



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

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## **User Manual Parenteral Nutrition (PN)**

**Version : 7<sup>th</sup> EDITION**  
**Document ID: PB\_U.MANUAL\_PN**



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## 1. 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, IV 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 module and its key features/functionality. The primary objective is to help guide user through the process of completing PhIS application process.

User will understand the following activities in details:

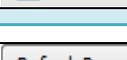
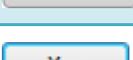
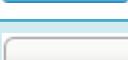
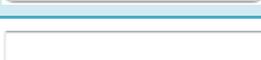
### 1.3 Organised Sections

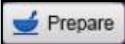
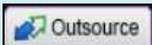
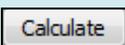
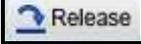
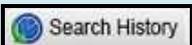
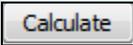
These are the sections within this document:

- Section 1 : Introduction
- Section 2 : Application Standard Features
- Section 3 : Parenteral Nutrition
- Section 4 : Acronyms

## 2. Application Standard Features

### 2.1 PhIS Legend

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

Parenteral Nutrition Module Legend			
	Verification Prescription		Preparation Prescription
	Dispensing		Edit and Print Label
	Outsource Product		Calculate
	Generate Worksheet		Release Batch
	Discard Batch		Search History
	Nutritional Assessment		Cancel Button
	Calorie Calculator		Calculate
	Hold Button		Auto allocation
	Sent Outsource Request		

**Note**

- To learn more about Login Information, kindly click [Login Information](#) module for descriptive steps.

### 3. Parenteral Nutrition (PN)

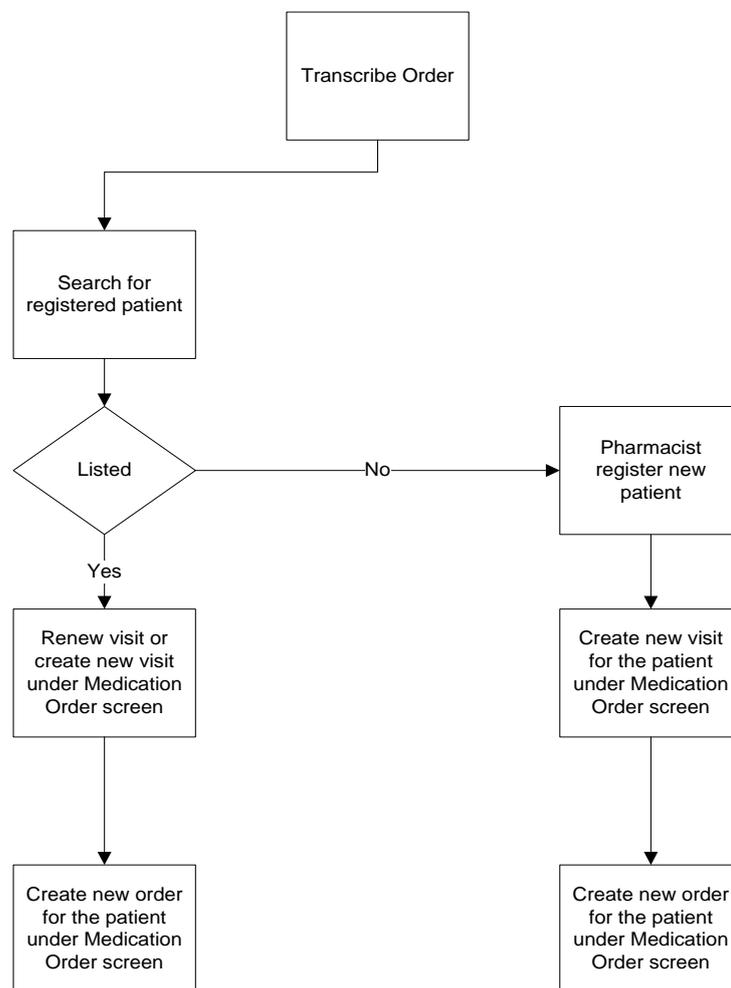
#### Overview

The Parenteral Nutrition (PN) module include implementing safe, organised and efficient drug-dispensing systems which essential for controlling costs and assuring that the medical prescription is safely followed as requested within the appropriate deadline. An appropriate dispensing system is an important ally for the prevention or reduction of medication errors by helping to minimize dispensing error opportunities in a pharmacy. At present, there are various types of dispensing systems for medical prescriptions within a hospital.

#### User Group

This module is intended for Authorized Pharmacist

#### Transcribe Order



**Transcribe Order Process Flow**

## Functional Diagram

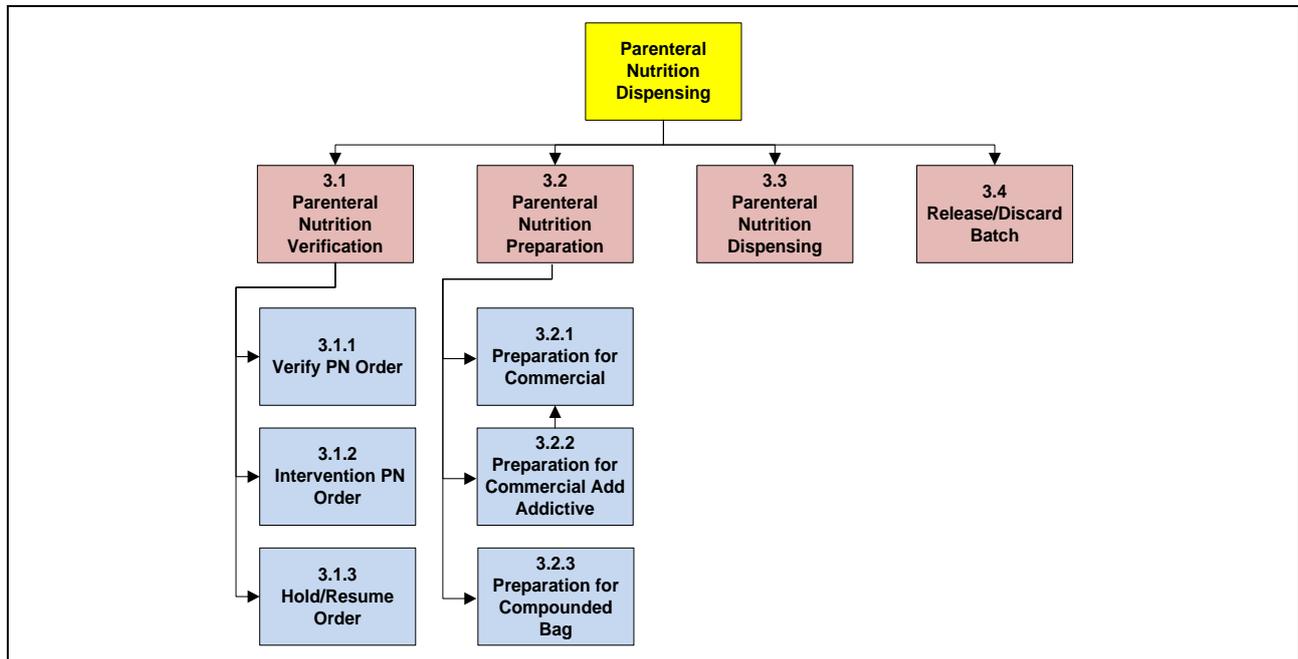


Figure 3.0-1

### Functional Description

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

- Verification**  
 Verification is for pharmacist to verify the prescriptions received from transcribe order. This process is mandatory for all prescriptions receive before the user can proceed with dispensing preparation
- Preparation**  
 The prescription and the drug preparation are made in the system that may integrate with inventory system. Professionals access system data directly with no need to send files or manual drug labeling.
- Dispensing**  
 The prescription and the dispensing report are made in the system that may integrate with inventory system.
- Release/Discard Batch**  
 Allow the user to release/discard the drug reserved for the patient back into inventory. User need to release this drug in order for it to be available in the drug inventory list.

### 3.1 Search Registered Patient

To view an existing patient record, please perform the steps below.

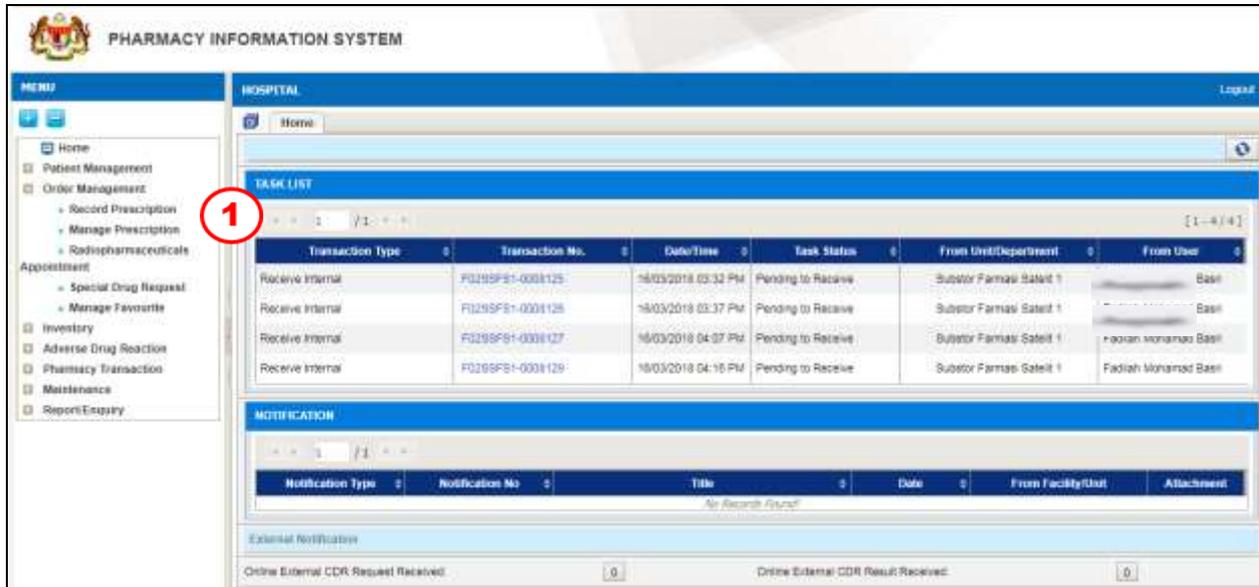


Figure 3.1-1 PhIS Home page

This page is used to search for a registered patient

#### STEP 1

Click on 'Order Management' menu followed by 'Record Prescription' and screen will be displayed as per Figure 3.1-1



Figure 3.1-2 Medication Order

#### STEP 2

Select registration type from dropdown box

#### STEP 3

Click on the  button to search for a registered patient based on the type selected

#### Note

If the patient is not registered, click on the  button and the 'Patient Registration' screen will be displayed.

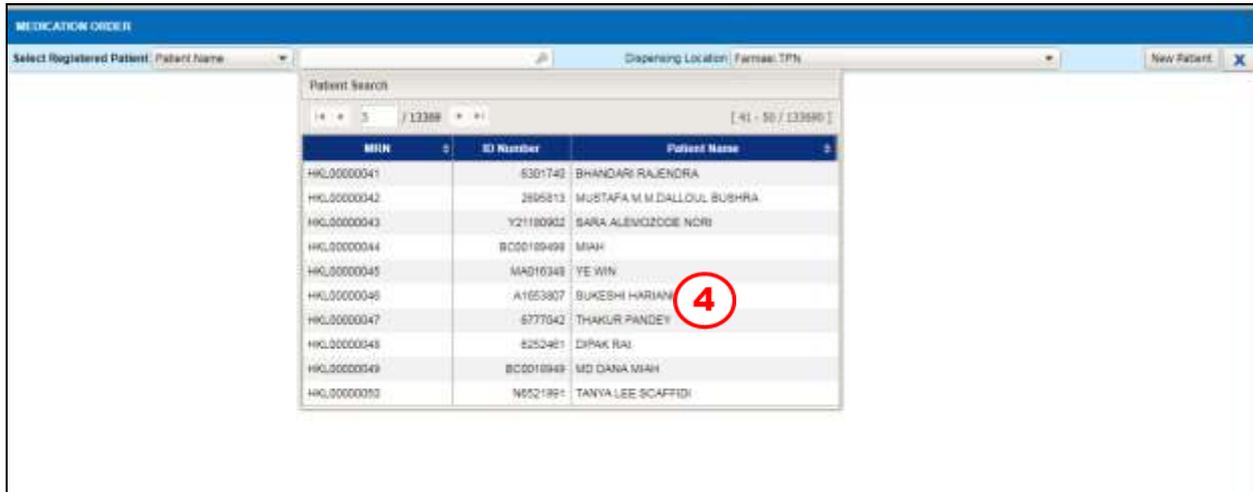


Figure 3.1-3 Search Patient

**STEP 4**

Double-click on the selected patient and the details will be displayed as per Figure 3.1-4

**Note**

- Click on the 'Renew Visit' hyperlink to renew a visit for the same location.
- Select the 'Visit Type' and 'Location' to create a new visit.
- Click on the  button to access to 'Visit Management' screen.

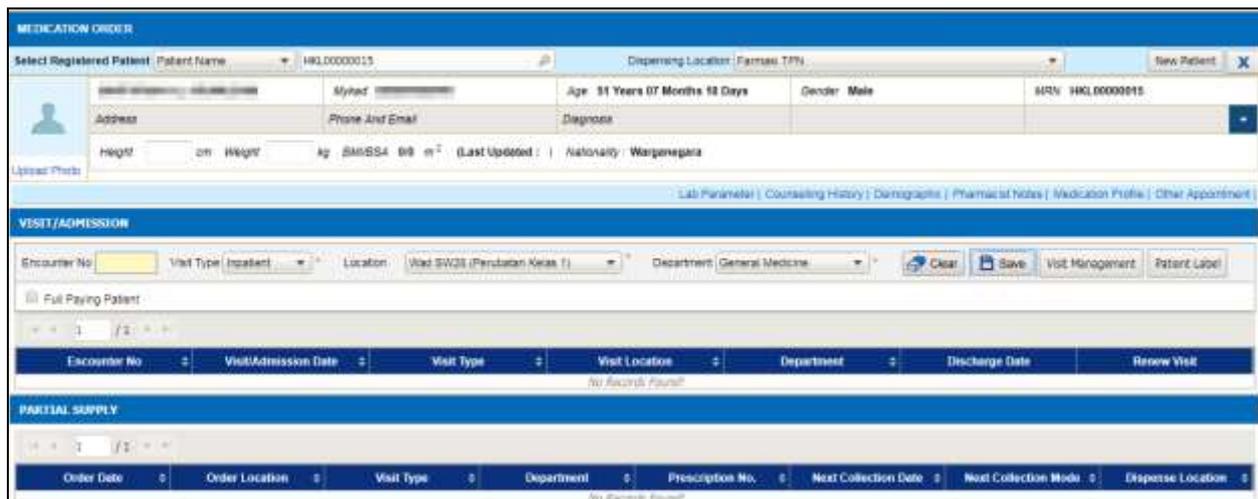
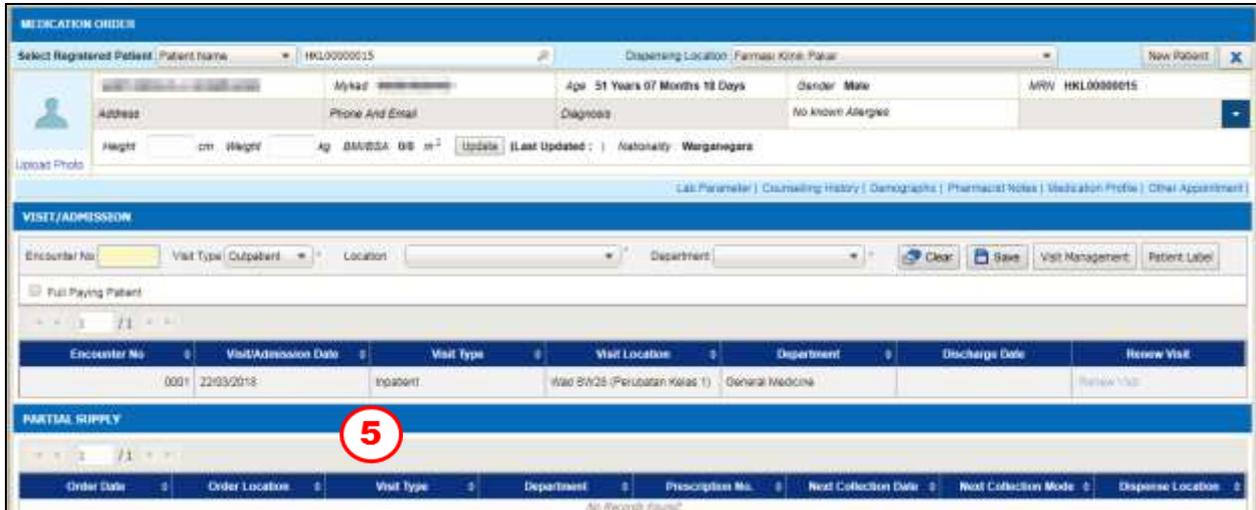


Figure 3.1-4 Medication Order Screen



**MEDICATION ORDER**

Select Registered Patient: Patient Name: HKL0000015 Dispensing Location: Farmasi Klinik Pakar New Patient X

Mykad: [redacted] Age: 51 Years 07 Months 18 Days Gender: Male MRN: HKL0000015

Address: [redacted] Phone And Email: [redacted] Diagnosis: [redacted] No known Allergies: [redacted]

Height: [redacted] cm Weight: [redacted] kg BM/BSA: 0.8 m<sup>2</sup> Update (Last Updated: ) Nationality: Warganegara

Lab Parameter | Counseling History | Demographics | Pharmacist Notes | Medication Profile | Other Appointment

**VISIT/ADMISSION**

Encounter No: [redacted] Visit Type: Outpatient Location: [redacted] Department: [redacted] Clear Save Visit Management Patient Label

Full Paying Patient

Encounter No	Visit/Admission Date	Visit Type	Visit Location	Department	Discharge Date	Renew Visit
0001	22/03/2018	Inpatient	Wad SW25 (Perubatan Kelas 1)	General Medicine		Renew Visit

**PARTIAL SUPPLY** 5

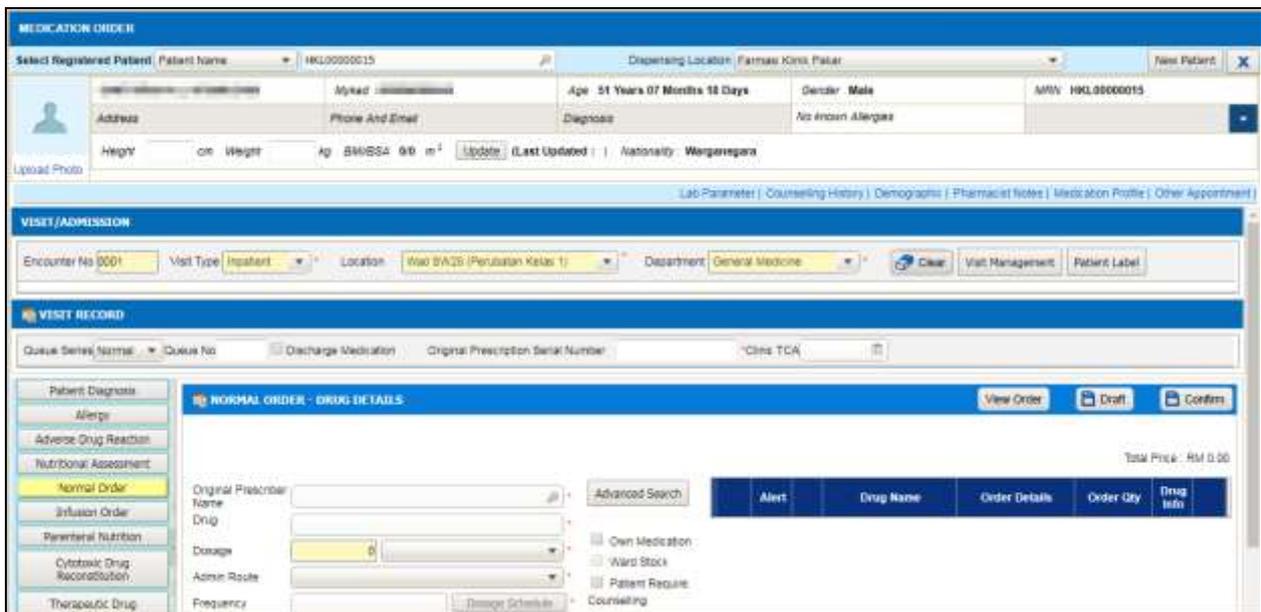
Order Date	Order Location	Visit Type	Department	Prescription No.	Next Collection Date	Next Collection Mode	Dispense Location

Not Records Found?

Figure 3.1-5 Visit/Admission Detail

**STEP 5**

Double-click on the selected visit and the details will be displayed as per Figure 3.1-6



**MEDICATION ORDER**

Select Registered Patient: Patient Name: HKL0000015 Dispensing Location: Farmasi Klinik Pakar New Patient X

Mykad: [redacted] Age: 51 Years 07 Months 18 Days Gender: Male MRN: HKL0000015

Address: [redacted] Phone And Email: [redacted] Diagnosis: [redacted] No known Allergies: [redacted]

Height: [redacted] cm Weight: [redacted] kg BM/BSA: 0.8 m<sup>2</sup> Update (Last Updated: ) Nationality: Warganegara

Lab Parameter | Counseling History | Demographics | Pharmacist Notes | Medication Profile | Other Appointment

**VISIT/ADMISSION**

Encounter No: 0001 Visit Type: Inpatient Location: Wad SW25 (Perubatan Kelas 1) Department: General Medicine Clear Visit Management Patient Label

**VISIT RECORD**

Queue Series/Normal: [redacted] Queue No: [redacted] Discharge Medication: [redacted] Original Prescription Serial Number: [redacted] Clear TCA

Patient Diagnosis: [redacted] Allergy: [redacted] Adverse Drug Reaction: [redacted] Nutritional Assessment: [redacted] Normal Order: [redacted] Infusion Order: [redacted] Parenteral Nutrition: [redacted] Cytotoxic Drug Reconciliation: [redacted] Therapeutic Drug: [redacted]

**NORMAL ORDER - DRUG DETAILS** View Order Draft Confirm

Total Price: RM 0.00

Original Prescriber Name: [redacted] Advanced Search Alert Drug Name Order Details Order Qty Drug Info

Drug: [redacted] Own Medication Ward Stock Patient Require Counseling

Dosage: [redacted] Admin Route: [redacted] Frequency: [redacted] Dosage Schedule: [redacted]

Figure 3.1-6 Medication Order Detail

### 3.2 New Patient Registration

This page is used to register new patient

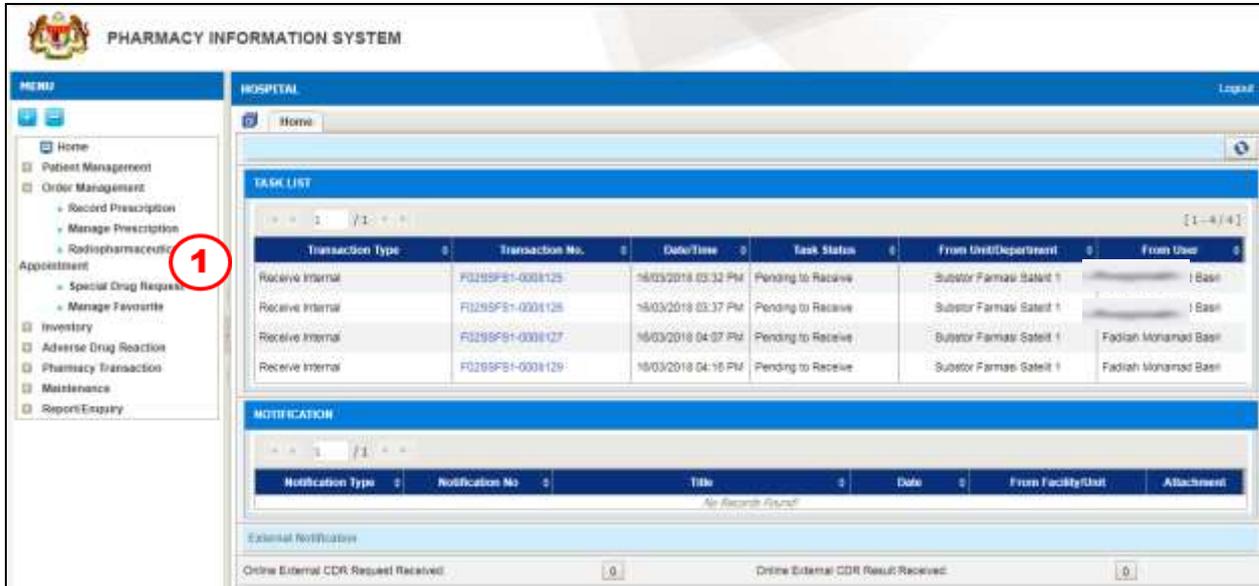


Figure 3.2-1 PHIS Home Page

To register a new patient, please perform the steps below

#### STEP 1

Click on 'Order Management' menu followed by 'Record Prescription' and screen will be displayed as per Figure 3.2-1



Figure 3.2-2 Transcribe Order Create New Patient

#### STEP 2

Click on the  to register for new patient

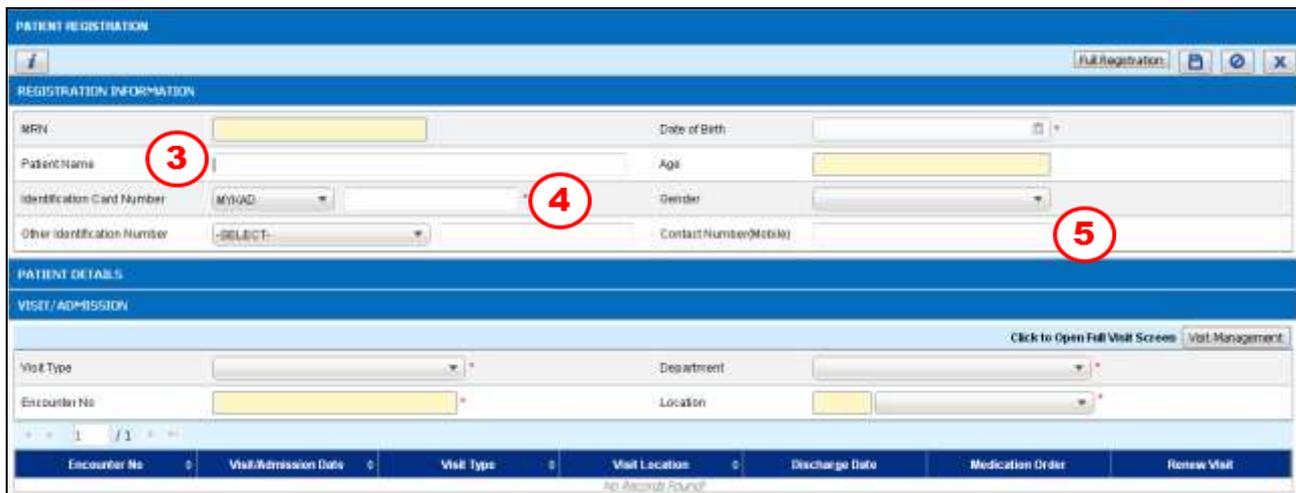


Figure 3.2-3 Registration Information

### STEP 3

Enter **Patient Name**

### STEP 4

Select from **Identification Card Number** drop down box:

- MYKAD
- MYKID

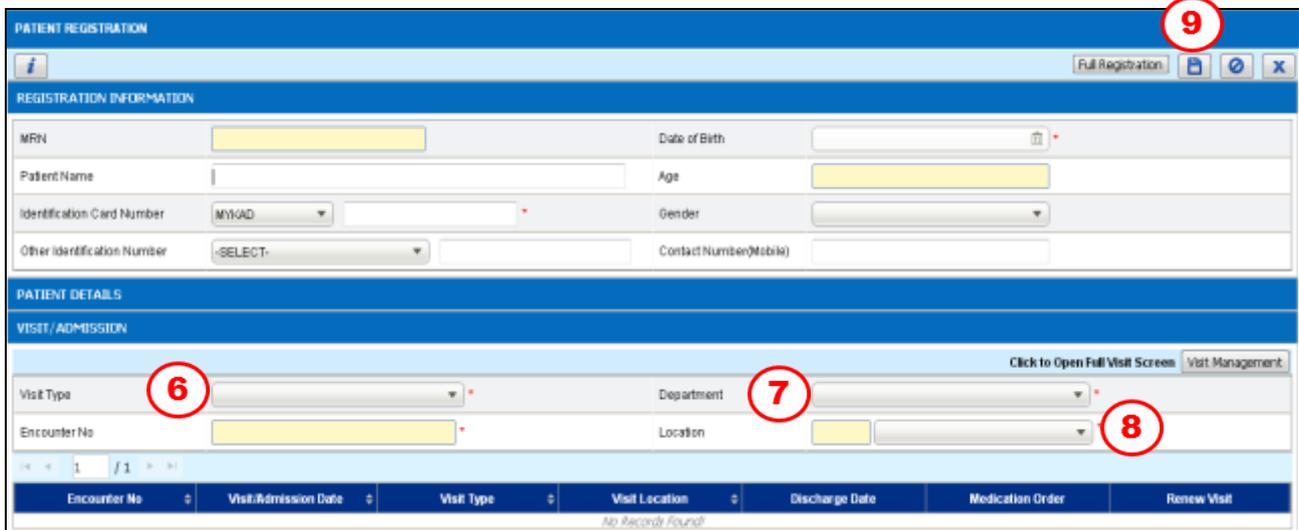
and enter the relevant number

### Note

- After enter the **Identification Card Number** the below details will be displayed:
  - Date of Birth (dd/mm/yy)
  - Age (42Y 05M 21D)
  - Gender (Male/Female)
- If MYKAD/MYKID is unavailable, user is required to select the **Other Identification Number** dropdown box:
  - BIRTH CERTIFICATE
  - DRIVING LICENSE
  - FATHER IC
  - MILITARY CARD NUMBER
  - MOTHER IC
  - OLD IC
  - PASSPORT
  - PENSION CARD
  - POLICE CARD NUMBER
  - UNKNOWN PATIENT
  - WORK PERMITand enter the relevant number.

### STEP 5

Enter **Contact Number (Mobile)**



The screenshot shows the 'PATIENT REGISTRATION' window. The 'REGISTRATION INFORMATION' section includes fields for MRN, Patient Name, Identification Card Number, Other Identification Number, Date of Birth, Age, Gender, and Contact Number(Mobile). The 'PATIENT DETAILS' section includes the 'VISIT / ADMISSION' section with dropdown menus for Visit Type (6), Department (7), and Location (8). A 'Full Registration' button is circled with a red 9 in the top right corner. A table at the bottom lists columns: Encounter No, Visit/Admission Date, Visit Type, Visit Location, Discharge Date, Medication Order, and Renew Visit.

Figure 3.2-4 Visit/Admission

### STEP 6

Select the **Visit Type** from dropdown box:

- Daycare
- Emergency
- Inpatient
- Outpatient
- Outsource
- SPUB
- Walk-in

### STEP 7

Select the **Department** from dropdown box

#### **Note**

**Department** will tie to the selected visit type.

### STEP 8

Select **Location** from dropdown box

#### **Note**

**Location** will tie to the selected Department.

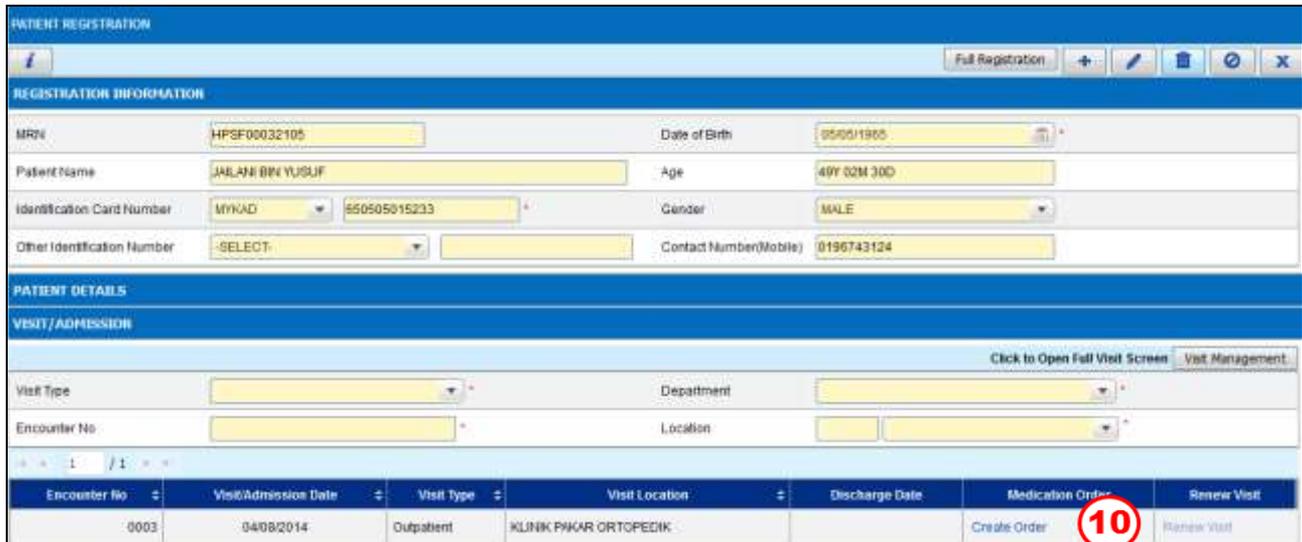
### STEP 9

Click on the  button to save the record

#### **Note**

- After click the save button, system will automatically generate the **MRN** (Medical Record Number) and ,  and  buttons will be enabled.

- Click on the **Full Registration** button to access to 'Visit Management' screen.
- Another option to register a new patient is to click on the **New Patient Registration** button located under Patient Quick Registration that will display the same screen as Figure 3.2-3.



Encounter No	Visit/Admission Date	Visit type	Visit Location	Discharge Date	Medication Order	Renew Visit
0003	04/08/2014	Outpatient	KLINIK PAKAR ORTOPEDIK		Create Order	Renew Visit

Figure 3.2-5 Patient Registration

#### STEP 10

Click on the [Create Order](#) hyperlink and the 'Medication Order' screen will be displayed as per Figure 3.2-6



#### 4.0 Parenteral Nutrition (PN) Transcribe Order, Verify, Prepare and Dispense

Verification is for pharmacist to verify the prescriptions received from order management. In this stage, user has an option to do an intervention and hold/resume function.

##### 4.1 Nutritional Assessment

To do nutritional assessment for new patient or existing patient's

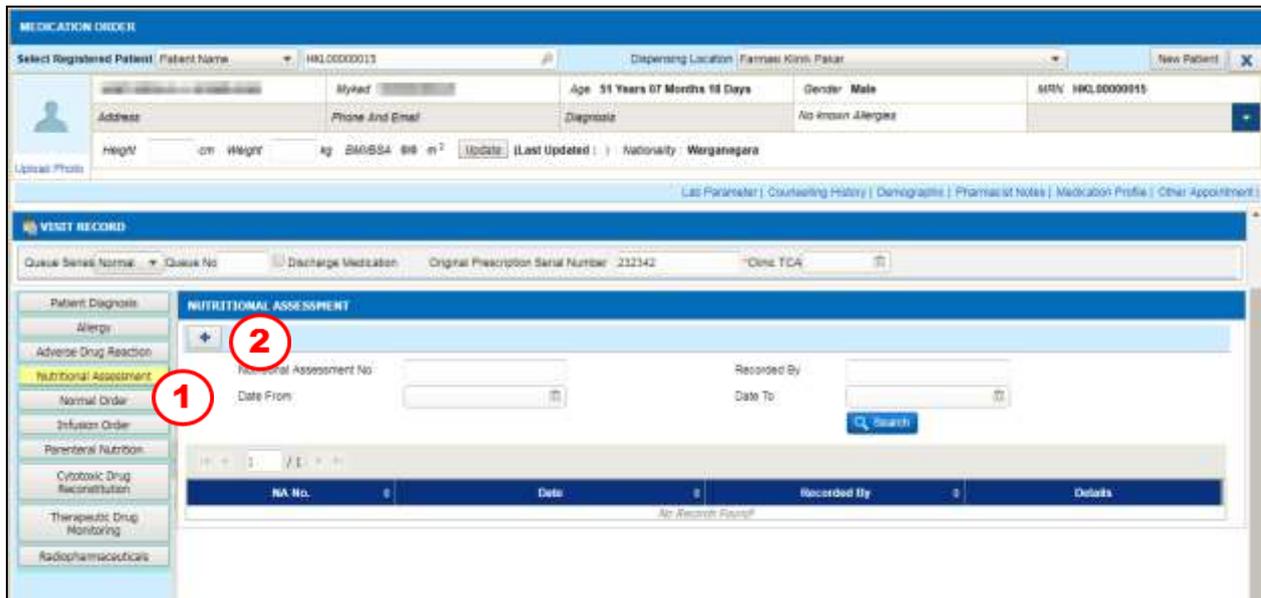


Figure 4.1-1 Nutritional Assessment

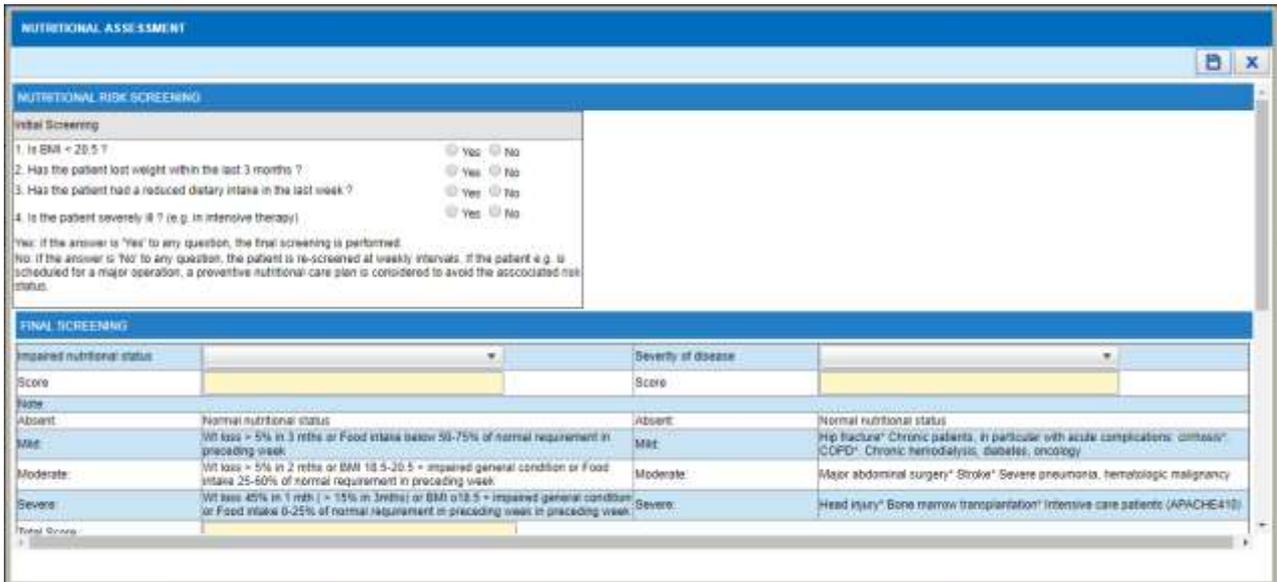
Nutritional Assessment allow user to record all nutritional assessment for new patient and existing patient

##### 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 add new nutritional assessment record



**NUTRITIONAL ASSESSMENT**

**NUTRITIONAL RISK SCREENING**

Initial Screening

1. Is BMI < 20.5 ?  Yes  No

2. Has the patient lost weight within the last 3 months ?  Yes  No

3. Has the patient had a reduced dietary intake in the last week ?  Yes  No

4. Is the patient severely ill ? (e.g. in intensive therapy)  Yes  No

Yes: If the answer is 'Yes' to any question, the final screening is performed.  
No: If the answer is 'No' to any question, the patient is re-screened at weekly intervals. If the patient e.g. is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.

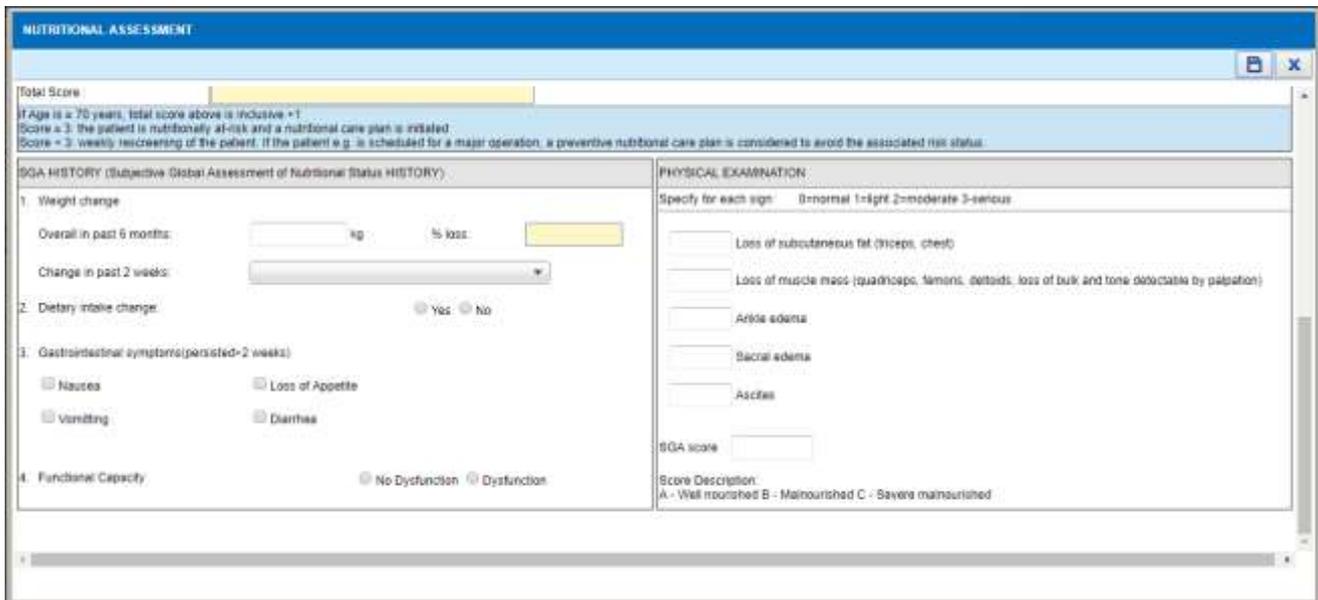
**FINAL SCREENING**

Impaired nutritional status	Severity of disease
Score	Score
None	None
Absent: Normal nutritional status	Absent: Normal nutritional status
Mild: Wt loss > 5% in 3 mths or Food intake below 50-75% of normal requirement in preceding week	Mild: Hip fracture* Chronic patients, in particular with acute complications: cirrhosis*, COPD*, Chronic hemodialysis, diabetes, oncology
Moderate: Wt loss = 5% in 2 mths or BMI 18.5-20.5 + impaired general condition or Food intake 25-50% of normal requirement in preceding week	Moderate: Major abdominal surgery* Stroke* Severe pneumonia, hematologic malignancy
Severe: Wt loss 45% in 1 mth ( = 15% in 3mths) or BMI < 18.5 + impaired general condition or Food intake 0-25% of normal requirement in preceding week in preceding week	Severe: Head injury* Bone marrow transplantation* Intensive care patients (APACHE410)
Total Score	

Figure 4.1-2 Nutritional Assessment

**Note**

- Answer all question by selecting “Yes” or “No” for **Nutritional Risk Screening**.
- 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.



**NUTRITIONAL ASSESSMENT**

Total Score: [ ]

If Age is < 70 years, total score above is inclusive +1.  
Score < 3: the patient is nutritionally at-risk and a nutritional care plan is initiated.  
Score = 3: weekly re-screening of the patient. If the patient w.g. is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.

**SGA HISTORY (Subjective Global Assessment of Nutritional Status HISTORY)**

1. Weight change  
Overall in past 6 months: [ ] kg, % loss: [ ]  
Change in past 2 weeks: [ ]

2. Dietary intake change:  Yes  No

3. Gastrointestinal symptoms (persisted > 2 weeks)  
 Nausea  Loss of Appetite  
 Vomiting  Diarrhea

4. Functional Capacity:  No Dysfunction  Dysfunction

**PHYSICAL EXAMINATION**  
Specify for each sign: 0=normal 1=light 2=moderate 3=severe

Loss of subcutaneous fat (triceps, chest)  
 Loss of muscle mass (quadriceps, femoris, deltoids, loss of bulk and tone detectable by palpation)  
 Arterial edema  
 Sacral edema  
 Ascites

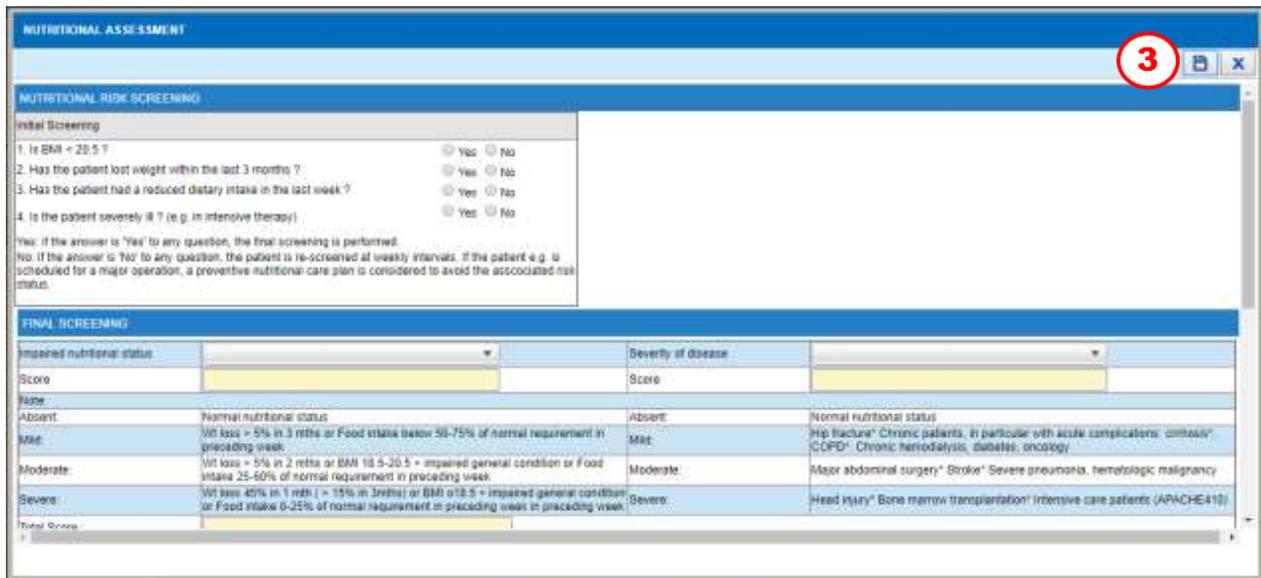
SGA score: [ ]

Score Description:  
A - Well nourished B - Malnourished C - Severely malnourished

Figure 4.1-3 Nutritional Assessment

**Note**

- All fields for 'SGA - Subjective Global Assessment of Nutritional Status (HISTORY)' section has to be entered by user.
- All field for 'Physical Examination' section has to be entered by user.



**NUTRITIONAL ASSESSMENT**

**NUTRITIONAL RISK SCREENING**

Initial Screening

1. Is BMI < 20.5?  Yes  No

2. Has the patient lost weight within the last 3 months?  Yes  No

3. Has the patient had a reduced dietary intake in the last week?  Yes  No

4. Is the patient severely ill? (e.g. in intensive therapy)  Yes  No

Yes: If the answer is 'Yes' to any question, the final screening is performed.  
No: If the answer is 'No' to any question, the patient is re-screened at weekly intervals. If the patient e.g. is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.

**FINAL SCREENING**

Impaired nutritional status	Score	Severity of disease	Score
None		None	
Absent	Normal nutritional status	Absent	Normal nutritional status
Mild	Wt loss > 5% in 3 mths or Food intake below 50-75% of normal requirement in preceding week	Mild	Hip fracture* Chronic patients, in particular with acute complications: cirrhosis* COPD* Chronic hemodialysis, diabetes, oncology
Moderate	Wt loss > 5% in 2 mths or BMI 18.5-30.5 = impaired general condition or Food intake 25-60% of normal requirement in preceding week	Moderate	Major abdominal surgery* Stroke* Severe pneumonia, hematologic malignancy
Severe	Wt loss 45% in 1 mth (= 15% in 3mths) or BMI < 18.5 = impaired general condition or Food intake 0-25% of normal requirement in preceding week	Severe	Head injury* Bone marrow transplantation* Intensive care patients (APACHE410)
Total Score:			

Figure 4.1-4 Nutritional Assessment

**STEP 3**

Click on the  button to save record and alert message will be displayed as per Figure 4.1-5.

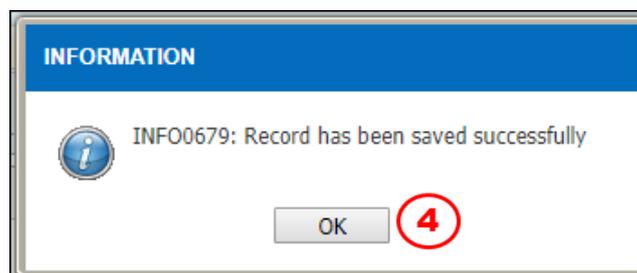


Figure 4.1-5 Information Alert Message

**STEP 4**

Click on the  button and 'Nutritional Assessment' listing screen will be displayed as per Figure 4.1-6.



**MEDICATION ORDER**

Select Registered Patient: HPSF0000002      Dispensing Location: UNIT FARMASI BERJALAN WAD      New Patient: X

**NOORANI BINTI ALIM**      MyCard: 011014818036      Age: 13 Years 04 Months 30 Days      Gender: Female      A/R#: HPSF0000002

Address:      Phone And Email:      Diagnosis:      No known Allergies

Height: 170 cm      Weight: 58 kg      BMI/BGA: 16.7 / 1.67      [Update](#) (Last updated: 13/03/2015)

Lab Parameter    Counseling History    Demographic    Prescription Notes    Medication Profile    Other Appointment

**VISIT/ADMISSION**

Encounter No: 0008      Visit Type: Inpatient      Location: WAD 3 (MED - P)      Department: General Medicine      [Clear](#)      [VM Management](#)      [Patient Label](#)

Breast Feeding     Pregnancy      Weeks:      [Clear Visit](#)

**VISIT RECORD**

Original Prescriber Name: Dr. Adrian Tay Cheong Lan      Original Order Transaction Number:

**NUTRITIONAL ASSESSMENT**

Nutritional Assessment File:      Recorded By:      [Search](#)

Date From:      [Search](#)

NA No.	Date	Recorded By	Details
NA15-03-0001	13/03/2015	Koh Chia Yan	NRS Total Score: 6, GGA Score: A- /Well nourished

Figure 4.1-6 Nutritional Assessment Listing

## 4.2 Calorie Calculator

To calculate patient's calorie

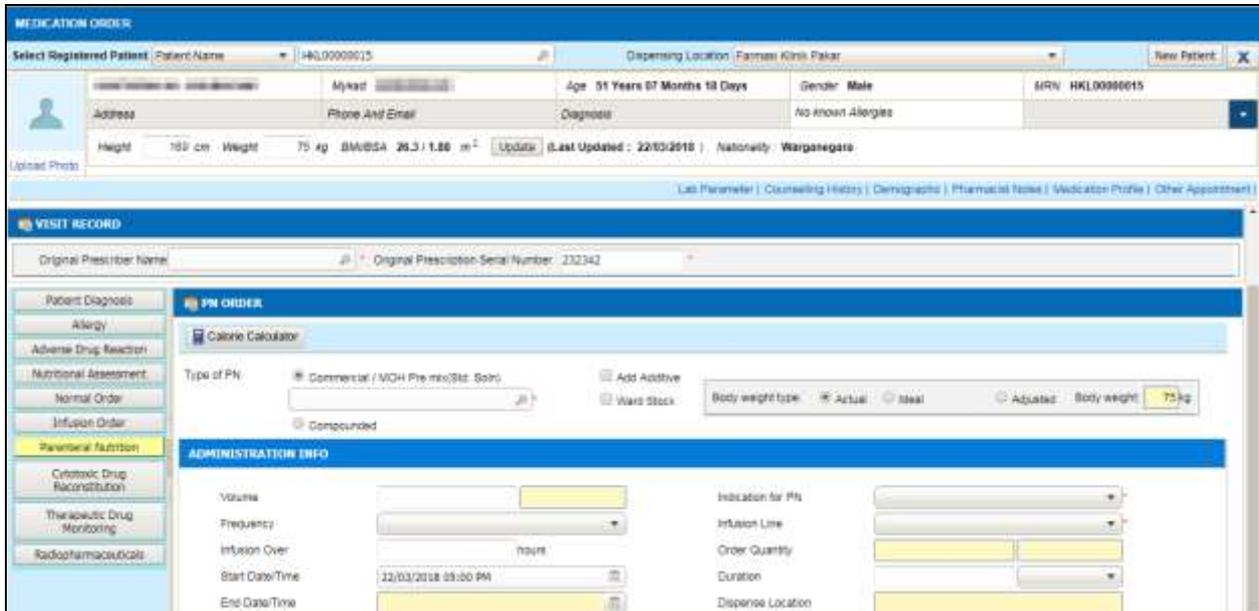
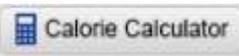


Figure 4.2-1 Calorie Calculator

### Note

- Calorie calculator allow user to calculate patient's calorie requirement.
- This value will be used as a guideline for user to order the required TPN order for patient.
- Click on the  button to calculate patient calorie.
- 'Calorie Calculator' screen will be displayed as per Figure 4.2-2.

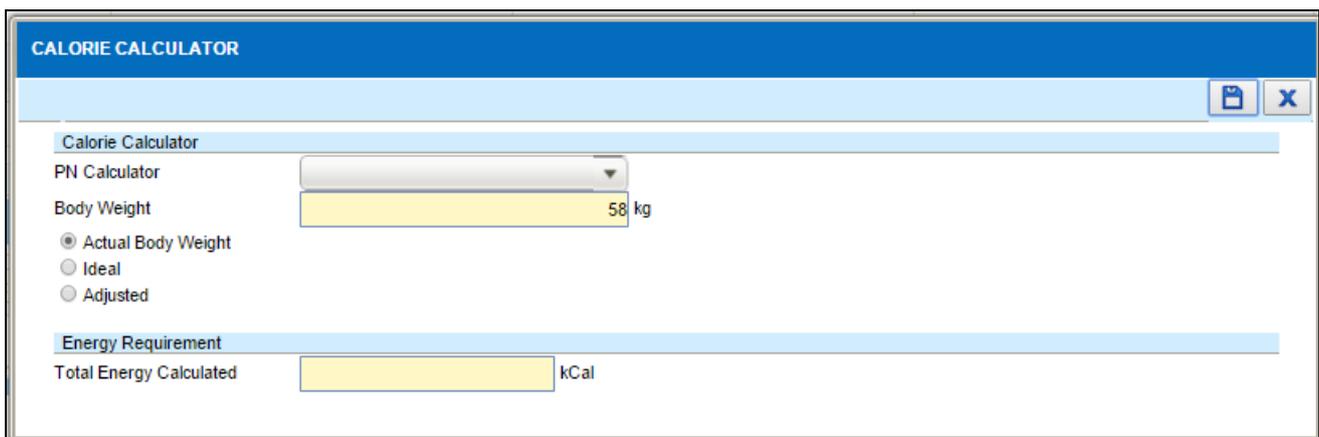
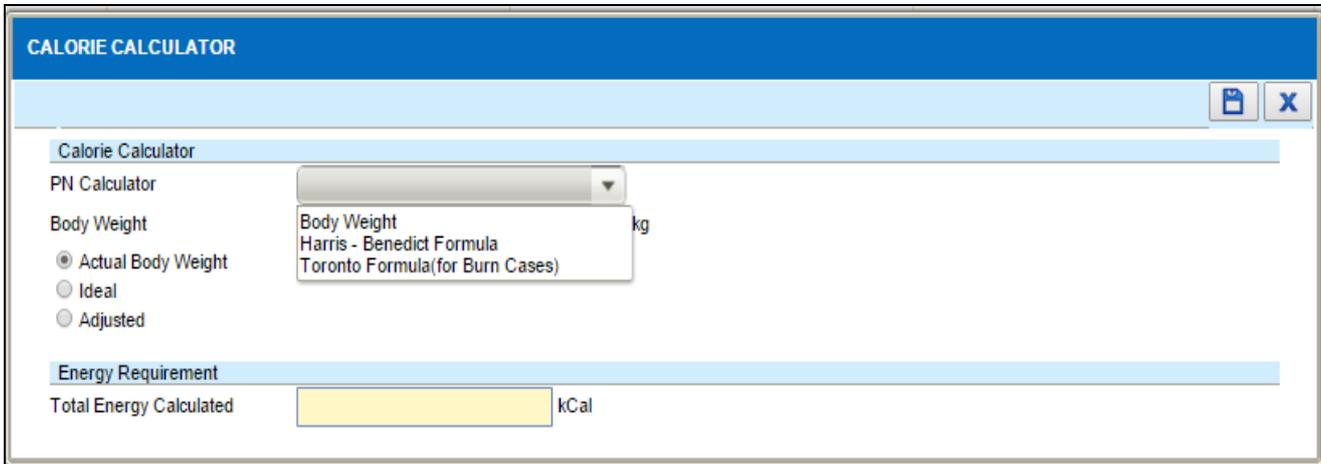


Figure 4.2-2 Calorie Calculator



**CALORIE CALCULATOR**

Calorie Calculator

PN Calculator

Body Weight

Actual Body Weight

Ideal

Adjusted

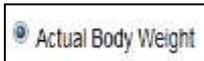
Energy Requirement

Total Energy Calculated

Figure 4.2-3 Calorie Calculator

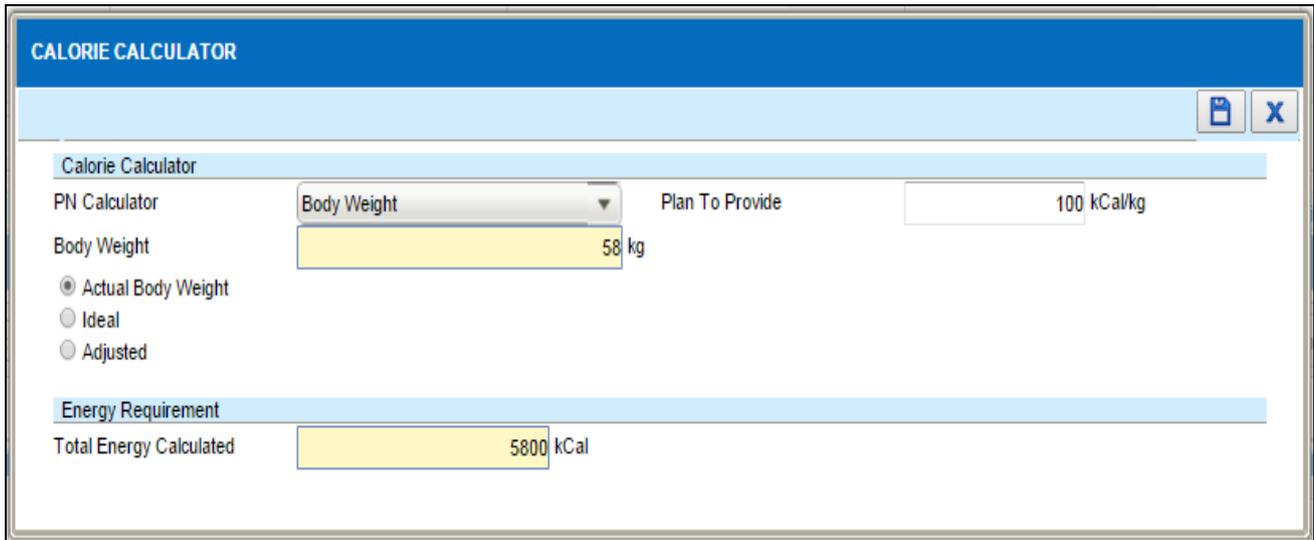
**Note**

- By default the 'Body Weight' radio button will auto select the



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 based on the information from 'Patient Banner'.
- There are three types of PN Calculator:
  - Body Weight
  - Harris-Benedict Formula
  - Toronto Formula(for Burn Cases)



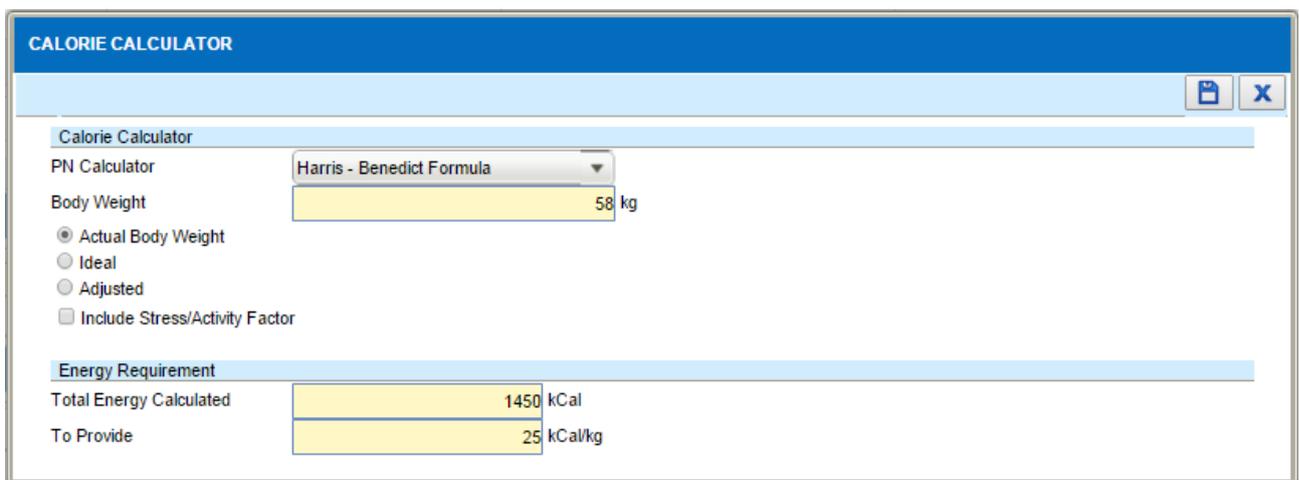
The screenshot shows a software window titled "CALORIE CALCULATOR". It features a "PN Calculator" dropdown menu set to "Body Weight". A "Plan To Provide" input field contains "100 kCal/kg". The "Body Weight" input field contains "58 kg". Under "Energy Requirement", the "Total Energy Calculated" is displayed as "5800 kCal". There are "Save" and "Close" buttons in the top right corner.

Figure 4.2-4 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 be automatically calculated and displayed as per Figure 4.2-4.
- The  button to save record.
- The  button to close the screen.



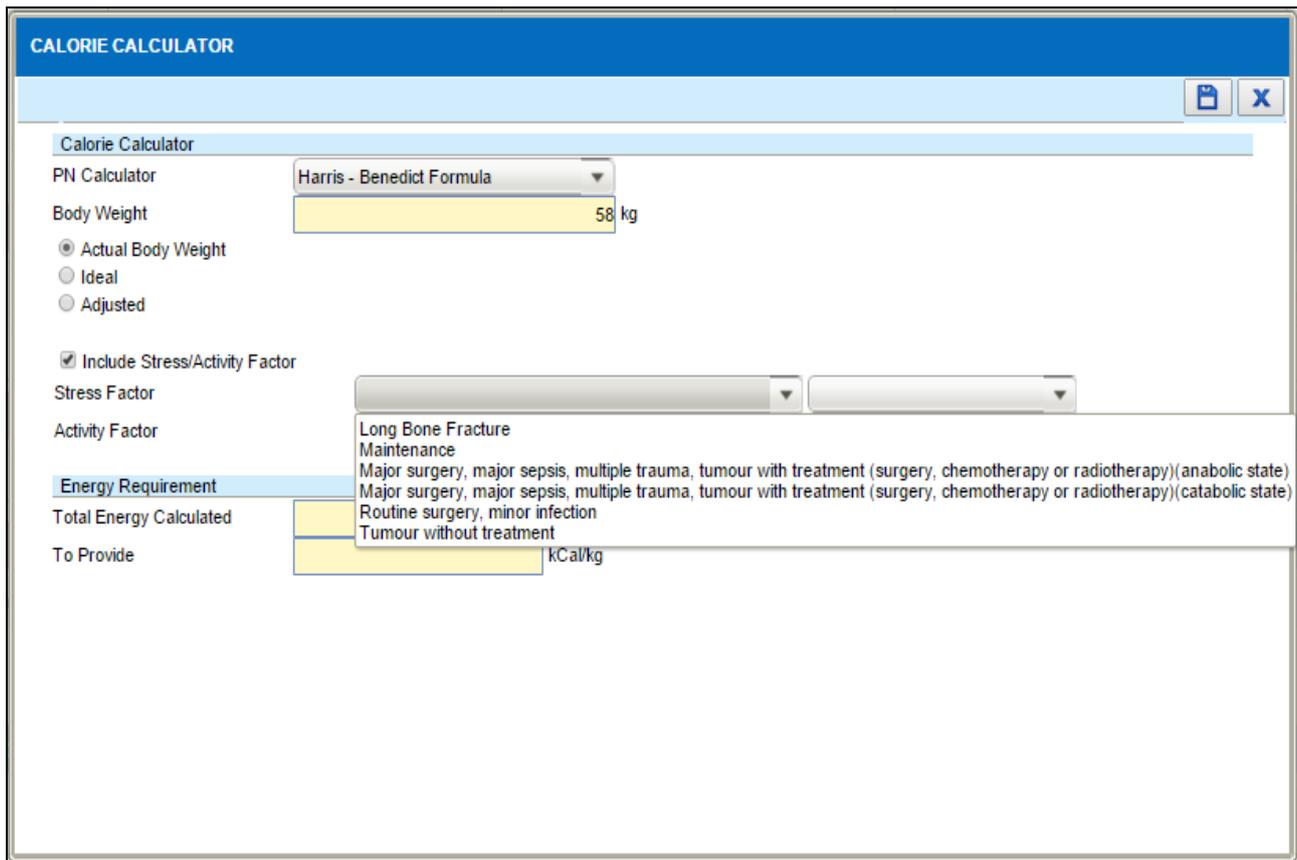
The screenshot shows the same "CALORIE CALCULATOR" window, but with the "PN Calculator" dropdown menu set to "Harris - Benedict Formula". The "Body Weight" input field remains "58 kg". Under "Energy Requirement", the "Total Energy Calculated" is now "1450 kCal" and a new "To Provide" input field is shown with "25 kCal/kg". The "Include Stress/Activity Factor" checkbox is present and unchecked. The "Save" and "Close" buttons are still visible.

Figure 4.2-5 Calorie Calculator

**Note**

**PN Calculator : Harris-Benedict Formula**

- Select 'Harris – Benedict Formula' from 'PN Calculator' dropdown box.
- Select the  'Include Stress/Activity Factor' checkbox.
- 'Stress Factor', 'Activity Factor' and 'To Provide (kCal/kg)' will display after selected the 'Include Stress/ Activity Factor' checkbox as shown in Figure 4.2-6.

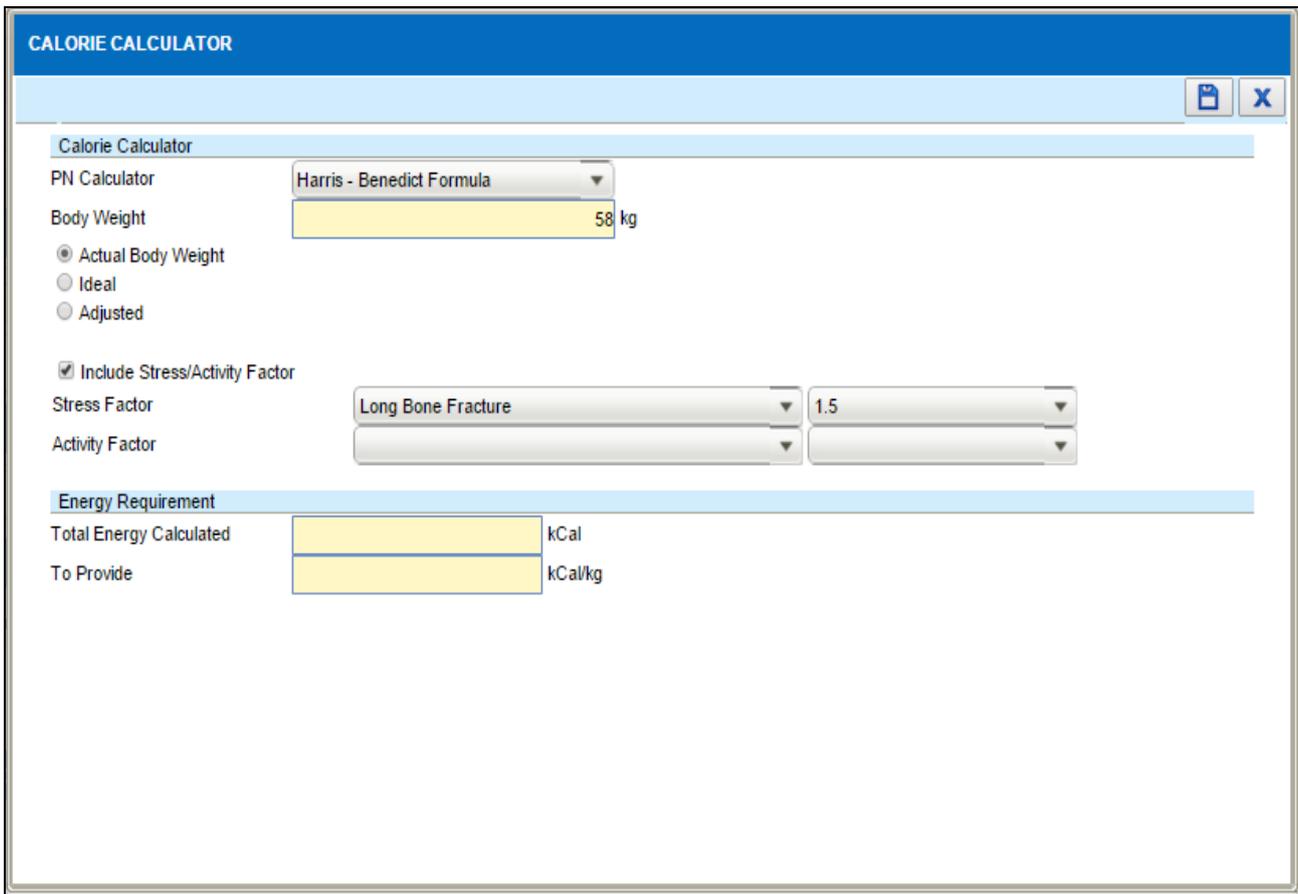


**Figure 4.2-6 Calorie Calculator**

**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.



**CALORIE CALCULATOR**

Calorie Calculator

PN Calculator: Harris - Benedict Formula

Body Weight: 58 kg

Actual Body Weight  
 Ideal  
 Adjusted

Include Stress/Activity Factor

Stress Factor: Long Bone Fracture    1.5

Activity Factor:   

**Energy Requirement**

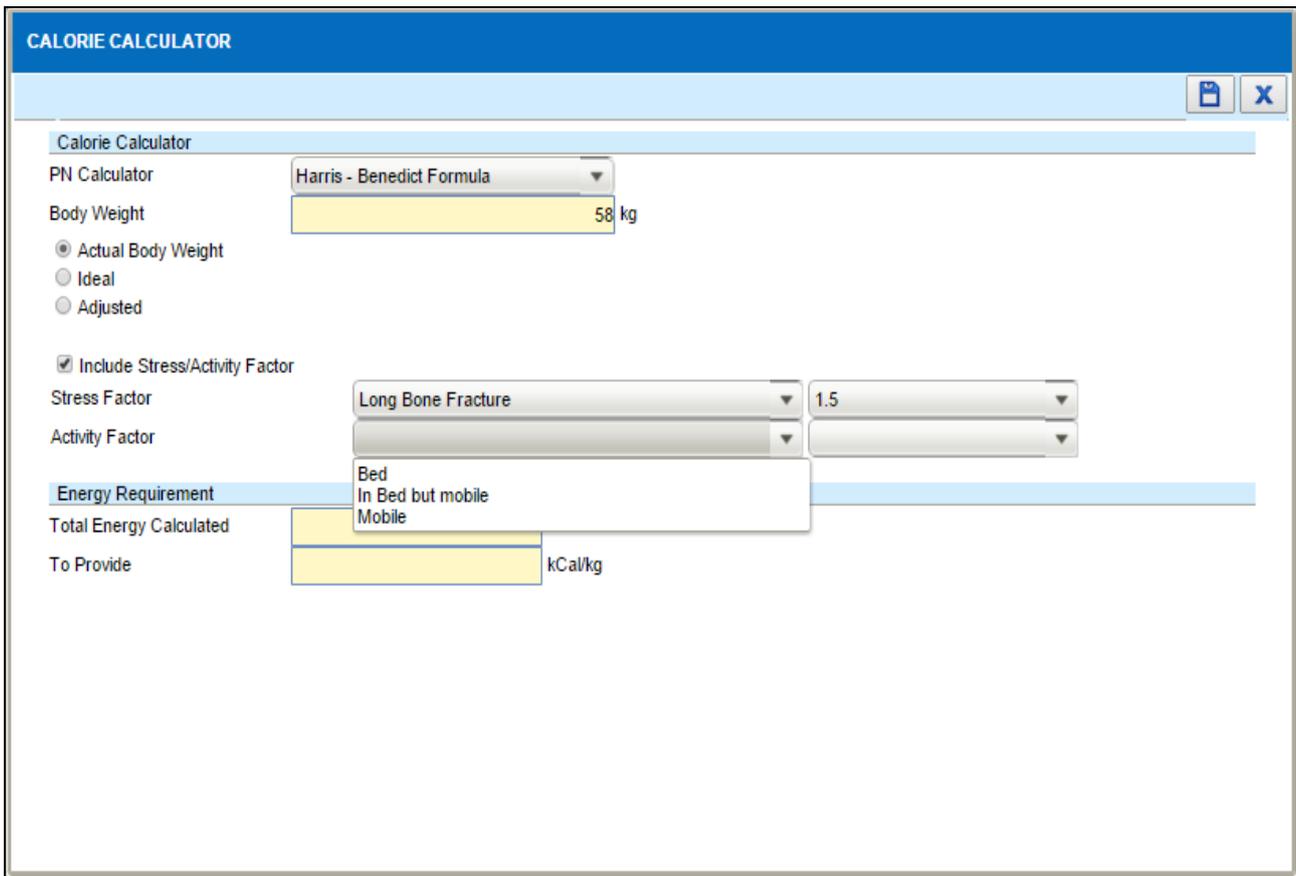
Total Energy Calculated:    kCal

To Provide:    kCal/kg

Figure 4.2-7 Calorie Calculator

**Note**

*Value of the 'Stress Factor' will be automatically calculated by system.*



**CALORIE CALCULATOR**

Calorie Calculator

PN Calculator: Harris - Benedict Formula

Body Weight: 58 kg

Actual Body Weight  
 Ideal  
 Adjusted

Include Stress/Activity Factor

Stress Factor: Long Bone Fracture 1.5

Activity Factor: [Dropdown]

Energy Requirement: [Dropdown: Bed, In Bed but mobile, Mobile]

Total Energy Calculated: [Input Field]

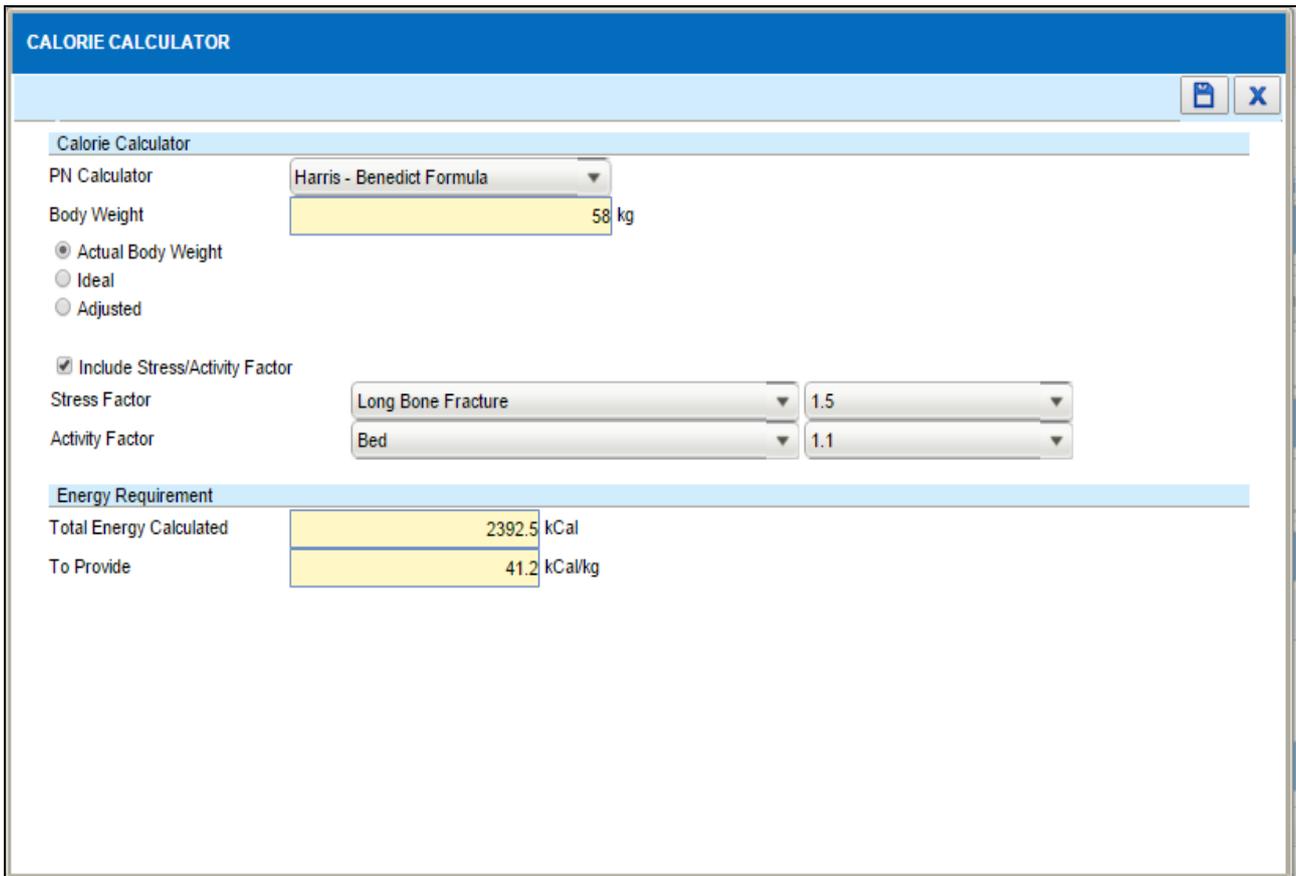
To Provide: [Input Field] kCal/kg

**Figure 4.2-8 Calorie Calculator**

**Note**

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

- Bed
- In Bed but mobile
- Mobile



CALORIE CALCULATOR	
PN Calculator	Harris - Benedict Formula
Body Weight	58 kg
<input checked="" type="radio"/> Actual Body Weight	
<input type="radio"/> Ideal	
<input type="radio"/> Adjusted	
<input checked="" type="checkbox"/> Include Stress/Activity Factor	
Stress Factor	Long Bone Fracture 1.5
Activity Factor	Bed 1.1
Energy Requirement	
Total Energy Calculated	2392.5 kCal
To Provide	41.2 kCal/kg

Figure 4.2-9 Calorie Calculator

**Note**

- Value of the 'Activity Factor' will be automatically calculated by system.
- Amount of 'Total Energy Calculated' and 'To Provide (kCal/kg)' will be automatically calculated after selected the 'Activity Factor' as per Figure 4.2-9.
- The  button to save record.
- The  button to close the screen.

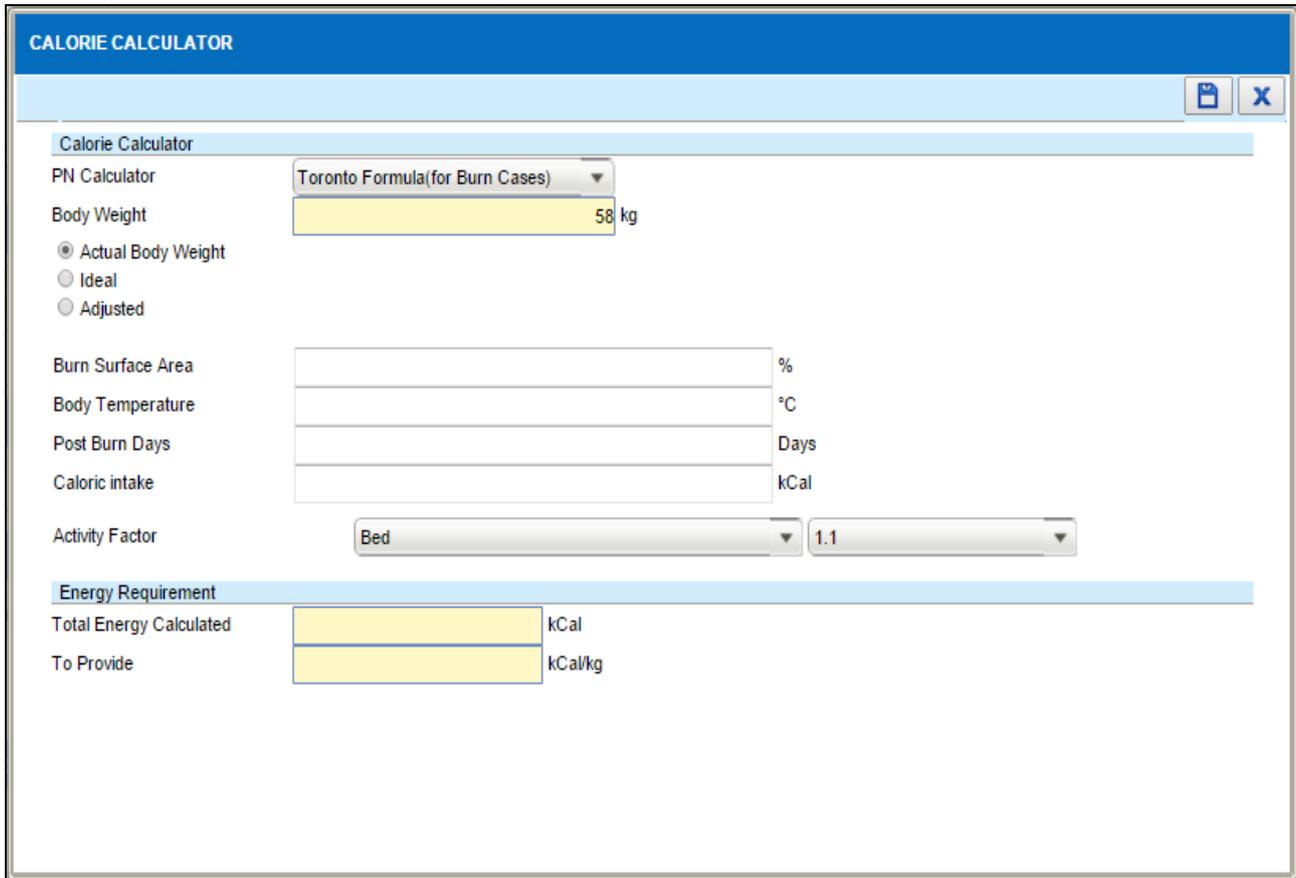


Figure 4.2-10 Calorie Calculator

**Note**

**PN Calculator : Toronto Formula**

- Select 'Toronto Formula (for Burn Cases)' from 'PN Calculator' dropdown box.
- Enter fields as 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 be automatically calculated by system.



- *‘Total Energy Calculated’ and ‘To Provide (kCal/kg)’ will be automatically calculated after selected the ‘Activity Factor’ as per Figure 4.2-10.*
- The  button to save record.
- The  button to close the screen.

### 4.3 Commercial/MOH Pre mix (Std Soln)

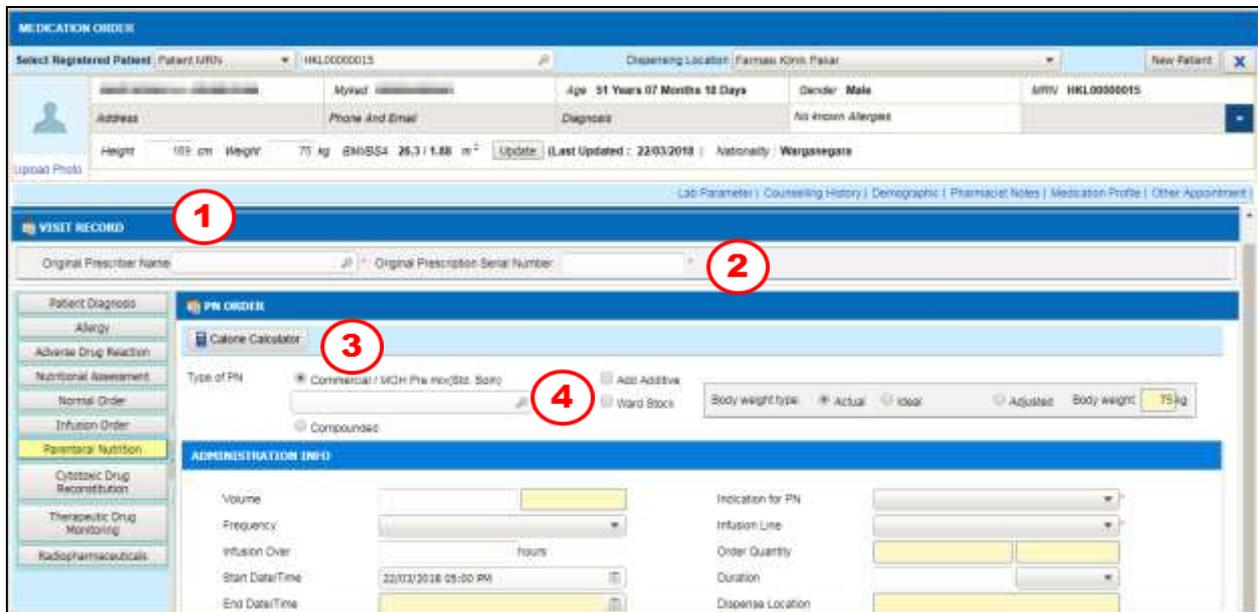


Figure 4.3-1 PN Order : Commercial

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

#### STEP 1

Click on the  button to search for **Original Prescriber Name**

#### STEP 2

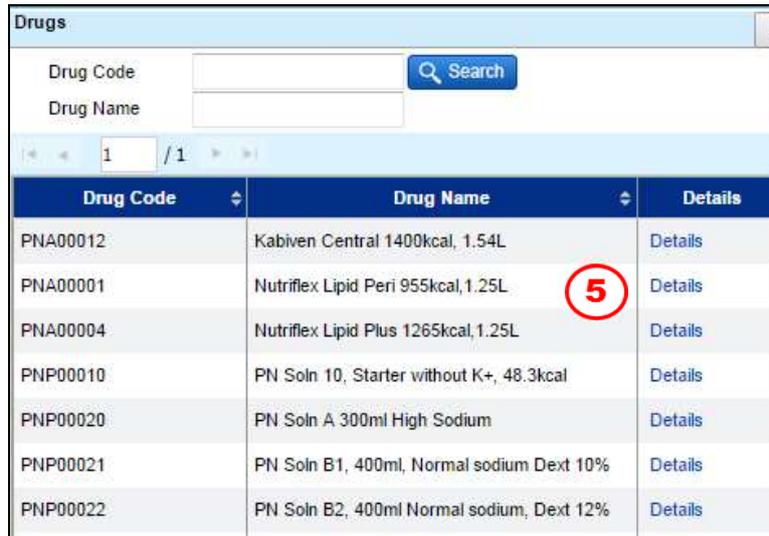
Enter the **Original Order Transaction Number**

#### STEP 3

Select on the  Commercial / MOH Pre mix(Std. Soln) radio button for 'Type of PN'

#### STEP 4

Click on the  button to search for product



Drug Code	Drug Name	Details
PNA00012	Kabiven Central 1400kcal, 1.54L	<a href="#">Details</a>
PNA00001	Nutriflex Lipid Peri 955kcal, 1.25L	<a href="#">Details</a>
PNA00004	Nutriflex Lipid Plus 1265kcal, 1.25L	<a href="#">Details</a>
PNP00010	PN Soln 10, Starter without K+, 48.3kcal	<a href="#">Details</a>
PNP00020	PN Soln A 300ml High Sodium	<a href="#">Details</a>
PNP00021	PN Soln B1, 400ml, Normal sodium Dext 10%	<a href="#">Details</a>
PNP00022	PN Soln B2, 400ml Normal sodium, Dext 12%	<a href="#">Details</a>

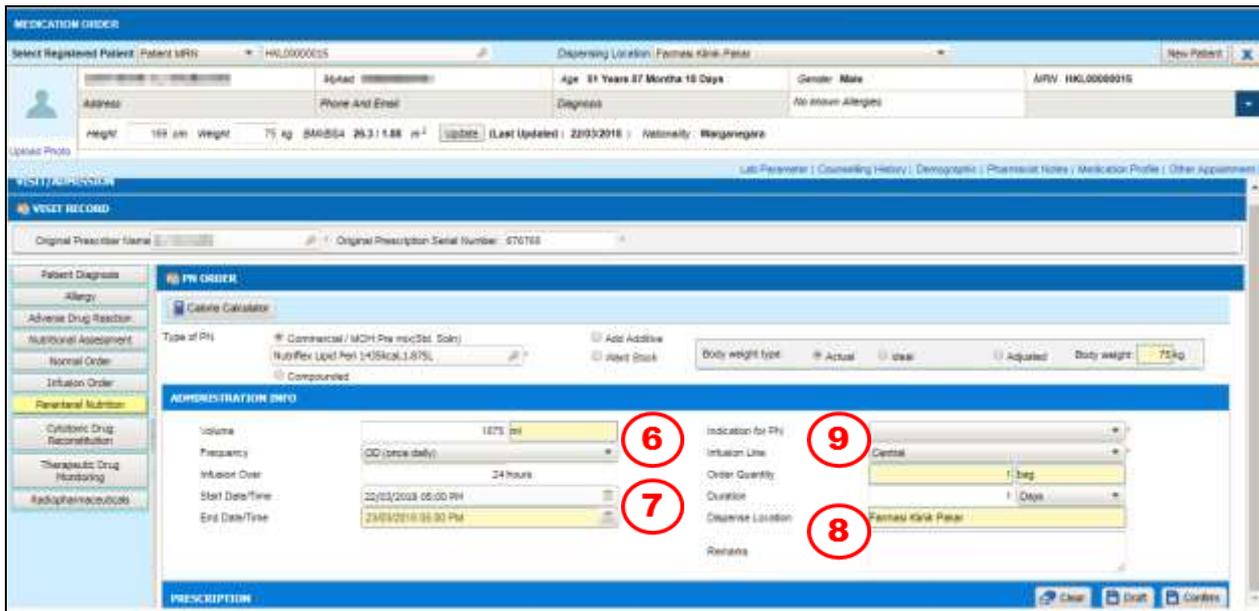
Figure 4.3-2 Drugs Listing

#### STEP 5

Select product that required for patient

#### Note

- To search for product record(s), user may search by criteria as follow:
  - Drug Code
  - Drug Name
- Click on the  button to search for the product.
- Click on the  button to view product ingredients and content.



The screenshot shows the 'MEDICATION ORDER' interface. The 'PN ORDER' section is active, displaying 'Type of PN' as 'Commercial / MCH Pa. mvc(Dst. Soln)'. The 'ADMINISTRATION INFO' section contains the following fields:

Volume	1075 ml	6	Indication for PN	9
Frequency	QD (once daily)	7	Infusion Line	Central
Infusion Over	24 hours		Order Quantity	1 bag
Start Date/Time	22/03/2018 08:00 PM	7	Duration	1 Days
End Date/Time	23/03/2018 08:00 PM		Dispense Location	8
			Remarks	

Figure 4.3-3 PN Order : Commercial

**STEP 6**

Enter **Volume** and select **Frequency** field

**Note**

- All information will be automatically displayed based on the information from PN Source Content and PN Constituents Reference Range.
- This field still can be change by the user if applicable.

**STEP 7**

Select **Start Date/Time**

**Note**

- **Start Date/Time** and will be automatically default to current date but still can be change by the user if applicable.
- **End Date/Time** will be displayed according to duration product given.
- **Order Quantity** will be automatically displayed and base on the information from PN Source Content and PN Constituents Reference Range.

**STEP 8**

Enter Remarks if applicable

**STEP 9**

Select Indication for PN from the dropdown menu

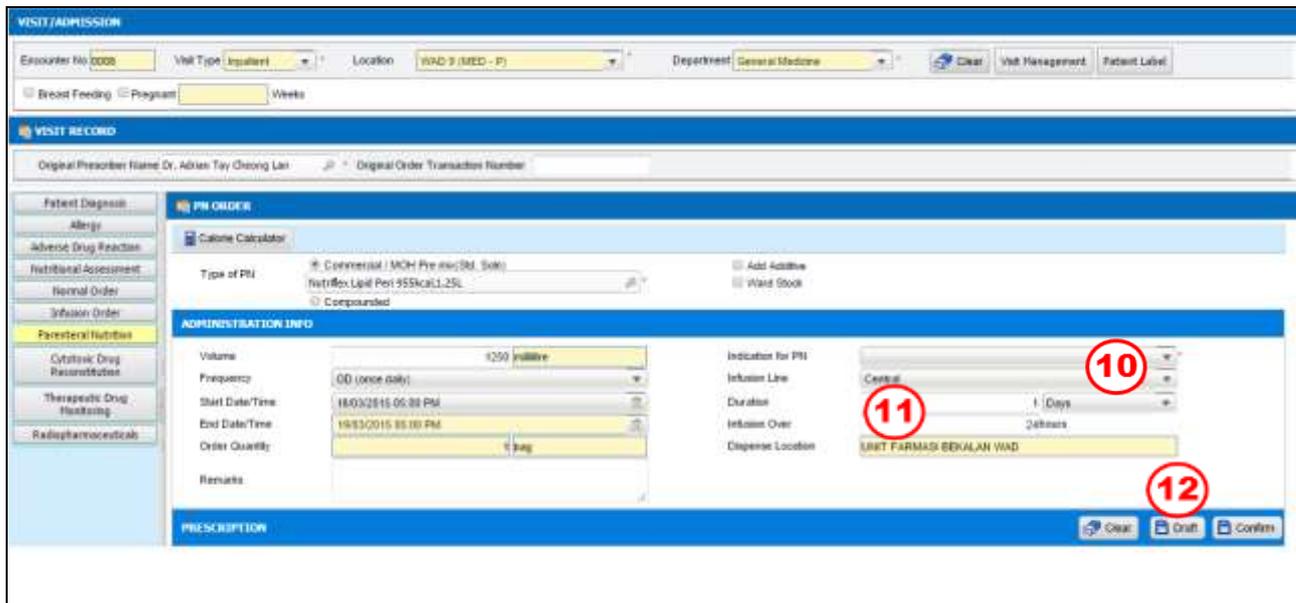


Figure 4.3-4 PN Order : Commercial

**STEP 10**

Select **Infusion Line** from drop down menu

**STEP 11**

Enter/select **Duration** and **Infusion Over** field

**STEP 12**

Click on the  button to save record and alert message will be displayed as per Figure 4.3-5

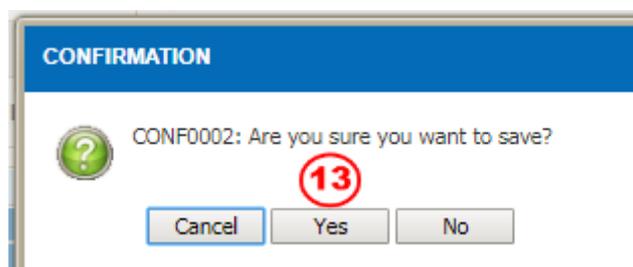
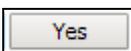
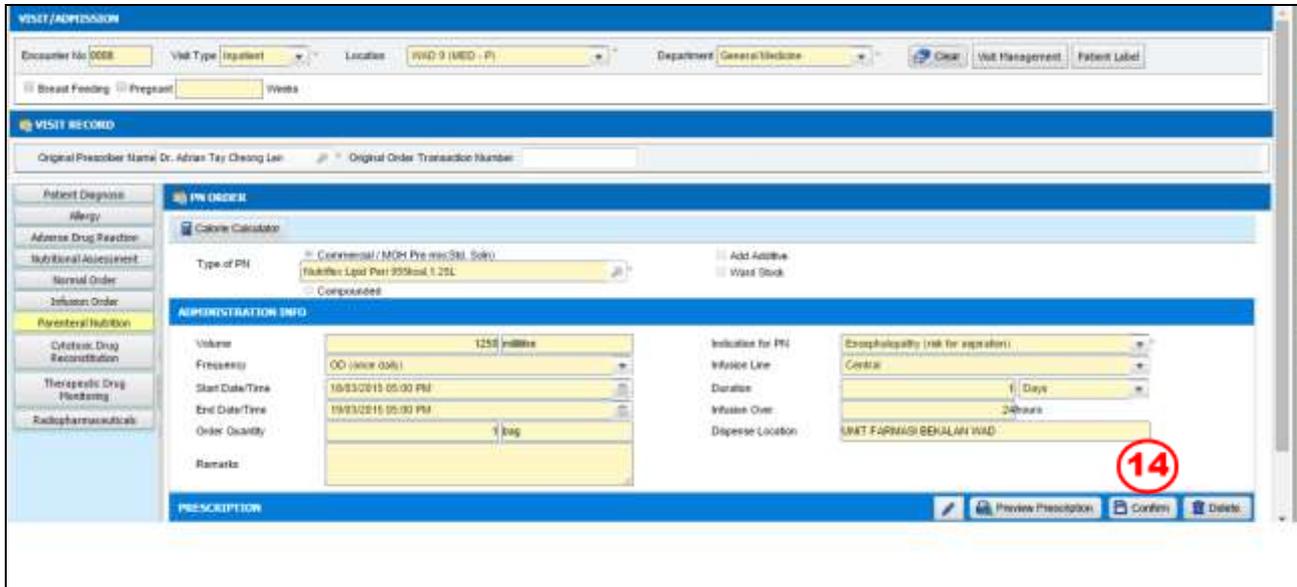


Figure 4.3-5 Information Alert message

**STEP 13**

Click on the  button to save order record



The screenshot shows the 'PN ORDER' form in the PhIS system. The form is divided into several sections: 'PATIENT DETAILS', 'VISIT RECORD', and 'ADMINISTRATION INFO'. The 'ADMINISTRATION INFO' section contains the following data:

Volume	1250 ml/24hr	Indication for PN	Esophageal/lysis (risk for aspiration)
Frequency	OO (once daily)	Inflow Line	Central
Start Date/Time	18/03/2015 05:00 PM	Duration	1 Days
End Date/Time	19/03/2015 05:00 PM	Inflow Over	24hours
Order Quantity	1 bag	Dispense Location	UMPT FARMASI BEHALAH WAD

At the bottom right of the form, there are three buttons: 'Preview Prescription', 'Confirm', and 'Delete'. The 'Confirm' button is highlighted with a red circle containing the number '14'.

Figure 4.3-6 PN Order : Commercial

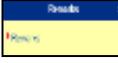
#### STEP 14

Click on the C button to confirm prescription

#### Note

- User can directly click on  button to directly confirm order without clicking on  button first.

- Click on the  link and 'PN Order Details' screen will be displayed as per Figure 4.3-8.

- Click on the  link and 'PN Remarks' screen will be displayed as per Figure 4.3-9.

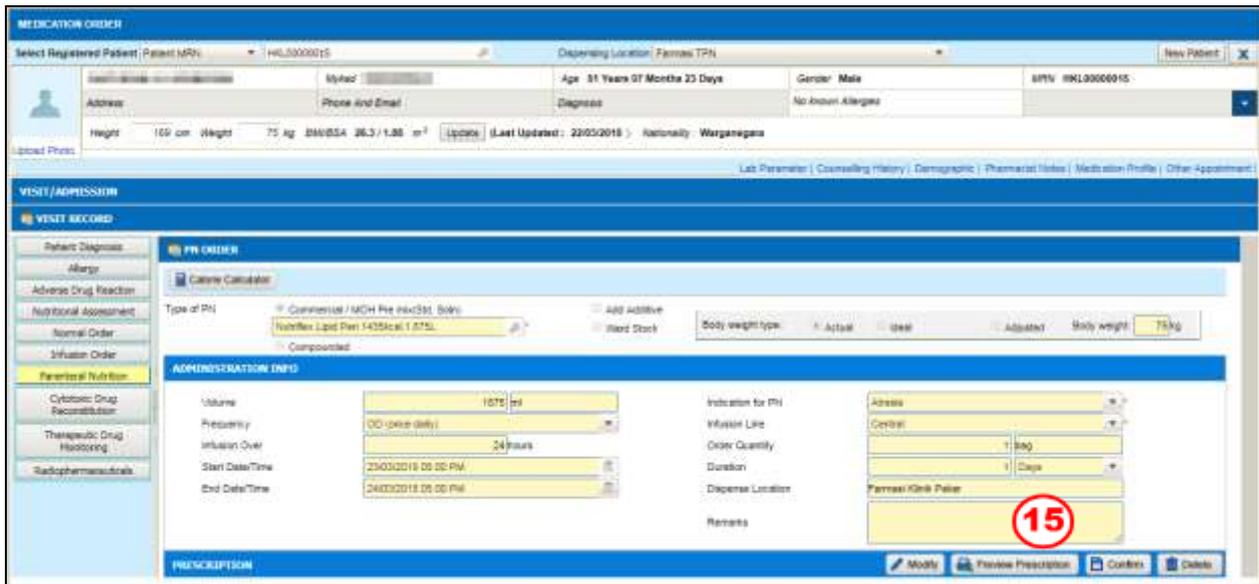


Figure 4.3-7 PN Order : Commercial

**STEP 15**

Click on the  button to preview and print PN prescription as per Figure 4.3-10



Drug Name	Total Volume (ml)	Total calorie (kcal)	Infusion Over (hour)	Infusion Rate (ml/hour)	Quantity	Freq	Duration	Start Date / Time	End Date / Time
Nutriflex Lipid Pen 955kcal 1.25L	1250	955	24	52.08 ml/hour	1 bag	OD (once daily)	1 Days	18/03/2015 05:00 PM	19/03/2015 05:00 PM
NA	Calorie Calculator						Infusion Line:		
Intervention Reason	Intervention Remarks			Central		Intervention Accepted			

Figure 4.3-8 PN Order Details

**Note**

'PN Order Details' screen as per Figure 4.3-8.

**PN REMARKS**

Prescriber Remark

verified with food nutritionist

Pharmacist Remark

Verification Stage

Figure 4.3-9 PN Remarks

**Note**

'PN Remarks' screen as per Figure 4.3-9.

**Ministry Of Health, Malaysia  
HOSPITAL KUALA LUMPUR  
PARENTERAL NUTRITION**

Patient Name: [REDACTED]	Patient ID: [REDACTED]
Age: 51 Years 07 Months 23 Days	MRN: HKL00000015
Gender: Male	Prescription : SW280000317209
Height / Weight / BSA: 166 cm/75 kg/1.9 m <sup>2</sup>	Order Date / Time :
Room No / Bed:	Location: Wad SW28 (Perubatan Kelas 1)
Diagnosis:	Allergy:

---

TPN Order: Nutriflex Lipid Peri 1435kcal, 1.875L	Order Quantity: 1 bag
Start Date/Time: 23/03/2018 05:00 PM	End Date/Time: 24/03/2018 05:00 PM

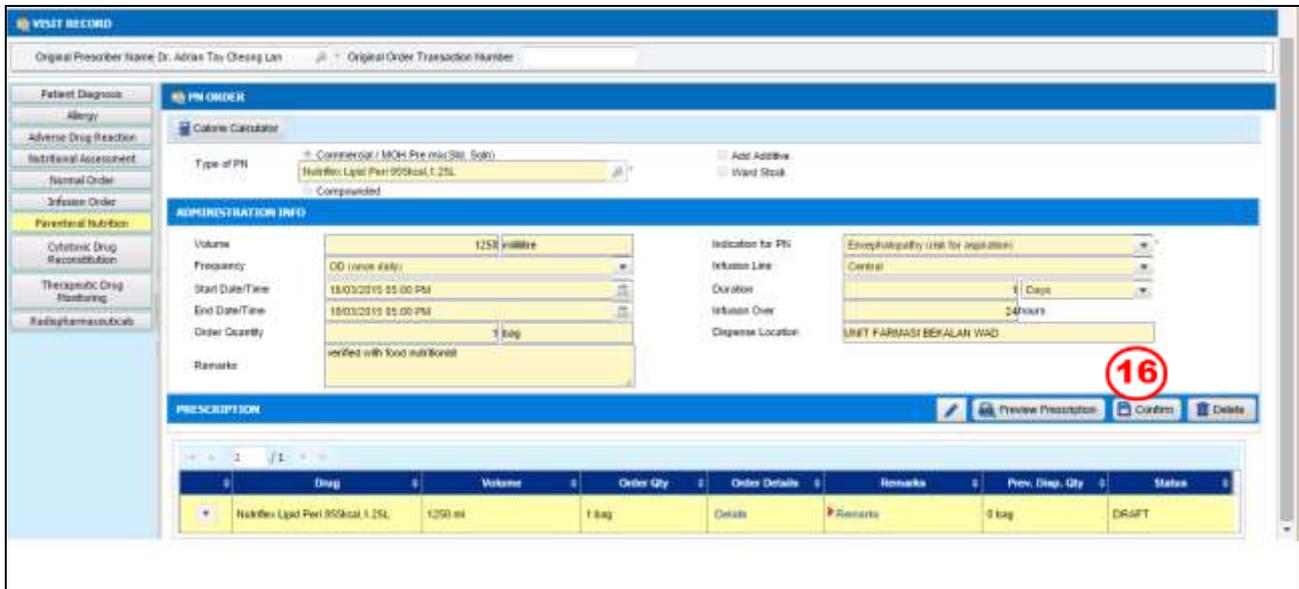
	Content / kg	Content / bag
Volume (ml)	25	1875
Calorie (kCal)	19.13	1435
Protein (g)	0.8	60
Carbohydrate (g)	1.6	120
Lipid (g)	1	75
Sodium (mmol)	1	75
Potassium (mmol)	0.6	45
Calcium (mmol)	0.06	4.5
Magnesium (mmol)	0.06	4.5
Phosphate (mmol)	0.15	11.3
Chloride (mmol)	0.96	72
Acetate (mmol)	0.8	60
Trace 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: 78.13 ml/hr
Prescriber: [REDACTED]	Frequency: OD (once daily)
Designation: Pegawai Perubatan	Infusion Route: Central
Department: General Surgery	Remarks:

Figure 4.3-10 Sample of PN Prescription

**Note**

Sample of PN prescription is as shown in Figure 4.3-10.



**PN ORDER**

Original Prescriber Name: Dr. Adria Tay Cheong Lin | Original Order Transaction Number: [ ]

**ADMINISTRATION INFO**

Type of PN: Commercial / MOH Pre mix (Soln, Soln) | Add Additive:  | Ward Stock:

Volume: 1250 ml | Indication for PN: Enteral/parenteral (not for injection)

Frequency: QD (once daily) | Infusion Line: Central

Start Date/Time: 18/03/2019 05:00 PM | Duration: 1 Day

End Date/Time: 18/03/2019 05:00 PM | Infusion Over: 24 hours

Order Quantity: 1 bag | Dispense Location: SMT FARMASI BEKALAN WAD

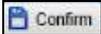
Remarks: mixed with food nutritional

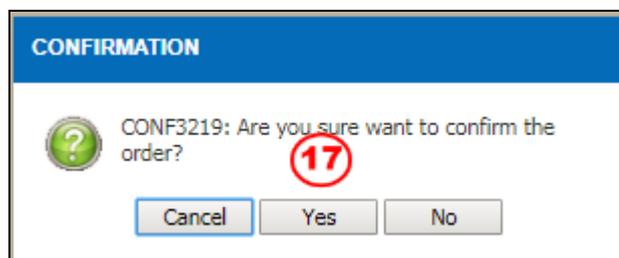
**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Remarks	Prev. Disp. Qty	Status
Nutrition Lipid Peri 855 kcal 1.25L	1250 ml	1 bag	Details	Remarks	0 bag	DRAFT

**Figure 4.3-11 PN Order : Commercial**

**STEP 16**

Click on the  button to confirm record order and alert message will be appeared as per Figure 4.3-12



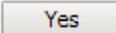
**CONFIRMATION**

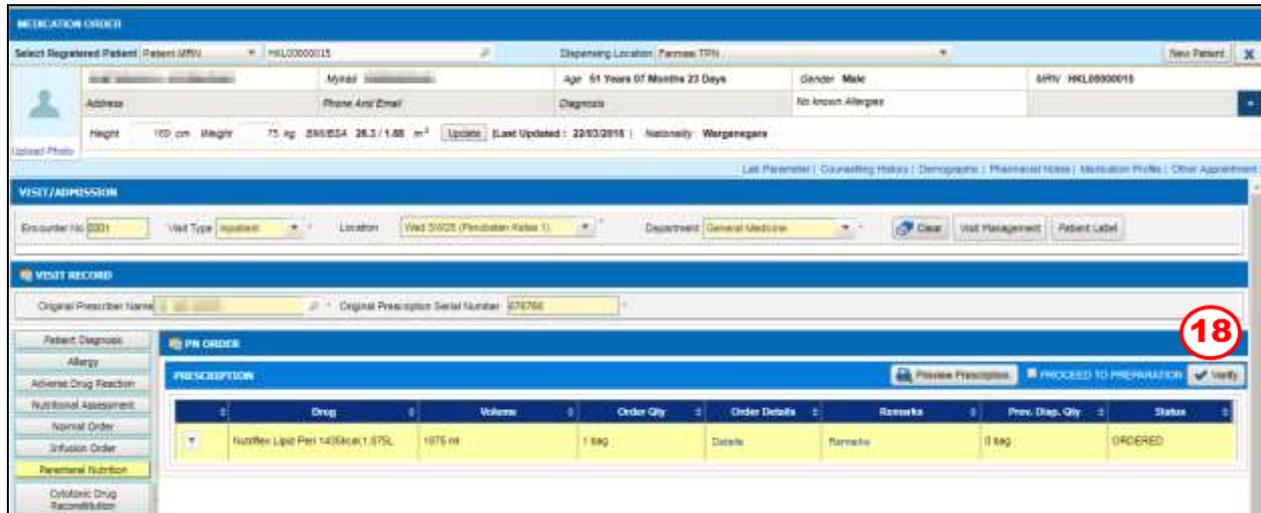
CONF3219: Are you sure want to confirm the order?

Buttons: Cancel, Yes, No

**Figure 4.3-12 Information Alert Message**

**STEP 17**

Click on the  button to confirm ordered saved and to verify PN Order screen will be appeared as per Figure 4.3-13



**Medication Order**

Select Registered Patient (Patient MRN) \* HKL00000115 Dispensing Location (Farmas TPI) \* New Patient X

Address: Myself Age: 51 Years 07 Months 23 Days Gender: Male SHTV: HKL00000115  
Phone And Email: No known Allergies  
Height: 170 cm Weight: 75 kg BMI: 25.3 / 1.88 m<sup>2</sup> Update (Last Updated: 22/10/2015) Nationality: Warganegara

**VISIT/ADMISSION**

Encounter No: 0331 VMT Type: Regular Location: Ward 2022 (Pusat Rawatan) Department: General Medicine Clear Visit Management Patient Label

**VISIT RECORD**

Original Prescriber Name: Original Prescription Serial Number: 070760

**PN ORDER** 18

PRESCRIPTION

Drug	Volume	Order Qty	Order Details	Remarks	Pres. Disp. Qty	Status
Inulin Lipid Free 145Kcal/1.875L	1875 ml	1 BAG	Details	Remarks	0 BAG	ORDERED

Buttons:

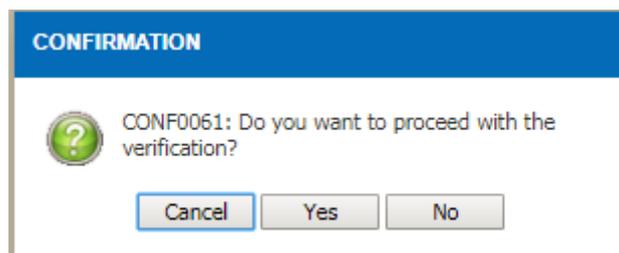
Figure 4.3-13 PN Order : Verification

**STEP 18**

Click on the  button to verify the order and alert message will be displayed as per Figure 4.3-14

**Note**

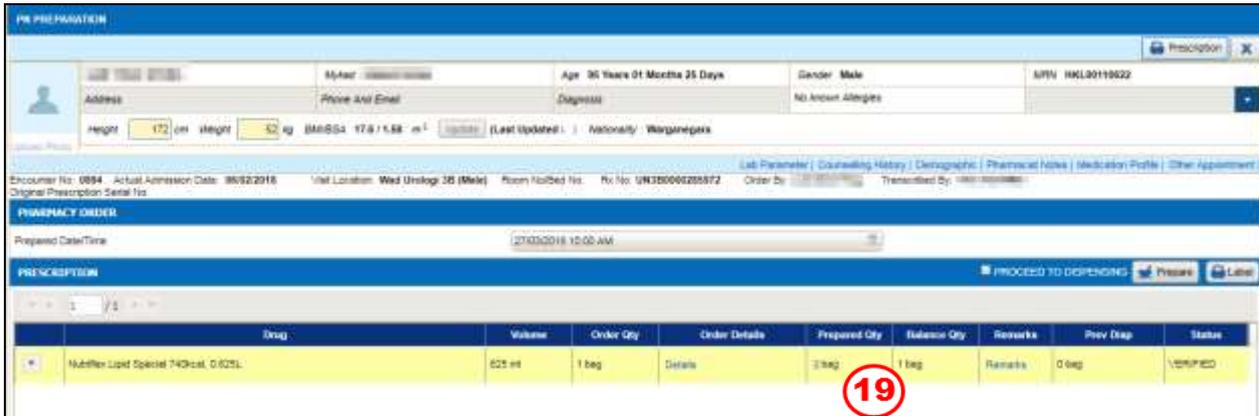
- Click on the  button to confirm the verification.
- Verified order will be flowed to preparation stage.



**CONFIRMATION**

CONF0061: Do you want to proceed with the verification?

Figure 4.3-14 Confirmation Alert Message

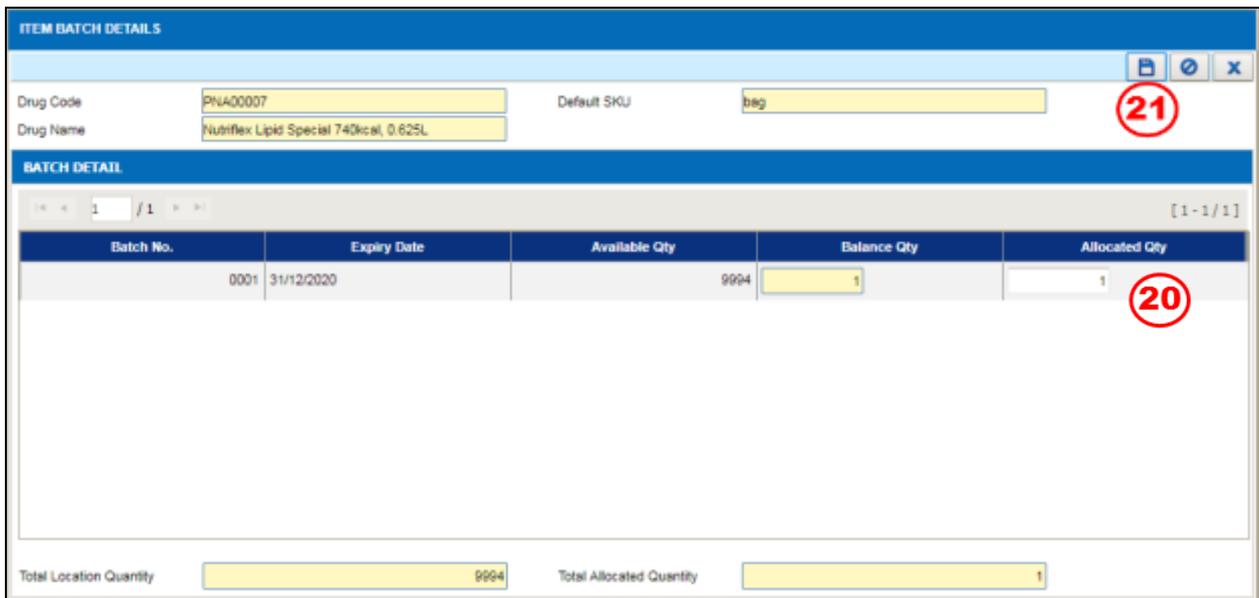


Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Remarks	Prev Disp	Status
Nutriflex Lipid Special 740kcal, 0.625L	625 ml	1 bag	Details	0 bag	1 bag	Remarks	0 bag	UNPREP

Figure 4.3-15 PN Preparation

**STEP 19**

Click on the **0 bag** link to allocate quantity and 'Item Batch Details' screen will be displayed as per Figure 4.3-16



Batch No.	Expiry Date	Available Qty	Balance Qty	Allocated Qty
0001	31/12/2020	9994	1	1

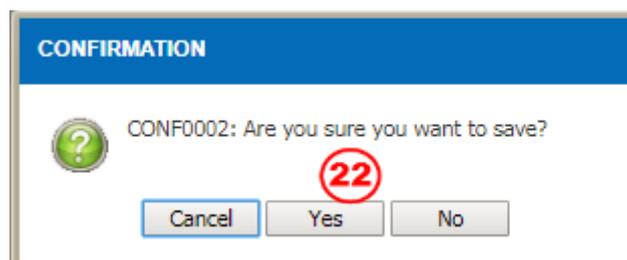
Figure 4.3-16 Item Batch Details

**STEP 20**

Enter **Allocated Qty**

**STEP 21**

Click on the  button to save record



**CONFIRMATION**

CONF0002: Are you sure you want to save?

Cancel Yes No

Figure 4.3-17 Confirmation Alert Message



- Sample PN Label as per Figure 4.3-20.

HOSPITAL KUALA LUMPUR		
Nutriflex Lipid Special 740kcal, 0.625L		
NAME : ██████████ ██████████ ██████████		
AGE : 95 Years 01 Months 25 Days		
MRN : HKL00110622	WARD/BED NO: Wad Urologi 3B (Male)	
Total <u>                  </u> 625 ml/bag		
Content	/ kg	/ bag
Protein (g)	0.69	36
Dextrose (g)	1.73	90
Lipid (g)	0.48	25
Sodium (mmol)	0.65	34
Potassium (mmol)	0.46	24
Calcium (mmol)	0.05	2.7
Magnesium (mmol)	0.05	2.7
Phosphate (mmol)	0.19	10
Chloride (mmol)	0.58	30
Acetate (mmol)	0.58	30
Trace (ml)	0	0
Vitamins (ml)	0	0
Calories (kcal)	14.23	740
Osmolarity (mOsm/l)	29.71	1545
Date and Time of Administration ::		
Infusion Rate	156.25 mL/Hrs	
Batch No 0001	Expiry Date 28/03/2018 10:00 AM	Price : RM
Do not use if any visible solid particles, growth or precipitation appears		
Store in refrigerator (2-8 °C). Protect from light (Once open use within 48 hours) Ensure PN Solution is at room temperature before infusion		
TO BE INFUSED : CENTRAL LINE		

Figure 4.3-20 Sample PN Label

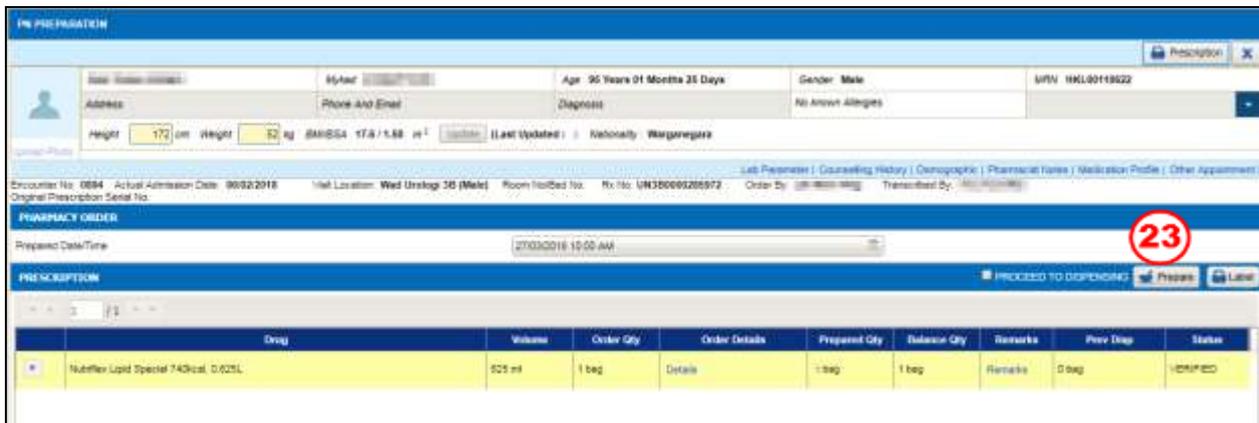


Figure 4.3-21 Sample PN Label

**STEP 23**

Click on the  button to prepare PN order

**Note**

*Proceed to Dispensing function will allow user to go the next stage screen for each patient record.*

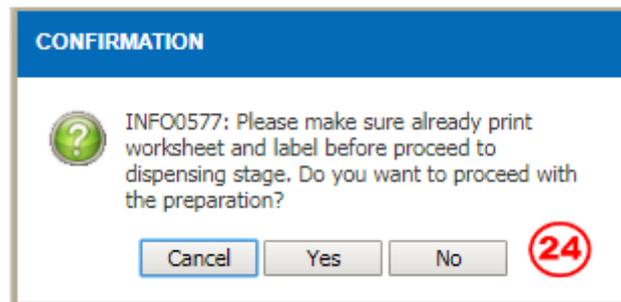


Figure 4.3-22 Confirmation Alert Message

**STEP 24**

Click on the  button to confirm prepare order

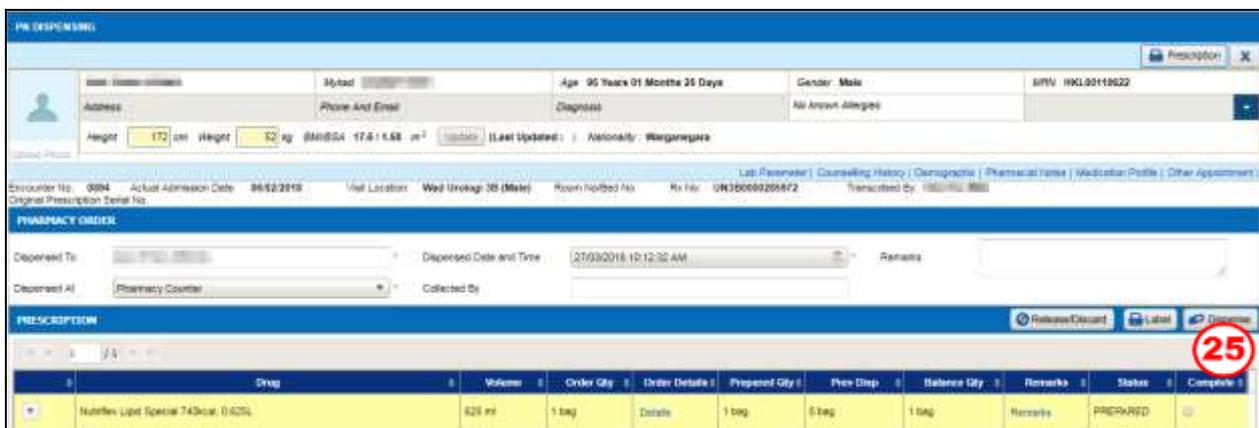
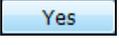


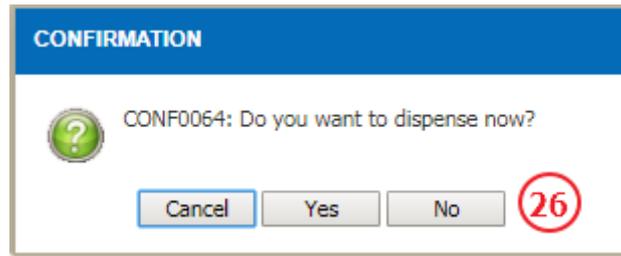
Figure 4.3-23 PN Dispensing

**STEP 25**

Click on the  button and alert message will be displayed as per Figure 4.3-24

**STEP 26**

Click on the  button to confirm prepare order

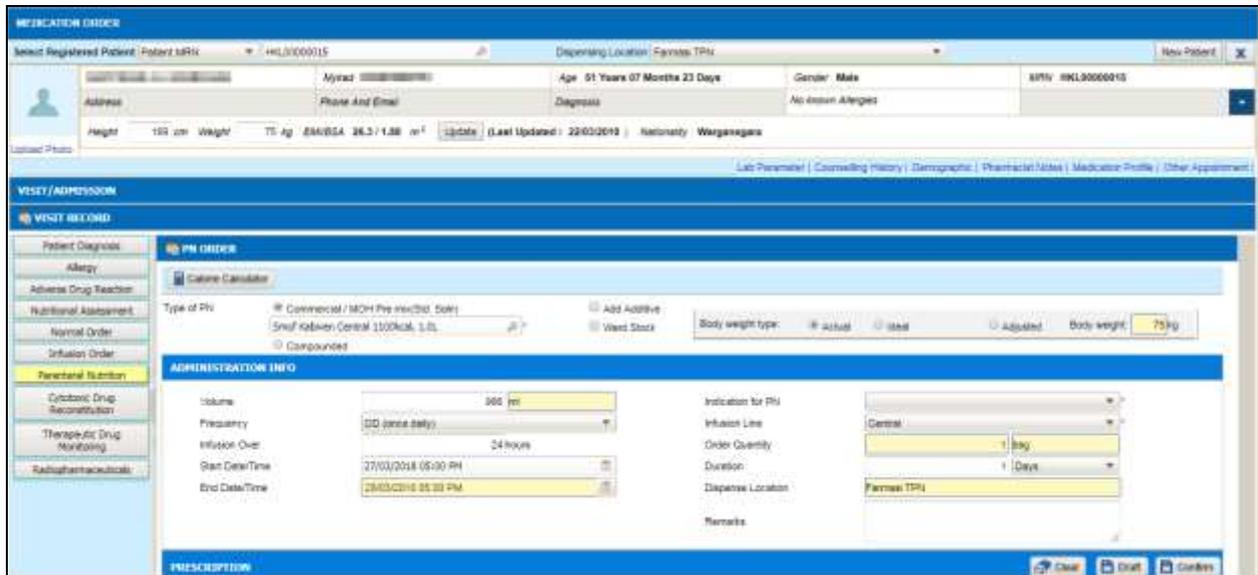


**Figure 4.3-24 Confirmation Alert Message**

**Note**

User only can do **Hold/Resume** Order and **Release/Discard** Order at dispensing activity stage.

#### 4.4 Commercial/MOH Pre Mix (Std. Soln) Add Additive



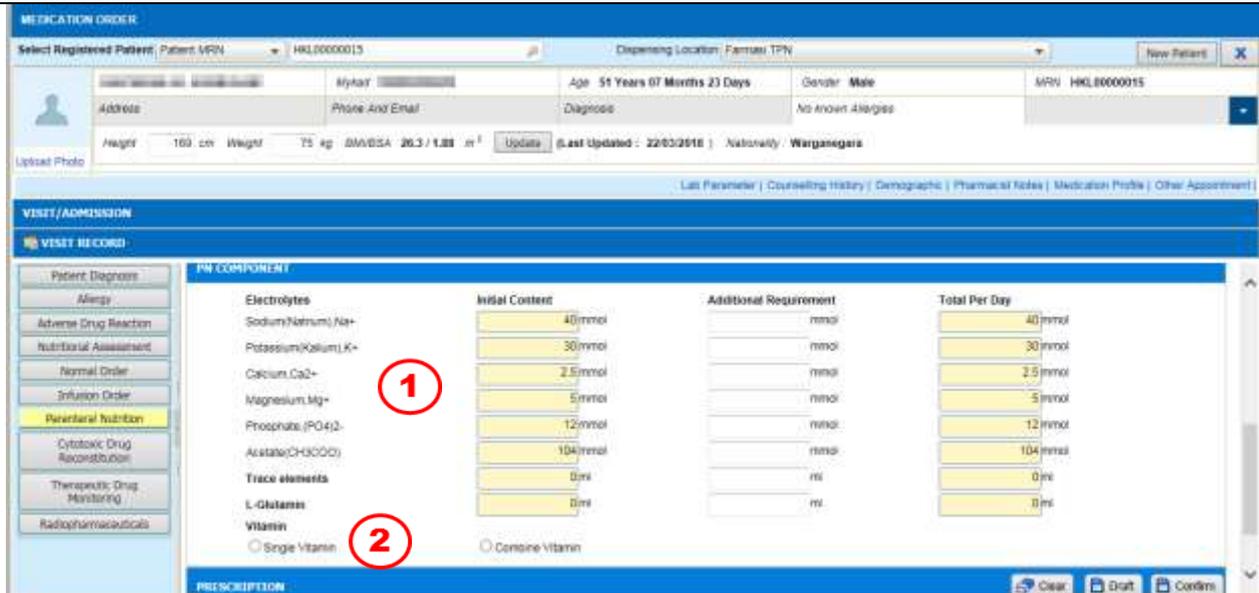
The screenshot displays the 'MEDICATION ORDER' interface. At the top, it shows patient information: 'Select Registered Patient: Robert sRRk', 'HL0000015', and 'Dispensing Location: Farnes TPI'. Below this, a patient profile card includes fields for Name, Myrac, Age (51 Years 07 Months 23 Days), Gender (Male), and Allergies (No known Allergies). A 'VITALS/ADMISSION' section shows Height (160 cm), Weight (75 kg), and other metrics. The main area is titled 'PN ORDER' and includes a 'Calorie Calculator' and 'Type of PN' dropdown set to 'Commercial / MOH Pre-mixed Soln'. A checked 'Add Additive' checkbox is visible. The 'ADMINISTRATION INFO' section contains fields for Volume (300 ml), Frequency (QD (once daily)), Infusion Over (24 hours), Start Date/Time (27/03/2018 05:00 PM), End Date/Time (28/03/2018 05:00 PM), Indication for PN, Infusion Line (Central), Order Quantity (1 bag), Duration (1 Days), and Dispense Location (Farnes TPI).

Figure 4.4-1 Medication Order

'Commercial Add Additive' function allows user to order ready made product with additional PN component

**Note**

- Repeat **STEP 1 – STEP 5** at section [4.3.Commercial/MOH Pre mix \(Std Soln\)](#).
- Select product and check on the  'Add Additive' checkbox.
- Repeat **STEP 6 – STEP 12** at section [4.3.Commercial/MOH Pre mix \(Std Soln\)](#)



**MEDICATION ORDER**

Select Registered Patient: Patient MRN: HKL0000015      Dispensing Location: Farnasi TPN      New Patient X

Mykar: [Redacted]      Age: 51 Years 07 Months 23 Days      Gender: Male      MRN: HKL0000015

Address: [Redacted]      Phone And Email: [Redacted]      Diagnosis: [Redacted]      No known Allergies

Weight: 160 cm      Weight: 75 kg      BMVBSA: 26.3 / 1.88 m<sup>2</sup>      Update      (Last Updated: 22/03/2018)      Nationality: Warganegara

Upload Photo

Lab Parameter | Counseling History | Demographic | Pharmacol Index | Medication Profile | Other Appointment

**VISIT/ADMISSION**

**VISIT RECORD**

Patient Diagnosis: [Redacted]

Allergy: [Redacted]

Adverse Drug Reaction: [Redacted]

Nutritional Assessment: [Redacted]

Normal Order: [Redacted]

Infusion Order: [Redacted]

**Parenteral Nutrition**

Cytotoxic Drug Reconstitution: [Redacted]

Therapeutic Drug Monitoring: [Redacted]

RadioPharmaceuticals: [Redacted]

**PN COMPONENT**

Electrolytes	Initial Content	Additional Requirement	Total Per Day
Sodium(Natrium)_Na+	40mmol	mmol	40mmol
Potassium(Kalium)_K+	30mmol	mmol	30mmol
Calcium_Ca2+	2.5mmol	mmol	2.5mmol
Magnesium_Mg+	5mmol	mmol	5mmol
Phosphate_(PO4)2-	12mmol	mmol	12mmol
Aspartate(CH3COO)	104mmol	mmol	104mmol
Trace elements	0ml	ml	0ml
L-Glutamine	0ml	ml	0ml
Vitamin	<input type="radio"/> Single Vitamin <input type="radio"/> Composite Vitamin		

PRESCRIPTION      Clear      Draft      Confirms

Figure 4.4-2 Single Vitamin

**STEP 1**

Enter value of **Electrolytes** that require for patient 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 be automatically default by system.

**STEP 2**

Select  **Single Vitamin** radio button

**Note**

- **Water soluble** and **Fat soluble** field will be automatically displayed as per Figure 4.4-2.
- Enter value of **Water soluble** and **Fat soluble**.

Or

Select  **Multi Vitamin** radio button

**Note**

**Vitamin(Water and Fat soluble)** field will be automatically displayed as per Figure 4.4-3.



**Vitamin**

Single Vitamin       Multi Vitamin

Vitamin(Water and Fat Soluble)      10 ml      0 ml

Figure 4.4-3 Multivitamin



Electrolytes	Requirement Per Day	Per Bag(Per Ordering)
Sodium(Natrium),Na+	<input type="text"/> mmol	18.2 (18.2) mmol
Potassium(Kalium),K+	<input type="text"/> mmol	6.67 (6.67) mmol
Calcium,Ca2+	<input type="text"/> 4mmol	3 (3) mmol
Magnesium,Mg+	<input type="text"/> 7 mmol	0.76 (0.76) mmol
Phosphate,(PO4)2-	<input type="text"/> mmol	3.56 (3.56) mmol
Acetate(CH3COO)	<input type="text"/> mmol	11.11 (11.11) mmol
Trace elements	<input type="text"/> ml	2.2 (2.2) ml
L-Glutamin	<input type="text"/> ml	0 ml

Single Vitamin       Multi Vitamin

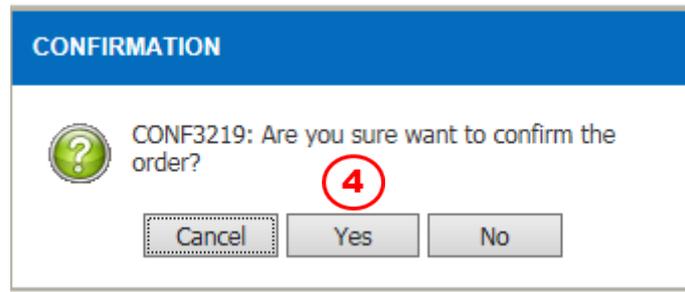
    

Drug	Volume	Order Qty	Order Details	Remarks	Status
No Records Found!					

Figure 4.4-4 Medication Order

**STEP 3**

Click on the  button to confirm record order and alert message will be appeared as per Figure 4.4-5



**CONFIRMATION**

CONF3219: Are you sure want to confirm the order?

Figure 4.4-5 Information Alert Message

**STEP 4**

Click on the  button to confirm ordered saved and to verify PN Order screen will be appeared as per Figure 4.4-6

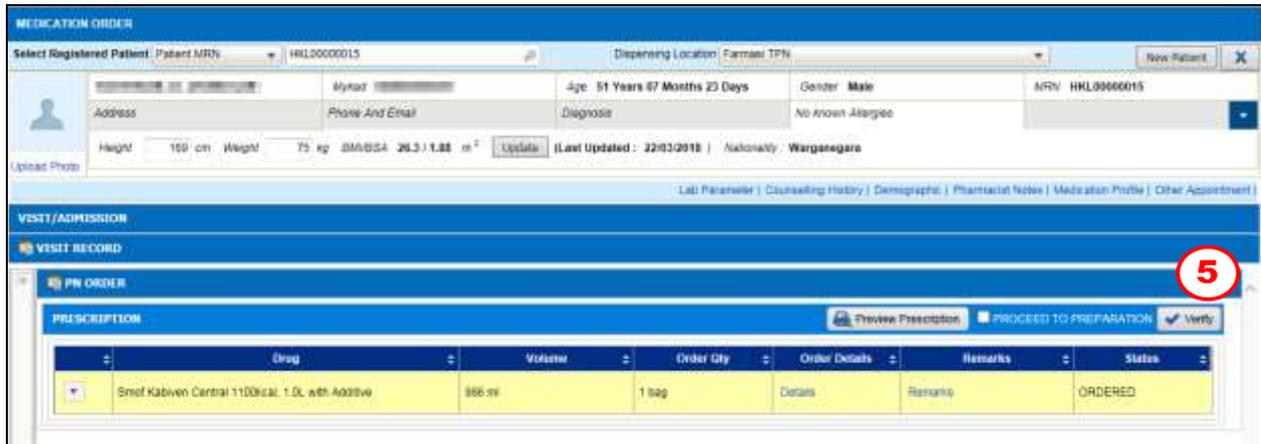


Figure 4.4-6 PN Order : Verify

**STEP 5**

Click on the  button to verify the order and alert message will be displayed as per Figure 4.4-7

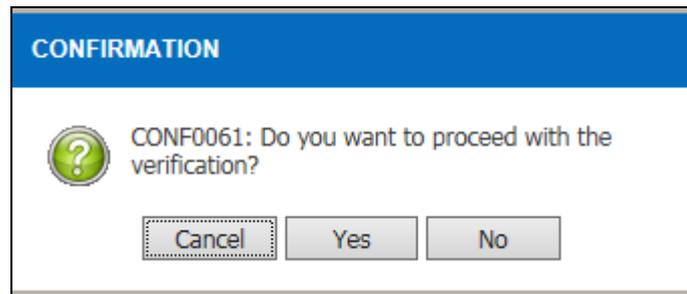
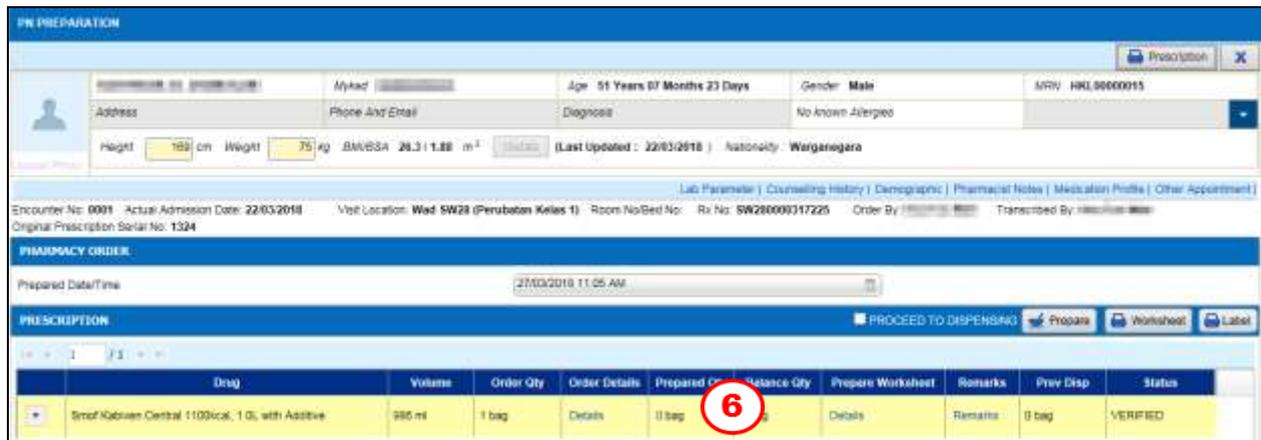


Figure 4.4-7 Confirmation Alert Message

**Note**

- Click on the  button to confirm the verification.
- Verified order will be flowed to preparation stage.

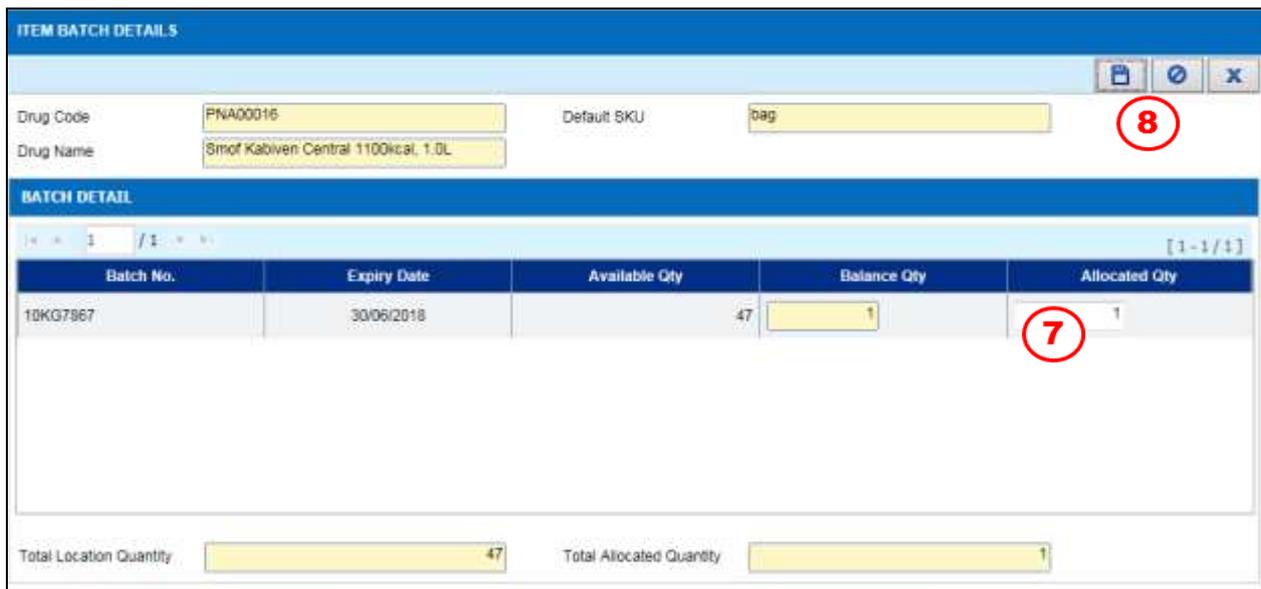


Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Step	Status
Smof Kabiven Central 1100kcal, 1.0L with Additive	986 ml	1 bag	Details	0 bag <b>6</b>		Details	Remarks	0 bag	VERIFIED

Figure 4.4-8 PN Preparation

**STEP 6**

Click on the **0 bag** link to allocate quantity and 'Item Batch Details' screen will be displayed as per Figure 4.4-9



Batch No.	Expiry Date	Available Qty	Balance Qty	Allocated Qty
10KG7867	30/06/2018	47		1 <b>7</b>

Figure 4.4-9 Item Batch Details

**STEP 7**

Enter **Allocated Qty**

**STEP 8**

Click on the  button to save record

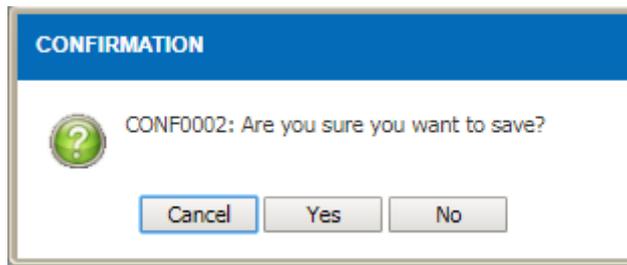


Figure 4.4-10 Confirmation Alert Message

**STEP 9**

Click on the  button to confirm save

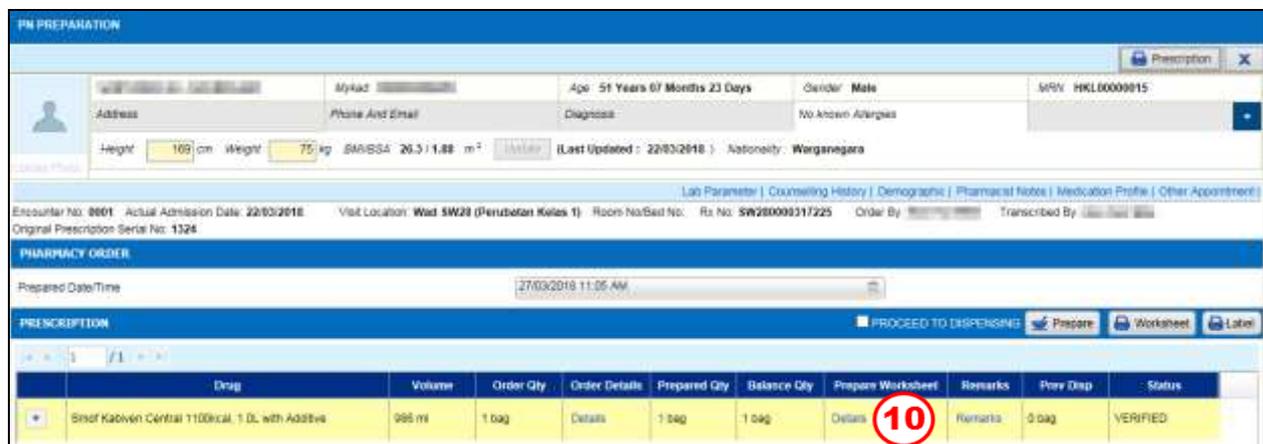


Figure 4.4-11 PN Preparation

**STEP 10**

Click on the **Prepare Worksheet**  button to prepare worksheet as per Figure 4.4-12

**DETAILS**

Macronutrient  
 Glucose  g  
 Lipid  g  
 Protein  g

Electrolytes  
 Sodium(Natrium)/Na-  mmol  
 Potassium(Kalium)/K+  mmol

Vitamin  
 Vitamin Solution  ml  
 Water soluble  ml  
 Fat soluble  ml

Calcium, Ca2+  mmol  
 Magnesium, Mg+  mmol

Trace elements  
 Trace elements  ml  
 Acetate  mmol  
 L-Glutamin  ml

Phosphate, (PO4)2-  mmol

Drug selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Osmolality (mOsmol)	Acetate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
Sodium Glycero-phosphate 20ml Injection	0		0	0	0	0	0	0	0	0	0	0
Sodium Chloride 20% Inj	0		0	0	0	0	0	0	0	0	0	0
Potassium Chloride 1g/10ml Injection	0		0	0	0	0	0	0	31	0	0	0
Calcium Gluconate 10% Injection	0		0	0	0	0	0	0	0	0	0	0
Magnesium Sulphate 50% Injection (49.3%/5mL)	0		0	0	0	0	0	0	0	0	0	0
Trace Element - Paediatric (Pedtrace) 10mL Inj	0		0	0	0	Trace Elements						
Vitamin B and C (Soluvit N) in 10 ml WFI	0		0	0	0	Combine Vitamin (Water & Fat Soluble)						
Vitamin A, D, E, K (Vitakid N Infant) 10ml Inj	0		0	0	0	Water Soluble Vitamins						
	0		0	0	0	Fat Soluble Vitamins						
	0		0	0	0	L-Glutamin						
<b>Total Preparation</b>	<b>0</b>			<b>0</b>	<b>0</b> mOsmol	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Calculate

Figure 4.4-12 Prepare Worksheet

**Note**

- **Macronutrient, Vitamin field and Electrolytes field display the quantity to be added into the bag.**
- Click on the **Calculate** button to calculate PN content value.
- **Volume (ml), Order Quantity, Calorie (kcal), Osmolality(mOsmol), Content and Total Preparation will be automatically calculated and displayed by system as per Figure 4.4-13.**

**PREPARE WORKSHEET**

Interaction | 2 Axis Assistant | X

**DETAILS**

Macronutrient  
 Glucose  g  
 Lipid  g  
 Protein  g

Electrolytes  
 Sodium(Natrium)/Na-  mmol  
 Potassium(Kalium)/K+  mmol

Vitamin  
 Vitamin Solution  ml  
 Water soluble  ml  
 Fat soluble  ml

Calcium, Ca2+  mmol  
 Magnesium, Mg+  mmol

Trace elements  
 Trace elements  ml  
 Acetate  mmol  
 L-Glutamin  ml

Phosphate, (PO4)2-  mmol

Drug selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Osmolality (mOsmol)	Acetate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
Sodium Glycero-phosphate 20ml Injection	0		0	0	0	0	0	0	0	0	0	0
Sodium Chloride 20% Inj	0		0	0	0	0	0	0	0	0	0	0
Potassium Chloride 1g/10ml Injection	22.15	1 amp	0	0	50.52	0	0	0	31	0	0	16.08
Calcium Gluconate 10% Injection	0		0	0	0	0	0	0	0	0	0	0
Magnesium Sulphate 50% Injection (49.3%/5mL)	0		0	0	0	0	0	0	0	0	0	0
Trace Element - Paediatric (Pedtrace) 10mL Inj	0	1 amp	0	0	0.11	Trace Elements						
Vitamin B and C (Soluvit N) in 10 ml WFI	0		0	0	0	Combine Vitamin (Water & Fat Soluble)						
Vitamin A, D, E, K (Vitakid N Infant) 10ml Inj	0	1 amp	0	0	2.45	Water Soluble Vitamins						
	0		0	0	0	Fat Soluble Vitamins						
	0		0	0	0	L-Glutamin						
<b>Total Preparation</b>	<b>22.15</b>			<b>0</b>	<b>230.08</b> mOsmol	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>16.08</b>

Calculate

Figure 4.4-13 Prepare Worksheet

**STEP 11**

Click on the  button and confirmation pop up will appear as in figure 4.4-14

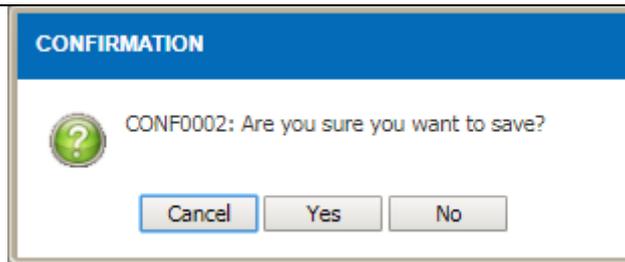
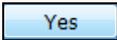


Figure 4.4-14 Confirmation Alert Message

**Note**

Click on the  button to save record

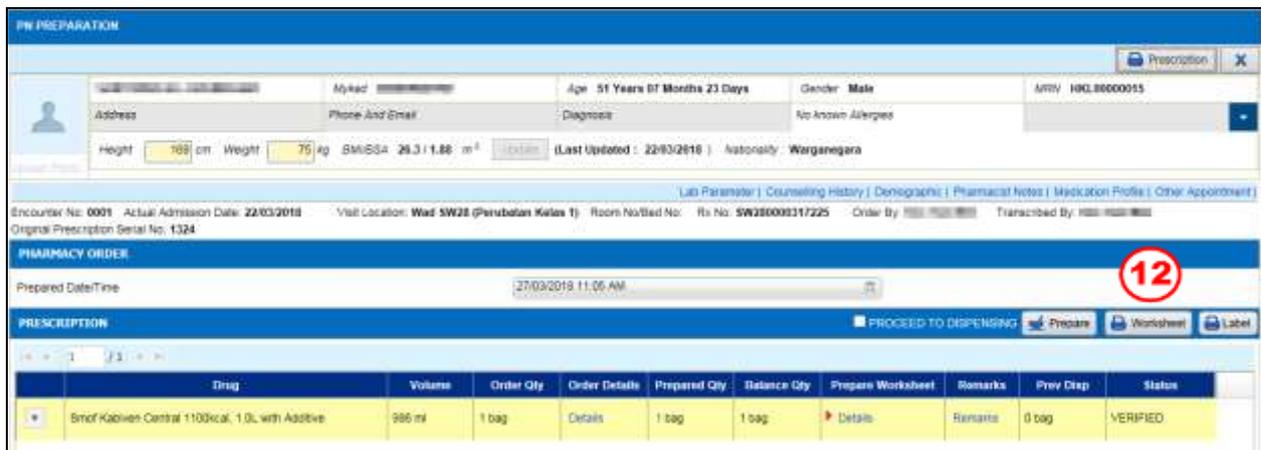


Figure 4.4-15 PN Preparation

**STEP 12**

Click on the  button to generate worksheet as per Figure 4.4-15

**PARENTERAL NUTRITION WORKSHEET**  
**MINISTRY OF HEALTH**  
**HOSPITAL KUALA LUMPUR**

Patient Name :   
 M/RN : HKL0000015  
 Ward/Bed No : Ward SW28 (Perubatan Kelasa T)  
 Age : 51 Years 07 Months 23 Days  
 Gender : Male  
 Body Weight : 75 kg

Worksheet : A001-270318  
 Prepared Date/Time : 27/03/2018 11:41 AM  
 Prescription # : SW280000317225

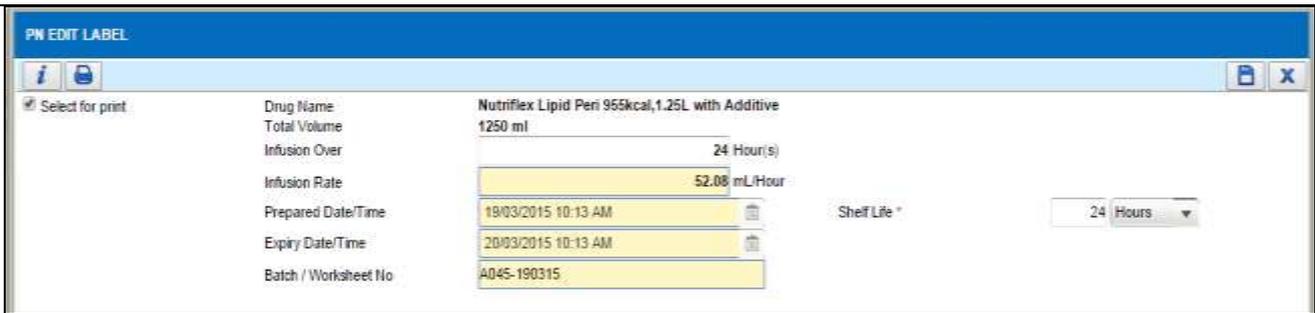
DRUG NAME	VOLUME (ml)	QUANTITY	BATCH NO	COMPONENT DETAIL (PER DAY)
Smof Kabiven Central 1100kcal, 1.0L	986	1 bag	10KG7867	-
Potassium Chloride 1g/10ml Injection	23.13	3 ampoule	HAF60176 1	31 mmol
Trace Element - Paediatric (Peditrace) 10mL Inj	3	1 ampoule	12KKL99	3 ml
Vitamin B and C (Solvit N) in 10 ml WFI	5	1 vial	80IK537	5 ml
TPN Volume Bag	1017.13	1 Bag		

Worksheet Generated By :  Date : 27/03/2018  
 Worksheet and Label Checked By :  Supervised By :   
 Bag Prepared By :   
 Final Product Checked By :

Figure 4.4-16 Sample PN Worksheet

**Note**

Sample of PN Worksheet as per Figure 4.4-16.



The screenshot shows a software window titled "PN EDIT LABEL". It contains a "Select for print" checkbox which is checked. Below this are several fields: "Drug Name" (Nutriflex Lipid Peri 955kcal,1.25L with Additive), "Total Volume" (1250 ml), "Infusion Over" (24 Hour(s)), "Infusion Rate" (52.08 mL/Hour), "Prepared Date/Time" (19/03/2015 10:13 AM), "Expiry Date/Time" (20/03/2015 10:13 AM), and "Batch / Worksheet No" (A045-190315). There is also a "Shelf Life" dropdown menu set to "24 Hours".

Figure 4.4-17 PN Edit Label

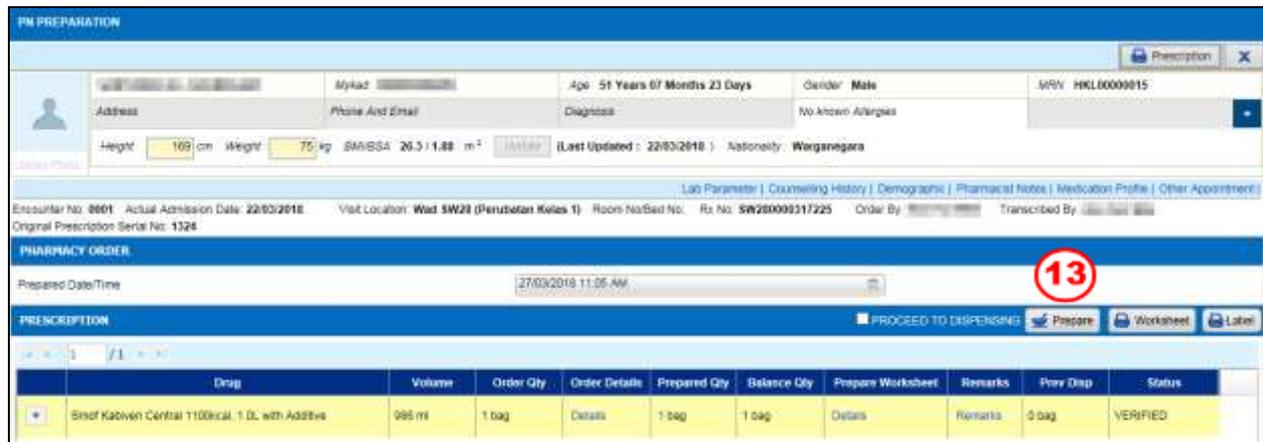
**Note**

**Edit Label**

- Click on the  button to edit label and **PN Edit Label** window will display as per Figure 4.4-18.
- Select the  **Select for print** radio button to print label.
- User is allowed to edit **Infusion Over**, **Date Prepared** and **Shelf Life** field.
- **Expiry Date** will be automatically displayed after enter the **Shelf Life** field.
- **Drug Name**, **Total Volume**, **Infusion Rate** and **Batch No** will be automatically displayed by system.

HOSPITAL KUALA LUMPUR		
Smof Kabiven Central 1100kcal, 1.0L with Additive		
NAME : <input type="text"/>		
AGE : 51 Years 07 Months 23 Days		
MRN : HKL00000015	WARD/BED NO: Wad SW28 (Perubatan Kelas 1)	
Product Volume	1017.13 ml/bag	
Ordered Volume	1017.13 ml/bag	
Content	/ kg	/ bag
Protein (g)	0.67	50
Dextrose (g)	1.67	125
Lipid (g)	0.51	38
Sodium (mmol)	0.53	40
<b>Potassium (mmol)</b>	<b>0.81</b>	<b>61</b>
Calcium (mmol)	0.03	2.5
Magnesium (mmol)	0.07	5
Phosphate (mmol)	0.16	12
<b>Chloride (mmol)</b>	<b>0.88</b>	<b>65.99</b>
Acetate (mmol)	1.39	104
<b>Trace (ml)</b>	<b>0.04</b>	<b>3</b>
Vitamins (ml)	0.07	5
Calories (kcal)	14.67	1100
Osmolarity (mOsm/l)	20.24	1518.08
L-Glutamin (ml)	0	0
Date and Time of Administration :		
Infusion Rate	42.38 ml/Hrs	
Worksheet ID A001-270318	Expiry Date 28/03/2018 11:40	Price : RM
Do not use if any visible solid particles, growth or precipitation appears		
Store in refrigerator (2-8 °C). Protect from light (Once open use within 24 Hours) Ensure PN Solution is at room temperature before infusion		
TO BE INFUSED : CENTRAL LINE		

Figure 4.4-18 PN Edit Label



**PN PREPARATION**

Mykad: [redacted] Age: 51 Years 07 Months 23 Days Gender: Male MRN: HKL0000015  
 Address: [redacted] Phone And Email: [redacted] Diagnosis: No known Allergies  
 Height: 169 cm Weight: 75 kg BMI/BSA: 26.3 / 1.88 m<sup>2</sup> (Last Updated: 22/03/2018) Nationality: Warganegara

Encounter No: 0001 Actual Admission Date: 22/03/2018 Visit Location: Ward SW28 (Perubatan Kelas 1) Room No/Bed No: Rm No: SW280000317225 Order By: [redacted] Transcribed By: [redacted]

Original Prescription Serial No: 1324

**PHARMACY ORDER**

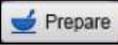
Prepared Date/Time: 27/03/2018 11:55 AM

**PRESCRIPTION** [PROCEED TO DISPENSING] [Prepare] [Worksheet] [Label]

Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Disp	Status
Snef Kabiven Central 1100kcal, 1 DL with Additive	995 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

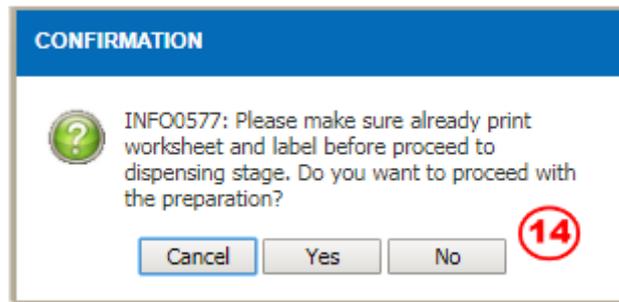
Figure 4.4-19 PN Preparation

**STEP 13**

Click on the  button to prepare PN order

**Note**

*Proceed to Dispensing function will allow user to go next stage screen for each patient record.*



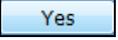
**CONFIRMATION**

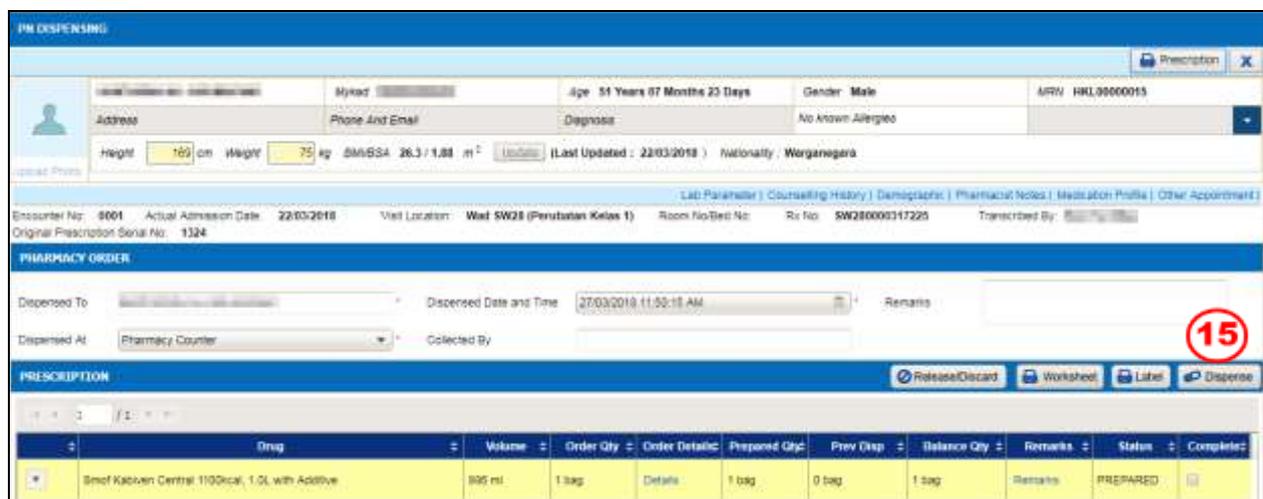
INFO0577: Please make sure already print worksheet and label before proceed to dispensing stage. Do you want to proceed with the preparation?

[Cancel] [Yes] [No]

Figure 4.4-20 PN Confirmation Alert Message

**STEP 14**

Click on the  button to confirm prepare order



**PN DISPENSING**

Mykad: [redacted] Age: 51 Years 07 Months 23 Days Gender: Male MRN: HKL0000015  
 Address: [redacted] Phone And Email: [redacted] Diagnosis: No known Allergies  
 Height: 169 cm Weight: 75 kg BMI/BSA: 26.3 / 1.88 m<sup>2</sup> (Last Updated: 22/03/2018) Nationality: Warganegara

Encounter No: 0001 Actual Admission Date: 22/03/2018 Visit Location: Ward SW28 (Perubatan Kelas 1) Room No/Bed No: Rm No: SW280000317225 Transcribed By: [redacted]

Original Prescription Serial No: 1324

**PHARMACY ORDER**

Dispensed To: [redacted] Dispensed Date and Time: 27/03/2018 11:55:18 AM Remarks: [redacted]  
 Dispensed At: Pharmacy Counter Collected By: [redacted]

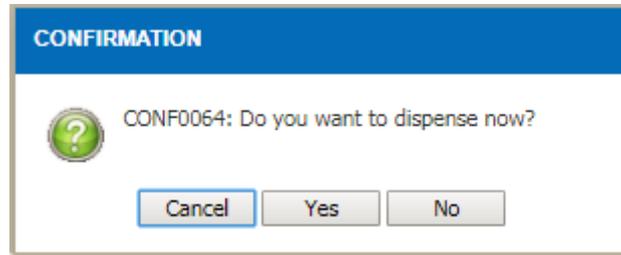
**PRESCRIPTION** [Release/Cancel] [Worksheet] [Label] [Dispense]

Drug	Volume	Order Qty	Order Details	Prepared Qty	Prev Disp	Balance Qty	Remarks	Status	Completed
Snef Kabiven Central 1100kcal, 1 DL with Additive	995 ml	1 bag	Details	1 bag	0 bag	1 bag	Remarks	PREPARED	

Figure 4.4-21 PN Dispensing

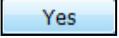
## STEP 15

Click on the  button and alert message will be displayed as per Figure 4.4-22

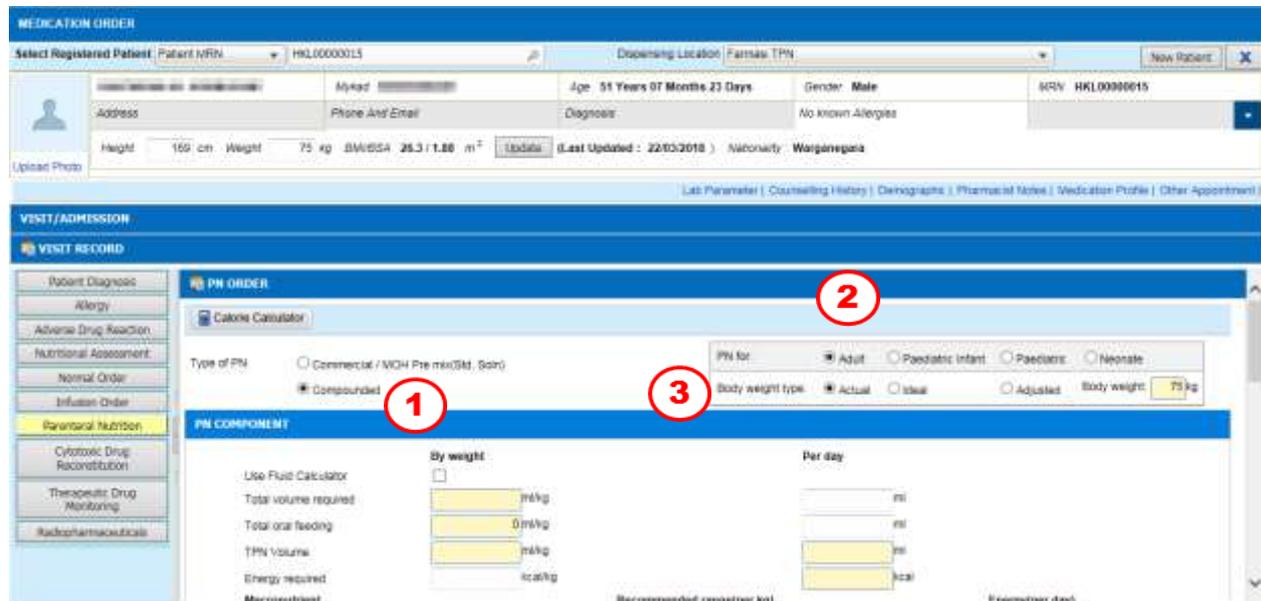


**Figure 4.4-22 Confirmation Alert message**

### Note

- Click on the  button to dispense order.
- User can **Hold/Resume** Order and **Release/Discard** order at Dispensing activity.
- When release batch, drug and PN bag quantity will be returned back to inventory. When discard batch, drug and PN bag quantity will be deducted from inventory.
- Once drug already released or discarded, drug will be displayed back in Preparation screen for re-allocation of new batch qty.

## 4.5 Compounded (Adult)



The screenshot shows the 'MEDICATION ORDER' interface. At the top, there's a patient selection area with 'Patient NRRN' (HKL0000015) and 'Dispensing Location' (Farnas TPN). Below this is a patient profile card with details like 'Myiad', 'Age: 51 Years 07 Months 23 Days', 'Gender: Male', and 'Weight: 75 kg'. The main area is titled 'PN ORDER' and contains a 'Calcule Calculator' section. Under 'Type of PN', the 'Compounded' radio button is selected. Under 'PN For', the 'Adult' radio button is selected. Under 'Body weight type', the 'Actual' radio button is selected. The 'PN COMPONENT' section below has input fields for 'Total volume required', 'Total oral feeding', 'TPN Volume', and 'Energy required', with 'By weight' and 'Per day' calculation options.

Figure 4.5-1 Medication Order

PN Compounded allow user to order compounded PN with customized nutrition based on patient requirement.

### STEP 1

Select on  **Compounded** radio button for 'Type of PN'

### STEP 2

Select on  **Adult** radio button for 'PN For'

### STEP 3

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 change base on selected **Body Weight type**.

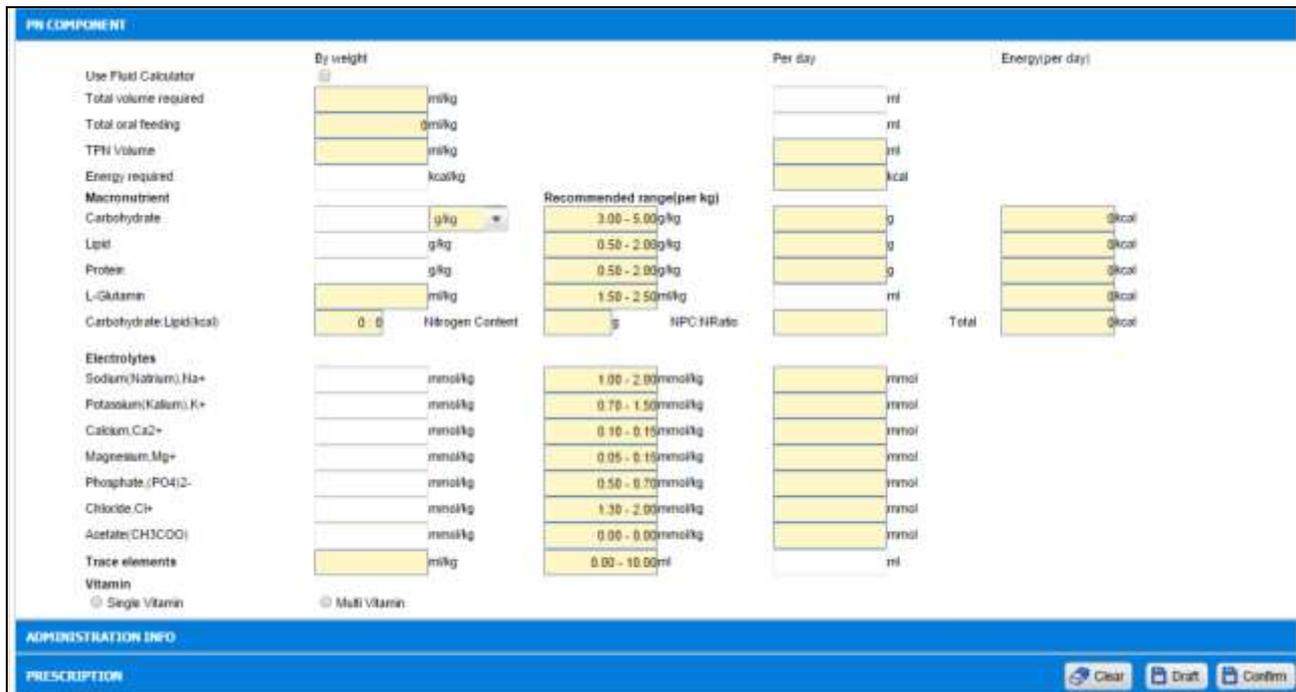


Figure 4.5-2 PN Component

**Note**

**PN Component**

- Once 'Use Fluid Calculator' checkbox is selected, system will auto calculate the 'Total Volume required' based on the body weight.
- User can enter 'Total Oral feeding' volume per day (if any) and system will auto calculate the 'Total oral feeding' per kg and 'TPN Volume'.
- Enter value for **Total volume required per day (ml)**.
- Value **By Weight** will automatically calculate and display after enter the **Total volume required per day (ml)**.
- Enter value for **Energy required By Weight (kcal/kg)**.
- Value **Per day** will automatically calculate and display after enter the **Energy required By Weight (kcal/kg)**.

**Macronutrient**

- Enter value of the **Macronutrient** that applicable for the **PN Component** .
- All entered value must between the **Recommended Range (per kg)**. System still allow if not between recommended range.

All value **Per day** and **Energy(per day)** will automatically calculate and display.

- **L-Gutamin** is an optional function. 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.

**Electrolytes**

- Enter value of the **Electrolytes** that applicable for the **PN Component**.
- All entered value must between the **Recommended Range (per kg)**. System still allow if not between recommended range.

- **Chloride ,Cl<sup>-</sup>** and **Acetate (CH<sub>3</sub>COO)** is optional function.
- All value **Per day** will automatically calculate and display.
- Enter value of the **Trace elements Per day**.
- Value **By Weight** will automatically calculate and display after enter the **Trace elements Per day** value.

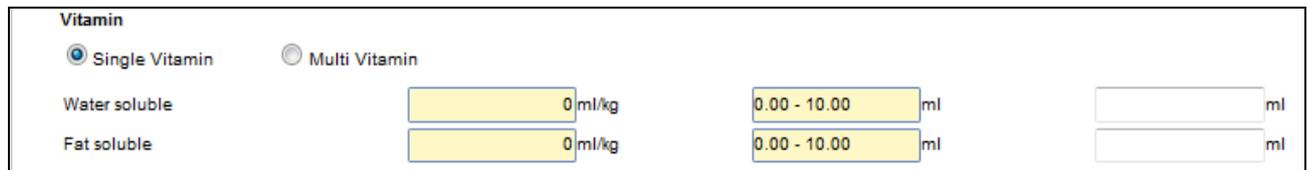


Figure 4.5-3 Single Vitamin

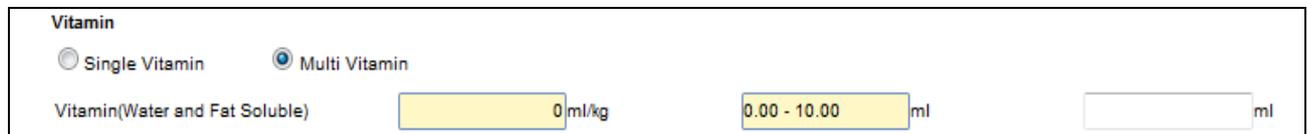
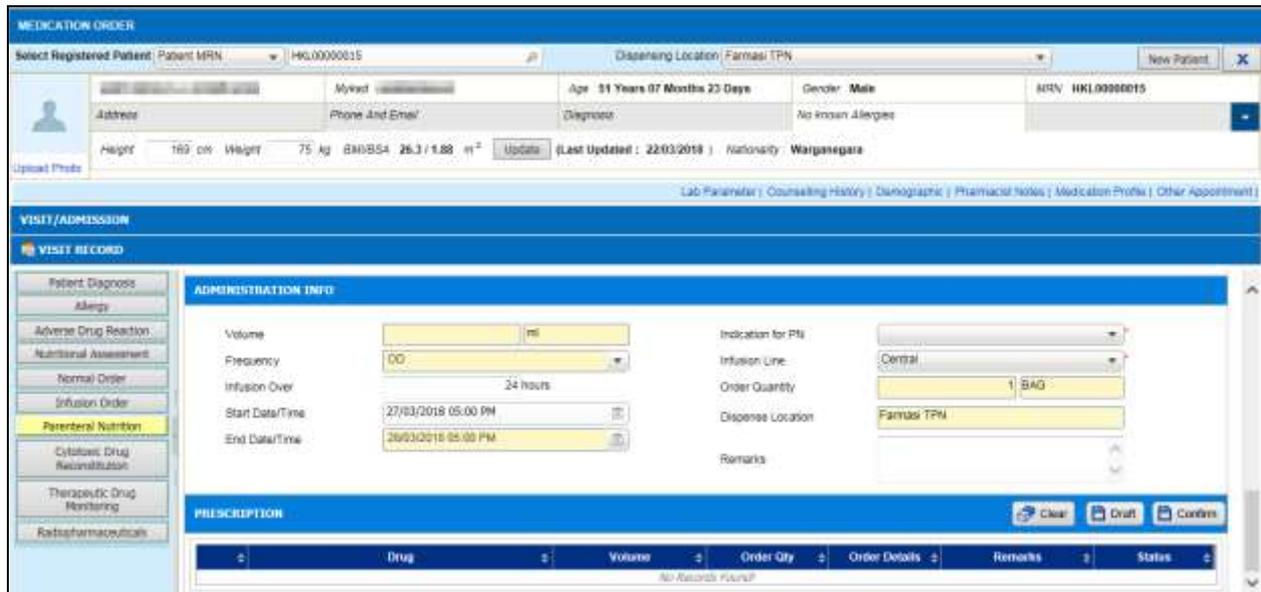


Figure 4.5-4 Multi Vitamin

**Note**

- Select either **Single Vitamin** or **Multivitamin** radio button.
  - Vitamin have 2 types vitamin:
    - **Single Vitamin**
    - **Multi Vitamin**
- If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 4.5-3.
- If user select **Multi Vitamin** radio button; **Vitamin(Water and Fat Soluble)** field will automatically display by system as per Figure 4.5-4.



**MEDICATION ORDER**

Select Registered Patient: Patient MRN: HKL00000015 | Dispensing Location: Famusi TPN

Myname: [redacted] | Age: 31 Years 07 Months 23 Days | Gender: Male | MRN: HKL00000015

Address: [redacted] | Phone And Email: [redacted] | Diagnosis: No known Allergies

Height: 167 cm | Weight: 75 kg | BMI: 26.3 / 1.88 m<sup>2</sup> | Update (Last Updated: 22/03/2018) | Nationality: Warganegara

Lab Parameter | Counseling History | Demographic | Pharmacial Notes | Medication Profile | Other Appointment

**VISIT/ADMISSION**

**VISIT RECORD**

Patient Diagnosis: Allergy, Adverse Drug Reaction, Nutritional Assessment, Normal Order, Infusion Order, Parenteral Nutrition, Cytotoxic Drug Reconstitution, Therapeutic Drug Monitoring, Radiopharmaceuticals

**ADMINISTRATION INFO**

Volume: [input] ml | Indication for PN: [dropdown]

Frequency: OD | Infusion Line: Central

Infusion Over: 24 hours | Order Quantity: 1 BAG

Start Date/Time: 27/03/2018 05:00 PM | Dispense Location: Famusi TPN

End Date/Time: 26/03/2018 05:00 PM | Remarks: [input]

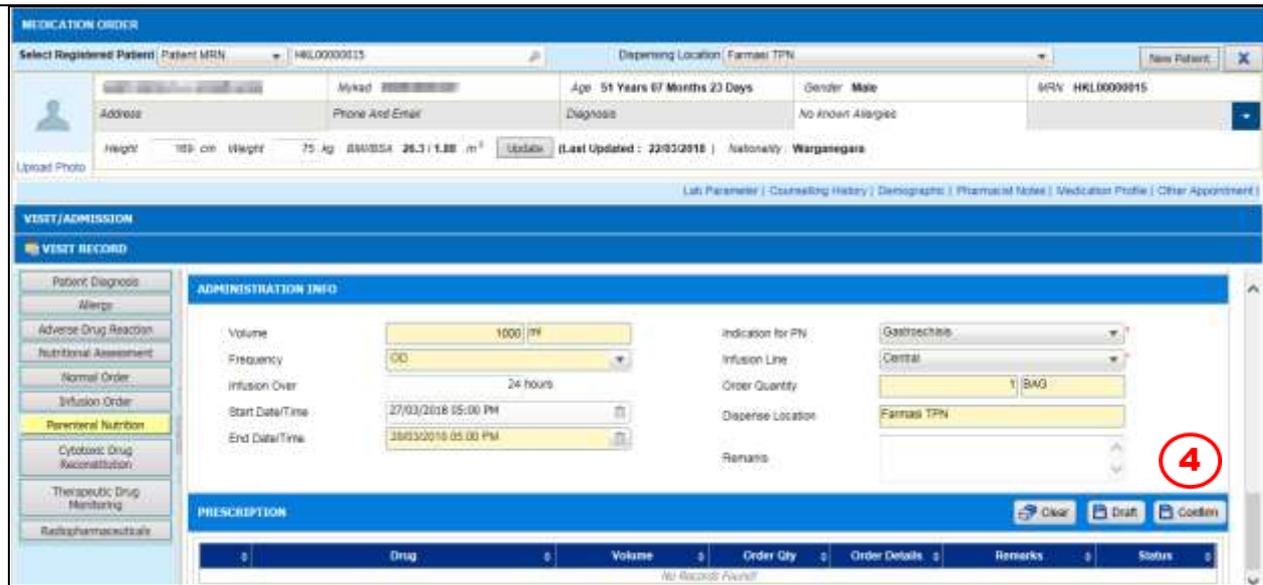
**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Remarks	Status

Figure 4.5-5 Administration Info

**Note**

- **Volume** will be automatically displayed by system and user is not allow to change at this field.
- **Infusion Line** will be automatically default to **Central** but user is allow to change at this field and select type of **Infusion Line** from the dropdown box.
- **Frequency** and **Duration** field will be automatically displayed and user is not allow to change this field.
- Default value for:
  - **Frequency** : OD (daily)
  - **Duration** : 1 day
- **Start Date/Time** will be automatically default to current date but still can be change by the user if applicable.
- **End Date/Time** will be displayed according to duration product given.
- **Infusion Over** will be automatically default to 24 hours but user is allow to change at this field.
- Select **Indication for PN** from the dropdown box.
- **Dispense Location** will be automatically default by system.
- Enter **Remarks** if applicable.

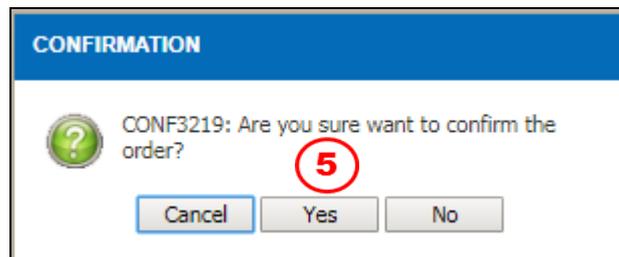


The screenshot shows the 'MEDICATION ORDER' interface. At the top, there's a patient selection dropdown with 'Patient MRN' 146L00000113 and 'Dispensing Location' Farnasi TPN. Below this is a patient profile card with details like Mykad, Age (51 Years 07 Months 23 Days), Gender (Male), and MRN (HKL00000115). The main area is titled 'VISIT/ADMISSION' and contains a 'VISIT RECORD' sidebar on the left with options like 'Patient Diagnosis', 'Allergy', 'Adverse Drug Reaction', etc. The 'Parenteral Nutrition' option is selected. The main content area is 'ADMINISTRATION INFO' with fields for Volume (1000 ml), Frequency (QD), Infusion Over (24 hours), Start Date/Time (27/03/2018 05:00 PM), and End Date/Time (30/03/2018 05:00 PM). Other fields include Indication for PN (Gastrointestinal), Infusion Line (Central), Order Quantity (1 BAG), and Dispense Location (Farnasi TPN). At the bottom right of this section, there are buttons for 'Clear', 'Draft', and 'Confirm'. A red circle with the number 4 is placed over the 'Confirm' button. Below the form is a 'PRESCRIPTION' table with columns for Drug, Volume, Order Qty, Order Details, Remarks, and Status.

Figure 4.5-6 Prescription

**STEP 4**

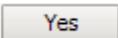
Click on the  button to confirm record order and alert message will be appeared as per Figure 4.5-7



The dialog box has a blue header with the text 'CONFIRMATION'. Below the header is a question mark icon followed by the text 'CONF3219: Are you sure want to confirm the order?'. At the bottom of the dialog, there are three buttons: 'Cancel', 'Yes', and 'No'. A red circle with the number 5 is placed over the 'Yes' button.

Figure 4.5-7 Information Alert Message

**STEP 5**

Click on the  button to confirm ordered saved and to verify PN Order screen will be appeared as per Figure 4.5-8

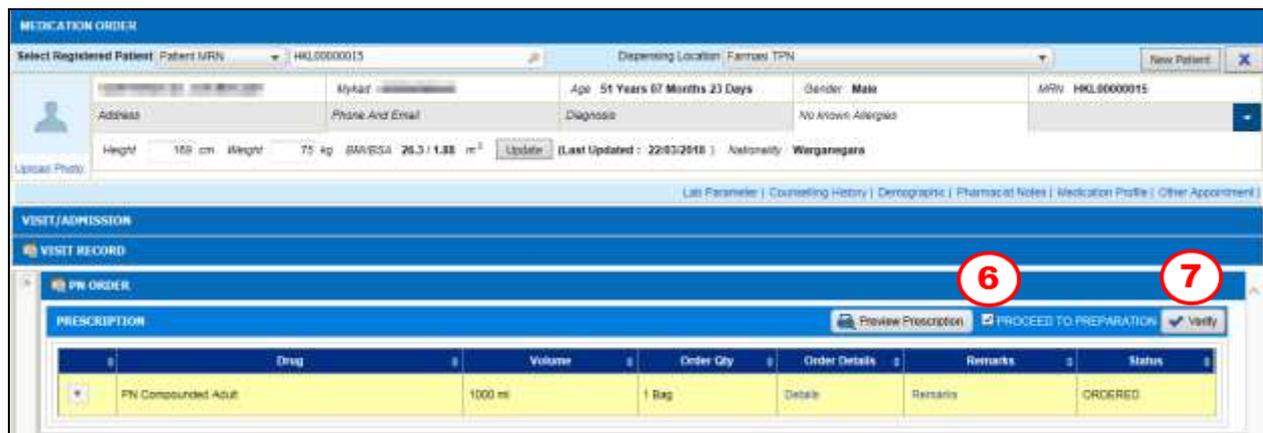


Figure 4.5-8 Prescription

**STEP 6**

Check the  **PROCEED TO PREPARATION** check box

**Note**

**PROCEED TO PREPARATION** button function will allow user to go to directly open preparation screen for each patient record.

**STEP 7**

Click on the  **Verify** button to verify the order and alert message will be displayed as per Figure 4.5-9

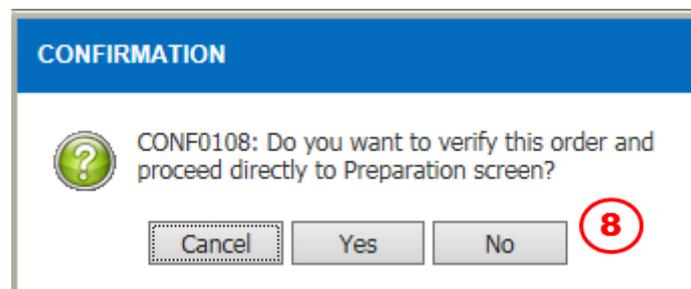


Figure 4.5-9 Information Alert Message

**STEP 8**

Click on the  **Yes** button to confirm the verification



PREPARE WORKSHEET

DETAIL

TRN volume: 2400 ml    Energy required: 0 kcal    Product category: 3 in 1 0 2 in 1

Macronutrient: Glucose 0 g    Vitamin Vitamin Solution 0 ml    Trace elements: 0 ml

Lipid 0 g    Water soluble 0 ml    Amino Acids: 0 g

Protein 0 g    Fat soluble 0 ml    L-Glutamine: 0 ml

Electrolytes: Sodium/Potassium, Na+ 80 mmol    Calcium/Ca2+ 6.75 mmol    Phosphate/PO4-C: 22.5 mmol

Potassium/Potassium, K+ 45 mmol    Magnesium/Mg+ 6.75 mmol

Item selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Osmolality (mOsmol)	Lipid (g)	Glucose (g)	Protein (g)	Acetate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
Potassium Dihydrogen Phosphate Injection	22.5	3 amp	3 amp	0	35.84	0	0	0	0	22.5	0	22.5	0	0	0
Sodium Chloride 3% 500ml IV soln	576.47	1 bott	1 bott	0	181.76	0	0	0	0	0	80	0	0	0	80
Potassium Chloride 1g/10ml inj	16.78	2 amp	2 amp	0	45.38	0	0	0	0	0	0	22.5	0	0	22.5
Calcium Gluconate 50% inj	30.68	4 amp	4 amp	0	20.52	0	0	0	0	0	0	0	6.75	0	6.75
Magnesium Sulphate 50% inj (48.2% Soln.)	3.38	1 amp	1 amp	0	13.52	0	0	0	0	0	0	0	0	6.75	6.75
Trace Elements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vitamin Solutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Soluble Vitamins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fat Soluble Vitamins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L-Glutamine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sterile Water for Inj 500ml	2150.15	5 bott	5 bott	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Preparation</b>	<b>2400</b>				<b>123.76</b>					<b>22.5</b>	<b>80</b>	<b>45</b>	<b>6.75</b>	<b>6.75</b>	<b>112.5</b>

Calculate

TOTAL CONTENT OF CALCIUM AND PHOSPHATE TO BE = 2MMOL/100ML    WPC to Rate: 0.1

TOTAL CONTENT OF MAGNESIUM AND CALCIUM TO BE = 2MMOL/100ML    Calcium + Phosphate = 1.22mmol/100ml

Calcium + Magnesium = 0.56mmol/100ml

Figure 4.5-12 Prepare Worksheet

**Note**

- Check on the  Auto Allocation checkbox.
- Click on the  button to save record.
- **Allocated Quantity** will be automatically calculated and displayed by system after click on the save button as per Figure 4.5-12.

PN PREPARATION

Prescription

MyKad: [redacted]    Age: 51 Years 07 Months 23 Days    Gender: Male    NPN: HKL00090415

Address: [redacted]    Phone And Email: [redacted]    Diagnosis: [redacted]    No known Allergies

Height: 160 cm    Weight: 75 kg    BMI/BMI: 26.3 / 1.88 m<sup>2</sup>    (Last Updated: 22/03/2018)    Nationality: Warganegara

Encounter No: 0001    Actual Admission Date: 22/03/2018    Ward Location: Ward SW28 (Pembastan Kelas 1)    Room No/Bed No: [redacted]    Rx No: SW28000017230    Order By: [redacted]    Transcribed By: [redacted]

PHARMACY ORDER

Prepared Date/Time: 27/03/2018 12:12 PM

PROCEED TO DISPENSING    Prepare    Worksheet    Label    Outsource

Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepara Worksheet	Remarks	Print Disp	Status
PN Compounded Adult	1000 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

Figure 4.5-13 PN Preparation

**STEP 10**

Click on the  Worksheet button to print Worksheet

**PARENTERAL NUTRITION WORKSHEET**  
**MINISTRY OF HEALTH**  
**HOSPITAL KUALA LUMPUR**

Patient Name		Worksheet	: A001-270318
MRN	HKL0000015	Prepared Date/Time	: 27/03/2018 12:18 PM
Ward/Bed No	Wed SW28 (Perubatan Kalas 1)	Prescription #	: SW28000317225
Age	51 Years 07 Months 23 Days		
Gender	Male		
Body Weight	75 kg		

DRUG NAME	VOLUME (ml)	QUANTITY	BATCH NO	COMPONENT DETAIL (PER DAY)
Smof Kabiven Central 1100kcal, 1.0L	986	1 bag	10KG7867	-
Potassium Chloride 1g/10ml Injection	23.13	3 ampoule	HAF60176 1	31 mmol
Trace Element - Paediatric (Peditrace) 10mL Inj	3	1 ampoule	12KKL99	3 ml
Vitamin B and C (Solvit N) in 10 ml WFI	5	1 vial	80IK537	5 ml
TPN Volume Bag	1017.13	1 Bag		

Worksheet Generated By :  Date : 27/03/2018

Worksheet and Label Checked By :  Supervised By :

Bag Prepared By :

Final Product Checked By :

**Figure 4.5-14 Sample PN Worksheet**

**Note**

Sample of PN Worksheet as per Figure 4.5-14.

**Edit Label**

- Click on the  button to edit label and **PN Edit Label** window will display as per Figure 4.5-16.
- Select the  **Select for print** radio button to print label.
- User is allowed to edit **Infusion Over**, **Date Prepared** and **Shelf Life** field.
- **Expiry Date** will be automatically displayed after enter the **Shelf Life** field.

**Drug Name, Total Volume, Infusion Rate and Batch No** will be automatically displayed by system.



**PN PREPARATION**

MyCard: [Redacted] Age: 51 Years 07 Months 23 Days Gender: Male MRN: HKL00099015

Address: [Redacted] Phone And Email: [Redacted] Diagnosis: [Redacted] No known Allergies

Height: 160 cm Weight: 75 kg BMI/BMI: 26.3 / 1.88 m<sup>2</sup> (Last Updated: 22/03/2018) Nationality: Warganegara

Encounter No: 0001 - Actual Admission Date: 22/03/2018 Visit Location: Ward SW28 (Penubatan Kelas 1) Room No/Bed No: [Redacted] Rx No: SW289990017238 Order By: [Redacted] Transcribed By: [Redacted]

Original Prescription Serial No: 78867

Prepared Date/Time: 27/03/2018 12:12 PM

**PHARMACY ORDER**

Prepared Date/Time: 27/03/2018 12:12 PM

**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Disp	Status
PN Compounded Adult	1000 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

Figure 4.5-17 PN Preparation

**STEP 11**

Click on the Prepare button to prepare PN order

**CONFIRMATION**

INFO0577: Please make sure already print worksheet and label before proceed to dispensing stage. Do you want to proceed with the preparation?

Cancel Yes No

Figure 4.5-18 Confirmation Alert Message

**STEP 12**

Click on the Yes button to confirm prepare order

**PN DISPENSING**

MyCard: [Redacted] Age: 51 Years 07 Months 23 Days Gender: Female MRN: HKL80133431

Address: [Redacted] Phone And Email: [Redacted] Diagnosis: [Redacted] No known Allergies

Height: 170 cm Weight: 4.13 kg BMI/BMI: 8.4 / 0.26 m<sup>2</sup> (Last Updated: ) Nationality: Warganegara

Encounter No: 0992 - Actual Admission Date: 14/03/2018 Visit Location: Ward KK4 Room No/Bed No: [Redacted] Rx No: KK48066017129 Order By: [Redacted] Transcribed By: [Redacted]

Original Prescription Serial No: 8110

Dispensed To: [Redacted] Dispensed Date and Time: 27/03/2018 12:27:53 PM Remarks: [Redacted]

Dispensed At: Pharmacy Counter Collected By: [Redacted]

**PHARMACY ORDER**

Dispensed To: [Redacted] Dispensed Date and Time: 27/03/2018 12:27:53 PM Remarks: [Redacted]

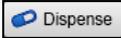
Dispensed At: Pharmacy Counter Collected By: [Redacted]

**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Prepared Qty	Prev Disp	Balance Qty	Remarks	Status	Completed
PN Compounded Adult	1000 ml	1 Bag	Details	1 Bag	0 Bag	1 Bag	Remarks	PREPARED	<input type="checkbox"/>

Figure 4.5-19 PN Dispensing

### STEP 13

Click on the  button and alert message will be displayed as per Figure 4.5-20

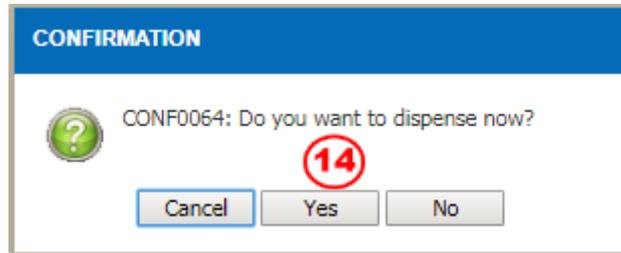
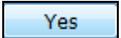


Figure 4.5-20 Confirmation Alert Message

### STEP 14

Click on the  button to confirm prepare order

#### **Note**

- User can **Hold/Resume** Order and **Release/Discard** order at dispensing activity.
- When release batch, drug and PN bag quantity will be returned back to inventory. When discard batch, drug and PN bag quantity will be deducted from inventory.
- Once drug already released or discarded, drug will be displayed back in Preparation screen for re-allocation of new batch qty.

## 4.6 Compounded (Paediatric)

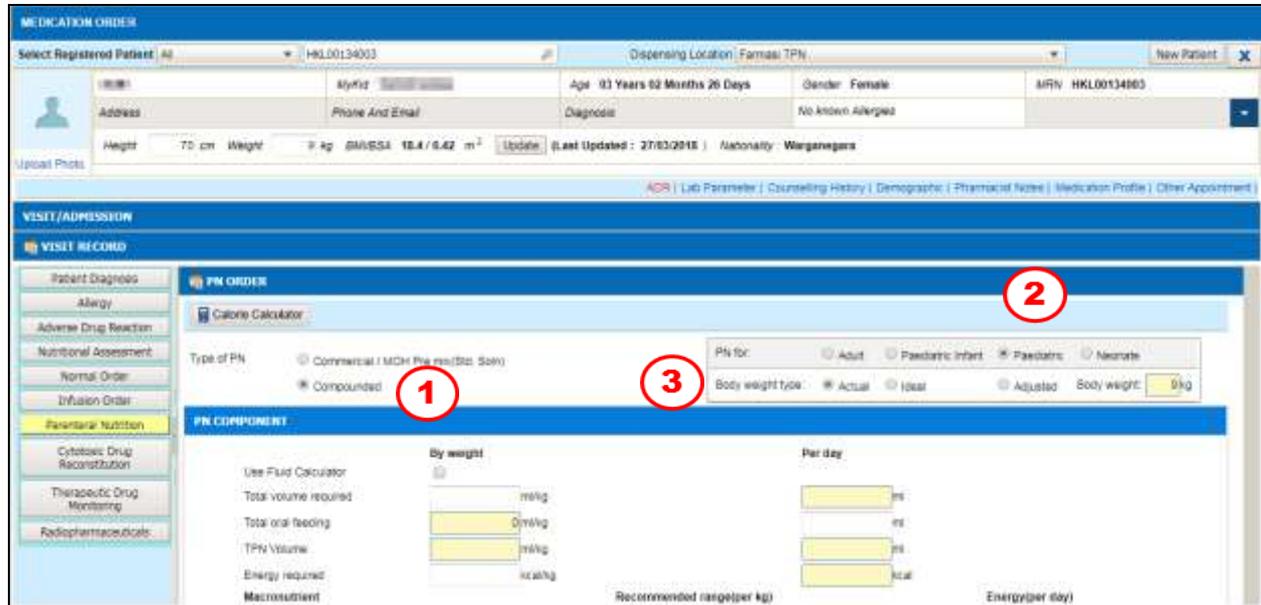


Figure 4.6-1 Medication Order

PN Compounded (Paediatric) allow user to order Parenteral Nutrition for patient between 3 years old to 12 years old.

### STEP 1

Select on  **Compounded** radio button for 'Type of PN'

### STEP 2

Select on  **Paediatric** radio button for 'PN for'

### STEP 3

Select on the 'Body weight type' radio button to use for calculation either as:

- Actual
- Ideal
- Adjusted

PN COMPONENT							
By weight		Per day		Energy(per day)			
Use Fluid Calculator	<input type="checkbox"/>						
Total volume required	260ml/kg		5200ml				
Total oral feeding	0ml/kg						
TPN Volume	260ml/kg		5200ml				
Energy required							
Macronutrient		Recommended range(per kg)					
Carbohydrate	g/kg	3.00 - 10.50g/kg	0g		0kcal		
Lipid	g/kg	1.00 - 2.00g/kg	20g		180kcal		
Protein	g/kg	1.00 - 3.00g/kg	20g		80kcal		
L-Glutamin	g/ml/kg	0.00 - 0.00ml/kg			0kcal		
Carbohydrate:Lipid(kcal)	0 : 100	Nitrogen Content	4g	NPC:NRatio	45 : 1	Total	260kcal
Electrolytes							
Sodium(Natrium),Na+	mmol/kg	1.00 - 3.00mmol/kg	20mmol				
Potassium(Kalium),K+	mmol/kg	1.00 - 3.00mmol/kg	40mmol				
Calcium,Ca2+	mmol/kg	0.50 - 1.25mmol/kg	20mmol				
Magnesium,Mg+	mmol/kg	0.15 - 0.25mmol/kg	3mmol				
Phosphate,(PO4)2-	mmol/kg	0.50 - 1.00mmol/kg	0mmol				
Chloride,Cl-	mmol/kg	2.00 - 5.00mmol/kg	0mmol				
Acetate(CH3COO)	mmol/kg	0.00 - 0.00mmol/kg	0mmol				
Trace elements	ml/kg	0.00 - 15.00ml					
Vitamin							
<input type="radio"/> Single Vitamin							
<input type="radio"/> Multi Vitamin							

Figure 4.6-2 Medication Order

**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.

**PN Component**

- Enter value for **Total volume required per day (ml)**.
- Value **By Weight** will automatically calculate and display after enter the **Total volume required per day (ml)**.
- Enter value for **Energy required By Weight (kcal/kg)**.
- Value **Per day** will automatically calculate and display after enter the **Energy required By Weight (kcal/kg)**.

**Macronutrient**

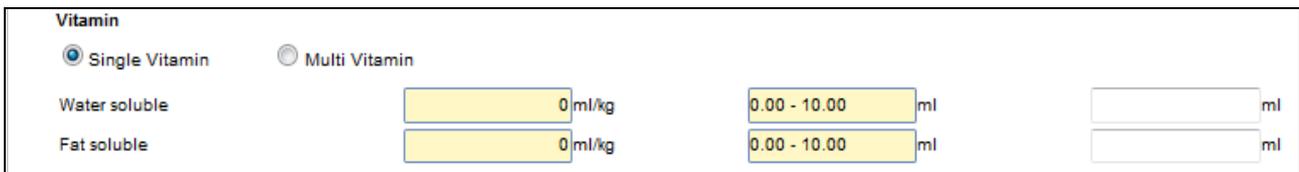
- Enter value of the **Macronutrient** that applicable for the **PN Component** .
- All entered value must between the **Recommended Range (per kg)**. User can still proceed if value is not within the recommended range.
- All value **Per day** and **Energy(per day)** will automatically calculate and display.

**L-Gutamin** is an optional function. Value of **By weight** and **Energy(per day)** will automatically display.

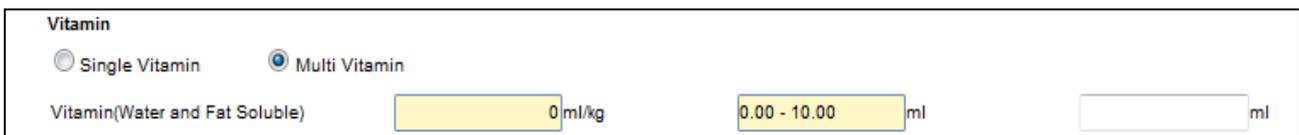
- Value of **Carbohydrate:Lipid(kcal) Content, Nitrogen and NPC:Ratio** will automatically calculate and display.
- Value of **Carbohydrate:Lipid(kcal) Content, Nitrogen and NPC:Ratio** will automatically calculate and display.

**Electrolytes**

- Enter value of the **Electrolytes** that applicable for the PN Component.
- All entered value must between the **Recommended Range (per kg)**. User can still proceed if value is not within the recommended range.
- **Chloride ,Cl<sup>-</sup>** and **Acetate (CH<sub>3</sub>COO)** is optional function.
- All value **Per day** will automatically calculate and display.
- Enter value of the **Trace elements Per day**.
- Value **By Weight** will automatically calculate and display after enter the **Trace elements Per day** value.



**Figure 4.6-3 Single Vitamin**



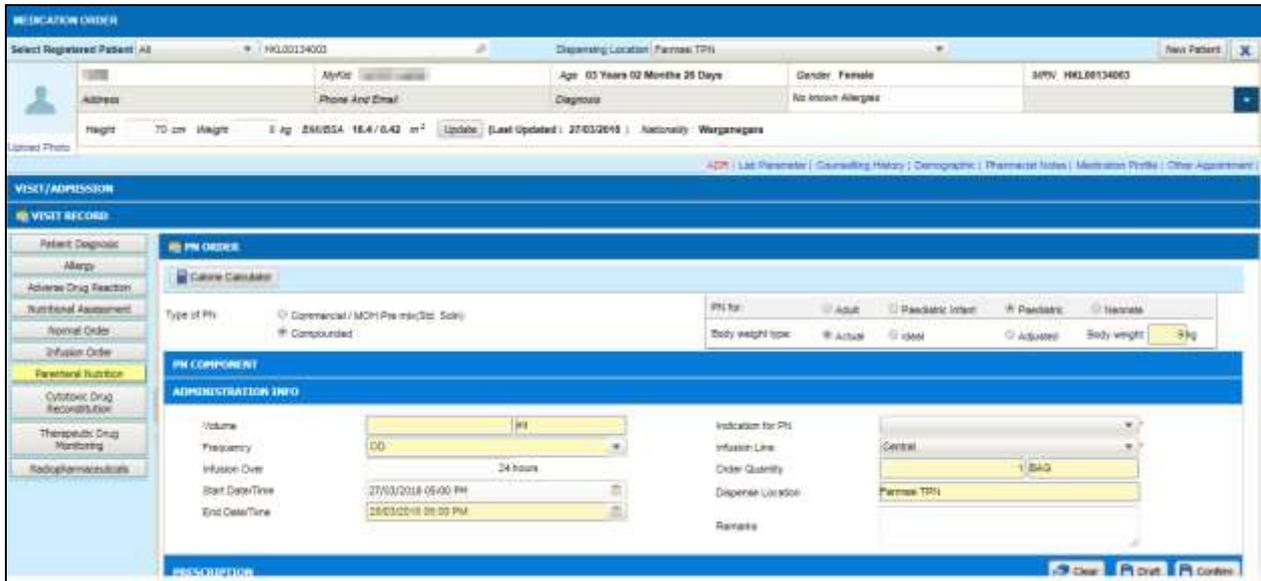
**Figure 4.6-4 Multi Vitamin**

**Note**

- Select either **Single Vitamin** or **Multivitamin** radio button.
- Vitamin have 2 types vitamin:
  - **Single Vitamin**
  - **Multi Vitamin**

If user select **Single Vitamin** radio button; **Water soluble** and **Fat soluble** field will automatically display by system as per Figure 4.6-3.

- If user select **Multi Vitamin** radio button; **Vitamin(Water and Fat Soluble)** field will automatically display by system as per Figure 4.6-4.



The screenshot displays the 'ADMINISTRATION INFO' section of the PhIS software. It includes fields for 'Volume', 'Frequency' (set to 'OD'), 'Infusion Over' (set to '24 hours'), 'Start Date/Time' (27/03/2018 09:00 PM), and 'End Date/Time' (28/03/2018 09:00 PM). Other fields include 'Indication for PN', 'Infusion Line' (set to 'Central'), 'Order Quantity' (set to '1 BAG'), and 'Dispense Location' (set to 'Farmas TR1').

Figure 4.6-5 Administration Info

**Note**

- **Volume** will be automatically displayed by system and user is not allow to change at this field.
- **Infusion Line** will be automatically default to **Central** but user is allow to change at this field and select type of **Infusion Line** from the dropdown box.
- **Frequency** and **Duration** field will be automatically displayed and user is not allow to change this field.
- Default value for:
  - **Frequency** : OD (daily)
  - **Duration** : 1 day
- **Start Date/Time** will be automatically default to current date but still can be change by the user if applicable.
- **End Date/Time** will be displayed according to duration product given.
- **Infusion Over** will be automatically default to 24 hours but user is allow to change at this field.
- Select **Indication for PN** from the dropdown box.
- **Dispense Location** will be automatically default by system.
- **Enter Remarks if applicable**



**PN COMPONENT**

**ADMINISTRATION INFO**

Volume: 3100 ml  
 Frequency: QD  
 Start Date/Time: 19/03/2015 05:00 PM  
 End Date/Time: 20/03/2015 05:00 PM  
 Order Quantity: 1 BAG  
 Remarks:

Indication for PN: Encephalopathy (risk for aspiration)  
 Infusion Line: Central  
 Duration: 1 Days  
 Infusion Over: 24hours  
 Dispense Location: Dispensary

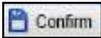
**PRESCRIPTION**

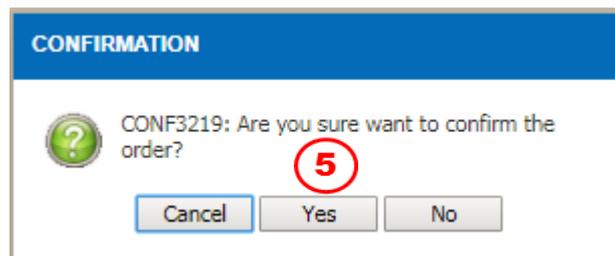
Preview Prescription Confirm Delete

Drug	Volume	Order Qty	Order Details	Remarks	Status
PH Compounded Paediatric	5200 ml	1 Bag	Details	Remarks	DRAFT

Figure 4.6-6 Prescription

**STEP 4**

Click on the  button to confirm record order and alert message will be appeared as per Figure 4.6-7



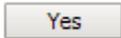
**CONFIRMATION**

CONF3219: Are you sure want to confirm the order?

Cancel Yes No

Figure 4.6-7 Prescription

**STEP 5**

Click on the  button to confirm order and to verify PN Order screen will be appeared as per Figure 4.6-8

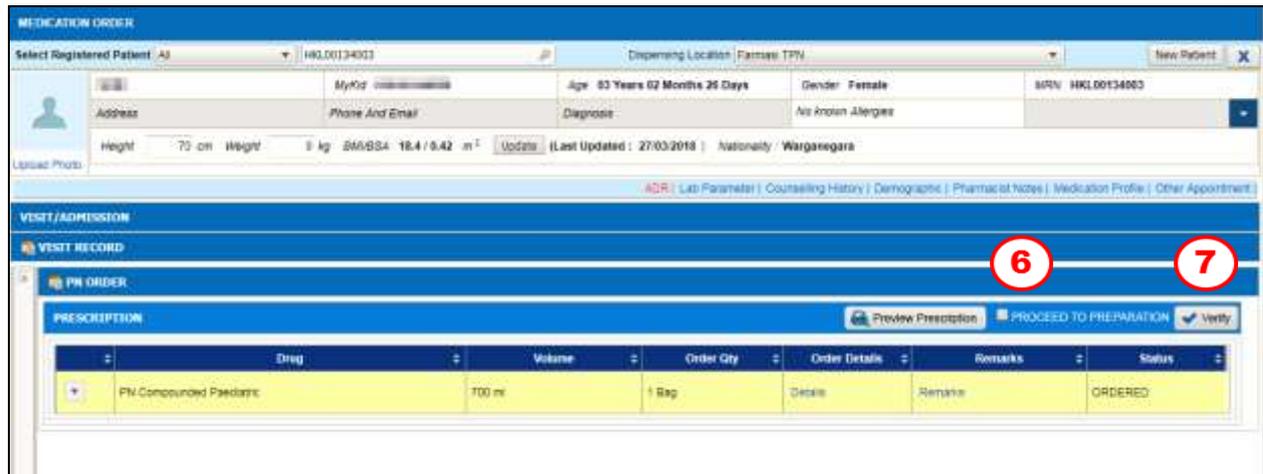


Figure 4.6-8 Medication Order : Verify

**STEP 6**

Check the  **PROCEED TO PREPARATION** check box

**Note**

**PROCEED TO PREPARATION** Function allows user to go to Preparation screen for each patient record.

**STEP 7**

Click on the  **Verify** button to verify the order and alert message will be displayed as per Figure 4.6-9

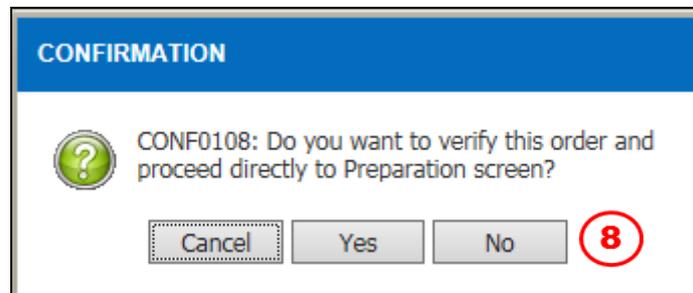


Figure 4.6-9 Confirmation Alert Message

**STEP 8**

Click on the  **Yes** button to confirm the verification and proceed straight to preparation screen

**PN PREPARATION**

Prescription

MyId: [redacted] Age: 83 Years 02 Months 25 Days Gender: Female MRN: HKL00134003  
 Address: [redacted] Phone And Email: [redacted] Diagnosis: [redacted] No Allergy Allergies: [redacted]

Height: 70 cm Weight: 9 kg BMI: 18.4 / 0.42 m<sup>2</sup> (Last Updated: ) Nationality: Warganegara

Encounter No: 0009 Actual Admission Date: 27/03/2018 Visit Location: Ward NW11B (Perubatan) Room No/Bed No: [redacted] Rx No: NW1090000317242 Order By: [redacted] Transcribed By: [redacted]

Original Prescription Serial No: 212424

**PHARMACY ORDER**

Prepared Date/Time: 27/03/2018 02:30 PM

**PRESCRIPTION** [PROCEED TO DISPENSING] [Prepare] [Worksheet] [Label] [Outsource]

Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Disp	Status
PN Compounded Paediatric	700 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

Figure 4.6-10 PN Preparation

**STEP 9**

Click on the **Prepare Worksheet** Details button to prepare worksheet as per Figure 4.6-11

**PREPARE WORKSHEET**

3 in 1  2 in 1

**DETAIL**

TFTO volume: 5200 ml Energy required: 260 kcal Product category: **10** 3 in 1 / 2 in 1

Macronutrient: Glucose 0 g Vitamin: [redacted] ml Trace elements: [redacted] ml Lipid Syringe: 100 ml  
 Lipid: 20 g Water soluble: [redacted] ml Aspartate: [redacted] mmol Volume without Lipid: 5100 ml  
 Protein: 20 g Fat soluble: [redacted] ml Overage volume: 0 ml Lipid Coverage: 0 ml

Electrolytes: Sodium (Natrium) (Na+) 20 mmol Calcium (Ca2+) 20 mmol Phosphate (PO4)3- 0 mmol  
 Potassium (Kalium) (K+) 40 mmol Magnesium (Mg+) 5 mmol

Item selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Osmolality (mOsmol)	Glucose (g)	Protein (g)	Aspartate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	180	1 bott	0	180	15	0	0	0	0	0	0	0	0	0
<b>Total Preparation</b>	<b>180</b>			<b>180</b>	<b>250</b>									

**PN Bag (Without lipid)**

Item selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Osmolality (mOsmol)	Glucose (g)	Protein (g)	Aspartate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	388.20	4 bott	0	80	158.2	0	20	0	0	0	0	0	0	0
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	39.22	1 bott	0	0	40.4	0	0	0	0	20	0	0	0	20
[redacted]	29.95	3 amp	0	0	90.88	0	0	0	0	0	40	0	0	40
[redacted]	60.91	10 amp	0	0	60.82	0	0	0	0	0	0	20	0	0
[redacted]	1.5	1 amp	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]	4832.24	15 bott	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Preparation</b>	<b>5100</b>			<b>80</b>	<b>47.47</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>40</b>	<b>20</b>	<b>0</b>	<b>40</b>

Figure 4.6-11 Prepare Worksheet

**STEP 10**

Select on the  3 in 1  2 in 1 radio button for product category

**Note**

**Section A:**

**Macronutrient, Vitamin and Electrolytes** will be automatically displayed by system based on prescription order.

**Section B:**

**Lipid Syringe table**

- Volume (ml), Order Quantity, Calorie (kcal), Osmolarity(mOsmol), Lipid and Total Preparation will be automatically calculated and displayed by system.
- Lipid Overage function provided.

**STEP 11**

Select the product for lipid preparation

**STEP 12**

Click on the  button to calculate PN content value

**Note**

All column in Section B will be updated.

**PN Bag (Without Lipid)table**

Volume (ml), Order Quantity, Content and Total Preparation will be automatically calculated and displayed by system. Overage bag function provided.

**STEP 13**

Select the product for PN bag preparation

**STEP 14**

Click on the  button to calculate PN content value

**Note**

Volume Calorie and Osmolarity will be calculated.

**Section C:**

**Overage Volume**

- Enter the excess amount for PN bag preparation.

Eg:

Ordered volume for PN bag = 5200ml.

Pharmacy to prepare = 5200ml.

Overage volume PN bag = 20ml.

- Click on the  button on PN Bag table

**Lipid Overage Volume**

- Enter excess amount for Lipid Syringe preparation.

Click on the  button on Lipid Syringe table.

Figure 4.6-12 Prepare Worksheet

**STEP 15**

Check on the  Auto Allocation checkbox

**STEP 16**

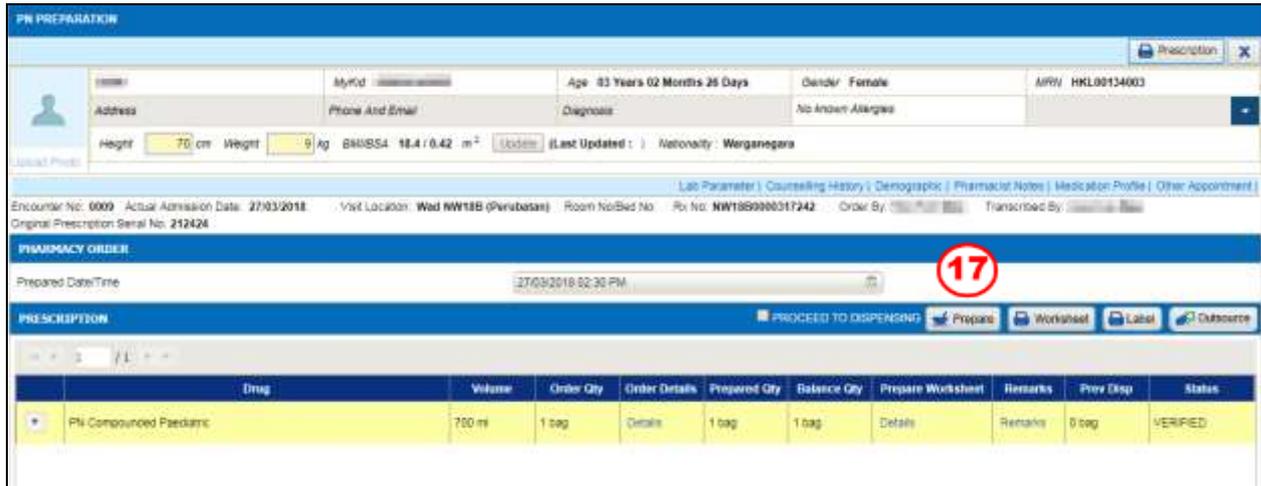
Click on the button to save record

Item selected	Volume (ml)	Order Quantity	Allocated Quantity	Calorie (kcal)	Density (g/cm <sup>3</sup> )	Glucose (g)	Protein (g)	Acetate (mmol)	Phosphate (mmol)	Sodium (mmol)	Potassium (mmol)	Calcium (mmol)	Magnesium (mmol)	Chloride (mmol)
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Andro soln 6.53% (Vitaminol) 100ml IV Soln	306.25	4 bott	1.50lt	80	196.2	0	20	0	0	0	0	0	0	0
Fat emulsion, Intralipid 20% 250ml IV Soln	100	1 bott	1	100	1	0	0	0	0	0	0	0	0	0
Sodium Chloride 2% 500mL IV soln	18.22	1 bott	7.10lt	0	40.4	0	0	0	0	20	0	0	0	0
Potassium Chloride 1g/10ml Inj	29.85	3 amp	0	0	80.68	0	0	0	0	0	40	0	0	0
Calcium Gluconate 10% Inj	98.91	10 amp	0.5 amp	0	80.82	0	0	0	0	0	0	20	0	0
Magnesium Sulphate 50% Inj (40.35/5mL)	1.3	1 amp	0	0	0	0	0	0	0	0	0	0	0	0
Trace Elements	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water For Injection	4832.24	18 bott	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Preparation</b>	<b>5100</b>			<b>80</b>	<b>67.47</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>40</b>	<b>20</b>	<b>0</b>	<b>0</b>

Figure 4.6-13 Prepare Worksheet

**Note**

- **Allocated Quantity** column will be automatically calculated and displayed by system as per Figure 4.6-13.
- Click on the Worksheet and Label button to generate worksheet and label as in Compounded Adult



**PN PREPARATION**

Encounter No: 0009 Actual Admission Date: 27/03/2018 Visit Location: Ward NW118B (Peribastan) Room No/Bed No: Rm No: NW1090000317242 Order By: Transcribed By:

Original Prescription Serial No: 212424

Prepared Date/Time: 27/03/2018 02:30 PM

**PHARMACY ORDER**

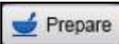
Prepared Date/Time: 27/03/2018 02:30 PM

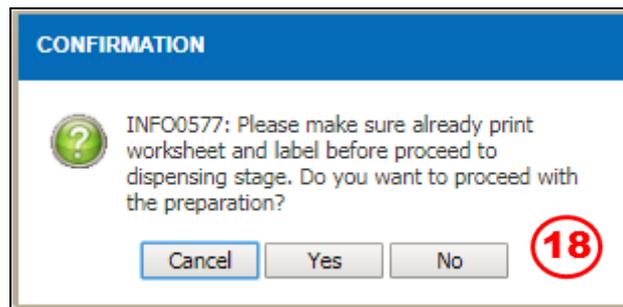
**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Disp	Status
PN Compounded Pediatric	700 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

Figure 4.6-14 PN Preparation

**STEP 17**

Click on the  button to prepare PN order



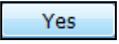
**CONFIRMATION**

INFO0577: Please make sure already print worksheet and label before proceed to dispensing stage. Do you want to proceed with the preparation?

Cancel Yes No

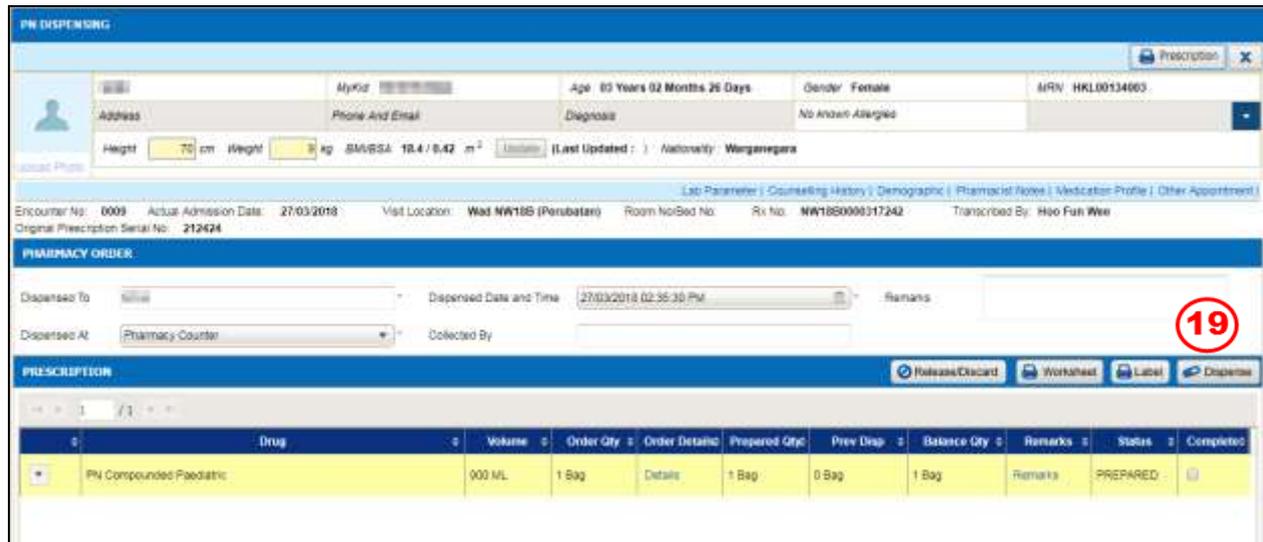
Figure 4.6-15 Confirmation Alert Message

**STEP 18**

Click on the  button to confirm prepare order

**Note**

*Proceed to Dispensing function will allowed user to go next stage screen for each patient record.*



**PN DISPENSING**

MyKad: [REDACTED] Age: 83 Years 02 Months 26 Days Gender: Female MRN: HKL00134063

Address: [REDACTED] Phone And Email: [REDACTED] Diagnosis: No Known Allergies

Height: 70 cm Weight: 5 kg BMI/BSA: 18.4 / 0.42 m<sup>2</sup> (Last Updated: ) Nationality: Warganegara

Encounter No: 0009 Actual Admission Date: 27/03/2018 Visit Location: Wad NW18S (Perubatan) Room No/Bed No: Rm No: NW18S0000317242 Transcribed By: Hoo Fun Wei

**PHARMACY ORDER**

Dispensed To: [REDACTED] Dispensed Date and Time: 27/03/2018 02:55:30 PM Remains: [REDACTED]

Dispensed At: Pharmacy-Counter Collected By: [REDACTED]

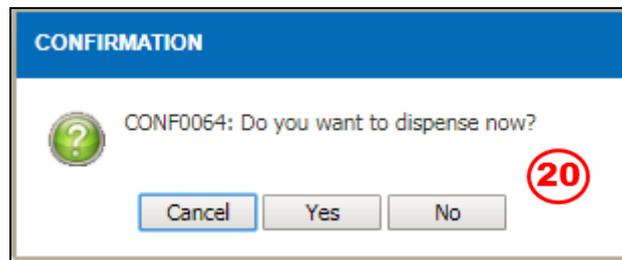
**PRESCRIPTION**

Drug	Volume	Order Qty	Order Details	Prepared Qty	Prev Disp	Balance Qty	Remarks	Status	Completed
PN Compounded Paediatric	900 ML	1 Bag	Details	1 Bag	0 Bag	1 Bag	Remarks	PREPARED	<input type="checkbox"/>

Figure 4.6-16 PN Dispensing

**STEP 19**

Click on the  button and alert message will be displayed as per Figure 4.6-17



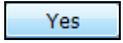
**CONFIRMATION**

CONF0064: Do you want to dispense now?

Cancel Yes No

Figure 4.6-17 Confirmation Alert Message

**STEP 20**

Click on the  button to confirm prepare order

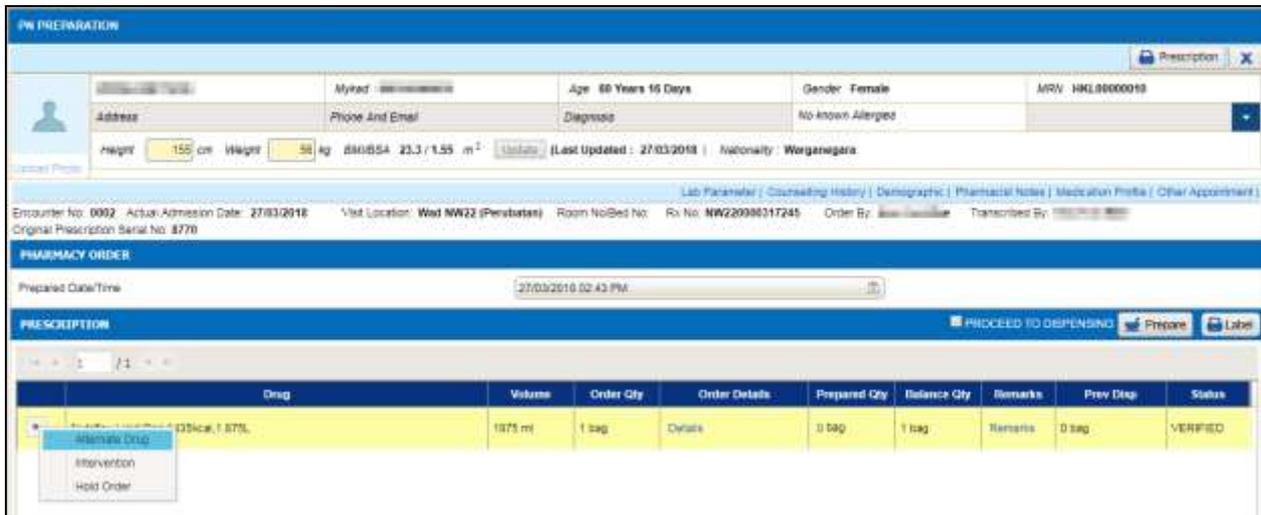
**Note**

- User only can do **Hold/Resume** Order at dispensing activity.
- When release batch, drug and PN bag quantity will be returned back to inventory. When discard batch, drug and PN bag quantity will be deducted from inventory.
- Once drug already released or discarded, drug will be displayed back in Preparation screen for re-allocation of new batch qty.
- PN Compounded (Paediatric Infant) allow user to order Parenteral Nutrition for patient between 31 days old to 2 years old.
- PN Compounded (Neonate) allow user to order Parenteral Nutrition for patient between 1 day old to 30 days old.
- If PN order is for paediatric, paediatric infant or neonate, product category will default to 2 in 1.

**Pediatric Infant or Neonate**

Please repeat section 4.6 from **STEP 1** until **STEP 23** for medication order, verify, preparation and dispensing process.

## 4.7 Alternate Drug



**PN PREPARATION**

Myriad  Age: 60 Years 16 Days Gender: Female MRN: HKL0000010

Address:  Phone And Email:  Diagnosis:  No known Allergies

Height: 155 cm Weight: 56 kg BMI: 23.3 / 1.55 m<sup>2</sup> (Last Updated: 27/03/2016) Nationality: Wargenegera

Encounter No: 0002 Actual Admission Date: 27/03/2016 Ward Location: Wad NW22 (Pembatahan) Room No/Bed No: Rm No: NW22090017245 Order By:  Transcribed By:

Original Prescription Serial No: 8770

Prepared Date/Time: 27/03/2016 02:43 PM

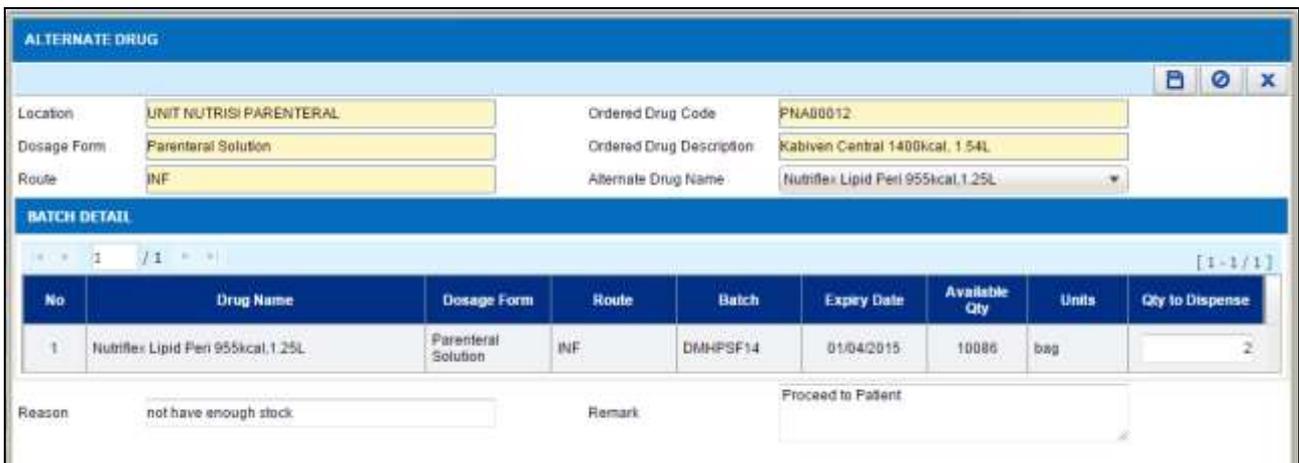
Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Remarks	Prev Disp	Status
<input type="text"/> <ul style="list-style-type: none"> <li>Alternate Drug</li> <li>Intervention</li> <li>Hold Order</li> </ul>	1075 ml	1 bag	Details	0 bag	1 bag	Remarks	0 bag	VERIFIED

Figure 4.7-1 PN Preparation

### Note

#### Alternate Drug:

- Click on the  button to select **Alternate Drug** as per Figure 4.7-1.
- **Alternate Drug** function only can be used in Commercial preparation stage of the drug.
- Select the **Alternate Drug Name** from dropdown box as per Figure 4.7-2.
- List of drug are from unit catalog list.
- Enter **Qty to Dispense** field as per Figure 4.7-2.
- Enter **Reason** field if applicable as per Figure 4.7-2.
- Enter **Remark** field if applicable as per Figure 4.7-2.
- Click on the  button to save record and alert message will be appeared as per Figure 4.7-3.



**ALTERNATE DRUG**

Location: UNIT NUTRISI PARENTERAL Ordered Drug Code: PHIA0012

Dosage Form: Parenteral Solution Ordered Drug Description: Kabiven Central 1400kcal, 1.54L

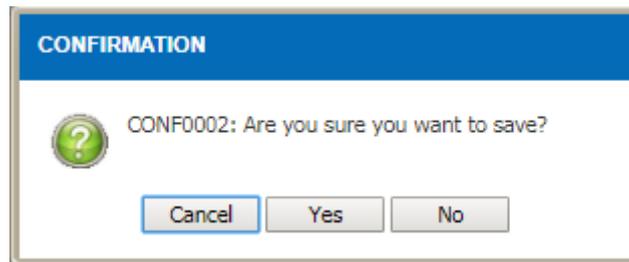
Route: INF Alternate Drug Name: Nutriflex Lipid Peri 955kcal, 1.25L

**BATCH DETAIL**

No	Drug Name	Dosage Form	Route	Batch	Expiry Date	Available Qty	Units	Qty to Dispense
1	Nutriflex Lipid Peri 955kcal, 1.25L	Parenteral Solution	INF	DMHPSF14	01/04/2015	10086	bag	2

Reason: not have enough stock Remark: Proceed to Patient

Figure 4.7-2 Alternate Drug

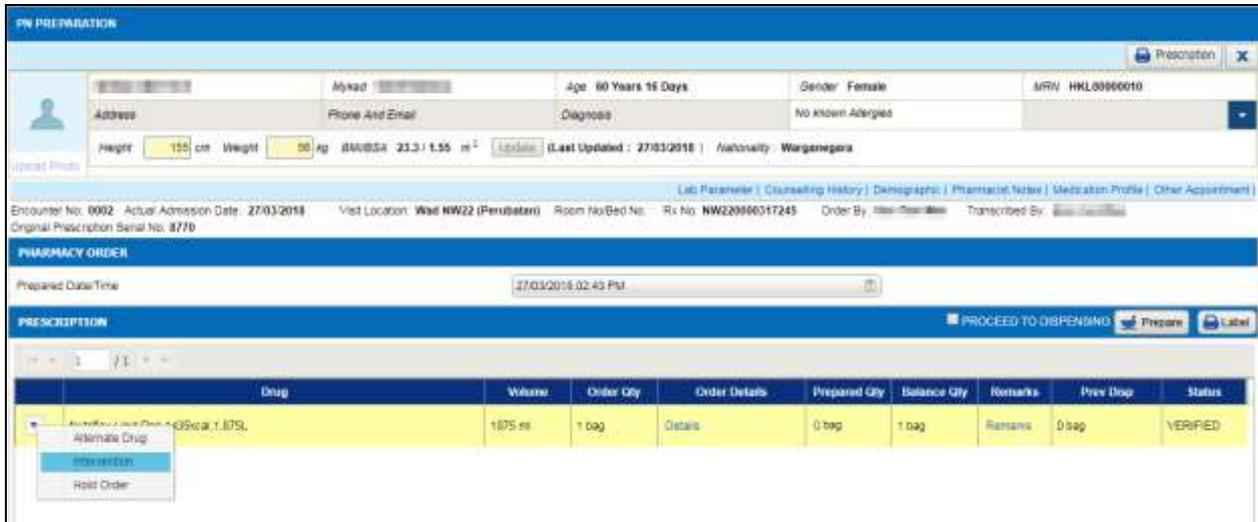


**Figure 4.7-3 Confirmation Alert Message**

**Note**

Click on the  button to confirm save record.

## 4.8 Intervention



The screenshot displays the 'PN PREPARATION' interface. At the top, there are fields for patient identification: Mykad, Age (60 Years 16 Days), Gender (Female), and MRN (HKL00960010). Below this, there are fields for Address, Phone And Email, Diagnosis, and No Known Allergies. A 'Height' field is set to 155 cm and 'Weight' to 50 kg. A 'Last Updated' timestamp is 27/03/2016. The 'PHARMACY ORDER' section shows a 'Prepared Date/Time' of 27/03/2016 02:43 PM. The 'PRESCRIPTION' table has one entry with a status of 'VERIFIED'. A dropdown menu is open over the first row, showing options: 'Alternate Drug', 'Intervention', and 'Hold Order'.

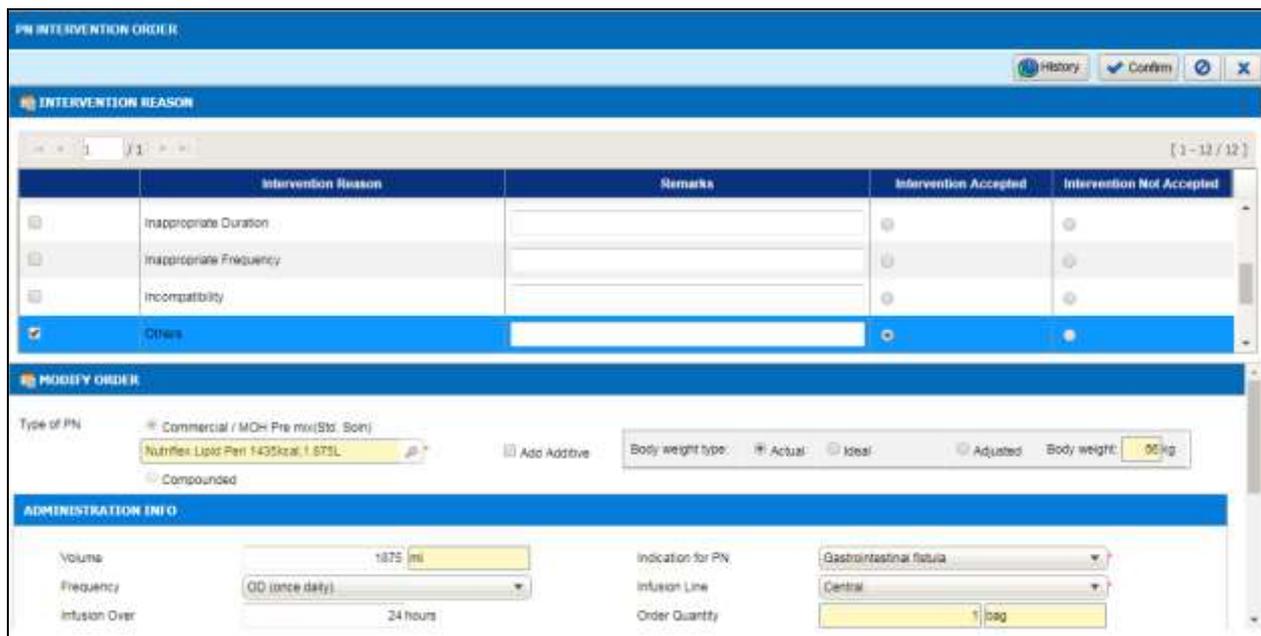
Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Remarks	Prev Disp	Status
Amikacin 0.5g/50ml, 1.875L	1875 ml	1 bag	Details	0 bag	1 bag	Remains	0 bag	VERIFIED

Figure 4.8-1 PN Preparation

### Note

#### Intervention:

- Click on the  button to select **Intervention** as per Figure 4.8-1 to modify drug details as per Figure 4.8-2.
- PN Intervention Order screen include three sections:
  - a) Pharmacy Remarks
  - b) Administration Information
  - c) Prescription

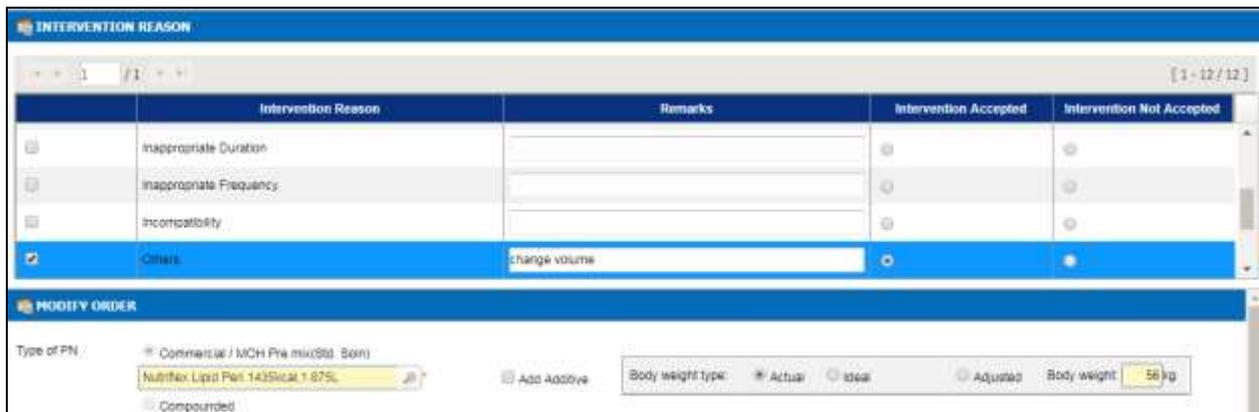


Intervention Reason	Remarks	Intervention Accepted	Intervention Not Accepted
Inappropriate Duration		<input type="radio"/>	<input type="radio"/>
Inappropriate Frequency		<input type="radio"/>	<input type="radio"/>
Incompatibility		<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Others		<input type="radio"/>	<input type="radio"/>

Figure 4.8-2 PN Preparation Intervention

**Note**

- Check on the  **Intervention Reason** checkbox as appropriate and enter **Remarks** field if applicable.
- Select  **Intervention Accepted** radio button or **Intervention Not Accepted** radio button.
- **Administration Information** section user is allowed to modify **Volume**, **Frequency**, **Duration** and **Infusion Over** field.
- Click on the  button to update back prescription details.



Intervention Reason	Remarks	Intervention Accepted	Intervention Not Accepted
Inappropriate Duration		<input type="radio"/>	<input type="radio"/>
Inappropriate Frequency		<input type="radio"/>	<input type="radio"/>
Incompatibility		<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Others	change volume	<input type="radio"/>	<input type="radio"/>

Figure 4.8-3 PN Intervention Order

**Note**

- Click on the  button to save record as per Figure 4.8-3 and alert message will be displayed as per Figure 4.8-4. Click on the  button to save record.

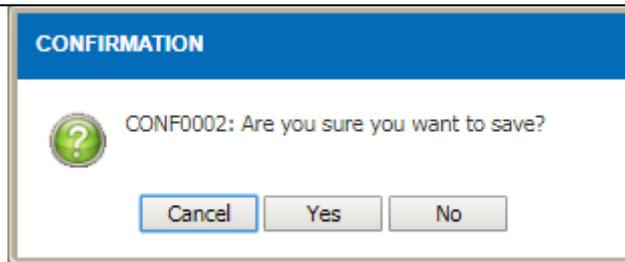


Figure 4.8-4 Confirmation Alert Message

**Note**

- Click on the  button to save record.
- Click on the  button to view history of Intervention reason history listing as per Figure 4.8-5.
- Click on the  button to close Intervention Reason History Listing screen.

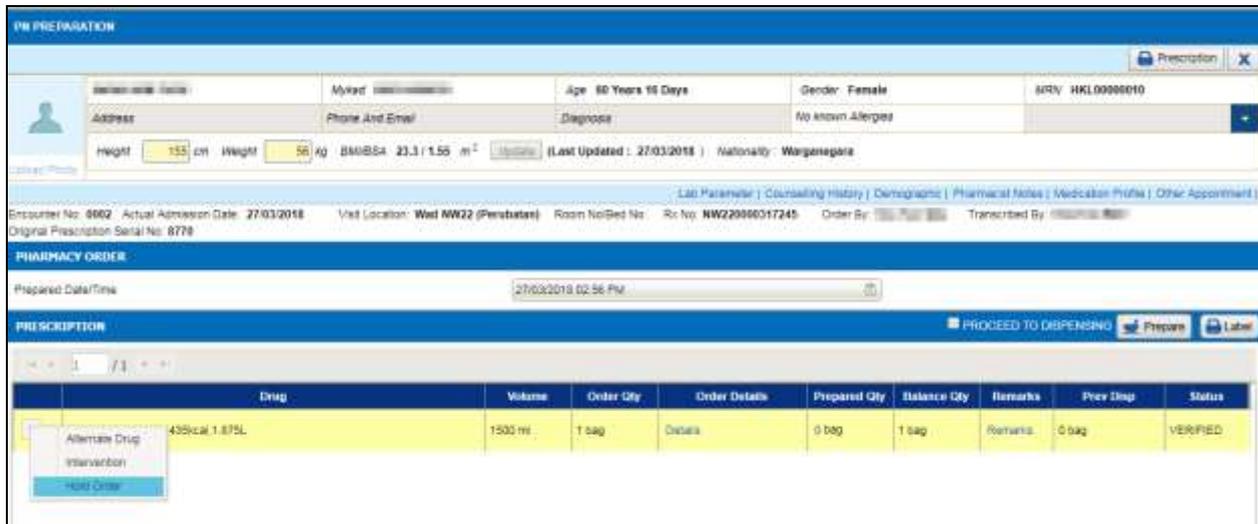


INTERVENTION REASON HISTORY LISTING

Date/Time	Intervention Reason	Remarks	Updated By
12/20/2012 10:00:00 AM	Others	change volume	

Figure 4.8-5 Intervention Reason history

## 4.9 Hold/Resume PN Order



The screenshot displays the 'PN PREPARATION' interface. At the top, there are fields for patient information: MyKad, Age (80 Years 16 Days), Gender (Female), and a unique ID (HKL00000010). Below this, there are fields for Address, Phone And Email, Diagnose, and No known Allergies. A summary bar shows Height (155 cm), Weight (55 kg), BMI/BGA (23.3 / 1.55 m<sup>2</sup>), Last Updated (27/03/2018), and Nationality (Warganegara). A navigation bar includes links for Lab Parameter, Counseling History, Demographics, Pharmacial Notes, Medication Profile, and Other Appointment. Below this, encounter and prescription details are shown: Encounter No: 0002, Actual Admission Date: 27/03/2018, Visit Location: Ward NW22 (Peristasis), Room No/Bed No, Rx No: NW22000017245, Order By, and Transcribed By. The 'PHARMACY ORDER' section shows the Prepared Date/Time as 27/03/2018 02:56 PM. The 'PRESCRIPTION' section features a 'PROCEED TO DISPENSING' button and 'Prepare' and 'Label' buttons. A table lists the prescription details:

	Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Remarks	Prev Disp	Status
	435ical 1.875L	1500 ml	1 bag	Details	0 bag	1 bag	Remarks: 0 bag		VERIFIED

A dropdown menu is open over the first row of the table, showing options: 'Alternate Drug', 'Intervention', and 'Hold Order'.

Figure 4.9-1 PN Preparation

### Note

#### Hold/Resume PN Order:

- Click on the  button to select **Hold Order** and **Hold Order** screen will be appeared as per Figure 4.9-1.
- Select the **Hold Reason** from dropdown box:
  - Authenticity
  - Contraindication
  - Drug Interaction
  - Inappropriate Dose
  - Inappropriate Drug
  - Inappropriate Duration
  - Inappropriate Frequency
  - Incompatibility
  - Intervention
  - Others
  - Polypharmacy
  - Suggest to Monitor Vital Signs/Lab Result
  - Wrong Patient
- **Other Reason** field will activate if user select hold reason as **Others**.

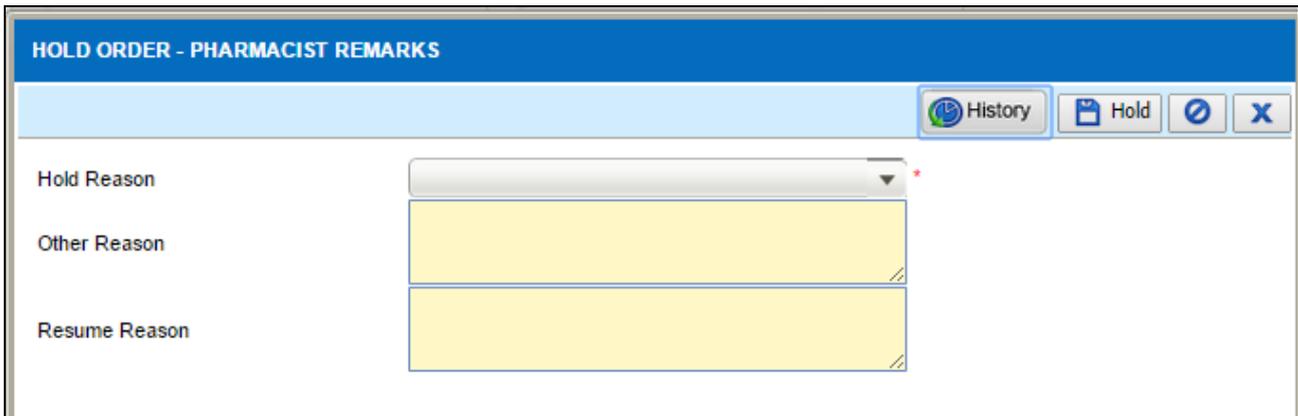


Figure 4.9-2 Hold Order-Pharmacy Remarks

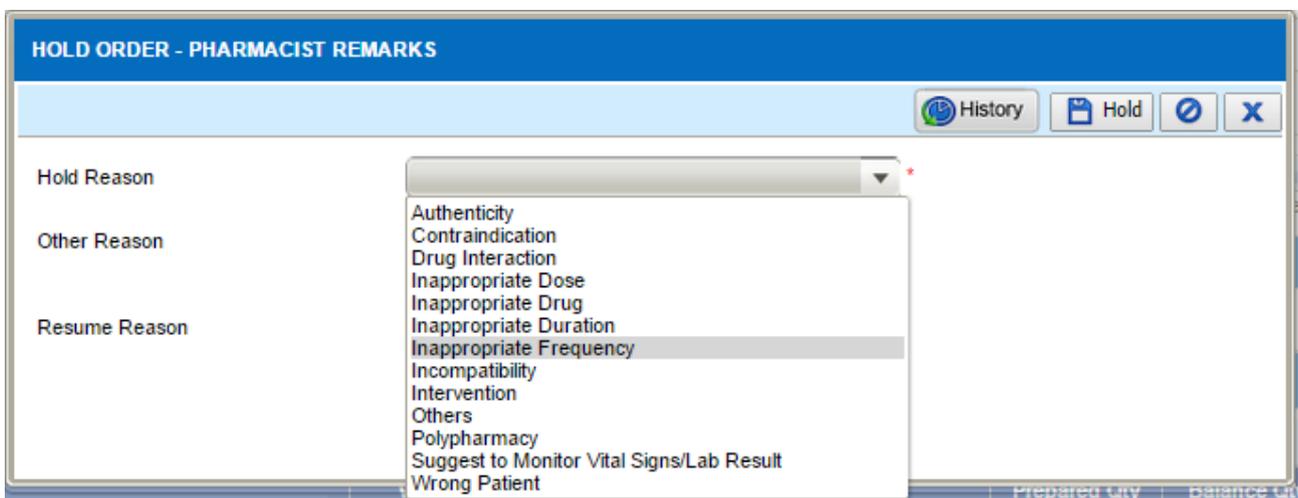
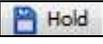


Figure 4.9-3 Hold Order-Pharmacy Remarks

**Note**

- Click on the  button to hold order.
- Click on the  button to confirm save record.

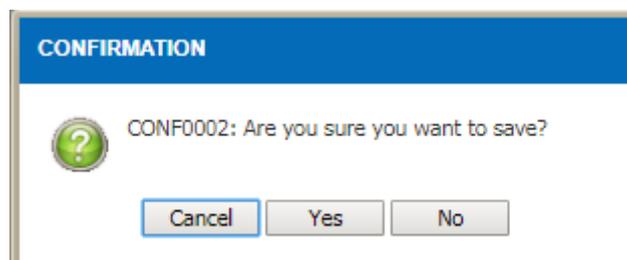
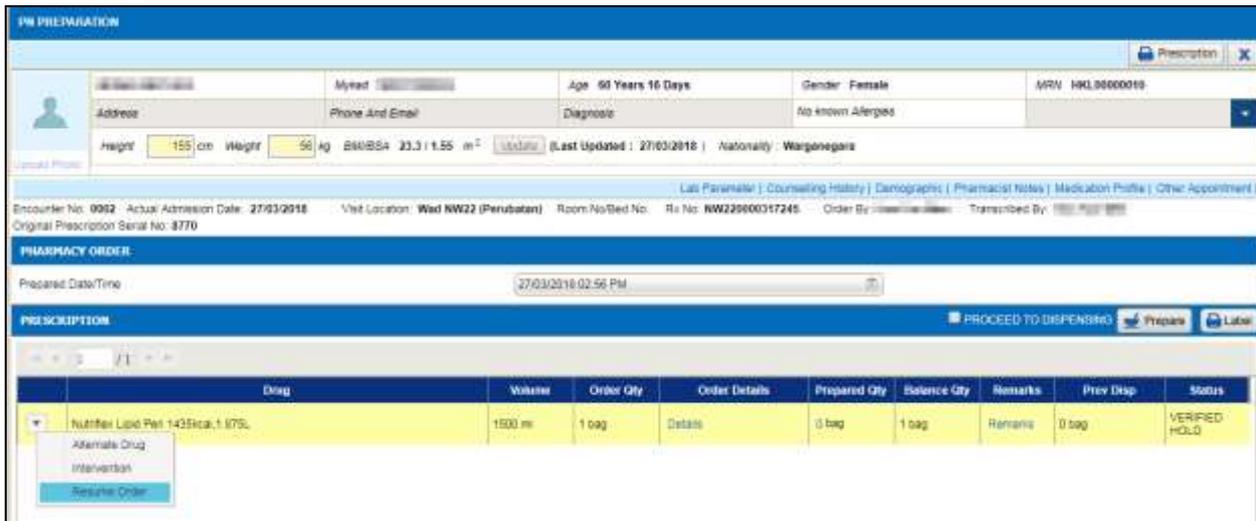


Figure 4.9-4 Confirmation Alert Message



**PN PREPARATION**

Myrac: [Redacted] Age: 60 Years 16 Days Gender: Female MRN: HKL90000019

Address: [Redacted] Phone And Email: [Redacted] Diagnose: [Redacted] No known Allergies

Height: 155 cm Weight: 56 kg BMI: 23.3 | 1.55 m<sup>2</sup> (Last Updated: 27/03/2018) Nationality: Wargenegara

Encounter No: 0002 Actual Admission Date: 27/03/2018 Ward Location: Ward NW22 (Perubatan) Room/No/Bed No: [Redacted] Rx No: NW22000037245 Order By: [Redacted] Transcribed By: [Redacted]

**PHARMACY ORDER**

Prepared Date/Time: 27/03/2018 02:56 PM

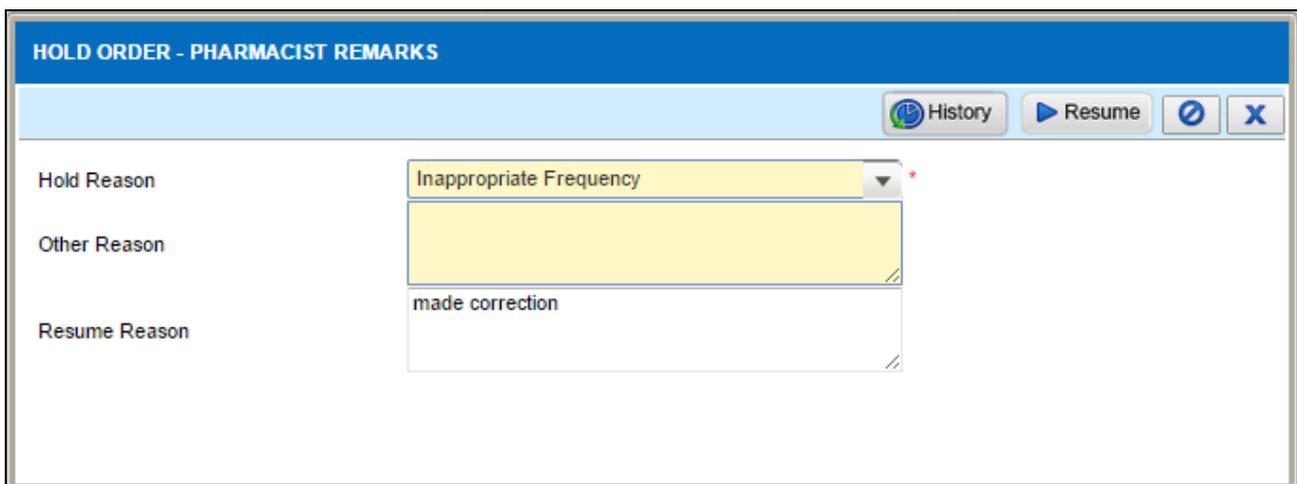
**PRESCRIPTION**

Diag	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Remarks	Prev Disp	Status
Nutrient Lipid Pnl 1435 kcal, 1.875L	1500 ml	1 bag	Details	0 bag	1 bag	Remarks	0 bag	VERIFIED HOLD

Figure 4.9-5 PN Preparation

**Note**

- Click on the  button to select 'Resume Order' as per Figure 4.9-5.



**HOLD ORDER - PHARMACIST REMARKS**

History Resume [Close] [X]

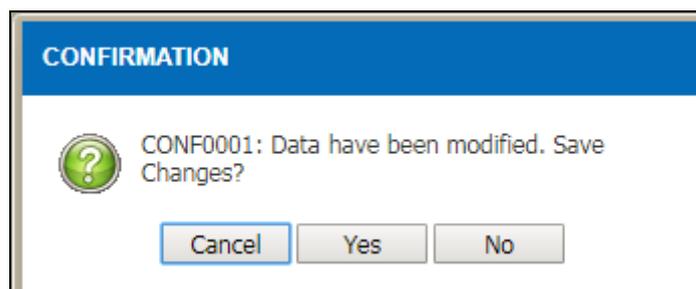
Hold Reason: Inappropriate Frequency \*

Other Reason: [Empty text area]

Resume Reason: made correction

Figure 4.9-6 Hold Order-Pharmacist Remarks

- Click on the  button to resume hold order as per Figure 4.9-6.
- Click on the  button to close window and alert message will be displayed as per Figure 4.9-7.



**CONFIRMATION**

CONF0001: Data have been modified. Save Changes?

Cancel Yes No

Figure 4.9-7 Confirmation Alert Message

**Note**

- Click on the  button to confirm save record.
- Click on the  button as per Figure 4.9-8 to view history of hold order reason history listing 4.9-9.



Date/Time	Screen	Hold Reason	Remarks	Resume Remarks	Updated By
20/03/2015 09:42 AM	Preparation	Inappropriate Frequency			Shantasaroopini a/p Sathia Moorthy

**Figure 4.9-8 Hold Order Reason History Listing**

## 5.0 Manage Prescription

### 5.1 Cancel/Stop Order

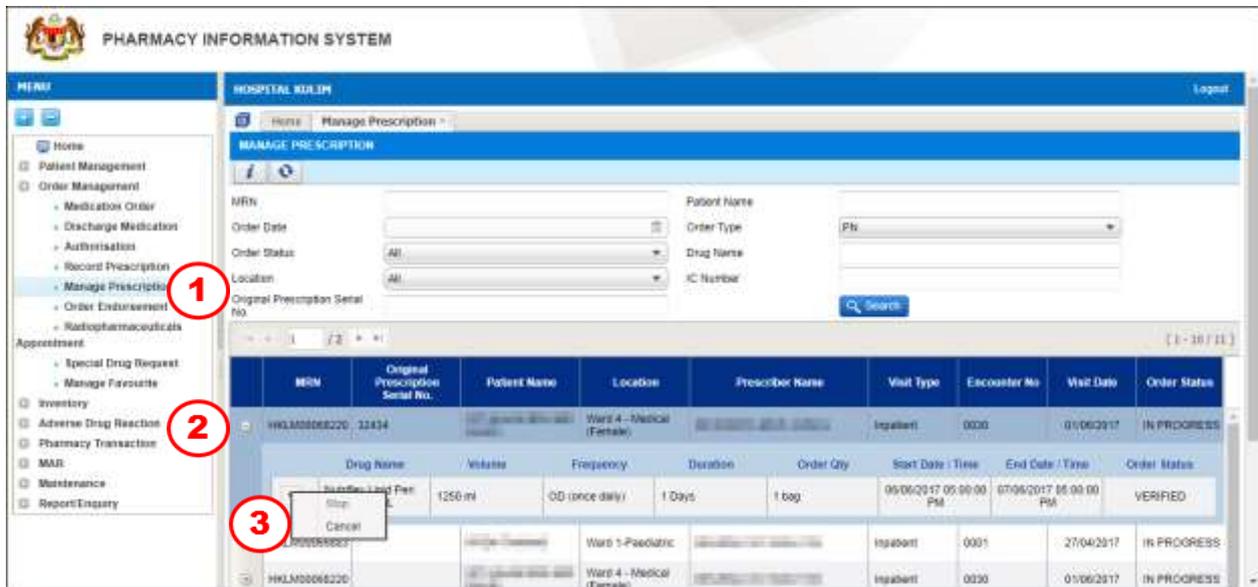


Figure 5.1-1 Manage Prescription - stop/cancel order

Cancel and Stop Order screen allow user to cancel and stop prescription which is wrongly prescribe or need to stop the medication

#### STEP 1

Click on 'Order Management' menu and click on 'Manage Prescription' sub-menu

#### Note

- Prescriber have the options to view patient by click the check box :-
  - a) Show All
- By default list of patient will be displayed according to prescriber location access.
- Various search criteria is provided as below:
  - a) MRN
  - b) Patient Name
  - c) Order Date
  - d) Order Type
  - e) Order Status
  - f) Drug name
  - g) Location

#### STEP 2

Click on the  expand button to display order details as per Figure 5.1-1

### STEP 3

Right click mouse on the  button and select 'Cancel' as per Figure 5.1-1

#### Note

- Select 'Cancel' function to cancel order that have not yet been dispensed to patient and system will display 'Cancel Reason' screen as per Figure 5.1-2.
- Enter reason for cancel order and click on the  Save button to save record.
- Select 'Stop' function to stop order that has dispensed to patient as per Figure 5.1-1.

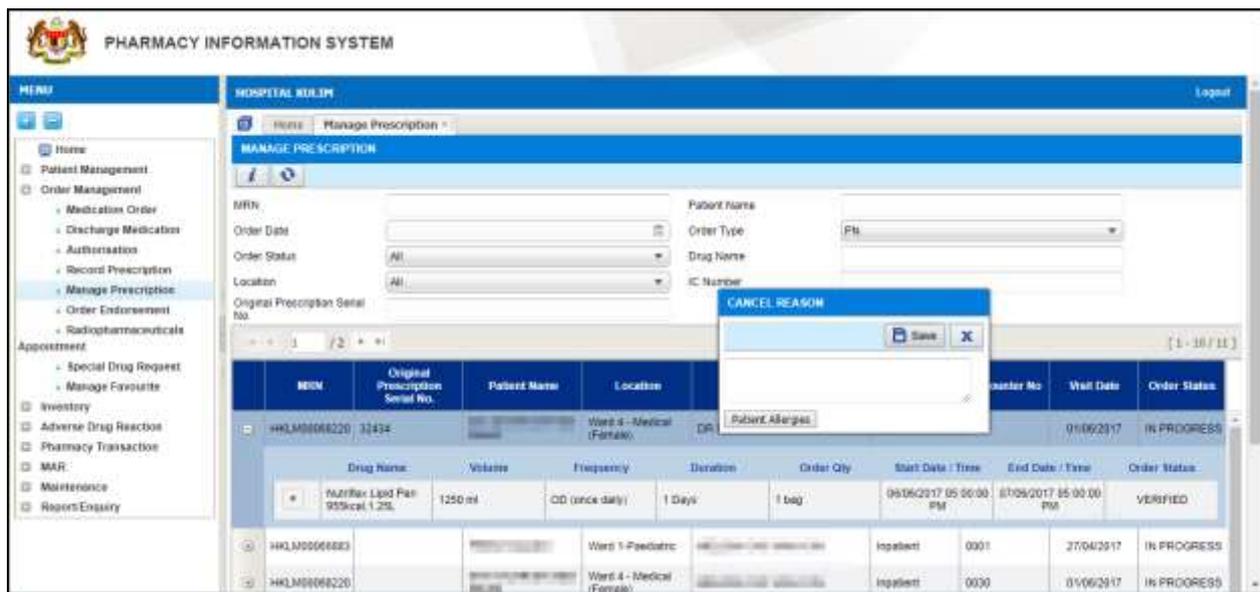


Figure 5.1-2 Cancel reason

## 6.0 Release/Discard Batch

### Note

- Release function is to release and update back stock into inventory.
- Discard function is to discard stock from inventory even not doing dispensing.

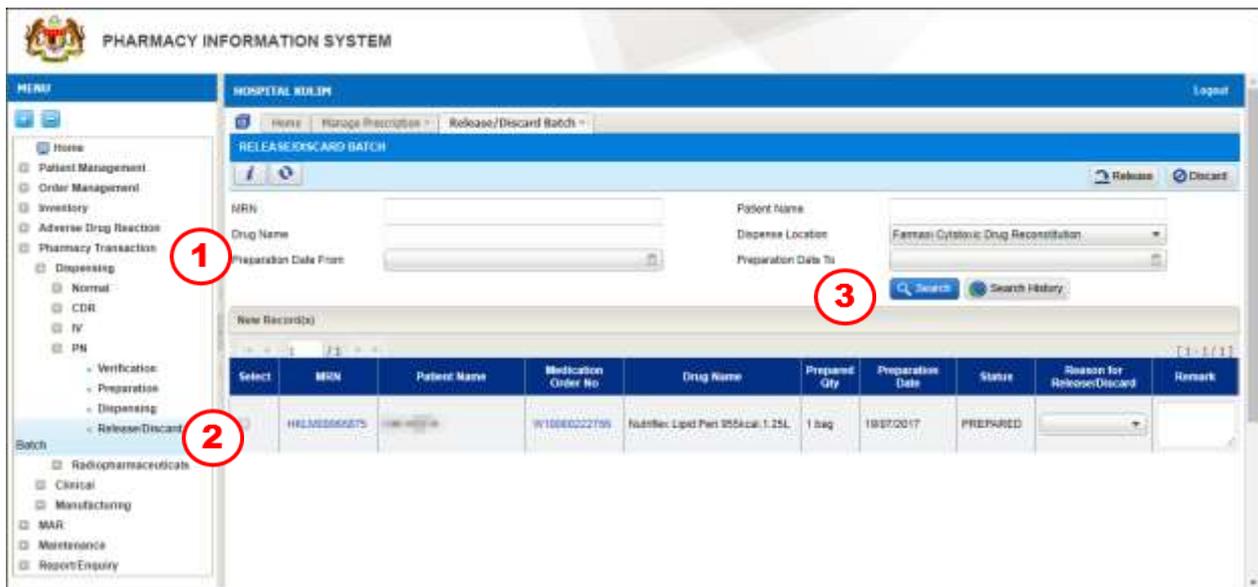


Figure 6.0-1 Release/Discard Batch Listing Page

### STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Dispensing' sub menu and select 'PN'

### STEP 2

Click on 'Release/Discard Batch' function

### Note

Search patient record based :-

No	Field	Description	Remark
a	MRN	Patient Medical Record Number	Search option: <ul style="list-style-type: none"> <li>• Type the MRN either full or partial: <i>Example: HPSF00001234 or "1234"</i></li> </ul>
b	Patient Name	Patient Name	Allow to search by full name or partial
c	Drug Name	Drug Name	Allow to search by full name or partial drug name
d	Dispense Location	Dispensing location. (It will list down all active location)	Able to filter and search patient name by dispensing location

Table 6.0-1 Patient Record Search

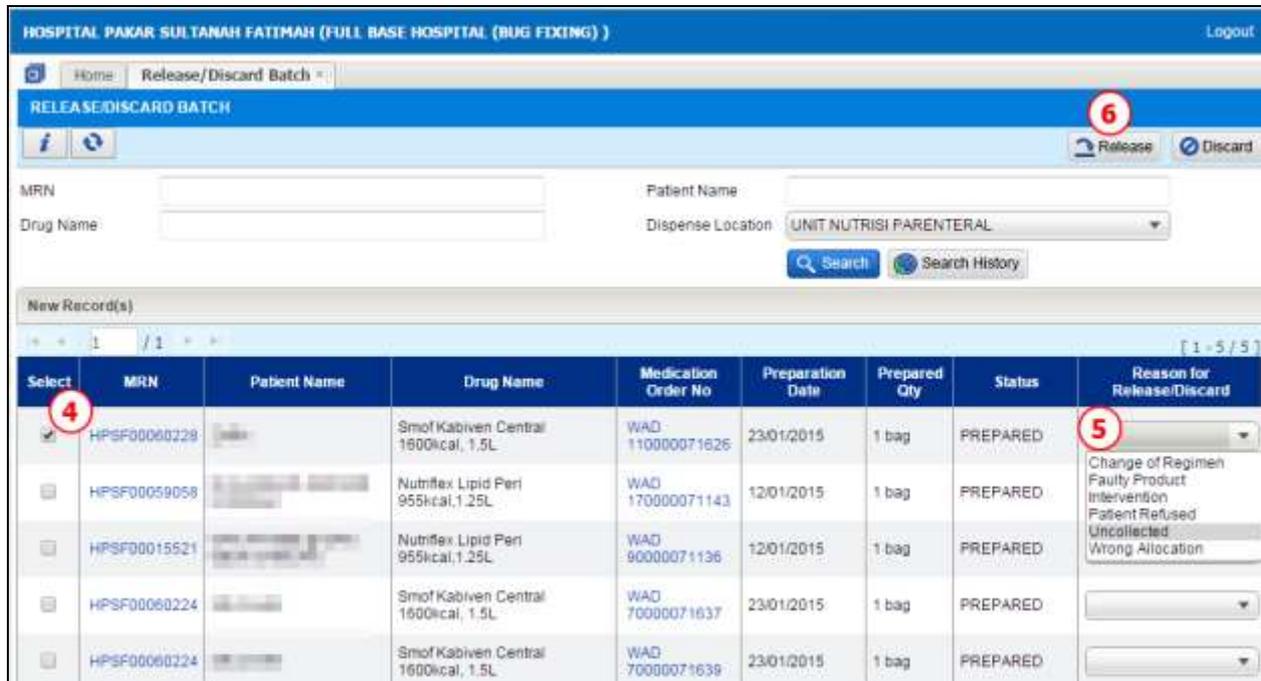
### STEP 3

Click on the  button to search patient

### Note

- Search result of patient record list will be displayed:
  - MRN
  - Patient Name
  - Drug Name
  - Medication Order No
  - Preparation Date
  - Prepared Qty

- Status
- Reason for Discard



Select	MRN	Patient Name	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
<input checked="" type="checkbox"/>	HPSF00060228	[REDACTED]	Smof Kabiven Central 1600kcal, 1.5L	WAD 110000071626	23/01/2015	1 bag	PREPARED	[REDACTED]
<input type="checkbox"/>	HPSF00059058	[REDACTED]	Nutriflex Lipid Peri 955kcal, 1.25L	WAD 170000071143	12/01/2015	1 bag	PREPARED	Change of Regimen
<input type="checkbox"/>	HPSF00015521	[REDACTED]	Nutriflex Lipid Peri 955kcal, 1.25L	WAD 90000071136	12/01/2015	1 bag	PREPARED	Faulty Product
<input type="checkbox"/>	HPSF00060224	[REDACTED]	Smof Kabiven Central 1600kcal, 1.5L	WAD 70000071637	23/01/2015	1 bag	PREPARED	Intervention
<input type="checkbox"/>	HPSF00060224	[REDACTED]	Smof Kabiven Central 1600kcal, 1.5L	WAD 70000071639	23/01/2015	1 bag	PREPARED	Patient Refused
								Uncollected
								Wrong Allocation

Figure 6.0-2 Release/Discard Batch

**STEP 4**

Select and check the  checkbox to select order at the **Select** column

**STEP 5**

Select the **Reason for Release and Discard** from dropdown box:

- Change of Regimen
- Faulty Product
- Intervention
- Patient Refused
- Uncollected
- Wrong Allocation

**STEP 6**

Click on the  button to release batch and inventory stock will be updated

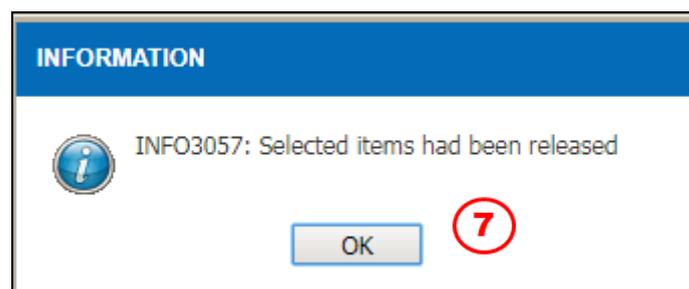
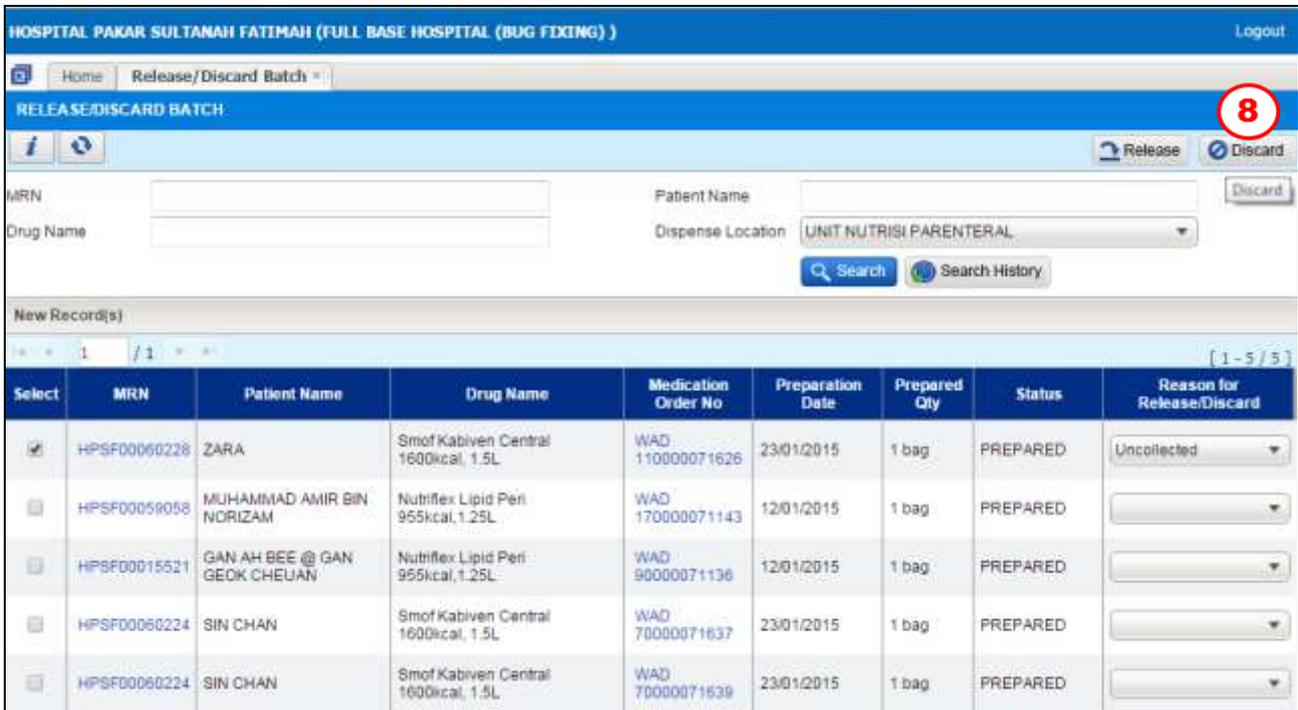


Figure 6.0-3 Alert Message

**STEP 7**

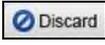
Click on the  button to release order batch

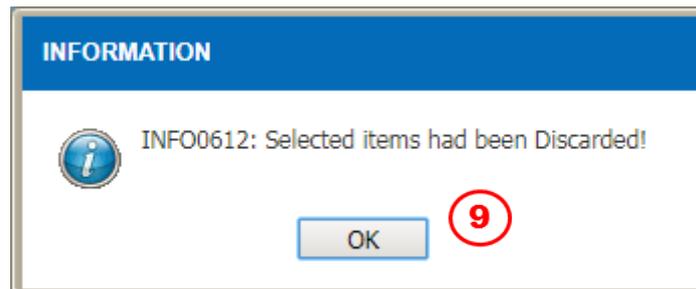


Select	MRN	Patient Name	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
<input checked="" type="checkbox"/>	HPSF00050228	ZARA	Smof Kabiven Central 1600kcal, 1.5L	WAD 110000071626	23/01/2015	1 bag	PREPARED	Uncollected
<input type="checkbox"/>	HPSF00059058	MUHAMMAD AMIR BIN NORIZAM	Nutriflex Lipid Peri 955kcal, 1.25L	WAD 170000071143	12/01/2015	1 bag	PREPARED	
<input type="checkbox"/>	HPSF00015521	GAN AH BEE @ GAN GEOK CHELIAN	Nutriflex Lipid Peri 955kcal, 1.25L	WAD 90000071136	12/01/2015	1 bag	PREPARED	
<input type="checkbox"/>	HPSF00050224	SIN CHAN	Smof Kabiven Central 1600kcal, 1.5L	WAD 70000071637	23/01/2015	1 bag	PREPARED	
<input type="checkbox"/>	HPSF00050224	SIN CHAN	Smof Kabiven Central 1600kcal, 1.5L	WAD 70000071639	23/01/2015	1 bag	PREPARED	

**Figure 6.0-4 Release / Discard Batch**

**STEP 8**

Click on the  button to discard batch and inventory stock will be updated



**Figure 6.0-5 Information Alert Message**

**STEP 9**

Click on the  button to discard batch

**Note**

Click on the  button to view release/discard history as Figure 6.0-6.

**PHARMACY INFORMATION SYSTEM**

HOSPITAL KUALA LUMPUR

Home Preparation Release/Discard Batch

**RELEASE/DISCARD BATCH**

Release Discard

PN# Patient Name Drug Name Dispense Location Preparation Date From Preparation Date To

IC No/Other Identification

Search Search History

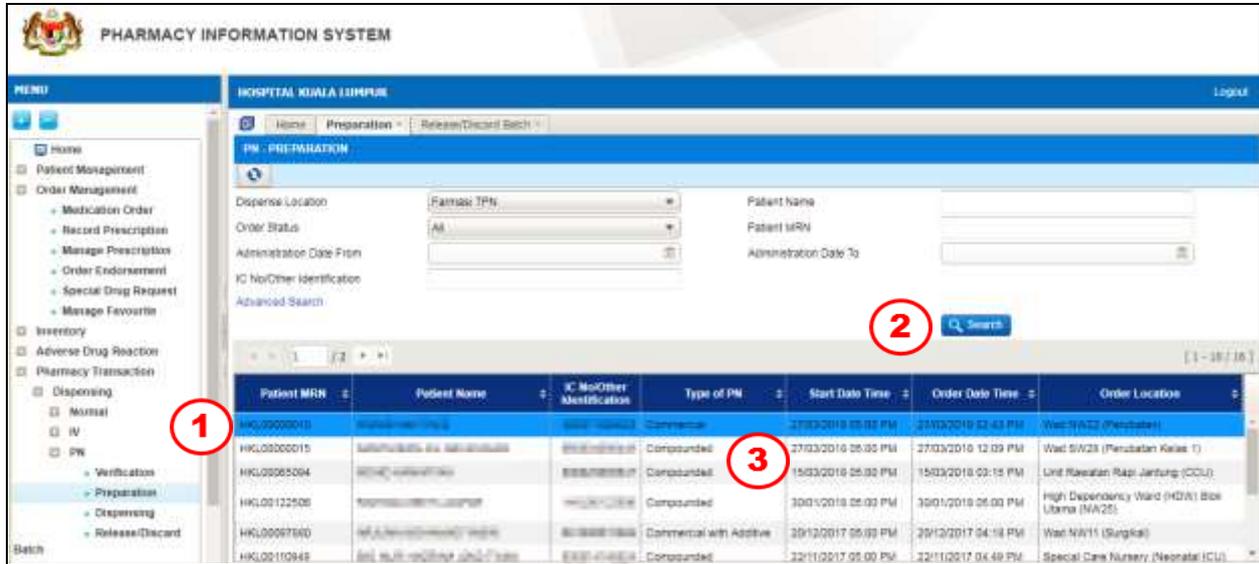
History Records

MRN	Patient Name	IC No/Other Identification	Medication Order No	Drug Name	Prepared Qty	Preparation Date	Status	Reason for Release/Discard	Remark
HKL0003177	...	...	PN COMPOUND	1 bag			Intervention		
HKL000762F	...	...	PN COMPOUND	1 bag		VERIFIED	Patient Refused		
HKL00073436	...	...	PN COMPOUND	1 bag		VERIFIED			
HKL0007136	...	...	PN COMPOUND	1 bag			Change of Regimen	CHANGE TO SIMVASTATIN 40	
HKL0114607	...	...	PN COMPOUND	1 bag		VERIFIED	Intervention		
HKL00053960	...	...	PN COMPOUND	1 bag		VERIFIED	Wrong Allocation		
HKL0115488	...	...	PN COMPOUND	1 bag		VERIFIED	Wrong Allocation		
HKL0008111	...	...	PN COMPOUND	1 bag		VERIFIED	Wrong Allocation		

Figure 6.0-6 Release/Discard Batch

## 7.0 Outsource

Outsource allow user to send preparation request to another facility through PhIS



The screenshot displays the 'PHARMACY INFORMATION SYSTEM' interface for 'HOSPITAL KUALA LUMPUR'. The main area is titled 'PN - PREPARATION'. It includes a search bar with a magnifying glass icon and a 'Search' button. Below the search bar is a table with the following columns: Patient MRN, Patient Name, IC No/Other Identification, Type of PN, Start Date Time, Order Date Time, and Order Location. The table contains several rows of data. Red circles are placed over the 'Dispensing' menu item in the left sidebar (1), the search button (2), and the first row of the table (3).

Patient MRN	Patient Name	IC No/Other Identification	Type of PN	Start Date Time	Order Date Time	Order Location
HKL0000010	Abdullah, Nur Hafid	880808080	Compound	27/03/2018 09:00 PM	27/03/2018 02:43 PM	Ward 2A22 (Perubatan)
HKL0000015	Abdullah, Nur Hafid	880808080	Compound	27/03/2018 09:00 PM	27/03/2018 12:00 PM	Ward 5W28 (Perubatan Kelas T)
HKL0000004	HONG, YONG HONG	880808080	Compound	15/03/2018 09:00 PM	15/03/2018 03:15 PM	Unit Rawatan Rapi Jantung (CCU)
HKL00122506	Abdullah, Nur Hafid	HKL00122506	Compound	30/01/2018 09:00 PM	30/01/2018 06:00 PM	High Dependency Ward (HDW) Blok Utama (NA25)
HKL00007500	HONG, YONG HONG	880808080	Compound with Additive	29/12/2017 09:00 PM	29/12/2017 04:18 PM	Ward NW15 (Surgical)
HKL00110849	Abdullah, Nur Hafid	880808080	Compound	22/11/2017 09:00 PM	22/11/2017 04:49 PM	Special Care Nursery (Neonatal ICU)

Figure 7.0-1 PN Preparation Listing Page

### STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Dispensing' and click on 'PN' then 'Preparation' sub-menu

### Note

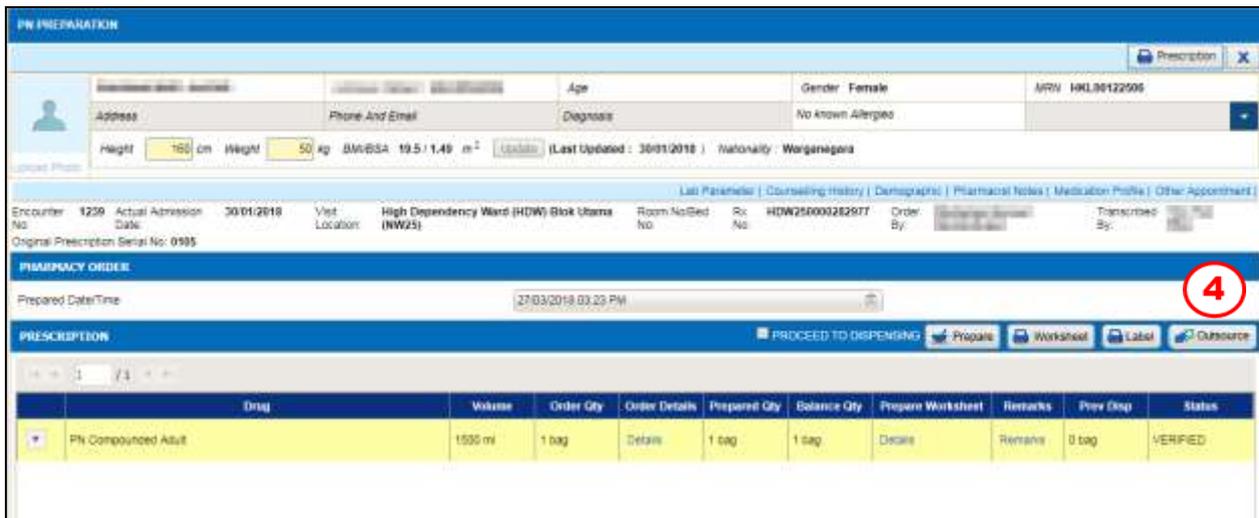
- Various search criteria is provided as below:
  - a) Dispense Location
  - b) Patient Name
  - c) Order Status
  - d) Patient MRN
- Click on the [Advanced Search](#) hyperlink for advance search.

### STEP 2

Click on the  button and system will display related order

### STEP 3

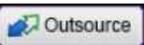
Double click on the selected patient record and system will display PN Dispensing screen as per Figure 7.0-2

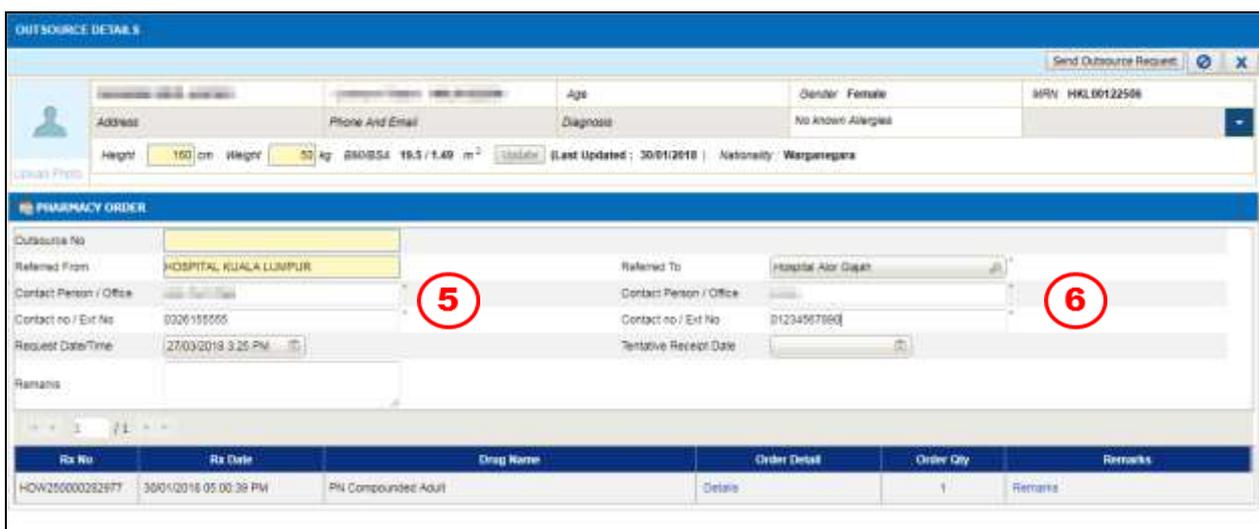


Drug	Volume	Order Qty	Order Details	Prepared Qty	Balance Qty	Prepare Worksheet	Remarks	Prev Disp	Status
PN Compounded Adult	1500 ml	1 bag	Details	1 bag	1 bag	Details	Remarks	0 bag	VERIFIED

Figure 7.0-2 PN Preparation

**STEP 4**

Click on the  button to prepare outsource product



Rx No	Rx Date	Drug Name	Order Detail	Order Qty	Remarks
HOW250000282977	30/01/2018 05:00:38 PM	PN Compounded Adult	Details	1	Remarks

Figure 7.0-3 Outsource Details

**STEP 5**

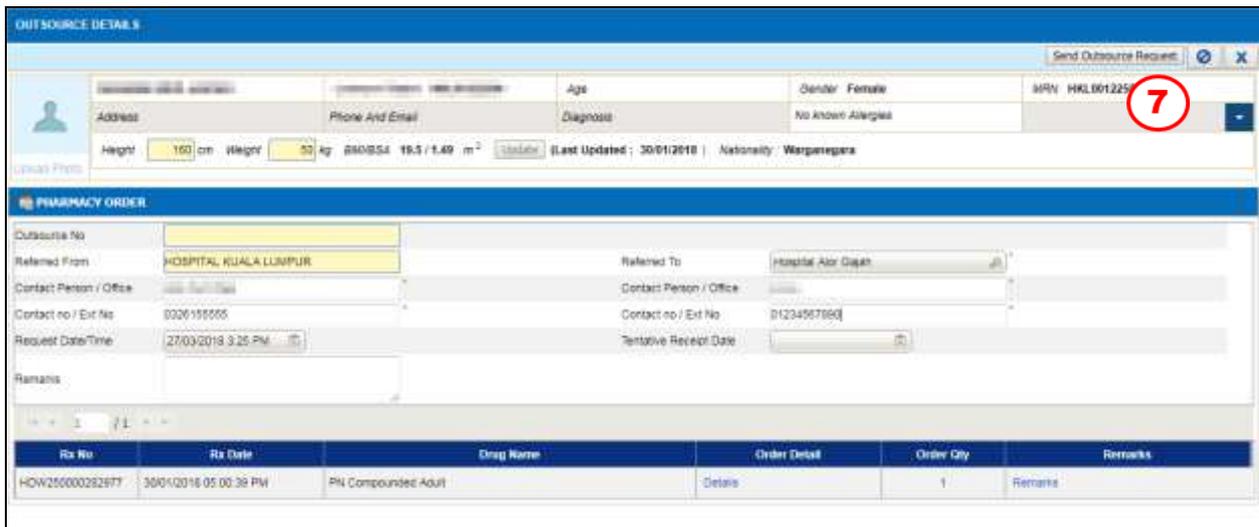
Enter **Contact Person/office, Contact No/Ext/No., Request Date/Time** and **Remarks**

**STEP 6**

Enter **Referred To** by click on the search button

**Note**

Enter **Contact Person/office, Contact No/Ext/No.** and **Tentative Receipt Date.**



**OUTSOURCE DETAILS**

Send Outsource Request [X]

Address: [Redacted] Phone And Email: [Redacted] Age: [Redacted] Gender: Female MRN: HKL01225 (7)

Height: 160 cm Weight: 50 kg BMI: 19.5 / 1.49 m<sup>2</sup> (Update) (Last Updated: 30/01/2018) Nationality: Warganegara

**PHARMACY ORDER**

Outsource No: [Redacted]  
 Referred From: HOSPITAL KUALA LUMPUR Referred To: Hospital Alor Gajah  
 Contact Person / Office: [Redacted] Contact Person / Office: [Redacted]  
 Contact no / Ext No: 0020155555 Contact no / Ext No: 0123456789  
 Request DateTime: 27/03/2018 3:25 PM Tentative Receipt Date: [Redacted]

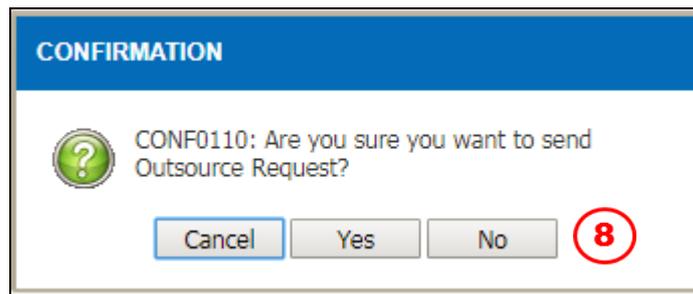
Remarks:

Rx No	Rx Date	Drug Name	Order Detail	Order Qty	Remarks
HOW250000282977	30/01/2018 05:00:38 PM	PN Compounded Adult	Details	1	Remarks

Figure 7.0-4 Outsource Details

**STEP 7**

Click on the  button to send outsource request



**CONFIRMATION**

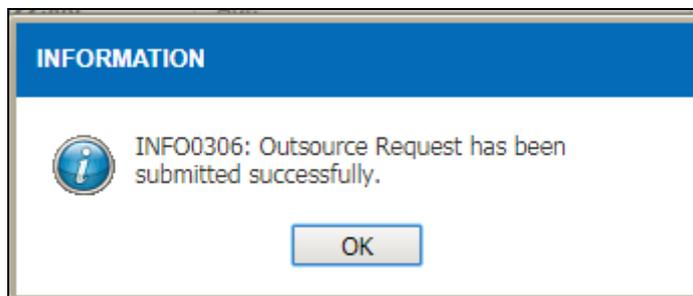
CONF0110: Are you sure you want to send Outsource Request?

(8)

Figure 7.0-5 Send Request Alert Message

**STEP 8**

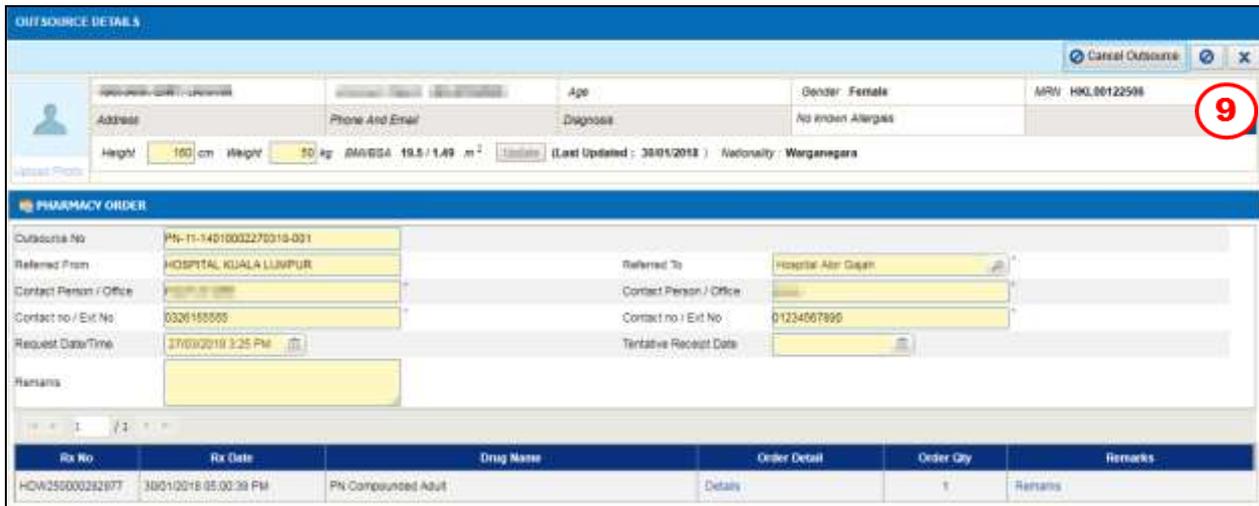
Click on the  button to send outsource request and Information on successful submission alert will appear as in Figure 7.0-6



**INFORMATION**

INFO0306: Outsource Request has been submitted successfully.

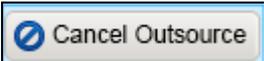
Figure 7.0-5 Successful Sent Request Alert Message



Rx No.	Rx Date	Drug Name	Order Detail	Order Qty	Remarks
HDW255000232877	30/01/2018 05:00:39 PM	PN Compounded Adult	Details	1	Remarks

Figure 7.0-6 Outsource Details

**Note**

User is allowed to click at  to cancel the outsources

**STEP 9**

Click on the  button to close outsource screen as per Figure 7.0-6



## 8.0 Acronyms

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

## 9.0 Links to Clinical Modules

No	Module	PDF Links	No	Module	PDF Links
1	<i>Inpatient</i>	<a href="#">Click Here</a>	12	<i>CDR Dispensing</i>	<a href="#">Click Here</a>
2	<i>CDR Order</i>	<a href="#">Click Here</a>	13	<i>Methadone Dispensing</i>	<a href="#">Click Here</a>
3	<i>TDM Order</i>	<a href="#">Click Here</a>	14	<i>PN Dispensing</i>	<a href="#">Click Here</a>
4	<i>PN Order</i>	<a href="#">Click Here</a>	15	<i>Order Management</i>	<a href="#">Click Here</a>
5	<i>IV Order</i>	<a href="#">Click Here</a>	16	<i>Patient Management</i>	<a href="#">Click Here</a>
6	<i>Prepacking</i>	<a href="#">Click Here</a>	17	<i>Radiopharmaceuticals</i>	<a href="#">Click Here</a>
7	<i>Galenical</i>	<a href="#">Click Here</a>	18	<i>Outpatient</i>	<a href="#">Click Here</a>
8	<i>MTAC</i>	<a href="#">Click Here</a>	19	<i>Special Drug Request</i>	<a href="#">Click Here</a>
9	<i>ADR &amp; DAC</i>	<a href="#">Click Here</a>	20	<i>MAR</i>	<a href="#">Click Here</a>
10	<i>Medication Counselling</i>	<a href="#">Click Here</a>	21	<i>DICE</i>	<a href="#">Click Here</a>
11	<i>Ward Pharmacy</i>	<a href="#">Click Here</a>	22		