Pharmacy Information System (PhIS)
and
Clinic Pharmacy System (CPS)

User Manual
Parenteral Nutrition Order

Version	**: 13th Edition**
Document ID	**: U. MANUAL_OM PN**

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1.0 Introduction

1.1 Overview of PhIS

Pharmacy Information System or better known as PhIS, is a complete and comprehensive system that integrates pharmacy related services geared towards pharmacy excellence. PhIS implementation would transform most of current manual process to electronic system would benefit facility end user in the health care sector.

There are 12 modules to assist services delivery by the health care sector which comprises of:

1. Order Management
2. Inpatient Pharmacy
3. Outpatient Pharmacy
4. Medication Counselling
5. Ward Pharmacy
6. Pharmacy Inventory
7. Manufacturing of Cytotoxic Drug Reconstitution, Parenteral Nutrition, lV Admixture & Eye Drop , Radiopharmaceuticals and Extemporaneous
8. Adverse Drug Reaction & Drug Allergic (ADR & DAC)
9. Clinical Pharmacokinetics Services (TDM)
10. Drug Information & Consumer Education (DICE)
11. Medication Therapy Adherence Clinic (MTAC)
12. Data Mining (PhARM)

1.2 Purpose and Objectives

This user manual outlines the Parenteral Nutrition sub-module and its key features and functionalities. The primary objective is to help guide user through the process of completing PhIS application process.

User will understand the following activities in detail:

- Nutritional Assessment
- Parenteral Nutritional Order

1.3 Organized Sections

These are the sections within this document:

- Section 1 : Introduction
- Section 2 : Application Standard Features
- Section 3 : Parenteral Nutrition
- Section 4 : Acronyms
- Section 5 : Links to Clinical Modules

2.0 Application Standard Features

2.1 PhIS Legend

LOGIN	Login to PhIS	Logout	Logout from PhIS
	Reset Login Screen		Expand Menu
Home	Display Home Tab		Expand Module
	Close All Open Tabs		Refresh Screen
	Add/Create New Record		Show Help
*	Mandatory Field		Calendar Icon
	Close Window		Radio Button
	Edit Record		Cancel
	Save	Add Item	Add Item to the list
	Dropdown Box		Automatically Display/Retrieve Box
Change Password	Change Login Password		Delete Record
	Collapse Menu	Delete	Delete Item from the list
	Collapse Module		Empty Text Box
Search	Search Record		Search Icon
	Print		Checkbox

Parenteral Nutrition Order Module Legend			
Clear	Clear Prescription Information	Refresh Prescription	Display Prescription
Authorize	Authorisation Approval	Nutritional Assessment	Nutritional Assessment
Endorse	Endorsement Order	Calorie Calculator	Calculate Patient's Calorie

Note

- *To learn more about Login Information, kindly click Login Information module for descriptive steps.*

3.0 Parenteral Nutrition Order

Overview

Parenteral nutrition (PN) is a vital therapeutic modality for neonates, children and adults for a number of indications used in a variety of settings. Appropriate use of this complex therapy maximizes clinical benefit while minimizing the potential risk for adverse events. The Safe Practices for PN addressed the standardization of practices surrounding PN to improve care and to limit medication errors.

User Group

This module is intended for doctor, specialist and pharmacist (subject to the user assigned by the facility)

Functional Diagram

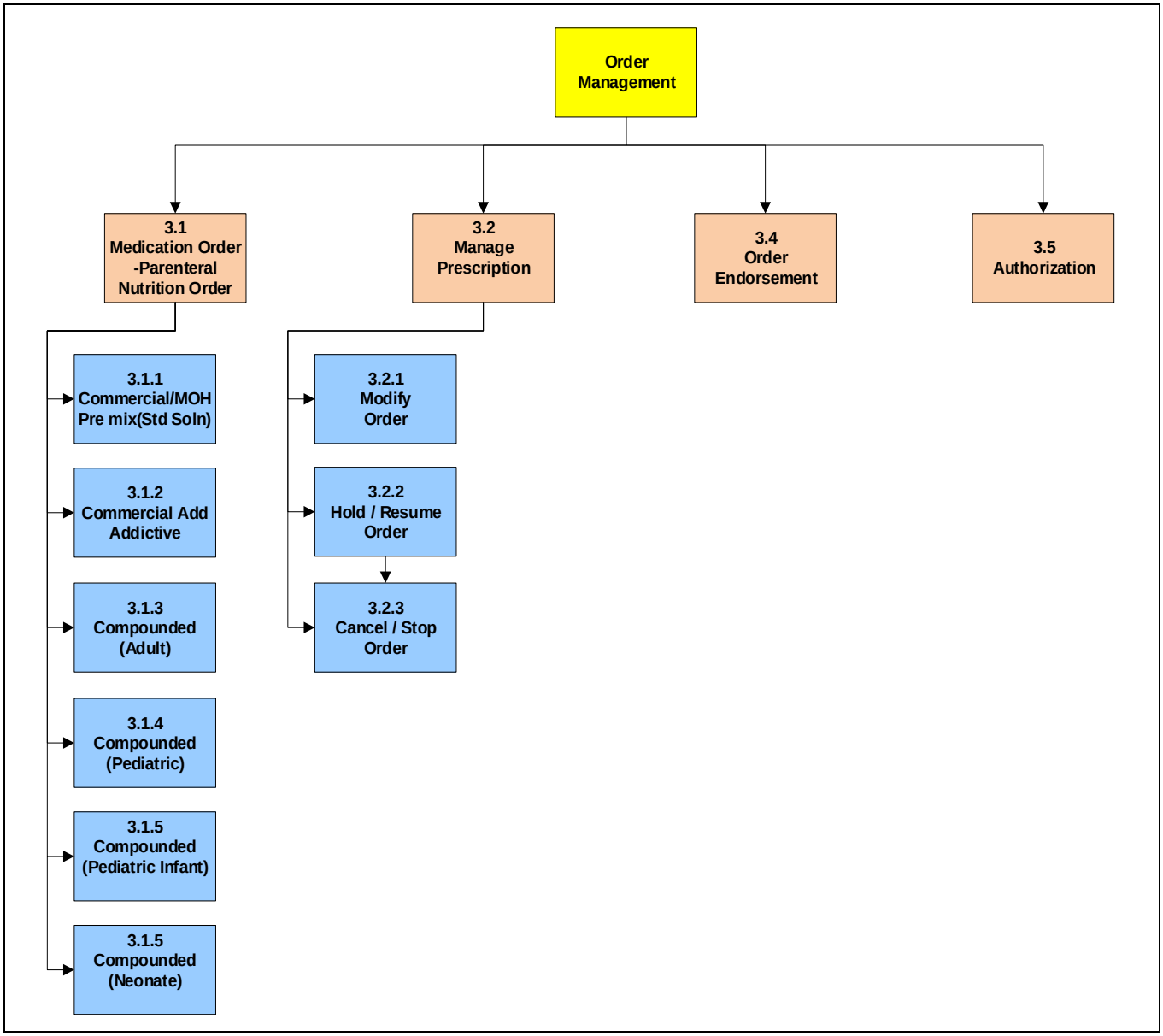


Figure 3.0-1

Functional Description

Parenteral Nutrition Order comprises of four (4) main functions:

- **Medication Order – Parenteral Nutrition Order**
  To prescribe Parenteral Nutrition order
- **Manage Prescription**
  To monitor patient's prescription by modifying order, stop order and tapering up/down.
- **Order Endorsement**
  To endorse the intervention made by a Pharmacist
- **Authorization**
  To approve list A/ A*/ A/KK drug that requires authorization

3.1 Nutritional Assessment

Nutritional Assessment allow user to record all nutritional assessment for new patient and existing patient.

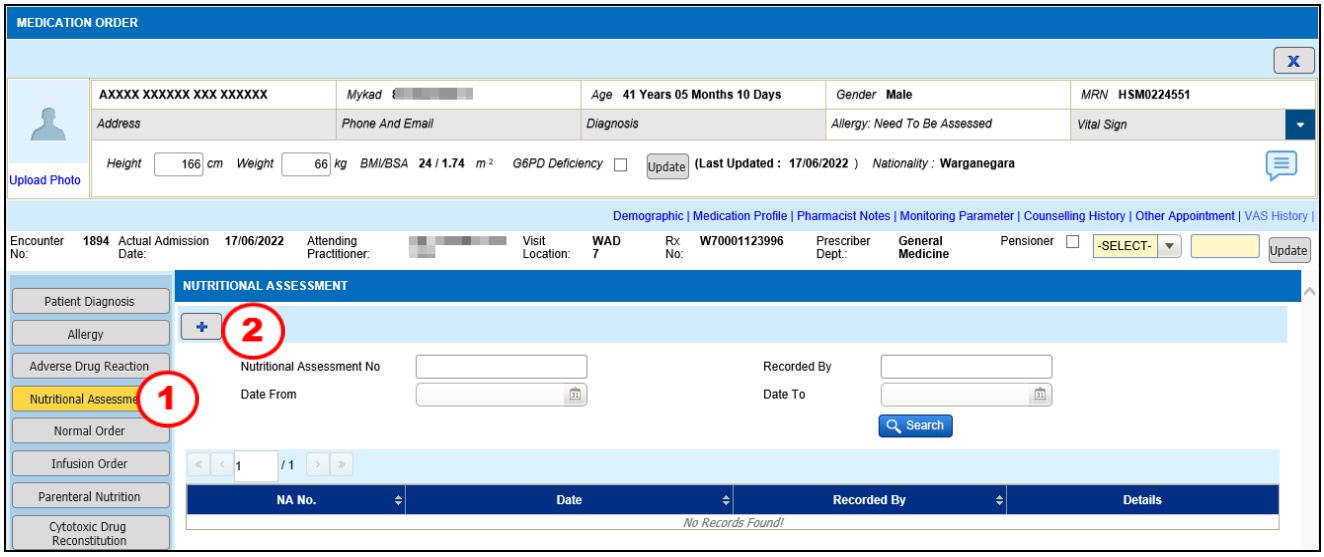


Figure 3.1-1 PN Order

STEP 1

Click on the Nutritional Assessment button to do nutritional assessment for new patient or existing patient's

STEP 2

Click on the + button to do nutritional assessment for new patient

Note

Nutritional Assessment screen will be displayed as per Figure 3.1-2.

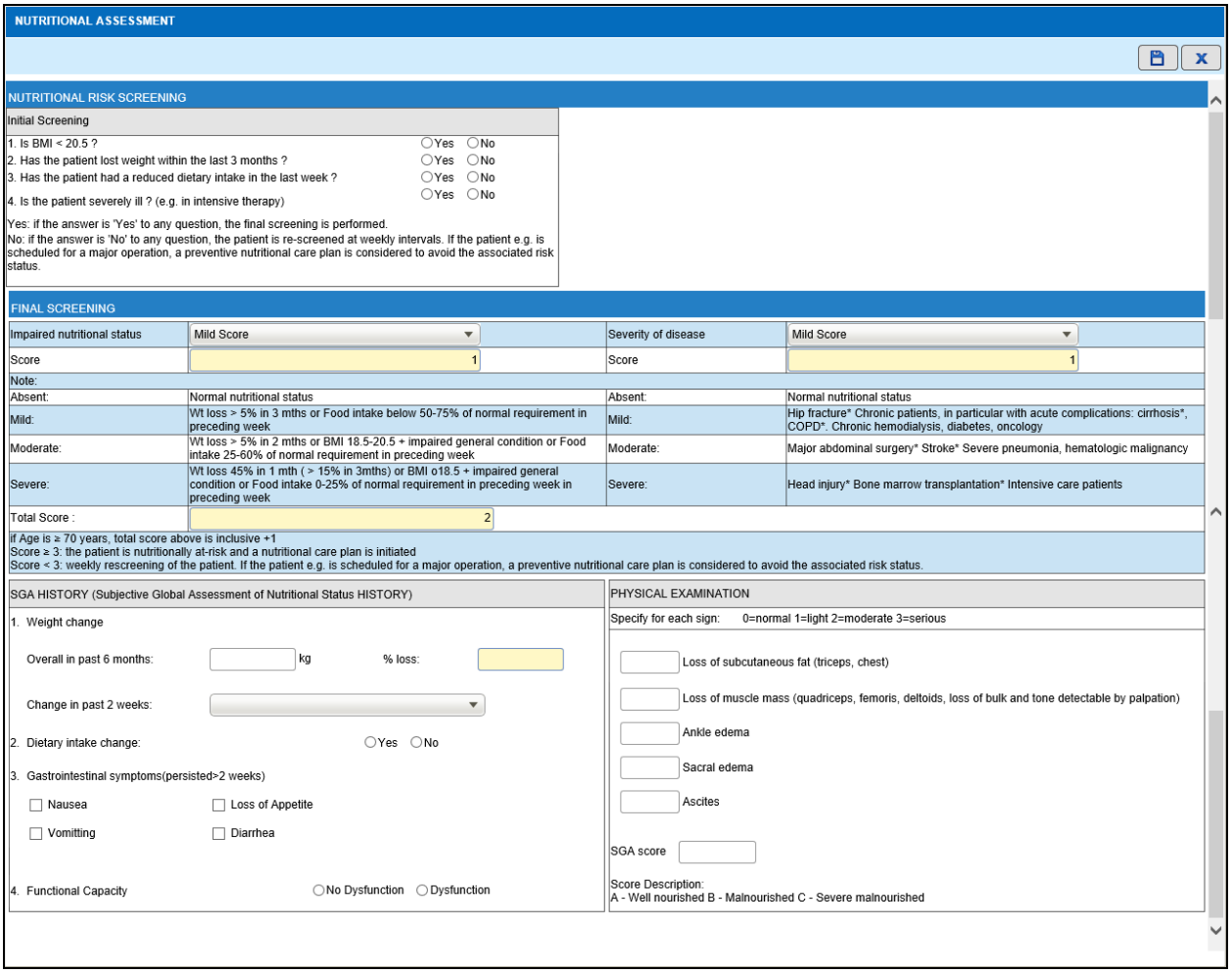


Figure 3.1-2 Nutritional Assessment

Note

Nutritional Risk Screening Section

Answer all question by selecting "Yes" or "No" for initial screening.

Final Screening Section

- *User have to select the **Impaired Nutritional Status** from the dropdown menu:*
  - *Absent*
  - *Mild Score*
  - *Moderate Score*
  - *Severe Score*
- *User have to select the **Severity of Disease** from the dropdown menu:*
  - *Absent*
  - *Mild Score*
  - *Moderate Score*
  - *Severe Score*
- ***Total Score** for final screening will automatically calculate and display by system.*

SGA - Subjective Global Assessment of Nutritional Status (HISTORY) Section

Enter related field

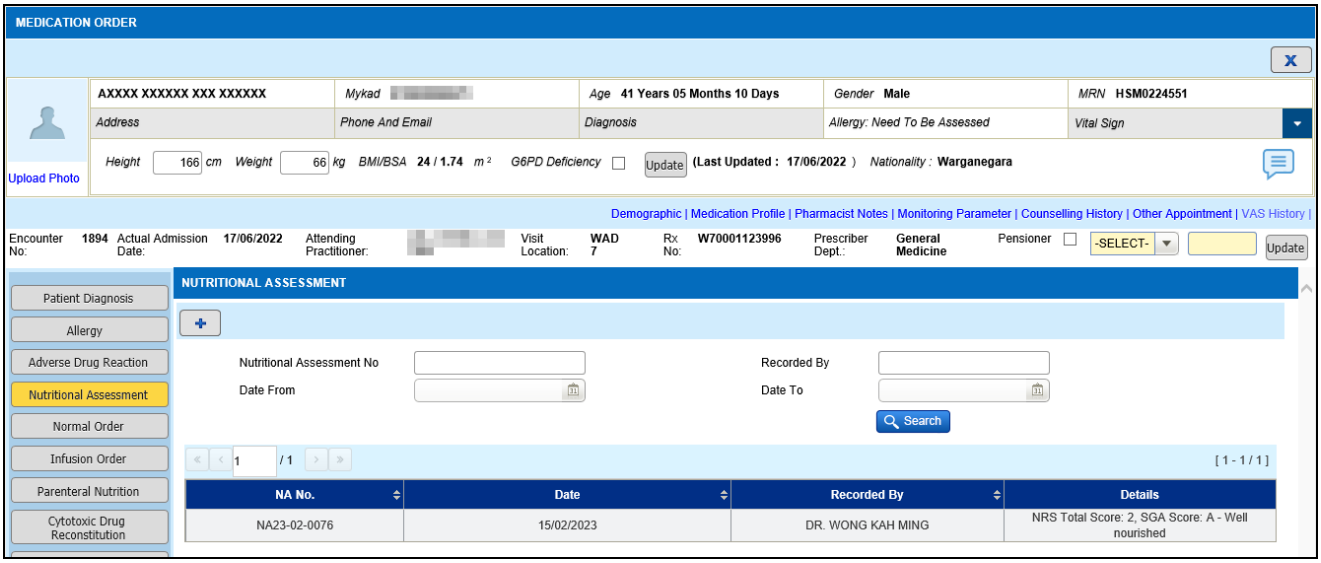


Figure 3.1-3 Nutritional Assessment Listing Page

Physical Examination Section

Enter related field

Note

- *The* *button to save record.*
- *The* *button to close the screen.*
- *The Nutritional Assessment record will be displayed at Nutritional Assessment Listing Page as per Figure 3.1-3.*
- *To search for existing nutritional assessment record(s), you may search by criteria as follow:*
  - *a) Nutritional Assessment No*
  - *b) Date From*
  - *c) Date To*
  - *d) Recorded By*
- *The* *button to search for nutritional assessment record(s).*
- *Nutritional assessment details will be displayed and user have to double click on the nutritional assessment record listing.*

3.2 Parenteral Nutrition Order

3.2.1 Calorie Calculator

Calorie calculator allow user to calculate patient's calorie requirement. This value will out as a guideline for user to order the required TPN order for patient.

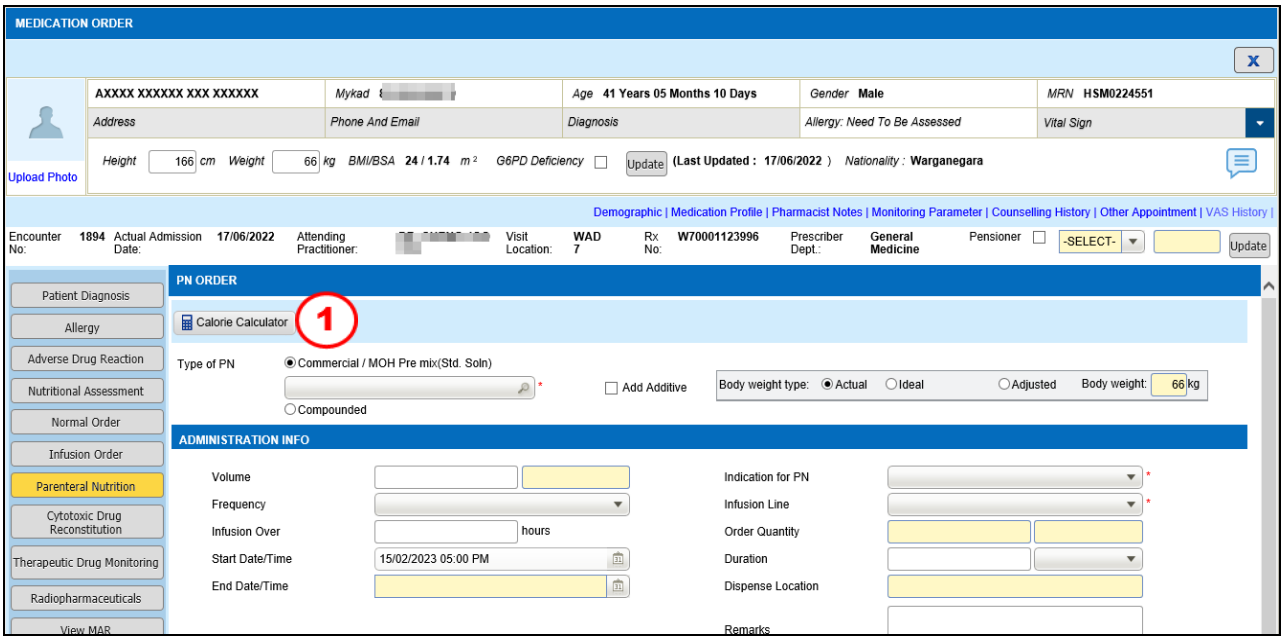


Figure 3.2.1-1 Calorie Calculator

STEP 1

Click on the Calorie Calculator button to calculate patient calorie

Note

Calorie Calculator screen will be displayed as per Figure 3.2.1-2.

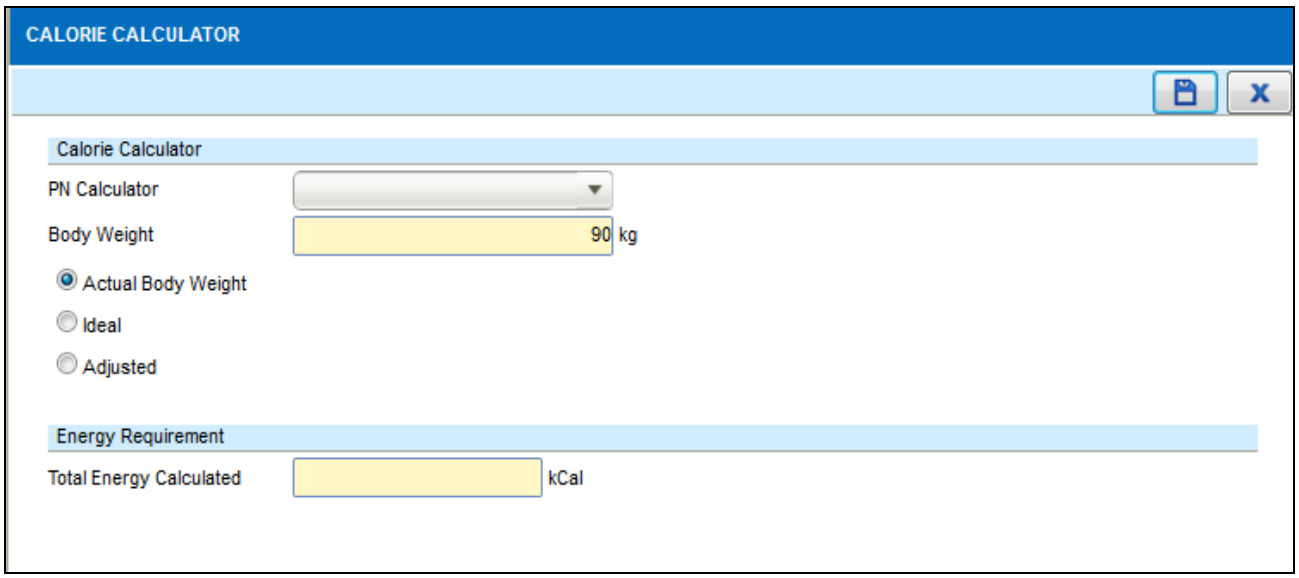


Figure 3.2.1-2 Calorie Calculator

Note

- *By default the **Body Weight** radio button will auto select the* Actual Body Weight *of the patient.*

- *User have to select either one of the following **Body Weight** radio button:*
  - *Actual Body Weight*
  - *Ideal*
  - *Adjusted*
- ***Body Weight** value will automatically display base on the information from patient banner.*

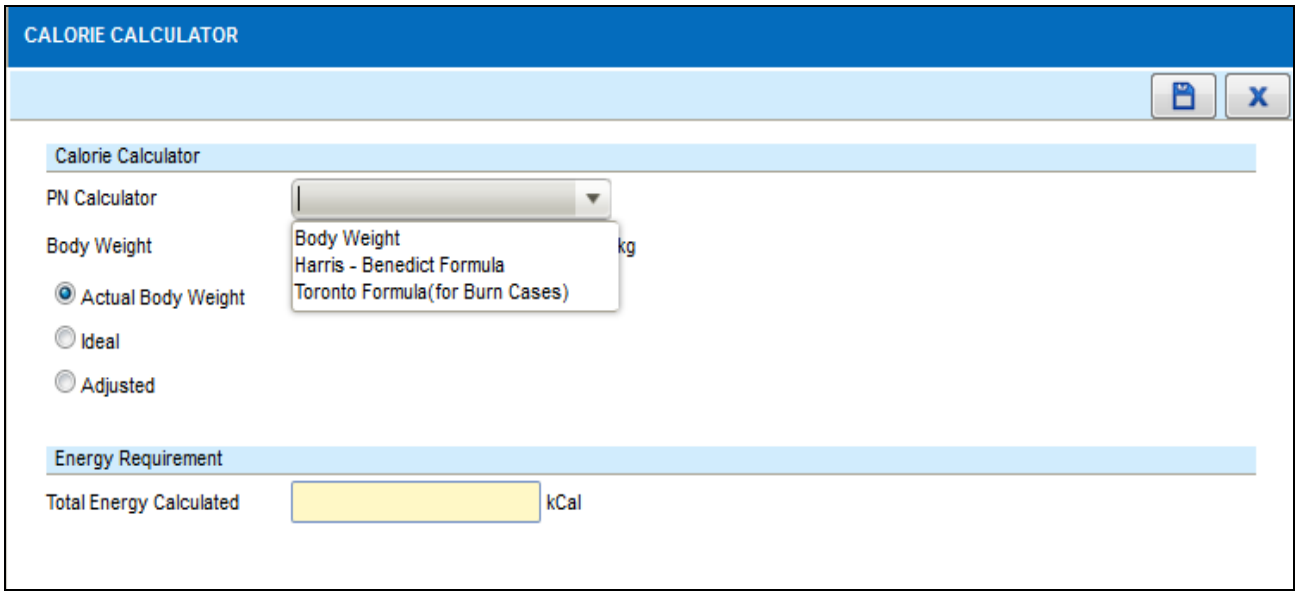


Figure 3.2.1-3 Calorie Calculator

Note

- *There are three type of **PN Calculator**:*
  - *Body Weight*
  - *Harris-Benedict Formula*
  - *Toronto Formula(for Burn Cases)*

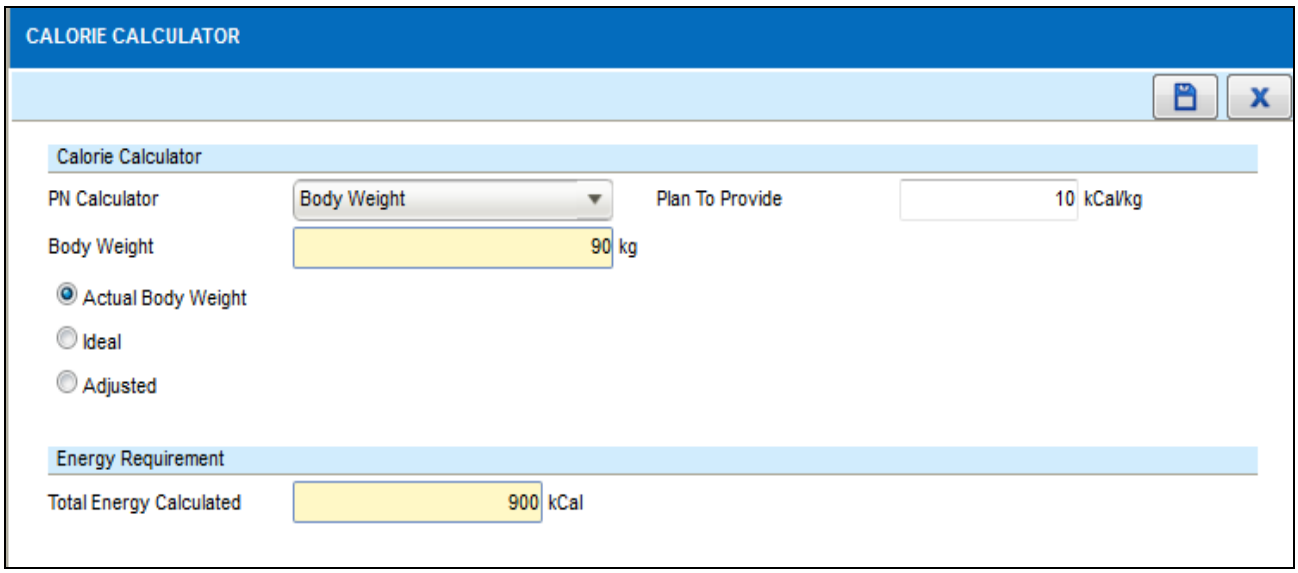


Figure 3.2.1-4 Calorie Calculator

Note

PN Calculator : Body Weight

- *Select **Body Weight** from **PN Calculator** dropdown box.*
- *Enter the amount in **Plan To Provide** (kCal/kg).*
- ***Total Energy Calculated** will automatically calculate and display as per Figure 3.2.1-4.*
- *The* *button to save record.*
- *The* *button to close the screen.*

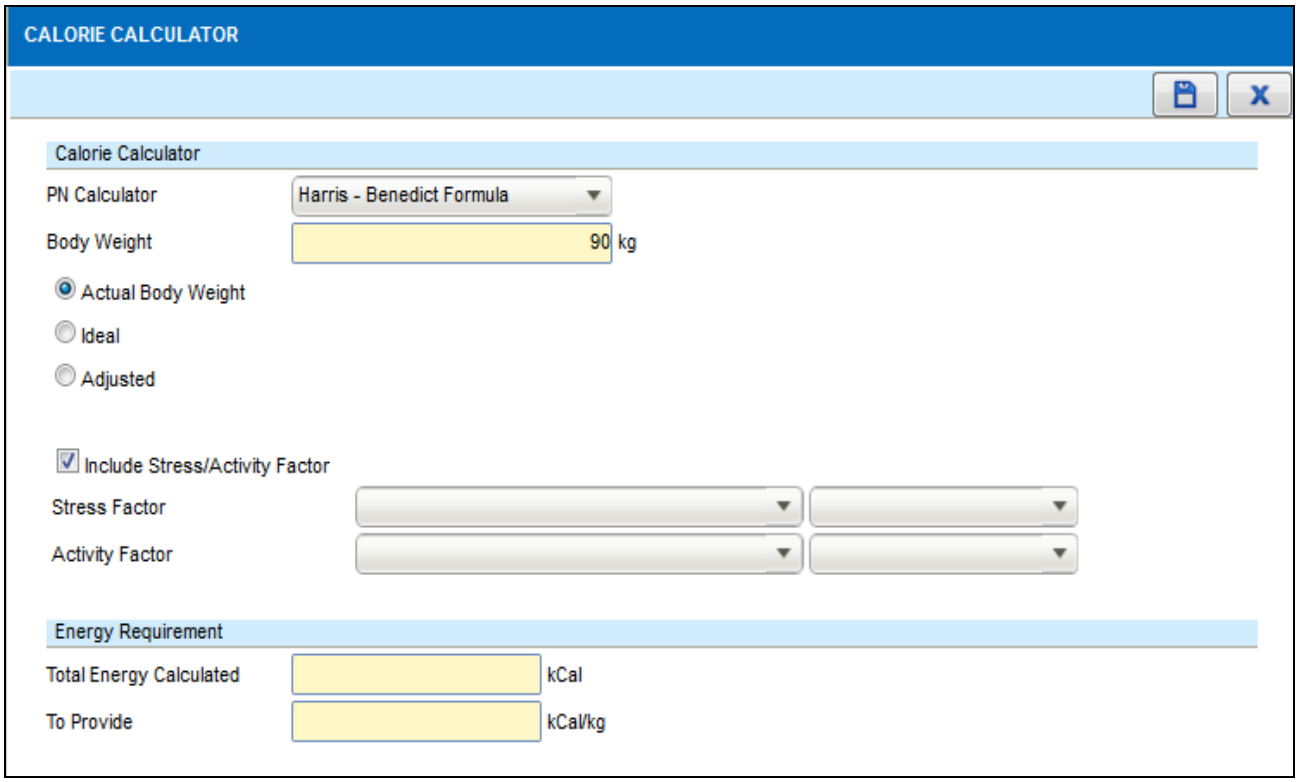


Figure 3.2.1-5 Calorie Calculator

Note

PN Calculator : Harris-Benedict Formula

- *Select **Harris – Benedict Formula** from **PN Calculator** dropdown box.*
- *Select the* ☑ ***Include Stress/Activity Factor** checkbox and **Stress Factor, Activity Factor** field will display after selected the **Include Stress/ Activity Factor** checkbox.*

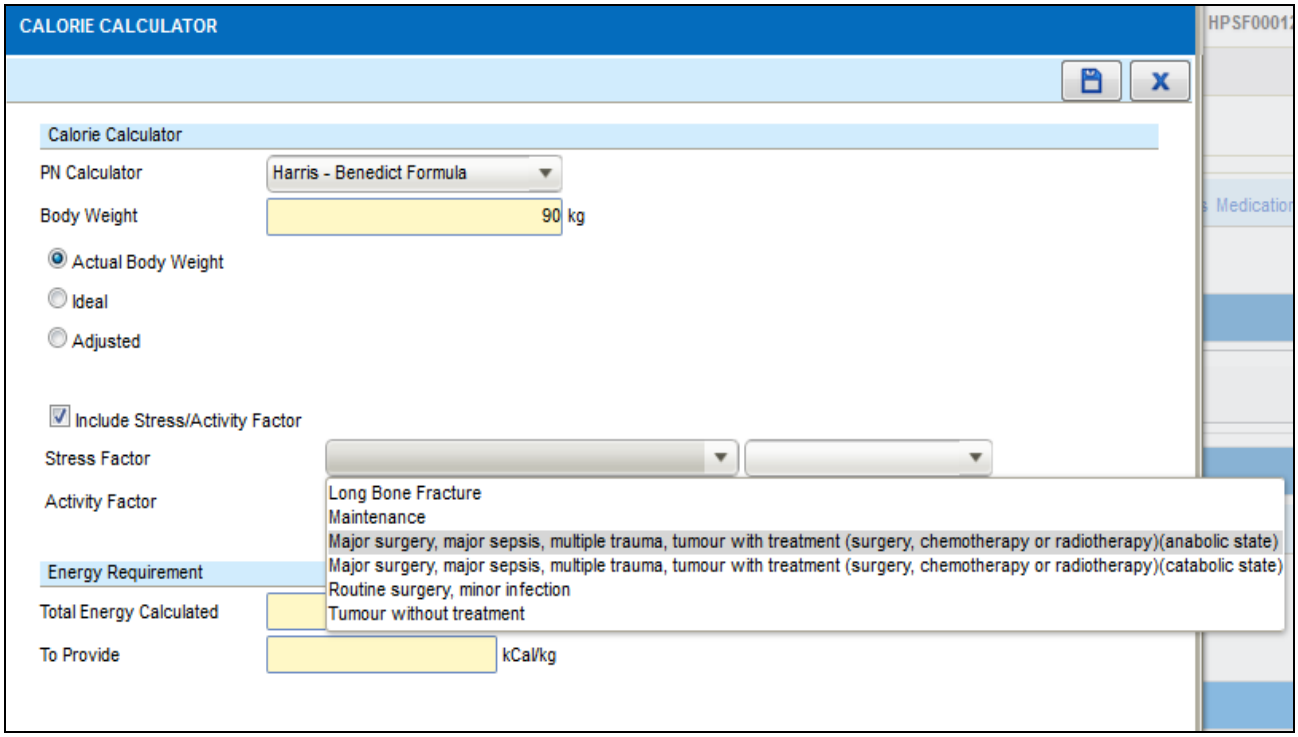


Figure 3.2.1-6 Calorie Calculator

Note

User have to select the type of ***Stress Factor*** *from the dropdown box:*

- *Long Bone Fracture.*
- *Maintenance.*
- *Major surgery, major sepsis, multipletrauma, tumour with treatment (surgery, chemotherapy or radiotherapy)(anabolic state).*
- *Major surgery, major sepsis, multipletrauma, tumour with treatment (surgery, chemotherapy or radiotherapy)(catabolic state).*
- *Routine sugery, minor infection.*
- *Tumour without treatment.*

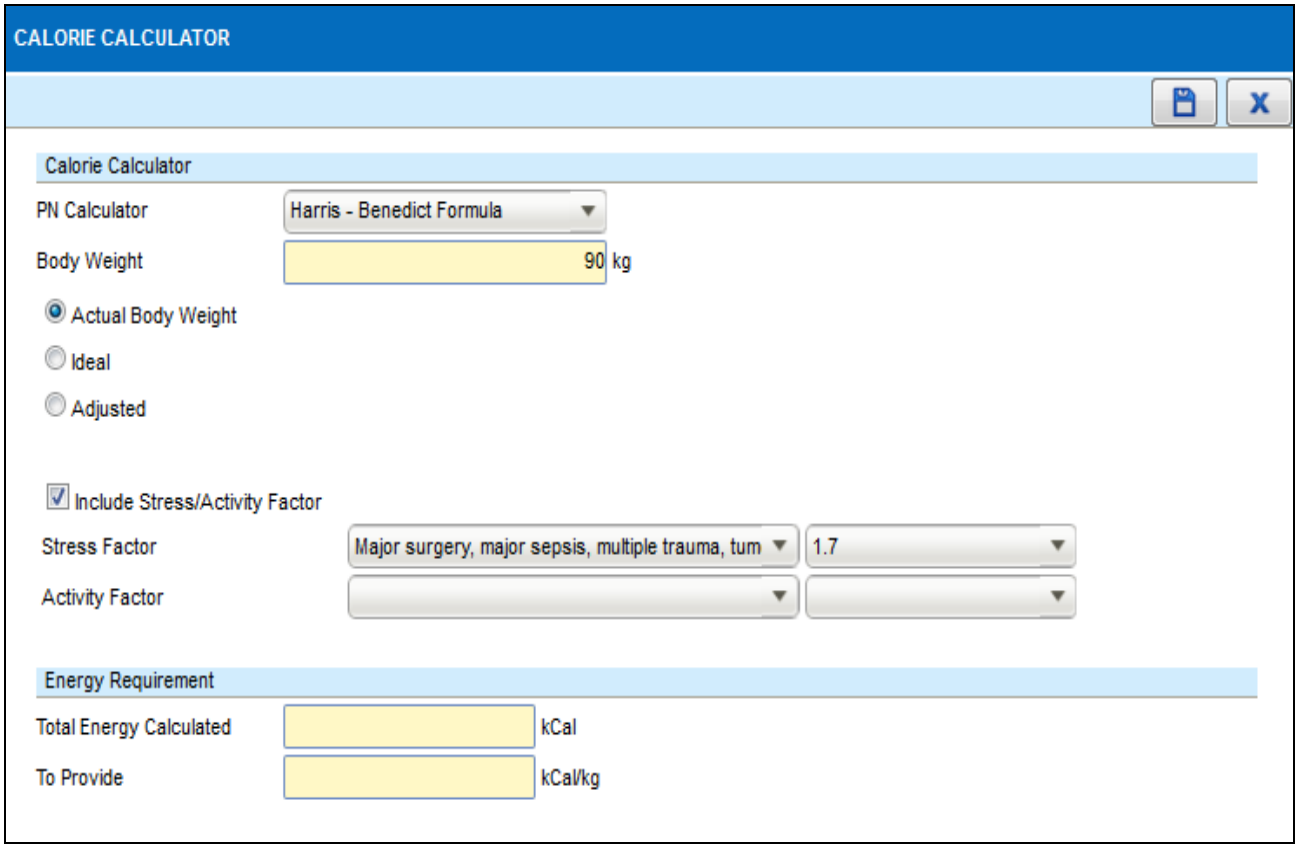


Figure 3.2.1-7 Calorie Calculator

Note

*Value of the **Stress Factor** is to be selected from dropdown based on selected **Stress Factor**:*

- *Long Bone Fracture = 1.5*
- *Maintenance = 1.2 or 1.3*
- *Major surgery, major sepsis, multiple trauma, tumour with treatment (surgery, chemotherapy or radiotherapy)(anabolic state) = 1.7, 1.8, 1.9 or 2.0*
- *Major surgery, major sepsis, multiple trauma, tumour with treatment (surgery, chemotherapy or radiotherapy)(catabolic state) = 1.2*
- *Routine surgery, minor infection = 1.5*
- *Tumour without treatment = 1.5*

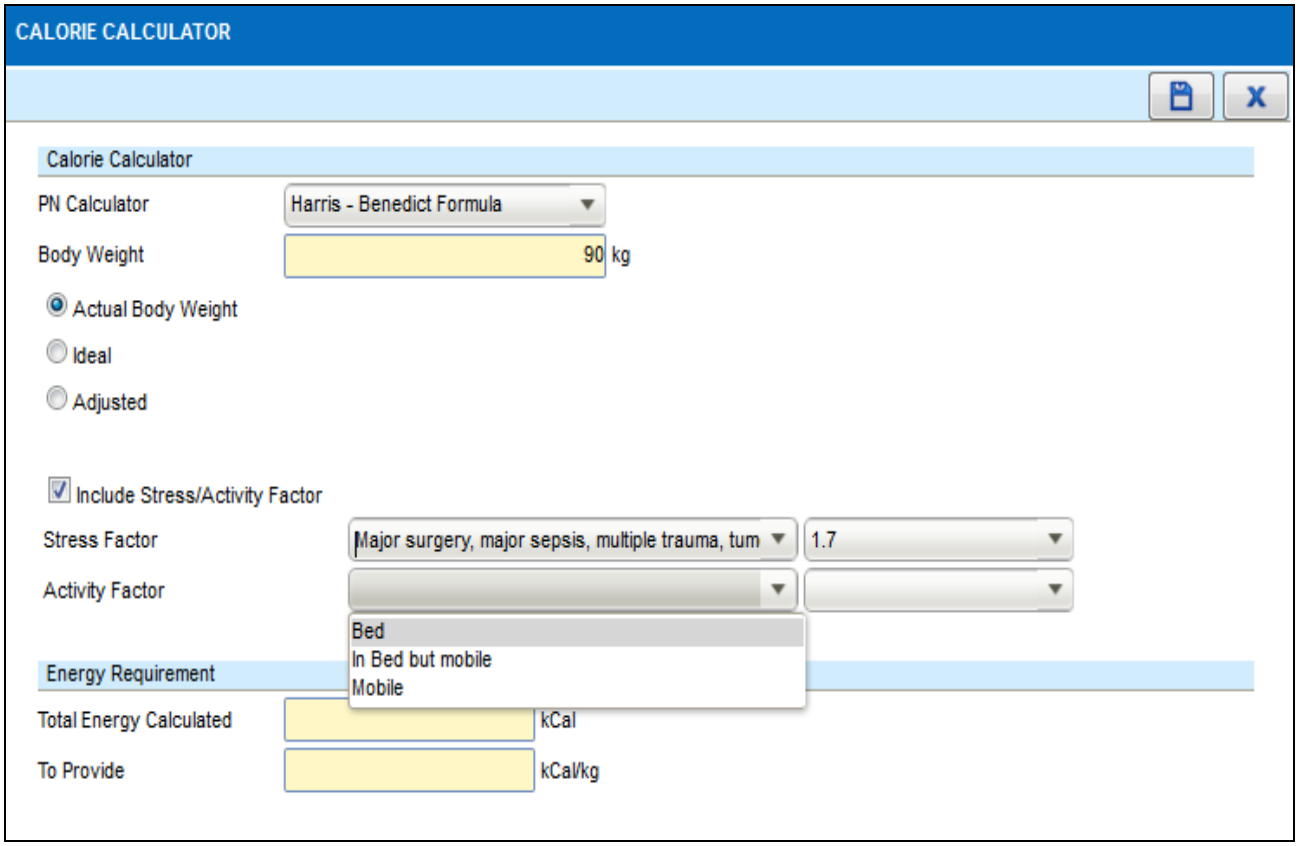


Figure 3.2.1-8 Calorie Calculator

Note

From the dropdown box user have to select type of ***Activity Factor*** *list which are:*

- *Bed*
- *In Bed but mobile*
- *Mobile*

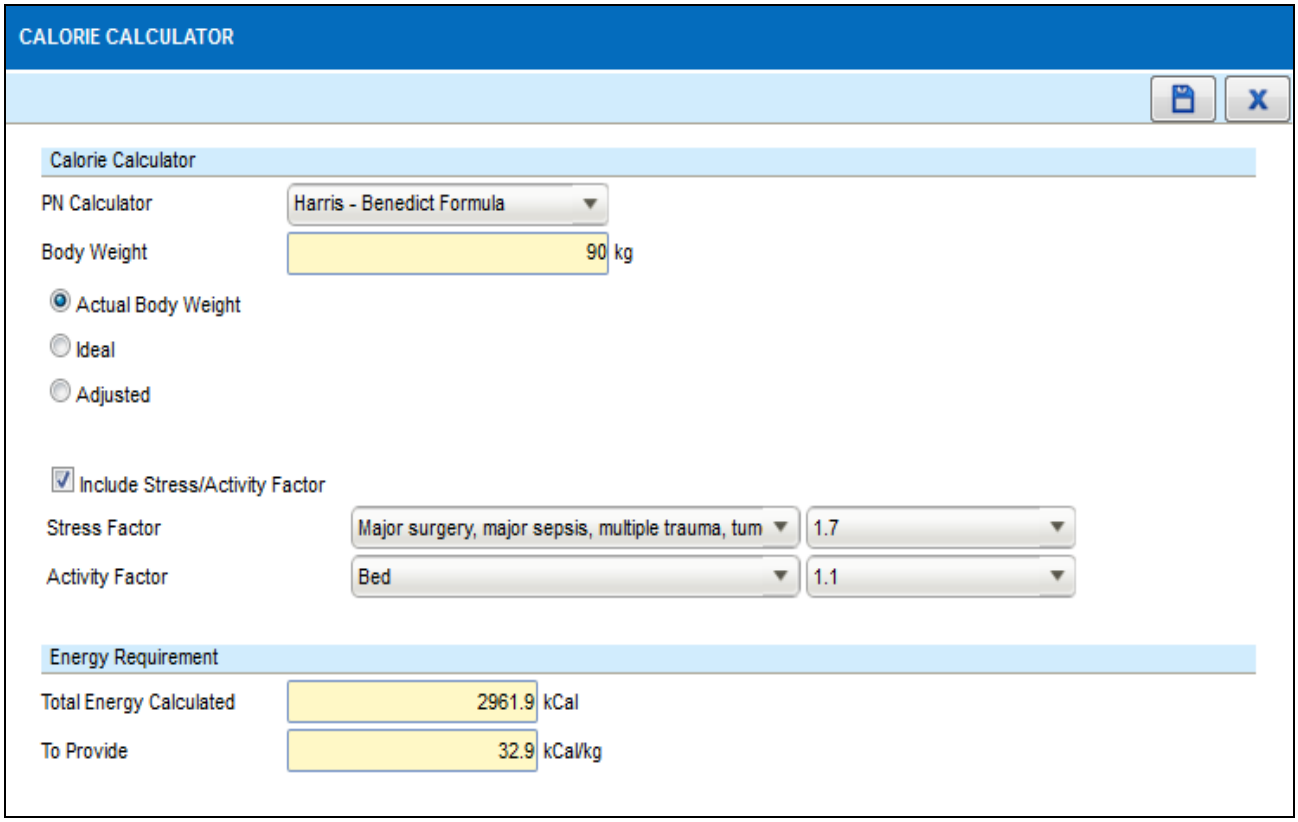


Figure 3.2.1-9 Calorie Calculator

Note

- *Value of the **Activity Factor** is auto populated based on selected **Activity Factor**:*
  - *Bed = 1.1*
  - *In Bed but mobile = 1.2*
  - *Mobile = 1.3*
- *Amount of **Total Energy Calculated** and **To Provide** will automatically calculate after selected the **Activity Factor** as per Figure 3.2.1-9.*
- *The* *button to save record.*
- *The* *button to close the screen.*
- *User still allow to save without select **Include Stress/Activity Factor** checkbox and Amount of **Total Energy Calculated** and **To Provide** also will automatically calculate if not select **Include Stress/Activity Factor** checkbox*

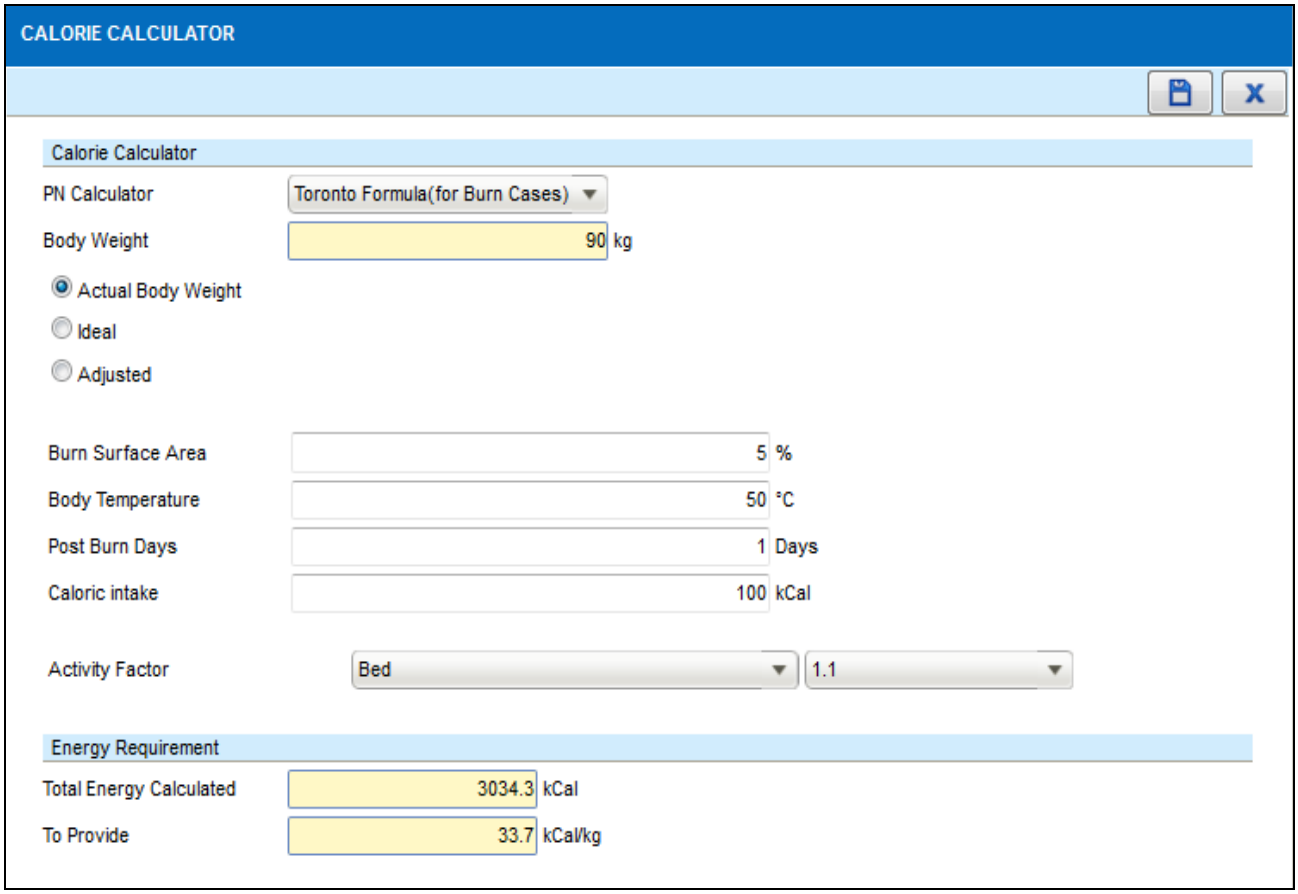


Figure 3.2.1-10 Calorie Calculator

Note

PN Calculator : Toronto Formula

- *Select **Toronto Formula** (for Burn Cases) from **PN Calculator** dropdown box.*
- *Enter all field below:*
  - *Burn Surface Area*
  - *Body Temperature*
  - *Post Burn Days*
  - *Calorie Intake*
- *User have to select type of **Activity Factor** from the dropdown box:*
  - *Bed*
  - *In Bed but mobile*
  - *Mobile*
- *Value of the **Activity Factor** will automatically calculate by system.*
- ***Total Energy Calculated*** and ***To Provide*** will automatically calculate after selected the ***Activity Factor*** *as per Figure 3.2.1-10.*
- *The* *button to save record.*
- *The* *button to close the screen.*

3.2.2 Commercial/MOH Pre mix (Std. Soln)

Commercial / MOH Pre Mix (Std. Soln) allow user to order ready made product from manufacturer or facility.

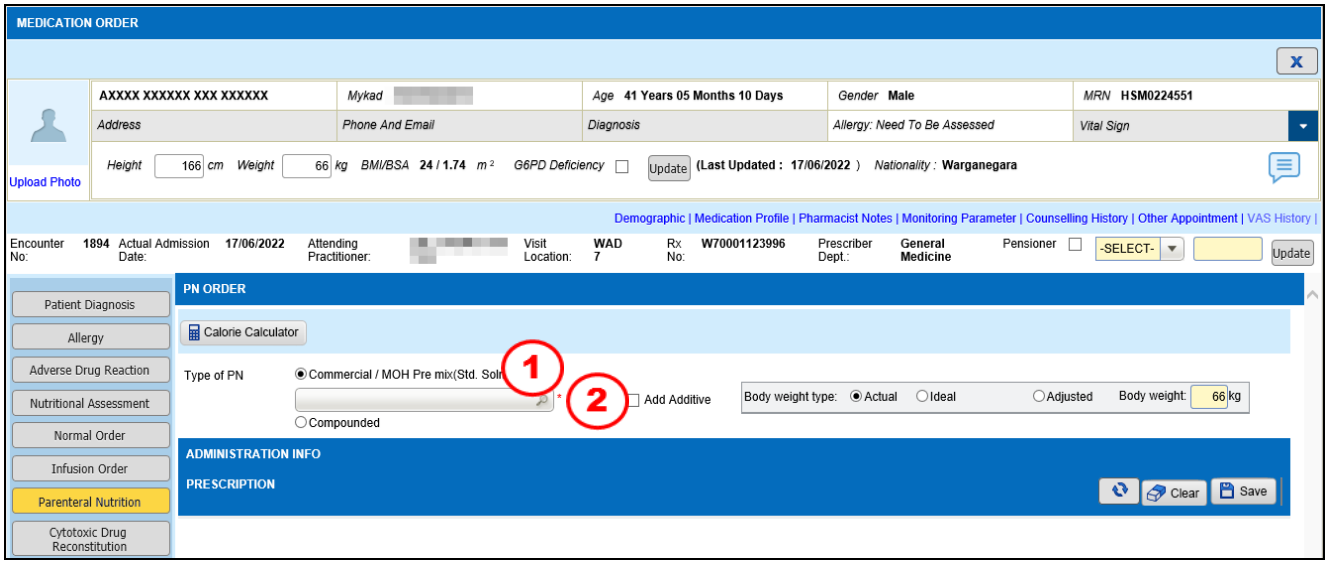
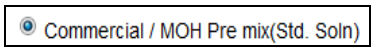


Figure 3.2.2-1 PN Order

STEP 1

Select on the 

radio button for ***Type of PN***

STEP 2

Click on the button to search for product

Note

User allowed to choose ***Body weight type: Actual/Ideal/Adjusted***

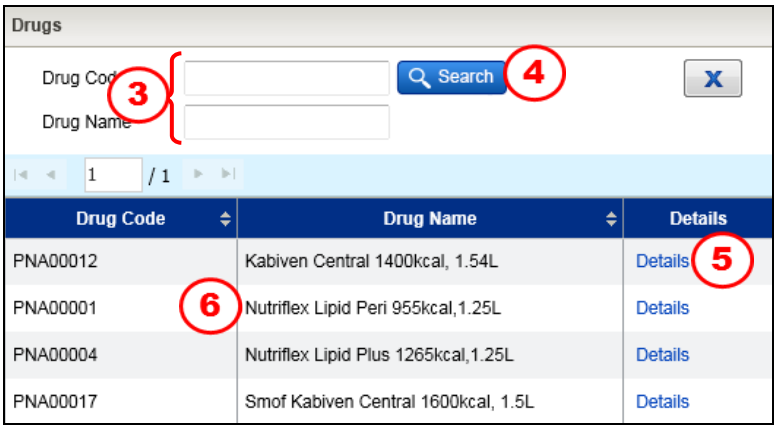


Figure 3.2.2-2 PN Order

STEP 3

To search for existing product record(s), you may search by criteria as follow:

a) Drug Code

b) Drug Name

STEP 4

Click on the Search button to search for the product

STEP 5

Click on the Details button to view product ingredients and content

STEP 6

Select product that required for patient

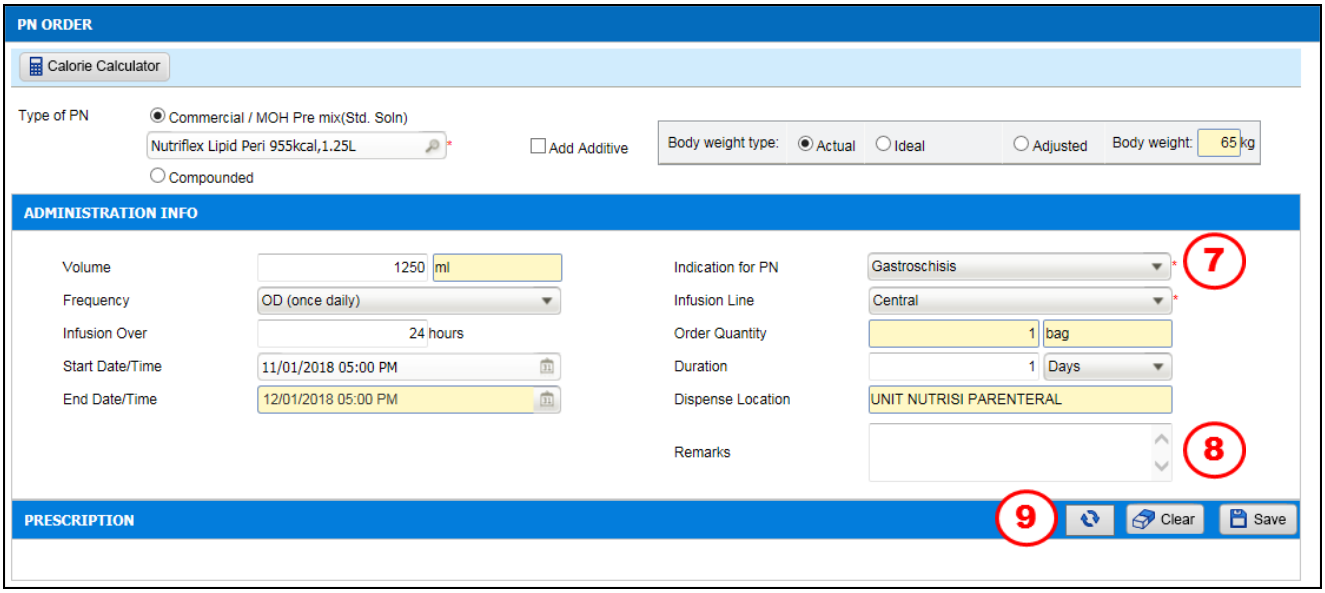


Figure 3.2.2-3 PN Order

Note

- *All information for **Volume**, **Frequency, Start Date/Time, End Date/Time, Order Quantity, Infusion Line, Duration, Infusion Over** and **Dispense Location** field will be automatically displayed and base on the information from PN Source Content and PN Constituents Reference Range.*
- ***Volume**, **Frequency, Infusion Line, Duration** and **Infusion Over** field still can be change by the user if applicable.*
- ***Start Date/Time** will be automatically default to current date and at 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time** will display according to Infusion Over.*
- ***Dispense Location** will be automatically default by system based on order routing setting*

STEP 7

Select Indication for PN from the dropdown box

STEP 8

Enter ***Remarks*** if applicable

STEP 9

Click on the button to add prescription details into prescription section.

Note

Prescription will be displayed as per Figure 3.2.2-4.

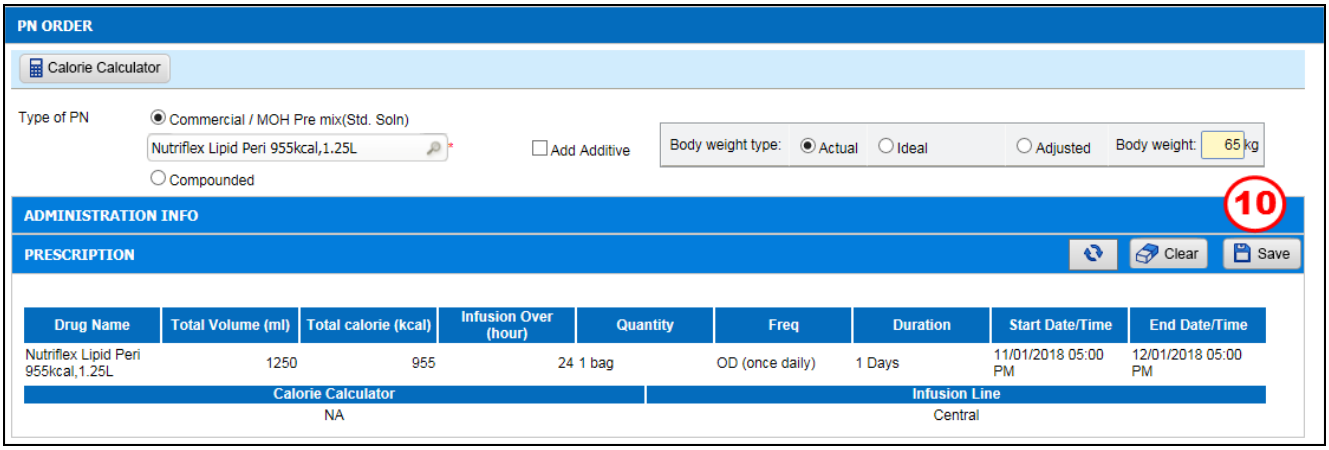


Figure 3.2.2-4 PN Order

STEP 10

Click on the Save button to save prescription

Note

The Clear button to clear all information of prescription order.

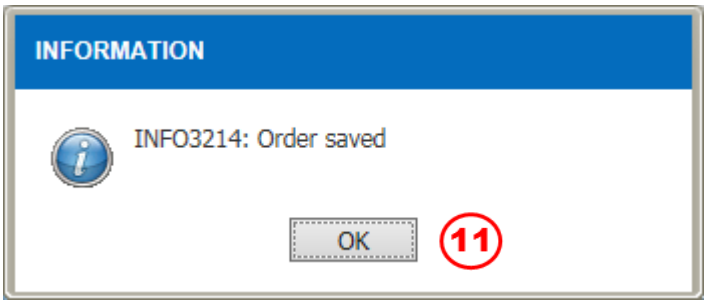


Figure 3.2.2-5 Information Alert

STEP 11

Click on the OK button to save order record

Note

After saving the record, Confirm Order button, Delete button, Prescription button and Modify button will be displayed as per Figure 3.1.3-6.

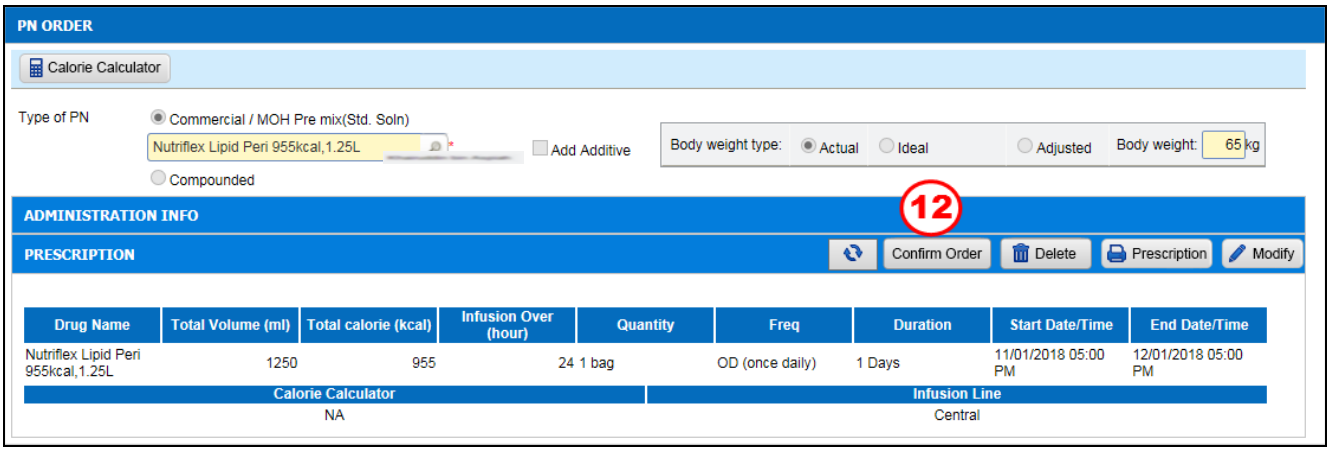


Figure 3.2.2-6 Medication Order

STEP 12

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*
- *The* Prescription *button to print prescription.*
- *The* Modify *button to edit information after saved record.*

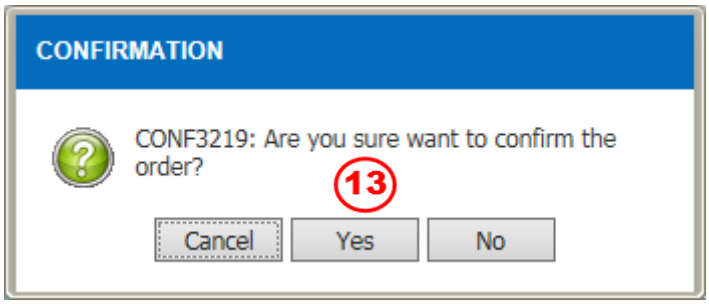


Figure 3.2.2-7 Confirmation Alert

STEP 13

Click on the Yes button to confirm record order

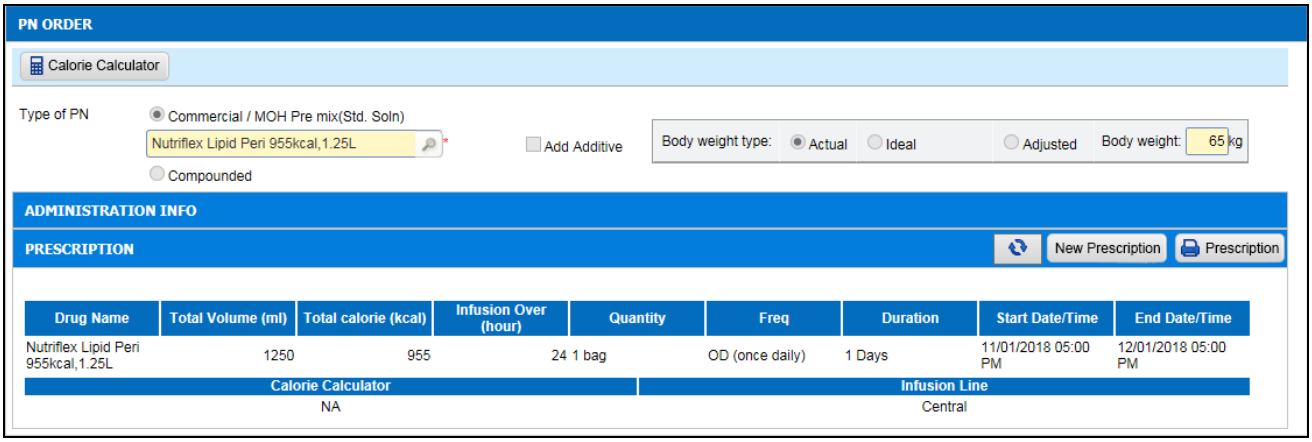


Figure 3.2.2-8 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.2-9*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia

Hospital Seri Manjung

PARENTERAL NUTRITION

Patient Name:	AXXXX XXXXXX XXX XXXXXX	**Patient ID:**	
Age:	41 Years 05 Months 10 Days	**MRN:**	HSM0224551
Gender:	Male	**Prescription :**	W70001124235
Height / Weight / BSA:	166 cm/66 kg/1.76 m^2	**Order Date / Time :**	
Room No / Bed:		**Location:**	WAD 7
Diagnosis:		**Allergy:**	

TPN Order:	Kabiven Central 1400kcal, 1.54L	**Order Quantity:**	1 bag
Start Date/Time:	15/02/2023 05:00 PM	**End Date/Time:**	16/02/2023 05:00 PM

		Content / kg	Content / bag
Volume	(ml)	23.33	1540
Calorie	(kCal)	21.21	1400
Protein	(g)	0.77	51
Carbohydrate	(g)	2.27	150
Lipid	(g)	0.91	60
Sodium	(mmol)	0.73	48
Potassium	(mmol)	0.55	36
Calcium	(mmol)	0.05	3
Magnesium	(mmol)	0.09	6
Phosphate	(mmol)	0.23	15
Chloride	(mmol)	1.06	70
Acetate	(mmol)	0.89	58.5
Trace Element	(ml)	NA	NA
Combine Vitamin	(ml)	NA	NA
Water Soluble Vitamin	(ml)	NA	NA
Fat Soluble Vitamin	(ml)	NA	NA

Infusion Over:	24 hr	**Infusion Rate:**	64.17 ml/hr
Prescriber:		**Frequency:**	OD (once daily)
Designation:	Pegawai Perubatan	**Infusion Route:**	Central
Department:	Emergency Trauma Care	**Remarks:**	

Figure 3.2.2-9 PN Prescription

3.2.3 Commercial/MOH Pre mix (Std. Soln) Add Addictive

Commercial / MOH Pre Mix (Std. Soln) allow user to order ready made product with additional PN component.

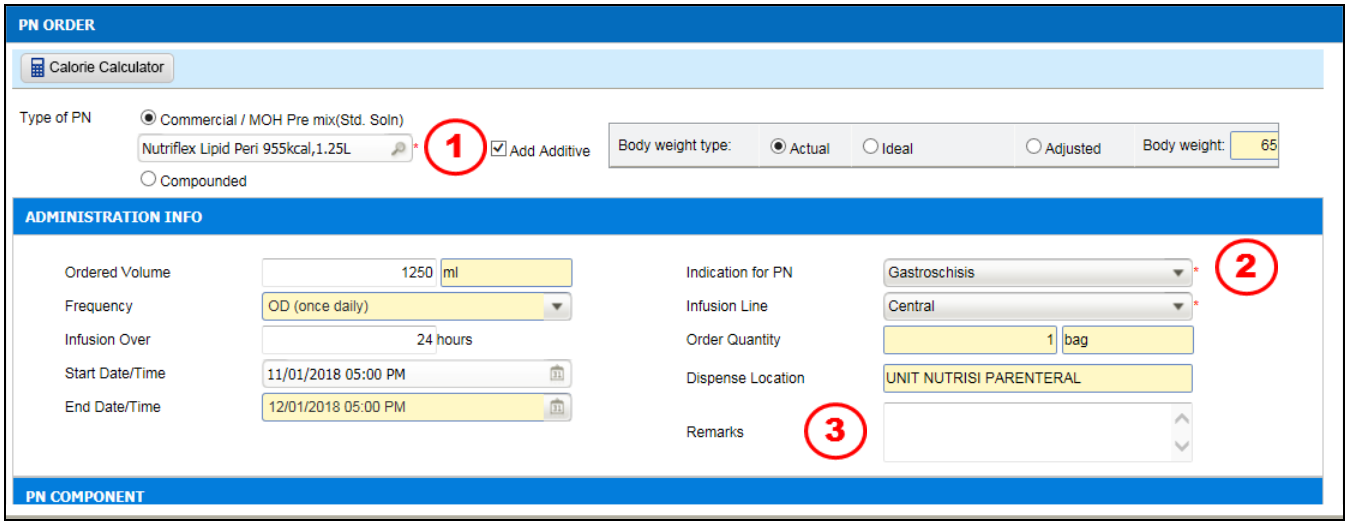


Figure 3.2.3-1 PN Order

STEP 1

Select product and check on the ☑ ***add additive*** checkbox

Note

- *All information for **Volume**, **Frequency, Start Date/Time, End Date/Time, Order Quantity, Infusion Line, Duration, Infusion Over** and **Dispense Location** field will be automatically displayed and base on the information from PN Source Content and PN Constituents Reference Range.*
- ***Volume**, **Frequency, Infusion Line, Duration** and **Infusion Order** field still can be change by the user if applicable.*
- ***Start Date/Time** and will be automatically default to current date and default time to 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time** will display according based on infusion Over*
- ***Dispense Location** will be automatically default by system based on order routing settings*
- *User allowed to choose **Body weight type: Actual/Ideal/Adjusted***

STEP 2

Select Indication for PN from the dropdown box

STEP 3

Enter ***Remarks*** if applicable

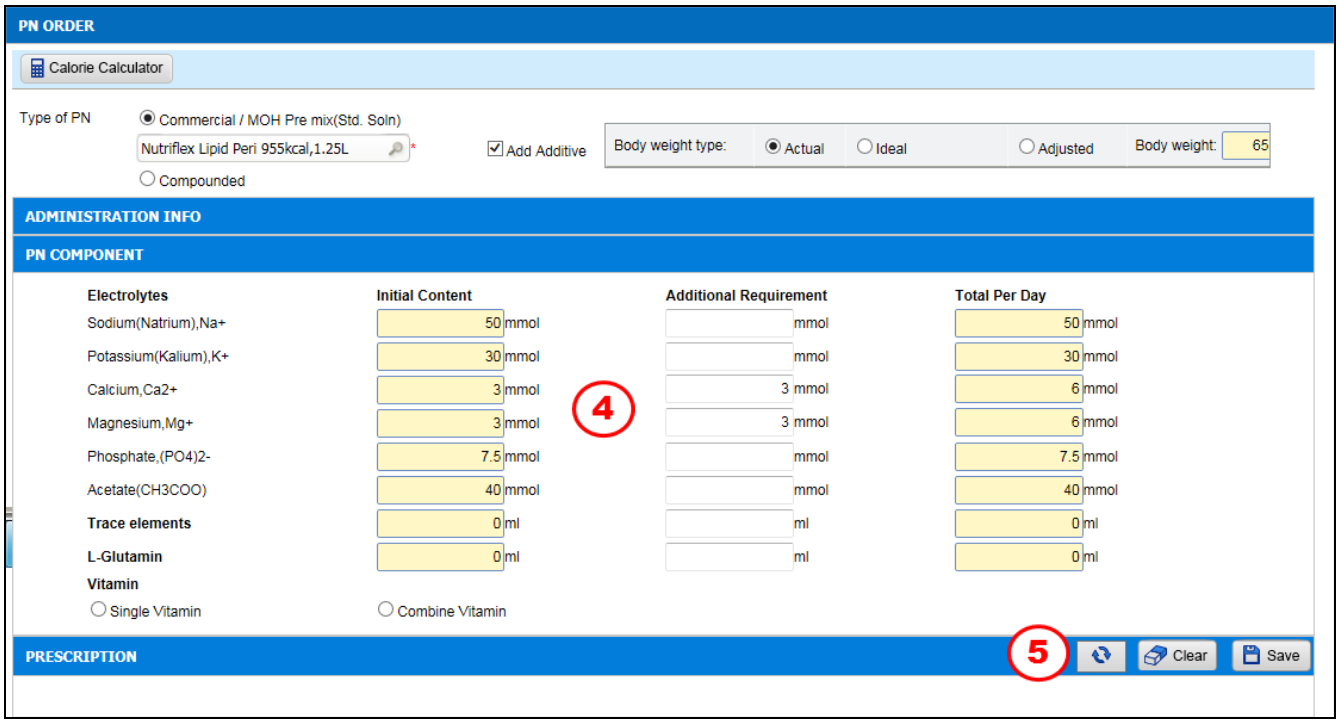


Figure 3.2.3-2 PN Order

STEP 4

Enter value of ***Electrolytes***, ***Trace elements*** and ***L-Glutamin*** that require for pertient per day

Note

- *User need to enter total electrolytes required for patient per day.*
- *All value must be more than per bag ordering.*
- *All value in all **Per Bag (Per Ordering)**field will automatically default by system.*
- *Select* Single Vitamin *radio button. **Water soluble** and **Fat soluble** field will automatically display as per Figure 3.2.3-3.*
- *Select* Combine Vitamin *radio button. **Water and Fat soluble** field will automatically display as per Figure 3.2.3-4.*
- *All value in all **Per Bag (Per Ordering)**field will automatically default by system.*

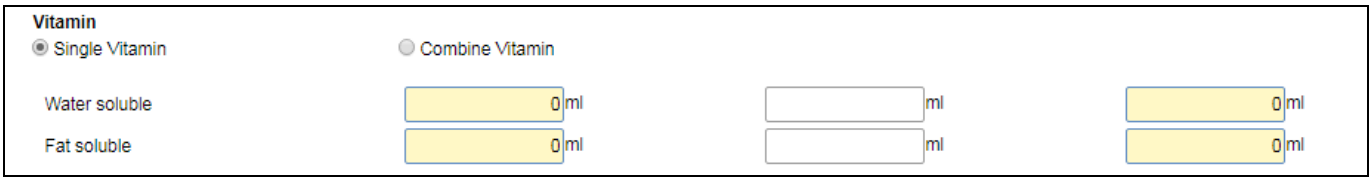


Figure 3.2.3-3 PN Component

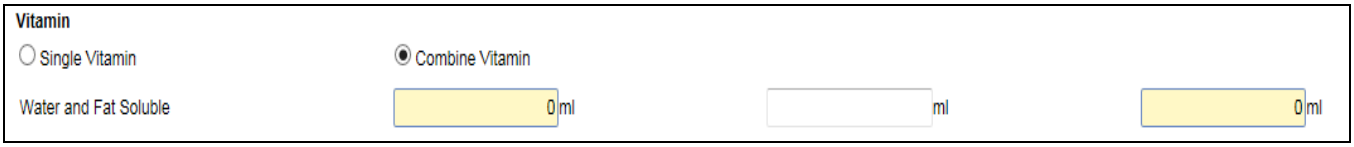


Figure 3.2.3-4 PN Component

STEP 5

Click on the button to add prescription details into prescription section

Note

Prescription will display as per Figure 3.2.3-5.

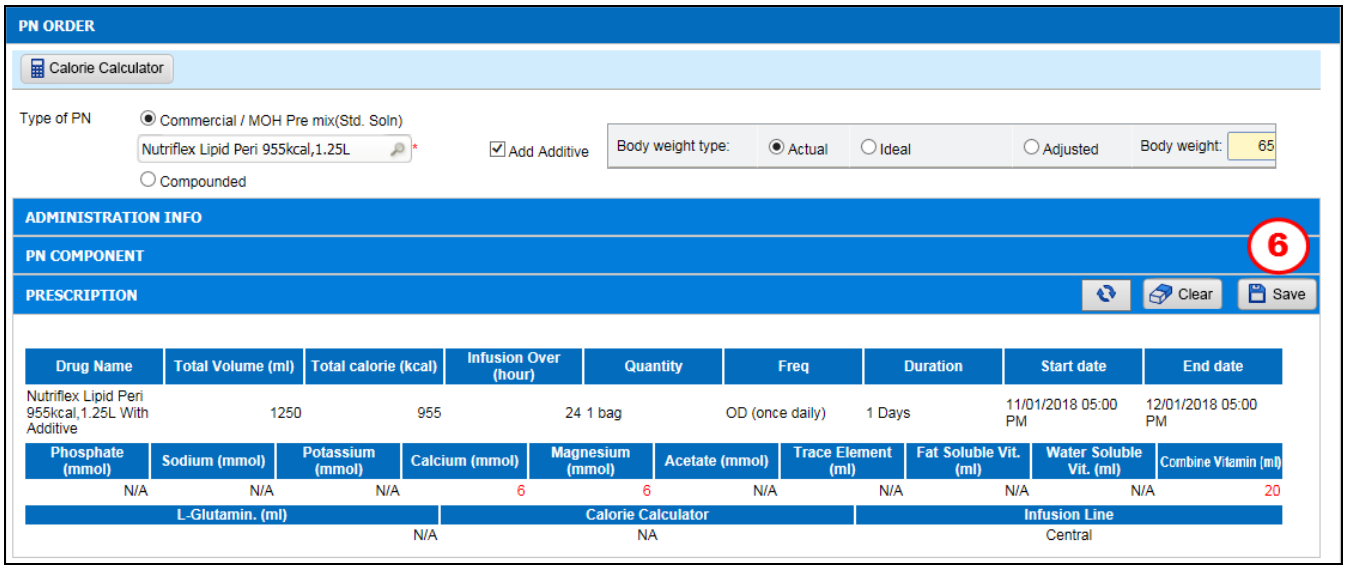


Figure 3.2.3-5 PN Prescription

STEP 6

Click on the button to save prescription

Note

The *button to clear all information of prescription order.*

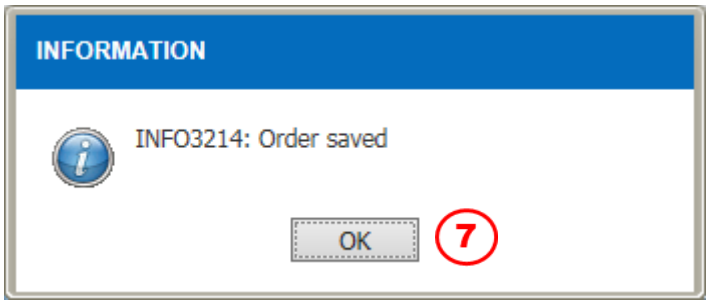
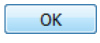


Figure 3.2.3-6 Information Alert

STEP 7

Click on the  button to save order record

Note

After saving the record, *button,* *button,* *button and* *button will be displayed as per Figure 3.2.3-7.*

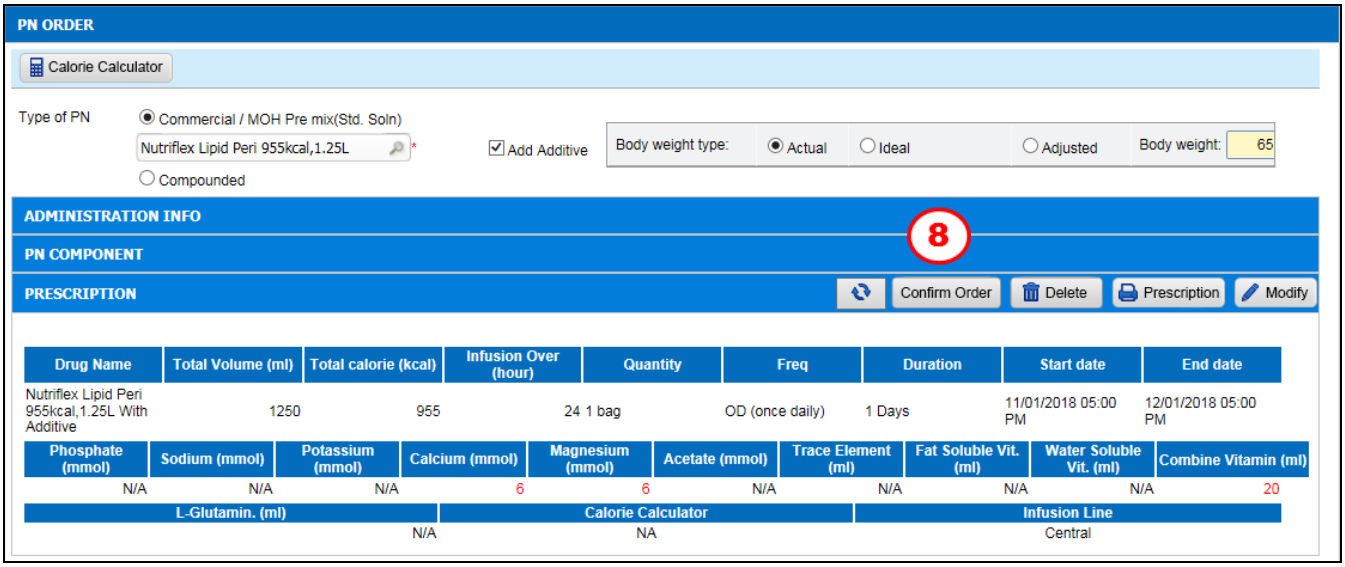


Figure 3.2.3-7 Prescription

STEP 8

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*
- *The* Prescription *button to print prescription.*
- *The* Modify *button to edit information after saved record.*

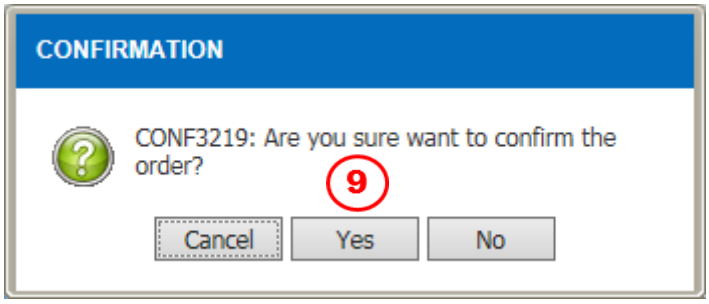


Figure 3.2.3-8 Confirmation Alert

STEP 9

Click on the Yes button to confirm record order

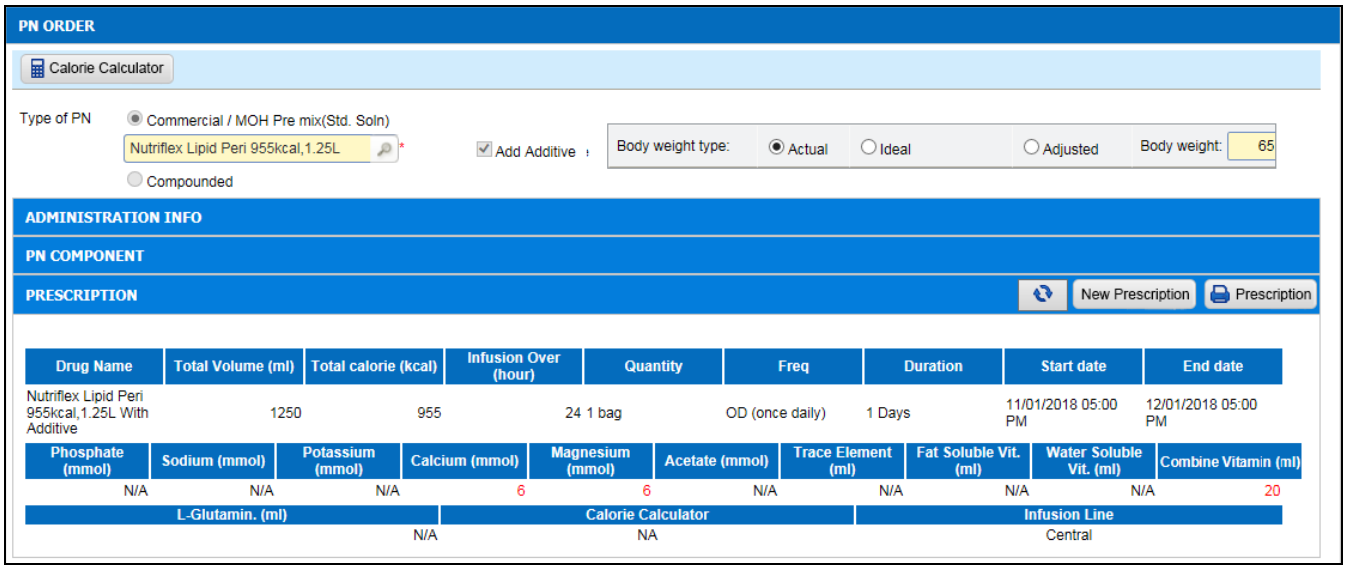


Figure 3.2.3-9 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.3-10*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia

Hospital Pakar Sultanah Fatimah, Muar

PARENTERAL NUTRITION

Patient Name:	SXXXXXXXXX XXX XXXXX XXXXX	**Patient ID:**	
Age:	53 Years 01 Months 02 Days	**MRN:**	
Gender:	Male	**Prescription :**	40001087882
Height / Weight / BSA:	160 cm/65 kg/1.73 m^2	**Order Date / Time :**	11/01/2018 12:55 PM
Room No / Bed:		**Location:**	WAD 4 (SURG - L)
Diagnosis:	PREMED	**Allergy:**	

TPN Order:	Nutriflex Lipid Peri 955kcal,1.25L With additive	**Order Quantity:**	1 bag
Start Date/Time:	11/01/2018 05:00 PM	**End Date/Time:**	12/01/2018 05:00 PM

		Additional Requirement	Content/bag	Content/kg
Volume	(ml)	NA	1250	19.23
Calorie	(kCal)	NA	955	14.69
Protein	(g)	NA	40	0.62
Carbohydrate	(g)	NA	80	1.23
Lipid	(g)	NA	50	0.77
Sodium	(mmol)	NA	50	0.77
Potassium	(mmol)	NA	30	0.46
Calcium	(mmol)	3	6	0.09
Magnesium	(mmol)	3	6	0.09
Phosphate	(mmol)	NA	7.5	0.12
Chloride	(mmol)	NA	48	0.74
Acetate	(mmol)	NA	40	0.62
Trace Element	(ml)	NA	NA	NA
Combine Vitamin	(ml)	20	20	0.31
Water Soluble Vitamin	(ml)	NA	NA	NA
Fat Soluble Vitamin	(ml)	NA	NA	NA
Glutamin	(ml)	NA	NA	NA

Infusion Over:	24 hr	**Infusion Rate:**	52.08 ml/hr
Prescriber:		**Frequency:**	OD (once daily)
Designation:	Pegawai Perubatan	**Infusion Route:**	Central
Department:	Anaesthesia and Intensive Care	**Remarks:**	

Figure 3.2.3-10 PN Prescription

3.2.4 Componded for Adult

PN Compounded allow user to order PN ready made product with customized patient requirement.

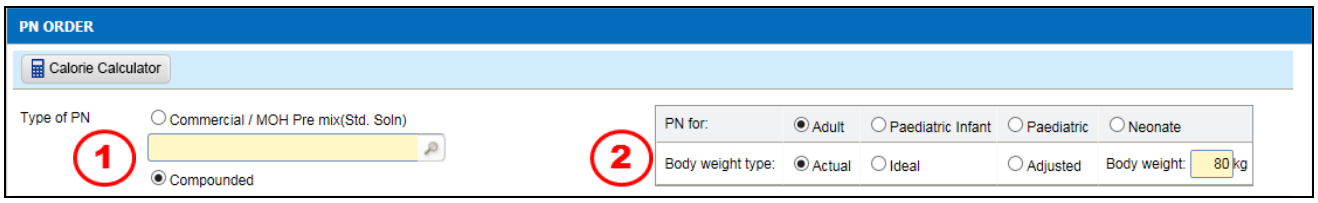


Figure 3.2.4-1 PN Order

STEP 1
Select on ***Type of PN*** as Compounded

Note
PN for: *will be automatically based on the patient age;*
- *Adult : age from 13 years to 150 years*
- *Paediatric : age from 3 years to 12 years*
- *Paediatric-infant : 31 days to 2 years*
- *Neonate : from 1 day to 30 days*

STEP 2
Select on the ***Body Weight Type*** radio button to use for calculation either as:
- Actual
- Ideal
- Adjusted

Note
By default ***Body Weight Type*** *show the* ***Actual*** *body weight of the patient. Value for* ***Body Weight (kg)*** *will be change base on selected* ***Body Weight Type****.*

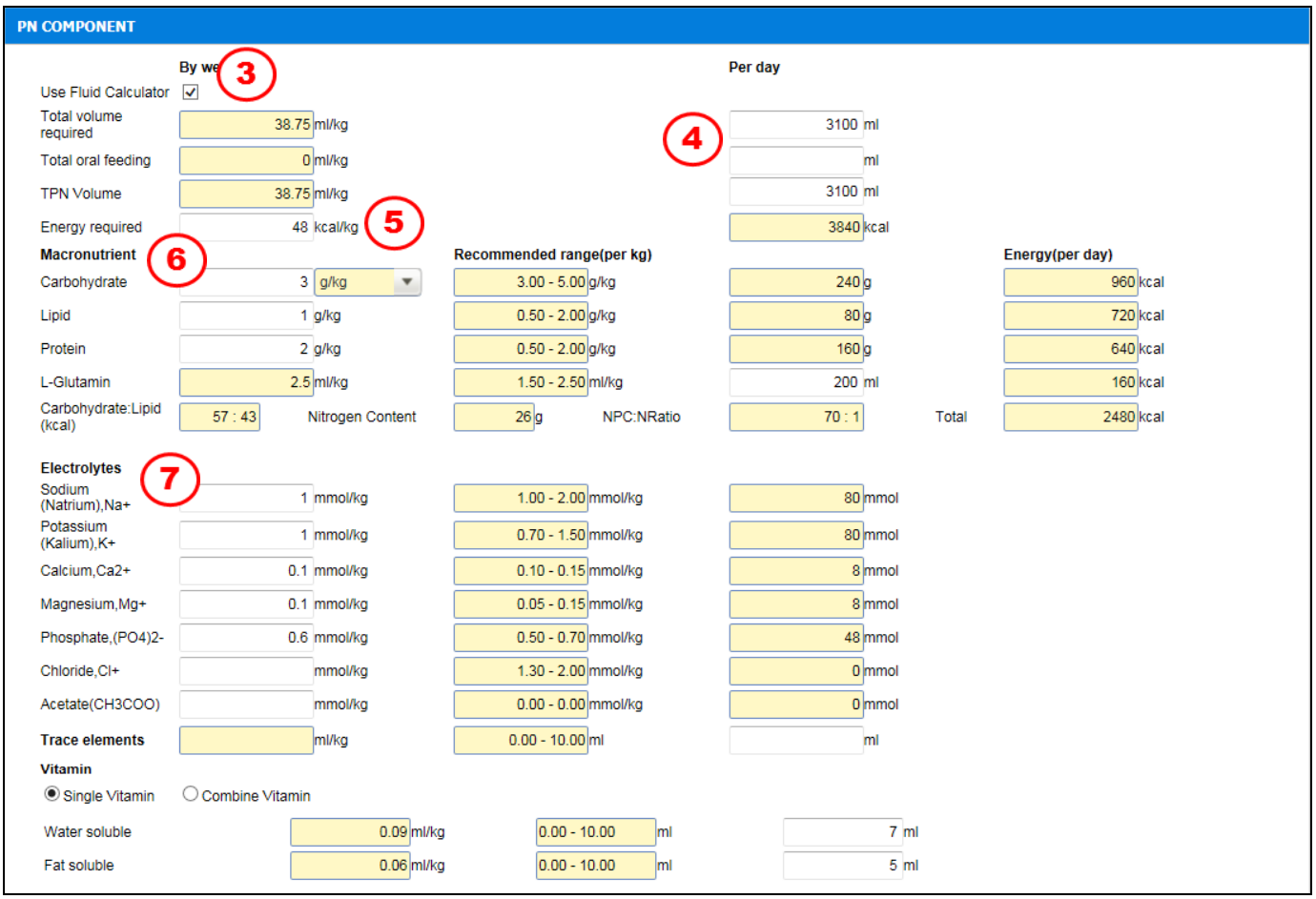


Figure 3.2.4-2 PN Component

STEP 3

Select ☐ ***Use Fluid Calculator*** check box

Note

*By selecting **Use Fluid Calculator** check box, system will be auto calculate **Total volume required per day** based on the **Body Weight Type***

STEP 4

Enter value for ***Total volume required per day*** *and* ***Total Oral Feeding per day***

Note

- *TPN Volume on **'By Weight'** (in ml/kg) will be auto calculate and TPN Volume on **'Per Day'** (in ml) field editeble.*
- *TPN Volume which is edited value (in ml) will impact to the final bag volume required which is same value will be displayed.*
- *If changing the value **'Total volume required'** or **'Total Oral Feeding'**, edited **'TPN Volume'** value will recalculate back based on existing calculation*

STEP 5

Enter value for ***Energy Required***

STEP 6

Enter value of the ***Macronutrient*** that applicable for the PN Component.

Note

- *All entered value must between the **Recommended Range (per kg).***
- *All value **Per day** and **Energy(per day)** will automatically calculate and display.*
- *L-Gutamin is an optional component.Value of **By weight** and **Energy(per day)** will automatically display.*
- *Value of **Carbohydrate:Lipid(kcal), Nitrogen Content** and **NPC:Ratio** will automatically calculate and display.*

STEP 7

Enter value of the ***Electrolytes*** that applicable for the PN Component

Note

- *All entered value must between the **Recommended Range (per kg).***
- ***Chloride ,Cl+** and **Acetate (CH3COO)** is optional component.*
- *All value **Per day** will automatically calculate and display.*
- *Enter value of the **Trace elements Per day.**Value **By Weight** will be automatically calculated and displayed after enter the **Trace elements Per day** value.*

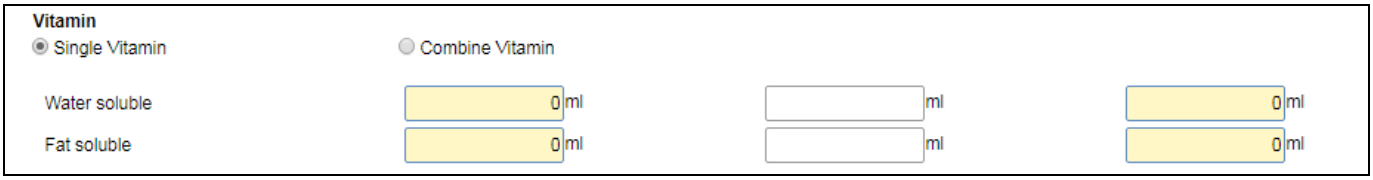


Figure 3.2.4-3 PN Component

Figure 3.2.4-4 PN Component

Note

- *Select either **Single Vitamin** or **Combine Vitamin** radio button.*
- *Vitamin have 2 types vitamin:*
  - *Single Vitamin*
  - *Combine Vitamin*
- *If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 3.2.4-3.*
- *If user select **Combine Vitamin** radio button; **Water and Fat Soluble** field will automatically display by system as per Figure 3.2.4-4.*

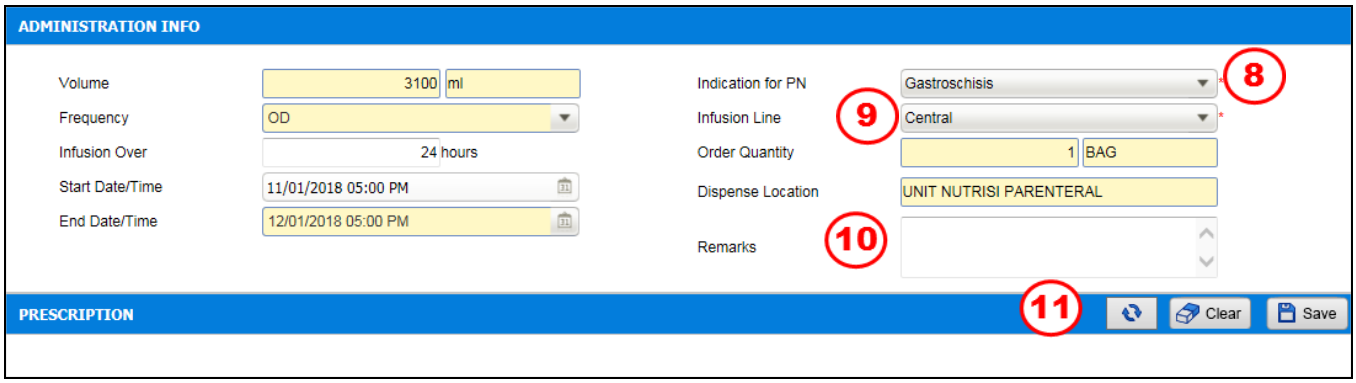


Figure 3.2.4-5 Administration Info

STEP 8
Enter ***Indication for PN*** by select from drop down box

STEP 9

Enter ***Infusion Line*** by select from drop down box

Note

- ***Infusion Over*** *will be automatically default to 24 hours but user is allow to change at this field.*
- ***Volume*** *will be automatically displayed based on value of TPN Volume 'Per day'.*
- ***Order Quantity*** *will be automatically displayed by system and user is not allow to edit this field.*
- ***Start Date/Time*** *will be automatically default to current date and defaulted to 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time*** *will be displayed according to Infusion Over*
- ***Dispense Location*** *will be automatically default by system based on order routing setting.*

STEP 10
Enter ***Remarks*** if applicable

STEP 11

Click on the button to add prescription details into prescription section

Note

Prescription will display as per Figure 3.2.4-6

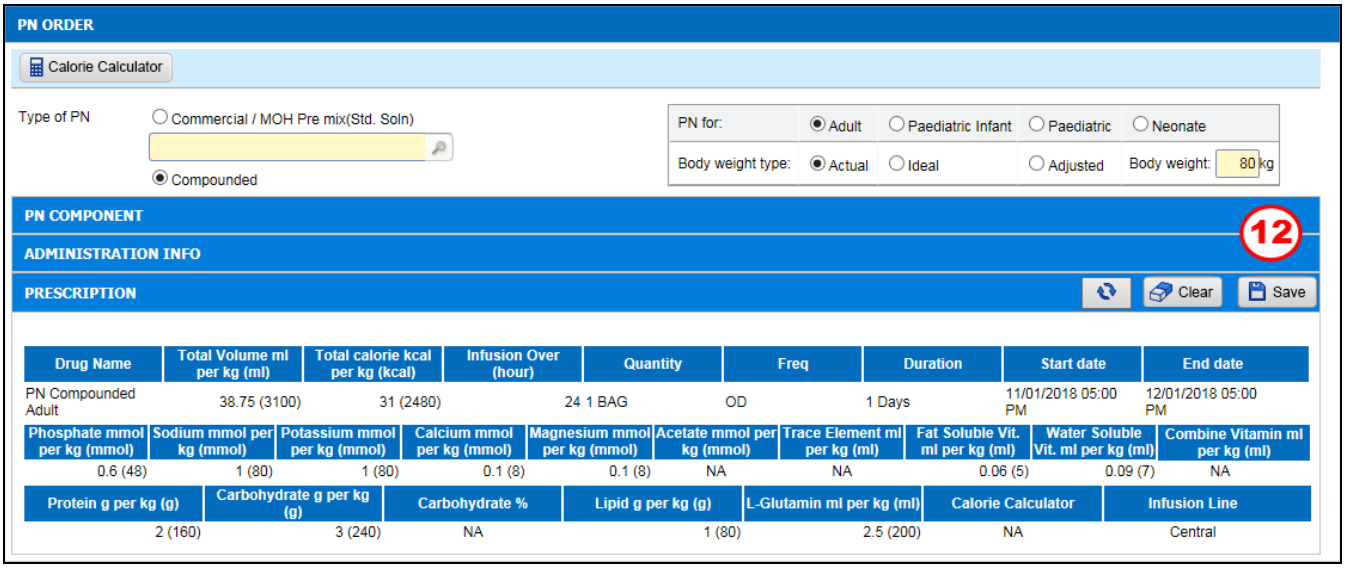


Figure 3.2.4-6 PN Prescription

STEP 12

Click on the Save button to save prescription

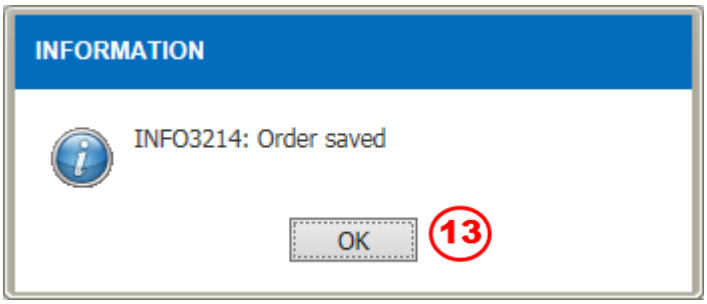


Figure 3.2.4-7 Information Alert Message

STEP 13

Click on the OK button to save order record

Note

After saving the record, Confirm Order *button,* Delete *button,* Prescription *button and* Modify *button will be displayed as per Figure 3.2.4-8.*

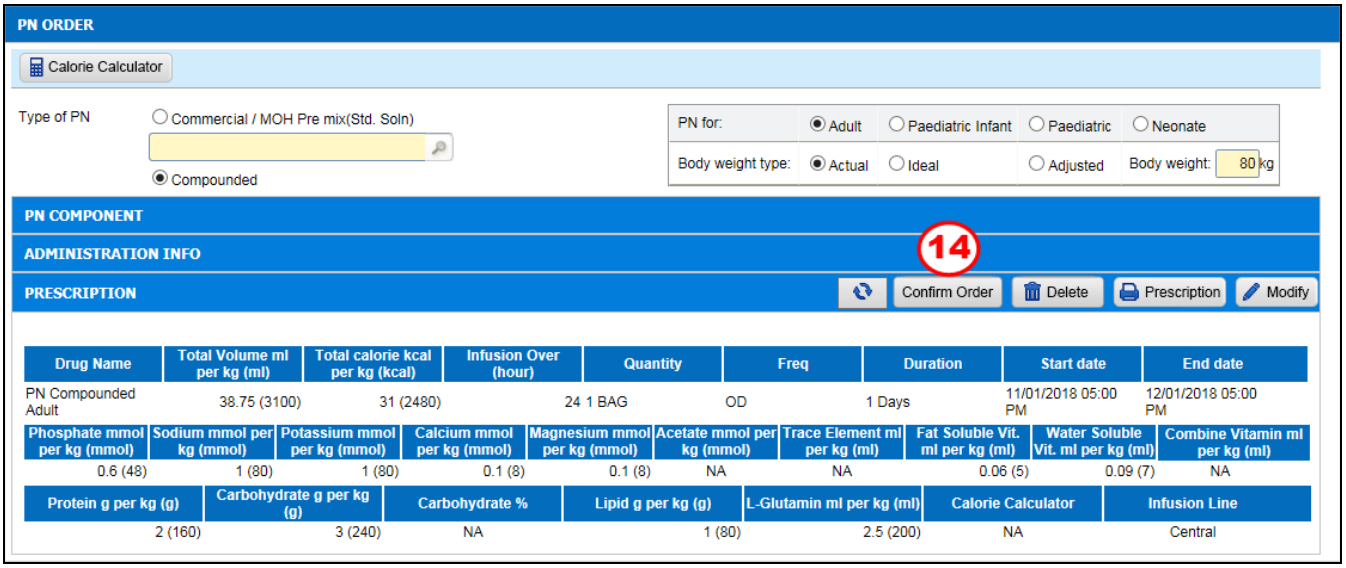


Figure 3.2.4-8 PN Prescription

STEP 14

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*
- *The* Prescription *button to print prescription.*
- *The* Modify *button to edit information after saved record*

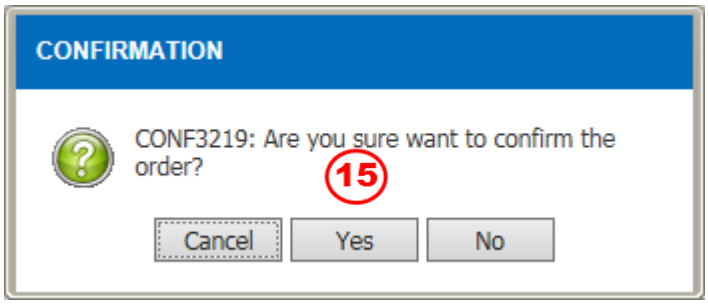


Figure 3.2.4-9 Confirmation Alert Message

STEP 15

Click on the Yes button to confirm record order

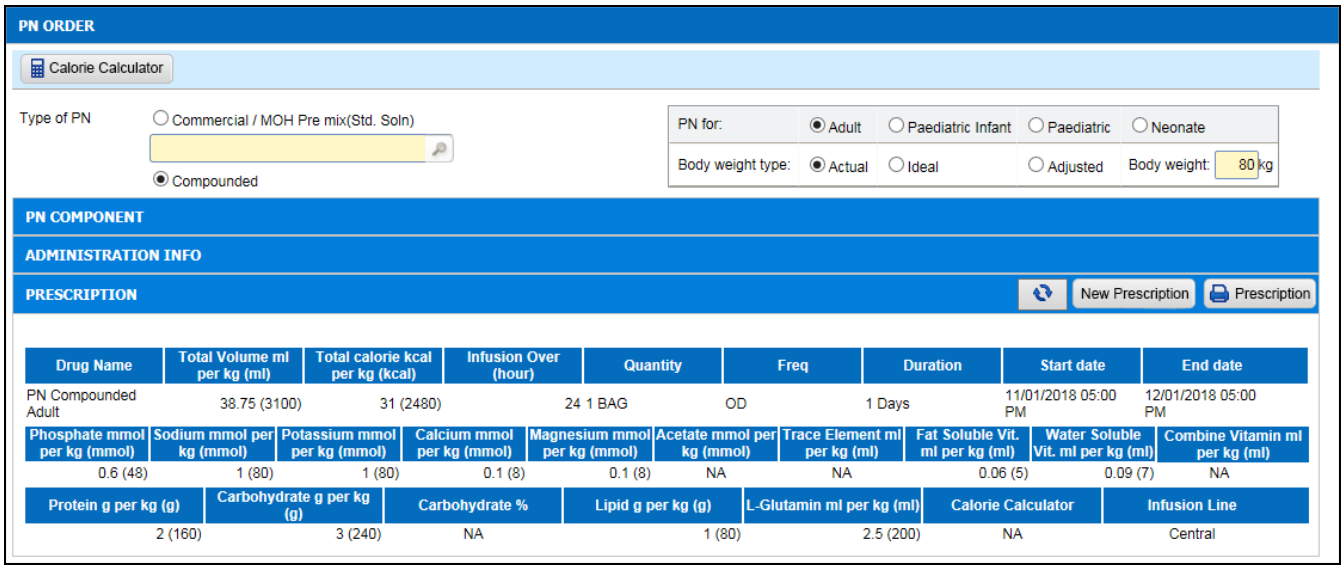


Figure 3.2.4-10 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.4-11*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia
Hospital Pakar Sultanah Fatimah, Muar
PARENTERAL NUTRITION

Patient Name:	MXXXXXXX XXXXX XXX XXXXXX	**Patient ID:**	
Age:	24 Years 09 Months 14 Days	**MRN:**	
Gender:	Male	**Prescription :**	W2L0001087884
Height / Weight /	169 cm/80 kg/1.97 m^2	**Order Date / Time**	11/01/2018 02:33 PM
Room No / Bed:		**Location:**	WAD 2 L (MED/SURG/ORTO)
Diagnosis:	rheumatic fever	**Allergy:**	

TPN Order:	PN Compounded Adult	**Order**	1 bag
Start	11/01/2018 05:00 PM	**End**	12/01/2018 05:00 PM

		Content / kg	Content / bag
Volume	(ml)	38.75	3100
Calorie	(kCal)	48	3840
Protein	(g)	2	160
Carbohydrate	(g)	3	240
Lipid	(g)	1	80
Sodium	(mmol)	1	80
Potassium	(mmol)	1	80
Calcium	(mmol)	0.1	8
Magnesium	(mmol)	0.1	8
Phosphate	(mmol)	0.6	48
Chloride	(mmol)	NA	NA
Acetate	(mmol)	NA	NA
Trace Element	(ml)	NA	NA
Combine Vitamin	(ml)	NA	NA
Water Soluble Vitamin	(ml)	0.09	7
Fat Soluble Vitamin	(ml)	0.06	5
L-Glutamin	(ml)	2.5	200

Infusion Over:	24 hr	**Frequency:**	OD
Prescriber:		**Infusion Route:**	Central
Designation:	Pegawai Perubatan	**Remarks:**	
Department:	General Medicine		

Figure 3.2.4-11 PN Order Prescription

3.2.5 Compounded for Pediatric

PN Compounded allow user to order PN drug with certain information for patient between 3 years old to 12 years old.

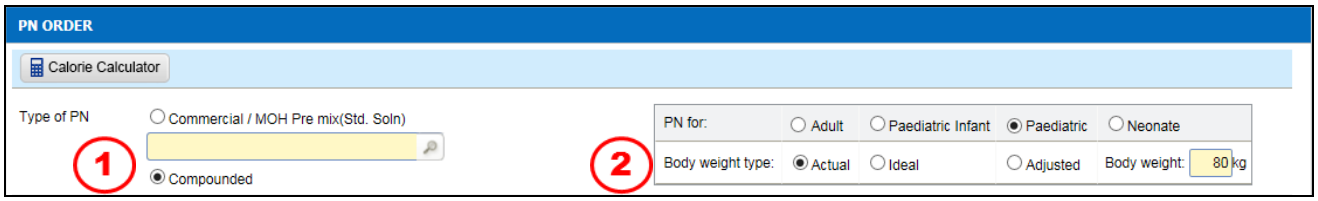


Figure 3.2.5-1 PN Order

STEP 1
Select on ***Type of PN*** as Compounded

Note
PN for: *will be automatically based on the patient age;*
- *Adult : age from 13 years to 150 years*
- *Paediatric : age from 3 years to 12 years*
- *Paediatric-infant : 31 days to 2 years*
- *Neonate : from 1 day to 30 days*

STEP 2
Select on the ***Body Weight Type*** radio button to use for calculation either as:
- Actual
- Ideal
- Adjusted

Note
By default ***Body Weight Type*** *show the* ***Actual*** *body weight of the patient. Value for* ***Body Weight (kg)*** *will be change base on selected* ***Body Weight Type****.*

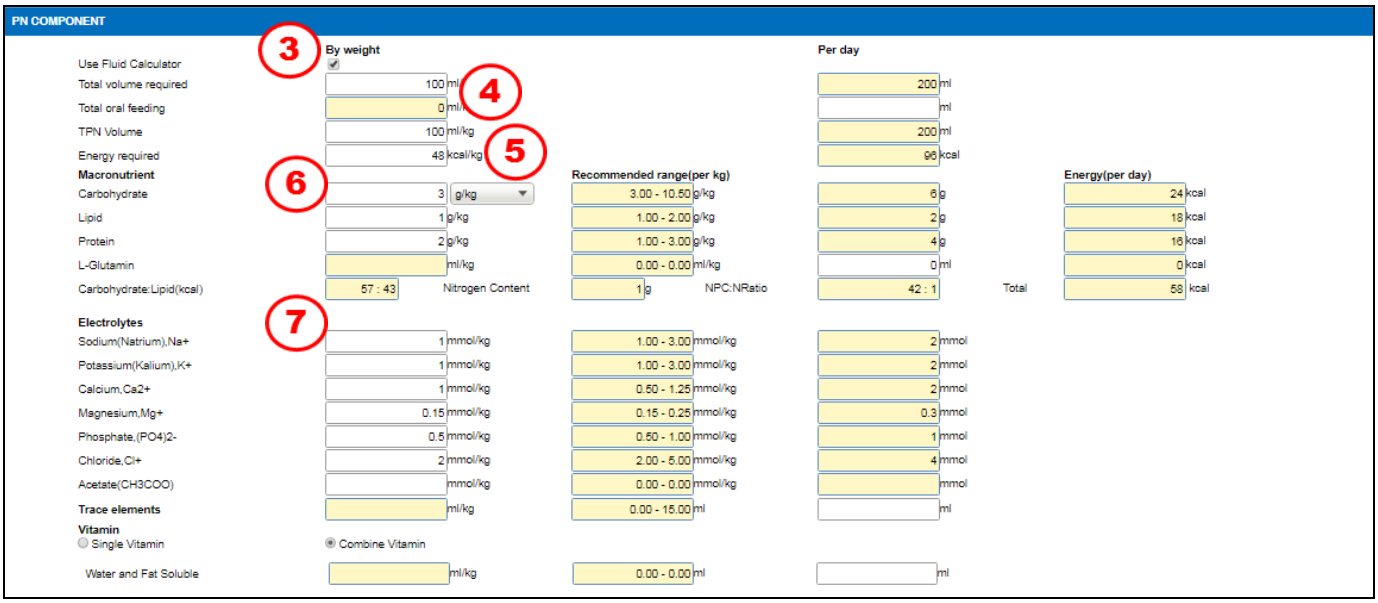


Figure 3.2.5-2 PN Component

STEP 3

Select ☐ ***Use Fluid Calculator*** check box

Note

*By selecting **Use Fluid Calculator** check box, system will be auto calculate **Total volume required per day** based on the **Body Weight Type***

STEP 4

Enter value for ***Total volume required by weight*** and ***Total Oral Feeding per day***

Note

- *TPN Volume on **'Per Day'** (in ml) will be auto calculate and TPN Volume on **'By Weight'** (in ml/kg) field editeble.*
- *TPN Volume whis is edited value (in ml) will impact to the final bag volume required which is same value will be displayed.*
- *If changing the value **'Total volume required'** or **'Total Oral Feeding'**, edited **'TPN Volume'** value will recalculate back based on existing calculation*

STEP 5

Enter value for ***Energy Required***

STEP 6

Enter value of the ***Macronutrient*** that applicable for the PN Component.

Note

- *All entered value must between the **Recommended Range (per kg).***
- *All value **Per day** and **Energy(per day)** will automatically calculate and display.*
- *L-Gutamin is an optional component.Value of **By weight** and **Energy(per day)** will automatically display.*
- *Value of **Carbohydrate:Lipid(kcal), Nitrogen Content and NPC:Ratio** will automatically calculate and display.*

STEP 7
Enter value of the ***Electrolytes*** that applicable for the PN Component

Note

- *All entered value must between the **Recommended Range (per kg).***
- ***Chloride ,Cl+** and **Acetate (CH3COO)** is optional component.*
- *All value **Per day** will automatically calculate and display.*
- *Enter value of the **Trace elements Per day.**Value **By Weight** will be automatically calculated and displayed after enter the **Trace elements Per day** value.*

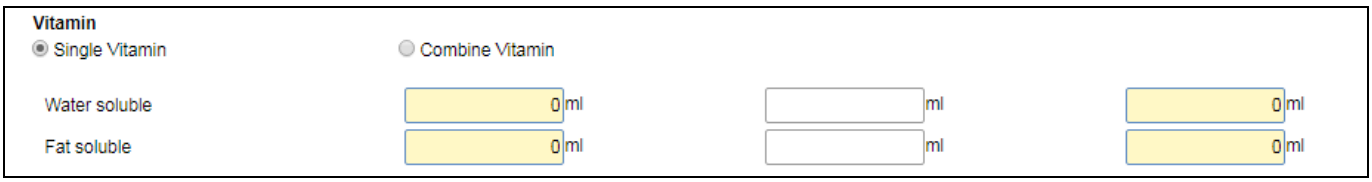


Figure 3.2.5-3 PN Component

Figure 3.2.5-4 PN Component

Note

- *Select either **Single Vitamin** or **Combine Vitamin** radio button.*
- *Vitamin have 2 types vitamin:*
  - *Single Vitamin*
  - *Combine Vitamin*
- *If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 3.2.5-3.*
- *If user select **Combine Vitamin** radio button; **Water and Fat Soluble** field will automatically display by system as per Figure 3.2.5-4.*

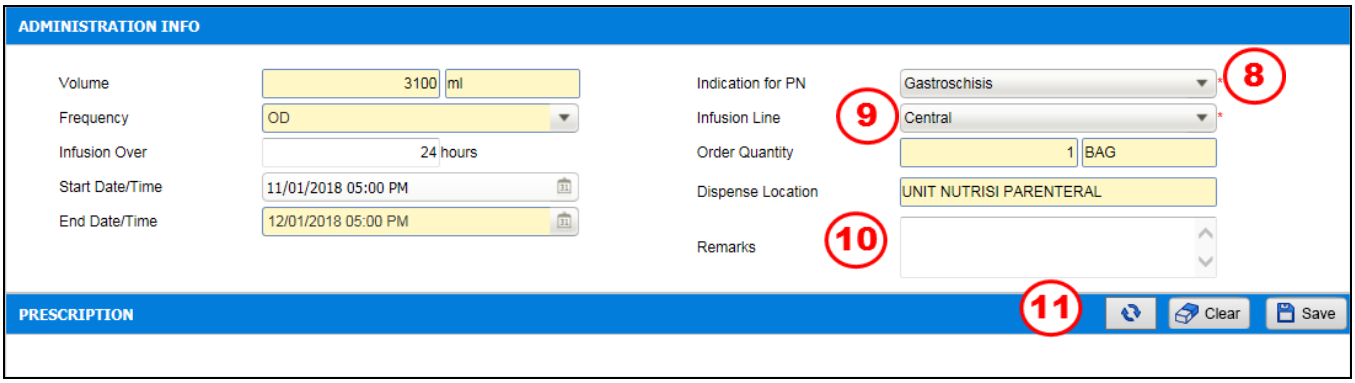


Figure 3.2.5-5 Administration Info

STEP 8
Enter ***Indication for PN*** by select from drop down box

STEP 9

Enter ***Infusion Line*** by select from drop down box

Note

- ***Infusion Over*** *will be automatically default to 24 hours but user is allow to change at this field.*
- ***Volume*** *will be automatically displayed based on value of TPN Volume 'Per day'.*
- ***Order Quantity*** *will be automatically displayed by system and user is not allow to edit this field.*
- ***Start Date/Time*** *will be automatically default to current date and defaulted to 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time*** *will be displayed according to infusion over*
- ***Dispense Location*** *will be automatically default by system based on order routing setting.*

STEP 10
Enter ***Remarks*** if applicable

STEP 11

Click on the button to add prescription details into prescription section

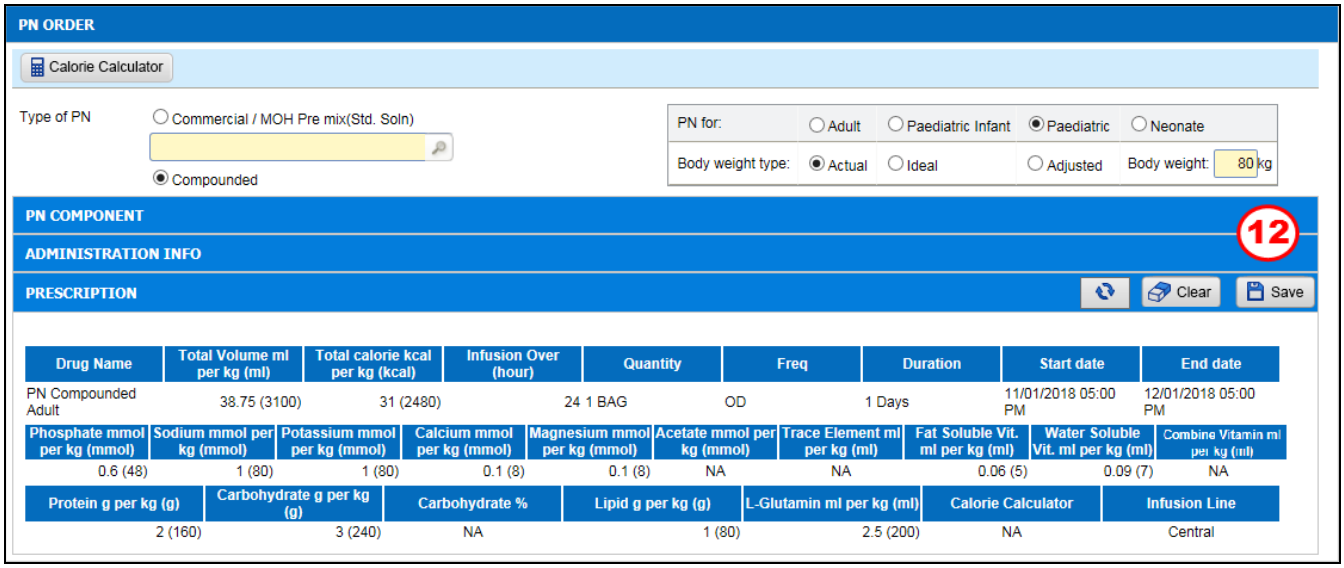


Figure 3.2.5-6 PN Prescription

STEP 12

Click on the Save button to save prescription

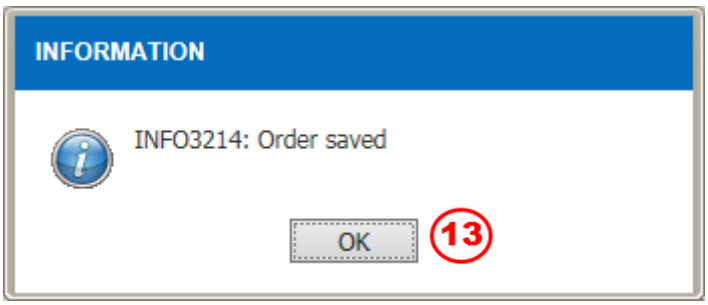


Figure 3.2.5-7 Information Alert Message

STEP 13

Click on the OK button to save order record

Note

After saving the record, Confirm Order *button,* Delete *button,* Prescription *button and* Modify *button will be displayed as per Figure 3.2.5-8.*

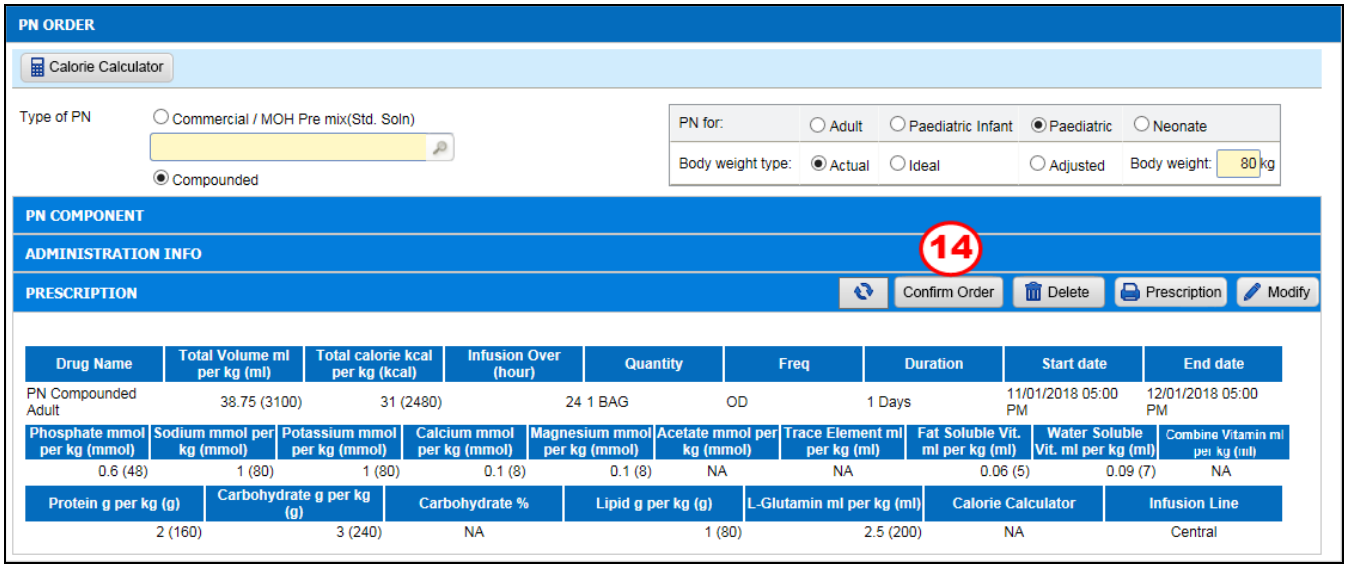


Figure 3.2.5-8 PN Prescription

STEP 14

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*
- *The* Prescription *button to print prescription.*
- *The* Modify *button to edit information after saved record*

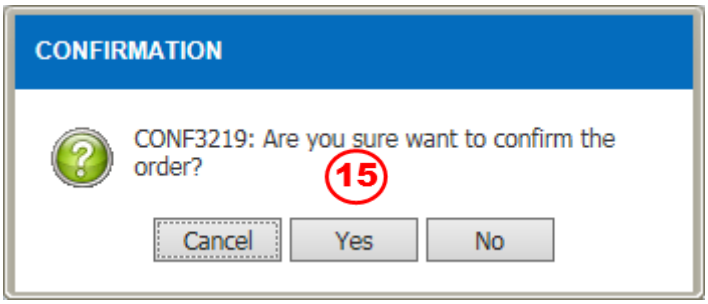


Figure 3.2.5-9 Confirmation Alert Message

STEP 15

Click on the Yes button to confirm record order

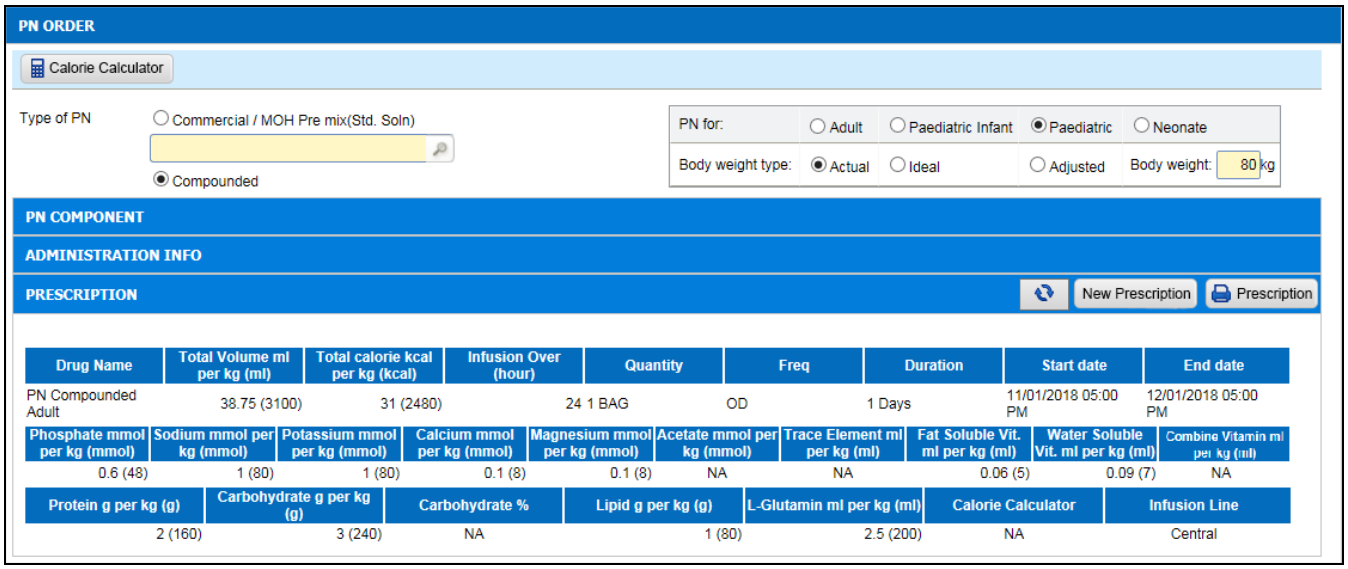


Figure 3.2.5-10 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.5-11*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia
Hospital Pakar Sultanah Fatimah, Muar
PARENTERAL NUTRITION

Patient Name:		**Patient ID:**	
Age:		**MRN:**	HPSF00190582
Gender:	Male	**Prescription :**	W2L0001087884
Height / Weight /	169 cm/80 kg/1.97 m^2	**Order Date / Time**	11/01/2018 02:33 PM
Room No / Bed:		**Location:**	
Diagnosis:	rheumatic fever	**Allergy:**	

TPN Order:	PN Compounded :	**Order**	1 bag
Start	11/01/2018 05:00 PM	**End**	12/01/2018 05:00 PM

		Content / kg	Content / bag
Volume	(ml)	38.75	3100
Calorie	(kCal)	48	3840
Protein	(g)	2	160
Carbohydrate	(g)	3	240
Lipid	(g)	1	80
Sodium	(mmol)	1	80
Potassium	(mmol)	1	80
Calcium	(mmol)	0.1	8
Magnesium	(mmol)	0.1	8
Phosphate	(mmol)	0.6	48
Chloride	(mmol)	NA	NA
Acetate	(mmol)	NA	NA
Trace Element	(ml)	NA	NA
Combine Vitamin	(ml)	NA	NA
Water Soluble Vitamin	(ml)	0.09	7
Fat Soluble Vitamin	(ml)	0.06	5
L-Glutamin	(ml)	2.5	200

Infusion Over:	24 hr	**Frequency:**	OD
Prescriber:		**Infusion Route:**	Central
Designation:	Pegawai Perubatan	**Remarks:**	
Department:	General Medicine		

Figure 3.2.5-11 PN Order Prescription

3.2.6 Compounded for Pediatric Infant

PN Compounded allow user to order PN drug with certain information for patient between 31 days old to 2 years old.

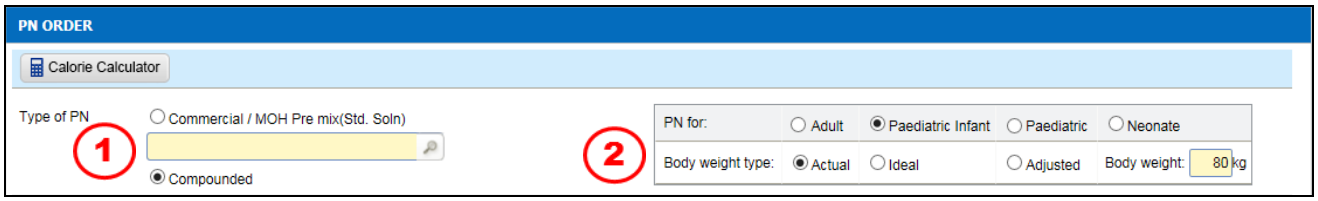


Figure 3.3.6-1 PN Order

STEP 1
Select on ***Type of PN*** as Compounded

Note
PN for: *will be automatically based on the patient age;*
- *Adult : age from 13 years to 150 years*
- *Paediatric : age from 3 years to 12 years*
- *Paediatric-infant : 31 days to 2 years*
- *Neonate : from 1 day to 30 days*

STEP 2
Select on the ***Body Weight Type*** radio button to use for calculation either as:
- Actual
- Ideal
- Adjusted

Note
By default ***Body Weight Type*** *show the* ***Actual*** *body weight of the patient. Value for* ***Body Weight (kg)*** *will be change base on selected* ***Body Weight Type****.*

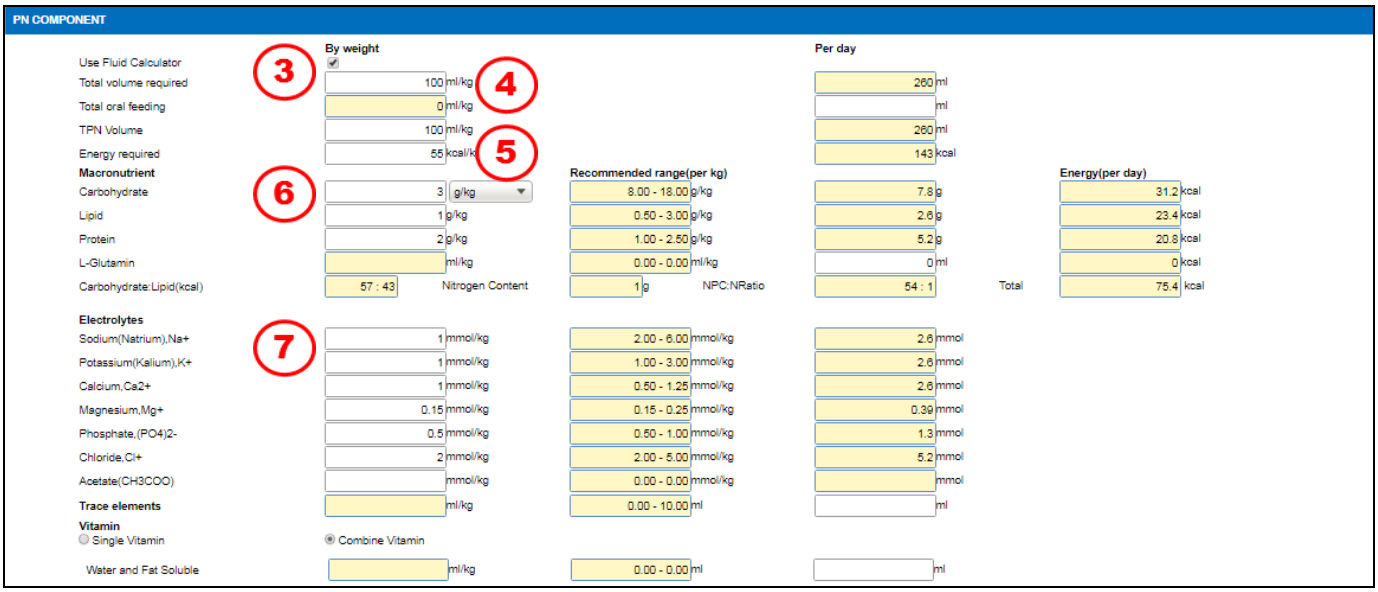


Figure 3.2.6-2 PN Component

STEP 3

Select ☐ ***Use Fluid Calculator*** check box

Note

*By selecting **Use Fluid Calculator** check box, system will be auto calculate **Total volume required per day** based on the **Body Weight Type***

STEP 4

Enter value for ***Total volume required by weight*** and ***Total Oral Feeding per day***

Note

- *TPN Volume on **'Per Day'** (in ml) will be auto calculate and TPN Volume on **'By Weight'** (in ml/kg) field editeble.*
- *TPN Volume whis is edited value (in ml) will impact to the final bag volume required which is same value will be displayed.*
- *If changing the value **'Total volume required'** or **'Total Oral Feeding'**, edited **'TPN Volume'** value will recalculate back based on existing calculation*

STEP 5

Enter value for ***Energy Required***

STEP 6

Enter value of the ***Macronutrient*** that applicable for the PN Component.

Note

- *All entered value must between the **Recommended Range (per kg).***
- *All value **Per day** and **Energy(per day)** will automatically calculate and display.*
- *L-Gutamin is an optional component.Value of **By weight** and **Energy(per day)** will automatically display.*
- *Value of **Carbohydrate:Lipid(kcal), Nitrogen Content and NPC:Ratio** will automatically calculate and display.*

STEP 7
Enter value of the ***Electrolytes*** that applicable for the PN Component

Note

- *All entered value must between the **Recommended Range (per kg).***
- ***Chloride ,Cl+** and **Acetate (CH3COO)** is optional component.*
- *All value **Per day** will automatically calculate and display.*
- *Enter value of the **Trace elements Per day.**Value **By Weight** will be automatically calculated and displayed after enter the **Trace elements Per day** value.*

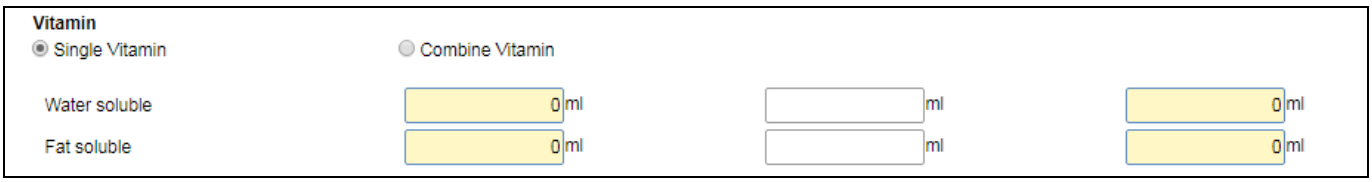


Figure 3.2.6-3 PN Component

Figure 3.2.6-4 PN Component

Note

- *Select either **Single Vitamin** or **Combine Vitamin** radio button.*
- *Vitamin have 2 types vitamin:*
  - *Single Vitamin*
  - *Combine Vitamin*
- *If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 3.2.6-3.*
- *If user select **Combine Vitamin** radio button; **Water and Fat Soluble** field will automatically display by system as per Figure 3.2.6-4.*

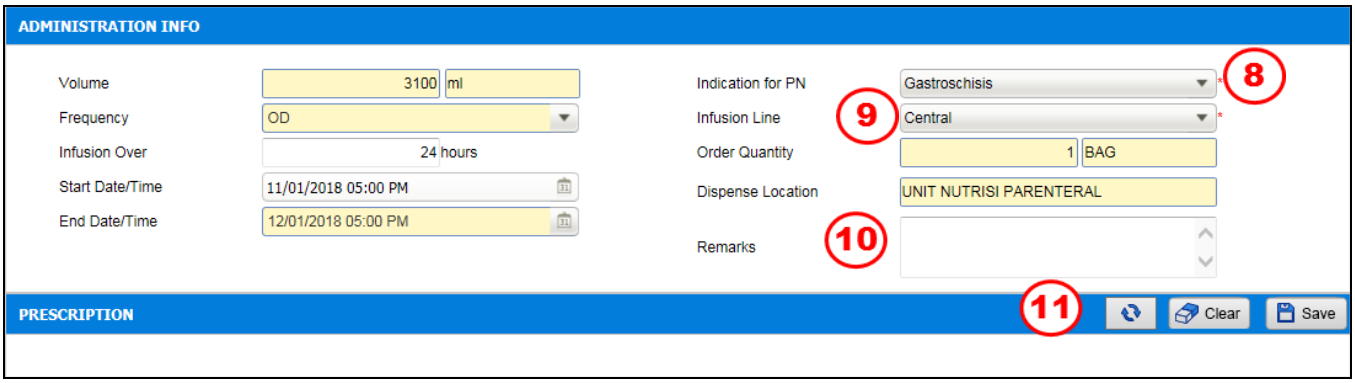


Figure 3.2.6-5 Administration Info

STEP 8
Enter ***Indication for PN*** by select from drop down box

STEP 9

Enter ***Infusion Line*** by select from drop down box

Note

- ***Infusion Over*** *will be automatically default to 24 hours but user is allow to change at this field.*
- ***Volume*** *will be automatically displayed based on value of TPN Volume 'Per day'.*
- ***Order Quantity*** *will be automatically displayed by system and user is not allow to edit this field.*
- ***Start Date/Time*** *will be automatically default to current date and defaulted to 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time*** *will be displayed according to infusion over*
- ***Dispense Location*** *will be automatically default by system based on order routing setting.*

STEP 10
Enter ***Remarks*** if applicable

STEP 11

Click on the button to add prescription details into prescription section

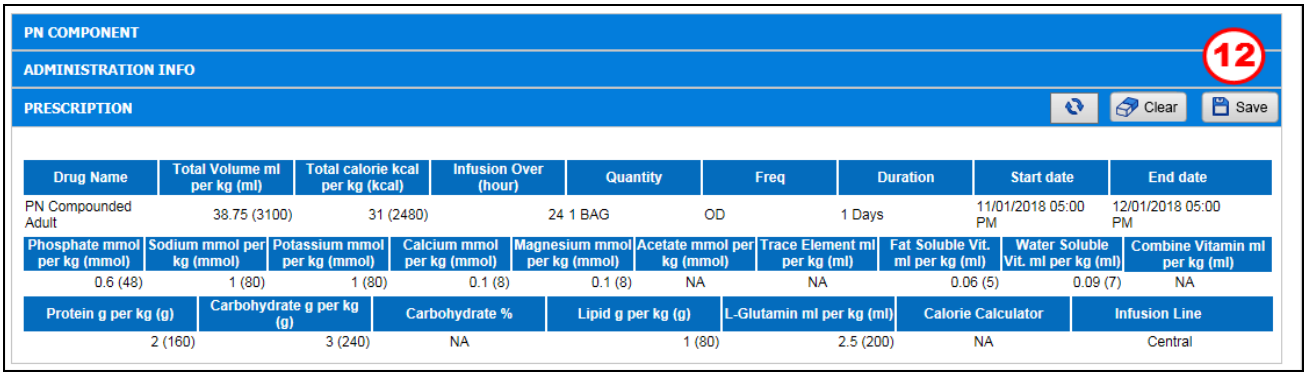


Figure 3.2.6-6 PN Prescription

STEP 12

Click on the Save button to save prescription

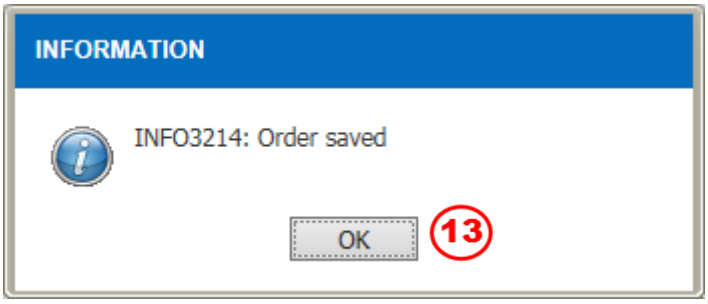


Figure 3.2.6-7 Information Alert Message

STEP 13

Click on the OK button to save order record

Note

After saving the record, Confirm Order *button,* Delete *button,* Prescription *button and* Modify *button will be displayed as per Figure 3.2.6-8.*

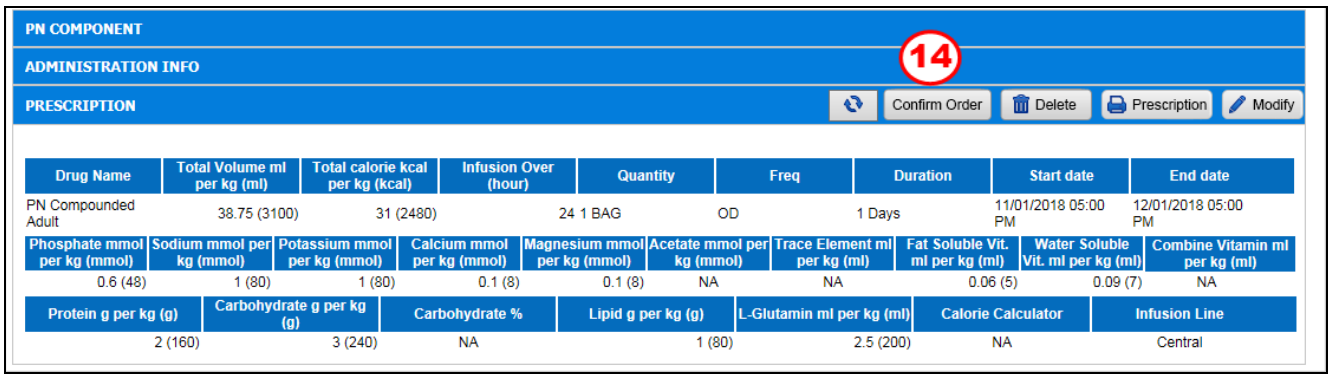


Figure 3.2.6-8 PN Prescription

STEP 14

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*

- *The* Prescription *button to print prescription.*
- *The* Modify *button to edit information after saved record*

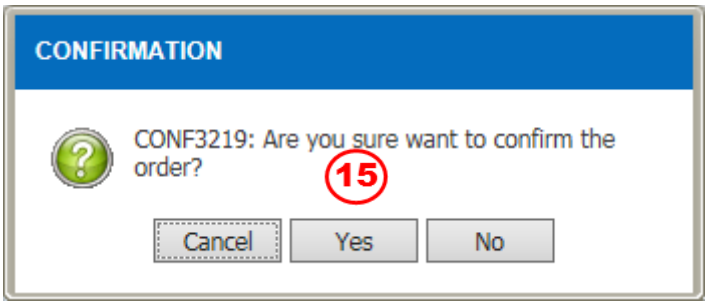


Figure 3.2.6-9 Confirmation Alert Message

STEP 15

Click on the Yes button to confirm record order

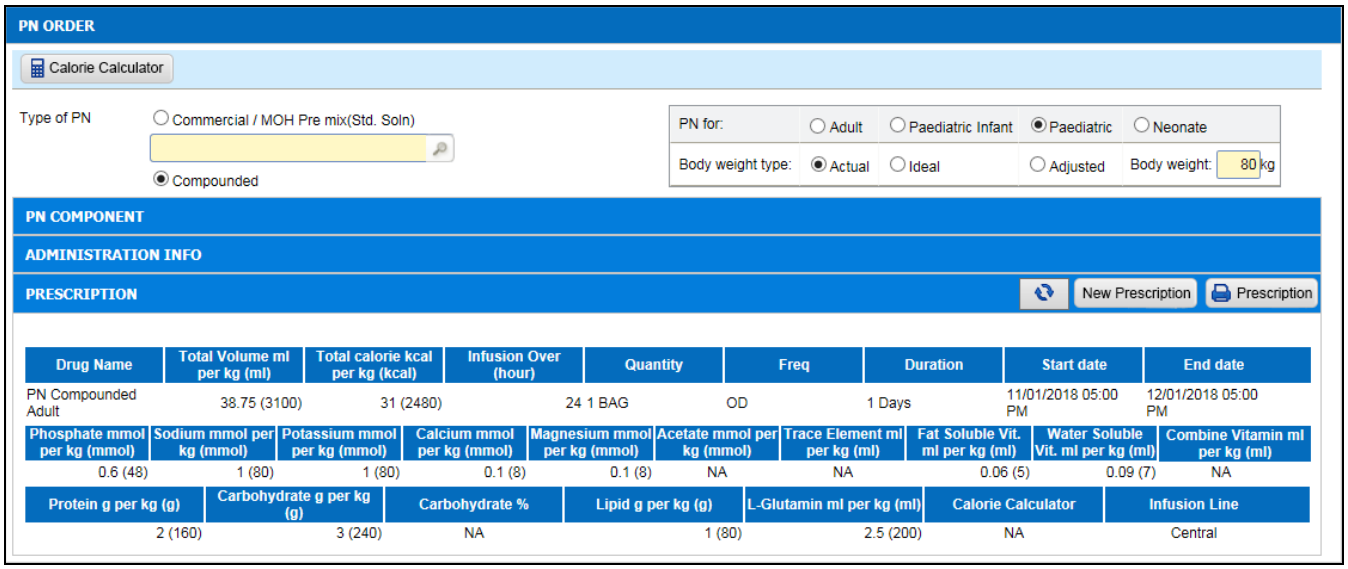


Figure 3.2.6-10 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.6-11*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia
Hospital Pakar Sultanah Fatimah, Muar
PARENTERAL NUTRITION

Patient Name:		**Patient ID:**	
Age:		**MRN:**	HPSF00190582
Gender:	Male	**Prescription :**	W2L0001087884
Height / Weight /	169 cm/80 kg/1.97 m^2	**Order Date / Time**	11/01/2018 02:33 PM
Room No / Bed:		**Location:**	
Diagnosis:	rheumatic fever	**Allergy:**	

TPN Order:	PN Compounded	**Order**	1 bag
Start	11/01/2018 05:00 PM	**End**	12/01/2018 05:00 PM

		Content / kg	Content / bag
Volume	(ml)	38.75	3100
Calorie	(kCal)	48	3840
Protein	(g)	2	160
Carbohydrate	(g)	3	240
Lipid	(g)	1	80
Sodium	(mmol)	1	80
Potassium	(mmol)	1	80
Calcium	(mmol)	0.1	8
Magnesium	(mmol)	0.1	8
Phosphate	(mmol)	0.6	48
Chloride	(mmol)	NA	NA
Acetate	(mmol)	NA	NA
Trace Element	(ml)	NA	NA
Combine Vitamin	(ml)	NA	NA
Water Soluble Vitamin	(ml)	0.09	7
Fat Soluble Vitamin	(ml)	0.06	5
L-Glutamin	(ml)	2.5	200

Infusion Over:	24 hr	**Frequency:**	OD
Prescriber:		**Infusion Route:**	Central
Designation:	Pegawai Perubatan	**Remarks:**	
Department:	General Medicine		

Figure 3.2.6-11 PN Order Prescription

3.2.7 Compounded for Neonate

Compounded (Neonate) allow user to add igredients under PN component based on patient nutritions level for patient 1 day old to 30 days old.

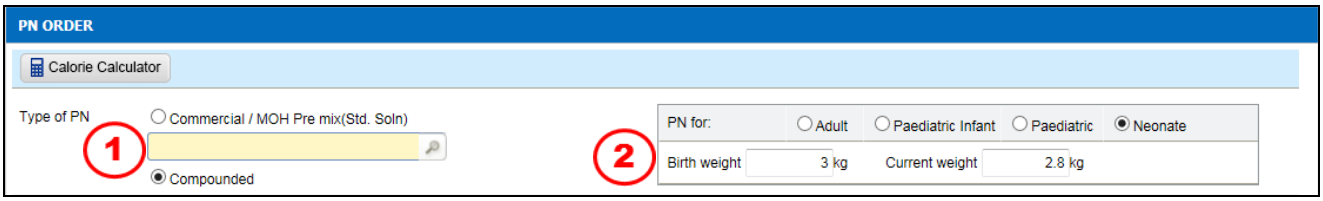


Figure 3.2.7-1 PN Order

STEP 1
Select on ***Type of PN*** as Compounded

Note
PN for: *will be automatically based on the patient age;*
- *Adult : age from 13 years to 150 years*
- *Paediatric : age from 3 years to 12 years*
- *Paediatric-infant : 31 days to 2 years*
- *Neonate : from 1 day to 30 days*

STEP 2
Enter value for ***Birth weight*** and ***Current weight***

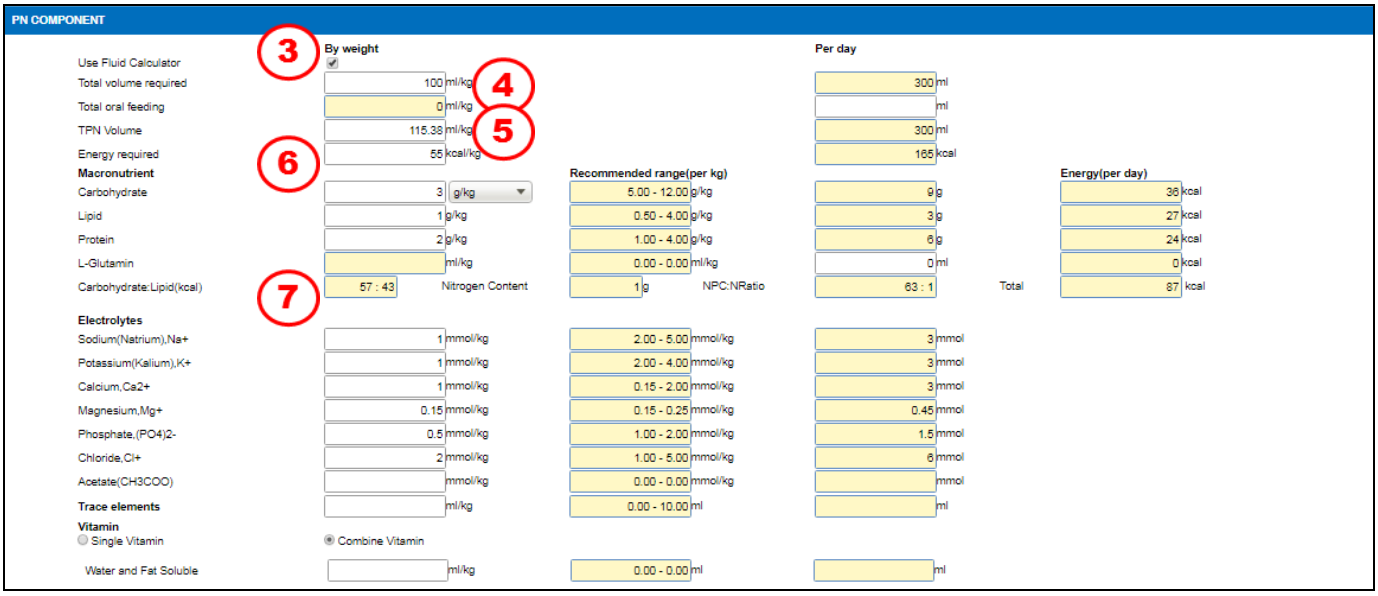


Figure 3.2.7-2 PN Component

STEP 3

Select ☐ ***Use Fluid Calculator*** check box

Note
By selecting ***Use Fluid Calculator*** *check box, system will be auto calculate* ***Total volume required per day*** *based on the* ***Body Weight Type***

STEP 4
Enter value for ***Total volume required by weight*** and ***Total Oral Feeding per day***

Note

- *TPN Volume on **'Per Day'** (in ml) will be auto calculate and TPN Volume on **'By Weight'** (in ml/kg) field editeble.*
- *TPN Volume whis is edited value (in ml) will impact to the final bag volume required which is same value will be displayed.*
- *If changing the value **'Total volume required'** or **'Total Oral Feeding'**, edited **'TPN Volume'** value will recalculate back based on existing calculation.*

STEP 5
Enter value for ***Energy Required***

STEP 6
Enter value of the ***Macronutrient*** that applicable for the PN Component.

Note

- *All entered value must between the **Recommended Range (per kg).***
- *All value **Per day** and **Energy(per day)** will automatically calculate and display.*
- *L-Gutamin is an optional component.Value of **By weight** and **Energy(per day)** will automatically display.*
- *Value of **Carbohydrate:Lipid(kcal) Content, Nitrogen and NPC:Ratio** will automatically calculate and display.*

STEP 7
Enter value of the ***Electrolytes*** that applicable for the PN Component

Note

- *All entered value must between the **Recommended Range (per kg).***
- ***Chloride ,Cl+** and **Acetate (CH3COO)** is optional component.*
- *All value **Per day** will automatically calculate and display.*
- *Enter value of the **Trace elements Per day.**Value **By Weight** will be automatically calculated and displayed after enter the **Trace elements Per day** value.*

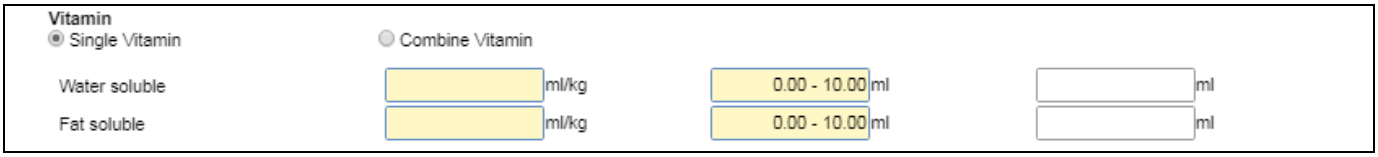


Figure 3.2.7-3 PN Component

Figure 3.2.7-4 PN Component

Note

- *Select either **Single Vitamin** or **Combine Vitamin** radio button.*

- *Vitamin have 2 types :*
  - *Single Vitamin*
  - *Combine Vitamin*
- *If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 3.2.7-3.*
- *If user select **Combine Vitamin** radio button; **Water and Fat Soluble** field will automatically display by system as per Figure 3.2.7-4.*

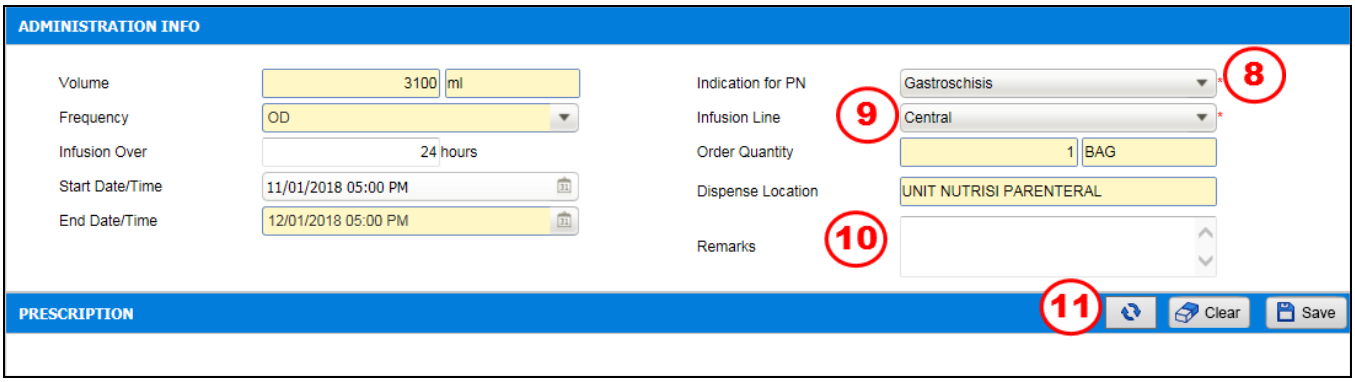


Figure 3.2.7-5 Administration Info

STEP 8
Enter ***Indication for PN*** by select from drop down box

STEP 9

Enter ***Infusion Line*** by select from drop down box

Note

- ***Infusion Over** will be automatically default to 24 hours but user is allow to change at this field.*
- ***Order Quantity** will be automatically displayed by system and user is not allow to edit this field.*
- *Volume will be automatically displayed based on value of TPN Volume 'Per day'.*
- ***Start Date/Time** will be automatically default to current date and 5.00pm but still can be change by the user if applicable.*
- ***End Date/Time** will be displayed according to infusion over*
- ***Dispense Location** will be automatically default by system based on order routing setting.*

STEP 10
Enter ***Remarks*** if applicable

STEP 11

Click on the button to add prescription details into prescription section

Note

Prescription will display as per Figure 3.2.7-6

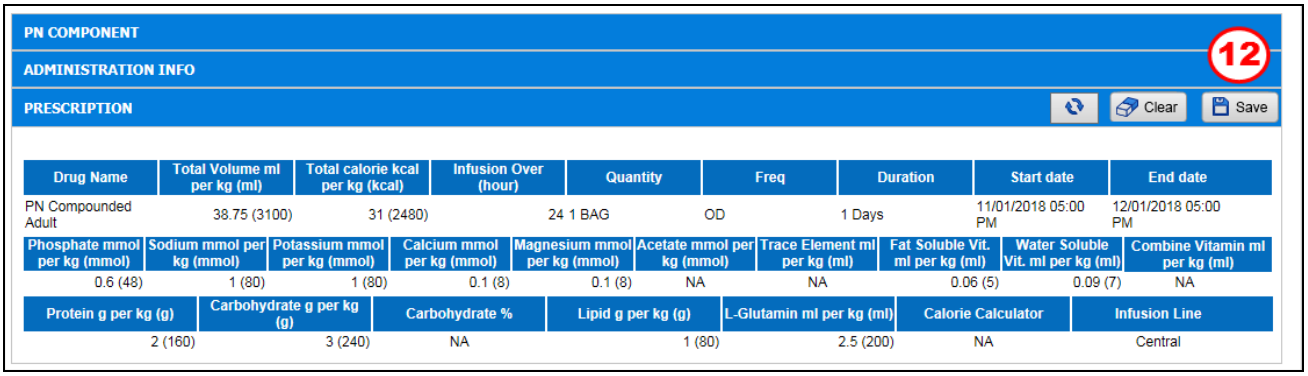


Figure 3.2.7-6 PN Prescription

STEP 12

Click on the Save button to save prescription

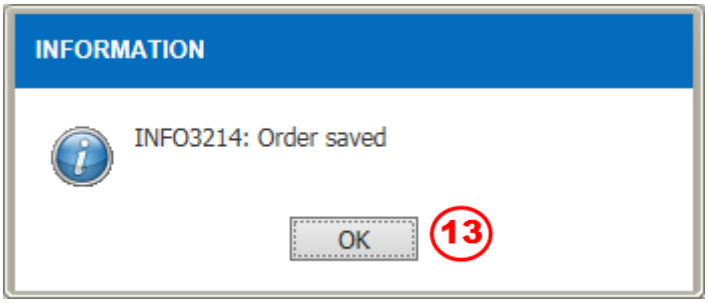


Figure 3.2.7-7 Information Alert Message

STEP 13

Click on the OK button to save order record

Note

After saving the record, Confirm Order *button,* Delete *button,* Prescription *button and* Modify *button will be displayed as per Figure 3.2.7-8.*

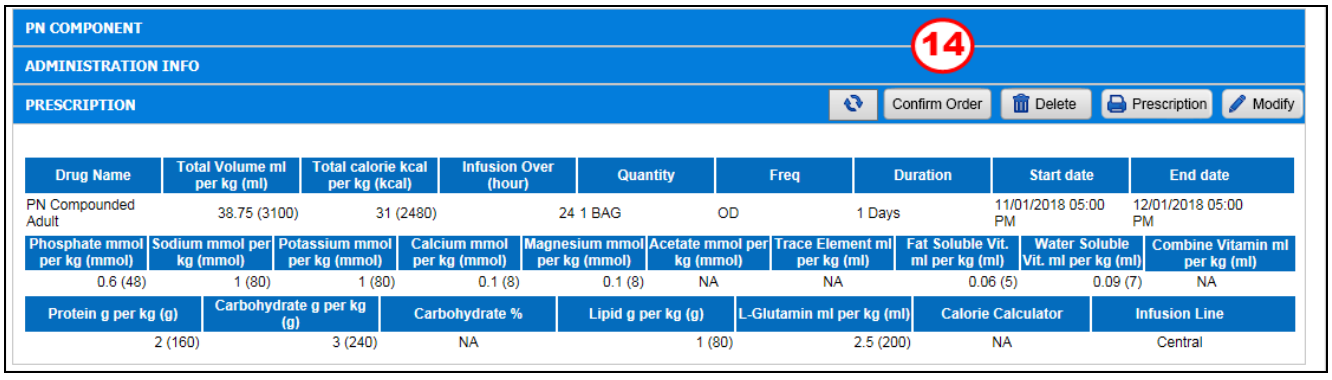


Figure 3.2.7-8 PN Prescription

STEP 14

Click on the Confirm Order button to confirm prescription

Note

- *The* Delete *button to delete prescription.*
- *The* Prescription *button to print prescription.*

- *The* Modify *button to edit information after saved record*

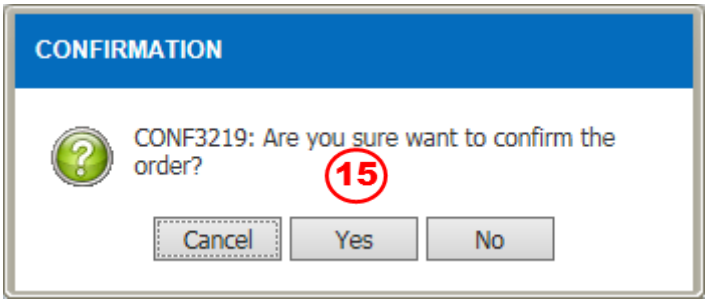


Figure 3.2.7-9 Confirmation Alert Message

STEP 15

Click on the Yes button to confirm record order

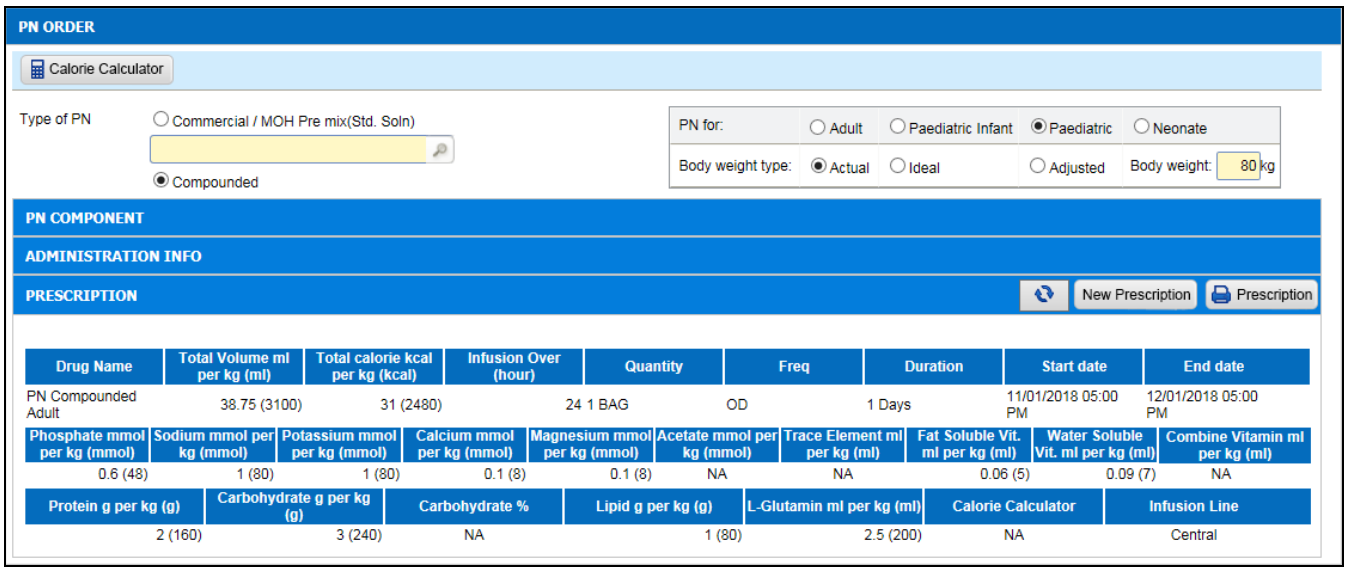


Figure 3.2.7-10 PN Order

Note

- *Click on the* Prescription *button to view/print PN prescription as Figure 3.2.7 -11*
- *Click on the* New Prescription *button to order a new prescription*

Ministry Of Health, Malaysia
Hospital Pakar Sultanah Fatimah, Muar
PARENTERAL NUTRITION

Patient Name:	[redacted]	**Patient ID:**	[redacted]
Age:	[redacted]	**MRN:**	HPSF00190582
Gender:	Male	**Prescription :**	W2L0001087884
Height / Weight /	169 cm/80 kg/1.97 m^2	**Order Date / Time**	11/01/2018 02:33 PM
Room No / Bed:		**Location:**	[redacted]
Diagnosis:	rheumatic fever	**Allergy:**	

TPN Order:	PN Compounded	**Order**	1 bag
Start	11/01/2018 05:00 PM	**End**	12/01/2018 05:00 PM

		Content / kg	Content / bag
Volume	(ml)	38.75	3100
Calorie	(kCal)	48	3840
Protein	(g)	2	160
Carbohydrate	(g)	3	240
Lipid	(g)	1	80
Sodium	(mmol)	1	80
Potassium	(mmol)	1	80
Calcium	(mmol)	0.1	8
Magnesium	(mmol)	0.1	8
Phosphate	(mmol)	0.6	48
Chloride	(mmol)	NA	NA
Acetate	(mmol)	NA	NA
Trace Element	(ml)	NA	NA
Combine Vitamin	(ml)	NA	NA
Water Soluble Vitamin	(ml)	0.09	7
Fat Soluble Vitamin	(ml)	0.06	5
L-Glutamin	(ml)	2.5	200

Infusion Over:	24 hr	**Frequency:**	OD
Prescriber:	[redacted]	**Infusion Route:**	Central
Designation:	Pegawai Perubatan	**Remarks:**	
Department:	General Medicine		

Figure 3.2.7-11 PN Order Prescription

4.0 Acronyms

Abbreviation	Definition
PhIS	Pharmacy Information System
CPS	Clinical Pharmacy System
MOH	Ministry Of Health
PN	Parenteral Nutrition Order

5.0 Links to Clinical Modules

No	*Module*	*PDF Links*	*No*	*Module*	*PDF Links*
1	*Inpatient*	*Click Here*	*12*	*CDR Dispensing*	*Click Here*
2	*CDR Order*	*Click Here*	*13*	*Methadone Dispensing*	*Click Here*
3	*TDM Order*	*Click Here*	*14*	*PN Dispensing*	*Click Here*
4	*PN Order*	*Click Here*	*15*	*Order Management*	*Click Here*
5	*IV Order*	*Click Here*	*16*	*Patient Management*	*Click Here*
6	*Prepacking*	*Click Here*	*17*	*Radiopharma*	*Click Here*
7	*Galenical*	*Click Here*	*18*	*Outpatient*	*Click Here*
8	*MTAC*	*Click Here*	*19*	*Special Drug Request*	*Click Here*
9	*ADR & DAC*	*Click Here*	*20*	*MAR*	*Click Here*
10	*Medication Counselling*	*Click Here*	*21*	*DICE*	*Click Here*
11	*Ward Pharmacy*	*Click Here*	*22*		