

# SBAR Regarding TPN Management

**Situation:** Omission of critical components of Total Parental Nutrition (TPN) fluid and failure to monitor specific lab values can lead to patient harm.

**Background:** TPN is considered a medication that requires careful supervision by the attending physician. As such, a standardized process of communication, assessment and monitoring of the TPN therapy is required.

**Assessment:** Several process changes in TPN management have been recommended.

**Recommendation:** The recommendations for TPN process changes for the medical staff regarding TPN management are as follows:

1. **Standardize the handoff/sign-out related to communicating the TPN plan on new patients and those requiring adjustments to stabilize.** Minimum documentation in the medical note for TPN adjustments should occur for:
  - a. Patients at risk for hyperkalemia
  - b. Patients demonstrating a change in organ function necessitating a TPN content change
  - c. Patients with a TPN content or ingredient change to out of normal range
  - d. Patients with omissions of standard/routine TPN content

A recent EPIC upgrade (June 18, 2013 – see Sign-Out upgrades from eChart Education) allows an EPIC based specialty-specific sign-out to print on the rounding reports for inpatient use.

2. **Standardize the requirements for minimum lab monitoring and when adjustments are made to the TPN –** minimum lab monitoring recommendations are embedded within TPN order instructions of each TPN order templates in EPIC. (See the attached.)
  - a. For NICU TPN lab templates
    - i. Lab description within order instruction box is:

Minimum TPN Initiation labs: TPN Panel A on day 1, 2, 3 OR Chem-7 + Ca if indicated

Minimum TPN Maintenance labs TPN Panel B weekly
  - b. For Non-NICU TPN templates
    - i. Lab description within order instruction box is:

Minimum TPN Initiation labs: TPN Panel B on day 1, TPN Panel A on days 2, 3 then TPN panel B weekly for 4 weeks

Minimum TPN Maintenance labs: TPN Panel B at frequency to be determined by team

## Minimum TPN monitoring recommendations Final

TPN Lab Panels	Lab panel content
TPN Group A	Chem 10, Tg
TPN Group B (<15 days)	Chem 10, Tg, GGT, hepatic function *¶, CBC with diff, retic
TPN Group (>15 days)	Chem 10, Tg, GGT, hepatic function *, CBC with diff, retic
Other Available Lab Panels	
Individual lab tests and lab panels available for patient specific needs	
Lab Add on's	Neo bili* (<15 days of life), bili*, Tg, prealbumin, CRP, PT, 25OHD, copper, ceruloplasmin, ferritin, transferrin
Hepatic Function Panel	Albumin, total protein, alk phos, bili, ALT, AST
Nutrition Panels For long term nutritional monitoring when on enteral feeds	
NICU Nutrition Panel A	Chem 10 +alk phos + H/H + retic
NICU nutrition Panel B	Chem 10 + alk phos + H/H + retic + albumin, total protein, prealbumin

\* Bili is fractionated ¶ - fetal (neo)bili

## TPN Panels with phlebotomy volume

TPN Lab Panels	Lab panel content
TPN Group A	Chem 10, Tg (1.2 cc)
TPN Group B	Chem 10, Tg, hepatic function *, CBC with diff, retic (2.2mL)
Other Available Lab Panels	
Individual lab tests and lab panels available for patient specific needs	
Chem 7	whole blood volume: 0.8mL
Chem 10	whole blood volume: 1.0mL
Lab Add on's	Neo bili* (<15 days of life), bili*, Tg, prealbumin, CRP, PT, 25OHD, copper, ceruloplasmin, ferritin, transferrin (varies)
Hepatic Function Panel	Albumin, total protein, alk phos, bili, ALT, AST (0.7mL)
Nutrition Panels -for long term nutritional monitoring when on enteral feeds	
NICU Nutrition Panel A	Chem 10 +alk phos + H/H + retic (1.6mL)
NICU Nutrition Panel B	Chem 10 + alk phos + H/H + retic + albumin, total protein, prealbumin (2.8mL)

May subtract 0.3 ml from above blood volumes for a restricted blood volume need

## Lab Frequency

# - lab panel content & frequency may be reduced per attending physician assessment of patient need. Lab panels in **bold** will be placed in EPIC as the default option (see TPN initiation under NICU column as example). Lab panels not bolded will be listed as options

	<b>NICU<sup>#</sup></b>	EPIC default time	<b>Non-NICU<sup>#</sup></b>	EPIC default time
<b>TPN Initiation</b>	<p><b>TPN Group A</b> on day 1,2,3 OR chem 7 + Ca chem 10</p>	leave time blank with EPIC red stop sign	<p><b>TPN Group B</b>→ day 1 <b>TPN Group A</b>→day 2,3 then <b>TPN Group B</b> weekly x4 After week 4 – frequency of TPN lab monitoring to be determined by attending physician or nutrition team</p>	0600
<b>TPN Maintenance</b>	<p><b>TPN Group B</b>→weekly (Mon) as routine and at minimum on a weekly basis</p> <p>Additional lab panels may be ordered as clinically necessary (weekly, 2-3X/week etc) depending on lab value or pathophysiology needing follow-up -TPN Group A -PT -chem 10 -25OHD -chem 7 -prealbumin -CRP <b>AND/OR</b></p> <p><b>TPN Group A</b> may be ordered in place of TPN Group B when liver function tests are not needed or as an additional monitoring panel during the week</p>	Mon  but leave time blank with EPIC red stop sign	<p><b>TPN Group B</b> ordered at an extended monitoring schedule based on patient need to be determined by physician and/or nutrition team. Suggestions:</p> <ol style="list-style-type: none"> <li>a. Monthly</li> <li>b. every other week</li> <li>c. or more extended frequency</li> </ol> <p>Additional lab panels may be ordered as clinically necessary (weekly, twice/week etc) depending on lab value or pathophysiology needing follow- up -TPN Group A -PT -chem 10 -25OHD -chem 7 -prealbumin -CRP <b>AND/OR</b></p> <p><b>TPN Group A</b> may be ordered in place of TPN Group B when liver function tests are not needed or as an additional panel during the week</p>	Mon @ 0600