



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

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## **User Manual Radiopharmaceuticals**

<b>Version</b> : 11 <sup>th</sup> Edition <b>Document ID</b> : U.MANUAL_RADIOPHARMACEUTICALS
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Reference ID : U.MANUAL\_RADIOPHARMACEUTICALS-11<sup>th</sup> E

Application reference: PhIS & CPS v2.3.1



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## 1.0 Introduction

### 1.1 Overview of PhIS

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

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

1. Order Management
2. Inpatient Pharmacy
3. Outpatient Pharmacy
4. Medication Counselling
5. Ward Pharmacy
6. Pharmacy Inventory
7. Manufacturing of Cytotoxic Drug Reconstitution (CDR), Parenteral Nutrition (PN), IV Admixture & Eye Drop, Radiopharmaceuticals and Extemporaneous
8. Adverse Drug Reaction & Drug Allergic Card (ADR & DAC)
9. Clinical Pharmacokinetics Services (TDM)
10. Drug Information & Consumer Education (DICE)
11. Medication Therapy Adherence Clinic (MTAC)
12. Data Mining (PhARM)

### 1.2 Purpose and Objectives

This user manual outlines the Radiopharmaceuticals module and its key features and functionalities. The primary objective is to guide users through the process of completing PhIS application process.

User will understand the following activities in details:

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

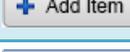
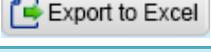
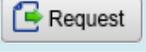
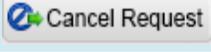
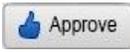
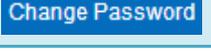
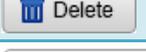
### 1.3 Organised Sections

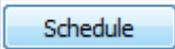
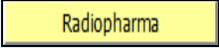
These are the sections within this document:

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

## 2.0 Application Standard Features

### 2.1 PhIS Legend

Standard Legend			
	Login to PhIS		Logout from PhIS
	Reset Login Screen		Expand Menu
	Display Home Tab		Expand Module
	Close All Open Tabs		Refresh Screen
	Add/Create New Record		Show Help
*	Mandatory Field		Calendar Icon
	Close Window		Radio Button
	Edit Record		Cancel
	Save		Add Item to the list
	Export and Open Report in Excel Format		Automatically Display/Retrieve Box
	Request for Approval		Cancel the Request
	Send for Approval		Approve Transaction
	Change Login Password		Collapse Menu
	Collapse Module		Search Record
	Print		Search Icon
<input type="checkbox"/>	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

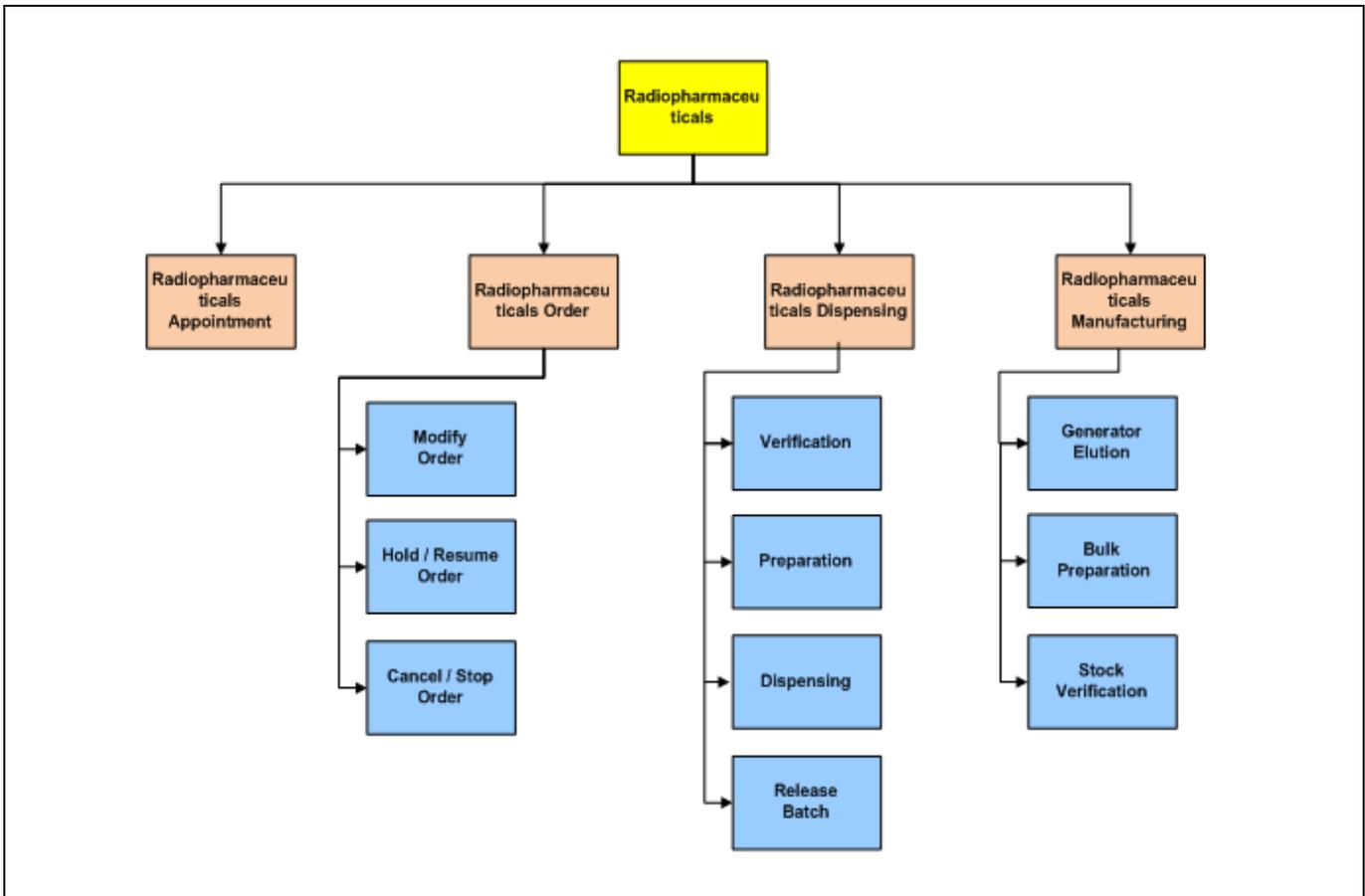


Figure 3.0-1

### Functional Description

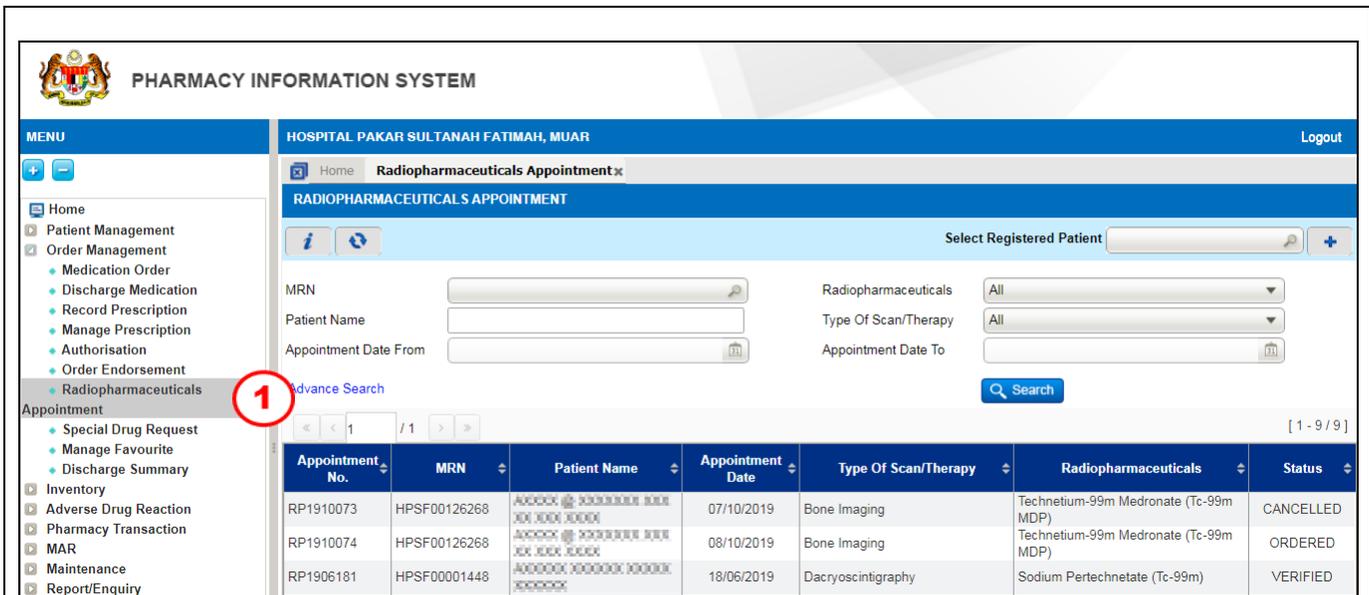
Slow Moving comprises of four (4) main functions:

- **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

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910073	HPSF00126268	XXXXXXXXXXXXXXXXXXXX XX XX XXXX	07/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	CANCELLED
RP1910074	HPSF00126268	XXXXXXXXXXXXXXXXXXXX XX XX XXXX	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1906181	HPSF00001448	XXXXXXXXXXXXXXXXXXXX XXXXXXXX	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**

Select Registered Patient

MRN:

Patient Name:

Appointment Date From:

Advance Search

< < 1 / 1337 > >

**Patient Search**

Patient MRN:  Patient Name:

IC No/Other Identification:

Search

< < 1 / 23439 > > [1 - 10 / 234390]

Appointment No.	MRN	Patient Name	Ap	Patient MRN	Patient Name	IC No/Other Identification
RP18112919	HKL000009	XXXXXXXXXXXXXXXXXXXX		HKL000001	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1910041	HKL000001	XXXXXXXXXXXXXXXXXXXX		HKL000002	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1910042	HKL000001	XXXXXXXXXXXXXXXXXXXX		HKL000003	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1909121	HKL000001	XXXXXXXXXXXXXXXXXXXX		HKL000004	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1909031	HKL015511	XXXXXXXXXXXXXXXXXXXX		HKL000005	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1909041	HKL015502	XXXXXXXXXXXXXXXXXXXX		HKL000006	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
	HKL0000000	XXXXXXXXXXXXXXXXXXXX		HKL000007	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
				HKL000008	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
				HKL000009	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
				HKL000010	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX

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**

Select Registered Patient

MRN:

Patient Name:

Appointment Date From:

Advance Search

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

**Patient Search**

Patient MRN:  Patient Name:

IC No/Other Identification:

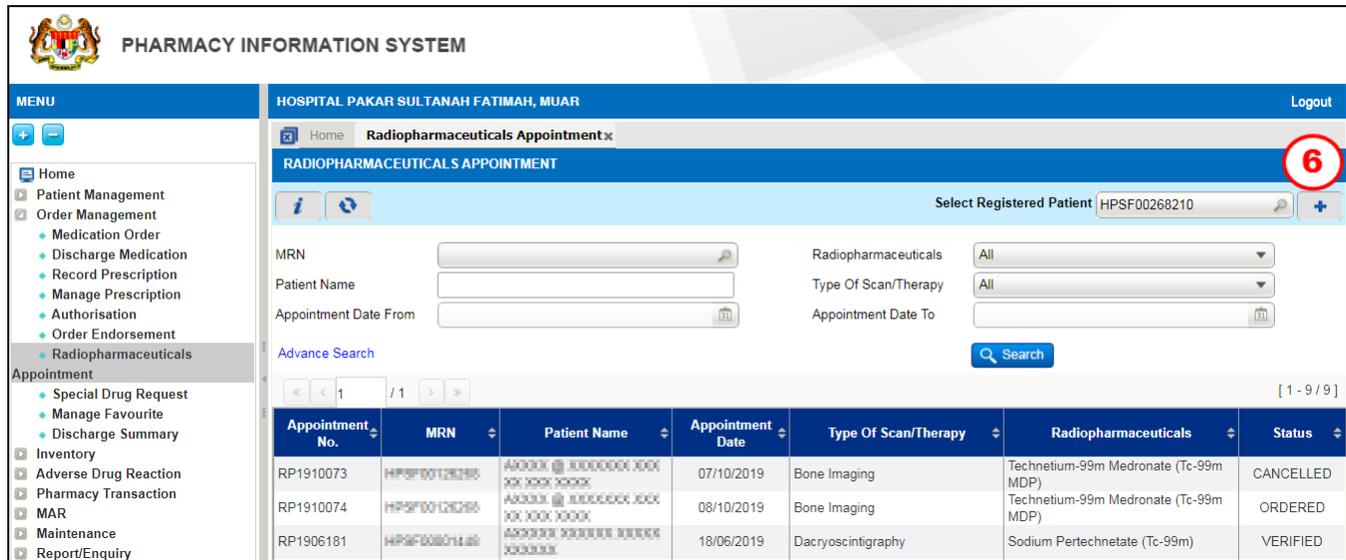
Search

Appointment No.	MRN	Patient Name	Ap	Patient MRN	Patient Name	IC No/Other Identification
RP1910073	HPSF00126269	XXXXXXXXXXXXXXXXXXXX		HPSF00126269	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1910074	HPSF00126269	XXXXXXXXXXXXXXXXXXXX		HPSF00126269	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX
RP1906181	HPSF00014445	XXXXXXXXXXXXXXXXXXXX		HPSF00014445	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX

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 6

**RADIOPHARMACEUTICALS APPOINTMENT**

Select Registered Patient: HPSF00268210

MRN:  Radiopharmaceuticals: All

Patient Name:  Type Of Scan/Therapy: All

Appointment Date From:  Appointment Date To:

Advance Search Search

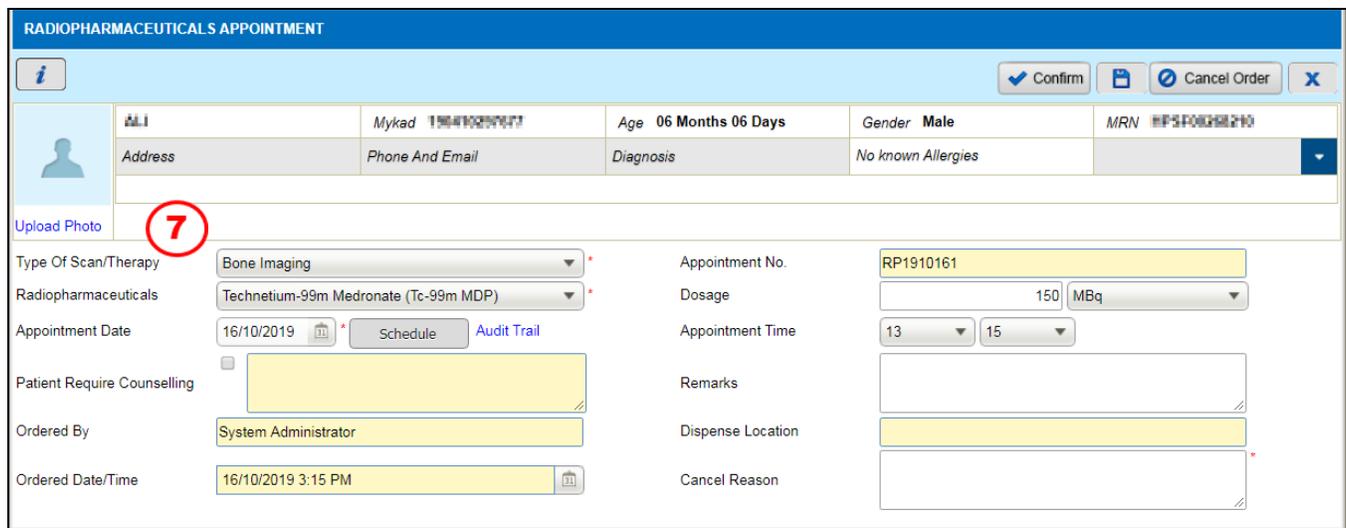
< < 1 / 1 > > [ 1 - 9 / 9 ]

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910073	HPSF00126265	AKOOL @ XXXXXXXX XXX XX XXX XXXXX	07/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	CANCELLED
RP1910074	HPSF00126265	AKOOL @ XXXXXXXX XXX XX XXX XXXXX	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1906181	HPSF00801146	AKOOL XXXXXXXX XXXXX XXXXXXXX	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**

	Mykad 1904102677	Age 06 Months 06 Days	Gender Male	MRN HPSF00268210
Address	Phone And Email	Diagnosis	No known Allergies	

Upload Photo 7

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

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

Appointment Date: 16/10/2019 \*   Appointment Time: 13:15

Patient Require Counselling:  Remarks:

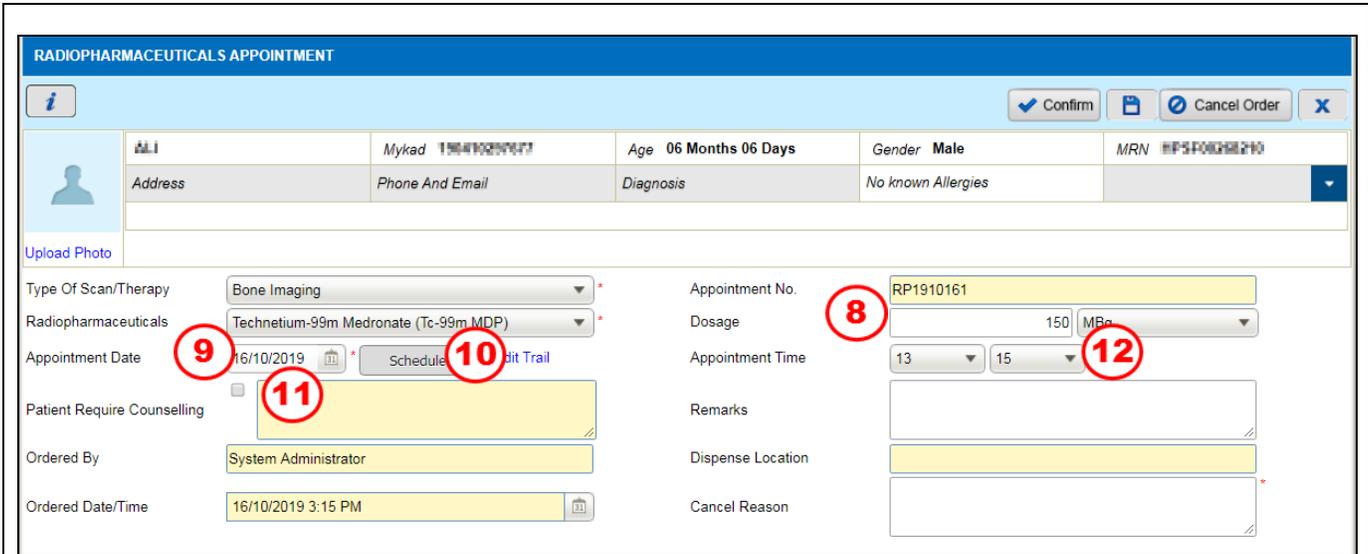
Ordered By: System Administrator Disperse Location:

Ordered Date/Time: 16/10/2019 3:15 PM Cancel Reason:

**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



The screenshot shows the 'RADIOPHARMACEUTICALS APPOINTMENT' form. At the top, there are buttons for 'Confirm', 'Cancel Order', and a close button. Below this is a patient information section with fields for Mykad, Age (06 Months 06 Days), Gender (Male), and MRN. There are also fields for Address, Phone And Email, Diagnosis, and No known Allergies. The main form area contains several fields: 'Type Of Scan/Therapy' (Bone Imaging), 'Radiopharmaceuticals' (Technetium-99m Medronate (Tc-99m MDP)), 'Appointment Date' (16/10/2019), 'Appointment No.' (RP1910161), 'Dosage' (150 MBq), 'Appointment Time' (13:15), 'Patient Require Counselling' (checked), 'Ordered By' (System Administrator), and 'Ordered Date/Time' (16/10/2019 3:15 PM). There are also fields for 'Remarks', 'Dispense Location', and 'Cancel Reason'. Red circles with numbers 8 through 12 highlight specific fields: 8 on Appointment No., 9 on Appointment Date, 10 on the Schedule button, 11 on the Patient Require Counselling checkbox, and 12 on the Appointment Time dropdown.

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**

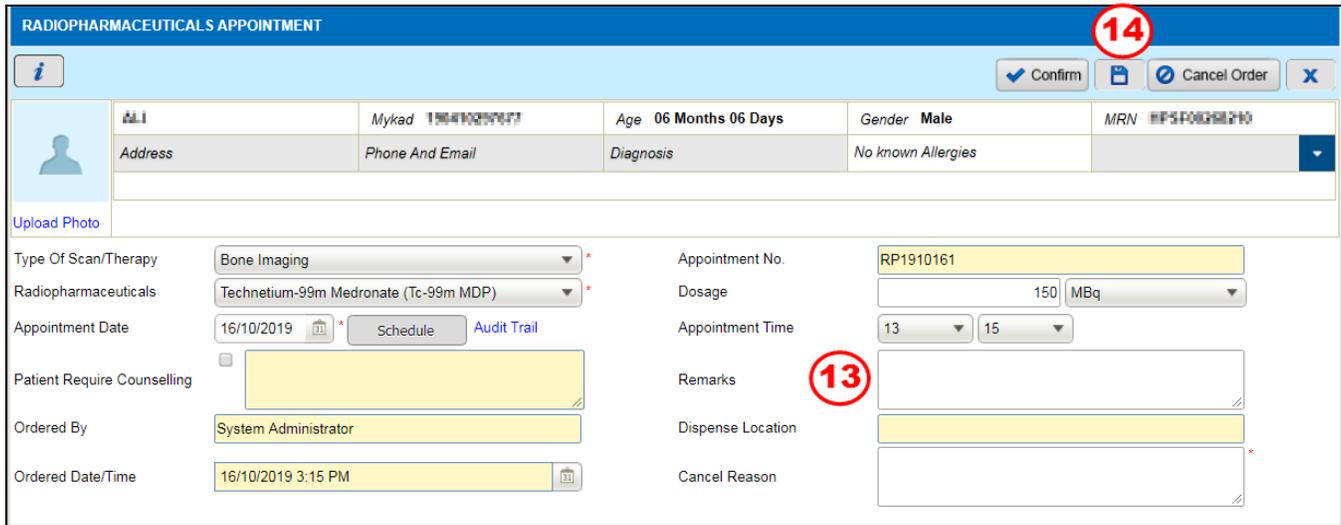
Click on the  button to check for available date for appointment

**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



**RADIOPHARMACEUTICALS APPOINTMENT** 14

	<b>Mykad</b> 196410250077	<b>Age</b> 06 Months 06 Days	<b>Gender</b> Male	<b>MRN</b> #PSP0026210
<b>Address</b>	<b>Phone And Email</b>	<b>Diagnosis</b>	<b>No known Allergies</b>	

[Upload Photo](#)

<b>Type Of Scan/Therapy</b>	Bone Imaging *	<b>Appointment No.</b>	RP1910161
<b>Radiopharmaceuticals</b>	Technetium-99m Medronate (Tc-99m MDP) *	<b>Dosage</b>	150 MBq
<b>Appointment Date</b>	16/10/2019 <input type="button" value="Calendar"/> <input type="button" value="Schedule"/> <input type="button" value="Audit Trail"/>	<b>Appointment Time</b>	13:15
<b>Patient Require Counselling</b>	<input type="checkbox"/>	<b>Remarks</b>	13
<b>Ordered By</b>	System Administrator	<b>Dispense Location</b>	
<b>Ordered Date/Time</b>	16/10/2019 3:15 PM <input type="button" value="Calendar"/>	<b>Cancel Reason</b>	

**Figure 3.1.1-7 Radiopharmaceuticals Appointment**

**STEP 13**

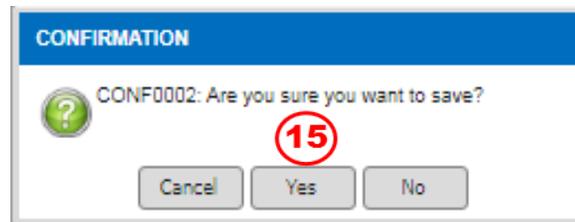
Enter **Remarks** if applicable

**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**

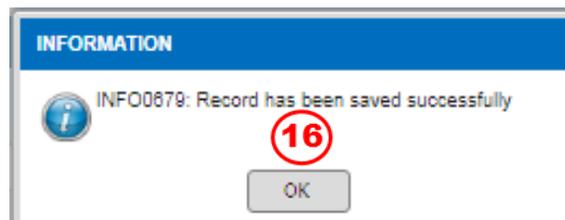
Click on the save  button to save record and alert message will be displayed as per Figure 3.1.1-7



**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



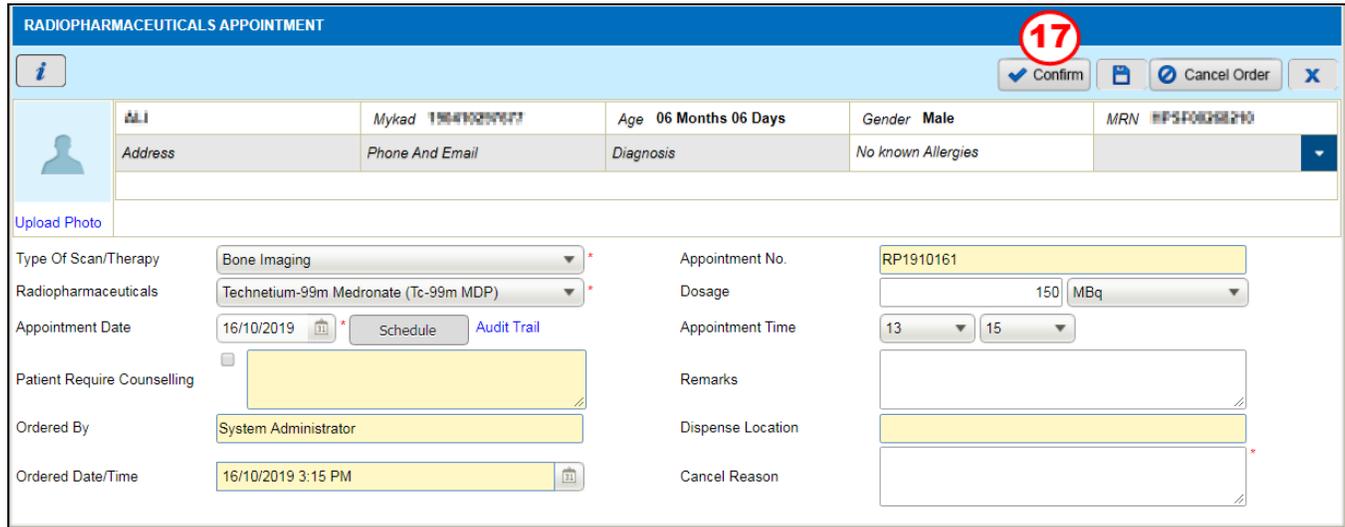
**Figure 3.1.1-9 Save Record Alert Message**

**STEP 16**

Click on the  button to save and update Radiopharmaceuticals Appointment order

**Note**

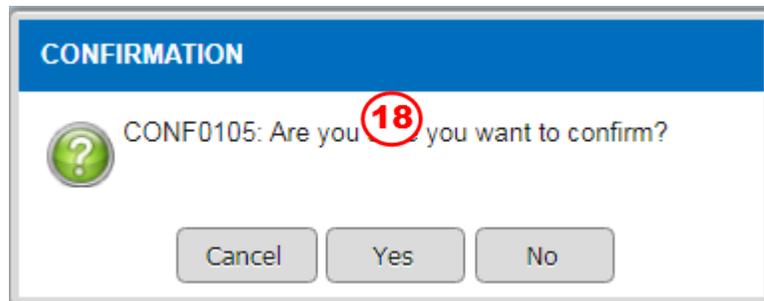
*Record status is updated to Draft.*



**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

**RADIOPHARMACEUTICALS APPOINTMENT**

MRN: HPSF00000003 (19)

Age: 05 Years 11 Months 14 Days | Gender: Female

Diagnosis: No known Allergies

Appointment No.: RP1910071

Dosage: 11 MBq

Appointment Time: 1 : 15 (20)

Type Of Scan/Therapy: Bone Imaging

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

Appointment Date: 07/10/2019

Ordered By: [Name]

Ordered Date/Time: 07/10/2019 3:17 PM

Figure 3.1-12 Radiopharmaceuticals Appointment

**STEP 19**

Click on the button to cancel Radiopharmaceuticals Appointment

**STEP 20**

Enter cancel reason

**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR

Home Radiopharmaceuticals Appointment x

**RADIOPHARMACEUTICALS APPOINTMENT**

MRN: [Input] | Radiopharmaceuticals: All

Patient Name: [Input] | Type Of Scan/Therapy: All

Appointment Date From: [Input] | Appointment Date To: [Input]

Advance Search [Search]

Appointment No.	MRN	Patient Name	Appointment Date	Type Of Scan/Therapy	Radiopharmaceuticals	Status
RP1910161	HPSF00000003	[Name]	16/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	NEW
RP1910074	HPSF00126286	[Name]	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED
RP1910075	HPSF00842673	[Name]	08/10/2019	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	ORDERED

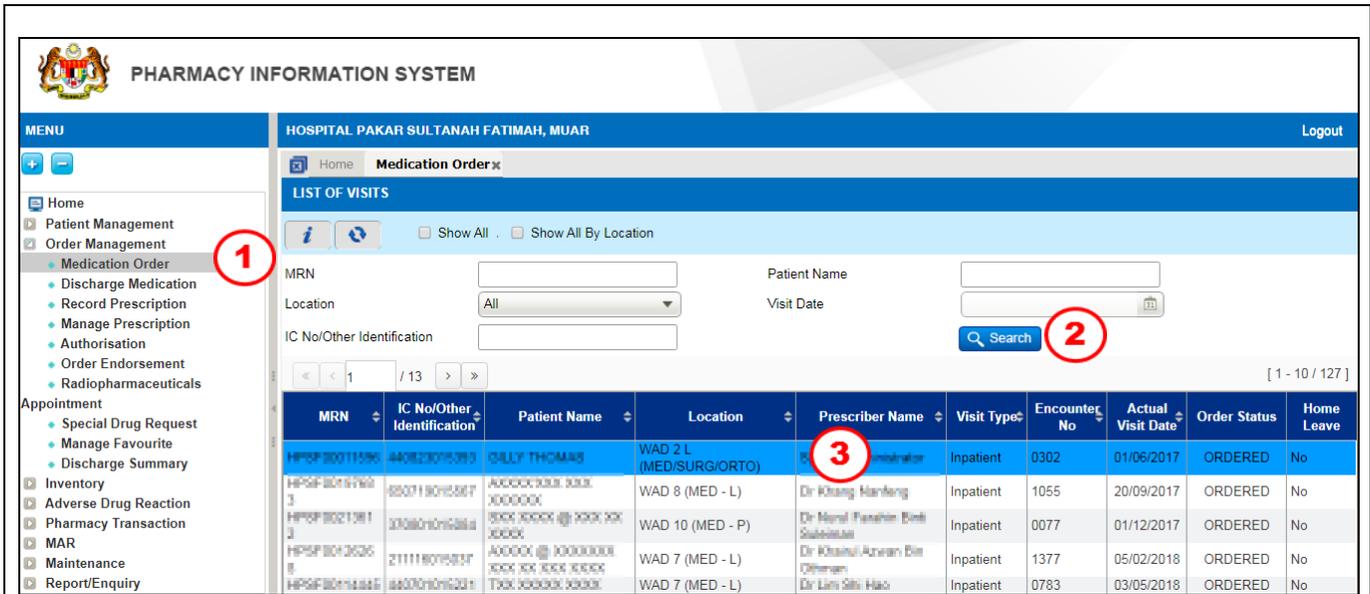
Figure 3.1.1-13 Radiopharmaceuticals Appointment

**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
HPSP80211596	440823009393	GALLY THOMAS	WAD 2 L (MED/SURG/ORTO)	Dr. [Redacted]	Inpatient	0302	01/06/2017	ORDERED	No
HPSP8019769	850718015887	XXXXXX XXX XXXXXX	WAD 8 (MED - L)	Dr. Kheng Hanlong	Inpatient	1055	20/09/2017	ORDERED	No
HPSP8021381	200801010284	XXXX XXXX @ XXX XX XXXX	WAD 10 (MED - P)	Dr. Nurul Fakhir Binti Subhanza	Inpatient	0077	01/12/2017	ORDERED	No
HPSP8043605	211118015837	XXXX @ XXXXXXXX	WAD 7 (MED - L)	Dr. Khairul Azwan Bin Othman	Inpatient	1377	05/02/2018	ORDERED	No
HPSP8014447	440701010231	XXX XXXXXX 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**

GILLY 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 m<sup>2</sup> | 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 (MEDI/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
<input type="checkbox"/>	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**

GILLY 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 m<sup>2</sup> | 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 (MEDI/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
<input type="checkbox"/>	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	150	MBq	16/10/2019	NEW		

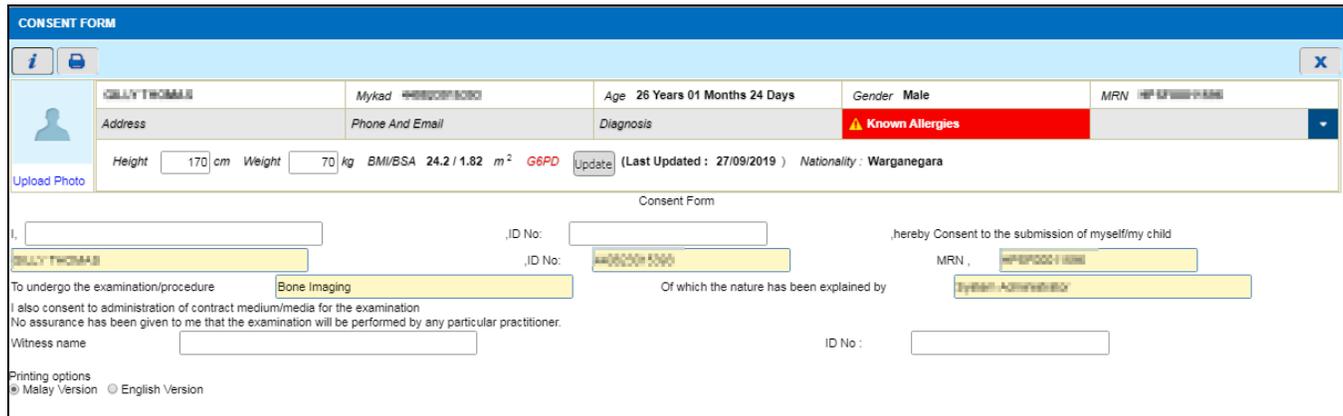
Consent Form | Cancel

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

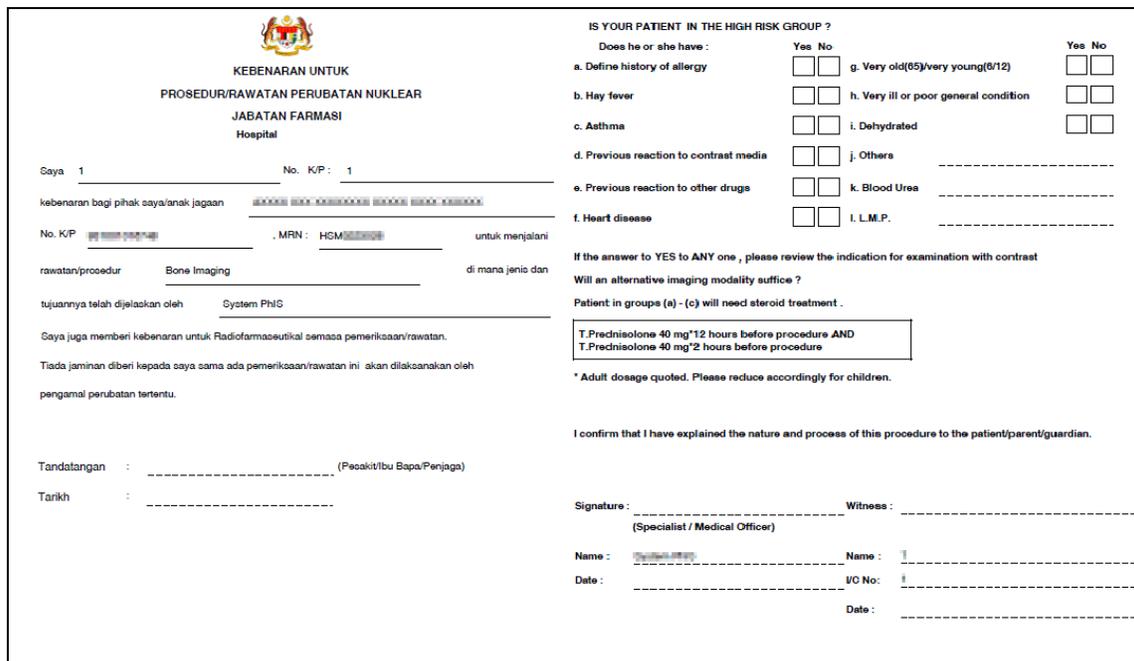


**Figure 3.2-4 Consent Form**

**Note**

**Consent Form:**

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



**Figure 3.2-5 Sample Consent Form**



**MEDICATION ORDER**

Encounter No: 0302 Actual Admission Date: 01/05/2017 Attending Practitioner: Mykad 4433333333333333 Visit Location: WAD 2 L (MEDI/SURGI/ORTO) Pensioner:  -SELECT- Update

**RADIOPHARMACEUTICALS ORDER**

Type Of Scan/Therapy: Radiopharmaceuticals Appointment No.: Dosage: MBq  
 Appointment Date: Patient Require Counselling: Remarks: Dispende Location:

Ordered By: Ordered Date/Time: 07/10/2019 3:28 PM

**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.

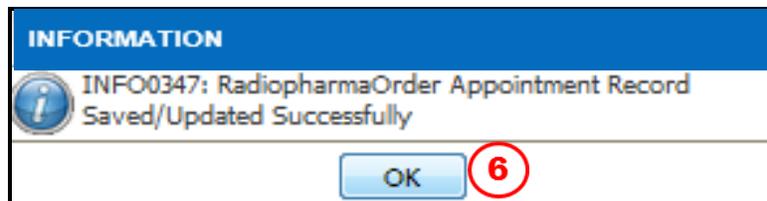


Figure 3.2-10 Alert Message

**STEP 6**

Click on the button to save data

**MEDICATION ORDER**

Encounter No: 0302 Actual Admission Date: 01/05/2017 Attending Practitioner: Mykaid Abdullahi Mykaid Visit Location: WAD 2 L (MEDI/SURG/ORTO) Pensioner:  -SELECT- Update

**RADIOPHARMACEUTICALS ORDER**

Appointment No.  Dosage  MBq Appointment Time  Remarks  Dispense Location

Selection	Type Of Scan/Therapy	Radiopharmaceuticals	Dosage	Unit	Date	Status	Confirm By	Confirm Date/Time
<input type="checkbox"/>	Bone Imaging	Technetium-99m Medronate (Tc-99m MDP)	11	MBq	07/10/2019	NEW		

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?

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

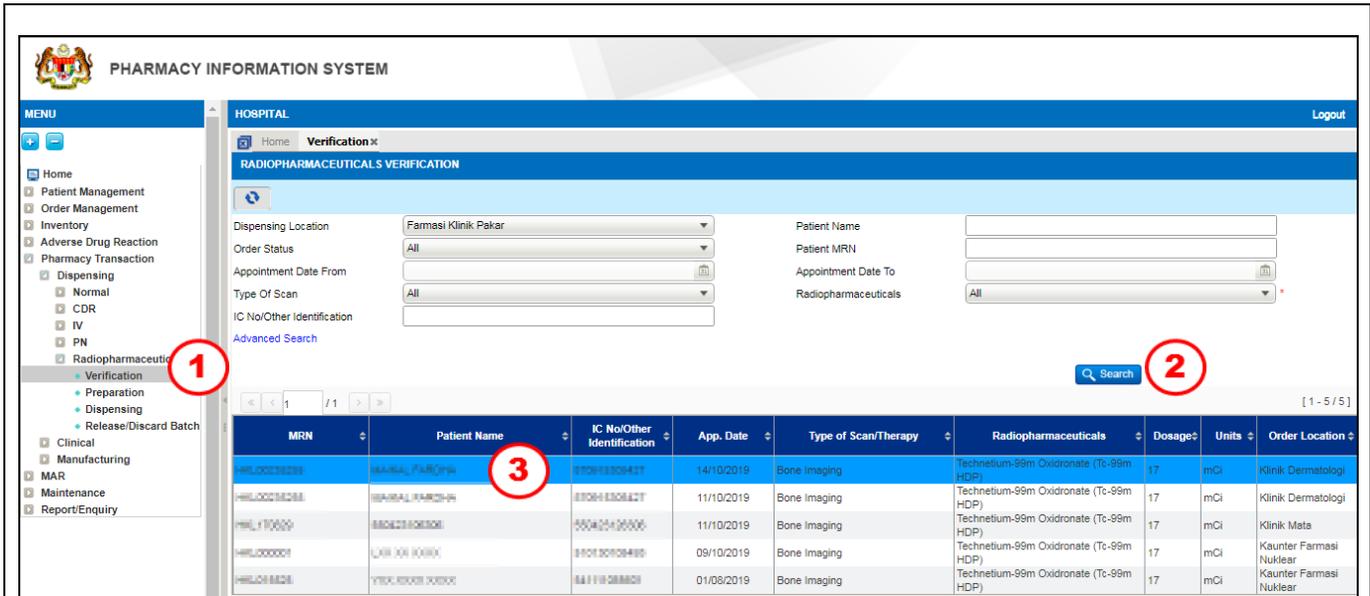
Figure 3.2-13 Alert Message

**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

Home Verification x

**RADIOPHARMACEUTICALS VERIFICATION**

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

[ 1 - 5 / 5 ]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HL0023229	BAHAL FAROQAH	872919329421	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
HL0023230	BAHAL FAROQAH	872919329421	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
HL1100000	MOHAMED MOHAMED	000405400000	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Mata
HL0000001	LAR AN SOREK	810230028480	09/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
HL0018281	YIEK KOOH KOOH	8411928800	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  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

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	<input type="checkbox"/> Details	17 mCi	0 mCi	Remarks	Ordered

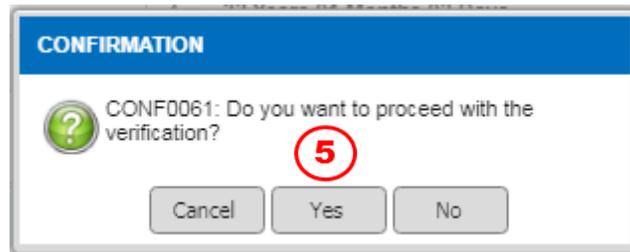
**Figure 3.3-2 Radiopharmaceuticals Verification**

**STEP 4**

Click on  button to verify order

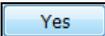
**Note**

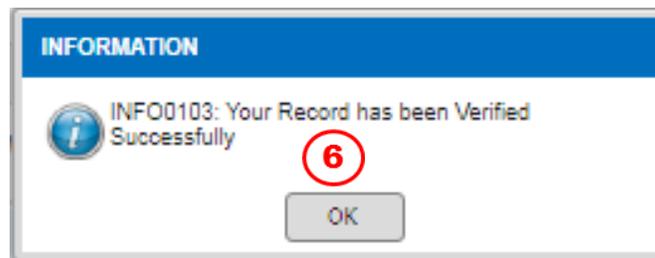
- *Drug Counselling column is an optional function.*
- *Choose **Yes** if the patient need counselling or **No** if the patient do not need counselling.*



**Figure 3.3-3 Information Alert Message**

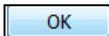
**STEP 5**

Click on the  button to proceed with the verification



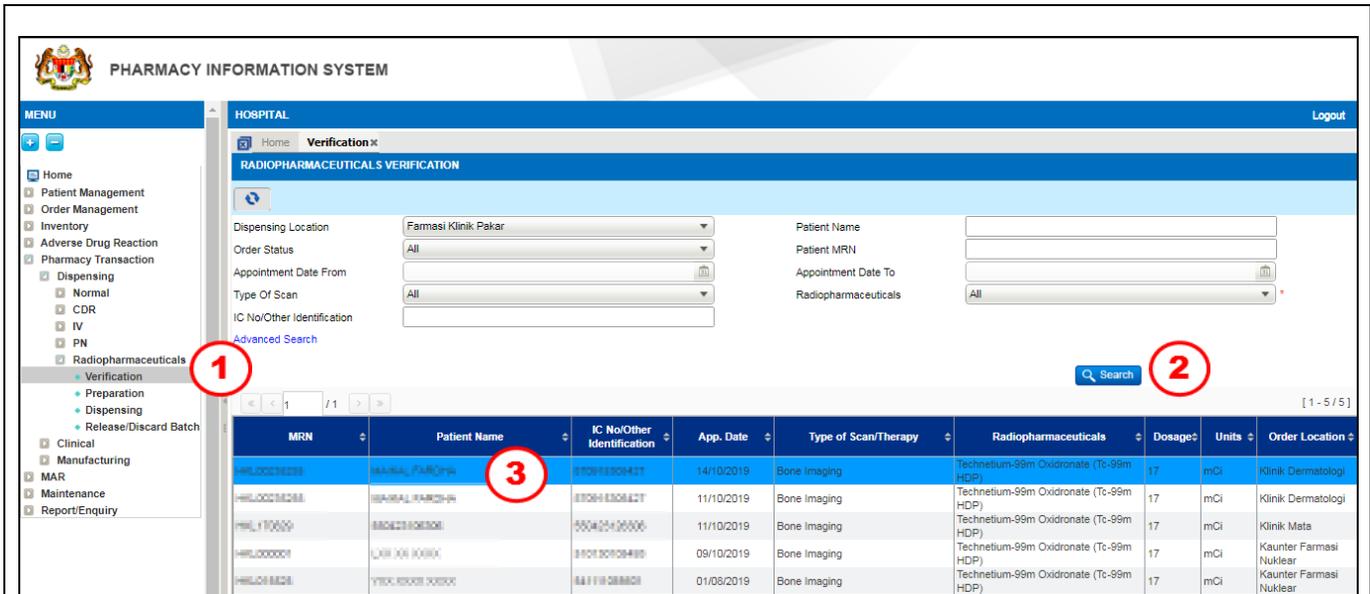
**Figure 3.3-4 Verify Order Alert Message**

**STEP 6**

Click on the  button to verify successfully

### 3.3.1 Intervention

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



**PHARMACY INFORMATION SYSTEM**

**HOSPITAL** Home Verification x Logout

**RADIOPHARMACEUTICALS VERIFICATION**

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

[1-5/5]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HL0027020	HAJAL, FARIZAH	870910209421	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
HL0027020	HAJAL, FARIZAH	870910209421	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
HL110000	MOHAMED, MOHAMED	00040410000	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Mata
HL000001	LIA, XIA XIA	810120100400	09/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
HL001020	YEE, XIA XIA	8411100000	01/09/2019	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

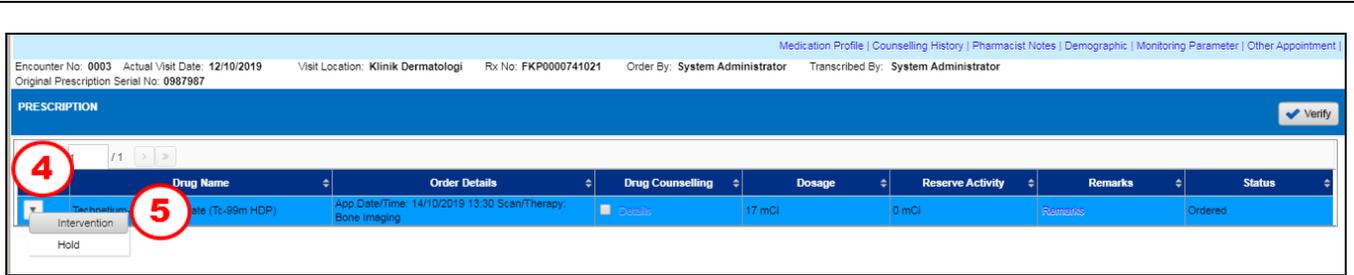
- Various search criteria is provided as below:
  - Dispense Location
  - Patient Name
  - Order Status
  - Patient MRN
  - Appointment Date From
  - Appointment Date To
  - Type of Scan
  - Radiopharmaceuticals
  - IC No/Other Identification
- Click on the [Advanced Search](#) hyperlink for advance search.

#### STEP 2

Click on the  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



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

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

**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	Check	17 mCi	0 mCi	Radiopharmaceuticals	Ordered

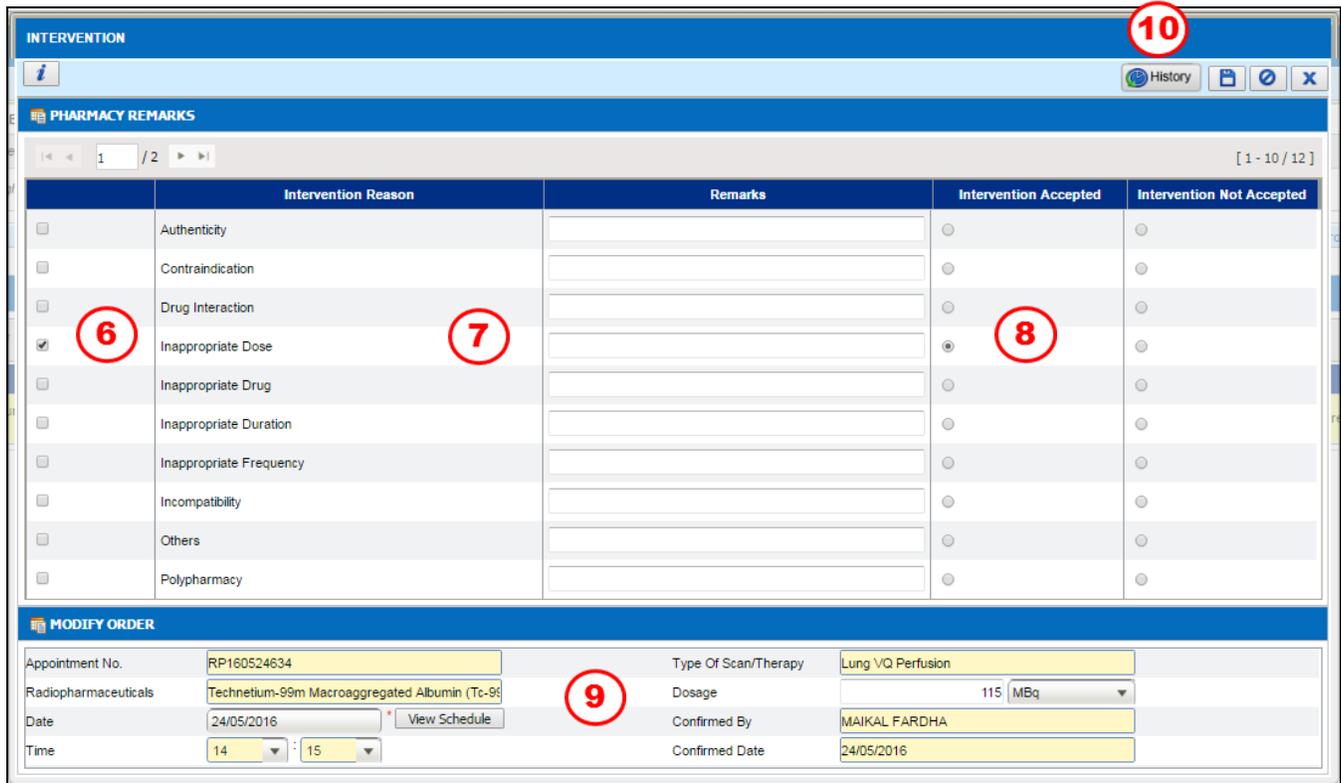
Figure 3.3.1-2 Radiopharmaceuticals Verification Listing Page

**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
<input type="checkbox"/> Authenticity		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Contraindication		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Drug Interaction		<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Inappropriate Dose		<input checked="" type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Inappropriate Drug		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Inappropriate Duration		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Inappropriate Frequency		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Incompatibility		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Others		<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Polypharmacy		<input type="radio"/>	<input type="radio"/>

**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 <input type="button" value="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.

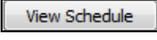
**STEP 7**

Enter **Remarks** if applicable.

**STEP 8**

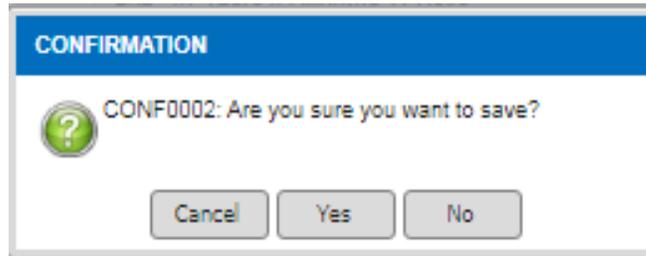
Select **Intervention Status** radio button either **Accepted** or **Not Accepted** and edit **Amount** field

**STEP 9**

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

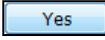
**STEP 10**

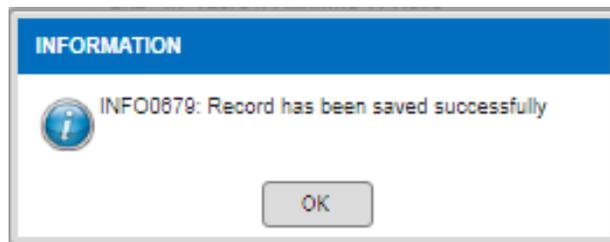
Click on the  button to save intervention record and alert message will display as per Figure 3.3.1-4.



**Figure 3.3.1-4 Save record Alert Message**

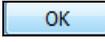
**Note**

- Click on the  button to save intervention record.



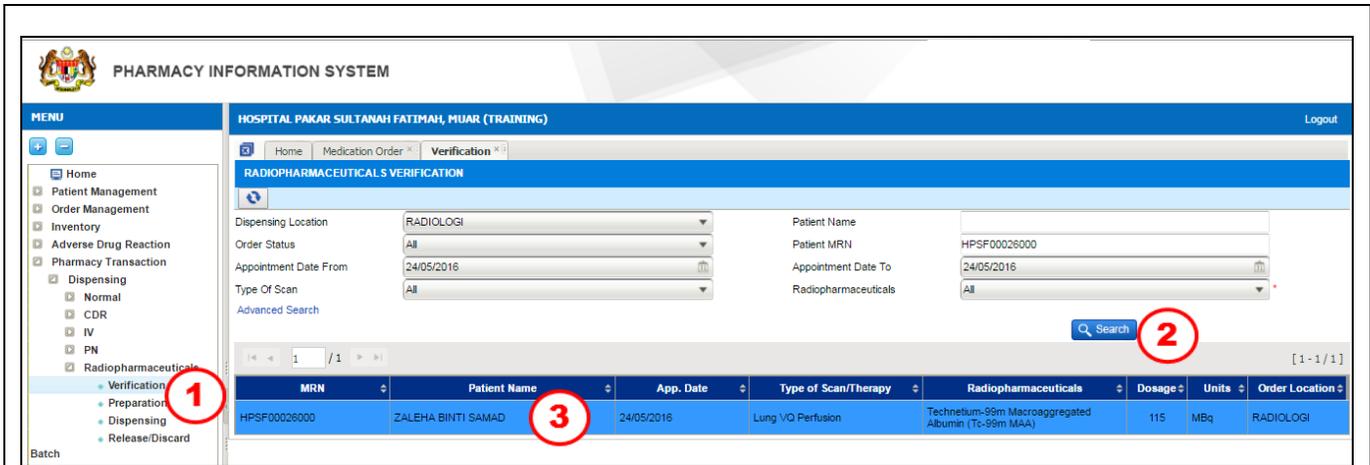
**Figure 3.3.1-5 Modify Order Alert Message**

**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.



**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING)

Home Medication Order Verification

**RADIOPHARMACEUTICALS VERIFICATION**

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

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

Search [2]

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

**Figure 3.3.2-1 Radiopharmaceuticals Verification Listing Page**

#### STEP 1

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

#### Note

Various search criteria is provided as below:

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

#### STEP 2

Click on the  button and system will display related order

#### STEP 3

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



**PRESCRIPTION** [Verify]

1 / 1

Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Technetium-99m Macroaggregated Albumin (Tc-99m Intervention) Hold [5]	App.Date/Time: 24/05/2016 14:15PM Scan/Therapy: Lung V/Q Perfusion	Details	115 MBq	0 MBq	Remarks	Ordered (PA)

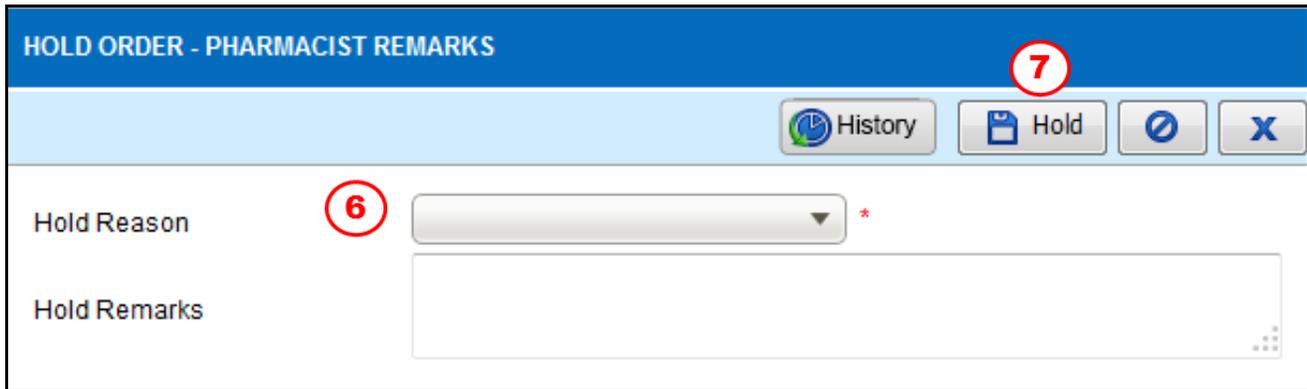
**Figure 3.3.2-2 Radiopharmaceuticals Verification Listing Page**

**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**

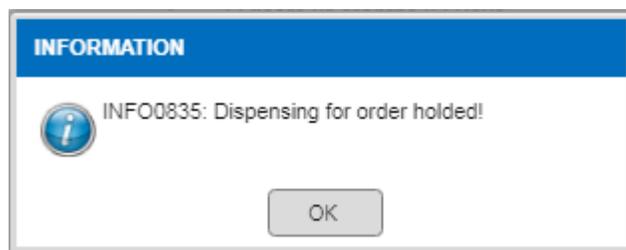
**STEP 6**

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**

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

Encounter No: 0003 Actual Visit Date: 12/10/2019 Visit Location: Klinik Dermatologi Rx No: FKP0000741021 Order By: *[Name]* Adminstrator Transcribed By: *[Name]* Adminstrator  
Original Prescription Serial No: 0987987

**PRESCRIPTION** Verify

1 / 1

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	<input type="checkbox"/> Details	17 mCi	0 mCi	Remarks	Ordered/Hold

Figure 3.3.2-5 Radiopharmaceuticals Verification

**Note**

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

**HOLD ORDER - PHARMACIST REMARKS**

Hold Reason:  \*

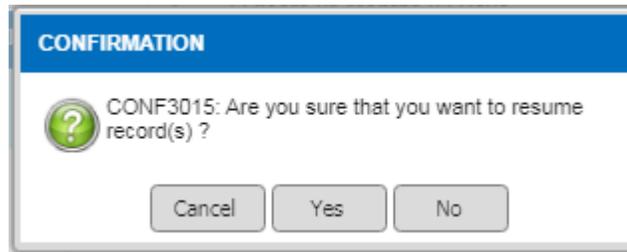
Hold Remarks:

Resume Remarks:

Figure 3.3.2-6 Hold Order – Pharmacist Remarks

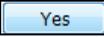
**Note**

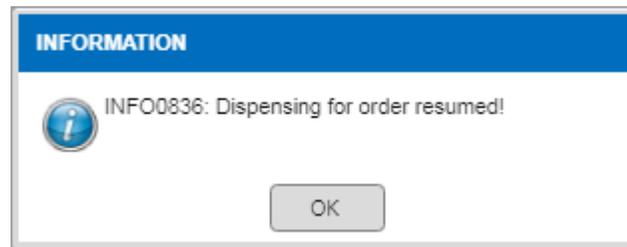
- Enter reason at **Resume Remarks** field
- Click on the  button to resume order.



**Figure 3.3.2-7 Hold/Resume Alert Message**

**Note**

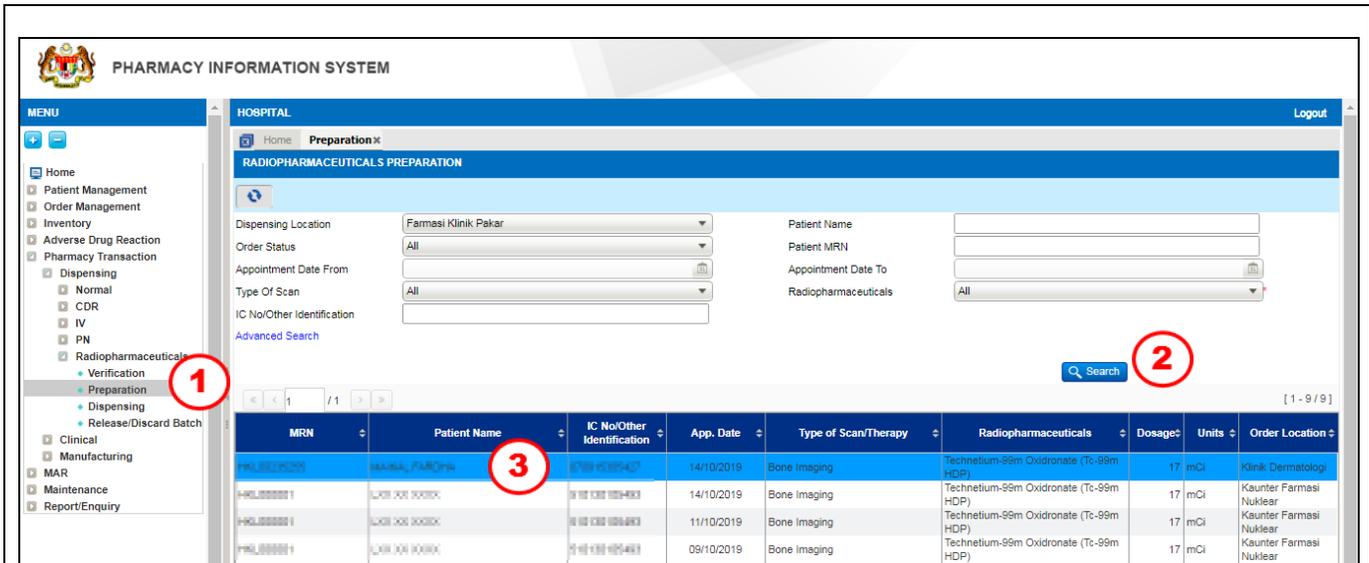
- Click on the  button to resume order.



**Figure 3.3.2-8 Information Alert Message**

### 3.4 Radiopharmaceutical Preparation

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



**PHARMACY INFORMATION SYSTEM**

**HOSPITAL** | Home | Preparation x | Logout

**RADIOPHARMACEUTICALS PREPARATION**

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

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

Advanced Search

Search

[ 1 - 9 / 9 ]

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
PH00000001	ABANG, ABU BAKAR	9709 4030423	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Klinik Dermatologi
PH00000001	ABANG, ABU BAKAR	9709 4030423	14/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
PH00000001	ABANG, ABU BAKAR	9709 4030423	11/10/2019	Bone Imaging	Technetium-99m Oxidronate (Tc-99m HDP)	17	mCi	Kaunter Farmasi Nuklear
PH00000001	ABANG, ABU BAKAR	9709 4030423	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  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 Filter

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	<a href="#">Details</a>	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	<a href="#">Batch Details</a>	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: R116018636

Radiopharmaceuticals	Received Qty	Received SKU	Batch No.	Expiry Date	Status
Sodium Pertechnetate (Tc-99m)	200	val	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: White I [Guideline](#) **6**  
 Survey on Surface: 0  
 Survey at 1 Meter Distance: 0  
 Wipe Test: 0  
 Remarks:

**VERIFICATION DETAILS**

Accept       Reject  
 Reject Reason:  
 Done By: Pharmacist Radio      Date/Time: 28/01/2016 11:00 AM  
 Updated By: MAIKAL FARDHA      Updated Date/Time: 24/05/2016 9:59 PM

Figure 3.4-4 Sample of Item Batch Details

**STEP 6**

Click on guideline link to get details about measurement details

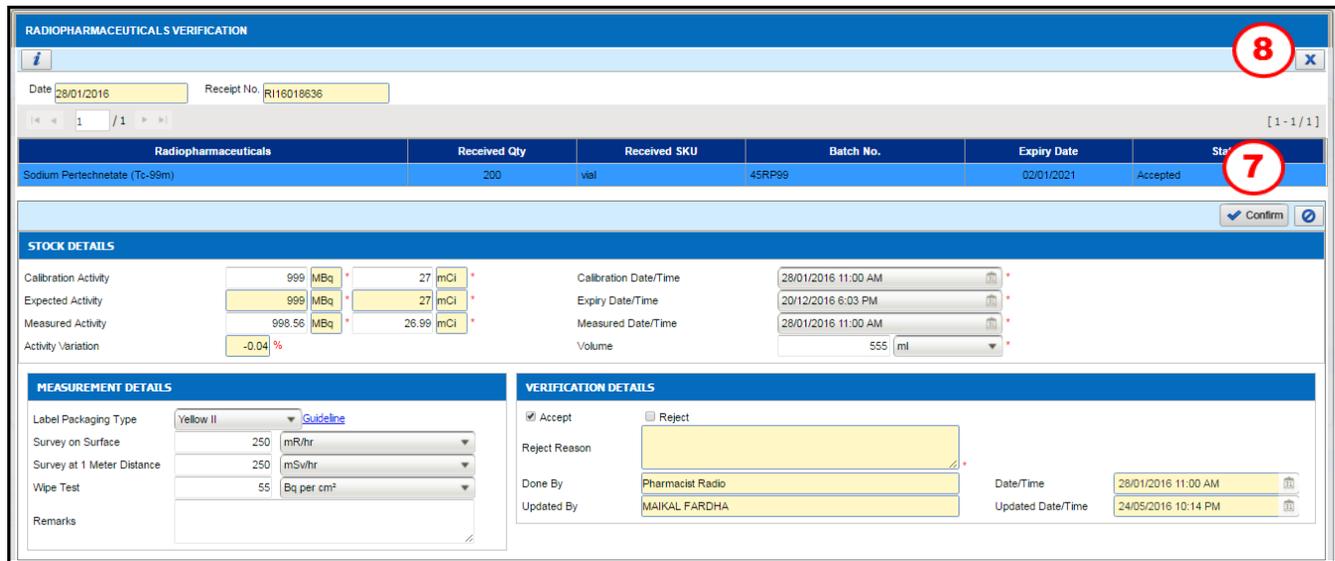
**Note**

- 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: RH16018636

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  
 Expected Activity: 999 MBq, 27 mCi  
 Measured Activity: 998.56 MBq, 26.99 mCi  
 Activity Variation: -0.04 %

Calibration Date/Time: 28/01/2016 11:00 AM  
 Expiry Date/Time: 20/12/2016 6:03 PM  
 Measured Date/Time: 28/01/2016 11:00 AM  
 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 cm<sup>2</sup>

**VERIFICATION DETAILS**

Accept  Reject  
 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

**Confirm**

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

**PRESCRIPTION**

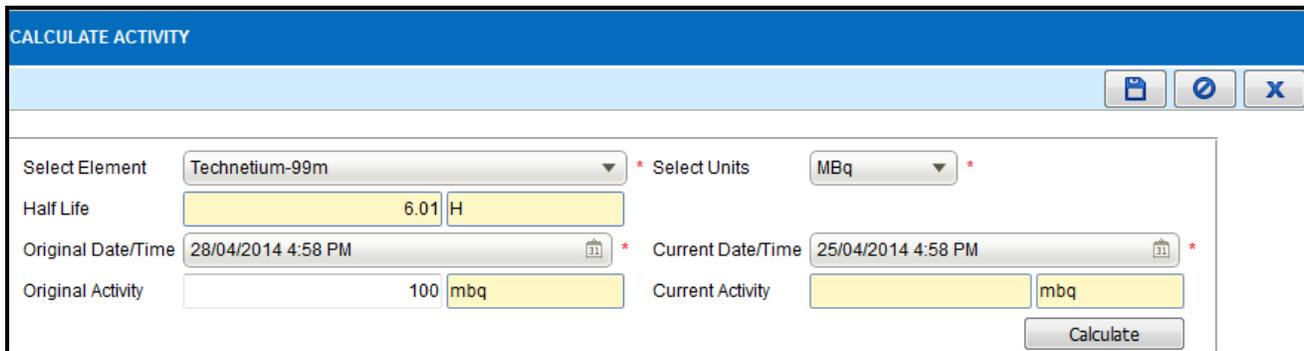
Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App.Date/Time: 05/05/2016 13:00PM Scan/Therapy: Dacryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

**Calculate Activity**

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 \*

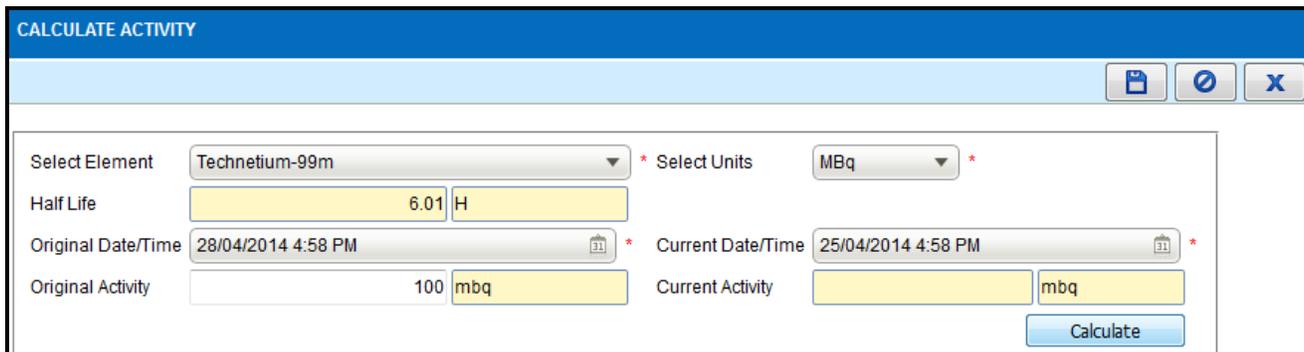
Half Life: 6.01 H

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

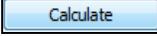
Original Date/Time: 28/04/2014 4:58 PM \* Current Date/Time: 25/04/2014 4:58 PM \*

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.

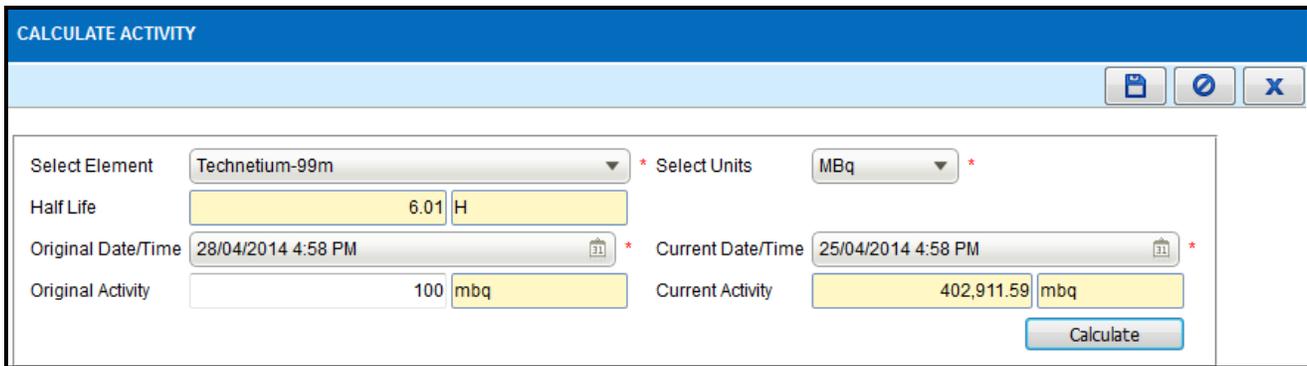


Figure 3.4-8 Calculate Activity

**Note**

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

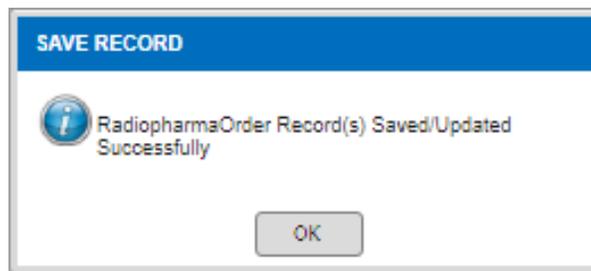
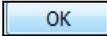


Figure 3.4-9 Save Record Alert Message

**Note**

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

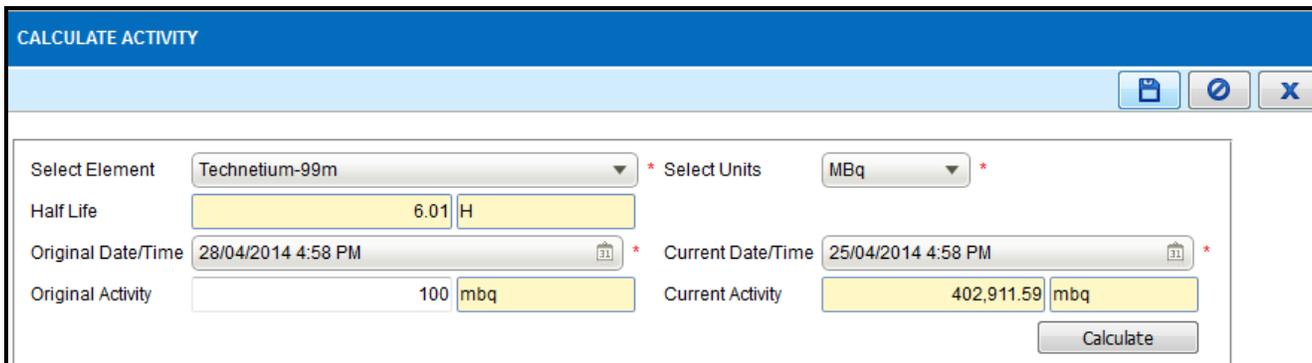


Figure 3.4-10 Calculate Activity

**Note**

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

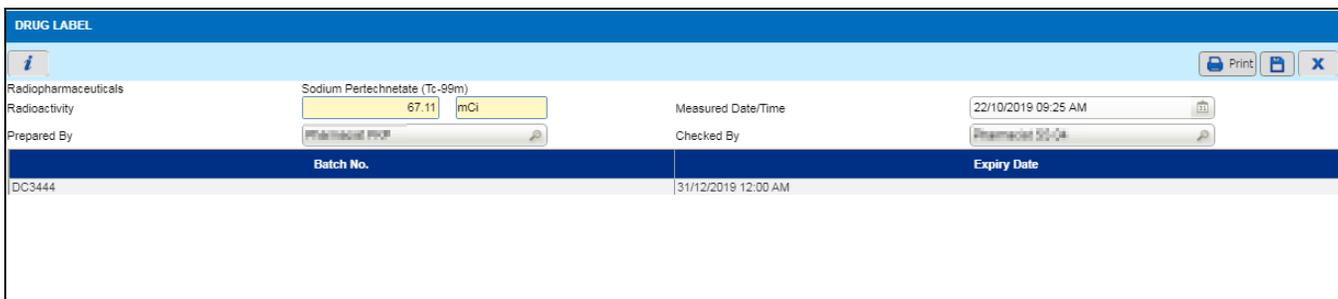


Drug Name	Order Details	Drug Counselling	Dosage	Reserve Activity	Remarks	Status
Sodium Pertechnetate (Tc-99m)	App.Date/Time: 05/05/2016 13:00PM Scan/Therapy: Daecryoscintigraphy	Details	15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified

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.

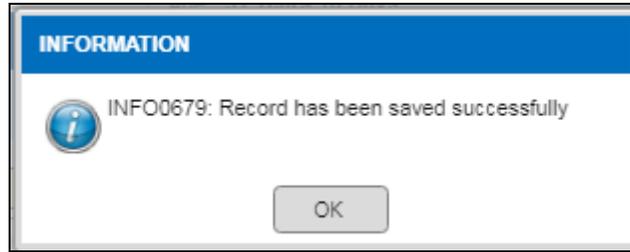
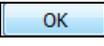
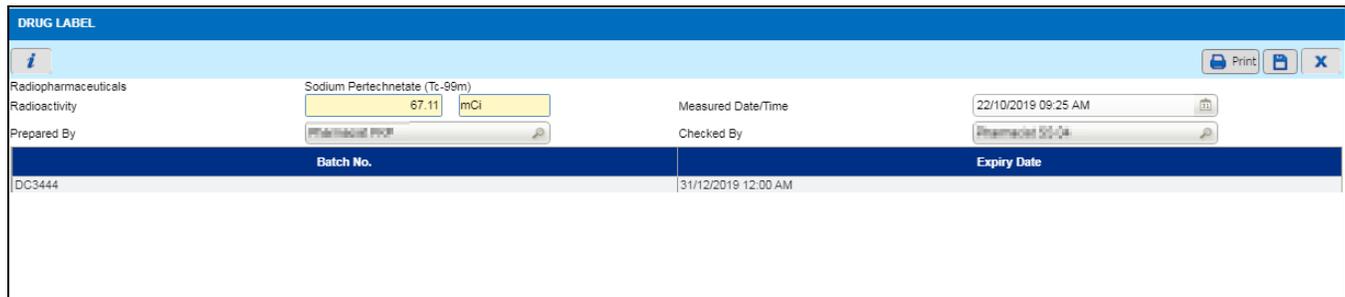


Figure 3.4-13 Alert Message

**Note**

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



The image shows a "DRUG LABEL" form with a blue header. Below the header, there is a blue information icon (i) and a "Print" button. The form contains the following fields:

Radiopharmaceuticals	Sodium Pertechnetate (Tc-99m)	Measured Date/Time	22/10/2019 09:25 AM
Radioactivity	67.11 mCi	Prepared By	Pharmacist PPK
Prepared By	Pharmacist PPK	Checked By	Pharmacist S-Ja

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

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	
 <b>HKL018649</b>		
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			
  			
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

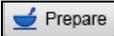
Figure 3.4-16 Drug Label

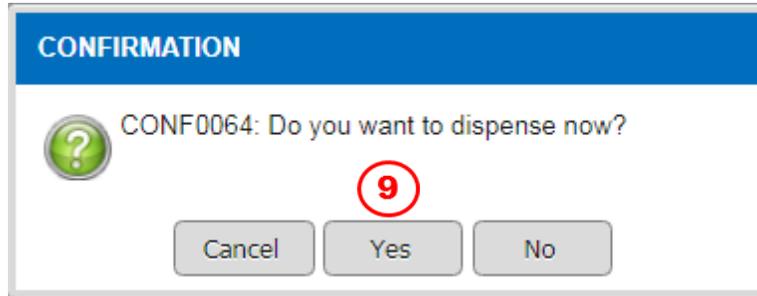
**Note**

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

PRESCRIPTION							
  							
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		15 mCi	25 mCi (05/05/2016 11:29 AM)	Remarks	Verified	

Figure 3.4-17 Radiopharmaceuticals Preparation

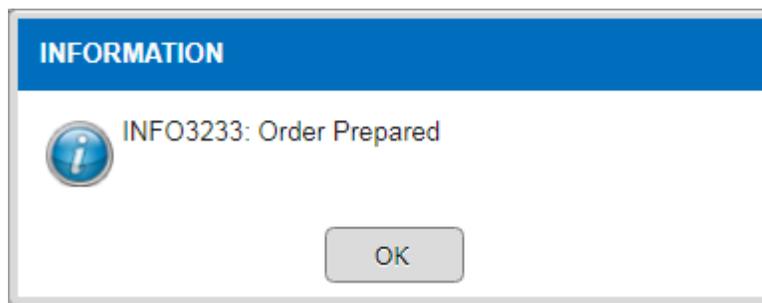
**STEP 8** Click on the  button to prepare Radiopharmaceuticals order and alert message will be displayed as per Figure 3.4-17



**Figure 3.4-18 Ordered Prepared Alert Message**

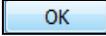
**STEP 9**

Click on the  button



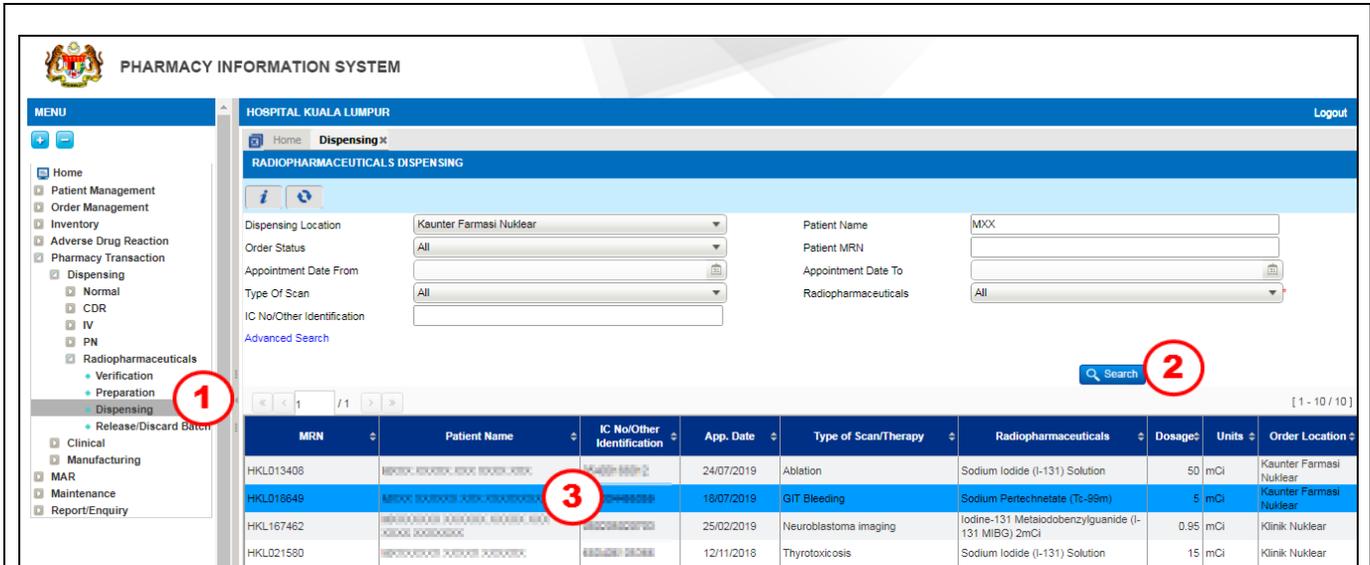
**Figure 3.4-19 Ordered Prepared Alert Message**

**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:   
 Appointment Date To:   
 Type Of Scan: All  
 IC No/Other Identification:   
 Patient Name: MXX  
 Patient MRN:   
 Radiopharmaceuticals: All

Advanced Search

Search

MRN	Patient Name	IC No/Other Identification	App. Date	Type of Scan/Therapy	Radiopharmaceuticals	Dosage	Units	Order Location
HKLD13408			24/07/2019	Ablation	Sodium Iodide (I-131) Solution	50	mCi	Kaunter Farmasi Nuklear
HKLD18649			18/07/2019	GIT Bleeding	Sodium Pertechnetate (Tc-99m)	5	mCi	Kaunter Farmasi Nuklear
HKLD167462			25/02/2019	Neuroblastoma imaging	Iodine-131 Metaiodobenzylguanide (I-131 MIBG) 2mCi	0.95	mCi	Klinik Nuklear
HKLD021580			12/11/2018	Thyrotoxicosis	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

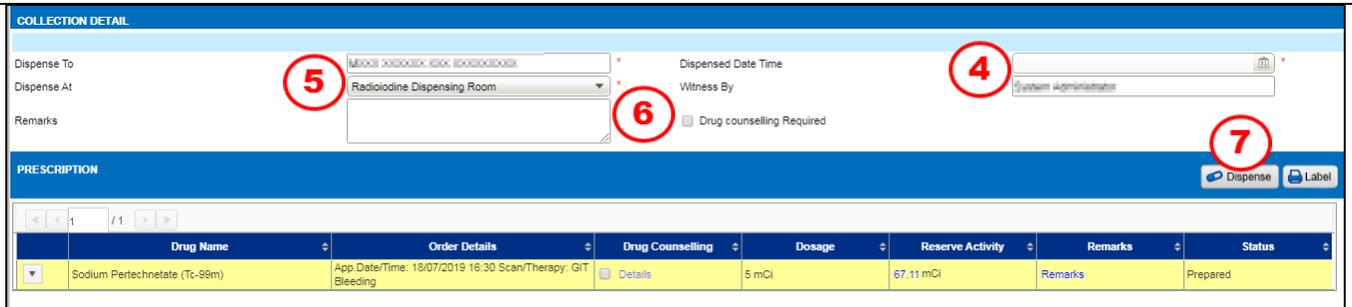
- Various search criteria is provided as below: Dispense Location
  - a) Patient Name
  - b) Order Status
  - c) Patient MRN
  - d) Appointment Date From
  - e) Appointment Date To
  - f) Type of Scan
  - g) Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

#### STEP 2

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

#### STEP 3

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



**COLLECTION DETAIL**

Dispense To: [Field] \*  
Dispense At: Radiiodine Dispensing Room \*  
Remarks: [Field] \*  
Dispensed Date Time: [Field] \*  
Witness By: [Field] \*  
 Drug counselling Required

**PRESCRIPTION**

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	<input type="checkbox"/> Details	5 mCi	67.11 mCi	Remarks	Prepared

Buttons:

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**

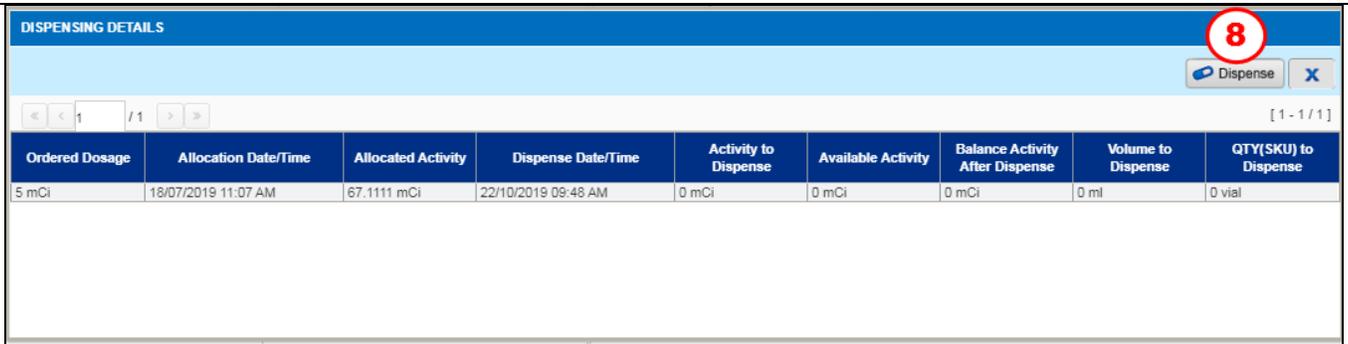
Enter **Remarks** field

**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

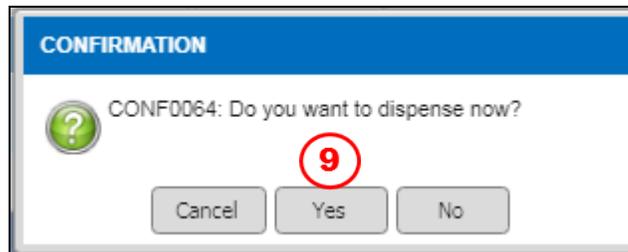


Ordered Dosage	Allocation Date/Time	Allocated Activity	Dispense Date/Time	Activity to Dispense	Available Activity	Balance Activity After Dispense	Volume to Dispense	QTY(SKU) to Dispense
5 mCi	18/07/2019 11:07 AM	67.1111 mCi	22/10/2019 09:48 AM	0 mCi	0 mCi	0 mCi	0 ml	0 vial

**Figure 3.5-3 Dispensing Details Screen**

**STEP 8**

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



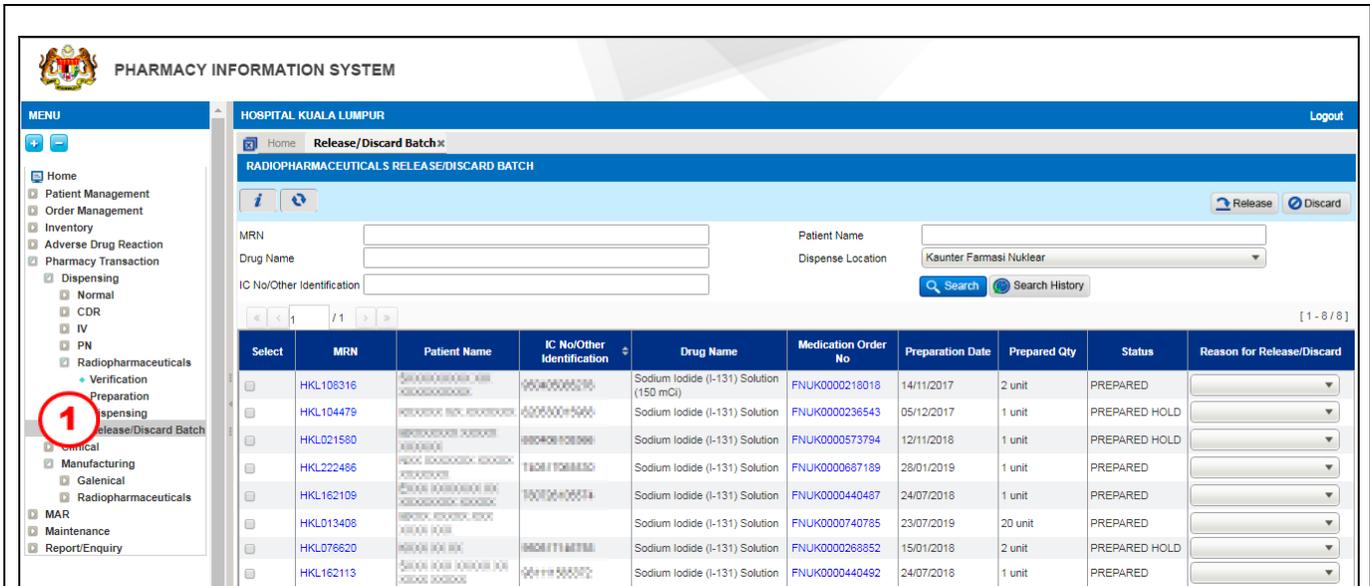
**Figure 3.5-4 Information Alert Message**

**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:   
 IC No/Other Identification:

Search Search History

Select	MRN	Patient Name	IC No/Other Identification	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
<input type="checkbox"/>	HKL106316	...	...	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	
<input type="checkbox"/>	HKL104479	...	...	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL021580	...	...	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL222486	...	...	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	
<input type="checkbox"/>	HKL162109	...	...	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	
<input type="checkbox"/>	HKL013406	...	...	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	
<input type="checkbox"/>	HKL076620	...	...	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL162113	...	...	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

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
<input checked="" type="checkbox"/>	HKL108316	SARAH SARAH BINTI SARAH SARAH	88040808278	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	Change of Regimen
<input type="checkbox"/>	HKL104479	ROSE ROSE ROSE ROSE	42080018988	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	Faulty Product
<input type="checkbox"/>	HKL021580	MARIE MARIE ROSE ROSE	48020102888	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	Patient Refused
<input type="checkbox"/>	HKL222486	HAZEL HAZEL ROSE ROSE	14051105550	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	Uncollected
<input type="checkbox"/>	HKL162109	TRACY TRACY ROSE ROSE	78028108814	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	Wrong Allocation
<input type="checkbox"/>	HKL013408	MARIE MARIE ROSE ROSE	42080018988	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	
<input type="checkbox"/>	HKL078620	ROSE ROSE ROSE ROSE	90051148755	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL162113	SARAH SARAH BINTI SARAH SARAH	88040808278	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

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]

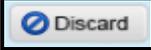
Select	MRN	Patient Name	IC No/Other Identification	Drug Name	Medication Order No	Preparation Date	Prepared Qty	Status	Reason for Release/Discard
<input checked="" type="checkbox"/>	HKL108316	SARAH SARAH BINTI SARAH SARAH	88040808278	Sodium Iodide (I-131) Solution (150 mCi)	FNUK0000218018	14/11/2017	2 unit	PREPARED	Change of Regimen
<input type="checkbox"/>	HKL104479	ROSE ROSE ROSE ROSE	42080018988	Sodium Iodide (I-131) Solution	FNUK0000236543	05/12/2017	1 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL021580	MARIE MARIE ROSE ROSE	48020102888	Sodium Iodide (I-131) Solution	FNUK0000573794	12/11/2018	1 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL222486	HAZEL HAZEL ROSE ROSE	14051105550	Sodium Iodide (I-131) Solution	FNUK0000687189	28/01/2019	1 unit	PREPARED	
<input type="checkbox"/>	HKL162109	TRACY TRACY ROSE ROSE	78028108814	Sodium Iodide (I-131) Solution	FNUK0000440487	24/07/2018	1 unit	PREPARED	
<input type="checkbox"/>	HKL013408	MARIE MARIE ROSE ROSE	42080018988	Sodium Iodide (I-131) Solution	FNUK0000740785	23/07/2019	20 unit	PREPARED	
<input type="checkbox"/>	HKL078620	ROSE ROSE ROSE ROSE	90051148755	Sodium Iodide (I-131) Solution	FNUK0000268852	15/01/2018	2 unit	PREPARED HOLD	
<input type="checkbox"/>	HKL162113	SARAH SARAH BINTI SARAH SARAH	88040808278	Sodium Iodide (I-131) Solution	FNUK0000440492	24/07/2018	1 unit	PREPARED	

**Figure 3.6-3 Radiopharmaceuticals Release Batch**

**STEP 3**

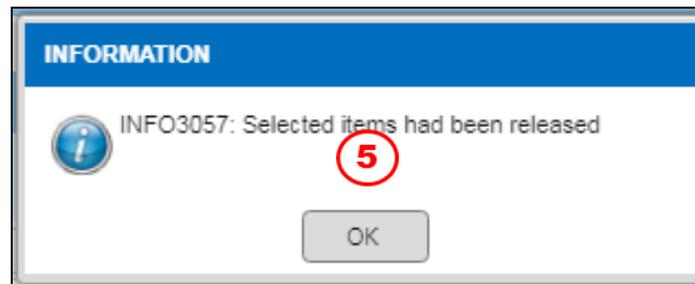
Check the  **Select** checkbox

#### STEP 4

Click on the  button to release batch and  button to discard

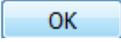
#### **Note**

- *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

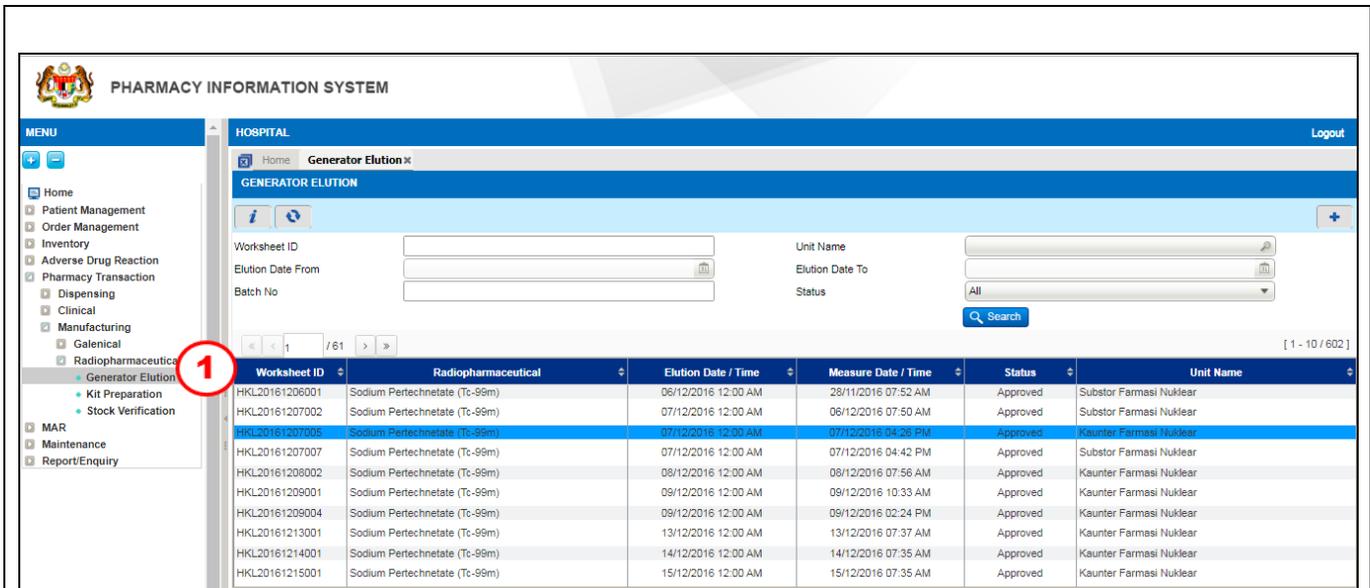
#### **Note**

*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.



PHARMACY INFORMATION SYSTEM

HOSPITAL Home Generator Elution x 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 3.7.1-1 Generator Elution Listing Page

#### STEP 1

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

#### Note

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

Click on the  button and system will display related record.

**PHARMACY INFORMATION SYSTEM**

**HOSPITAL** Logout

Home **Generator Elution x**

**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:

**ITEM BATCH DETAILS**

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand	Volume	Allocated Qty
Generator <b>3</b>	Tc-99m Sterile Generator ELUMATIC III (540mCi)	23RP99	01/02/2016 10:47 AM	NO BRAND		
Elution Vial <b>5</b>	Elution Vial	NOT APPLICABLE <b>4</b>	00/00/0000	NO BRAND		1 vial
Saline Vial <b>5</b>	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

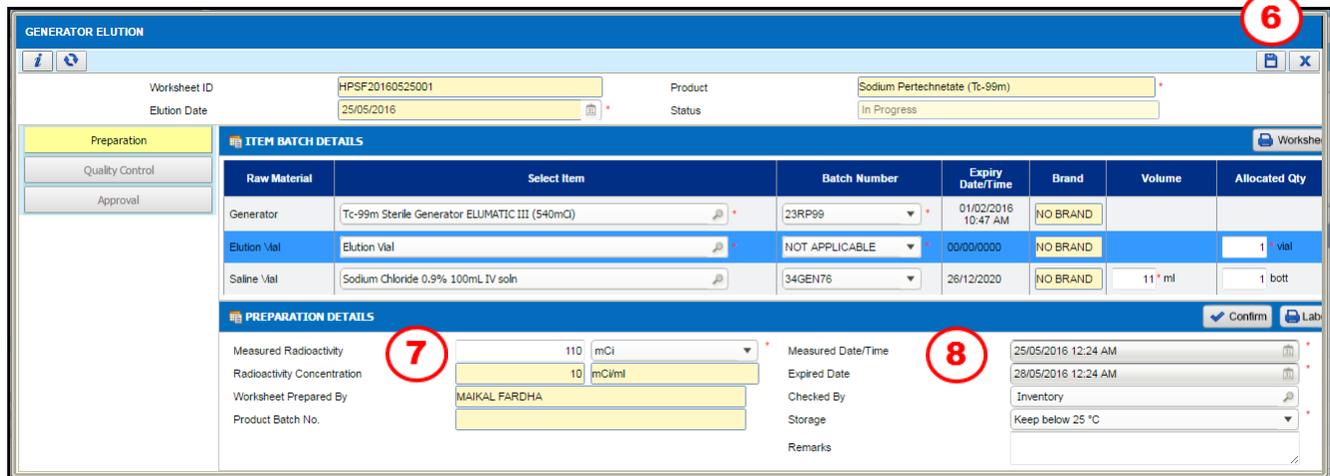


Figure 3.7.1-4 Generator Elution

#### STEP 6

Click on the  button to save record

#### STEP 7

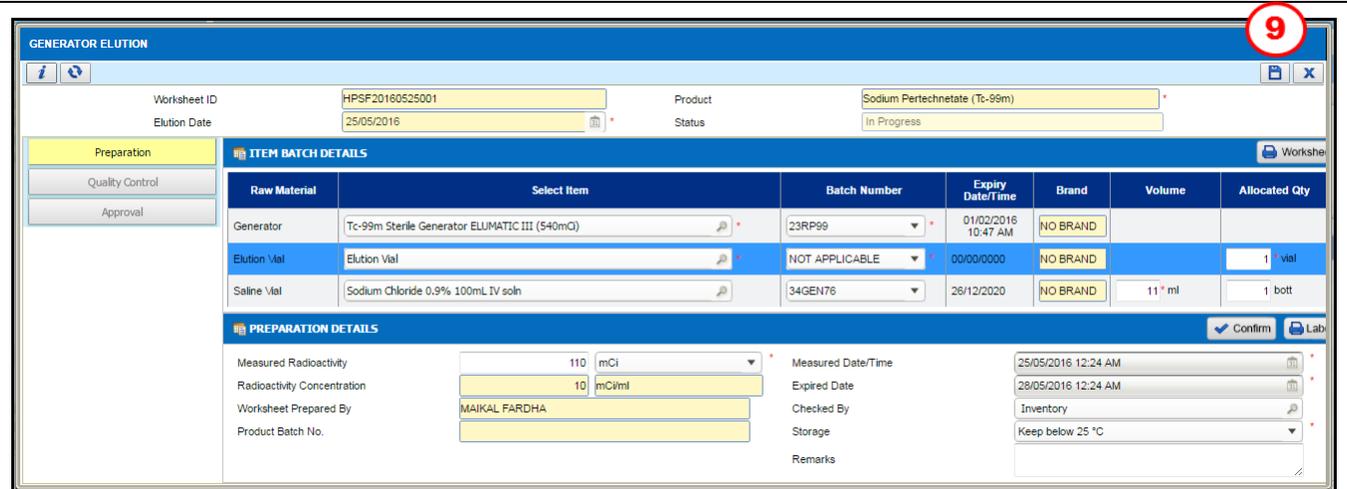
Enter **Measured Radioactivity** field and **Radioactivity Concentration** will be automatically calculated and displayed as per Figure 3.7.1-4

#### 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



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

Figure 3.7.1-5 Generator Elution

**STEP 9**



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

**Note**

Enter **Remarks** if applicable.

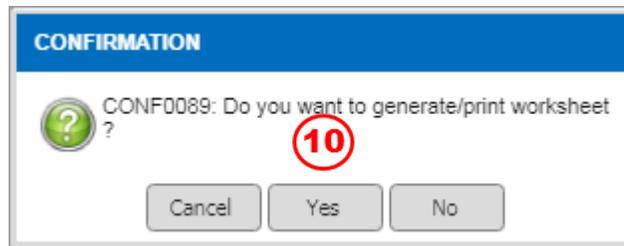


Figure 3.7.1-6 Generate Worksheet Alert Message

**STEP 10**

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

RADIOPHARMACEUTICALS WORKSHEET					
MINISTRY OF HEALTH					
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	DRYTEC/GE Healthcare	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. NURRIFFHAN 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
Quality Control Test	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					

Figure 3.7.1-7 Sample Of Worksheet

**Note**

Sample of worksheet as per Figure 3.7.1-7.

**GENERATOR ELUTION**

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

Preparation      **ITEM BATCH DETAILS**      Worksheet

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**      Confirm      Label

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

Figure 3.7.1-8 Generator Elution

**Note**

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

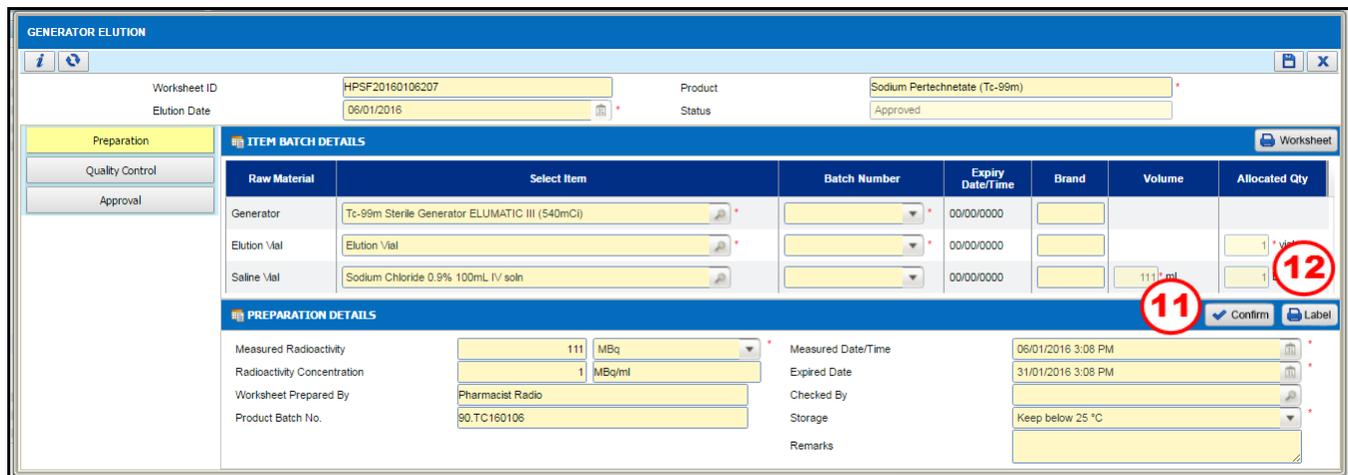


Figure 3.7.1-9 Generator Elution

**STEP 11**

Click on the  button to confirm information preparation details

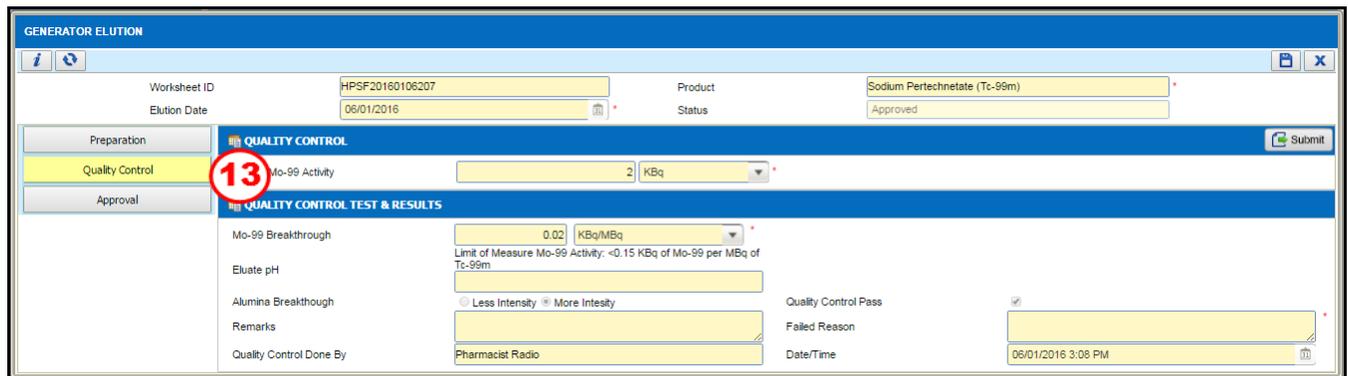


Figure 3.7.1-10 Generator Elution

**Note**

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

**STEP 12**

Click on the  button to edit label

### STEP 13

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

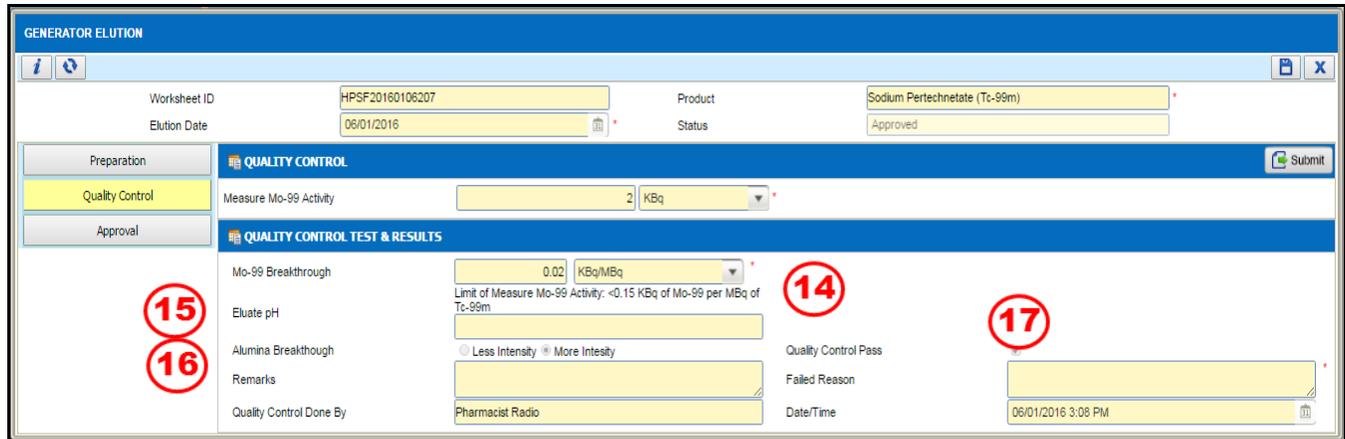


Figure 3.7.1-11 Generator Elution

### 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.

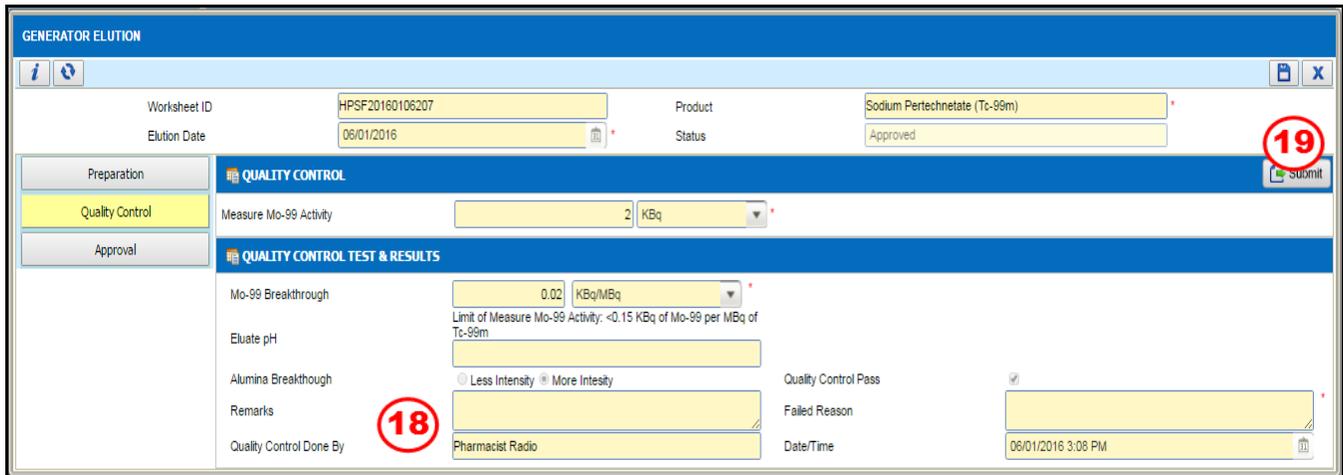


Figure 3.7.1-12 Generator Elution

**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

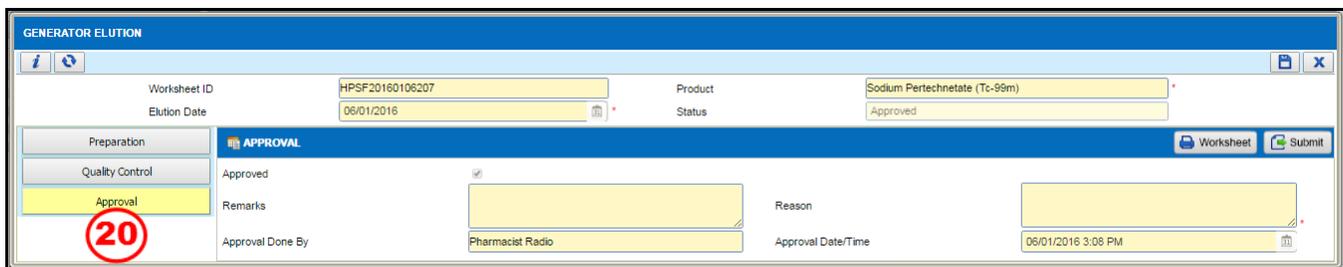
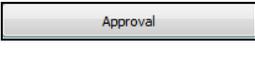


Figure 3.7.1-13 Generator Elution

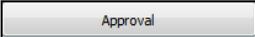
**Note**

- 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.

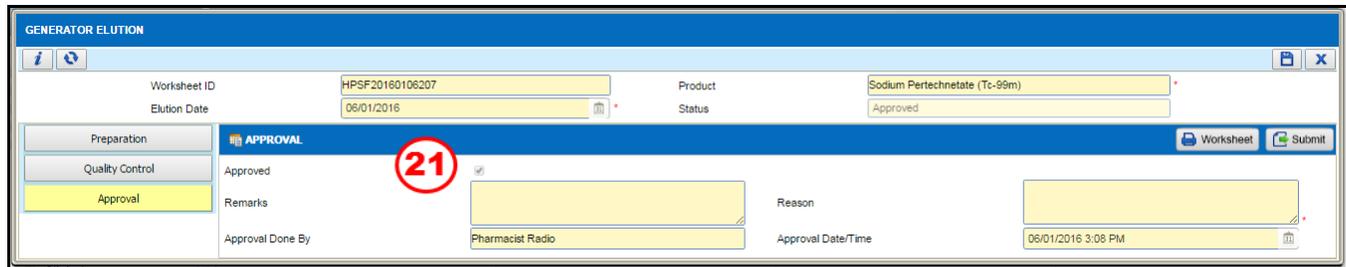
- The  button will be activated after the submission.

## 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 with the following details:

- Worksheet ID: HPSF20160106207
- Elution Date: 06/01/2016
- Product: Sodium Pertechnetate (Tc-99m)
- Status: Approved
- Navigation: Preparation, Quality Control, **Approval**
- APPROVAL section:  Approved (highlighted with a red circle '21'), Remarks (empty), Reason (empty)
- Approval Done By: Pharmacist Radio
- Approval Date/Time: 06/01/2016 3:08 PM
- Buttons: Worksheet, Submit

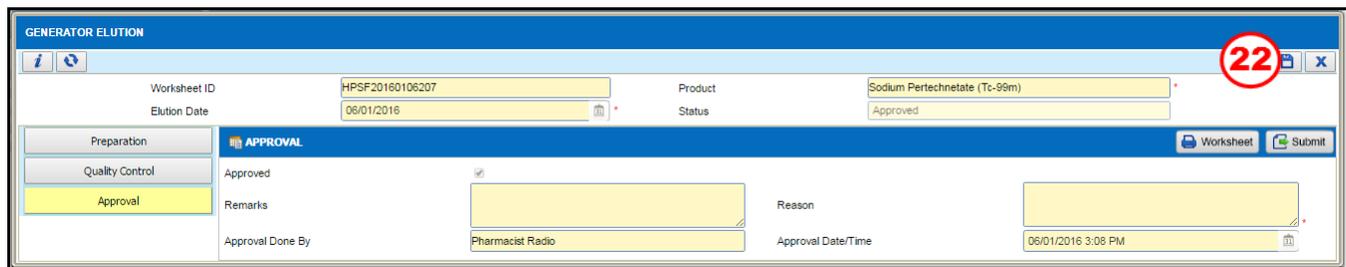
Figure 3.7.1-14 Generator Elution

## 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.



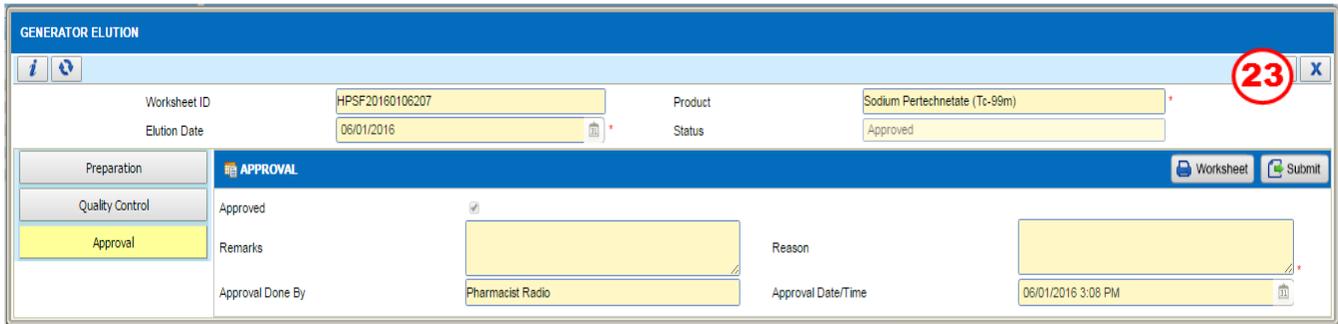
The screenshot shows the 'GENERATOR ELUTION' window with the following details:

- Worksheet ID: HPSF20160106207
- Elution Date: 06/01/2016
- Product: Sodium Pertechnetate (Tc-99m)
- Status: Approved
- Navigation: Preparation, Quality Control, **Approval**
- APPROVAL section:  Approved (highlighted with a red circle '22'), Remarks (empty), Reason (empty)
- Approval Done By: Pharmacist Radio
- Approval Date/Time: 06/01/2016 3:08 PM
- Buttons: Worksheet, Submit

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

Preparation: APPROVAL      Worksheet      Submit

Quality Control: Approved

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

Figure 3.7.1-16 Generator Elution

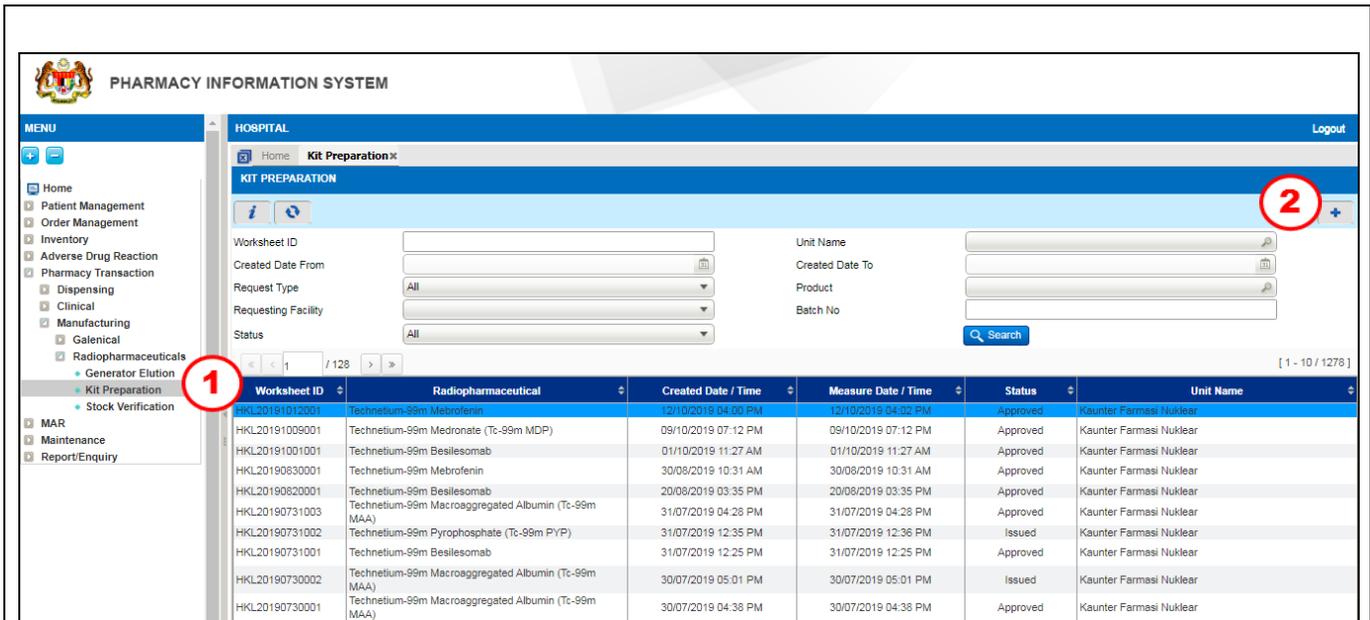
**Note**

- **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

Home **Kit Preparation**

**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: **5** PHLS0426005

Created: 25/04/2018 08:04:42 AM

Request:  Internal  External

Product: **3** Technetium-99m Besilesomab

Ordered: 20 mCi **4**

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: To-99m Besilesomab (Solvent)	G001B8	09/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit: To-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Eluate To-99m Vial1 Add	Sodium Pertechnetate (To-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: **3**

Worksheet Checked By:

Remarks:

Storage:

Measured Radioactivity:  mCi

Radioactivity Concentration:  mCi/ml

Measured Date/Time: 09/11/2019 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: 10425005  
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	09/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial	Preparation kit: Tc-99m Besilesomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Eluate Tc-99m Acid	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:   
Worksheet Checked By:   
Remarks:   
Storage: Keep below 25 °C

Measured Radioactivity:   
Radioactivity Concentration:   
Measured Date/Time: 09/11/2019 12:45 PM  
Product Batch No.:   
Expiry Date/Time:

Figure 3.7.2-3 Kit Preparation

**STEP 6**

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

**Note**

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

**STEP 7**

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

**STEP 8**

Enter **Remarks** if applicable

KIT PREPARATION

Unit Name: Kaunter Farmasi Nuklear
Kit Preparation Guideline
QC Guideline
X

Worksheet ID: PH120180425005

Created Date/Time: 25/04/2018 08:04:42 AM

Request Type:  Internal  External

Product: Technetium-99m Beslisomab

Ordered Activity: 20 mCi

Total Volume: 3 ml

Status: In Progress

Preparation

ITEM BATCH DETAILS

Raw Material	Select Item	Batch Number	Expiry Date/Time	Brand Name	Volume	Allocated Qty
Cold Kit Vial1	Preparation kit. To-99m Beslisomab (Solvent)	G001B8	06/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit. To-99m Beslisomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Equate To-99m Vial1	Sodium Pertechnetate (To-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370308 2	09/10/2022		2.7 ml*	1 amp*

PREPARATION DETAILS

Worksheet Prepared By: [User Name]

Worksheet Checked By: [User Name]

Remarks: [Text Box]

Storage: Keep below 25 °C

Measured Radioactivity: 11 mCi

Radioactivity Concentration: 3.87 mCi/ml

Measured Date/Time: 06/11/2019 12:49 PM

Product Batch No. [Text Box]

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  
Worksheet ID: PHIS0180425005  
Created Date/Time: 25/04/2018 08:04:42 AM  
Request Type:  Internal  External

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

**12**

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 Beslisomab (Solvent)	G001B8	06/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit: Tc-99m Beslisomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Essale Tc-99m Vial/1	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

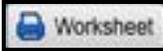
Worksheet Prepared By: [User]  
Worksheet Checked By: [User]  
Remarks: [Text Area]  
Storage: Keep below 25 °C

Measured Radioactivity: 11 mCi  
Radioactivity Concentration: 3.67 mCi/ml  
Measured Date/Time: 06/11/2019 12:49 PM  
Product Batch No.: [Text]  
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 3.7.2-6

RADIOPHARMACEUTICALS WORKSHEET				
MINISTRY OF HEALTH HOSPITAL				
Kit Preparation records for Technetium-99m Besilesomab				
Batch No: Worksheet ID: <b>PHIS180425005</b>				
<b>Preparation of Technetium-99m Besilesomab</b>			<b>Cold Kit Brand/Manufacturer Name:</b>	
Date	25/04/2018	Expected Activity	20 mCi	
Raw Material	Batch Number/Expiry		SCINTIMUN, SCINTIMUN - CIS BIO	
Cold Kit Vial	G001B8 - 06/02/2019 G001AQ - 04/02/2019		Total : 3 ml	
Eluate Tc-99m Vial			0.3 ml	
Saline Vial	HA370306 2 - 09/10/2022		2.7 ml	
Measured Activity				
Measured Date/Time				
Radioactivity Concentration				
<b>Quality Control of Technetium-99m Besilesomab</b>			<b>Label</b>	
<b>QC Sampling Time</b>		<b>Measure</b>		<b>Remarks :</b>
		<b>Actual</b>	<b>%</b>	
First Strip	BG Reading	N/A		N/A
	1st Portion	N/A	N/A	
	2nd Portion	N/A	N/A	
Second Strip	BG Reading	N/A		N/A
	3rd Portion	N/A	N/A	
	4th Portion	N/A	N/A	
<b>Radiochemical Purity</b>				<b>Quality Control Done By</b>
				<small>Signature Name, Date/Time</small>
			<b>Approval of Technetium-99m Besilesomab</b>	
<b>Checklist for approval :</b>				
			<b>Preparation done accordingly</b>	
			<b>QC done accordingly and pass</b>	
			<b>Label done accordingly</b>	
<b>Remarks :</b>				
			<b>Approved By :</b>	
			<small>Signature Name, Date/Time</small>	

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: **PHIS180425005**

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

Preparation

Quality Control

Approval

Issue Detail

**ITEM BATCH DETAILS**

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

**PREPARATION DETAILS**

Worksheet Prepared By: **MAHMOUD HUSSEIN YUSUF**

Worksheet Checked By: **MAHMOUD HUSSEIN YUSUF**

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:

Expiry Date/Time: 29/11/2019 12:52 PM

14

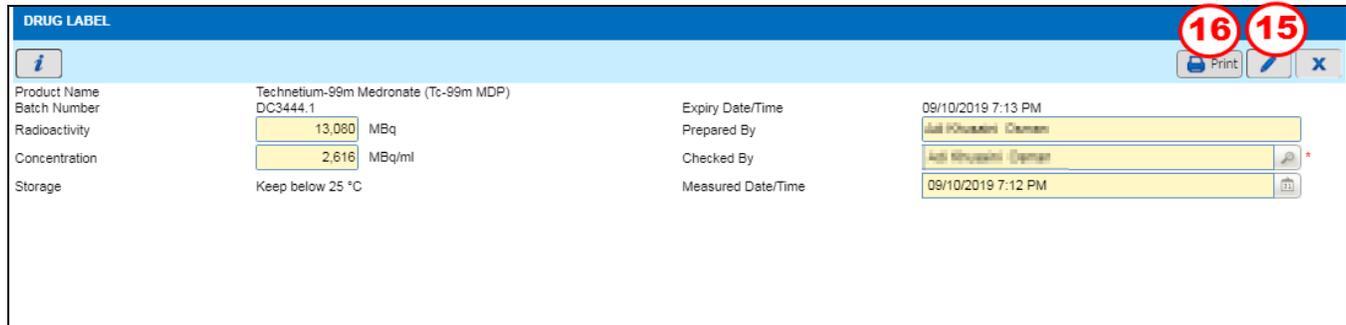
Figure 3.7.2-7 Bulk Preparation

#### 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)		Expiry Date/Time	09/10/2019 7:13 PM
Batch Number	DC3444.1		Prepared By	Aji Khuzaimi Osman
Radioactivity	13,080	MBq	Checked By	Aji Khuzaimi Osman
Concentration	2,616	MBq/ml	Measured Date/Time	09/10/2019 7:12 PM
Storage	Keep below 25 °C			

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

---

 Caution : Radioactive Material	<b>HOSPITAL KUALA LUMPUR</b>	
	<b>Product Name</b> : Technetium-99m Medronate (Tc-99m MDP) <b>Batch No.</b> : DC3444.1	
<b>Radioactivity</b> : 13080 MBq		<b>Volume</b> : 5 ml
<b>Concentration</b> : 2616 MBq/ml		
<b>Measured Date</b> : 09/10/2019		<b>Time</b> : 07:12 PM
<b>Prepared By</b> : <u>Ali Khussaini Osman</u>		
<b>Checked By</b> : <u>Ali Khussaini Osman</u>		
<b>Expiry Date</b> : 09/10/2019		<b>Time</b> : 07:13 PM
<b>Storage</b> : 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)	Expiry Date/Time	09/10/2019 7:13 PM
Batch Number	DC3444.1	Prepared By	<u>Ali Khussaini Osman</u>
Radioactivity	13,080 MBq	Checked By	<u>Ali Khussaini Osman</u>
Concentration	2,616 MBq/ml	Measured Date/Time	09/10/2019 7:12 PM
Storage	Keep below 25 °C		

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: PH120180425005  
Created Date/Time: 25/04/2018 08:04:42 AM  
Request Type:  Internal  External

Product: Technetium-99m Beslisomab  
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: To-99m Beslisomab (Solvent)	G001B8	06/02/2019	SCINTIMUN	ml	1 vial*
Cold Kit Vial2	Preparation kit: To-99m Beslisomab	G001AQ	04/02/2019	SCINTIMUN	ml	1 vial*
Eluate To-99m Vial1	Sodium Pertechnetate (To-99m)	- Select -	25/04/2018		0.3 ml*	
Saline Vial	Sodium Chloride 0.9% 10mL Injection	HA370308 2	09/10/2022		2.7 ml*	1 amp*

**PREPARATION DETAILS**

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

Measured Radioactivity: 11 mCi  
Radioactivity Concentration: 3.87 mCi/ml  
Measured Date/Time: 09/11/2019 12:49 PM  
Product Batch No.: [Text]  
Expiry Date/Time: 29/11/2019 12:52 PM

**18**  Confirm

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: PH120191021003  
Created Date/Time: 21/10/2019 02:15:35 PM  
Request Type:  Internal  External

Product: Technetium-99m Meritide (To-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: To-99m Meritide	EPD4191151NT	30/06/2020	NEPHROMAG	ml	1 vial*
Cold Kit Vial2	Preparation kit: To-99m Meritide (Solvent)	EPD4A190411NT	31/01/2021	NEPHROMAG	ml	1 vial*
Eluate To-99m Vial1	Sodium Pertechnetate (To-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**

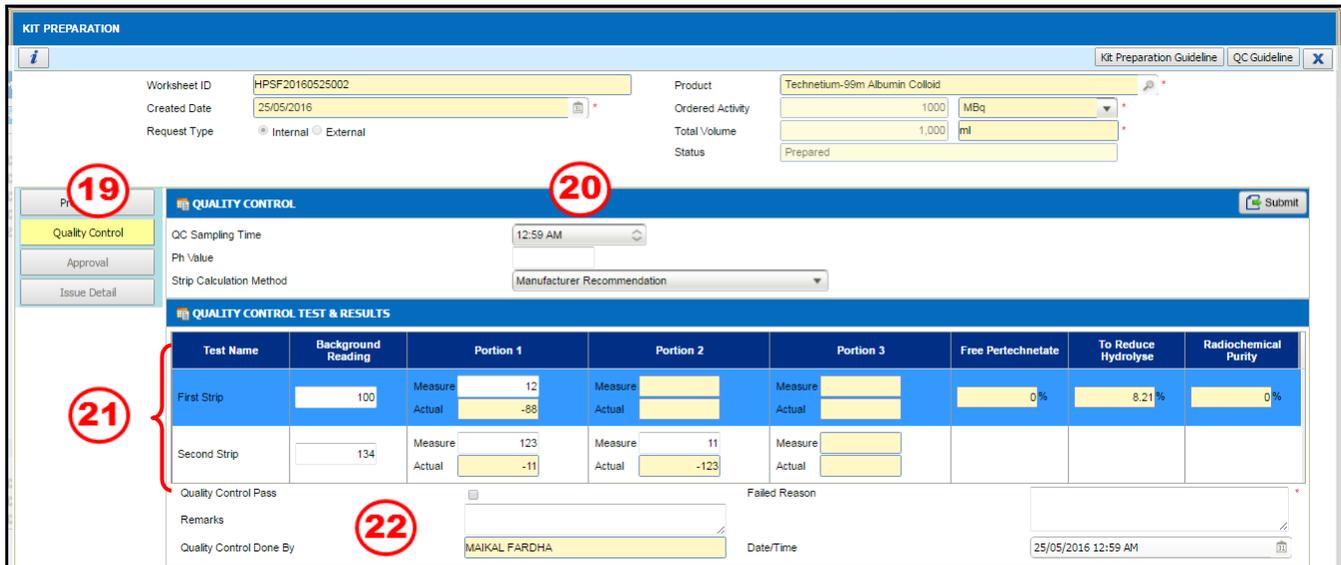
Worksheet Prepared By: [Name]  
Worksheet Checked By: [Name]  
Remarks: [Text]  
Storage: Keep in room temperature

Measured Radioactivity: 78.8 mCi  
Radioactivity Concentration: 9.85 mCi/ml  
Measured Date/Time: 21/10/2019 8:35 AM  
Product Batch No.: 99.01T01910213  
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: 			

Quality Control Pass:  Failed Reason:

Remarks:

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

**22**

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 | **QUALITY CONTROL** | Submit

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: <input type="text"/> Actual: <input type="text"/>	Measure: <input type="text"/> Actual: <input type="text"/>	0%	8.21%	0%
Second Strip	134	Measure: 123 Actual: -11	Measure: 11 Actual: -123	Measure: <input type="text"/> Actual: <input type="text"/>			

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

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: <input type="text"/> Actual: <input type="text"/>	Measure: <input type="text"/> Actual: <input type="text"/>	0%	8.21%	0%
Second Strip	134	Measure: 123 Actual: -11	Measure: 11 Actual: -123	Measure: <input type="text"/> Actual: <input type="text"/>			

Quality Control Pass:       Failed Reason:

Remarks:

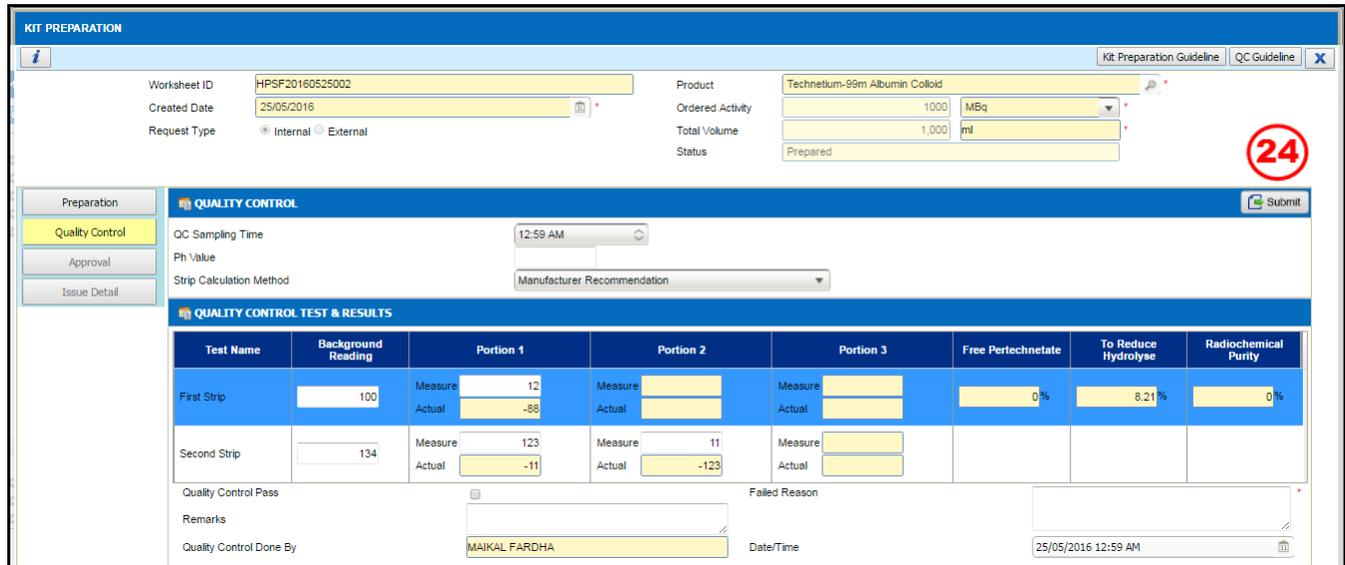
Quality Control Done By: MAIKAL FARDHA      Date/Time: 25/05/2016 12:59 AM

Figure 3.7.2-15 Bulk Preparation



**Note**

Sample of Strip Guideline as per Figure 3.7.2-17.



**KIT PREPARATION**

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

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

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

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: 			

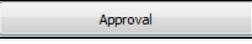
Quality Control Done By: MAIKAL FARDHA  
Date/Time: 25/05/2016 12:59 AM

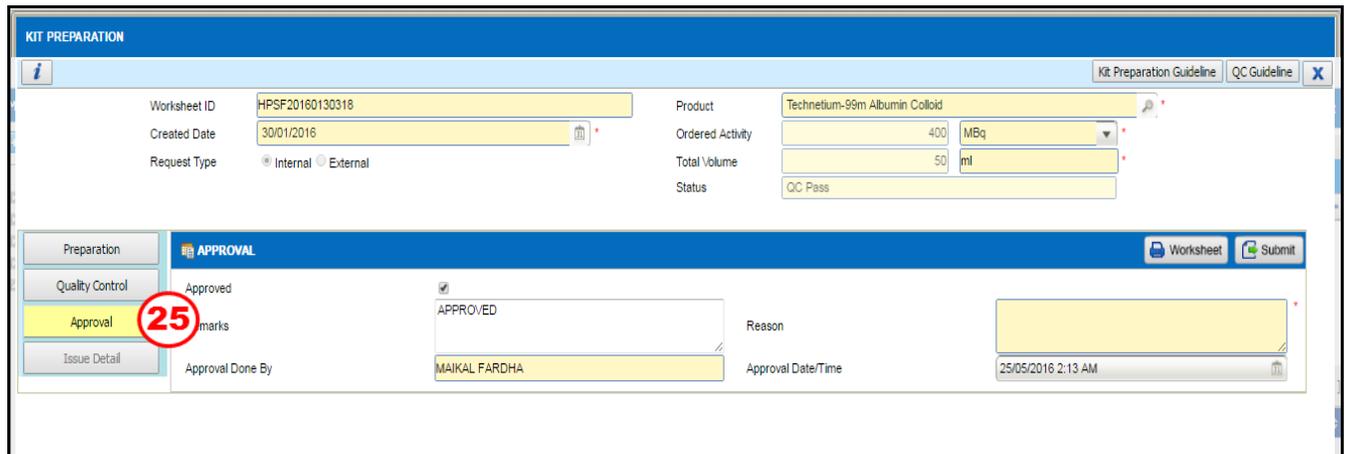
**Figure 3.7.2-17 Bulk Preparation**

**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

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

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

**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.

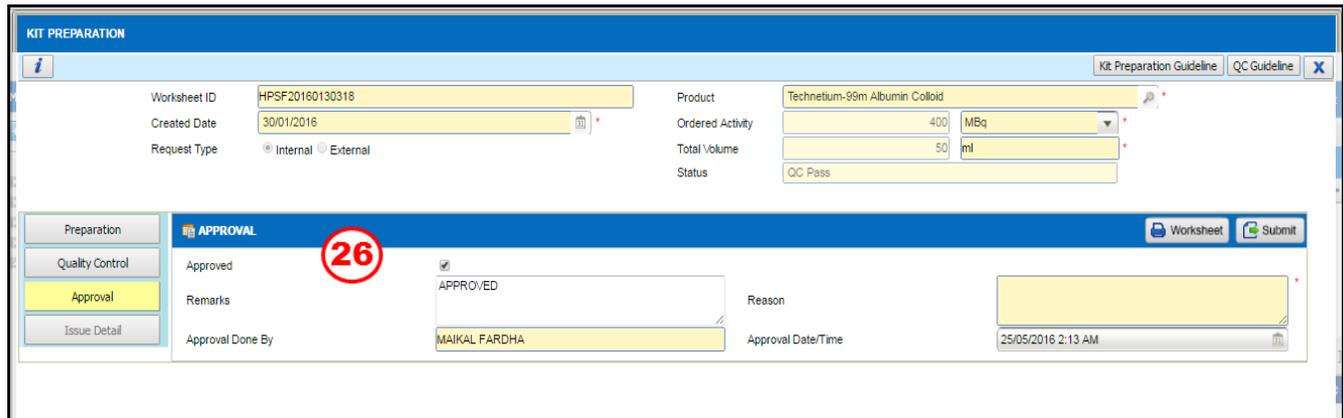


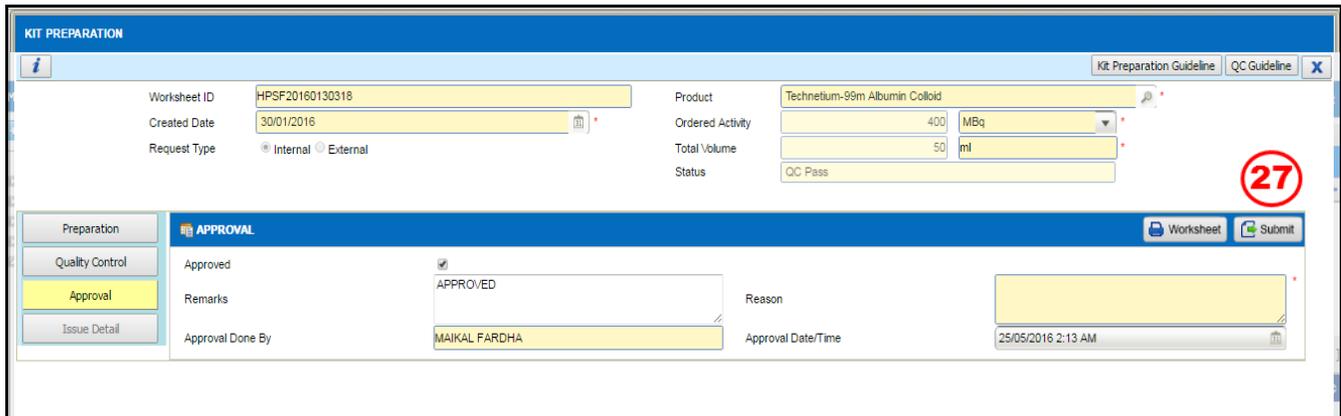
Figure 3.7.2-19 Bulk Preparation

### 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.



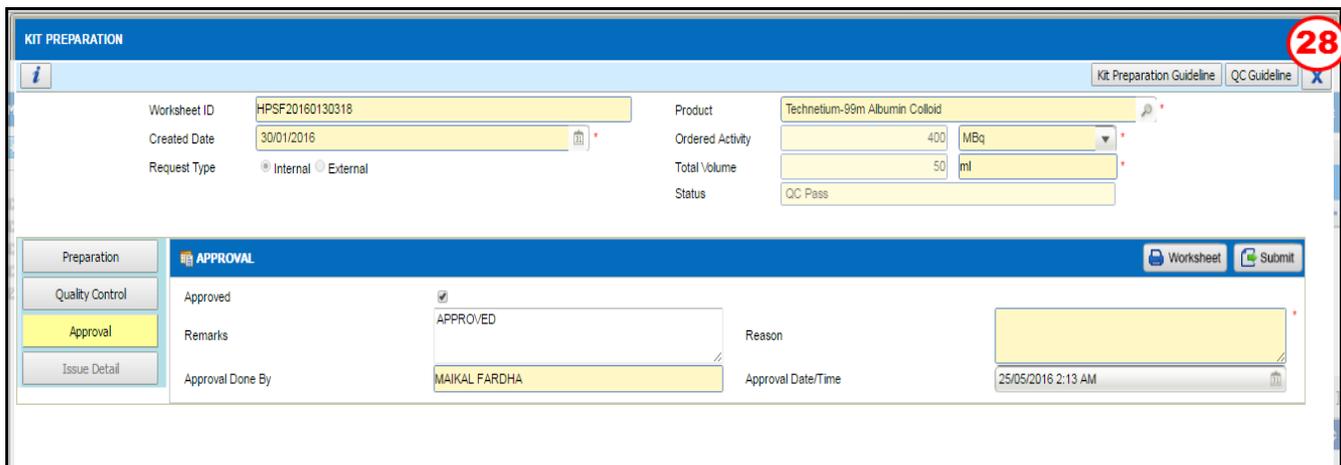
The screenshot shows the 'KIT PREPARATION' window with the 'APPROVAL' tab selected. The 'Submit' button in the top right corner of the 'APPROVAL' section is highlighted with a red circle containing the number 27. The form contains the following data:

Field	Value
Worksheet ID	HPSF20160130318
Created Date	30/01/2016
Request Type	Internal
Product	Technetium-99m Albumin Colloid
Ordered Activity	400 MBq
Total Volume	50 ml
Status	QC Pass
Approved	<input checked="" type="checkbox"/>
Remarks	APPROVED
Reason	
Approval Done By	MAIKAL FARDHA
Approval Date/Time	25/05/2016 2:13 AM

Figure 3.7.2-20 Bulk Preparation

### STEP 27

Click on the  button to submit the approval details



The screenshot shows the 'KIT PREPARATION' window with the 'APPROVAL' tab selected. The 'Submit' button in the top right corner of the 'APPROVAL' section is highlighted with a red circle containing the number 28. The form contains the following data:

Field	Value
Worksheet ID	HPSF20160130318
Created Date	30/01/2016
Request Type	Internal
Product	Technetium-99m Albumin Colloid
Ordered Activity	400 MBq
Total Volume	50 ml
Status	QC Pass
Approved	<input checked="" type="checkbox"/>
Remarks	APPROVED
Reason	
Approval Done By	MAIKAL FARDHA
Approval Date/Time	25/05/2016 2:13 AM

Figure 3.7.2-21 Bulk Preparation

### Note

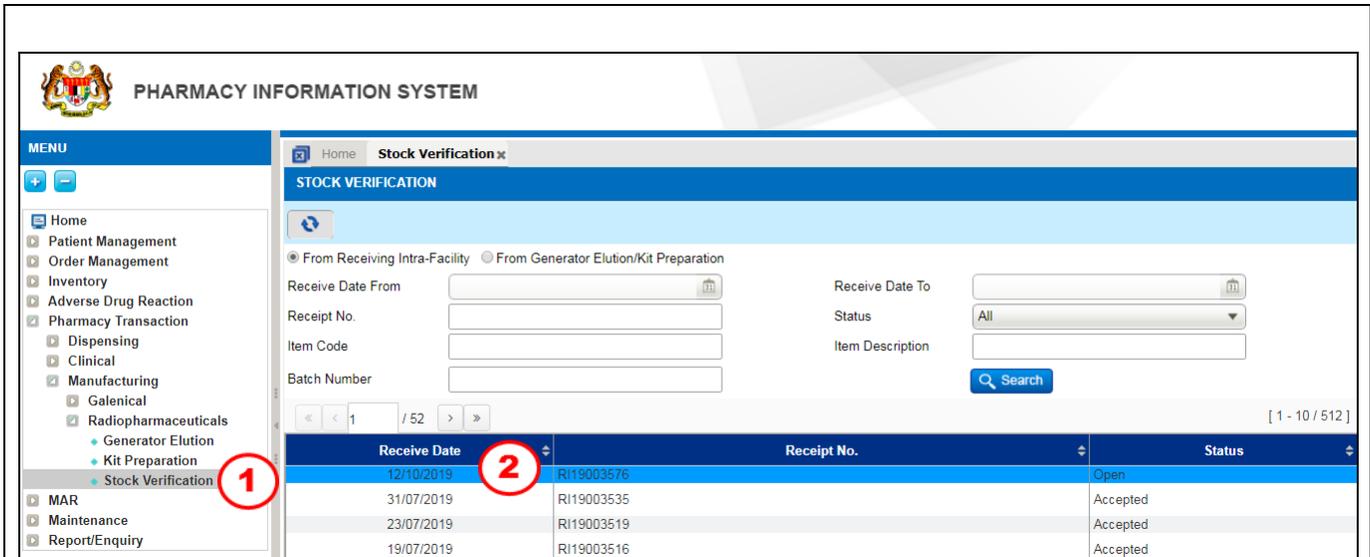
- **Status** will change to *Approved* after the submission had done.

### 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

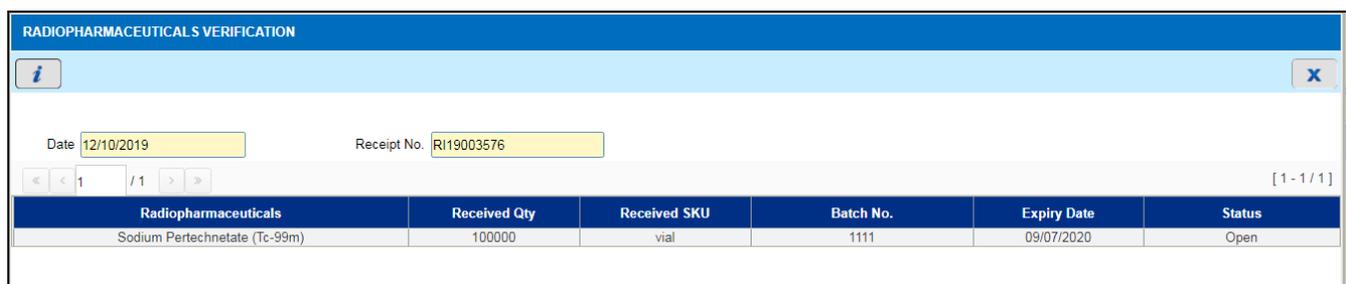
Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Stock Verification' sub-menu

#### 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**

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

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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	<input type="text"/>	MBq	<input type="text"/>	mCi			Calibration Date/Time	<input type="text"/>	
Expected Activity	<input type="text"/>	MBq	<input type="text"/>	mCi			Expiry Date/Time	<input type="text"/>	
Measured Activity	<input type="text"/>	MBq	<input type="text"/>	mCi			Measured Date/Time	<input type="text"/>	
Activity Variation	<input type="text"/>	%					Volume	<input type="text"/>	ml

**MEASUREMENT DETAILS**

Label Packaging Type	<input type="text"/>	<a href="#">Guideline</a>			
Survey on Surface	<input type="text"/>	<input type="text"/>			
Survey at 1 Meter Distance	<input type="text"/>	<input type="text"/>			
Wipe Test	<input type="text"/>	<input type="text"/>			
Remarks	<input style="height: 20px;" type="text"/>				

**VERIFICATION DETAILS**

<input type="checkbox"/> Accept	<input type="checkbox"/> Reject	
Reject Reason	<input style="height: 20px;" type="text"/>	
Done By	<input type="text" value="System Administrator"/>	Date/Time <input type="text" value="22/10/2019 12:26 PM"/>
Updated By	<input type="text" value="System Administrator"/>	Updated Date/Time <input type="text" value="22/10/2019 12:26 PM"/>

**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

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

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**5**

**STOCK DETAILS**

Calibration Activity: 1 MBq \* 0.03 mCi \* Calibration Date/Time: 22/10/2019 12:26 PM

Expected Activity: 1 MBq \* 0.03 mCi \* Expiry Date/Time: 31/10/2019 12:32 PM

Measured Activity: 1 MBq \* 0.03 mCi \* Measured Date/Time: 22/10/2019 12:26 PM

Activity Variation: 0 % Volume: 1 ml

**MEASUREMENT DETAILS** **4**

Label Packaging Type: White I [Guideline](#)

Survey on Surface: 0.5 mR/hr

Survey at 1 Meter Distance: 1 mR/hr

Wipe Test: 1 Bq per cm<sup>2</sup>

Remarks:

**VERIFICATION DETAILS**

Accept  Reject

Reject Reason:

Done By: System Administrator Date/Time: 22/10/2019 12:26 PM

Updated By: System Administrator 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

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

[ 1 - 1 / 1 ]

**STOCK DETAILS**

Calibration Activity: 1 MBq \* 0.03 mCi \* Calibration Date/Time: 22/10/2019 12:26 PM

Expected Activity: 1 MBq \* 0.03 mCi \* Expiry Date/Time: 31/10/2019 12:32 PM

Measured Activity: 1 MBq \* 0.03 mCi \* Measured Date/Time: 22/10/2019 12:26 PM

Activity Variation: 0 % Volume: 1 ml

**MEASUREMENT DETAILS**

Label Packaging Type: White I [Guideline](#)

Survey on Surface: 0.5 mR/hr

Survey at 1 Meter Distance: 1 mR/hr

Wipe Test: 1 Bq per cm<sup>2</sup>

Remarks:

**VERIFICATION DETAILS**

Accept  Reject

Reject Reason:

Done By: System Administrator Date/Time: 22/10/2019 12:26 PM

Updated By: System Administrator Updated Date/Time: 22/10/2019 12:26 PM

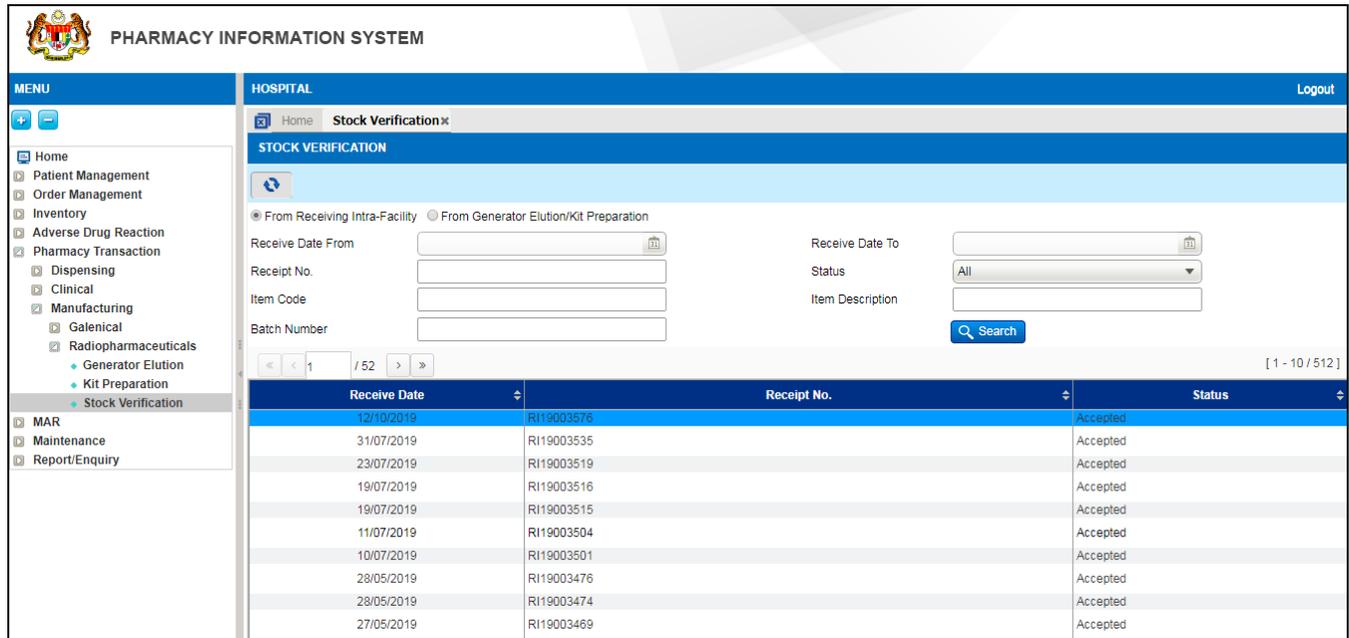
Figure 3.7.3-5 Stock Verification

**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.



**PHARMACY INFORMATION SYSTEM**

HOSPITAL Logout

Home **Stock Verification** x

**STOCK VERIFICATION**

From Receiving Intra-Facility     From Generator Elution/Kit Preparation

Receive Date From:     Receive Date To:

Receipt No.:     Status:

Item Code:     Item Description:

Batch Number:    

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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	<i>Finance</i>	<a href="#">Click Here</a>	15	<i>Internal Indent</i>	<a href="#">Click Here</a>
2	<i>Procurement Standard APPL</i>	<a href="#">Click Here</a>	16	<i>Issue</i>	<a href="#">Click Here</a>
3	<i>Procurement standard LP</i>	<a href="#">Click Here</a>	17	<i>Receive From Supplier</i>	<a href="#">Click Here</a>
4	<i>Procurement Standard Contract</i>	<a href="#">Click Here</a>	18	<i>Receive Inter Facility</i>	<a href="#">Click Here</a>
5	<i>Procurement Standard Quotation</i>	<a href="#">Click Here</a>	19	<i>Receive Intra Facility</i>	<a href="#">Click Here</a>
6	<i>Procurement Standard (RFQ)</i>	<a href="#">Click Here</a>	20	<i>Return to Supplier</i>	<a href="#">Click Here</a>
7	<i>Procurement Non Standard (Requisition Order)</i>	<a href="#">Click Here</a>	21	<i>Return to Supplying Unit</i>	<a href="#">Click Here</a>
8	<i>Quarantine</i>	<a href="#">Click Here</a>	22	<i>Slow Moving</i>	<a href="#">Click Here</a>
9	<i>Product Complaint</i>	<a href="#">Click Here</a>	23	<i>Stock Taking And Verification</i>	<a href="#">Click Here</a>
10	<i>Recalculate Buffer Level</i>	<a href="#">Click Here</a>	24	<i>Stock Transfer</i>	<a href="#">Click Here</a>
11	<i>Expiration And Condemn</i>	<a href="#">Click Here</a>	25	<i>Year End</i>	<a href="#">Click Here</a>
12	<i>Recall Product</i>	<a href="#">Click Here</a>	26	<i>Penalty</i>	<a href="#">Click Here</a>
13	<i>Payment</i>	<a href="#">Click Here</a>	27	<i>IWP Budget</i>	<a href="#">Click Here</a>
14	<i>External Indent</i>	<a href="#">Click Here</a>	28	<i>IWP Order Authorization</i>	<a href="#">Click Here</a>