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

Full Based

User Manual
Radiopharmaceuticals

Version	**: 6th Edition**
Document ID	**: FB_U. MANUAL_RADIOPHARMACEUTICALS**

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Reference ID : FB_U. MANUAL_RADIOPHARMACEUTICALS-6th Edition

Application reference: PhIS & CPS v1.6.1

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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 that geared toward pharmacy excellence. This implementation would transform most of the current manual process to electronic system would benefit facility end user in the health care sector.

There are 12 modules to assist service 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 (CDR), Parenteral Nutrition (PN), IV Admixture & Eye Drop, Radiopharmaceuticals and Extemporaneous
8. Adverse Drug Reaction & Drug Allergic Card (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 Radiopharmaceuticals module and its key features and functionalities. The primary objective is to guide users through the process of completing PhIS application process.

User will understand the following activities in details:

- Radiopharmaceuticals Appointment
- Radiopharmaceuticals Oder
- Radiopharmaceuticals Dispensing
- Radiopharmaceuticals Manufacturing

1.3 Organised Sections

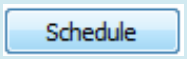
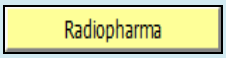
These are the sections within this document:

- Section 1 : Introduction
- Section 2 : Application Standard Features
- Section 3 : Radiopharmaceuticals
- 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
	Reset Login Screen		Expand Menu
Home	Display Home Tab		Expand Module
	Close All Open Tabs		Refresh Screen
	Add/Create New Record		Show Help
*	Mandatory Field		Calendar Icon
	Close Window		Radio Button
	Edit Record		Cancel
	Save	Add Item	Add Item to the list
Export to Excel	Export and Open Report in Excel Format		Automatically Display/Retrieve Box
Request	Request for Approval	Cancel Request	Cancel the Request
Send for Approval	Send for Approval	Approve	Approve Transaction
Change Password	Change Login Password		Collapse Menu
	Collapse Module	Search	Search Record
	Print		Search Icon
	Checkbox		Delete Record
Delete	Delete Item from the list		Empty Text Box
	Dropdown Box	Reject	Reject Transaction

Module Legend			
	Schedule button		Confirmation button
	Consent form		Verification
	Preparation		Dispensing
	Submission Approval		Printing/Editing Label
	Radiopharmaceuticals		Calculation Activity Radiopharmaceuticals
	Generate the worksheet		Release Batch

Note

To learn more about Login Information, kindly click Login Information Modules for descriptive step.

3.0 Radiopharmaceuticals

Overview

This module will be used by the user at the

User Group

This module is intended for Doctor, Specialist and Pharmacist (subject to user assigned by the facility).

Functional Diagram

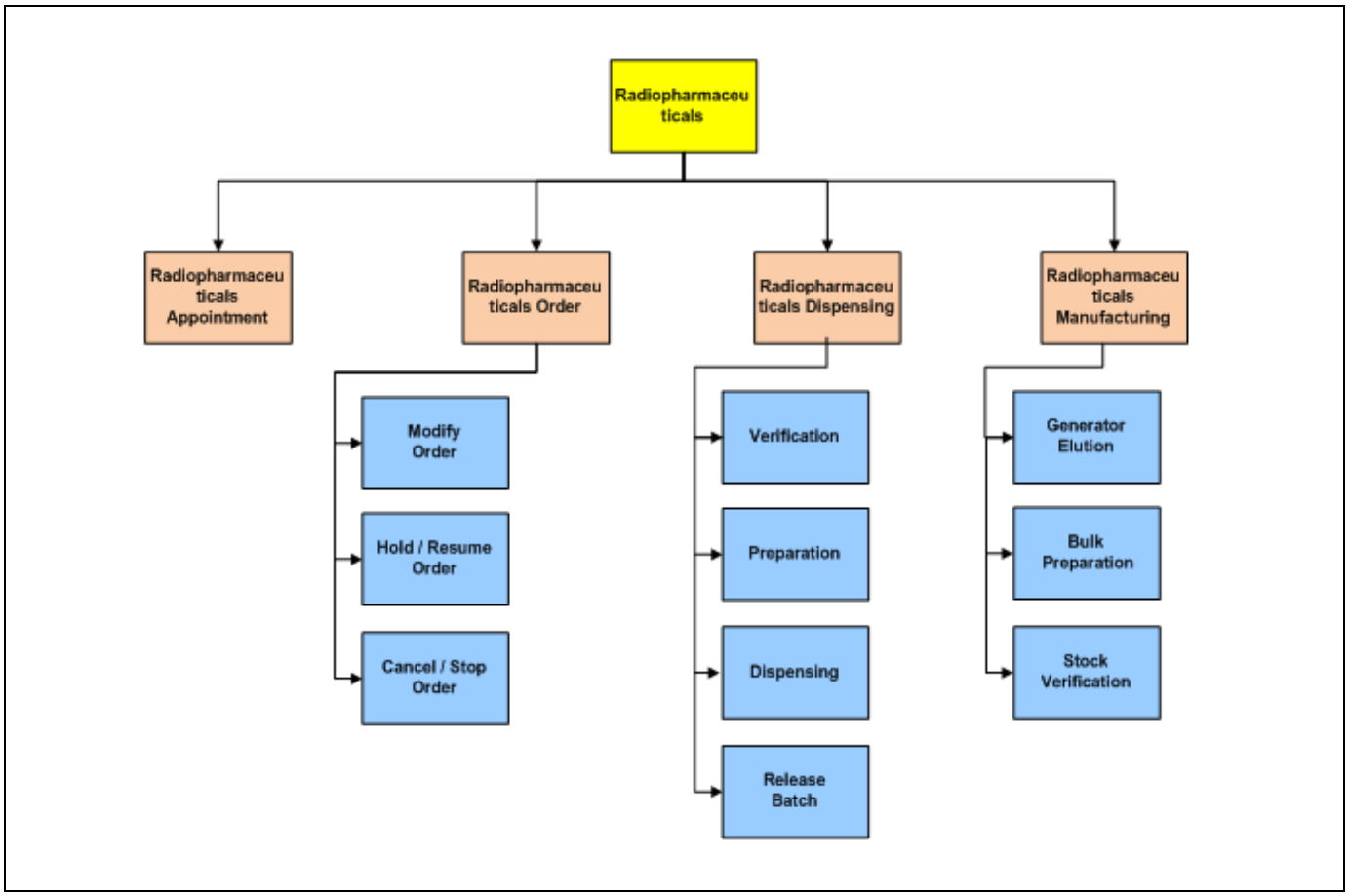


Figure 3.0-1

Functional Description

Slow Moving comprises of three (4) main functions:

- **Radiopharmaceuticals Appointment**
  This function allows user to create a Appointment for the patient
- **Radiopharmaceuticals Order**
  This function is used for user to create an order for Radiopharmaceutical
- **Radiopharmaceuticals Dispensing**
  This function allows user to dispense Radiopharmaceutical order
- **Radiopharmaceuticals Manufacturing**

3.1 Radiopharmaceuticals

3.1.1 Create New Appointment

Radiopharmaceuticals Appointment screen will allow user to create appointment for the purpose of scanning and therapy for patient.

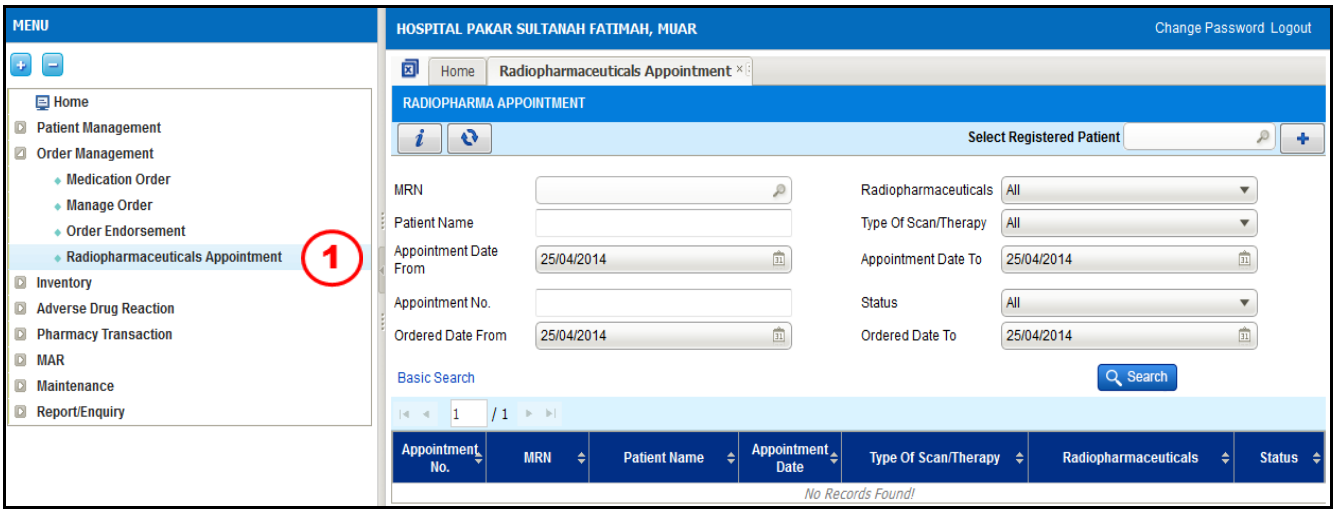


Figure 3.1-1 Radiopharmaceuticals Appointment Listing Page

STEP 1

Click on 'Order Management' and select 'Radiopharmaceuticals Appointment' sub-menu as per Figure 3.1-1

Note

- *User have the options to view existing appointment records by clicking the check box :-*
  a) Show All

- *Various search criteria is provided as below:*
  a) MRN
  b) Radiopharmaceuticals
  c) Patient Name
  d) Appoitnment no
  e) Status
  f) Appointment Date From
  g) Appointment Date To

- *By default list of existing appointments will be displayed based on current system date*

- *Click on the* Advanced Search *hyperlink for advance search.*

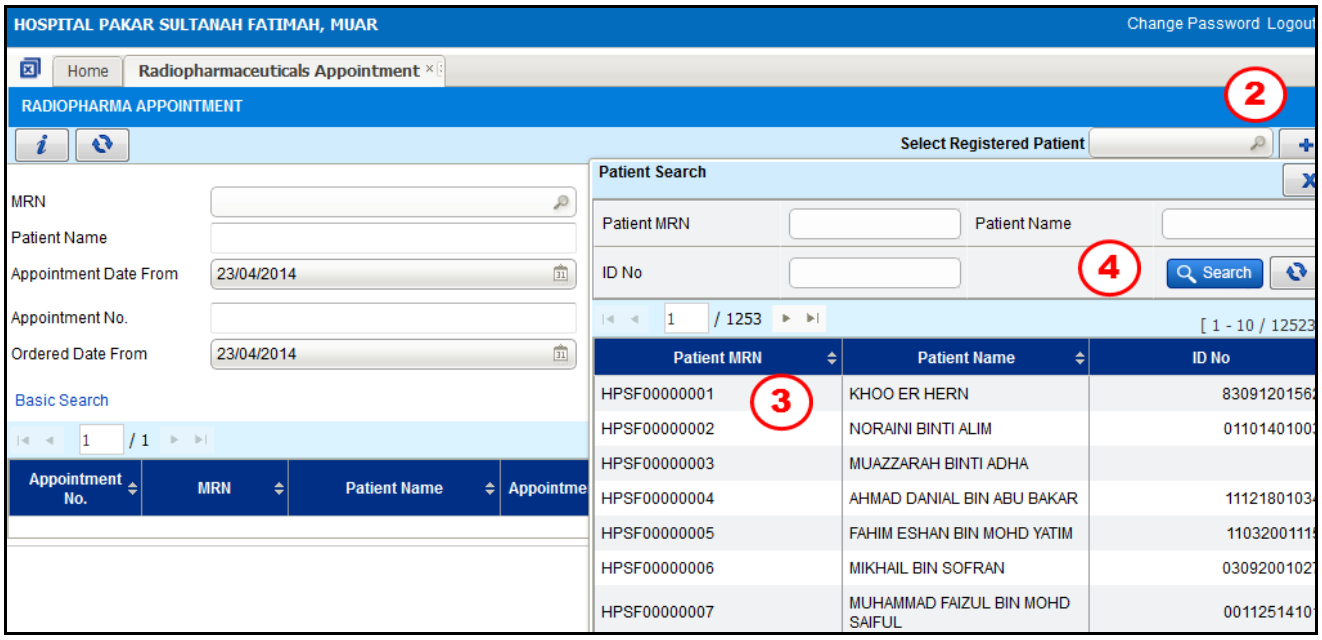


Figure 3.1.1-2 Radiopharmaceuticals Appointment

STEP 2

Click on the button to search for registered patient and system will be displayed as per Figure 3.1.1-2

STEP 3

Enter patient name at 'Patient name' field

STEP 4

Click on button to search patient name and system will be displayed as per Figure 3.1.1-2

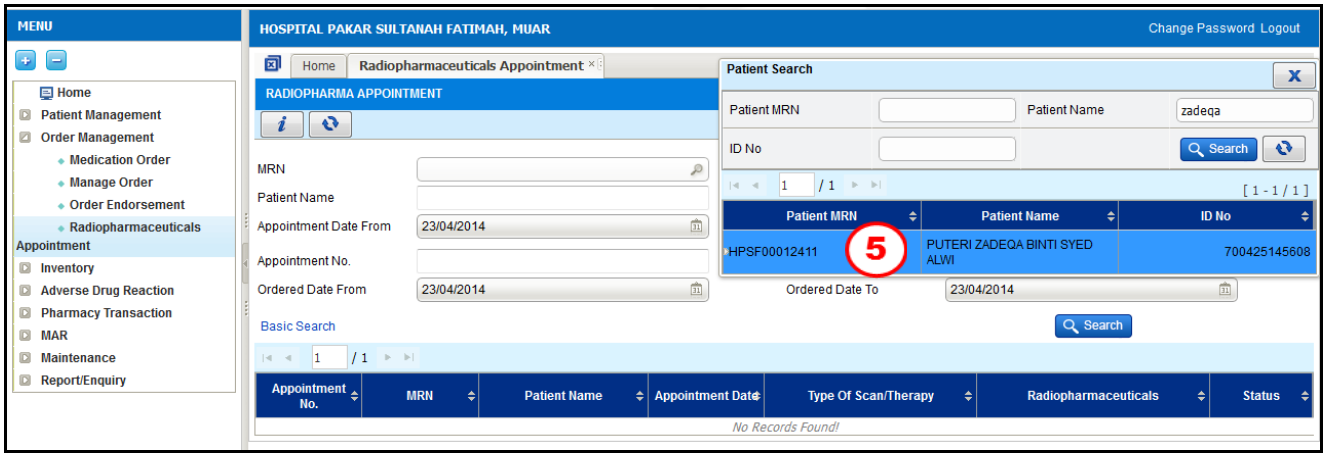


Figure 3.1.1-3 Radiopharmaceuticals Appointment

STEP 5

Double click on the patient name and system will be displayed as per Figure 3.1.1-3

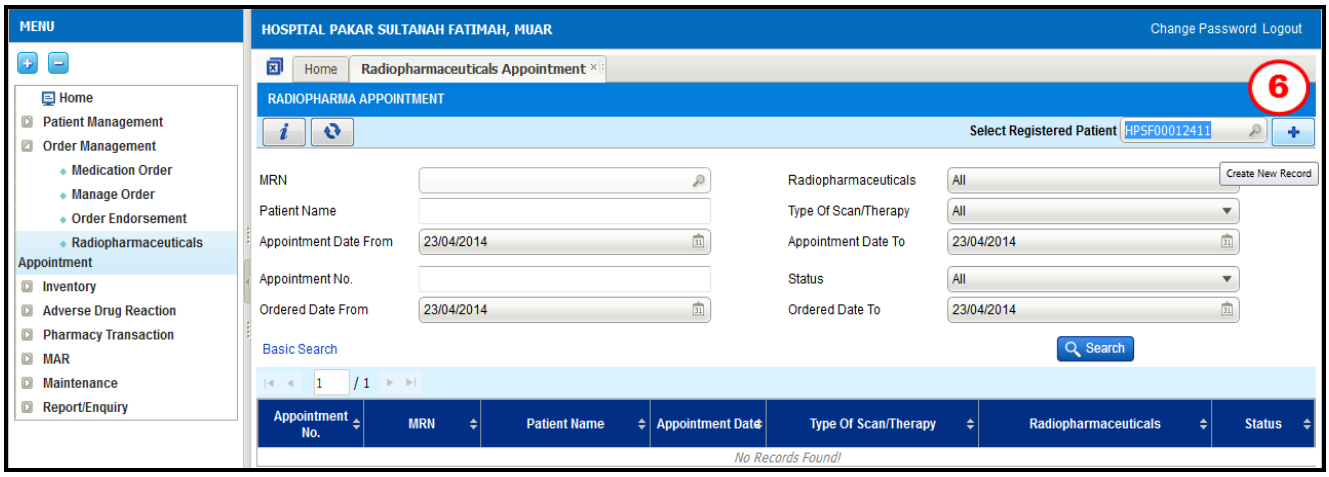


Figure 3.1.1-4 Radiopharmaceuticals Appointment

STEP 6

Click on [+] button to create new radiopharma appointment record and system will be displayed as per Figure 3.1.1-4

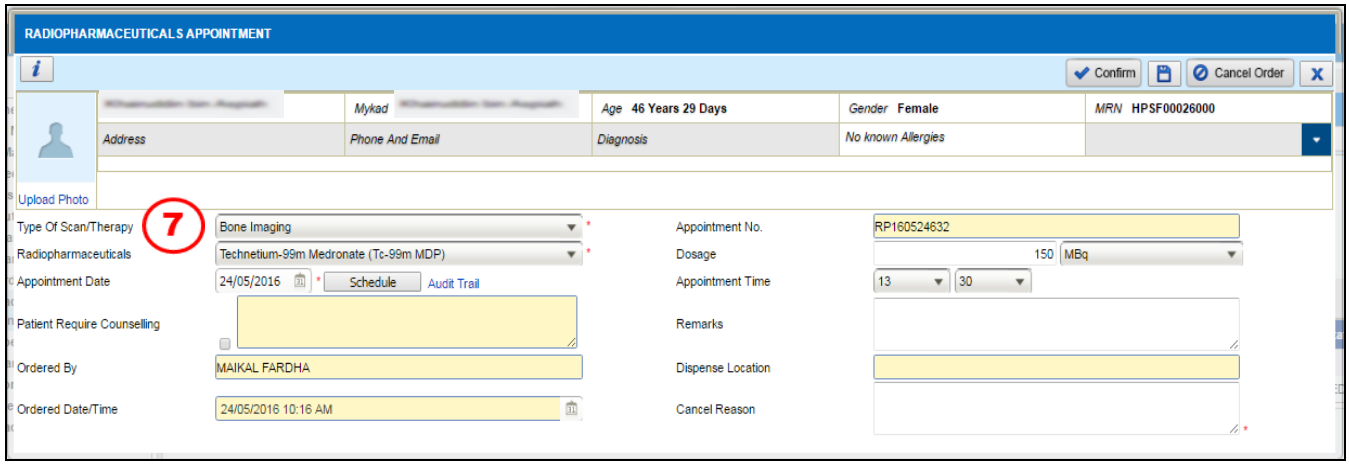


Figure 3.1.1-5 Radiopharmaceuticals Appointment

STEP 7

Select ***Type Of Scan/Therapy*** from the drop down box and system will be displayed as per Figure 3.1.1-5

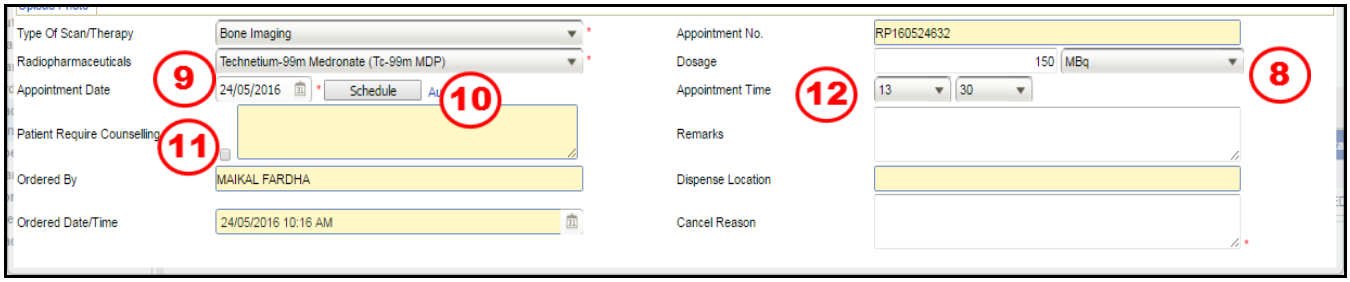


Figure 3.1.1-6 Radiopharmaceuticals Appointment

Note

*After enter **Type of Scan/Therapy** field, **Radiopharmaceuticals** field will be automatically displayed as per Figure 3.1.1-6.*

STEP 8
Enter ***Amount*** MBq field. The UOM displayed will be based on the Radiopharmaceuticals SKU in Drug Master

STEP 9
Select ***Date*** field for appointment

Note
Date *field is mandotary field*

STEP 10
Click on the Schedule button to check for available date for appointment

STEP 11
Check on the ***Counseling Indicator*** checkbox if applicable

STEP 12
Select ***Appointment Time*** for appointment (hours and minutes) from the drop down box

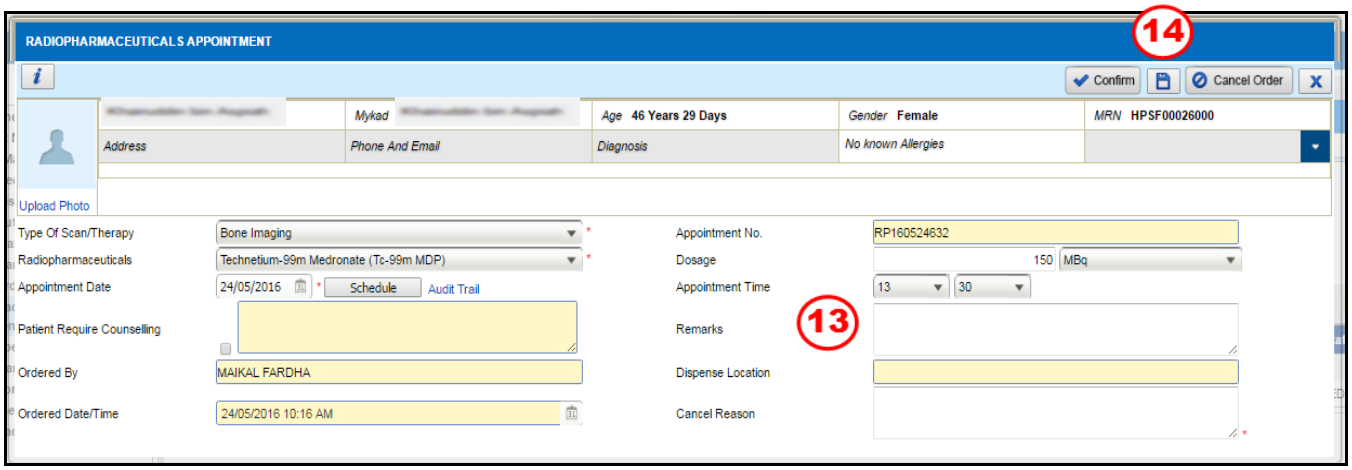


Figure 3.1.1-7 Radiopharmaceuticals Appointment

STEP 13
Enter ***Remarks*** if applicable

Note

- ***Ordered By*** *and* ***Ordered Date/Time*** *will automatically generate by system.*
- ***Dispense Location*** *will only be automatically generated in Medication Order Radiopharmaceuticals screen. Not in Radiopharmaceuticals screen.*

STEP 14
Click on the save button to save record and alert message will be displayed as per Figure 3.1.1-7

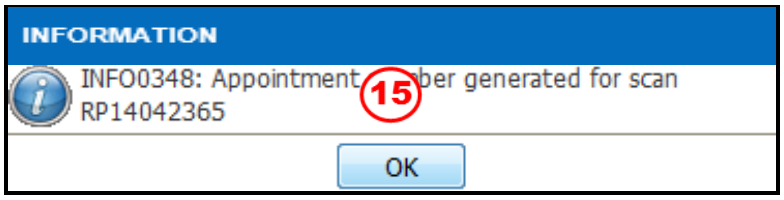


Figure 3.1.1-8 Save Record Alert Message

STEP 15

Click on the OK button to generate number for scan appointment and alert message will be displayed as per Figure 3.1.1-8

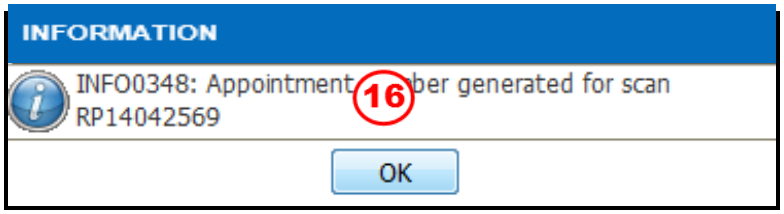


Figure 3.1.1-9 Save Record Alert Message

STEP 16

Click on the OK button to save and update Radipharmaceuticals Appointment order

Note

Record status is updated to Draft.

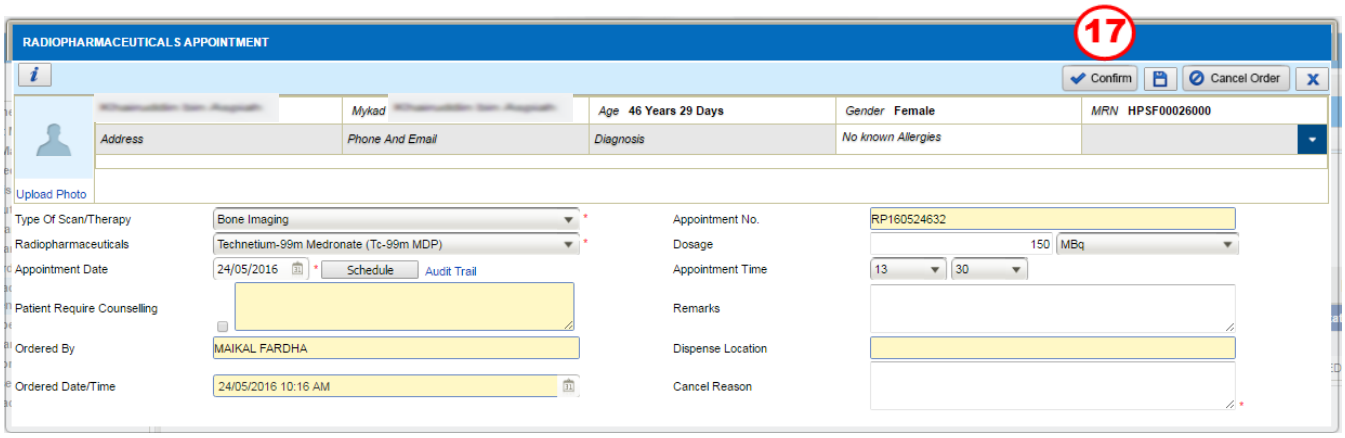


Figure 3.1.1-10 Radiopharmaceuticals Appointment

STEP 17

Click on the Confirm button and system will display alert message as per Figure 3.1.1-11

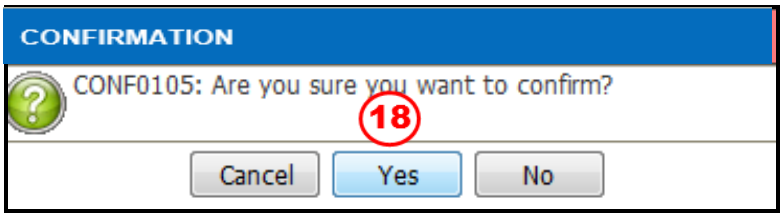


Figure 3.1.1-11 Confirm Order Alert Message

STEP 18

Click on the Yes button to confirm order

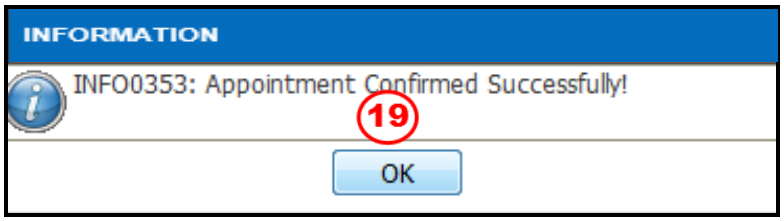


Figure 3.1.1-12 Confirm Order Alert Message

STEP 19

Click on the OK button to confirm appointment successfully

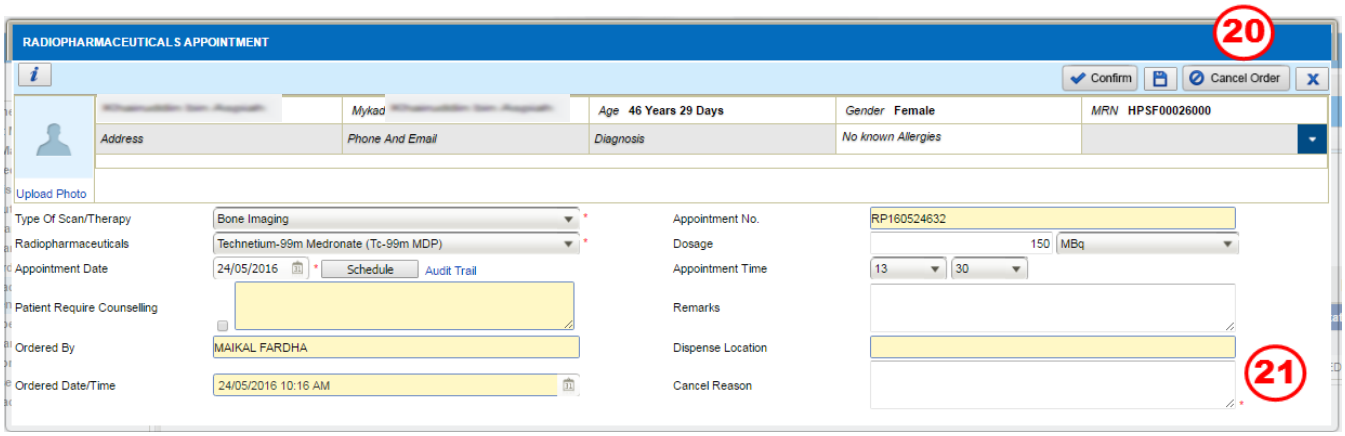


Figure 3.1-13 Radiopharmaceuticals Appointment

STEP 20

Click on the Cancel Order button to cancel Radiopharmaceuticals Appoinment

STEP 21

Enter cancel reason

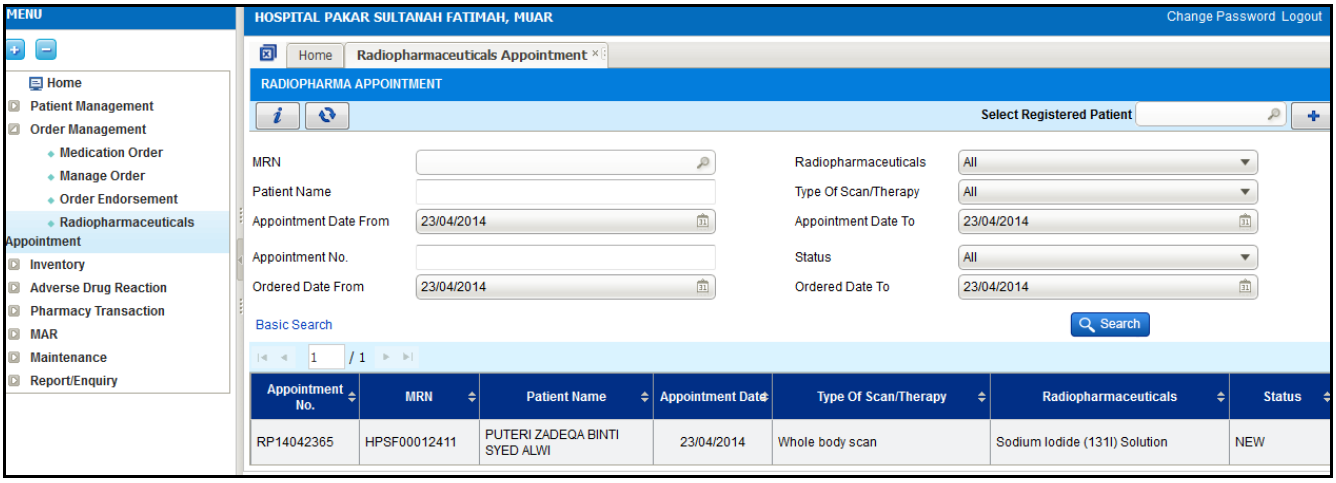


Figure 3.1.1-14 Radiopharmaceuticals Appointment

Note

Record status is updated to New as per Figure 3.1.1-14.

3.2 Radiopharmaceuticals

Order Medication order for Radiopharmaceuticals screen will allow user to confirm radiopharmaceuticals order

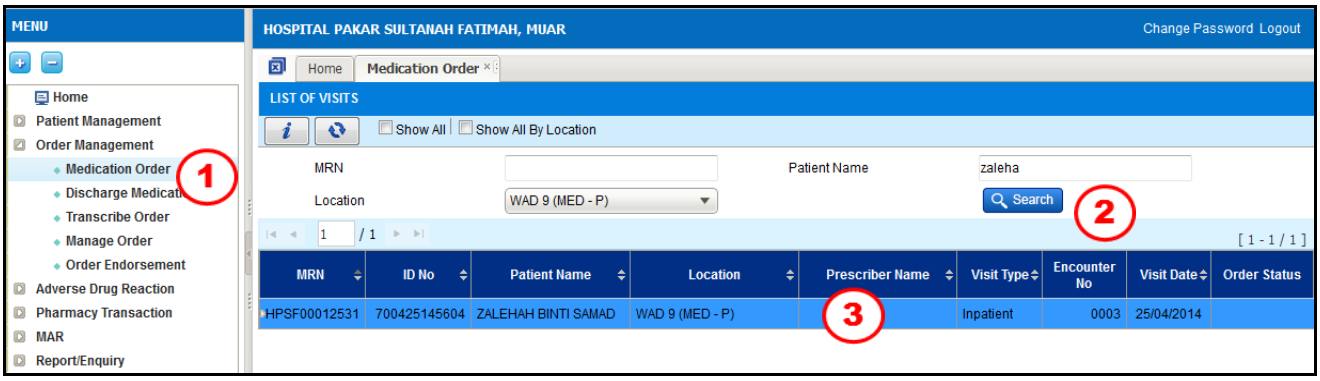


Figure 3.2-1 Medication Order Listing Page

STEP 1
Click on 'Order Management' and select 'Medication Order' sub menu

Note

- *User have the options to view patient by clicking the check box :-*
  a) Show All
  b) Show All By Location

- *Various search criteria is provided as below:*
  a) MRN
  b) Patient name
  c) Location

- *By default list of patient will be displayed according to user location access.*

- *Click on the* Advanced Search *hyperlink for advance search.*

STEP 2
Click on the Search button and system will be displayed related order

STEP 3
Double click on the selected patient record and system will be displayed Radiopharmaceuticals Order screen as per Figure 3.2-1

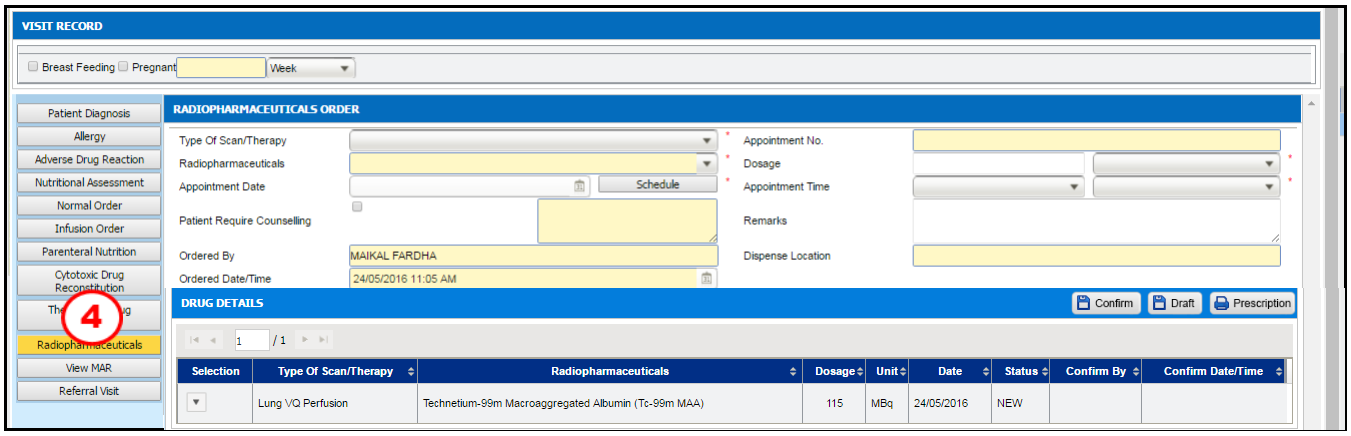


Figure 3.2-2 Medication Order

STEP 4

Click on the Radiopharmaceuticals button to display Radiopharmaceuticals medication order screen as per Figure 3.2-3

Note

Current Appointment section :

This section will automatically display appointment records created in Appointment screen (if any). Only appointment records with 'New' status is displayed in this section.

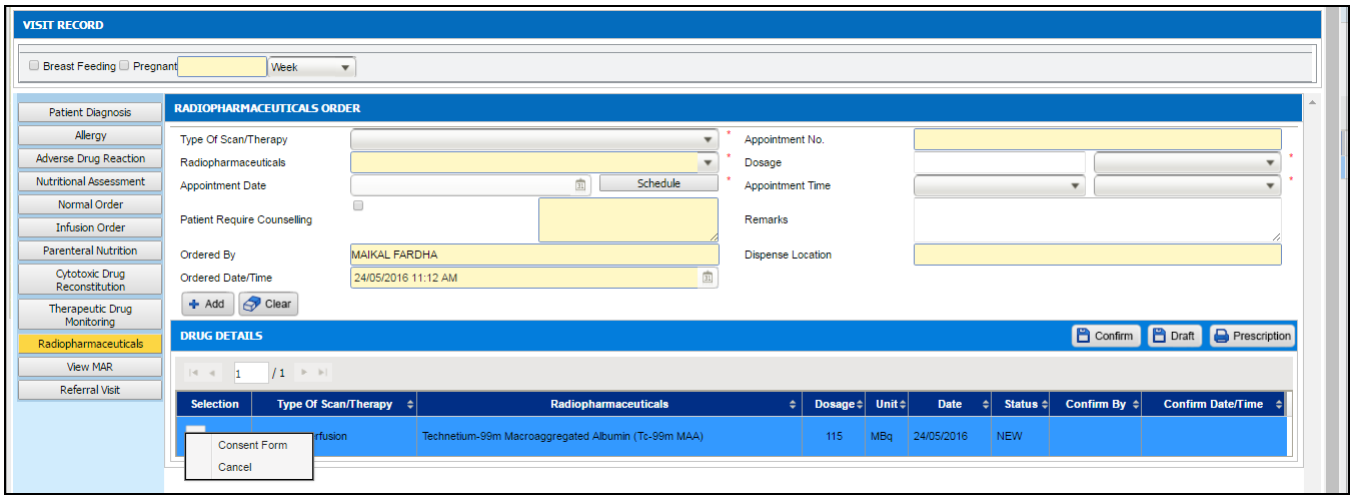


Figure 3.2-3 Medication Order –Radiopharmaceuticals

Note

Consent Form:

- *Right click in the ▾ button and select* Consent Form *link.*
- *Click on the* Consent Form *link and screen will display as per Figure 3.2-4*

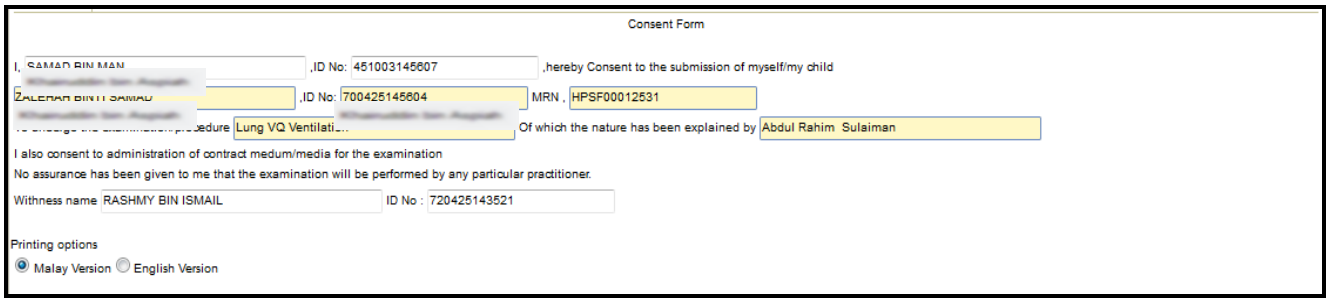


Figure 3.2-4 Consent Form

Note

Consent Form:

- *Consent Form is an optional function.*
- *Enter Patient Name, ID. No.,Witness Name and ID. No. of witness in the consent form.*
- *Consent form has two printing options:*
  - *Malay Version*
  - *English Version*

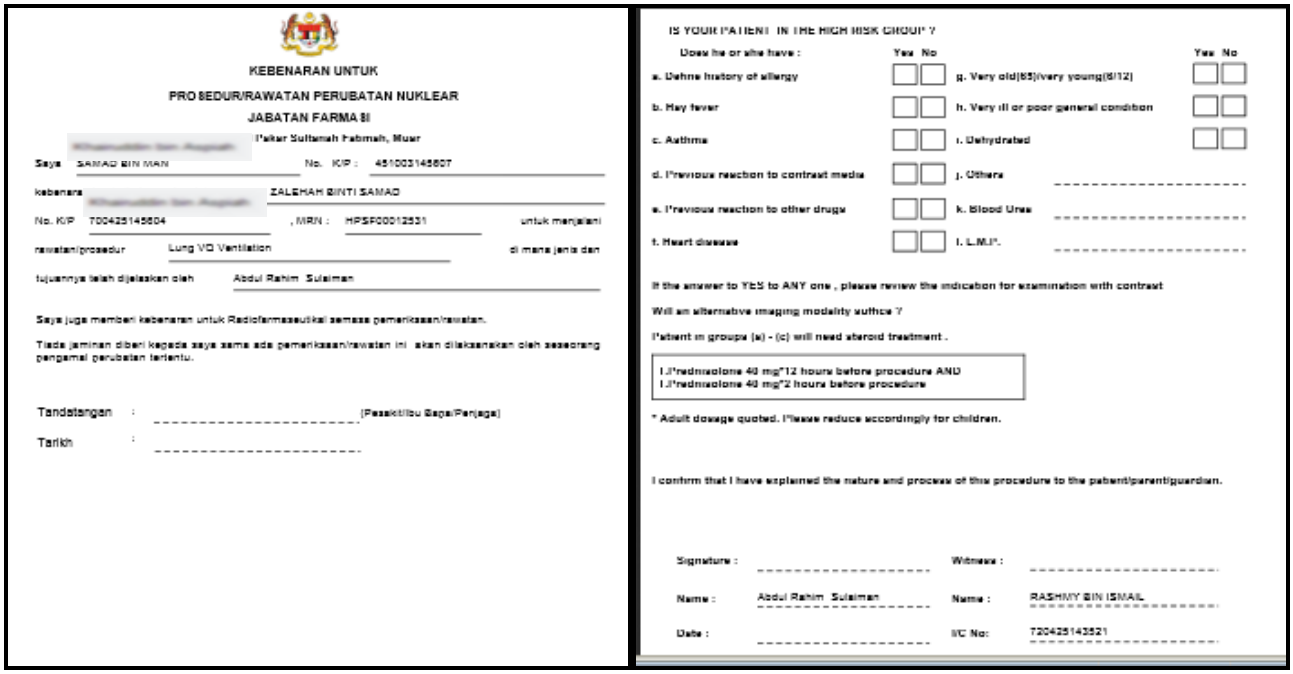


Figure 3.2-5 Sample Consent Form

Note

Sample of Consent Form as per Figure 3.2-5.

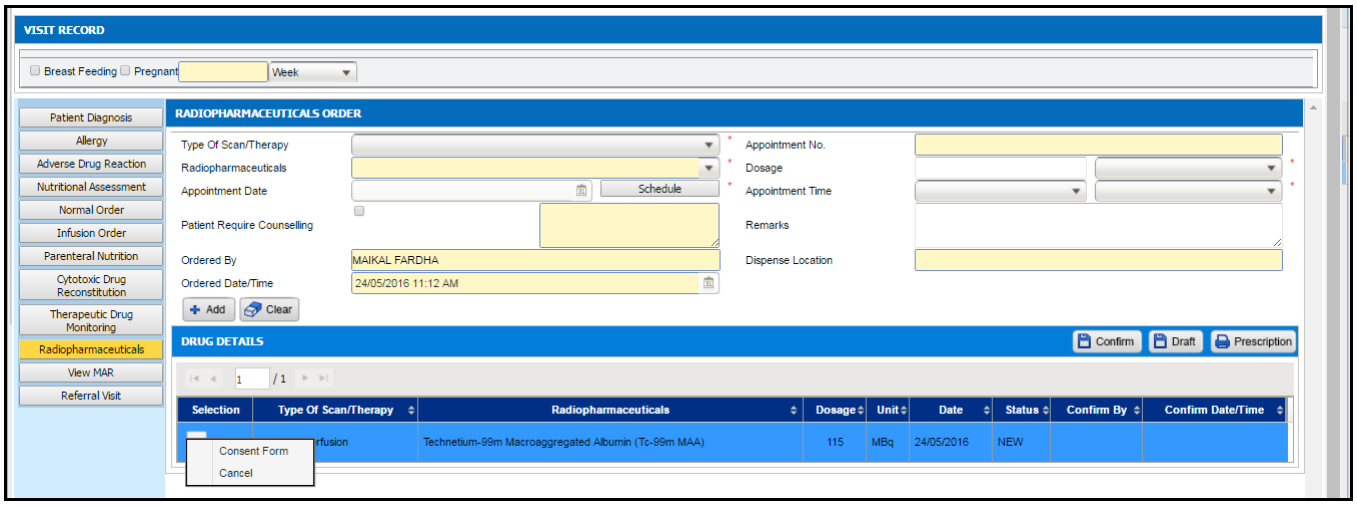


Figure 3.2-6 Sample Consent Form

Note

Cancel function:

- *Cancel is an optional function.*
- *Click on the* Cancel *link to cancel radiopharmaceuticals order and alert message will be displayed as per Figure 3.2-7.*
- *Click on the* Yes *button to cancel order.*

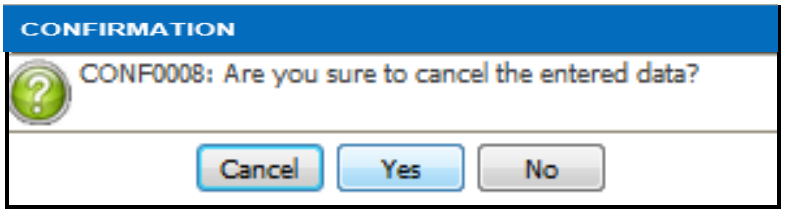


Figure 3.2-7 Cancel Order Alert Message

- *Need to enter cancel reason once user click cancel function:*

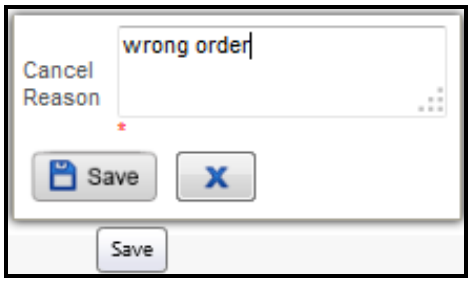


Figure 3.2-8 Cancel Order

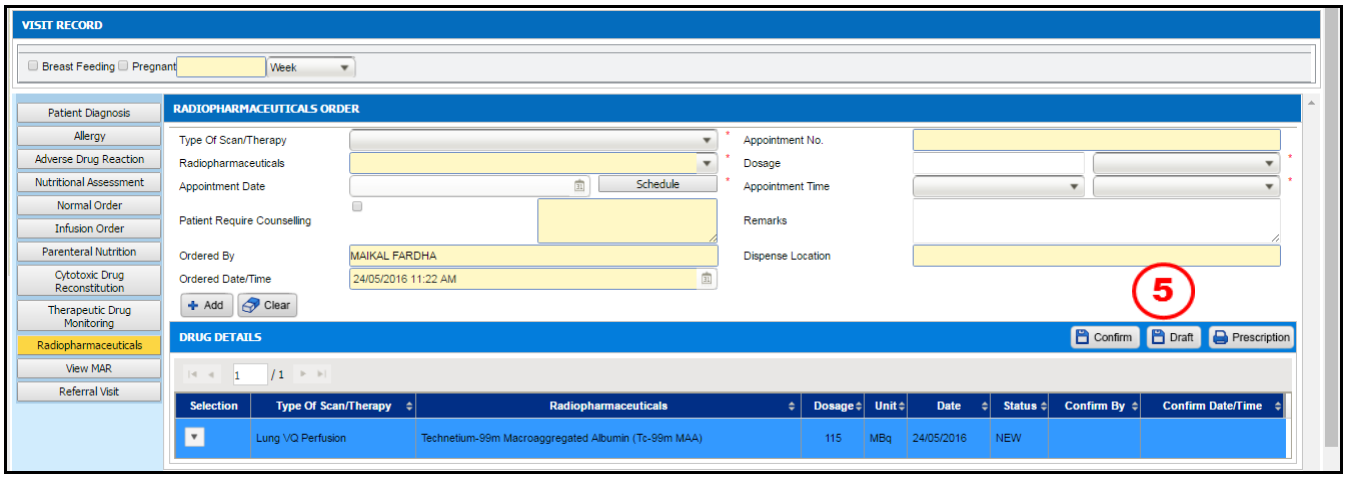


Figure 3.2-9 Medication Order -Radiopharmaceuticals

STEP 5

Click on the Draft button to save record and alert message will be displayed as per Figure 3.2-09

Note

The Confirm Order *button will be displayed after save record.*

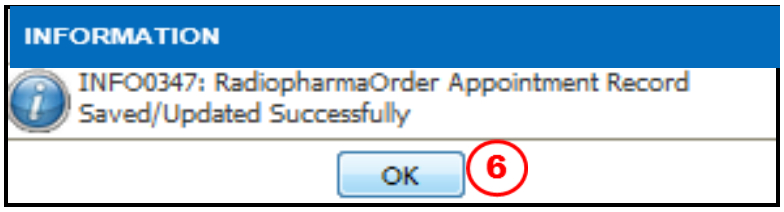


Figure 3.2-10 Alert Message

STEP 6

Click on the OK button to save data

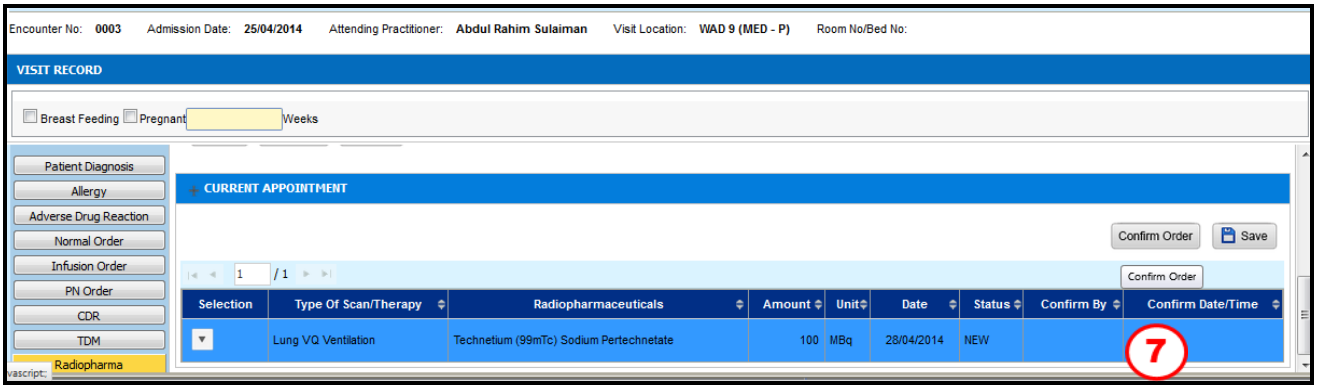


Figure 3.2-11 Medication Order -Radiopharmaceuticals

STEP 7

Click on the Confirm Order button to confirm radiopharmaceuticals order and alert message will be displayed as per Figure 3.2-11

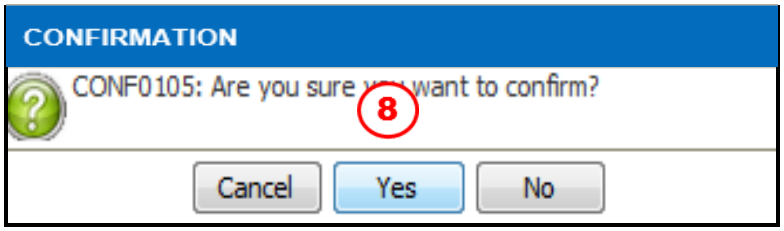


Figure 3.2-12 Alert Message

STEP 8

Click on the Yes button to confirm record and alert message will be displayed as per Figure 3.2-12

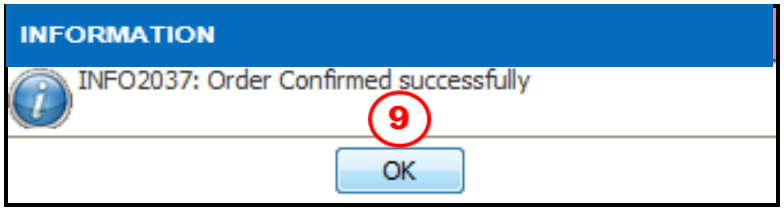


Figure 3.2-13 Alert Message

STEP 9

Click on the OK button to confirm order successfully

3.3 Radiopharmaceuticals Verification

Radiopharmaceuticals Verify screen allow user to screen prescription details and verify order.

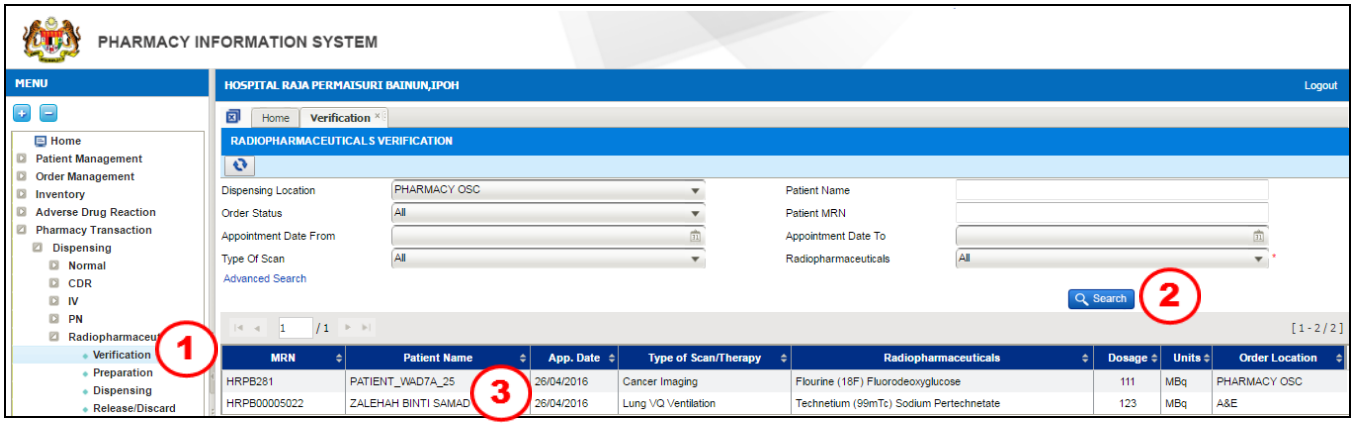


Figure 3.3-1 Radiopharmaceuticals Verification Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu followed by 'Dispensing' and click on 'Radiopharmaceuticals Verification' sub-menu

Note

- *Various search criteria is provided as below:*
  - *a) Dispense Location*
  - *b) Patient Name*
  - *c) Order Status*
  - *d) Patient MRN*
  - *e) Appoinment Date From*
  - *f) Appoinment Date To*
  - *g) Type of Scan*
  - *h) Radiopharmaceuticals*

- *Click on the* Advanced Search *hyperlink for advance search.*

STEP 2

Click on the Search button and system will display related order

STEP 3

Double click on the selected patient record and system will display Radiopharmaceuticals Verification screen as per Figure 3.3-2

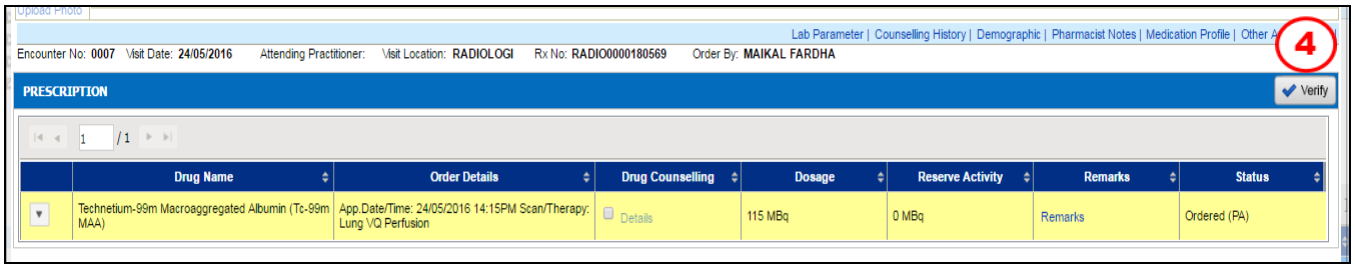


Figure 3.3-2 Radiopharmaceuticals Verification

STEP 4

Click on Verify button to verify order

Note

- ***Drug Counselling*** *column is an optional function.*
- *Choose* ***Yes*** *if the patient need counselling or* ***No*** *if the patient do not need counselling.*

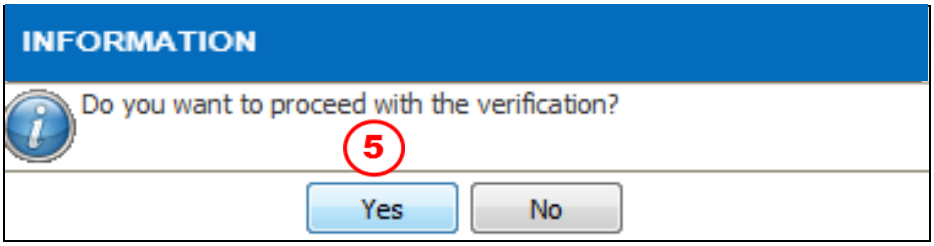


Figure 3.3-3 Information Alert Message

STEP 5

Click on the Yes button to proceed with the verification

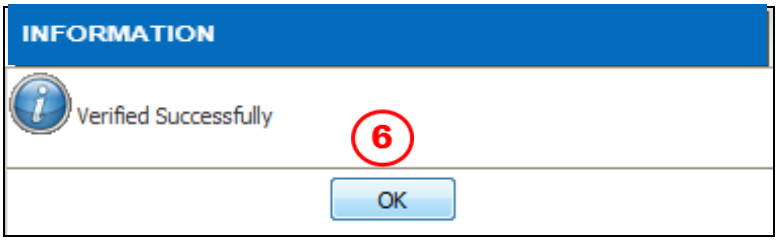


Figure 3.3-4 Verify Order Alert Message

STEP 6

Click on the OK button to verify successfully

3.3.1 Intervention

Radiopharmaceuticals verification screen will allow user to verify prescription, before preparation and dispensing stage

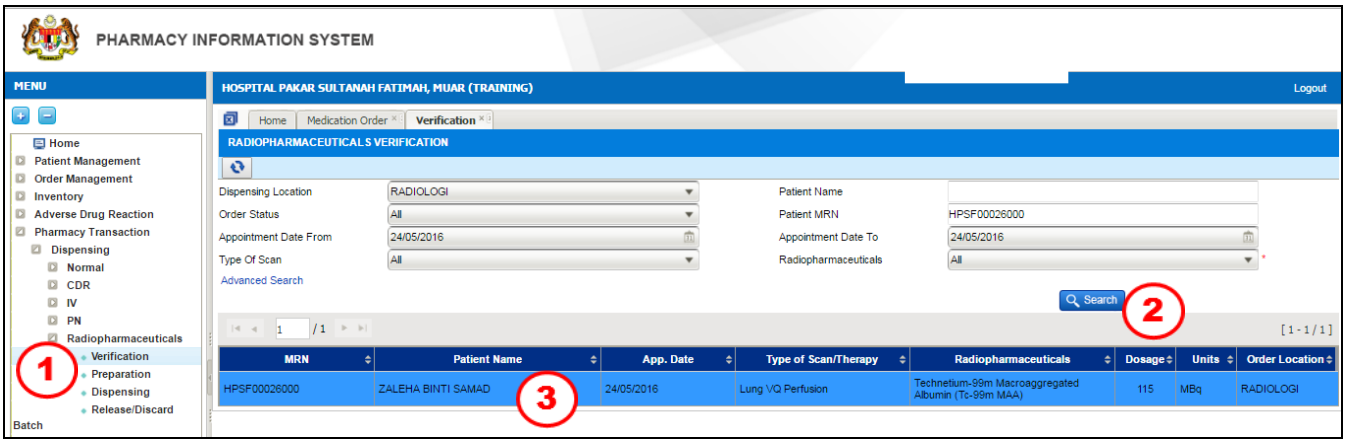


Figure 3.3.1-1 Radiopharmaceuticals Verification Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu followed by 'Dispensing' and click on 'Radiopharmaceuticals Verification' sub-menu

Note

- *Various search criteria is provided as below:*
  - *a) Dispense Location*
  - *b) Patient Name*
  - *c) Order Status*
  - *d) Patient MRN*
  - *e) Appoinment Date From*
  - *f) Appoinment Date To*
  - *g) Type of Scan*
  - *h) Radiopharmaceuticals*

- *Click on the* Advanced Search *hyperlink for advance search.*

STEP 2

Click on the Search button and system will display related order

STEP 3

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Verification screen as per Figure 3.3.1-2

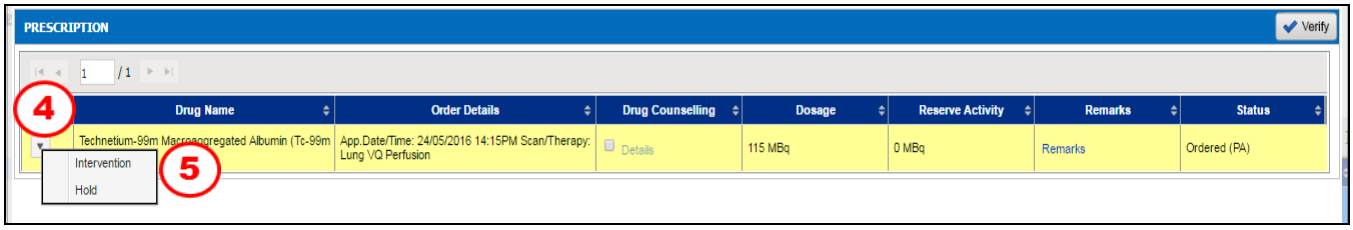


Figure 3.3.1-2 Radiopharmaceuticals Verification Listing Page

STEP 4

Right click in the ▼ button to select either ***Intervention*** or ***Hold Order*** as per Figure 3.3.1-2

STEP 5

Click on the Intervention button to modify drug details

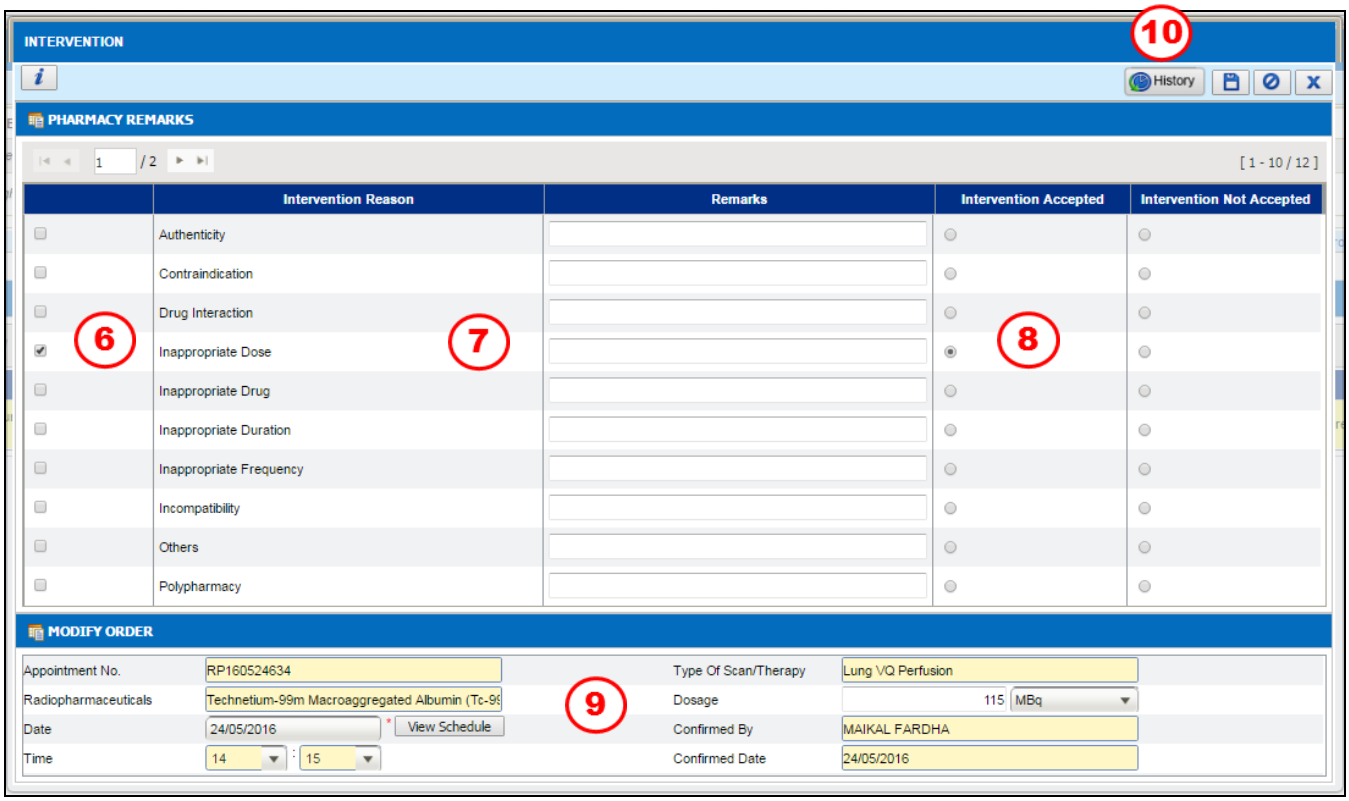


Figure 3.3.1-3 Radiopharmaceuticals Intervention

STEP 6

*Select **Intervention Reason** from list.*

STEP 7

*Enter **Remarks** if applicable.*

STEP 8

*Select **Intervention Status** radio button either **Accepted** or **Not Accepted** and edit **Amount** field*

STEP 9

Click on the View Schedule button check appointment if fully booked for a particular date.

STEP 10

Click on the 💾 button to save intervention record and alert message will display as per Figure 3.3.1-4.

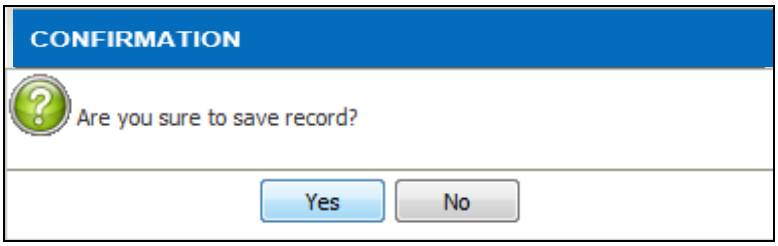


Figure 3.3.1-4 Save record Alert Message

Note

- *Click on the* Yes *button to save intervention record.*

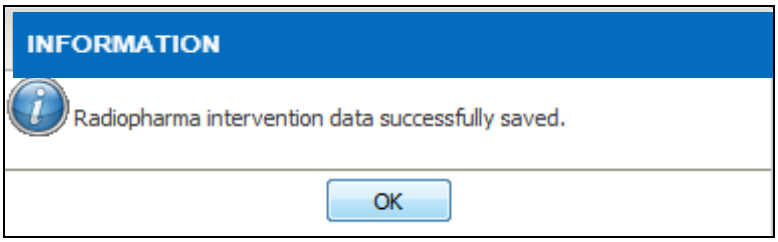


Figure 3.3.1-5 Modify Order Alert Message

Note

- *Click on the* OK *button to save modify order record.*

3.3.2 Hold/Resume Order

Radiopharmaceuticals verification screen allow user to hold order and add reason for hold. User able to resume the order.

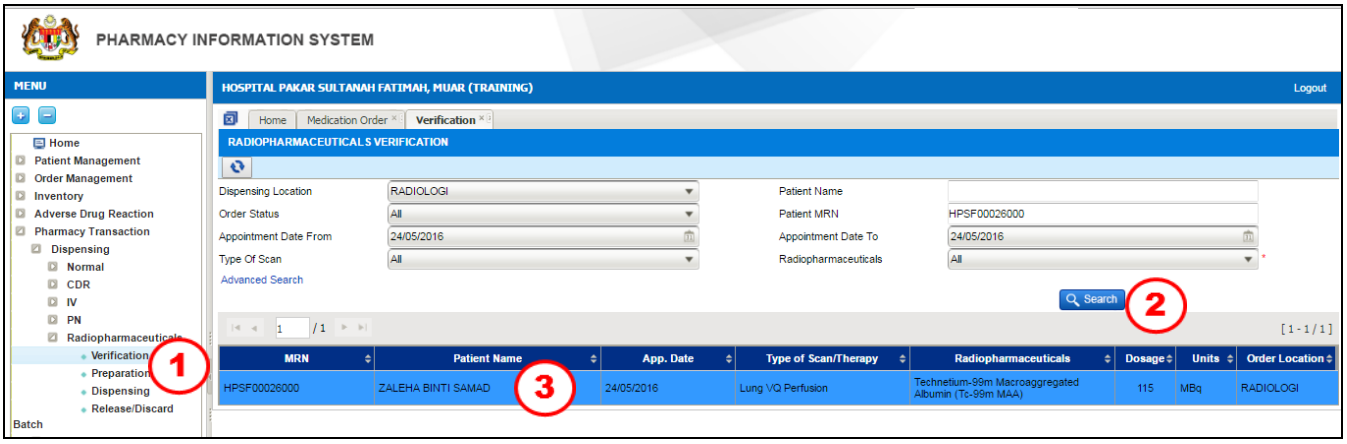


Figure 3.3.2-1 Radiopharmaceuticals Verification Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu followed by 'Dispensing' and click on 'Radiopharmaceuticals Verification' sub-menu

Note

Various search criteria is provided as below:

a) Dispense Location
b) Patient Name
c) Order Status
d) Patient MRN
e) Appoinment Date From
f) Appoinment Date To
g) Type of Scan
h) Radiopharmaceuticals

STEP 2

Click on the Search button and system will display related order

STEP 3

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Verification screen as per Figure 3.3.2-2

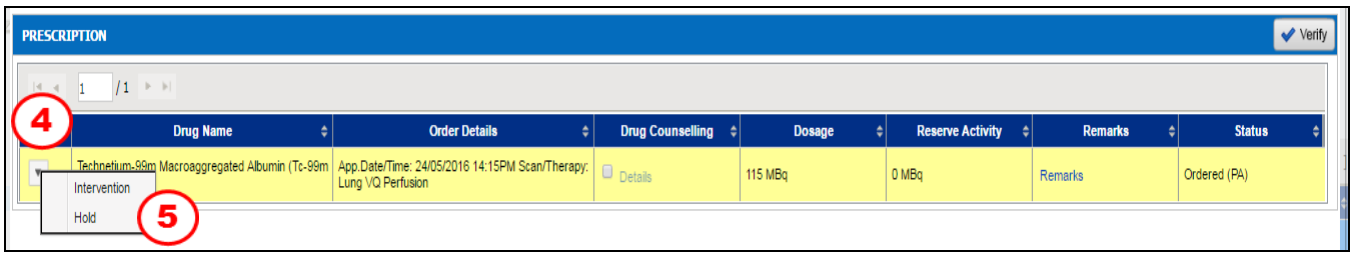


Figure 3.3.2-2 Radiopharmaceuticals Verification Listing Page

STEP 4

Right click in the ▾ button to select either ***Intervention*** or ***Hold Order***

STEP 5

Click on the Hold button to hold order

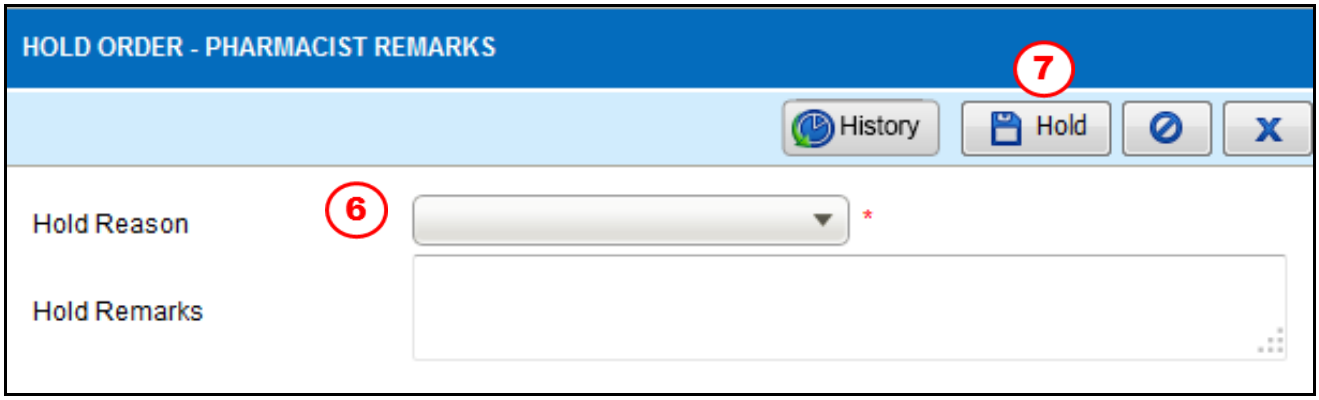


Figure 3.3.2-3 Hold Order – Pharmacist Remarks

STEP 6

*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*

STEP 7

*Enter **Hold Remarks** field. Click on the Hold button to hold order and alert message will display as per Figure 3.3.2-3*

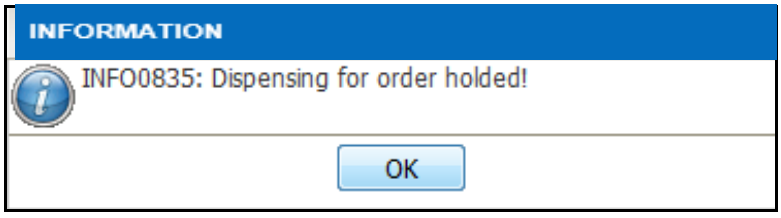


Figure 3.3.2-4 Information Alert Message

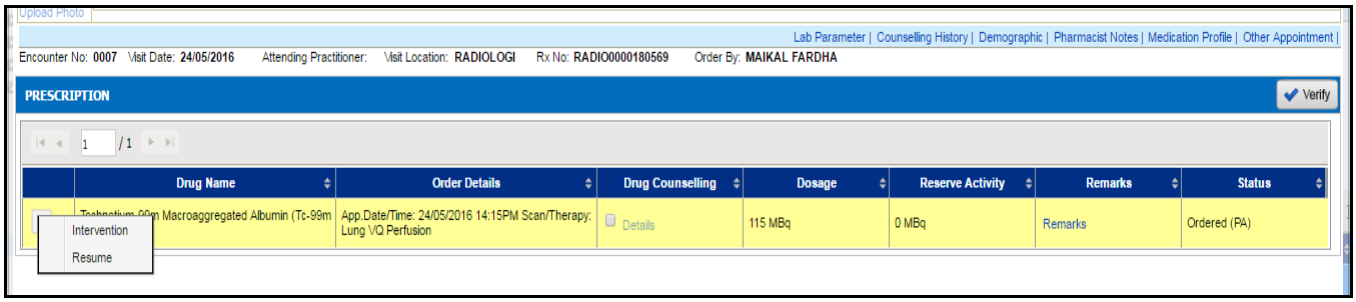


Figure 3.3.2-5 Radiopharmaceuticals Verification

Note

- *Click on the* OK *button to hold order.*
- *The* ⊘ *button is to cancel the entered data.*
- *Click on the* X *button to close Hold Order – Pharmacist Remarks screen.*
- *Status will change to Ordered Hold.*
- *Click on the* Resume *link to resume order as per Figure 3.3.2-6.*

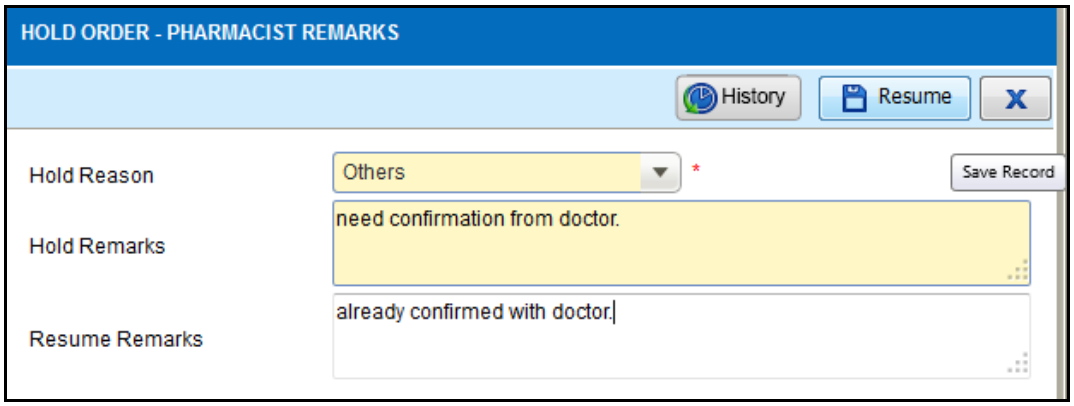


Figure 3.3.2-6 Hold Order – Pharmacist Remarks

Note

- *Enter reason at* ***Resume Remarks*** *field*
- *Click on the* Resume *button to resume order.*

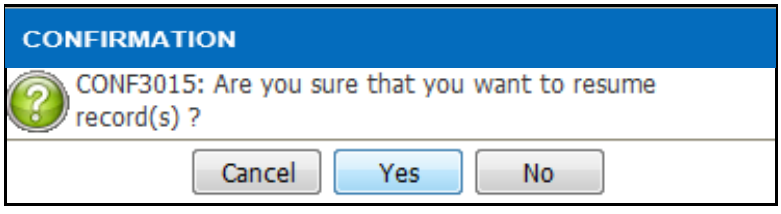


Figure 3.3.2-7 Hold/Resume Alert Message

Note

- *Click on the* Yes *button to resume order.*

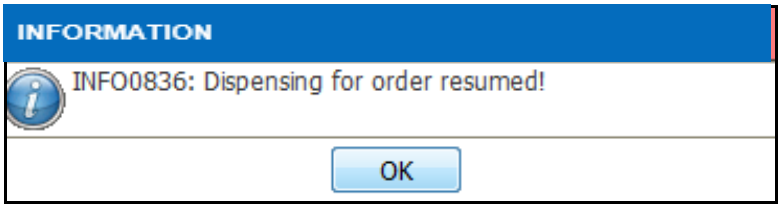


Figure 3.3.2-8 Information Alert Message

3.4 Radiopharmaceutical Preparation

Radiopharmaceuticals preparation screen allow user to allocate batch quantity before drug dispensed / administered to patient.

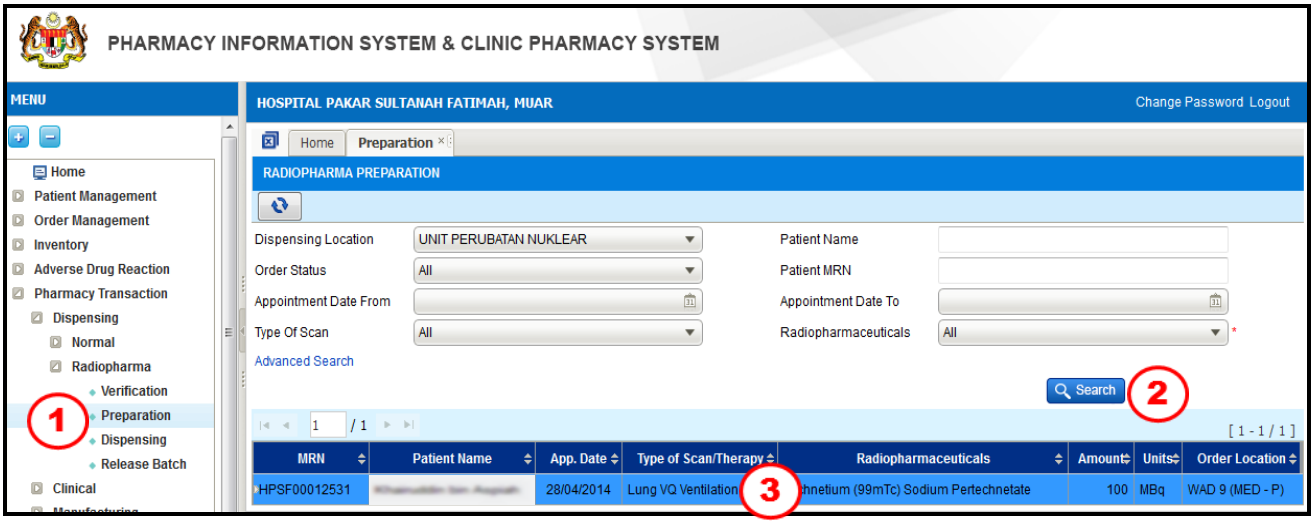


Figure 3.4-1 Radiopharmaceuticals Preparation Listing Page

STEP 1

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

Note

- *Various search criteria is provided as below:*
  - *a) Dispense Location*
  - *b) Patient Name*
  - *c) Order Status*
  - *d) Patient MRN*
  - *e) Appoinment Date From*
  - *f) Appoinment Date To*
  - *g) Type of Scan*
  - *h) Radiopharmaceuticals*

- *Click on the* Advanced Search *hyperlink for advance search.*

STEP 2

Click on the Search button and system will be displayed related order

STEP 3

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Preparation screen as per Figure 3.4-2

Figure 3.4-2 Radiopharmaceuticals Preparation

STEP 4

Click on the hyperlink at ***Reserve Activity*** to allocate quantity and Item Batch Details screen will be displayed as per Figure 3.4-2

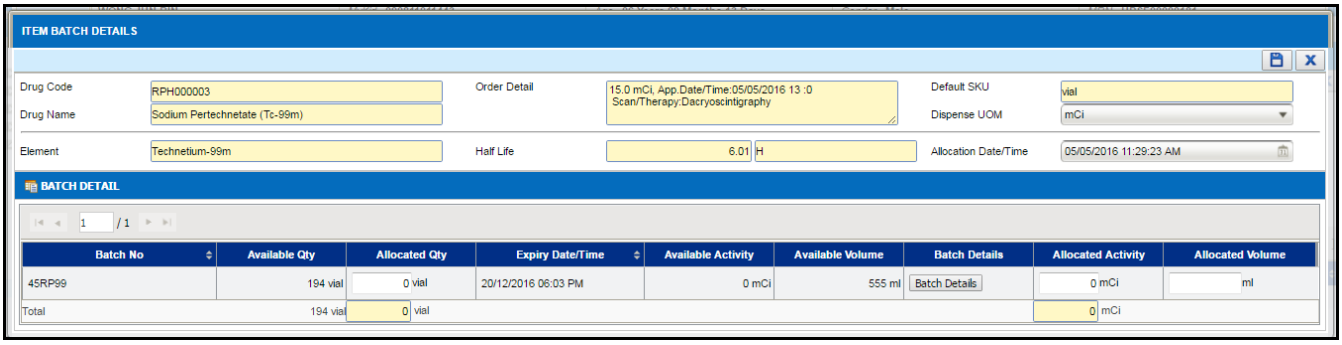


Figure 3.4-3 Item Batch Details

Note

- *Item Batch Details screen will be displayed as per Figure 3.4-4.*

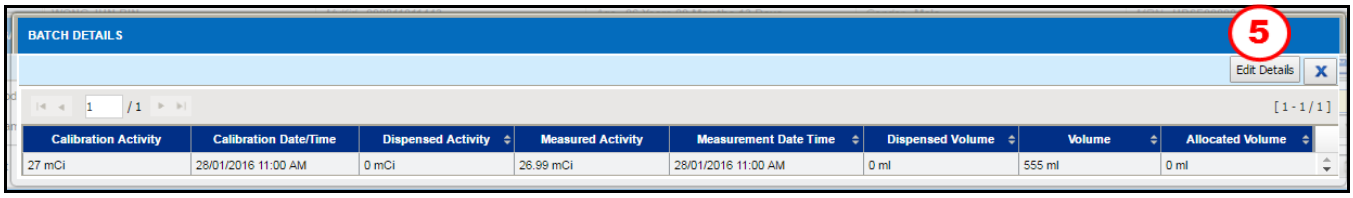
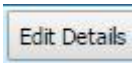


Figure 3.4-4 Edit Batch Details

STEP 5

Click on 

quantity to allocate quantity

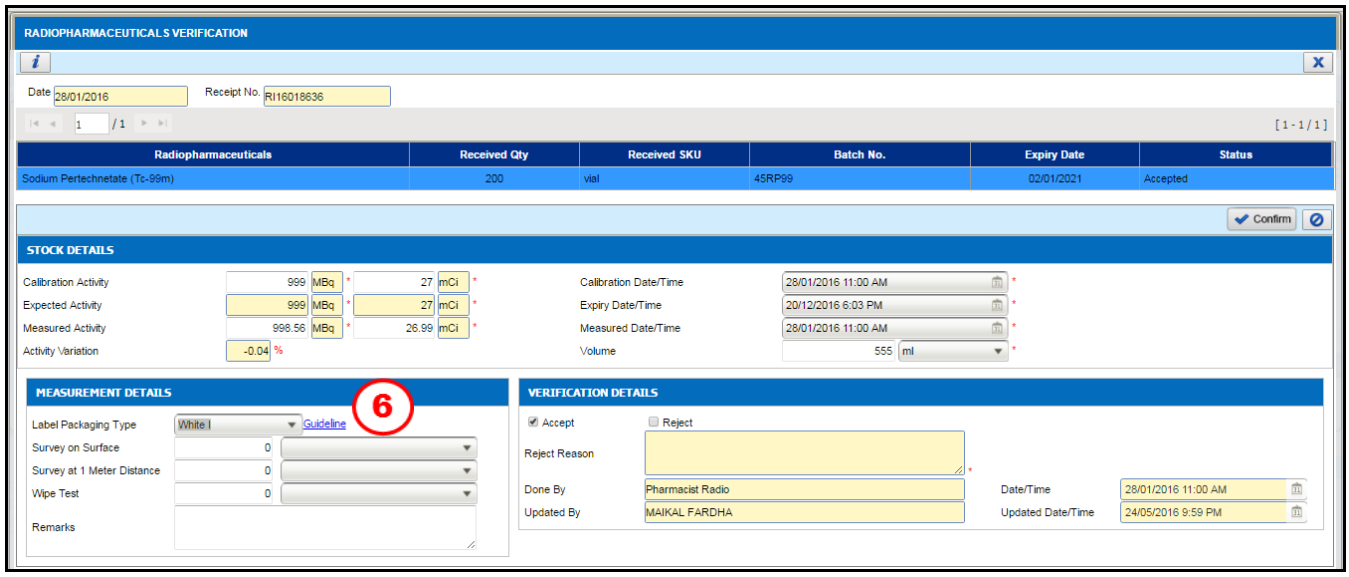
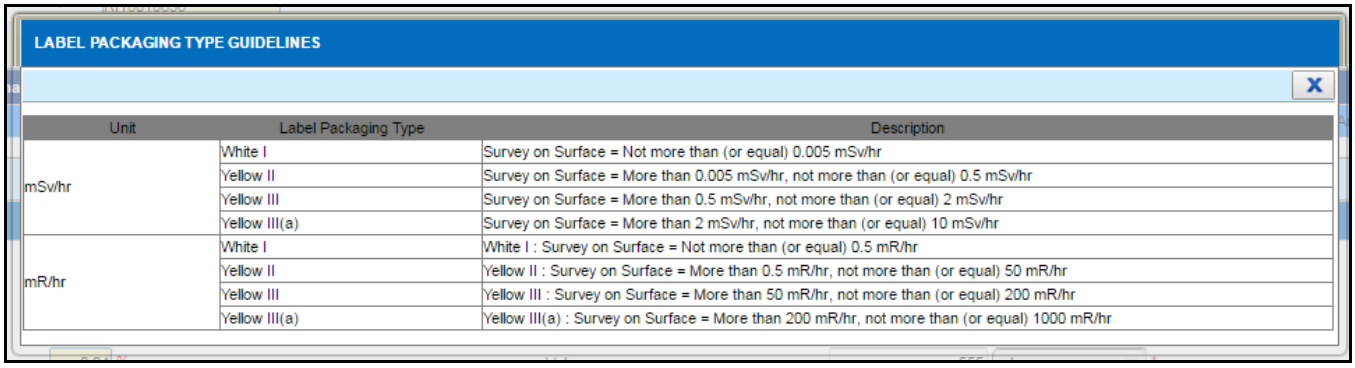


Figure 3.4-4 Sample of Item Batch Details

STEP 6
Click on guideline link to get details about measurement details

Note

- *Label Packaging Type Guidelines as per Figure 6.0-6*
- *Verification can be Accept and Reject based verification*



Unit	Label Packaging Type	Description
mSv/hr	White I	Survey on Surface = Not more than (or equal) 0.005 mSv/hr
	Yellow II	Survey on Surface = More than 0.005 mSv/hr, not more than (or equal) 0.5 mSv/hr
	Yellow III	Survey on Surface = More than 0.5 mSv/hr, not more than (or equal) 2 mSv/hr
	Yellow III(a)	Survey on Surface = More than 2 mSv/hr, not more than (or equal) 10 mSv/hr
mR/hr	White I	White I : Survey on Surface = Not more than (or equal) 0.5 mR/hr
	Yellow II	Yellow II : Survey on Surface = More than 0.5 mR/hr, not more than (or equal) 50 mR/hr
	Yellow III	Yellow III : Survey on Surface = More than 50 mR/hr, not more than (or equal) 200 mR/hr
	Yellow III(a)	Yellow III(a) : Survey on Surface = More than 200 mR/hr, not more than (or equal) 1000 mR/hr

Figure 3.4-5 Label Packaging Type Guidelines

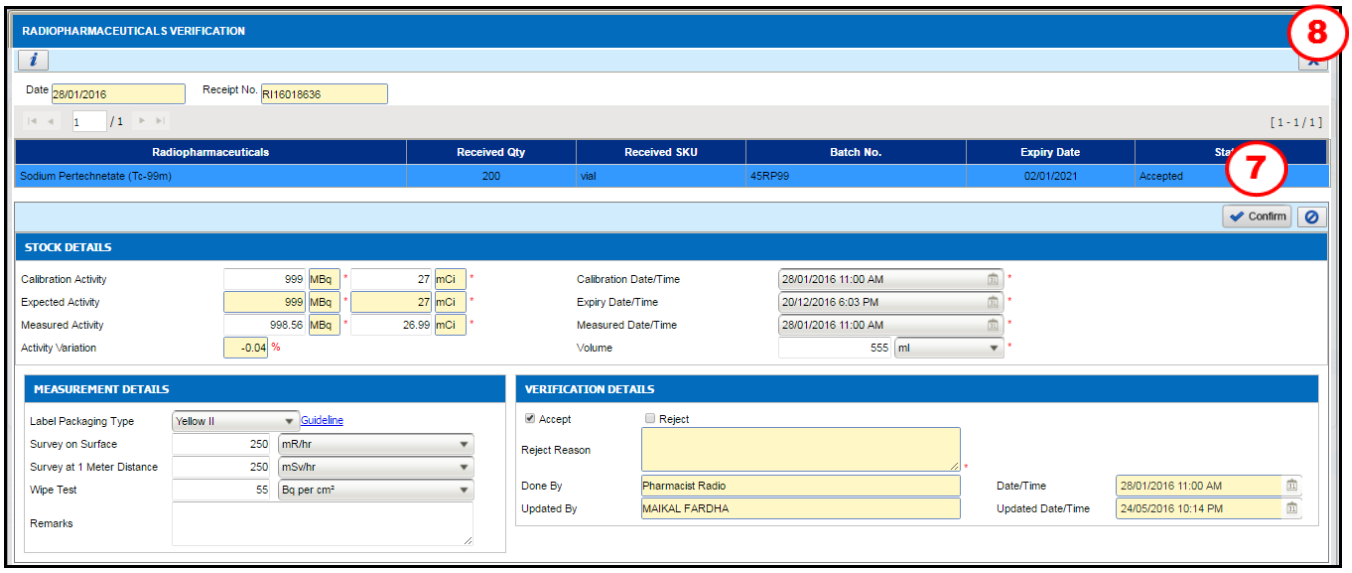


Figure 3.4-6 Batch Details

STEP 7

Click on

button to finalize batch details

STEP 8

Click on button to close Item Batch Details screen

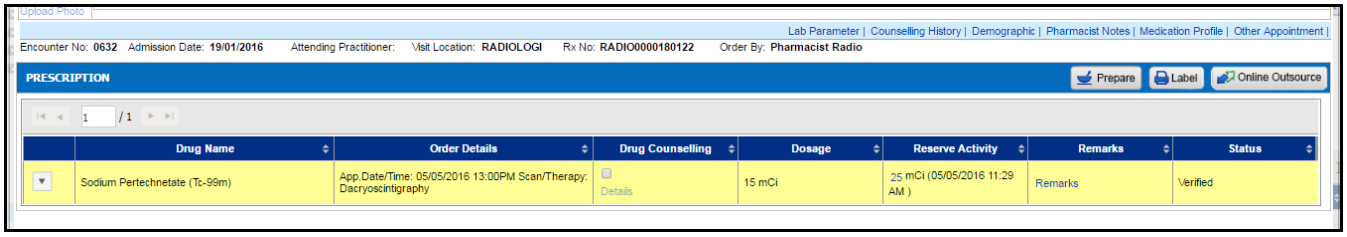


Figure 3.4-5 Radiopharmaceuticals Preparation

Note

- *User has the option to measure radiopharmaceuticals radioactivity in preparation screen, user need to click the calculate activity button.*

- *Click on the*

button and new window will be displayed as figure 3.4-6.

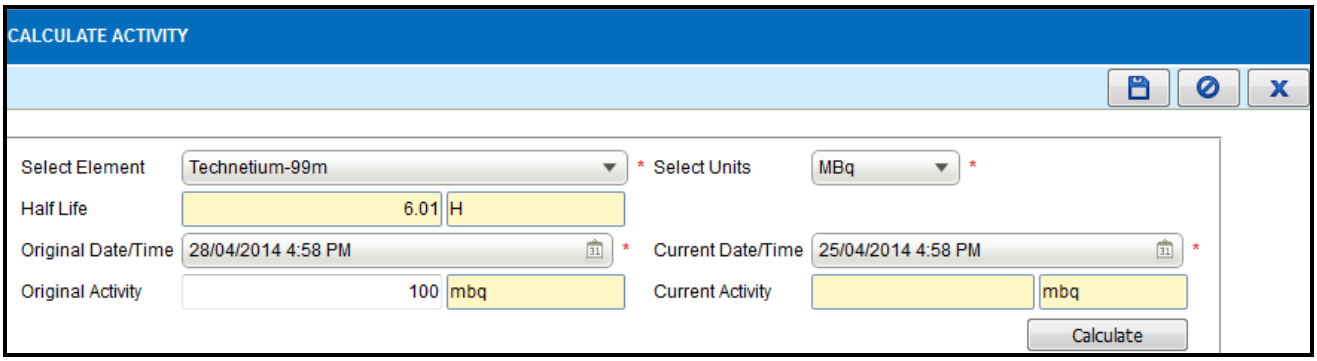


Figure 3.4-6 Radiopharmaceuticals Preparation

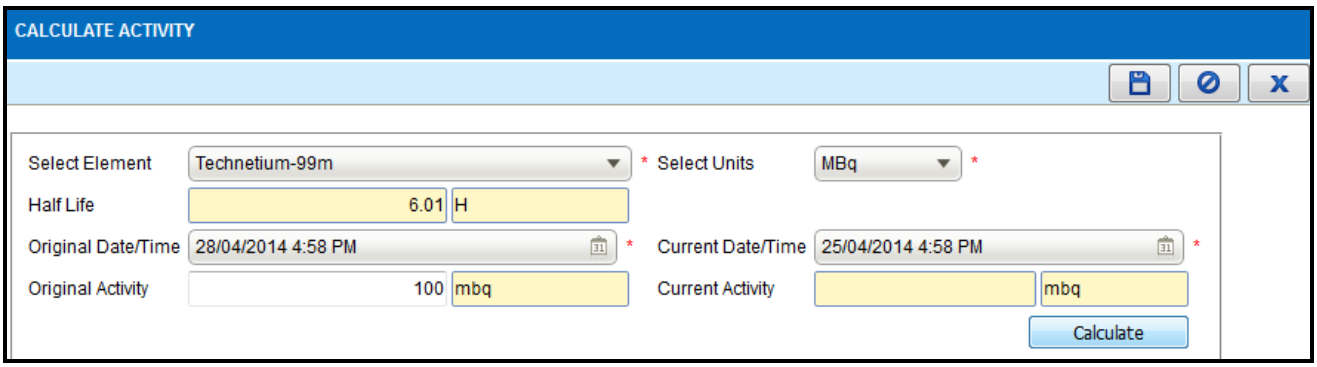


Figure 3.4-7 Calculate Activity

Note

- *Select value for **Select Element** drop down box.*
- ***Half Life** field will be automatically displayed by system after user selects value in **Select Element** field.*
- ***Original Date/Time** is mandatory field.*
- ***Select Units** from drop down box.*
- ***Select Units** is mandatory field.*
- *Select **Current Date/Time** field.*
- ***Current Date/Time** is **mandatory** field.*
- ***Original Activity** field will automatically display value based on the ordered activity but user is allowed to edit the value.*
- *Click on the* Calculate *button and **Current Activity** field will be automatically calculated by system as per Figure 3.4-8.*

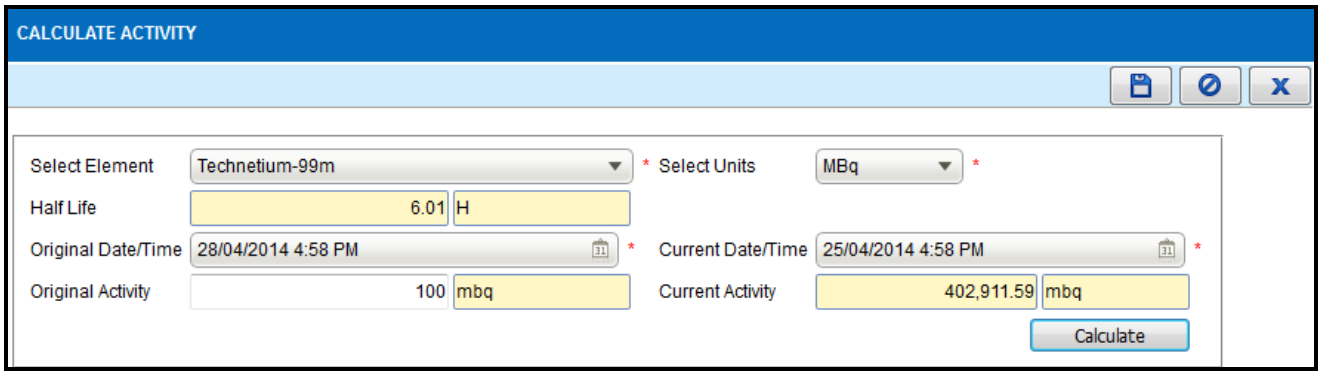


Figure 3.4-8 Calculate Activity

Note

- *Click on the* *button to save record as per Figure 3.4-8.*

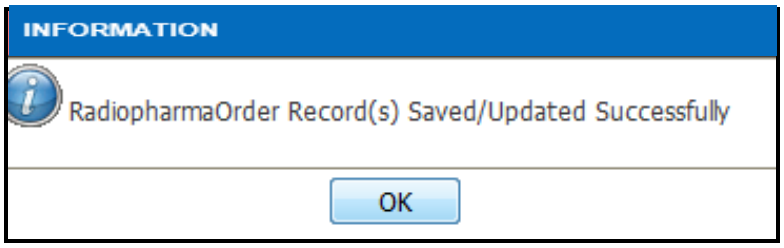


Figure 3.4-9 Save Record Alert Message

Note

- *Click on the* *button to save record as per Figure 3.4-9.*

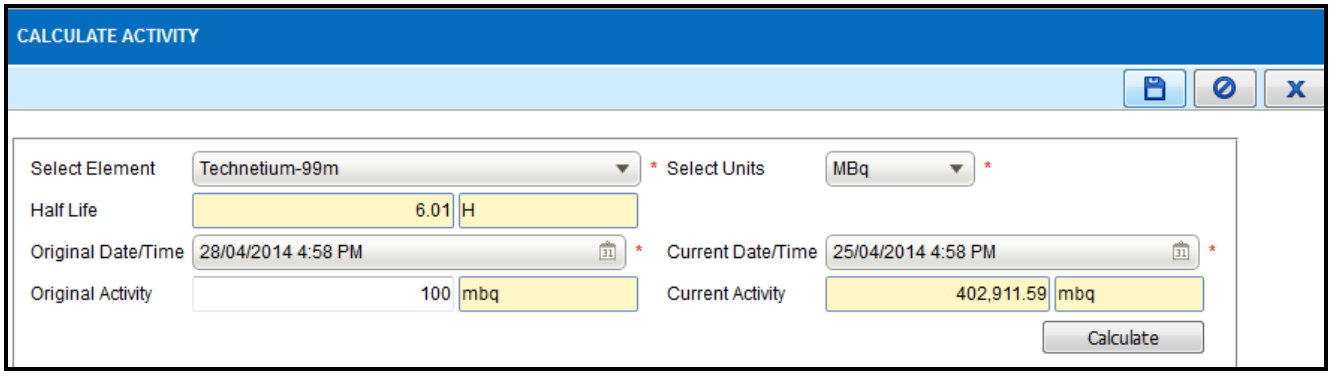


Figure 3.4-10 Calculate Activity

Note

Click on the *button to close Calculate Activity screen as per Figure 3.4-10.*

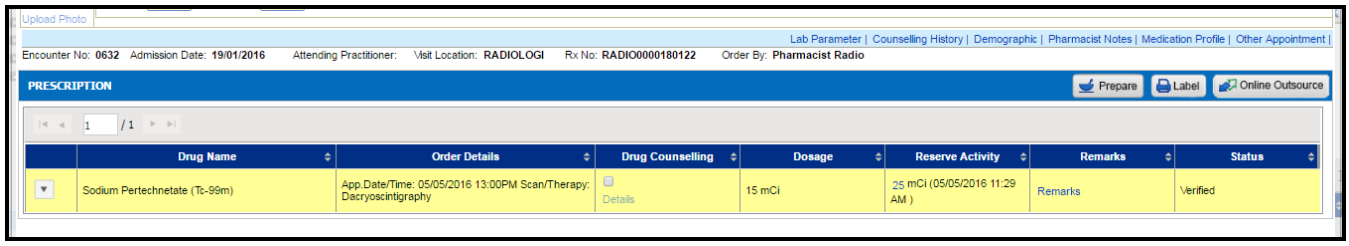


Figure 3.4-11 Radiopharmaceuticals Preparation

Note

- *Click on the*

button to edit label as per Figure 3.4-11.
- *Drug Label screen will be displayed as per Figure 3.4-12.*

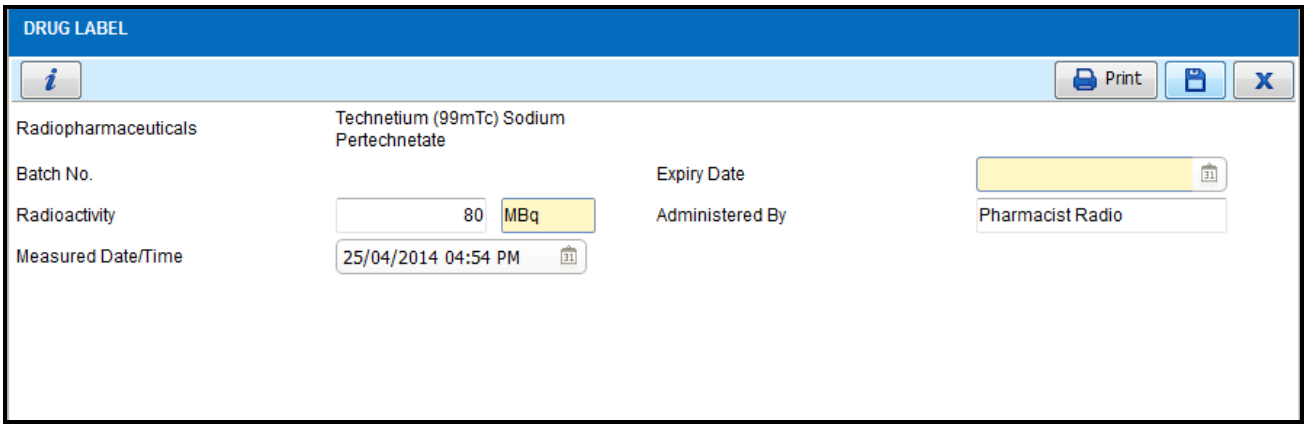


Figure 3.4-12 Drug Label

Note

- *Radiopharmaceuticals, Batch No., Expiry Date and Administered field will be automatically displayed by system based on the selected drug batch.*
- *Enter **Radioactivity** amount. **Radioactivity UOM** will be automatically displayed based on the drug SKU.*
- *Select **Measured Date/Time** field.*
- *Click on the*
button to save record as per Figure 3.4-12.

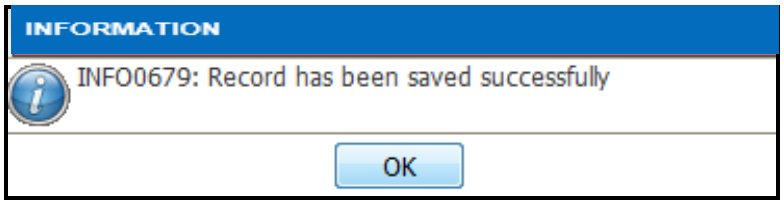


Figure 3.4-13 Alert Message

Note

- *Click on the* OK *button to save updated Radiopharmaceuticals Order Record as per Figure 3.4-13.*

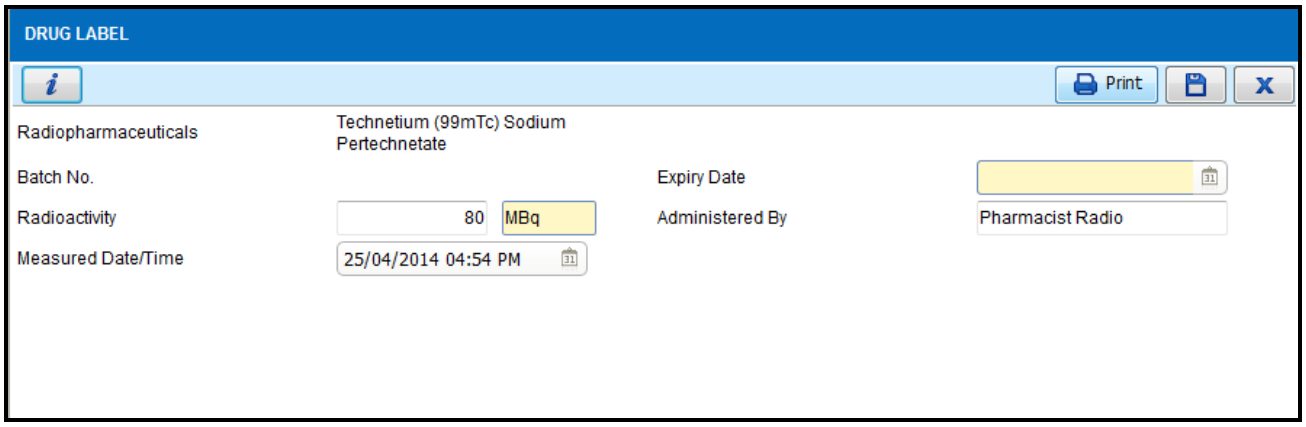
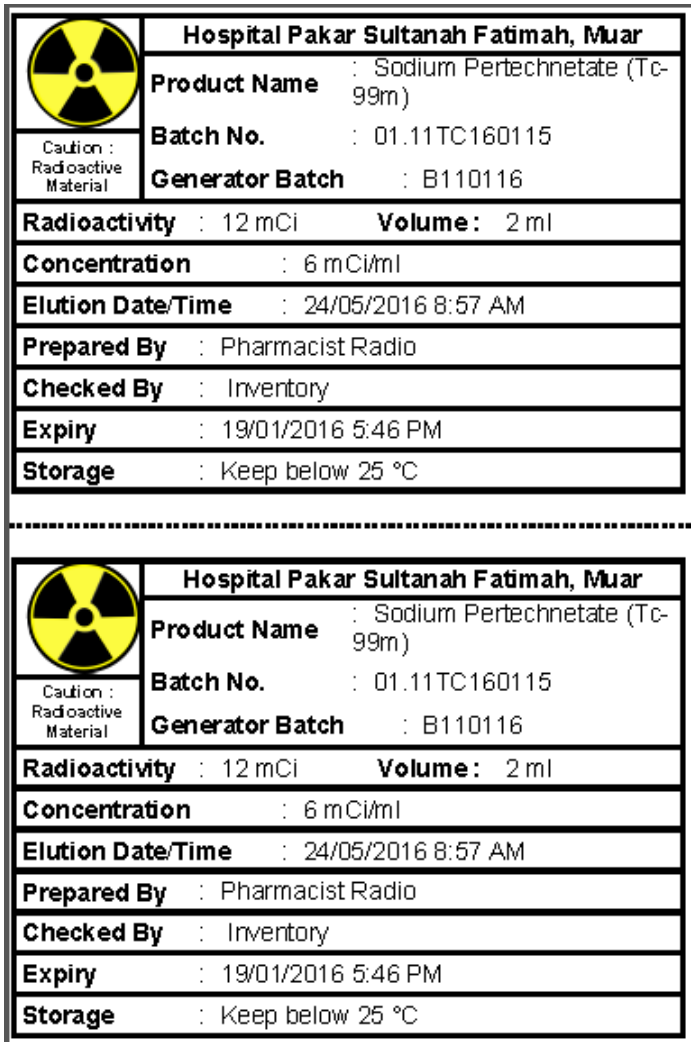


Figure 3.4-14 Drug Label

Note

- *Click on the* Print *button to print label as per Figure 3.4-14 and label will be displayed as per Figure 3.4-14.*



Hospital Pakar Sultanah Fatimah, Muar	
Caution : Radioactive Material	**Product Name** : Sodium Pertechnetate (Tc-99m)
	Batch No. : 01.11TC160115
	Generator Batch : B110116
Radioactivity : 12 mCi	**Volume :** 2 ml
Concentration	: 6 mCi/ml
Elution Date/Time	: 24/05/2016 8:57 AM
Prepared By	: Pharmacist Radio
Checked By	: Inventory
Expiry	: 19/01/2016 5:46 PM
Storage	: Keep below 25 °C

Hospital Pakar Sultanah Fatimah, Muar	
Caution : Radioactive Material	**Product Name** : Sodium Pertechnetate (Tc-99m)
	Batch No. : 01.11TC160115
	Generator Batch : B110116
Radioactivity : 12 mCi	**Volume :** 2 ml
Concentration	: 6 mCi/ml
Elution Date/Time	: 24/05/2016 8:57 AM
Prepared By	: Pharmacist Radio
Checked By	: Inventory
Expiry	: 19/01/2016 5:46 PM
Storage	: Keep below 25 °C

Figure 3.4-15 Sample Radiopharmaceuticals Label

Note

Sample of Radiopharmaceuticals Label as per Figure 3.4-15.

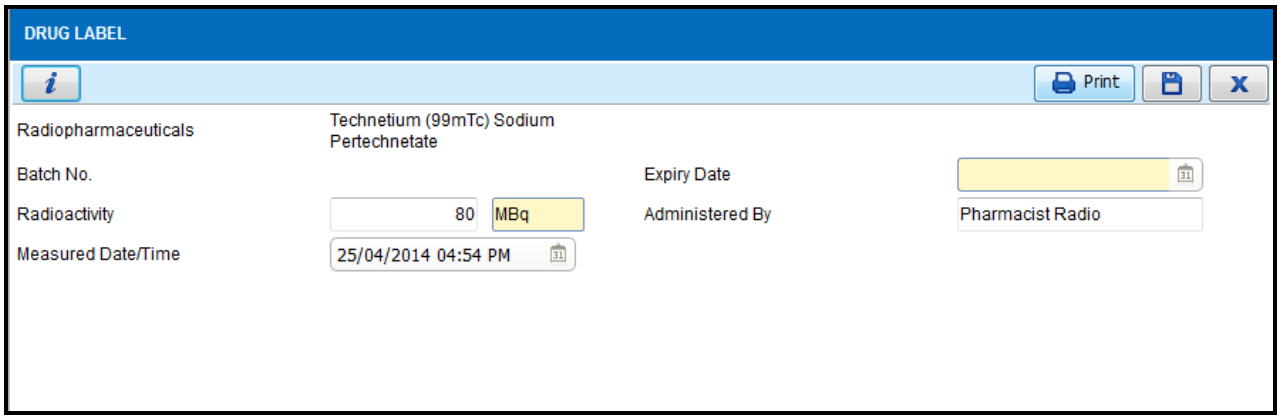


Figure 3.4-16 Drug Label

Note

Click on the [x] *button to close Drug Label screen as per Figure 3.4-16.*

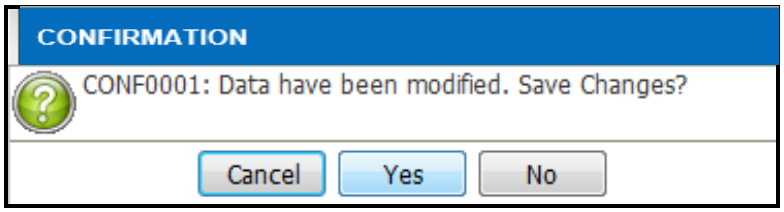


Figure 3.4-17 Save Record Alert Message

Note

Click on the [Yes] *button to save record as per Figure 3.4-17.*

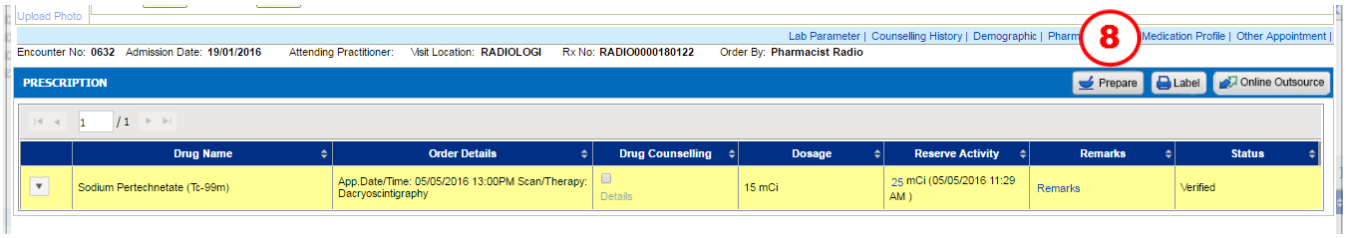


Figure 3.4-18 Radiopharmaceuticals Preparation

STEP 8 Click on the [Prepare] button to prepare Radiopharmaceuticals order and alert message will be displayed as per Figure 3.4-18

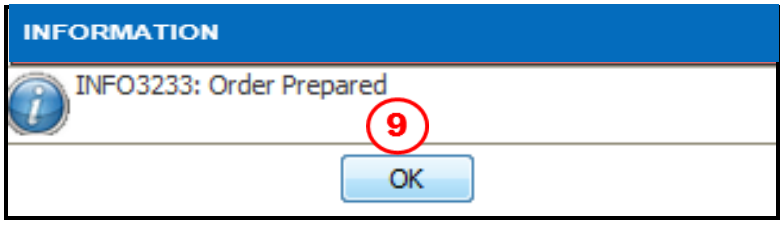


Figure 3.4-19 Ordered Prepared Alert Message

STEP 9

Click on the [OK] button and order status will be updated to Prepared

Note

User still allowed doing intervention and holding order in preparation stage.

3.5 Radiopharmaceutical Dispensing

Radiopharmaceuticals dispensing screen allow user to dispense medication to patient, reprint drug label and record collection details.

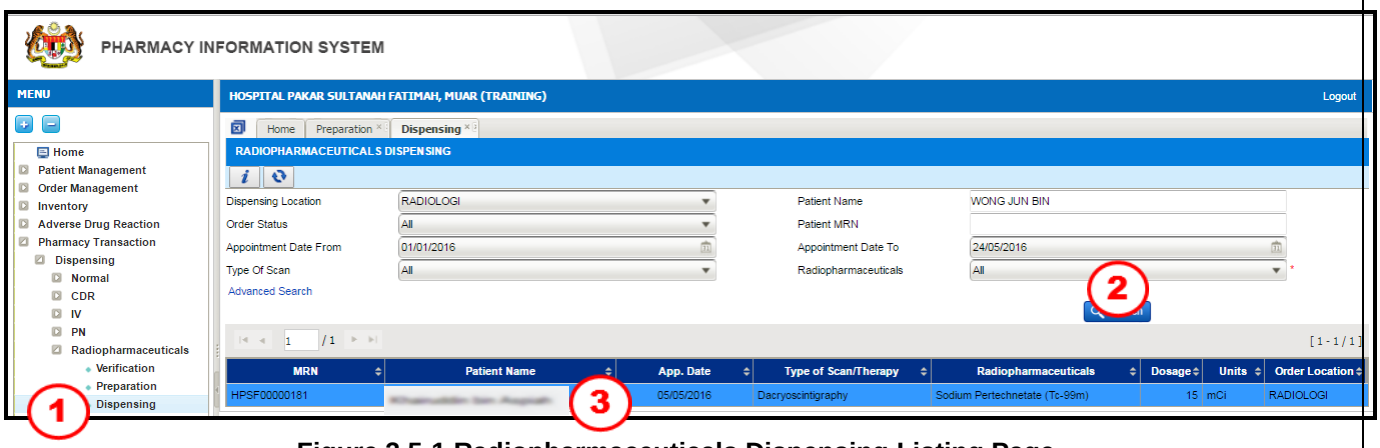


Figure 3.5-1 Radiopharmaceuticals Dispensing Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Dispensing' and click on 'Radiopharmaceuticals Dispensing' sub-menu

Note

- *Various search criteria is provided as below: Dispense Location*
  a) Patient Name
  b) Order Status
  c) Patient MRN
  d) Appoinment Date From
  e) Appoinment Date To
  f) Type of Scan
  g) Radiopharmaceuticals
- *Click on the* Advanced Search *hyperlink for advance search.*

STEP 2

Click on the Search button and system will be displayed related order

STEP 3

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Dispensing screen as per Figure 3.5-1

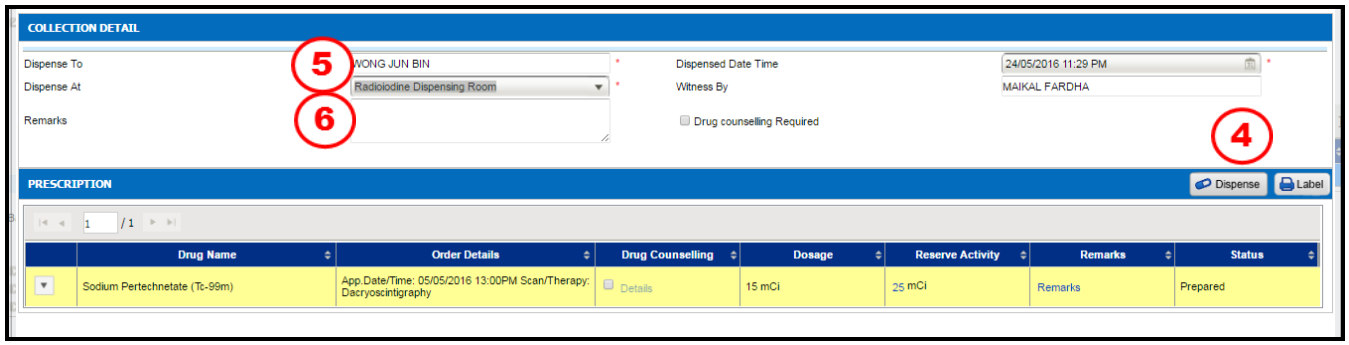


Figure 3.5-2 Radiopharmaceuticals

STEP 4

Click on the Dispense button to dispense Radiopharmaceuticals and Collection Detail screen will be displayed as per Figure 3.5-2

Note

Dispense To, Dispensed Date Time and Witness By will be automatically displayed by system.

STEP 5

Select ***Dispense At*** from drop down box:

- Administration Room

- Radioiodine Dispensing Room

STEP 6

Enter ***Remarks*** field

Note

Check on the ***Drug Counseling Required*** *checkbox if counseling required.*

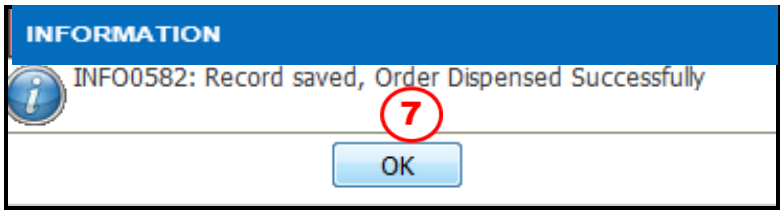


Figure 3.5-3 Save Order Alert Message

STEP 7

Click on the button to save record as per Figure 3.5-3.

3.6 Release Batch

Radiopharmaceuticals Release Batch Screen will allow user to release any reserved drug for the patient back into inventory.

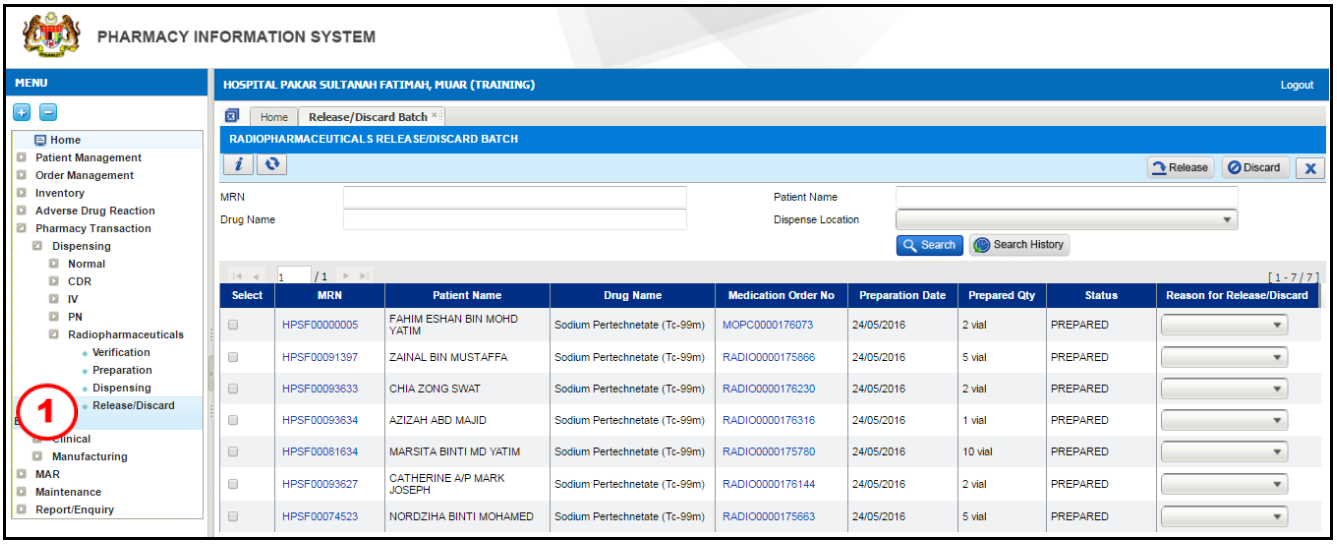


Figure 3.6-1 Radiopharmaceuticals Release Batch Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Dispensing' and click on 'Radiopharmaceuticals Release Batch' sub-menu

Note

Various search criteria is provided as below:

a) MRN
b) Patient NameDrug Name
c) Dispense Location

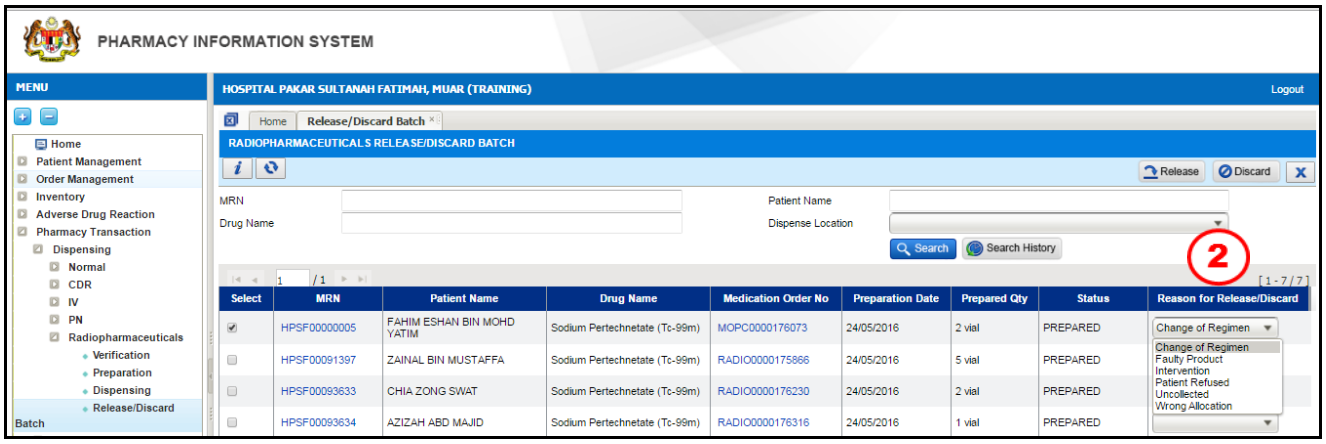


Figure 3.6-2 Radiopharmaceuticals Release Batch

STEP 2

Select ***Reason for Release*** from drop down box:

- Uncollected
- Wrong Allocation
- Change of RegimenPatient Refused
- Intervention
- Faulty Product

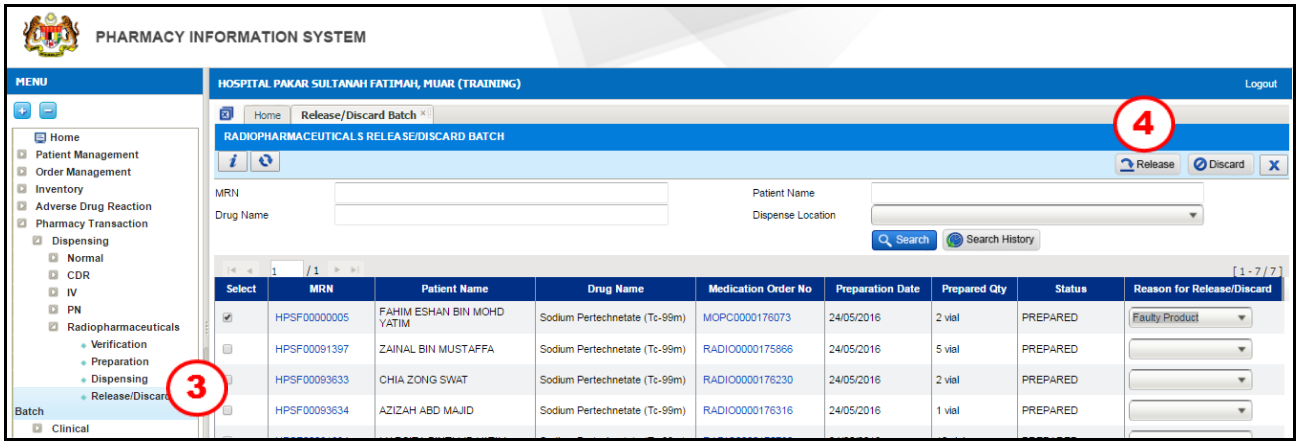


Figure 3.6-3 Radiopharmaceuticals Release Batch

STEP 3

Check the ☑ ***Select*** checkbox

STEP 4

Click on the Release button to release batch and Discard button to discard

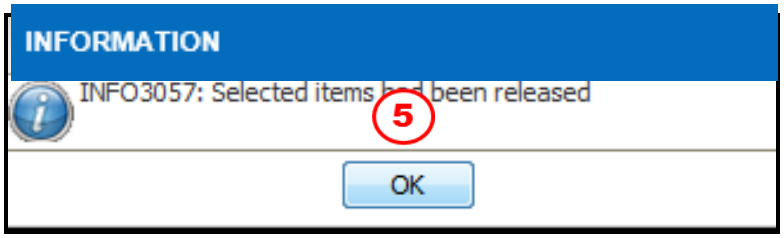


Figure 3.6-4 Information Alert Message

STEP 5

Click on the OK button to release selected items

Note

Released order will flow back to Preparation screen for user to allocate new batch quantity.

3.7 Radiopharmaceutical Manufacturing

3.7.1 Generate Elution

Generator Elution screen allow user to create Technetium (99mTc) Sodium Pertechnetate which can be used to manufacture Kit based Radiopharmaceuticals in Bulk Preparation screen.

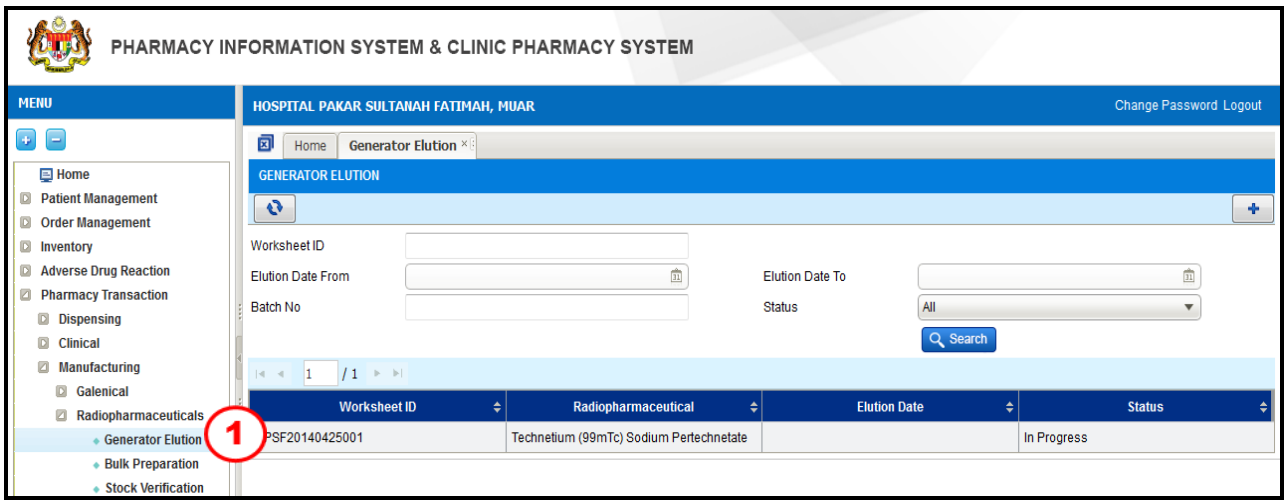


Figure 3.7.1-1 Generator Elution Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu followed by 'Manufacturing' and click on 'Radiopharmaceuticals Generator Elution' sub-menu

Note

- *Various search criteria is provided as below:*
  - *a) Worksheet ID*
  - *b) Date From*
  - *c) Date To*
  - *d) Batch No*
  - *e) Status*

Click on the Search *button and system will display related record.*

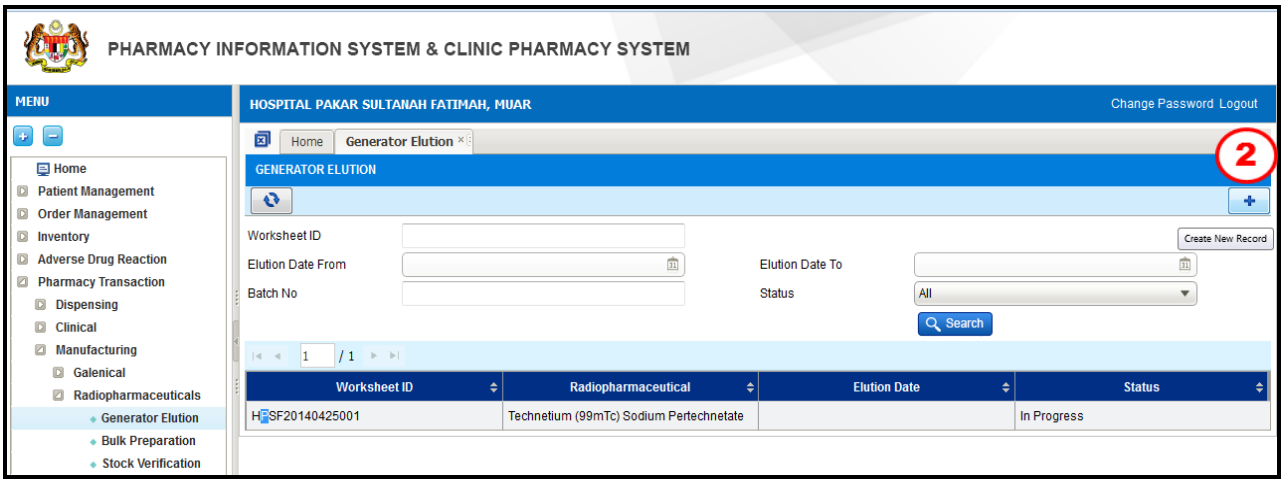


Figure 3.7.1-2 Generator Elution Listing Page

STEP 2

Click on button to create new generator elution record and system will be automatically displayed screen as per Figure 3.7.1-3

Note

- *System will be automatically displayed Preparation screen as per Figure 3.7.1-3.*
- *The **Product** field will be automatically displayed by system.*

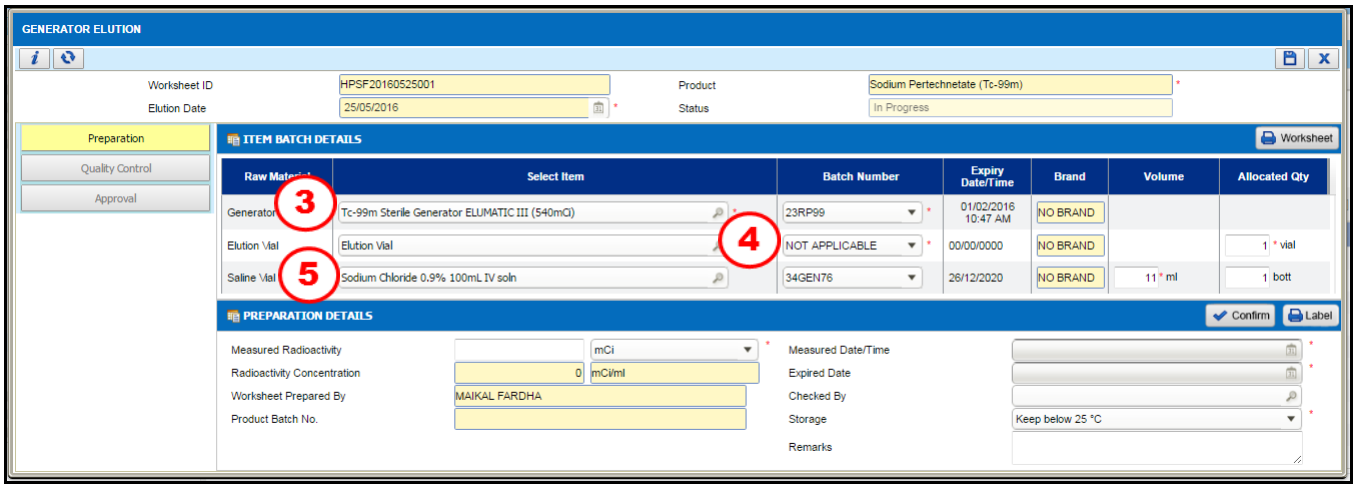


Figure 3.7.1-3 Generator Elution

STEP 3

Select ***Generator*** from drop down box and ***Batch Number*** will be automatically displayed based on current available stock

STEP 4

Select ***Elution Vial*** from drop down box and ***Batch Number*** will be automatically displayed based on current available stock

STEP 5

Select ***Saline Vial*** from drop down box and ***Batch Number*** will be automatically displayed base on current available stock

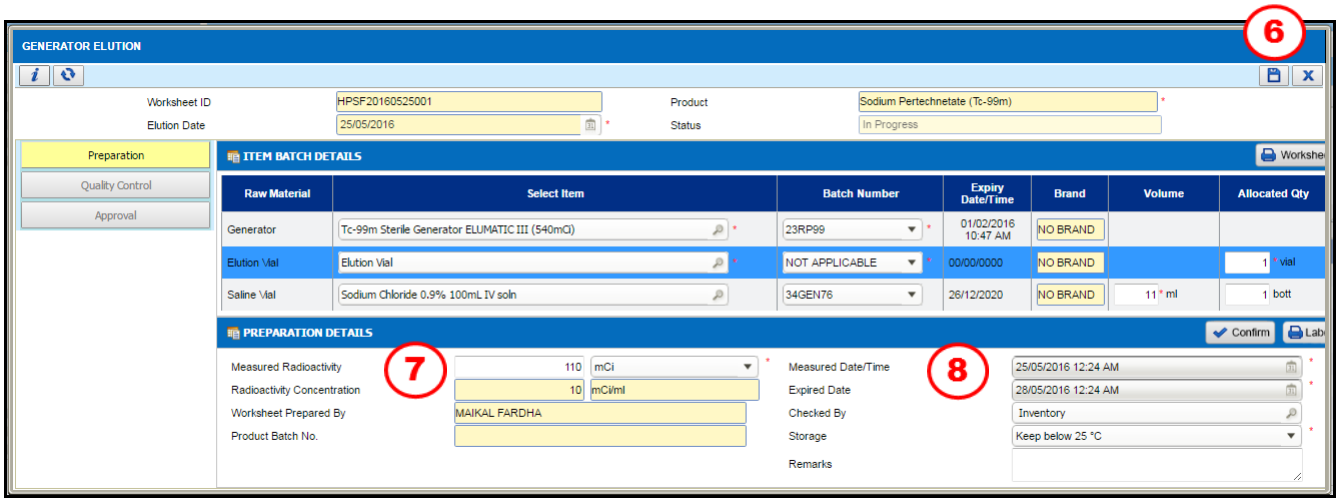


Figure 3.7.1-4 Generator Elution

STEP 6

Click on the button to save record

STEP 7

Enter ***Measured Radioactivity*** field and ***Radioactivity Concentration*** will be automatically calculated and displayed as per Figure 3.7.1-4

Note

- *Enter **Volume** and **Allocated Qty** for Elution Vial and Saline Vial.*
- ***Status** will changed to New after saving.*
- *The*

button will automatically activate after saving.

STEP 8

Enter ***Measured Date/Time*** field

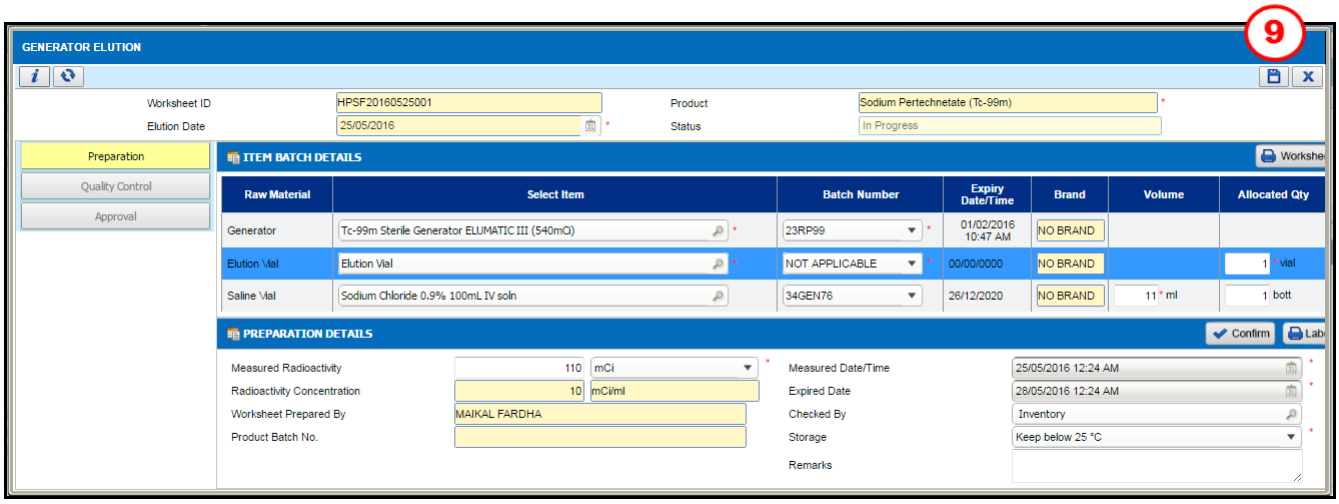


Figure 3.7.1-5 Generator Elution

STEP 9

Click on the

button to generate the worksheet and alert message will be displayed as per Figure 3.7.1-5

Note

*Enter **Remarks** if applicable.*

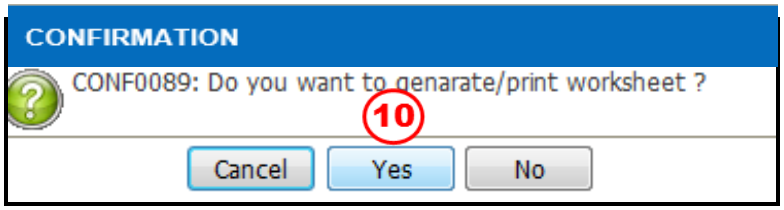
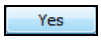


Figure 3.7.1-6 Generate Worksheet Alert Message

STEP 10

Click on the 

button to generate/print worksheet and worksheet will be displayed as per Figure 3.7.1-6

RADIOPHARMACEUTICALS WORKSHEET

MINISTRY OF HEALTH
Hospital Pakar Sultanah Fatimah, Muar (Training)
Generator Elution records for Sodium Pertechnetate (Tc-99m)
Eluate Batch No:
Worksheet ID: HPSF20160524001

Preparation of Sodium Pertechnetate (Tc-99m) Eluate

Date	24/05/2016	Remarks :
Generator SN/Expiry Date	Z3RP59 / 01/02/2016 10:47 AM	
Elution Vial SN/Expiry Date	NOT APPLICABLE/	
Saline Vial SN/Expiry Date	34GEN76 / 29/12/2020 00:00 AM	
Volume	1 ml	Worksheet Prepared By :
Elution SN		
Measured Activity		
Measured Date/Time		Preparation Done By :
Radioactivity Concentration	0 mCi/ml	

Quality Control of Eluate

Measure Mo-99 Activity		Limit	Pass/Fail	Quality Control Done By:
Quality Control Test	Mo-99 Breakthrough		<0.15 μCi of Mo-99 per mCi of Tc-99m	
	Eluate pH		4.0-8.0	
	Alumina Breakthrough		Intensity less than Standard	

Approval of Eluate			Label
Checklist for approval :		Approved By :	
Preparation done accordingly			
QC done accordingly and pass			
Label done accordingly			
Remarks			

Figure 3.7.1-7 Sample Of Worksheet

Note

Sample of worksheet as per Figure 3.7.1-7.

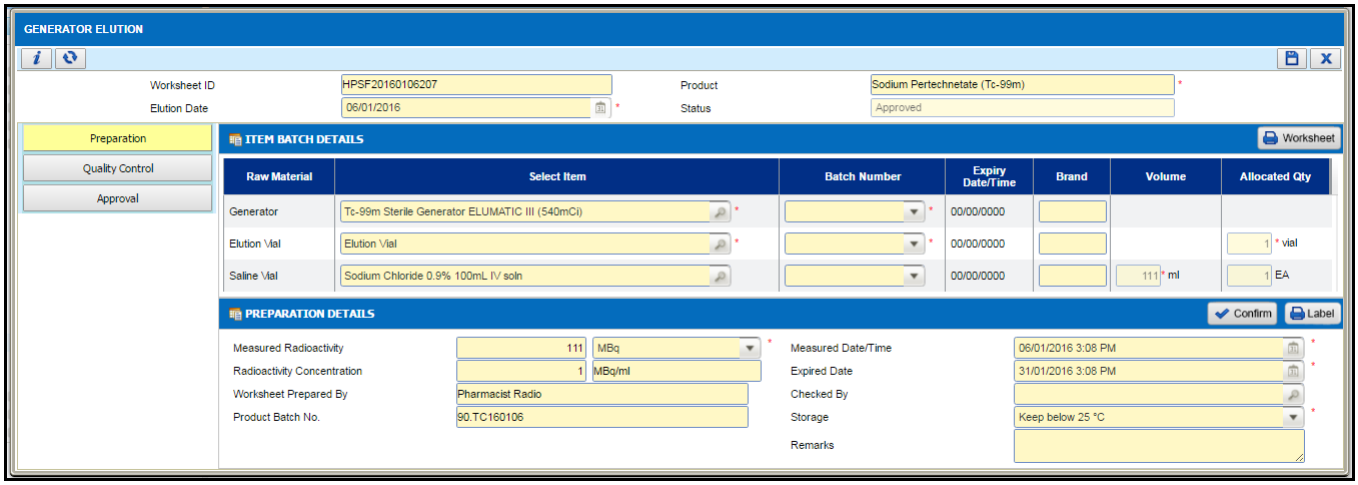


Figure 3.7.1-8 Generator Elution

Note

- ***Worksheet ID*** *will automatically display after generate worksheet as per Figure 3.7.1-8.*
- ***Status*** *will change to In Progress after generate worksheet.*
- *The* Confirm *button will activate after generate worksheet.*

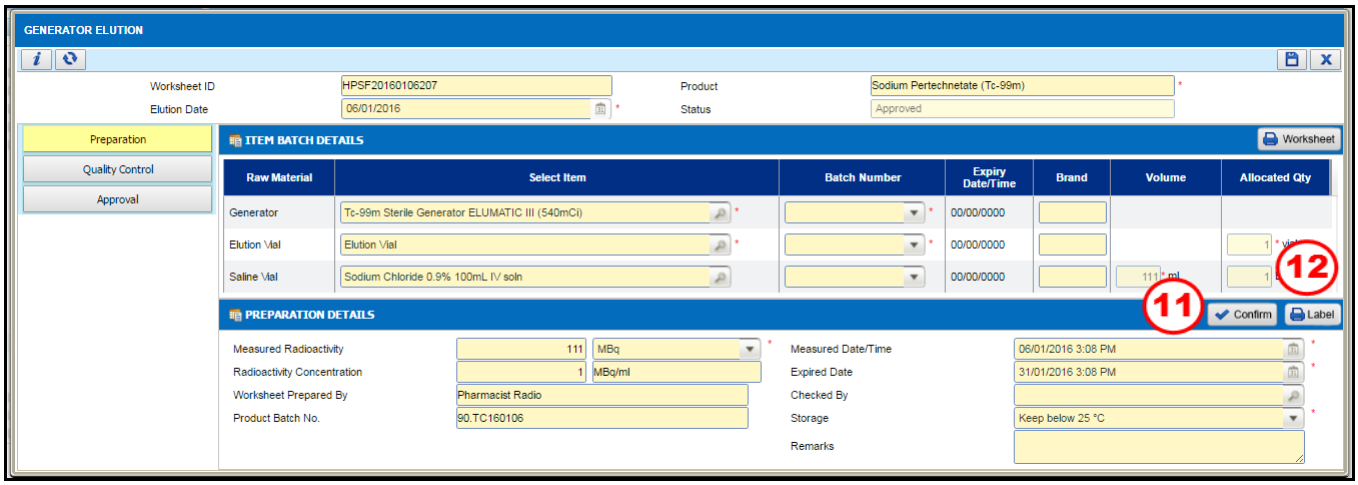


Figure 3.7.1-9 Generator Elution

STEP 11

Click on the Confirm button to confirm information preparation details

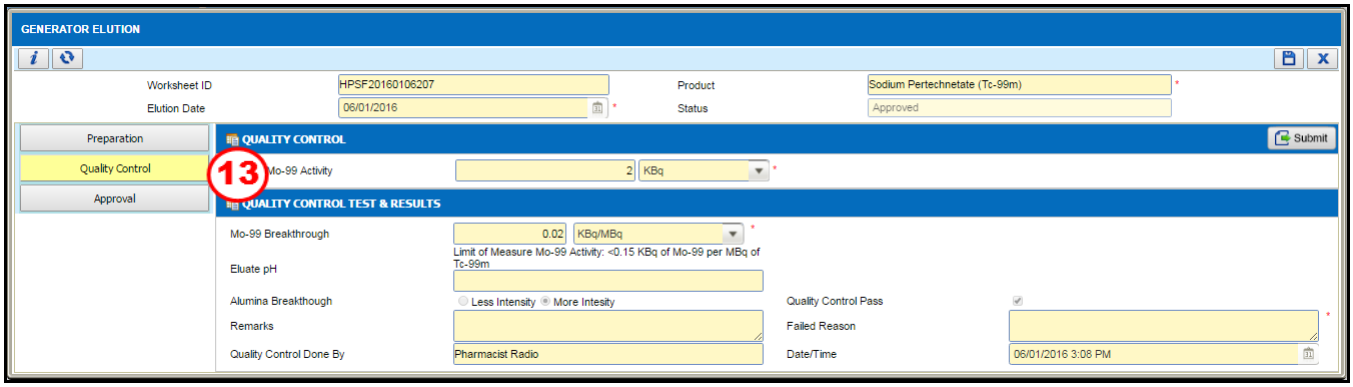


Figure 3.7.1-10 Generator Elution

Note

- *The* Label *button will activate after user confirmed the preparation details.*
- ***Status*** *will change to Prepared and the* Quality Control *button will be activated.*

STEP 12

Click on the Label button to edit label

STEP 13

Click on the Quality Control button and system will be displayed screen as per Figure 3.7.1-10

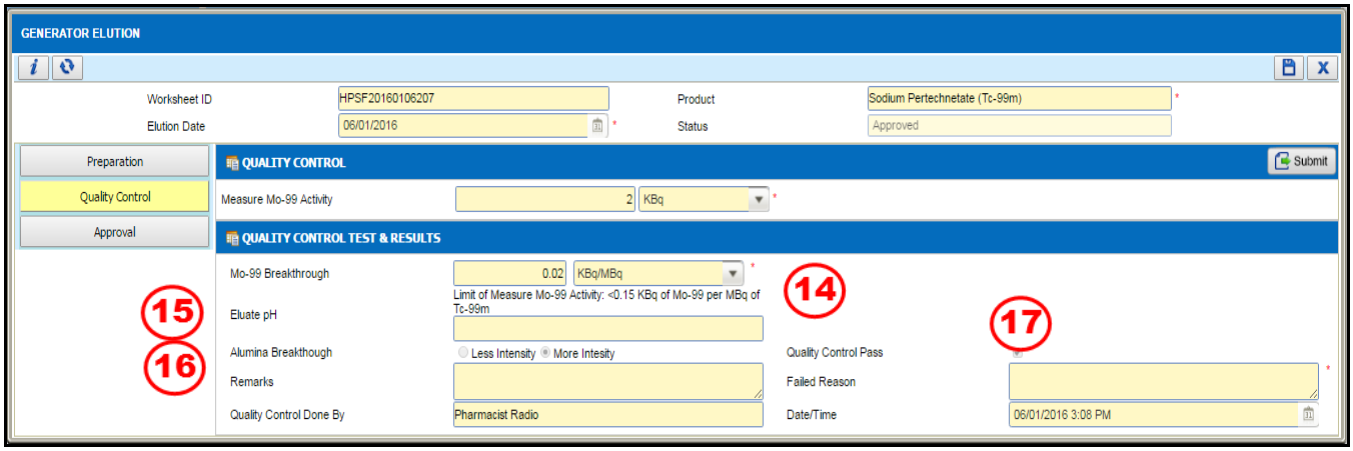


Figure 3.7.1-11 Generator Elution

STEP 14

Enter ***Measure Mo-99 Activity kBq*** field

Note

- *The **Mo-99 Breakthrough kBq per MBq** field will be automatically displayed by system after enter **Measure Mo-99 Activity kBq**.*
- ***Date/Time** field will be automatically displayed by system.*

STEP 15

Enter ***Eluate pH*** field

STEP 16

Select ***Alumina Breakthrough*** either ***Less Intensity*** or ***More Intensity*** radio button

STEP 17

Select ***Quality Control Pass*** either ***Yes*** or ***No***

Note

*If the selection of **Quality Control Pass**, **No**; **Failed Reason** field will be activated and user have to enter the reason of failure as per Figure 3.7.1-11.*

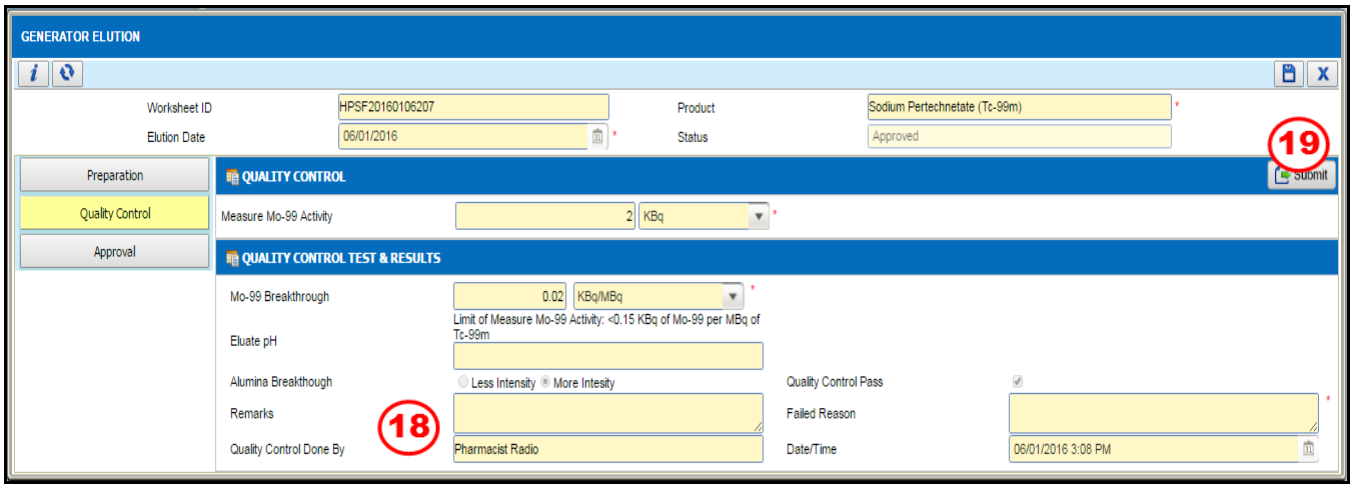


Figure 3.7.1-12 Generator Elution

Note

- *If the selection of **Quality Control Pass**, **Yes**; **Failed Reason** field will not activate as per Figure 3.7.1-12.*

STEP 18

Enter ***Remarks*** if applicable

STEP 19

Click on the Submit button to submit quality control results

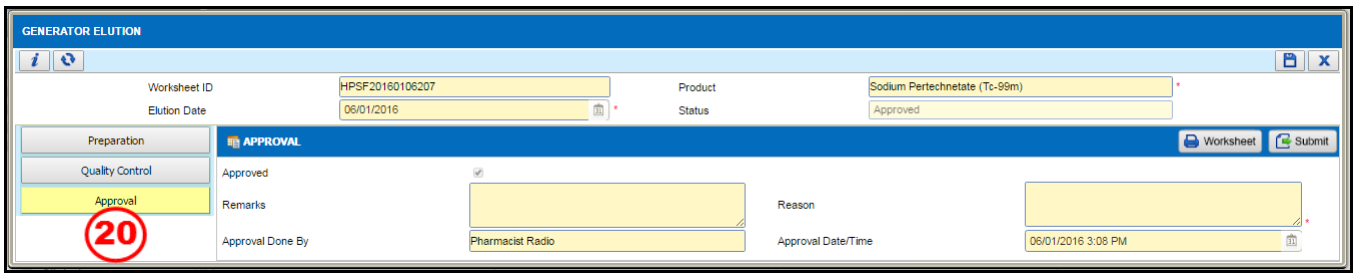


Figure 3.7.1-13 Generator Elution

Note

- *The **Quality Control Done By** field will be automatically displayed after click on the Submit button.*
- *The Submit button will disable after done submitting the Quality Control record.*
- *The Approval button will be activated after the submission.*

STEP 20

Click on the Approval button and system will be displayed screen as per Figure 3.7.1-13

Note

Status will be changed to QC Pass at Approval screen.

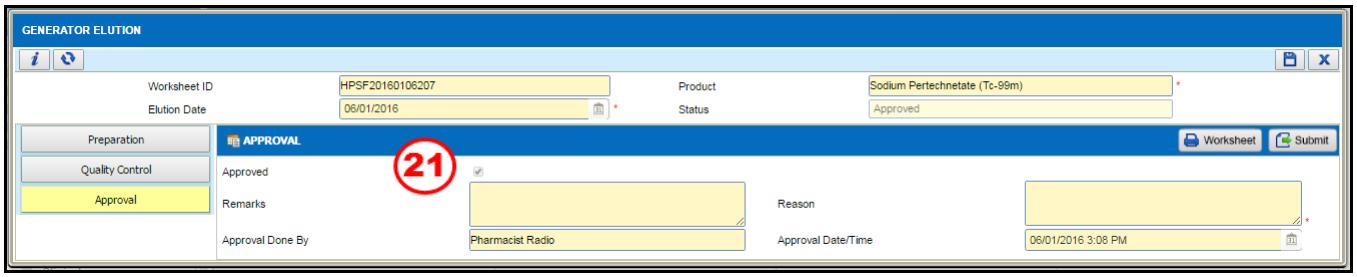


Figure 3.7.1-14 Generator Elution

STEP 21

Select ***Approved*** either ***Yes*** or ***No***

Note

- *If the selection of **Approved**, **No**; **Reason** field will be activated and user have to enter the reason of not approve as per Figure 3.7.1-14.*
- *If the selection of **Approved**, **Yes**; **Reason** field will not activate as per Figure 3.7.1-15.*
- *Enter **Remarks** if applicable.*
- *The **Date/Time** field will automatically default by system.*
- *The* Worksheet *button is for user to reprint the worksheet.*

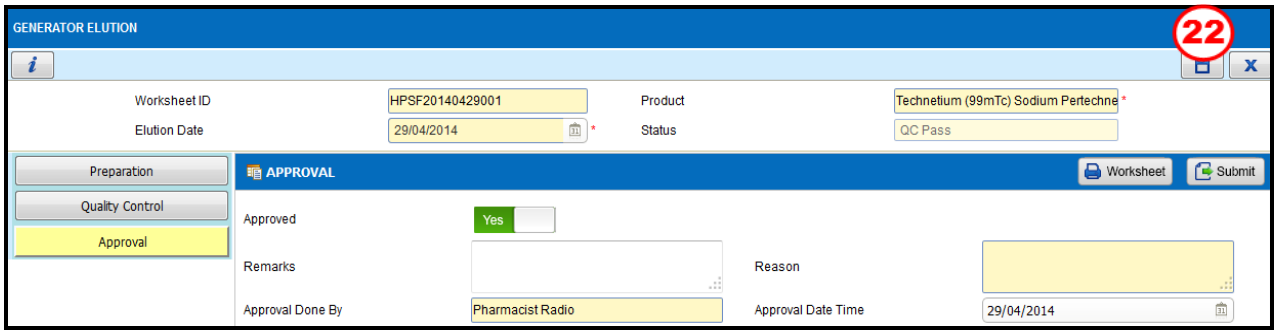


Figure 3.7.1-15 Generator Elution

STEP 22

Click on the Submit button to submit the approval details

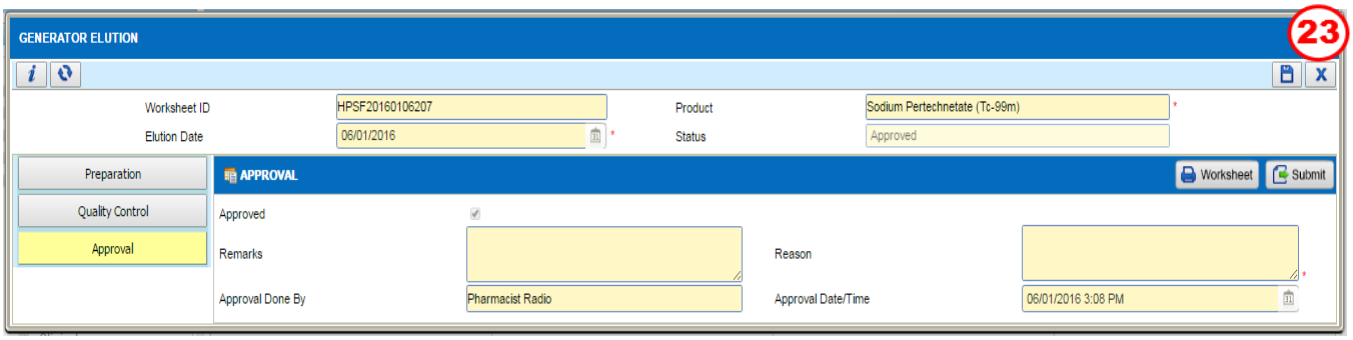


Figure 3.7.1-16 Generator Elution

Note

- ***Status*** *will change to Approved after the submission had done.*
- *The* ***Approval Done By*** *field will be automatically displayed after the submission had done.*

STEP 23

Click on the [x] button to close generator elution screen

3.7.2 KIT Preparation

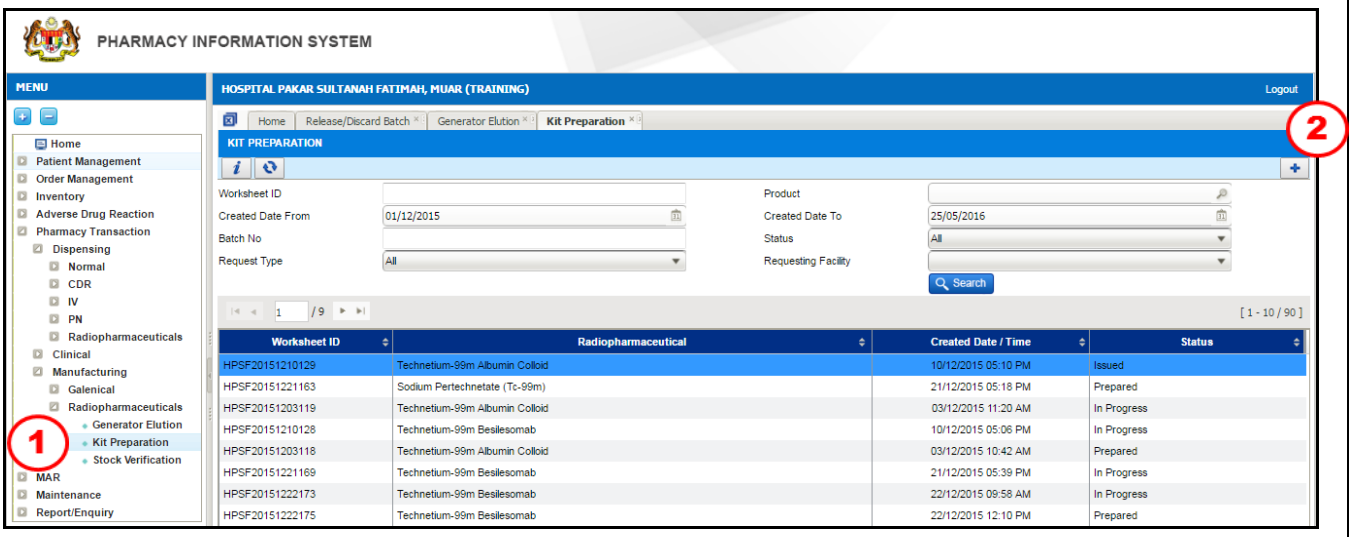


Figure 3.7.2-1 Kit Preparation Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Kit Preparation' sub-menu

Note

- *Various search criteria is provided as below:*
  a)Worksheet ID
  b)Product
  c) Ordered Date From
  d) Ordered Date To
  e) Batch No
  f) Status
  g) Request TypeRequesting Facility

- *Click on the* Search *button and system will be displayed related record.*

STEP 2

Click on button to create new bulk preparation record and system will be automatically displayed screen as per Figure 3.7.2-1

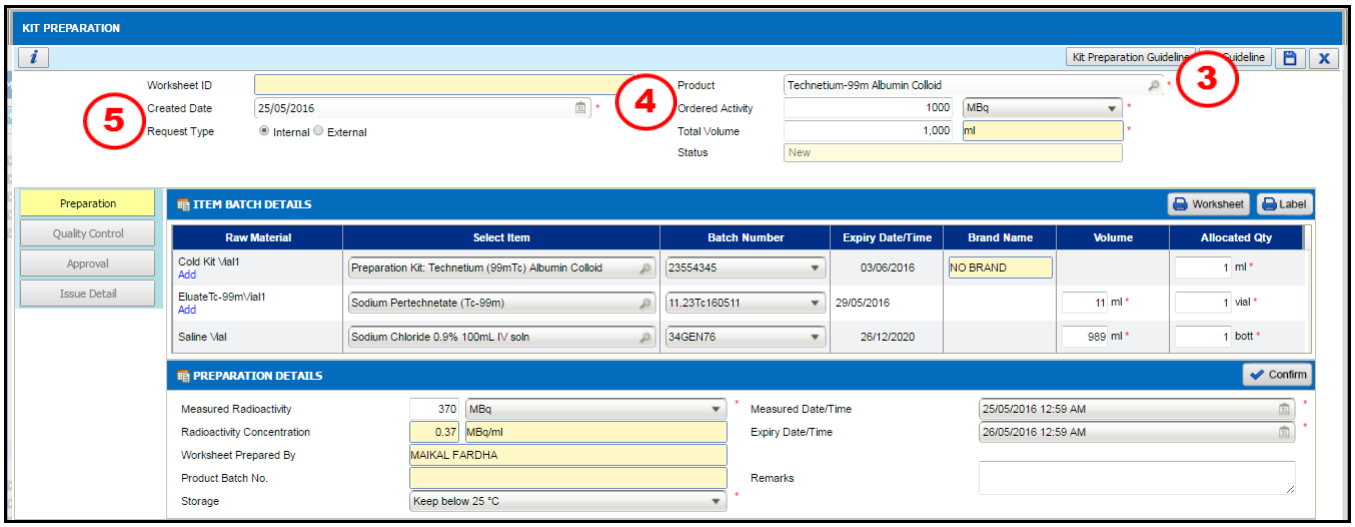


Figure 3.7.2-2 Kit Preparation

STEP 3

Click on the button and select ***Product*** from the drop down box

Note

- *The **Created Date** field will automatically default to current date by system.*
- *The **Request Type** will automatically default to **Internal** radiobutton.*

STEP 4

Enter ***Ordered Activity*** and ***Total Volume*** field

STEP 5

Select ***Request Type*** either ***Internal*** or ***External*** radiobutton

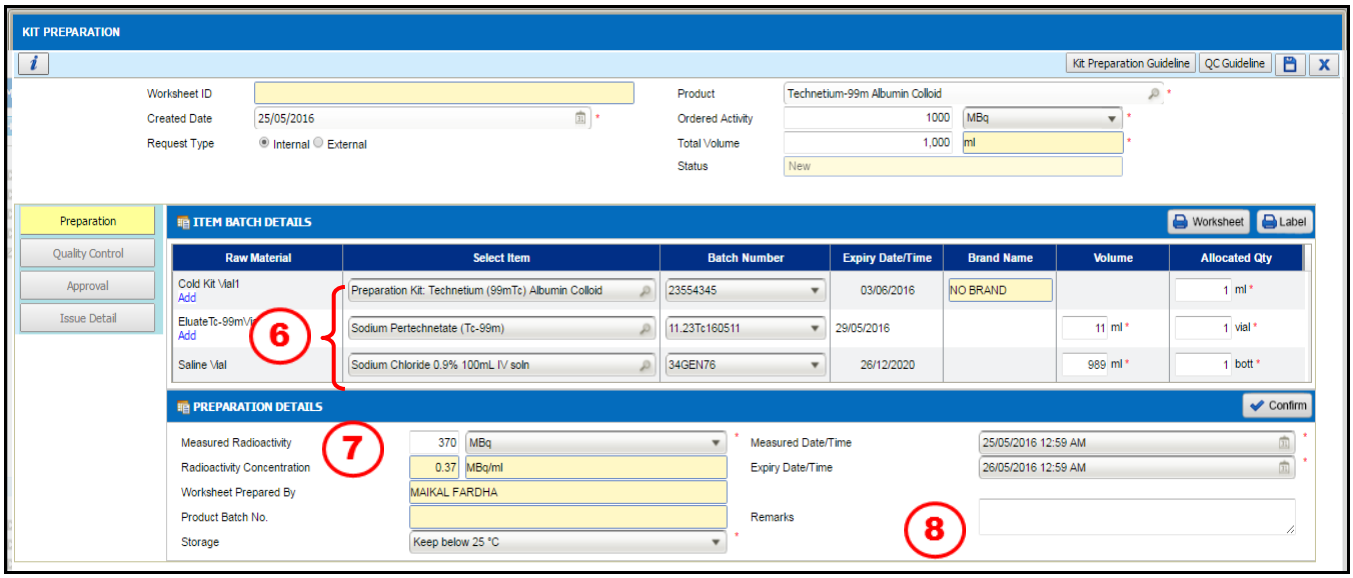


Figure 3.7.2-4 Kit Preparation

STEP 6

Select the ***Item*** from drop down box for every ***Raw Material*** details

Note

- ***Batch Number***, ***Expiry Date*** *and* ***Brand Name*** *will be automatically displayed after done the selection for* ***Item*** *field.*
- ***Enter Volume*** *and* ***Allocated Qty*** *field.*
- ***Cold Kit Vial1, Eluate Tc-99mVial1*** *and* ***Saline Vial*** *are mandatory field.*

STEP 7

Enter ***Measured Radioactivity*** field and ***Radioactivity Concentration*** will be automatically calculated and displayed by system

STEP 8

Enter ***Remarks*** if applicable

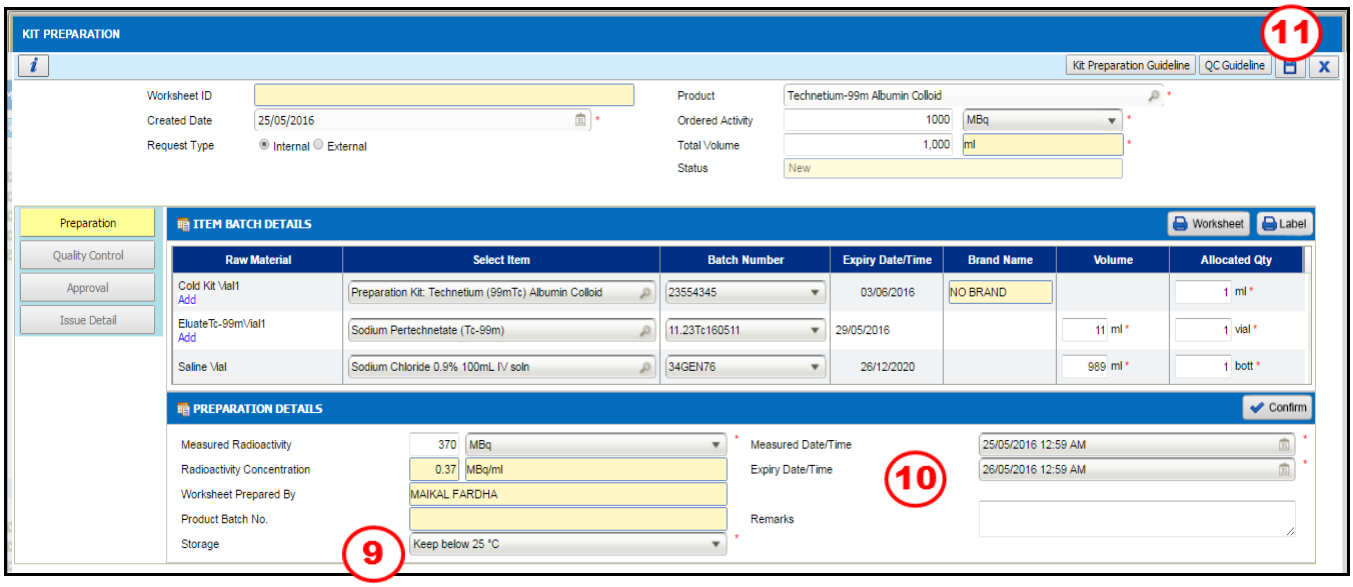


Figure 3.7.2-5 Kit Preparation

Note

- ***Measured Date/Time*** *and* ***Worksheet Prepared By*** *will be automatically displayed by system.*
- ***Measured Date/Time*** *is mandatory field.*

STEP 8

Enter ***Remarks*** if applicable

STEP 9

Select ***Storage*** from drop down box:

- Store in refrigerator (2-8°C)
- Keep below 25°C
- Keep in room tempreture

Note

- ***Storage*** *is mandatory field.*

STEP 10

Select ***Expiry Date*** and this field in mandatory

STEP 11

Click on the button to save record

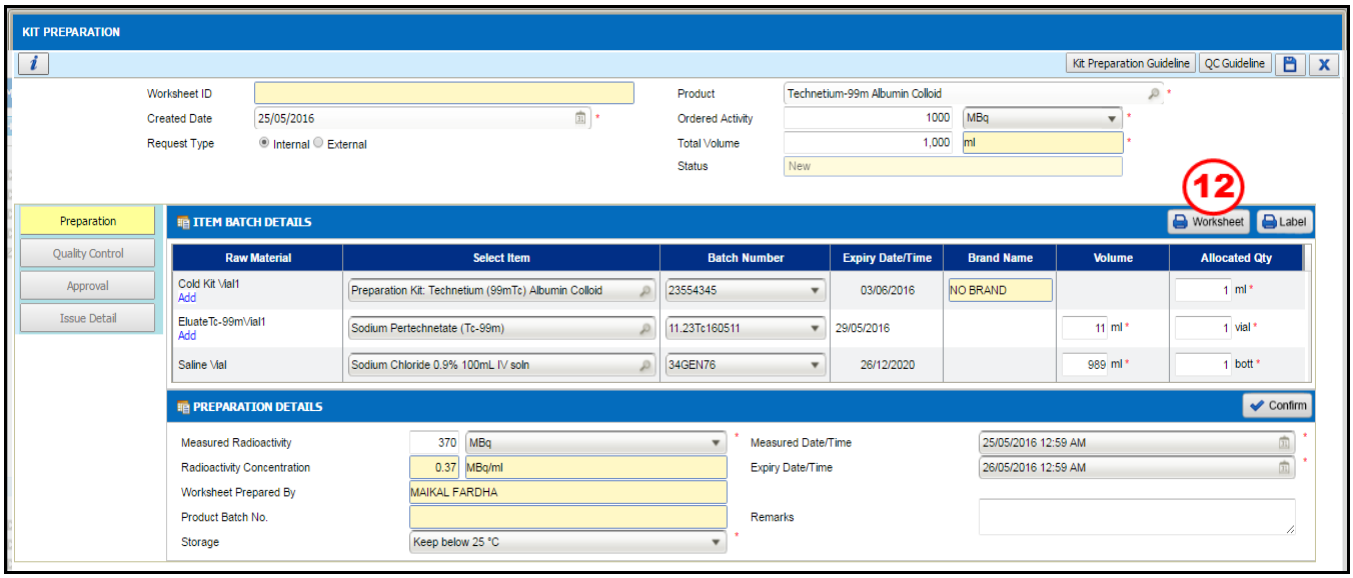
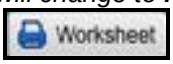


Figure 3.7.2-6 Kit Preparation

Note

Status *will change to* ***New*** *after saving record.*

- *The* 

button will be activated after saving.

- *The*

button will be activated after generate worksheet.

STEP 12

Click on the

button to generate worksheet and alert message will be displayed as per Figure 3.7.2-6

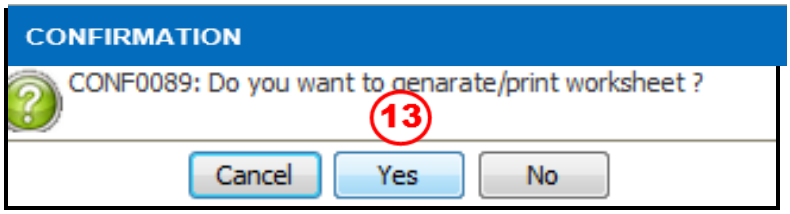
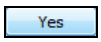


Figure 3.7.2-7 Bulk Preparation

STEP 13

Click on the 

button to generate/print worksheet and worksheet will be displayed as per Figure 3.7.2-7

RADIOPHARMACEUTICALS WORKSHEET

MINISTRY OF HEALTH
Hospital Pakar Sultanah Fatimah, Muar (Training)
Kit Preparation records for Technetium-99m Albumin Colloid
Batch No:
Worksheet ID: HPSF20160525002

Preparation of Technetium-99m Albumin Colloid				Cold Kit Brand/Manufacturer Name:	Worksheet Prepared By :
Date	25/05/2016	Expected Activity	1000 MBq	NO BRAND - Manufacturer Unknown	MAIKAL FARDHA
Raw Material	Batch Number/Expiry		Volume		
Cold Kit Vial	23554345 - 03/06/2016		Total : 1000 ml		Worksheet Checked By :
Eluate Tc-99m Vial	11.23Tc160511 - 29/05/2016		11 ml	Remarks :	
Saline Vial	34GEN76 - 26/12/2020		989 ml		Preparation Done By :
Measured Activity					
Measured Date/Time					
Radioactivity Concentration					

Quality Control of Technetium-99m Albumin Colloid					Label	Approval of Technetium-99m Albumin Colloid
QC Sampling Time		Measure	Actual	%	Remarks :	Checklist for approval :
First Strip	BG Reading	N/A				Preparation done
	1st Portion	N/A	N/A	N/A		QC done accordingly and
	2nd Portion	N/A	N/A			Label done accordingly
Second Strip	BG Reading	N/A				Remarks :
	3rd Portion	N/A	N/A	N/A	Quality Control Done By	
	4th Portion	N/A	N/A			Approved By :
Radiochemical Purity				Pass/Fail		

Figure 3.7.2-8 Sample Worksheet

Note

Sample of worksheet as per Figure 3.7.2-8.

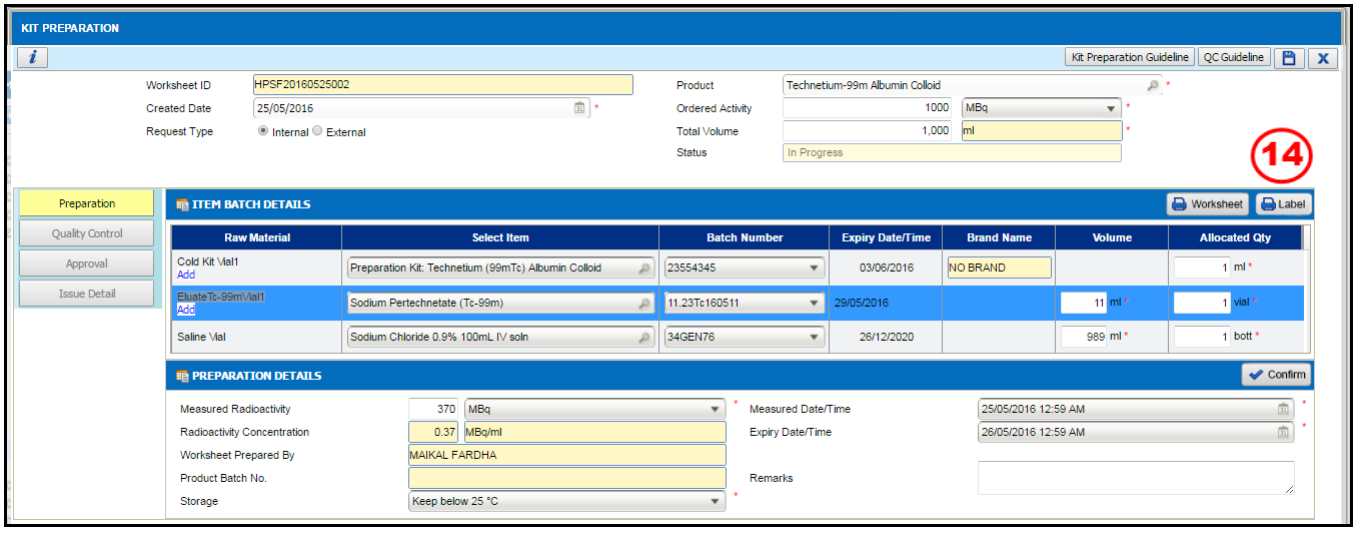


Figure 3.7.2-9 Bulk Preparation

STEP 14

Click on the Label button to edit label and ***Drug Label*** screen will be displayed as per Figure 3.7.2-9

Note

Status *will be changed to* ***In Progress*** *after generated worksheet as per Figure 3.7.2-9.*

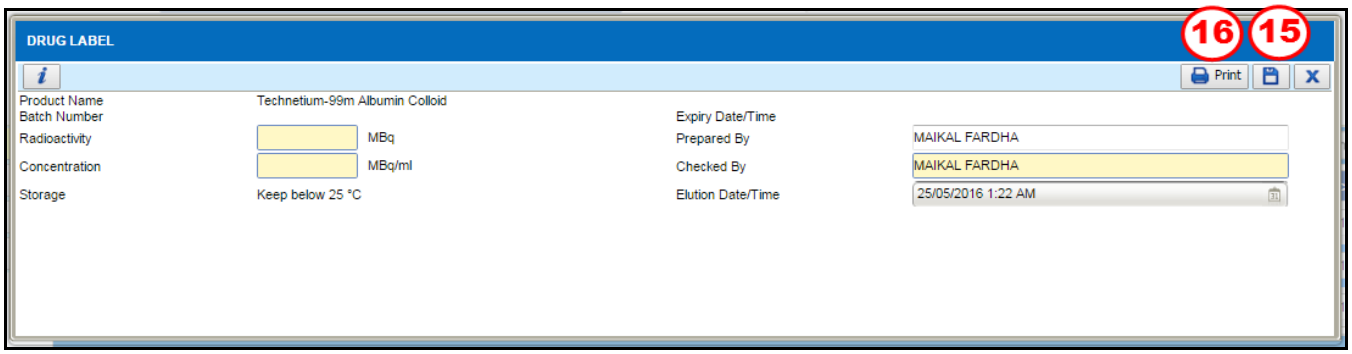


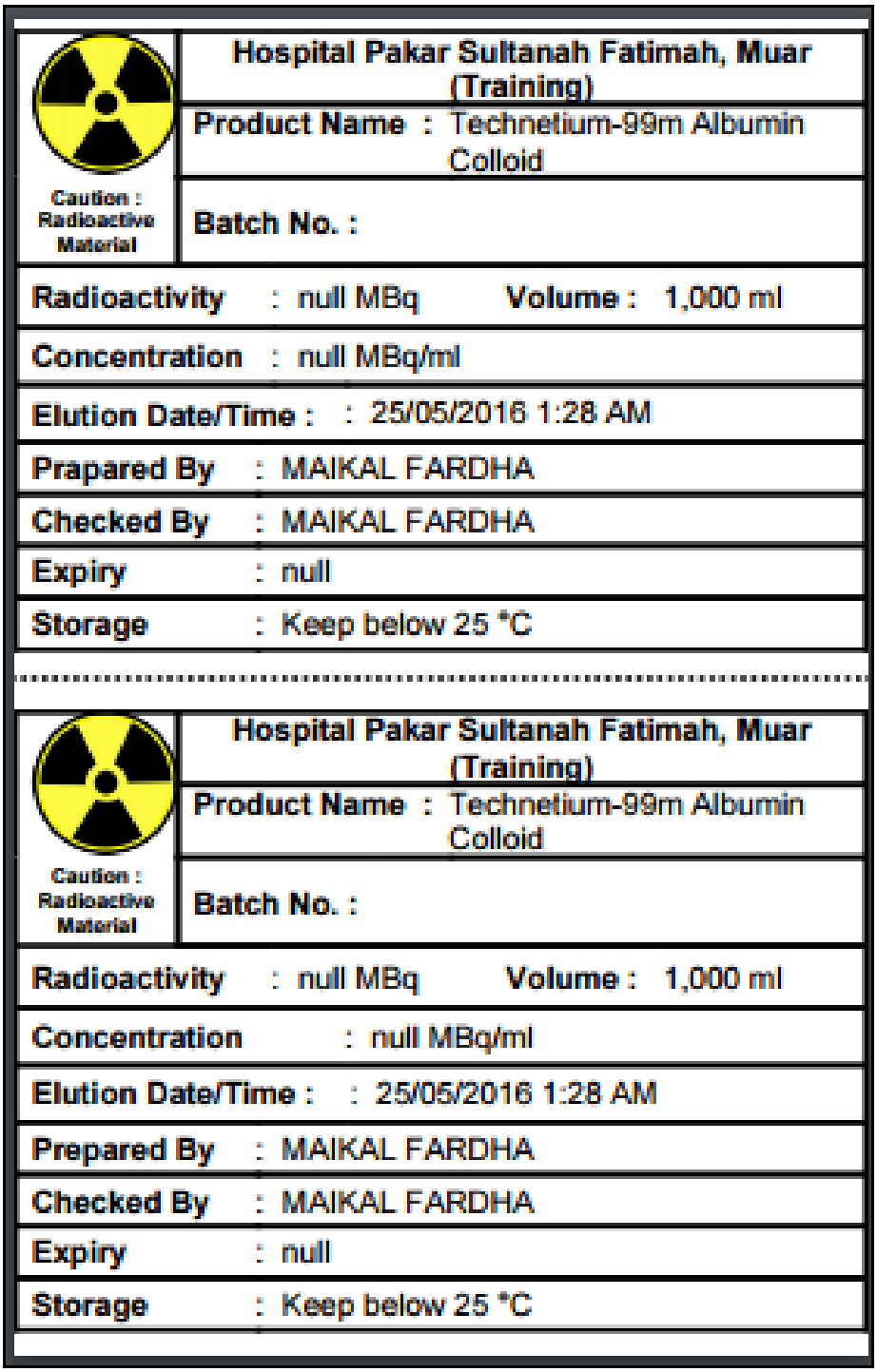
Figure 3.7.2-10 Drug Label

STEP 15

Click on the button to save edited label

STEP 16

Click on the Print button to print label as per Figure 3.7.2-10



Caution : Radioactive Material	**Hospital Pakar Sultanah Fatimah, Muar (Training)** **Product Name** : Technetium-99m Albumin Colloid **Batch No. :**
Radioactivity : null MBq	**Volume :** 1,000 ml
Concentration : null MBq/ml	
Elution Date/Time : : 25/05/2016 1:28 AM	
Prapared By : MAIKAL FARDHA	
Checked By : MAIKAL FARDHA	
Expiry : null	
Storage : Keep below 25 °C	

Caution : Radioactive Material	**Hospital Pakar Sultanah Fatimah, Muar (Training)** **Product Name** : Technetium-99m Albumin Colloid **Batch No. :**
Radioactivity : null MBq	**Volume :** 1,000 ml
Concentration : null MBq/ml	
Elution Date/Time : : 25/05/2016 1:28 AM	
Prepared By : MAIKAL FARDHA	
Checked By : MAIKAL FARDHA	
Expiry : null	
Storage : Keep below 25 °C	

Figure 3.7.2-11 Drug Label

Note

Sample of Drug Label as per Figure 3.7.2-11.

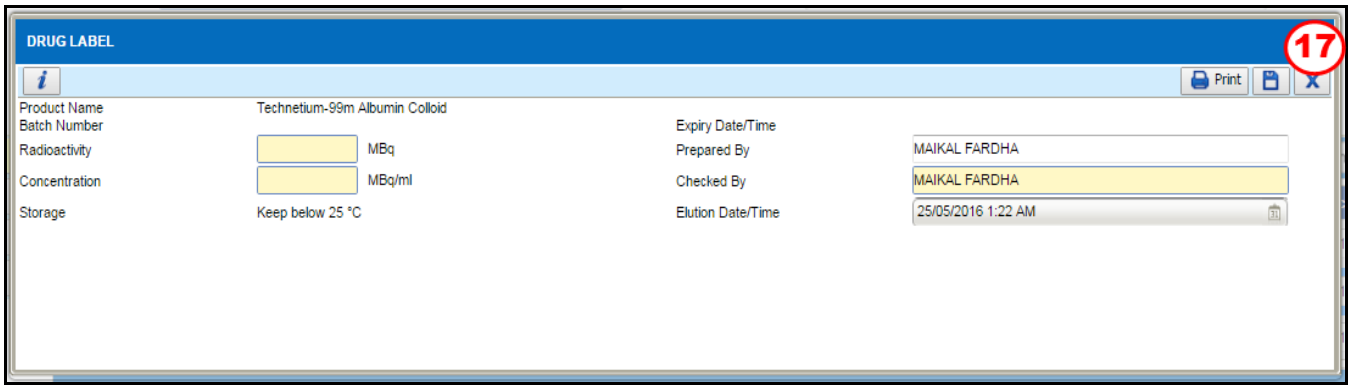


Figure 3.7.2-12 Drug Label

STEP 17

Click on the button to close ***Drug Label*** screen

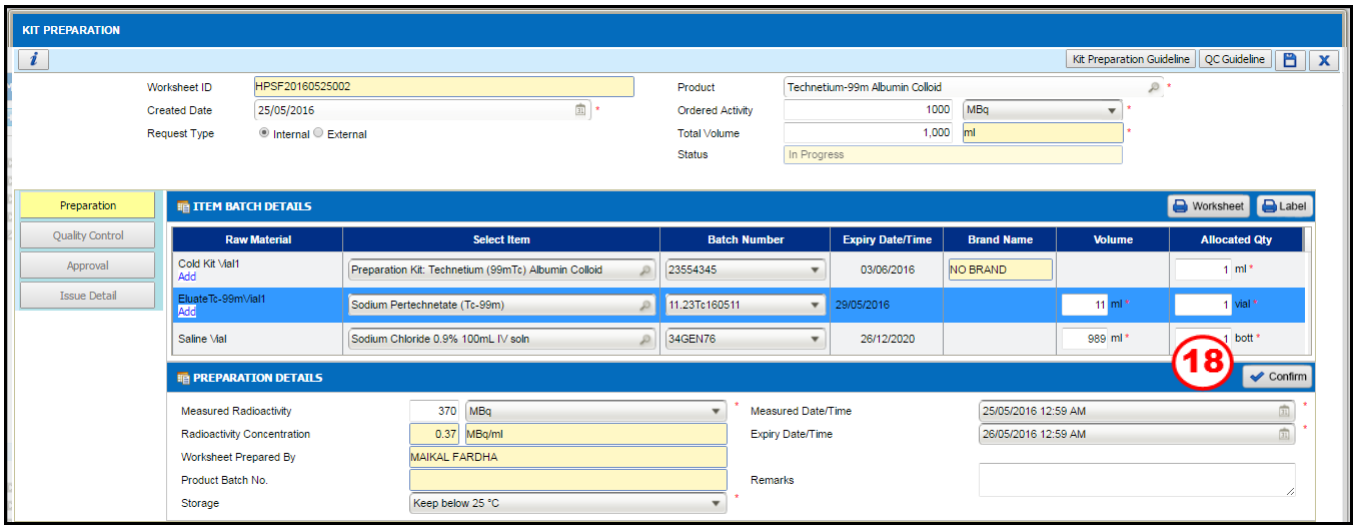


Figure 3.7.2-13 Drug Label

STEP 18

Click on the button to confirm information preparation details

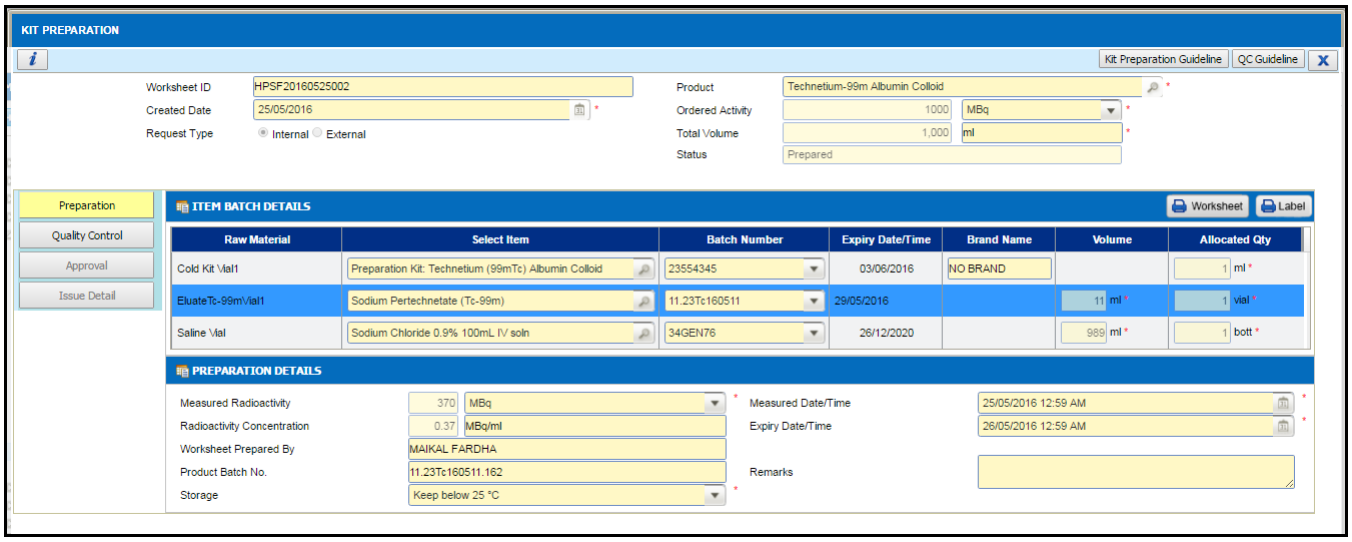
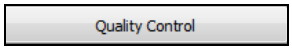


Figure 3.7.2-14 Kit Preparation

Note

- ***Status*** *will change to* ***Prepared*** *after preparation details confirmation.*
- *The*  *button will be activated after preparation details confirmation*
- *The* *button will disable after preparation details confirmation*

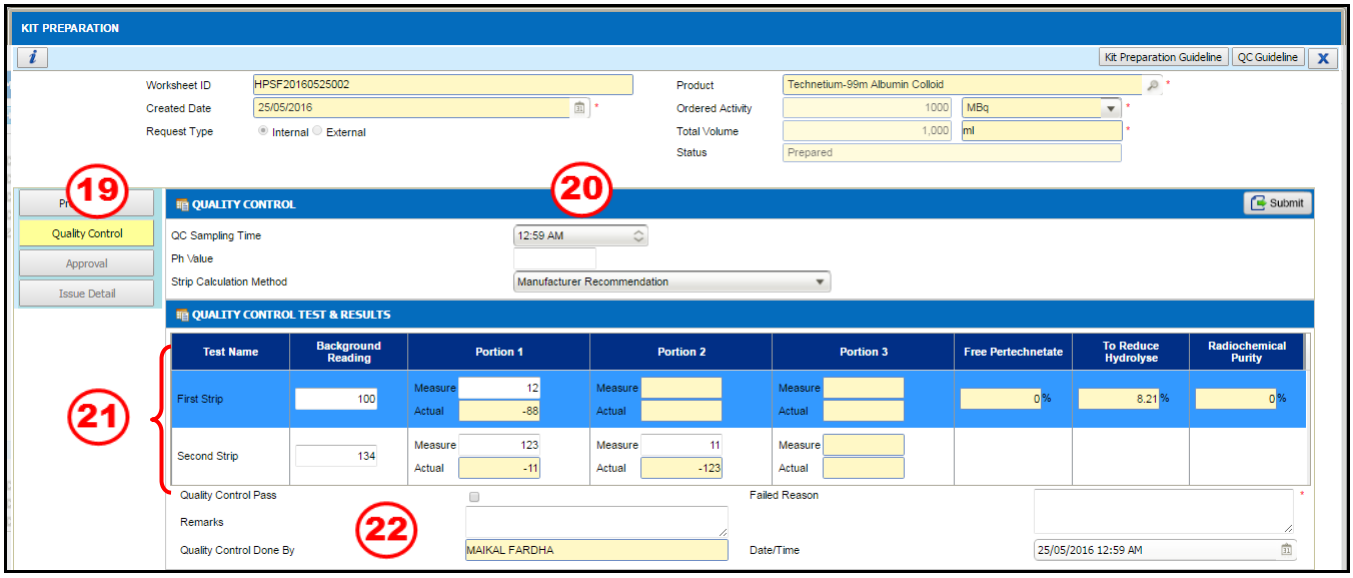
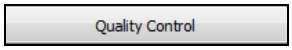


Figure 3.7.2-15 Bulk Preparation

STEP 19

Click on the  button and system will be displayed screen as per Figure 3.7.2-15

STEP 20

Enter ***Qc-Sampling Time*** field. Default value is based on the current system time

STEP 21

Enter ***First Strip, Second Strip, Radiochemical Purify*** and ***Ph Value*** field as per Figure 3.7.2-15

STEP 22

Select ***Quality Control Pass*** either ***approved*** *or* ***rejected***

Note

- *If the selection of* ***Quality Control Pass***, ***No***; ***Failed Reason*** *field will be activated and user have to enter the reason of failure as per Figure 3.7.2-15.*
- *If the selection of* ***Quality Control Pass***, ***Yes***; ***Failed Reason*** *field will not activate.*

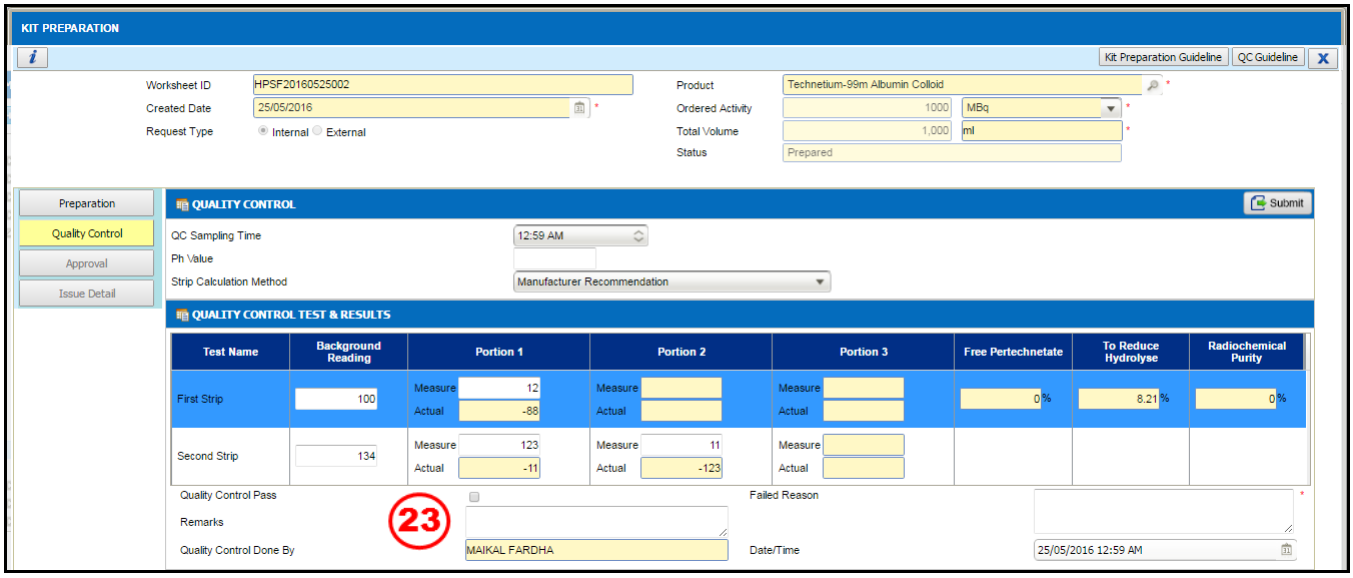


Figure 3.7.2-16 Bulk Preparation

STEP 23

Enter ***Remarks*** if applicable

Note

Quality Control Done By *and* ***Date/Time*** *will be automatically displayed and default by system.*

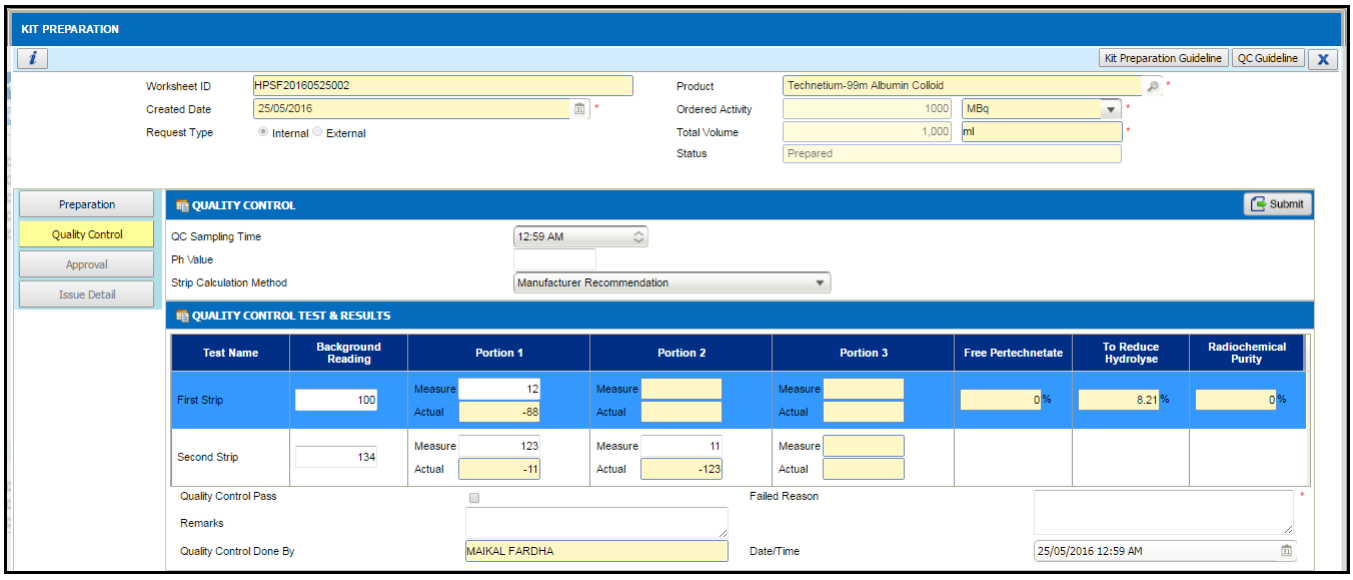
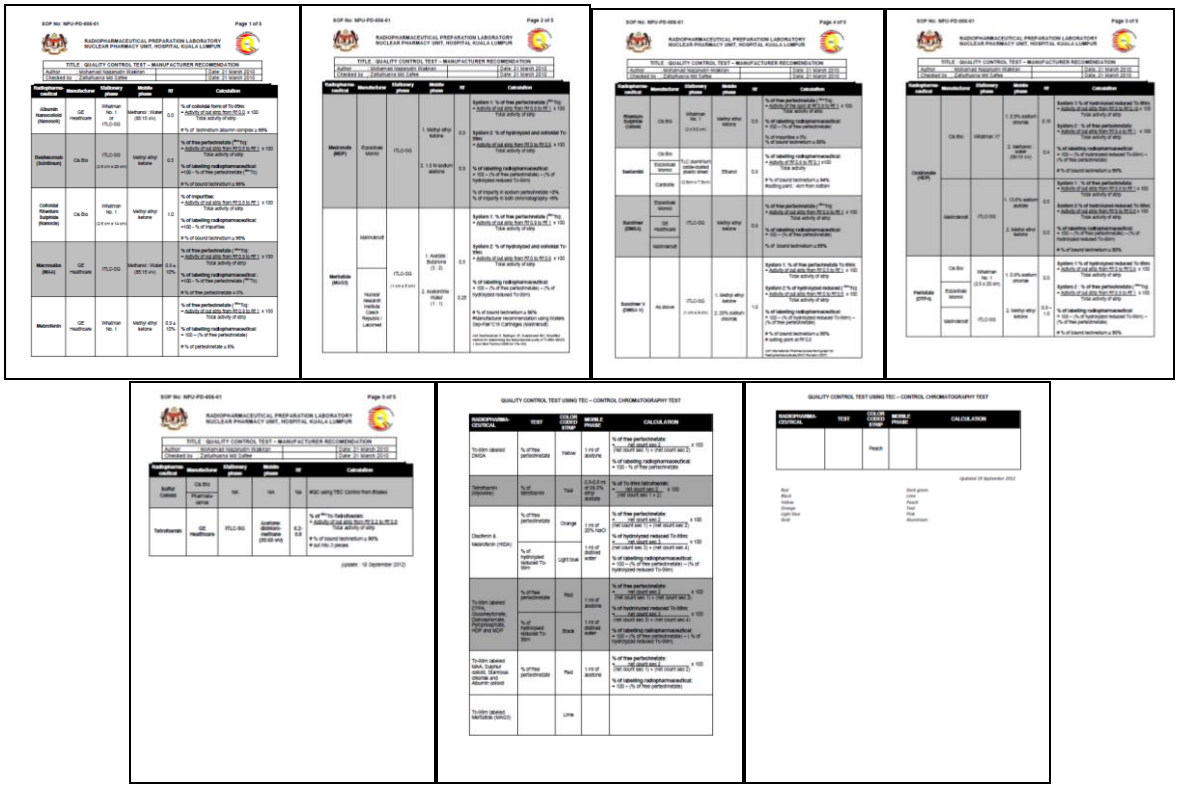


Figure 3.7.2-17 Bulk Preparation

Note

- *User is allows to click on the **Strip Guideline** hyperlink and system will be displayed as per Figure 3.7.2-17.*



Note

Sample of Strip Guideline as per Figure 3.7.2-18.

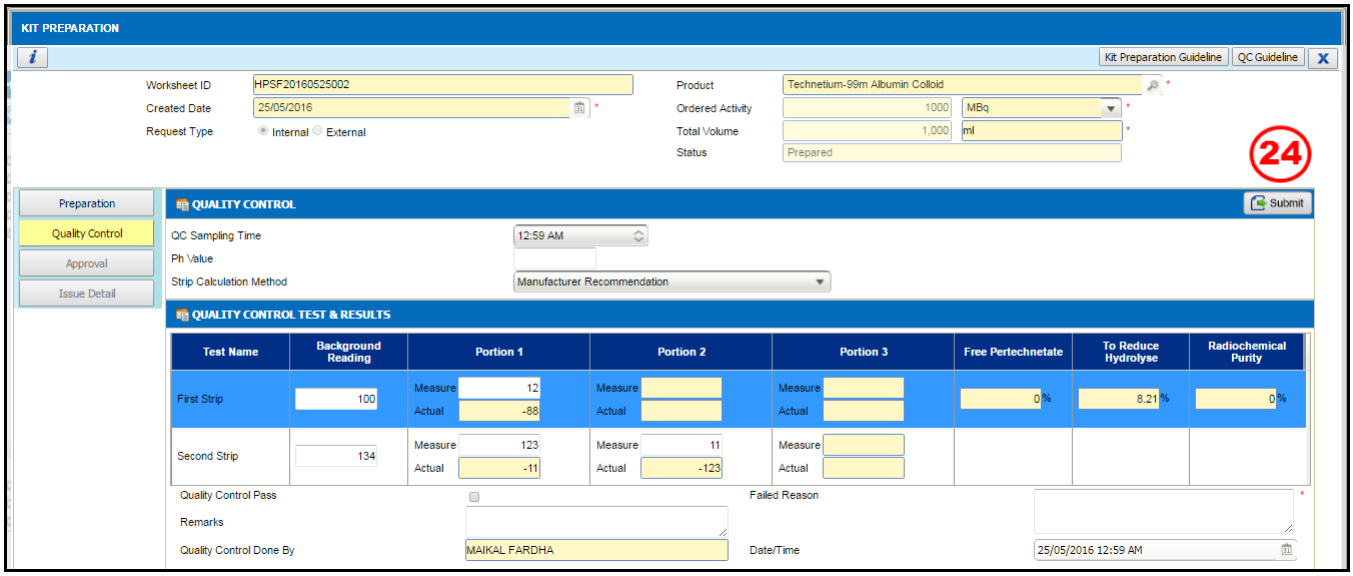


Figure 3.7.2-19 Bulk Preparation

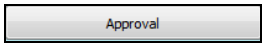
STEP 24

Click on the

button to submit quality control results

Note

- *The*

button will disable after done the submission.
- *The* 

button will be activated after the submission.

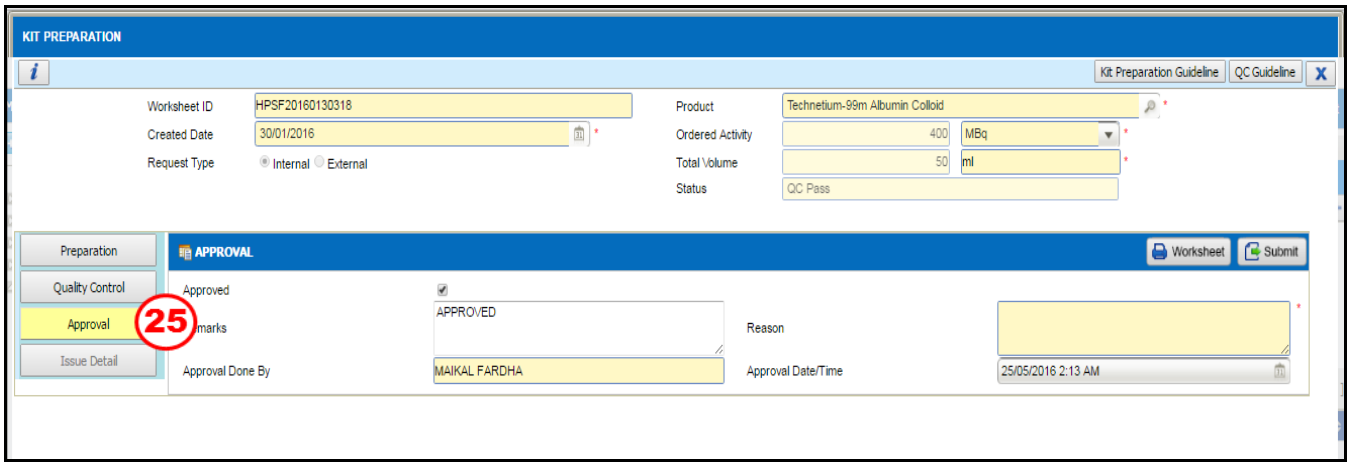


Figure 3.7.2-20 Bulk Preparation

STEP 25

Click on the Approval button and system will display screen as per Figure 3.7.2-20

Note

Status will be changed to QC Pass after done the submission.

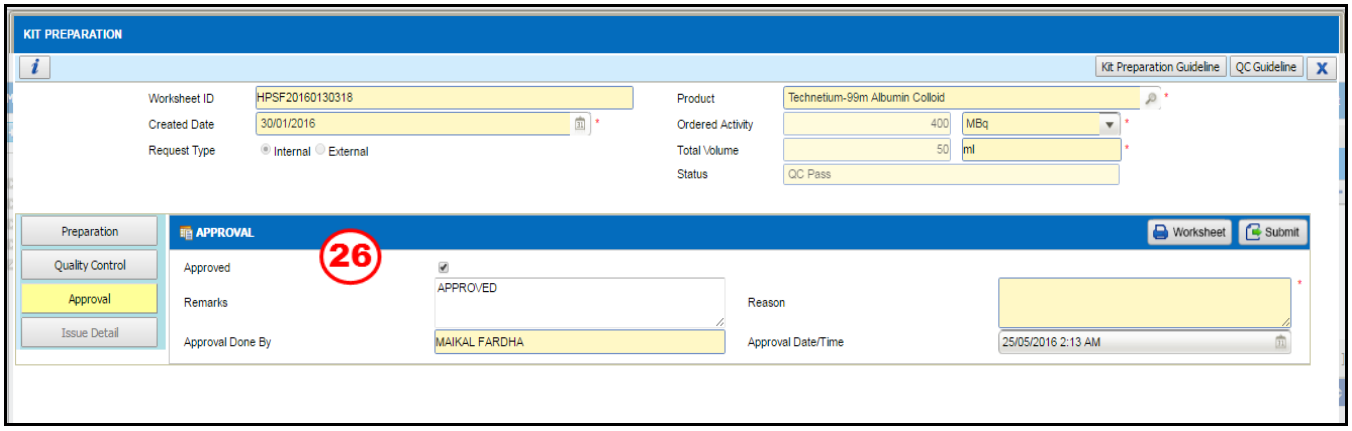


Figure 3.7.2-21 Bulk Preparation

STEP 26

Select ***Approved*** either ***Yes*** or ***No***

Note

- *If the selection of **Approved**, **No**; **Reason** field will be activated and user have to enter the reason of not approve as per Figure 3.7.2-21.*
- *If the selection of **Approved**, **Yes**; **Reason** field will not activate as per Figure 3.7.2-21.*
- *Enter **Remarks** if applicable.*
- *The **Approval Done By** and **Date/Time** field will automatically default by system.*
- *The* Worksheet *button is for user to reprint the worksheet.*

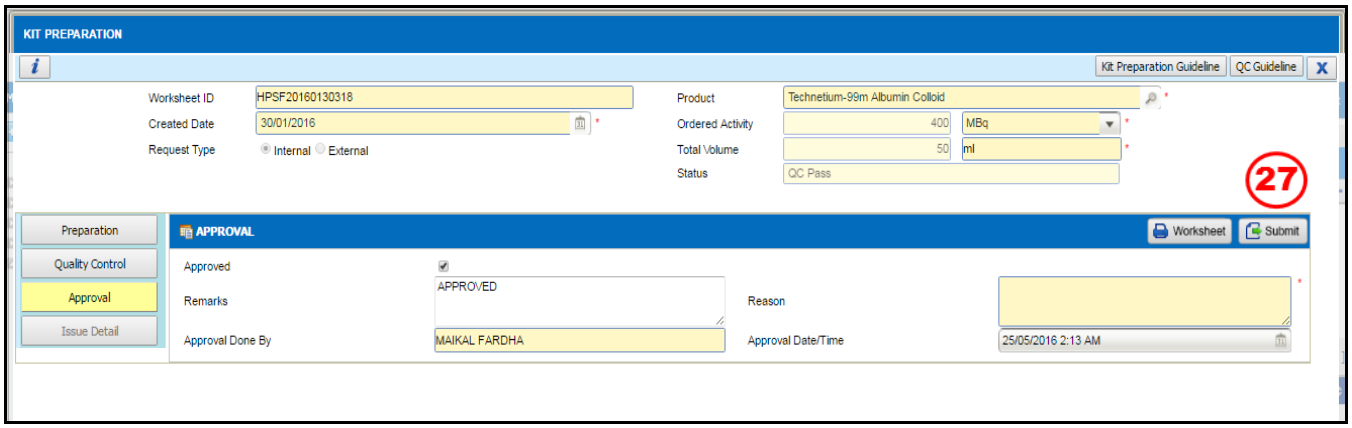


Figure 3.7.2-22 Bulk Preparation

STEP 27

Click on the Submit button to submit the approval details

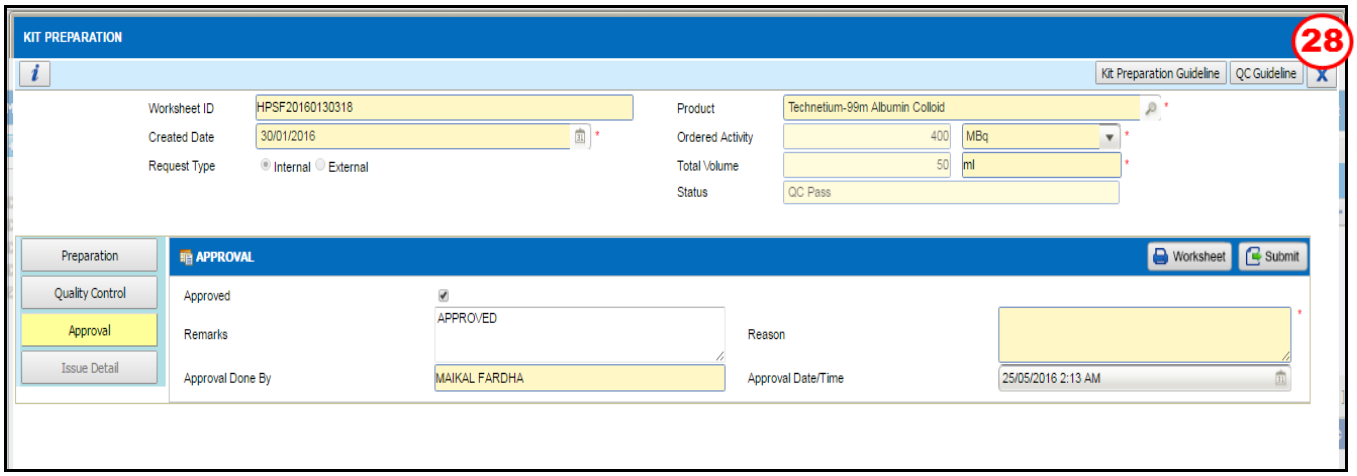


Figure 3.7.2-23 Bulk Preparation

Note

- ***Status*** *will change to Approved after the submission had done.*

STEP 28

Click on the X button to close Bulk Preparation screen

3.7.3 Stock Verification

Stock Verification screen allow user to verify and measure radiopharmaceuticals stock received from pharmacy store.

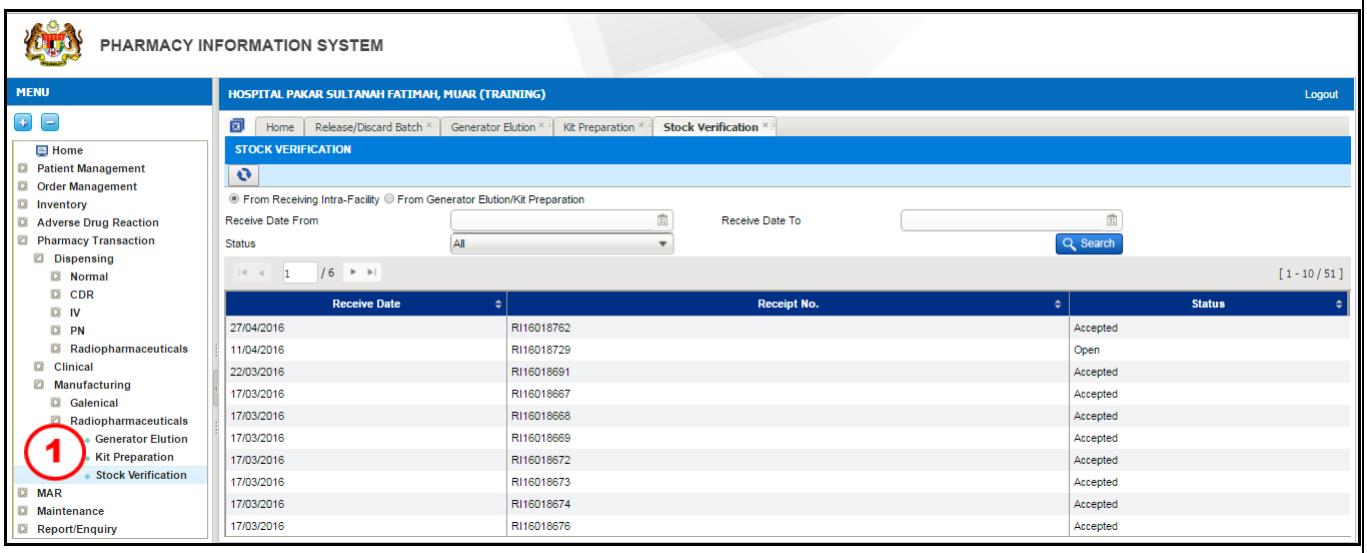


Figure 3.7.3-1 Stock Verification Listing Page

STEP 1

Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Stock Verification' sub-menu

Note

- *Search criteria is provided for **Date** only.*
- *Click on the* Search *button and system will be displayed related record.*

STEP 2

Double click on the selected data and system will be displayed screen as per Figure 3.7.3-1

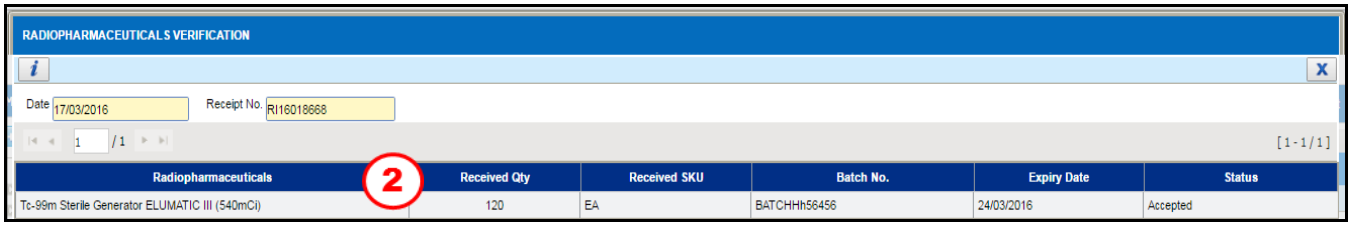


Figure 3.7.3-2 Stock Verification

Note

- ***Date** and **Receipt No** will be automatically displayed and default by system.*
- *By default, status is open.*

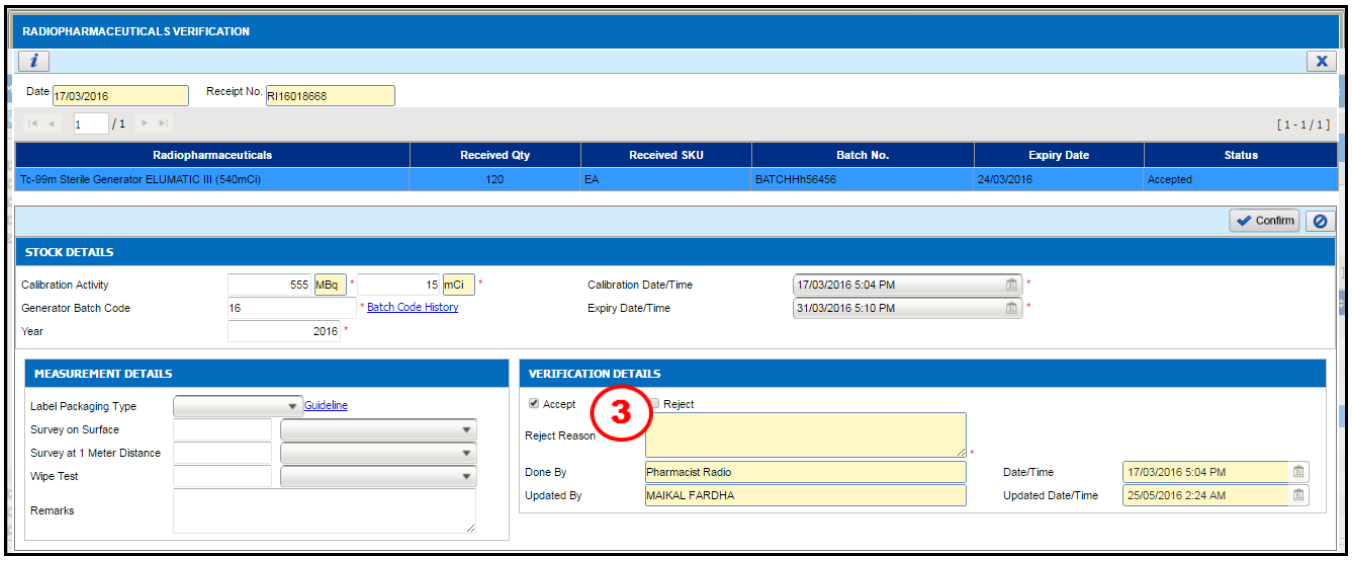


Figure 3.7.3-3 Stock Verification

STEP 3

Click on the Accept link to verify stock and system will be displayed screen as per Figure 3.7.3-3

Note

- *Enter and select **Calibration Activity, Calibration Date/Time, Measured Activity, Measured Date/Time, Wipe Test, Survey at 1 Meter Distance**, and **Survey on Surface** field. All these fields are mandatory.*
  - ***Done By, Date/Time. Updated By**, and **Updated Date/Time** will be automatically displayed by system.*

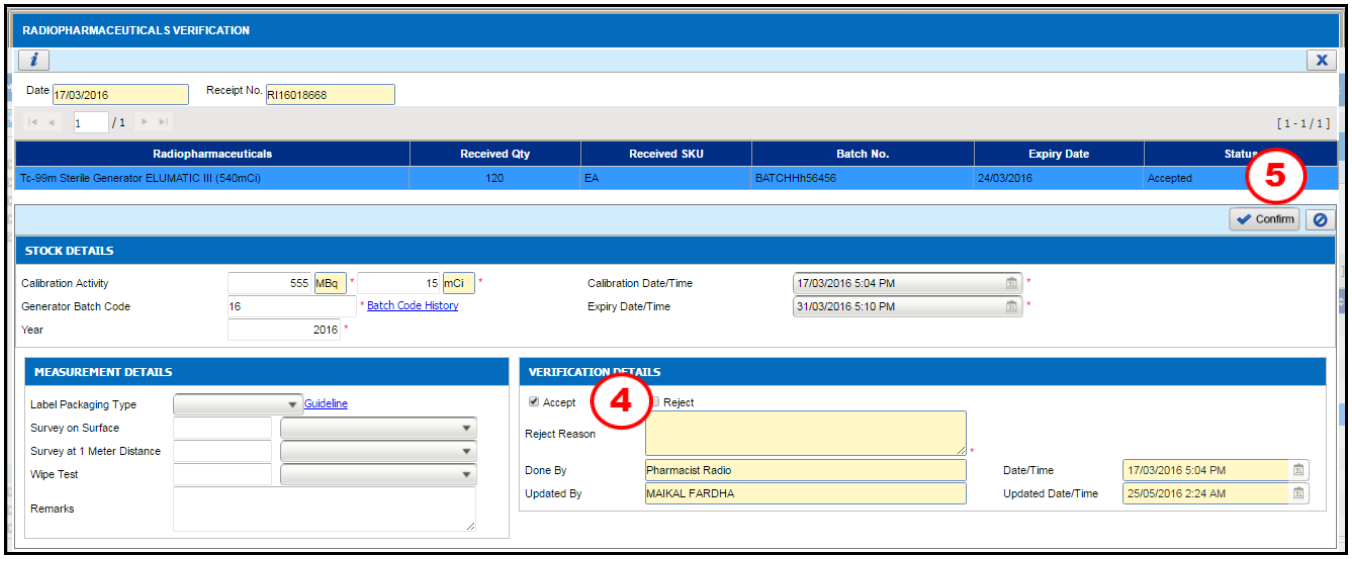


Figure 3.7.3-4 Stock Verification

STEP 4

Check on the Accept checkbox to accept verification

STEP 5

Click on the Confirm button to save record

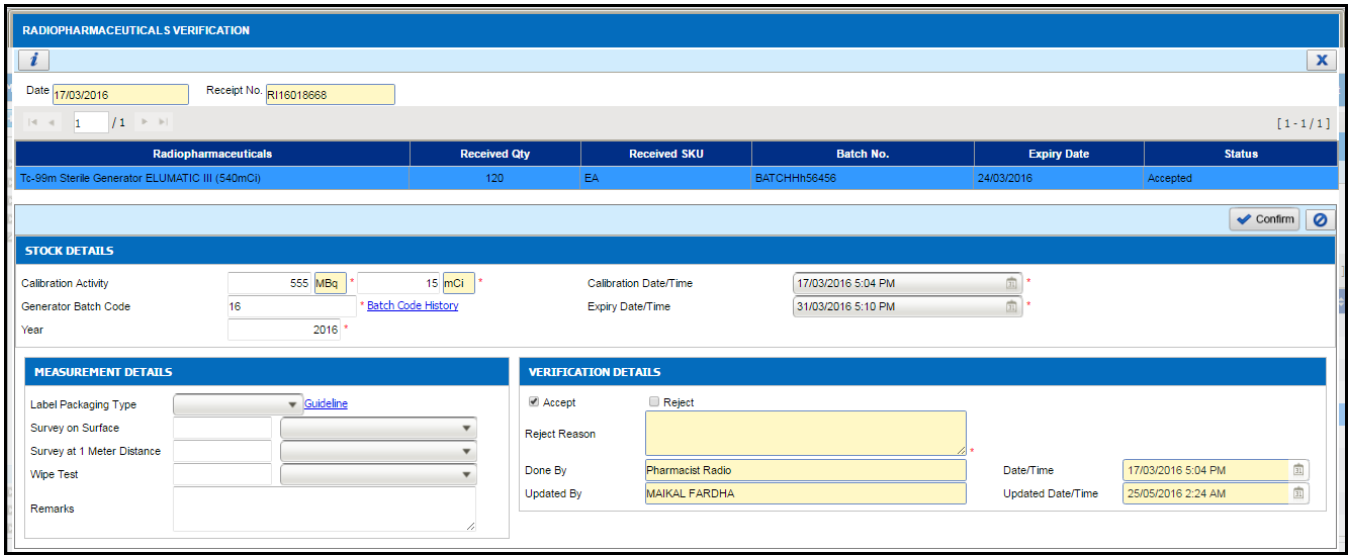


Figure 3.7.3-5 Stock Verification

STEP 6

Click on the X button to close Radiopharmaceuticals Verification screen

Note

- *Status will change to Accepted as per Figure 3.7.3-6 at Stock Verification Listing Page.*
- Add explanation for Rejected.

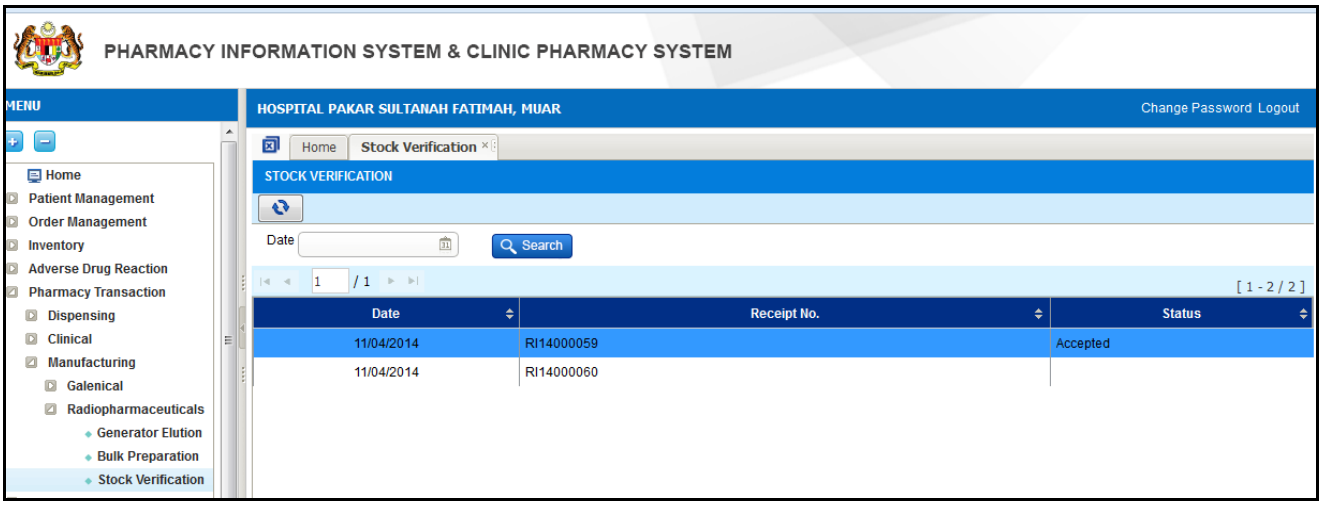


Figure 3.7.3-6 Stock Verification Listing Page

4.0 Acronyms

Abbreviation	Definition
MOH	Ministry of Health
KKM	Kementerian Kesihatan Malaysia
PhIS	Pharmacy Information System
CPS	Clinical Pharmacy System
PKU	Packaging Keeping Unit
SKU	Store Keeping Unit
TDM	Therapeutic Drug Monitoring
CDR	Cytotoxic Drug Reconstitution
APPL	Approved Product Purchase List
RPL	Recommended Purchase List
EPO	Electronic Purchase Order

5.0 Links to Inventory Modules

No	*Module*	*PDF Links*	*No*	*Module*	*PDF Links*
1	*Finance*	Click Here	*15*	*Internal Indent*	Click Here
2	*Procurement Standard APPL*	Click Here	*16*	*Issue*	Click Here
3	*Procurement standard LP*	Click Here	*17*	*Receive From Supplier*	Click Here
4	*Procurement Standard Contract*	Click Here	*18*	*Receive Inter Facility*	Click Here
5	*Procurement Standard Quotation*	Click Here	*19*	*Receive Intra Facility*	Click Here
6	*Procurement Standard (RFQ)*	Click Here	*20*	*Return to Supplier*	Click Here
7	*Procurement Non Standard (Requisition Order)*	Click Here	*21*	*Return to Supplying Unit*	Click Here
8	*Quarantine*	Click Here	*22*	*Slow Moving*	Click Here
9	*Product Complaint*	Click Here	*23*	*Stock Taking And Verification*	Click Here
10	*Recalculate Buffer Level*	Click Here	*24*	*Stock Transfer*	Click Here
11	*Expiration And Condemn*	Click Here	*25*	*Year End*	Click Here
12	*Recall Product*	Click Here	*26*	*Penalty*	Click Here
13	*Payment*	Click Here	*27*	*IWP Budget*	Click Here
14	*External Indent*	Click Here	*28*	*IWP Order Authorization*	Click Here