

## Total Parenteral Nutrition (TPN) via PowerPlan (nursing administration)

### Medication Management

#### Quick reference guide

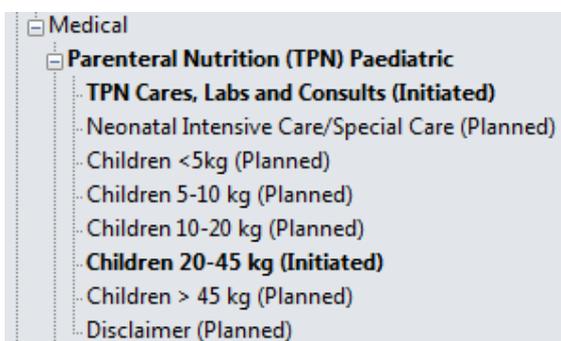
All Parenteral nutrition should be ordered within the 'Parenteral Nutrition (TPN) Paediatric' Power Plan.

Parenteral nutrition is a high-risk, specialty medication that requires careful consideration. Either an experienced Medical Officer or credentialed Dietitian can order PN. When PN is being started for the first time, it should be started in business hours and following review from both a Dietitian and Pharmacist. The patient should have baseline electrolytes checked and be assessed for their re-feeding syndrome risk. See PN guideline BEFORE administering.

#### Review PowerPlan

1. Navigate to the *Orders* page to review the *Parenteral Nutrition (TPN) PowerPlan*

**Note:** This is a multi-phase PowerPlan, where the prescriber will initiate two phases: the **TPN Cares, Labs and Consults phase** and the relevant **weight phase** (in the screenshot example below, the prescriber has selected the **Children 20-45kg phase** has been initiated).



2. Select the *TPN Cares, Labs and Consults phase* to view the associated orders (see example).

| Component  | Status  |
|--|---|
| Parenteral Nutrition (TPN) Paediatric, TPN Cares, Labs and Consults (Initiated)<br>Last updated on: 05-Apr-2018 17:08 AEST by: BELL, DANNICA KATE RN |   |
| Non Categorised  |   |
| Commencing, modifying or ceasing Parenteral Nutrition requires PN team   |   |
| Patient Care   |   |
| <input checked="" type="checkbox"/> 60'  | Blood Glucose Monitoring POC Ordered                          |
| <input checked="" type="checkbox"/> 60'  | Food Chart Ordered  |
| <input checked="" type="checkbox"/> 60'  | Weight Ordered  |
| <input checked="" type="checkbox"/> 60'  | Weight Ordered  |
| Laboratory   |   |
| <input checked="" type="checkbox"/> 60'  | CHEM20 General Biochemistry Profile (CHEM20) Ordered (Dispatc |
| Consults/Referrals   |   |
| <input checked="" type="checkbox"/> 60'  | Consult to Dietetics Ordered                                  |
| <input checked="" type="checkbox"/> 60'  | Consult to Pharmacy Ordered                                   |

**Note:** Patient care tasks will fire to Care Compass, based on the order frequency.

3. Select the *relevant initiated weight phase* to view the orders.

**Note:** The yellow notes provide additional information. Click the evidence link icon  to view the CHQ "Parenteral Nutrition for Inpatients" guideline.

| Parenteral Nutrition (TPN) Paediatric, Children 20-45 kg (Initiated)<br>Last updated on: 05-Apr-2018 17:06 AEST by: BELL, DANNICA KATE RN |  |         |  |
|---|--|---------|--|
| Medications   |  |         |  |
| Commencing, modifying, or ceasing Parenteral Nutrition requires PN team or Managing Consultant  |  |         |  |
| Lines and filters must be changed every 24 hours for lipid containing phases and every 48 hours for c                                     |  |         |  |
| Select one infusion from each of the grey subheadings   |  |         |  |
| Vitamins  |  |         |  |
| <input checked="" type="checkbox"/>   | Vitamins in Fat Emulsion 20% (Soluvit 10 mL + Vitalipid 10 mL + SMOFlipid FKS030V) Infusion 30 mL 3... | Ordered | Rate: 1.5 mL/hr, Total volume Infuse at 1.5 mL/hr over 20 hc |
| Lipids  |  |         |  |
| <input checked="" type="checkbox"/>   | SMOFlipid 20% intravenous emulsion 250 mL  | Ordered | Rate: 12.5 mL/hr, Total volum 1 g/kg/day = 5 mL/kg/day       |
| Parenteral Nutrition  |  |         |  |
| <input checked="" type="checkbox"/>   | Parenteral Nutrition Paediatric 20/100 with Trace Elements 7.5 mL IV infusion 1L 1000 mL               | Ordered | Rate: 65 mL/hr, Total volume Composition: Amino acid: 2C     |

#### Review the MAR and prepare infusions

1. Navigate to the *MAR* to view the orders and either hover over the order and/or right click on the order and select *Order Info* to view any special instructions and the bag composition. Prepare the infusions in the medication room.

| Continuous Infusions  |  |
|---|--|
| Parenteral Nutrition Paediatric 20/100 with Trace Elements 7.5 mL IV infusion 1L 1,000 mL | Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s) |
| Administration  | Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s) |
| parenteral nutrition  | Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s) |
| SMOFipid 20%  | Rate: 12.5 mL/hr, Total volume (mL): 250, 250 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s)   |
| Administration  | Rate: 12.5 mL/hr, Total volume (mL): 250, 250 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s)   |
| Vitamins in Fat   | Rate: 1.5 mL/hr, Total volume (mL): 30, 30 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s)      |
| Administration  | Rate: 1.5 mL/hr, Total volume (mL): 30, 30 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s)      |
| Parenteral Nutrition  | Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day, 4 hours break time required, infuse over 15.4 hour(s) |

**Note:** Any details regarding break times, ramp down requirements (where the final portion of the PN infusion is reduced) or bag modifications will be documented in the Special Instructions.

Special Instructions can be viewed either on the orders page, by hovering over the order on the MAR and/or by right clicking on the MAR order and selecting *Order Info*.

It is important to liaise with the treating team regarding break times that may be specific to your area of practice.

**Administer TPN via the MAW**

1. At the patient's bedside, navigate to the MAW.
2. Perform patient barcode scanning, verbal PPID, review allergies and *Mark all as Reviewed*.
3. Select the checkbox beside the relevant orders and click the results column of the first order to open the administration window.

|                                     |            |                              |   |
|-------------------------------------|------------|------------------------------|---|
| <input checked="" type="checkbox"/> | Continuous | parenteral nutrition         | Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV c... |
| <input checked="" type="checkbox"/> | Continuous | fat emulsion, intravenous    | Rate: 12.5 mL/hr, Total volume (mL): 250, 250 mL, IV co...  |
| <input checked="" type="checkbox"/> | Continuous | vitamins in fat emulsion 20% | Rate: 1.5 mL/hr, Total volume (mL): 30, 30 mL, IV contin... |

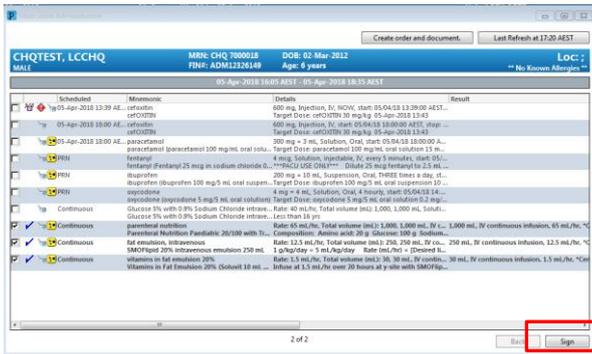
4. Review the order details.
5. For detailed order information, right click on the blue order sentence at the top of the window.

**Note:** that the administration window says *Begin Bag* and *Bag #1*.

6. Enter your *nurse witness* details, select the *mandatory site*, and select *OK*.

7. Nurse witness to enter their password and select *OK*.
8. Then repeat steps 3 to 7 for remaining TPN orders, e.g. SMOF and Vitamin infusions.
9. Once all orders have been reviewed and co-signed, the primary nurse is to select *Sign* to verify the orders.





10. Navigate to the MAR to review the commenced infusions – you will note the action cell below the *Pending task* blue tile has the *Begin Bag* information.

|  |   |
|--|---|
| <p><b>Parenteral Nutrition Paediatric 20/100 with Trace Elements 7.5 mL IV infusion 1L 1,000 mL</b><br/>                 Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 05/04/18 17:06:00 AEST, stop: 06/04/18 08:29:00 AEST, order duration: 1 bag(s), Indication: TPN, infuse over 15.4 hour(s)<br/>                 Composition: Amino acid: 20 g Glucose: 100 g Sodium: 50 mmol Potassium: 30 mmol Magnesium: 10 mmol<br/> <b>Administration Information</b><br/>                 parenteral nutrition</p> | <p>Pending<br/>                 Last bag started: 05-Apr-2018 17:36 AEST<br/>                 Begin Bag 1,000</p> |
| <p><b>SMOFIipid 20% intravenous emulsion 250 mL</b><br/>                 Rate: 12.5 mL/hr, Total volume (mL): 250, 250 mL, IV continuous infusion, start: 05/04/18 17:06:00 AEST, stop: 06/04/18 13:05:00 AEST, order duration: 1 bag(s), Indication: TPN<br/>                 1 g/kg/day = 5 mL/kg/day Rate (mL/hr) = [Desired lipid dose (g/kg/day) x body weight (kg) x 20] / 100<br/> <b>Administration Information</b><br/>                 fat emulsion, intravenous</p>   | <p>Pending<br/>                 Last bag started: 05-Apr-2018 17:36 AEST<br/>                 Begin Bag 250</p>   |
| <p><b>Vitamins in Fat Emulsion 20% (Soluivit 10 mL + Vitalipid 10 mL + SMOFIipid FKS030V) Infusion 30 mL</b><br/>                 Rate: 1.5 mL/hr, Total volume (mL): 30, 30 mL, IV continuous infusion, start: 05/04/18 17:06:00 AEST, stop: 06/04/18 13:05:00 AEST, order duration: 1 bag(s), Indication: TPN, infuse over 20 hour(s)<br/>                 Infuse at 1.5 mL/hr over 20 hours at y-site with SMOFIipid 20% intravenous emulsion<br/> <b>Administration Information</b><br/>                 vitamins in fat emulsion 20%</p>      | <p>Pending<br/>                 Last bag started: 05-Apr-2018 17:36 AEST<br/>                 Begin Bag 30 mL</p> |

**Key Points to note**

**Note:** SMOF, Vitamins and PN (clear phase) may be *either* true continuous infusions or bag-by-bag orders.

**True continuous orders:** Have no set end point – multiple bags/syringes can be administered from the one order. These infusions still require review by a medical officer every 24 hours as per current practice. e.g. a medical officer may order a true continuous bag of PN, where multiple 1000ml bags can be administered from the one order.

**Bag-by-bag infusions:** Only the specified

number of bags can be administered from these orders. They may have a VTBI specified over a period of time, or a number of bags/syringes attached to the order e.g. a medical officer may order 2 bags of PN (clear phase) with a VTBI of 1000ml per bag.

**ALWAYS** review the order details on the MAR to determine if the infusion is a true continuous infusion or bag-by-bag order.

A quick way to check is to view if the order has an associated order duration. In the screenshot example you can see the PN (clear phase) has no order duration, whereas the SMOF and Vitamins both have an order duration of 2 bags.

**No order duration = true continuous**

**Order duration = bag-by-bag order**

| Continuous Infusions  |
|---|
| <p><b>Parenteral Nutrition Paediatric 20/100 with Trace Elements 7.5 mL IV infusion 1L 1,000...</b><br/>                 Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 07:51:00 AEST, Indication: TPN, infuse over 15.4 hour(s)<br/>                 Composition: Amino acid: 20 g Glucose: 100 g Sodium: 50 mmol Potassium: 30 mmol<br/> <b>Administration Information</b><br/>                 parenteral nutrition</p>   |
| <p><b>SMOFIipid 20% intravenous emulsion 200 mL</b><br/>                 Rate: 10 mL/hr, Total volume (mL): 200, 200 mL, IV continuous infusion, start: 06/04/18 07:51:00 AEST, stop: 07/04/18 23:50:00 AEST, order duration: 2 bag(s), Indication: TPN<br/>                 1 g/kg/day = 5 mL/kg/day Rate (mL/hr) = [Desired lipid dose (g/kg/day) x body weight (kg) x 20] / 100<br/> <b>Administration Information</b><br/>                 fat emulsion, intravenous</p>  |
| <p><b>Vitamins in Fat Emulsion 20% (Soluivit 10 mL + Vitalipid 10 mL + SMOFIipid FKS030V)...</b><br/>                 Rate: 1.5 mL/hr, Total volume (mL): 30, 30 mL, IV continuous infusion, start: 06/04/18 07:51:00 AEST, stop: 07/04/18 23:50:00 AEST, order duration: 2 bag(s), Indication: TPN, infuse over 20 hour(s)<br/>                 Infuse at 1.5 mL/hr over 20 hours at y-site with SMOFIipid 20% intravenous emulsion<br/> <b>Administration Information</b><br/>                 vitamins in fat emulsion 20%</p> |

**Documenting Break Times and Changes to Rates e.g. Ramp Down Rates**

The medical officer may specify break times or ramp down details in the Special Instructions/ comment section of the Order Sentence in the MAR .

To reflect this and ensure the fluid balance chart is accurate, complete the following steps:

1. Locate the order in the MAR.
2. Select the Pending blue tile to open the infusion administration window.



|  |         |   |
|--|---------|---|
| Parenteral Nutrition Paediatric 20/100 with Trace Elements 7.5 mL IV infusion 1L 1,000 mL<br>Rate: 65 mL/hr, Total volume (mL): 1,000, 1,000 mL, IV continuous infusion, start: 06/04/18 09:18:00 AEST, stop: 07/04/18 00:41:00 AEST, Indication: TPN, Infusion to run for 20/24 hours per day. 4 hours break time required., infuse over 15.4 hour(s)<br>Composition: Amino acid: 20 g Glucose: 100 g Sodium: 50 mmol Potassium: 30 mmol Mag... | End Bag | Pending<br>Last bag started:<br>06-Apr-2018 9:31 AEST |
|--|---------|---|

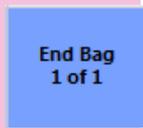
**Note:** If the Infusion rate is low, the End Bag task may be more than 48 hours into the future from time of commencement.

It can be located by right clicking on the grey date bar in the MAR and altering search criteria.

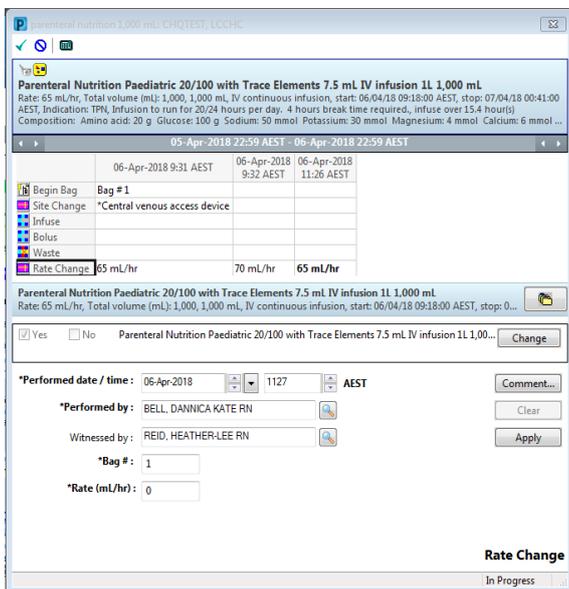
If the infusion is a true continuous infusion, the End Bag tile will have no associated bag duration



If the infusion has been ordered as a bag-by-bag order, the End Bag tile will have an associated bag duration



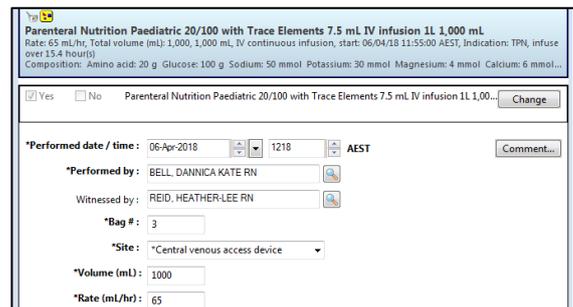
3. Select Rate Change from the mini-menu.



4. Reduce rate to reflect ramp rate.
5. Enter the nurse witness and click *Apply*.
6. Nurse witness to enter password.
7. Select the green tick  to verify.

## Documenting infusion break, disconnection or change of Continuous Infusion Bag

**Note:** If the infusion is set up as a Continuous Infusion, change the rate to 0 mL/hr (as per rate change above) during the infusion break to ensure FBC is accurate.



## Locate the End Bag task

1. Document an Infuse or Waste volume (remember, an Infuse volume will add to the fluid balance).
2. Reduce rate to 0 mL/hr if the infusion is continuous.

*You will receive an alert that the Rate does not match the order – select Yes to acknowledge the alert and proceed*

3. Select the green tick  to verify.
4. Click *Apply* and select the green tick to verify.

## Recommencing the Infusion

1. Navigate to the MAW to commence the next bag.
2. Ensure the rate matches Order Sentence.
3. Enter the nurse witness and click *Apply*.
4. Nurse witness to enter password.

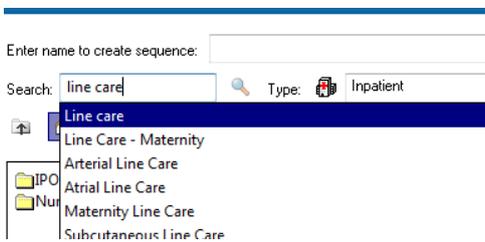


(See section above *Administer TPN via the MAW* for steps – Ensure the next bag number has populated accordingly).

### Documenting Line Changes

The nurse may wish to place a task on CareCompass to remind them to change the line 48 hours after commencement of the bag. To do this, complete the following steps:

1. Select *Orders* from the *Menu*.
2. Click *+ Add*, search for *Line Care* and select the following task.



3. Click *Done* on the orders window.
4. Change the frequency to *48 hourly*.
5. Set a duration if required.
6. Enter a Special Instruction for clarification e.g. "Change PN bag at hour 48".
7. Click *Sign* and enter your password.

**Note:** If the patient is due for line cares during this period, the nurse will need to re-schedule this task accordingly.

**Note:** It is still a nursing responsibility to correctly label infusion lines and review commencement times of infusions.

If the PN bag has been running for 48 hours, the bag will need to be changed. Follow the process outlined previously *Changing a Continuous Infusion Bag* to document the bag change. You may need to adjust the date range to find the End Bag task.

