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

Pharmacy Based

User Manual
Cytotoxic Drug Reconstitution (CDR)

Version	**: 10th EDITION**
Document ID	**: PB_U. MANUAL_CDR**

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1.0 Introduction

1.1 Overview of PhIS

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

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

1. Order Management
2. Inpatient Pharmacy
3. Outpatient Pharmacy
4. Medication Counselling
5. Ward Pharmacy
6. Pharmacy Inventory
7. Manufacturing of Cytotoxic Drug Reconstitution, Parenteral Nutrition, 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 Cytotoxic Drug Reconstitution sub-module and its key features and functionalities. The primary objective is to help guide user through the process of completing PhIS application process.

User will understand the following activities in details:

- Cytotoxic Drug Reconstitution Order
- Cytotoxic Drug Reconstitution Verification
- Cytotoxic Drug Reconstitution Preparation
- Cytotoxic Drug Reconstitution Dispensing

1.3 Organised Sections

These are the sections within this document:

- Section 1 : Introduction
- Section 2 : Application Standard Features
- Section 3 : Cytotoxic Drug Reconstitution
- Section 4 : Acronyms
- Section 5 : Links to Clinical Modules

2.0 Application Standard Features

2.1 PhIS Legend

Standard Legend			
LOGIN	Login to PhIS	Logout	Logout from PhIS
	Close All Open Tabs		Refresh Screen
	Expand Menu		Collapse Menu
	Expand Module		Collapse Module
	Add/Create New Record		Save
	Close Window		Calendar Icon
	Save Transaction		Delete Record
Export to Excel	Export Report From PDF file to Excel file	OK	OK Button
Yes	Yes Button	No	No Button
	Radio Button		Checkbox
SPUB56565698	System Automatic Generate Record No.	HPSF00093856	Automatically Display/Retrieve Box
	Reset Login Screen		Show Help
Home	Display Home Tab	Search	Search Record
	Cancel		Dropdown Box
	Search Icon	*	Mandatory Field
	Edit Record		Empty Text Box
Cancel	Cancel Button		

Cytotoxic Drug Reconstitution (CDR) Module Legend			
Update	Update Patient's Height and Weight	Regimen Details	Display Regimen Details
Update	Update Sampling Details	Confirm Order	Confirm Order
AUC Calculator	AUC Calculator	Save	Save Record
Basic Search	Basic Search	Advanced Search	Advanced Search
CDR	Display CDR Order Screen	Authorize	Authorize Order
Endorse	Endorse Order		

Note

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

3.0 Cytotoxic Drug Reconstitution (CDR)

Overview

The Order Management – Cytotoxic Drug Reconstitution (CDR) module handles all the information to specify the items as per local drug formulary, MOH and non-MOH including registered and non-registered drugs. This function is to enable data mining. All medication orders must be prescribed by authorized personnel only and in compliance with guidelines on prescribing in the drug formulary (drug category, discipline / specialty) as defined by MOH.

User Group

This module is intended for Specialist, Doctor, Medical Officer and Medical Assistant.

Functional Diagram

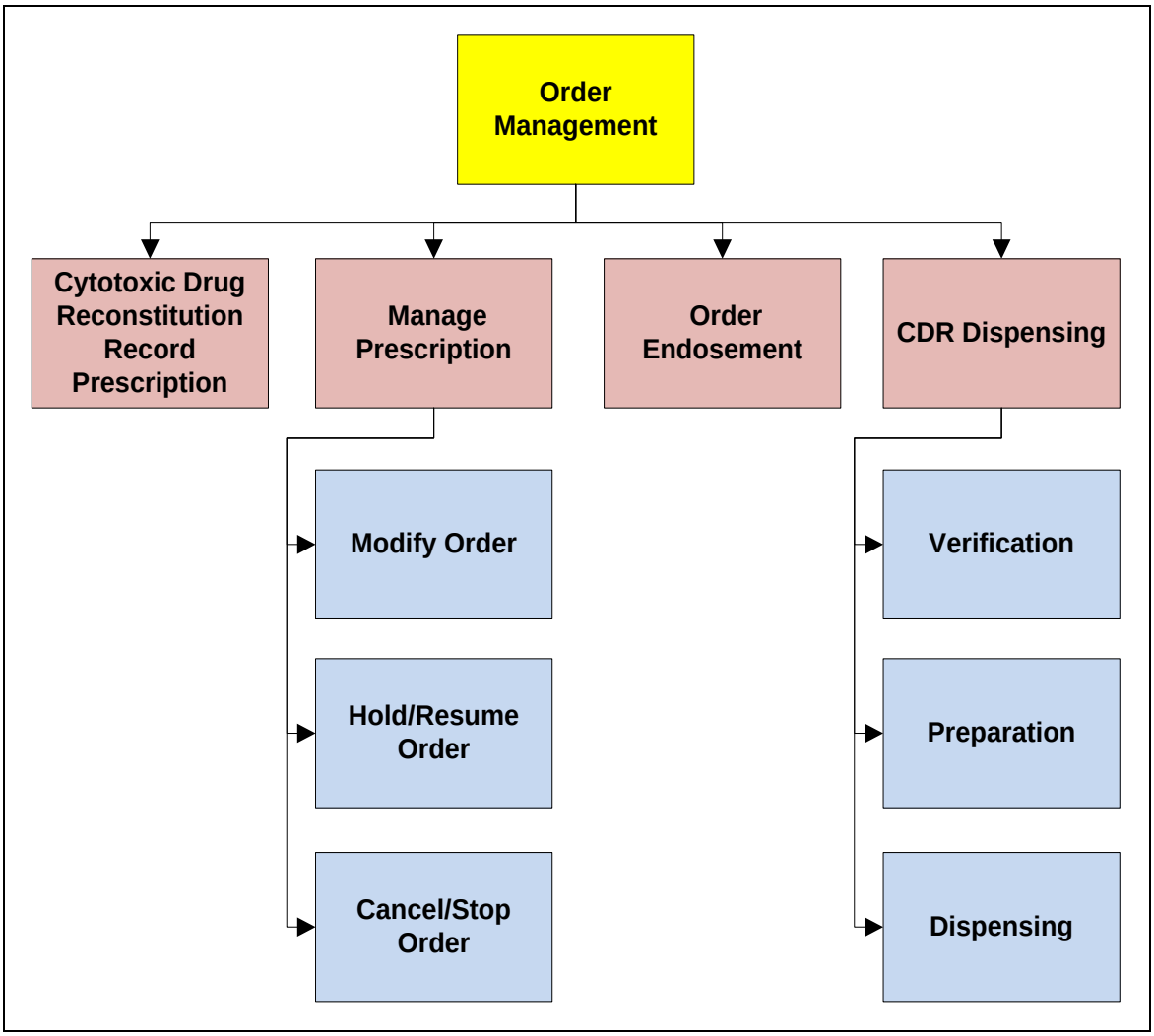


Figure 3.0

Functional Description

Cytotoxic Drug Reconstitution (CDR) comprises of four (4) main functions:

- **Cytotoxic Drug Reconstitution (CDR) Order**
  To allow pharmacist to record prescripton

- **Manage Prescription**
  To monitor patient's prescription by modifying order, hold/resume order, cancel/stop order.

- **Order Endorsement**
  Order endorsement is to notify pharmacist on prescription changes made by others pharmacist.

3.1 Cytotoxic Drug Reconstitution Order

CDR Order allows Prescriber to place CDR order. Order will be send to Pharmacist for process of verification, preparation and dispensing.

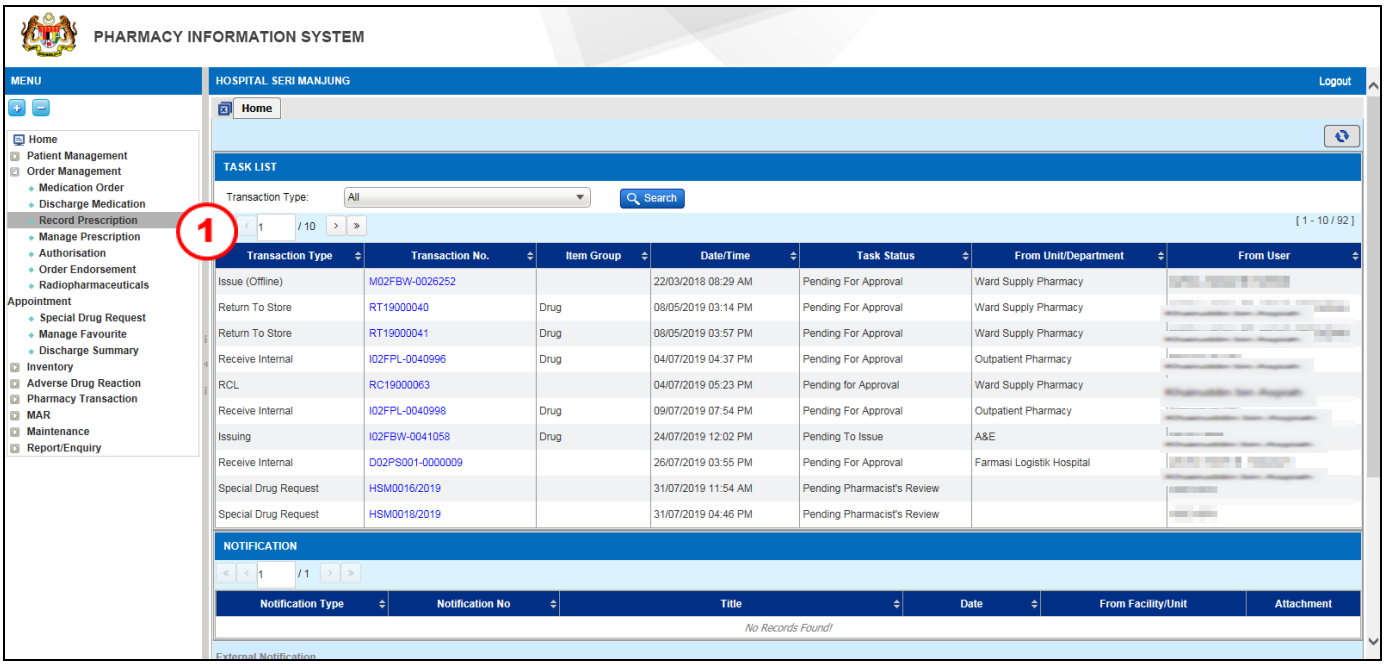


Figure 3.1-1 PhIS Home Page

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

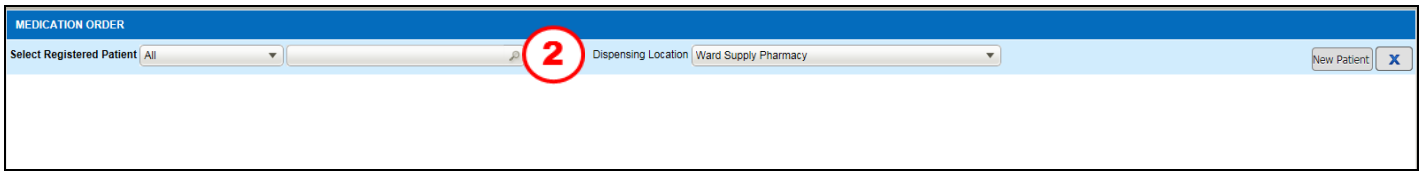


Figure 3.1-2 Medication Order

STEP 2

Click on the button to search for a registered patient

Note

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

3.2 New Patient Registration

To register a new patient, please perform the steps below.

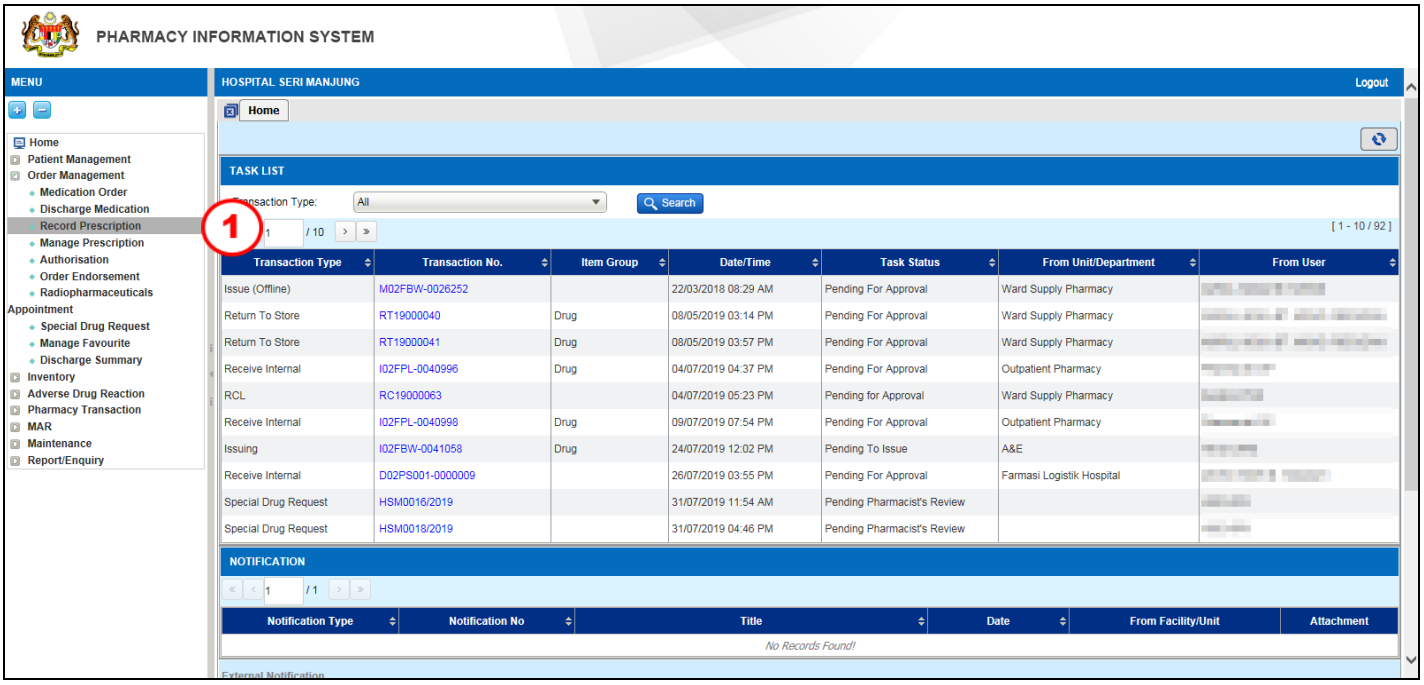


Figure 3.2-1 PhIS Home Page

This page is used to register new patient

STEP 1

Click on 'Order Management' menu followed by 'Record Prescription' and Medication Order screen will be displayed as per Figure 3.2-2

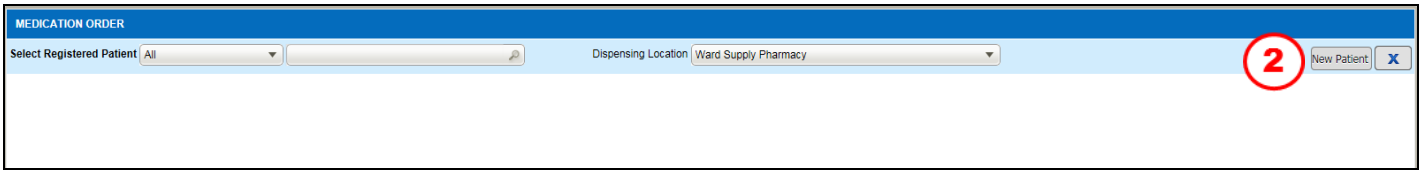


Figure 3.2-2 Medication Order

STEP 2

Click on the New Patient button to register for new patient

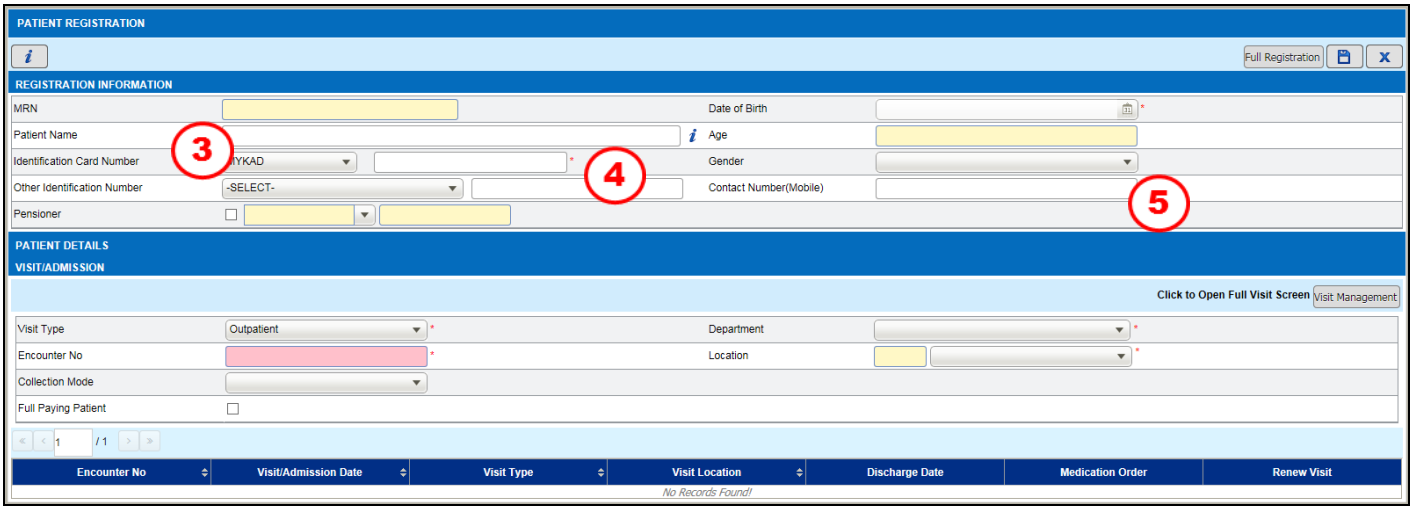


Figure 3.2-3 Registration Information

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:*
  - *Birthday Certificate*
  - *Driving License*
  - *Father IC*
  - *MYKAS*
  - *MYPR*
  - *Military Card Number*
  - *Mother IC*
  - *Old IC*
  - *Passport*
  - *Pension Card*
  - *Police Card Number*
  - *UNHCR*
  - *Unknown Patient*
  - *Work Permit*

  and enter the relevant number.

STEP 5

Enter ***Contact Number (Mobile)***

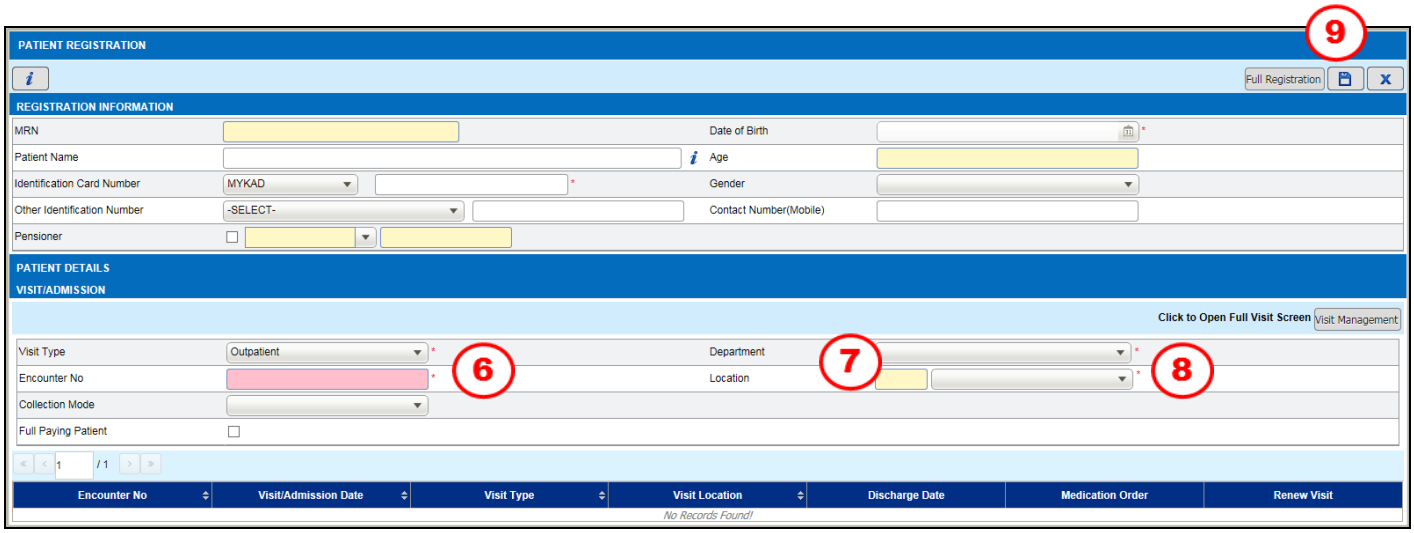


Figure 3.2-4 Visit/Admission

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 and medication order screen will display as per Figure 3.2.5

Note

- *After click the save button, system will automatically generate the **MRN** (Medical Record Number)*

- *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.*

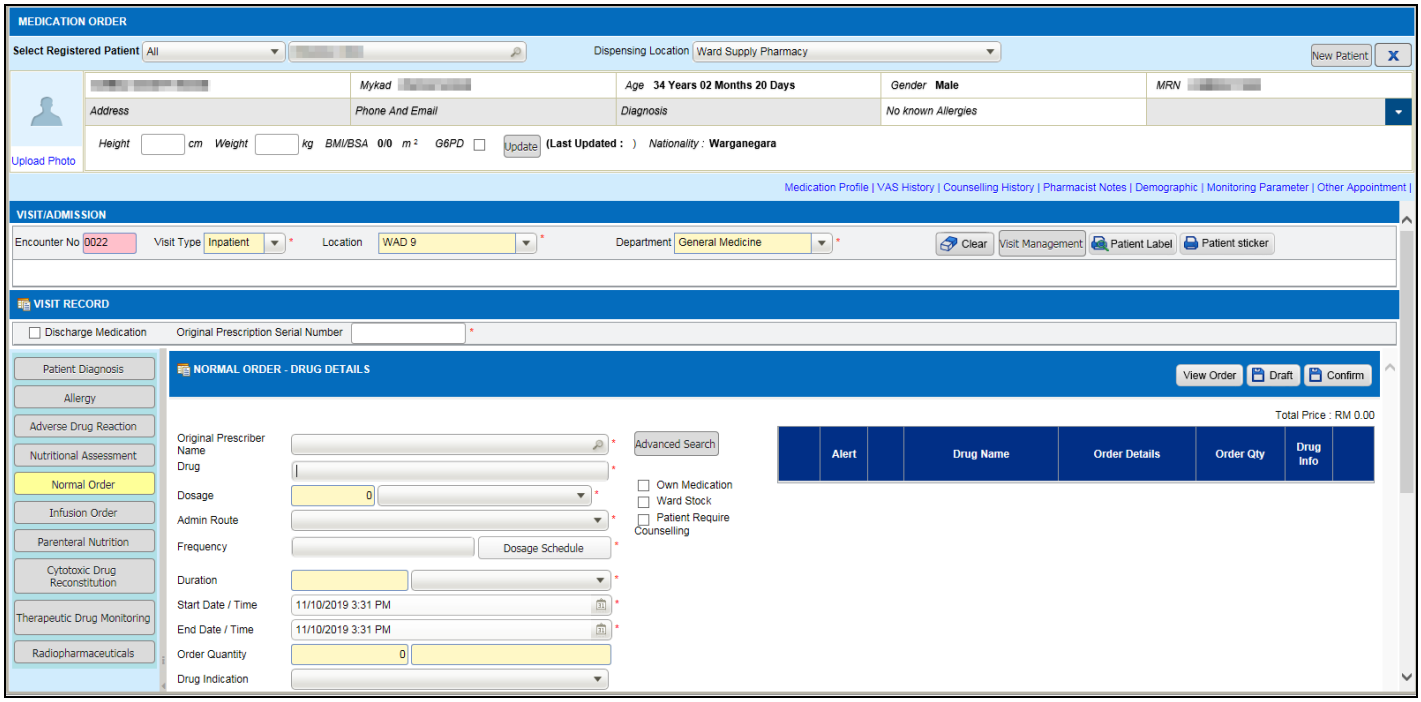


Figure 3.2-5 Medication Order

4.0 Cytotoxic Drug Reconstitution (CDR) Order, Verify and Prepare

Perform these steps below to create new order, verify and prepare for CDR.

Cytotoxic Drug is a drug that has toxic on cells, commonly used in chemotherapy to inhibit the proliferation of cancerous cells. CDR Drug ordered as regimen through CDR Order module by prescriber.
Regimen is a group of CDR drugs. Each drug within a regimen is indicated to be taken on which day/time within the cycle duration. CDR regimen will be set by HQ in Regimen Master setup CDR Regimen Category master setup also will be done by HQ.

CDR Order:

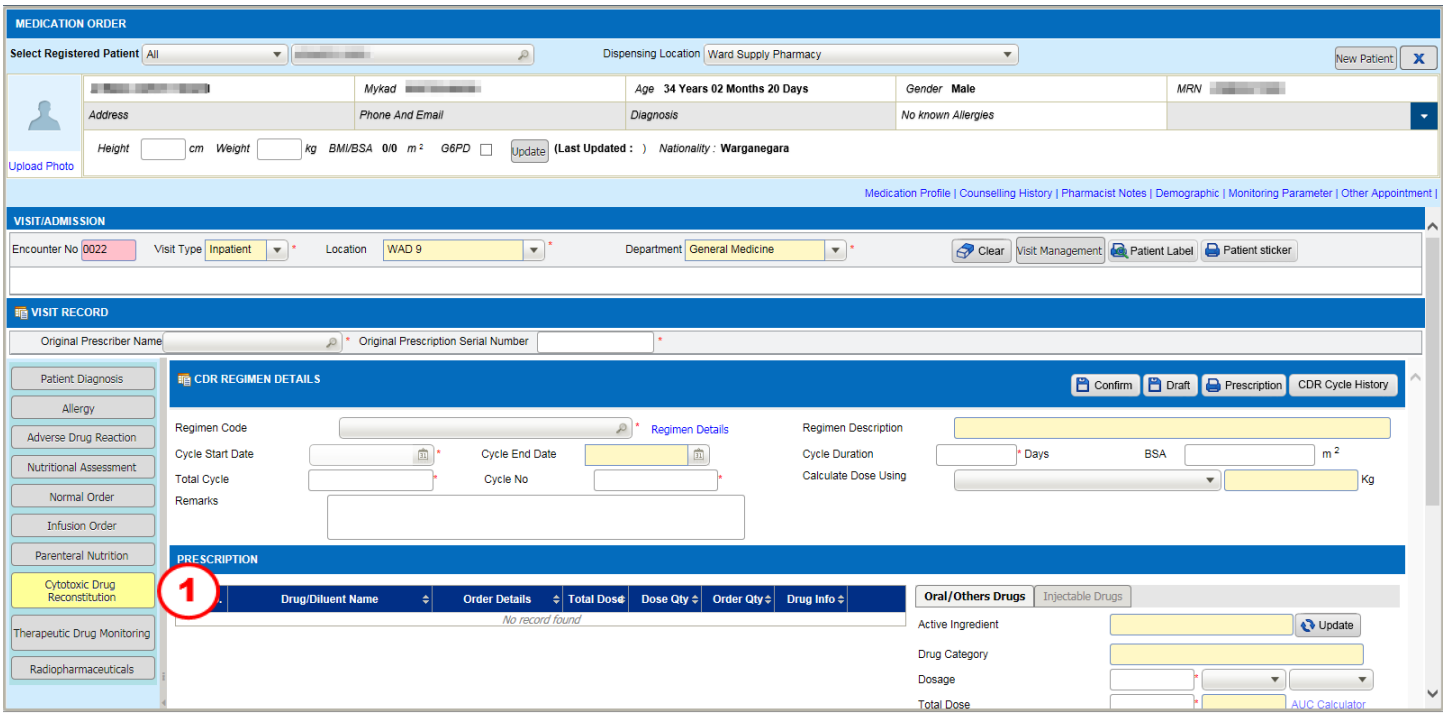


Figure 4.0-1 CDR Order

STEP 1

Click on the [Cytotoxic Drug Reconstitution] to display CDR Order screen

Note

- *CDR Order screen consists of:*
  - *Patient's Banner*
  - *Visit / Admission*
  - *Visit Record*
  - *CDR Regimen Details*
  - *Prescriptions*

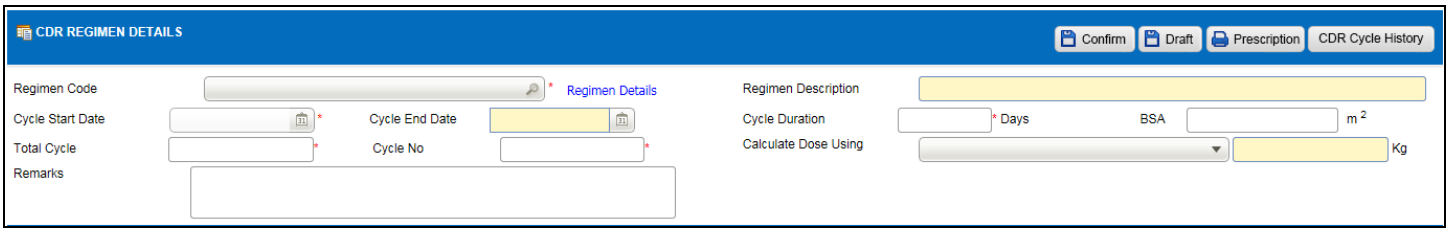


Figure 4.0-2 CDR Regimen Details

Patient's Banner

- *Patient's Banner will be displayed patient's profile. User can update patient's height and weight.*

- *Click on the* Update *button and system will be automatically calculated the BMI/BSA in m^2.*

Visit Admission

- *Visit Admission will be displayed Encounter No., Visit Type, Location and Department; Breast Feeding and Pregnant check box.*

Visit Record

- *Visit Record will be displayed Original Prescriber Name and Original Prescription Serial Number fields.*
- *Enter details for both fields.*

CDR Regimen Details

- *CDR Regimen Details consists of:*
  - *Regimen Code*
  - *Regimen Description*
  - *Regimen Details Hyperlink*
  - *Cycle Start Date*
  - *Cycle End Date*
  - *Cycle Duration*
  - *BSA*
  - *Total Cycle*
  - *Cycle No*
  - *Calculate Dose Using*
  - *Remarks*

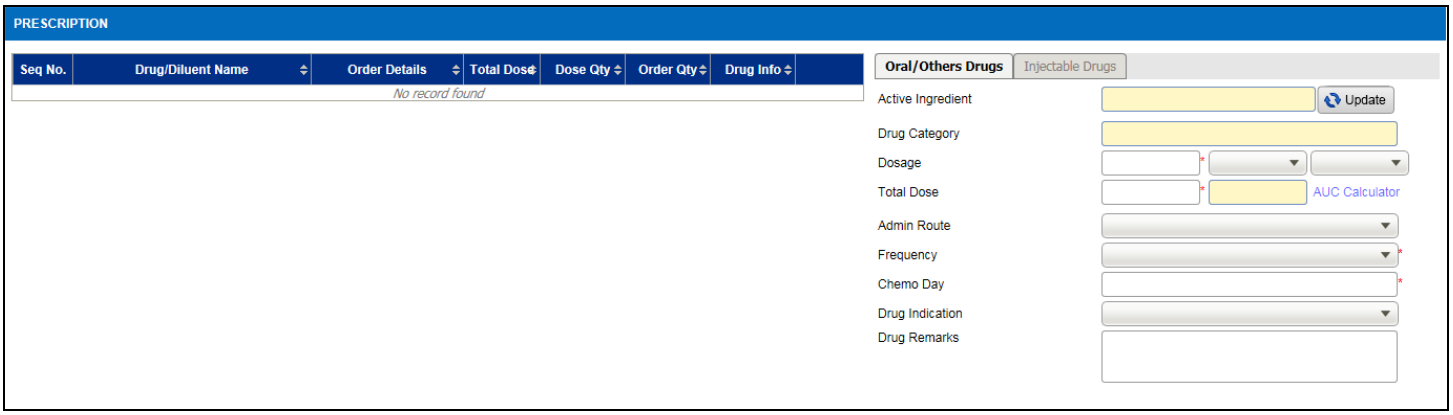


Figure 4.0-3 Prescription – Oral/Others Drugs

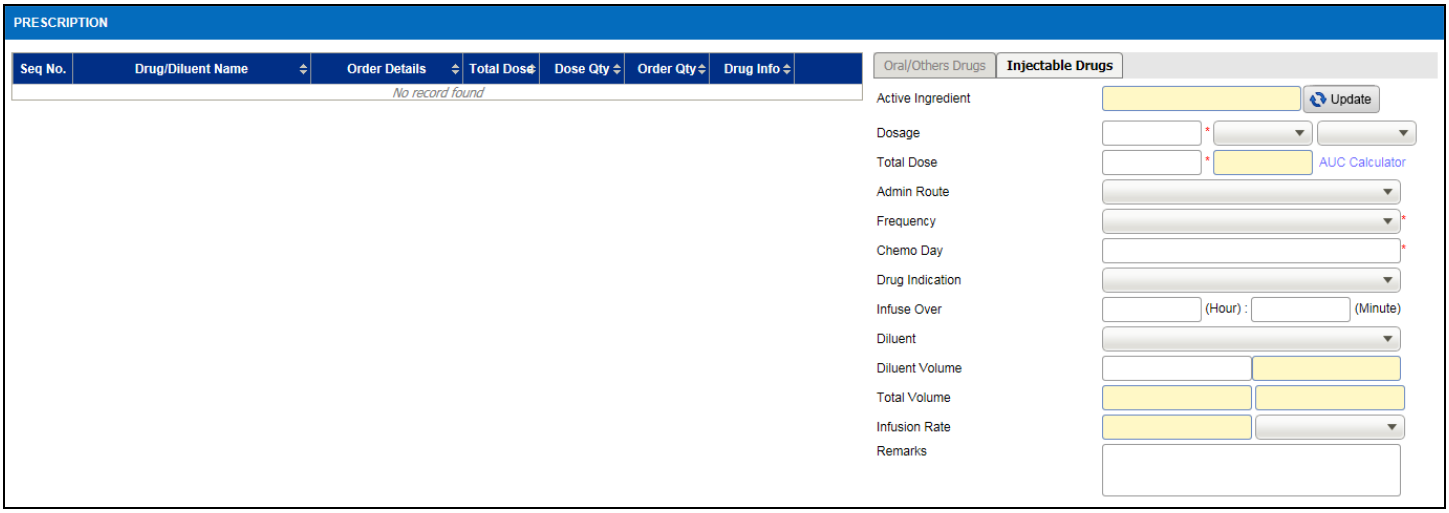


Figure 4.0-4 Prescription – Injectable Drugs

Prescriptions

- *Prescriptions consists of:*
  - *Oral/Others Drugs*
  - *Injectable Drugs*
  - *Drug/Diluents' Name*
  - *Order Details*
  - *Total Dose*
  - *Dose Qty (Quantity)*
  - *Order Qty (Quantity)*
  - *Drug Info (Information)*
  - *Seq No*

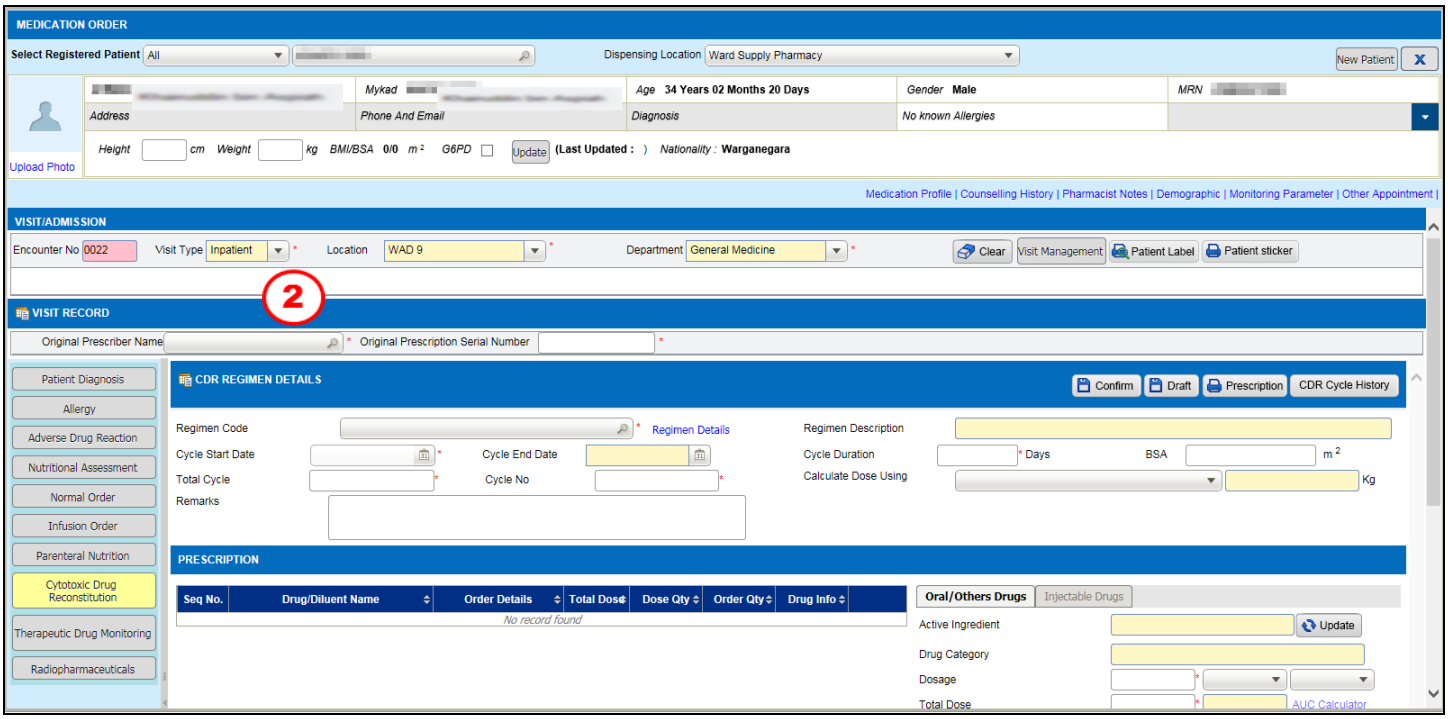


Figure 4.0-5 Prescription – Medication Order

STEP 2

Click on the button to search ***Original Prescriber Name*** as per Figure 4.0-6

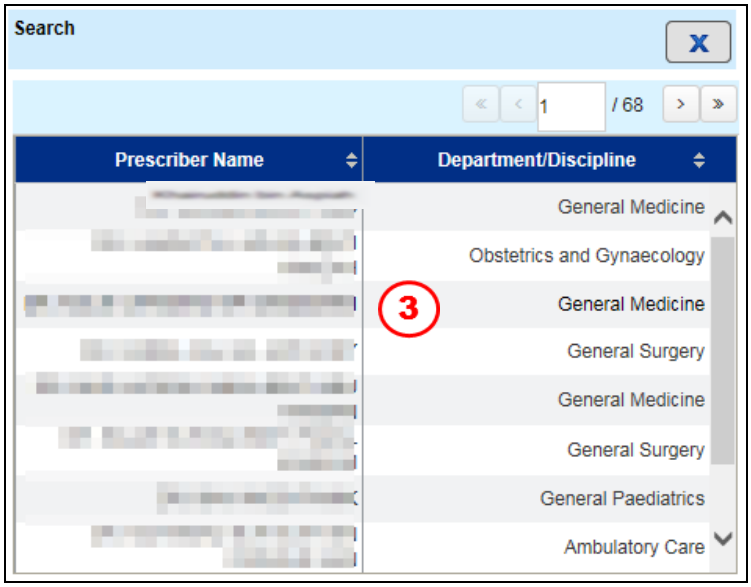


Figure 4.0-6 Prescriber

STEP 3

Double click on the prescriber name

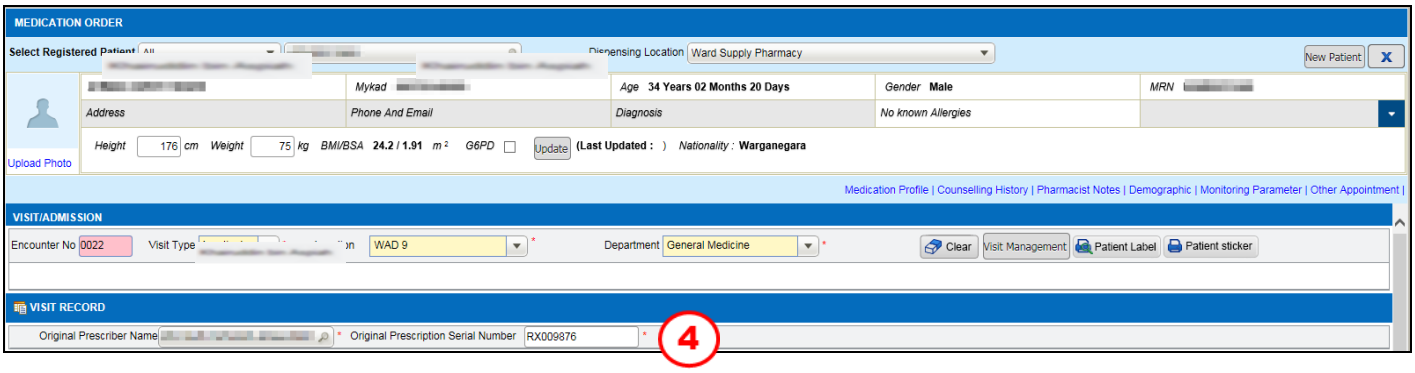


Figure 4.0-7 Medication Order

STEP 4

Enter ***Original Prescription Serial Number***

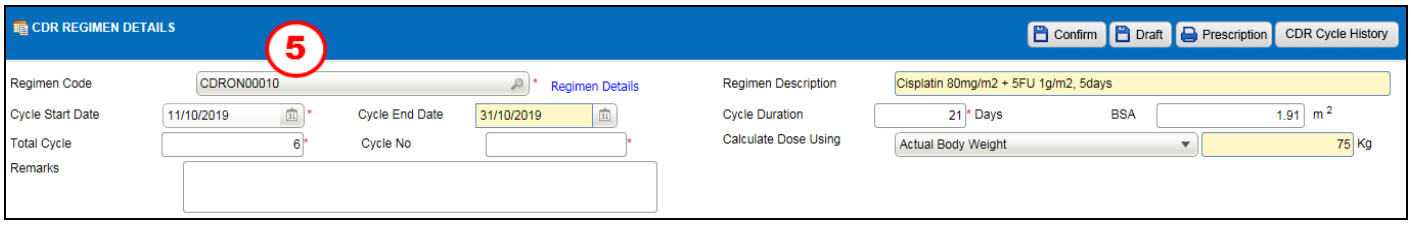
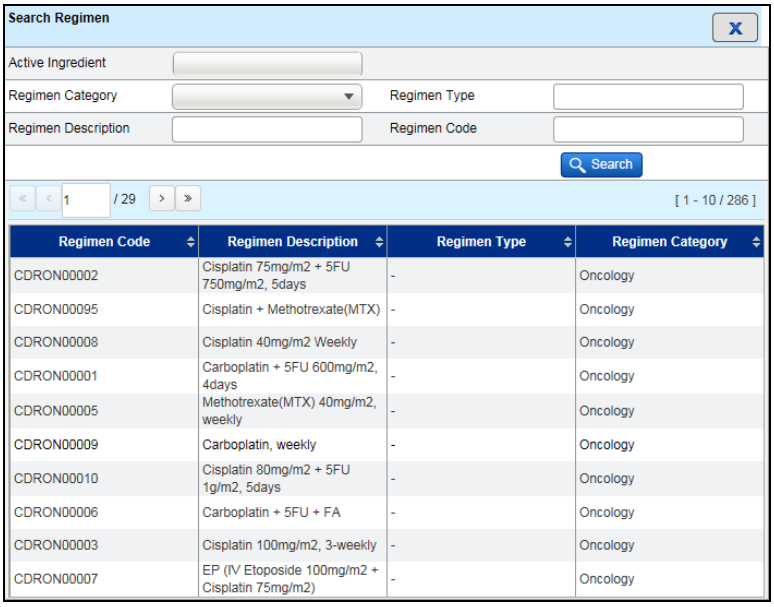


Figure 4.0-8 Medication Order

STEP 5

Click on the ***Regimen Code*** button and Regimen Search window will display as shown in Figure 4.0-9

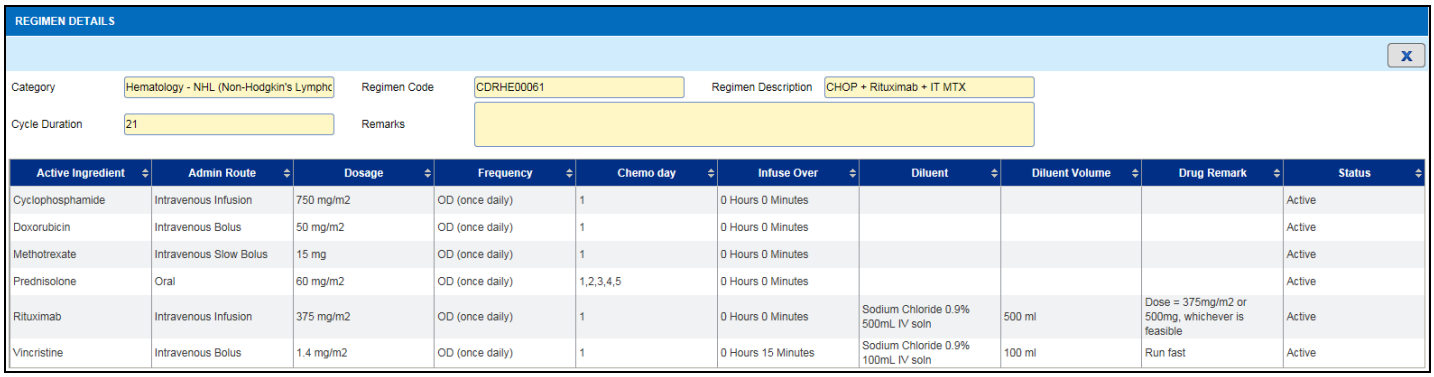


Regimen Code	Regimen Description	Regimen Type	Regimen Category
CDRON00002	Cisplatin 75mg/m2 + 5FU 750mg/m2, 5days	-	Oncology
CDRON00095	Cisplatin + Methotrexate(MTX)	-	Oncology
CDRON00008	Cisplatin 40mg/m2 Weekly	-	Oncology
CDRON00001	Carboplatin + 5FU 600mg/m2, 4days	-	Oncology
CDRON00005	Methotrexate(MTX) 40mg/m2, weekly	-	Oncology
CDRON00009	Carboplatin, weekly	-	Oncology
CDRON00010	Cisplatin 80mg/m2 + 5FU 1g/m2, 5days	-	Oncology
CDRON00006	Carboplatin + 5FU + FA	-	Oncology
CDRON00003	Cisplatin 100mg/m2, 3-weekly	-	Oncology
CDRON00007	EP (IV Etoposide 100mg/m2 + Cisplatin 75mg/m2)	-	Oncology

Figure 4.0-9 Search Regimen

Note

- *Double click on the selected **Regimen Code***
- ***No. Of Cycle** is number of times the regimen suggested to be taken.*
- ***Cycle Duration** is a time indication of a regimen. Within cycle duration of a regimen, no other regimen should be started.*
- ***Cycle Start Date and Cycle End Date :** System will be automatically calculated cycle end date based on cycle start date and cycle duration.*
- *User is allowed to select **Calculate Dose Using** from dropdown box:*
  - *Actual Body Weight*
  - *Adjusted Body Weight*
  - *Ideal Body Weight*
- *System will be automatically calculated the weight (kg) and BSA according to **Calculate Dosage Using** selected. It will give effect on **Total Dose** if user selects Dosage by per kg or by m2.*
- *Click on the* Regimen Details *hyperlink to display regimen details as per Figure 4.0-10.*



REGIMEN DETAILS

Category: Hematology - NHL (Non-Hodgkin's Lymphc
Regimen Code: CDRHE00061
Regimen Description: CHOP + Rituximab + IT MTX
Cycle Duration: 21
Remarks:

Active Ingredient	Admin Route	Dosage	Frequency	Chemo day	Infuse Over	Diluent	Diluent Volume	Drug Remark	Status
Cyclophosphamide	Intravenous Infusion	750 mg/m2	OD (once daily)	1	0 Hours 0 Minutes				Active
Doxorubicin	Intravenous Bolus	50 mg/m2	OD (once daily)	1	0 Hours 0 Minutes				Active
Methotrexate	Intravenous Slow Bolus	15 mg	OD (once daily)	1	0 Hours 0 Minutes				Active
Prednisolone	Oral	60 mg/m2	OD (once daily)	1,2,3,4,5	0 Hours 0 Minutes				Active
Rituximab	Intravenous Infusion	375 mg/m2	OD (once daily)	1	0 Hours 0 Minutes	Sodium Chloride 0.9% 500mL IV soln	500 ml	Dose = 375mg/m2 or 500mg, whichever is feasible	Active
Vincristine	Intravenous Bolus	1.4 mg/m2	OD (once daily)	1	0 Hours 15 Minutes	Sodium Chloride 0.9% 100mL IV soln	100 ml	Run fast	Active

Figure 4.0-10 Regimen Details

- *System will be displayed prescriptions based on regimen code selected in CDR Regimen Details as shown in Figure 4.0-11*

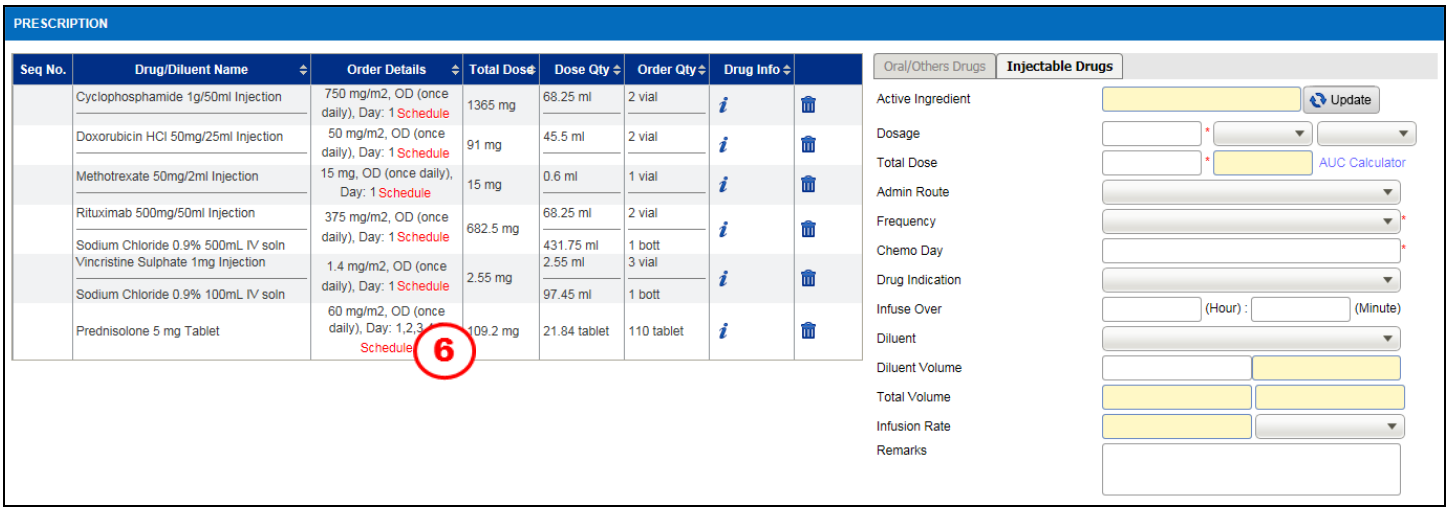


Figure 4.0-11 CDR Prescription

- *To delete not related drugs for that prescription, click on button. System will be deleted selected drug and that drug will not be flow for dispensing.*
- *If select **Dosage** milligram or milliliter and 'kg' or '/m2' from dropdown menu, **Total Dose** will be displayed based on Calculate Dose Using selected previously in CDR Regimen Details.*

STEP 6

Click on the Schedule hyperlink and Dose Schedule windows will be display as Figure 4.0-12

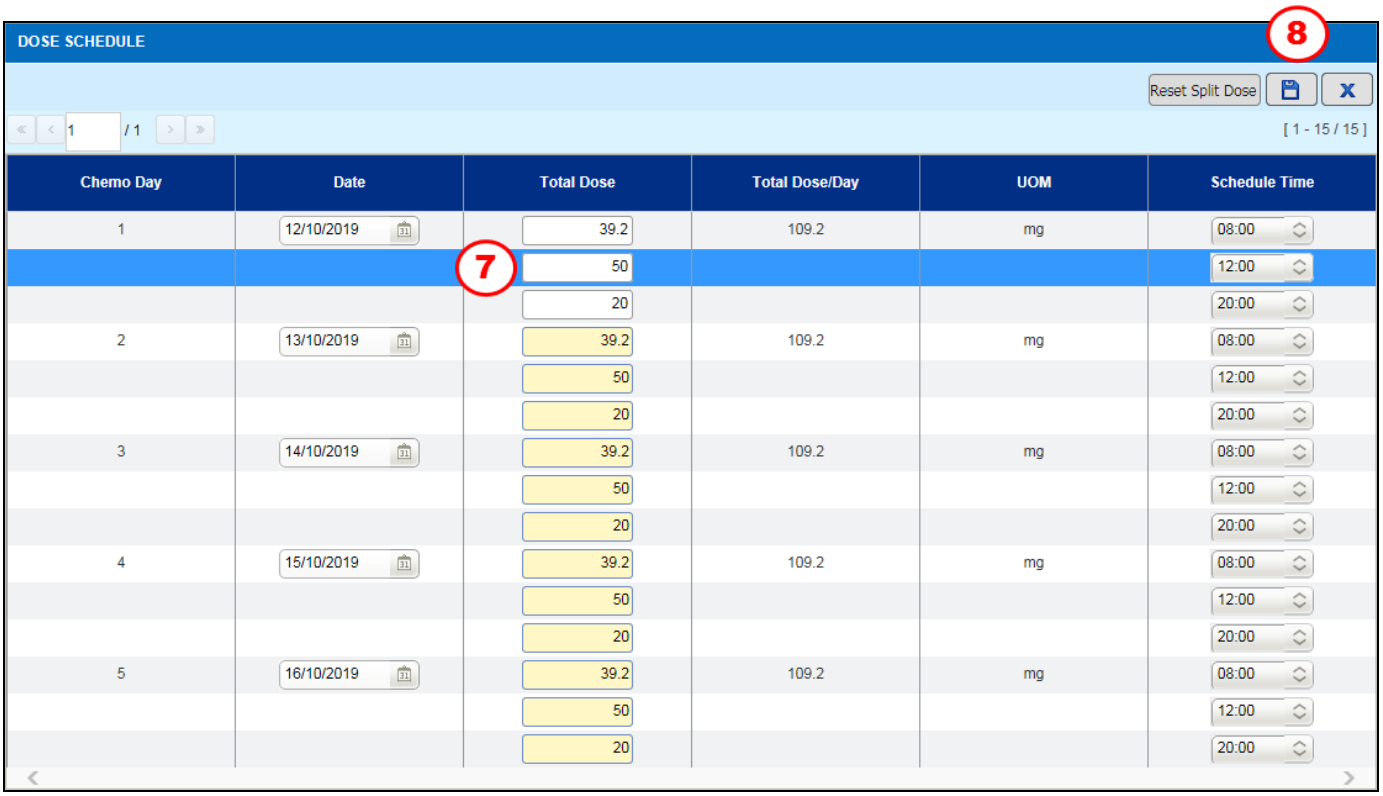


Figure 4.0-12 Dose Schedule

Note

- *User is allowed to modify **Schedule Time***
- *User is allowed to do a Split Dose function and it is applicable only for CDR Normal Drug only and not applicable for Inject able/Infusion Drugs.*

STEP 7

Enter ***Total Dose***

Note

- *User is allowed to enter **Total Dose** for the first Chemo Day only and the subsequent Chemo Day will follow the first day*
- ***Total Dose/Day** will automatically calculated based on the sum entered value in **Total Dose** for each of Admin Time*

STEP 8

Click on the button to save the record

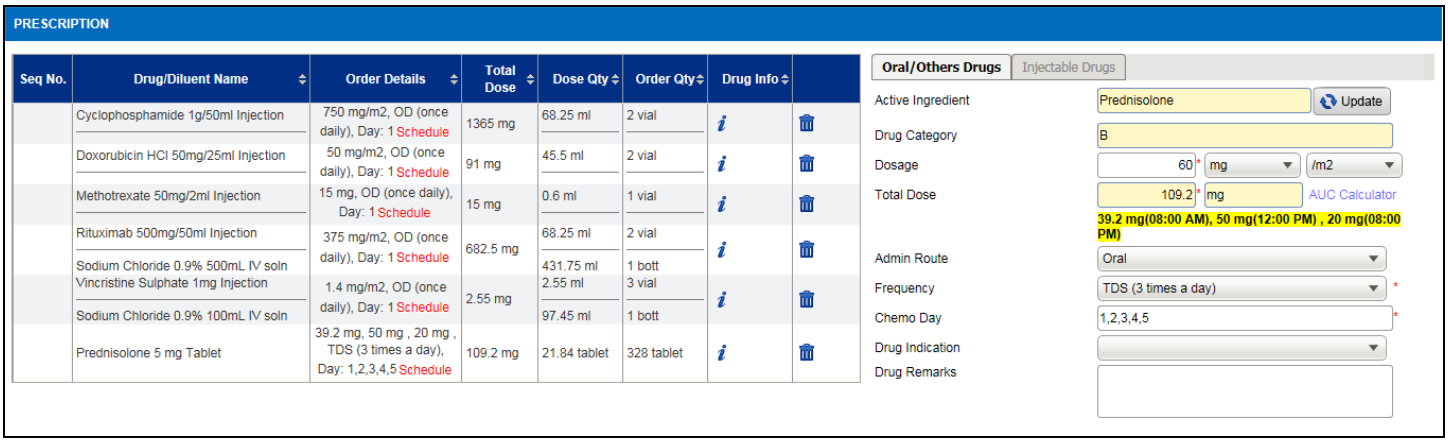


Figure 4.0-13 CDR Prescription

Note

- ***Total Dose** will display a row highlighted with yellow color based on the split dose value and admin time of the first chemo day*
- ***Dose Qty** will be displayed based on the Total Dose/Day*
- ***Order Qty** will be automatically recalculate based on the Total Dose/Day*

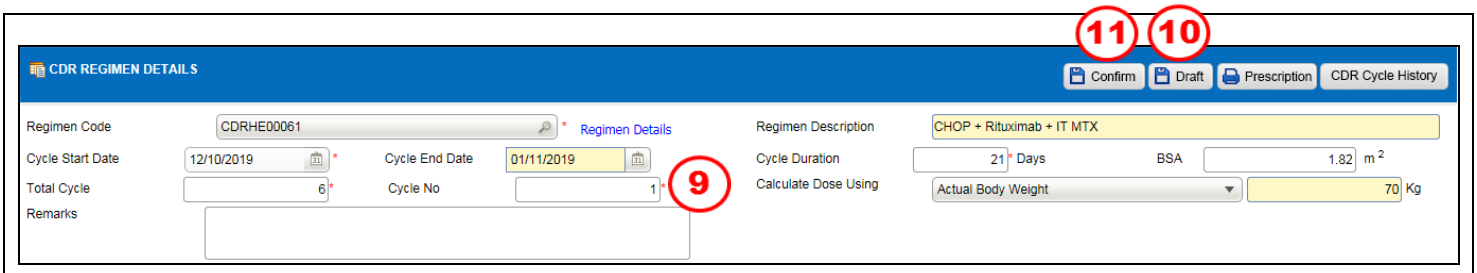


Figure 4.0-14 CDR Regimen Details

STEP 9
Enter ***Cycle No***

STEP 10

Click on the button to save the record as "Draft"

Note
User still able to edit or modify order using this screen.

STEP 11

Click on the button to confirm CDR order

Note

- *Confirmation dialog will be display as Figure 4.0-15*

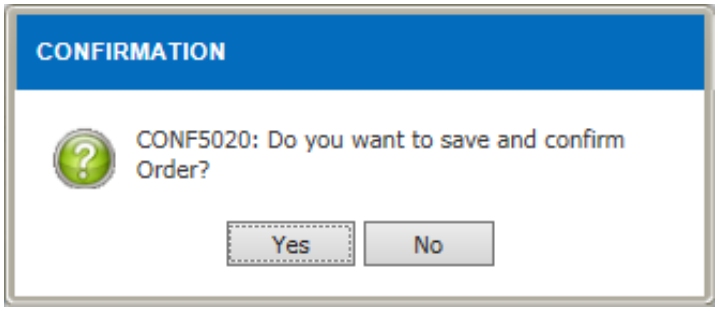


Figure 4.0-15 Confirmation Message

- *Click on the* *button to confirm order and CDR Verification screen will be displayed as per Figure 4.0-17*

Note

Click on the *button to print CDR Prescription*

Ministry of Health, Malaysia
Hospital Seri Manjung
Cytotoxic Drug Reconstitution

Patient Name	: [redacted]	Patient ID	: [redacted]
Age	: 34 Y 2 M 20 D	MRN	: HSM00211668
Gender	: Male	Prescription #	: W90000824598
Height/Weight/BSA	: 170 cm / 70 kg / 1.82 m^2	Order Date/Time	: 12/10/2019 01:10 PM
Allergy	:	Location	: WAD 9

Diagnosis :

Regimen Code : CDRHE00061

Regimen Description : CHOP + Rituximab + IT MTX

Cycle Start Date : 12/10/2019 **Cycle Duration** : 21 Days **Total Cycle** : 6 **Current Cycle** : 1

Route	Drug Name	Dosage	Total Dose	Diluent	Diluent Vol	Frequency	Chemo Day
INF	Cyclophosphamide	750 mg/m2	1365 mg			OD (once daily)	1
IVB	Doxorubicin	50 mg/m2	91 mg			OD (once daily)	1
IVSB	Methotrexate	15 mg	15 mg			OD (once daily)	1
INF	Rituximab	375 mg/m2	682.5 mg	Sodium Chloride 0.9% 500mL IV soln	431.75 ml	OD (once daily)	1
IVB	Vincristine	1.4 mg/m2	2.55 mg	Sodium Chloride 0.9% 100mL IV soln	97.45 ml	OD (once daily)	1
ORAL	Prednisolone	60 mg/m2	39.2 mg, 50 mg , 20 mg			TDS (3 times a day)	1,2,3,4,5

Figure 4.0-16 CDR Prescription Order

CDR Verification :

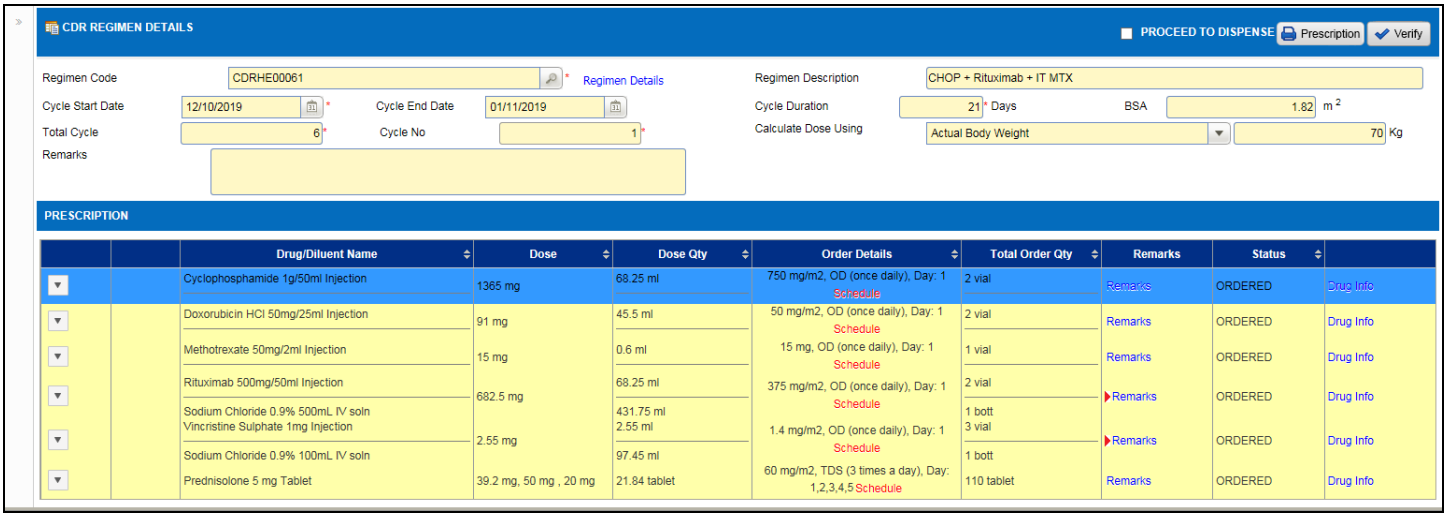


Figure 4.0-17 CDR Verification

Note

- *Click on the Remarks hyperlink to enter Pharmacist Remark as Figure 4.0-18.Enter remark on the Verification Stage field.*

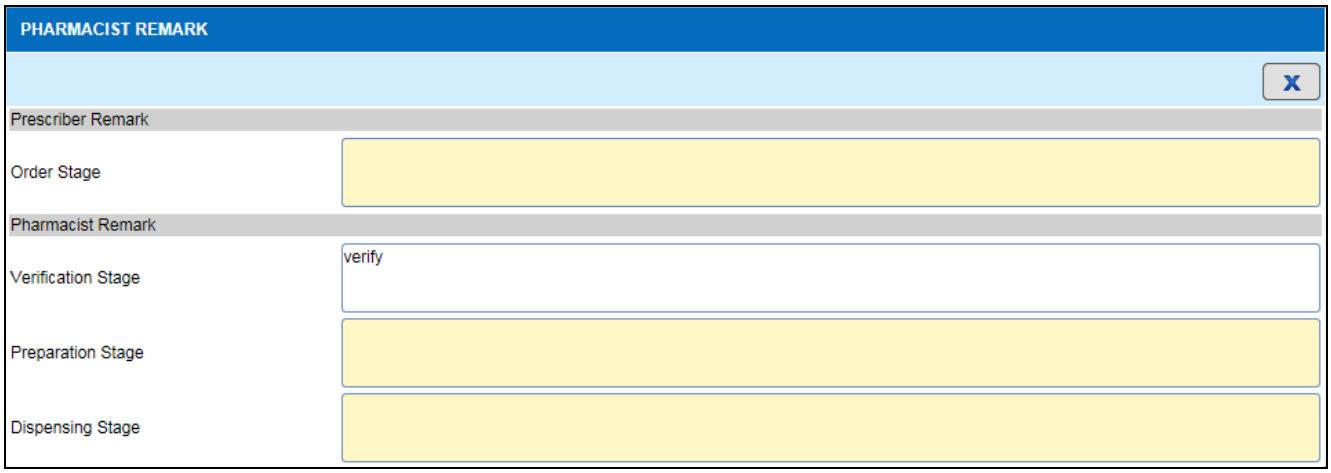


Figure 4.0-18 Pharmacist Remark

- *Click on the Drug Info hyperlink to view Drug Information as Figure 4.0-19.*

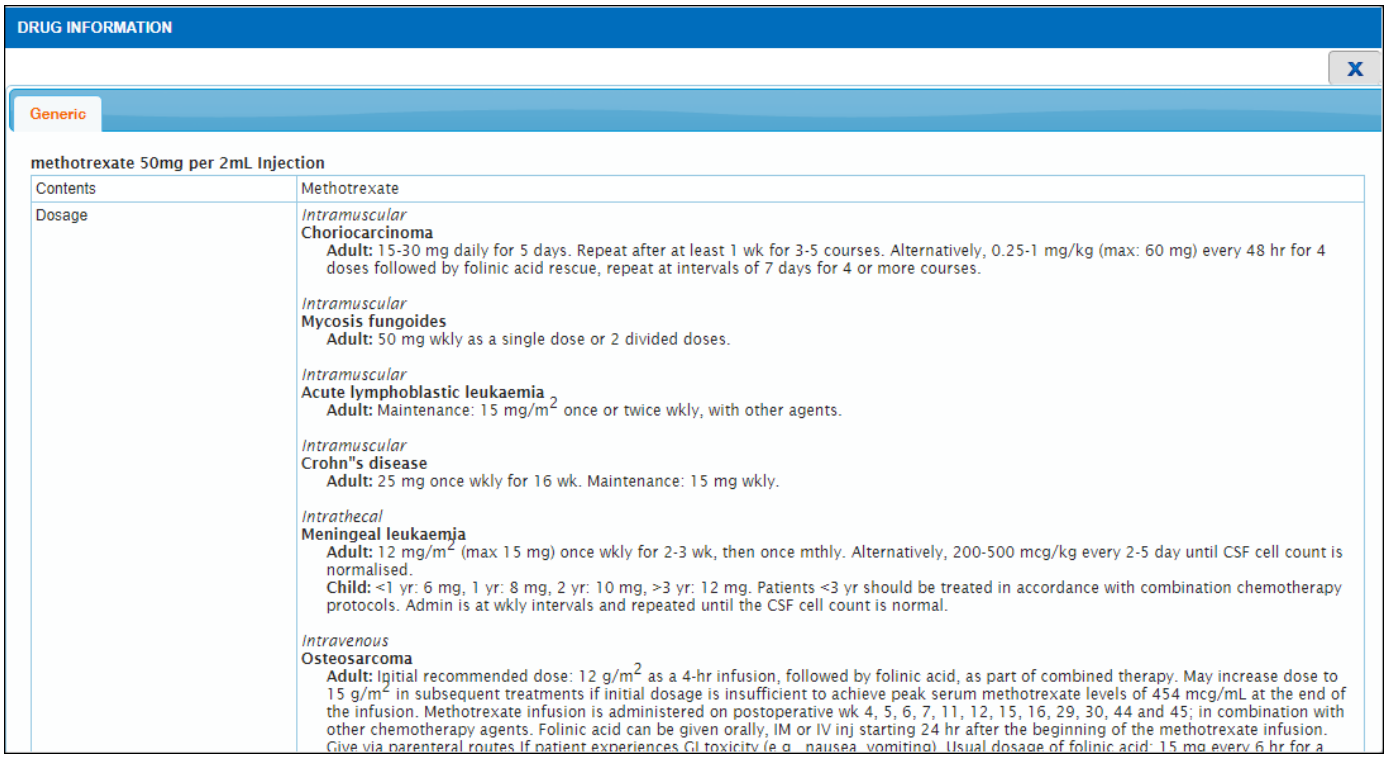


Figure 4.0-19 Drug Information

12

Figure 4.0-20 Verification

STEP 12

Click on the button to verify the order and Dose Schedule screen will display as shown in Figure 4.0-21

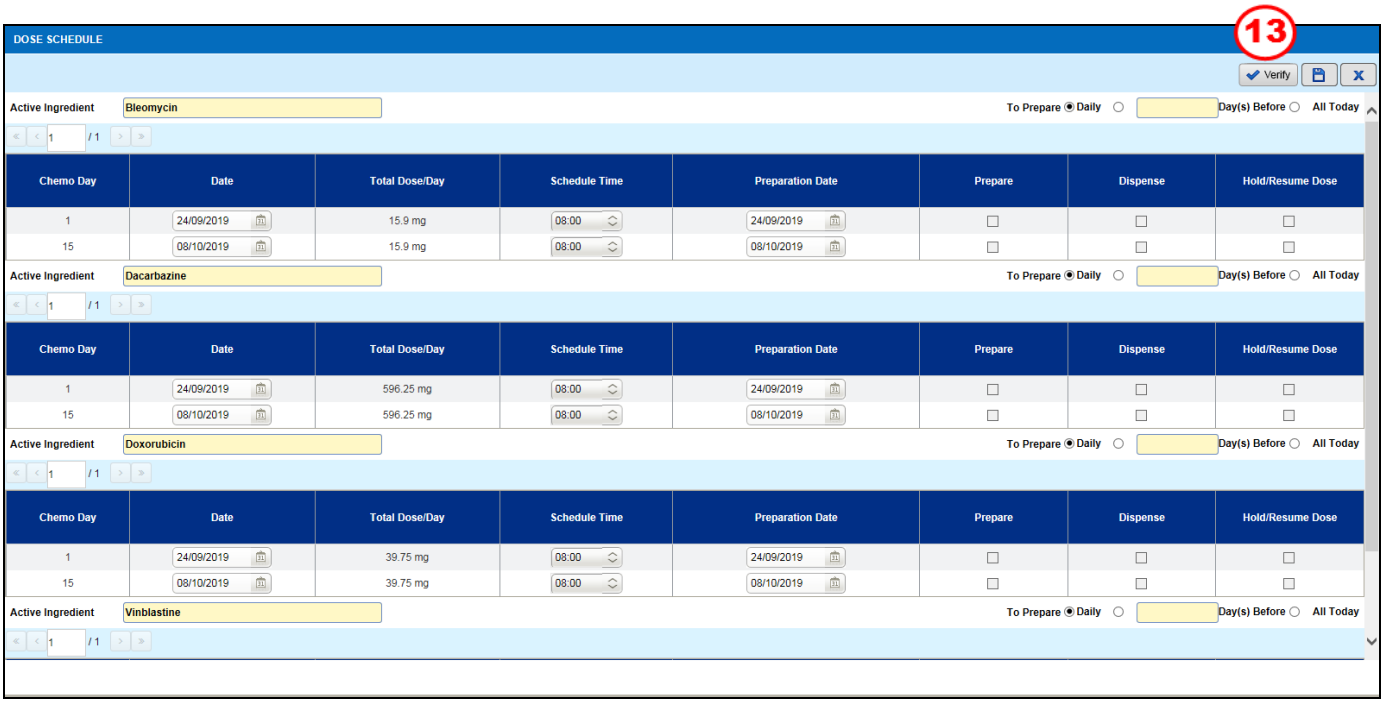


Figure 4.0-21 Dose Schedule

Note

User is able to set 'Preparation Date' manually or based on selection option on 'To Prepare' field:

I. ***Daily*** *- 'Preparation Date' will auto generate based on the same date as Schedule Date*
II. ***Day(s) Before*** *- 'Preparation Date' will auto generate based on the backdated schedule date entered by user*
III. ***All today*** *- 'Preparation Date' will auto generate current date for all open dose schedule record*

STEP 13

Click on the Verify button to verify the Dose Schedule and Confirmation message will displayed as shown in Figure 4.0-22

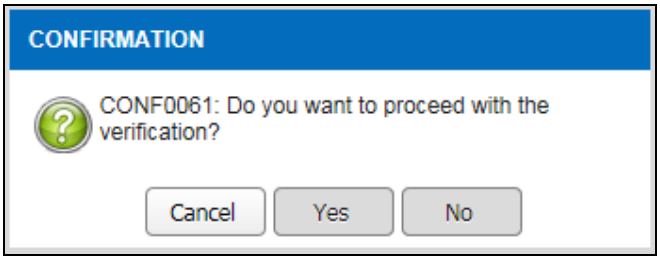


Figure 4.0-22 Confirmation Message

Note

- *Click on the* Yes *button to confirm the verification.*
- *Click on the* No *button to cancel the verification.*
- *Verified order will flow to the preparation stage.*

Note

Intervention:

- *This function is for pharmacist to record intervention and modifies the prescription details.*
- *Right click on the button and select Intervention function and Intervention screen will be displayed as per Figure 4.0-23.*
- *Select Intervention Reason checkbox.*
- *Enter Remarks.*
- *Select Intervention Status radio button. Pharmacist will select as Intervention Accepted after confirm status from prescriber.*

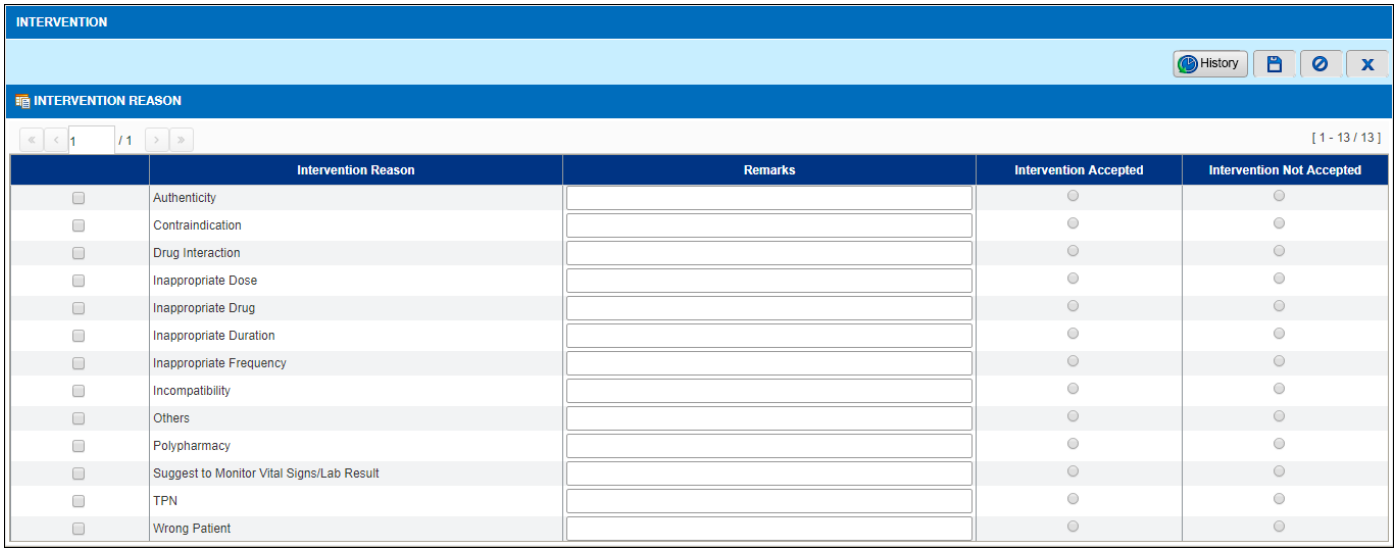


Figure 4.0-23 Intervention

Note

- *Click on the button to save the record and alert message will be displayed as per Figure 4.0-24.*
- *Click on the Yes button to confirm saved.*
- *To view the intervention history, user is allowed to click on the History button to view as per Figure 4.0-25.*

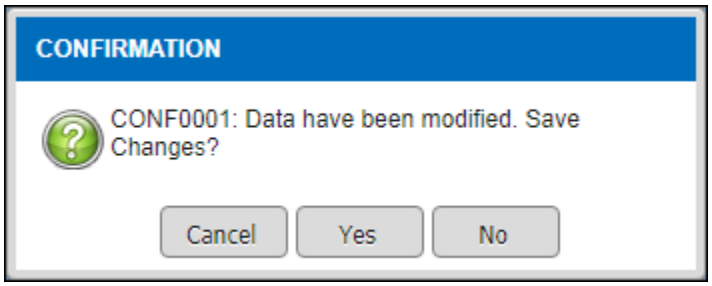


Figure 4.0-24 Confirmation Alert Message

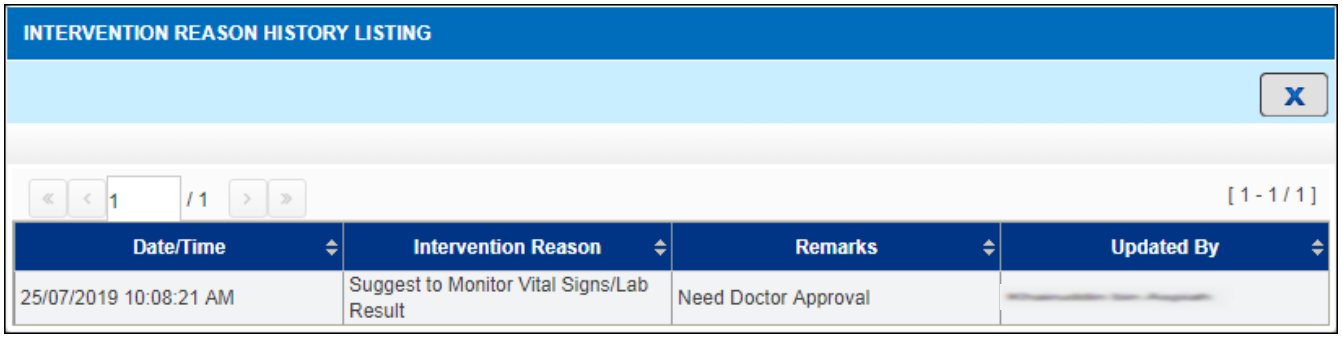


Figure 4.0-25 Intervention Reason History Listing

Hold CDR Order:

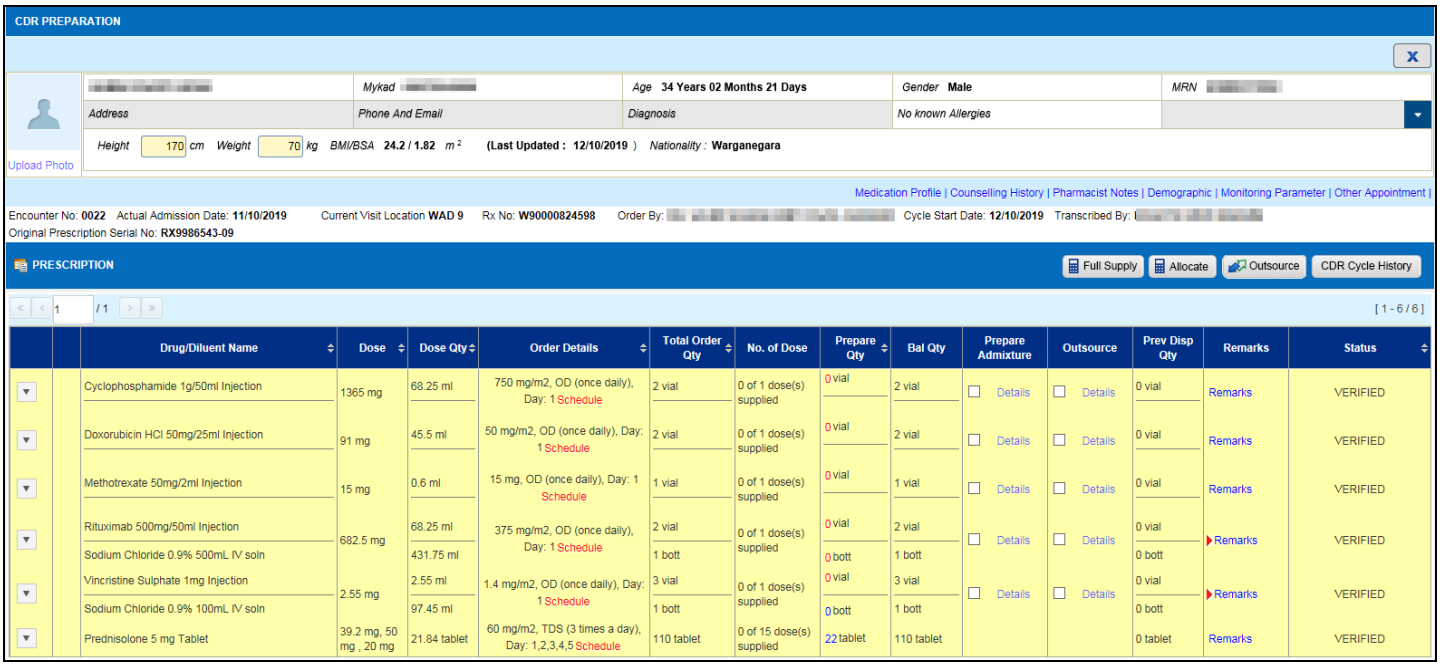


Figure 4.0-26 Hold Order

Note

- *This function is for pharmacist to hold/resume the CDR order.*
- *Right click on the button and select **Hold Order** function and alert message will be displayed as per Figure 4.0-27.*
- *Click on the Yes button and system will hold all the drugs in the prescription.*
- *Click on the No button and system will only hold the selected drug.*
- *Hold Order – Pharmacist Remarks will be displayed after clicking on the Yes or No button as per Figure 4.0-28.*

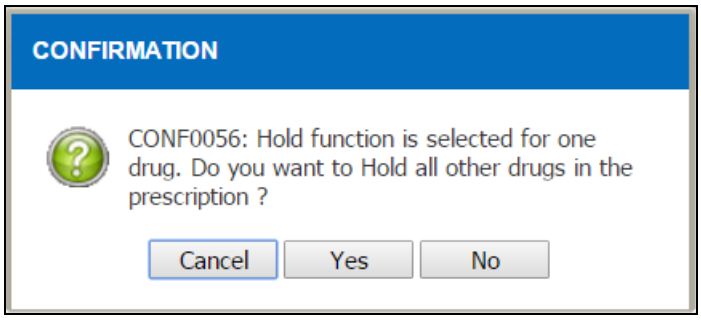


Figure 4.0-27 Confirmation Alert Message

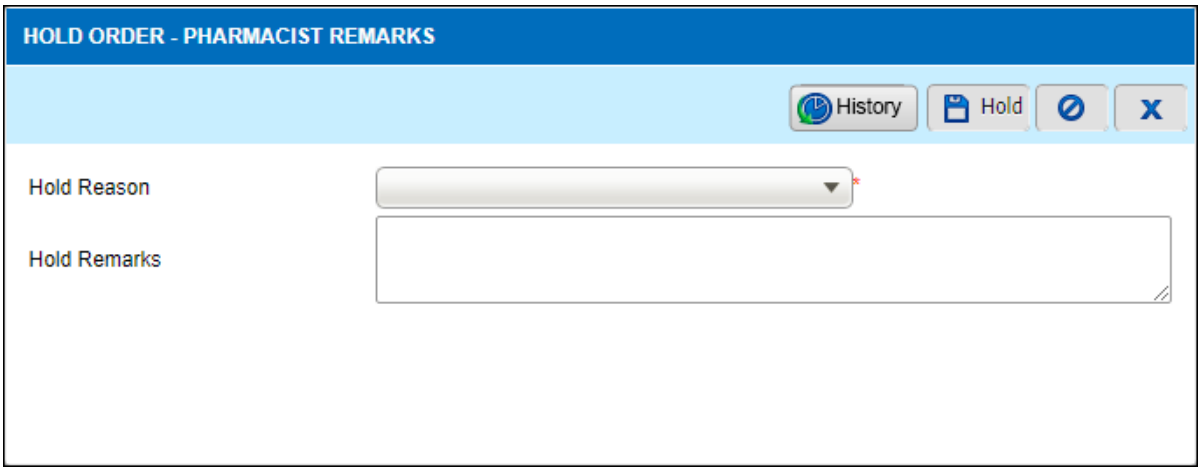


Figure 4.0-28 Hold Order-Pharmacist Remarks

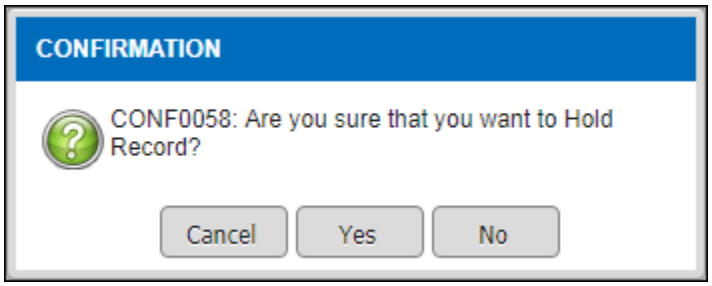


Figure 4.0-29 Confirmation Alert Message

Note

- *Select **Hold Reason** from dropdown box*
  - *Authenticity*
  - *Contraindication*
  - *Drug Interaction*
  - *Inappropriate Dose*
  - *Inappropriate Drug*
  - *Inappropriate Duration*
  - *Inappropriate Frequency*
  - *Incompatibility*
  - *Others*
  - *Patient Refused*
  - *Polypharmacy*
  - *Suggest to Monitor Vital Signs/Lab Result*

- *Wrong Patient*

- *Enter Hold Remarks is required*
- *Click on the* Hold *button to hold the order and alert message will display as per Figure 4.0-29*
- *Click on the* Yes *button to confirm the Hold Record.*
- ***Status** will change to Verified Hold.*

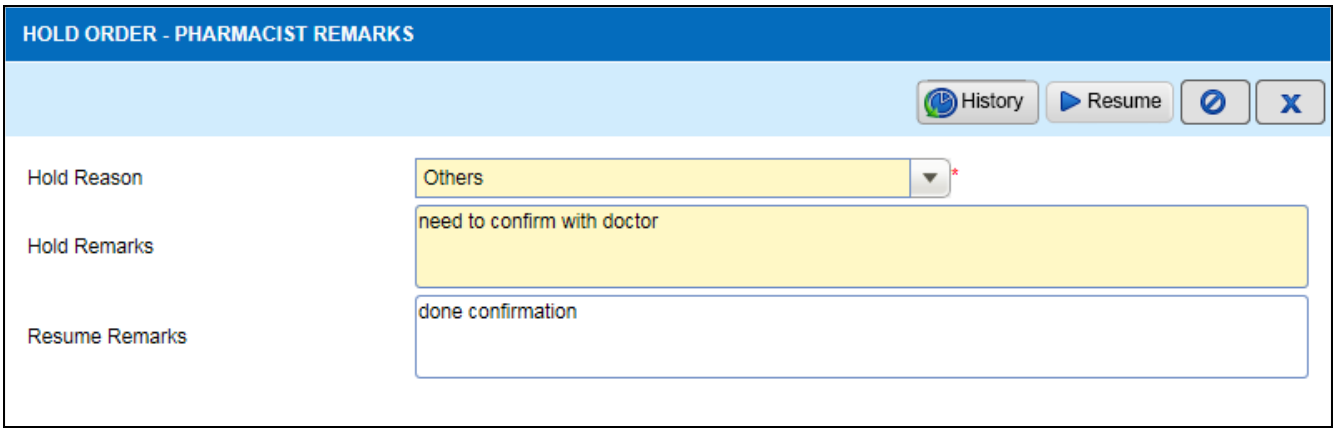


Figure 4.0-30 Hold Order-Pharmacist Remarks

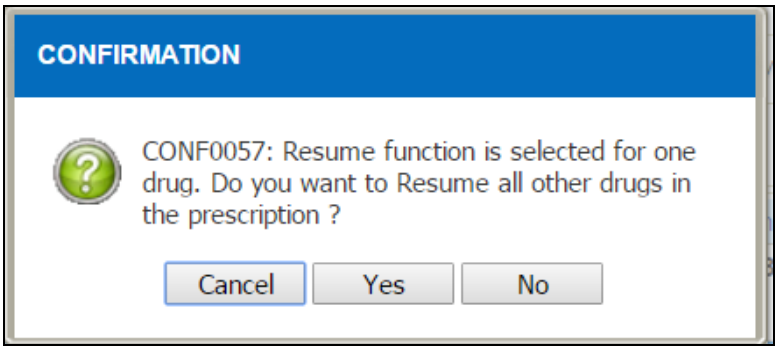


Figure 4.0-31 Confirmation Alert Message

Figure 4.0-32 Hold Reason History Listing

Note

- *Enter Resume Remarks if required.*
- *Click on the* Resume *button to resume the hold order and alert message will be displayed as Figure 4.0-31.*
- *Click on the* Yes *button to confirm the Resume Record.*
- ***Status** will change to Verified.*
- *To view the hold reason history, user is allowed to click on the* History *button to view as per Figure 4.0-32.*

CDR Preparation:

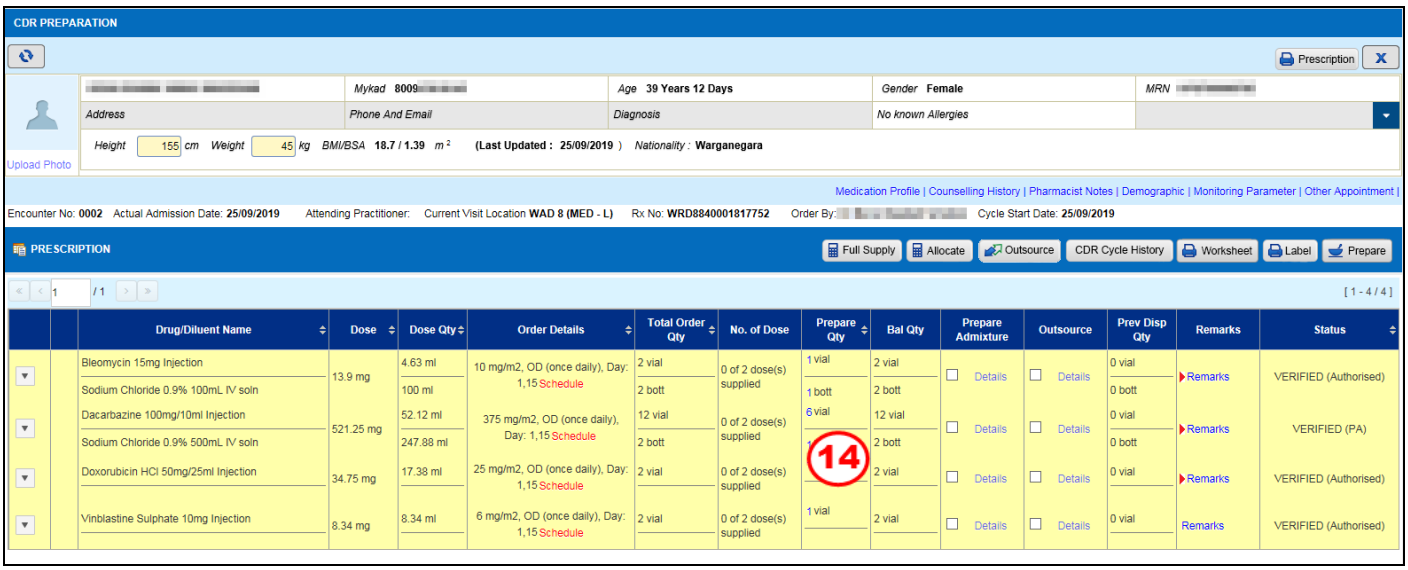


Figure 4.0-33 CDR Preparation

Note

- ***Prepare Qty** will be auto allocate after verify the order in Verification Stage*
- Allocate *button is where system will allocate batch based on the new 'Preparation Date' if user edit the 'Preparation Date' in 'Schedule' hyperlink.*
- Full Supply *button is where system will auto select all balance dose schedule which is not supplied.*

STEP 14

Click on the ***Prepare Qty*** hyperlink and Item Batch Details window will be displayed to allocate quantity as Figure 4.0-34

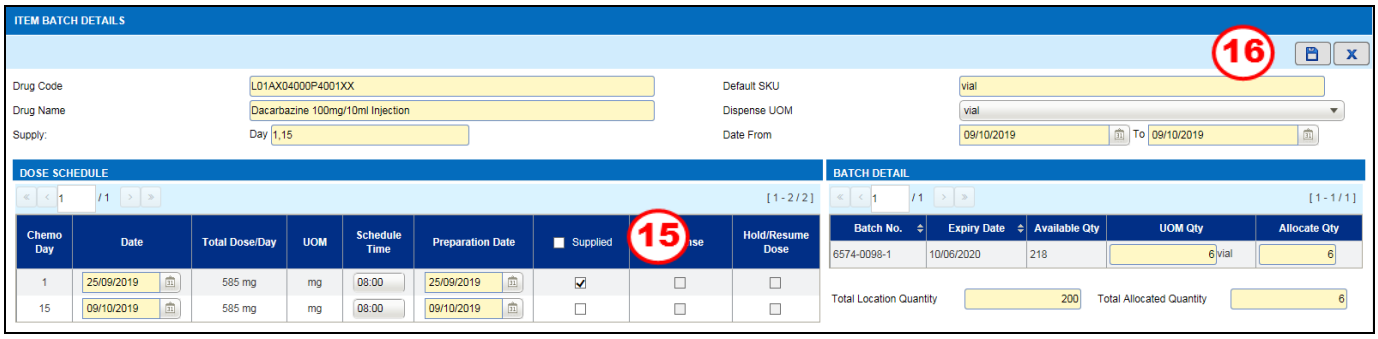


Figure 4.0-34 Item Batch Details

STEP 15

Click on the selected ***Supplied*** ☑ checkbox to select the dose to prepare

STEP 16

Click on the 💾 button to save the record

After saved, Prepare Qty will display base on total allocated quantity in Item Batch Details Screen will display as shown in Figure 4.0-35.

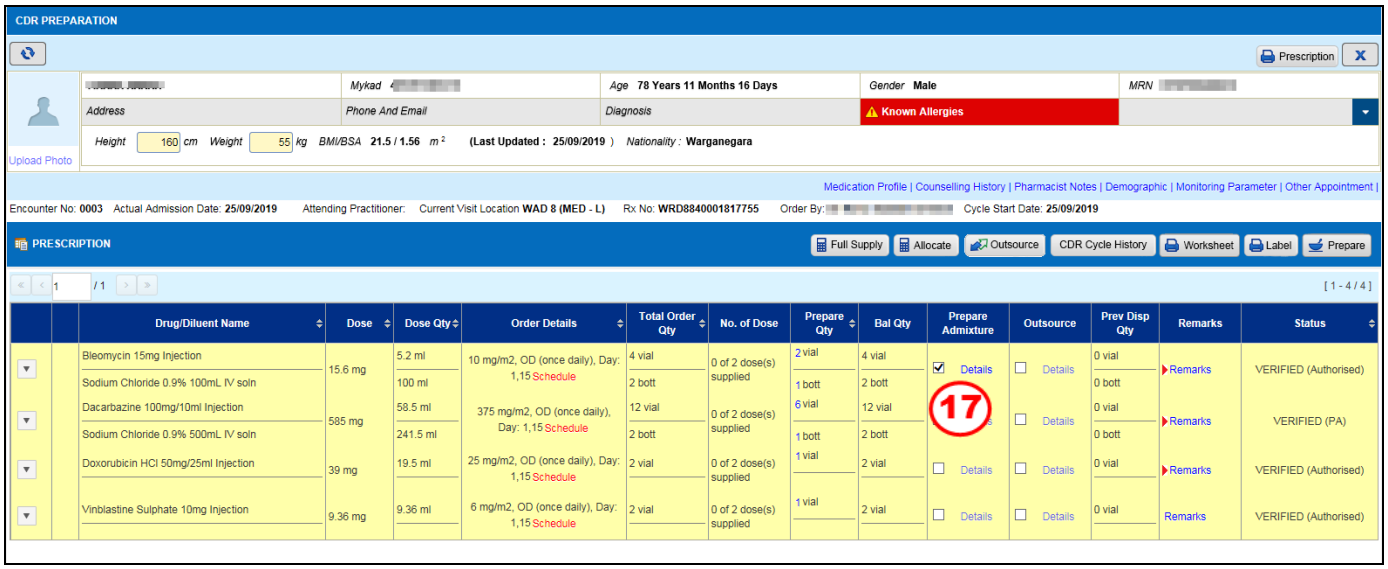


Figure 4.0-35 CDR Preparation

STEP 17

Click on the selected *Prepared Admixture* ☑ checkbox to proceed with preparation

Note

- *Prepare Admixture Screen will save automatically upon clicking the checkbox*
- *If user needs to edit/change the input in Preparation details, click on Details hyperlink and system will display as Figure 4.0-36.*

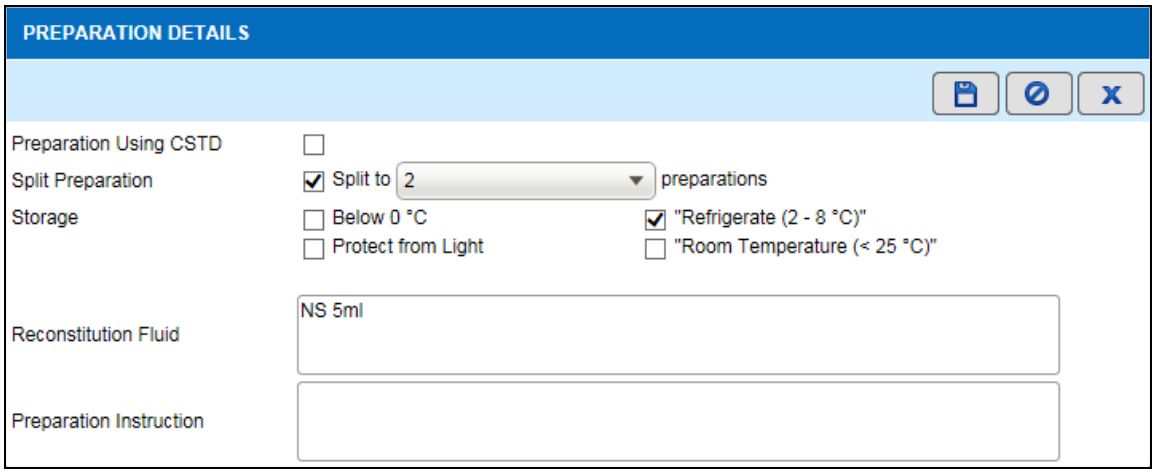


Figure 4.0-36 CDR Preparation Details

Note

- *User can click on the **Using CSTD** ☑ checkbox to specify preparation using CSTD method.*
- *User can click on the **Split Preparation** ☑ checkbox to proceed with split preparation*
- *if user do 'Split Preparation' (Figure 4.0-36) option selected on 'Prepare Admixture' details, it is mandatory for user to save/print label first before proceed with print worksheets.*

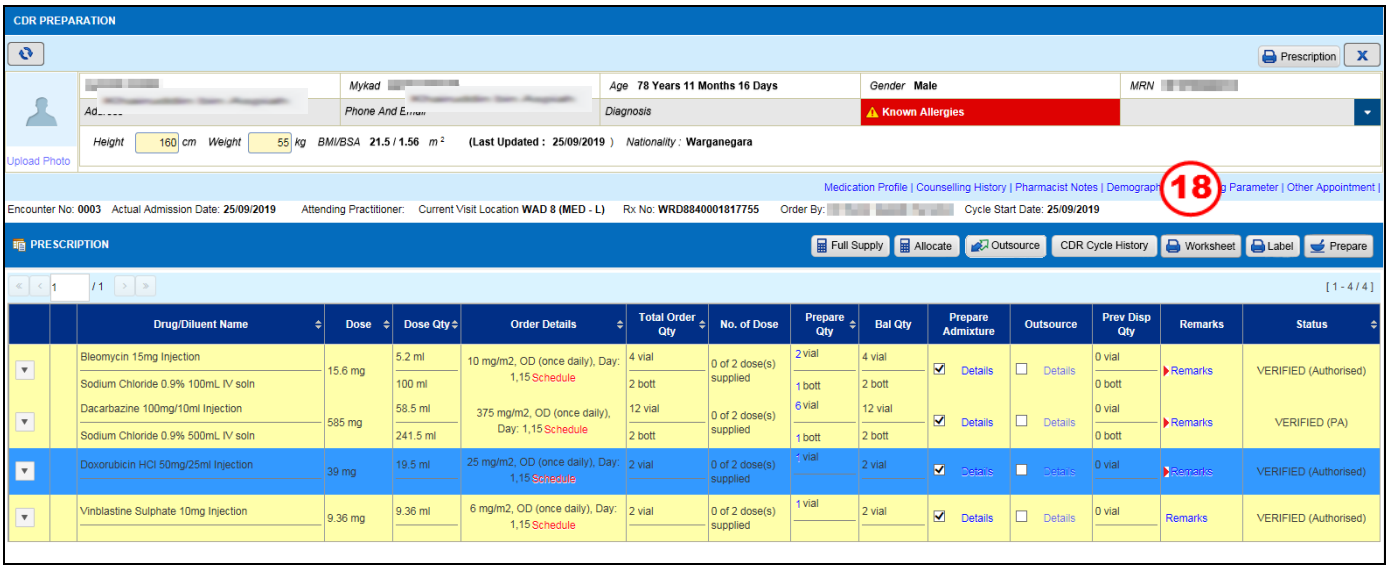


Figure 4.0-37 CDR Preparation

STEP 18

Click on the button to view and print as shown in Figure 4.0-38

CDR WORKSHEET

MINISTRY OF HEALTH

Hospital Pakar Sultanah Fatimah, Muar

Preparation Date : 25/09/2019 **Worksheet ID:** 19-09-0001

Name : [redacted] **Rx. No.** : WRD8840001817755 **Regimen** : ABVD (without bleomycin test dose)
MRN : [redacted] **Ordered By** : [redacted] **Cycle No.** : 1
ID No : [redacted] **Current Visit Location** : WAD 8 (MED - L)

No	ROA	Preparation Name	Drug/Diluent Name	Material Used							Storage	Instruction
				Total Dose	Drug / Diluent Vol	No of Dose	No of Pack	Allocated Qty	Batch No	Expiry Date		
1	IVB	Bleomycin (PARTIAL) Recons. Fluid:NS 5ml	Bleomycin 15mg Injection	7.8 mg	2.6 ml	1 dose(s) to supply	2	2 vial	BTH7786954	25/11/2020	"Refrigerate (2 - 8 °C)"	
		Chemo Day:1,15	Sodium Chloride 0.9% 100mL IV soln		50 ml			1 bottle	234232	02/01/2021		
	IVB	Bleomycin (PARTIAL) Recons. Fluid:NS 5ml	Bleomycin 15mg Injection	7.8 mg	2.6 ml						"Refrigerate (2 - 8 °C)"	
		Chemo Day:1,15	Sodium Chloride 0.9% 100mL IV soln		50 ml							
2	INF	Dacarbazine (PARTIAL) Recons. Fluid:WFI 10ml	Dacarbazine 100mg/10ml Injection	585 mg	58.5 ml	1 dose(s) to supply	1	6 vial	6574-0098-1	10/06/2020	"Refrigerate (2 - 8 °C)", Protect from Light	
		Chemo Day:1,15	Sodium Chloride 0.9% 500mL IV soln		241.5 ml			1 bottle	231231	02/01/2021		

Figure 4.0-38 CDR Worksheet

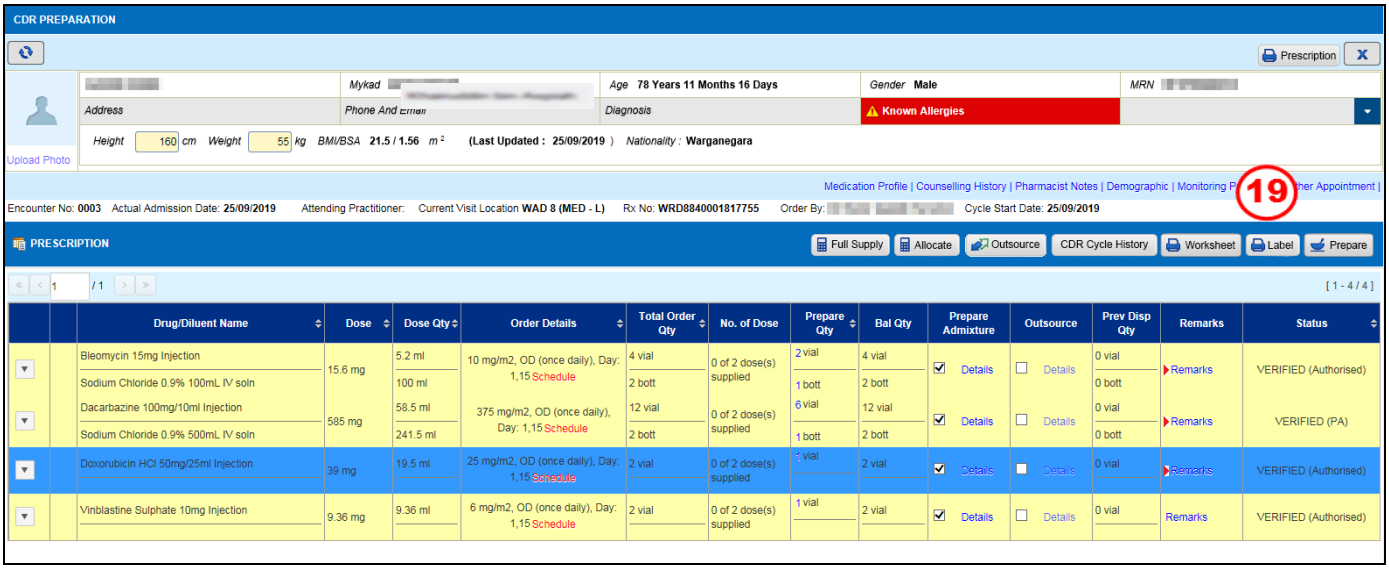


Figure 4.0-39 CDR Preparation

STEP 19

Click on the Label button and CDR Edit Label screen will be displayed as shown in Figure 4.0-40

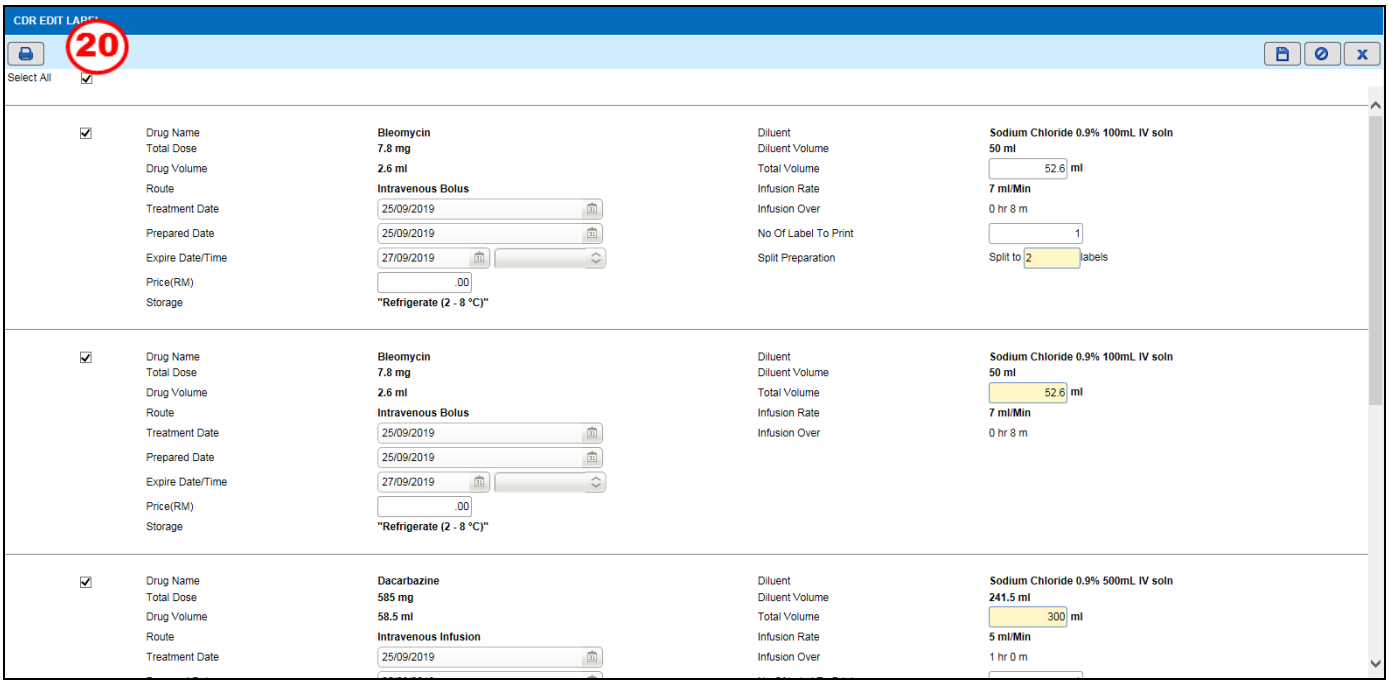


Figure 4.0-40 CDR Edit Label

Note

- *For Split Preparation option selected in the preparation details (Figure 4.0-36), Total Volume will display a value after re-calculate based on value selected in Split Preparation dropdown list.*

- *in CDR Edit Label (Figure 4.0-40), user is allowed to modify **Total volume** where **Total Dose**, **Drug Volume**, **Diluent volume** and **Infusion Over** will be automatically calculate but only applicable if set Split Preparation*

STEP 20

Click on the button to print drug label

Note

Select all ☑ *checkbox to print all drug labels in the selected prescription.*

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR	1 of 2
CYTOTOXIC DRUG - Handle with care	
AXXXX XXXXX	
HPSF00268213 **WAD 8 (MED - L)**	**401011085319**
Drug name **BLEOMYCIN**	ROA : **IVB**
Dose : **7.8 MG**	Vol :**2.6 ML**
IV Fluid : Sodium Chloride 0.9% 100mL IV soln	
Inf. Rate : 7 ml/Min Inf. Over : 0 hr 8 m	Vol : 50 ml
Treatment Date : 25/09/2019	Total Vol : 52.6 ml
Prepared Date : 25/09/2019	Exp Date : 27/09/2019
Price : RM.00	Exp Time :
Storage : "Refrigerate (2 - 8 °C)"	

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR	2 of 2
CYTOTOXIC DRUG - Handle with care	
AXXXX XXXXX	
HPSF00268213 **WAD 8 (MED - L)**	**401011085319**
Drug name **BLEOMYCIN**	ROA : **IVB**
Dose : **7.8 MG**	Vol :**2.6 ML**
IV Fluid : Sodium Chloride 0.9% 100mL IV soln	
Inf. Rate : 7 ml/Min Inf. Over : 0 hr 8 m	Vol : 50 ml
Treatment Date : 25/09/2019	Total Vol : 52.6 ml
Prepared Date : 25/09/2019	Exp Date : 27/09/2019
Price : RM.00	Exp Time :
Storage : "Refrigerate (2 - 8 °C)"	

Figure 4.0-41 Spilt Preparation Drug Label

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR	
CYTOTOXIC DRUG - Handle with care	
AXXXX XXXXX	
HPSF00268213 WAD 8 (MED - L)	**401011085319**
Drug name **DACARBAZINE**	ROA : **INF**
Dose : **585 MG**	Vol :**58.5 ML**
IV Fluid : Sodium Chloride 0.9% 500mL IV soln	
Inf. Rate : 5 ml/Min Inf. Over : 1 hr 0 m	Vol : 241.5 ml
Treatment Date : 25/09/2019	Total Vol : 300 ml
Prepared Date : 25/09/2019	Exp Date : 27/09/2019
Price : RM.00	Exp Time :
Storage : "Refrigerate (2 - 8 °C)", Protect from Light	

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR	
CYTOTOXIC DRUG - Handle with care	
AXXXX XXXXX	
HPSF00268213 WAD 8 (MED - L)	**401011085319**
Drug Name **DOXORUBICIN**	
Dose : **39 MG**	Vol : **19.5 ML**
ROA : **IVB**	
Treatment Date : 25/09/2019	
Prepared Date : 25/09/2019	Exp Date : 28/09/2019
Price : RM64.12	Exp Time :
Storage : "Refrigerate (2 - 8 °C)"	

Figure 4.0-42 CDR Drug Label

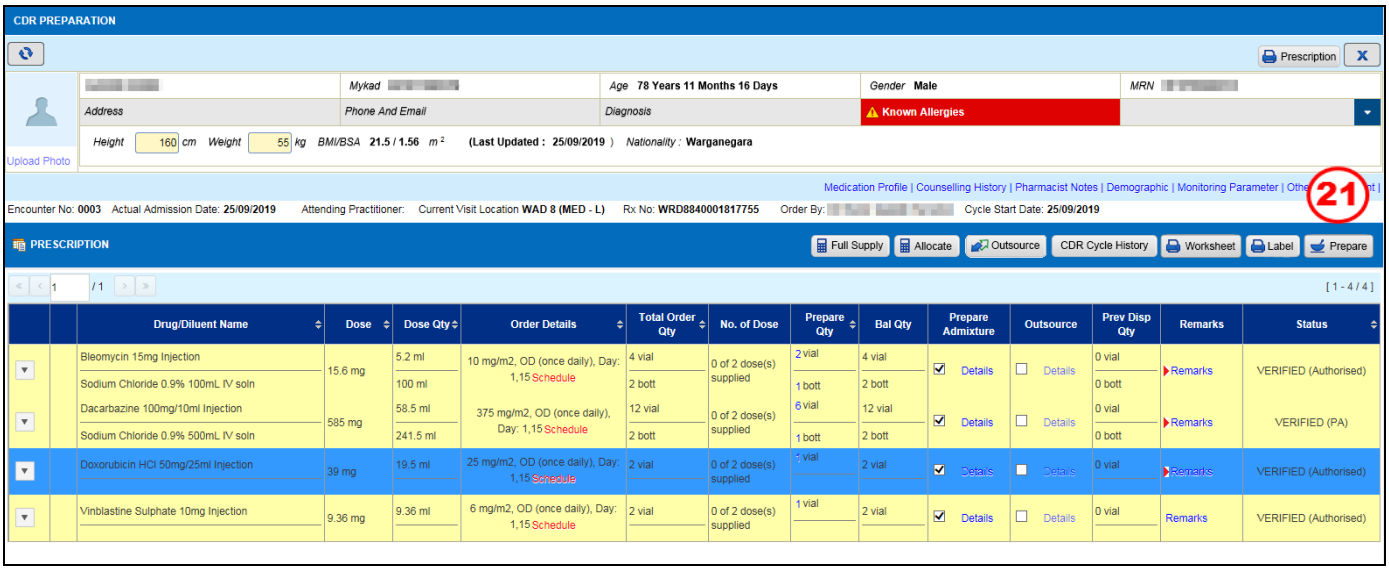


Figure 4.0-43 CDR Preparation

STEP 21

Click on the Prepare button to proceed with preparation and alert message will be displayed as Figure 4.0-44

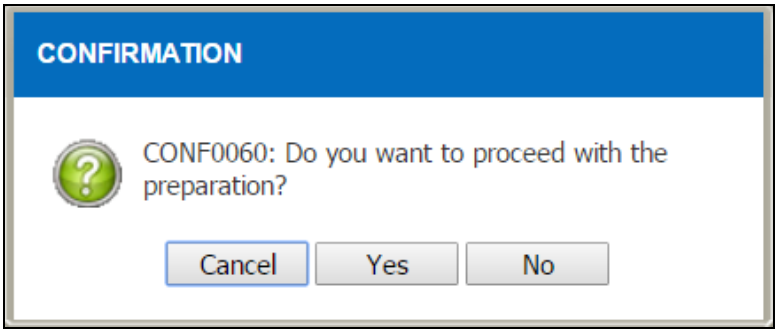


Figure 4.0-44 Confirmation Alert Message

Note

- *Click on the Yes button to proceed*
- *Click on the No button to cancel preparation.*

4.1 Intervention CDR Order

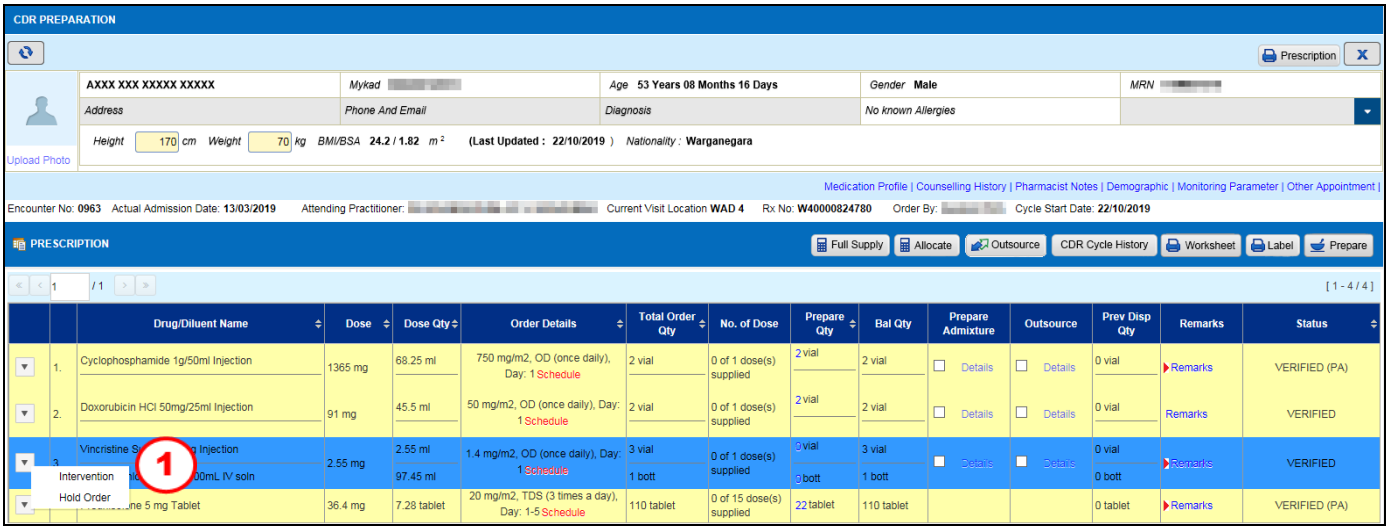


Figure 4.1-1 CDR Preparation

STEP 1
Right click on the button and select ***Intervention*** function and the Intervention screen will be displayed as shown in Figure 4.1-2

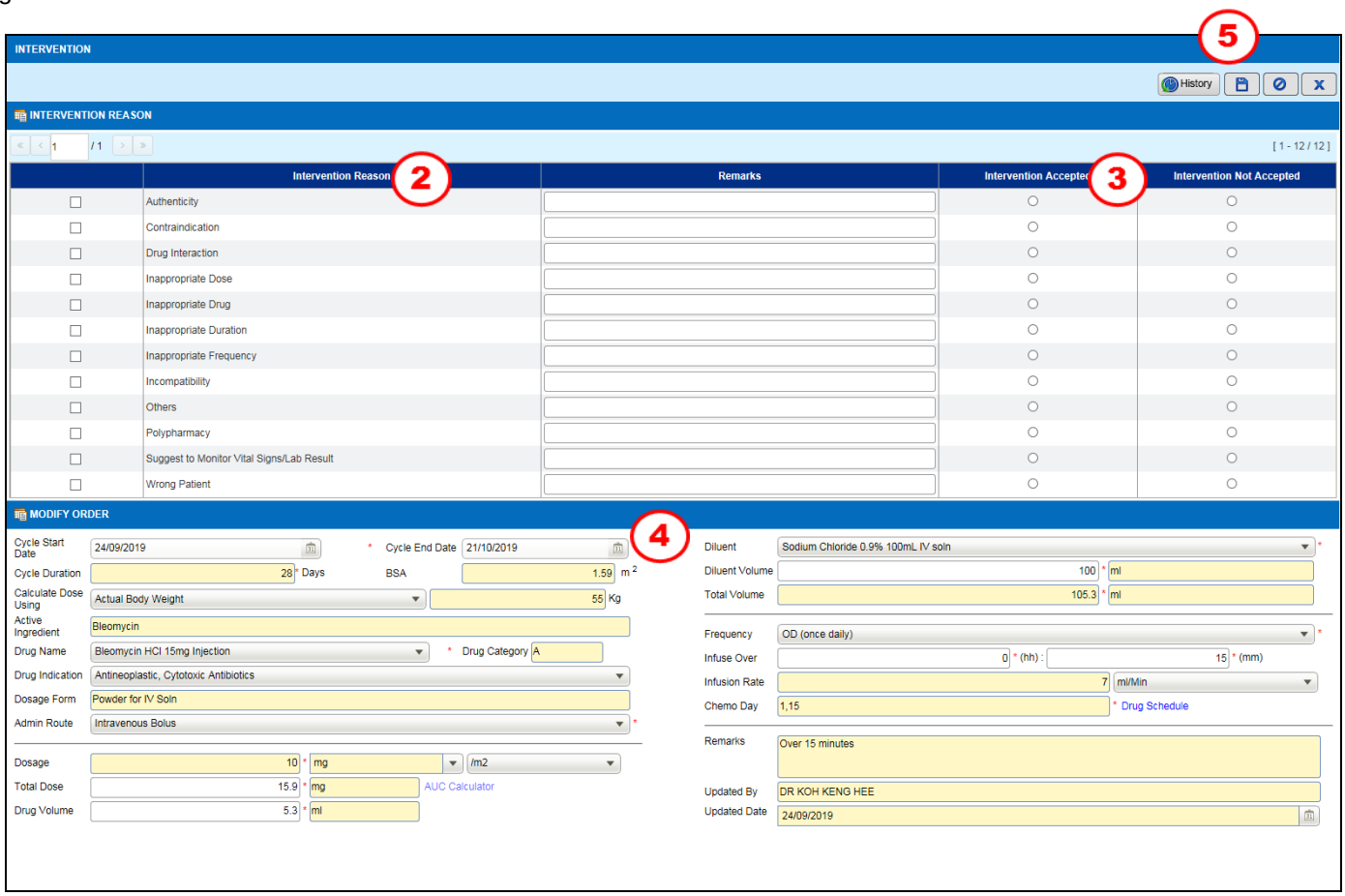


Figure 4.1-2 Intervention

STEP 2
Select ***Intervention Reason*** from *Intervention Reason* column:

- Authenticity
- Contraindication
- Drug Interaction
- Inappropriate Dose
- Inappropriate Drug
- Inappropriate Duration
- Inappropriate Frequency
- Incompatibility
- Others
- Polypharmacy
- Suggest to Monitor Vital Signs/Lab Result
- Wrong Patient

STEP 3
Select ***Intervention Status*** radio button

Note
Pharmacist will select ◉ ***Accepted*** *after confirming status with prescriber.*

STEP 4
Modify order details

STEP 5
Click on the button to save the record and alert message will be displayed as shown in Figure 4.1-3

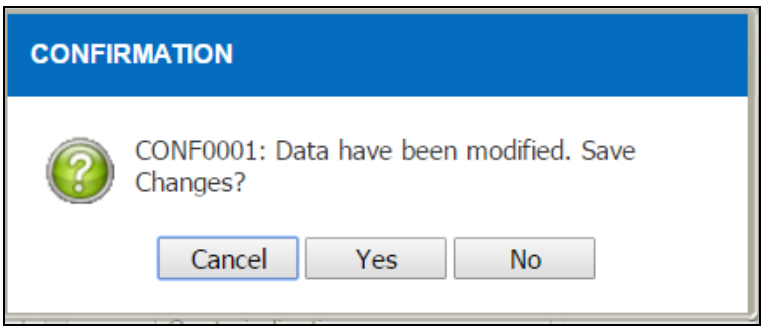


Figure 4.1-3 Alert Message

Note

- *Click on the* Yes *button to confirm saving.*
- *To view the intervention history, user is allowed to click on the* History *button.*

Figure 4.1-4 Pharmacist Remark

- *After intervention is made, Order Details column will change to a hyperlink as shown in Figure 4.1-5, and user is allowed to click to view the original order details.*
- *Order details will be displayed as shown in Figure 4.1-6.*

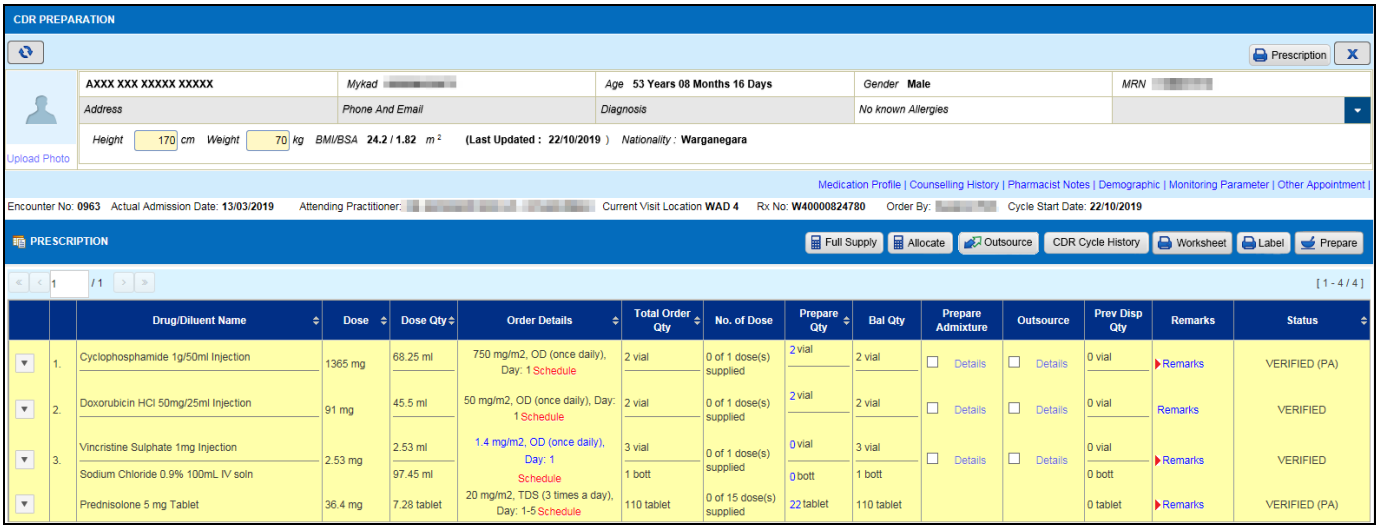


Figure 4.1-5 Prescription After Intervention

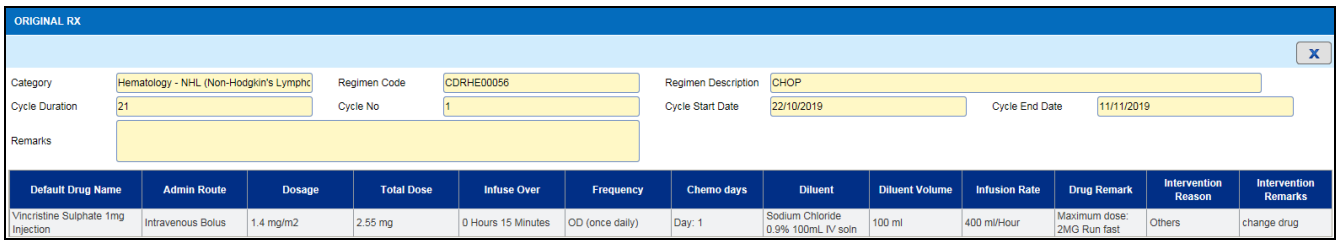


Figure 4.1-6 Original Rx

Note

In intervention screen, user also is allowed to do a Hold function for selected dose as shown in Figure 4.1-7

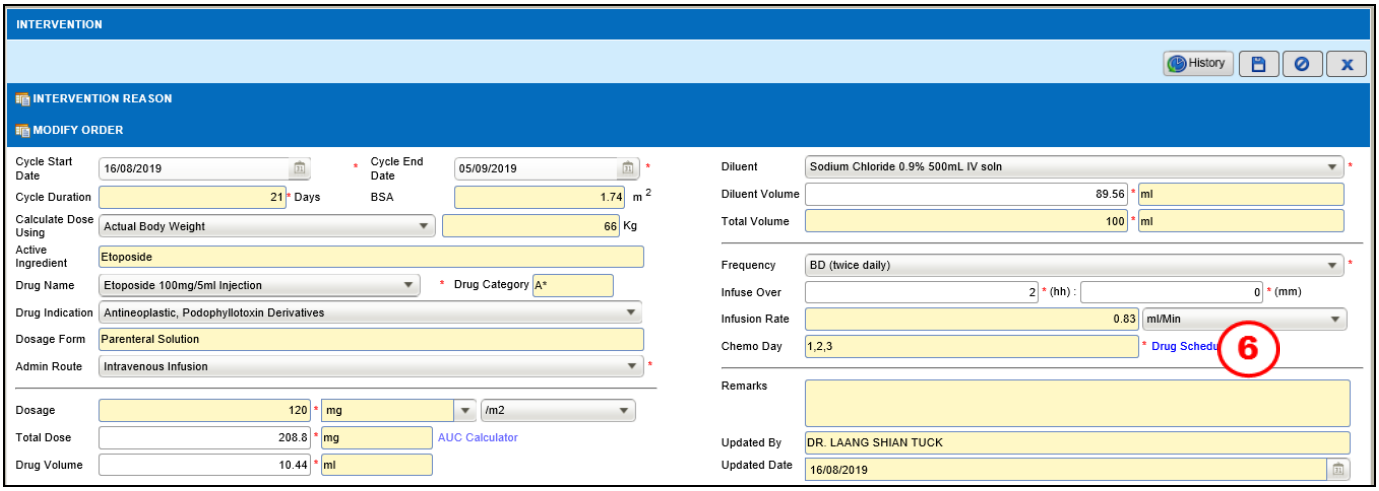


Figure 4.1-7 Intervention

STEP 6
Click on the ***Drug Schedule*** hyperlink and dose schedule window will be display as Figure 4.1-8

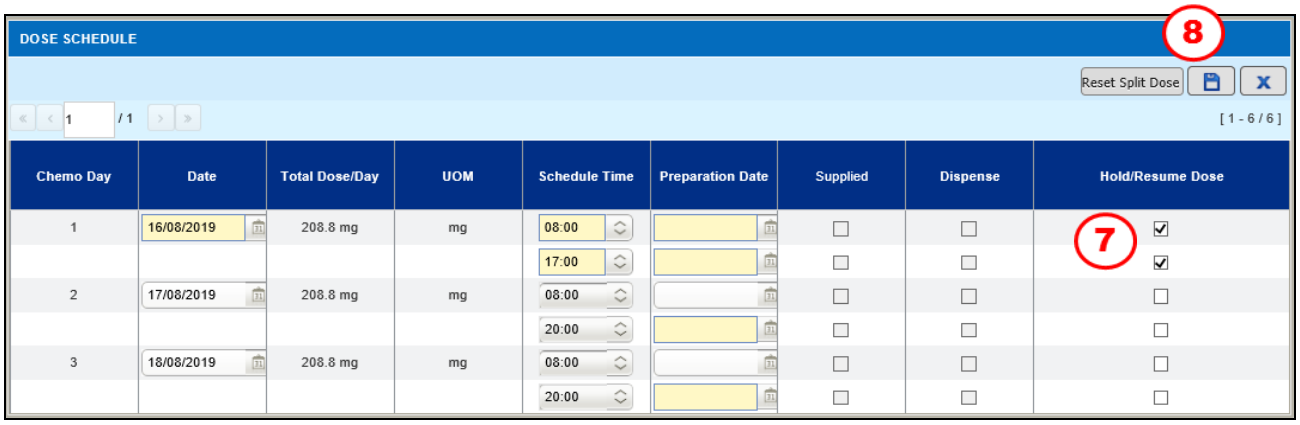


Figure 4.1-8 Dose Schedule

STEP 7
Click on the ***Hold/Resume Dose*** ☑ checkbox

Note
User is allowed to Hold only for Dose that does not yet check on the 'Supplied' or 'Dispense' checkbox

STEP 8
Click on the button to save the record

Note
*User is allowed to hold drug by dose only through Intervention screen. once user selected Hold dose and save the records, it is mandatory for user to enter **Intervention Reason - Remarks** before can proceed to save intervention records (Figure 4.1-9)*

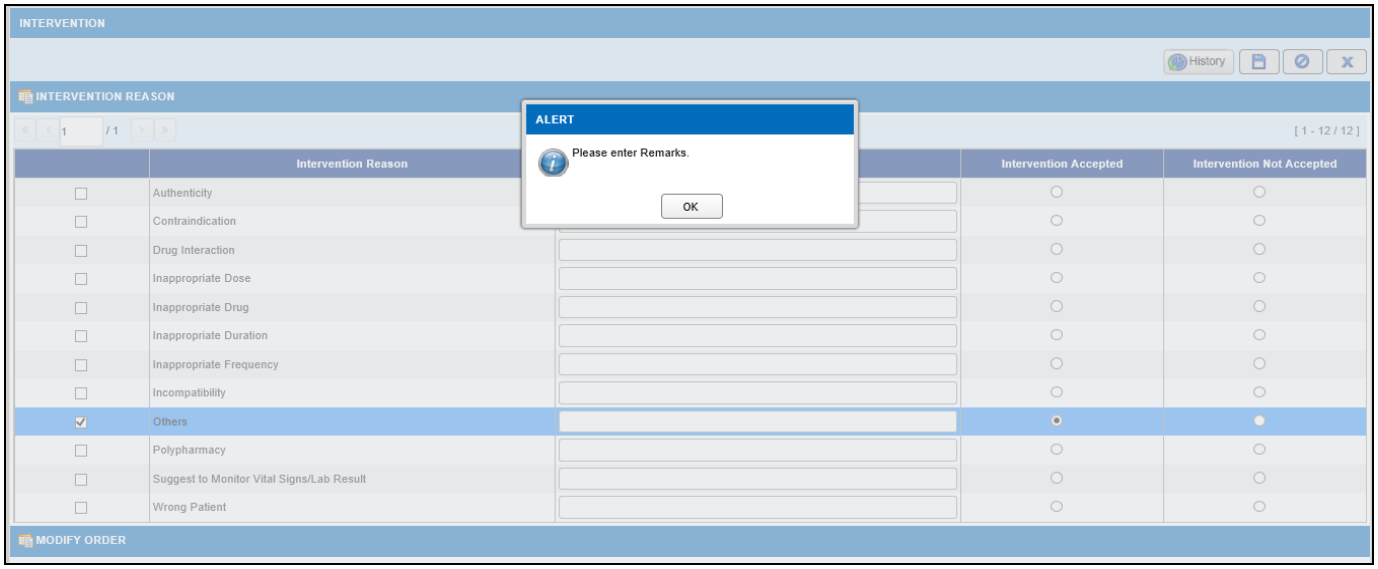


Figure 4.1-9 Intervention

Note

For partially supply, user is allowed to modify Total Dose/Day as shown in Figure 4.1-10 and it is applicable only for Infusion/Injectable Drug.

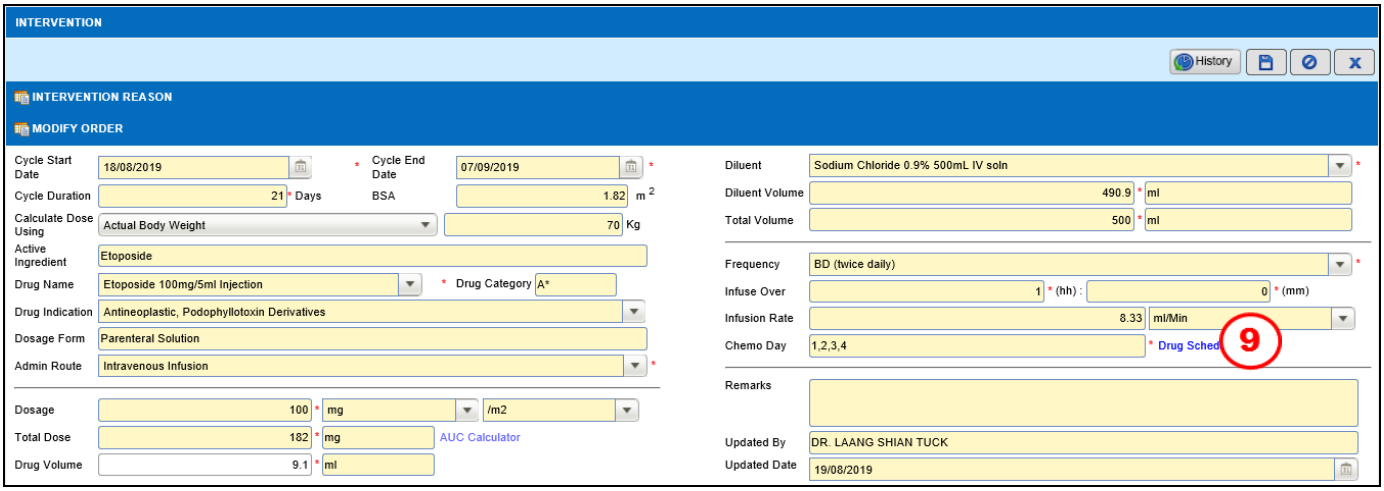


Figure 4.1-10 Intervention

STEP 9

Click on the ***Drug Schedule*** hyperlink and dose schedule window will be display as Figure 4.1-11

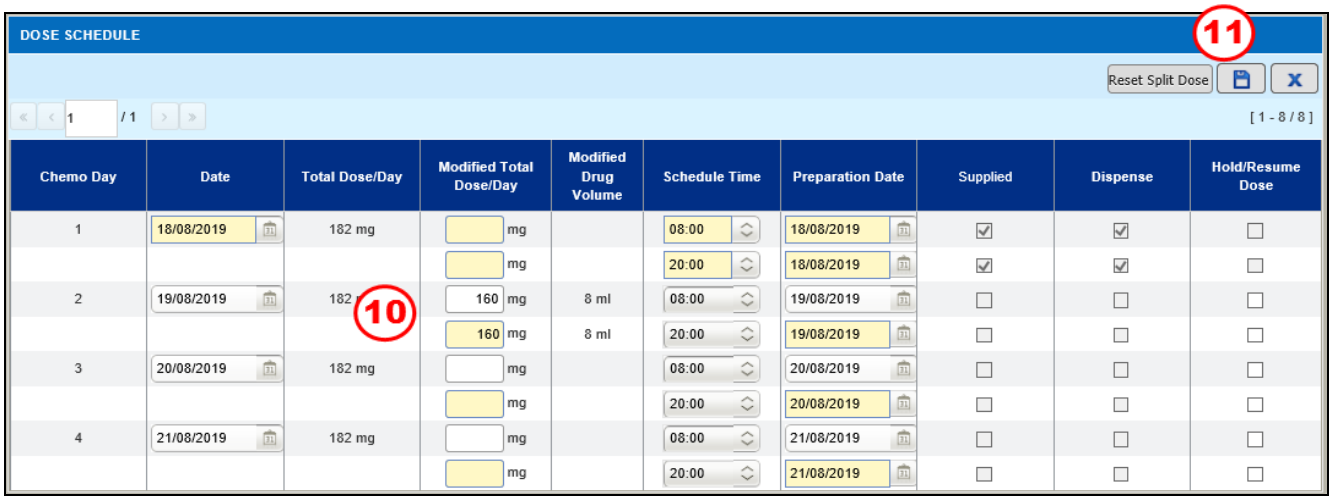


Figure 4.1-11 Dose Schedule

STEP 10

Enter ***Modified Total Dose/Day***

Note

- *Once users entered value for 'Modified Total Dose/Day', 'Modified Drug Volume' value will be auto calculated and display.*
- *If 1 chemo day/schedule date have multiple schedule time, only on first schedule time dose able to enter/edit 'Modified Total Dose/Day' value and the sequences of schedule time dose will follow the first schedule time dose.*

STEP 11

Click on the button to save the record

Note

After save the Dose Schedule with Modified Total Dose/Day value, 'Intervention Reason – Remarks' is mandatory for user to specify before can proceed to save intervention record as shown in Figure 4.1-12

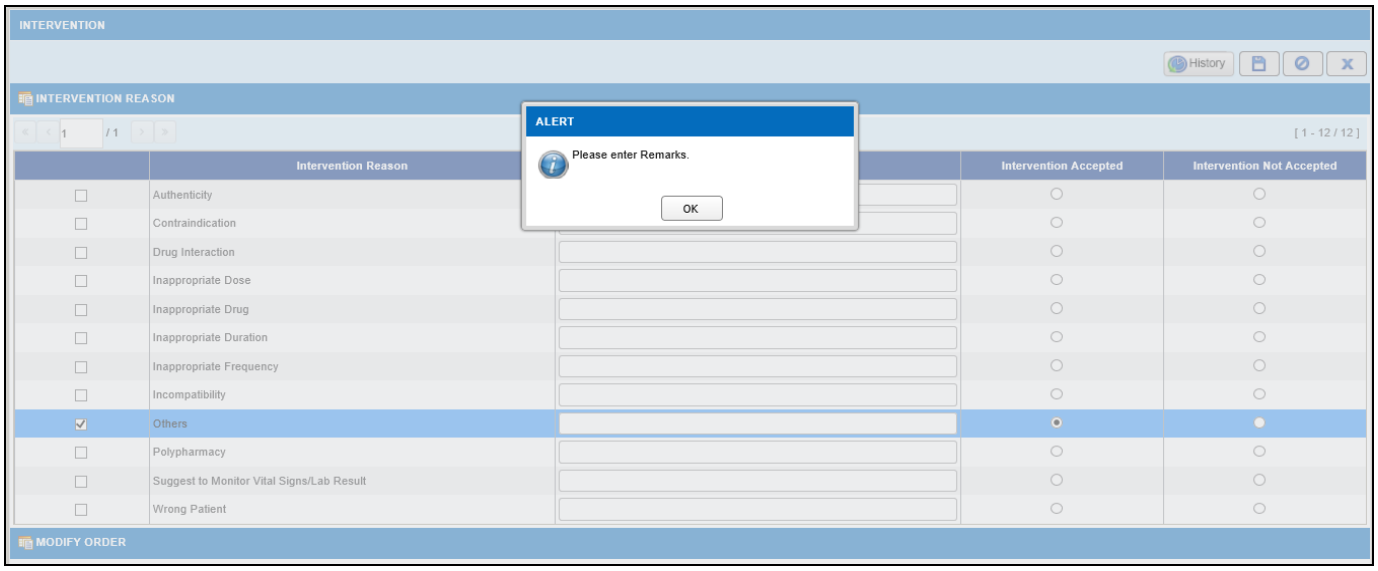


Figure 4.1-12 Intervention

4.2 Renew Rx

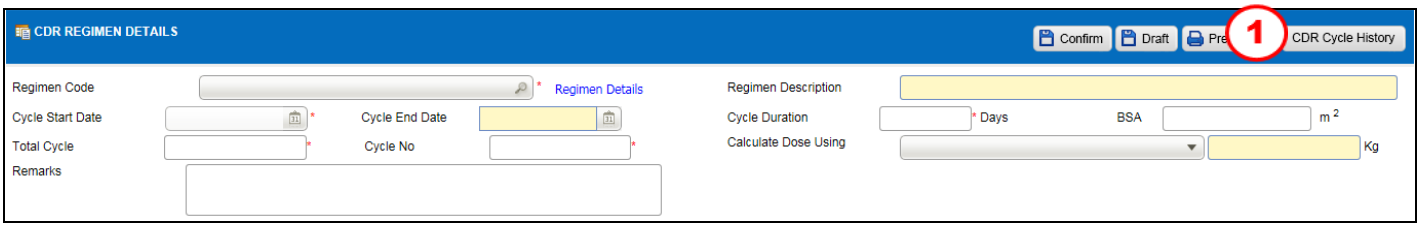


Figure 4.2-1 CDR Order

STEP 1

Click on the CDR Cycle History button and CDR Cycle History screen will be display as Figure 4.2-2

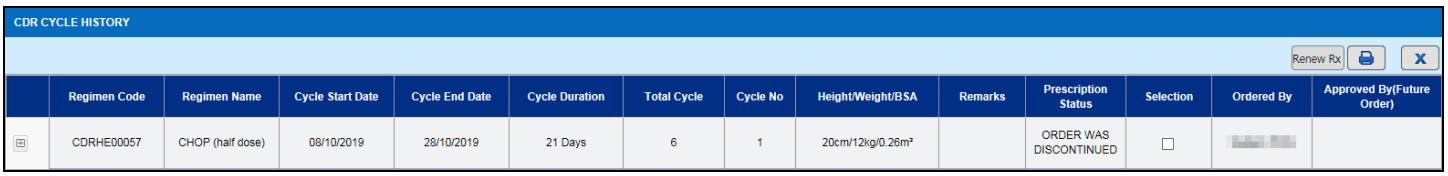


Figure 4.2-2 CDR Cycle History

Note

- *This screen will show all the CDR Regimen history for the patient*
- *Click on the button to view all Drug under the regimen as shown in Figure 4.2-3*

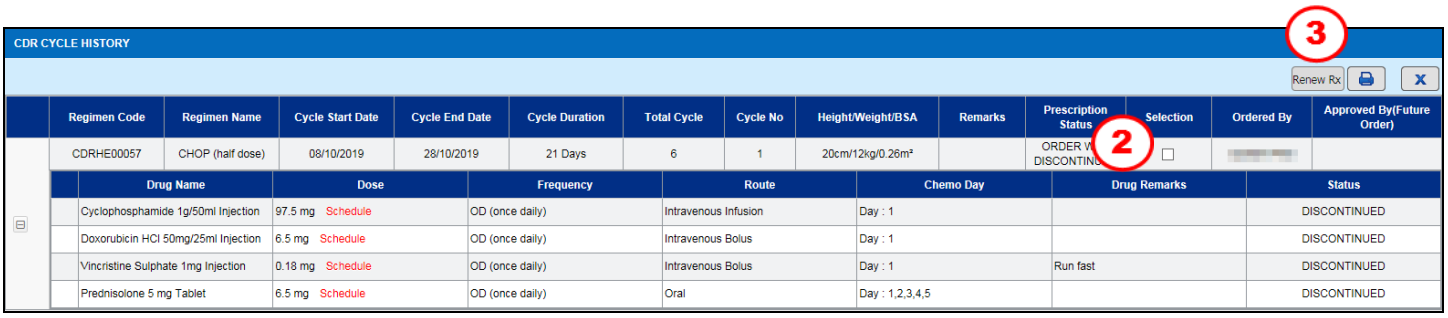


Figure 4.2-3 CDR Cycle History

STEP 2

Click on the Selection checkbox

STEP 3

Click on the Renew Rx button to renew the detail will be updated as shown in Figure 4.2-4

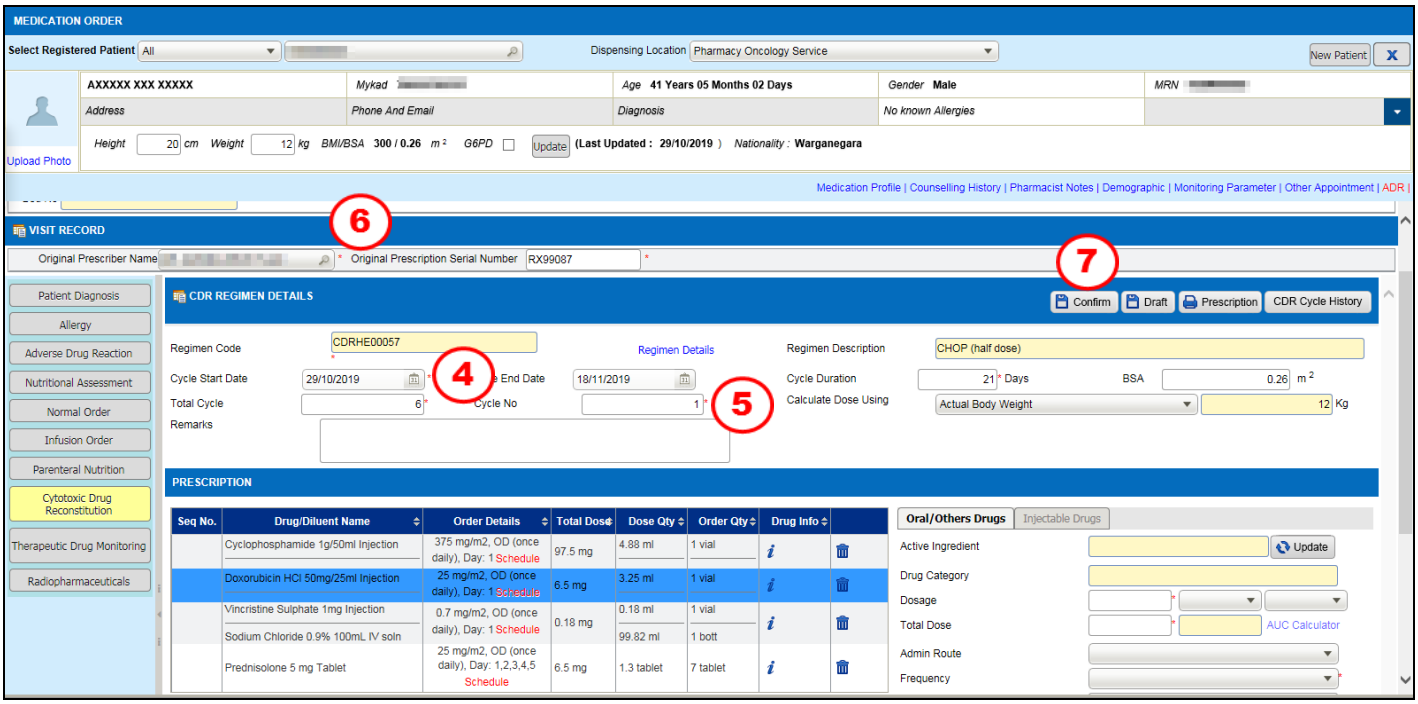


Figure 4.2-4 Medication Order

STEP 4
Select ***Cycle Start Date***

STEP 5
Enter ***Cycle No***

STEP 6
Select ***Original Prescriber Name***

STEP 7
Click on

the button to confirm the CDR Order

4.3 Sending Outsource

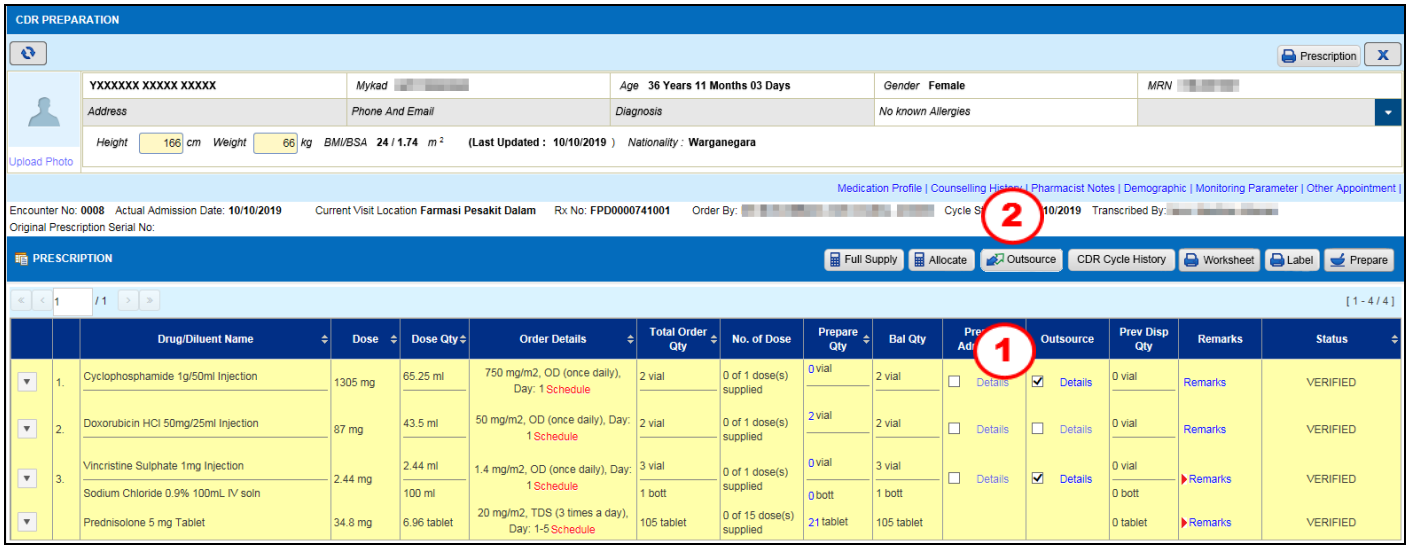


Figure 4.3-1 CDR Preparation

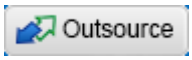
STEP 1

Select and click on the ***Outsource*** ☑ checkbox

Note

*If **Prepare Qty** have been allocate, user need to de-allocate the drug first before can proceed for outsource*

STEP 2

Click on the 

button and Outsource Details window will be display as Figure 4.3-2

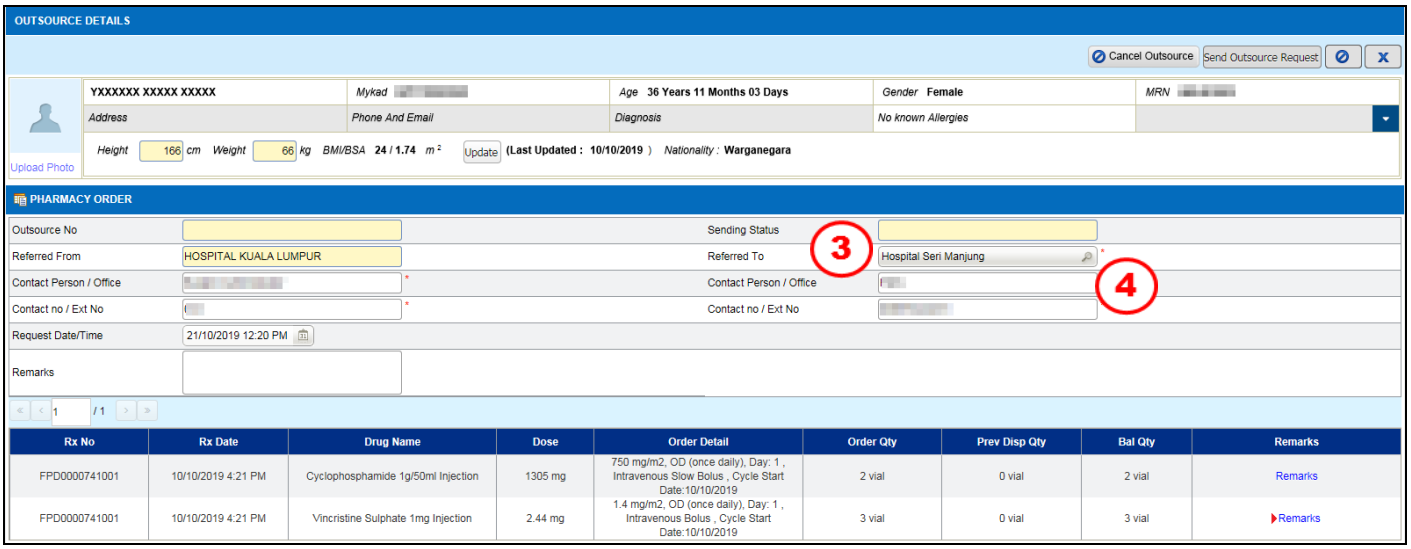


Figure 4.3-2 Outsource Details

STEP 3

Select ***Referred To*** from button

STEP 4

Enter ***Contact Person / Office*** and ***Contact No / Ext No***

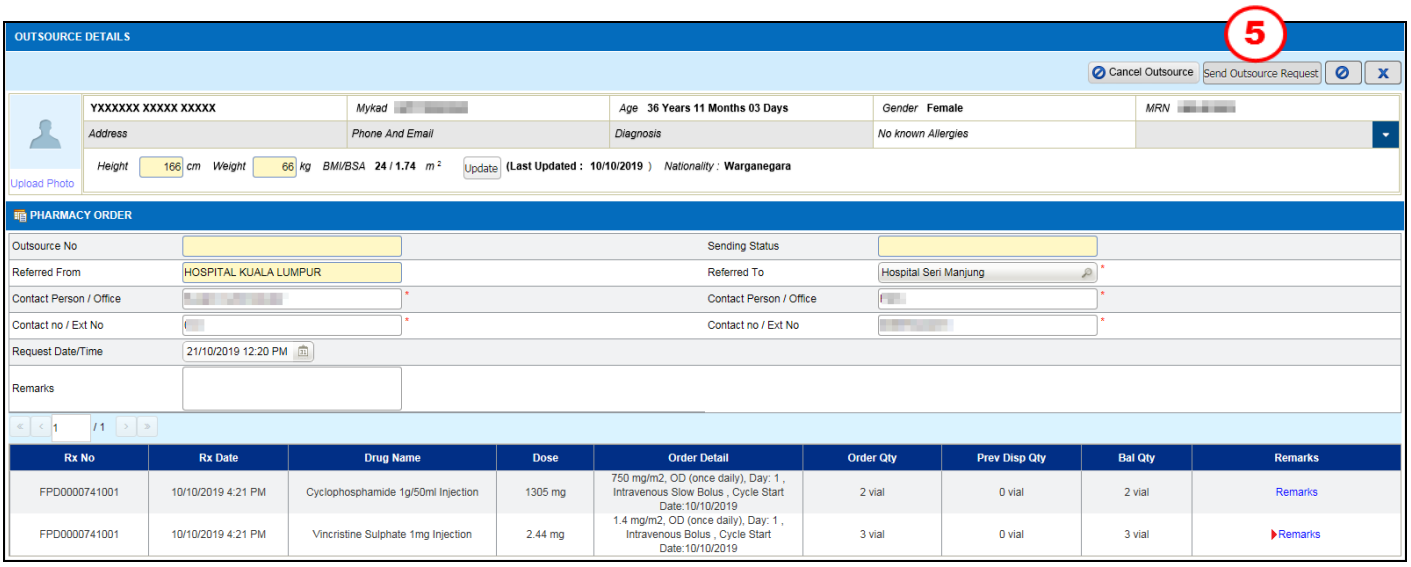


Figure 4.3-3 Outsource Details

STEP 5

Click on the Send Outsource Request button and Confirmation Message will be display as Figure 4.3-4

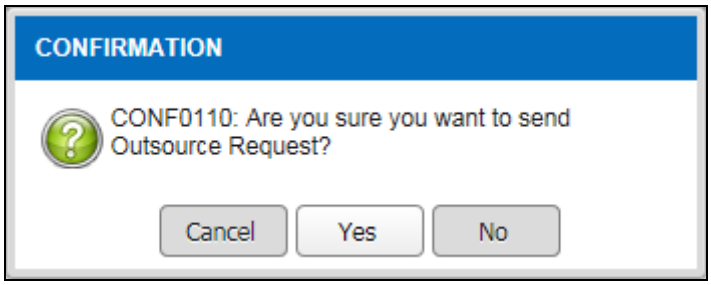


Figure 4.3-4 Confirmation Message

Note

- *Click on the* Yes *button to send the request and Information Message will be display as Figure 4.3-5*

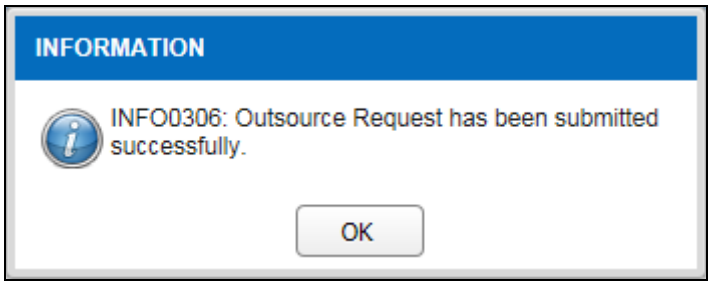


Figure 4.3-5 Information Message

- *Click on the* OK *button and screen will be updated as shown in Figure 4.3-6*

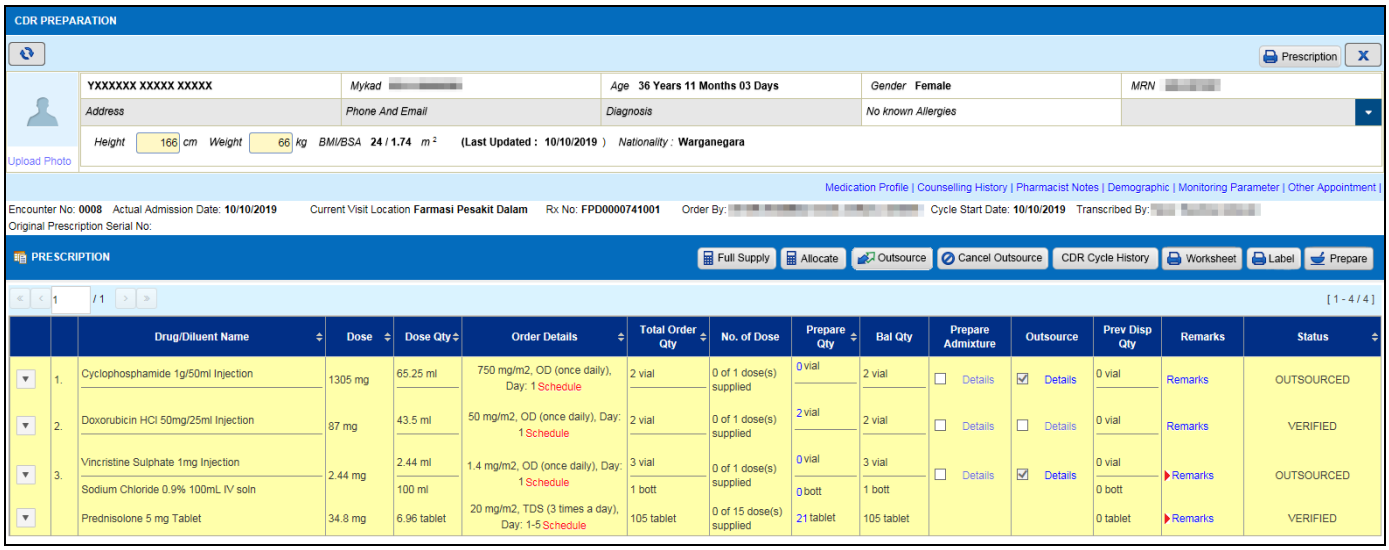


Figure 4.3-6 CDR Preparation

Note

- *Status of the drug will change to **OUTSOURCED***
- *User is allowed to cancel the Outsource by click on the* Cancel Outsource *button and Outsource Details window will be display as Figure 4.3-7*

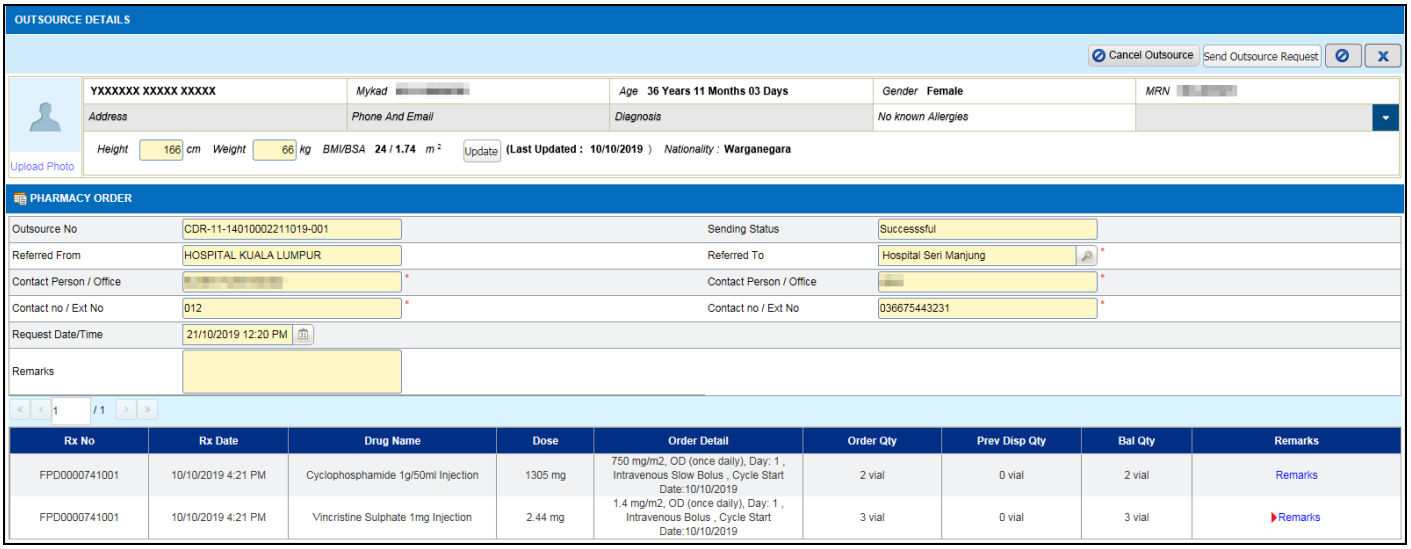


Figure 4.3-7 Outsource Details

- *Click on the* Cancel Outsource *button to cancel the Outsource record and Confirmation Message will be displayed as Figure 4.3-8*
- *If there is more than one (1) Outsource Drug, to cancel only one (1) drug user need to click on the **Details** Hyperlink of the selected Drug and Outsource Details screen will be display as Figure 4.3-7 and click on the* Cancel Outsource *button*

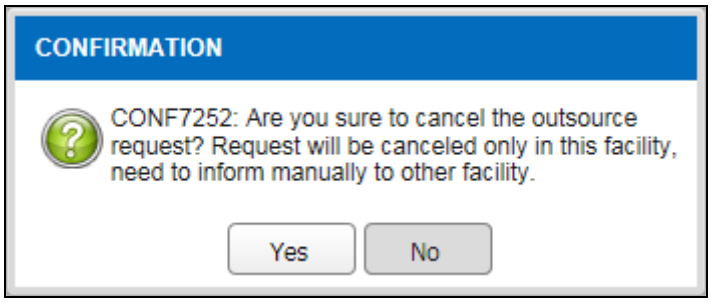


Figure 4.3-8 Confirmation Message

Note

- *Click on the* Yes *button to cancel the request and Information Message will be display as Figure 4.3-9*
- *For cancel outsource, user need to inform the other facility manually*

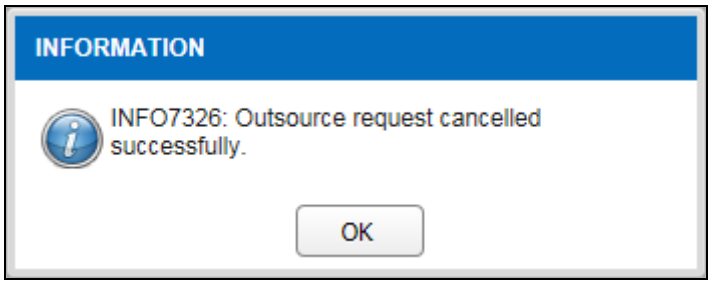


Figure 4.3-9 Information Message

- *Click on the* OK *button and status of the drug will change to* ***VERIFIED***

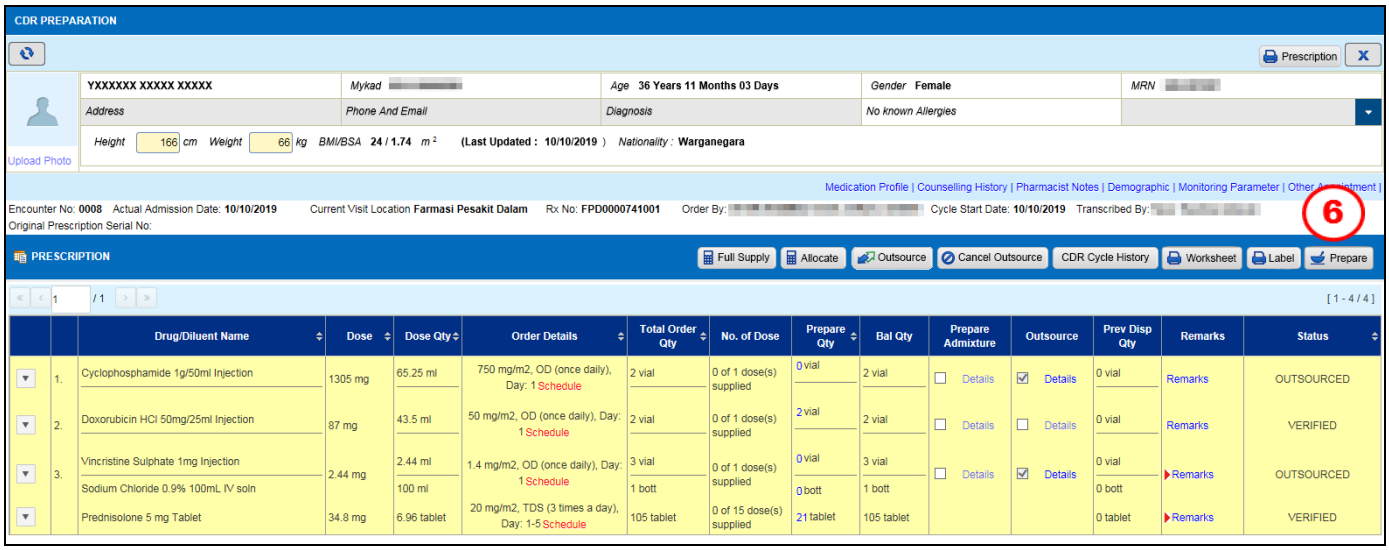


Figure 4.3-10 CDR Preparation

STEP 6

Click on the Prepare button to proceed with preparation

4.4 Receive Outsource

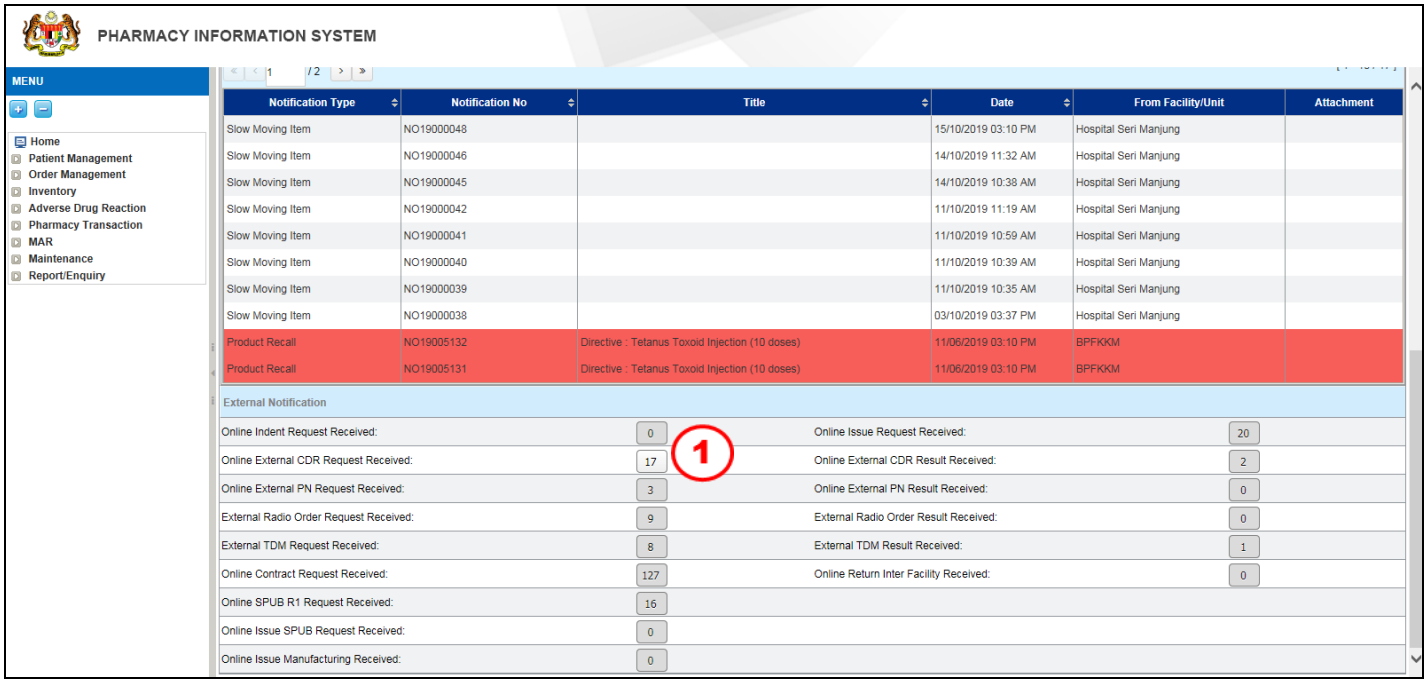


Figure 4.4-1 External Notification

STEP 1

Click on the ***Online External CDR Request Received*** 17 button and Outsource Listing window will be display as Figure 4.4-2

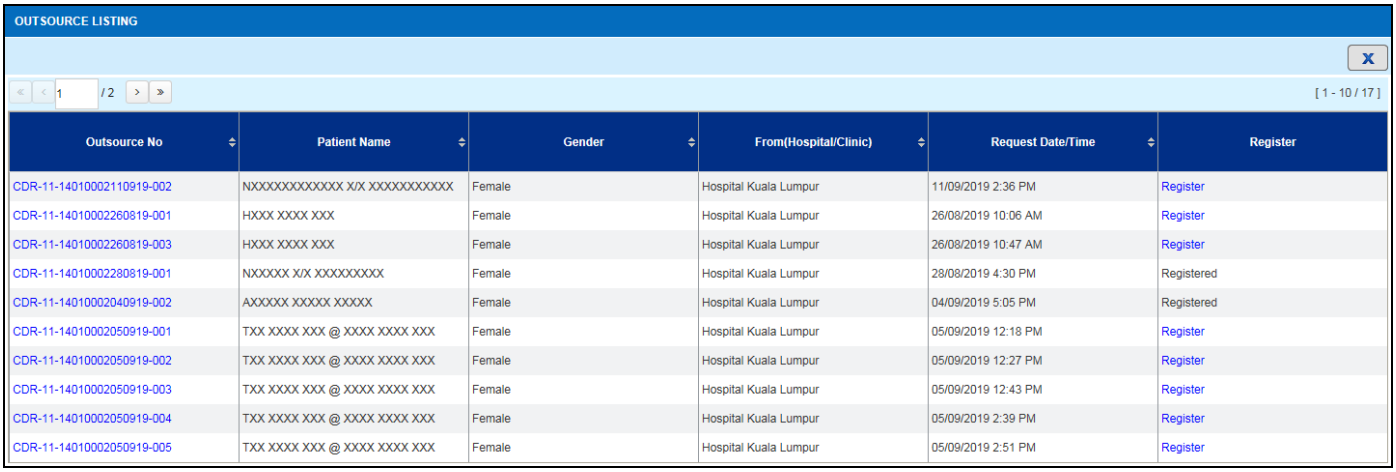


Figure 4.4-2 Outsource Listing

Note
Click on the Outsource No hyperlink to view Outsource Details as Figure 4.4-3

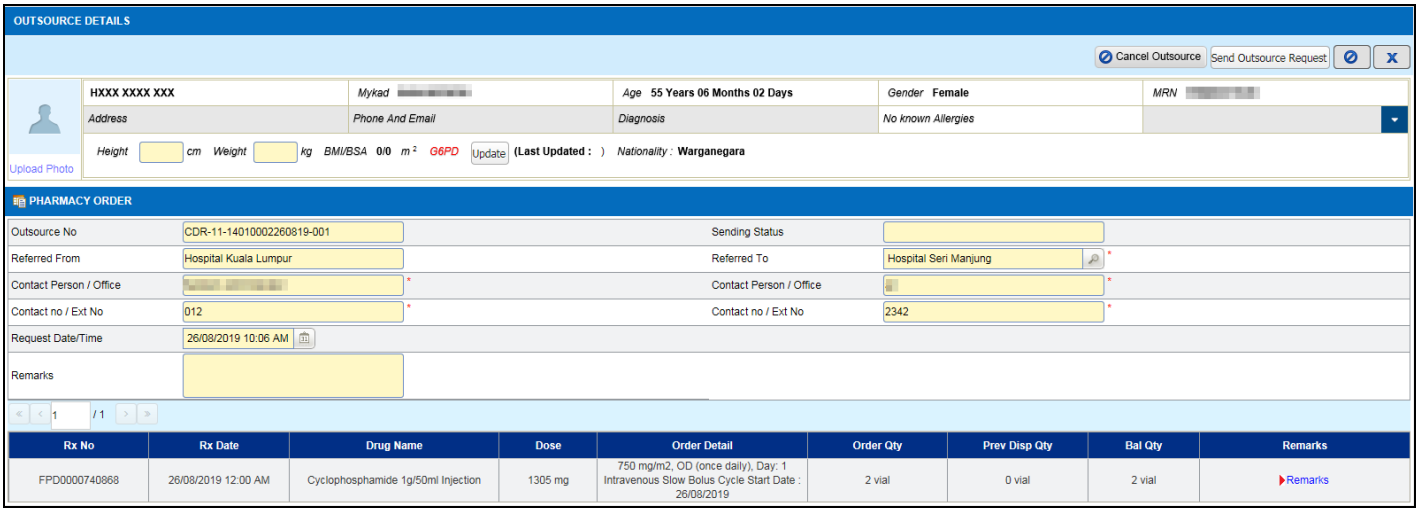


Figure 4.4-3 Outsource Details

Note

User is allowed to cancel the transaction by click on the Cancel Outsource *button*

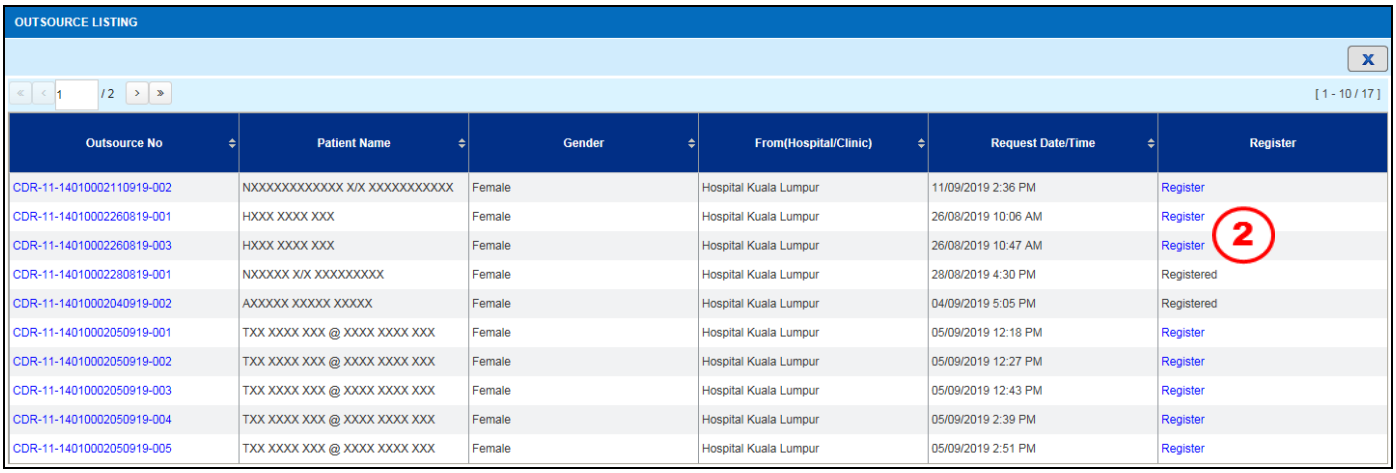


Figure 4.4-4 Outsource Listing

STEP 2

Click on the Register hyperlink to register outsource patient and Ward Management window will be display as Figure 4.4-5

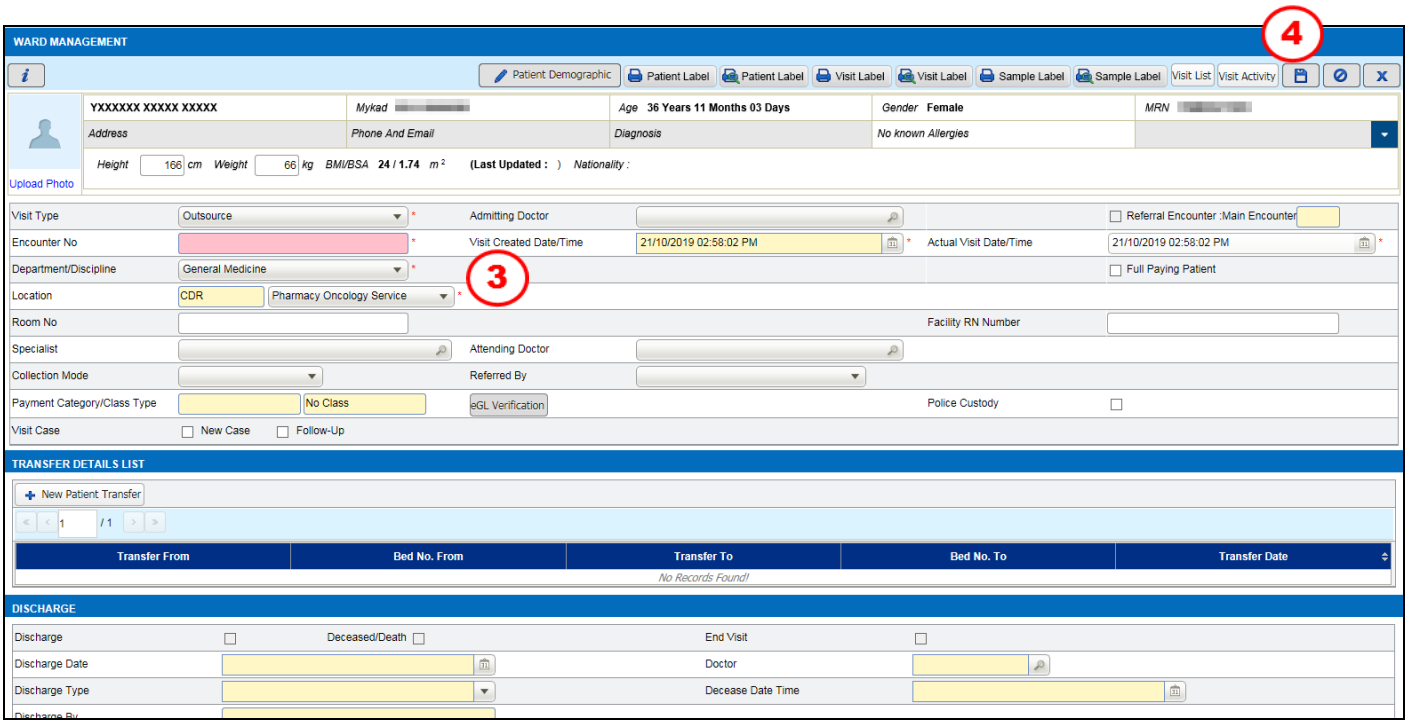


Figure 4.4-5 Ward Management

STEP 3
Select ***Department/discipline*** and ***Location*** from dropdown menu

STEP 4

Click on the button to save the registered outsource patient

Note
After save, user need to proceed with record prescription process as follow

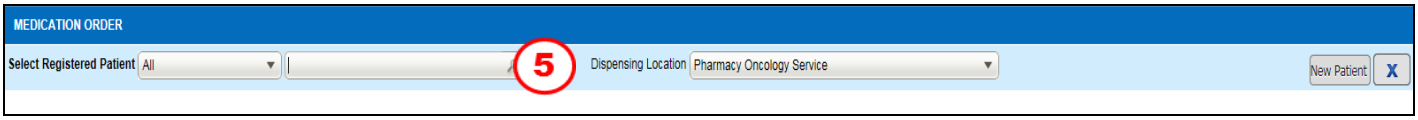


Figure 4.4-6 Medication Order

STEP 5
Search for the outsource registered patient and screen will be shown as Figure 4.4-7

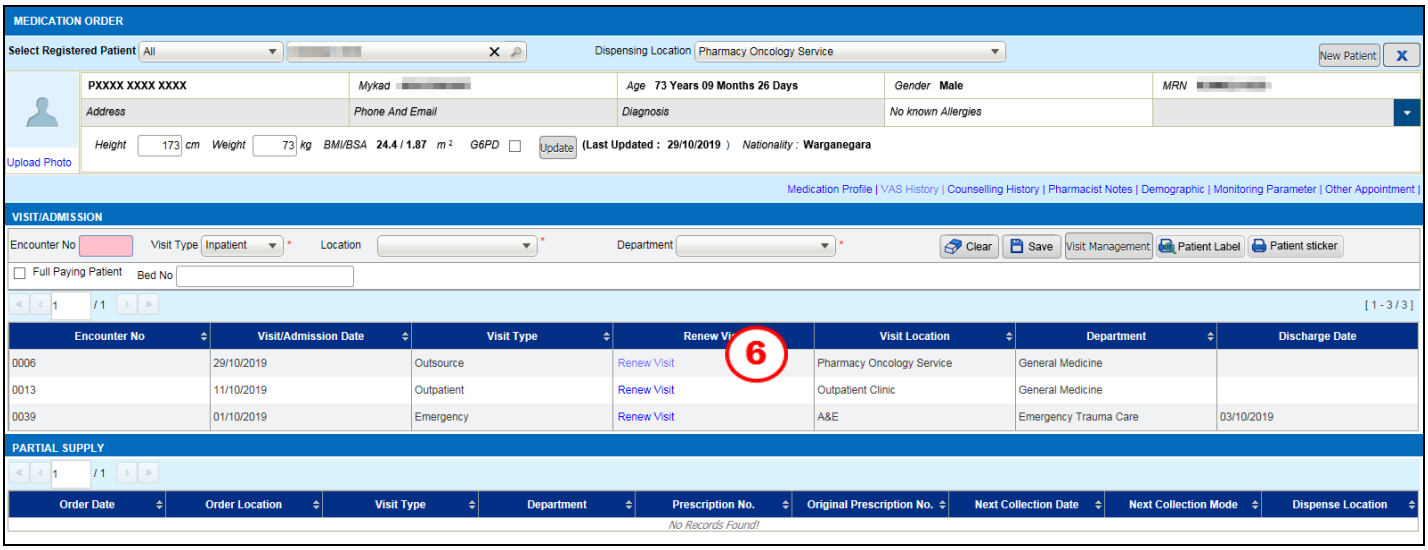


Figure 4.4-7 Medication Order

STEP 6

Double click on the outsource Visit Type

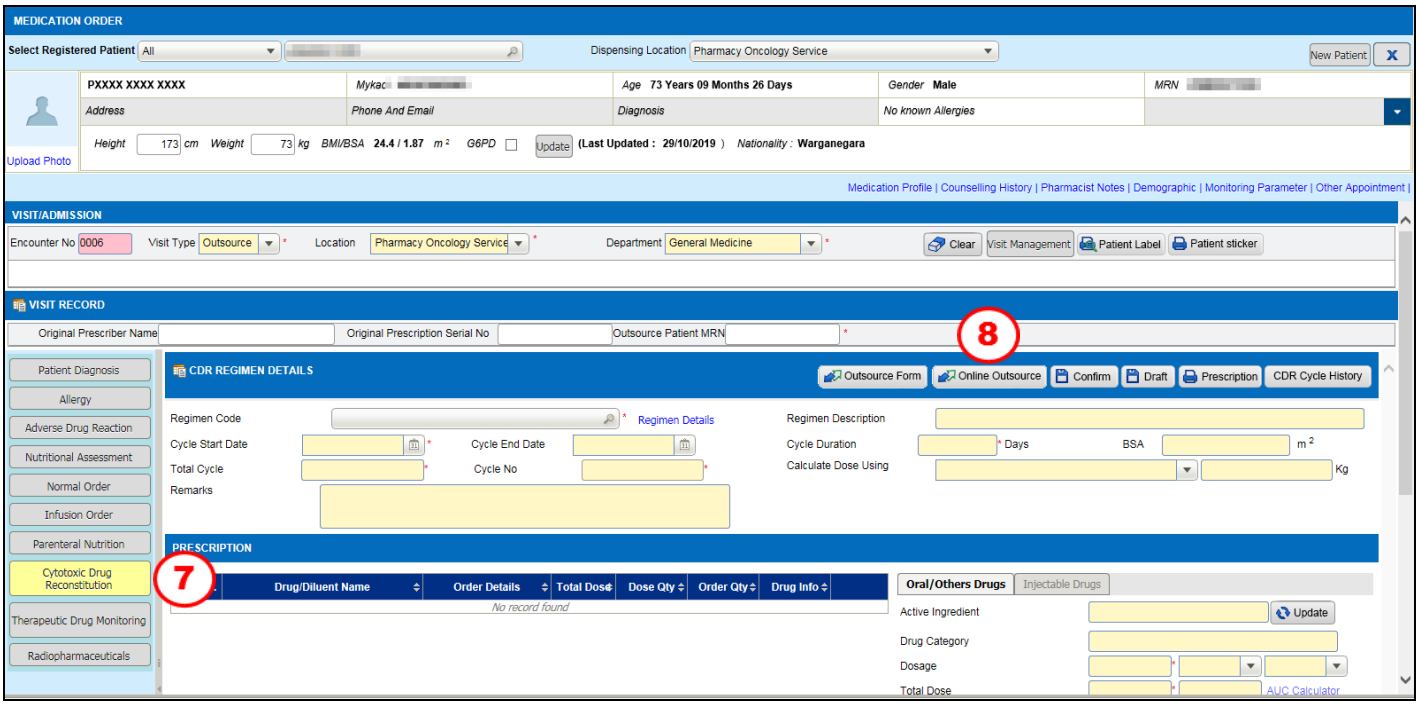


Figure 4.4-8 Medication Order

STEP 7

Click on the Cytotoxic Drug Reconstitution tab

STEP 8

Click on the Online Outsource button and Outsource Listing screen will be display as Figure 4.4-9

Figure 4.4-9 Outsource Listing

STEP 9

Double click on the list and the CDR Order will be updated as shown in Figure 4.4-10

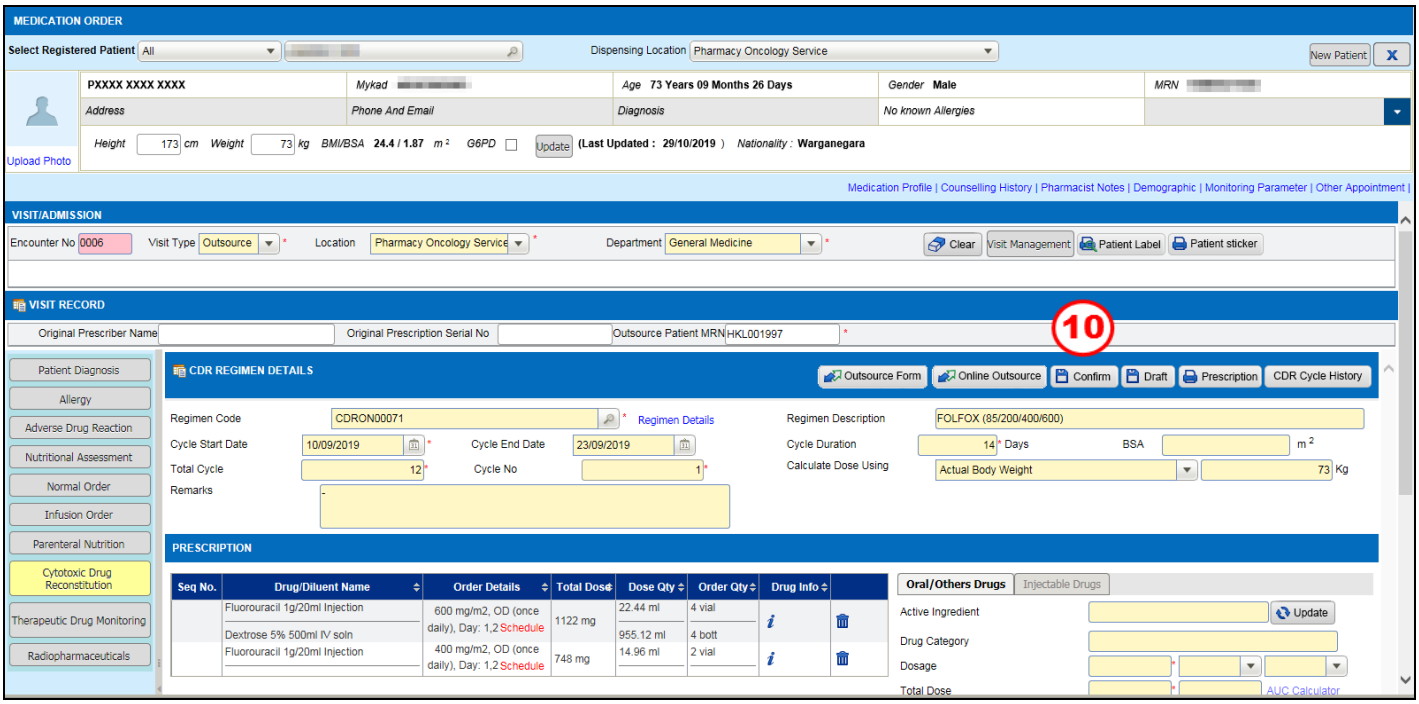
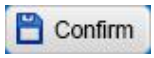


Figure 4.4-10 Medication Order

STEP 10

Click on the 

button to confirm the order

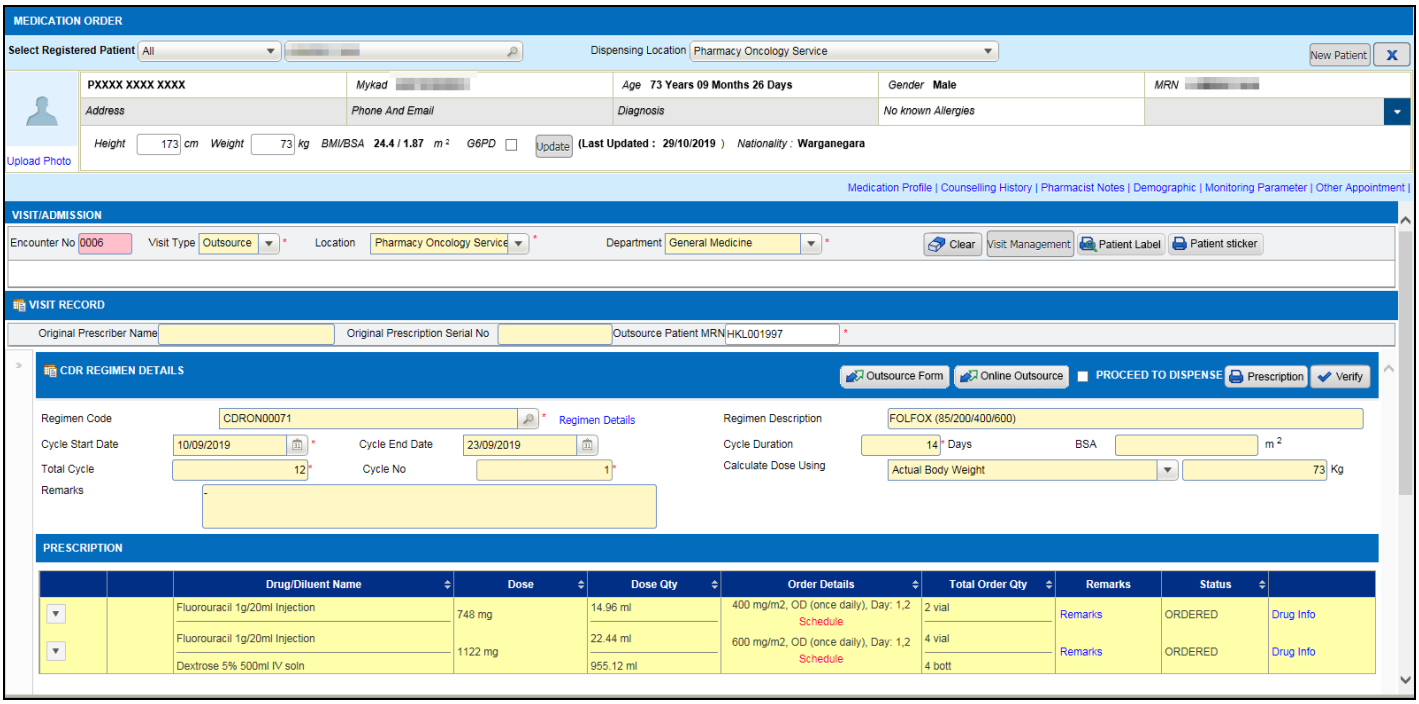


Figure 4.4-11 Medication Order

Note

- *Click on the button to view outsource details as shown in Figure 4.4-12*

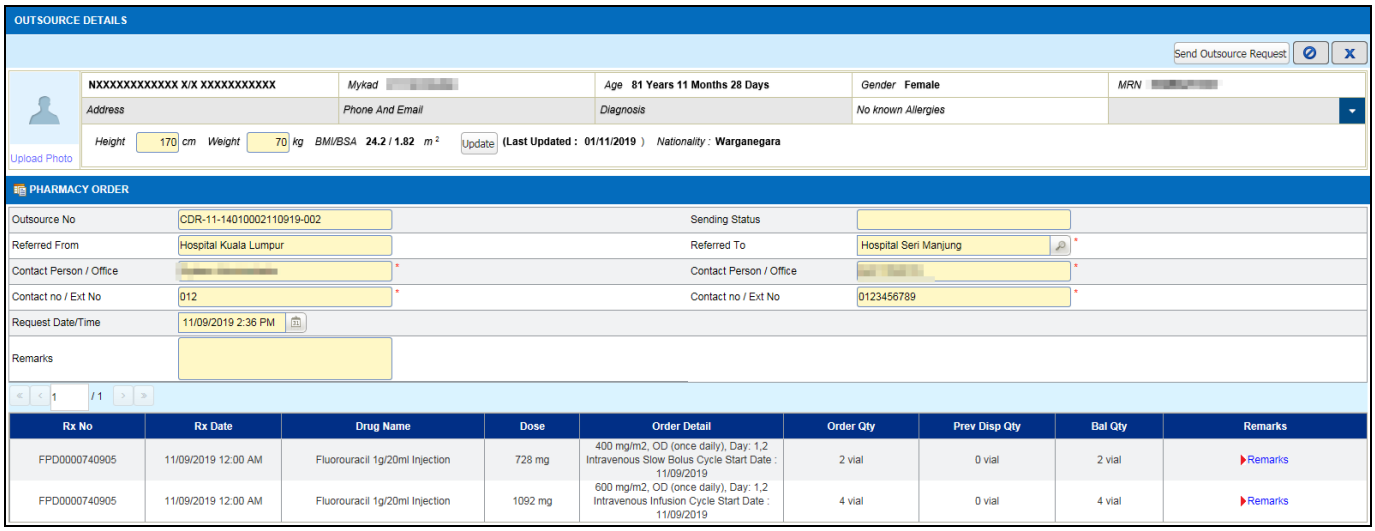


Figure 4.4-12 Outsource Details

- *User can proceed with dispensing process (Verification, Prepare and Dispense)*

- *To proceed with CDR Dispensing process, please refer*
  I. *Section [4.0 Cytotoxic Drug Reconstitution (CDR) Order, Verify and Prepare]*

  II. *Section [7.0 CDR Dispensing]*

- *Once user dispense outsource order, system will shown Information Message as Figure 4.4-13*

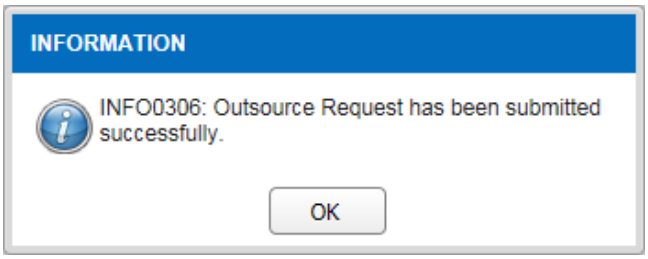


Figure 4.4-13 Information Message

- *Click on the* OK *button and system will send CDR Result back to sending Facility.*

4.5 Outsource Result Received

Note
After receiving facility dispense outsource drug, sending facility will receive external notification for the outsource result

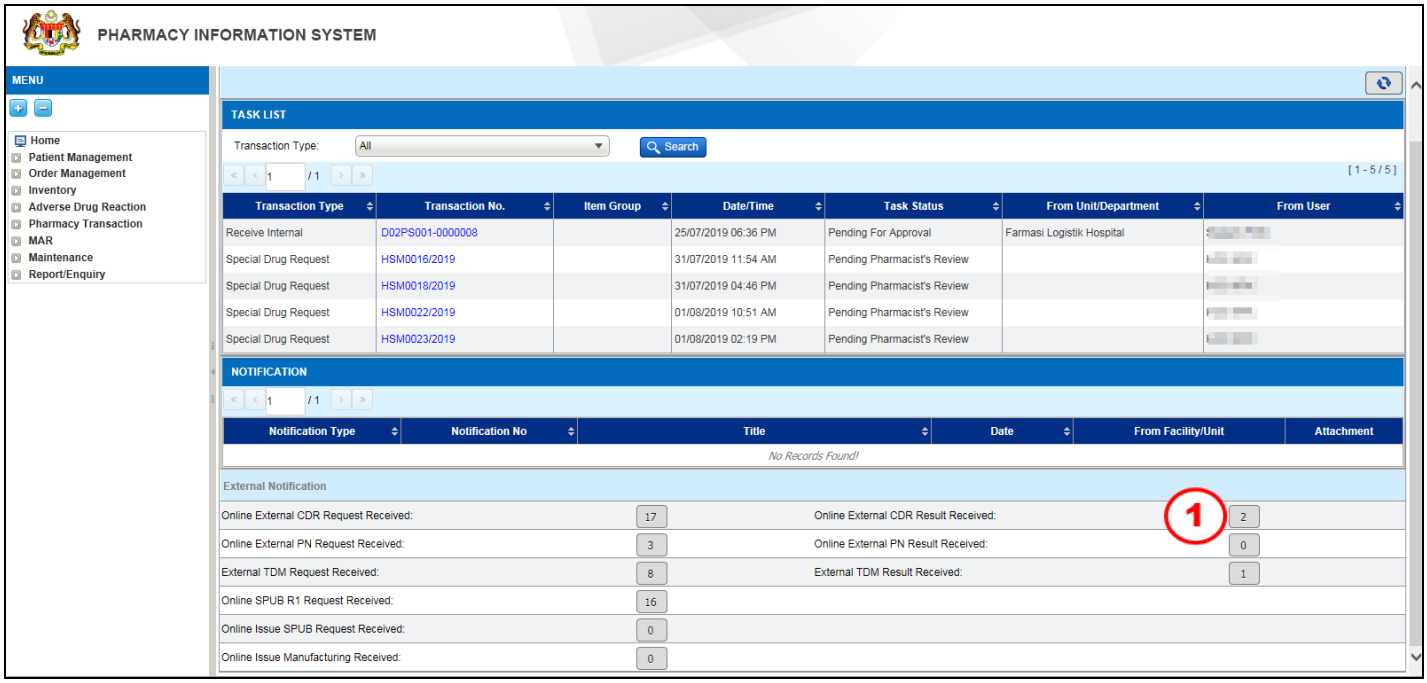


Figure 4.4-1 Online External CDR Result Received

STEP 1

Click on the ***Online External CDR Result Received*** 2 button

Note
System will display Outsource Listing screen as shown in Figure 4.4-2

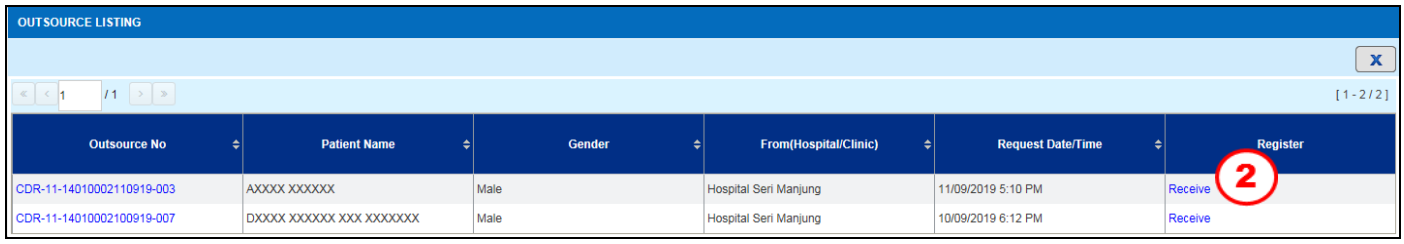


Figure 4.4-2 Outsource Listing

STEP 2

Click on the Receive hyperlink and Outsource Details will display as Figure 4.4-3

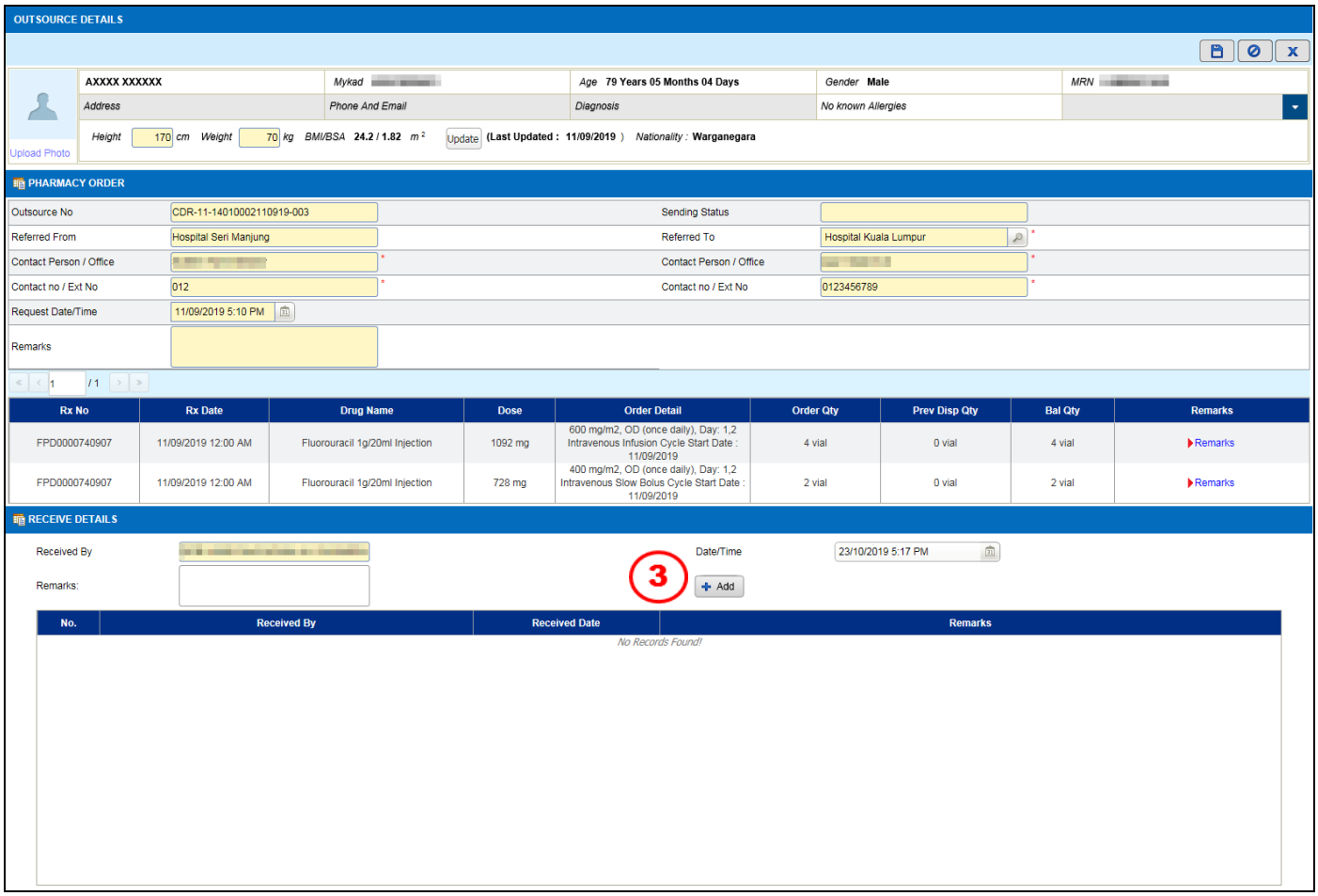


Figure 4.4-3 Outsource Details

STEP 3

Enter ***Remarks*** (if required) and click on the

button

Note
Information will be updated as shown in Figure 4.4-4

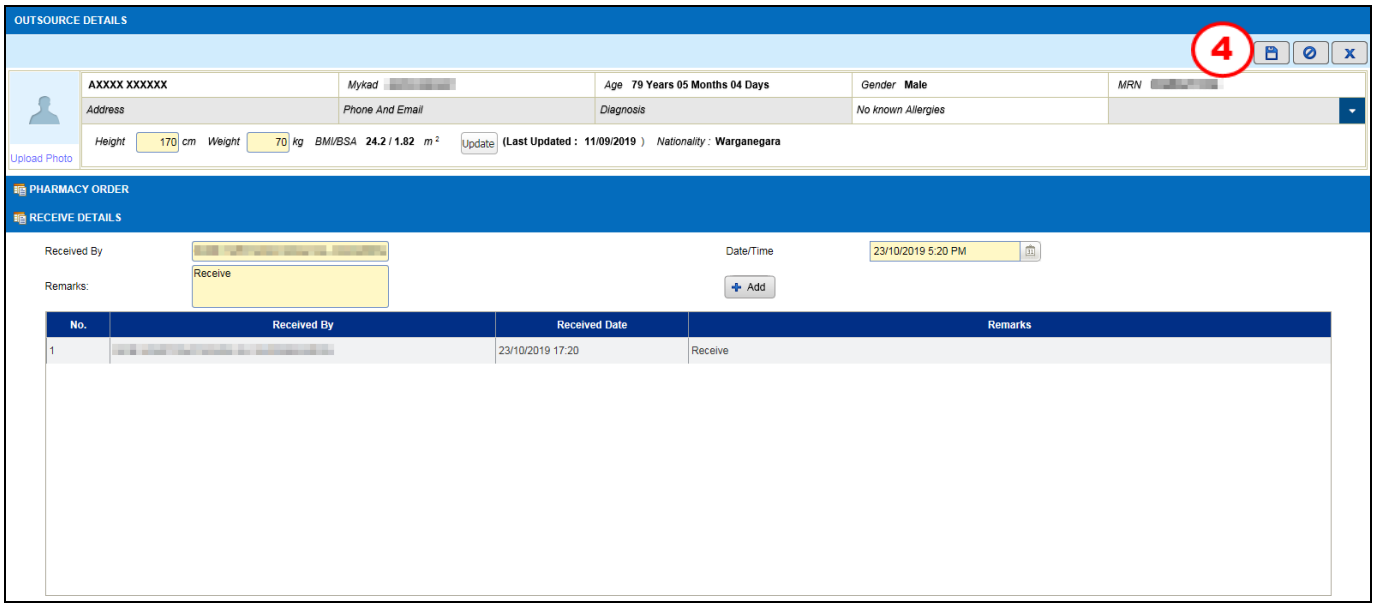


Figure 4.4-4 Outsource Details

STEP 4

Click on the button to save the record

5.0 Manage Prescription

This function is for pharmacist to modify CDR record prescription

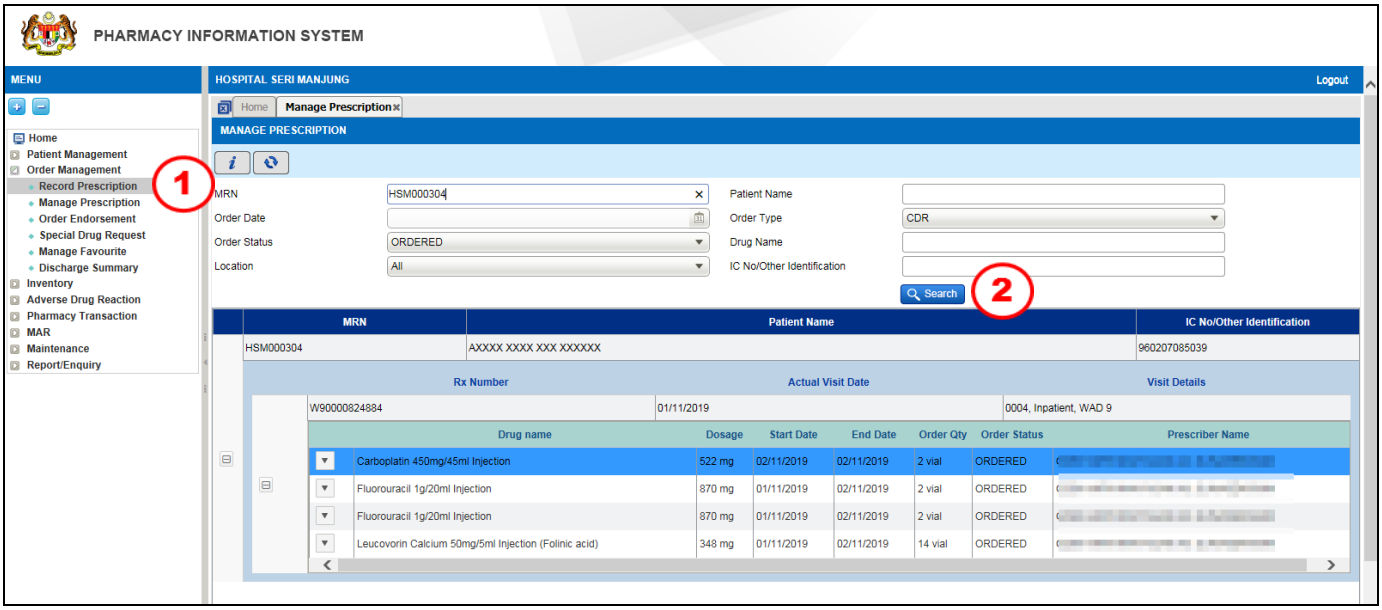


Figure 5.0-1 Manage Prescription

STEP 1

Click on 'Order Management' menu and followed by 'Manage Prescription' sub-menu

Note

On this listing page, various Search criteria is provided as below:

No	Field	Description	Remark
a	MRN	Patient Medical Record Number	Search option: • Scan the MRN using barcode scanner. • Type the MRN either full or partial
b	Order date	Order date	Allow to search by ordered date
c	Order Status	According to Order in which stage	Able to filter by order status
d	Location	Patient visit location	Able to filter and search patient name by visit location
e	Patient Name	Patient Name	Allow to search by patient name
f	Order Type	- Normal - CDR - IV - PN - Radiopharmaceuticals	Allow to search by order type
g	Drug Name	Drug Name	Allow to search by full or partial
h	IC No/Other Identification	IC No	Allow to search by IC Number
i	Original Prescription Serial No	Original Prescription Serial No	Allow to search Original Prescription Serial No

Table 5.0-1

Note
*Search CDR patient by select **Order Type** as **CDR***

STEP 2

Click on the Search button to search for CDR Patient

Modify Order

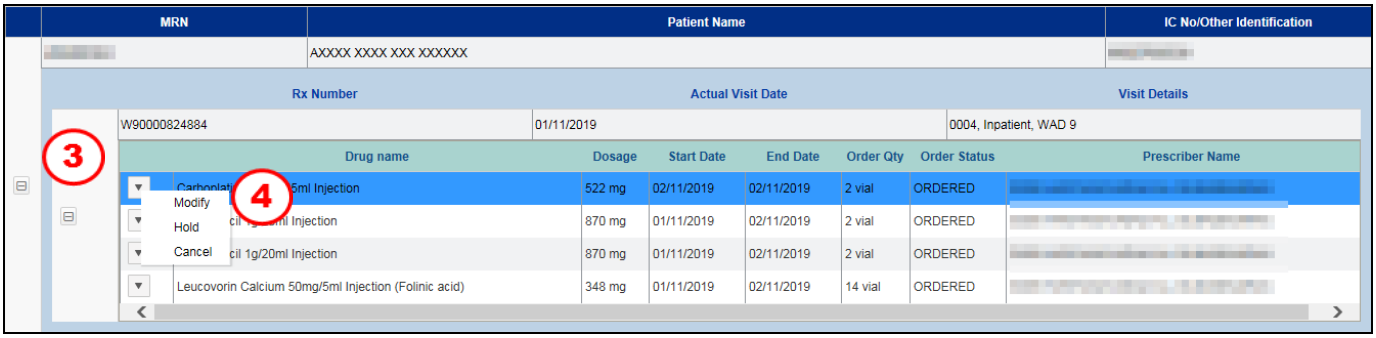


Figure 5.0-2 Manage Prescription

STEP 3

Click on button to view selected patient's prescription

STEP 4

Right click on the button and select ***Modify*** and Modify CDR Order screen will display as Figure 5.0-3

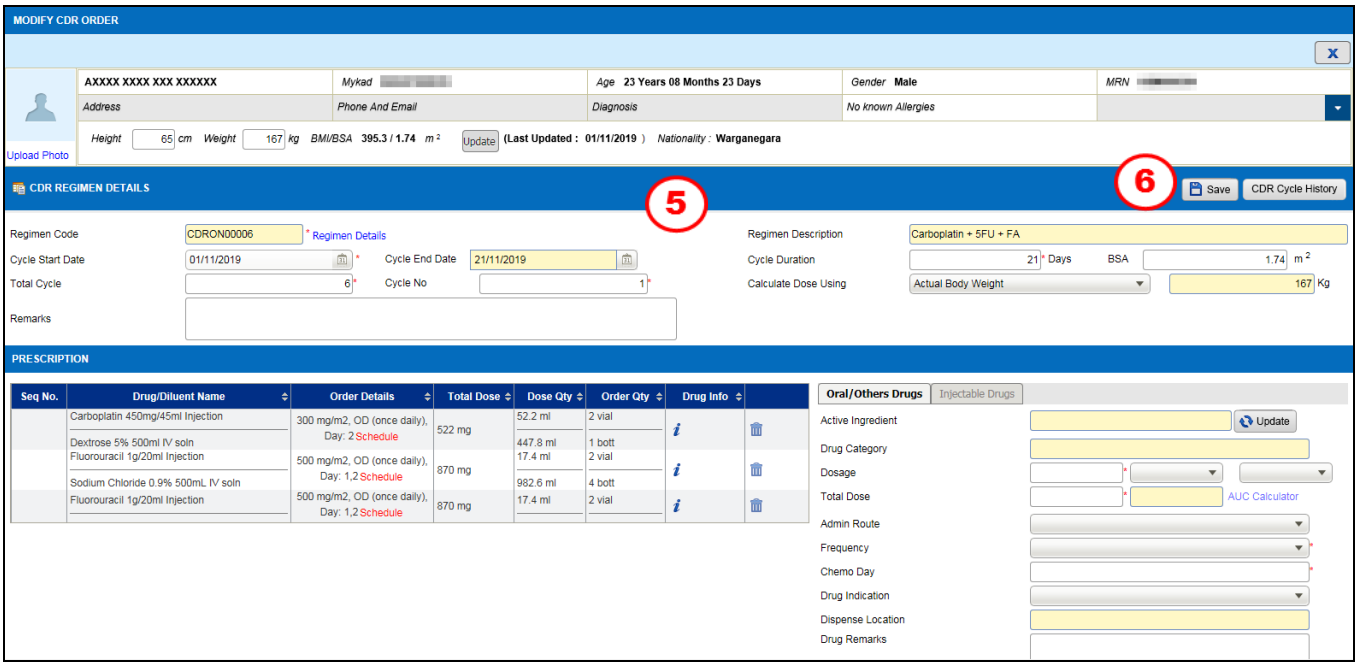


Figure 5.0-3 Modify CDR Order

STEP 5

Modify related information

STEP 6

Click on the Save button to save the modification and Confirmation Message will display as Figure 5.0-4

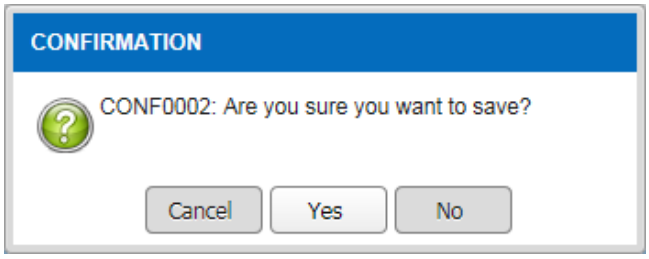


Figure 5.0-4 Confirmation Message

Note

- *Click on the* One Drug *button to save*
- *Click on the* X *button to close Modify CDR Order screen*

Hold Order

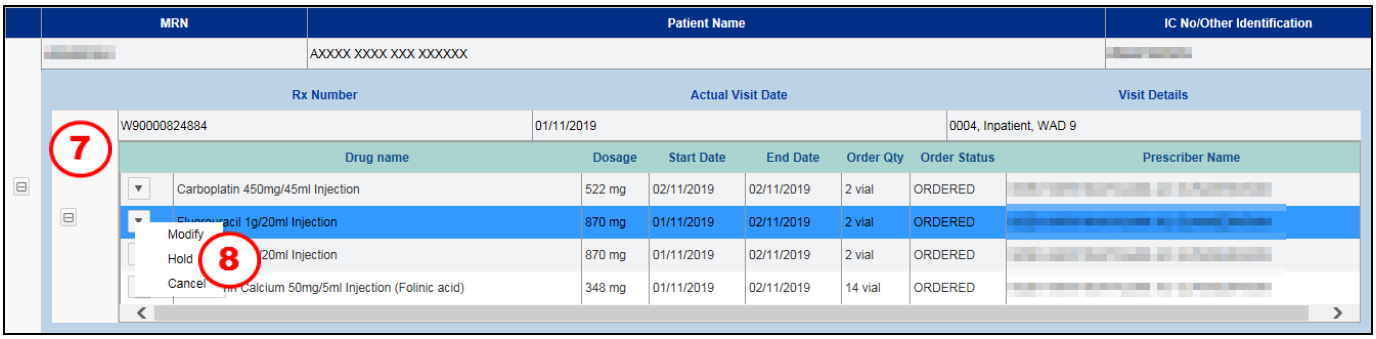


Figure 5.0-5 Manage Prescription

STEP 7

Click on button to view selected patient's prescription

STEP 8

Right click on the button and select ***Hold*** and Confirmation Message will display as Figure 5.0-6

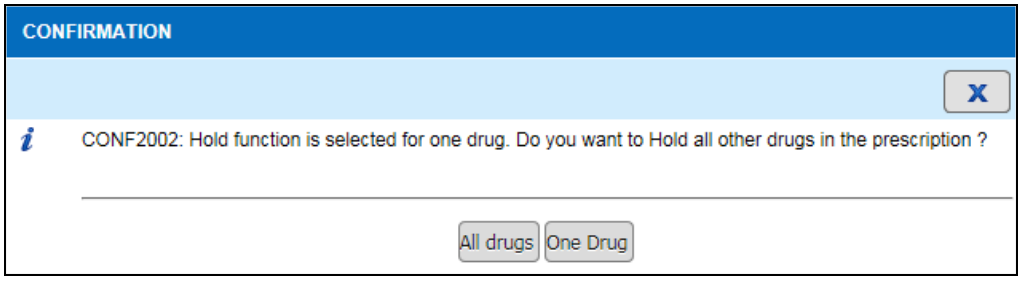


Figure 5.0-6 Confirmation Message

Note

- *Click on the* [One Drug] *button to hold the selected Drug only*
- *Click on the* [All drugs] *button to hold all drug under the patient prescription*

Resume Order

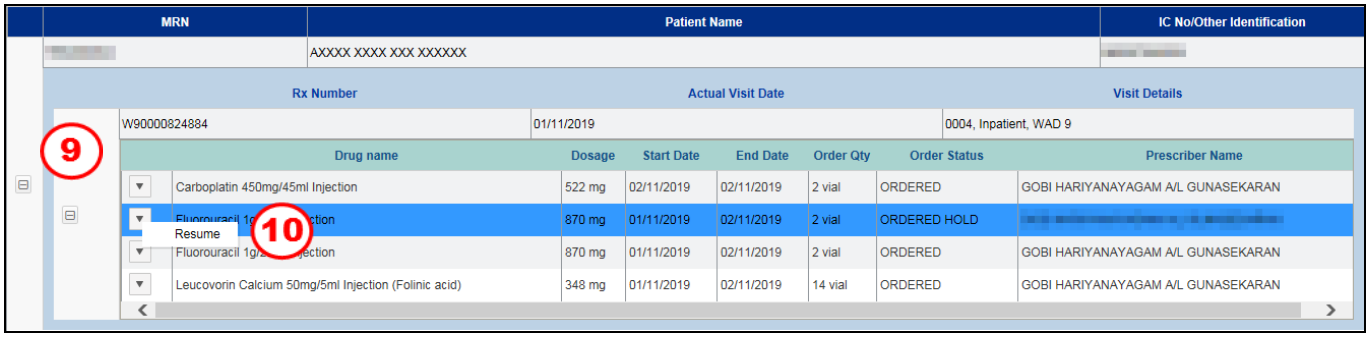


Figure 5.0-7 Manage Prescription

STEP 9
Click on button to view selected patient's prescription

STEP 10
Right click on the button with a status of hold and select ***Resume*** and Confirmation Message will display as Figure 5.0-8

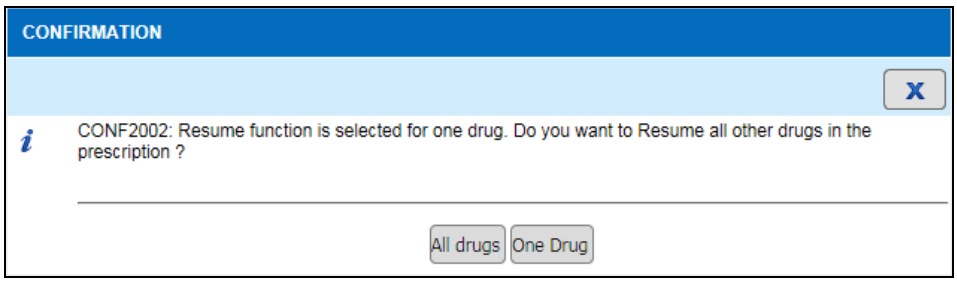


Figure 5.0-8 Confirmation Message

Note

- *Click on the* [One Drug] *button to resume the selected Drug only*
- *Click on the* [All drugs] *button to resume all drug with status hold under the patient prescription*

Cancel Order

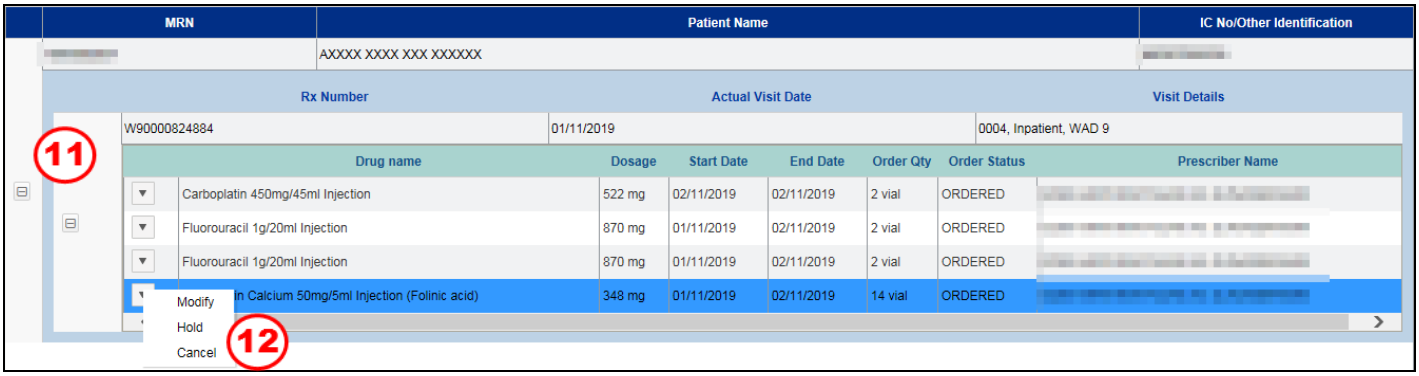


Figure 5.0-9 Manage Prescription

STEP 11
Click on button to view selected patient's prescription

STEP 12
Right click on the button and select ***Cancel*** and Confirmation Message will display as Figure 5.0-10

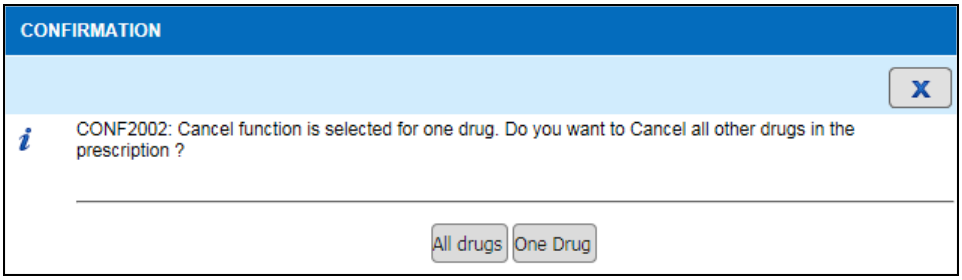


Figure 5.0-10 Confirmation Message

Note

- *Click on the* One Drug *button to cancel the selected Drug only*
- *Click on the* All drugs *button to cancel all drug under the patient prescription*
- *Cancel Reason screen will display as Figure 5.0-11*

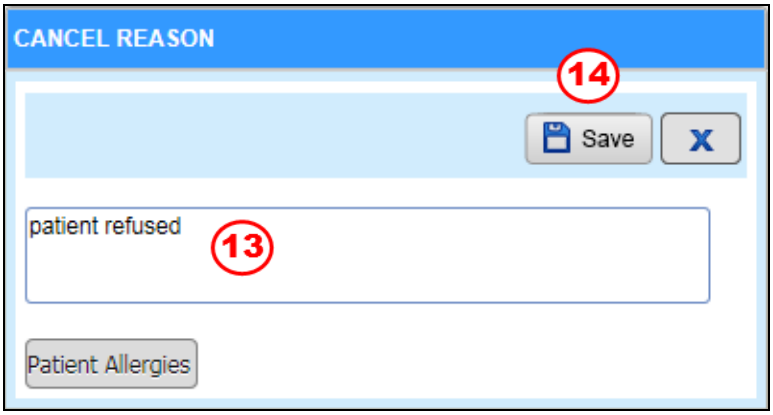


Figure 5.0-11 Cancel Reason

STEP 13
Enter ***Cancel Reason*** remarks

STEP 14
Click on the Save button to save the record and the drug status will change to Cancelled

6.0 Order Endorsement

This function is for pharmacist to endorse CDR order modify by other pharmacist

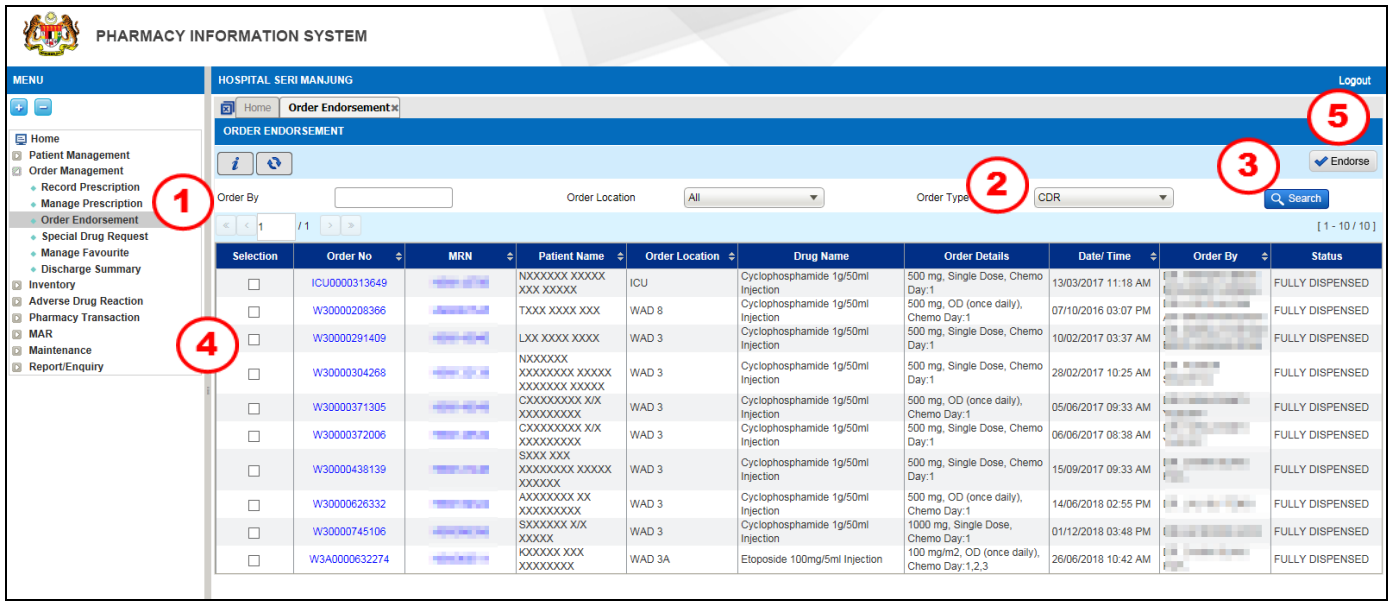


Figure 6.0-1 Order Endorsement

STEP 1

Click on 'Order Management' menu and followed by 'Order Endorsement' sub-menu

Note

User may search patient by searching criteria as follow:

a) Order By
b) Order Location
c) Order Type

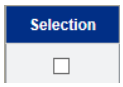
STEP 2

Select ***Order Type*** as ***CDR***

STEP 3

Click on the button to search patient

STEP 4

Click on the  checkbox to select patient

Note

User is allowed to select multiple patient

STEP 5

Click on the button and Confirmation Message will display as Figure 6.0-2

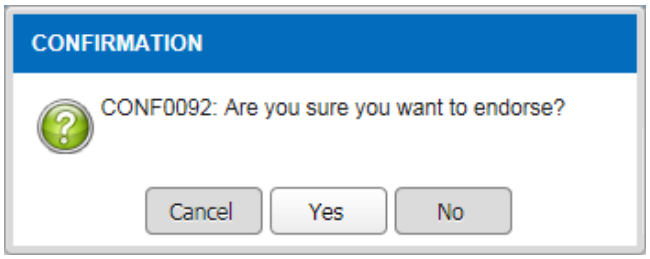


Figure 6.0-3 Confirmation Message

Note

- *Click on the* Yes *button and Information Message will display as Figure 6.0-4*

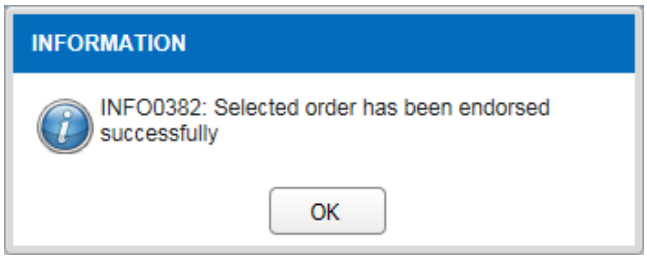
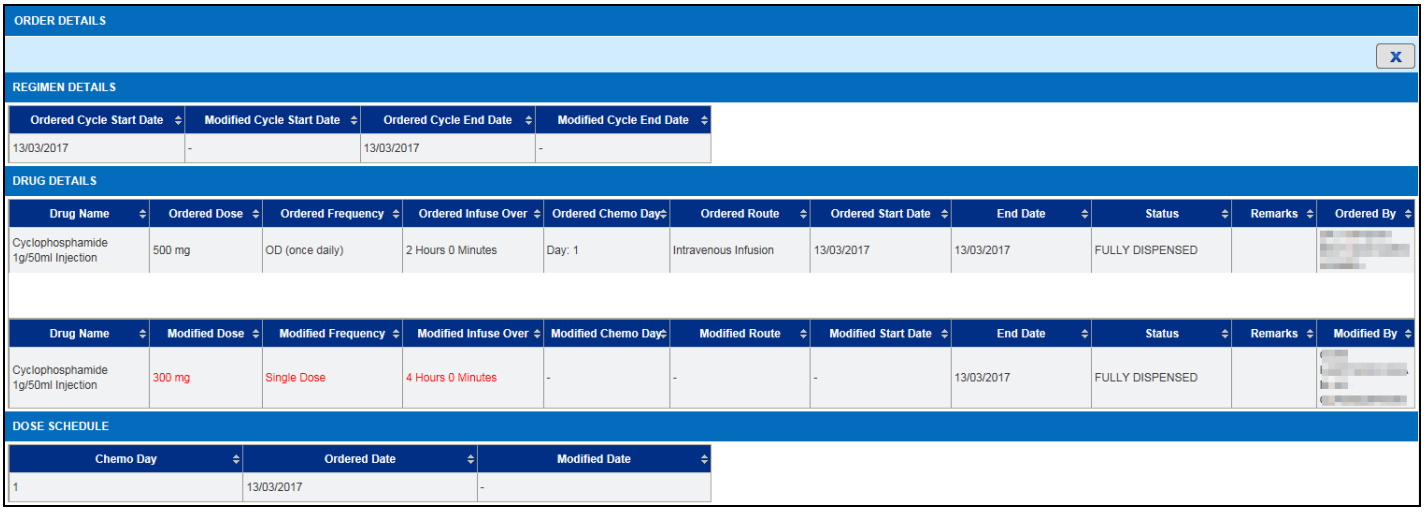


Figure 6.0-4 Information Message

- *Click on the* OK *button to confirm endorsement*
- *Click on the Order No hyperlink to view Order Details as shown in Figure 6.0-5*



ORDER DETAILS

REGIMEN DETAILS

Ordered Cycle Start Date	Modified Cycle Start Date	Ordered Cycle End Date	Modified Cycle End Date
13/03/2017	-	13/03/2017	-

DRUG DETAILS

Drug Name	Ordered Dose	Ordered Frequency	Ordered Infuse Over	Ordered Chemo Day	Ordered Route	Ordered Start Date	End Date	Status	Remarks	Ordered By
Cyclophosphamide 1g/50ml Injection	500 mg	OD (once daily)	2 Hours 0 Minutes	Day: 1	Intravenous Infusion	13/03/2017	13/03/2017	FULLY DISPENSED		

Drug Name	Modified Dose	Modified Frequency	Modified Infuse Over	Modified Chemo Day	Modified Route	Modified Start Date	End Date	Status	Remarks	Modified By
Cyclophosphamide 1g/50ml Injection	300 mg	Single Dose	4 Hours 0 Minutes	-	-	-	13/03/2017	FULLY DISPENSED		

DOSE SCHEDULE

Chemo Day	Ordered Date	Modified Date
1	13/03/2017	-

Figure 6.0-5 Order Details

- *Drug Details with red colour is the modification made by other pharmacist*

7.0 CDR Dispensing

This function is for pharmacist and assistant pharmacist to dispense the CDR preparation

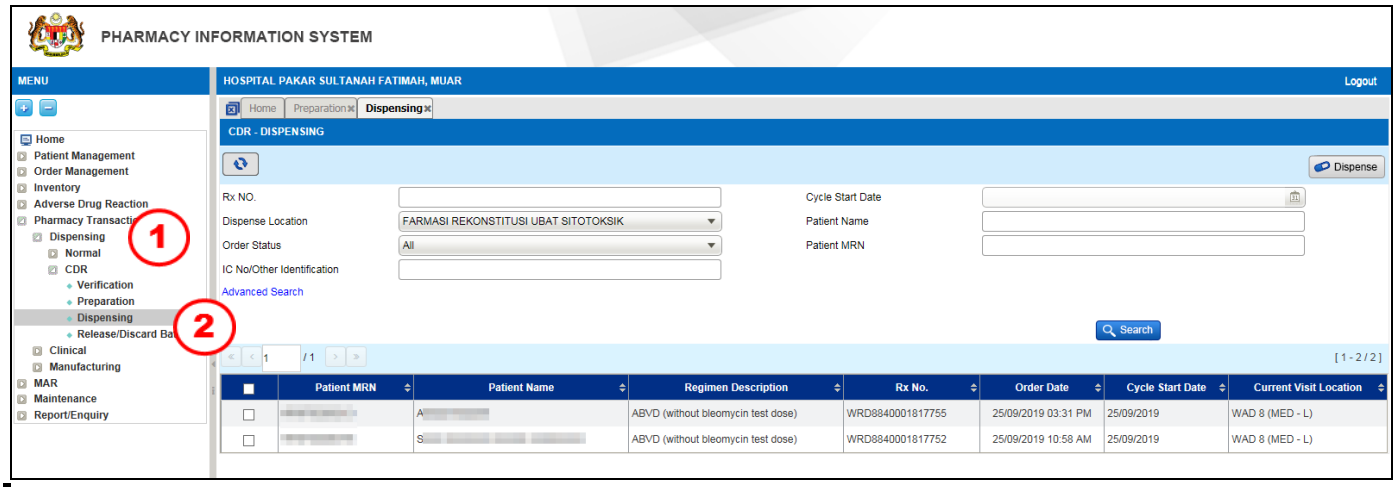


Figure 7.0-1 CDR Dispensing Listing Page

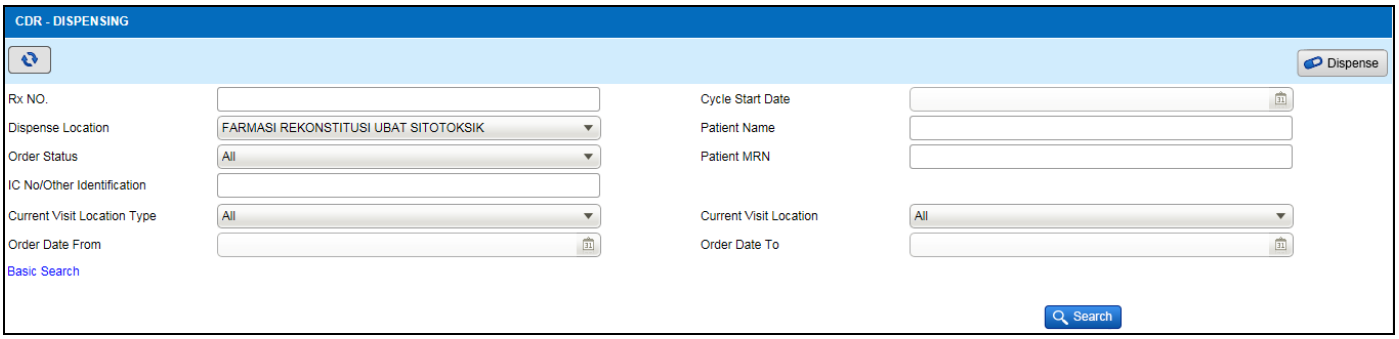


Figure 7.0-2 Advance Search

STEP 1
Click on 'Pharmacy Transaction' menu followed by 'Dispensing' sub menu and select 'CDR'

STEP 2
Click on 'Dispensing' function

Note
Search patient records by below criteria:-

Basic Search			
No	**Field**	**Description**	**Remark**
a	Rx NO	Prescription number	Able to filter and search patient name by prescription number
b	Dispense Location	Dispensing location. (It will list down all active location)	Able to filter and search patient name by dispensing location
c	Order Status	Search by: - All - Prepared - Prepared hold	Able to filter and search patient name by order status
d	Patient Name	Patient Name	Allow to search by full or partially

			entered patient name
e	Patient MRN	Patient Medical Record Number	Search option: • Type the MRN either in full or partially: *Example: HPSF00001234 or "1234"*
f	Cycle start date	Cycle start date	Select from the date dropdown box
g	IC Number/Other Identification	Patients Identification number	Able to filter using patients identification number
Advance Search			
a	Current Visit Location Type	Search by: - All - Clinic - Day Care - ER - Nursing Unit - Pharmacy	Able to filter and search patient name by order location type
b	Current Visit Location	Current visit Location	Able to filter and search patient name by visit location
c	Order Date From	Order confirmed date	Allow to search by start date of order created
d	Order Date To	Order confirmed date	Allow to search by selected duration of order created

Table 7.0-1

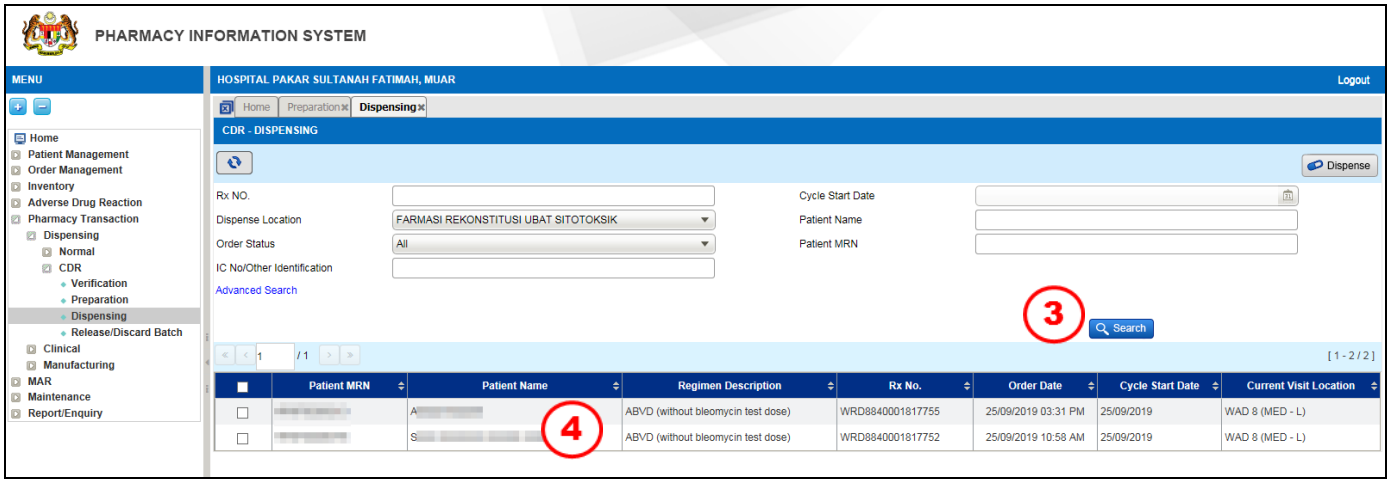


Figure 7.0-3 CDR Dispensing Listing Page

STEP 3

Click on Search button to search for patient

Note

- *Search result of patient record list will display:*
  - *Patient MRN*
  - *Patient Name*
  - *Regimen details*
  - *Rx No*
  - *Order Date*
  - *Cycle start date*
  - *Current Visit Location*

- *User have the option to dispense the medication by:*
  - *Dispense individual order*
  - *Dispense multiple patient order*

Dispense Individual Order:
To dispense an individual order, perform the steps below:

STEP 4
Double click on the selected patient and CDR Dispensing screen will be displayed as shown in Figure 7.0-4

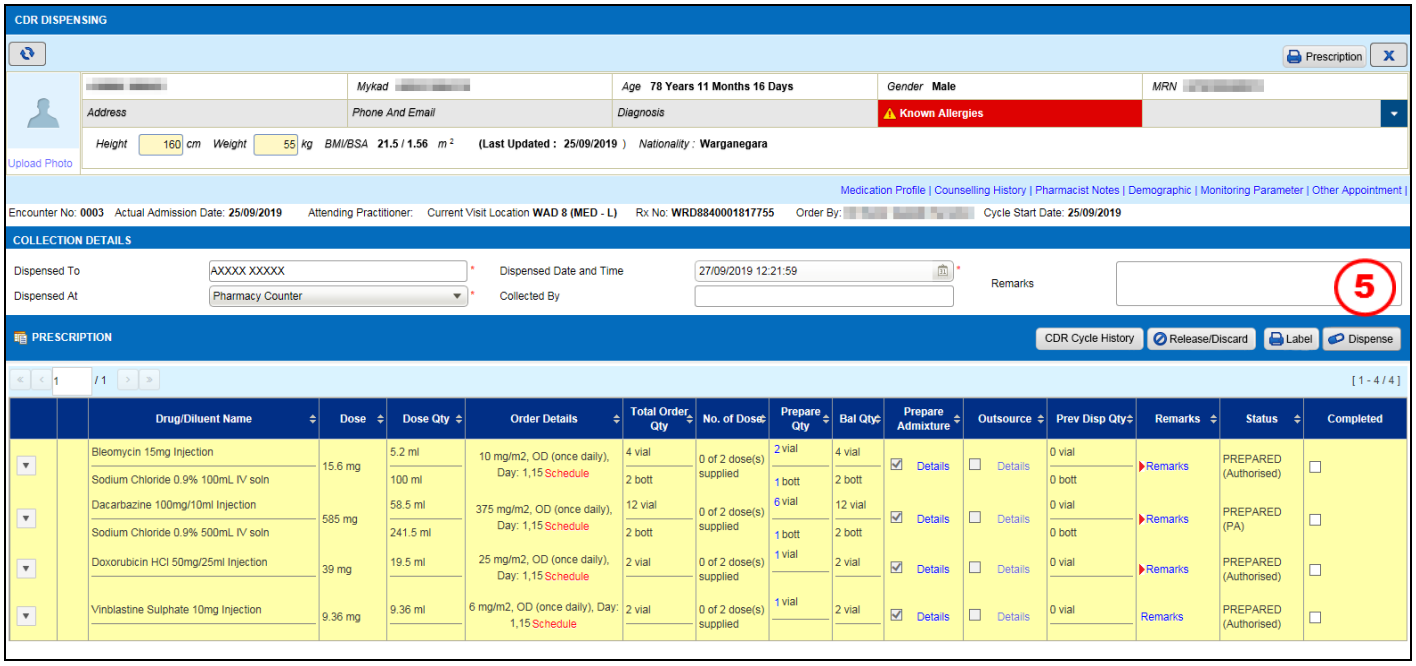


Figure 7.0-4 CDR Dispensing

Note
User is allowed to click on the Completed ☐ checkbox in the Prescription section to complete the drug

STEP 5
Click on the Dispense button to dispense the medication and Confirmation Message window will be displayed as shown in Figure 7.0-5

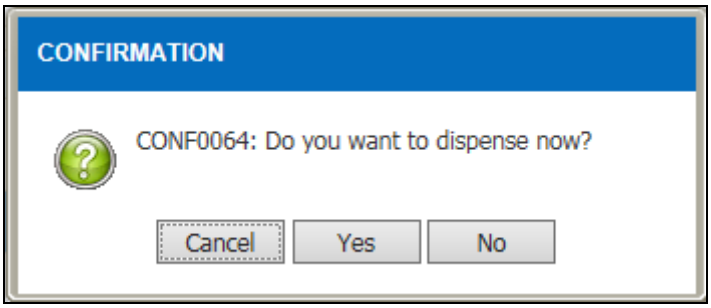


Figure 7.0-5 Confirmation Message

Note
- *Click on the* Yes *button to confirm the dispensing.*

- *Click on the* No *button to cancel the dispensing.*

Dispense Multiple Patient Order:

To dispense a multiple patient order, perform the steps below:

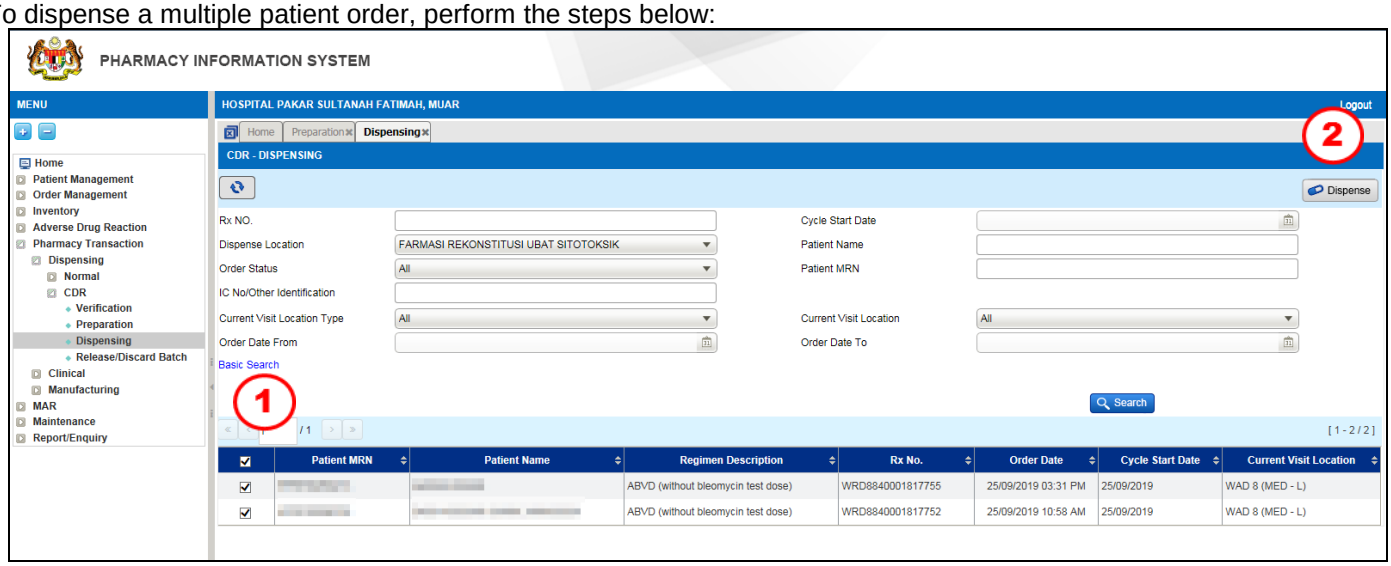


Figure 7.0-6 CDR Dispensing Listing Page

STEP 1
Click on the selected ☑ Patient MRN checkbox from the patient list

STEP 2

Click on the Dispense button to dispense the medication and Collection Details windows will displayed as Figure 7.0-7

Note
Allocated stocks are based on dispensing location instead of login location selected by user.

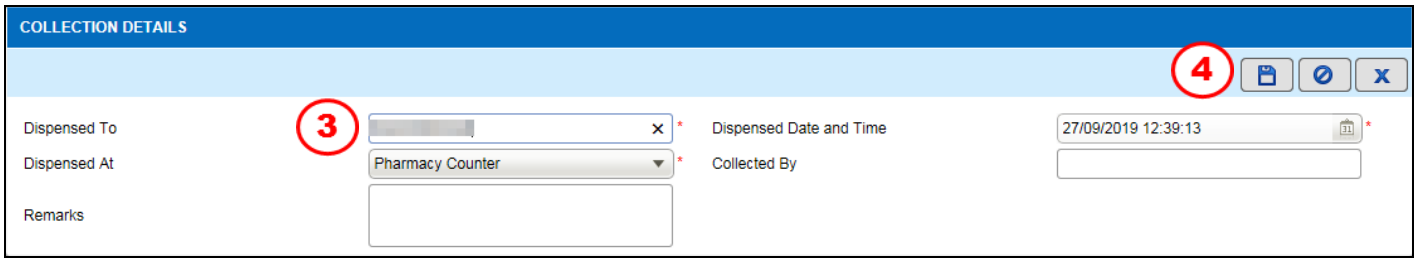


Figure 7.0-7 Collection Details

STEP 3
Enter ***Dispensed To***

STEP 4

Click on the button to save the record and Confirmation Message screen will be displayed as Figure 7.0-8

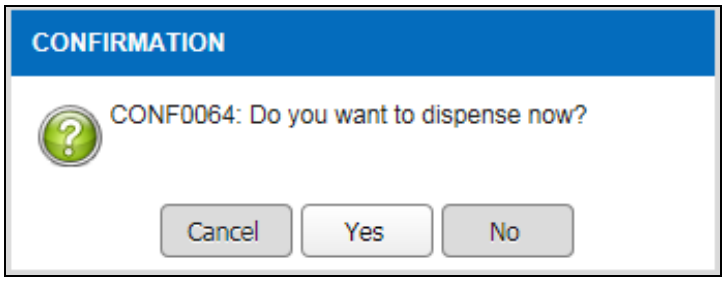


Figure 7.0-8 Confirmation Message

Note

- *Click on the* Yes *button to confirm the dispensing.*
- *Click on the* No *button to cancel the dispensing.*

8.0 Release/Discard Batch

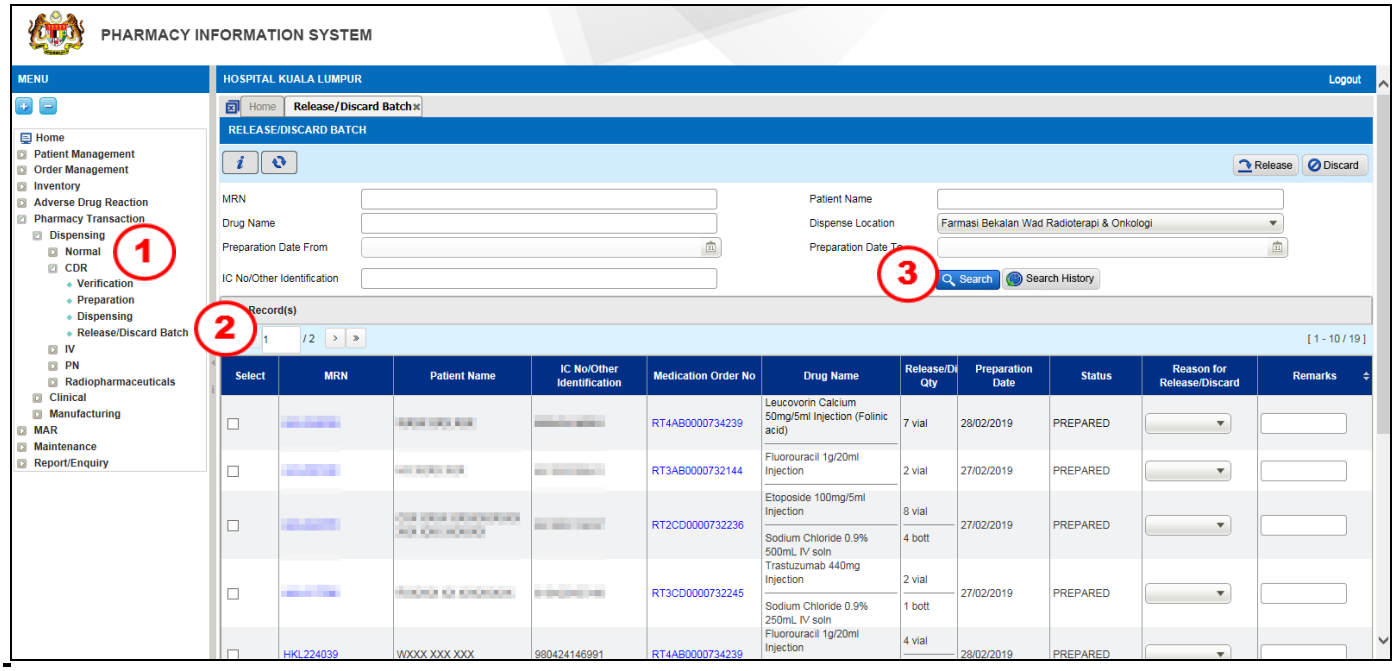


Figure 8.0-1 Release/Discard Batch Listing Page

STEP 1
Click on 'Pharmacy Transaction' menu followed by 'Dispensing' sub menu and select 'CDR'

STEP 2
Click on 'Release/Discard Batch' function

Note
Search patient records by below criteria:-

No	Field	Description	Remark
A	MRN	Patient Medical Record Number	Search option: • Type the MRN either in full or partially: *Example: HPSF00001234 or "1234"*
B	Patient Name	Patient Name	Allow to search by full or partial patient name
C	Drug Name	Drug Name	Allow to search by full or partial drug name
D	Dispense Location	Dispensing location. (It will list down all active locations)	Able to filter and search patient name by dispensing location
E	IC Number/Other Identification	Patients Identification number	Able to filter using patients identification number

Table 8.0-1

STEP 3
Click on the

button to search for patient

Note

- *Search results of patient record list will display:*
  - *MRN*
  - *Patient Name*
  - *Drug Name*
  - *Medication Order No*
  - *Preparation Date*
  - *IC number*
  - *Prepared Qty*
  - *Status*
  - *Reason for Release/Discard*
  - *Remarks*

- *Click on the **Medication Order No** hyperlink to view Order Details for the selected patient.*

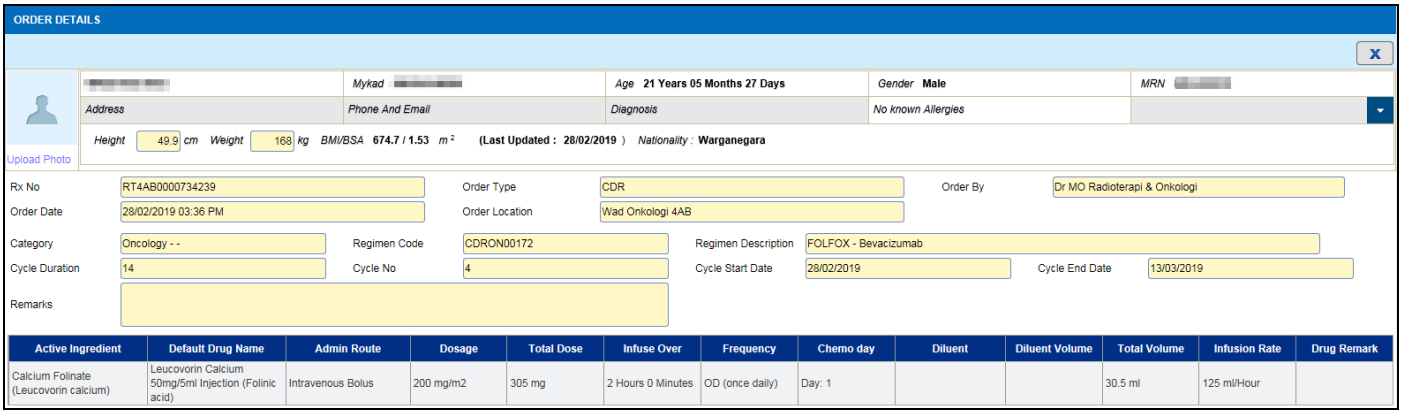


Figure 8.0-2 Order Details

- *Click on the **MRN** hyperlink to view Medication Profile for the selected patient.*

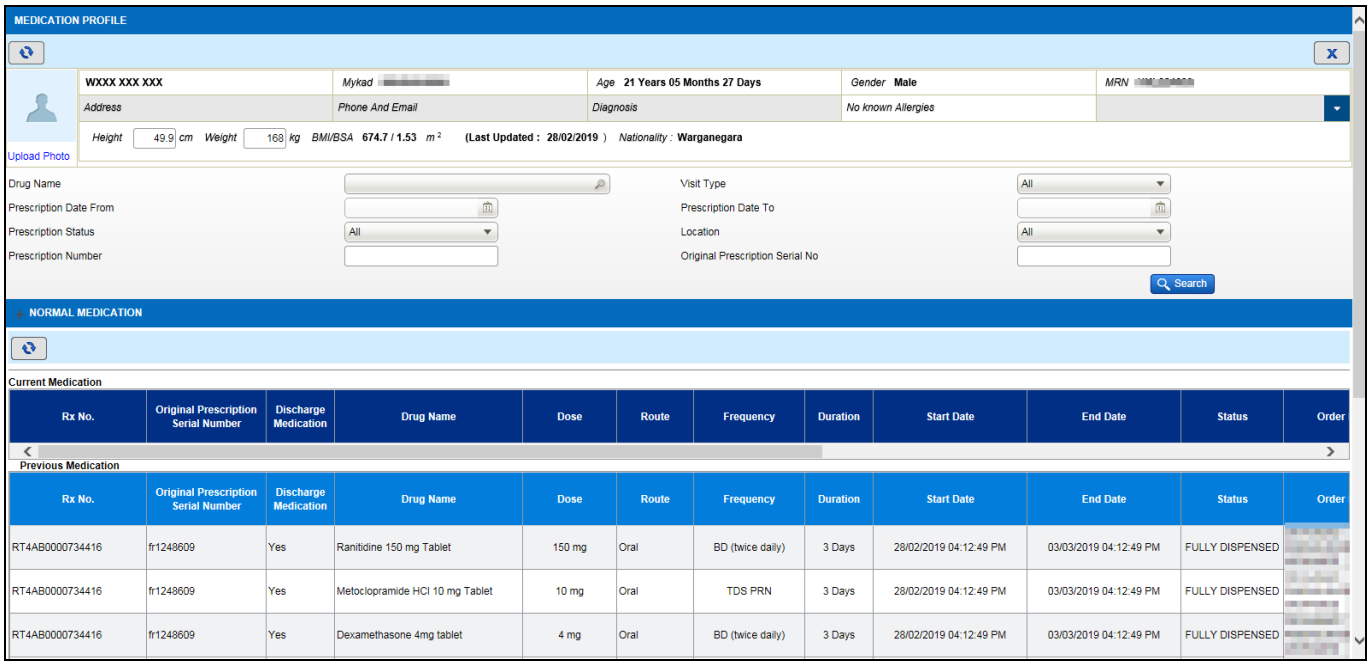


Figure 8.0-3 Medication Profile

- *Click on the* Search History *button to view release/discard history.*

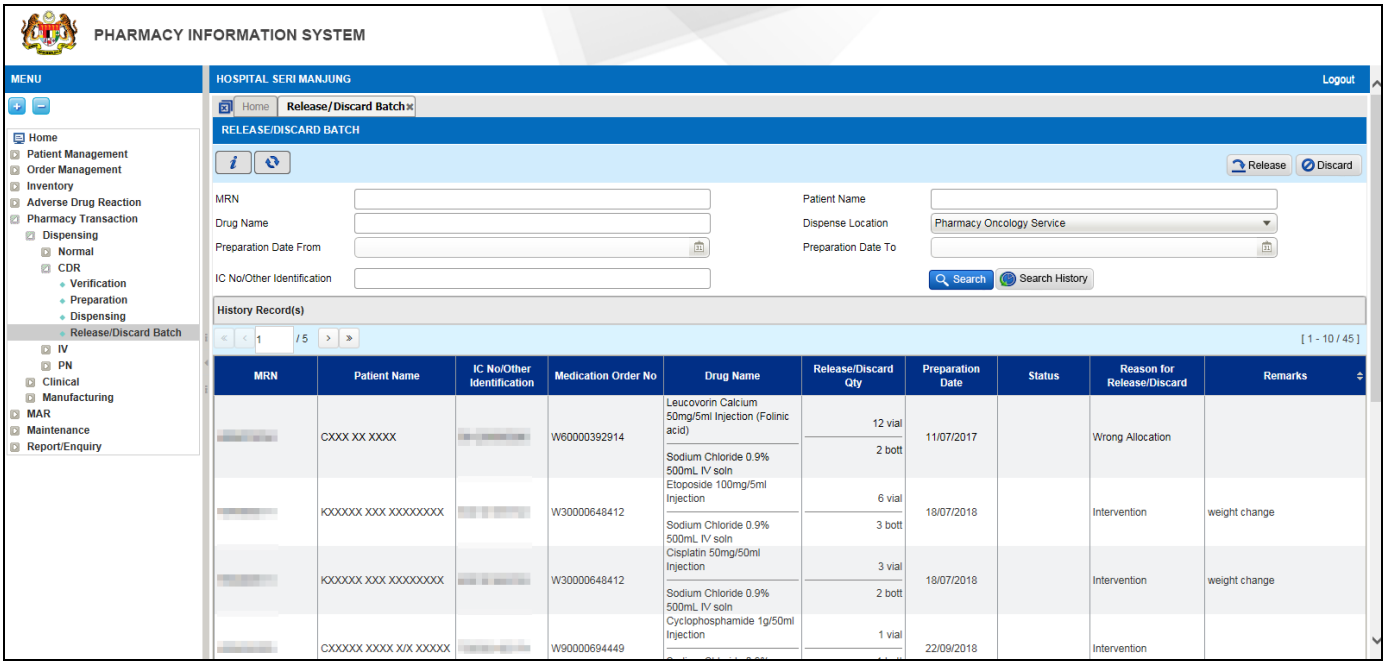


Figure 8.0-4 Release/Discard Batch History

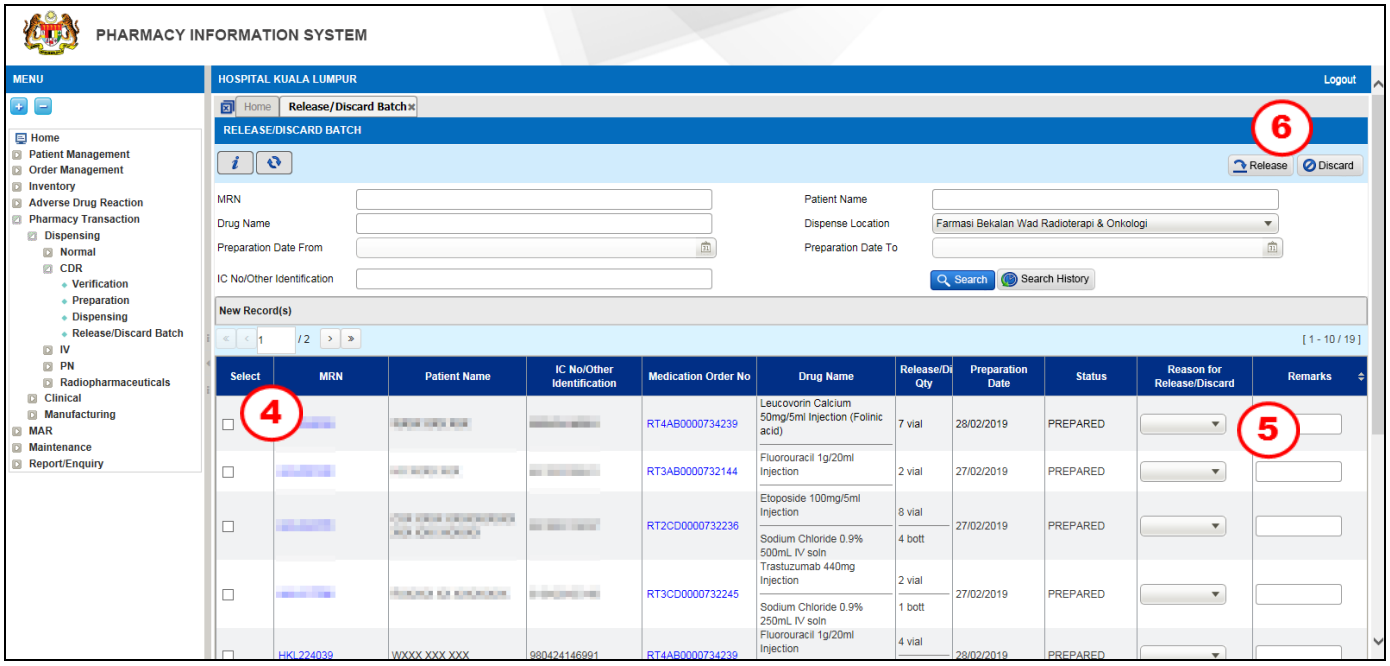


Figure 8.0-5 Release/Discard Batch Listing Page

STEP 4
Click on the selected drug ☑ checkbox

STEP 5
Select ***Reason for Discard*** from dropdown box

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

STEP 6

Click on the Release button to proceed release

Click on the Discard button to proceed discard

Note

When user click on the release function, the stock allocated for the regimen will be release back to inventory and if user click on discard function, system will discard the stock allocated for the regimen from inventory.

9.0 Acronyms

Abbreviation	Definition
PhIS	Pharmacy Information System
CPS	Clinical Pharmacy System
MOH	Ministry Of Health
HQ	Headquarters
CDR	Cytotoxic Drug Reconstitution

10.0 Links to Clinical Modules

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