Always calculate the % of weight loss compared to birth weight
  - **= [(birth weight - actual weight) / birth weight] * 100**
  - Example
    - Newborn A has a birth weight of 2.6 Kg but current weight is 2.35 Kg. Calculate % of weight loss since birth.
    - [(2.6-2.35)/2.6]x100 = 9.6%

Use birth weight until the newborn attains birth weight or passes it

Total fluids in ml/kg/day

- Total fluid (ml/kg/day) = total enteral volume (ml/kg/day) + total parenteral volume (ml/kg/day)

Total Enteral Volume

Newborn could be

- NPO

- Receiving expressed breast milk and/or donor breast milk and/or formula
- Fortified or not fortified
- Oral and/or feeding tube
- Don’t forget to mention if breastfeeding was attempted

Total Enteral Volume

- Ad lib (as needed)
  - You get the total enteral volume in 24 hours from Epic's Intake/Output tab, and divide this number by weight.
    - Example: A 2.5 kg newborn ate 500 ml in the last 24 hours. The volume is 500 ml / 2.5 kg = 200 ml/kg/day.
- Oral and feeding tube
  - You get the total enteral volume in 24 hours from Epic's Intake/Output tab and divide this number by weight.
  - You get the total enteral volume in 24 hours from the Intake/Output tab that was given orally, divide this number by the total enteral volume, and multiply it by 100, which is the percent of oral intake.
    - Example: A newborn weighs 1.35 kg and eats 216 ml in the last 24 hours. 100 ml was administered orally. Total oral intake is: (100/216)*100 = 46%
      - **PS: Always use birth weight until the newborn gains it**

Neonatal Enteral Nutrition Guidelines

Always try to follow the feeding protocol (advancement and fortification per dosing weight and considering gestational age)

It is present in the Resident Manual

PS: In certain situations, the rounding neonatologist deviates from the protocol

NEONATAL ENTERAL NUTRITION GUIDELINES EFFECTIVE 01/07/2019

Minimal clinical requirements for initiation of enteral feeding are usually as follows:

- Stable cardio-respiratory status
- Absence of bilious or non-bilious emesis
- Absence of significant abdominal distention
- Absence of clinically significant patent ductus arteriosus
- Absence of umbilical arterial catheter
- At least 24 to 48 hours from last dose of ibuprofen/indomethacin

Feeding Advancement Schedule:

Dosing Weight (grams)	Initial Volume Advancement Volume	When to Advance	Initial Product	Fortification
< 1250	20 ml/kg/day (q3h)	<750 gm: hold at 20 ml/kg x2 days, then advance daily 750 – 1249 gm: advance daily	MBM *or* DBM	Prolacta +6 (at 80 ml/kg)
1250 – 1499	20 ml/kg/day (q3h)	Advance daily	MBM *or* DBM	Fortify to 24 kcal/oz w/Similac HPCL (at 80 – 100 ml/kg)
1500 – 2499	30 ml/kg/day (q3h)	Advance daily	MBM *or* DBM if <33$^{0/7}$ weeks GA *or* Similac Special Care 20 formula	MBM or DBM: fortify to 24 kcal/oz w/Similac HPCL *or* Similac Special Care 24 High Protein Formula (at 80 – 100 ml/kg)
≥ 2500	≤ 40 ml/kg/day (q3h)	Advance daily	MBM	GA at birth <37$^{0/7}$ weeks: fortify to 24 kcal/oz with Similac HPCL *or* GA at birth ≥37$^{0/7}$ weeks: fortify per RD recommendation (at 80 – 100 ml/kg)
			NeoSure 22 kcal/oz (if GA at birth <37$^{0/7}$ weeks) *or* Similac Advance 19 kcal/oz formula (if GA at birth ≥37$^{0/7}$ weeks)	Increase calorie concentration per RD recommendation

Note: Above guidelines should not replace clinical judgment.

General Enteral Nutrition guidance:

1. Use birthweight as dosing weight until birthweight is regained, then use current weight.
2. Do not fortify and advance feeding volume on the same day.
3. Initial enteral feeding goal is 150 – 160 ml/kg/day (preterm infants) or 170 – 180 ml/kg/day (term infants) unless contraindicated.
4. If patient does not tolerate bolus feedings consider continuous or transpyloric feeds.
5. Donor breast milk: Use for all infants with birthweight <1500 gm and at physician discretion for infants with birthweight ≥1500 gm born <33$^{0/7}$ weeks GA. Transition from donor breastmilk to formula at about 34$^{0/7}$ weeks PMA per RD recommendation.

Enteral nutrition - calories

- Breast milk calories are 20 Kcal/oz
    - PS: The actual breast milk calories are unknown
- Fortification could be 22 Kcal/oz, 24 Kcal/oz, 26 Kcal/oz, 28 Kcal/oz, 30 Kcal/oz
    - Sometimes we add prolacta cream to increase the calories more
    - 2.5 Kcal per 1 ml of prolacta cream - approximately 2 Kcal/oz
- Calculation in Kcal/kg/day
    - 20 kcal → 1 oz → 30 ml
    - Multiply the enteral fluid volume (in ml/kg/day) by calories and divide by 30 ml
        - Baby B is 12 days old. He is a former 29-weeker. He gets 120 ml/kg/day of prolacta 26 Kcal/oz. His calories are:
        - (120*26)/30 = 104 Kcal/kg/day

Parenteral volume

- Intravenous fluid options
  - D5W or D10W
  - D5 ¼ NS or D10 ¼ NS
  - Total Parenteral Nutrition (TPN)
  - Others
- Central line (PICC line, Umbilical lines, Broviac)
  - Add heparin
- Start total parenteral volume between 60 ml/kg/day and 100 ml/kg/day, depending on the initial diagnosis, gestational age, and weight

Parenteral volume - calculation

- Glucose concentration
  - Dextrose in percent = glucose in gms in 100 ml
  - Example: D5 = 5% = 5 gms of glucose in 100 ml
- Calories from dextrose
  - **1 gm CHO gives 3.4 Kcal**
  - (Dextrose% % x total fluid in ml/kg/day) / 100 ml of water = # in gm/kg/day
  - # in gm/kg/day x 3.4 Kcal/gm = calories from dextrose
    - Example
      - The newborn is 2.5 kg on D10 water at 80 ml/kg/day. Calculate the calories from dextrose
      - D10 = 10 gms in 100 ml of water
      - 10 x 80/100 = 8 gm/kg/day → 8 x 3.4 = 27 Kcal/kg (CHO)

Glucose Infusion Rate (GIR)

- Every infant on continuous infusion that has dextrose should have a GIR calculated and presented during the round
  - [Dextrose% % x fluid intake (ml/kg/day)] / 144 = GIR in mg/kg/min
  - (Dextrose% % x current IV rate) / 6 / weight = GIR in mg/kg/min
    - Start GIR between 4 and 6 mg/kg/min
    - Advance by 1 to 2 mg/kg/min daily
    - Maximum 12 mg/kg/min
    - Monitor GIR by accucheck

Intralipid

- Every 1 gms of intralipid gives 10 Kcal.
  - Dietary fat: 9 Kcal/gm - the fat in intralipid has a glycerol molecule attached, which adds 1 Kcal/gm
- Intralipid used in TPN is between 0.5 and 3 gms/kg/day
- Calories
  - Number of gm/kg/day x 10 = calories from intralipid
    - Example
      - The newborn weighs 0.98 kg. He is on 2.5 gm/kg/day intralipid. Calculate the calories from lipids?
      - 2.5 gm/kg/day x 10 = 25 kcal/kg

Omegaven

- It is 11 Kcal/gms
- Always dosed at 1 gms/kg
- Used for any infant with direct hyperbilirubinemia more than 2
- Calories
  - Number of gm/kg/day x 11 = calories from Omegaven
    - Example
      - The newborn weighs 1.25 kg and is on 1 gm/kg/day Omegaven. Can you calculate the calories from Omegaven?
      - 1 gm/kg/day x 11 = 11 kcal/kg

Protein

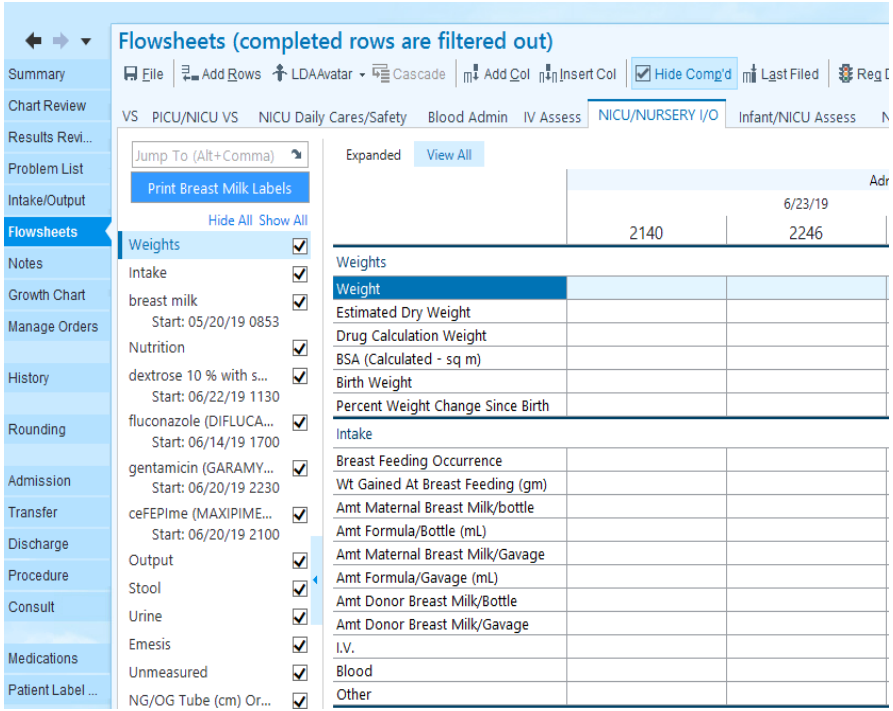
- Every 1 gms of protein gives 4 Kcal
- Protein used in the TPN ranges between 2 and 4 gms/kg
- Calories
  - Number of gm/kg of protein x 4 Kcal = calories
    - Example
      - The newborn weighs 1.2 Kg. He is on TPN with 3 gms/kg protein. How do you calculate calories from protein?
      - 3 g/kg x 4 Kcal/g = 12 kcal/kg

Urine output

- Get the total urine volume in 24 hours and divide it by weight and by 24 hours = urine output in ml/kg/hr
  - Example
    - Newborn weighs 2.5 kg. His urine in the last 24 hours measured 150. Calculate urine output?
    - 150/2.5 = 60 / 24 = 2.5 ml/kg/hr
- If the infant is on IVF, we measure the total amount of urine
- If the Infant is NOT on IVF, we measure the total amount of void

Stool output

- You will find a number of stools in the Input/Output tab
- For more details about stools, you will find this information in the flowsheet under NICU/NURSERY I/O
- If an infant has a stoma in place, you should calculate the output in ml/kg/day
    - Divide the total output in 24 hours by the weight



Medications

- List all the medications that the patient is receiving

Assessment

- Try to explain the major problems that the infants have in 1 sentence
- For example
  - This is a 3-day-old infant at 32w6d PMA with initial respiratory failure requiring CPAP, who now has comfortable respiratory effort in room air, and hypoglycemia requiring increased GIR and umbilical line placement.

Plan

- System based
  - CV/Resp: Continuous CR and pulse oximetry monitoring, follow murmur clinically for now.
  - FEN/GI: Advance feeds of breast milk or donor milk 30 ml/kg/day, change TPN to D12 at 80 ml/kg/day, monitor electrolytes, glucose, and I/Os
  - HEME: serial CBC and bilirubin levels as needed
  - ID: no concern for infection, monitor clinically, send Urine CMV

The rotation description can be found in Dropbox

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