

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

User Manual Radiopharmaceuticals

Version	: 12th Edition
Document ID	: U.MANUAL_RADIOPHARMACEUTICALS



© 2011-2021 Pharmacy Information System & Clinic Pharmacy System (PhIS& CPS) Project

CONFIDENTIAL COPYRIGHTED MATERIAL – The information includes all concepts, comments, recommendations, and material, contained herein shall remain the property of Pharmacy Information System & Clinic Pharmacy System (PhIS& CPS) Project. No portion of this document shall be disclosed, duplicated or used in whole or in part of any purpose other than the purpose of the Pharmacy Information System & Clinic Pharmacy System (PhIS& CPS) Project execution only.

Reference ID : U.MANUAL_RADIOPHARMACEUTICALS-12th E

Application reference: PhIS & CPS v2.5.1

Table of Contents

1.0	Introduction	1
1.1	Overview of PhIS.....	1
1.2	Purpose and Objectives.....	1
1.3	Organised Sections	1
2.0	Application Standard Features	2
2.1	PhIS Legend.....	2
3.0	Radiopharmaceuticals.....	4
	Overview	4
	User Group.....	4
	Functional Diagram	4
	Functional Description.....	4
3.1	Radiopharmaceuticals	5
3.1.1	Create New Appointment.....	5
3.2	Radiopharmaceuticals	12
3.3	Radiopharmaceuticals Verification.....	18
3.3.1	Intervention.....	20
3.3.2	Hold/Resume Order.....	23
3.4	Radiopharmaceutical Preparation.....	27
3.5	Radiopharmaceutical Dispensing.....	37
3.6	Release Batch	40
3.7	Radiopharmaceutical Manufacturing.....	43
3.7.1	Generate Elution.....	43
3.7.2	KIT Preparation	53
3.7.3	Stock Verification.....	68
4.0	Acronyms.....	72
5.0	Links to Inventory Modules.....	72

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

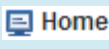
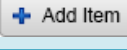
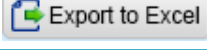
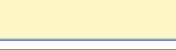
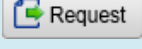
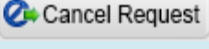
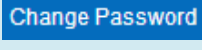
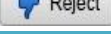
1.3 Organised Sections

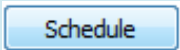
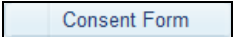
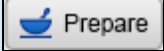
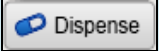
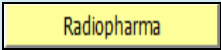
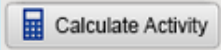
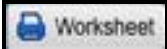
These are the sections within this document:

- 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

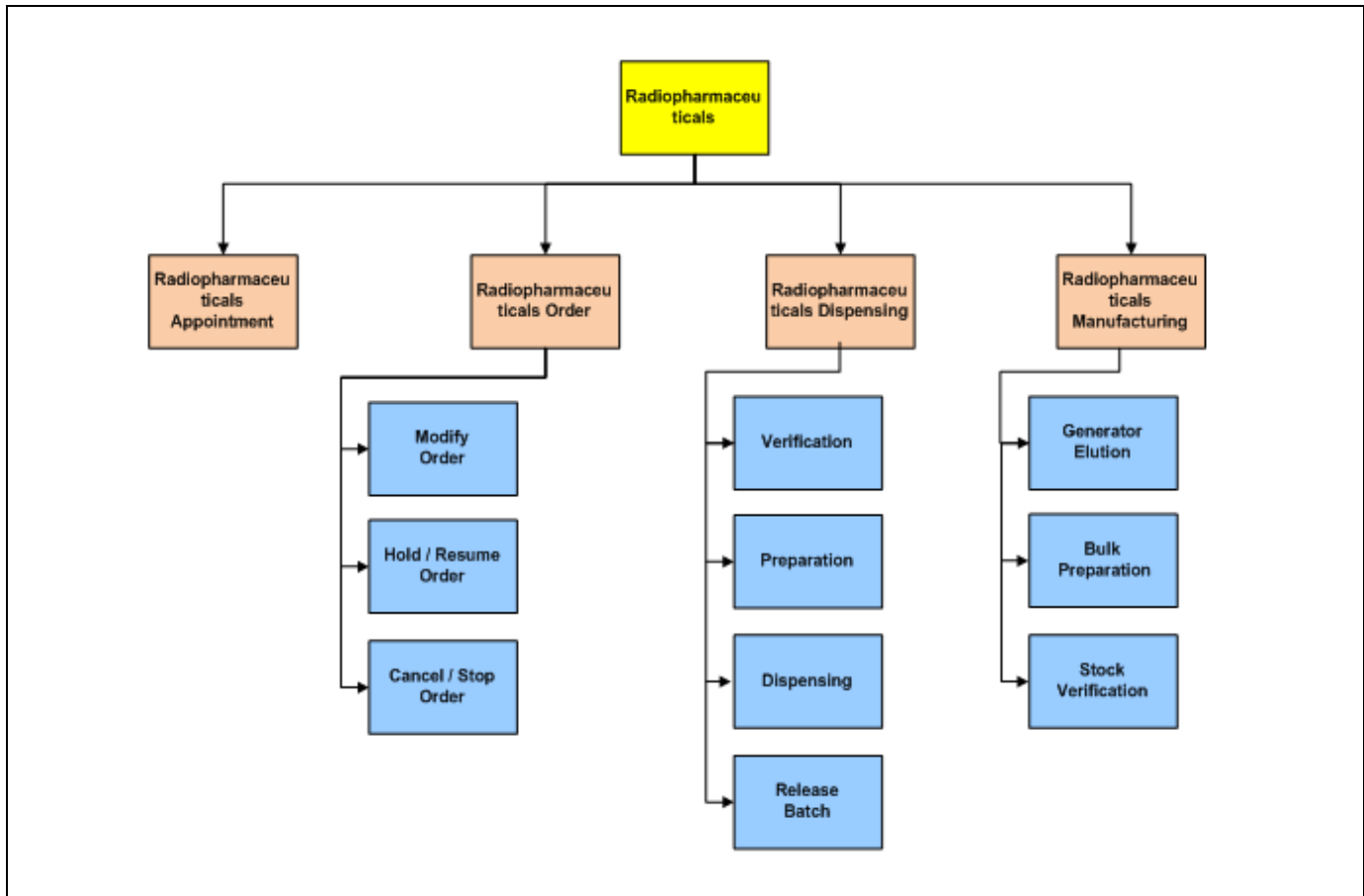


Figure 3.0-1

Functional Description

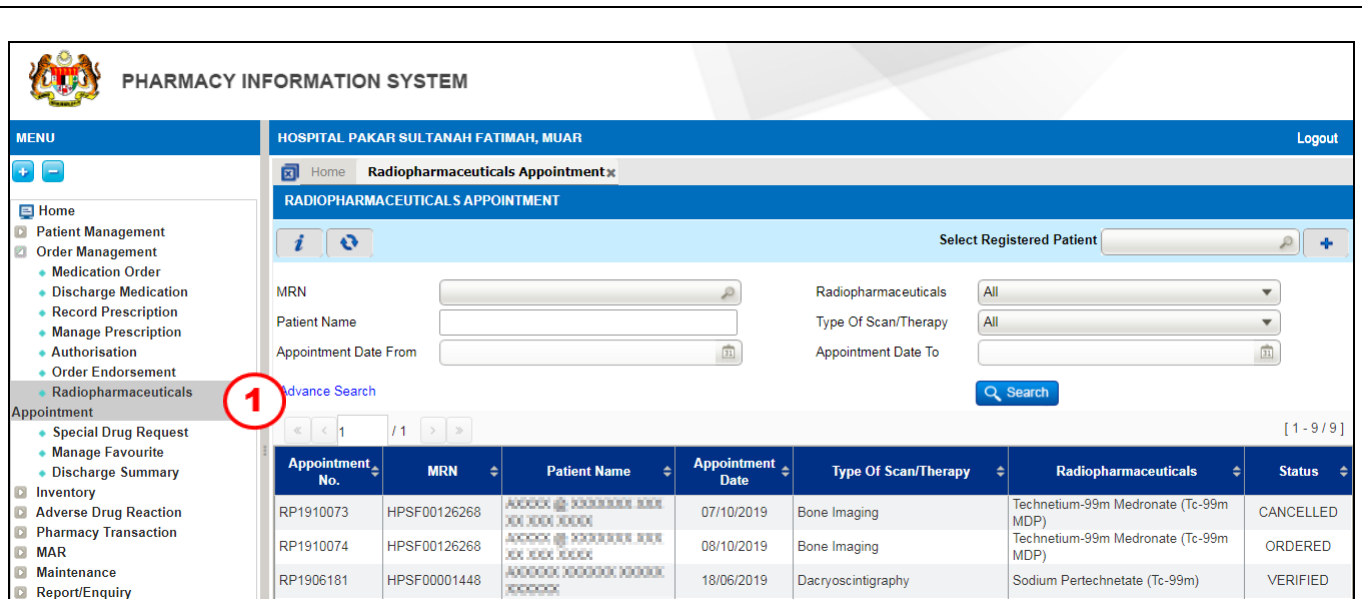
Slow Moving comprises of four (4) main functions:

- **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 PAKAR SULTANAH FATIMAH, MUAR Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMACEUTICALS APPOINTMENT

Select Registered Patient

MRN Radiopharmaceuticals

Patient Name Type Of Scan/Therapy

Appointment Date From Appointment Date To

[Advanced Search](#)

[1 - 9 / 9]

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910073	HPSF00126268	XXXXX XXXXXXXX XXXX XX XXX XXXX	07/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	CANCELLED
RP1910074	HPSF00126268	XXXXX XXXXXXXX XXXX XX XXX XXXX	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1906181	HPSF00001448	XXXXX XXXXXXXX XXXX XXXXXX	18/06/2019	Dacryoscintigraphy	Sodium Pertechnetate (Tc-99m)	VERIFIED

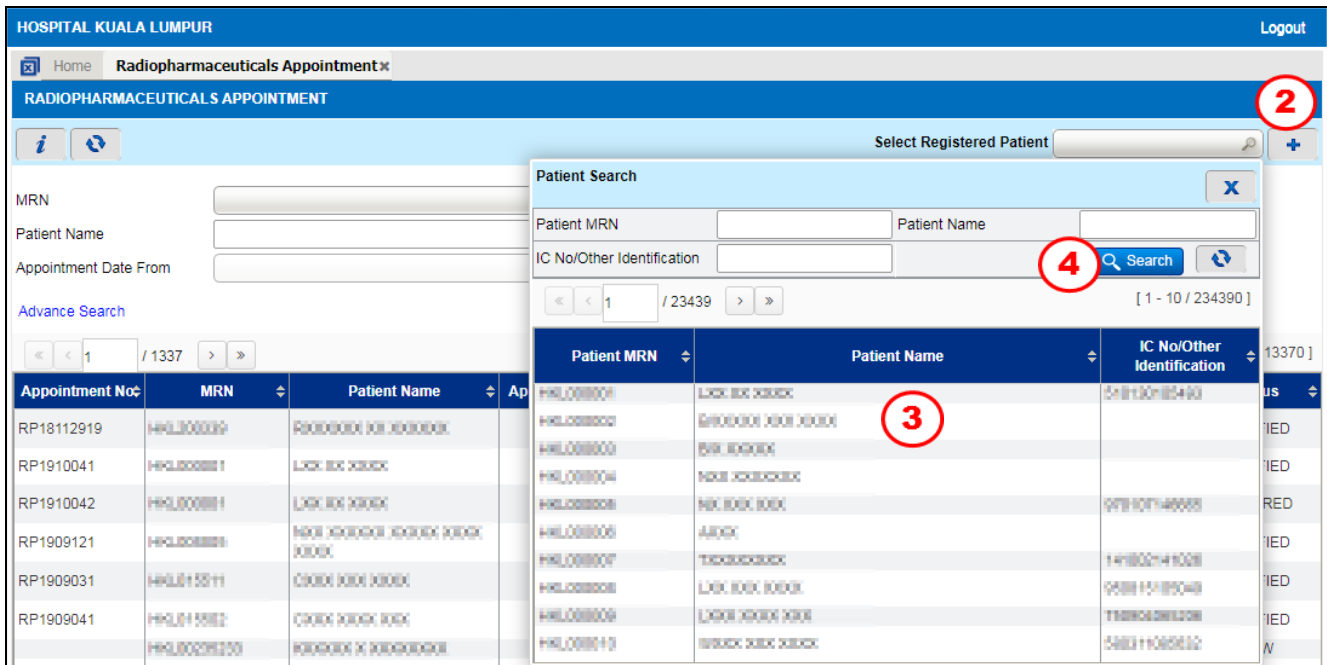
Figure 3.1-1 Radiopharmaceuticals Appointment Listing Page

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 KUALA LUMPUR Logout

Home Radiopharmaceuticals Appointment x

RADIOPHARMACEUTICALS APPOINTMENT

MRN

Patient Name

Appointment Date From

Advance Search

Select Registered Patient

Patient Search

Patient MRN Patient Name

IC No/Other Identification

Search

< 1 / 23439 >

[1 - 10 / 234390]

Appointment No.	MRN	Patient Name	Ap
RP18112919	HKL000000	ROSEBERRY JO JOSEBERRY	
RP1910041	HKL000001	LICK BIK XXXXX	
RP1910042	HKL000001	LICK BIK XXXXX	
RP1909121	HKL000001	HOE XXXXX XXXXX XXXX XXXX	
RP1909031	HKL015511	COOK XXX XXXX	
RP1909041	HKL015512	COOK XXXX XXXX	
	HKL0000000	ROSEBERRY JO JOSEBERRY	

Figure 3.1.1-2 Radiopharmaceuticals Appointment

STEP 2

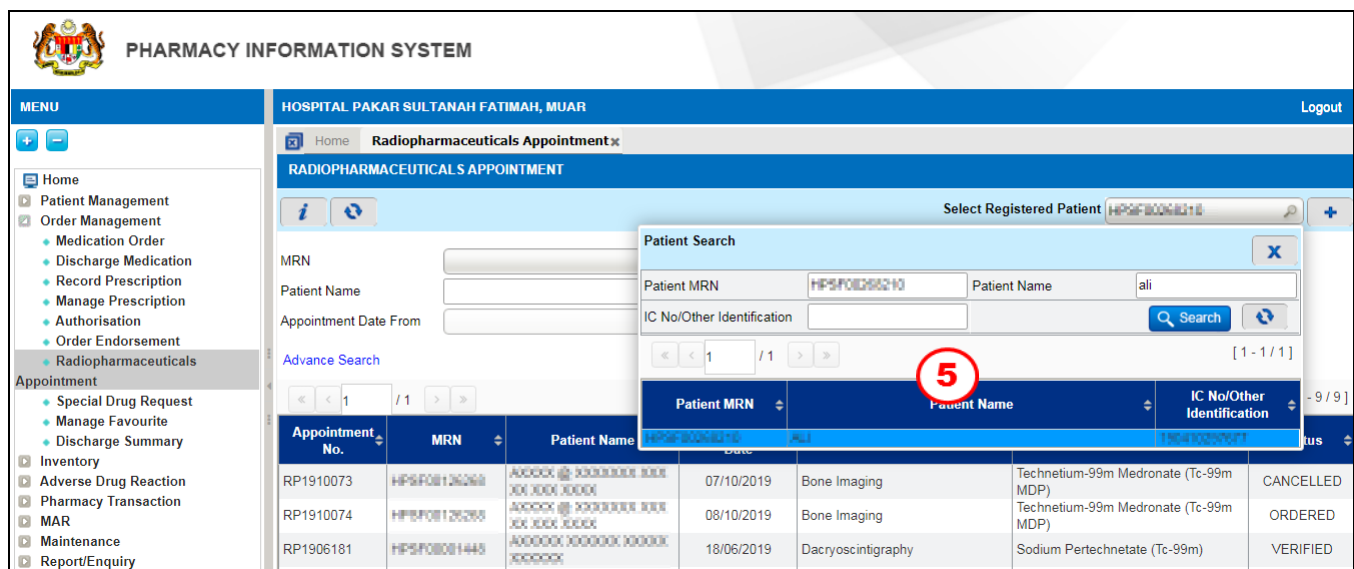
Click on the  button to search for registered patient and system will be displayed as per Figure 3.1.1-2

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 PAKAR SULTANAH FATIMAH, MUAR Logout

Home Radiopharmaceuticals Appointment x

RADIOPHARMACEUTICALS APPOINTMENT

MRN

Patient Name

Appointment Date From

Advance Search

Select Registered Patient

Patient Search

Patient MRN Patient Name

IC No/Other Identification

Search

< 1 / 1 >

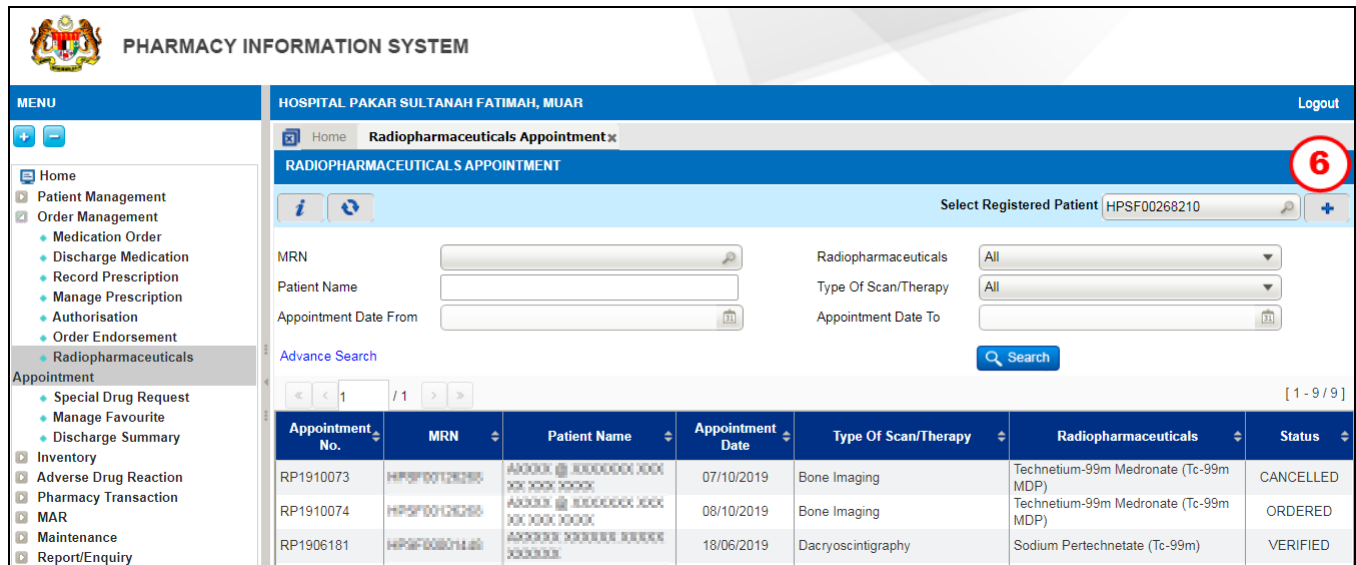
[1 - 1 / 1]

Appointment No.	MRN	Patient Name	Date	Procedure	Medication	Status
RP1910073	HPSF00126269	AJOOX @ XXXXXXX XXX XXX XXXX	07/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	CANCELLED
RP1910074	HPSF00126269	AJOOX @ XXXXXXX XXX XXX XXXX	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1906181	HPSF00014445	AJOOX @ XXXXXXX XXX XXX XXXX	18/06/2019	Dacryoscintigraphy	Sodium Pertechnetate (Tc-99m)	VERIFIED

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 PAKAR SULTANAH FATIMAH, MUAR

Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMACEUTICALS APPOINTMENT

Select Registered Patient HPSF00268210

MRN: [Text Box] Radiopharmaceuticals: All

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

Appointment Date From: [Text Box] Appointment Date To: [Text Box]

Advance Search [Search Button]

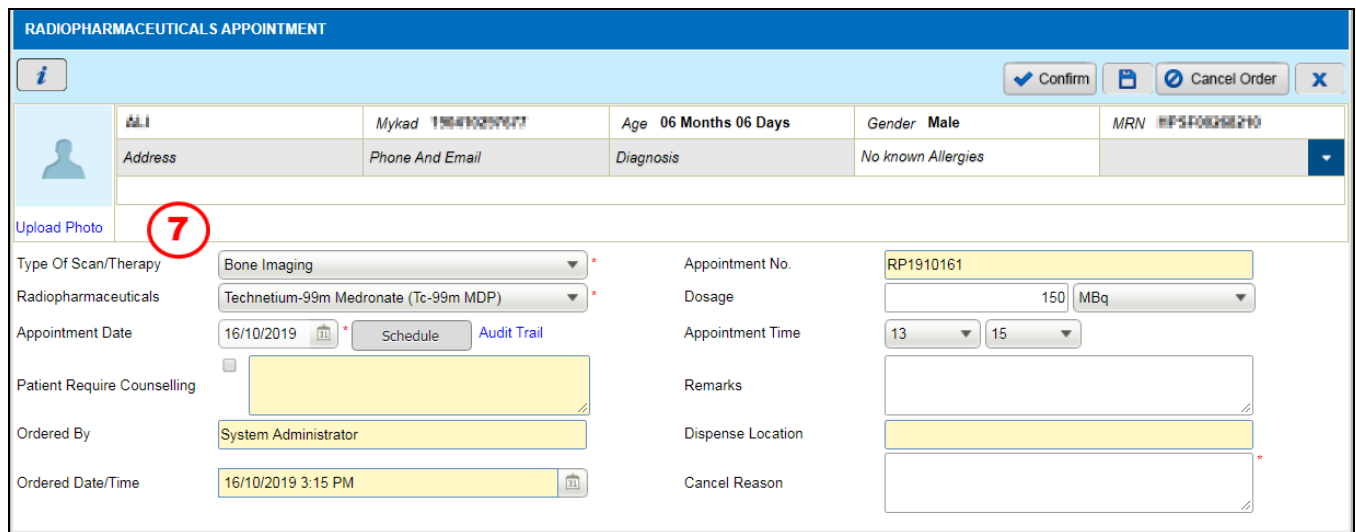
[1 - 9 / 9]

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910073	HPSF00126265	A0000 @ 0000000 XXX XX XXX XXXX	07/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	CANCELLED
RP1910074	HPSF00126265	A0000 @ 0000000 XXX XX XXX XXXX	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1906181	HPSF00001161	A00000 XXXXXX XXXXX XXXXXX	18/06/2019	Dacryoscintigraphy	Sodium Pertechnetate (Tc-99m)	VERIFIED

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

[Info Icon] [Confirm] [Save] [Cancel Order] [X]

Mykad 190410268210 Age 06 Months 06 Days Gender Male MRN HPSF00268210

Address Phone And Email Diagnosis No known Allergies

Upload Photo

Type Of Scan/Therapy: Bone Imaging * Appointment No.: RP1910161

Radiopharmaceuticals: Technetium-99m Medronate (Tc-99m MDP) * Dosage: 150 MBq

Appointment Date: 16/10/2019 * Schedule Audit Trail Appointment Time: 13:15

Patient Require Counselling: [Text Box] Remarks: [Text Box]

Ordered By: System Administrator Dispense Location: [Text Box]

Ordered Date/Time: 16/10/2019 3:15 PM 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	19041029077	Age	06 Months 06 Days	Gender	Male	MRN	#PSP028210
	Address	Phone And Email	Diagnosis	No known Allergies				
								
Type Of Scan/Therapy	Bone Imaging		Appointment No.	RP1910161				
Radiopharmaceuticals	Technetium-99m Medronate (Tc-99m MDP)		Dosage	150	MBq			
Appointment Date	16/10/2019	Schedule	Appointment Time	13	15			
Patient Require Counselling	☒		Remarks					
Ordered By	System Administrator		Dispense Location					
Ordered Date/Time	16/10/2019 3:15 PM		Cancel Reason					

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 **Dosage** MBq field. The UOM displayed will be based on the Radiopharmaceuticals SKU in Drug Master

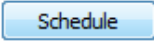
STEP 9

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

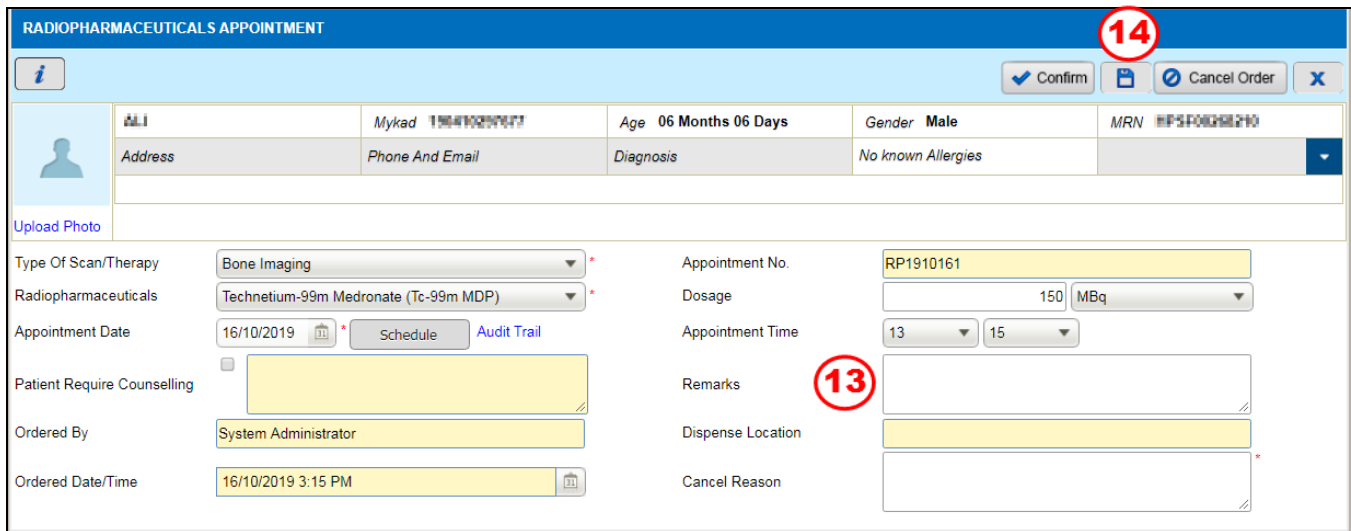


Figure 3.1.1-7 Radiopharmaceuticals Appointment

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

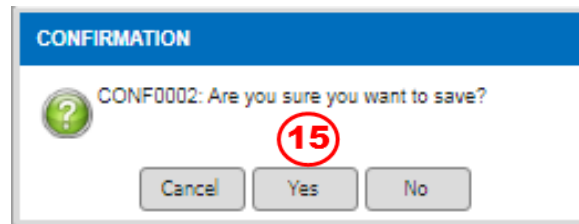
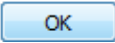


Figure 3.1.1-8 Save Record Alert Message

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

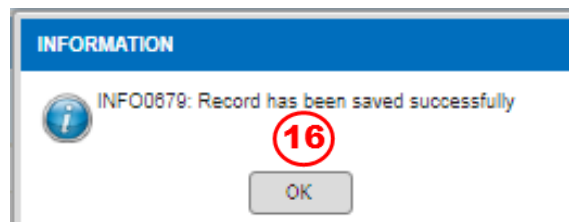
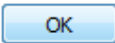


Figure 3.1.1-9 Save Record Alert Message

STEP 16

Click on the  button to save and update Radiopharmaceuticals Appointment order

Note

Record status is updated to Draft.

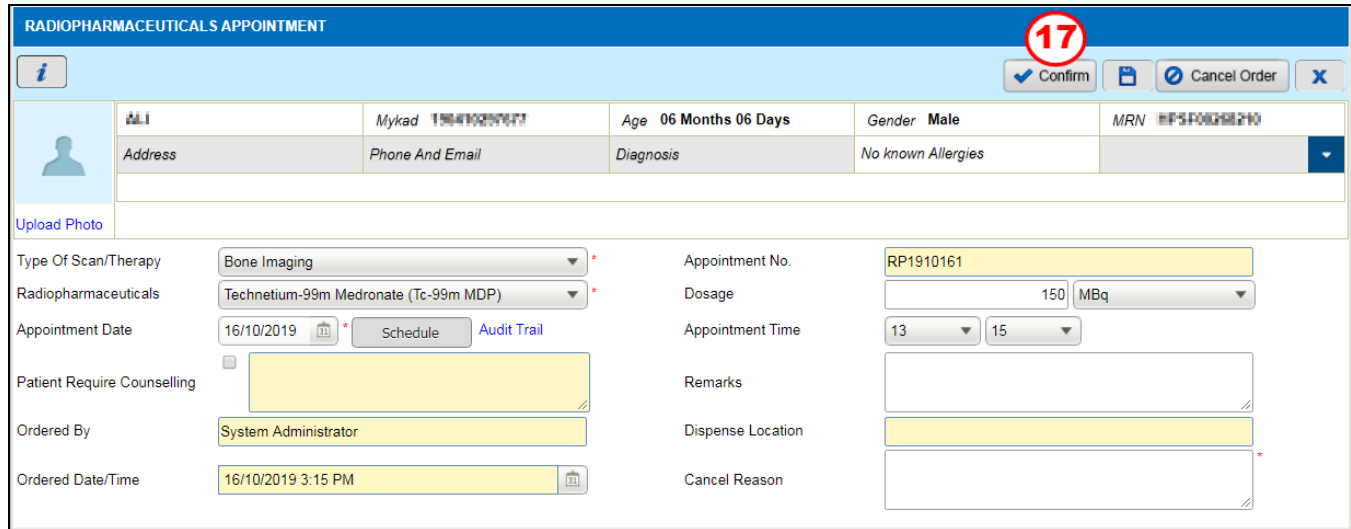


Figure 3.1.1-10 Radiopharmaceuticals Appointment

STEP 17

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

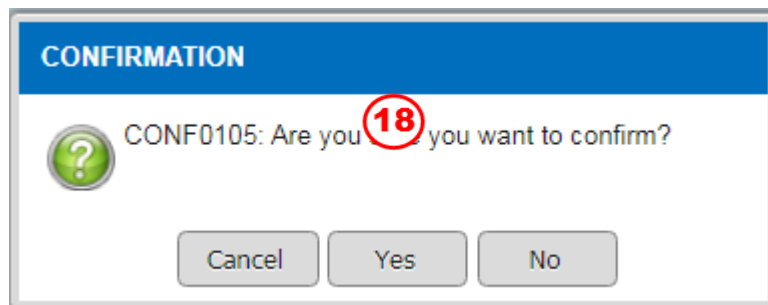
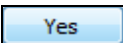


Figure 3.1.1-11 Confirm Order Alert Message

STEP 18

Click on the  button to confirm order

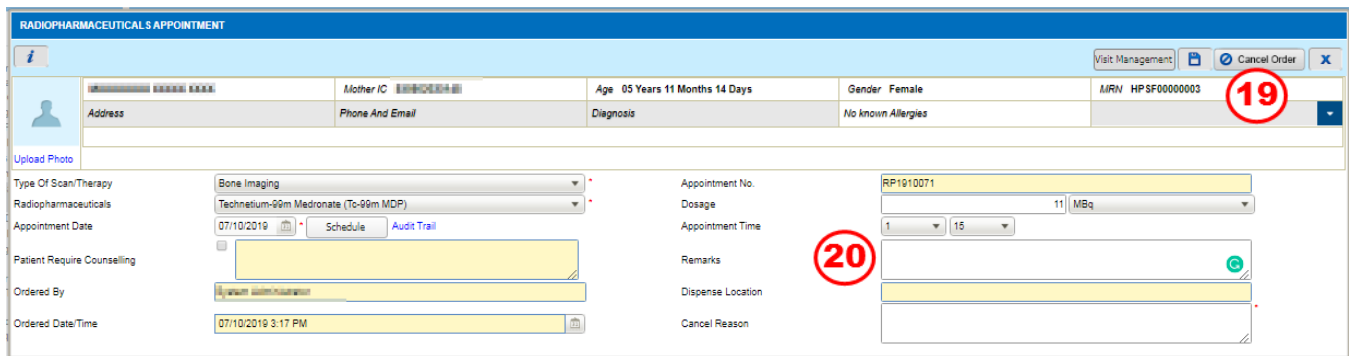
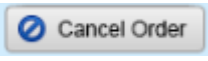


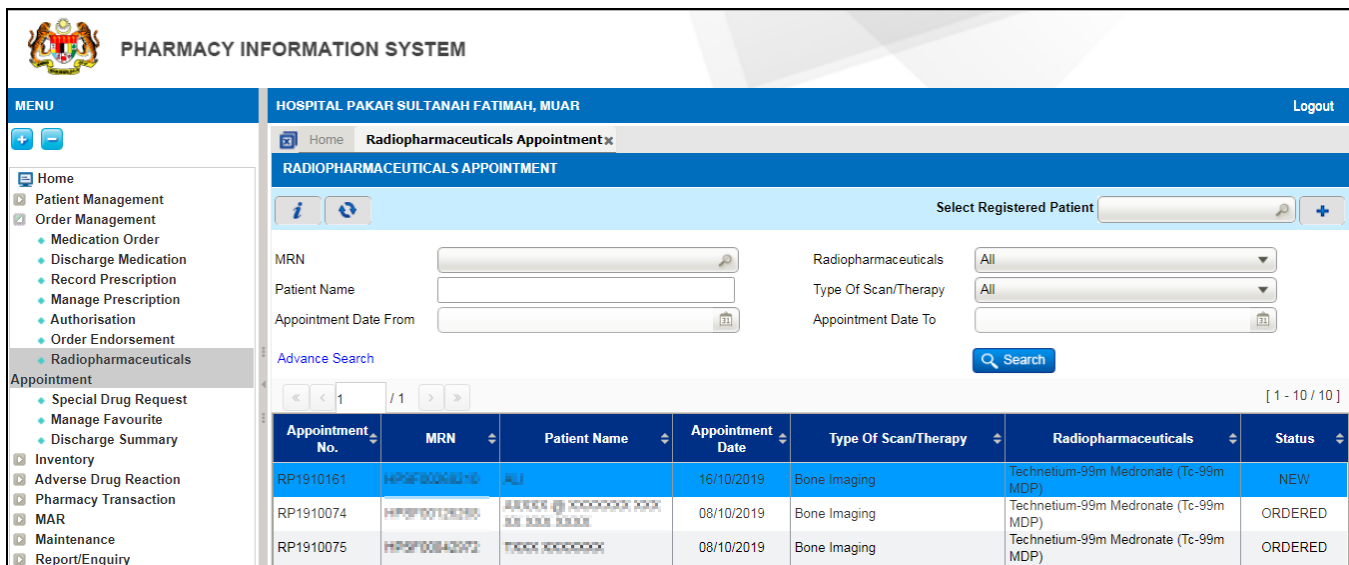
Figure 3.1-12 Radiopharmaceuticals Appointment

STEP 19

Click on the  button to cancel Radiopharmaceuticals Appointment

STEP 20

Enter cancel reason



Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910161	HPSF00000000	AL	16/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	NEW
RP1910074	HPSF00126265	AL	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1910075	HPSF00042073	AL	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED

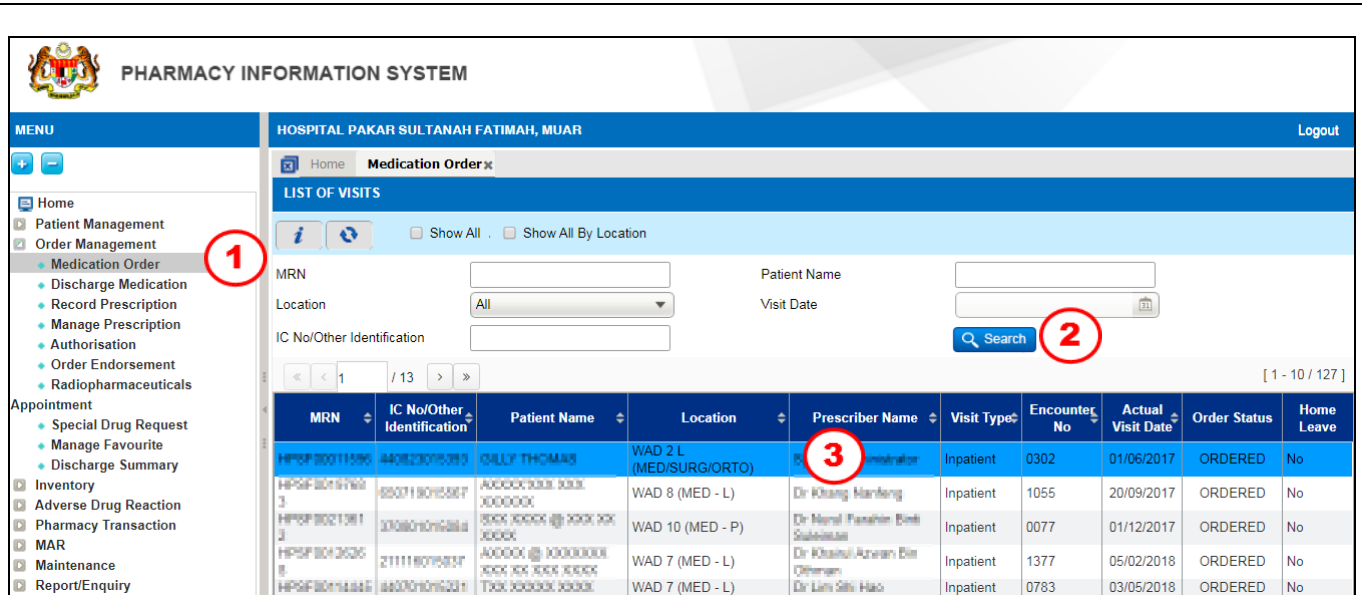
Figure 3.1.1-13 Radiopharmaceuticals Appointment

Note

Record status is updated to New as per Figure 3.1.1-13.

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	Actual Visit Date	Order Status	Home Leave
HPSP80211590	440823006393	QUILY THOMAS	WAD 2 L (MED/SURG/ORTO)	Dr. Kheng Hanlong	Inpatient	0302	01/06/2017	ORDERED	No
HPSP8019769	850718015867	XXXXXX XXX XXXXXX	WAD 8 (MED - L)	Dr. Kheng Hanlong	Inpatient	1055	20/09/2017	ORDERED	No
HPSP8021381	200801010284	XXXX XXXX @ XXX XX	WAD 10 (MED - P)	Dr. Nural Fakhri Bin Subhan	Inpatient	0077	01/12/2017	ORDERED	No
HPSP8043636	211118075837	XXXX @ XXXXXXX	WAD 7 (MED - L)	Dr. Khairul Azwan Bin Othman	Inpatient	1377	05/02/2018	ORDERED	No
HPSP8014447	440701010281	XXXX XXXX XXXX	WAD 7 (MED - L)	Dr. Lim Shi Hao	Inpatient	0783	03/05/2018	ORDERED	No

Figure 3.2-1 Medication Order Listing Page

STEP 1

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

Note

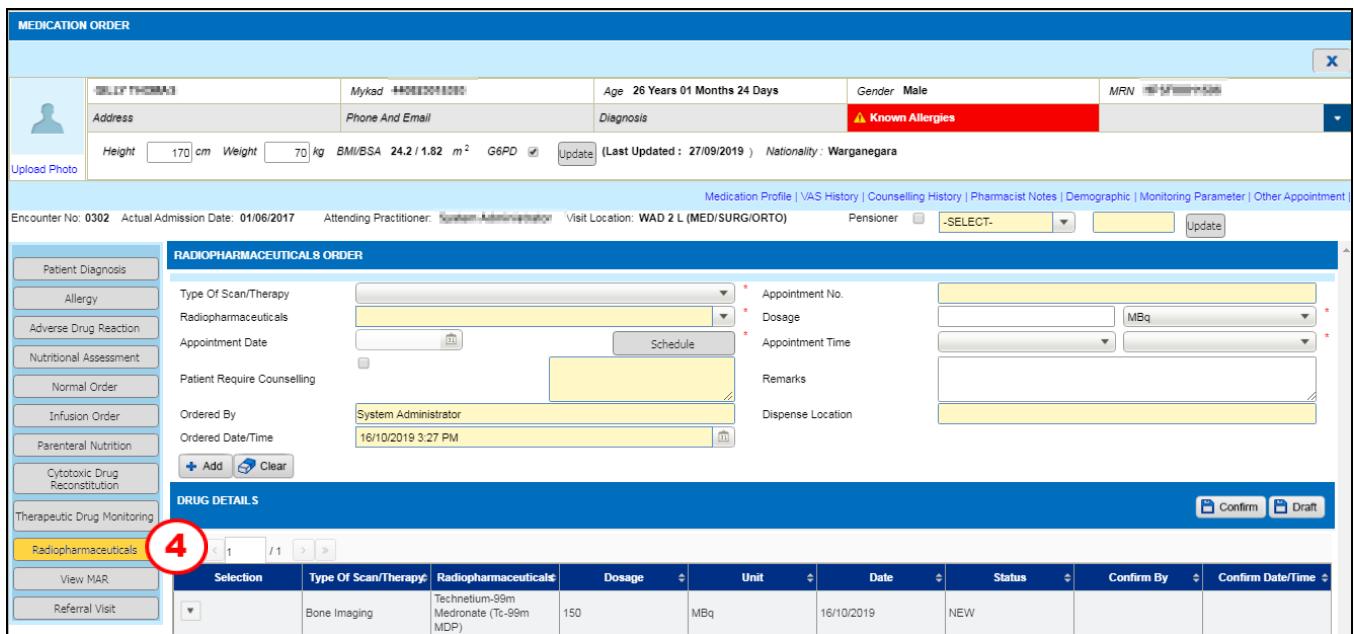
- User have the options to view patient by clicking the check box :-
 - Show All
 - Show All By Location
- Various search criteria is provided as below:
 - MRN
 - Patient name
 - Location
- By default list of patient will be displayed according to user location access.
- Click on the [Advanced Search](#)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



MEDICATION ORDER

Patient: **CELLY THOMAS** Mykad: ********* Age: **26 Years 01 Months 24 Days** Gender: **Male** MRN: *********

Address: ********* Phone And Email: ********* Diagnosis: ********* **Known Allergies**

Height: **170** cm Weight: **70** kg BMI/BSA: **24.2 / 1.82 m²** G6PD: **✓** Update (Last Updated: 27/09/2019) Nationality: **Warganegara**

Encounter No: **0302** Actual Admission Date: **01/06/2017** Attending Practitioner: **System Administrator** Visit Location: **WAD 2 L (MED/SURG/ORTO)** Pensioner: **-SELECT-** Update

RADIOPHARMACEUTICALS ORDER

Type Of Scan/Therapy: ********* Appointment No.: *********

Radiopharmaceuticals: ********* Dosage: ********* MBq

Appointment Date: ********* Appointment Time: *********

Patient Require Counselling: ********* Remarks: *********

Ordered By: **System Administrator** Dispense Location: *********

Ordered Date/Time: **16/10/2019 3:27 PM**

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
Selection	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	150	MBq	16/10/2019	NEW		

Figure 3.2-2 Medication Order

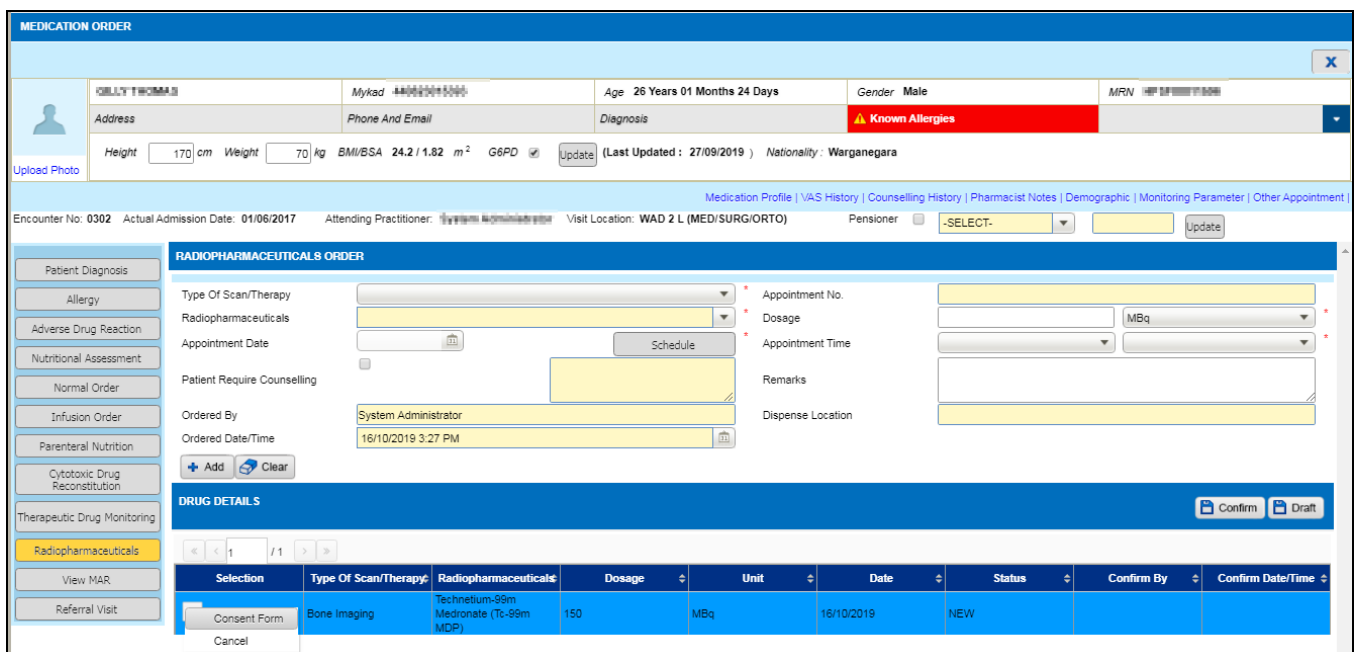
STEP 4

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.



MEDICATION ORDER

Patient: **CELLY THOMAS** Mykad: ********* Age: **26 Years 01 Months 24 Days** Gender: **Male** MRN: *********

Address: ********* Phone And Email: ********* Diagnosis: ********* **Known Allergies**

Height: **170** cm Weight: **70** kg BMI/BSA: **24.2 / 1.82 m²** G6PD: **✓** Update (Last Updated: 27/09/2019) Nationality: **Warganegara**

Encounter No: **0302** Actual Admission Date: **01/06/2017** Attending Practitioner: **System Administrator** Visit Location: **WAD 2 L (MED/SURG/ORTO)** Pensioner: **-SELECT-** Update

RADIOPHARMACEUTICALS ORDER

Type Of Scan/Therapy: ********* Appointment No.: *********

Radiopharmaceuticals: ********* Dosage: ********* MBq

Appointment Date: ********* Appointment Time: *********

Patient Require Counselling: ********* Remarks: *********

Ordered By: **System Administrator** Dispense Location: *********

Ordered Date/Time: **16/10/2019 3:27 PM**

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
Selection	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	150	MBq	16/10/2019	NEW		

Consent Form

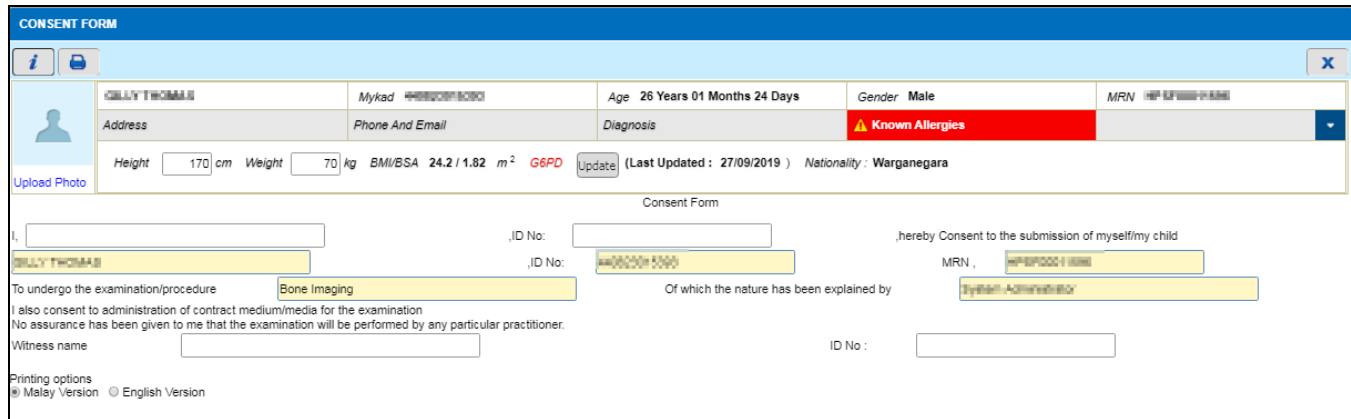
Cancel

Figure 3.2-3 Medication Order –Radiopharmaceuticals

Note

Consent Form:

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



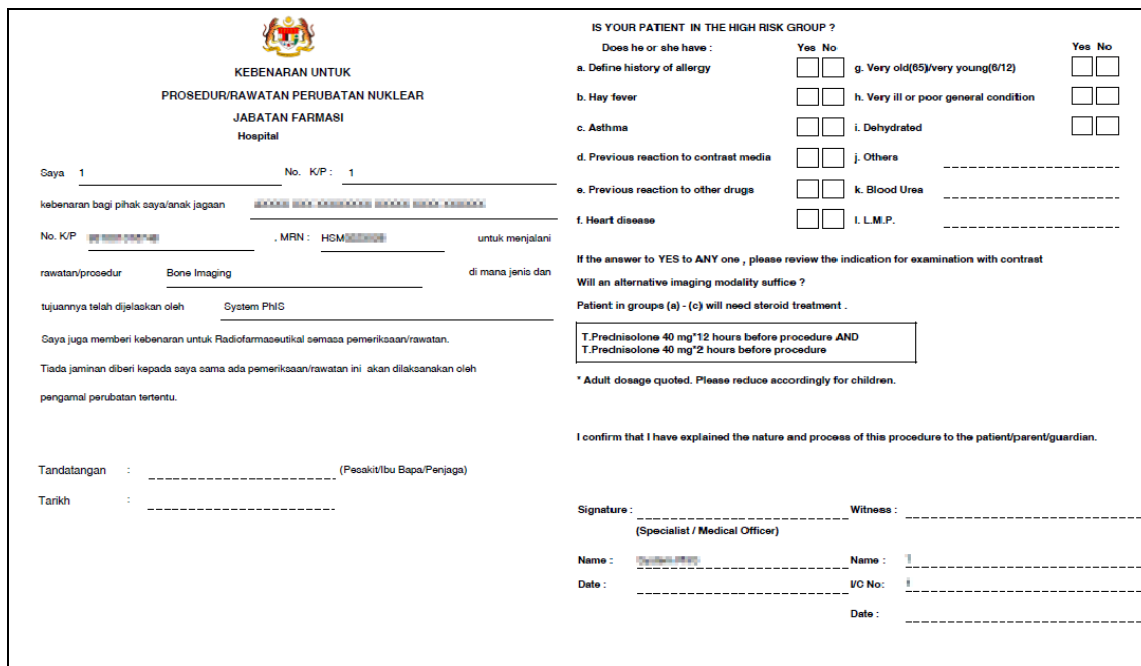
The screenshot shows the 'CONSENT FORM' interface. At the top, there's a header with a blue bar. Below it, a patient information section includes fields for Name (JELLY THOMAS), Mykad (444444444444), Age (26 Years 01 Months 24 Days), Gender (Male), and MRN (444444444444). There's also a 'Known Allergies' section with a red warning icon. Below this, a 'Consent Form' section contains fields for Patient ID No., Witness ID No., and a checkbox for 'I, [Name], hereby Consent to the submission of myself/my child'. There's also a section for 'To undergo the examination/procedure' with a dropdown menu showing 'Bone Imaging'. At the bottom, there are 'Printing options' for 'Malay Version' and '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

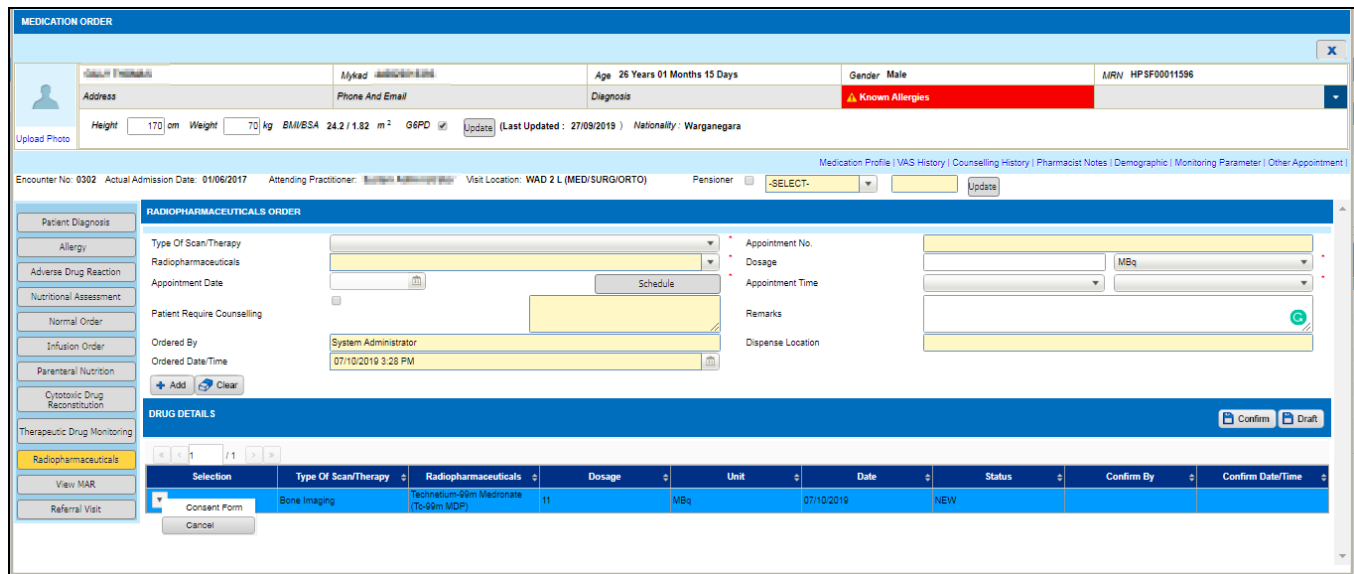


The sample consent form is titled 'KEBENARAN UNTUK PROSEDUR/RAWATAN PERUBATAN NUKLEAR JABATAN FARMASI Hospital'. It contains a section for 'IS YOUR PATIENT IN THE HIGH RISK GROUP?' with a table of questions and checkboxes. The questions are: a. Define history of allergy, b. Hay fever, c. Asthma, d. Previous reaction to contrast media, e. Previous reaction to other drugs, f. Heart disease, g. Very old(65)/very young(6/12), h. Very ill or poor general condition, i. Dehydrated, j. Others, k. Blood Urea, l. L.M.P. The form also includes a section for 'If the answer to YES to ANY one, please review the indication for examination with contrast' and a box for 'T.Prednisolone 40 mg*12 hours before procedure AND T.Prednisolone 40 mg*2 hours before procedure'. At the bottom, there are fields for 'Tandatangan' (Signature) and 'Tarikh' (Date) for the patient/parent/guardian and the specialist/medical officer.

Figure 3.2-5 Sample Consent Form

Note

Sample of Consent Form as per Figure 3.2-5.



MEDICATION ORDER

Address: [Redacted] Mykad: [Redacted] Age: 26 Years 01 Months 15 Days Gender: Male MRN: HPSF00011596
 Height: 170 cm Weight: 70 kg BMI/BSA: 24.2 / 1.82 m² G6PD: [X] Update (Last Updated: 27/09/2019) Nationality: Warganegara

Encounter No: 0302 Actual Admission Date: 01/06/2017 Attending Practitioner: [Redacted] Visit Location: WAD 2 L (MEDI/SURG/ORTO) Pensioner: [X] -SELECT- Update

RADIOPHARMACEUTICALS ORDER

Type Of Scan/Therapy: [Redacted] Appointment No.: [Redacted]
 Radiopharmaceuticals: [Redacted] Dosage: [Redacted] MBq
 Appointment Date: [Redacted] Appointment Time: [Redacted]
 Patient Require Counseling: [X] Remarks: [Redacted]
 Ordered By: System Administrator
 Ordered Date/Time: 07/10/2019 3:28 PM Dispense Location: [Redacted]

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
Consent Form	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	11	MBq	07/10/2019	NEW		

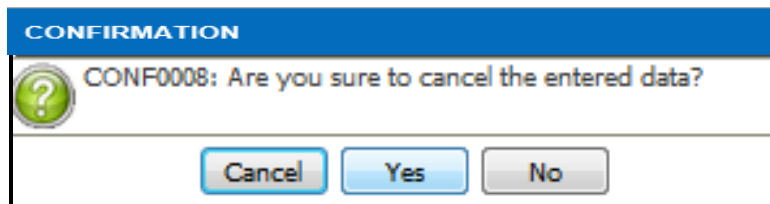
Buttons: Confirm, Draft, Add, Clear

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.



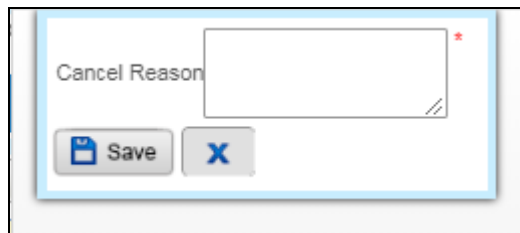
CONFIRMATION

CONF0008: Are you sure to cancel the entered data?

Buttons: Cancel, Yes, No

Figure 3.2-7 Cancel Order Alert Message

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



Cancel Reason: [Text Input Field]

Buttons: Save, X

Figure 3.2-8 Cancel Order

MEDICATION ORDER				
	Name: M/S. S. S. S.	Mykid: S.S.S.S.S.S.S.S.	Age: 26 Years 01 Months 15 Days	Gender: Male
Address:	Phone And Email:	Diagnosis:	Known Allergies	
Height: 170 cm	Weight: 70 kg	BMI/BSA: 24.2 / 1.82 m²	G6PD: ✓	Update (Last Updated : 27/09/2019) Nationality: Warganegara

Encounter No: 0302 Actual Admission Date: 01/06/2017 Attending Practitioner: **Hipokritus S.S.S.S.S.S.S.S.** Visit Location: WAD 2 L (MEDI/SURG/ORTO) Pensioner: **-SELECT-** Update

Medication Profile | VAS History | Counseling History | Pharmacist Notes | Demographic | Monitoring Parameter | Other Appointment

RADIOPHARMACEUTICALS ORDER

Patient Diagnosis	Type Of Scan/Therapy	Appointment No.
Allergy	Radiopharmaceuticals	Dosage
Adverse Drug Reaction	Appointment Date	Appointment Time
Nutritional Assessment	Schedule	Remarks
Normal Order	Patient Require Counseling	Dispense Location
Infusion Order	Ordered By	
Parenteral Nutrition	Ordered Date/Time	
Cytotoxic Drug Reconstitution	+ Add - Clear	
Therapeutic Drug Monitoring		

DRUG DETAILS

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
▼	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	11	MBq	07/10/2019	NEW		

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.

INFORMATION

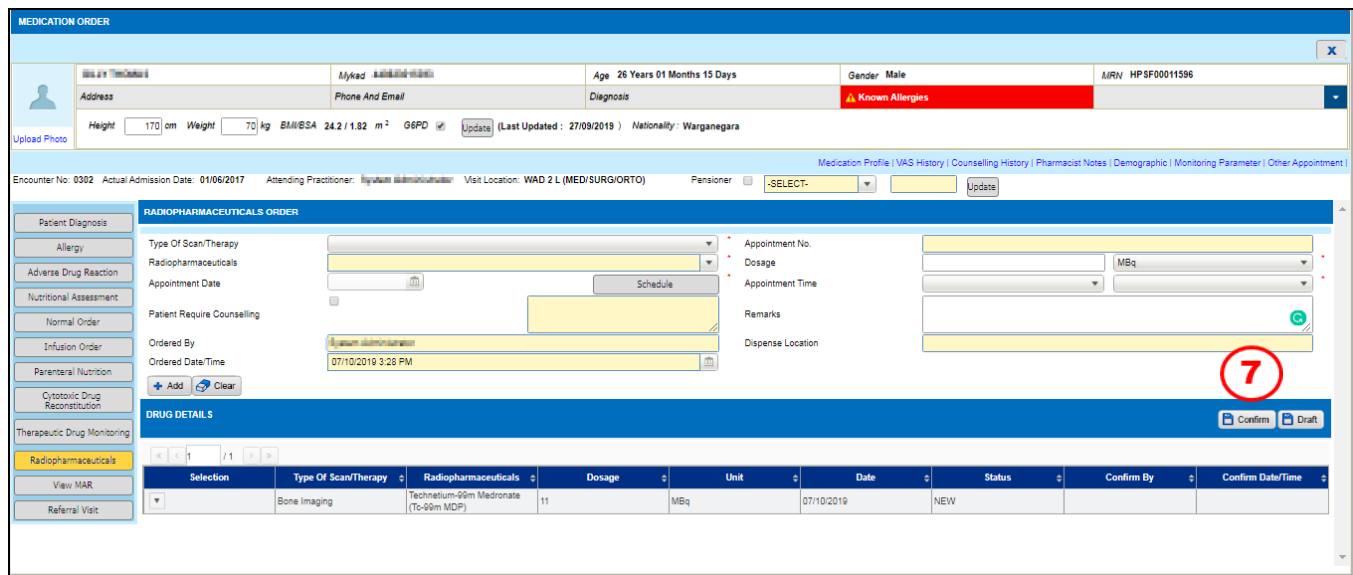
 INFO0347: RadiopharmaOrder Appointment Record
Saved/Updated Successfully

Figure 3.2-10 Alert Message

STEP 6

Click on the  button to save data



MEDICATION ORDER

Encounter No: 0302 Actual Admission Date: 01/05/2017 Attending Practitioner: [Name] Visit Location: WAD 2 L (MED/SURG/ORTO) Pensioner: []

RADIOPHARMACEUTICALS ORDER

Type Of Scan/Therapy: [] Appointment No: [] Dosage: [] MBq

Appointment Date: [] Appointment Time: []

Remarks: []

Dispense Location: []

DRUG DETAILS

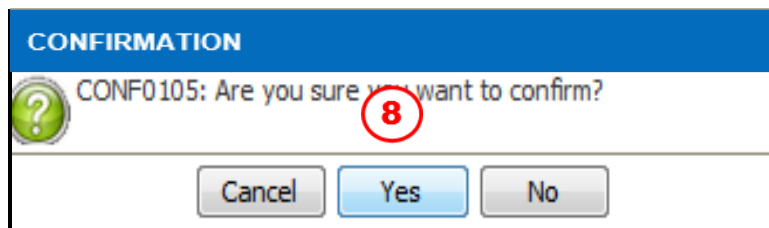
Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
[]	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	11	MBq	07/10/2019	NEW		

Buttons: Confirm, Draft

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



CONFIRMATION

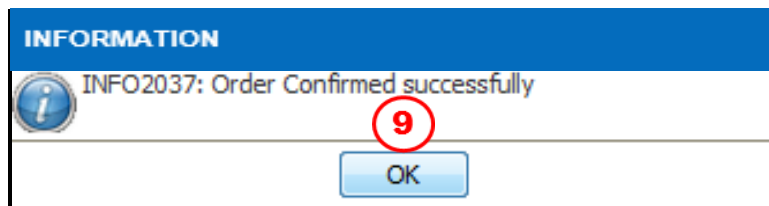
CONF0105: Are you sure you want to confirm?

Buttons: Cancel, Yes, No

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



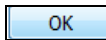
INFORMATION

INFO2037: Order Confirmed successfully

Button: OK

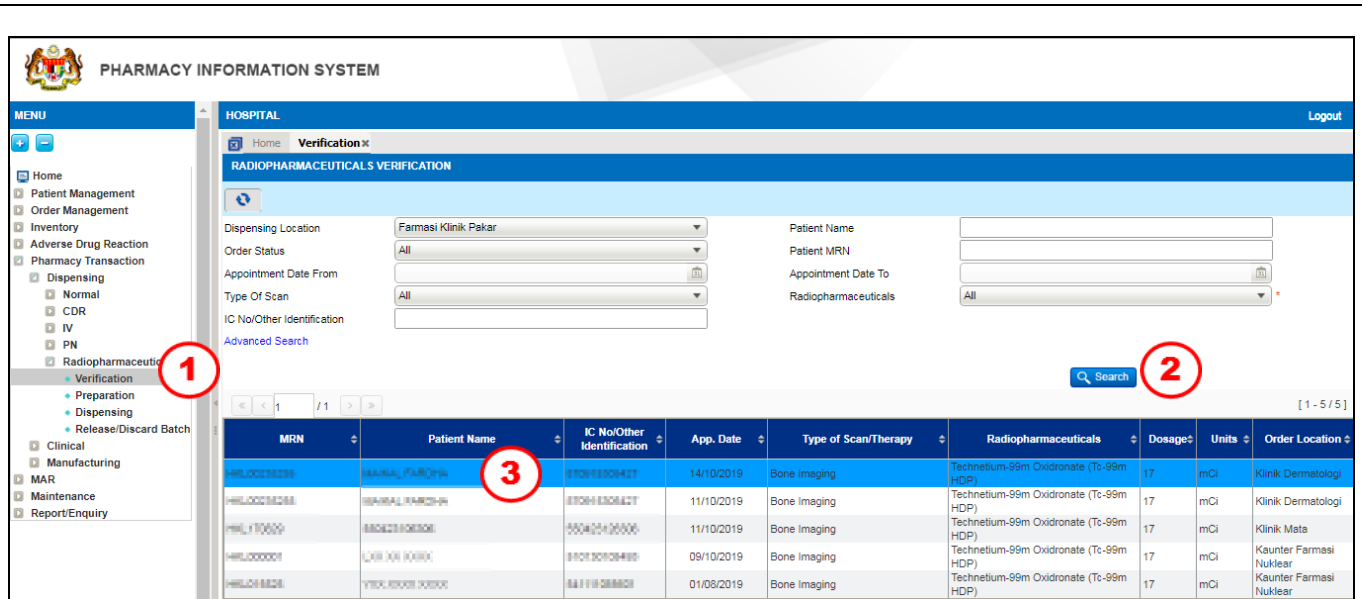
Figure 3.2-13 Alert Message

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.



PHARMACY INFORMATION SYSTEM

HOSPITAL Logout

RADIOPHARMACEUTICALS VERIFICATION

Dispensing Location: Patient Name:

Order Status: Patient MRN:

Appointment Date From: Appointment Date To:

Type Of Scan: Radiopharmaceuticals:

IC No/Other Identification:

[Advanced Search](#) Search

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
PH1000001	ABANG, FARIDAH	81021030421	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
PH1000001	ABANG, FARIDAH	81021030421	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
PH1000001	ABANG, FARIDAH	81021030421	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Mata
PH1000001	ABANG, FARIDAH	81021030421	09/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
PH1000001	ABANG, FARIDAH	81021030421	01/08/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear

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
 - 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 display Radiopharmaceuticals Verification screen as per Figure 3.3-2

Encounter No: 0003 Actual Visit Date: 12/10/2019 Visit Location: Klinik Dermatologi Rx No: FKP0000741021 Order By: ~~System Administration~~ Transcribed By: ~~System Administration~~ 4

Original Prescription Serial No: 0987987

PRESCRIPTION Verify

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Oxidronate (Tc-99m HDP)	App Date/Time: 14/10/2019 13:30 Scan/Therapy: Bone Imaging	☐ Details	17 mCi	0 mCi	Remarks	Ordered

Figure 3.3-2 Radiopharmaceuticals Verification

STEP 4

Click on  button to verify order

Note

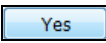
- *Drug Counselling column is an optional function.*
- Choose **Yes** if the patient need counselling or **No** if the patient do not need counselling.

CONFIRMATION

 CONF0061: Do you want to proceed with the verification? 5

Figure 3.3-3 Information Alert Message

STEP 5

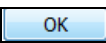
Click on the  button to proceed with the verification

INFORMATION

 INFO0103: Your Record has been Verified Successfully 6

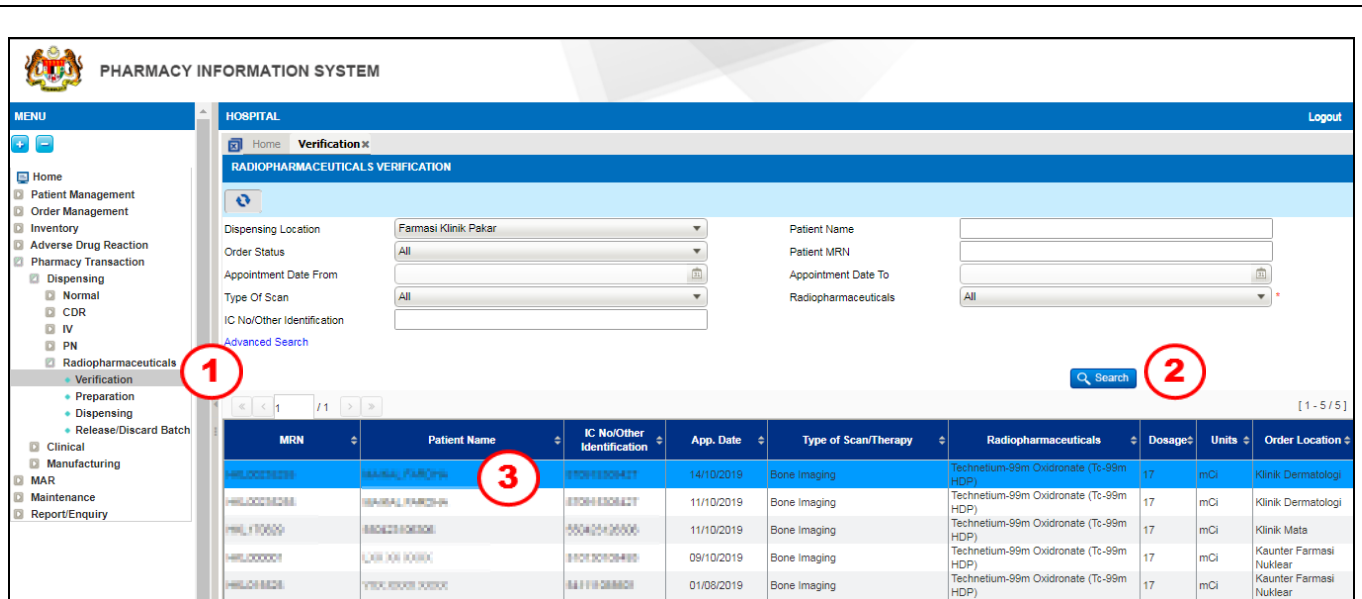
Figure 3.3-4 Verify Order Alert Message

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 Logout

Verification

RADIOPHARMACEUTICALS VERIFICATION

Dispensing Location: Patient Name:

Order Status: Patient MRN:

Appointment Date From: Appointment Date To:

Type Of Scan: Radiopharmaceuticals:

[Advanced Search](#) Search

[1 - 5 / 5]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
000000001	ABANG, FADZL	0100100000000	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
000000002	ABANG, FADZL	0100100000000	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
000000003	ABANG, FADZL	0100100000000	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Mata
000000004	ABANG, FADZL	0100100000000	09/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
000000005	ABANG, FADZL	0100100000000	01/08/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear

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
 - IC No/Other Identification
- 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

Encounter No: 0003 Actual Visit Date: 12/10/2019 Visit Location: Klinik Dermatologi Rx No: FKP0000741021 Order By: System Administrator Transcribed By: System Administrator

Original Prescription Serial No: 0987987

Medication Profile | Counseling History | Pharmacist Notes | Demographic | Monitoring Parameter | Other Appointment

PRESCRIPTION Verify

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Macroaggregated Albumin (Tc-99m HDP)	App Date/Time: 14/10/2019 13:30 Scan/Therapy: Bone Imaging	☐ Intervention ☐ Hold	17 mCi	0 mCi	Remarks	Ordered

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 History

PHARMACY REMARKS [1 - 10 / 12]

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

MODIFY ORDER

Appointment No.	RP160524634	Type Of Scan/Therapy	Lung V/Q Perfusion
Radiopharmaceuticals	Technetium-99m Macroaggregated Albumin (Tc-99m HDP)	Dosage	115 MBq
Date	24/05/2016 View Schedule	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.

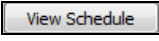
STEP 7

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.

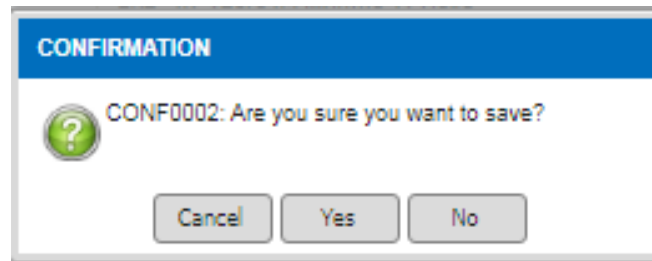
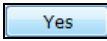


Figure 3.3.1-4 Save record Alert Message

Note

- Click on the  button to save intervention record.

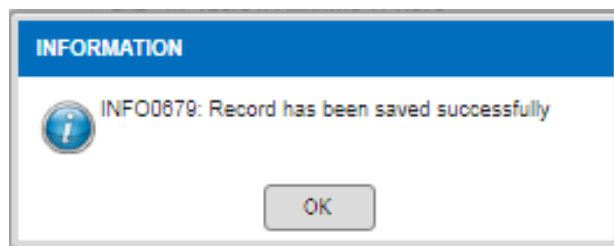
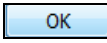


Figure 3.3.1-5 Modify Order Alert Message

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.

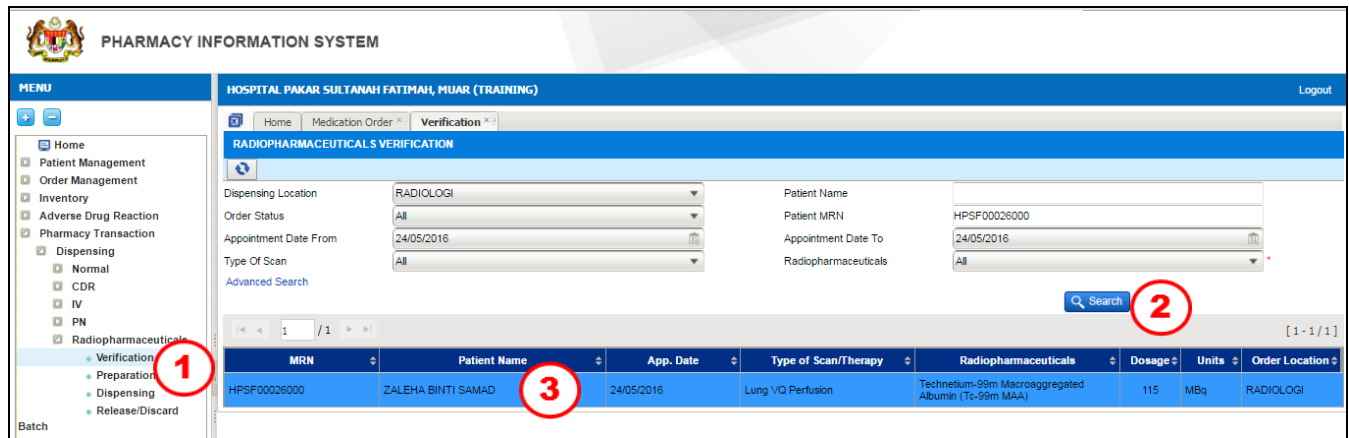


Figure 3.3.2-1 Radiopharmaceuticals Verification Listing Page

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  button and system will display related order

STEP 3

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

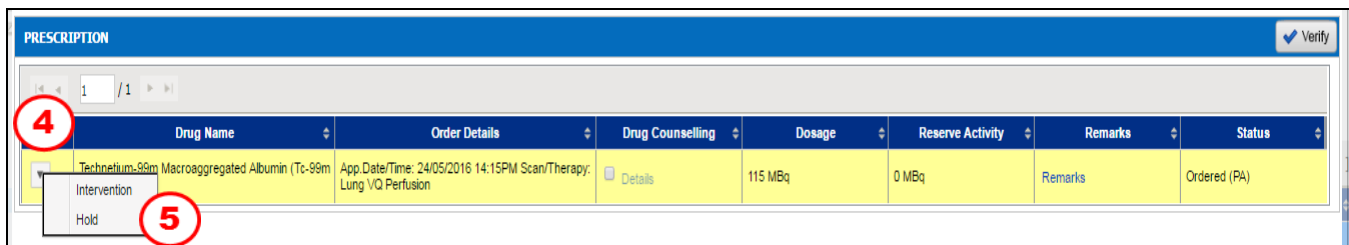


Figure 3.3.2-2 Radiopharmaceuticals Verification Listing Page

STEP 4

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

STEP 5

Click on the  button to hold order

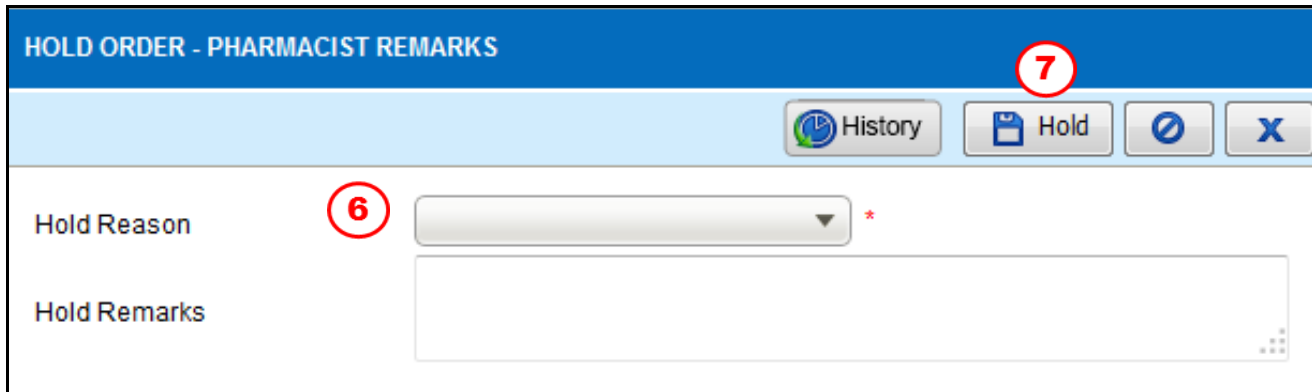


Figure 3.3.2-3 Hold Order – Pharmacist Remarks

STEP 6

Select the **Hold Reason** from dropdown box:

- Authenticity
- Contraindication
- Drug Interaction
- Inappropriate Dose
- Inappropriate Drug
- Inappropriate Duration
- Inappropriate Frequency
- Incompatibility
- Intervention
- Patient Refuse
- 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

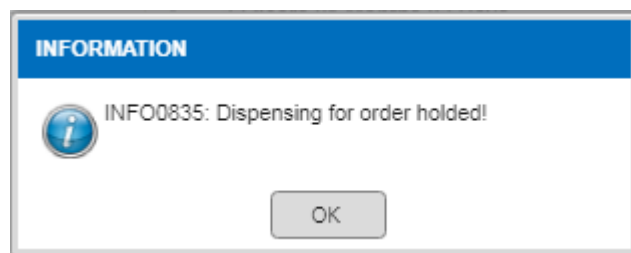


Figure 3.3.2-4 Information Alert Message

Encounter No: 0003 Actual Visit Date: 12/10/2019 Visit Location: Klinik Dermatologi Rx No: FKP0000741021 Order By: *[Signature]* Administered By: *[Signature]* Transcribed By: *[Signature]*

Medication Profile | Counseling History | Pharmacist Notes | Demographic | Monitoring Parameter | Other Appointment

Original Prescription Serial No: 0987987

PRESCRIPTION Verify

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Intervention - 99m Oxidronate (Tl-99m HDP)	App Date/Time: 14/10/2019 13:30 Scan/Therapy Bone Imaging	☐ Details	17 mCi	0 mCi	Remarks	Ordered/Hold

Resume

Figure 3.3.2-5 Radiopharmaceuticals Verification

Note

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

HOLD ORDER - PHARMACIST REMARKS

History Resume X

Hold Reason: Patient Refused *

Hold Remarks: Patient Refused

Resume Remarks:

Figure 3.3.2-6 Hold Order – Pharmacist Remarks

Note

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

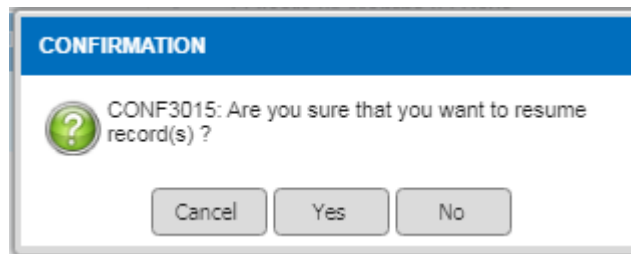
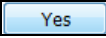


Figure 3.3.2-7 Hold/Resume Alert Message

Note

- Click on the  button to resume order.

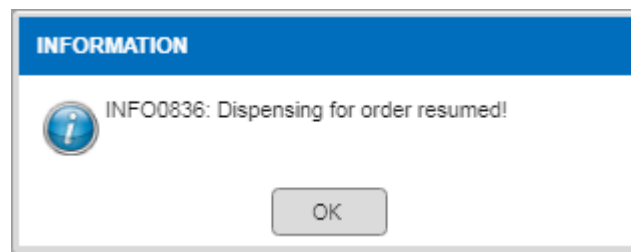
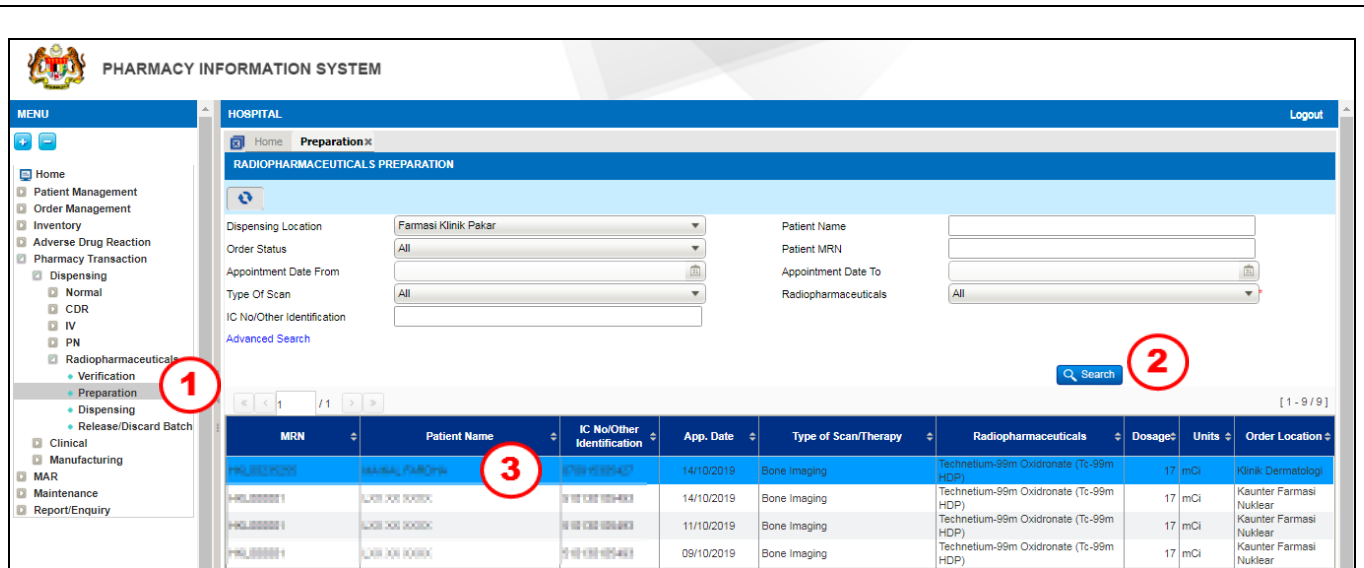


Figure 3.3.2-8 Information Alert Message

3.4 Radiopharmaceutical Preparation

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



PHARMACY INFORMATION SYSTEM

HOSPITAL | Home | Preparation

RADIOPHARMACEUTICALS PREPARATION

Dispensing Location: Farmasi Klinik Pakar
 Order Status: All
 Appointment Date From:
 Type Of Scan: All
 IC No/Other Identification:
[Advanced Search](#)

Patient Name:
 Patient MRN:
 Appointment Date To:
 Radiopharmaceuticals: All

[Search](#)

[1 - 9 / 9]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
PH-00000000000000000000	ABDULLA, FADZILAH	9709 4530421	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
PH-00000000000000000000	ABDULLA, FADZILAH	9709 4530421	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
PH-00000000000000000000	ABDULLA, FADZILAH	9709 4530421	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
PH-00000000000000000000	ABDULLA, FADZILAH	9709 4530421	09/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear

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 [Search](#) button and system will be displayed related order

STEP 3

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

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

Label Packaging Type

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

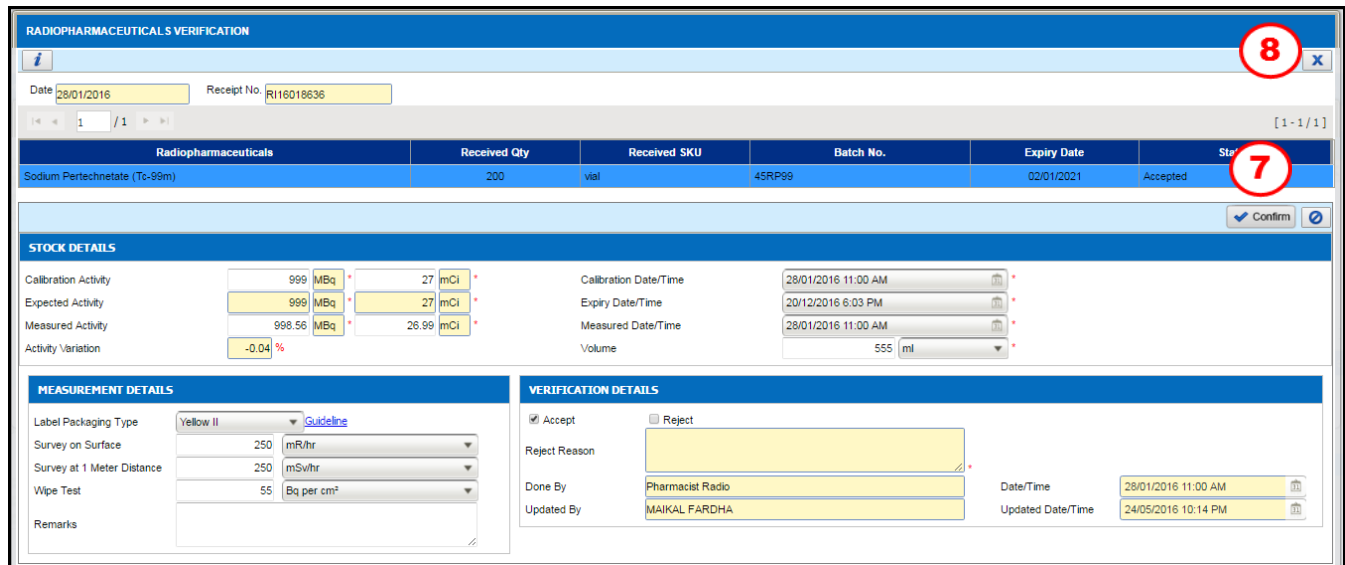
Click on guideline link to get details about measurement details

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

[1 - 1 / 1]

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

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

Updated By: MAIKAL FARDHA

Date/Time: 28/01/2016 11:00 AM

Updated Date/Time: 24/05/2016 10:14 PM

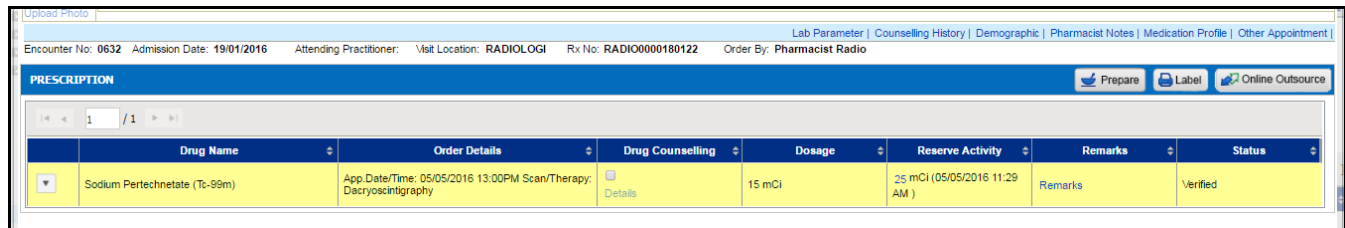
Figure 3.4-6 Batch Details

STEP 7

Click on  button to finalize batch details

STEP 8

Click on  button to close Item Batch Details screen



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

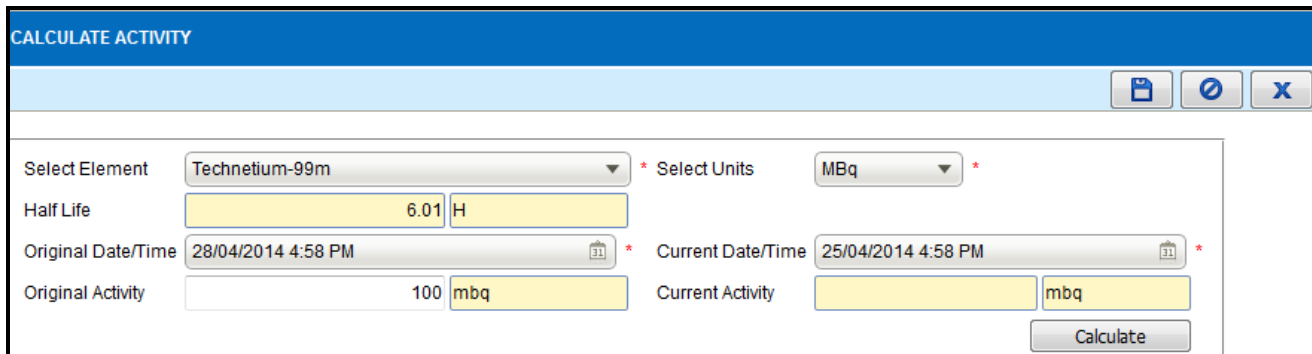
[1 - 1 / 1]

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 3.4-5 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 *

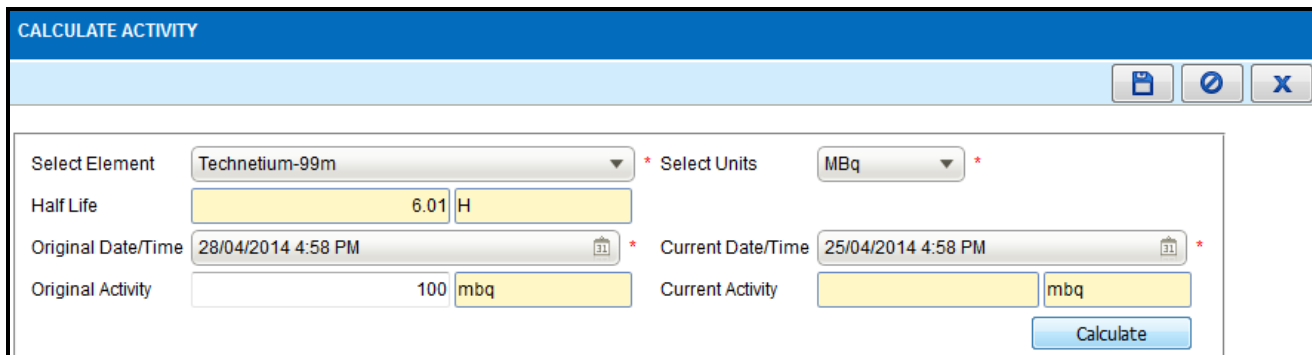
Half Life: 6.01 H

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

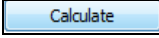
Original Date/Time: 28/04/2014 4:58 PM * Current Date/Time: 25/04/2014 4:58 PM *

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.

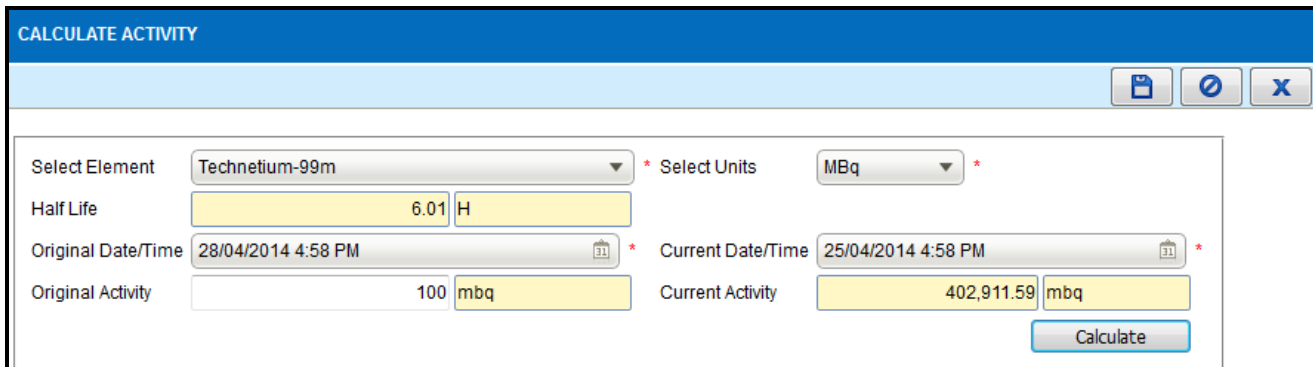


Figure 3.4-8 Calculate Activity

Note

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

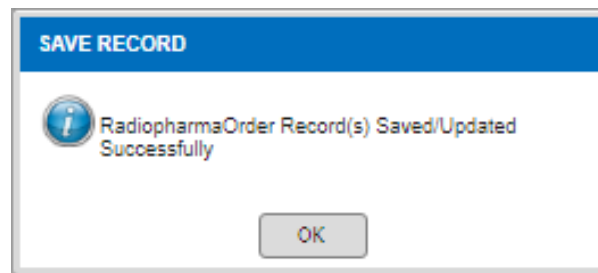
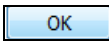


Figure 3.4-9 Save Record Alert Message

Note

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

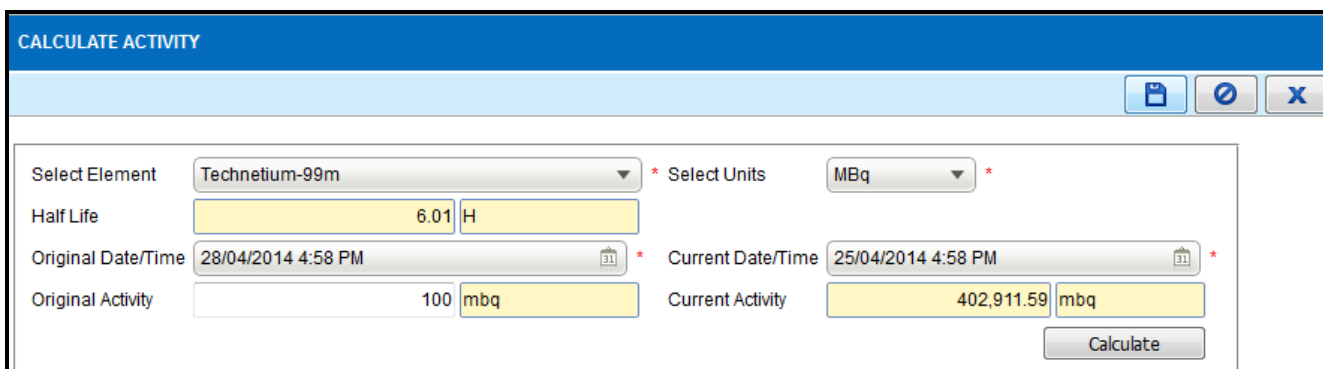


Figure 3.4-10 Calculate Activity

Note

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

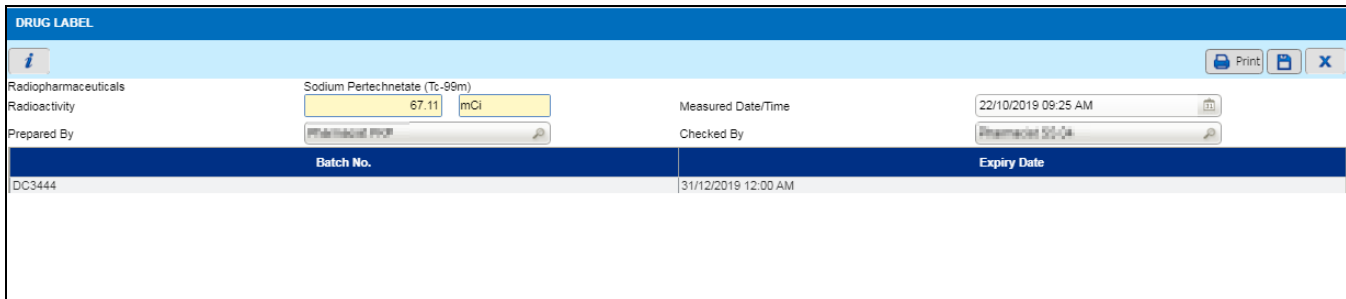


Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App Date/Time: 05/05/2016 13:00PM Scan/Therapy: Dacryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

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.



Batch No.	Expiry Date
DC3444	31/12/2019 12:00 AM

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.
- Select **Prepared By** and **Checked By** field.
- Click on the  button to save record as per Figure 3.4-12.

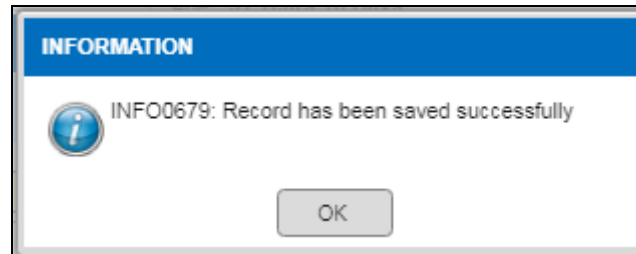
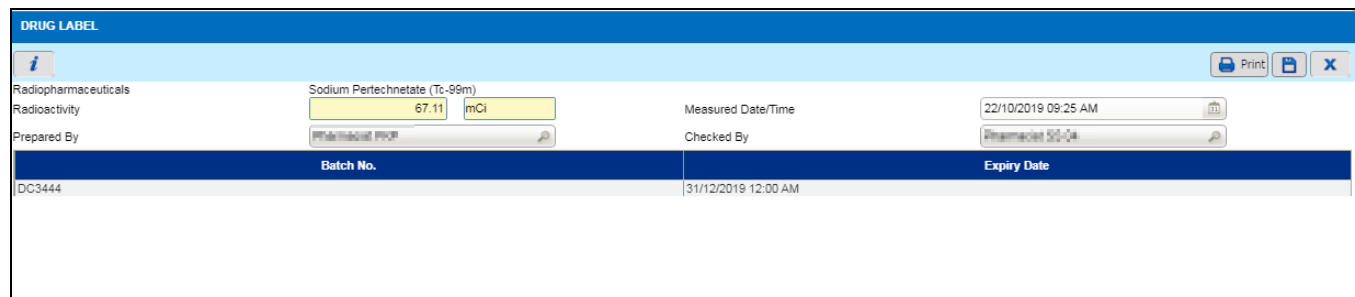


Figure 3.4-13 Alert Message

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 with the text 'DRUG LABEL' and a blue circular icon with a white 'i' inside. Below the header, there are several fields: 'Radiopharmaceuticals' (Sodium Pertechnetate (Tc-99m)), 'Radioactivity' (67.11 mCi), 'Measured Date/Time' (22/10/2019 09:25 AM), and 'Prepared By' (Pharmacist POP). There is also a 'Checked By' field with a signature. At the bottom, there is a table with two columns: 'Batch No.' and 'Expiry Date'. The table contains one row with the values 'DC3444' and '31/12/2019 12:00 AM'. There are 'Print', 'Save', and 'Close' buttons in the top right corner.

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 KUALA LUMPUR
	Drug Name : Sodium Pertechnetate (Tc-99m)
	Batch No : DC3444
XXXX XXXXXX XXX XXXXXXXXXXXX HKL018649	
Radioactivity : 67.11 mCi	
Measured Date/Time : 22/10/2019 09:25 AM	
Prepared By : Pharmacist FKP	
Checked By : Pharmacist SS 04	

Figure 3.4-15 Sample Radiopharmaceuticals Label

Note

Sample of Radiopharmaceuticals Label as per Figure 3.4-15.

DRUG LABEL			
 Print Save Close			
Radiopharmaceuticals	Sodium Pertechnetate (Tc-99m)		
Radioactivity	67.11 mCi	Measured Date/Time	22/10/2019 09:25 AM
Prepared By	Pharmacist FKP	Checked By	Pharmacist SS 04
Batch No.		Expiry Date	
DC3444		31/12/2019 12:00 AM	

Figure 3.4-16 Drug Label

Note

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

PRESCRIPTION							
1	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 3.4-17 Radiopharmaceuticals Preparation

STEP 8 Click on the  button to prepare Radiopharmaceuticals order and alert message will be displayed as per Figure 3.4-17

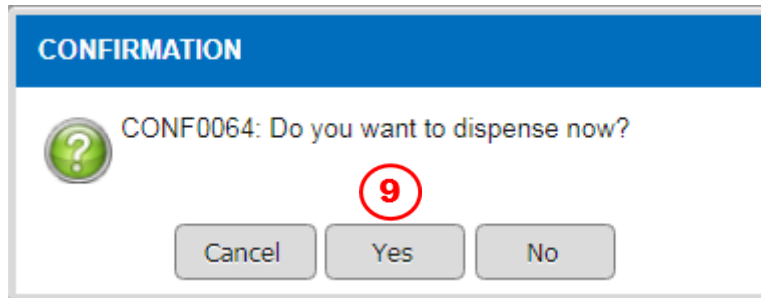


Figure 3.4-18 Ordered Prepared Alert Message

STEP 9

Click on the  button

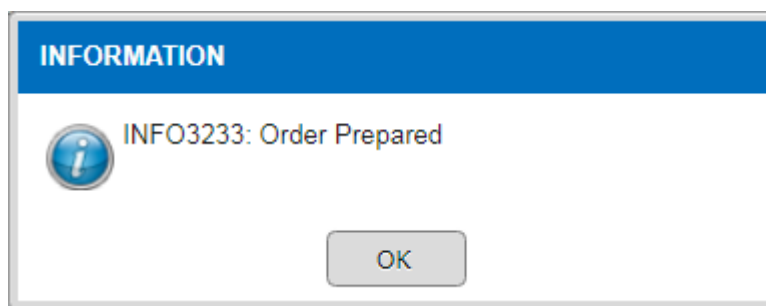
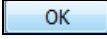


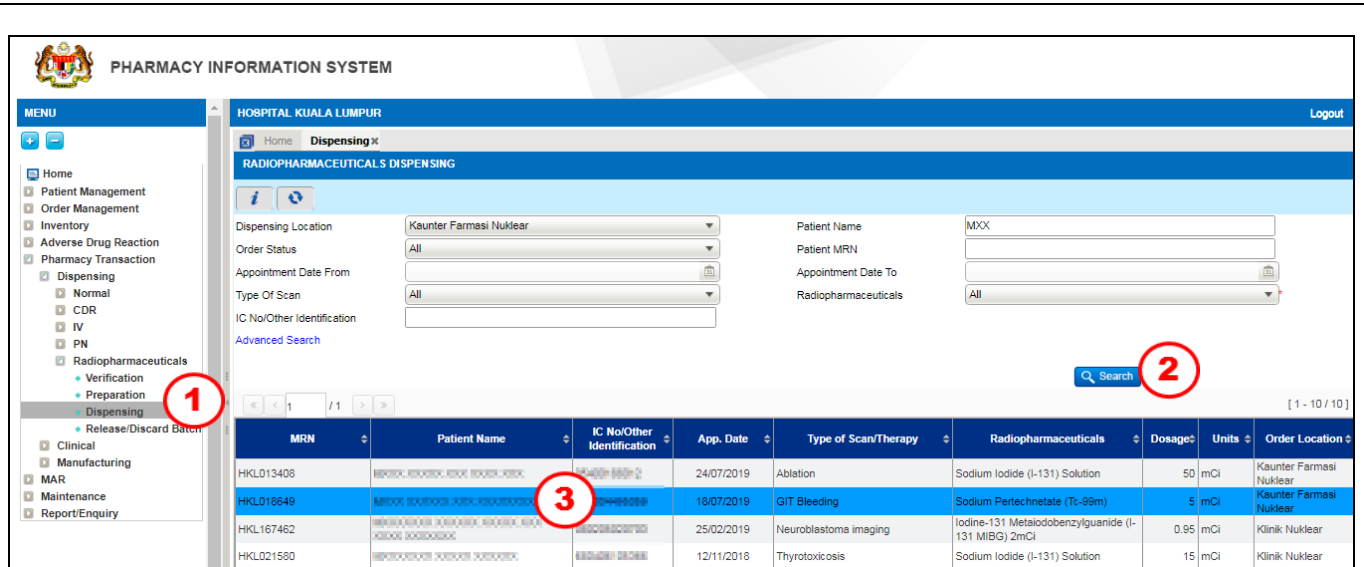
Figure 3.4-19 Ordered Prepared Alert Message

Note

- Click on the  button and order status will be updated to Prepared
- *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 KUALA LUMPUR

Logout

Home Dispensing

RADIOPHARMACEUTICALS DISPENSING

Dispensing Location: Kaunter Farmasi Nuklear

Order Status: All

Appointment Date From:

Type Of Scan: All

IC No/Other Identification:

Advanced Search

Patient Name: MXX

Patient MRN:

Appointment Date To:

Radiopharmaceuticals: All

Search

[1 - 10 / 10]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HKL013408	XXXXXXXXXX XXXX XXXX	XXXXXXXXXX	24/07/2019	Ablation	Sodium Iodide (I-131) Solution	50	mCi	Kaunter Farmasi Nuklear
HKL018649	XXXXXXXXXX XXXX XXXX	XXXXXXXXXX	18/07/2019	GIT Bleeding	Sodium Pertechnetate (Tc-99m)	5	mCi	Kaunter Farmasi Nuklear
HKL167462	XXXXXXXXXX XXXX XXXX	XXXXXXXXXX	25/02/2019	Neuroblastoma imaging	Iodine-131 Metaiodobenzylguanide (I-131 MIBG) 2mCi	0.95	mCi	Klinik Nuklear
HKL021580	XXXXXXXXXX XXXX XXXX	XXXXXXXXXX	12/11/2018	Thyrototoxicosis	Sodium Iodide (I-131) Solution	15	mCi	Klinik Nuklear

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

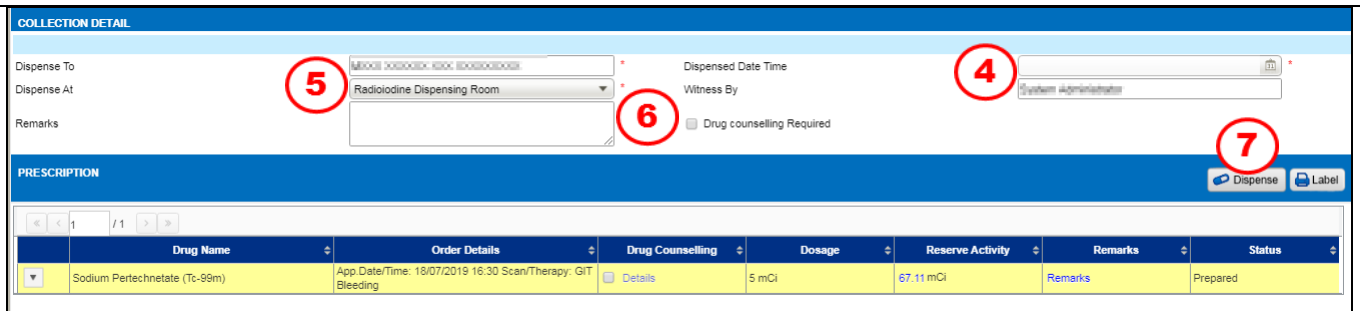
- Various search criteria is provided as below: Dispense Location
 - Patient Name
 - Order Status
 - Patient MRN
 - Appointment Date From
 - Appointment Date To
 - Type of Scan
 - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

STEP 2

Click on the [Search](#) button and system will be displayed related order

STEP 3

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



The screenshot shows the 'COLLECTION DETAIL' and 'PRESCRIPTION' sections of the software interface. Numbered callouts indicate the following fields and actions:

- 4**: Dispensed Date Time field.
- 5**: Dispense At dropdown menu (currently showing 'Radioiodine Dispensing Room').
- 6**: Remarks text area.
- 7**: Dispense button.

The 'PRESCRIPTION' table below the form contains the following data:

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App Date/Time: 15/07/2019 16:30 Scan/Therapy: GIT Bleeding	☐ Details	5 mCi	67.11 mCi	Remarks	Prepared

Figure 3.5-2 Radiopharmaceuticals

Note

Dispense To and Witness By will be automatically displayed by system but still can modify the details.

STEP 4

Select **Dispensed Date Time** field.

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.

STEP 7

Click on the  button to dispense Radiopharmaceuticals and Dispensing Detail screen will be displayed as per Figure 3.5-3

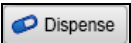
DISPENSING DETAILS
8

<< < 1 / 1 > >>
[1 - 1 / 1]

Ordered Dosage	Allocation Date/Time	Allocated Activity	Dispense Date/Time	Activity to Dispense	Available Activity	Balance Activity After Dispense	Volume to Dispense	QTY(SKU) to Dispense
5 mCi	18/07/2019 11:07 AM	67.1111 mCi	22/10/2019 09:48 AM	0 mCi	0 mCi	0 mCi	0 ml	0 vial

Figure 3.5-3 Dispensing Details Screen

STEP 8

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

CONFIRMATION



CONF0064: Do you want to dispense now?

Cancel

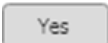
9

Yes

No

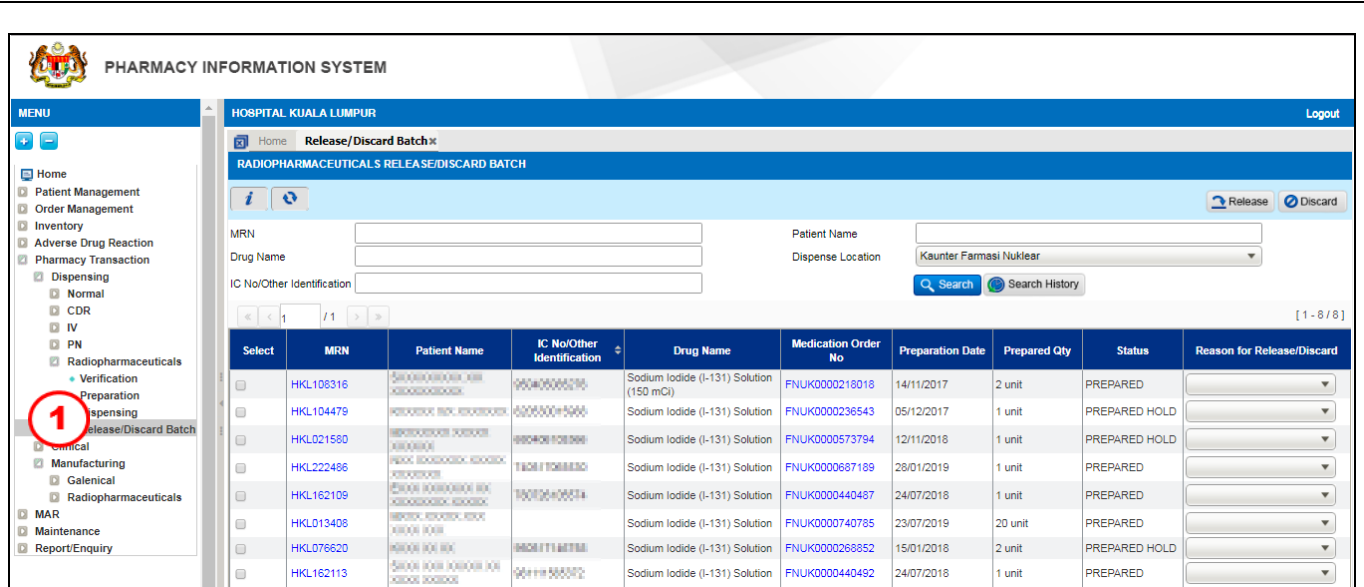
Figure 3.5-4 Information Alert Message

STEP 9

Click on the  button to proceed dispensing

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 KUALA LUMPUR

Home Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

MRN: [] Patient Name: []
 Drug Name: [] Dispense Location: Kaunter Farmasi Nuklear
 IC No/Other Identification: [] Search Search History

[1 - 8 / 8]

Select	MRN	Patient Name	IC No/Other Identification	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☐	HKL106316	SARAH KHAIRAH KHAIR	00000000000000000000	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	[]
☐	HKL104479	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	[]
☐	HKL021580	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	[]
☐	HKL222486	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	[]
☐	HKL162109	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	[]
☐	HKL013406	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	[]
☐	HKL076620	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	[]
☐	HKL162113	ABDULLAH BIN ABU BAKAR	00000000000000000000	Sodium Iodide (I-131) Solution	FNUK0000440492	24/07/2018	1 unit	PREPARED	[]

Figure 3.6-1 Radiopharmaceuticals Release Batch Listing Page

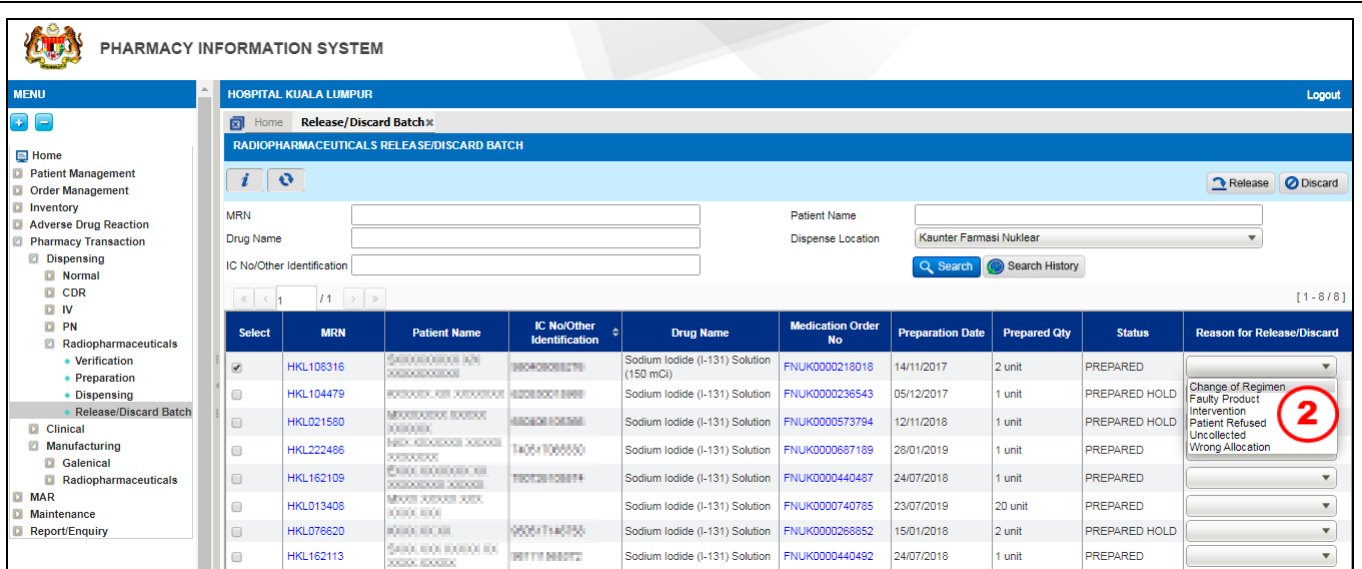
STEP 1

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
- IC No/Other Identification



PHARMACY INFORMATION SYSTEM

HOSPITAL KUALA LUMPUR

Logout

Home Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

MRN: [] Patient Name: []
Drug Name: [] Dispense Location: Kaunter Farmasi Nuklear
IC No/Other Identification: [] Search Search History

[1-8/8]

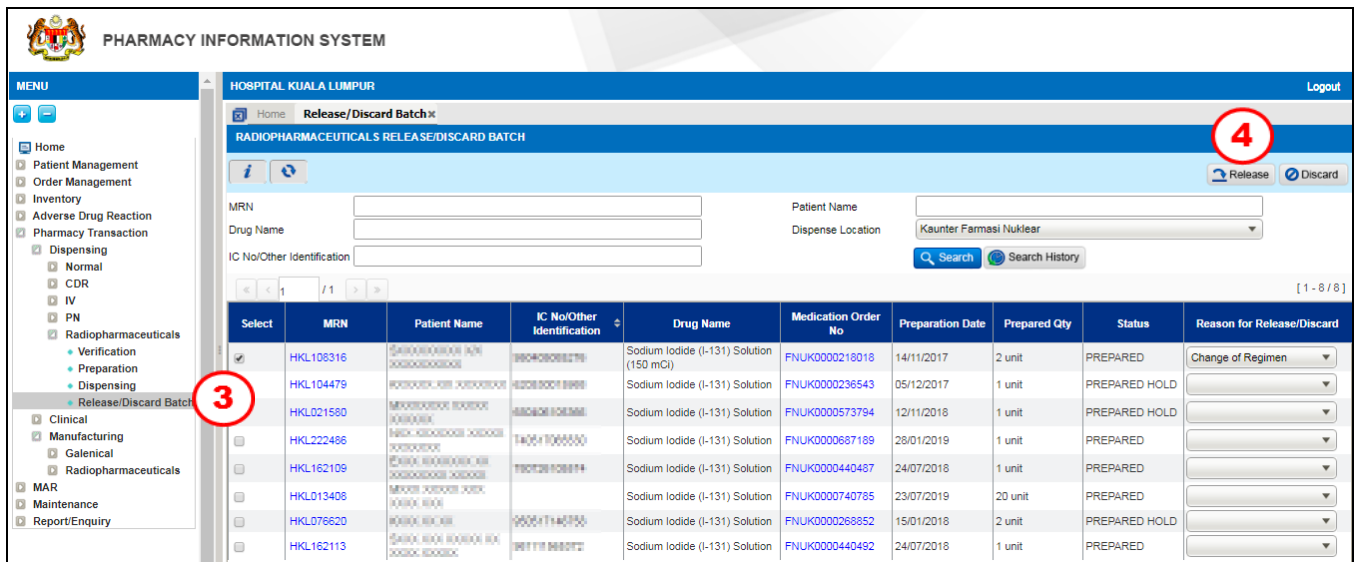
Select	MRN	Patient Name	IC No/Other Identification	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☒	HKL108316	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	Change of Regimen
☐	HKL104479	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	Faulty Product
☐	HKL021580	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	Patient Refused
☐	HKL222486	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	Uncollected
☐	HKL162109	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	Wrong Allocation
☐	HKL013408	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	
☐	HKL078620	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	
☐	HKL162113	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000440492	24/07/2018	1 unit	PREPARED	

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 KUALA LUMPUR

Logout

Home Release/Discard Batch

RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH

MRN: [] Patient Name: []
Drug Name: [] Dispense Location: Kaunter Farmasi Nuklear
IC No/Other Identification: [] Search Search History

[1-8/8]

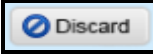
Select	MRN	Patient Name	IC No/Other Identification	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
☒	HKL108316	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	Change of Regimen
☐	HKL104479	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	
☐	HKL021580	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	
☐	HKL222486	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	
☐	HKL162109	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	
☐	HKL013408	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	
☐	HKL078620	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	
☐	HKL162113	[REDACTED]	[REDACTED]	Sodium Iodide (I-131) Solution	FNUK0000440492	24/07/2018	1 unit	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

Note

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

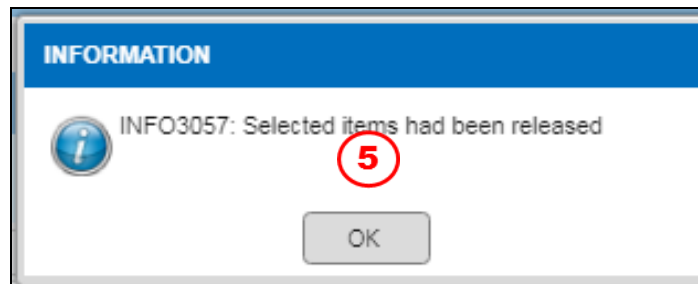
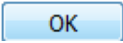


Figure 3.6-4 Information Alert Message

STEP 5

Click on the  button to release selected items

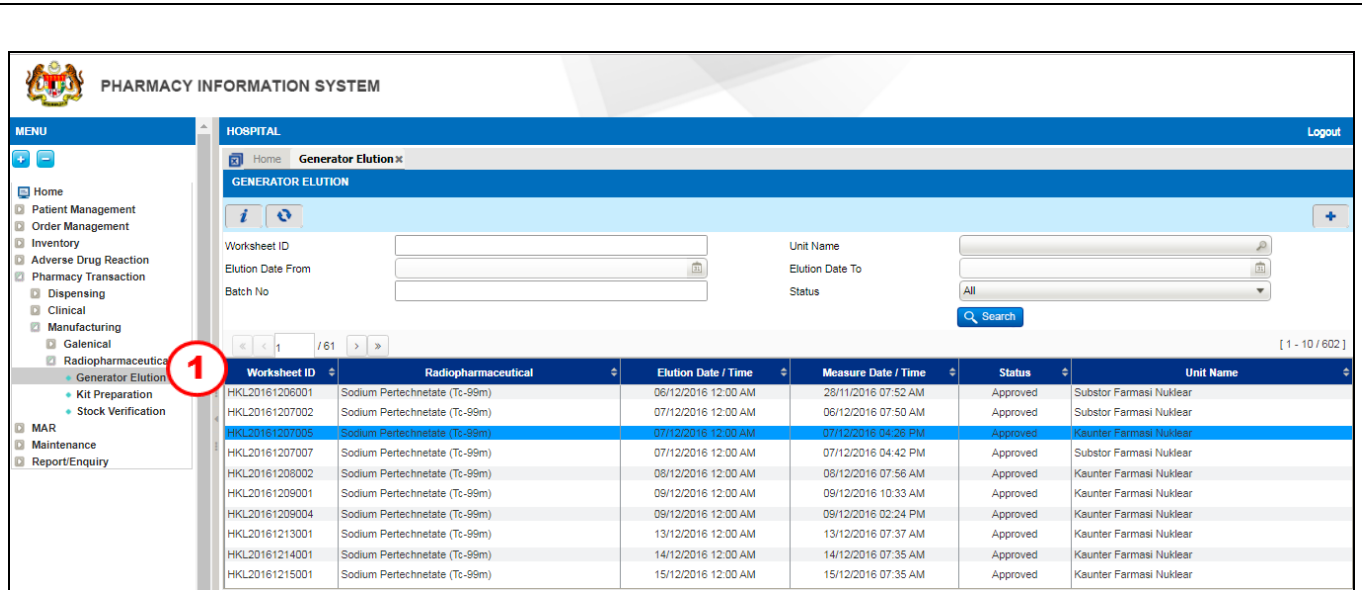
Note

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.



Worksheet ID	Radiopharmaceutical	Elution Date / Time	Measure Date / Time	Status	Unit Name
HKL20161206001	Sodium Pertechnetate (Tc-99m)	06/12/2016 12:00 AM	28/11/2016 07:52 AM	Approved	Substor Farmasi Nuklear
HKL20161207002	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	06/12/2016 07:50 AM	Approved	Substor Farmasi Nuklear
HKL20161207005	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	07/12/2016 04:26 PM	Approved	Kaunter Farmasi Nuklear
HKL20161207007	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	07/12/2016 04:42 PM	Approved	Substor Farmasi Nuklear
HKL20161208002	Sodium Pertechnetate (Tc-99m)	08/12/2016 12:00 AM	08/12/2016 07:56 AM	Approved	Kaunter Farmasi Nuklear
HKL20161209001	Sodium Pertechnetate (Tc-99m)	09/12/2016 12:00 AM	09/12/2016 10:33 AM	Approved	Kaunter Farmasi Nuklear
HKL20161209004	Sodium Pertechnetate (Tc-99m)	09/12/2016 12:00 AM	09/12/2016 02:24 PM	Approved	Kaunter Farmasi Nuklear
HKL20161213001	Sodium Pertechnetate (Tc-99m)	13/12/2016 12:00 AM	13/12/2016 07:37 AM	Approved	Kaunter Farmasi Nuklear
HKL20161214001	Sodium Pertechnetate (Tc-99m)	14/12/2016 12:00 AM	14/12/2016 07:35 AM	Approved	Kaunter Farmasi Nuklear
HKL20161215001	Sodium Pertechnetate (Tc-99m)	15/12/2016 12:00 AM	15/12/2016 07:35 AM	Approved	Kaunter Farmasi Nuklear

Figure 3.7.1-1 Generator Elution Listing Page

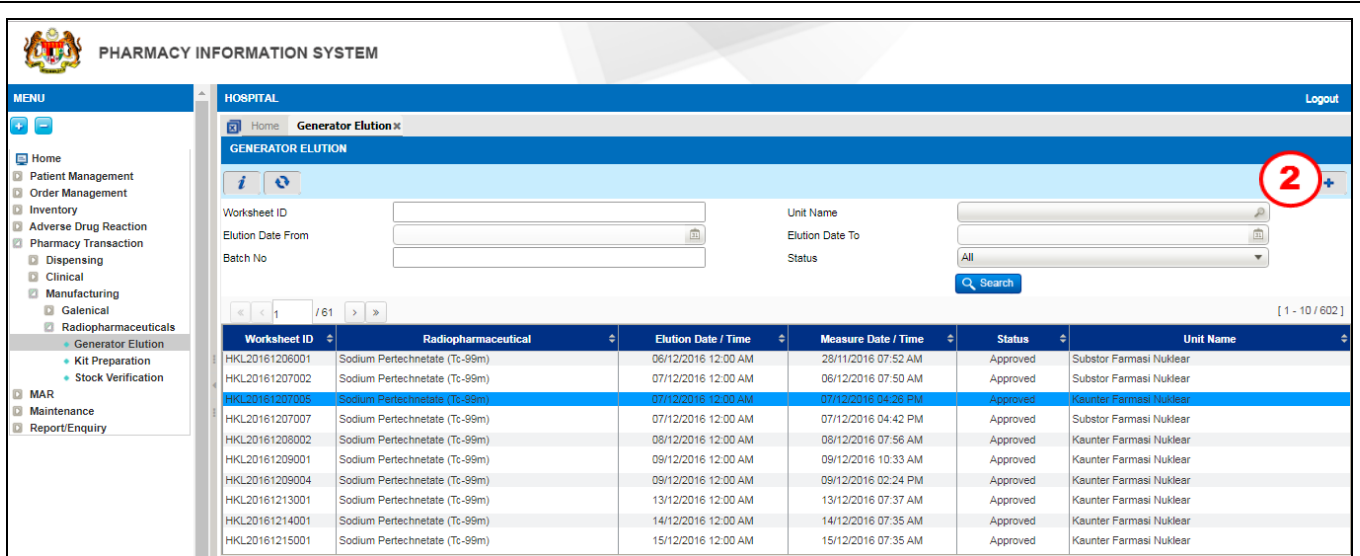
STEP 1

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

HOSPITAL Logout

Generator Elution

Worksheet ID: Unit Name:

Elution Date From: Elution Date To:

Batch No: Status:

[1 - 10 / 602]

Worksheet ID	Radiopharmaceutical	Elution Date / Time	Measure Date / Time	Status	Unit Name
HKL20161206001	Sodium Pertechnetate (Tc-99m)	06/12/2016 12:00 AM	28/11/2016 07:52 AM	Approved	Substor Farmasi Nuklear
HKL20161207002	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	06/12/2016 07:50 AM	Approved	Substor Farmasi Nuklear
HKL20161207005	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	07/12/2016 04:26 PM	Approved	Kaunter Farmasi Nuklear
HKL20161207007	Sodium Pertechnetate (Tc-99m)	07/12/2016 12:00 AM	07/12/2016 04:42 PM	Approved	Substor Farmasi Nuklear
HKL20161208002	Sodium Pertechnetate (Tc-99m)	08/12/2016 12:00 AM	08/12/2016 07:56 AM	Approved	Kaunter Farmasi Nuklear
HKL20161209001	Sodium Pertechnetate (Tc-99m)	09/12/2016 12:00 AM	09/12/2016 10:33 AM	Approved	Kaunter Farmasi Nuklear
HKL20161209004	Sodium Pertechnetate (Tc-99m)	09/12/2016 12:00 AM	09/12/2016 02:24 PM	Approved	Kaunter Farmasi Nuklear
HKL20161213001	Sodium Pertechnetate (Tc-99m)	13/12/2016 12:00 AM	13/12/2016 07:37 AM	Approved	Kaunter Farmasi Nuklear
HKL20161214001	Sodium Pertechnetate (Tc-99m)	14/12/2016 12:00 AM	14/12/2016 07:35 AM	Approved	Kaunter Farmasi Nuklear
HKL20161215001	Sodium Pertechnetate (Tc-99m)	15/12/2016 12:00 AM	15/12/2016 07:35 AM	Approved	Kaunter Farmasi Nuklear

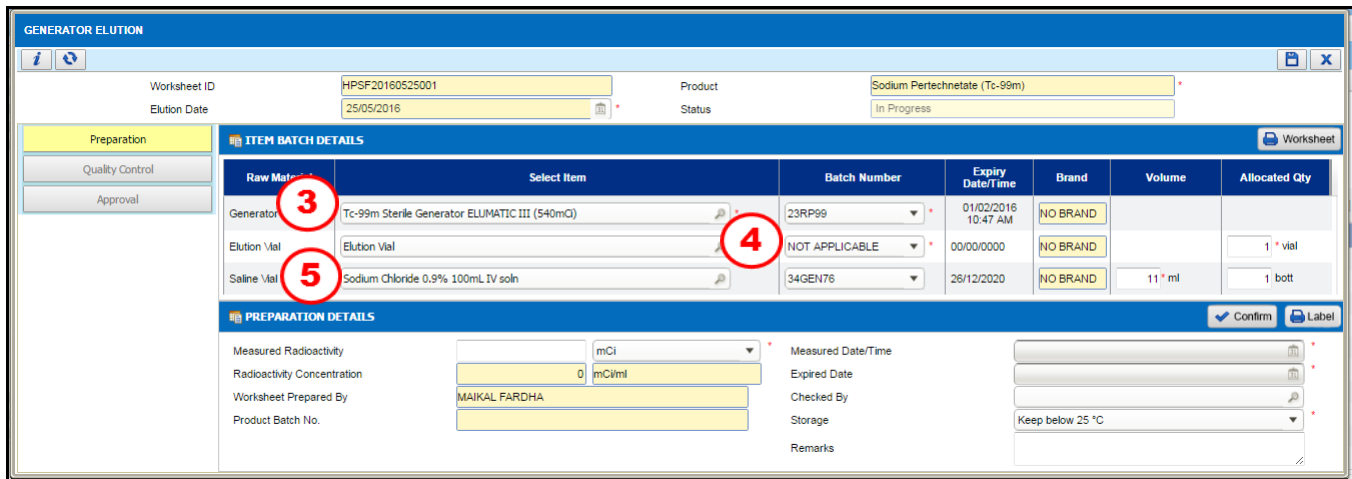
Figure 3.7.1-2 Generator Elution Listing Page

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: Product:

Elution Date: Status:

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: mCi

Radioactivity Concentration: mCi/ml

Worksheet Prepared By:

Product Batch No:

Measured Date/Time:

Expired Date:

Checked By:

Storage:

Remarks:

Figure 3.7.1-3 Generator Elution

STEP 3

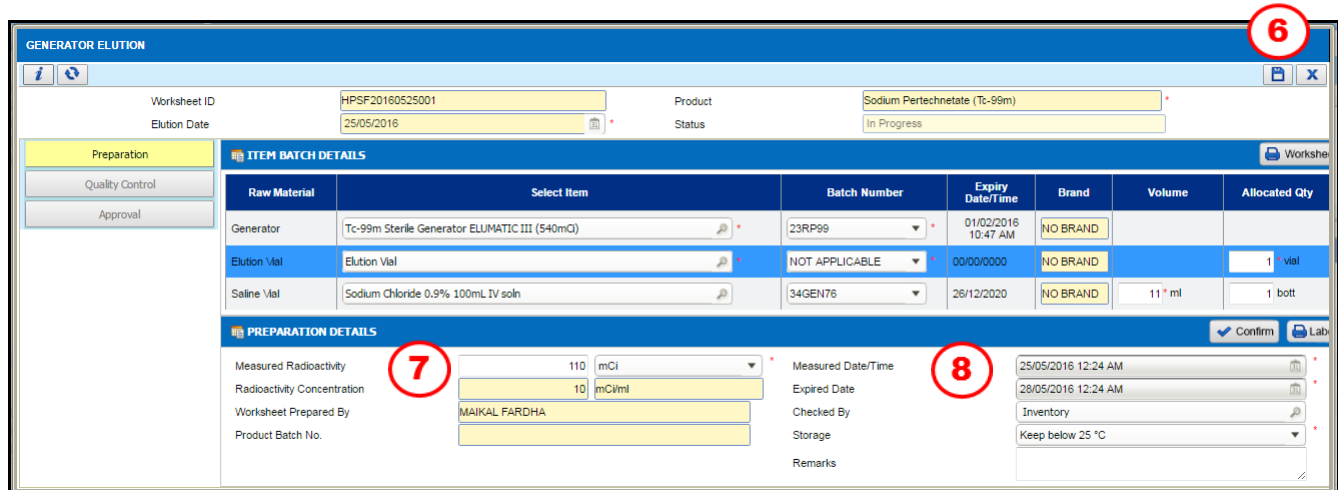
Select **Generator** from drop down box and **Batch Number** will be automatically displayed based on current available stock

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



GENERATOR ELUTION

Worksheet ID: HPSF20160525001 | Product: Sodium Pertechnetate (Tc-99m) | Status: In Progress

Elution Date: 25/05/2016

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: 110 mCi (7) | Measured Date/Time: 25/05/2016 12:24 AM (8)

Radioactivity Concentration: 10 mCi/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Expired Date: 28/05/2016 12:24 AM

Checked By: Inventory

Storage: Keep below 25 °C

Remarks:

Figure 3.7.1-4 Generator Elution

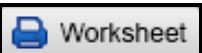
STEP 6

Click on the  button to save record

STEP 7

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

Note

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

STEP 8

Enter **Measured Date/Time** field

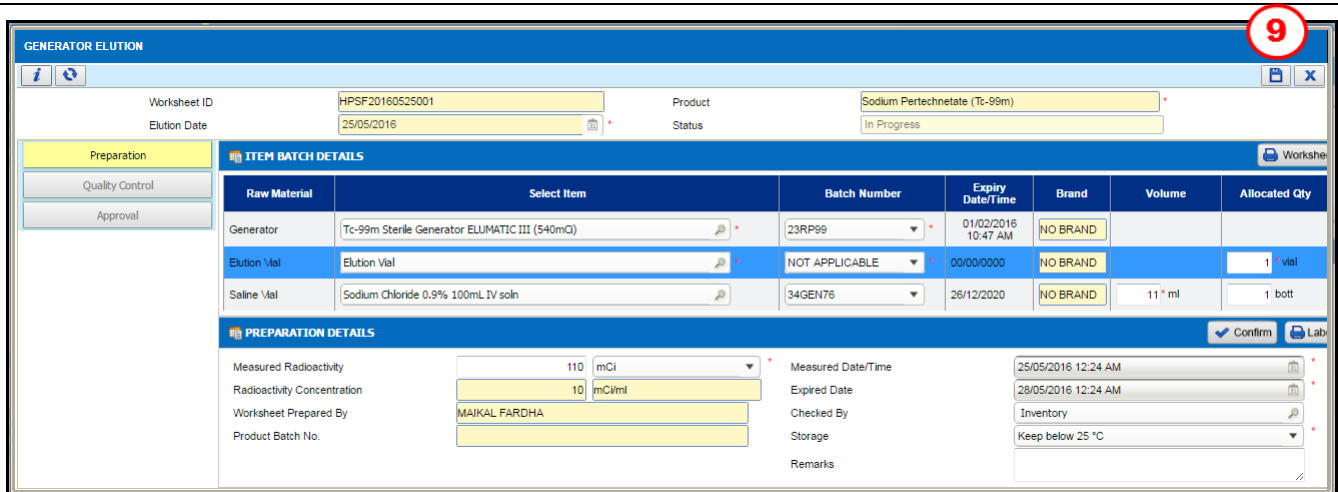


Figure 3.7.1-5 Generator Elution

STEP 9

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

Note

Enter **Remarks** if applicable.

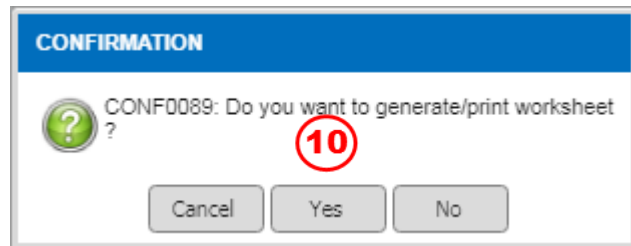


Figure 3.7.1-6 Generate Worksheet Alert Message

STEP 10

Click on the  **Yes** button to generate/print worksheet and worksheet will be displayed as per Figure 3.7.1-6

RADIOPHARMACEUTICALS WORKSHEET					
MINISTRY OF HEALTH					
Generator Elution records for Sodium Pertechnetate (Tc-99m)					
Eluate Batch No: 55.10Tc191012					
Worksheet ID: HKL20190729001					
Preparation of Sodium Pertechnetate (Tc-99m) Eluate					
Elution Date/Time	12/10/2019 03:59 PM		Generator Brand/Manufacturer	Worksheet Prepared By : zaitulhusna	
Generator Batch No.	SE21322	Exp. Date	31/01/2020 00:00	Signature Name, Date/Time	
Elution Vial Batch No.	FR22112	Exp. Date	31/12/2019		
Saline Vial Batch No.	DD2334	Exp. Date	31/12/2019	Remarks :	Worksheet Checked By : DR. NURRIHAN HUSNA BT HAMZAH
Volume	10 ml				
Elution BN	55.10Tc191012				
Measured Activity	1 mCi				
Measured Date/Time	12/10/2019 3:31 PM			Preparation Done By : System Administrator	Signature Name, Date/Time
Radioactivity Concentration	0.1 mCi/ml				
Quality Control of Eluate					
Measure Mo-99 Activity	11 KBq	Limit	Pass/Fail	Quality Control Done By	
Mo-99 Breakthrough	11 KBq per MBq	<0.15 KBq of Mo-99 per MBq of Tc-99m	Fail	System Administrator	
Eluate pH	11.0	4.0-8.0	Fail		
Alumina Breakthrough	Intensity : More	Intensity less than Standard	Fail		
Approval of Eluate				Label	
Checklist for approval :			Approved By :		
Preparation done accordingly					
QC done accordingly and pass					
Label done accordingly					
Remarks			Signature Name, Date/Time		

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

Radioactivity Concentration: 1 MBq/ml

Worksheet Prepared By: Pharmacist Radio

Product Batch No: 90.TC160106

Measured Date/Time: 06/01/2016 3:08 PM

Expired Date: 31/01/2016 3:08 PM

Checked By:

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.

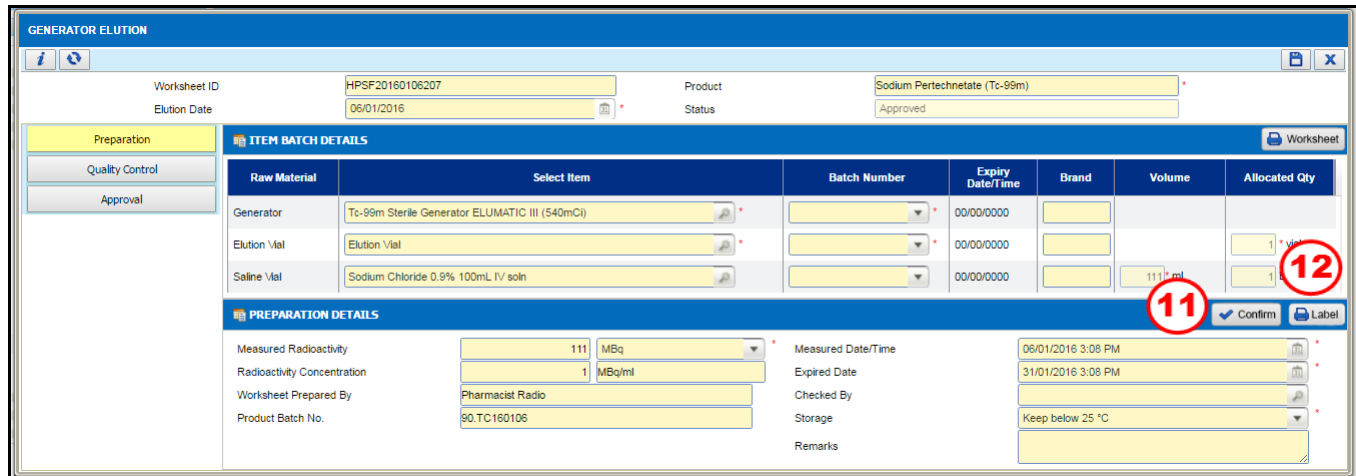


Figure 3.7.1-9 Generator Elution

STEP 11

Click on the  button to confirm information preparation details

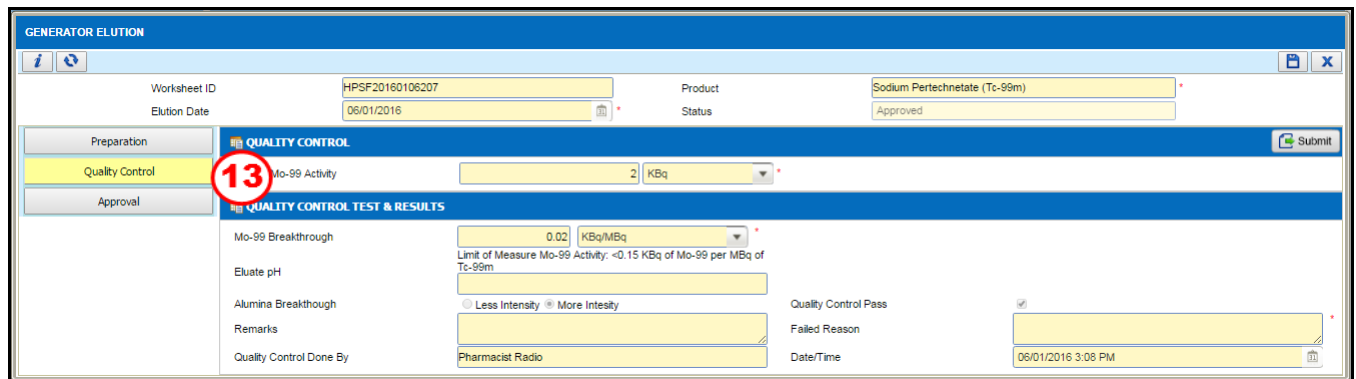
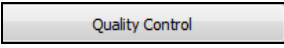


Figure 3.7.1-10 Generator Elution

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

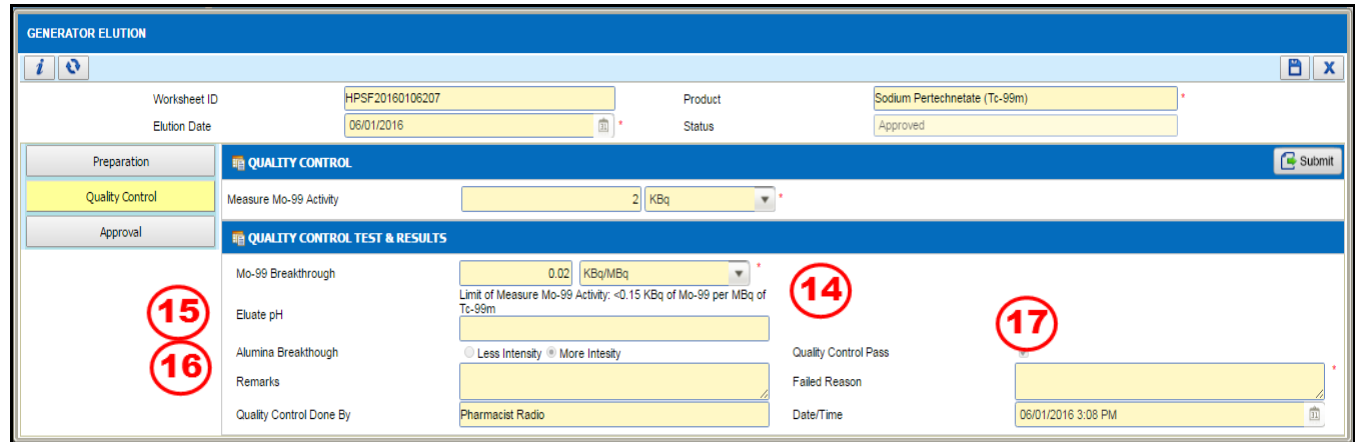


Figure 3.7.1-11 Generator Elution

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.

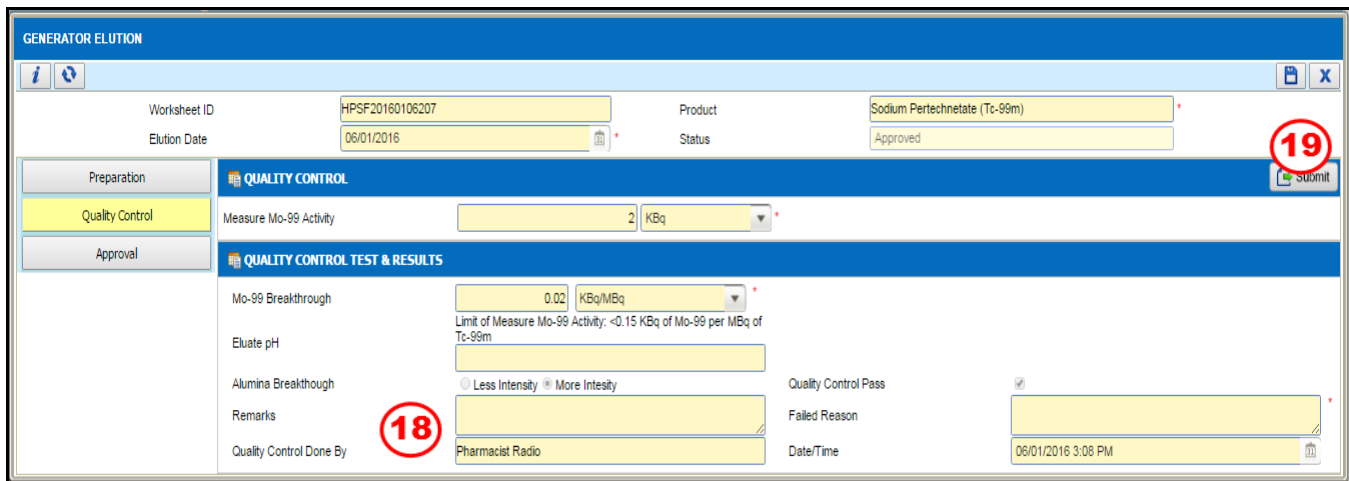


Figure 3.7.1-12 Generator Elution

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

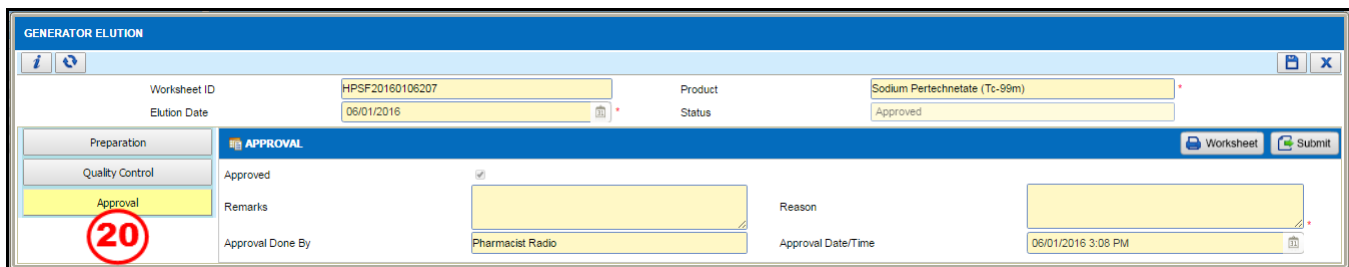
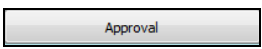


Figure 3.7.1-13 Generator Elution

Note

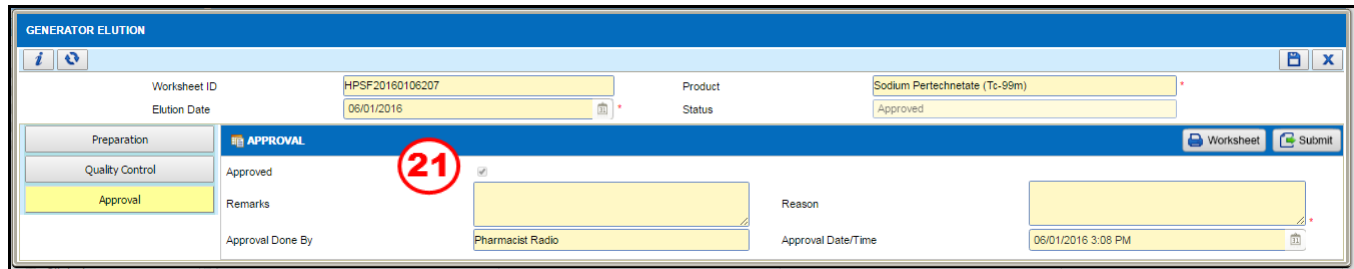
- The **Quality Control Done By** field will be automatically displayed after click on the  button.
- The  button will disable after done submitting the Quality Control record.
- The  button will be activated after the submission.

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.



The screenshot shows the 'GENERATOR ELUTION' window. At the top, there are fields for 'Worksheet ID' (HPSF20160106207), 'Product' (Sodium Pertechnetate (Tc-99m)), 'Elution Date' (06/01/2016), and 'Status' (Approved). Below these are buttons for 'Worksheet' and 'Submit'. On the left, there is a sidebar with 'Preparation', 'Quality Control', and 'Approval' tabs. The 'Approval' tab is active, showing a form with 'Approved' (checked), 'Remarks', 'Reason', 'Approval Done By' (Pharmacist Radio), and 'Approval Date/Time' (06/01/2016 3:08 PM). A red circle with the number 21 highlights the 'Approved' checkbox.

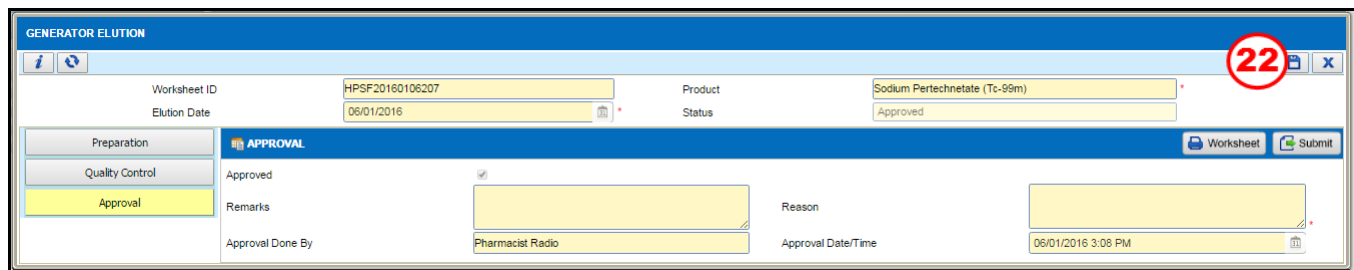
Figure 3.7.1-14 Generator Elution

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.

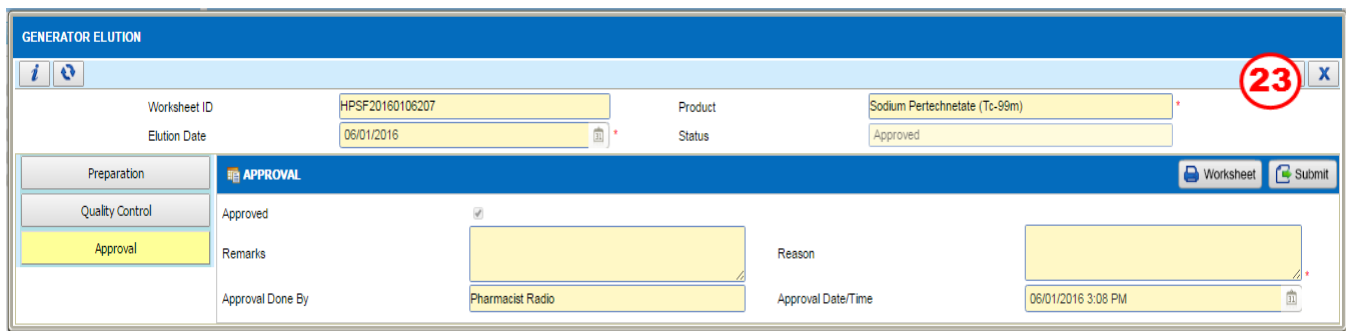


This screenshot is identical to Figure 3.7.1-14, showing the 'GENERATOR ELUTION' window with the 'APPROVAL' tab selected. A red circle with the number 22 highlights the 'Worksheet' button in the top right corner of the window.

Figure 3.7.1-15 Generator Elution

STEP 22

Click on the  button to submit the approval details



GENERATOR ELUTION

Worksheet ID: HPSF20160106207 Product: Sodium Pertechnetate (Tc-99m) *

Elution Date: 06/01/2016 Status: Approved

APPROVAL

Preparation: ☒ Approved

Quality Control: ☐ Remarks

Approval: ☐ Reason

Approval Done By: Pharmacist Radio Approval Date/Time: 06/01/2016 3:08 PM

Figure 3.7.1-16 Generator Elution

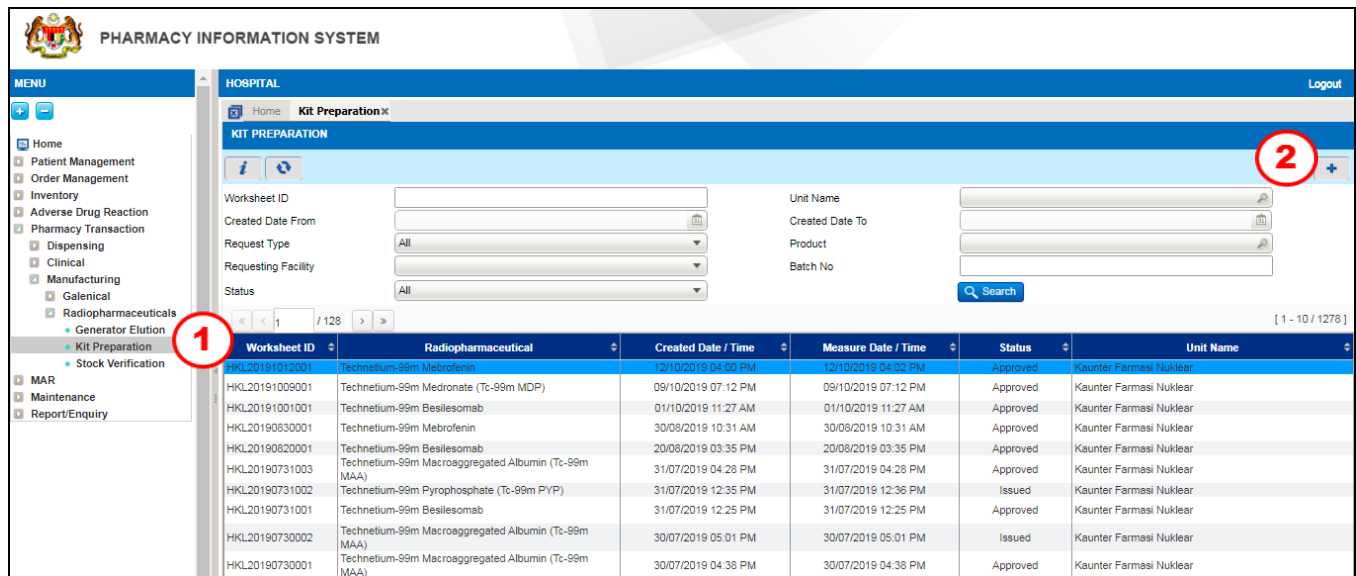
Note

- **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



PHARMACY INFORMATION SYSTEM

HOSPITAL Logout

KIT PREPARATION

Worksheet ID: Unit Name:

Created Date From: Created Date To:

Request Type: Product:

Requesting Facility: Batch No:

Status:

[1 - 10 / 1278]

Worksheet ID	Radiopharmaceutical	Created Date / Time	Measure Date / Time	Status	Unit Name
HKL20191012001	Technetium-99m Mebrofenin	12/10/2019 04:00 PM	12/10/2019 04:02 PM	Approved	Kaunter Farmasi Nuklear
HKL20191009001	Technetium-99m Medronate (Tc-99m MDP)	09/10/2019 07:12 PM	09/10/2019 07:12 PM	Approved	Kaunter Farmasi Nuklear
HKL20191001001	Technetium-99m Besilesomab	01/10/2019 11:27 AM	01/10/2019 11:27 AM	Approved	Kaunter Farmasi Nuklear
HKL20190830001	Technetium-99m Mebrofenin	30/08/2019 10:31 AM	30/08/2019 10:31 AM	Approved	Kaunter Farmasi Nuklear
HKL20190820001	Technetium-99m Besilesomab	20/08/2019 03:35 PM	20/08/2019 03:35 PM	Approved	Kaunter Farmasi Nuklear
HKL20190731003	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	31/07/2019 04:28 PM	31/07/2019 04:28 PM	Approved	Kaunter Farmasi Nuklear
HKL20190731002	Technetium-99m Pyrophosphate (Tc-99m PYP)	31/07/2019 12:35 PM	31/07/2019 12:36 PM	Issued	Kaunter Farmasi Nuklear
HKL20190731001	Technetium-99m Besilesomab	31/07/2019 12:25 PM	31/07/2019 12:25 PM	Approved	Kaunter Farmasi Nuklear
HKL20190730002	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	30/07/2019 05:01 PM	30/07/2019 05:01 PM	Issued	Kaunter Farmasi Nuklear
HKL20190730001	Technetium-99m Macroaggregated Albumin (Tc-99m MAA)	30/07/2019 04:38 PM	30/07/2019 04:38 PM	Approved	Kaunter Farmasi Nuklear

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

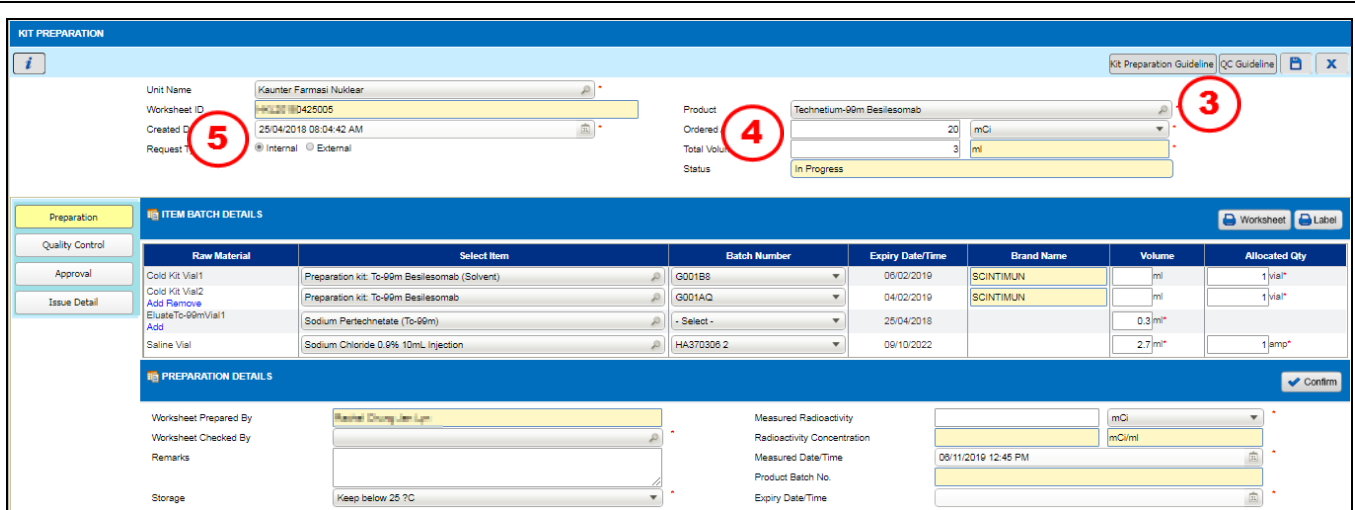
- Various search criteria is provided as below:

- Worksheet ID
- Unit Name
- Product
- Created Date From
- Created 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



KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Worksheet ID: HKL20180425005
Created: 25/04/2018 08:04:42 AM
Request: ☒ Internal ☐ External

Product: Technetium-99m Besilesomab
Ordered: 20 mCi
Total Volume: 3 ml
Status: In Progress

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit: Tc-99m Besilesomab (Solvent)	G001B8	06/02/2019	SCINTIMUN	1 ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	1 ml	1 vial*
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370306.2	09/10/2022		2.7 ml*	1 amp*

PREPARATION DETAILS

Worksheet Prepared By: Nurhazli Chung Jier Lyn
Worksheet Checked By:
Remarks:
Storage: Keep below 25 °C

Measured Radioactivity: mCi
Radioactivity Concentration: mCi/ml
Measured Date/Time: 08/11/2019 12:45 PM
Product Batch No.:
Expiry Date/Time:

Figure 3.7.2-2 Kit Preparation

STEP 3

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

Note

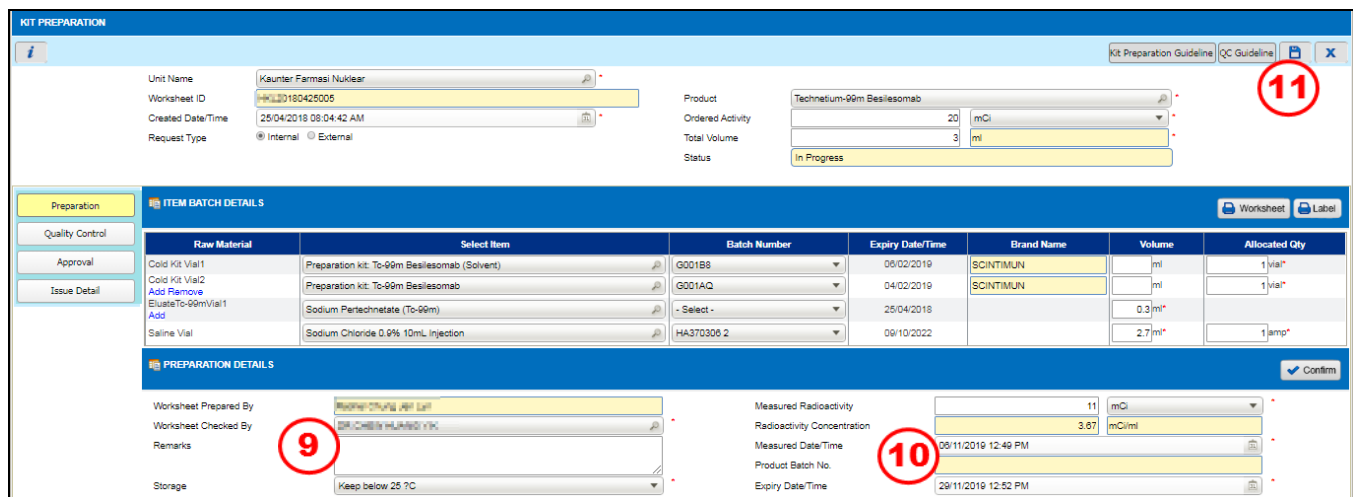
- The **Created Date** field will automatically default to current date by system.
- The **Request Type** will automatically default to **Internal** radiobutton.

STEP 4

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

STEP 5

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



KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Worksheet ID: PHIS20180425005
Created Date/Time: 25/04/2018 08:04:42 AM
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Besilesomab
Ordered Activity: 20 mCi
Total Volume: 3 ml
Status: In Progress

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit: Tc-99m Besilesomab (Solvent)	G001B8	05/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370305 2	09/10/2022		2.7 ml*	1 amp*

PREPARATION DETAILS

Worksheet Prepared By: [User]
Worksheet Checked By: [User]
Remarks: [Field]
Storage: Keep below 25 °C

Measured Radioactivity: 11 mCi
Radioactivity Concentration: 3.67 mCi/ml
Measured Date/Time: 25/11/2019 12:49 PM
Product Batch No.: [Field]
Expiry Date/Time: 29/11/2019 12:52 PM

Figure 3.7.2-4 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

KIT PREPARATION			
Unit Name Kaunter Farmasi Nuklear		Kit Preparation Guideline QC Guideline	
Worksheet ID HWLJ0180425005			
Created Date/Time 25/04/2019 08:04:42 AM			
Request Type ☒ Internal ☐ External			
Product Technetium-99m Beslisomab			
Ordered Activity 20 mCi			
Total Volume 3 ml			
Status In Progress			

12

ITEM BATCH DETAILS			
Preparation	Quality Control	Approval	Issue Detail
Raw Material	Select Item	Batch Number	Expiry Date/Time
Cold Kit Vial1	Preparation kit: To-99m Beslisomab (Solvent)	G001B8	06/02/2019
Cold Kit Vial2	Preparation kit: To-99m Beslisomab	G001AQ	04/02/2019
Add Remove Eusite-To-99m/Vial1	Sodium Pertechnetate (To-99m)	- Select -	25/04/2018
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370306.2	09/10/2022

Brand Name	Volume	Allocated Qty
SCINTIMUN	1 ml	1 vial*
SCINTIMUN	1 ml	1 vial*
	0.3 ml*	
	2.7 ml*	1 amp*

PREPARATION DETAILS			
Worksheet Prepared By Rochel Chua, Jia Lun	Measured Radioactivity 11 mCi		
Worksheet Checked By DR CHENG HUI RAO YIN	Radioactivity Concentration 3.67 mCi/ml		
Remarks	Measured Date/Time 09/11/2019 12:49 PM		
	Product Batch No.		
Storage Keep below 25 °C	Expiry Date/Time 29/11/2019 12:52 PM		

Figure 3.7.2-5 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-

RADIOPHARMACEUTICALS WORKSHEET																																									
MINISTRY OF HEALTH HOSPITAL																																									
Kit Preparation records for Technetium-99m Besilesomab																																									
Batch No: _____																																									
Worksheet ID: HKL180425005																																									
Preparation of Technetium-99m Besilesomab				Cold Kit Brand/Manufacturer Name:																																					
Date	25/04/2018	Expected Activity	20 mCi	SCINTIMUN, SCINTIMUN - CIS BIO																																					
Raw Material	Batch Number/Expiry		Volume																																						
Cold Kit Vial	G001B8 - 06/02/2019 G001AQ - 04/02/2019		Total : 3 ml	Worksheet Prepared By : Worksheet Checked By : Preparation Done By : 																																					
Eluate Tc-99m Vial			0.3 ml																																						
Saline Vial	HA370306 2 - 09/10/2022		2.7 ml																																						
Measured Activity																																									
Measured Date/Time				Remarks : 																																					
Radioactivity Concentration																																									
Quality Control of Technetium-99m Besilesomab				Label																																					
QC Sampling Time				Approval of Technetium-99m Besilesomab																																					
<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 colspan="2">N/A</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 colspan="2">N/A</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	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Checklist for approval :</th> </tr> </thead> <tbody> <tr> <td>Preparation done accordingly</td> <td>☐</td> </tr> <tr> <td>QC done accordingly and pass</td> <td>☐</td> </tr> <tr> <td>Label done accordingly</td> <td>☐</td> </tr> <tr> <td colspan="2">Remarks :</td> </tr> <tr> <td colspan="2">Approved By :</td> </tr> </tbody> </table>		Checklist for approval :		Preparation done accordingly	☐	QC done accordingly and pass	☐	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																																						
Checklist for approval :																																									
Preparation done accordingly	☐																																								
QC done accordingly and pass	☐																																								
Label done accordingly	☐																																								
Remarks :																																									
Approved By :																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Remarks :</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="height: 40px;"></td> </tr> </tbody> </table>				Remarks :								Quality Control Done By 																													
Remarks :																																									
Radiochemical Purity																																									

Figure 3.7.2-6 Sample Worksheet

Note

Sample of worksheet as per Figure 3.7.2-7.

KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Worksheet ID: HKL180425005
Created Date/Time: 25/04/2018 08:04:42 AM
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Besilesomab
Ordered Activity: 20 mCi
Total Volume: 3 ml
Status: In Progress

[Kit Preparation Guideline](#) [QC Guideline](#)

Preparation
ITEM BATCH DETAILS
Worksheet Label

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit: Tc-99m Besilesomab (Solvent)	G001B8	06/02/2019	SCINTIMUN	1 ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	1 ml	1 vial*
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370306 2	09/10/2022		2.7 ml*	1 amp*

PREPARATION DETAILS
Confirm

Worksheet Prepared By: HKL180425005
Worksheet Checked By: HKL180425005
Remarks:
Storage: Keep below 25 °C

Measured Radioactivity: 11 mCi
Radioactivity Concentration: 3.67 mCi/ml
Measured Date/Time: 05/11/2019 12:49 PM
Product Batch No.: HKL180425005
Expiry Date/Time: 29/11/2019 12:52 PM

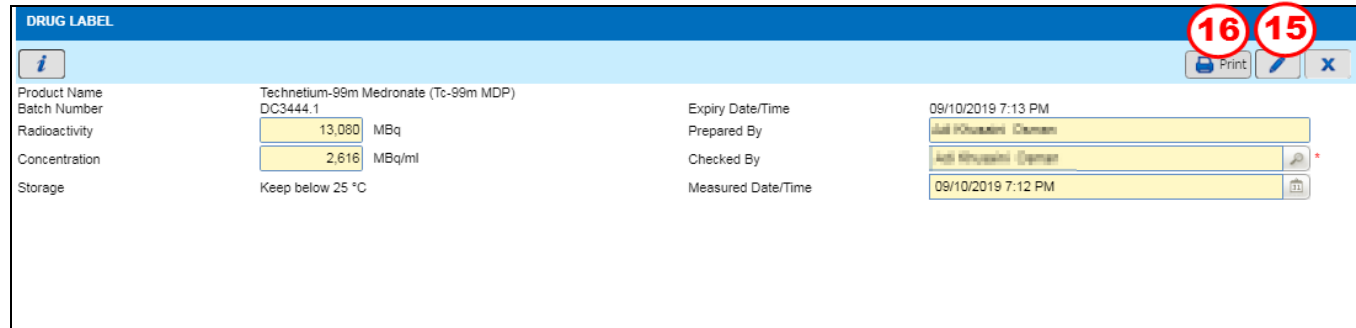
Figure 3.7.2-7 Bulk Preparation

STEP 14

Click on the  button to edit label and **Drug Label** screen will be displayed as per Figure 3.7.2-8

Note

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



DRUG LABEL			
Product Name	Technetium-99m Medronate (Tc-99m MDP)		
Batch Number	DC3444.1		
Radioactivity	13,080	MBq	Expiry Date/Time
Concentration	2.616	MBq/ml	Prepared By
Storage	Keep below 25 °C		Checked By
			Measured Date/Time

Figure 3.7.2-8 Drug Label

STEP 15

Click on the  button to save edited label

STEP 16

Click on the  button to print label as per Figure 3.7.2-9

 Caution : Radioactive Material	HOSPITAL KUALA LUMPUR	
	Product. Technetium-99m Medronate (Tc-99m Name : MDP)	
Batch No. : DC3444.1		
Radioactivity : 13080 MBq Volume : 5 ml		
Concentration : 2616 MBq/ml		
Measured Date : 09/10/2019 Time : 07:12 PM		
Prepared By : Aji Khussairi Osman		
Checked By : Aji Khussairi Osman		
Expiry Date : 09/10/2019 Time : 07:13 PM		
Storage : Keep below 25 °C		

 Caution : Radioactive Material	HOSPITAL KUALA LUMPUR	
	Product. Technetium-99m Medronate (Tc-99m Name : MDP)	
Batch No. : DC3444.1		
Radioactivity : 13080 MBq Volume : 5 ml		
Concentration : 2616 MBq/ml		
Measured Date : 09/10/2019 Time : 07:12 PM		
Prepared By : Aji Khussairi Osman		
Checked By : Aji Khussairi Osman		
Expiry Date : 09/10/2019 Time : 07:13 PM		
Storage : Keep below 25 °C		

Figure 3.7.2-9 Drug Label

Note

Sample of Drug Label as per Figure 3.7.2-10.

DRUG LABEL			
 Print 17 X			
Product Name	Technetium-99m Medronate (Tc-99m MDP)		
Batch Number	DC3444.1		
Radioactivity	13,080	MBq	Expiry Date/Time
Concentration	2,616	MBq/ml	Prepared By
Storage	Keep below 25 °C		Checked By
			Measured Date/Time

Figure 3.7.2-10 Drug Label

STEP 17

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

KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Worksheet ID: PHIS10180425005
Created Date/Time: 25/04/2019 08:04:42 AM
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Besilesomab
Ordered Activity: 20 mCi
Total Volume: 3 ml
Status: In Progress

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit: Tc-99m Besilesomab (Solvent)	G001B8	05/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370305 2	09/10/2022		2.7 ml*	1 amp*

PREPARATION DETAILS

Worksheet Prepared By: [Name]
Worksheet Checked By: [Name]
Remarks:
Storage: Keep below 25 °C

Measured Radioactivity: 11 mCi
Radioactivity Concentration: 3.67 mCi/ml
Measured Date/Time: 09/11/2019 12:49 PM
Product Batch No.:
Expiry Date/Time: 29/11/2019 12:52 PM

18

Figure 3.7.2-11 Drug Label

STEP 18

Click on the button to confirm information preparation details

KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Worksheet ID: PHIS10191021003
Created Date/Time: 21/10/2019 02:15:35 PM
Request Type: ☒ Internal ☐ External

Product: Technetium-99m Mertatide (Tc-99m MAG3)
Ordered Activity: 80 mCi
Total Volume: 8 ml
Status: Approved

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit: Tc-99m Mertatide	EP04191151INT	30/05/2020	NEPHROMAG	ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Mertatide (Solvent)	EP04A19041INT	31/01/2021	NEPHROMAG	ml	1 vial*
Eluate Tc-99m Vial1	Sodium Pertechnetate (Tc-99m)	- Select -	21/10/2019		0.2 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA3B0119	20/03/2024		7.8 ml*	1 amp*

PREPARATION DETAILS

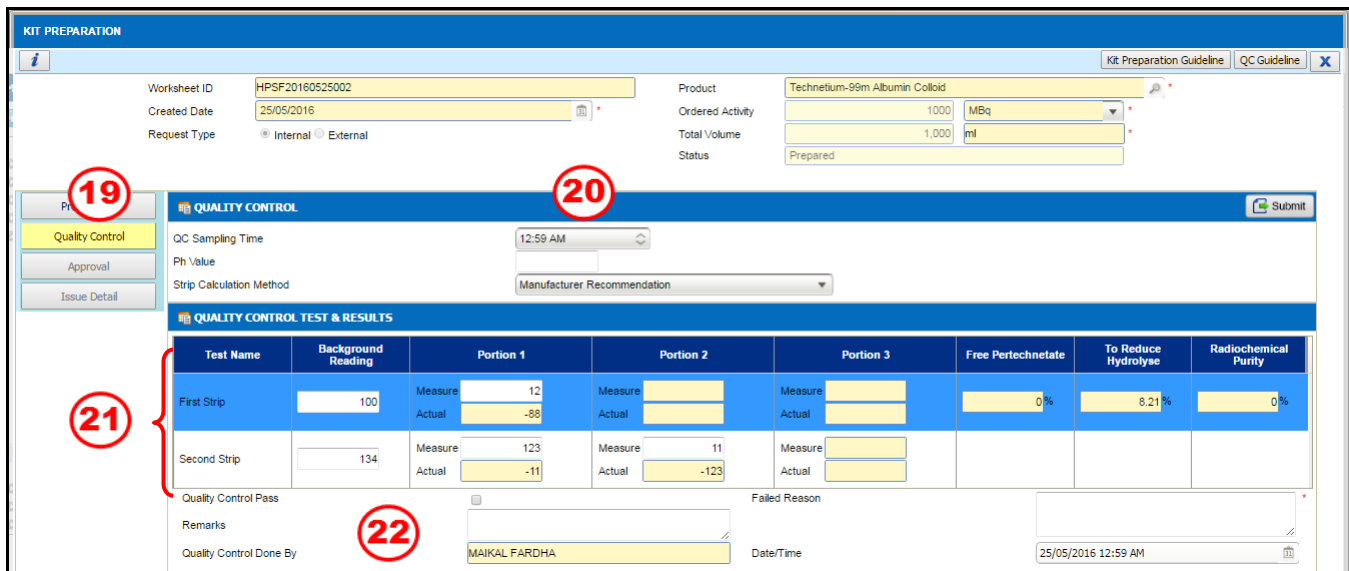
Worksheet Prepared By: [Name]
Worksheet Checked By: [Name]
Remarks:
Storage: Keep in room temperature

Measured Radioactivity: 78.8 mCi
Radioactivity Concentration: 9.85 mCi/ml
Measured Date/Time: 21/10/2019 8:35 AM
Product Batch No.: 99.01Tc191021.3
Expiry Date/Time: 21/10/2019 4:35 PM

Figure 3.7.2-12 Kit Preparation

Note

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



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

19 **20**

21

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:			

22

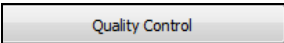
Quality Control Pass ☒ Failed Reason

Remarks

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

Figure 3.7.2-13 Bulk Preparation

STEP 19

Click on the  button and system will be displayed screen as per Figure 3.7.2-13

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 3.7.2-13

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.

KIT PREPARATION			
Worksheet ID	HPSF20160525002	Product	Technetium-99m Albumin Colloid
Created Date	25/05/2016	Ordered Activity	1000 MBq
Request Type	☒ Internal ☐ External	Total Volume	1,000 ml
		Status	Prepared

Preparation		QC Sampling Time	Ph Value	Strip Calculation Method
Quality Control		12:59 AM		Manufacturer Recommendation
Approval				
Issue Detail				

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	Measure		Measure		0%	8.21%	0%
		Actual	-88	Actual		Actual				
Second Strip	134	Measure	123	Measure	11	Measure				
		Actual	-11	Actual	-123	Actual				

Quality Control Pass ☒ Failed Reason

Remarks

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

Figure 3.7.2-14 Bulk Preparation

STEP 23

Enter **Remarks** if applicable

Note

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

KIT PREPARATION			
Worksheet ID	HPSF20160525002	Product	Technetium-99m Albumin Colloid
Created Date	25/05/2016	Ordered Activity	1000 MBq
Request Type	☒ Internal ☐ External	Total Volume	1,000 ml
		Status	Prepared

Preparation		QUALITY CONTROL		Submit
Quality Control		QC Sampling Time	12:59 AM	
Approval		Ph Value		
Issue Detail		Strip Calculation Method	Manufacturer Recommendation	

QUALITY CONTROL TEST & RESULTS										
Test Name	Background Reading	Portion 1		Portion 2		Portion 3		Free Per technetate	To Reduce Hydrolyse	Radiochemical Purity
First Strip	100	Measure	12	Measure		Measure		0%	8.21%	0%
		Actual	-88	Actual		Actual				
Second Strip	134	Measure	123	Measure	11	Measure				
		Actual	-11	Actual	-123	Actual				

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

Figure 3.7.2-15 Bulk Preparation

Note

- User is allowed to click on the **Strip Guideline** hyperlink and system will be displayed as per Figure 3.7.2-16.



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 1 of 5

TITLE: QUALITY CONTROL TEST - MANUFACTURE REGISTRATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 2 of 5

TITLE: QUALITY CONTROL TEST - MANUFACTURE REGISTRATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 3 of 5

TITLE: QUALITY CONTROL TEST - MANUFACTURE REGISTRATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 4 of 5

TITLE: QUALITY CONTROL TEST - MANUFACTURE REGISTRATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 1 of 5

TITLE: QUALITY CONTROL TEST - QUALITY ASSURANCE REGISTRATION

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

QUALITY CONTROL TEST USING TEC - CONTROL CHROMATOGRAPHY TEST

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION



RADIOPHARMACEUTICAL PRODUCTION LABORATORY
NIGERIA PHARMACY (P) LTD. (NIG. PHARM. P. LTD.)

Page 2 of 5

TITLE: QUALITY CONTROL TEST - QUALITY ASSURANCE REGISTRATION

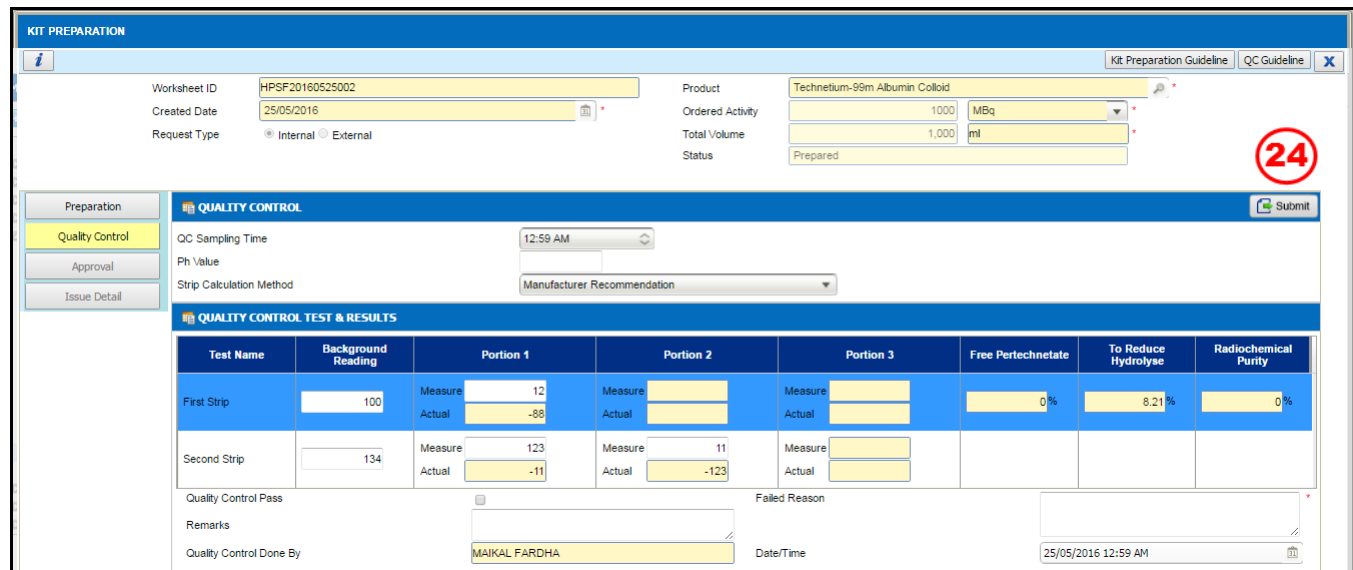
NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

QUALITY CONTROL TEST USING TEC - CONTROL CHROMATOGRAPHY TEST

NAME	DESIGNATION	DATE	TIME	LOCATION
NAME	DESIGNATION	DATE	TIME	LOCATION

Note

Sample of Strip Guideline as per Figure 3.7.2-17.



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

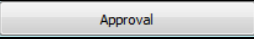
24

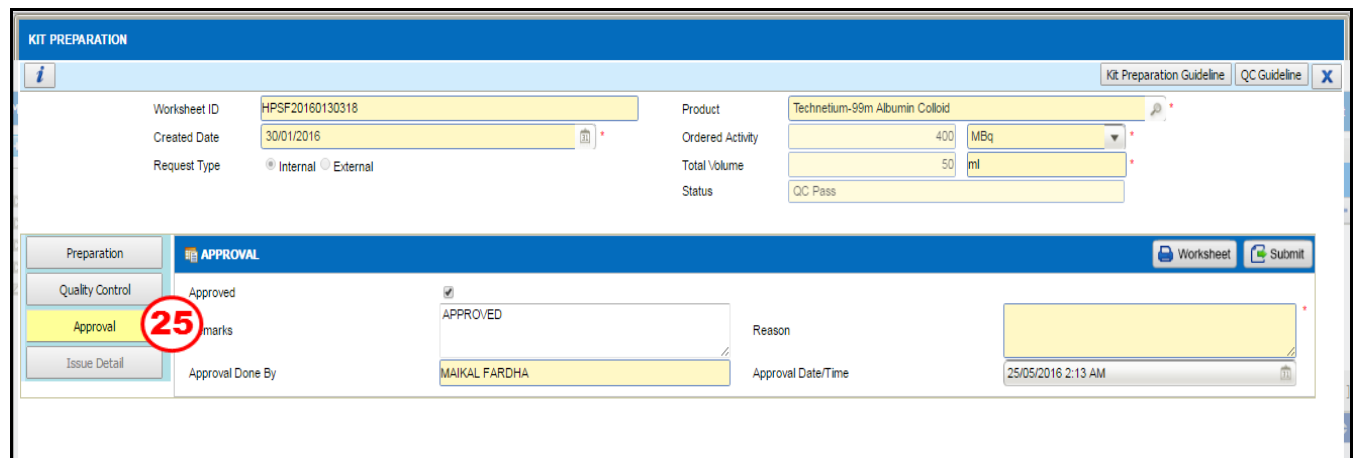
Figure 3.7.2-17 Bulk Preparation

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

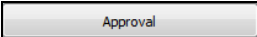
APPROVAL

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

25

Figure 3.7.2-18 Bulk Preparation

STEP 25

Click on the  button and system will display screen as per Figure 3.7.2-19

Note

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

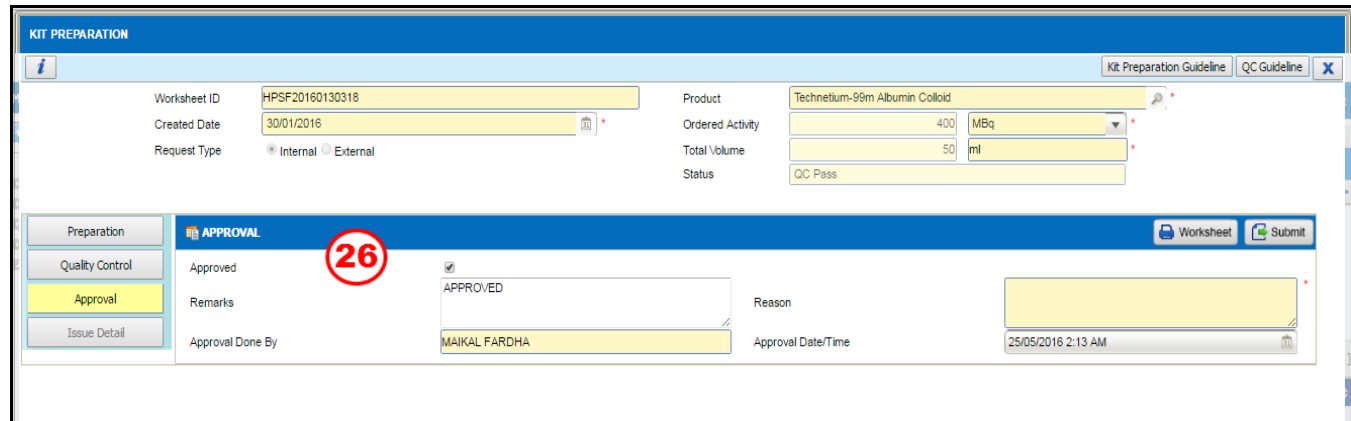
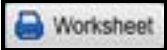


Figure 3.7.2-19 Bulk Preparation

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 3.7.2-20.
- If the selection of **Approved, Yes**; **Reason** field will not activate as per Figure 3.7.2-20.
- 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.

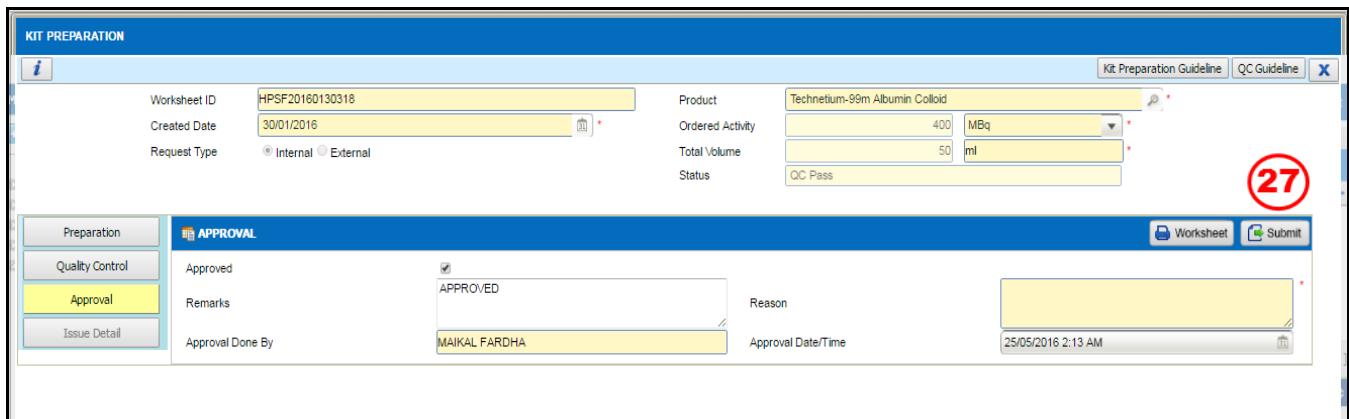


Figure 3.7.2-20 Bulk Preparation

STEP 27

Click on the  button to submit the approval details

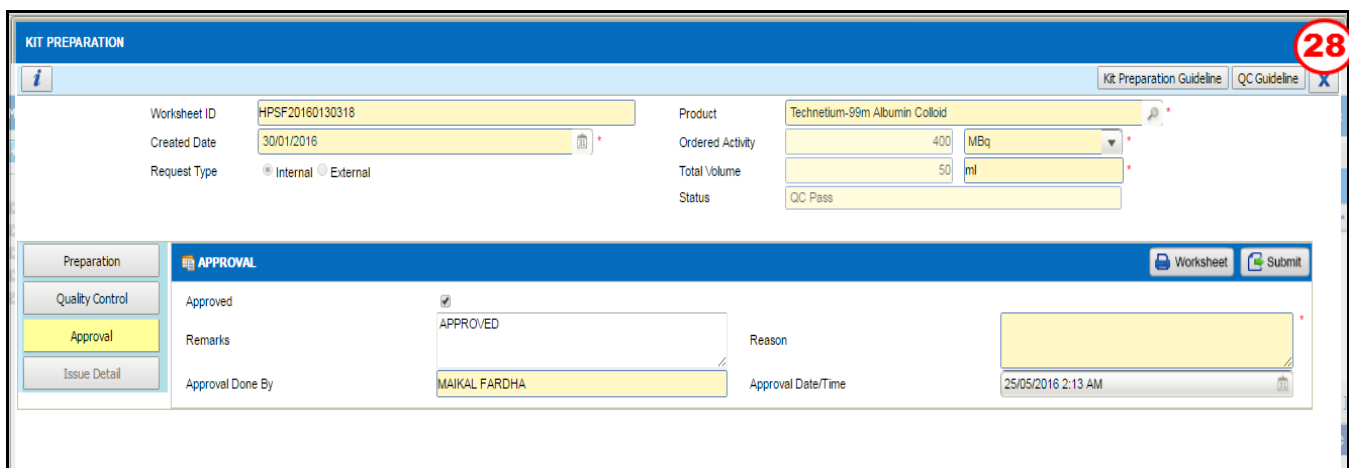


Figure 3.7.2-21 Bulk Preparation

Note

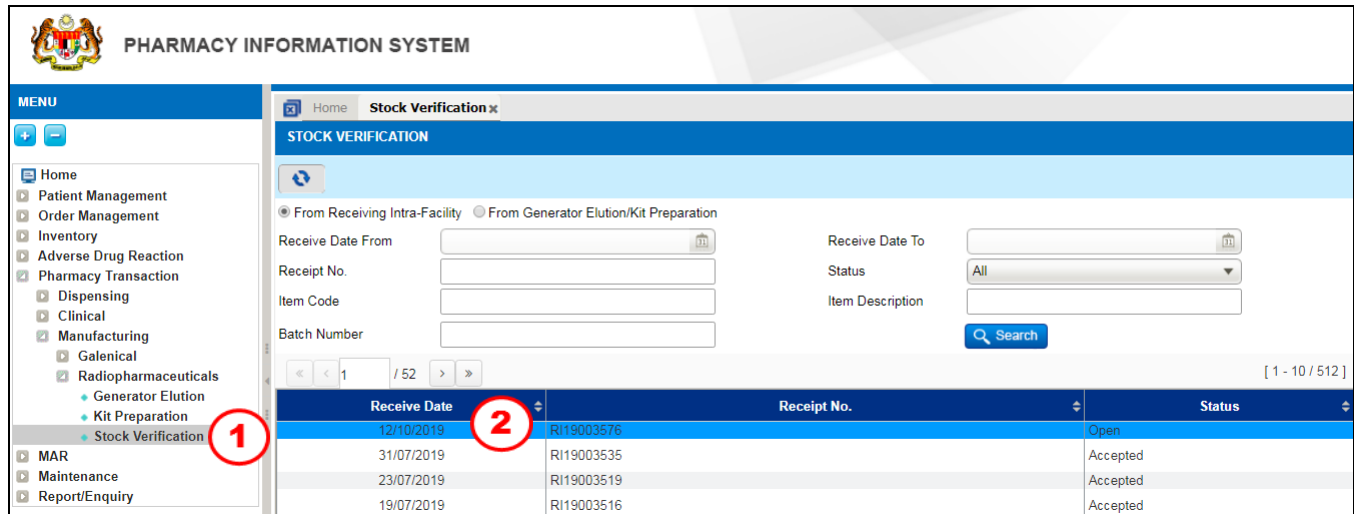
- **Status** will change to *Approved* after the submission had done.

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.



Receive Date	Receipt No.	Status
12/10/2019	RI19003576	Open
31/07/2019	RI19003535	Accepted
23/07/2019	RI19003519	Accepted
19/07/2019	RI19003516	Accepted

Figure 3.7.3-1 Stock Verification Listing Page

STEP 1

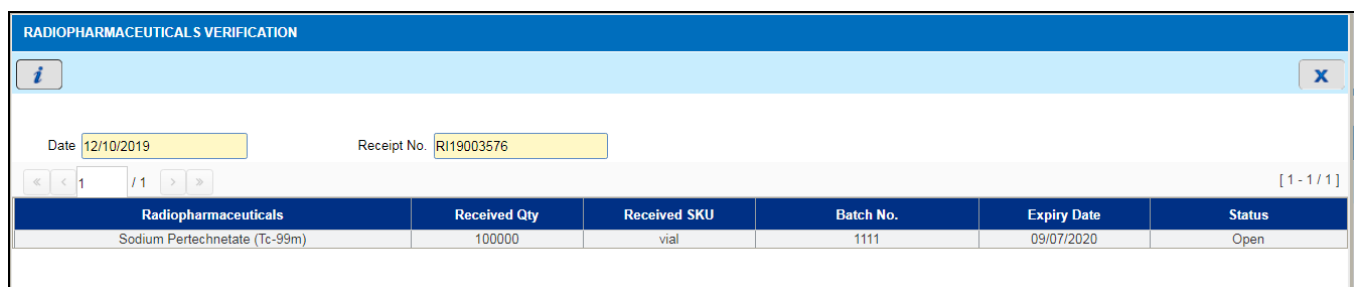
Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Stock Verification' sub-menu

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 3.7.3-2



Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	100000	vial	1111	09/07/2020	Open

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

[1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	100000	vial	1111	09/07/2020	Open

STOCK DETAILS

Calibration Activity *

Expected Activity *

Measured Activity *

Activity Variation %

3

Calibration Date/Time *

Expiry Date/Time *

Measured Date/Time *

Volume ml *

MEASUREMENT DETAILS

Label Packaging Type

Survey on Surface

Survey at 1 Meter Distance

Wipe Test

Remarks

VERIFICATION DETAILS

☐ Accept
 ☐ Reject

Reject Reason

Done By

Updated By

Date/Time

Updated Date/Time

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, Expiry Date/Time, and Volume** field. All these fields are mandatory.
- Enter and select **Label Packaging Type, Survey on Surface, Survey at 1 Meter Distance, Wipe Test and Remarks.**
- **Done By, Date/Time. Updated By, and Updated Date/Time** will be automatically displayed by system.

RADIOPHARMACEUTICALS VERIFICATION

Date: 12/10/2019
Receipt No.: RI19003576

[1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	100000	vial	1111	09/07/2020	Open

5

Confirm

STOCK DETAILS

Calibration Activity: 1 MBq, 0.03 mCi
Expected Activity: 1 MBq, 0.03 mCi
Measured Activity: 1 MBq, 0.03 mCi
Activity Variation: 0%

Calibration Date/Time: 22/10/2019 12:26 PM
Expiry Date/Time: 31/10/2019 12:32 PM
Measured Date/Time: 22/10/2019 12:26 PM
Volume: 1 ml

MEASUREMENT DETAILS

VERIFICATION DETAILS

Label Packaging Type: White I
Survey on Surface: 0.5 mR/hr
Survey at 1 Meter Distance: 1 mR/hr
Wipe Test: 1 Bq per cm²
Remarks:

☒ Accept
☐ Reject
Reject Reason:
Done By: System Administrator
Updated By: System Administrator
Date/Time: 22/10/2019 12:26 PM
Updated Date/Time: 22/10/2019 12:26 PM

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

RADIOPHARMACEUTICALS VERIFICATION

Date: 12/10/2019
Receipt No.: RI19003576

[1 - 1 / 1]

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	100000	vial	1111	09/07/2020	Open

Confirm

STOCK DETAILS

Calibration Activity: 1 MBq, 0.03 mCi
Expected Activity: 1 MBq, 0.03 mCi
Measured Activity: 1 MBq, 0.03 mCi
Activity Variation: 0%

Calibration Date/Time: 22/10/2019 12:26 PM
Expiry Date/Time: 31/10/2019 12:32 PM
Measured Date/Time: 22/10/2019 12:26 PM
Volume: 1 ml

MEASUREMENT DETAILS

VERIFICATION DETAILS

Label Packaging Type: White I
Survey on Surface: 0.5 mR/hr
Survey at 1 Meter Distance: 1 mR/hr
Wipe Test: 1 Bq per cm²
Remarks:

☒ Accept
☐ Reject
Reject Reason:
Done By: System Administrator
Updated By: System Administrator
Date/Time: 22/10/2019 12:26 PM
Updated Date/Time: 22/10/2019 12:26 PM

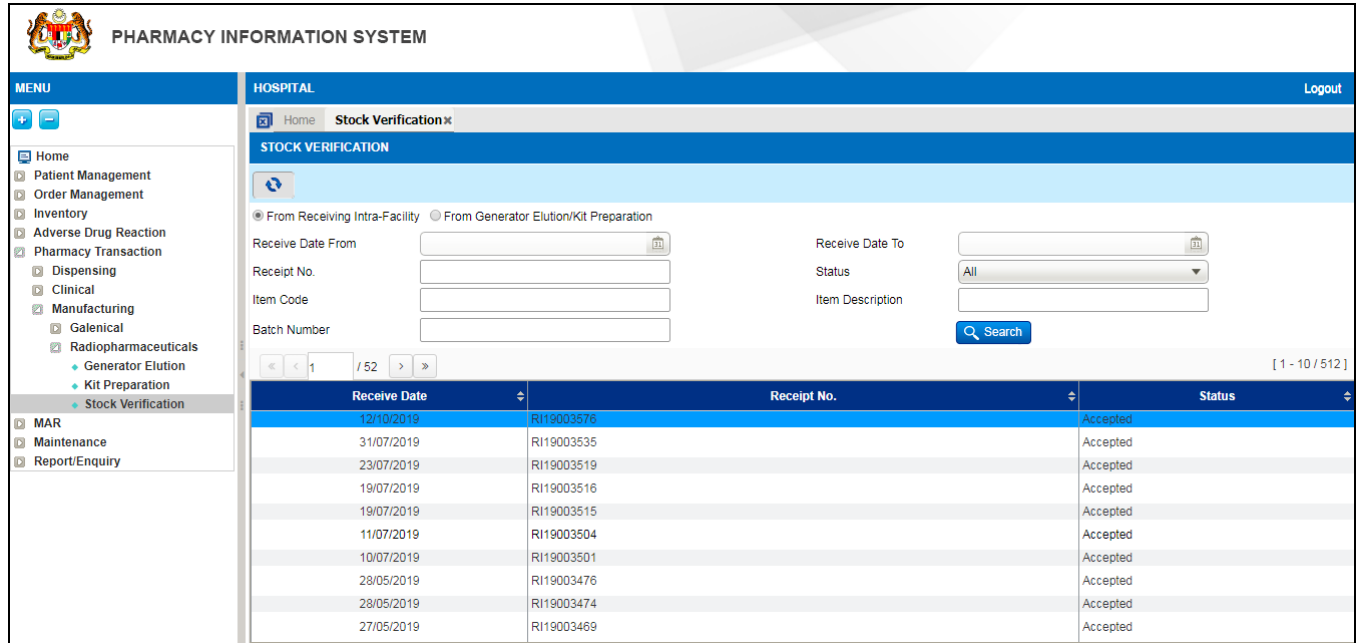
Figure 3.7.3-5 Stock Verification

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.



The screenshot shows the 'PHARMACY INFORMATION SYSTEM' interface. On the left is a 'MENU' sidebar with options like Home, Patient Management, Order Management, Inventory, Adverse Drug Reaction, Pharmacy Transaction, Dispensing, Clinical, Manufacturing, Galenical, Radiopharmaceuticals (with sub-options for Generator Elution and Kit Preparation), and Stock Verification. The main area is titled 'HOSPITAL' and 'Stock Verification'. It includes a 'Logout' link and a 'Home' button. Below this is a 'STOCK VERIFICATION' section with a refresh icon and two radio buttons: 'From Receiving Intra-Facility' (selected) and 'From Generator Elution/Kit Preparation'. There are input fields for 'Receive Date From', 'Receipt No.', 'Item Code', and 'Batch Number'. To the right, there are fields for 'Receive Date To', 'Status' (set to 'All'), and 'Item Description', followed by a 'Search' button. Below the search fields is a table listing verification records. The table has columns for 'Receive Date', 'Receipt No.', and 'Status'. The first row is highlighted in blue.

Receive Date	Receipt No.	Status
12/10/2019	RI19003576	Accepted
31/07/2019	RI19003535	Accepted
23/07/2019	RI19003519	Accepted
19/07/2019	RI19003516	Accepted
19/07/2019	RI19003515	Accepted
11/07/2019	RI19003504	Accepted
10/07/2019	RI19003501	Accepted
28/05/2019	RI19003476	Accepted
28/05/2019	RI19003474	Accepted
27/05/2019	RI19003469	Accepted

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