NICU Standard Documentation

1:1 and 2:1 Assignments (3:1 is same except vitals, which are per order/with feedings)

Vital Signs

HR, RR, SpO2	Q 1 HR
BP & Temp	Per Order
ART Line BP	Q 1 HR
Pain	W/BP & Temp
Sedation Scores	Per Order
FiO2 & O2/Vent Settings	Q 1 HR
A's, B's, & D's	At Occurrence

* Flag significant changes and events (FiO2 changes, vent changes, education, VIS, etc.)

NICU2 Assess

1st Assessment	All Applicable Rows
After 1st Assessment	"NC" if Applicable
Vent Settings	Q 1 HR

Care Plan

Every shift using Maintaining, Progressing, and Not Progressing.

Notes

Progress note with new patient condition, acute change, or significant

NICU Daily

Identification	Q Assessment
Safety	Start of Shift
Alarms	1st Assessment
Cart Sheet	Print Q Monday
Safe Sleep	Q Assessment (All Rows)
Parent/Caregiver	Each Interaction

WALDO

Wounds	Q Assessment
Airway	Q Shift and PRN
PIV's	Start of Shift & "NC" hourly
Central Lines	Start of Shift & "NC" hourly
Drains	As Ordered
Ostomy	As Appropriate

* Full line assessment during 1st hour of shift and at 6am/6pm. Days chart 7pm "NC", Nights chart 7am "NC".

I&O

IV Fluids	Q 1 HR
Output	As Measured
CNG	Q 1 HR
Times Feedings	As Given

Education

Education Assessment	W/parent contact
GWN Videos	Upon completion
Resolve	Upon completion
VIS	Form Given.

*Remember to open cascade

Admission and Discharge documentation is different and can be found in *NICU Standard Documentation* under UCM Policies and Procedures on the Intranet.

Comer Children's Hospital		
Pediatric Guidelines Template		
Guideline: Clinically Significant Cardiopulmonary Events in the Neonatal Intensive Care Unit (NICU)		Guideline #: PEDS NICU 7
Section: NICU		Page: 1 of 5
Developed date: 8/25/18	Revision date: 3/4/19	Review date: 3/4/19

I. Guideline Title: Clinically Significant Cardiopulmonary Events in the Neonatal Intensive Care Unit (NICU)

II. Purpose: The aim of this guideline is to standardize definitions, observations and management for patients with clinically significant cardiopulmonary events in the Neonatal Intensive Care Unit (NICU).

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III. Definitions:

- Apnea: cessation of the respiratory airflow
  - Central Apnea: absence of inspiratory effort
  - Obstructive Apnea: inspiratory efforts occur, but are ineffective in the presence of an upper airway obstruction
  - Mixed Apnea: central apnea occurs initially followed by an upper airway obstruction with inspiratory efforts preceding or following central apnea

- Apnea of prematurity: a sudden cessation of breathing that last ≥20 seconds or <20 seconds and is accompanied by bradycardia or oxygen desaturation in an infant <37 weeks gestational age

- Bradycardia: heart rate below the normal range for age

- Clinically Significant Cardiopulmonary Event (CSCPE): a set of parameters used to standardize criteria for determination of apnea of prematurity
  - Any one of the following:
    - A period of apnea ≥20 seconds
    - A period of apnea or <20 seconds and is accompanied by bradycardia (HR ≤ 80 bpm for 10seconds) or oxygen desaturation (<90% for more than 10 continuous seconds or determined by monitor profile selected based on patient)
    - A bradycardia of ≤80bpm for > 10 seconds
    - An oxygen desaturation <90% or central cyanosis >10 seconds

- Oxygen saturation: percentage of hemoglobin combined with oxygen

IV. Background:

Apnea of prematurity is commonly diagnosed for patients in the NICU. Apnea of prematurity is defined as a sudden cessation of breathing that last ≥20 seconds or <20 seconds and is accompanied by bradycardia or oxygen desaturation in an infant <37 weeks' postmenstrual age (PMA) (Eichenwald, 2016). There are three types of apnea: central, obstructive, and mixed. Many events in premature infants are the result of mixed apnea where central apnea occurs initially followed by an upper airway obstruction with inspiratory efforts preceding or following central apnea. Recurrent apneic events decrease with increasing gestational age.

Management strategies for apnea of prematurity include: ventilation support, caffeine, and continuous cardiopulmonary monitoring (Eichenwald, 2016). In preparation for discharge, caffeine is discontinued, respiratory support is weaned, and the patient is monitored for clinically significant cardiopulmonary events (CSCPEs)(Knupp & Firestone, 2008). There are variations in management and discharge decisions for infants with apnea of prematurity (Chandrasekharan, et al, 2017). The American Academy of Pediatrics (AAP) Committee on Fetus and Newborn (COFN) states "A clinically significant apnea event–free period before discharge of 5 to 7 days is commonly used (Eichenwald, 2016)". This report also encourages units to develop guidelines for assessments, interventions, documentation of CSCPEs, and the period of observation prior to discharge (Eichenwald, 2016).

V. Procedure:

A. Diagnostic Criteria: All infants admitted to NICU will be continuously monitored on cardiopulmonary monitors for heart rate, respiratory rate, and oxygen saturation unless otherwise ordered.

B. Management:

<u>Bedside RN</u>

1. Upon admission, all infants will be placed on cardiorespiratory monitors and the nurse should select the appropriate monitor profile.
2. Document all appropriate rows and columns in EHR for apnea events, bradycardia events, desaturation events, description of patient activity, stimulation, if provided and its corresponding description, infant response to intervention, and overall change in infant's care plan.
3. Events associated with feeds that resolve when feeds are stopped are not TRUE events.
4. The occurrence(s) of a CSCPE should be included in nurse to nurse report along with a description of what was going on with the infant at time, needed interventions, and notification of providers, if applicable.
5. Notify MD/NNP if the patient is having increased CSCPEs AND/OR if the patient requires more than tactile stimulation as the intervention for a CSCPE.

Medical Team

1. Based on the description of the CSCPE and the degree of interventions, the medical team will determine the duration of continued observation while preparing for discharge using the flow diagram outlined in Section VI. Process Map.
    a. Inclusion Criteria
        i. Patient is otherwise ready for discharge
        ii. Observation off caffeine with total at least 7 days
        iii. No signs of infection, obstruction, or reflux
        iv. Events are not related to feeds
    b. For patients meeting inclusion criteria with CSCPE (as defined above), determine if apnea >20 seconds is present.
        i. If apnea >20 seconds is present
            1. Patient warrants 7 days observation if any of the following were present during the event:
                a. Stimulation required
                b. Associated with color change
                c. Bradycardia <80 bpm for >10 seconds
                d. Desaturation <90% for >10 seconds
            2. Patient warrants 5 days of observation if none of the above were present
        ii. If no apnea or if apnea <20 seconds:
            1. Patient warrants 5 days of observation if any of the following were present during the event:
                a. Stimulation required
                b. 5 or more events in the preceding 24 hours
                c. Bradycardia <60 bpm for >10 seconds
                d. Desaturation <70% for >10 seconds
            2. Patient warrants 3 days of observation in non e of the above were present during the event
        iii. If gestational age at birth </= 26 0/7wks, the time observed should be individualized by the attending physician.

VI. Process Map: See Page 5

VII. Cross Reference to the Following Hospital Policies (if applicable):
NICU 2: NICU/CTCU/MTCU Cardiorespiratory Monitoring

VIII. Corresponding order set: N/A

IX. Interpretation, Implementation And Revision :

X. **Created on (date)** By Jaideep Singh MD, MPH; Patrick D. Hughes, DO; Brandi Parker, MSN, MBA, RN; Amanda Erman, MS, APN, CCNS-Neonatal; Christina A Billy, BSN, RNC-NIC

XI. **Reviewed by: (list individuals, sections who have reviewed and agreed with final guideline).** NICU Clinical Pathways Committee

XII. **Approved on (date): 3/4/2019**

XIII. **Revision history:** Due for revision March 2021

XIV. **References:**

- Amin, S. B., & Burnell, E. (2013). Monitoring Apnea of Prematurity: Validity of Nursing Documentation and Bedside Cardiorespiratory Monitor. American Journal of Perinatology, 30(8), 643-648. doi:10.1055/s-0032-1329694.
- Butler, T., Firestone, K., Grow, J., & Kantak, A. (2014). Standardizing Documentation and the Clinical Approach to Apnea of Prematurity Reduces Length of Stay, Improves Staff Satisfaction, and Decreases Hospital Cost. The Joint Commission Journal on Quality and Patient Safety, 40(6), 263-269.
- Chandrasekharan, P., Rawat, M., Reynolds, A.M., Phillihps, K., & Lakshminrusimha, S. (2017). Apnea, Bradycardia, and Desaturation Spells in Premature Infants: Impact of a Protocol for the Duration of "Spell-free" Observation on Interprovider Variability and Readmission Rates. Journal of Perinatalogy, 00, 1-6. doi: 10.1038/jp2017.174.
- Darnall, R., Kattwinkel, J., Nattie, C., & Robinson, M. (1997). Margin of Safety for Discharge After Apnea in Preterm Infants. Pediatrics, 100(5), 795-801. doi: 10.1542/peds.100.5.795.
- Eichenwald, E. (2016). Apnea of Prematurity. Pediatrics, 137(1). doi: 10.1542/peds.2015-3757.
- Knupp, A., & Firestone, K. (2008). Using consistent education strategies to implement a process change for clinically significant cardiopulmonary events. Newborn & Infant Nursing Reviews, 8(2), 83-86.

Management of Clinically Significant Cardiopulmonary Events (CSCPE) in NICU

AT THE FOREFRONT OF KIDS MEDICINE
UChicago Medicine
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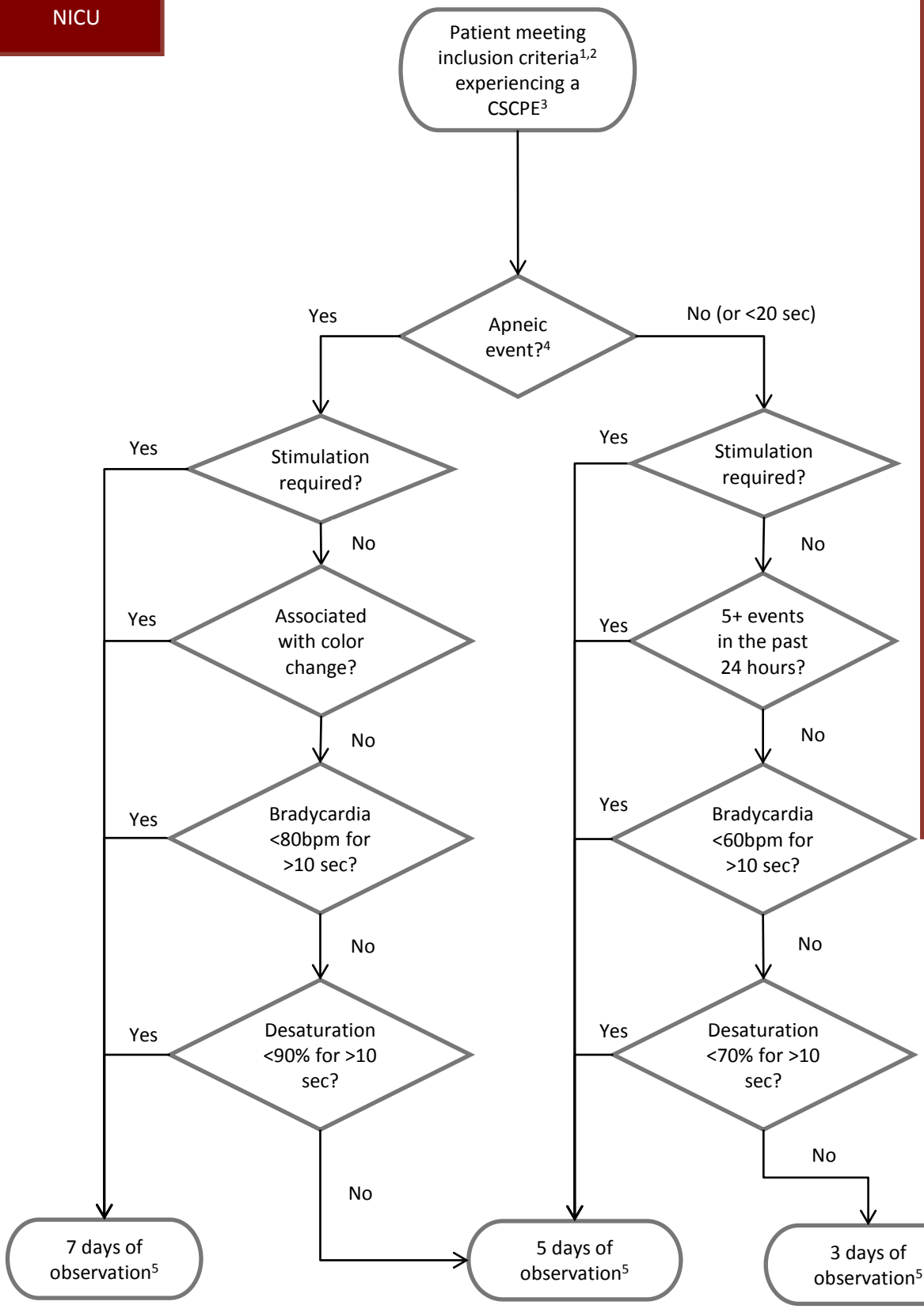
NICU



[1] **Inclusion criteria:**
- Otherwise ready for discharge
- No signs of infection, obstruction, reflux, related to feeds

[2] Observe for at least 7 days after cessation of caffeine

[3] Defined as one of following:
- Apnea >20 sec
- Apnea <20 sec WITH bradycardia (<80bpm for >10 sec) OR desaturation (<90% for >10 sec)
- Bradycardia <80 bpm for >10 sec
- Oxygen saturation <90% OR central cyanosis for >10 sec

[4] Events associated with feeds that resolve when feeds are stopped are NOT considered true events

[5] If GA at birth is </= 26 0/7 weeks, the time observed should be individualized at the discretion of the attending physician.

Safe suction Tip-Sheet

Work flow:

a. RT will initially complete the card with ventilator set-up
b. Cards will be housed in respiratory office
c. Any updates to the card will be a joint effort with RT/RN
d. When in use cards will be taped to the ventilator (refer to arrow)

ETT CARD:

AT THE FOREFRONT OF KIDS MEDICINE
UChicago Medicine
Comer Children's

For use with Kimvent Neonatal Y, size 6fr & 8fr

My name is: Intubation date: _____

ETT Size:_____Secured @_____cm at the: (circle one) Gums/Lip

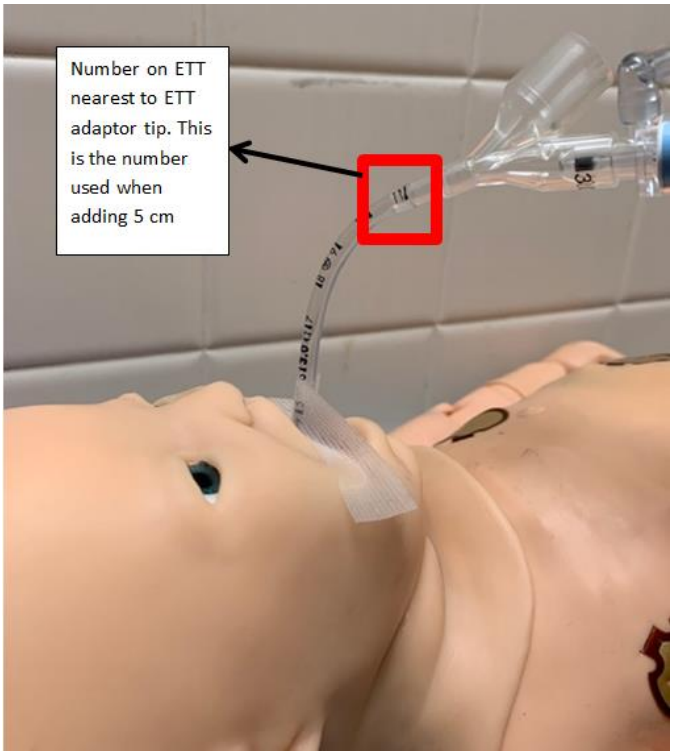
Suction Cath Size:_____

To determine suction depth:
Look at number on ETT nearest ETT adaptor tip: ____cm
Add 5 cm to suction at ETT tip +5
Equals suction depth total: ____cm

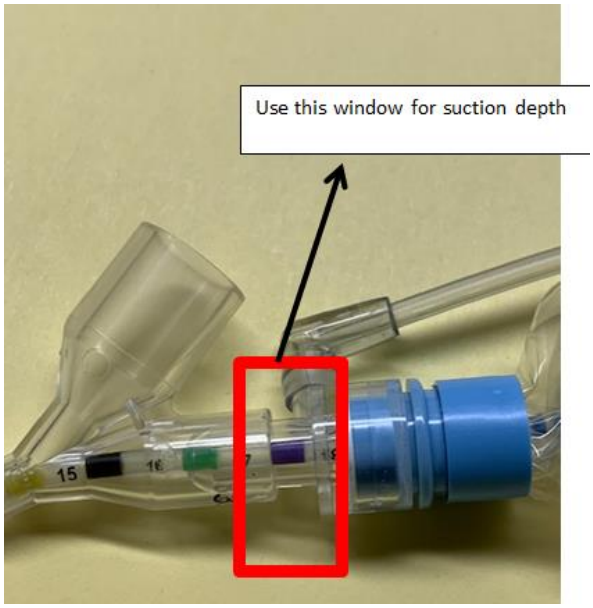
Please suction me to the_____cm mark or Color_____

Assure that suction pressure is set at 80 to 100 mm Hg.

1. ALL parts should be initially completed
2. ETT nearest to adaptor tip is shown in the picture below



3. Add 5 cm to adaptor tip to get suction total depth
4. Complete cm mark with total suction depth and the color it is associated with
5. Suction to the proper window depth with associated color



TRACH CARD:

AT THE FOREFRONT OF KIDS MEDICINE
UChicago Medicine
Comer Children's

My Name Is:

Trach Brand: Shiley/ Bivona/ Custom/ Flextend MRI OK?: Y or N

Trach Size:_____ Neo/ Ped Custom Trach Length: _____ mm

Cuffed or Cuffless (circle one) Air or Sterile Water (circle one): _____mL

Flextend: Y or N (if yes + 2cm for all suctioning)

Sterile Suction Catheter Size:_____fr Suction Depth:_____ cm (+2 cm if Flextend)

Closed Suction Catheter Size:_____fr Closed Suction Depth (+4 cm to total suction depth): _____ cm

Change My Trach On:_____

One Size Smaller Trach Brand and Size:_____

Notes:_____

_____

Shiley	ID/OD/Length (mm)	Open Suction	Catheter size
Neo 3.0 △	3.0/4.5/30	5 cm	6 Fr
Neo 3.5 △	3.5/5.2/32	5 cm	6 or 8 Fr
Neo 4.0 △	4.0/5.9/34	5.5 cm	8 Fr
Neo 4.5 △	4.5/6.5/36	6cm	8 Fr
Peds 3.0 △	3.0/4.5/39	6 cm	6 Fr
Peds 3.5 △	3.5/5.2/40	6 cm	6 or 8 Fr
Peds 4.0 △	4.0/5.9/41	6 cm	8 Fr
Peds 4.5 △	4.5/6.5/42	6 cm	8 Fr
Peds 5.0 △	5.0/7.1/44	6.5 cm	10 Fr
Peds 5.5 △	5.5/7.7/46	6.5 cm	10 or 12 Fr
Adult 4.0 DCT △	5.0/9.4/65	8.5 cm	10 or 12 Fr
Adult 6.0 DCT △	6.4/10.8/76	10 cm	14 or 16 Fr
Adult 8.0 DCT △	7.6/12.2/79	11.5 cm	16 Fr

Bivona	ID/OD/ Length (mm)	Open Suction	Catheter size (Fr)
Neo 2.5 ☆	2.5/4.0/30	5.5 cm	6 Fr
Neo 3.0 ☆	3.0/4.7/32	5.5 cm	6 or 8 Fr
Neo 3.5 ☆	3.5/5.3/34	6 cm	8 Fr
Neo 4.0 ☆	4.0/6.0/36	6cm	8Fr
Peds 2.5 ☆	2.5/4.0/38	6.5 cm	6 Fr
Peds 3.0 ☆	3.0/4.7/39	6.5 cm	6 Fr
Peds 3.5 ☆	3.5/5.3/40	6.5 cm	6 or 8 Fr
Peds 4.0 ☆	4.0/6.0/41	6.5 cm	8 Fr
Peds 4.5 ☆	4.5/6.7/42	6.5 cm	8 Fr
Peds 5.0 ☆	5.0/7.3/44	7 cm	10 Fr
Peds 5.5 ☆	5.5/8.0/46	7 cm	10 or 12 Fr
Adult 5.0 ☆	5.0/7.3/60	8.5 cm	10 or 12 Fr
Adult 6.0 ☆	6.0/8.7/70	10 cm	12 or 14 Fr
Adult 7.0 ☆	7.0/10/80	11 cm	14 or 16 Fr

Add 4cm if utilizing closed (inline) suction to account for dead space

△ : MRI Conditional: Pilot line and balloon must be securely taped down at least 3cm away from area to be scanned

☆ : MRI Conditional: Safe in magnetic fields ≤ 3 Tesla for ≤ 15minutes

1. Fill out card identifying the brand/ cuff/ flextend/ etc.
2. The OPEN SUCTION on the back of the card will coordinate to the suction depth
3. The open suction is the length of the trach or obturator
4. 2 cm is added to the total if the trach is a flextend
5. ADD 4 cm to the suction depth for closed line system

Vaccination Documentation Update Tip Sheet

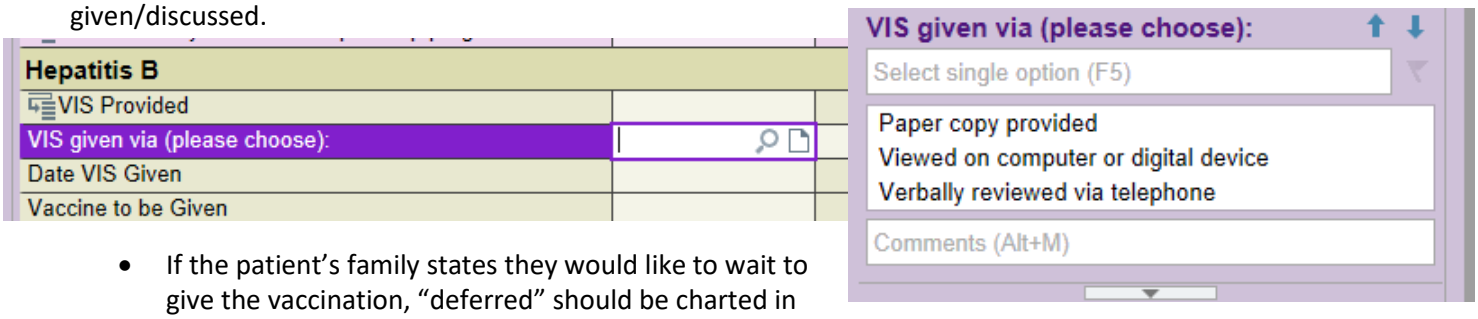
Vaccination Documentation can be found in the "NICU Daily" Tab

A signature **is not required** for a vaccination to be administered, paper forms are previous practice and should not be utilized anymore. All documentation should be via EPIC

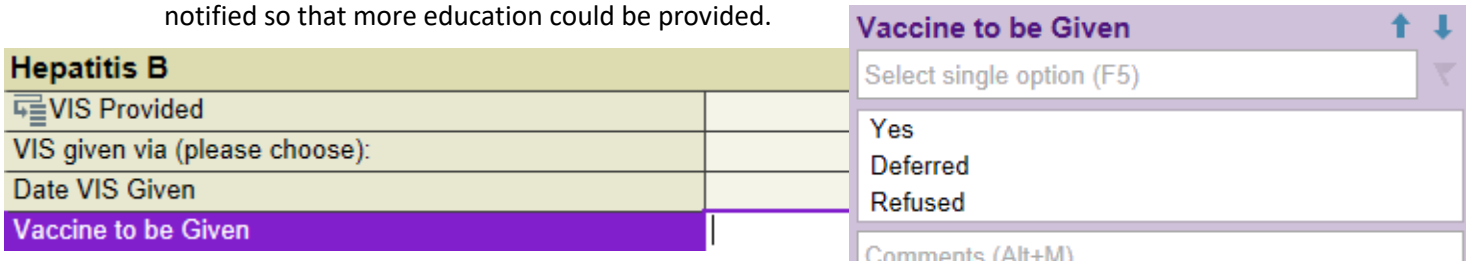
If parent interaction is documented and the patient is eligible for a vaccine then a vaccine VIS provided should be documented YES as this is a conversation we should be having to get the infant their vaccine in a timely fashion.

- Documentation in the flowsheet on whether or not the VIS was given should initiate the vaccine to be administered by either the staff nurse who gives the VIS or if it is at shift change the following nurse who is taking over
- The vaccinations should not be treated as a discharge checklist item and should be administered when the patient is eligible to receive.

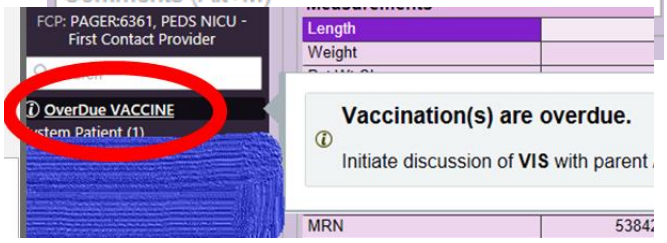
Examples of how the VIS can be given are below and should be charted on when the VIS is given/discussed.



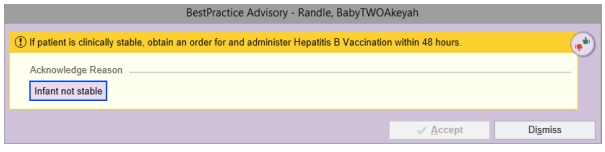
- If the patient's family states they would like to wait to give the vaccination, "deferred" should be charted in vaccine to be given and it should be commented the reason for deferring. A provider should be notified so that further education could be provided if necessary.
- If the patient's family states they "refuse" the vaccine, refused should be charted in the vaccine to be given and a comment should be entered "provider notified" after a provider has been notified so that more education could be provided.



If a vaccine is not given in a timely fashion you will see an "OVERDUE VACCINE" on the side bar and in the next parent interaction the VIS should be discussed



The BPA (Best Practice Advisory) is there to help you be reminded on a task that needs to be completed. It will appear as below -



- ❖ Nirsevimab (the RSV shot) will be treated as a "vaccine" even though it isn't technically one. It has an "Immunization Information Sheet" (IIS) rather than a VIS. This should be charted in the same area.

NICU Pharmacy Reference
Reviewed by Malia Hain, PharmD, Deborah Bondi, PharmD, Pooja Shah PharmD
Last Updated 10/1/2022

RAPID SEQUENCE INTUBATION

What is Rapid Sequence Intubation (RSI)?

Rapid sequence intubation is a technique that allows for a more controlled emergency airway by producing immediate unresponsiveness and muscular relaxation.

By controlling the process of RSI, there are several benefits for both patients and providers.

- Decrease prevalence of physiological instability, including bradycardia, and attenuates the increase of intracranial pressure associated with intubation
- Increase of successful intubations due to decreased attempts, as well as decreased time per procedure

There are three types of medications used to perform RSI and they must be ***given in this order***:

1. Pre-medication (not always required)
2. Induction agent
3. Neuromuscular Blocking Agent (Paralytic)

Preferred Medications at UCM	Rationale
Pre-Medication (optional): Atropine	Prevention of reflex bradycardia due to an exaggerated vagal response and help to dries secretions
Induction agent: Fentanyl Optional 2nd induction agent: Midazolam	Renders the patient unconscious prior to paralysis, provides amnesia, blunt sympathetic responses, and can improve intubating conditions
Paralytic: Cisatracurium	Immobilize patient to perform intubation

Medication Dosing & Administration Table Reference

Medication	Class of Medication	Dose	Location/How Supplied	How to Administer
Atropine	Anti-cholinergic	0.02 mg/kg	Omnicell: Comes as a 0.1 mg/mL (1 mg in 10 mL) syringe	Rapid IV Push Maybe given IM (if IV access not available) Slow injection may results in paradoxical bradycardia
Fentanyl	Opioid	1-2 mcg/kg	Omnicell: Comes as a pharmacy-prepared 5 mcg/mL (5 mcg in 1 mL) syringe	Slow IV Push to avoid muscle rigidity
Midazolam	Benzodiazepine	0.05-0.1mg/kg	Omnicell: Comes as 1mg/mL (2 mg in 2 mL) vial	IV push over 2-5 minutes
Cisatracurium	Paralytic	0.1- 0.2 mg/kg	Omnicell Refrigerator Comes as a 2 mg/mL (10 mg in 5 mL) vial	Over 5 to 10 seconds

Procedure

1. RSI shall be performed by licensed clinicians trained in the procedure with oversight at the bedside by an attending neonatologist, a neonatal fellow, or an NNP. The full medical team which will be intubating the patient should be present prior to initiating RSI.
2. Ideally, all medications required should be prepared and labeled prior to the beginning of RSI.
3. Medication should be given sequentially in the following order: pre-medications → induction agent(s) → paralytic.
4. Verbal confirmation should be provided with administration of each step of RSI.
5. RN to document medications administered in the MAR.
6. Physician/NNP to document medications administered in the Procedure Note for the intubation.

References

- Atropine monograph. Lexi-Comp Online. Pediatric and Neonatal Lexi-Drugs Online. http://online.lexi.com/crlonline (accessed August 15, 2020).
- Fentanyl monograph. Lexi-Comp Online. Pediatric and Neonatal Lexi-Drugs Online. http://online.lexi.com/crlonline (accessed August 15, 2020).
- Cisatracurium monograph. Lexi-Comp Online. Pediatric and Neonatal Lexi-Drugs Online. http://online.lexi.com/crlonline (accessed August 15, 2020).
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- Koch, M. B., & Trautman, M. (2018). Implementation of a Neonatal RSI Pre-sedation Protocol and Effect on First Attempt Endotracheal Intubation Attempts for Neonatal Transport Team Members.
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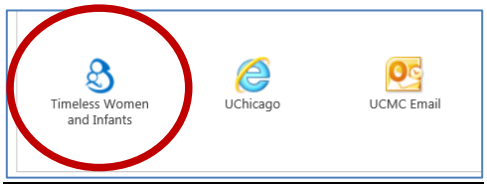
Quick Guide

Timeless Women & Infants™ Human Milk and Formula Tracking

Summary

Timeless Medical Women & Infants™ is for the tracking and inventory maintenance of infant formula and breast milk. The system traces from preparation to feeding with barcode scanning technology, thus reducing errors via breast milk management, inventory, and feeding administration.

Logging In:



1) Log into the **Clinical Desktop**
2) Click on icon: **'Timeless Women and Infants'**

3) Use your **UCHAD credentials** to log into Timeless

Timeless Quick Access Menu:

The main functions of Timeless may be accessed in the **Quick Access Menu**. The functions are:

- **Print Labels:** Print bottle collection labels
- **Receive:** Receive Bottles
- **Prepare Bottles:** Simple Prep
- **Feed Baby:** Administer Feed

STEP-BY-STEP:

I. Print Labels
II. Receive Bottles
III. Prepare Bottles
IV. Feed Baby

Document Version 1
Produced by: Chicago Biomedicine Information Services
Revised: 07/25/2017

I. Print Labels

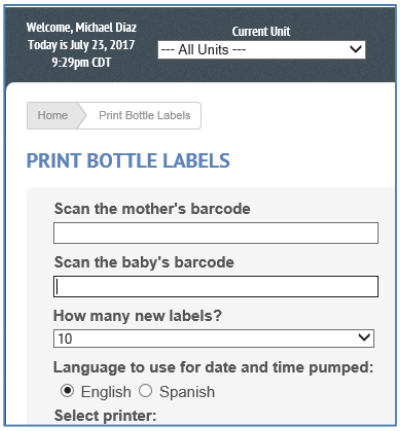
1) **Click** on the '**Print Labels'** icon in the quick access menu

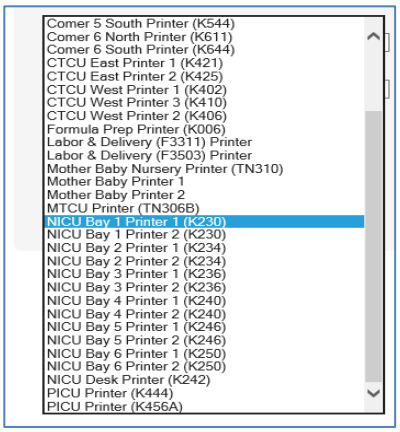
2) **Scan** the baby's or mom's **CSN bar code** into the appropriate field

3) **Select** the **number of bottle labels** to print

4) **Select** the **appropriate printer** to which labels will be sent

5) **Click 'Next'**





6) The **Confirmation Screen** will confirm the mother and baby's information, the identifiers of each label printed, and the printer to which the job was sent.

IMPORTANT: Check the label identifiers on the label against the identifiers on the confirmation screen.

.

Note: Labels will print with **unique bottle ID and bar code, patient name** and **MRN**, patient's **DOB** and a **line for Date/Time pumped**. Labels should be handed to Mom, who should be instructed to **verify/record** the date and time information on every label.

II. Receive Bottles

1) **Click** on the **'Receive' icon** in the **Quick Access Menu**

2) **Scan** the **bar code** of each labeled bottle **received** from the mom

3) Click **'Next'**

4) **Record** the **pumped date and time** from the bottle into the appropriate fields as well as the **bottle state** and new storage location

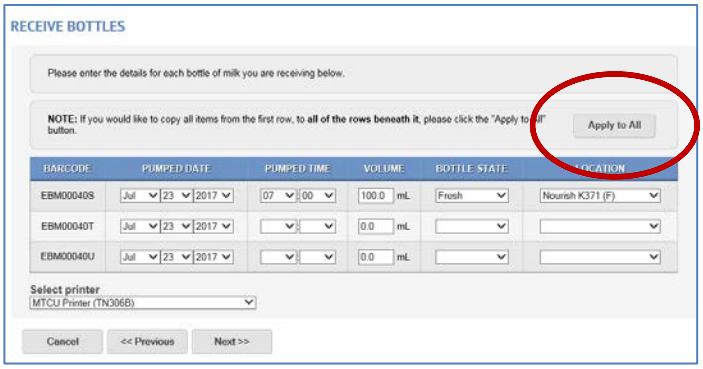
5) If milk is in a **liquid state**, measure the amount and document in the 'Volume' Field

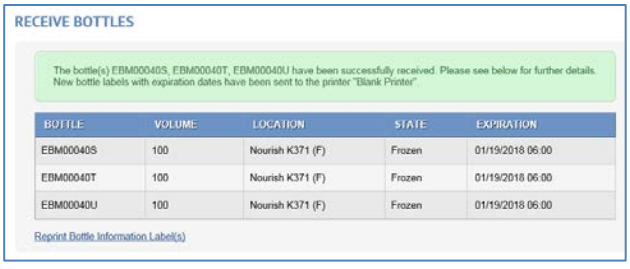
> **Tip:** Click **'Apply to All'** to copy the information from the first bottle to the additional lines, and **change the details** to each accordingly

6) **Select** the **printer** to which the job should be sent

7) Click **'Next'**

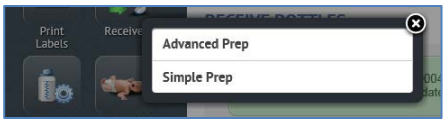
8) **Retrieve** the new labels, and check information against the **confirmation screen**





III. Prepare Bottles

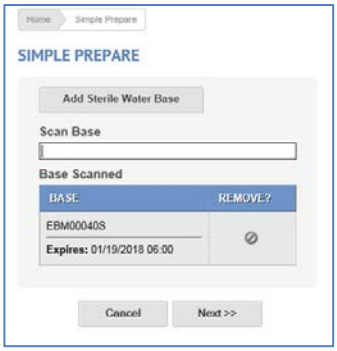
1) **Click** on the **'Prepare Bottles'** icon in the **Quick Access menu**



2) **Scan** the **bottle(s) to be administered** into the **'Scan Base'** field

3) **Select the radio button** next to the corresponding **feed order** to prepare

4) Click **'Next'**



5) **Check** that the **appropriate number** of containers were **defaulted** in the **'Number of containers being prepared'** field

6) **Confirm** the **volume of base** indicated is enough to fill the order

7) Populate the **'Location'** in the **'Container #'** section with the appropriate storage location by selecting it from the drop down menu

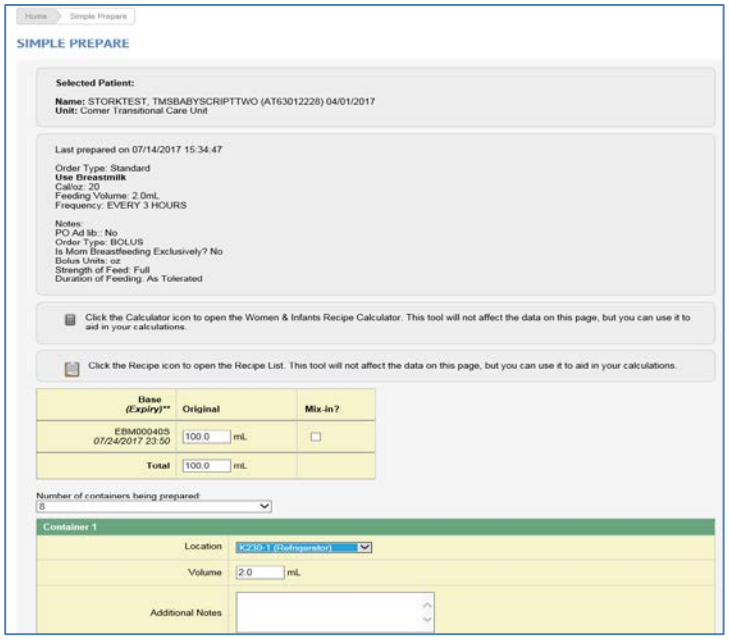
8) **Enter** the **appropriate amount** for the first container into the **'Volume'** field; the subsequent containers will **auto-fill** with the **same amount**

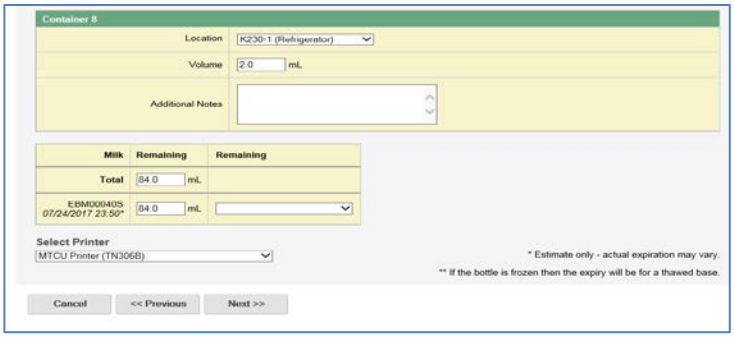
9) **Add** any **additional notes** that should appear on the label

10) If additional milk/formula is left in the last section, **confirm** the **amount** and **select** the **location** where the remaining milk/formula should be stored

11) **Select** the **printer** to which the new labels should be sent

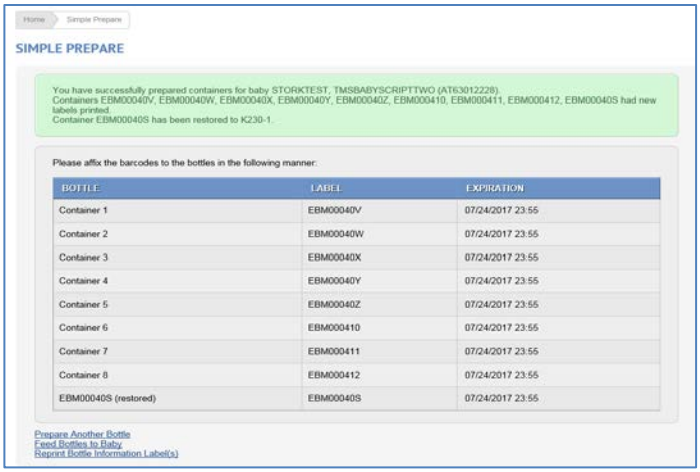
12) Click **'Next'**





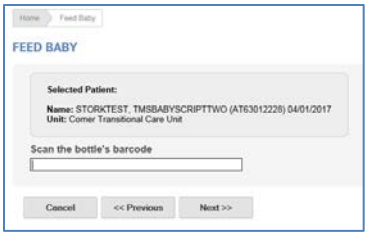
13) **Verify** the **label information** to that on the confirmation screen

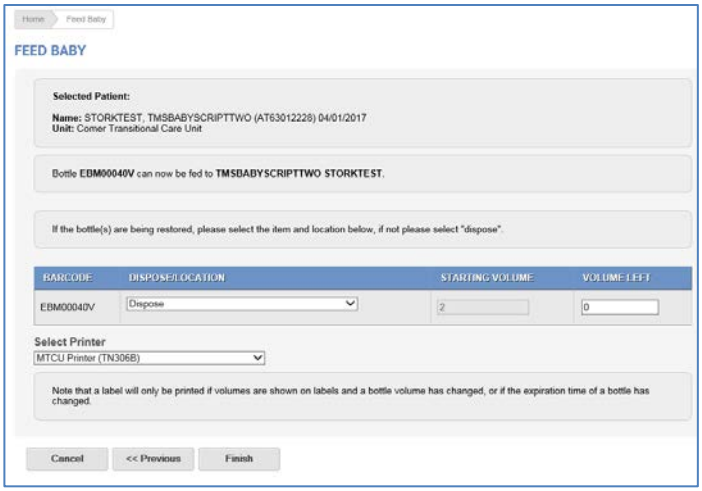
14) To immediately feed the baby, select the **'Feed Bottles to Baby'** link below the confirmation table

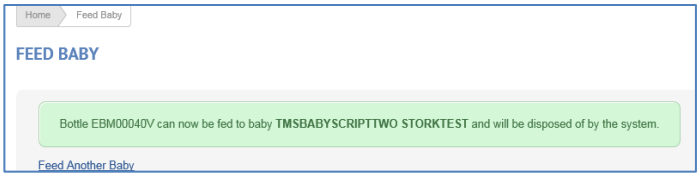


IV. Feed Baby (Human Milk)

1) **Click** on the **'Feed Baby'** icon in the **Quick Access Menu**
2) **Scan** the **baby's CSN** bar code on the baby's name band
3) Click **'Next'**
4) **Confirm** the **baby name** identified in the grey box
5) **Scan** the **bar code on the bottle** that is **to be fed**
6) **Confirm** the baby and bottle **identifier** on the page
7) If the bottle has **already been fed**, select **'Dispose'** from the **'Disposal Location'** drop down, or if **additional milk remains**, select the appropriate storage location and **indicate the amount** in the **'Volume Left'** Field
8) **Select** the **printer** to which a new label should be sent if milk remains
9) Click **'Finish'**
10) Follow the **standard work** for **documenting volume fed** and administration notes in the **MAR** and **flowsheets**, respectively.







Note: A green confirmation banner will be displayed if a successful feed is administered

V. Feed Baby (Ready-to-Feed)

11) **Click** on the **'Feed Baby'** icon in the **Quick Access Menu**

12) **Scan** the **baby's CSN** bar code on the baby's name band

13) Click **'Next'**

14) **Confirm** the **baby name** identified in the grey box

15) **Scan** the **bar code on the RTF bottle** that is **to be fed**

    NOTE:

    Similac and Gerber products will have a **2D matrix bar** code to scan.

    Enfamil individual units do not have a usable bar code. The bar code on the **Enfamil product cases will need to be scanned**.

    The linear bar code may be scanned for all other products.

16) **Confirm** the baby and bottle **identifier** on the page

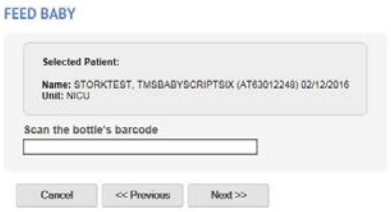
17) **Verify the product expiration** to ensure it can still be administered

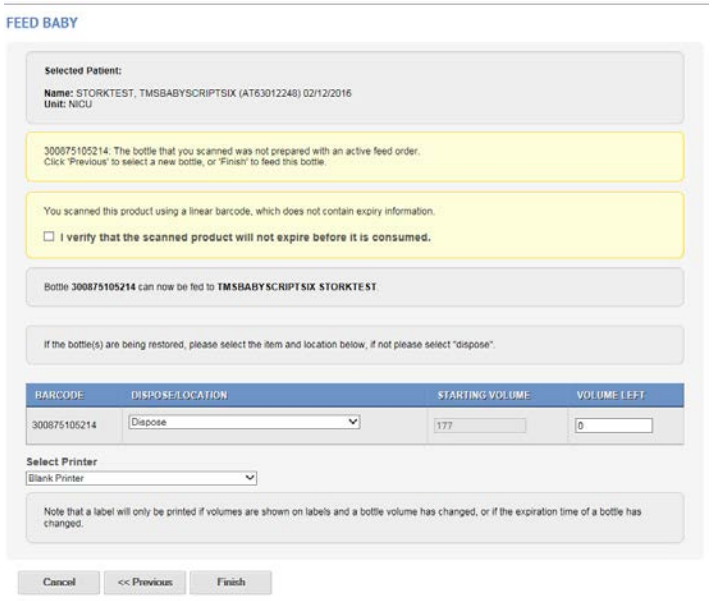
18) **Select** the **location** where remaining formula will be stored and record the volume left

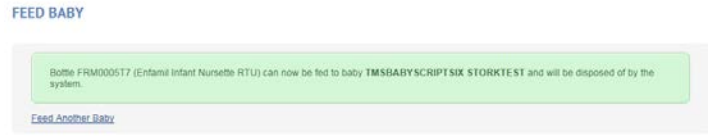
19) **Select** the **printer** to which a new label should be sent if milk remains

20) Click **'Finish'**

21) Follow the **standard work** for **documenting volume fed** and administration notes in the **MAR** and **flowsheets**, respectively.







Note: A green confirmation banner will be displayed if a successful feed is administered

Intubation:

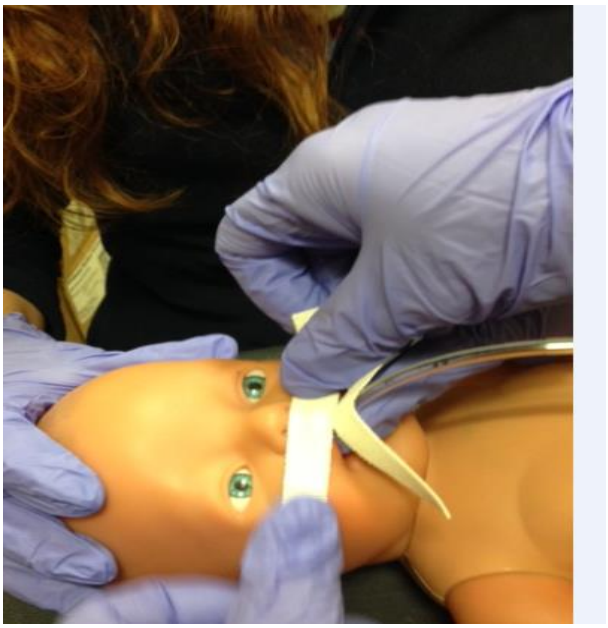
MDs/NNPs, fellows, and residents are able to perform intubations in the NICU/CTCU/MTCU. If the need for intubation was not planned, you may not be able to leave the bedside to obtain supplies if you need to hand-ventilate the infant with the bag and mask. In this case, ask one of your co-workers to get a doctor or NNP, grab the intubation kit or "box" (located in the alcoves between pods) , and to "cut tapes" for you. If no one is readily available, hit your Code Blue or Staff Assist button found on the wall of each bed space. (Ideally you will already have pre-cut tapes at the infant's bedside).

Intubation Kit Contents:
Two stylets
One of each size blades (00, 0, 1)
Three each ETT size (2.5, 3, 3.5, 4)
Two benzoin
One pediacap (CO_2 detector)
Three light bulbs
One pkg double "AA" batteries

Securing the ETT

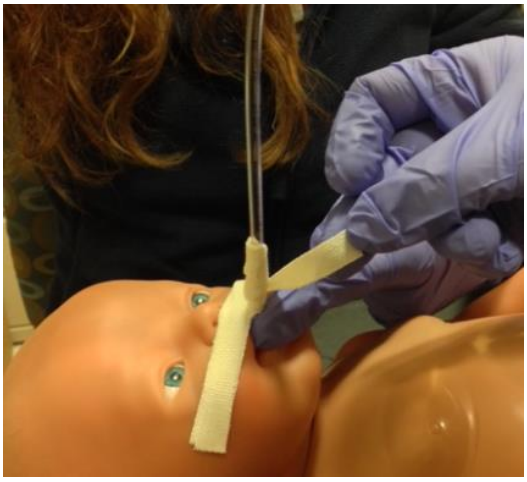
- Place Duoderm® under the tapes. We cut the Elastoplast® tape into 3 strips: one "H" and two "Y's."

- The “H” is placed with the top strip over the infant’s upper lip, stretched out fairly tight directly across the cheeks.



- The bottom strip will then have half of itself hanging over each side of the tube. Wrap one side of the strip over and around the ETT, angling each wrap slightly downward as you go

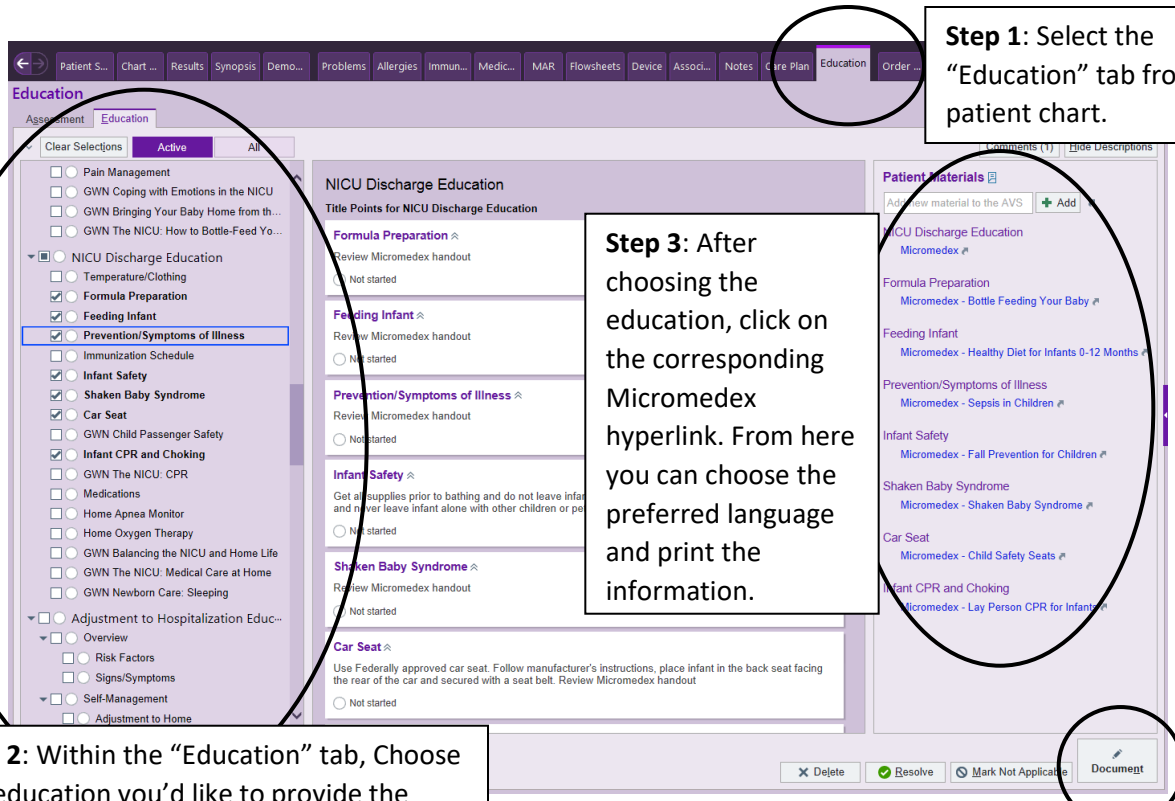
- Next wrap the other side in the same manner. Take one of the “Y’s” and place the uncut side on one side of the face, on top of the “H” already placed on the cheek. The top strip of the “Y” will be stretched over the lip and over onto the opposite cheek (again, on top of the tape that is already there from the “H”).



- The bottom strip of the “Y” is to be wrapped under and around the ETT in the same downward spiral as the “H” was. Do the same with the remaining “Y”, only start on the opposite cheek as the first “Y.

After the tube is taped in place, make sure the secretary orders a stat chest X-ray for your infant.

How to Print Discharge Education

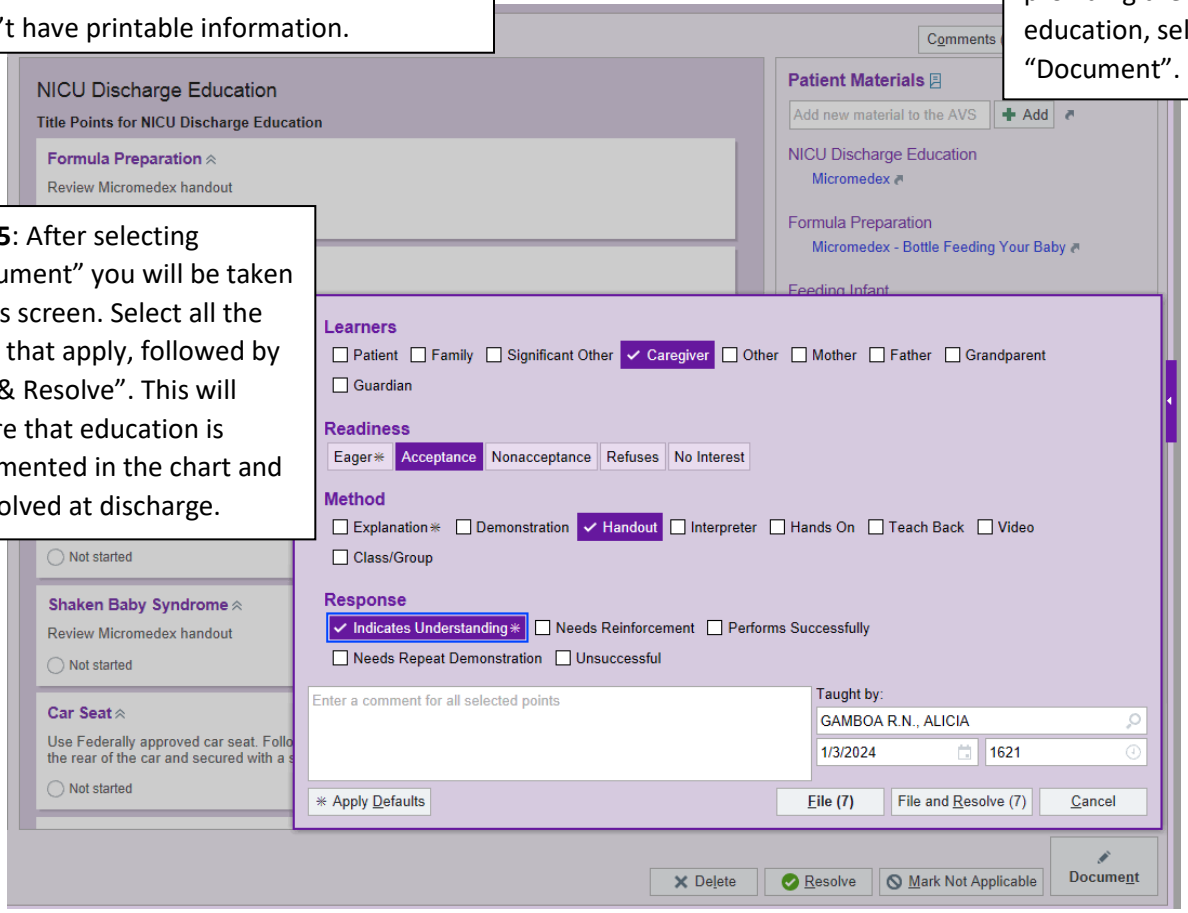


Step 1: Select the "Education" tab from the patient chart.

Step 2: Within the "Education" tab, Choose the education you'd like to provide the parent/guardian. Avoid topics that start with "GWN" as these are for the iPads and don't have printable information.

Step 3: After choosing the education, click on the corresponding Micromedex hyperlink. From here you can choose the preferred language and print the information.

Step 4: After providing the education, select "Document".



Step 5: After selecting "Document" you will be taken to this screen. Select all the fields that apply, followed by "File & Resolve". This will ensure that education is documented in the chart and is resolved at discharge.

Neonatal Codes at University of Chicago Medicine

1. Neonatal Codes and OB Emergencies in the Family Birth Center

A. Code Yellow, Code White, and Code Blue

Type of Code	Definition	Attendants
Code Yellow:	Low risk factors that may require neonatal resuscitation	• One intern and a resident or one NNP or a combination of the two • NICU RN must attend
Code White	Intermediate risk factors that may require resuscitation	• One intern and a resident or one NNP or a combination of the two • NICU RN must attend
Code Blue	High risk factors that will most likely require resuscitation	• NNP, NICU attending, or NICU fellow • Respiratory Therapist • NICU RN • 2nd NICU RN, as needed

B. OB Emergency

Type of Code	Definition	Attendants
OB Emergency	High risk factors that will most likely require resuscitation	• OB team • NNP, NICU attending, or NICU fellow • Respiratory Therapist • NICU RN • 2nd NICU RN, as needed

C. Communication and Details

- Utilize the established electronic call system to notify individuals of type of code, location, and any other details
- In the event of downtime, use the paging system and page **1-5-9** to indicate type of code, location and any other details

2. OB Emergency outside of the Family Birth Center

A. "Dr. Stork"

Type of Code	Definition	Attendants
Dr. Stork	Obstetric emergency which occurs outside the Family Birth Center (FBC)	• NICU **Code blue** team is required to attend • OB team is required to attend

B. Communication and Details

- A page to **1-4-7** "Dr. Stork" and location will be indicated "Dr. Stork" will be called overhead and sent to Code team pagers
- NICU RN will bring resuscitation supplies and equipment to location of "Dr. Stork"

3. Neonatal Emergency outside of the NICU and Family Birth Center

A. Definition: When a neonatal patient of the Neonatal Intensive Care Unit (NICU) or the FBC newborn experiences a respiratory or cardiac emergency outside of the NICU or FBC

B. Procedure

- Dial **1-5-9** to indicate there is a neonatal emergency and the location of the emergency
- The NICU Code blue team is required to attend
- A NICU RN will bring resuscitation supplies and equipment to location of the neonatal emergency

THE UNIVERSITY OF CHICAGO MEDICINE
Comer Children's Hospital
AT THE FOREFRONT OF KIDS' MEDICINE

Comer Children's Hospital		
Pediatric Guidelines Template		
Guideline: Enteral Feeding Advancement Guidelines for Preterm Infants	Guideline #: <enter>	
Section: Neonatology	Page: 1 of 6	
Developed date: May 2023	Revision date: Initial	Review date: 9/29/23

DISCLAIMER: Comer Children's Hospital Guidelines are developed based on review and synthesis of the literature as well as local practice current at the time of their development; they are reviewed annually and updated as needed. Guidelines are not meant to replace clinical judgement or professional standards of care. Providers should use their discretion to manage each individual patient and his/her unique needs.

I. Enteral Feeding Advancement Guidelines for Preterm Infants

II. Purpose: To provide evidence-based guidance for initiation and advancement of preterm infant feedings in the Neonatal Intensive Care Unit (NICU)

III. Abbreviations:
Neonatal Intensive Care Unit (NICU)
Gastrointestinal (GI)
Total fluid volume (TFV)
Enteral nutrition (EN)
Parenteral nutrition (PN)
Birth weight (BW)
Low birth weight (LBW)
Very low birth weight (VLBW)
Extremely low birth weight (ELBW)
Corrected gestational age (CGA)
Necrotizing enterocolitis (NEC)
Human milk (HM)
Donor breast milk (DBM)

IV. Background:

Nutrient requirements for premature infants vary based on weight and degree of prematurity. Premature infants have decreased stores, altered gastrointestinal absorption, and require more rapid weight gain compared to full term infants. Thus, calorie, protein, and various micronutrient requirements are higher in premature infants.

Enteral feeds should be started as soon as possible, ideally within the first 24-48 hours after birth, pending no contraindications to safe feeding.

Maternal breastmilk is the preferred source of nutrition for all infants and will always be given preferentially when available and not otherwise contraindicated. If maternal milk is unavailable, consent

for donor breastmilk may be obtained for premature infants. If neither maternal nor donor milk are available, then formula feedings using a preterm formula may be started.

Enteral calorie and protein requirements for pre-term infants

	Calories	Protein
ELBW (<1000g)	120-150 kcal/kg	4-4.5 g/kg
VLBW (<1500g)	110-130 kcal/kg	3.5-4.2 g/kg
LBW (<2500g)	110-130 kcal/kg	3-4 g/kg

V. Procedure:

Feeding Day	**<750g**	**751 to 1000g**	**1001 to 1500**	**>1500 (up to ~34 wks CGA)**
Goal TFV 150-160 mL/kg/day				
1	10-20 mL/kg/day	10-20 mL/kg/day	20 mL/kg/day	20 mL/kg/day
2	10-20 mL/kg/day	10-20 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 30-40 mL/kg/day
3	10-20 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 30-40 mL/kg/day
4	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 30-40 mL/kg/day
5	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 30-40 mL/kg/day
6	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	
7	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	
8	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day	
9	Increase by 20-30 mL/kg/day	Increase by 20-30 mL/kg/day		
10	Increase by 20-30 mL/kg/day			

Enteral feeds may be advanced faster or slower per provider discretion pending tolerance to enteral feeds. Each case should be individually reviewed for feeding readiness. This guideline is a basic framework, however the clinical care team will make day to day decisions regarding nutrition.
Increases by 20, 30, or 40 mL/kg/day may be split into BID increases (i.e. 10 mL/kg BID, 15 mL/kg BID, or 20 mL/kg BID)
Fortification to 22 kcal/oz or 24 kcal/oz should occur when enteral feeding volume reaches ~80-100 mL/kg/day. HM or DBM should be fortified with a human milk fortifier if not otherwise contraindicated.

Discontinuation of parenteral nutrition and transition to clear fluids

- Parenteral nutrition should be stopped when PN volume is ≤40 mL/kg/day
- Clear fluids may be discontinued once enteral feeds volume reaches 140 mL/kg/day

Enteral Feeding Decision Tree

- First choice – Maternal breast milk
- Second choice – Donor breast milk (requires consent)
- Third choice – Premature infant formula
    a. Infants <2kg: 24 kcal/oz premature infant formula
    b. Infants >2kg: 22 kcal/oz premature discharge infant formula

Contraindications to starting enteral feeds

- Hemodynamic instability
- Severe acidosis
- Obstruction or ileus

Non-nutritive oral care provided per guidelines below:

- Guideline: Environment and Support of the NICU Patient
- Guideline: Transformative Nursing Care: The Healing Environment and 2-Person Cares

VI. Process Map

All guidelines that address a process of care must be accompanied by a clearly defined process map. The process map should incorporate steps for assessment, delivery of care, and discharge throughout the entire pathway, from admission to discharge. Decision trees should be clearly delineated. Standard flowchart and process map symbols and formats should be utilized. General guidelines include appropriate use of symbols (start/end points, decision trees, and actions) and yes/no options should flow in a consistent direction. Additional text boxes may be used to provide definitions or other important criteria (e.g. exclusion criteria) that is described within the guideline and are needed to follow the pathway. Link steps in the process map to specific sections of the written Guideline using the outline numerals.

VII. Cross Reference to the Following Hospital Policies and Guidelines:

PC125D: Pediatric and Adult Parenteral Nutrition
PC 228 Education Care and Culture of Infant Feeding the Parent Baby Dyad
PC 237 Administration of Human Milk

Patient Care Protocols and Guidelines: Collection Storage and Preparation of Human Milk
NICU Guideline: Environment and Support of the NICU Patient
NICU Guideline: Transformative Nursing Care: The Healing Environment and 2-Person Cares

VIII. Corresponding order set:
NICU TPN Labs (schedules TPN labs for appropriate M/Th draw)

IX. Interpretation, Implementation, and Revision: *{Identify the leading authority, or the individual responsible for interpreting, implementing, and revising the guideline. Most likely the Chair of the Section submitting the guideline}*

X. Created on: 4/25/23 by Caitlin Jordan MS, RDN, LDN CNSC and Dr. Shilpa Telang

XI. **Reviewed by:** Dr. Kelly Kelly; Dr. Michael Schreiber; Dr. Gillian Brennan; Dr. Christine Carlos; Dr. Erika Claud; Dr. Walid Hussain; Dr. Tomas Munoz

XII. Approved on (date): 9/29/23 by Pediatric Guideline Committee

_____ _____

Chair, Pediatric Guidelines Review Committee **Date**

XIII. Revision history: N/A – Initial submission

XIV. References:

Abiramalatha T, Thomas N, Thanigainathan S. High versus standard volume enteral feeds to promote growth in preterm or low birth weight infants. *Cochrane Database of Systematic Reviews*. 2021, Issue 3. Art. No.: CD012413

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