

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

Pharmacy Based User Manual Radiopharmaceuticals

Version	: 9th EDITION
Document ID	: PB_U.MANUAL_RADIOPHARMACEUTICALS



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Application reference: PhIS & CPS v2.0.1

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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

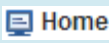
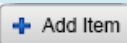
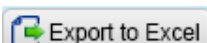
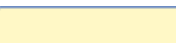
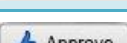
1.3 Organised Sections

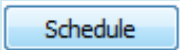
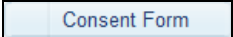
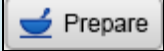
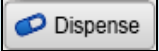
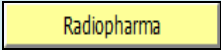
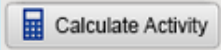
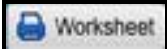
These are the sections within this document:

- 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 to PhIS		Logout from PhIS
	Reset Login Screen		Expand Menu
	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 to the list
	Export and Open Report in Excel Format		Automatically Display/Retrieve Box
	Request for Approval		Cancel the Request
	Send for Approval		Approve Transaction
	Change Login Password		Collapse Menu
	Collapse Module		Search Record
	Print		Search Icon
	Checkbox		Delete Record
	Delete Item from the list		Empty Text Box
	Dropdown Box		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

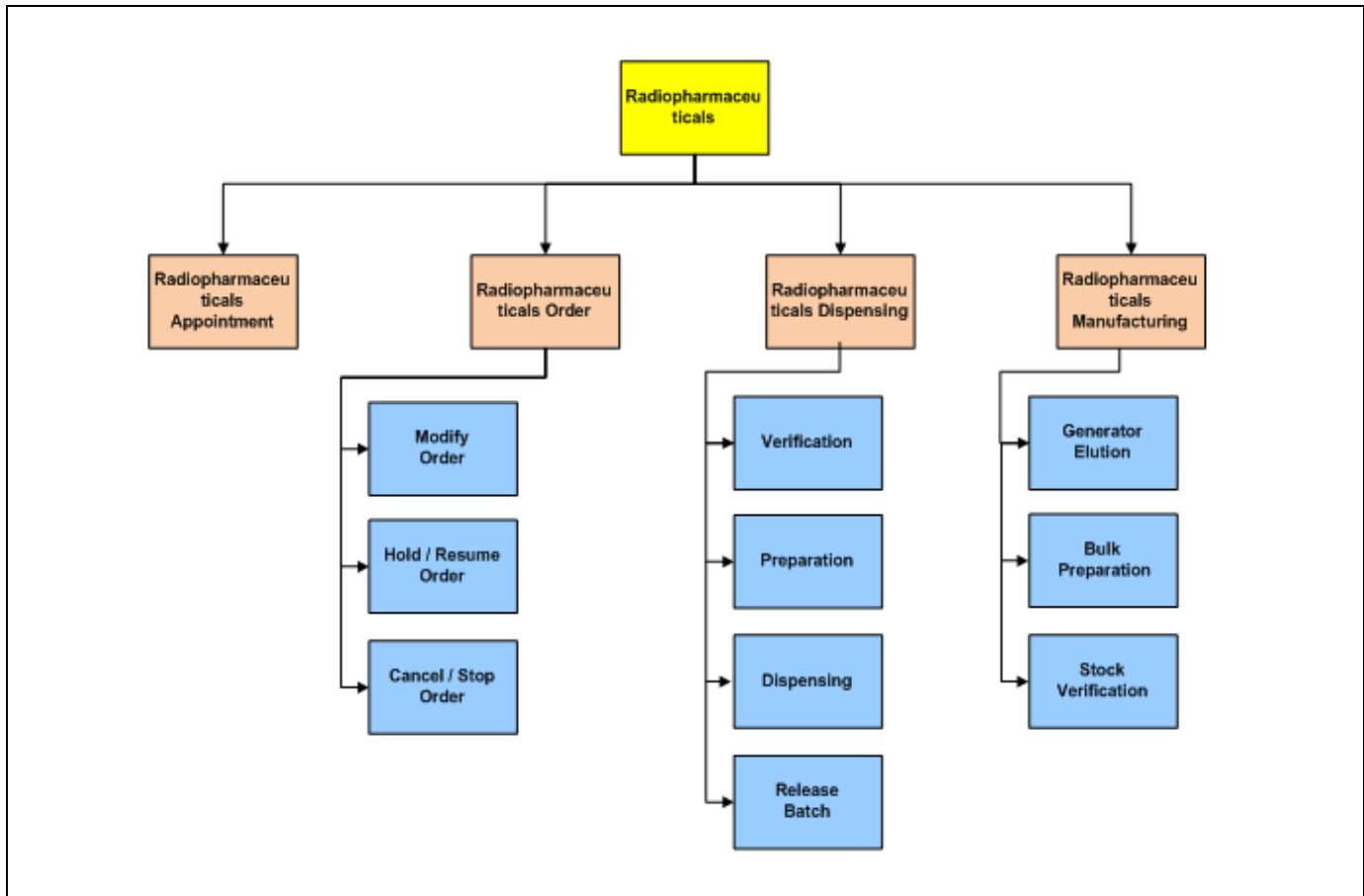


Figure 3.0-1

Functional Description

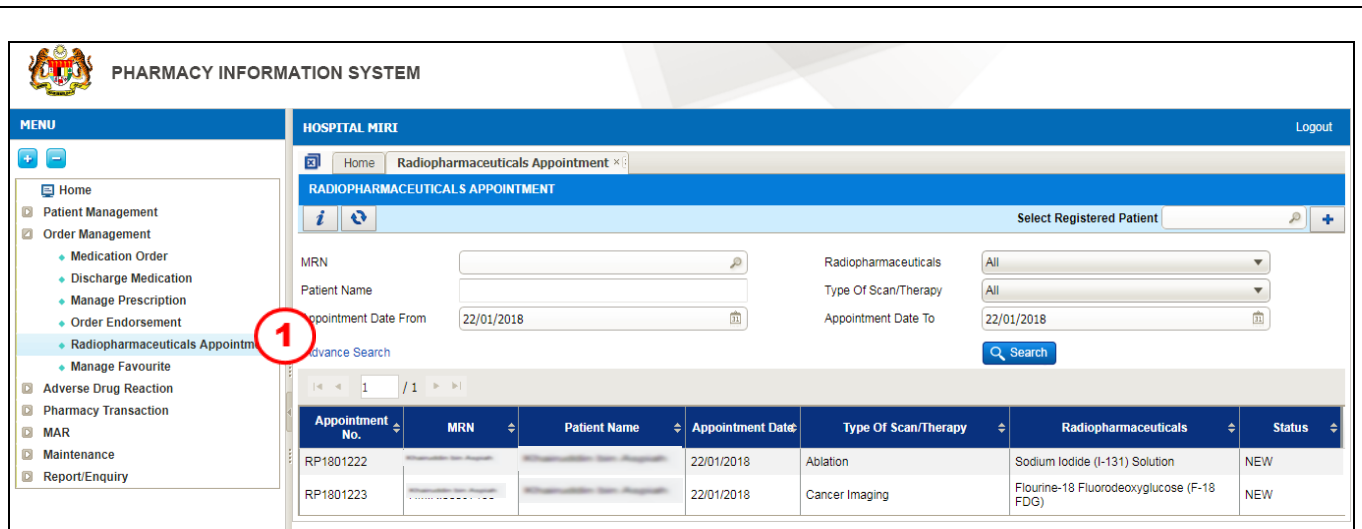
Slow Moving comprises of three (4) main functions:

- **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.



PHARMACY INFORMATION SYSTEM

HOSPITAL MIRI Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMACEUTICALS APPOINTMENT

Select Registered Patient

MRN: Radiopharmaceuticals: All

Patient Name: Type Of Scan/Therapy: All

Appointment Date From: 22/01/2018 Appointment Date To: 22/01/2018

Advance Search

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1801222			22/01/2018	Ablation	Sodium Iodide (I-131) Solution	NEW
RP1801223			22/01/2018	Cancer Imaging	Flourine-18 Fluorodeoxyglucose (F-18 FDG)	NEW

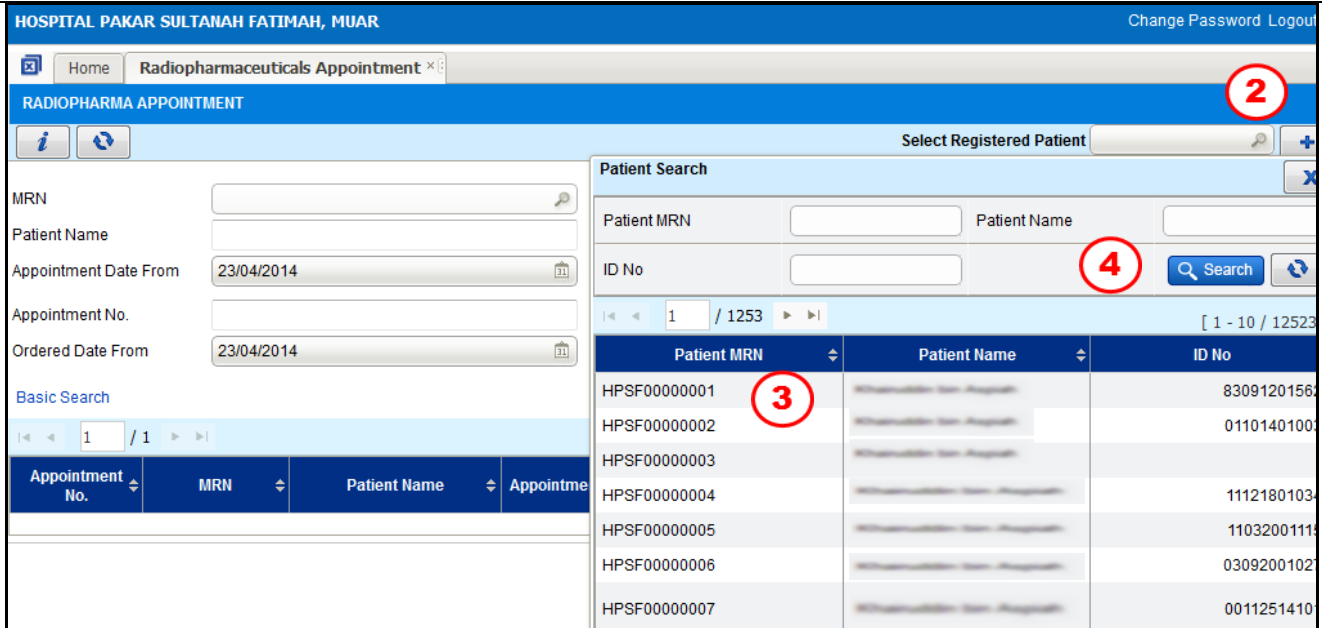
Figure 3.1-1 Radiopharmaceuticals Appointment Listing Page

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 :-
 - Show All
- Various search criteria is provided as below:
 - MRN
 - Radiopharmaceuticals
 - Patient Name
 - Appointment no
 - Status
 - Appointment Date From
 - 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.



HOSPITAL PAKAR SULTANAH FATIMAH, MUAR Change Password Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMA APPOINTMENT

MRN

Patient Name

Appointment Date From

Appointment No.

Ordered Date From

Basic Search

1 / 1

Appointment No. MRN Patient Name Appointment Date

Patient Search

Select Registered Patient

Patient MRN Patient Name

ID No

Search

1 / 1253 [1 - 10 / 12523]

Patient MRN	Patient Name	ID No
HPSF00000001	HPSF00000001	8309120156
HPSF00000002	HPSF00000002	0110140100
HPSF00000003	HPSF00000003	1112180103
HPSF00000004	HPSF00000004	1103200111
HPSF00000005	HPSF00000005	0309200102
HPSF00000006	HPSF00000006	0011251410
HPSF00000007	HPSF00000007	

Figure 3.1.1-2 Radiopharmaceuticals Appointment

STEP 2

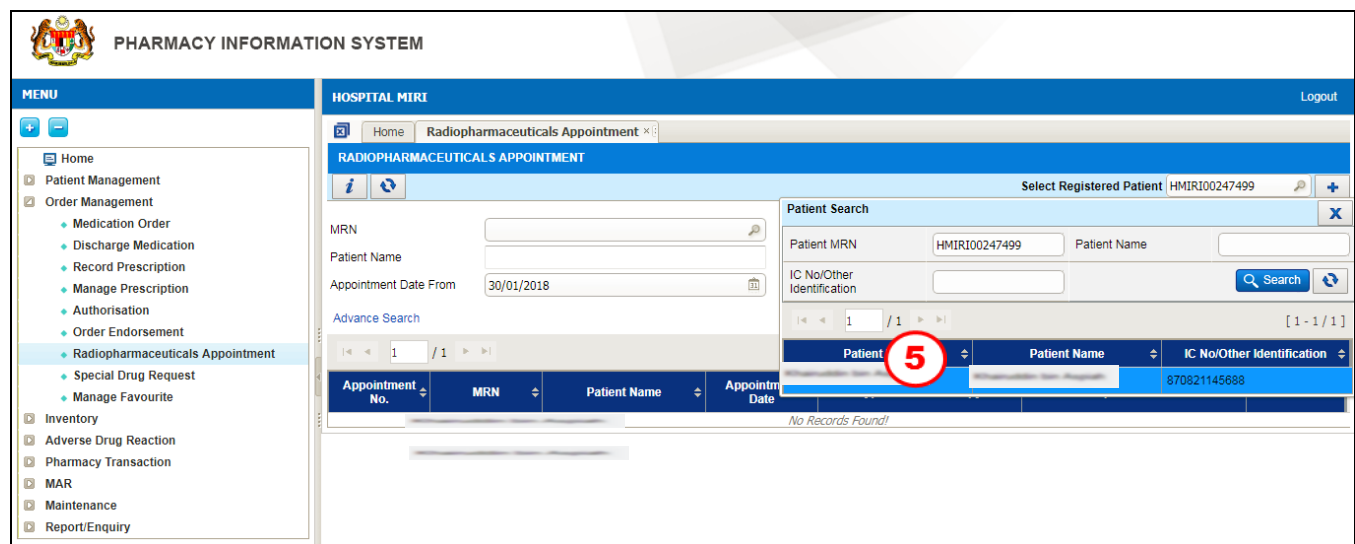
Click on the  button to search for registered patient and system will be displayed as per Figure 3.1.1-2

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



PHARMACY INFORMATION SYSTEM

HOSPITAL MIRI Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMACEUTICALS APPOINTMENT

MRN

Patient Name

Appointment Date From

Appointment No.

Advance Search

1 / 1

Appointment No. MRN Patient Name Appointment Date

Patient Search

Select Registered Patient

Patient MRN Patient Name

IC No/Other Identification

Search

1 / 1 [1 - 1 / 1]

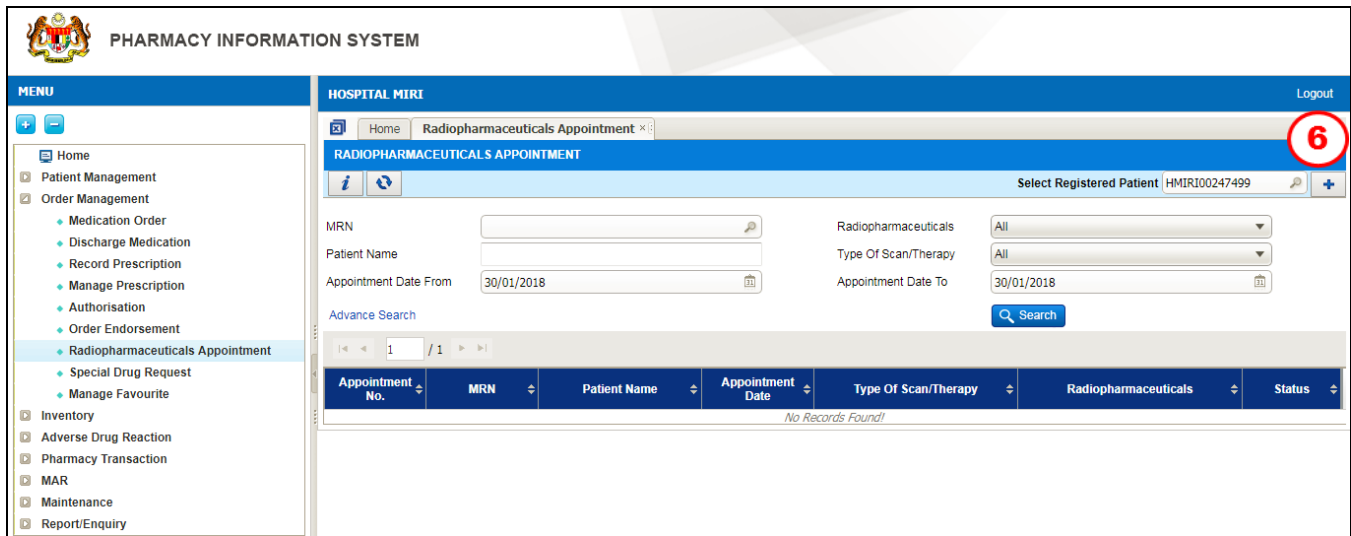
Patient	Patient Name	IC No/Other Identification
HMIRI00247499	HMIRI00247499	870821145688

No Records Found!

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



PHARMACY INFORMATION SYSTEM

HOSPITAL MIRI Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMACEUTICALS APPOINTMENT

Select Registered Patient HMIR100247499

MRN: [Text Box] Radiopharmaceuticals: All

Patient Name: [Text Box] Type Of Scan/Therapy: All

Appointment Date From: 30/01/2018 Appointment Date To: 30/01/2018

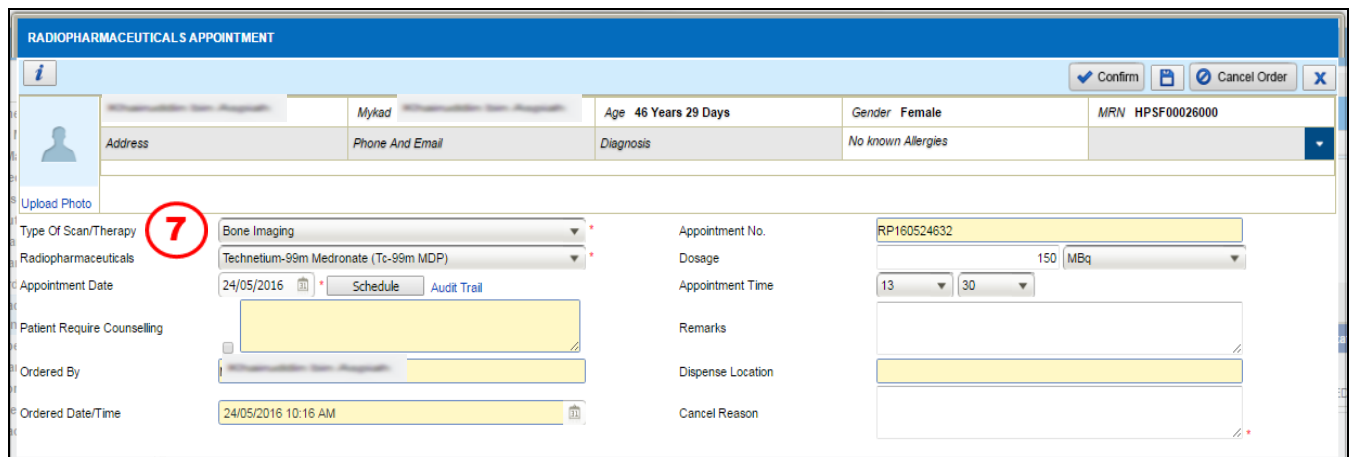
Advance Search Search

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
No Records Found!						

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



RADIOPHARMACEUTICALS APPOINTMENT

Confirm Cancel Order X

Mykad: [Text Box] Age: 46 Years 29 Days Gender: Female MRN: HPSF00026000

Address: [Text Box] Phone And Email: [Text Box] Diagnosis: [Text Box] No known Allergies

Upload Photo

Type Of Scan/Therapy: Bone Imaging

Radiopharmaceuticals: Technetium-99m Medronate (Tc-99m MDP)

Appointment Date: 24/05/2016 Schedule Audit Trail

Patient Require Counselling: [Text Box]

Ordered By: [Text Box]

Ordered Date/Time: 24/05/2016 10:16 AM

Appointment No.: RP160524632

Dosage: 150 MBq

Appointment Time: 13:30

Remarks: [Text Box]

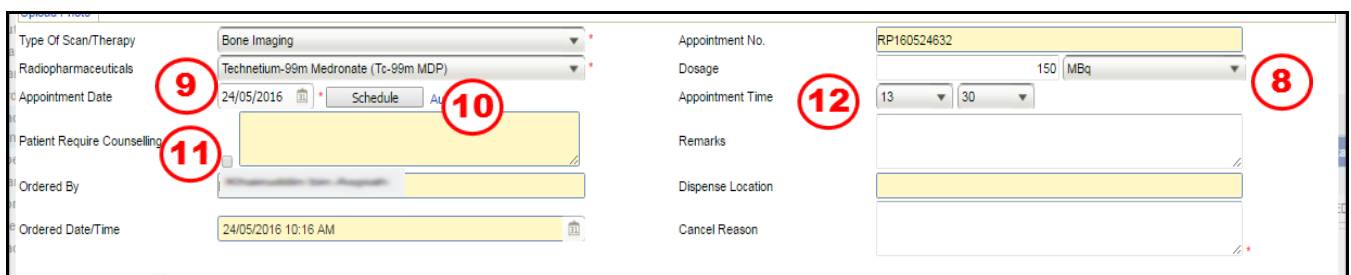
Dispense Location: [Text Box]

Cancel Reason: [Text Box]

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



RADIOPHARMACEUTICALS APPOINTMENT

Confirm Cancel Order X

Mykad: [Text Box] Age: 46 Years 29 Days Gender: Female MRN: HPSF00026000

Address: [Text Box] Phone And Email: [Text Box] Diagnosis: [Text Box] No known Allergies

Upload Photo

Type Of Scan/Therapy: Bone Imaging

Radiopharmaceuticals: Technetium-99m Medronate (Tc-99m MDP)

Appointment Date: 24/05/2016 Schedule Audit Trail

Patient Require Counselling: [Text Box]

Ordered By: [Text Box]

Ordered Date/Time: 24/05/2016 10:16 AM

Appointment No.: RP160524632

Dosage: 150 MBq

Appointment Time: 13:30

Remarks: [Text Box]

Dispense Location: [Text Box]

Cancel Reason: [Text Box]

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

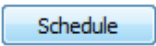
STEP 9

Select **Date** field for appointment

Note

Date field is mandatory field

STEP 10

Click on the  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

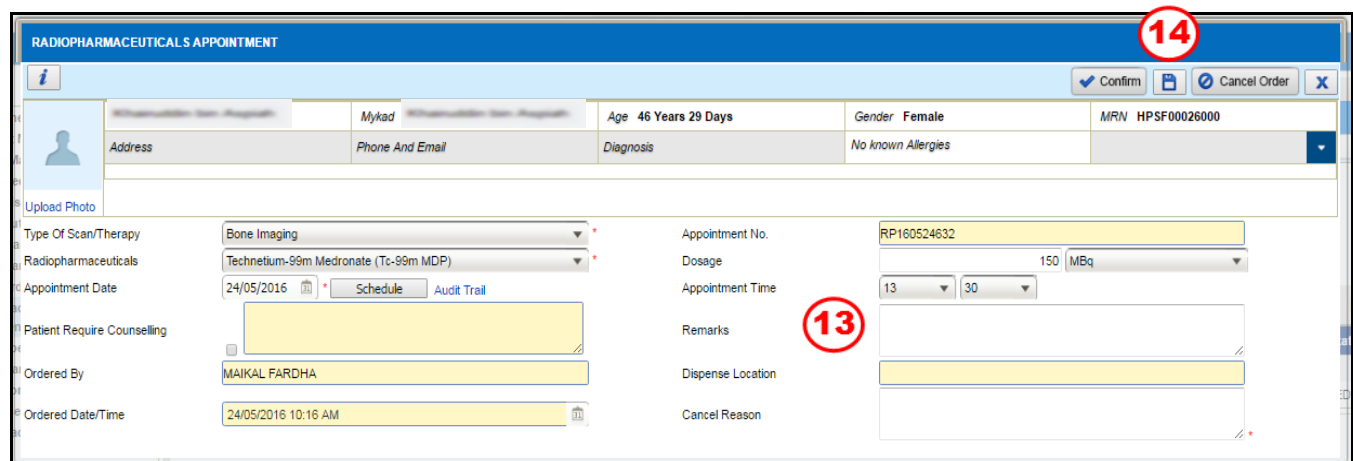


Figure 3.1.1-7 Radiopharmaceuticals Appointment

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

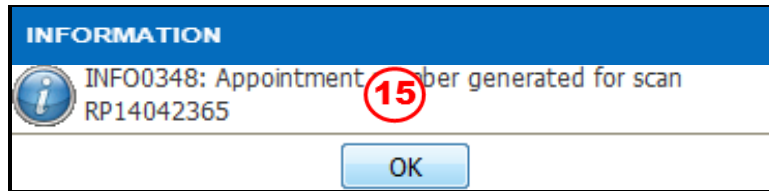
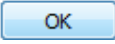


Figure 3.1.1-8 Save Record Alert Message

STEP 15

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

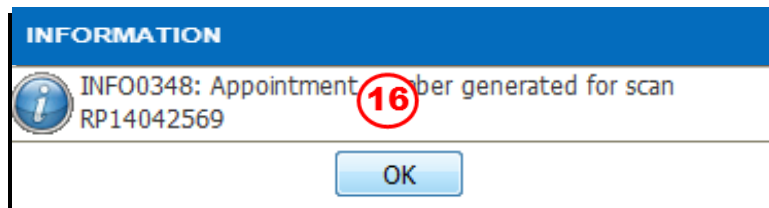
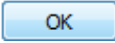


Figure 3.1.1-9 Save Record Alert Message

STEP 16

Click on the  button to save and update Radiopharmaceuticals Appointment order

Note

Record status is updated to Draft.

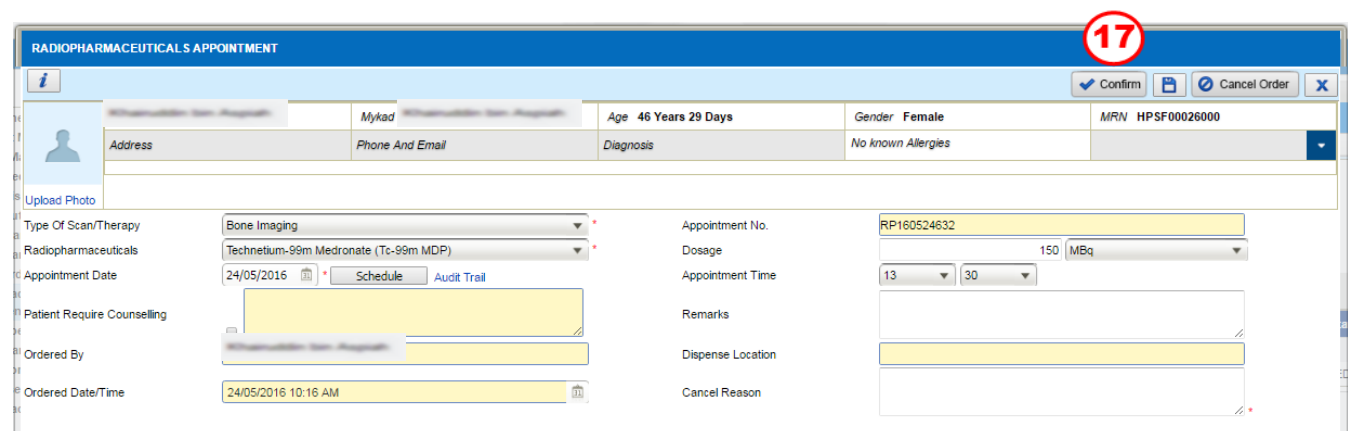


Figure 3.1.1-10 Radiopharmaceuticals Appointment

STEP 17

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

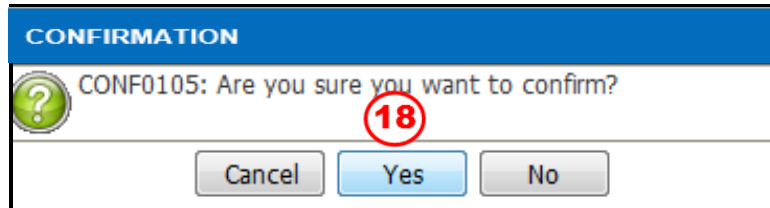
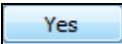


Figure 3.1.1-11 Confirm Order Alert Message

STEP 18

Click on the  button to confirm order

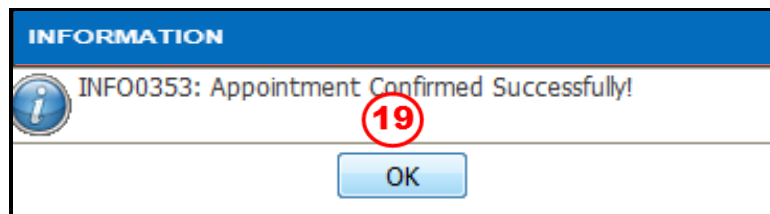
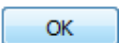


Figure 3.1.1-12 Confirm Order Alert Message

STEP 19

Click on the  button to confirm appointment successfully

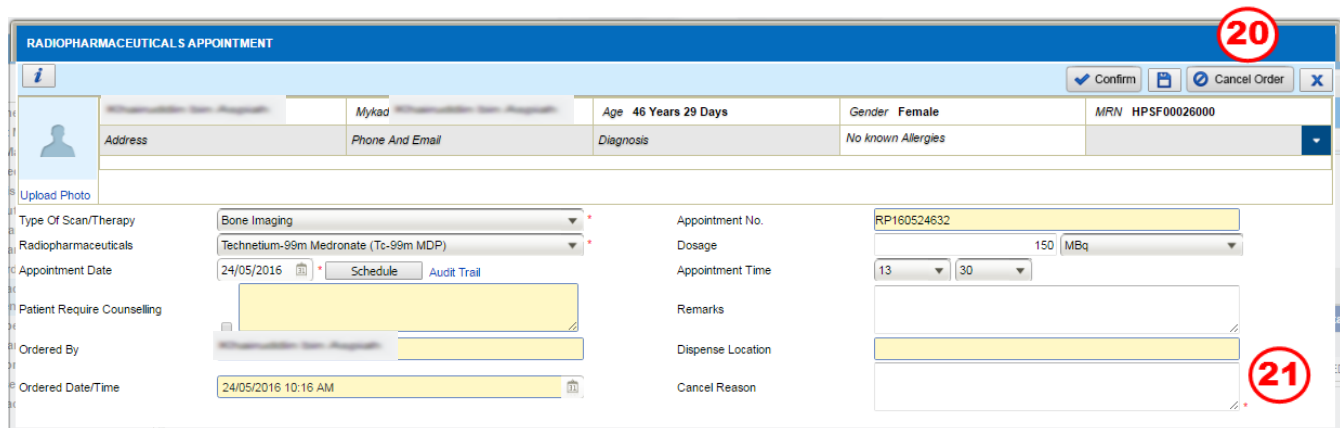
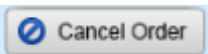


Figure 3.1-13 Radiopharmaceuticals Appointment

STEP 20

Click on the  button to cancel Radiopharmaceuticals Appoinment

STEP 21

Enter cancel reason


PHARMACY INFORMATION SYSTEM

HOSPITAL MIRI
Logout

MENU

- Home
- Patient Management
- Order Management
 - Medication Order
 - Discharge Medication
 - Manage Prescription
 - Order Endorsement
 - Radiopharmaceuticals Appointment**
 - Manage Favourite
- Adverse Drug Reaction
- Pharmacy Transaction
- MAR
- Maintenance
- Report/Enquiry

RADIOPHARMACEUTICALS APPOINTMENT

Select Registered Patient

MRN:
Patient Name:
Appointment Date From: 22/01/2018
Radiopharmaceuticals: All
Type Of Scan/Therapy: All
Appointment Date To: 22/01/2018

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1801222			22/01/2018	Ablation	Sodium Iodide (I-131) Solution	NEW
RP1801223			22/01/2018	Cancer Imaging	Flourine-18 Fluorodeoxyglucose (F-18 FDG)	NEW
RP1801224			22/01/2018	Whole body scan	Sodium Iodide (I-131) Solution	DRAFT

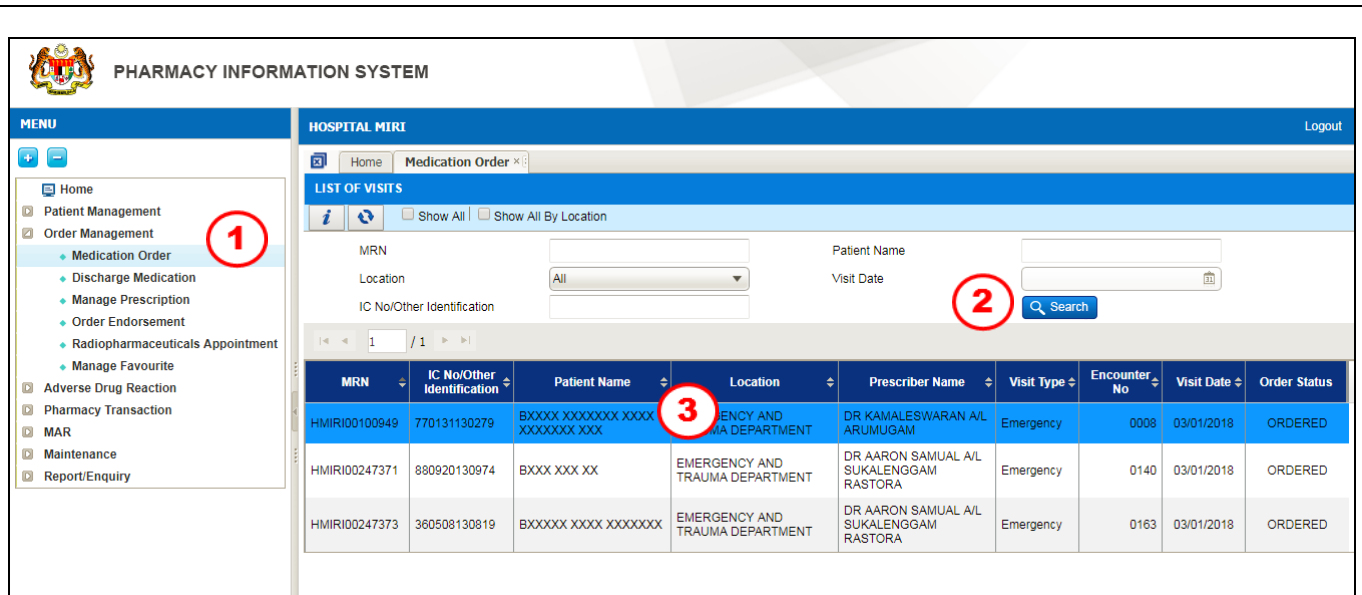
Figure 3.1.1-14 Radiopharmaceuticals Appointment

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



MRN	IC No/Other Identification	Patient Name	Location	Prescriber Name	Visit Type	Encounter No	Visit Date	Order Status
HMIRI00100949	770131130279	BXXXX XXXXXXX XXXX XXXXXXX XXX	EMERGENCY AND TRAUMA DEPARTMENT	DR KAMALESWARAN A/L ARUMUGAM	Emergency	0008	03/01/2018	ORDERED
HMIRI00247371	880920130974	BXXX XXX XX	EMERGENCY AND TRAUMA DEPARTMENT	DR AARON SAMUAL A/L SUKALENGGAM RASTORA	Emergency	0140	03/01/2018	ORDERED
HMIRI00247373	360508130819	BXXXXX XXXX XXXXXXX	EMERGENCY AND TRAUMA DEPARTMENT	DR AARON SAMUAL A/L SUKALENGGAM RASTORA	Emergency	0163	03/01/2018	ORDERED

Figure 3.2-1 Medication Order Listing Page

STEP 1

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

Note

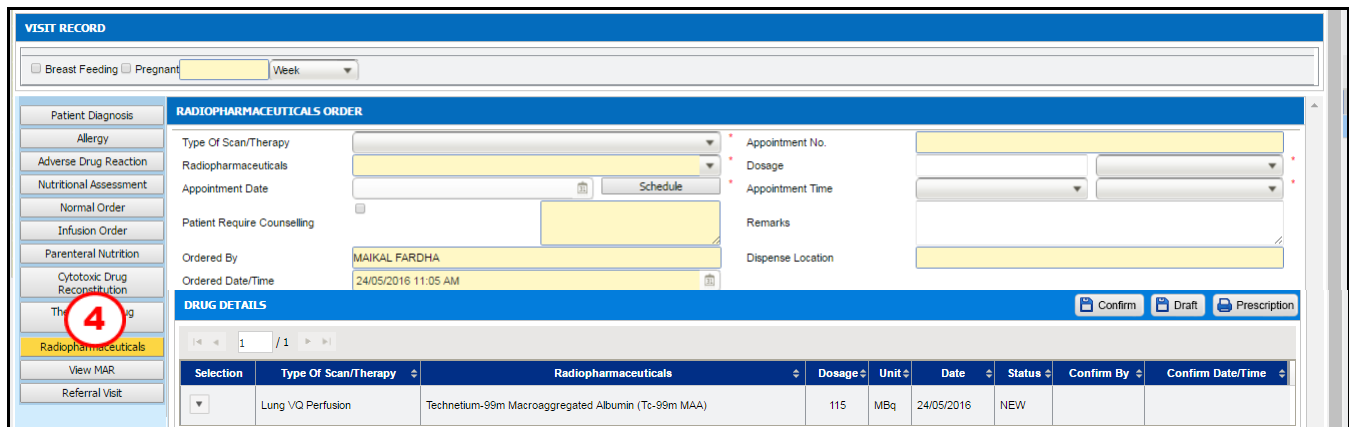
- User have the options to view patient by clicking the check box :-
 - Show All
 - Show All By Location
- Various search criteria is provided as below:
 - MRN
 - Patient name
 - Location
- By default list of patient will be displayed according to user location access.
- Click on the [Advanced Search](#) hyperlink for advance search.

STEP 2

Click on the  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



VISIT RECORD

☐ Breast Feeding ☐ Pregnant Week

RADIOPHARMACEUTICALS ORDER

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

Type Of Scan/Therapy: Radiopharmaceuticals
Appointment Date:
Patient Require Counselling: ☐
Ordered By: MAIKAL FARDHA
Ordered Date/Time: 24/05/2016 11:05 AM

Appointment No.:
Dosage:
Appointment Time:
Remarks:
Dispense Location:

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
☐	Lung V/Q Perfusion	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	115	MBq	24/05/2016	NEW		

Figure 3.2-2 Medication Order

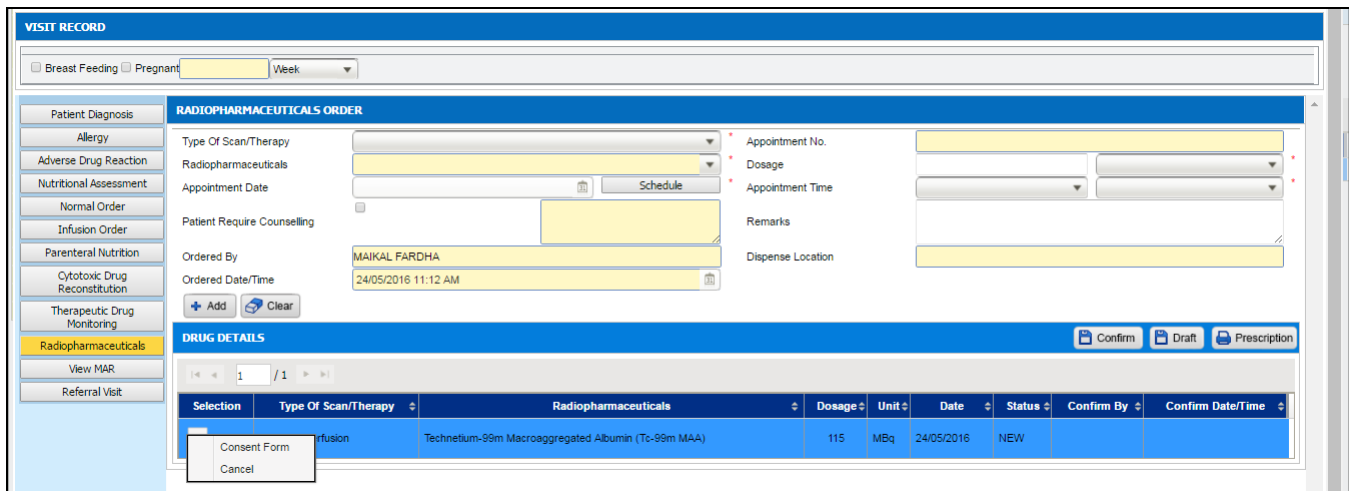
STEP 4

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.



VISIT RECORD

☐ Breast Feeding ☐ Pregnant Week

RADIOPHARMACEUTICALS ORDER

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

Type Of Scan/Therapy: Radiopharmaceuticals
Appointment Date:
Patient Require Counselling: ☐
Ordered By: MAIKAL FARDHA
Ordered Date/Time: 24/05/2016 11:12 AM

Appointment No.:
Dosage:
Appointment Time:
Remarks:
Dispense Location:

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
☐	Infusion	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	115	MBq	24/05/2016	NEW		

Consent Form
Cancel

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

Consent Form

I, SAMAD BIN MAN, ID No: 451003145607, hereby Consent to the submission of myself/my child
ZALEHAH BINTI SAMAD, ID No: 700425145604, MRN : HPSF00012531
 to undergo the examination/procedure Lung VQ Ventilation, Of which the nature has been explained by Abdul Rahim Sulaiman

I also consent to administration of contrast medium/media for the examination
 No assurance has been given to me that the examination will be performed by any particular practitioner.

Witness name RASHMY BIN ISMAIL ID No : 720425143521

Printing options
☒ Malay Version ☐ English Version

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


**KEBENARAN UNTUK
 PROSEDUR/RAWATAN PERUBATAN NUKLEAR
 JABATAN FARMA SI**

Pakar Sulfamah Mahmud, Muar

Saya SAMAD BIN MAN No. KIP : 451003145607
 Kebenaran ZALEHAH BINTI SAMAD
 No. KIP 700425145604, MRN : HPSF00012531 untuk menjalani
 rawatan/prosedur Lung VQ Ventilation di mana jasa dan
 tujuannya telah dijelaskan oleh Abdul Rahim Sulaiman

Saya juga memberi kebenaran untuk Radiofarmaseutikal semasa pemeriksaan/rawatan.
 Tiada jaminan diberi kepada saya sama ada pemeriksaan/rawatan ini akan dilaksanakan oleh seseorang
 pengamal perubatan tertentu.

Tandatangan : _____ (Pakar/Ilmu Saja/Parajaga)
 Tarikh : _____

IS YOUR PATIENT IN THE HIGH RISK GROUP?

Does he or she have :	Yes	No	Yes	No
a. Define history of allergy	☐	☐	g. Very old(85)/very young(8/12)	☐
b. Hay fever	☐	☐	h. Very ill or poor general condition	☐
c. Asthma	☐	☐	i. Dehydrated	☐
d. Previous reaction to contrast media	☐	☐	j. Others	_____
e. Previous reaction to other drugs	☐	☐	k. Blood Urea	_____
f. Heart disease	☐	☐	l. L.M.P.	_____

If the answer to YES to ANY one, please review the indication for examination with contrast
 Will an alternative imaging modality suffice?
 Patient in groups (a) - (c) will need altered treatment.

1. Prednisolone 40 mg/12 hours before procedure AND
 1. Prednisolone 40 mg/2 hours before procedure

* Adult dosage quoted. Please reduce accordingly for children.

I confirm that I have explained the nature and process of the procedure to the patient/parent/guardian.

Signature : _____ Witness : _____
 Name : Abdul Rahim Sulaiman Name : RASHMY BIN ISMAIL
 Date : _____ IC No: 720425143521

Figure 3.2-5 Sample Consent Form

Note

Sample of Consent Form as per Figure 3.2-5.

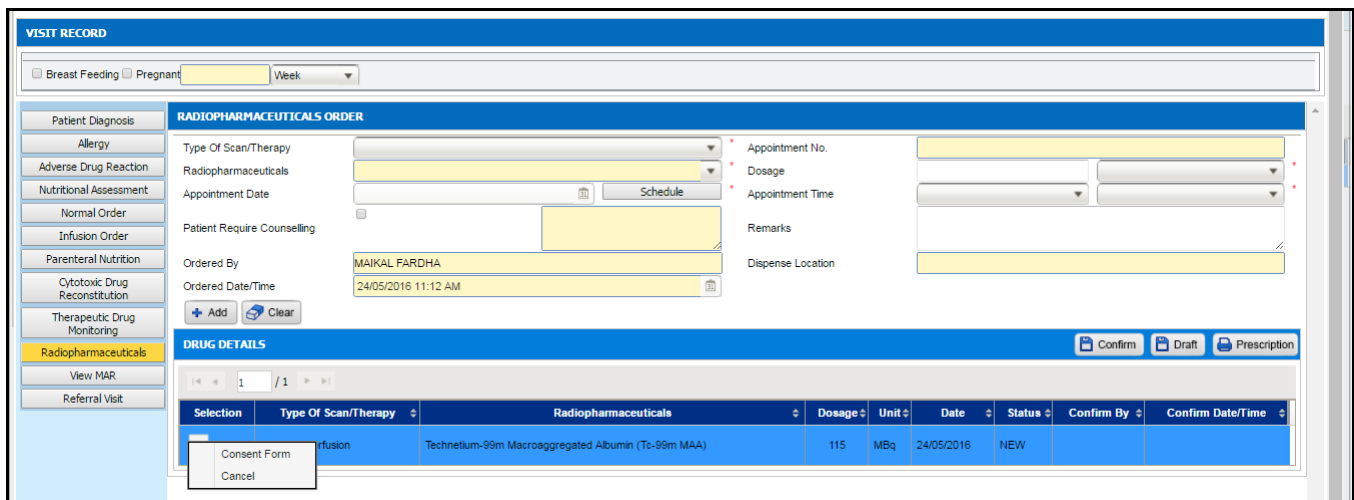


Figure 3.2-6 Sample Consent Form

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.

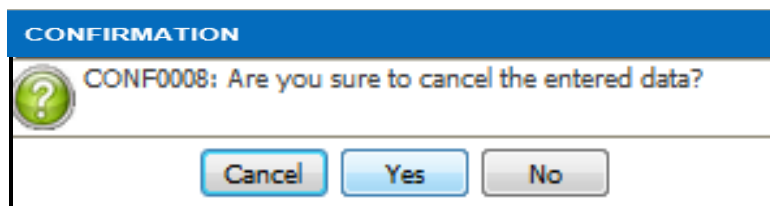


Figure 3.2-7 Cancel Order Alert Message

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

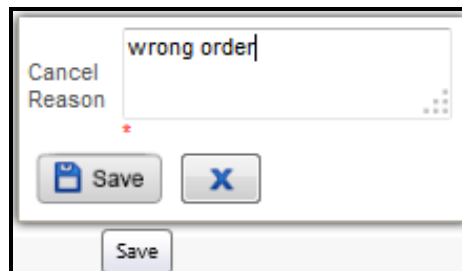


Figure 3.2-8 Cancel Order

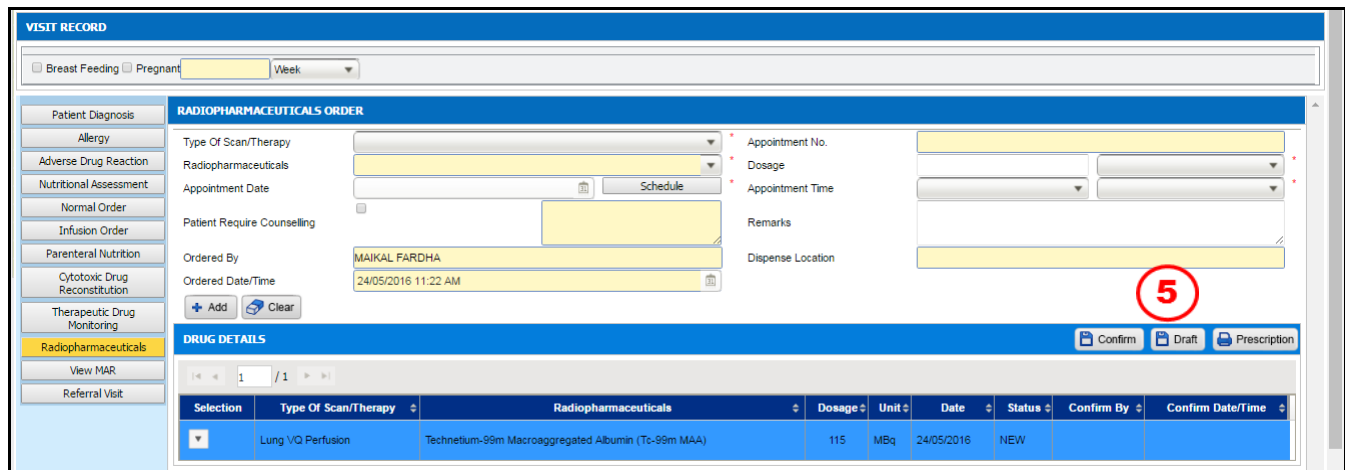


Figure 3.2-9 Medication Order -Radiopharmaceuticals

STEP 5

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

Note

The  button will be displayed after save record.

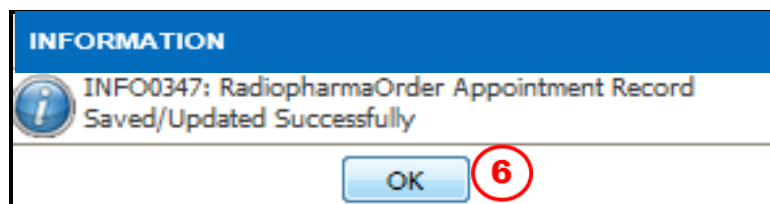
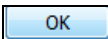


Figure 3.2-10 Alert Message

STEP 6

Click on the  button to save data

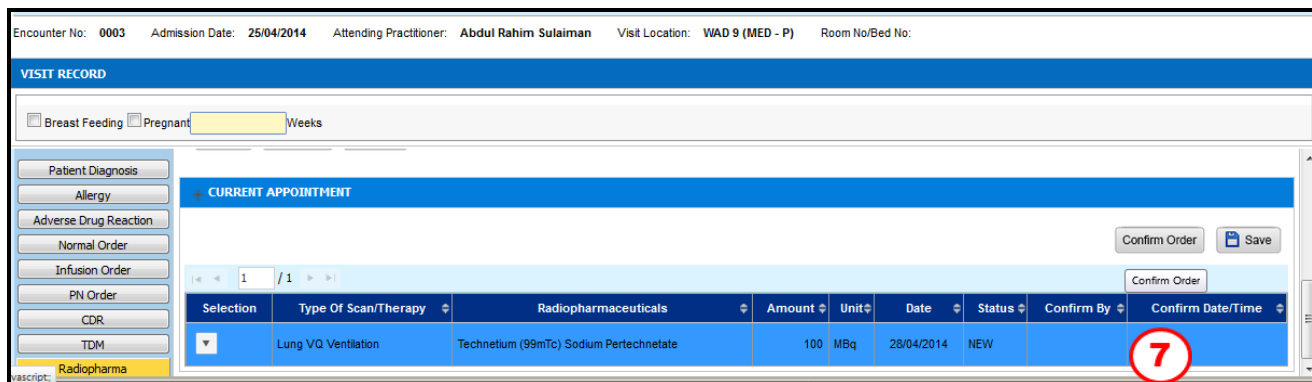
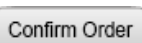


Figure 3.2-11 Medication Order -Radiopharmaceuticals

STEP 7

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

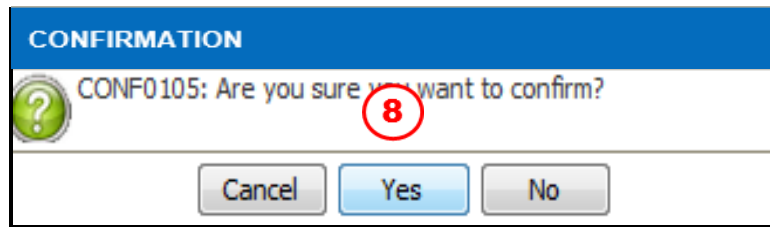
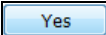


Figure 3.2-12 Alert Message

STEP 8

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

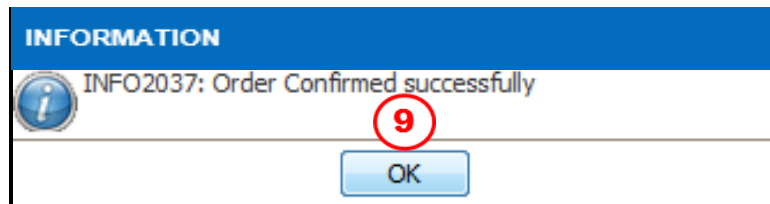
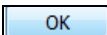


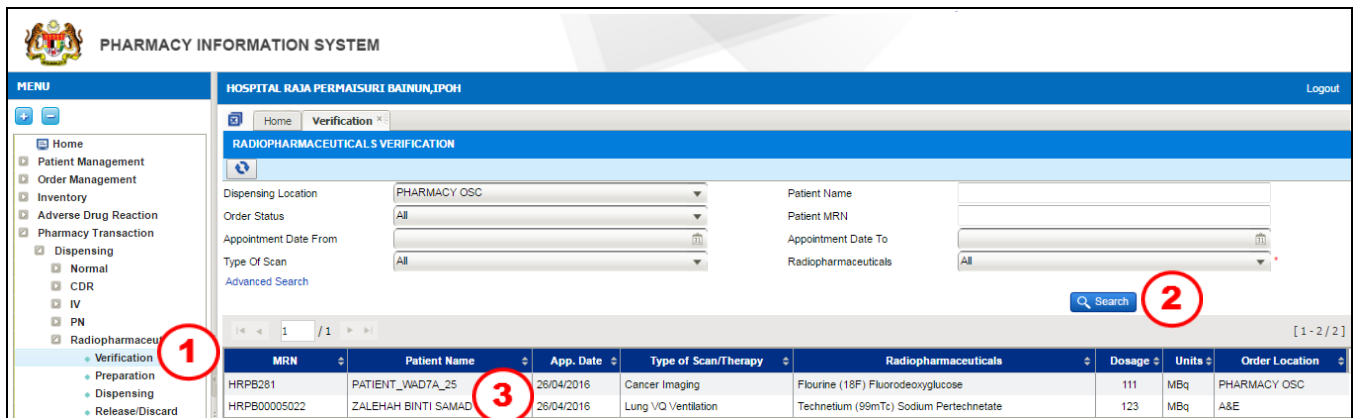
Figure 3.2-13 Alert Message

STEP 9

Click on the  button to confirm order successfully

3.3 Radiopharmaceuticals Verification

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



MRN	Patient Name	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HRPB281	PATIENT_WADTA_25	26/04/2016	Cancer Imaging	Flourine (18F) Fluorodeoxyglucose	111	MBq	PHARMACY OSC
HRPB00005022	ZALEHAH BINTI SAMAD	26/04/2016	Lung V/Q Ventilation	Technetium (99mTc) Sodium Pertechnetate	123	MBq	A&E

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

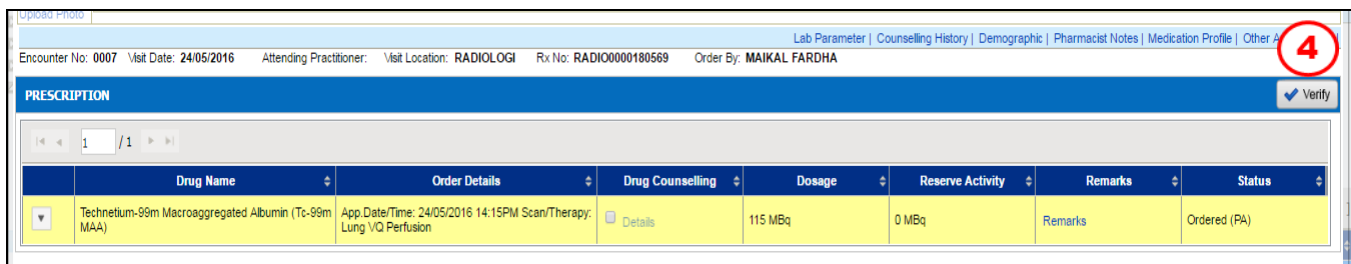
- Various search criteria is provided as below:
 - Dispense Location
 - Patient Name
 - Order Status
 - Patient MRN
 - Appoinment Date From
 - Appointment Date To
 - Type of Scan
 - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

STEP 2

Click on the  button and system will display related order

STEP 3

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



Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	App.Date/Time: 24/05/2016 14:15PM Scan/Therapy: Lung V/Q Perfusion	☐ Details	115 MBq	0 MBq	Remarks	Ordered (PA)

Figure 3.3-2 Radiopharmaceuticals Verification

STEP 4

Click on  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.

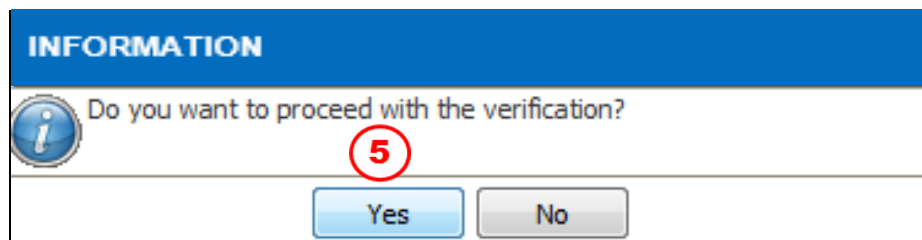
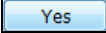


Figure 3.3-3 Information Alert Message

STEP 5

Click on the  button to proceed with the verification

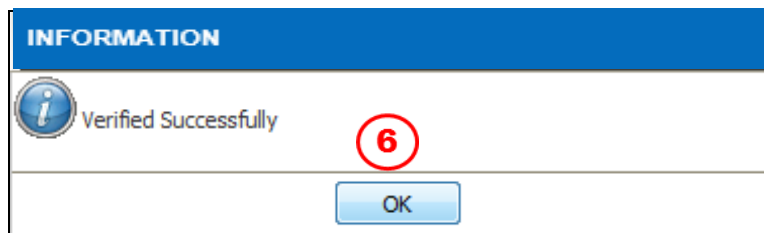
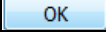


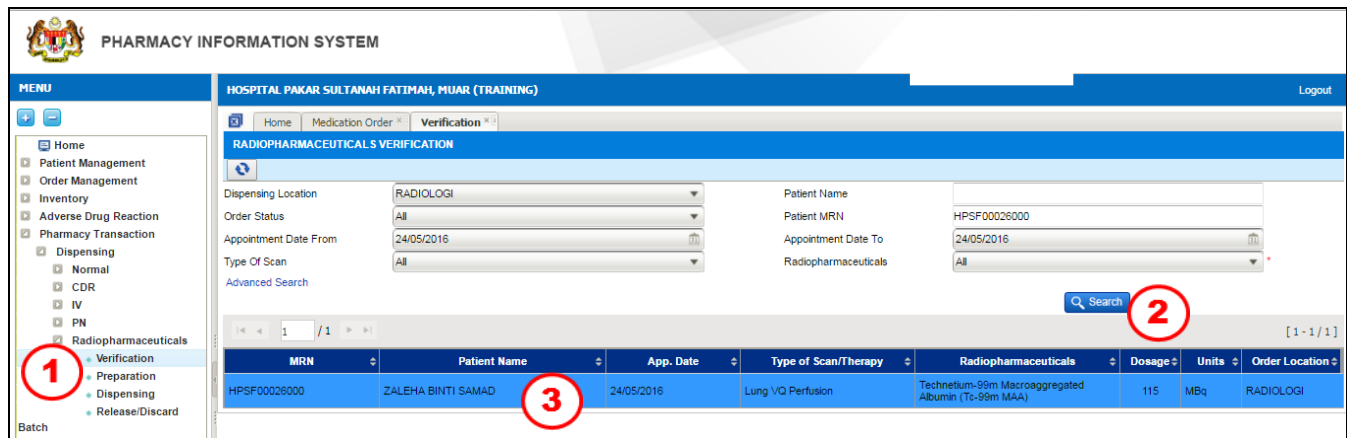
Figure 3.3-4 Verify Order Alert Message

STEP 6

Click on the  button to verify successfully

3.3.1 Intervention

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



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Logout

Home Medication Order Verification

RADIOPHARMACEUTICALS VERIFICATION

Dispensing Location: RADIOLOGI
Order Status: All
Appointment Date From: 24/05/2016
Type Of Scan: All
Advanced Search

Patient Name:
Patient MRN: HPSF00026000
Appointment Date To: 24/05/2016
Radiopharmaceuticals: All

Search

[1-1/1]

MRN	Patient Name	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HPSF00026000	ZALEHA BINTI SAMAD	24/05/2016	Lung V/Q Perfusion	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	115	MBq	RADIOLOGI

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

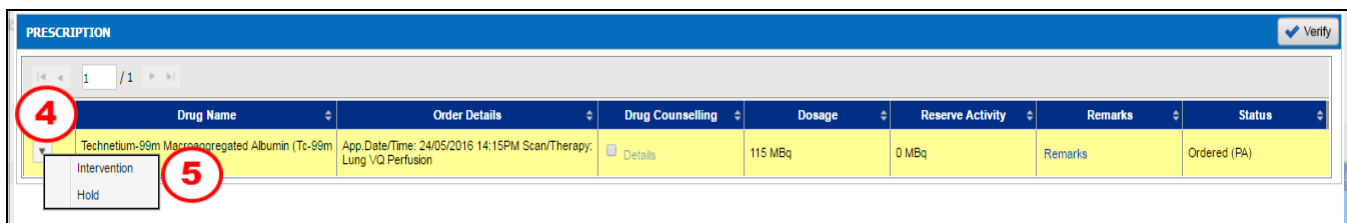
- Various search criteria is provided as below:
 - Dispense Location
 - Patient Name
 - Order Status
 - Patient MRN
 - Appointment Date From
 - Appointment Date To
 - Type of Scan
 - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

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



PRESCRIPTION

Verify

[1-1/1]

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	App.Date/Time: 24/05/2016 14:15PM Scan/Therapy: Lung V/Q Perfusion	Details	115 MBq	0 MBq	Remarks	Ordered (PA)

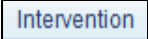
Intervention Hold

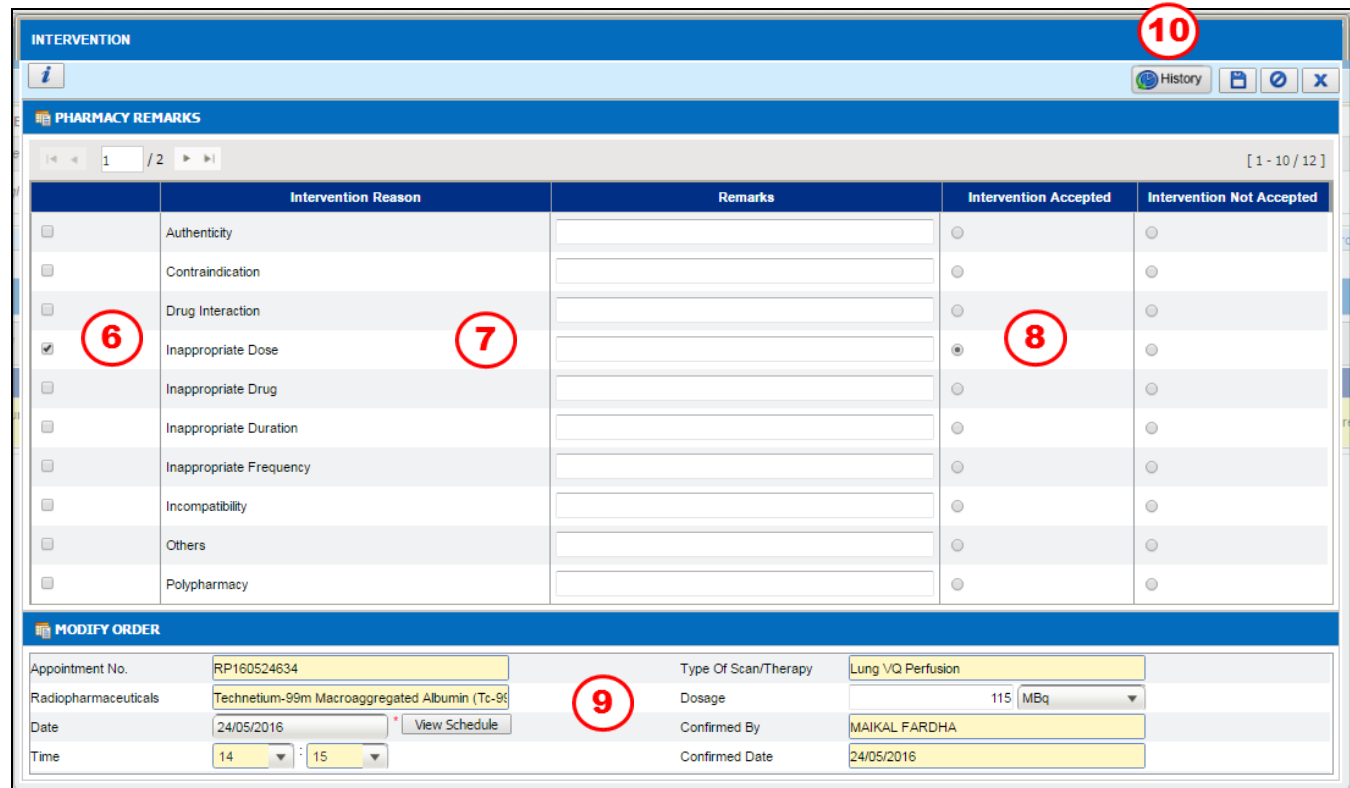
Figure 3.3.1-2 Radiopharmaceuticals Verification Listing Page

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  button to modify drug details



	Intervention Reason	Remarks	Intervention Accepted	Intervention Not Accepted
☐	Authenticity		☐	☐
☐	Contraindication		☐	☐
☐	Drug Interaction		☐	☐
☒	Inappropriate Dose		☒	☐
☐	Inappropriate Drug		☐	☐
☐	Inappropriate Duration		☐	☐
☐	Inappropriate Frequency		☐	☐
☐	Incompatibility		☐	☐
☐	Others		☐	☐
☐	Polypharmacy		☐	☐

Appointment No.	RP160524634	Type Of Scan/Therapy	Lung VQ Perfusion
Radiopharmaceuticals	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	Dosage	115 MBq
Date	24/05/2016	Confirmed By	MAIKAL FARDHA
Time	14 : 15	Confirmed Date	24/05/2016

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  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.

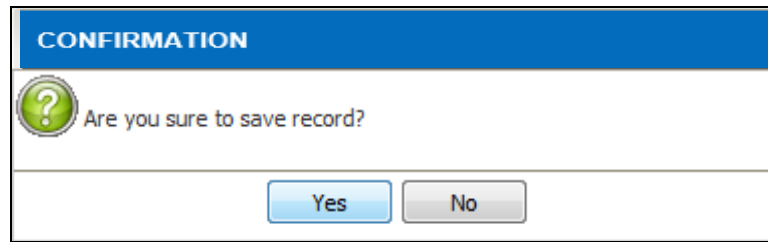
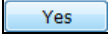


Figure 3.3.1-4 Save record Alert Message

Note

- Click on the  button to save intervention record.

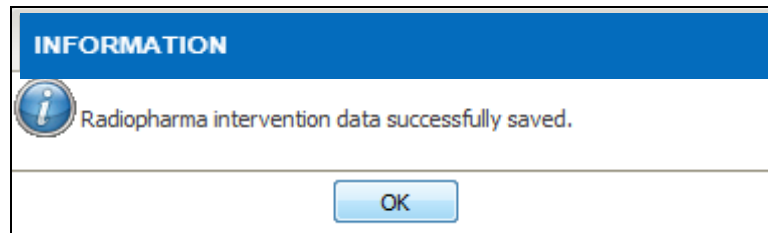
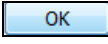


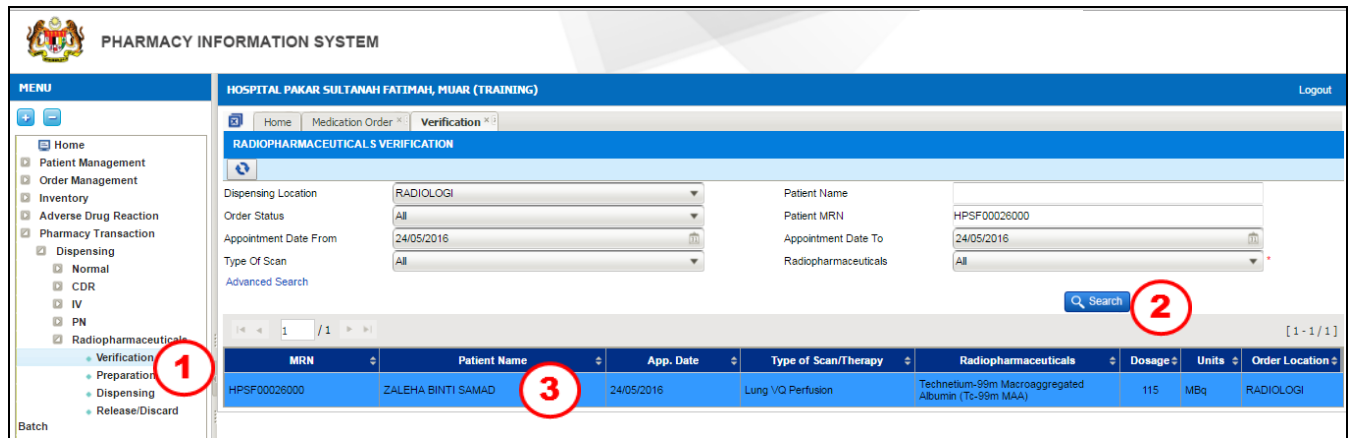
Figure 3.3.1-5 Modify Order Alert Message

Note

- Click on the  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.



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Logout

Home Medication Order Verification

RADIOPHARMACEUTICALS VERIFICATION

Dispensing Location: RADIOLOGI
Order Status: All
Appointment Date From: 24/05/2016
Type Of Scan: All
Advanced Search

Patient Name:
Patient MRN: HPSF00026000
Appointment Date To: 24/05/2016
Radiopharmaceuticals: All

Search 2

1 / 1

MRN	Patient Name	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HPSF00026000	ZALEHA BINTI SAMAD 3	24/05/2016	Lung V/Q Perfusion	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	115	MBq	RADIOLOGI

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:

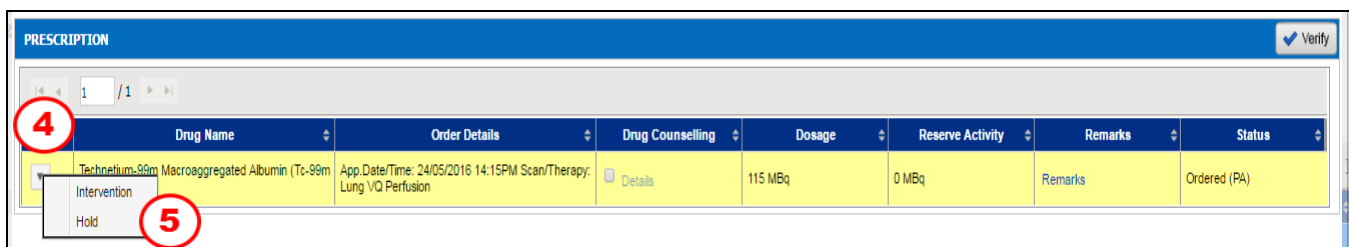
- Dispense Location
- Patient Name
- Order Status
- Patient MRN
- Appointment Date From
- Appointment Date To
- Type of Scan
- Radiopharmaceuticals

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



PRESCRIPTION

Verify

1 / 1

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Macroaggregated Albumin (Tc-99m Intervention)	App.Date/Time: 24/05/2016 14:15PM Scan/Therapy: Lung V/Q Perfusion	Details	115 MBq	0 MBq	Remarks	Ordered (PA)

4

5

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  button to hold order

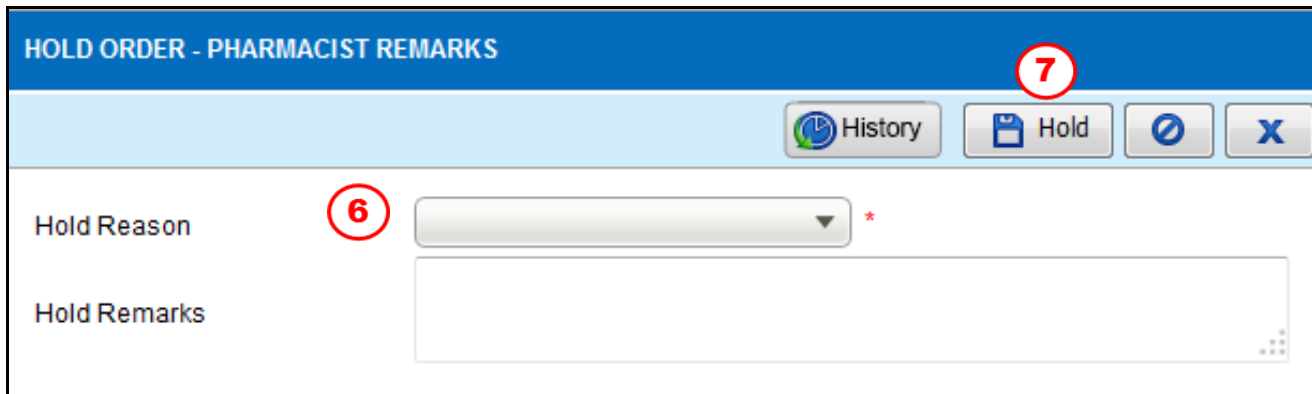


Figure 3.3.2-3 Hold Order – Pharmacist Remarks

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  button to hold order and alert message will display as per Figure 3.3.2-3

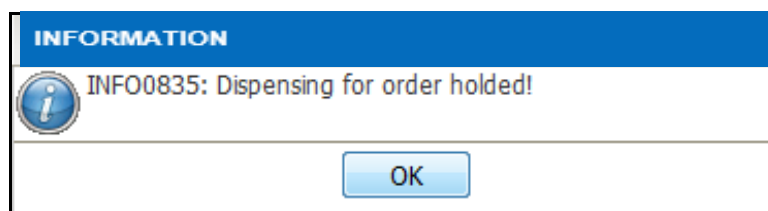


Figure 3.3.2-4 Information Alert Message

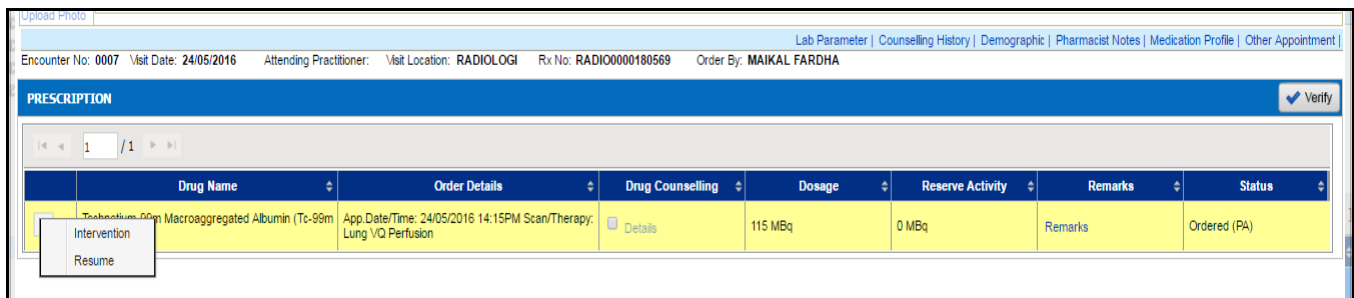
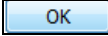
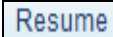


Figure 3.3.2-5 Radiopharmaceuticals Verification

Note

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

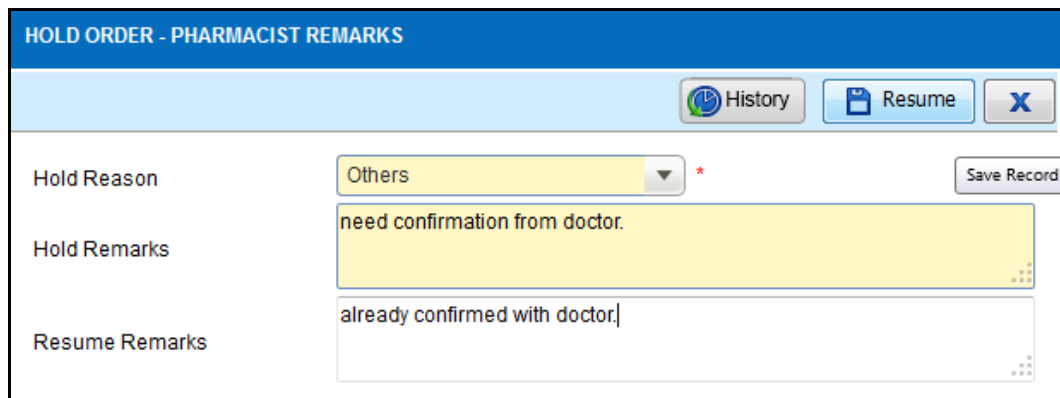
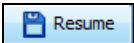


Figure 3.3.2-6 Hold Order – Pharmacist Remarks

Note

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

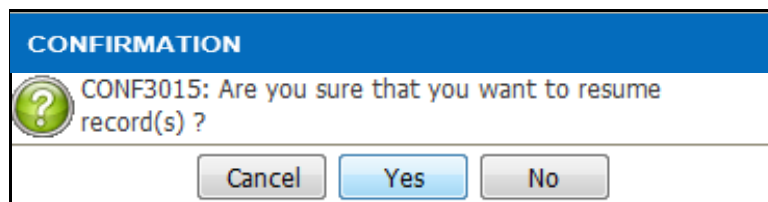
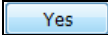


Figure 3.3.2-7 Hold/Resume Alert Message

Note

- Click on the  button to resume order.

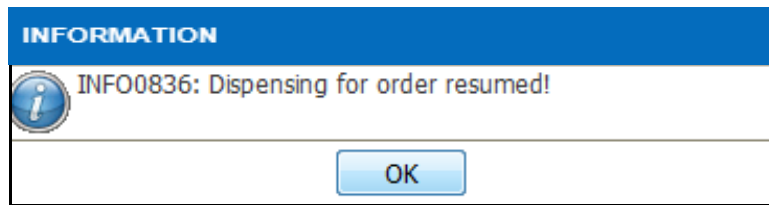
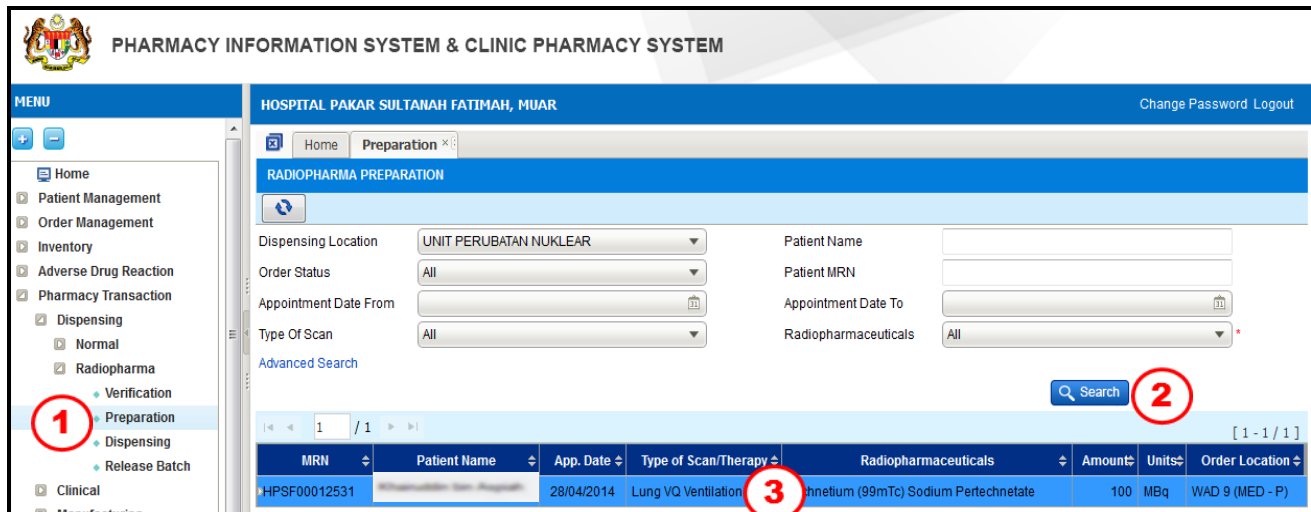


Figure 3.3.2-8 Information Alert Message

3.4 Radiopharmaceutical Preparation

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



MRN	Patient Name	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Amount	Units	Order Location
HPSF00012531	...	28/04/2014	Lung VQ Ventilation	Technetium (99mTc) Sodium Pertechnetate	100	MBq	WAD 9 (MED - P)

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:
 - Dispense Location
 - Patient Name
 - Order Status
 - Patient MRN
 - Appointment Date From
 - Appointment Date To
 - Type of Scan
 - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

STEP 2

Click on the  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

Update Photo

Encounter No: 0632 Admission Date: 19/01/2016 Attending Practitioner: Visit Location: RADIOLOGI Rx No: RADIO0000180122 Order By: Pharmacist Radio

Lab Parameter | Counselling History | Demographic | Pharmacist Notes | Medication Profile | Other Appointment

PRESCRIPTION Prepare Label Online Outsource

1 / 1

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App.Date/Time: 05/05/2016 13:00PM Scan/Therapy: Dacryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

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 3.4-3

ITEM BATCH DETAILS

Drug Code: RPH000003 Order Detail: 15.0 mCi, App.Date/Time: 05/05/2016 13:0 Scan/Therapy: Dacryoscintigraphy Default SKU: vial

Drug Name: Sodium Pertechnetate (Tc-99m) Dispense UOM: mCi

Element: Technetium-99m Half Life: 6.01 H Allocation Date/Time: 05/05/2016 11:29:23 AM

BATCH DETAIL

1 / 1

Batch No	Available Qty	Allocated Qty	Expiry Date/Time	Available Activity	Available Volume	Batch Details	Allocated Activity	Allocated Volume
45RP99	194 vial	0 vial	20/12/2016 06:03 PM	0 mCi	555 ml	Batch Details	0 mCi	ml
Total	194 vial	0 vial					0 mCi	

Figure 3.4-3 Item Batch Details

Note

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

BATCH DETAILS

1 / 1

[1 - 1 / 1]

Calibration Activity	Calibration Date/Time	Dispensed Activity	Measured Activity	Measurement Date Time	Dispensed Volume	Volume	Allocated Volume
27 mCi	28/01/2016 11:00 AM	0 mCi	26.99 mCi	28/01/2016 11:00 AM	0 ml	555 ml	0 ml

Figure 3.4-4 Edit Batch Details

STEP 5

Click on [Edit Details](#) quantity to allocate quantity

RADIOPHARMACEUTICALS VERIFICATION

Date: 28/01/2016 Receipt No: RI16018636

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	200	val	45RP99	02/01/2021	Accepted

Confirm

STOCK DETAILS

Calibration Activity	999 MBq	27 mCi	Calibration Date/Time	28/01/2016 11:00 AM
Expected Activity	999 MBq	27 mCi	Expiry Date/Time	20/12/2016 6:03 PM
Measured Activity	998.56 MBq	26.99 mCi	Measured Date/Time	28/01/2016 11:00 AM
Activity Variation	-0.04 %		Volume	555 ml

MEASUREMENT DETAILS

White I

Guideline

Survey on Surface

0

Survey at 1 Meter Distance

0

Wipe Test

0

Remarks

VERIFICATION DETAILS

☒ Accept
 ☐ Reject

Reject Reason

Done By

Pharmacist Radio

Updated By

MAIKAL FARDHA

Date/Time

28/01/2016 11:00 AM

Updated Date/Time

24/05/2016 9:59 PM

Figure 3.4-4 Sample of Item Batch Details

STEP 6

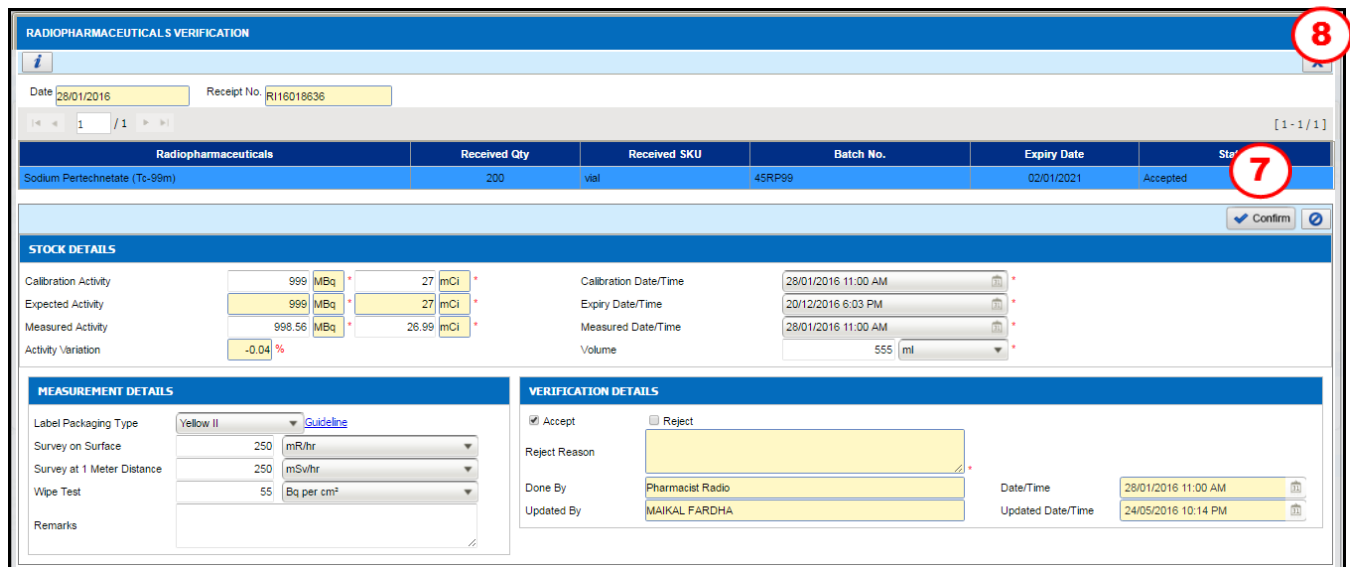
Click on guideline link to get details about measurement details

Note

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

LABEL PACKAGING TYPE GUIDELINES		
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



RADIOPHARMACEUTICALS VERIFICATION

Date: 28/01/2016 Receipt No: R116018636

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	200	vial	45RP99	02/01/2021	Accepted

STOCK DETAILS

Calibration Activity: 999 MBq * 27 mCi * Calibration Date/Time: 28/01/2016 11:00 AM *
 Expected Activity: 999 MBq * 27 mCi * Expiry Date/Time: 20/12/2016 6:03 PM *
 Measured Activity: 998.56 MBq * 26.99 mCi * Measured Date/Time: 28/01/2016 11:00 AM *
 Activity Variation: -0.04 % Volume: 555 ml

MEASUREMENT DETAILS

Label Packaging Type: Yellow II * Guideline
 Survey on Surface: 250 mR/hr
 Survey at 1 Meter Distance: 250 mSv/hr
 Wipe Test: 55 Bq per cm²
 Remarks:

VERIFICATION DETAILS

☒ Accept ☐ Reject
 Reject Reason:
 Done By: Pharmacist Radio Date/Time: 28/01/2016 11:00 AM
 Updated By: MAIKAL FARDHA Updated Date/Time: 24/05/2016 10:14 PM

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



PRESCRIPTION

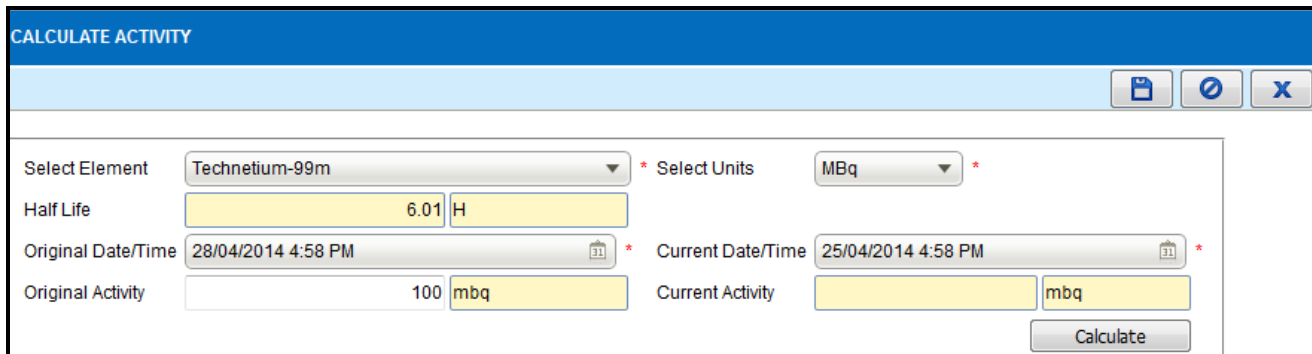
Encounter No: 0632 Admission Date: 19/01/2016 Attending Practitioner: Visit Location: RADIOLOGI Rx No: RADIO0000180122 Order By: Pharmacist Radio

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App.Date/Time: 05/05/2016 13:00PM Scan/Therapy: Dacryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

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.



CALCULATE ACTIVITY

Select Element: Technetium-99m * Select Units: MBq *

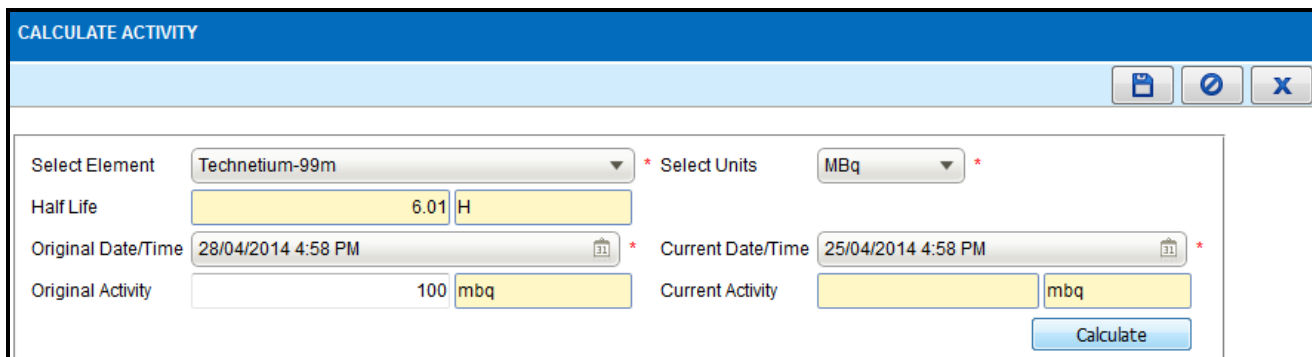
Half Life: 6.01 H

Original Date/Time: 28/04/2014 4:58 PM * Current Date/Time: 25/04/2014 4:58 PM *

Original Activity: 100 mbq Current Activity: mbq

Calculate

Figure 3.4-6 Radiopharmaceuticals Preparation



CALCULATE ACTIVITY

Select Element: Technetium-99m * Select Units: MBq *

Half Life: 6.01 H

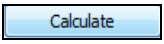
Original Date/Time: 28/04/2014 4:58 PM * Current Date/Time: 25/04/2014 4:58 PM *

Original Activity: 100 mbq Current Activity: mbq

Calculate

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  button and **Current Activity** field will be automatically calculated by system as per Figure 3.4-8.

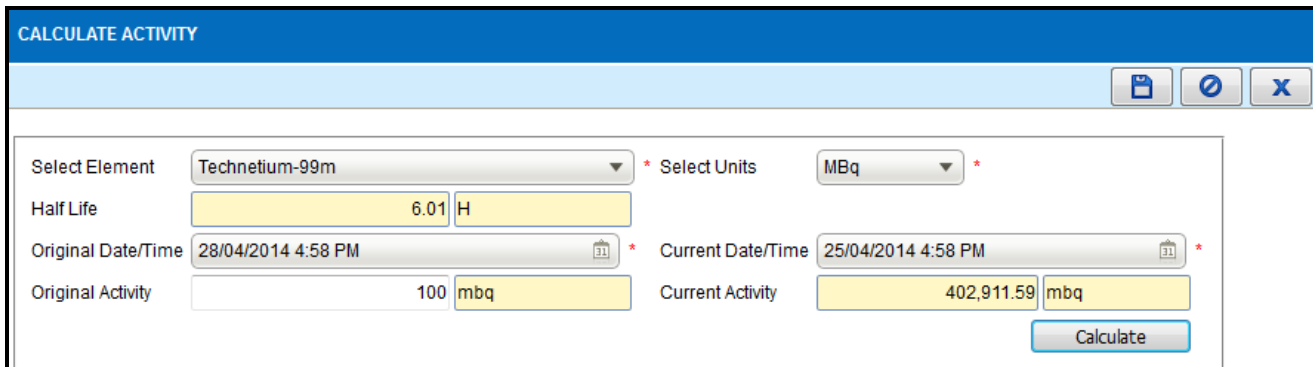


Figure 3.4-8 Calculate Activity

Note

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

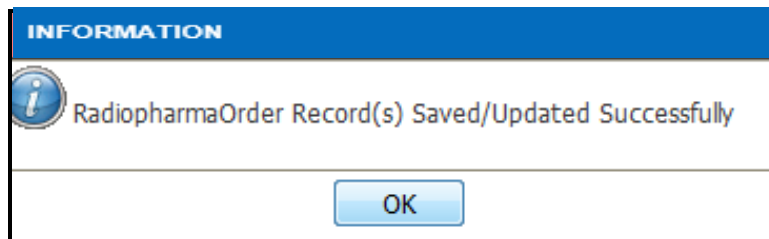
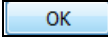


Figure 3.4-9 Save Record Alert Message

Note

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

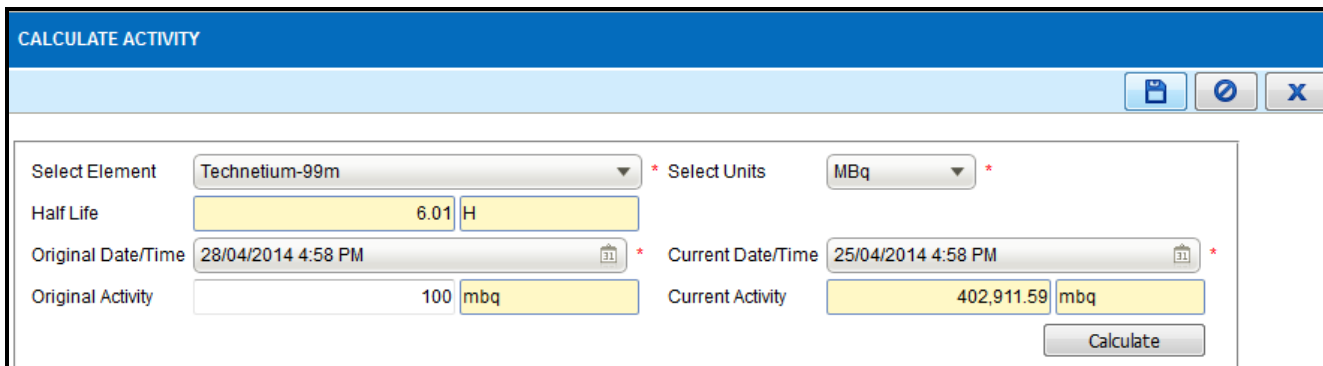


Figure 3.4-10 Calculate Activity

Note

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

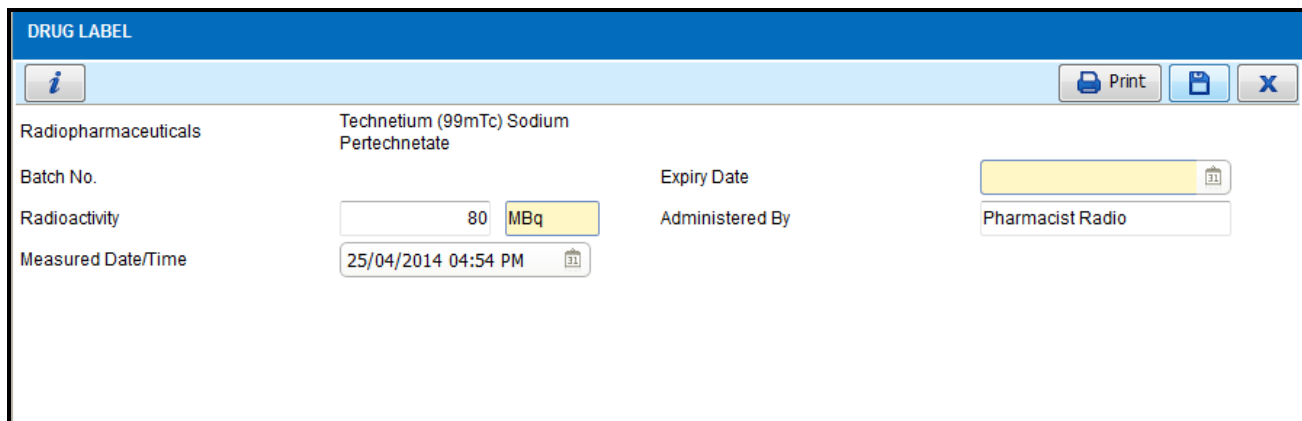


Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App.Date/Time: 05/05/2016 13:00PM Scan/Therapy: Dacryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

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.



DRUG LABEL

Radiopharmaceuticals: Technetium (99mTc) Sodium Pertechnetate

Batch No.:

Radioactivity: 80 MBq

Measured Date/Time: 25/04/2014 04:54 PM

Expiry Date:

Administered By: Pharmacist Radio

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.

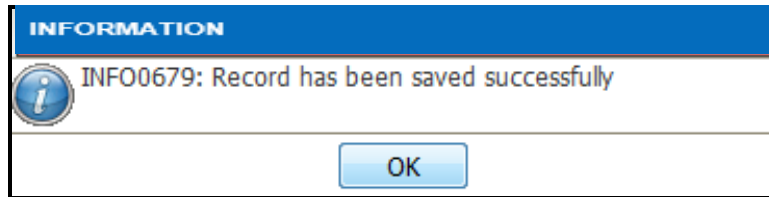
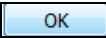
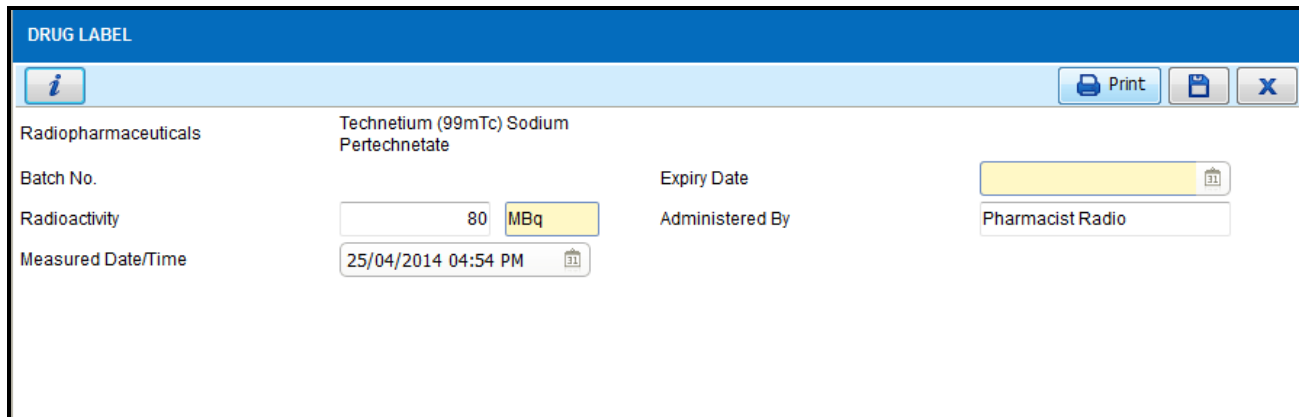


Figure 3.4-13 Alert Message

Note

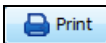
- Click on the  button to save updated Radiopharmaceuticals Order Record as per Figure 3.4-13.



The image shows a 'DRUG LABEL' form. It has a blue header bar with the text 'DRUG LABEL'. Below the header, there is a light blue area with an information icon (a lowercase 'i' inside a circle) and three buttons: 'Print', a save icon, and a close icon (an 'X'). The form contains several fields: 'Radiopharmaceuticals' with the value 'Technetium (99mTc) Sodium Pertechnetate', 'Batch No.' with a value of '80', 'Radioactivity' with a value of '80 MBq', 'Expiry Date' with a date picker showing '25/04/2014 04:54 PM', 'Administered By' with the value 'Pharmacist Radio', and 'Measured Date/Time' with a value of '25/04/2014 04:54 PM'.

Figure 3.4-14 Drug Label

Note

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

 Caution : Radioactive Material	Hospital Pakar Sultanah Fatimah, Muar	
	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

 Caution : Radioactive Material	Hospital Pakar Sultanah Fatimah, Muar	
	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.

DRUG LABEL			
  Print   			
Radiopharmaceuticals	Technetium (99mTc) Sodium Pertechnetate		
Batch No.		Expiry Date	
Radioactivity	80 MBq	Administered By	Pharmacist Radio
Measured Date/Time	25/04/2014 04:54 PM		

Figure 3.4-16 Drug Label

Note

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

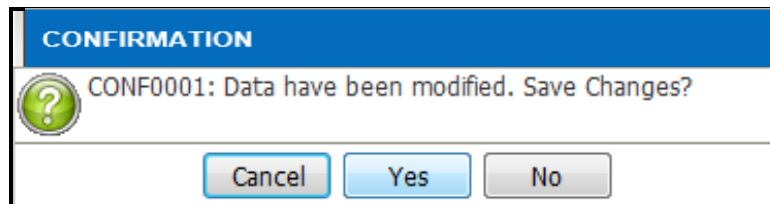
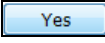


Figure 3.4-17 Save Record Alert Message

Note

Click on the  button to save record as per Figure 3.4-17.

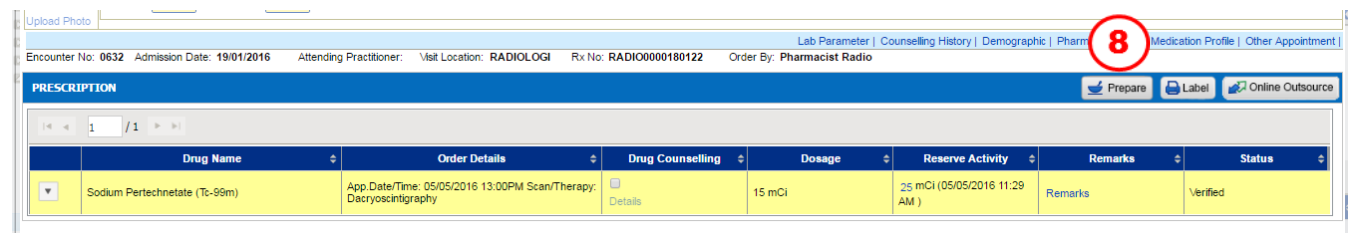
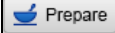


Figure 3.4-18 Radiopharmaceuticals Preparation

STEP 8 Click on the  button to prepare Radiopharmaceuticals order and alert message will be displayed as per Figure 3.4-19

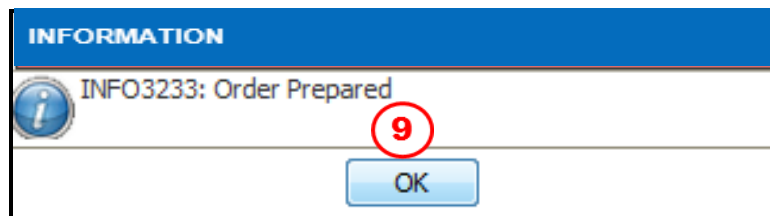
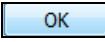


Figure 3.4-19 Ordered Prepared Alert Message

STEP 9

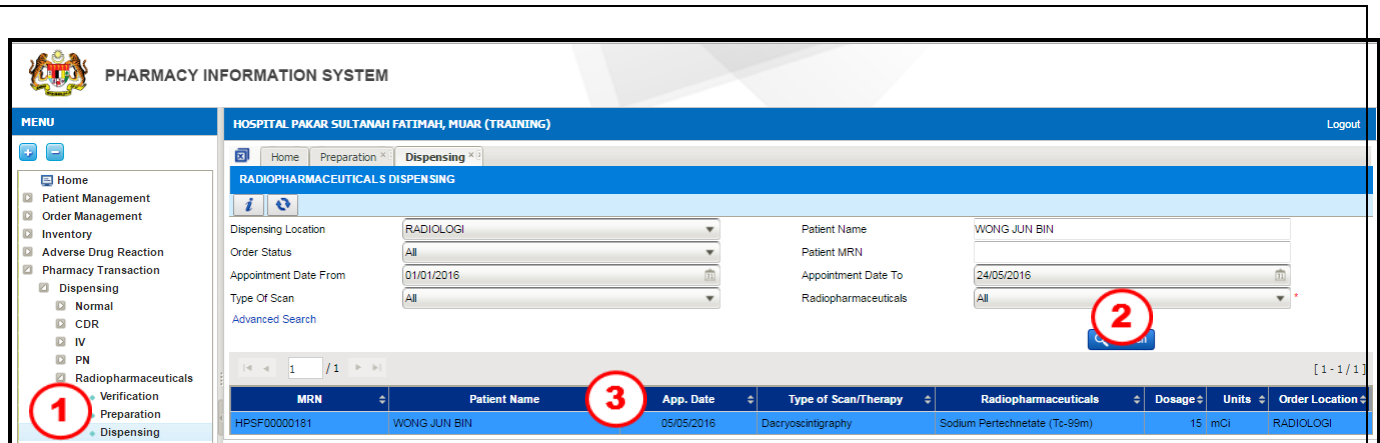
Click on the  button and order status will be updated to Prepared

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.



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

MENU

- Home
- Patient Management
- Order Management
- Inventory
- Adverse Drug Reaction
- Pharmacy Transaction
 - Dispensing
 - Normal
 - CDR
 - IV
 - PN
 - Radiopharmaceuticals
- Verification
- Preparation
- Dispensing

RADIOPHARMACEUTICALS DISPENSING

Dispensing Location: RADIOLOGI
 Order Status: All
 Appointment Date From: 01/01/2016
 Type Of Scan: All
 Patient Name: WONG JUN BIN
 Patient MRN:
 Appointment Date To: 24/05/2016
 Radiopharmaceuticals: All

Advanced Search

MRN	Patient Name	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HPSF00000181	WONG JUN BIN	05/05/2016	Diacyoscintigraphy	Sodium Pertechnetate (Tc-99m)	15	mCi	RADIOLOGI

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
 - Patient Name
 - Order Status
 - Patient MRN
 - Appointment Date From
 - Appointment Date To
 - Type of Scan
 - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

STEP 2

Click on the  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

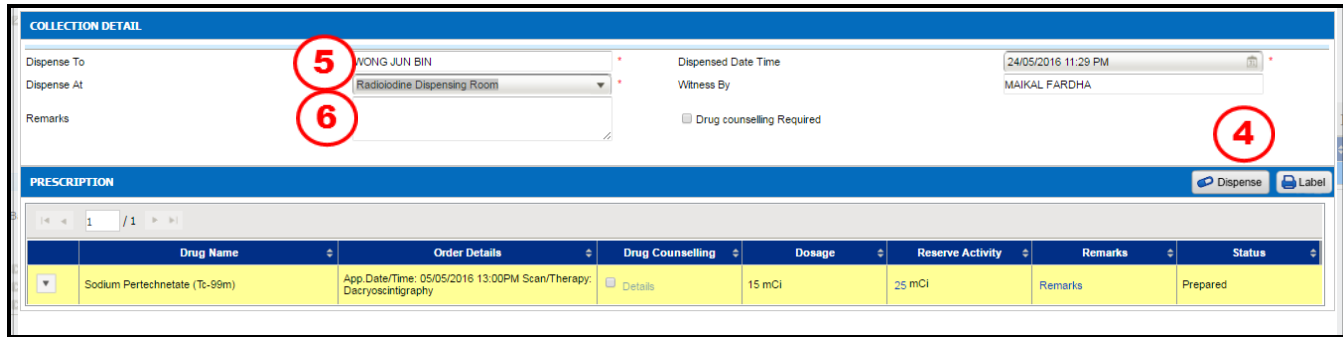


Figure 3.5-2 Radiopharmaceuticals

STEP 4

Click on the  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.

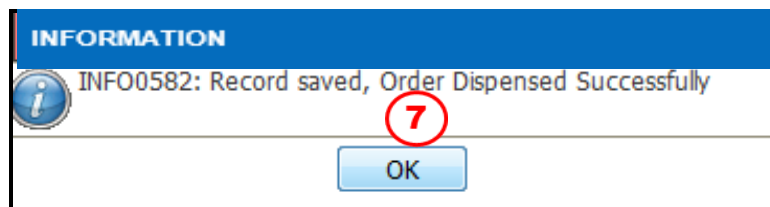


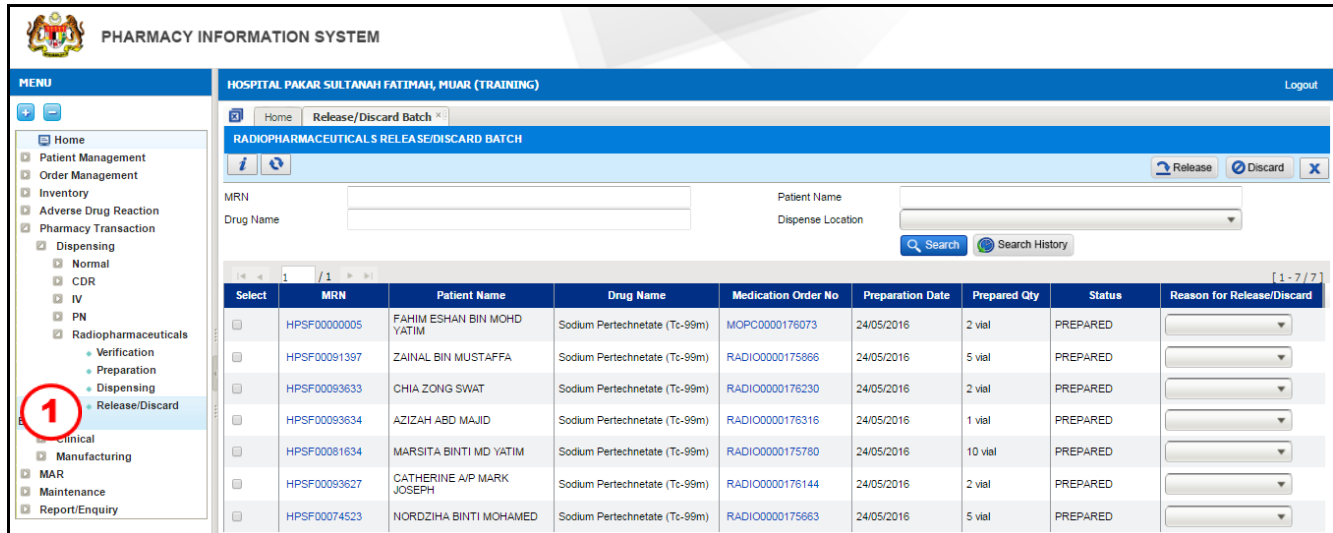
Figure 3.5-3 Save Order Alert Message

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.



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Logout

Home | Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

Release Discard X

MRN: Patient Name:

Drug Name: Dispense Location:

Search Search History

Select	MRN	Patient Name	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☐	HPSF00000005	FAHIM ESHAN BIN MOHD YATIM	Sodium Pertechnetate (Tc-99m)	MOPC0000176073	24/05/2016	2 vial	PREPARED	
☐	HPSF00091397	ZAINAL BIN MUSTAFFA	Sodium Pertechnetate (Tc-99m)	RADI00000175866	24/05/2016	5 vial	PREPARED	
☐	HPSF00093633	CHIA ZONG SWAT	Sodium Pertechnetate (Tc-99m)	RADI00000176230	24/05/2016	2 vial	PREPARED	
☐	HPSF00093634	AZIZAH ABD MAJID	Sodium Pertechnetate (Tc-99m)	RADI00000176316	24/05/2016	1 vial	PREPARED	
☐	HPSF00081634	MARSITA BINTI MD YATIM	Sodium Pertechnetate (Tc-99m)	RADI00000175780	24/05/2016	10 vial	PREPARED	
☐	HPSF00093627	CATHERINE A/P MARK JOSEPH	Sodium Pertechnetate (Tc-99m)	RADI00000176144	24/05/2016	2 vial	PREPARED	
☐	HPSF00074523	NORDZIHA BINTI MOHAMED	Sodium Pertechnetate (Tc-99m)	RADI00000175663	24/05/2016	5 vial	PREPARED	

[1 - 7 / 7]

Figure 3.6-1 Radiopharmaceuticals Release Batch Listing Page

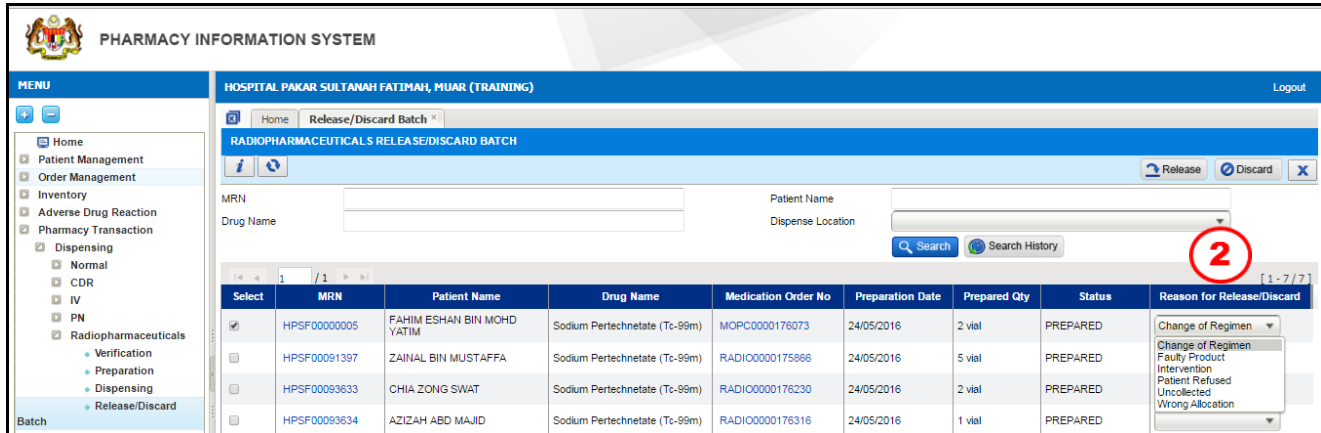
STEP 1

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

Note

Various search criteria is provided as below:

- MRN
- Patient Name Drug Name
- Dispense Location



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Home Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

MRN: Patient Name:
Drug Name: Dispense Location:

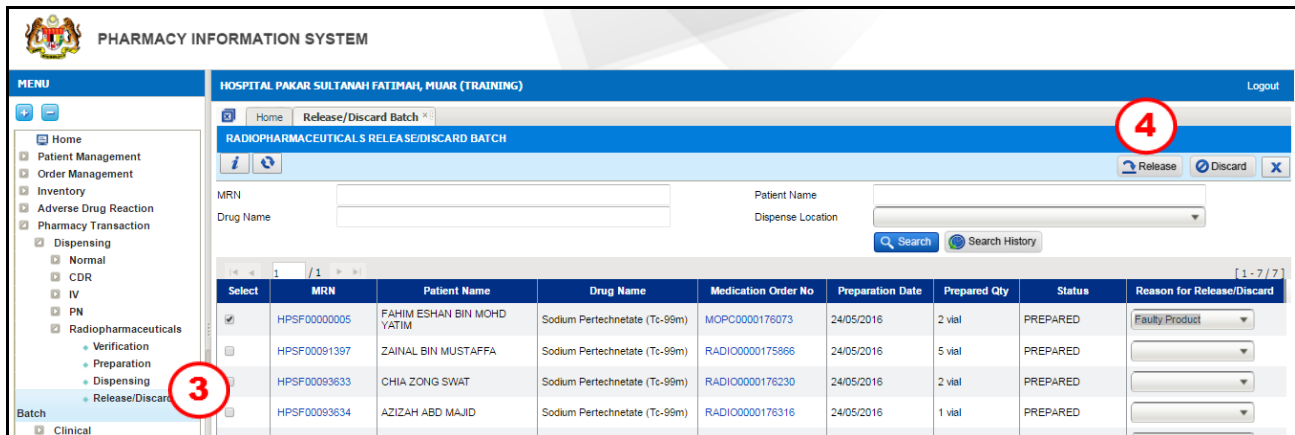
Select	MRN	Patient Name	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☒	HPSF00000005	FAHIM ESHAN BIN MOHD YATIM	Sodium Pertechnetate (Tc-99m)	MOPC0000176073	24/05/2016	2 vial	PREPARED	Change of Regimen
☐	HPSF00091397	ZAINAL BIN MUSTAFFA	Sodium Pertechnetate (Tc-99m)	RADIO0000175866	24/05/2016	5 vial	PREPARED	Change of Regimen
☐	HPSF00093633	CHIA ZONG SWAT	Sodium Pertechnetate (Tc-99m)	RADIO0000176230	24/05/2016	2 vial	PREPARED	Intervention
☐	HPSF00093634	AZIZAH ABD MAJID	Sodium Pertechnetate (Tc-99m)	RADIO0000176316	24/05/2016	1 vial	PREPARED	Wrong Allocation

Figure 3.6-2 Radiopharmaceuticals Release Batch

STEP 2

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

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



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Home Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

MRN: Patient Name:
Drug Name: Dispense Location:

Select	MRN	Patient Name	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☒	HPSF00000005	FAHIM ESHAN BIN MOHD YATIM	Sodium Pertechnetate (Tc-99m)	MOPC0000176073	24/05/2016	2 vial	PREPARED	Faulty Product
☐	HPSF00091397	ZAINAL BIN MUSTAFFA	Sodium Pertechnetate (Tc-99m)	RADIO0000175866	24/05/2016	5 vial	PREPARED	
☐	HPSF00093633	CHIA ZONG SWAT	Sodium Pertechnetate (Tc-99m)	RADIO0000176230	24/05/2016	2 vial	PREPARED	
☐	HPSF00093634	AZIZAH ABD MAJID	Sodium Pertechnetate (Tc-99m)	RADIO0000176316	24/05/2016	1 vial	PREPARED	

Figure 3.6-3 Radiopharmaceuticals Release Batch

STEP 3

Check the ☒ **Select** checkbox

STEP 4

Click on the button to release batch and button to discard

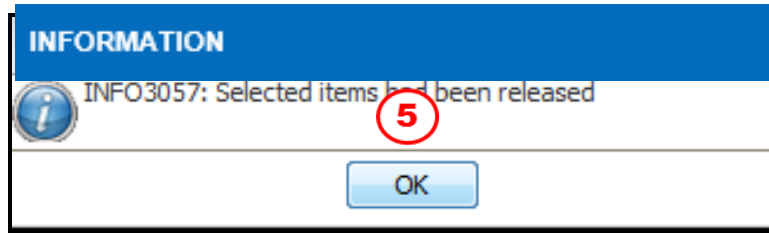
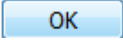


Figure 3.6-4 Information Alert Message

STEP 5

Click on the  button to release selected items

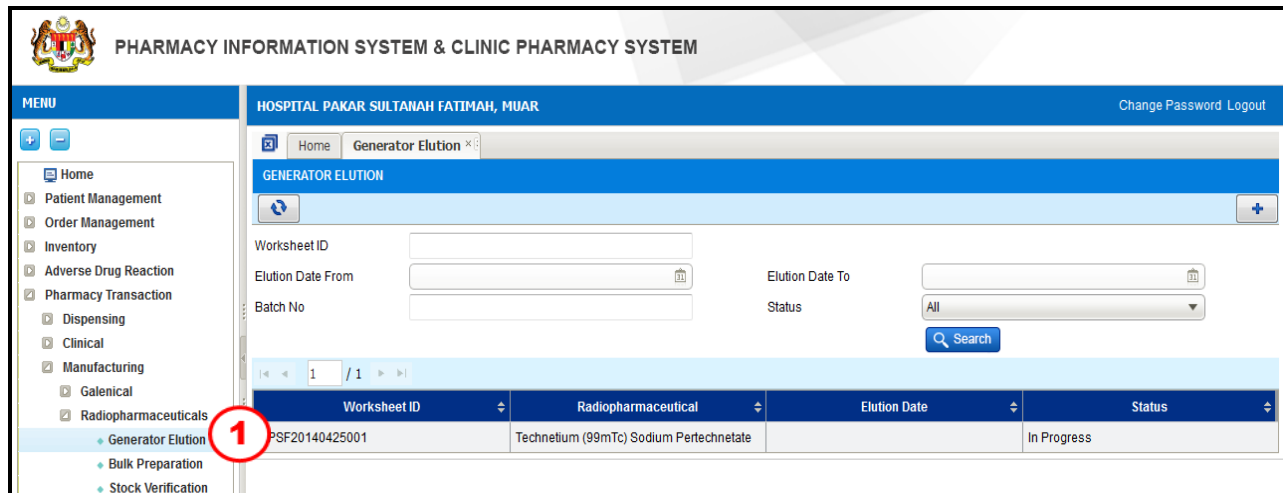
Note

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 kit Preparation screen.



PHARMACY INFORMATION SYSTEM & CLINIC PHARMACY SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR

Change Password Logout

Home Generator Elution x

GENERATOR ELUTION

Worksheet ID:

Elution Date From:

Elution Date To:

Batch No:

Status:

Worksheet ID	Radiopharmaceutical	Elution Date	Status
PSF20140425001	Technetium (99mTc) Sodium Pertechnetate		In Progress

Figure 3.7.1-1 Generator Elution Listing Page

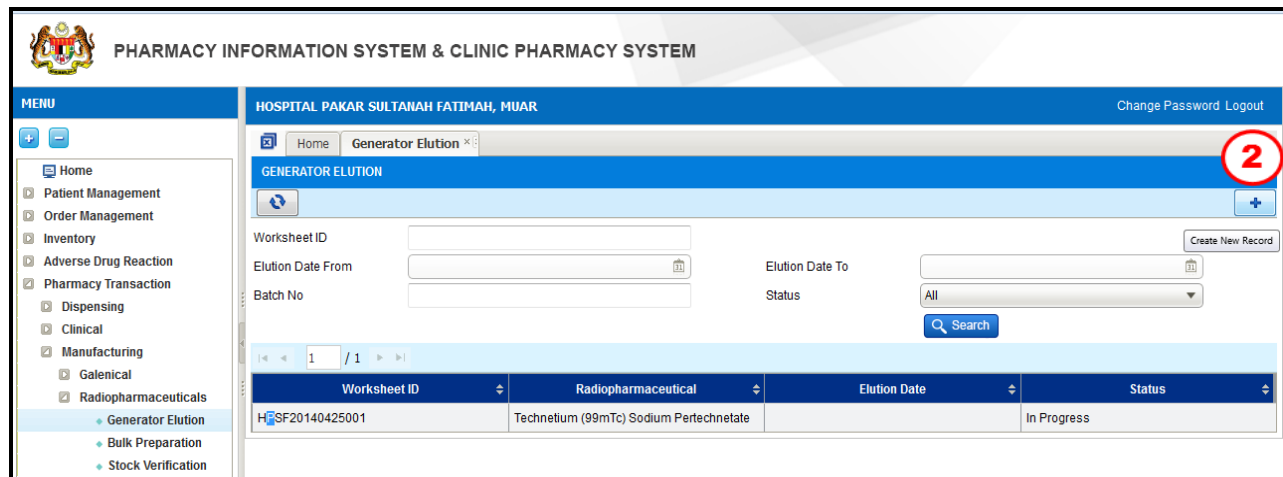
STEP 1

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

Note

- Various search criteria is provided as below:
 - Worksheet ID
 - Date From
 - Date To
 - Batch No
 - Status

Click on the button and system will display related record.



PHARMACY INFORMATION SYSTEM & CLINIC PHARMACY SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR

Change Password Logout

Home Generator Elution

GENERATOR ELUTION

Worksheet ID: [Text Box]
Elution Date From: [Text Box] Elution Date To: [Text Box]
Batch No: [Text Box] Status: All

Create New Record

Search

Worksheet ID	Radiopharmaceutical	Elution Date	Status
HPSF20140425001	Technetium (99mTc) Sodium Pertechnetate		In Progress

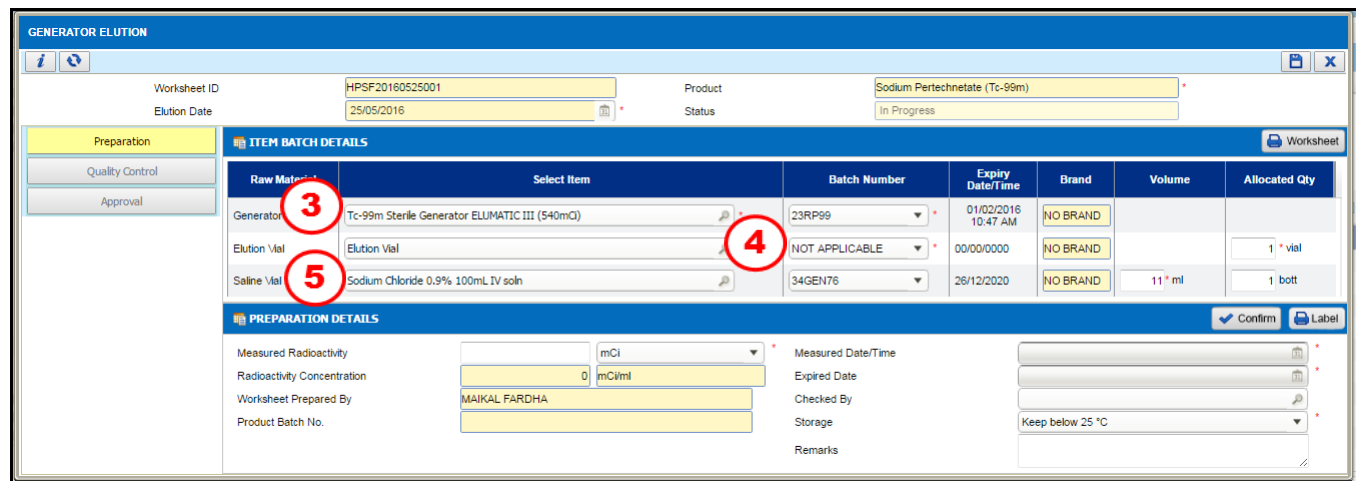
Figure 3.7.1-2 Generator Elution Listing Page

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.



GENERATOR ELUTION

Worksheet ID: HPSF20160525001 Product: Sodium Pertechnetate (Tc-99m)
Elution Date: 25/05/2016 Status: In Progress

Preparation Quality Control Approval

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand	Volume	Allocated Qty
Generator	Tc-99m Sterile Generator ELUMATIC III (540mCi)	23RP99	01/02/2016 10:47 AM	NO BRAND		
Elution Vial	Elution Vial	NOT APPLICABLE	00/00/0000	NO BRAND		1 vial
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020	NO BRAND	11 ml	1 bott

PREPARATION DETAILS

Measured Radioactivity: [Text Box] mCi
Radioactivity Concentration: [Text Box] mCi/ml
Worksheet Prepared By: MAIKAL FARDHA
Product Batch No: [Text Box]

Measured Date/Time: [Text Box]
Expired Date: [Text Box]
Checked By: [Text Box]
Storage: Keep below 25 °C
Remarks: [Text Box]

Confirm Label

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

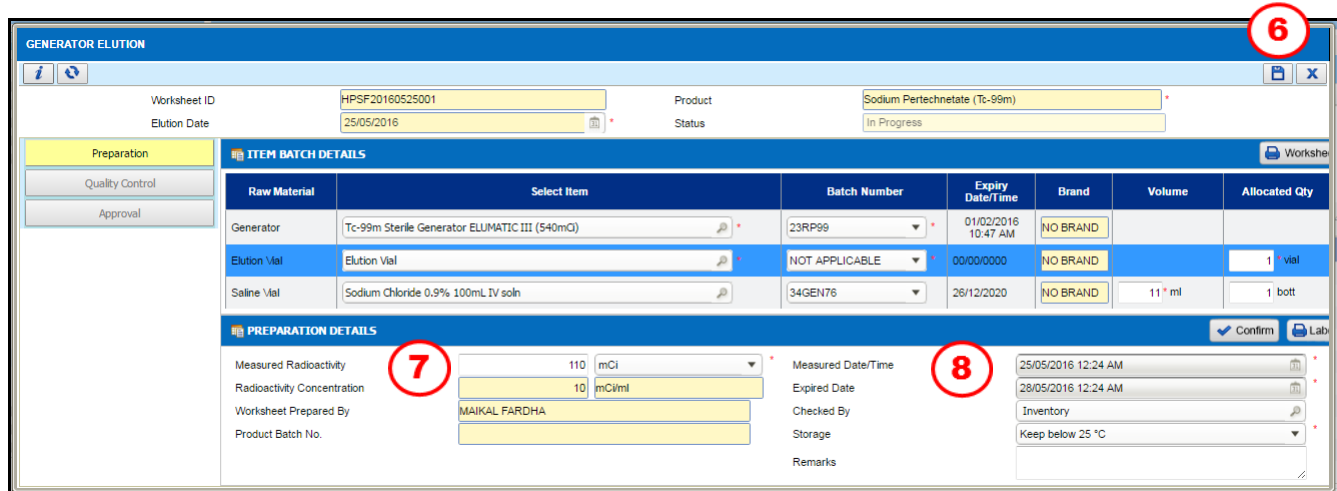


Figure 3.7.1-4 Generator Elution

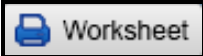
STEP 6

Click on the  button to save record

STEP 7

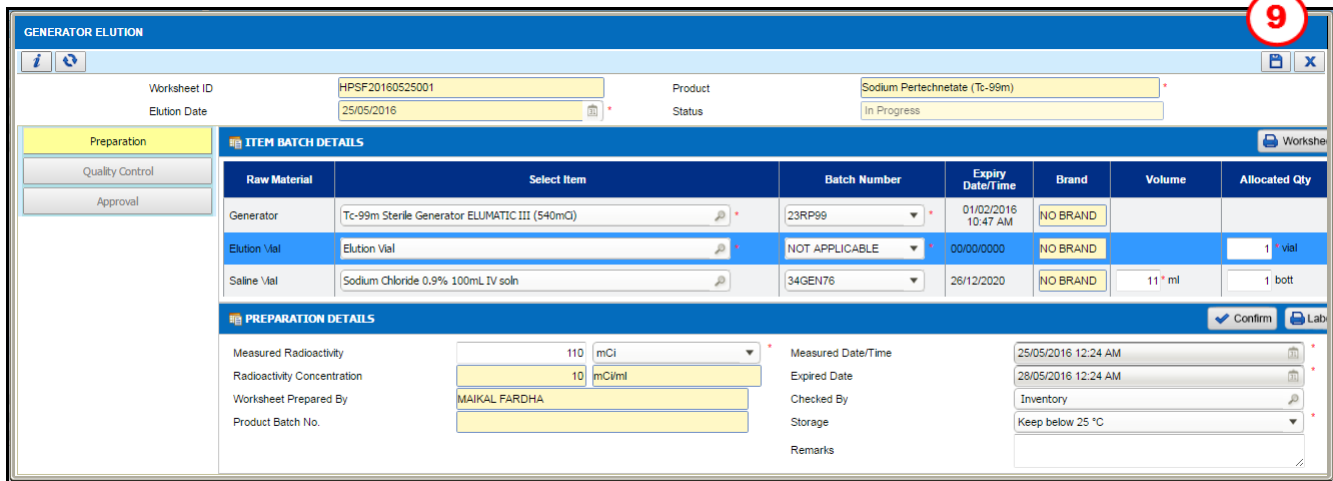
Enter **Measured Radioactivity** field and **Radioactivity Concentration** will be automatically calculated and displayed as per Figure 3.7.1-4

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



GENERATOR ELUTION

Worksheet ID: HPSF20160525001 Product: Sodium Pertechnetate (Tc-99m)
 Elution Date: 25/05/2016 Status: In Progress

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand	Volume	Allocated Qty
Generator	Tc-99m Sterile Generator EUMATIC III (540mCi)	23RP99	01/02/2016 10:47 AM	NO BRAND		
Elution Vial	Elution Vial	NOT APPLICABLE	00/00/0000	NO BRAND		1 vial
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020	NO BRAND	11 * ml	1 bott

PREPARATION DETAILS

Measured Radioactivity: 110 mCi
 Radioactivity Concentration: 10 mCi/ml
 Worksheet Prepared By: MAIKAL FARDHA
 Product Batch No.:
 Measured Date/Time: 25/05/2016 12:24 AM
 Expired Date: 28/05/2016 12:24 AM
 Checked By: Inventory
 Storage: Keep below 25 °C
 Remarks:

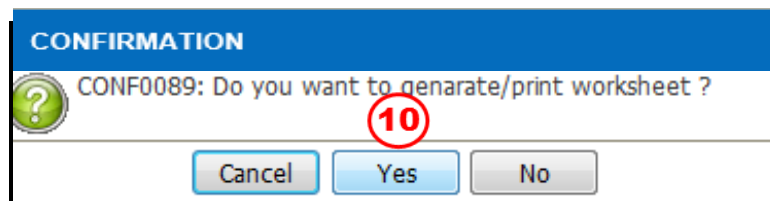
Figure 3.7.1-5 Generator Elution

STEP 9

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

Note

Enter **Remarks** if applicable.



CONFIRMATION

CONF0089: Do you want to generate/print worksheet ?

Figure 3.7.1-6 Generate Worksheet Alert Message

STEP 10

Click on the  **Yes** 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 BN/Expiry Date	Z3RPS8 / 01/02/2016 10:47 AM			
Elution Vial BN/Expiry Date	NOT APPLICABLE /			
Saline Vial BN/Expiry Date	3406N76 / 25/12/2020 00:00 AM			
Volume	1 ml		Worksheet Prepared By :	
Elution BN				
Measured Activity			Preparation Done By :	
Measured Date/Time				
Radioactivity Concentration	0 mCi/ml		Signature/Date/Time	
Quality Control of Eluate				
Measure Mo-99 Activity		Limit	Pass/Fail	Quality Control Done By :
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		Signature/Date/Time
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.

GENERATOR ELUTION

Worksheet ID: HPSF20160106207

Elution Date: 06/01/2016

Product: Sodium Pertechnetate (Tc-99m)

Status: Approved

Preparation

Quality Control

Approval

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand	Volume	Allocated Qty
Generator	Tc-99m Sterile Generator ELUMATIC III (540mCi)		00/00/0000			
Elution Vial	Elution Vial		00/00/0000			1 * Vial
Saline Vial	Sodium Chloride 0.9% 100mL IV soln		00/00/0000		111 ml	1 EA

PREPARATION DETAILS

Measured Radioactivity	111 MBq	Measured Date/Time	06/01/2016 3:08 PM
Radioactivity Concentration	1 MBq/ml	Expired Date	31/01/2016 3:08 PM
Worksheet Prepared By	Pharmacist Radio	Checked By	
Product Batch No.	80.TC160106	Storage	Keep below 25 °C
		Remarks	

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  button will activate after generate worksheet.

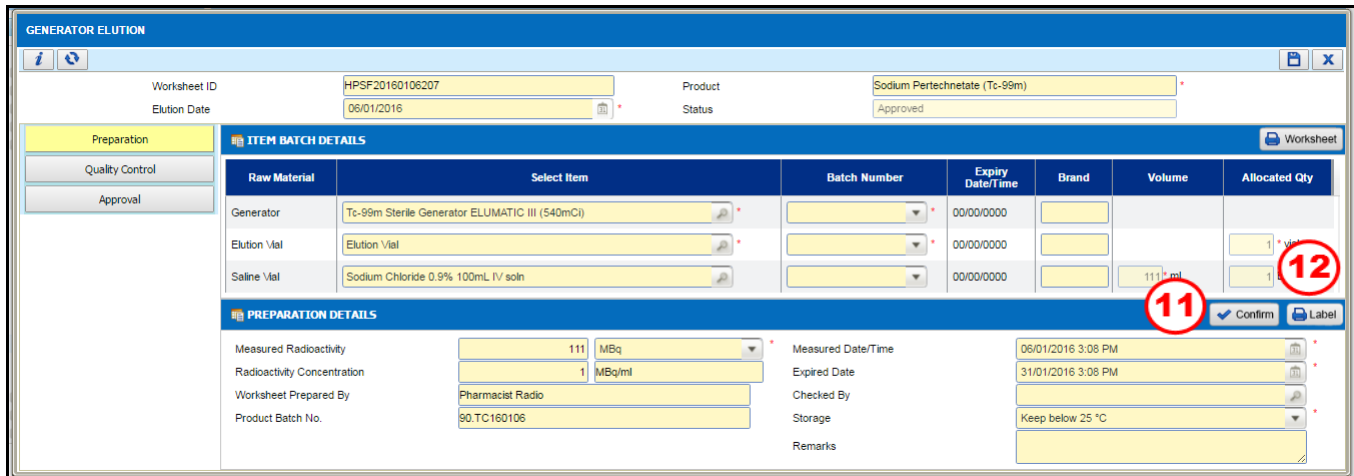


Figure 3.7.1-9 Generator Elution

STEP 11

Click on the  button to confirm information preparation details

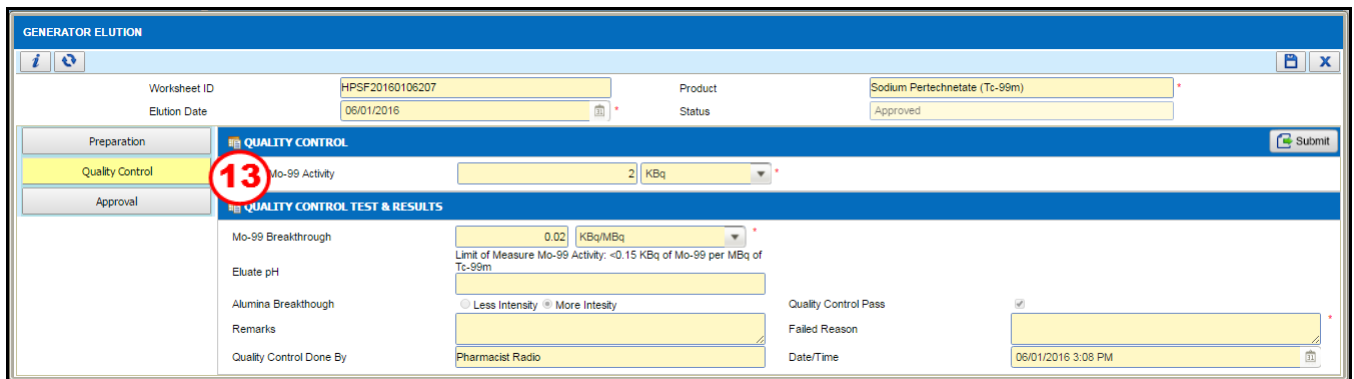
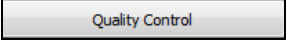


Figure 3.7.1-10 Generator Elution

Note

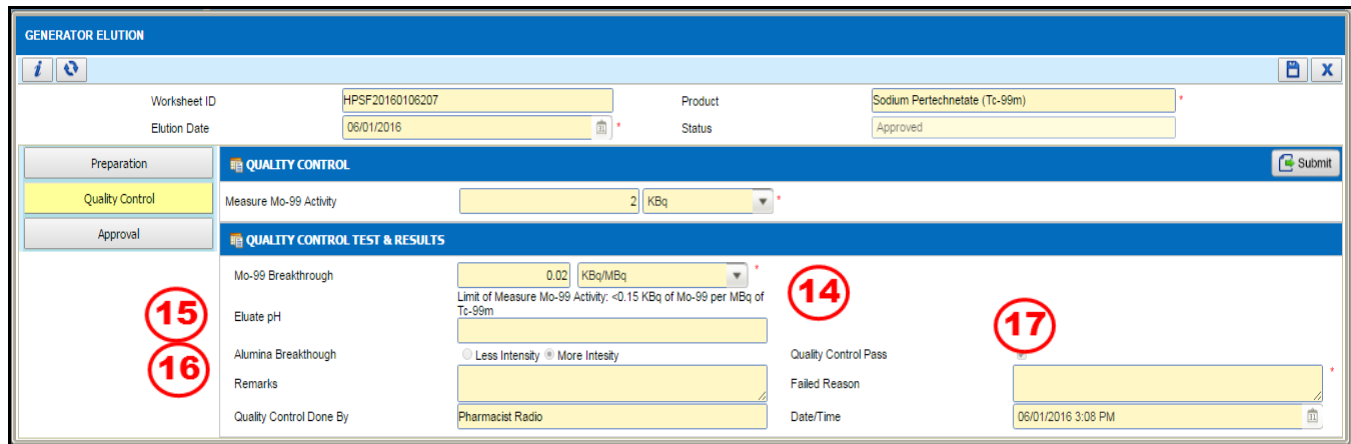
- The  button will activate after user confirmed the preparation details.
- **Status** will change to Prepared and the  button will be activated.

STEP 12

Click on the  button to edit label

STEP 13

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



GENERATOR ELUTION

Worksheet ID: HPSF20160106207 Product: Sodium Pertechnetate (Tc-99m)
Elution Date: 06/01/2016 Status: Approved

QUALITY CONTROL

Measure Mo-99 Activity: 2 KBq

QUALITY CONTROL TEST & RESULTS

Mo-99 Breakthrough: 0.02 KBq/MBq
Limit of Measure Mo-99 Activity: <0.15 KBq of Mo-99 per MBq of Tc-99m

Eluate pH:
Alumina Breakthrough: ☐ Less Intensity ☒ More Intensity

Remarks:
Quality Control Done By: Pharmacist Radio

Quality Control Pass:
Failed Reason:
Date/Time: 06/01/2016 3:08 PM

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.

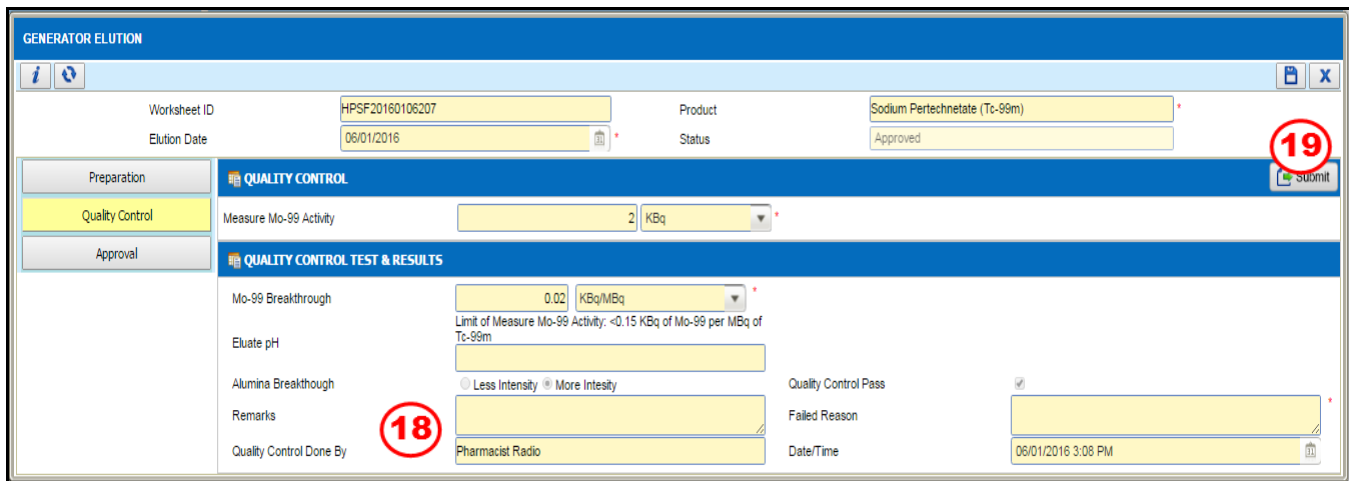


Figure 3.7.1-12 Generator Elution

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  button to submit quality control results

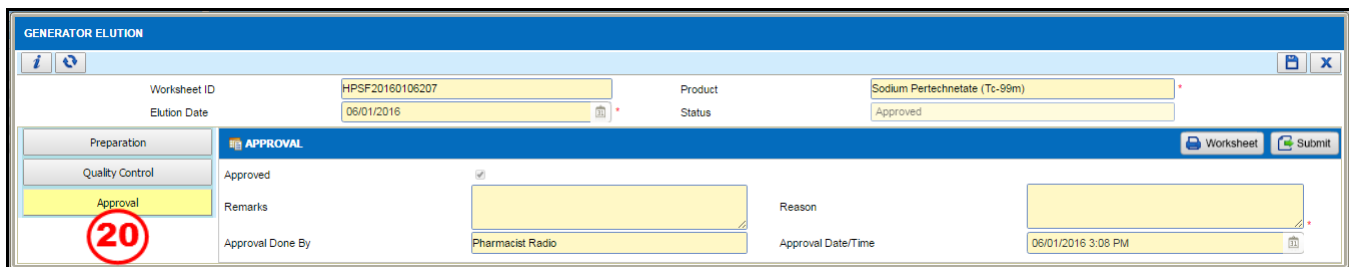
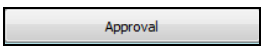
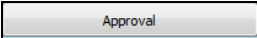


Figure 3.7.1-13 Generator Elution

Note

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

STEP 20

Click on the  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.

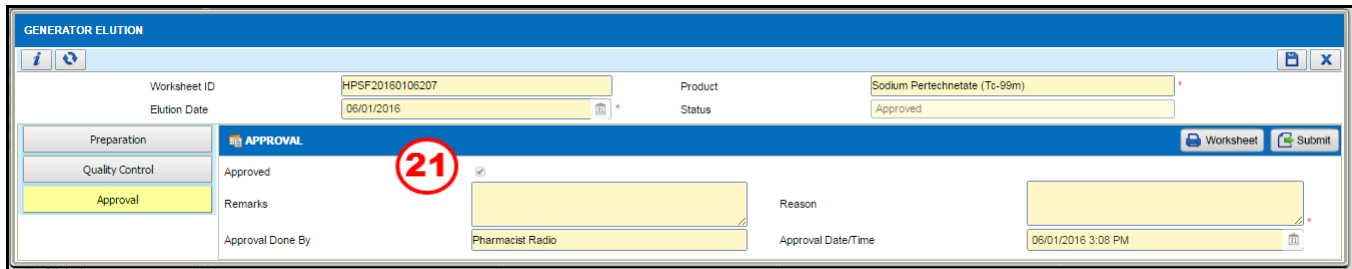


Figure 3.7.1-14 Generator Elution

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  button is for user to reprint the worksheet.

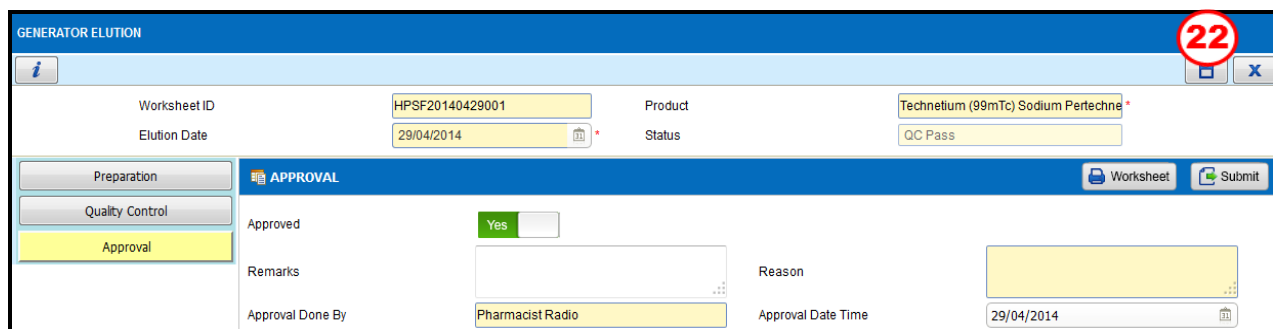


Figure 3.7.1-15 Generator Elution

STEP 22

Click on the  button to submit the approval details

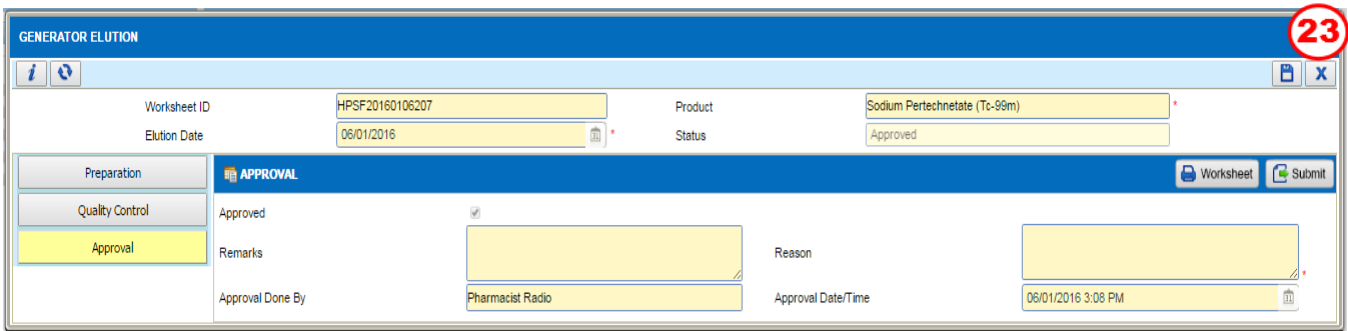


Figure 3.7.1-16 Generator Elution

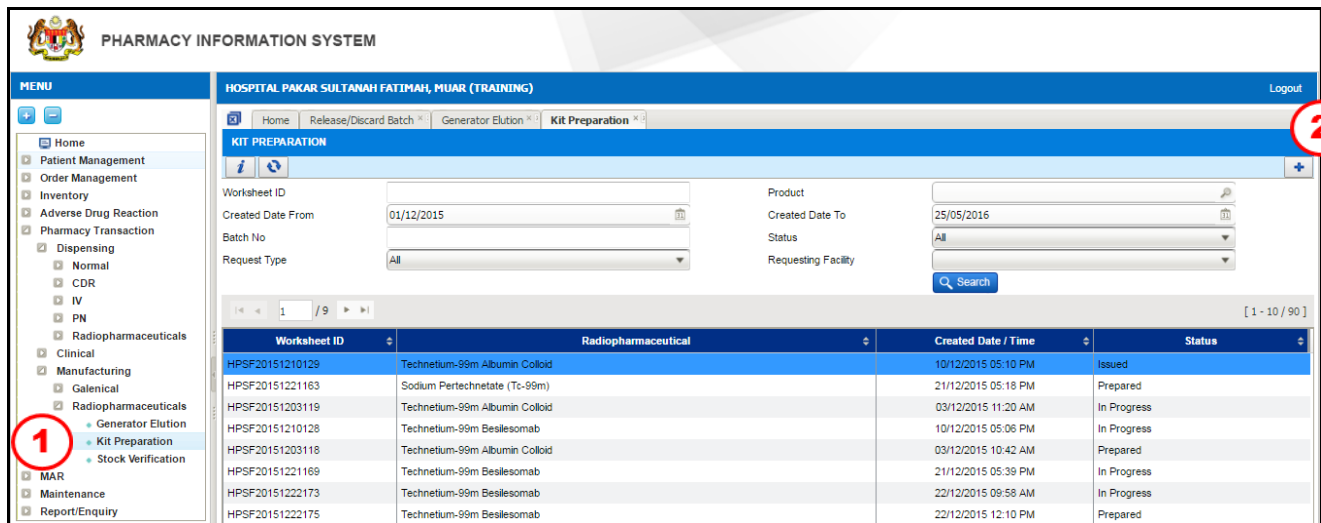
Note

- **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  button to close generator elution screen

3.7.2 KIT Preparation



Worksheet ID	Radiopharmaceutical	Created Date / Time	Status
HPSF20151210129	Technetium-99m Albumin Colloid	10/12/2015 05:10 PM	Issued
HPSF20151221163	Sodium Pertechnetate (Tc-99m)	21/12/2015 05:18 PM	Prepared
HPSF20151203119	Technetium-99m Albumin Colloid	03/12/2015 11:20 AM	In Progress
HPSF20151210128	Technetium-99m Besilesomab	10/12/2015 05:06 PM	In Progress
HPSF20151203118	Technetium-99m Albumin Colloid	03/12/2015 10:42 AM	Prepared
HPSF20151221169	Technetium-99m Besilesomab	21/12/2015 05:39 PM	In Progress
HPSF20151222173	Technetium-99m Besilesomab	22/12/2015 09:58 AM	In Progress
HPSF20151222175	Technetium-99m Besilesomab	22/12/2015 12:10 PM	Prepared

Figure 3.7.2-1 Kit Preparation Listing Page

STEP 1

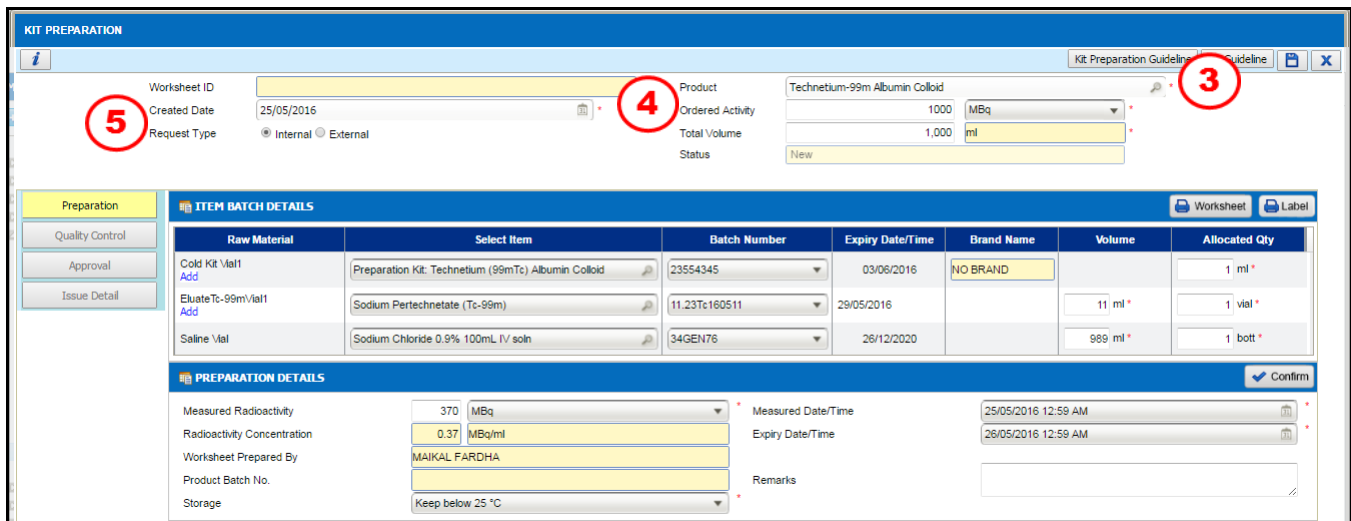
Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Kit Preparation' sub-menu

Note

- Various search criteria is provided as below:
 - Worksheet ID
 - Product
 - Ordered Date From
 - Ordered Date To
 - Batch No
 - Status
 - Request Type
 - Requesting Facility
- Click on the  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



The screenshot shows the 'KIT PREPARATION' form. Callout 3 points to the 'Product' dropdown menu. Callout 4 points to the 'Ordered Activity' and 'Total Volume' fields. Callout 5 points to the 'Created Date' and 'Request Type' fields.

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND	1 ml	1 ml
Eluate Tc-99m/Vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml	1 vial
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		989 ml	1 bott

PREPARATION DETAILS

Measured Radioactivity: 370 MBq
 Radioactivity Concentration: 0.37 MBq/ml
 Worksheet Prepared By: MAIKAL FARDHA
 Product Batch No.:
 Storage: Keep below 25 °C

Measured Date/Time: 25/05/2016 12:59 AM
 Expiry Date/Time: 26/05/2016 12:59 AM
 Remarks:

Figure 3.7.2-2 Kit Preparation

STEP 3

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

Note

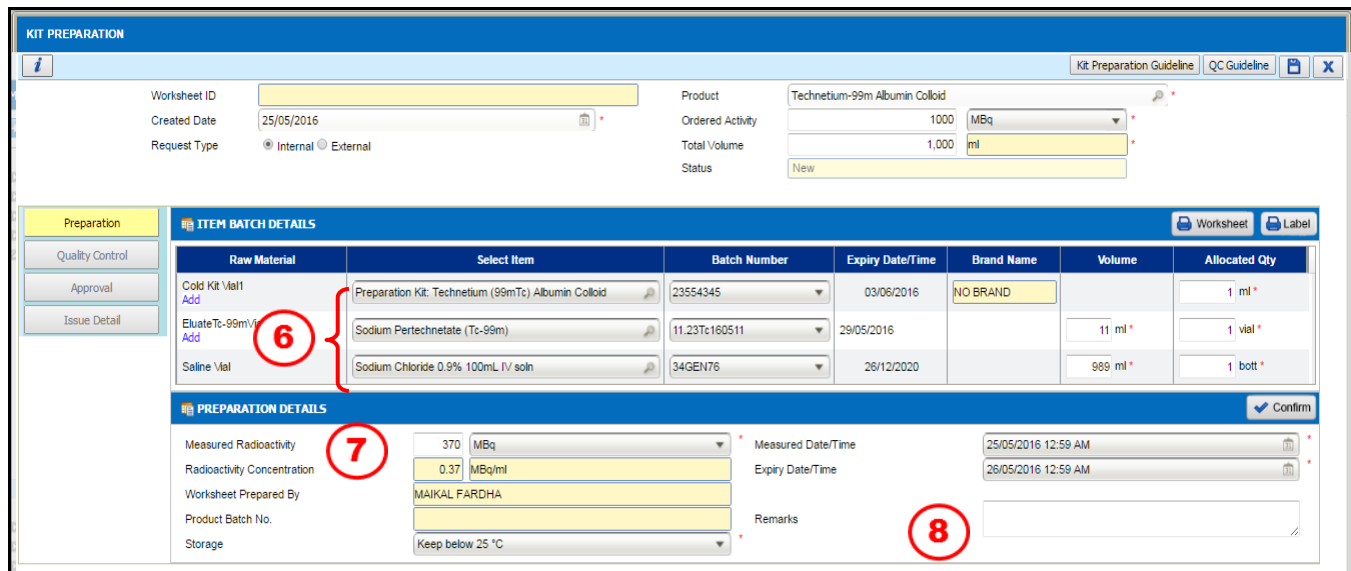
- The **Created Date** field will automatically default to current date by system.
- The **Request Type** will automatically default to **Internal** radiobutton.

STEP 4

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

STEP 5

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



KIT PREPARATION

Worksheet ID: [] Created Date: 25/05/2016 Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid Ordered Activity: 1000 MBq Total Volume: 1,000 ml Status: New

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND		1 ml *
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml *	1 vial *
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		989 ml *	1 bott *

PREPARATION DETAILS

Measured Radioactivity: 370 MBq Radioactivity Concentration: 0.37 MBq/ml Worksheet Prepared By: MAIKAL FARDHA Product Batch No. [] Storage: Keep below 25 °C

Measured Date/Time: 25/05/2016 12:59 AM Expiry Date/Time: 26/05/2016 12:59 AM Remarks: []

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-99m Vial1 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

KIT PREPARATION

Worksheet ID:

Created Date: 25/05/2016

Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: New

11

Kit Preparation Guideline QC Guideline

Preparation

Quality Control

Approval

Issue Detail

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND		1 ml *
Eluate Tc-99m/Vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml *	1 vial *
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		989 ml *	1 bott *

PREPARATION DETAILS

Measured Radioactivity: 370 MBq

Radioactivity Concentration: 0.37 MBq/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Storage: **9** Keep below 25 °C

Measured Date/Time: **10** 25/05/2016 12:59 AM

Expiry Date/Time: 26/05/2016 12:59 AM

Remarks:

Confirm

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 temperature

Note

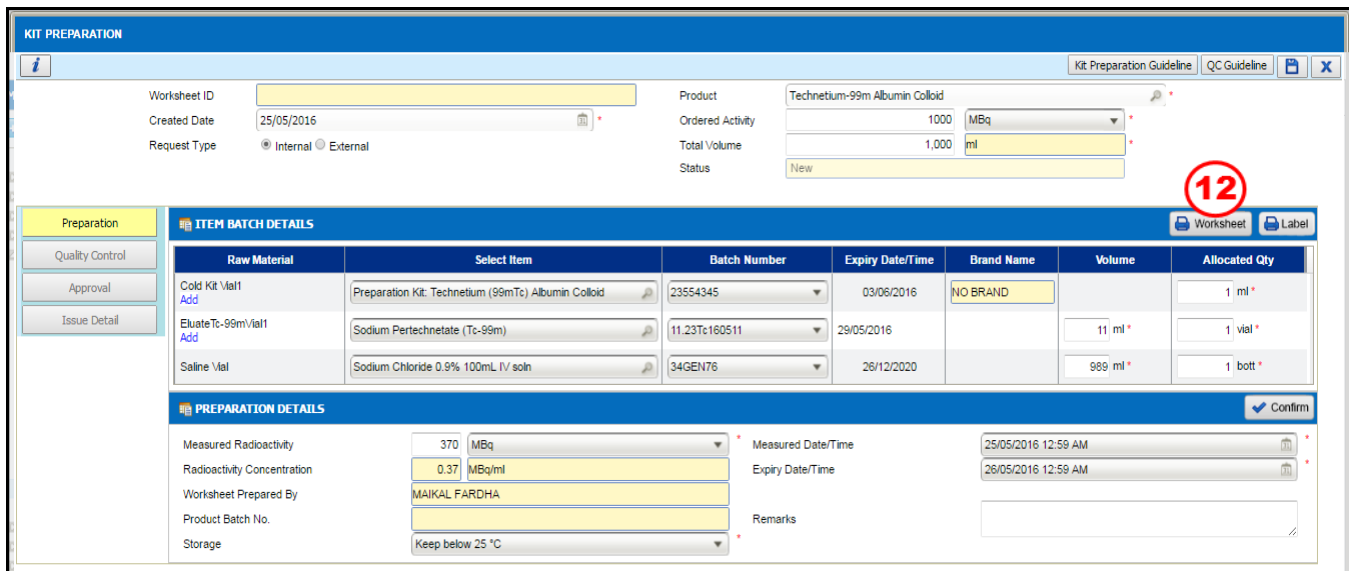
- **Storage** is mandatory field.

STEP 10

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

STEP 11

Click on the  button to save record



Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND		1 ml *
Eluate Tc-99m/Vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml *	1 vial *
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		989 ml *	1 bott *

Measured Radioactivity	370 MBq	Measured Date/Time	25/05/2016 12:59 AM
Radioactivity Concentration	0.37 MBq/ml	Expiry Date/Time	26/05/2016 12:59 AM
Worksheet Prepared By	MAIKAL FARDHA	Remarks	
Product Batch No.			
Storage	Keep below 25 °C		

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

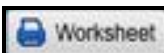
Click on the  button to generate worksheet and alert message will be displayed as per Figure 3.7.2-6



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:																									
Date	25/05/2016	Expected Activity	1000 MBq	NO BRAND - Manufacturer Unknown																									
Raw Material	Batch Number/Expiry		Volume	Worksheet Prepared By : MAIKAL FARDHA Signature, Name, Date/Time Worksheet Checked By : Signature, Name, Date/Time Preparation Done By : Signature, Name, Date/Time																									
Cold Kit Vial	23554345 - 03/06/2016		Total : 1000 ml																										
Eluate Tc-99m Vial	11.23Tc160511 - 29/05/2016		11 ml																										
Saline Vial	34GEN76 - 26/12/2020		989 ml																										
Measured Activity				Remarks :																									
Measured Date/Time																													
Radioactivity Concentration																													
Quality Control of Technetium-99m Albumin Colloid				Label																									
QC Sampling Time				Approval of Technetium-99m Albumin Colloid																									
				Checklist for approval :																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Measure</th> <th>Actual</th> <th>%</th> </tr> </thead> <tbody> <tr> <td rowspan="3">First Strip</td> <td>BG Reading</td> <td>N/A</td> <td></td> </tr> <tr> <td>1st Portion</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>2nd Portion</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td rowspan="3">Second Strip</td> <td>BG Reading</td> <td>N/A</td> <td></td> </tr> <tr> <td>3rd Portion</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>4th Portion</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>					Measure	Actual	%	First Strip	BG Reading	N/A		1st Portion	N/A	N/A	2nd Portion	N/A	N/A	Second Strip	BG Reading	N/A		3rd Portion	N/A	N/A	4th Portion	N/A	N/A	Preparation done QC done accordingly and Label done accordingly Remarks : Approved By :	
	Measure	Actual	%																										
First Strip	BG Reading	N/A																											
	1st Portion	N/A	N/A																										
	2nd Portion	N/A	N/A																										
Second Strip	BG Reading	N/A																											
	3rd Portion	N/A	N/A																										
	4th Portion	N/A	N/A																										
Radiochemical Purity				Quality Control Done By : Signature, Name, Date/Time																									

Figure 3.7.2-8 Sample Worksheet

Note

Sample of worksheet as per Figure 3.7.2-8.

KIT PREPARATION

Worksheet ID: HPSF20160525002

Created Date: 25/05/2016

Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: In Progress

Kit Preparation Guideline QC Guideline

14

ITEM BATCH DETAILS						
Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND	1 ml *	
Eluate Tc-99m/vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml *	1 vial *
Saline Vial	Sodium Chloride 0.9% 100mL I/V soln	34GEN76	26/12/2020		989 ml *	1 bott *

PREPARATION DETAILS

Measured Radioactivity: 370 MBq

Radioactivity Concentration: 0.37 MBq/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Storage: Keep below 25 °C

Measured Date/Time: 25/05/2016 12:59 AM

Expiry Date/Time: 26/05/2016 12:59 AM

Remarks:

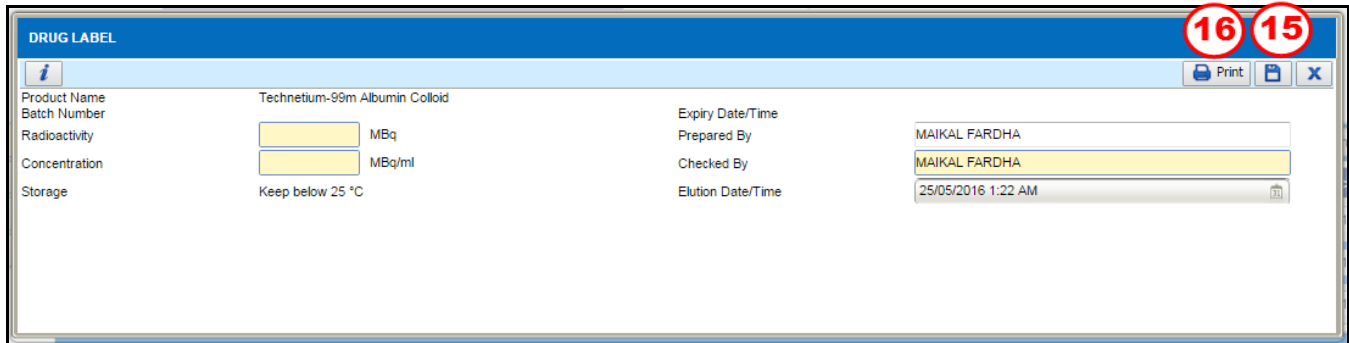
Figure 3.7.2-9 Bulk Preparation

STEP 14

Click on the  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.



DRUG LABEL	
Product Name	Technetium-99m Albumin Colloid
Batch Number	
Radioactivity	MBq
Concentration	MBq/ml
Storage	Keep below 25 °C
Expiry Date/Time	
Prepared By	MAIKAL FARDHA
Checked By	MAIKAL FARDHA
Elution Date/Time	25/05/2016 1:22 AM

Figure 3.7.2-10 Drug Label

STEP 15

Click on the  button to save edited label

STEP 16

Click on the  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		
Prepared 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.

DRUG LABEL
Print 

Product Name: Technetium-99m Albumin Colloid

Batch Number:

Radioactivity: MBq

Concentration: MBq/ml

Storage: Keep below 25 °C

Expiry Date/Time:

Prepared By: MAIKAL FARDHA

Checked By: MAIKAL FARDHA

Elution Date/Time: 25/05/2016 1:22 AM

Figure 3.7.2-12 Drug Label

STEP 17

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

KIT PREPARATION
Kit Preparation Guideline QC Guideline 

Worksheet ID: HPSF20160525002

Created Date: 25/05/2016

Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: In Progress

Preparation

Quality Control

Approval

Issue Detail

ITEM BATCH DETAILS
Worksheet 

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND	1 ml	1 ml
Eluate Tc-99m/vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml	1 vial
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		989 ml	1 bott

PREPARATION DETAILS


Measured Radioactivity: 370 MBq

Radioactivity Concentration: 0.37 MBq/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Storage: Keep below 25 °C

Measured Date/Time: 25/05/2016 12:59 AM

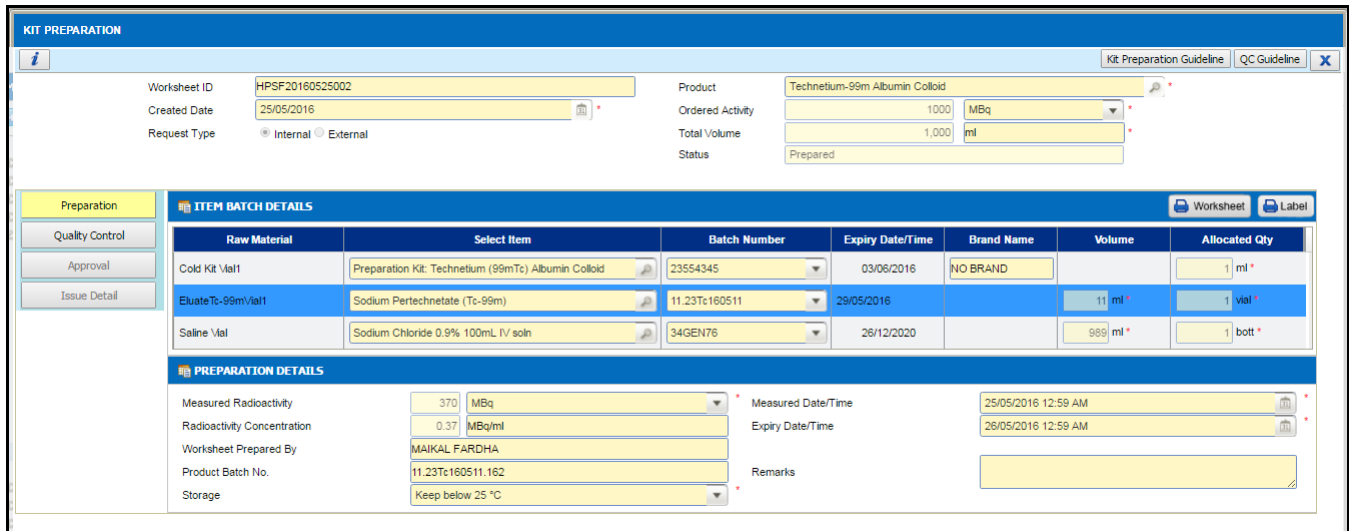
Expiry Date/Time: 26/05/2016 12:59 AM

Remarks:

Figure 3.7.2-13 Drug Label

STEP 18

Click on the  button to confirm information preparation details



KIT PREPARATION

Worksheet ID: HPSF20160525002
Created Date: 25/05/2016
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid
Ordered Activity: 1000 MBq
Total Volume: 1,000 ml
Status: Prepared

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation Kit: Technetium (99mTc) Albumin Colloid	23554345	03/06/2016	NO BRAND		1 ml *
Eluate Tc-99m/vial1	Sodium Pertechnetate (Tc-99m)	11.23Tc160511	29/05/2016		11 ml *	1 vial *
Saline Vial	Sodium Chloride 0.9% 100mL IV soln	34GEN76	26/12/2020		999 ml *	1 bott *

PREPARATION DETAILS

Measured Radioactivity: 370 MBq
Radioactivity Concentration: 0.37 MBq/ml
Worksheet Prepared By: MAIKAL FARDHA
Product Batch No.: 11.23Tc160511.162
Storage: Keep below 25 °C

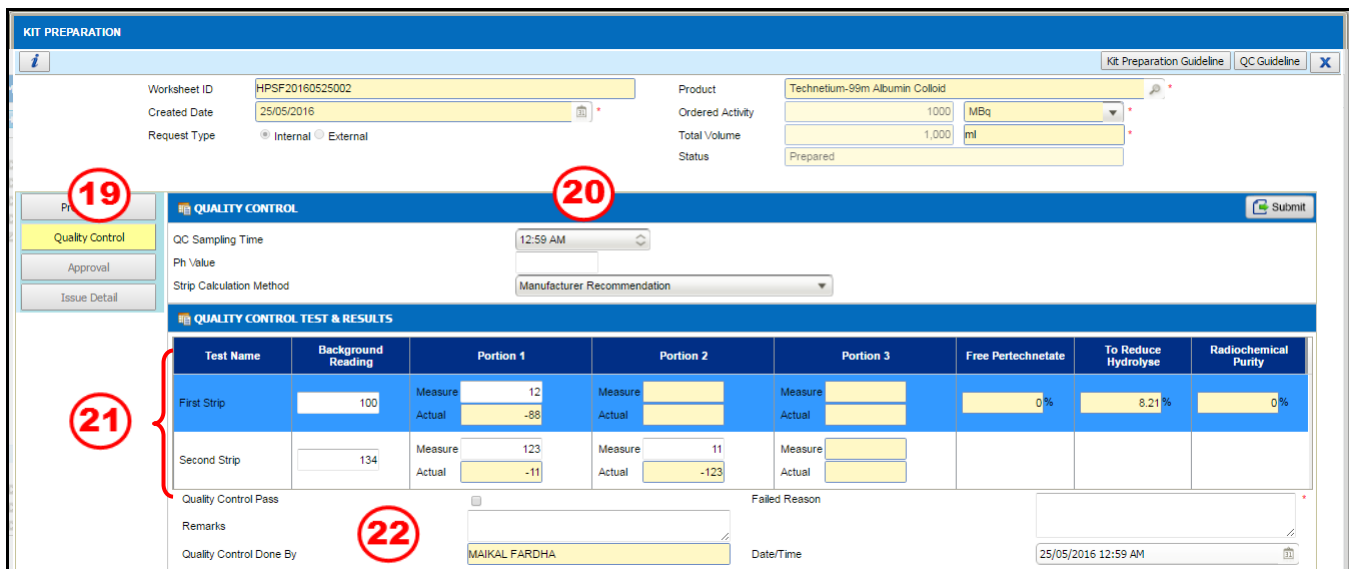
Measured Date/Time: 25/05/2016 12:59 AM
Expiry Date/Time: 26/05/2016 12:59 AM

Remarks:

Figure 3.7.2-14 Kit Preparation

Note

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



KIT PREPARATION

Worksheet ID: HPSF20160525002
Created Date: 25/05/2016
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid
Ordered Activity: 1000 MBq
Total Volume: 1,000 ml
Status: Prepared

QUALITY CONTROL

QC Sampling Time: 12:59 AM
Ph Value:
Strip Calculation Method: Manufacturer Recommendation

QUALITY CONTROL TEST & RESULTS

Test Name	Background Reading	Portion 1	Portion 2	Portion 3	Free Pertechnetate	To Reduce Hydrolyse	Radiochemical Purity
First Strip	100	Measure: 12 Actual: -88	Measure: Actual:	Measure: Actual:	0%	8.21%	0%
Second Strip	134	Measure: 123 Actual: -11	Measure: 11 Actual: -123	Measure: Actual:			

Quality Control Pass: ☐
Remarks:
Quality Control Done By: MAIKAL FARDHA
Date/Time: 25/05/2016 12:59 AM

Figure 3.7.2-15 Bulk Preparation

STEP 19

Click on the **Quality Control** 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.

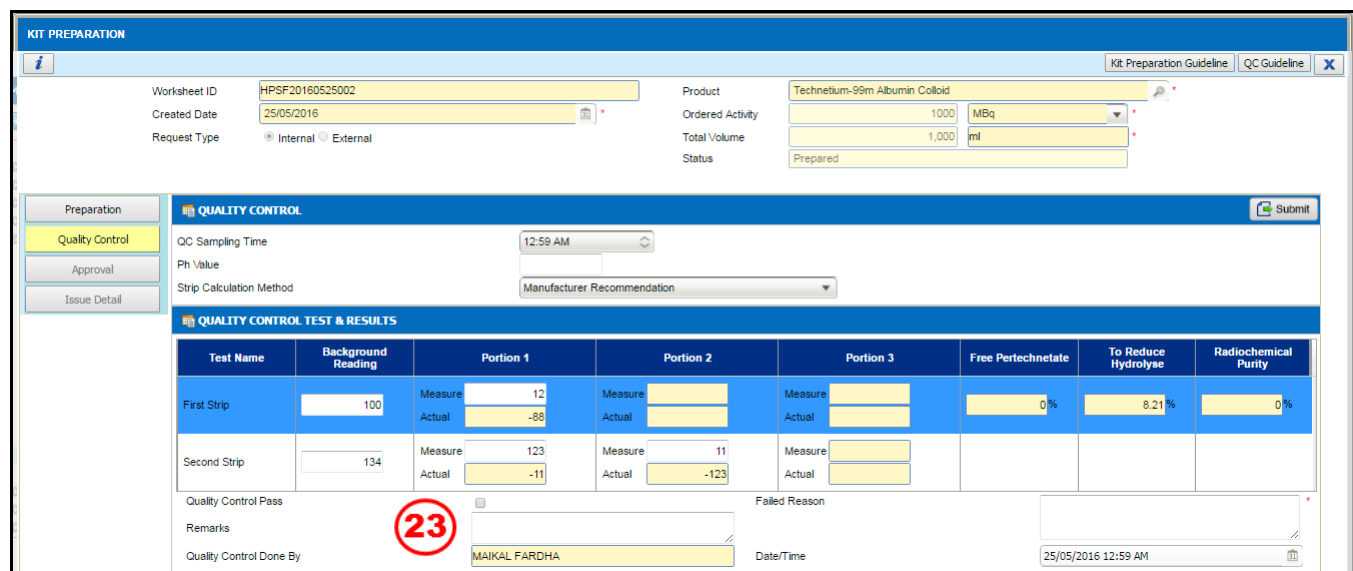


Figure 3.7.2-16 Bulk Preparation

STEP 23

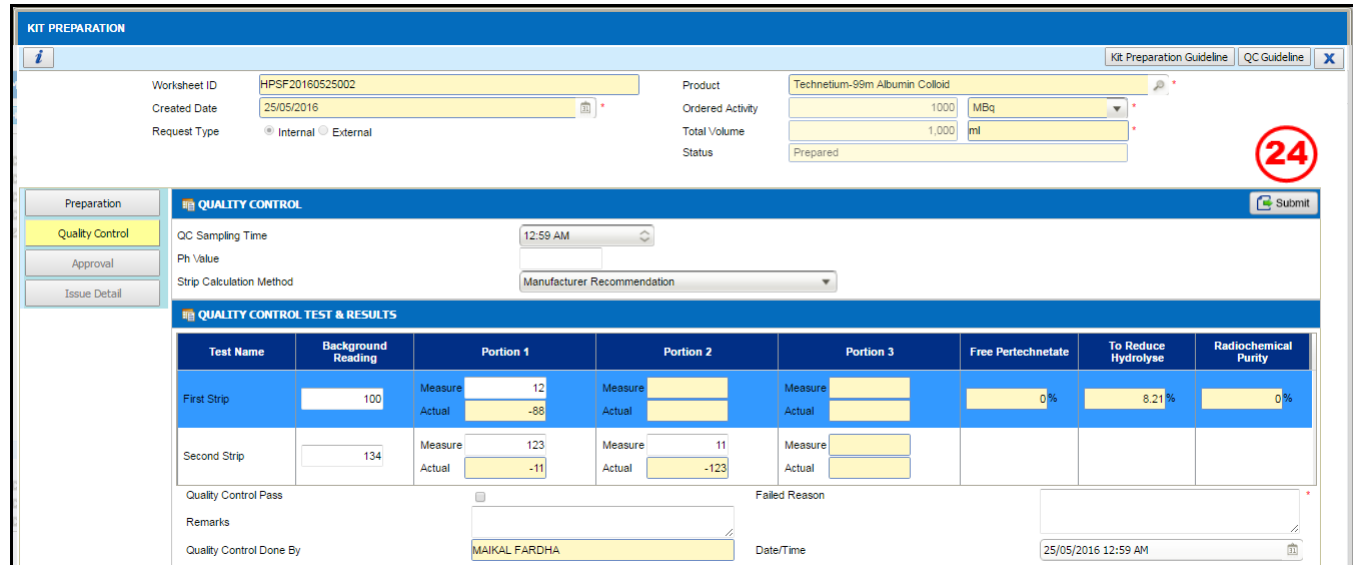
Enter **Remarks** if applicable

Note

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

Note

Sample of Strip Guideline as per Figure 3.7.2-18.



KIT PREPARATION

Worksheet ID: HPSF20160525002
Created Date: 25/05/2016
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Albumin Colloid
Ordered Activity: 1000 MBq
Total Volume: 1,000 ml
Status: Prepared

QUALITY CONTROL

QC Sampling Time: 12:59 AM
Ph Value:
Strip Calculation Method: Manufacturer Recommendation

QUALITY CONTROL TEST & RESULTS

Test Name	Background Reading	Portion 1	Portion 2	Portion 3	Free Pertechnetate	To Reduce Hydrolyse	Radiochemical Purity
First Strip	100	Measure: 12 Actual: -88	Measure: Actual:	Measure: Actual:	0%	8.21%	0%
Second Strip	134	Measure: 123 Actual: -11	Measure: 11 Actual: -123	Measure: Actual:			

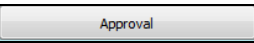
Quality Control Pass: ☐
Remarks:
Quality Control Done By: MAIKAL FARDHA
Failed Reason:
Date/Time: 25/05/2016 12:59 AM

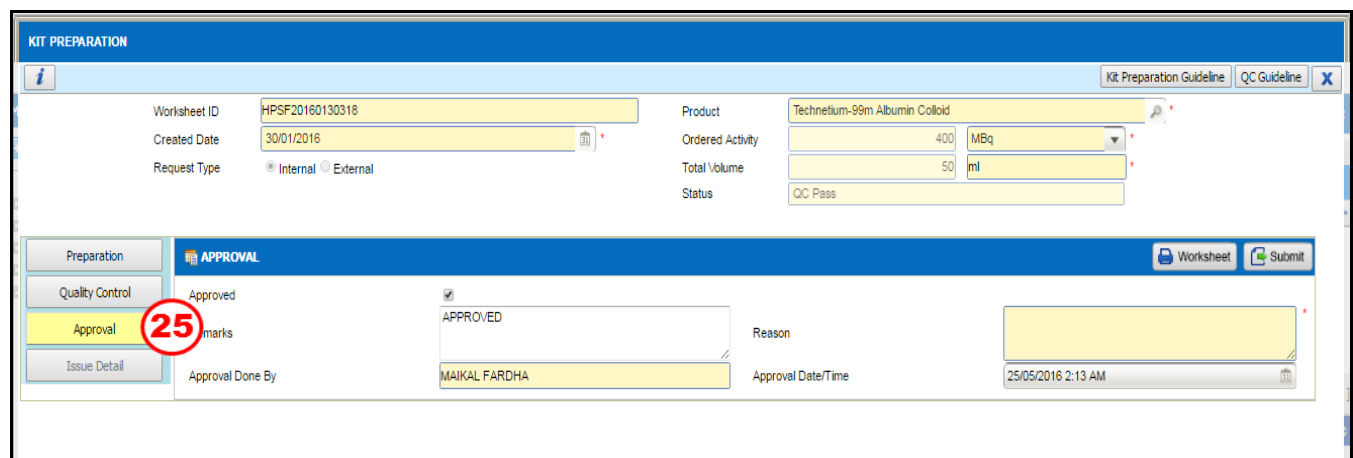
Figure 3.7.2-19 Bulk Preparation

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.



KIT PREPARATION

Worksheet ID: HPSF20160130318
Created Date: 30/01/2016
Request Type: ☒ Internal ☐ External

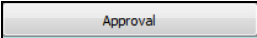
Product: Technetium-99m Albumin Colloid
Ordered Activity: 400 MBq
Total Volume: 50 ml
Status: QC Pass

APPROVAL

Approved: ☒
Reason:
Approval Done By: MAIKAL FARDHA
Approval Date/Time: 25/05/2016 2:13 AM

Figure 3.7.2-20 Bulk Preparation

STEP 25

Click on the  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.

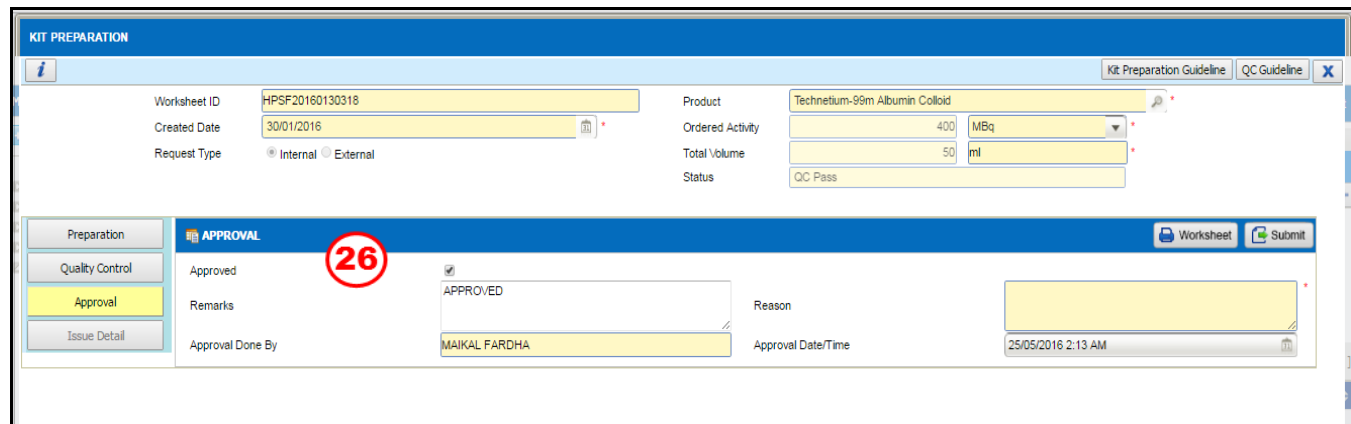


Figure 3.7.2-21 Bulk Preparation

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  button is for user to reprint the worksheet.

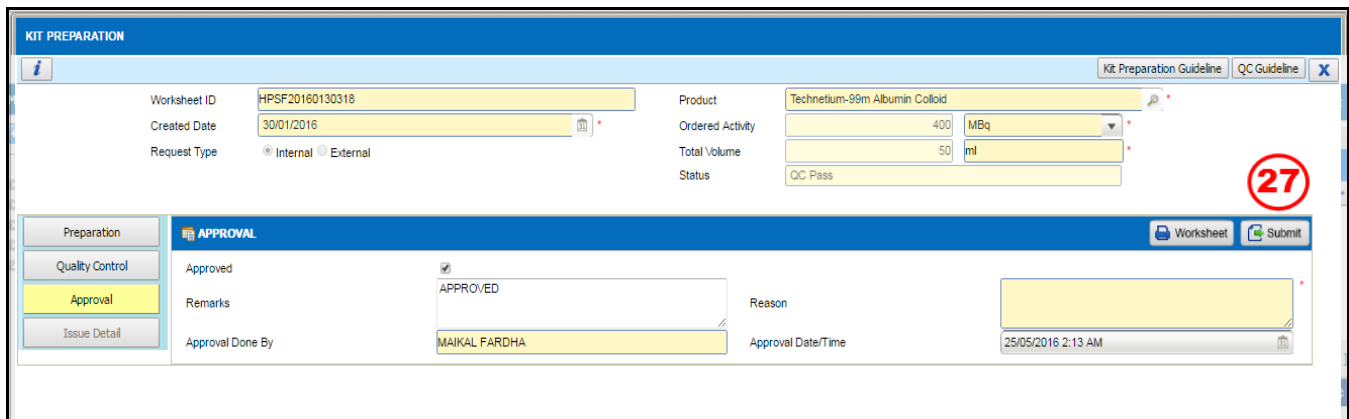


Figure 3.7.2-22 Bulk Preparation

STEP 27

Click on the  button to submit the approval details

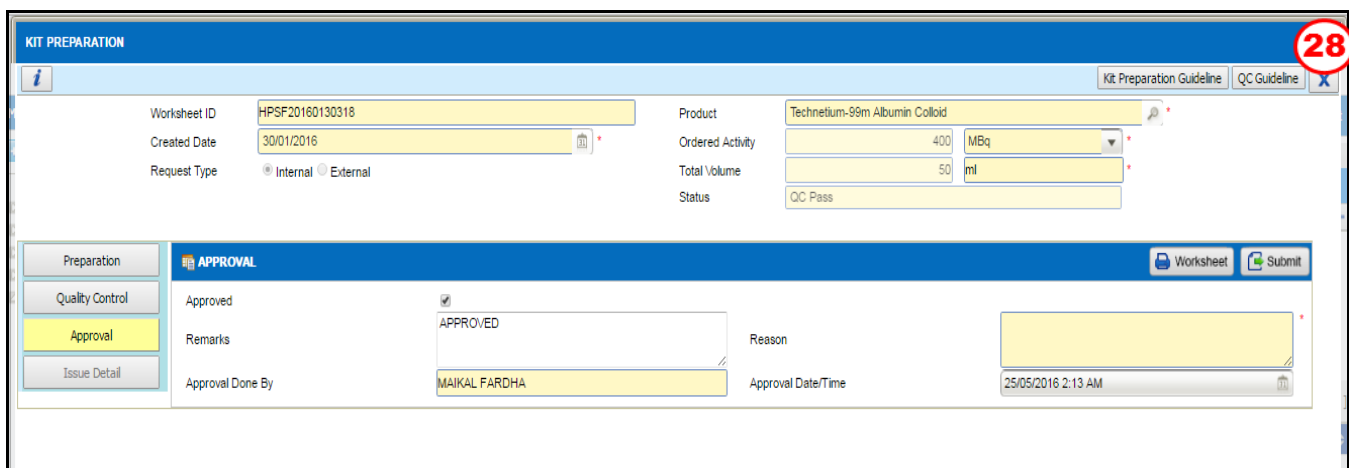


Figure 3.7.2-23 Bulk Preparation

Note

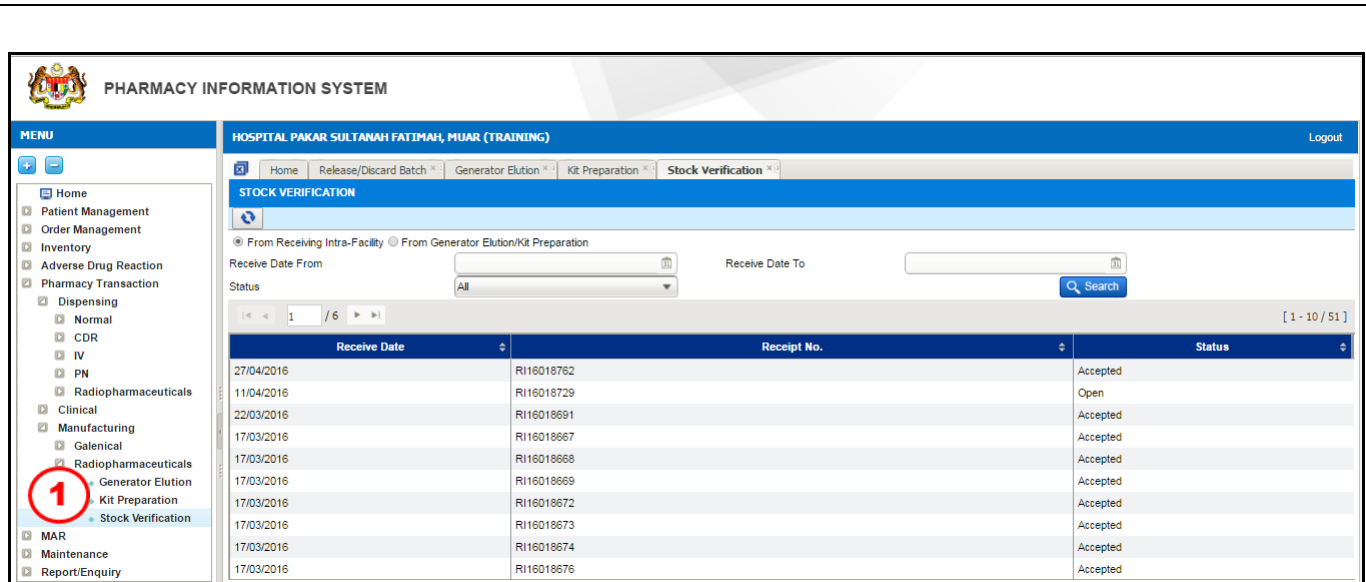
- **Status** will change to *Approved* after the submission had done.

STEP 28

Click on the  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.



PHARMACY INFORMATION SYSTEM

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Logout

Home Release/Discard Batch Generator Elution Kit Preparation **Stock Verification**

STOCK VERIFICATION

From Receiving Intra-Facility From Generator Elution/Kit Preparation

Receive Date From Receive Date To

Status All Search

1 / 6 [1 - 10 / 51]

Receive Date	Receipt No.	Status
27/04/2016	RI16018762	Accepted
11/04/2016	RI16018729	Open
22/03/2016	RI16018691	Accepted
17/03/2016	RI16018667	Accepted
17/03/2016	RI16018668	Accepted
17/03/2016	RI16018669	Accepted
17/03/2016	RI16018672	Accepted
17/03/2016	RI16018673	Accepted
17/03/2016	RI16018674	Accepted
17/03/2016	RI16018676	Accepted

Figure 3.7.3-1 Stock Verification Listing Page

STEP 1

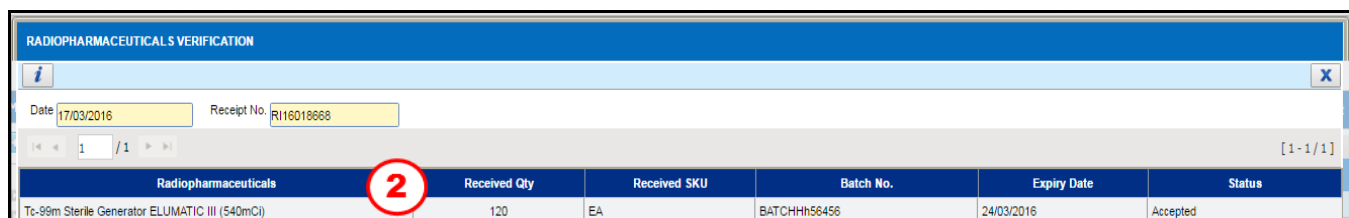
Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Stock Verification' sub-menu

Note

- Search criteria is provided for **Date** only.
- Click on the  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



RADIOPHARMACEUTICALS VERIFICATION

Date 17/03/2016 Receipt No. RI16018668

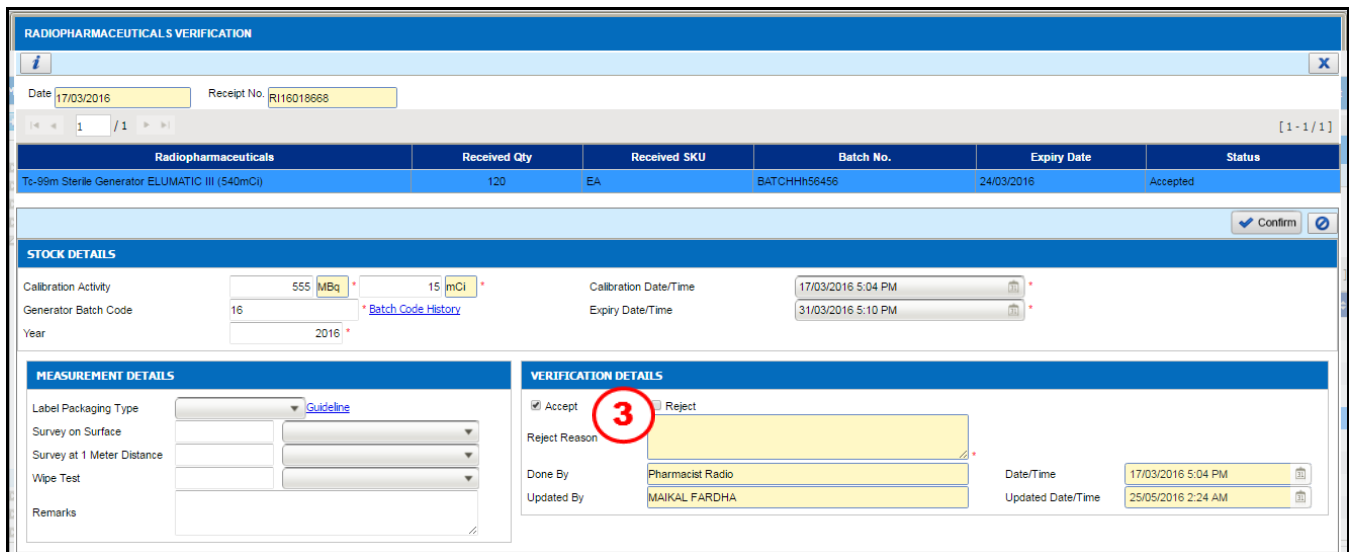
1 / 1 [1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Tc-99m Sterile Generator ELUMATIC III (540mCi)	120	EA	BATCHHH56456	24/03/2016	Accepted

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.



RADIOPHARMACEUTICALS VERIFICATION

Date: 17/03/2016 Receipt No: R116018668

[1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Tc-99m Sterile Generator ELUMATIC III (540mCi)	120	EA	BATCHHH56458	24/03/2016	Accepted

[Confirm](#)

STOCK DETAILS

Calibration Activity: 555 MBq * 15 mCi * Calibration Date/Time: 17/03/2016 5:04 PM *
 Generator Batch Code: 16 * Expiry Date/Time: 31/03/2016 5:10 PM *
 Year: 2016 * [Batch Code History](#)

MEASUREMENT DETAILS

Label Packaging Type: [Guideline](#)
 Survey on Surface:
 Survey at 1 Meter Distance:
 Wipe Test:
 Remarks:

VERIFICATION DETAILS

☒ Accept **3** ☐ Reject
 Reject Reason:
 Done By: Pharmacist Radio Date/Time: 17/03/2016 5:04 PM
 Updated By: MAIKAL FARDHA Updated Date/Time: 25/05/2016 2:24 AM

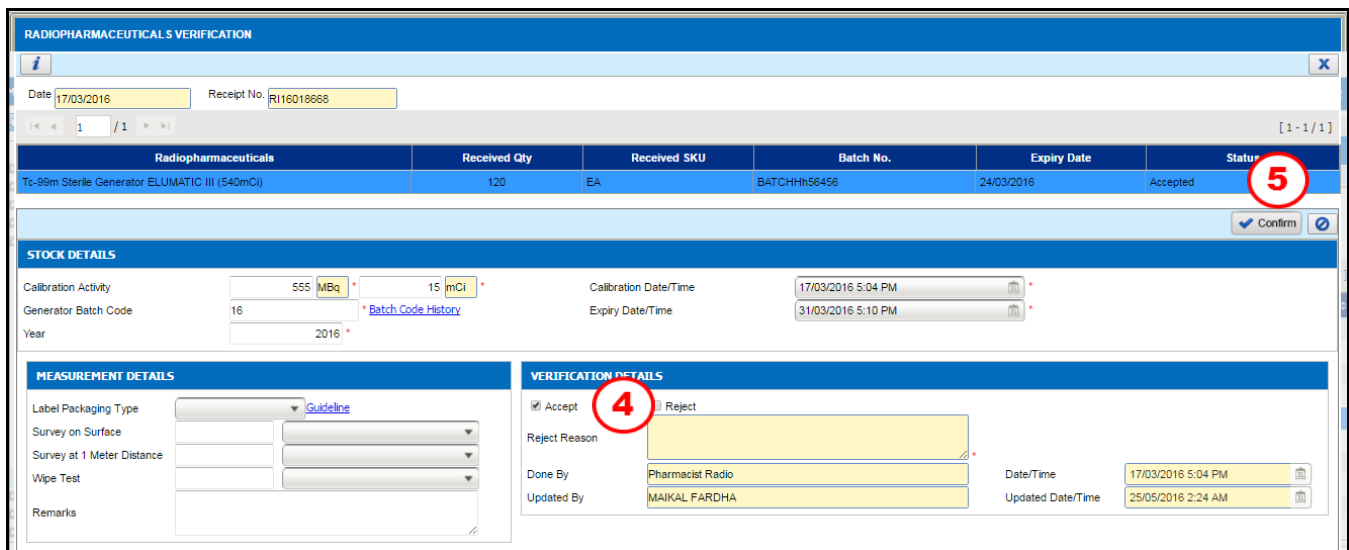
Figure 3.7.3-3 Stock Verification

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.



RADIOPHARMACEUTICALS VERIFICATION

Date: 17/03/2016 Receipt No: R116018668

[1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Tc-99m Sterile Generator ELUMATIC III (540mCi)	120	EA	BATCHHH56458	24/03/2016	Accepted 5

[Confirm](#)

STOCK DETAILS

Calibration Activity: 555 MBq * 15 mCi * Calibration Date/Time: 17/03/2016 5:04 PM *
 Generator Batch Code: 16 * Expiry Date/Time: 31/03/2016 5:10 PM *
 Year: 2016 * [Batch Code History](#)

MEASUREMENT DETAILS

Label Packaging Type: [Guideline](#)
 Survey on Surface:
 Survey at 1 Meter Distance:
 Wipe Test:
 Remarks:

VERIFICATION DETAILS

☒ Accept **4** ☐ Reject
 Reject Reason:
 Done By: Pharmacist Radio Date/Time: 17/03/2016 5:04 PM
 Updated By: MAIKAL FARDHA Updated Date/Time: 25/05/2016 2:24 AM

Figure 3.7.3-4 Stock Verification

STEP 4

Check on the [Accept](#) checkbox to accept verification

STEP 5

Click on the  button to save record

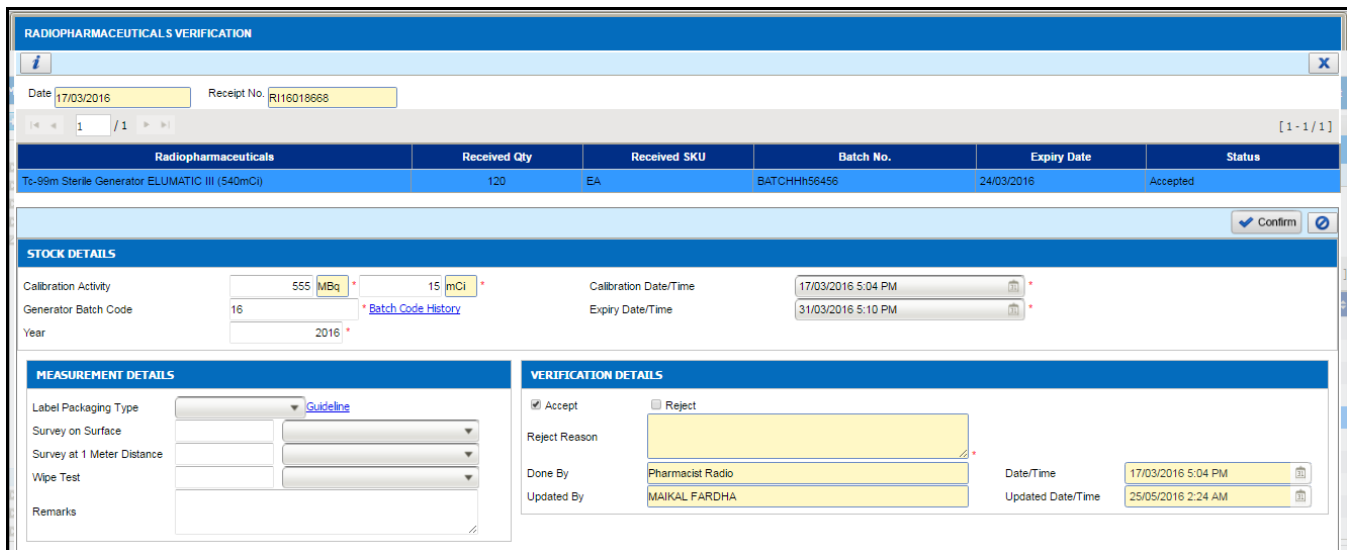


Figure 3.7.3-5 Stock Verification

STEP 6

Click on the  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.

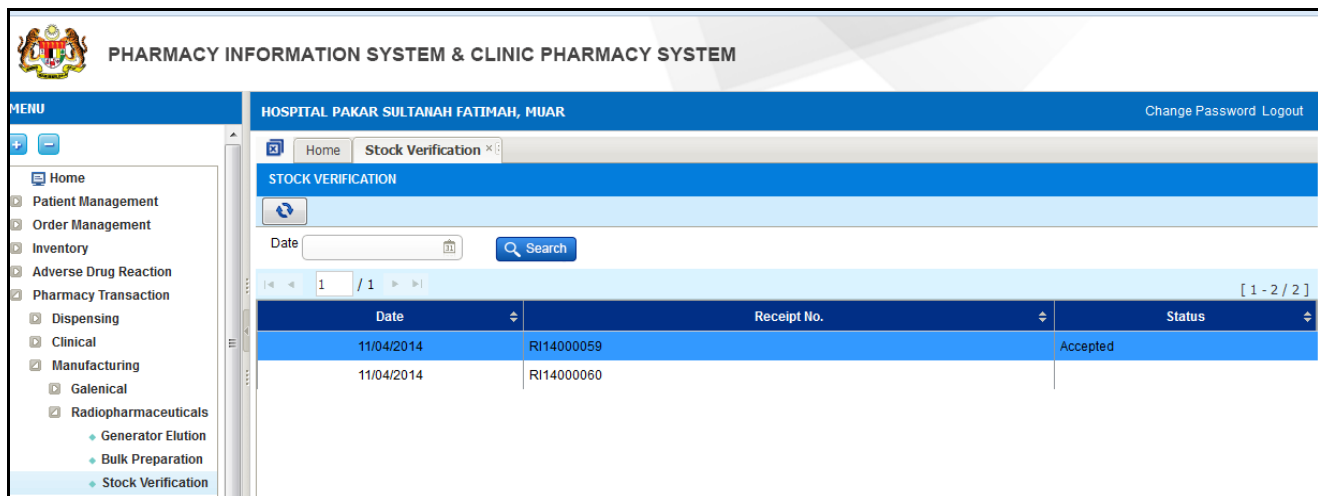


Figure 3.7.3-6 Stock Verification Listing Page

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