



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

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## **User Manual Radiopharmaceuticals**

|                    |   |
|--------------------|---|
| <b>Version</b>     | <b>: 1.5</b>                              |
| <b>Document ID</b> | <b>: FB_U.MANUAL_RADIOPHARMACEUTICALS</b> |



## Revision History

| Version No | Date of Release | Prepared By   | Reviewed / Verified by | List of changes from previous Version                       |
|------------|-----------------|---------------|------------------------|---|
| 1.0        | 09/01/2014      | Azleen Ismail | Shamsul-'Ariza (SA)    | First submission to MOH                                     |
| 1.1        | 29/04/2014      | Azleen Ismail | Shamsul-'Ariza (SA)    | Application interface changes                               |
| 1.2        | 05/12/2014      | Azleen Ismail | Shamsul-'Ariza (SA)    | Application interface changes                               |
| 1.3        | 15/05/2015      | Azleen Ismail | Shamsul-'Ariza (SA)    | Updated to Version 1.3                                      |
| 1.4        | 20/04/2016      | Maikal Fardha | Shamsul-'Ariza (SA)    | Change to latest screenshot and functions for version 1.4.1 |
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|      |                    |  |                  |
|      |                    |  |                  |

## PEER REVIEW

| VERSION NO | REVIEWED / VERIFIED BY           | LIST OF CHANGES FROM PREVIOUS VERSION                       |
|------------|----------------------------------|---|
| 1.0        | Jenny Heng / Maxine Wong (QA)    | First submission to MOH (Please follow revision history)    |
| 1.1        | Maxine Wong (QA)                 | Application interface changes                               |
| 1.2        | Michelle                         | Application interface changes                               |
| 1.3        | Michelle Foo / Junidah Ayob (QA) | Updated to Version 1.3                                      |
| 1.4        | Michelle Foo / Junidah Ayob (QA) | Change to latest screenshot and functions for version 1.4.1 |



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Application reference: PhIS & CPS v1.5



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## 1. 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 excellent care. PhIS implementation would transform most of current manual process to electronic system would benefit facility end user in the health care sector.

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

1. Order Management
2. Inpatient Pharmacy
3. Outpatient Pharmacy
4. Medication Counselling
5. Ward Pharmacy
6. Pharmacy Inventory
7. Manufacturing of Cytotoxic Drug Reconstitution, Parenteral Nutrition, IV Admixture & Eye Drop , Radiopharmaceuticals and Extemporaneous
8. Adverse Drug Reaction & Drug Allergy 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 Patient Management sub-module and its key features and functionalities. The primary objective is to help guide user through the process of completing PhIS application process.

User will understand the following activities in details:

- Patient Registration
- Visit Management
- Find and Merge
- Discharge / Cancelling
- Clinical Summary

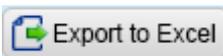
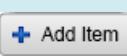
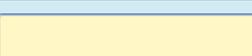
### 1.3 Organised Sections

These are the sections within this document:

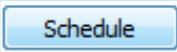
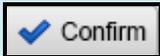
- Section 1 : Introduction
- Section 2 : Application Standard Features
- Section 3 : Radiopharmaceuticals
- Section 4 : Acronyms

## 2 Application Standard Features

### 2.1 PhIS Legend

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

### Radiopharmaceuticals Module Legend

|   |                        |   |  |
|---|------------------------|---|--|
|  | Schedule button        |  | Confirmation button                          |
|  | Consent form           |  | Verification                                 |
|  | Preparation            |  | Dispensing                                   |
|  | Submission Approval    |  | Printing/Editing Label                       |
|  | Radiopharmaceuticals   |  | Calculation Activity<br>Radiopharmaceuticals |
|  | Generate the worksheet |  | Release Batch                                |

**Note**

- To learn more about Login Information, kindly click [Login Information](#) module for descriptive steps.

### 3 Radiopharmaceuticals

#### Overview

#### User Group

This module is intended for doctor, specialist and pharmacist

#### Functional Diagram

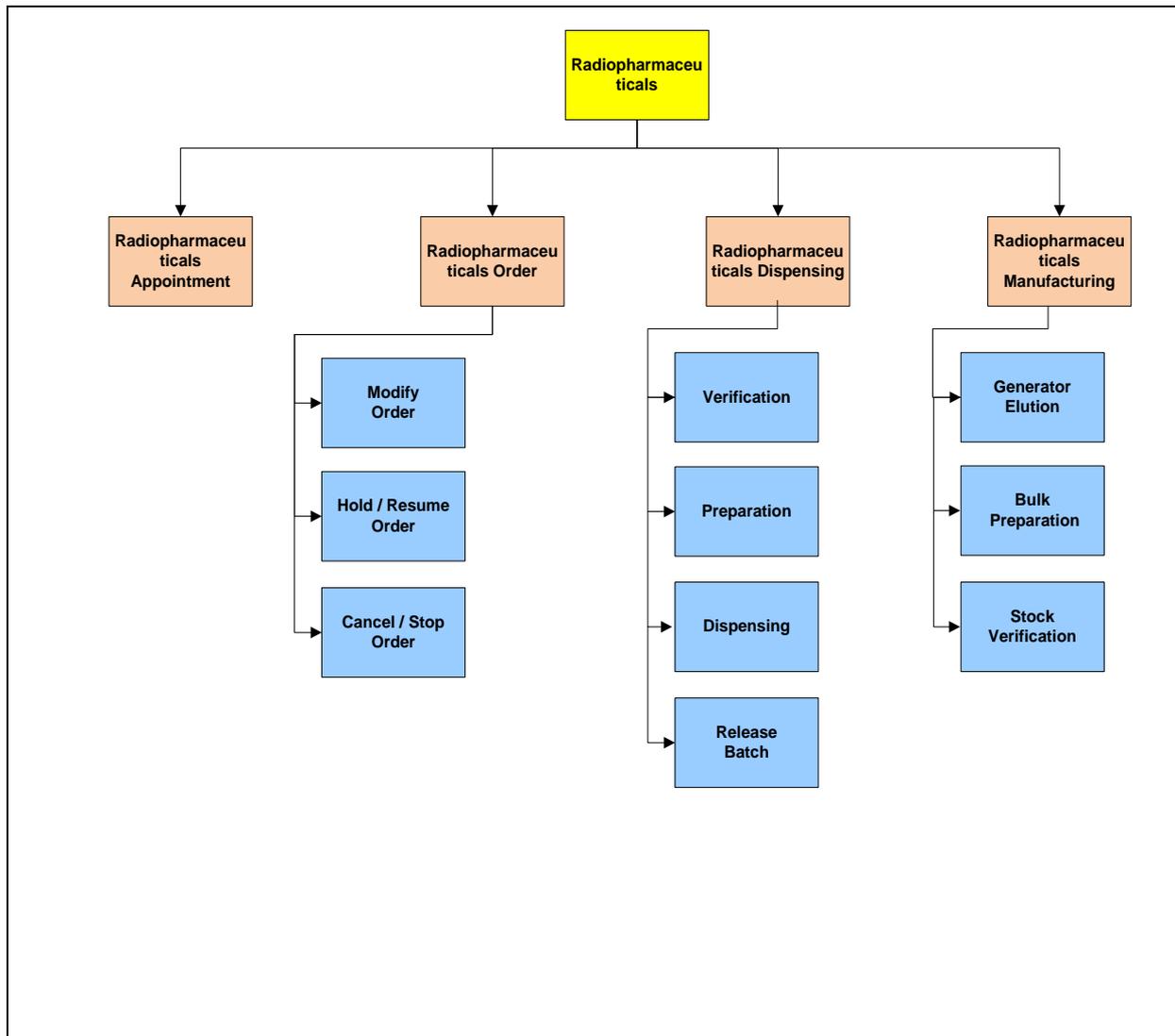


Figure 3.0

#### Functional Description

Radiopharmaceuticals comprises of four (4) main functions:

- Radiopharmaceuticals Appointment
- Radiopharmaceuticals Order

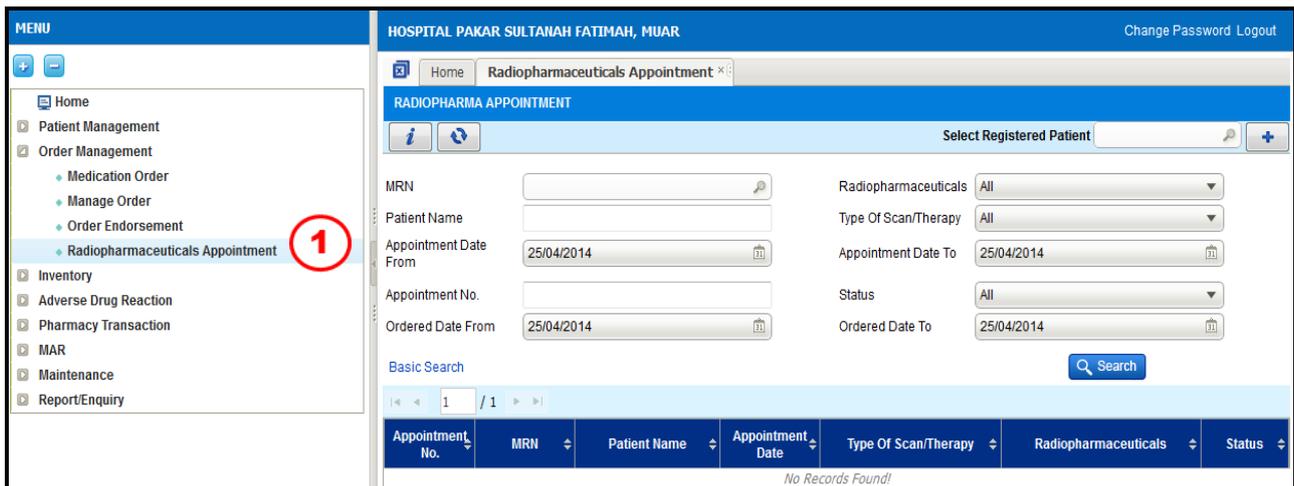


- **Radiopharmaceuticals Dispensing**
- **Radiopharmaceuticals Manufacturing**

### **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.



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Change Password Logout

Home Radiopharmaceuticals Appointment

RADIOPHARMA APPOINTMENT

Select Registered Patient

MRN Patient Name Appointment Date From 25/04/2014 Appointment No. Ordered Date From 25/04/2014

Radiopharmaceuticals All Type Of Scan/Therapy All Appointment Date To 25/04/2014 Status All Ordered Date To 25/04/2014

Basic Search Search

1 / 1

| Appointment No. | MRN | Patient Name | Appointment Date | Type Of Scan/Therapy | Radiopharmaceuticals | Status |
|-----------------|-----|--------------|------------------|----------------------|----------------------|--------|
|-----------------|-----|--------------|------------------|----------------------|----------------------|--------|

No Records Found!

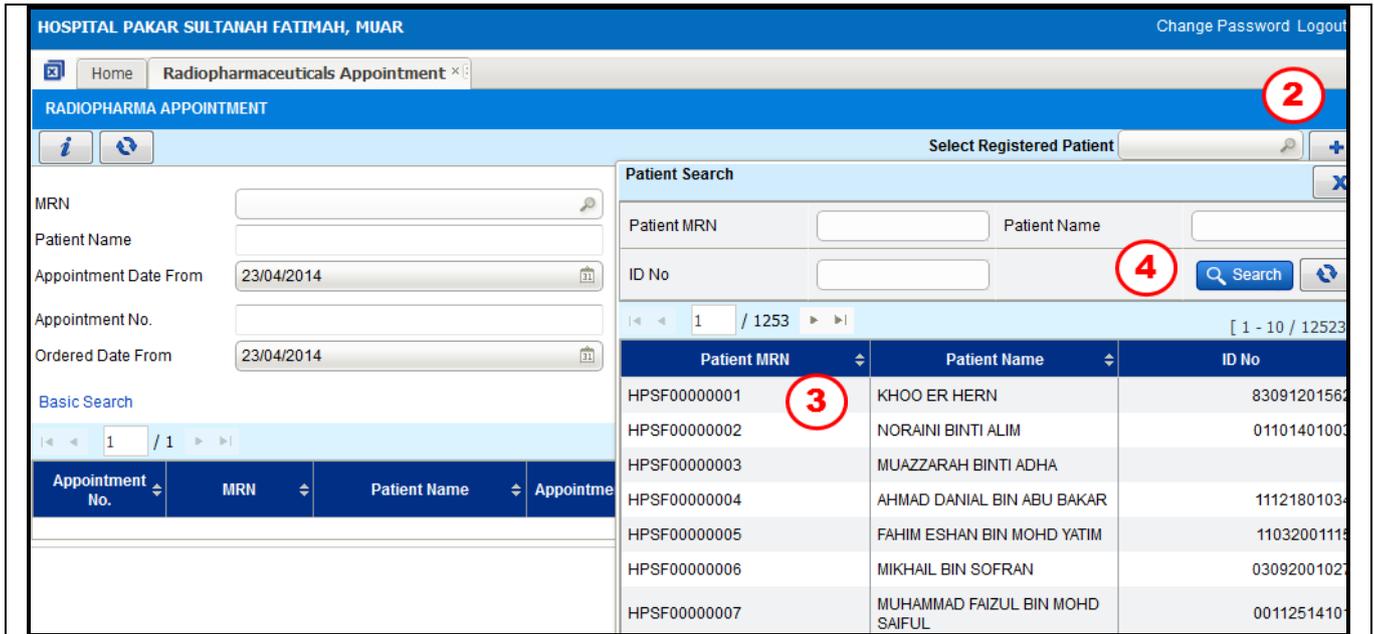
Figure 3.1-1 Radiopharmaceuticals Appointment Listing Page

### 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.



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Home Radiopharmaceuticals Appointment

RADIOPHARMA APPOINTMENT

MRN

Patient Name

Appointment Date From 23/04/2014

Appointment No.

Ordered Date From 23/04/2014

Basic Search

Appointment No. MRN Patient Name Appointment

Patient Search

Patient MRN  Patient Name

ID No

1 / 1253 [ 1 - 10 / 12523 ]

| Patient MRN  | Patient Name                    | ID No       |
|--------------|---------------------------------|-------------|
| HPSF00000001 | KHOO ER HERN                    | 83091201562 |
| HPSF00000002 | NORAINI BINTI ALIM              | 01101401003 |
| HPSF00000003 | MUJAZZARAH BINTI ADHA           |             |
| HPSF00000004 | AHMAD DANIAL BIN ABU BAKAR      | 11121801034 |
| HPSF00000005 | FAHIM ESHAN BIN MOHD YATIM      | 11032001115 |
| HPSF00000006 | MIKHAIL BIN SOFRAN              | 03092001027 |
| HPSF00000007 | MUHAMMAD FAIZUL BIN MOHD SAIFUL | 00112514101 |

Figure 3.1.1-2 Radiopharmaceuticals Appointment

**STEP 2**

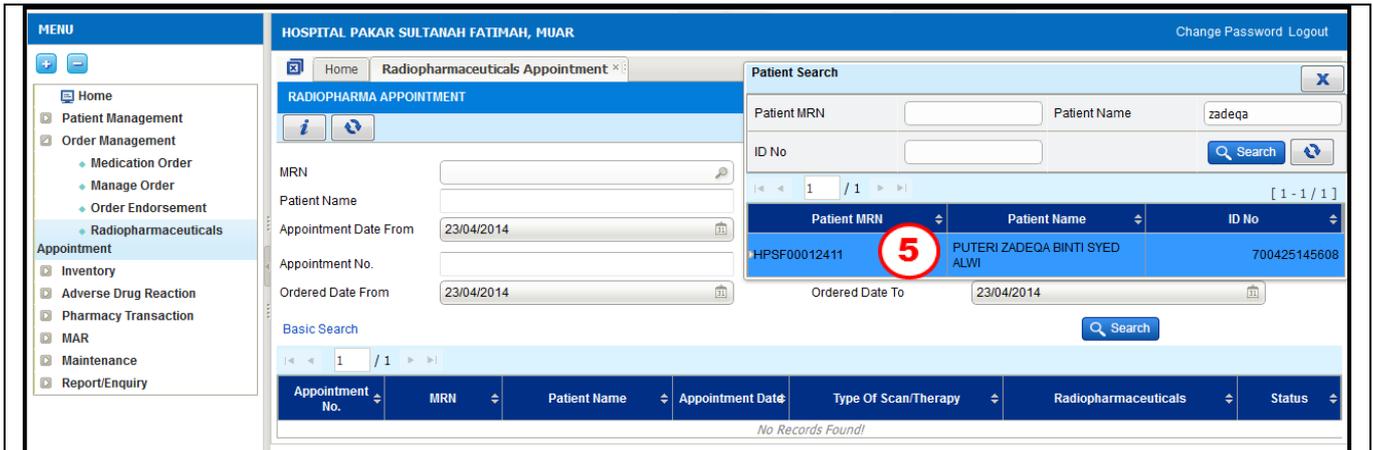
Click on the  button to search for registered patient and system will be displayed as per Figure 3.1.1-2

**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



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Home Radiopharmaceuticals Appointment

**RADIOPHARMA APPOINTMENT**

MRN:

Patient Name:

Appointment Date From: 23/04/2014

Appointment No.:

Ordered Date From: 23/04/2014

Basic Search

| Patient MRN  | Patient Name                  | ID No        |
|--------------|-------------------------------|--------------|
| HPSF00012411 | PUTERI ZADEQA BINTI SYED ALWI | 700425145608 |

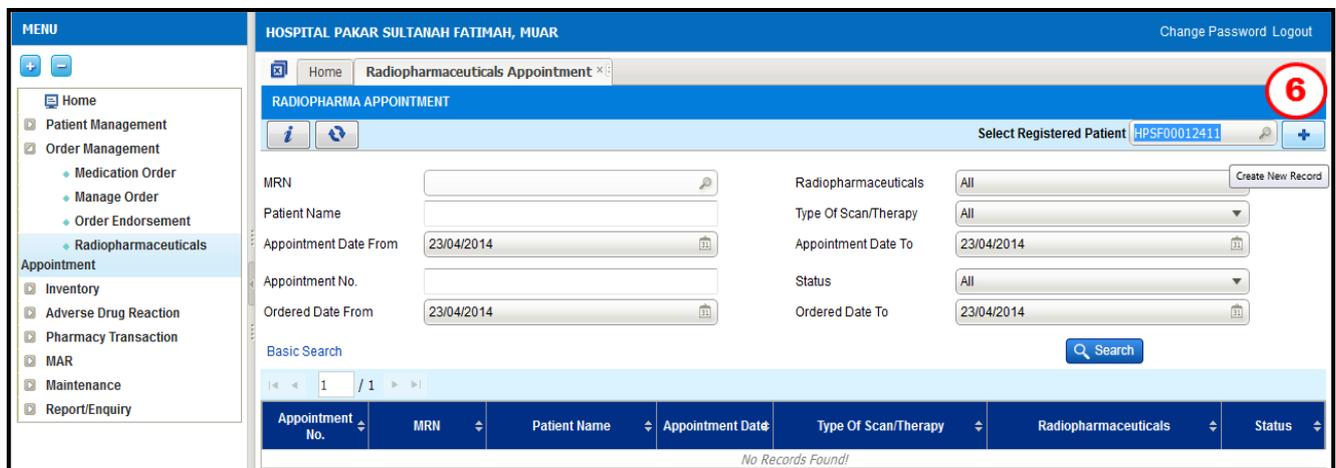
Ordered Date To: 23/04/2014

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

**Figure 3.1.1-3 Radiopharmaceuticals Appointment**

**STEP 5**

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



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Home Radiopharmaceuticals Appointment

**RADIOPHARMA APPOINTMENT**

MRN:

Patient Name:

Appointment Date From: 23/04/2014

Appointment No.:

Ordered Date From: 23/04/2014

Basic Search

Select Registered Patient:

Radiopharmaceuticals:

Type Of Scan/Therapy:

Appointment Date To: 23/04/2014

Status:

Ordered Date To: 23/04/2014

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

**Figure 3.1.1-4 Radiopharmaceuticals Appointment**

**STEP 6**

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

**RADIOPHARMACEUTICALS APPOINTMENT**

Confirm  Cancel Order

|   |  |  |   |                  |
|---|--|--|---|------------------|
|  | <input type="text" value="Mykad"/>           | Age 46 Years 29 Days                   | Gender Female                                   | MRN HPSF00026000 |
| <input type="text" value="Address"/>  | <input type="text" value="Phone And Email"/> | <input type="text" value="Diagnosis"/> | <input type="text" value="No known Allergies"/> |                  |

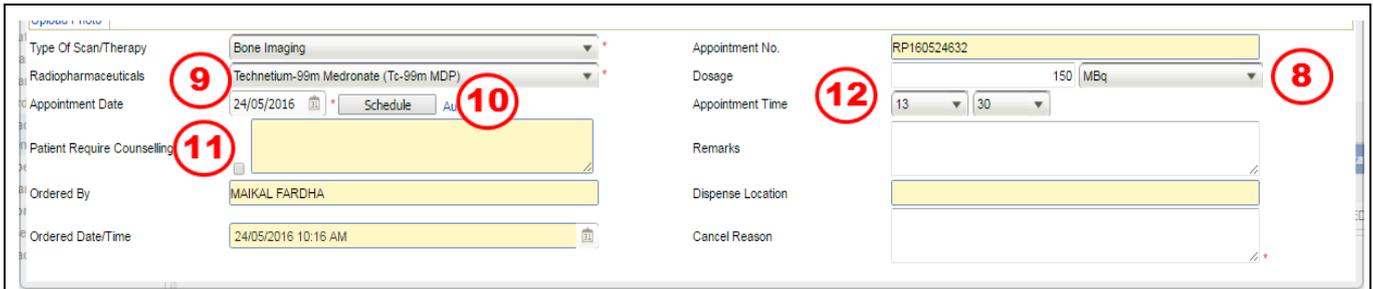
Upload Photo

|                               |   |                   |                      |
|-------------------------------|---|-------------------|----------------------|
| Type Of Scan/Therapy <b>7</b> | Bone Imaging  | Appointment No.   | RP160524632          |
| Radiopharmaceuticals          | Technetium-99m Medronate (Tc-99m MDP)   | Dosage            | 150 MBq              |
| Appointment Date              | 24/05/2016 <input type="button" value="Schedule"/> <input type="button" value="Audit Trail"/> | Appointment Time  | 13 : 30              |
| Patient Require Counselling   | <input type="text"/>  | Remarks           | <input type="text"/> |
| Ordered By                    | MAIKAL FARDHA   | Dispense Location | <input type="text"/> |
| Ordered Date/Time             | 24/05/2016 10:16 AM   | Cancel Reason     | <input type="text"/> |

**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 a software interface for entering appointment details. On the left side, there are several dropdown menus and text fields: 'Type Of Scan/Therapy' (Bone Imaging), 'Radiopharmaceuticals' (Technetium-99m Medronate (Tc-99m MDP)), 'Appointment Date' (24/05/2016), 'Patient Require Counselling' (checked), 'Ordered By' (MAIKAL FARDHA), and 'Ordered Date/Time' (24/05/2016 10:16 AM). A 'Schedule' button is located between the date and counselling fields. On the right side, there are fields for 'Appointment No.' (RP160524632), 'Dosage' (150 MBq), 'Appointment Time' (13:30), 'Remarks', 'Dispense Location', and 'Cancel Reason'. Red circles with numbers 8 through 12 highlight specific fields: 8 (Appointment No.), 9 (Type Of Scan/Therapy), 10 (Schedule button), 11 (Patient Require Counselling), and 12 (Appointment Time).

**Figure 3.1.1-6 Radiopharmaceuticals Appointment**

**Note**

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

**STEP 8**

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

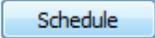
**STEP 9**

Select **Date** field for appointment

**Note**

**Date** field is mandatory field

**STEP 10**

Click on the  button to check for available date for appointment

**STEP 11**

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

**STEP 12**

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

**Figure 3.1.1-7 Radiopharmaceuticals Appointment**

**STEP 13**

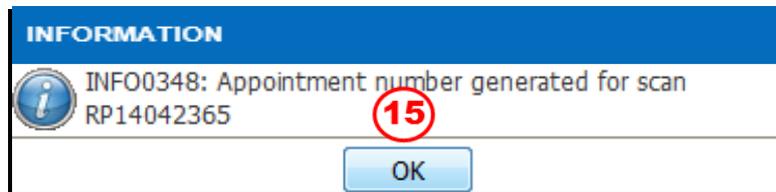
Enter **Remarks** if applicable

**Note**

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

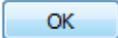
**STEP 14**

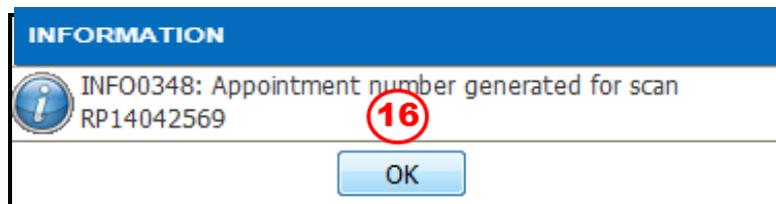
Click on the save  button to save record and alert message will be displayed as per Figure 3.1.1-7



**Figure 3.1.1-8 Save Record Alert Message**

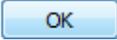
**STEP 15**

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



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

### STEP 16

Click on the  button to save and update Radiopharmaceuticals Appointment order

#### Note

Record status is updated to Draft.

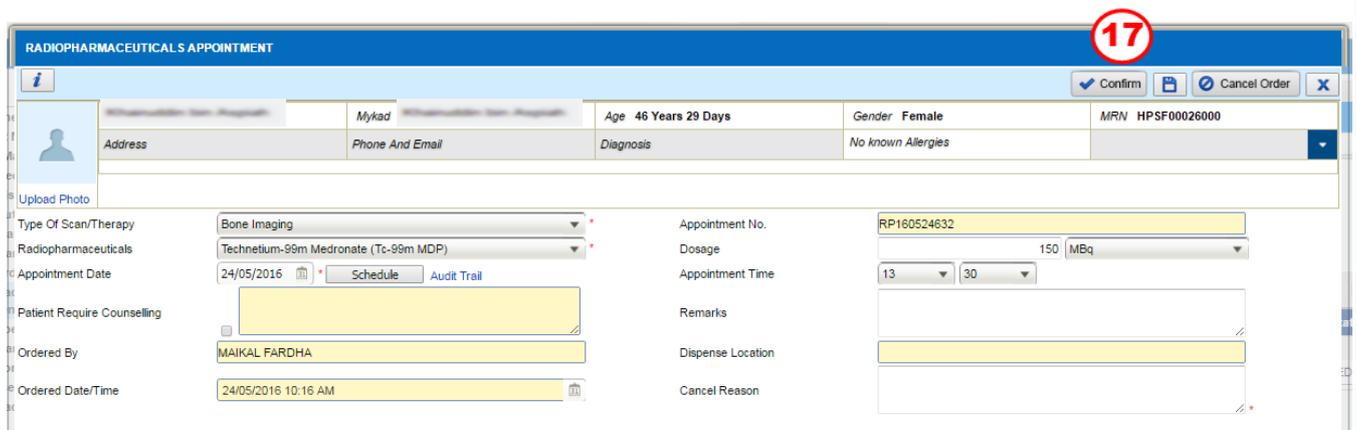


Figure 3.1-10 Radiopharmaceuticals Appointment

### STEP 17

Click on the  button and system will display alert message as per Figure 3.1-10



Figure 3.1-11 Confirm Order Alert Message

### STEP 18

Click on the  button to confirm order

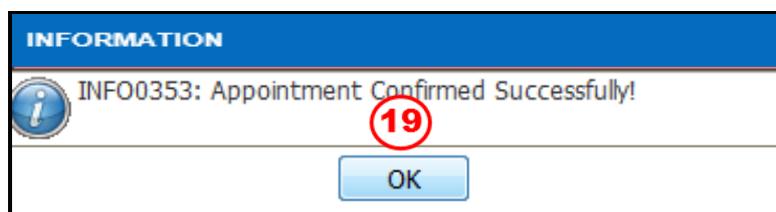
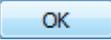
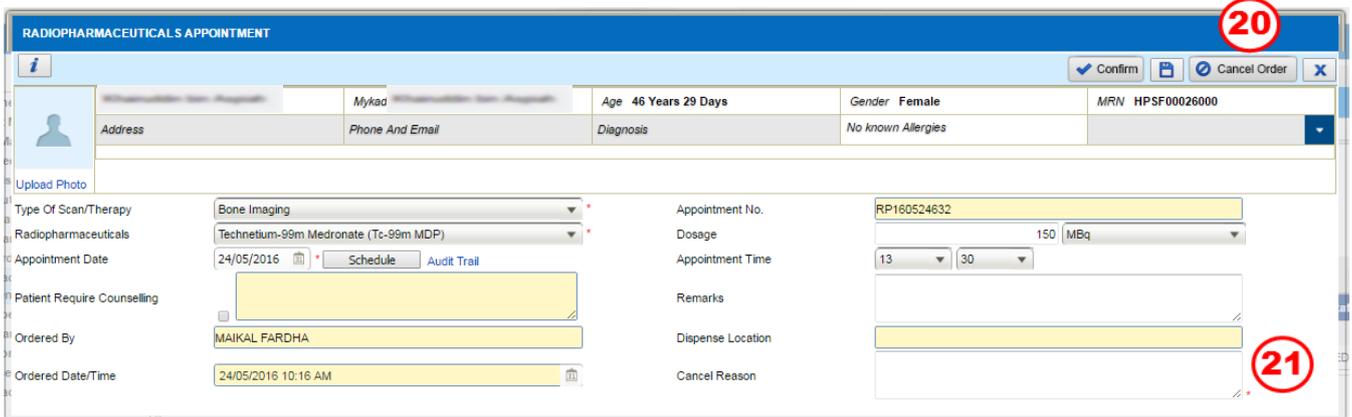


Figure 3.1-12 Confirm Order Alert Message

### STEP 19

Click on the  button to confirm appointment successfully



**RADIOPHARMACEUTICALS APPOINTMENT**

MRN: HPSF00026000

Age: 46 Years 29 Days | Gender: Female

Diagnosis: No known Allergies

Type Of Scan/Therapy: Bone Imaging

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

Appointment Date: 24/05/2016

Appointment No.: RP160524632

Dosage: 150 MBq

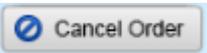
Appointment Time: 13:30

Ordered By: MAIKAL FARDHA

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

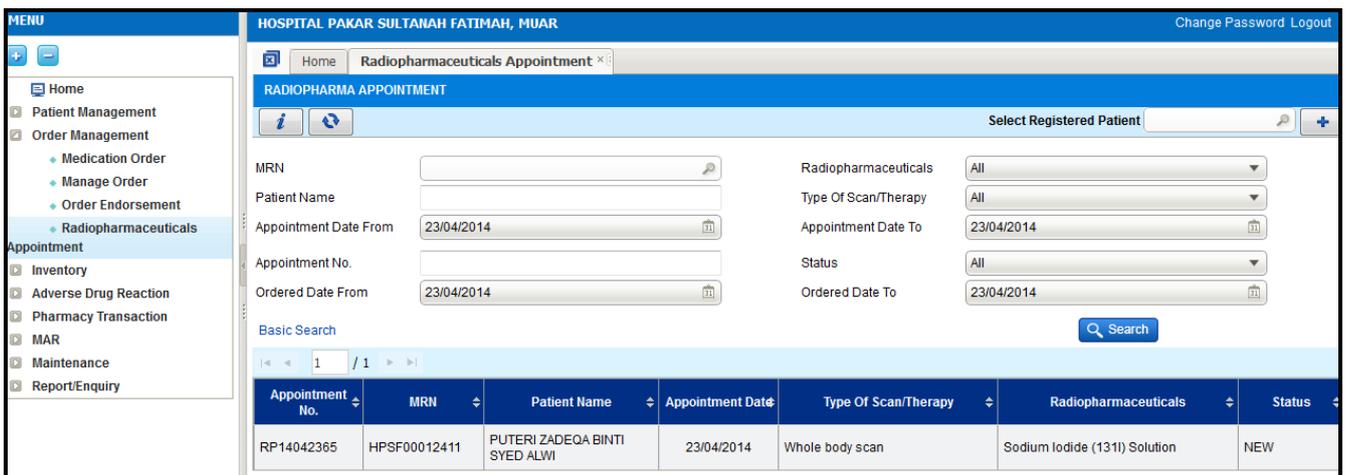
**Figure 3.1-13 Radiopharmaceuticals Appointment**

### STEP 20

Click on the  button to cancel Radiopharmaceuticals Appointment

### STEP 21

Enter cancel reason



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RADIOPHARMA APPOINTMENT

| Appointment No. | MRN          | Patient Name                  | Appointment Date | Type Of Scan/Therapy | Radiopharmaceuticals          | Status |
|-----------------|--------------|-------------------------------|------------------|----------------------|-------------------------------|--------|
| RP14042365      | HPSF00012411 | PUTERI ZADEQA BINTI SYED ALWI | 23/04/2014       | Whole body scan      | Sodium Iodide (131I) Solution | NEW    |

**Figure 3.1-14 Radiopharmaceuticals Appointment**

### Note

Record status is updated to New as per Figure 3.1-14.

### 3.2 Radiopharmaceuticals Order

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

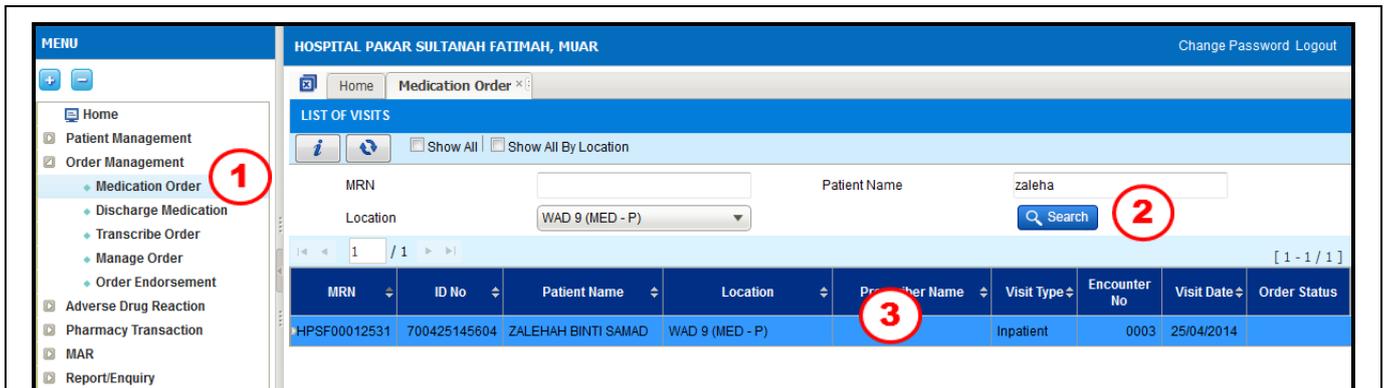


Figure 3.2-1 Medication Order Listing Page

#### STEP 1

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

#### Note

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

#### STEP 2

Click on the  button and system will be displayed related order

#### STEP 3

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

**VISIT RECORD**

Breast Feeding  Pregnant  Week

|                               |                                   |   |   |                               |
|-------------------------------|-----------------------------------|---|---|-------------------------------|
| Patient Diagnosis             | <b>RADIOPHARMACEUTICALS ORDER</b> |   | Appointment No.   | <input type="text" value=""/> |
| Allergy                       | Type Of Scan/Therapy              | <input type="text" value=""/>   | Dosage  | <input type="text" value=""/> |
| Adverse Drug Reaction         | Radiopharmaceuticals              | <input type="text" value=""/>   | Appointment Time  | <input type="text" value=""/> |
| Nutritional Assessment        | Appointment Date                  | <input type="text" value=""/> <input type="button" value="Schedule"/> | Remarks   | <input type="text" value=""/> |
| Normal Order                  | Patient Require Counselling       | <input type="checkbox"/>  | Dispense Location   | <input type="text" value=""/> |
| Infusion Order                | Ordered By                        | MAIKAL FARDHA   |   |                               |
| Parenteral Nutrition          | Ordered Date/Time                 | 24/05/2016 11:05 AM   |   |                               |
| Cytotoxic Drug Reconstitution |                                   |   | <input type="button" value="Confirm"/> <input type="button" value="Draft"/> |                               |
| Therapeutic Drug Monitoring   |                                   |   |   |                               |
| <b>Radiopharmaceuticals</b>   |                                   |   |   |                               |
| View MAR                      |                                   |   |   |                               |
| Referral Visit                |                                   |   |   |                               |

**DRUG DETAILS**

1 / 1

| Selection         | Type Of Scan/Therapy | Radiopharmaceuticals | Dosage | Unit | Date | Status | Confirm By | Confirm Date/Time |
|-------------------|----------------------|----------------------|--------|------|------|--------|------------|-------------------|
| No Records Found! |                      |                      |        |      |      |        |            |                   |

**Figure 3.2-2 Medication Order**

**4** **DETAILS**

1 / 1

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

**Note**

**Current Appointment section :**

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

**VISIT RECORD**

Breast Feeding  Pregnant  Week

**Patient Diagnosis**

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

**RADIOPHARMACEUTICALS ORDER**

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

Radiopharmaceuticals:  \* Dosage:

Appointment Date:  Schedule Appointment Time:

Patient Require Counselling:  Remarks:

Ordered By: MAIKAL FARDHA Dispense Location:

Ordered Date/Time: 24/05/2016 11:12 AM

+ Add Clear

**DRUG DETAILS**

| Selection                                   | Type Of Scan/Therapy | Radiopharmaceuticals                                | Dosage | Unit | Date       | Status | Confirm By | Confirm Date/Time |
|---|----------------------|---|--------|------|------------|--------|------------|-------------------|
| <input type="button" value="Consent Form"/> | Infusion             | Technetium-99m Macroaggregated Albumin (Tc-99m MAA) | 115    | MBq  | 24/05/2016 | NEW    |            |                   |

**Figure 3.2-3 Medication Order –Radiopharmaceuticals**

**Note**

**Consent Form:**

- Right click in the  button and select  link.
- Click on the  link and screen will display as per Figure 3.2-3

Consent Form

I, , ID No: 451003145607, hereby Consent to the submission of myself/my child

, ID No: , MRN :

To undergo the examination/procedure  Of which the nature has been explained by

I also consent to administration of contract medium/media for the examination

No assurance has been given to me that the examination will be performed by any particular practitioner.

Witness name  ID No :

Printing options  
 Malay Version  English Version

**Figure 3.2-4 Consent Form**

**Note**

**Consent Form:**

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

- Malay Version
- English Version

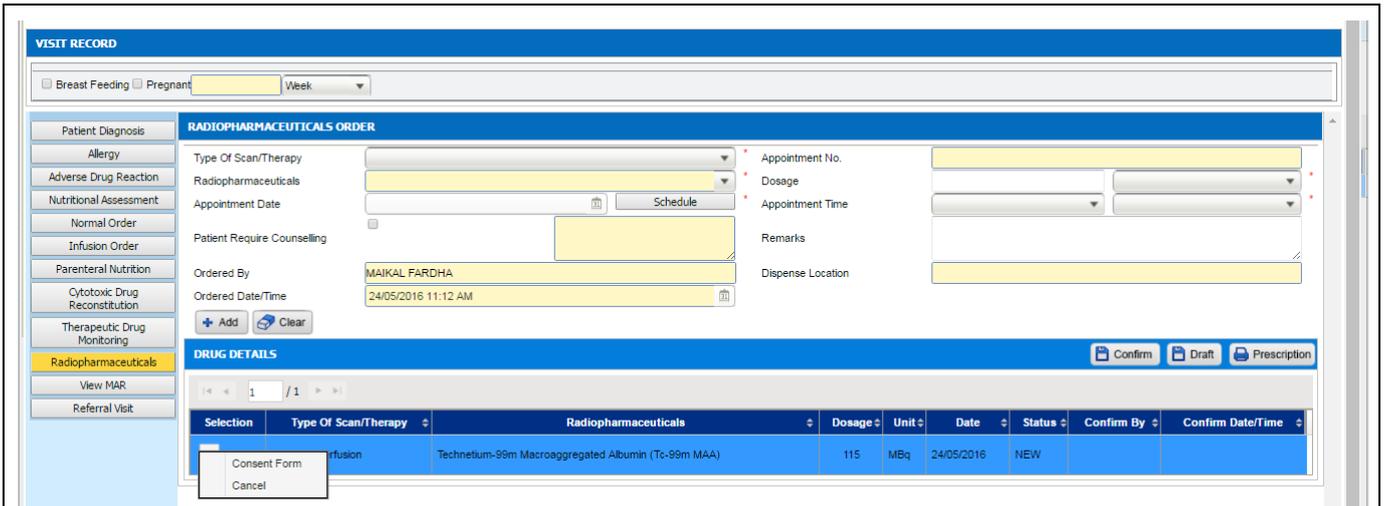
- Click on the  button to print consent form and system will be displayed the form as per Figure 3.2-4.
- Click on the  button to close consent form screen.

| KEBENARAN UNTUK<br>PROSEDUR/RAWATAN PERUBATAN NUKLEAR<br>JABATAN FARMA SI   |  | IS YOUR PATIENT IN THE HIGH RISK GROUP?   |  |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
|---|--|---|--|------------------------------|--|----------------------------------|--|--------------|---|---------------------------------------|---|-----------|---|---------------|---|--|---|-----------|-------|-------------------------------------|---|---------------|-------|------------------|---|-----------|-------|
| <p>Hospital Pakar Sultanah Fatimah, Muar</p> <p>Saya <u>Abdulrahman bin Asyraf</u> No. KIP : 451003145807</p> <p>kebenaran bagi pihak saya/anak/jagaan <u>ZALEHAH BINTI SAMAD</u></p> <p>No. KIP <u>Abdulrahman bin Asyraf</u>, MRN : HPSF0012521 untuk menjalani rawatan/prosedur <u>Lung VQ Ventilation</u> di mana jenis dan tujuannya telah dijelaskan oleh <u>Abdul Rahim Sulaiman</u></p> <p>Saya juga memberi kebenaran untuk Radiofarmasutikal semasa pemeriksaan/rawatan.</p> <p>Tiada jaminan diberi kepada saya sama ada pemeriksaan/rawatan ini akan dilaksanakan oleh seseorang pengamal perubatan tertentu.</p> <p>Tandatangan : _____ (Pesakit/ibu Bapa/Penjaga)</p> <p>Tarikh : _____</p> |  | <p>Does he or she have :</p> <table border="0"> <tr> <td>a. Define history of allergy</td> <td>Yes <input type="checkbox"/> No <input type="checkbox"/></td> <td>g. Very old(85)/very young(5/12)</td> <td>Yes <input type="checkbox"/> No <input type="checkbox"/></td> </tr> <tr> <td>b. Hay fever</td> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>h. Very ill or poor general condition</td> <td><input type="checkbox"/> <input type="checkbox"/></td> </tr> <tr> <td>c. Asthma</td> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>i. Dehydrated</td> <td><input type="checkbox"/> <input type="checkbox"/></td> </tr> <tr> <td>d. Previous reaction to contrast media</td> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>j. Others</td> <td>-----</td> </tr> <tr> <td>e. Previous reaction to other drugs</td> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>k. Blood Urea</td> <td>-----</td> </tr> <tr> <td>f. Heart disease</td> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>l. L.M.P.</td> <td>-----</td> </tr> </table> <p>If the answer to YES to ANY one, please review the indication for examination with contrast</p> <p>Will an alternative imaging modality suffice?</p> <p>Patient in groups (a) - (c) will need steroid treatment.</p> <div style="border: 1px solid black; padding: 2px;"> <p>1. Prednisolone 40 mg*12 hours before procedure AND<br/>1. Prednisolone 40 mg*2 hours before procedure</p> </div> <p>* Adult dosage quoted. Please reduce accordingly for children.</p> <p>I confirm that I have explained the nature and process of this procedure to the patient/parent/guardian.</p> <p>Signature : _____ Witness : _____</p> <p>Name : <u>Abdul Rahim Sulaiman</u> Name : <u>RASHMI BIN ISMAIL</u></p> <p>Date : _____ IC No: <u>T20425143521</u></p> |  | a. Define history of allergy | Yes <input type="checkbox"/> No <input type="checkbox"/> | g. Very old(85)/very young(5/12) | Yes <input type="checkbox"/> No <input type="checkbox"/> | b. Hay fever | <input type="checkbox"/> <input type="checkbox"/> | h. Very ill or poor general condition | <input type="checkbox"/> <input type="checkbox"/> | c. Asthma | <input type="checkbox"/> <input type="checkbox"/> | i. Dehydrated | <input type="checkbox"/> <input type="checkbox"/> | d. Previous reaction to contrast media | <input type="checkbox"/> <input type="checkbox"/> | j. Others | ----- | e. Previous reaction to other drugs | <input type="checkbox"/> <input type="checkbox"/> | k. Blood Urea | ----- | f. Heart disease | <input type="checkbox"/> <input type="checkbox"/> | l. L.M.P. | ----- |
| a. Define history of allergy  | Yes <input type="checkbox"/> No <input type="checkbox"/> | g. Very old(85)/very young(5/12)  | Yes <input type="checkbox"/> No <input type="checkbox"/> |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
| b. Hay fever  | <input type="checkbox"/> <input type="checkbox"/>        | h. Very ill or poor general condition   | <input type="checkbox"/> <input type="checkbox"/>        |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
| c. Asthma   | <input type="checkbox"/> <input type="checkbox"/>        | i. Dehydrated   | <input type="checkbox"/> <input type="checkbox"/>        |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
| d. Previous reaction to contrast media  | <input type="checkbox"/> <input type="checkbox"/>        | j. Others   | -----  |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
| e. Previous reaction to other drugs   | <input type="checkbox"/> <input type="checkbox"/>        | k. Blood Urea   | -----  |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |
| f. Heart disease  | <input type="checkbox"/> <input type="checkbox"/>        | l. L.M.P.   | -----  |                              |  |                                  |  |              |   |                                       |   |           |   |               |   |  |   |           |       |                                     |   |               |       |                  |   |           |       |

Figure 3.2-5 Sample Consent Form

**Note**

Sample of Consent Form as per Figure 3.2-5.



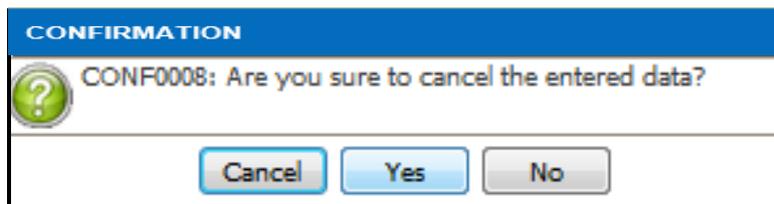
| Selection | Type Of Scan/Therapy | Radiopharmaceuticals                                | Dosage | Unit | Date       | Status | Confirm By | Confirm Date/Time |
|-----------|----------------------|---|--------|------|------------|--------|------------|-------------------|
|           | Infusion    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

**Figure 3.2-6 Sample Consent Form**

**Note**

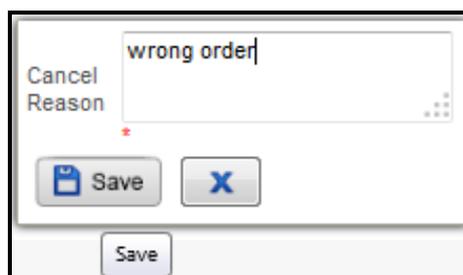
**Cancel function:**

- Cancel is an optional function.
- Click on the **Cancel** link to cancel radiopharmaceuticals order and alert message will be displayed as per Figure 3.2-6.
- Click on the **Yes** button to cancel order.

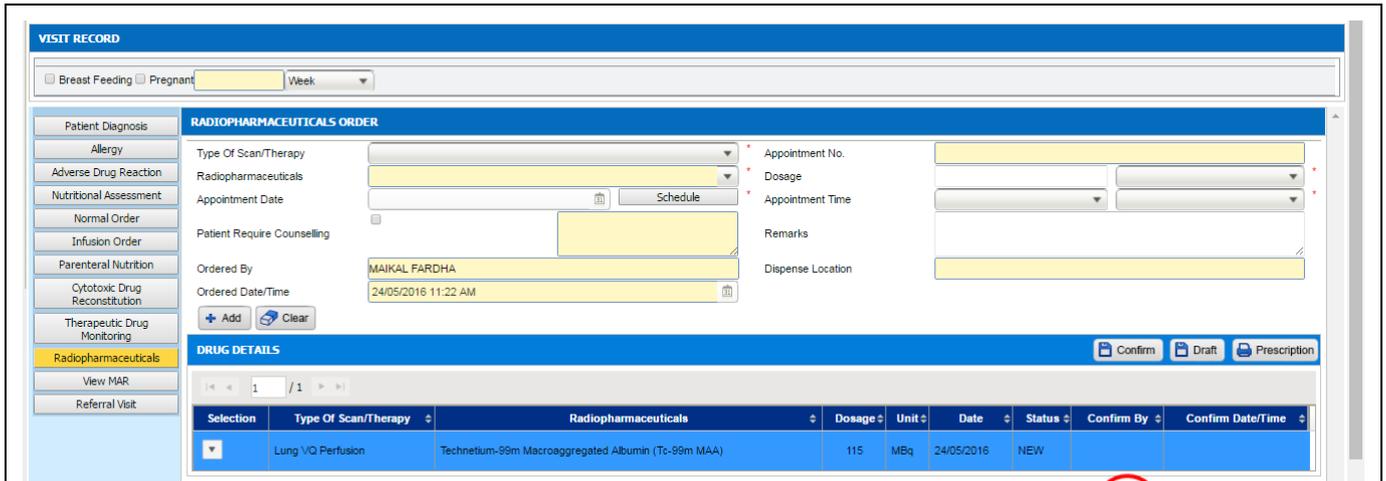


**Figure 3.2-7 Cancel Order Alert Message**

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



**Figure 3.2-8 Cancel Order**



**VISIT RECORD**

Breast Feeding  Pregnant  Week

**RADIOPHARMACEUTICALS ORDER**

Appointment No.  
 Dosage  
 Appointment Time  
 Remarks  
 Disperse Location

Type Of Scan/Therapy:   
 Radiopharmaceuticals:   
 Appointment Date:  Schedule  
 Patient Require Counselling:

Ordered By: MAIKAL FARDHA  
 Ordered Date/Time: 24/05/2016 11:22 AM

**DRUG DETAILS**

| Selection                | Type Of Scan/Therapy | Radiopharmaceuticals                                | Dosage | Unit | Date       | Status | Confirm By | Confirm Date/Time |
|--------------------------|----------------------|---|--------|------|------------|--------|------------|-------------------|
| <input type="checkbox"/> | Lung VQ Perfusion    | Technetium-99m Macroaggregated Albumin (Tc-99m MAA) | 115    | MBq  | 24/05/2016 | NEW    |            |                   |

Buttons: Confirm, Draft, Prescription

**Figure 3.2-9 Medication Order -Radiopharmaceuticals**

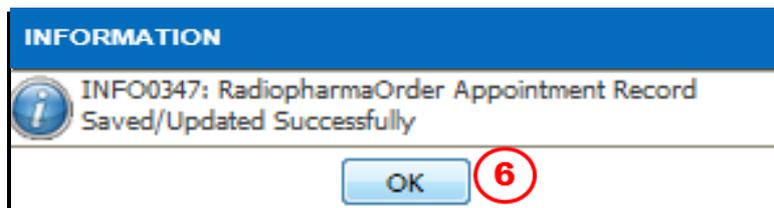
5

**STEP 5**

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

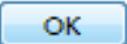
**Note**

The  button will be displayed after save record.



**INFORMATION**

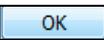
 INFO0347: RadiopharmaOrder Appointment Record Saved/Updated Successfully



**Figure 3.2-10 Alert Message**

6

**STEP 6**

Click on the  button to save data

Encounter No: 0003    Admission Date: 25/04/2014    Attending Practitioner: Abdul Rahim Sulaiman    Visit Location: WAD 9 (MED - P)    Room No/Bed No:

**VISIT RECORD**

Breast Feeding     Pregnant     Weeks

Patient Diagnosis  
Allergy  
Adverse Drug Reaction  
Normal Order  
Infusion Order  
PN Order  
CDR  
TDM  
Radiopharma

**CURRENT APPOINTMENT**

Confirm Order    Save

1 / 1

| Selection | Type Of Scan/Therapy | Radiopharmaceuticals                    | Amount | Unit | Date       | Status | Confirm By | Confirm Date/Time |
|-----------|----------------------|---|--------|------|------------|--------|------------|-------------------|
|           | Lung VQ Ventilation  | Technetium (99mTc) Sodium Pertechnetate | 100    | MBq  | 28/04/2014 | NEW    |            |                   |

Confirm Order

7

**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?

8

**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

9

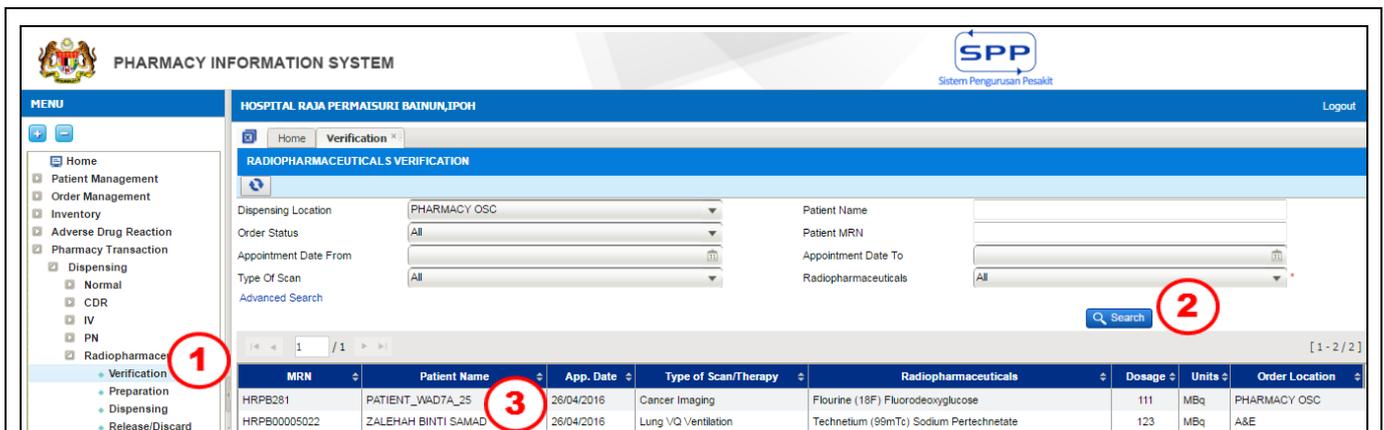
**Figure 3.2-13 Alert Message**

**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 RAJA PERMAISURI BAINUN, IPOH | SPP Sistem Pengurusan Pesakit

**MENU**

- Home
- Patient Management
- Order Management
- Inventory
- Adverse Drug Reaction
- Pharmacy Transaction
  - Dispensing
  - Normal
  - CDR
  - IV
  - PN
  - Radiopharmaceuticals
    - Verification (1)
    - Preparation
    - Dispensing
    - Release/Discard

**RADIOPHARMACEUTICALS VERIFICATION**

Dispensing Location: PHARMACY OSC | Patient Name:

Order Status: All | Patient MRN:

Appointment Date From:  | Appointment Date To:

Type Of Scan: All | Radiopharmaceuticals:

[Advanced Search](#) |  (2)

| MRN          | Patient Name         | App. Date  | Type of Scan/Therapy | Radiopharmaceuticals                     | Dosage | Units | Order Location |
|--------------|----------------------|------------|----------------------|--|--------|-------|----------------|
| HRPB281      | PATIENT_WAD7A_25 (3) | 26/04/2016 | Cancer Imaging       | Flourine (18F) Fluorodeoxyglucose        | 111    | MBq   | PHARMACY OSC   |
| HRPB00005022 | ZALEHAH BINTI SAMAD  | 26/04/2016 | Lung VQ Ventilation  | Technetium (99mTc) Sodium Per technetate | 123    | MBq   | A&E            |

Figure 3.3-1 Radiopharmaceuticals Verification Listing Page

#### STEP 1

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

#### Note

- Various search criteria is provided as below:
  - Dispense Location
  - Patient Name
  - Order Status
  - Patient MRN
  - 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 3.3-1

Upload Photo

Encounter No: 0007 Visit Date: 24/05/2016 Attending Practitioner: Visit Location: RADIOLOGI Rx No: RADIO0000180569 Order By: MAIKAL FARDHA

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

**PRESCRIPTION**  Verify

1 / 1

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

**Figure 3.3-2 Radiopharmaceuticals Verification**

**STEP 4**

Click on  button to verify order

**Note**

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

**INFORMATION**

 Do you want to proceed with the verification?

**5**

**Figure 3.3-3 Information Alert Message**

**STEP 5**

Click on the  button to proceed with the verification

**INFORMATION**

 Verified Successfully

**6**

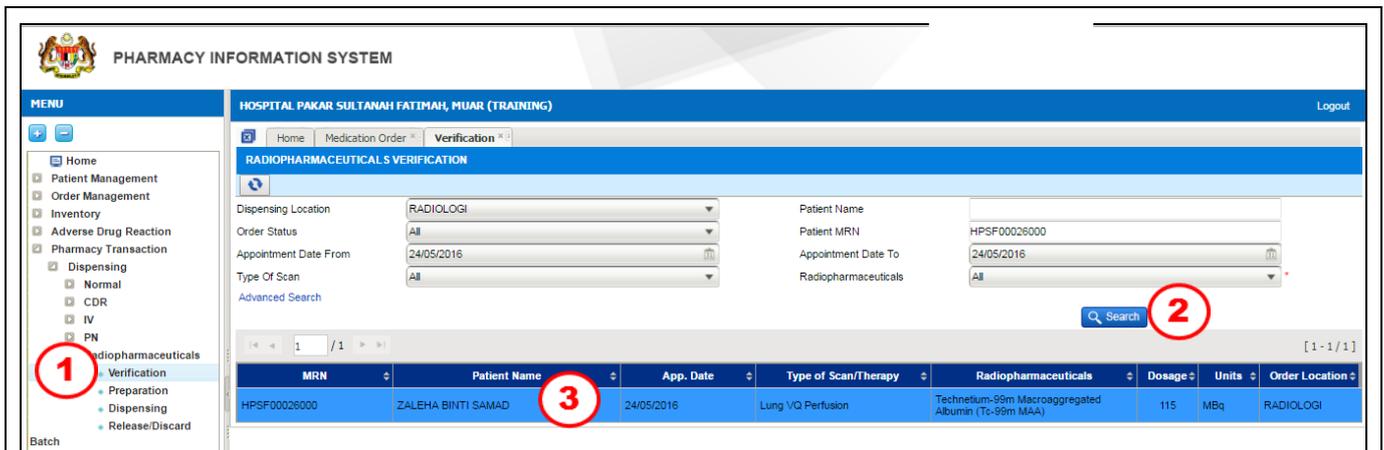
**Figure 3.3-4 Verify Order Alert Message**

**STEP 6**

Click on the  button to verify successfully

### 3.3.1 Intervention

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



**Figure 3.3.1-1 Radiopharmaceuticals Verification Listing Page**

#### STEP 1

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

#### Note

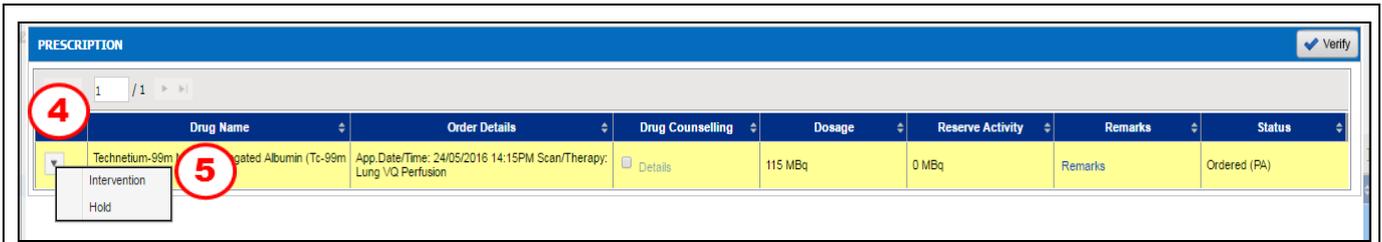
- Various search criteria is provided as below:
  - Dispense Location
  - Patient Name
  - Order Status
  - Patient MRN
  - Appointment Date From
  - Appointment Date To
  - Type of Scan
  - Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

#### STEP 2

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

#### STEP 3

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Verification screen as per Figure 3.3.1-1



| Drug Name   | Order Details   | Drug Counselling                 | Dosage  | Reserve Activity | Remarks | Status       |
|---|---|----------------------------------|---------|------------------|---------|--------------|
| Technetium-99m<br>Tc-99m Labeled Albumin (Tc-99m) | App.Date/Time: 24/05/2016 14:15PM Scan/Therapy:<br>Lung V/Q Perfusion | <input type="checkbox"/> Details | 115 MBq | 0 MBq            | Remarks | Ordered (PA) |

**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** 10

History

**PHARMACY REMARKS**

1 / 2
[ 1 - 10 / 12 ]

|  | Intervention Reason  | Remarks              | Intervention Accepted   | Intervention Not Accepted |
|--|--|----------------------|---|---------------------------|
| <input type="checkbox"/>   | Authenticity   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Contraindication   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Drug Interaction   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input checked="" style="border: 2px solid red; border-radius: 50%; padding: 2px;" type="checkbox"/> 6 | Inappropriate Dose <span style="float: right; border: 2px solid red; border-radius: 50%; padding: 2px 5px; color: white;">7</span> | <input type="text"/> | <input checked="" style="border: 2px solid red; border-radius: 50%; padding: 2px 5px; color: white;" type="radio"/> 8 | <input type="radio"/>     |
| <input type="checkbox"/>   | Inappropriate Drug   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Inappropriate Duration   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Inappropriate Frequency  | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Incompatibility  | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Others   | <input type="text"/> | <input type="radio"/>   | <input type="radio"/>     |
| <input type="checkbox"/>   | Polypharmacy   | <input type="text"/> | <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)   | Dosage               | 115 MBq            |
| Date                 | 24/05/2016 <span style="border: 1px solid gray; padding: 2px;">View Schedule</span> <span style="border: 2px solid red; border-radius: 50%; padding: 2px 5px; color: white;">9</span> | 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**

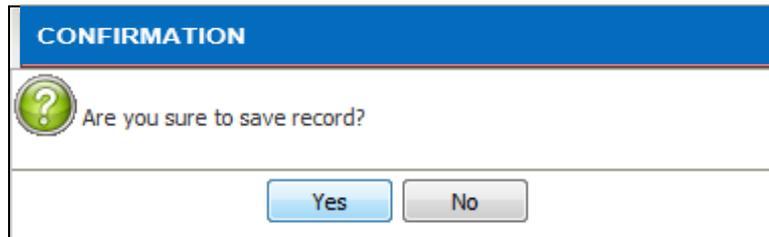
Select **Intervention Status** radio button either **Accepted** or **Not Accepted** and edit **Amount** field

**STEP 9**

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

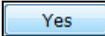
**STEP 10**

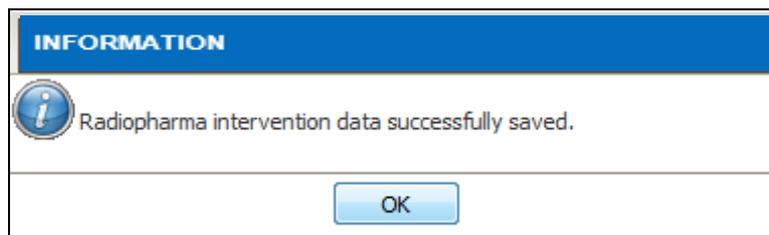
Click on the button to save intervention record and alert message will display as per Figure 3.3.1-3.



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

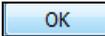
**Note**

- Click on the  button to save intervention record.



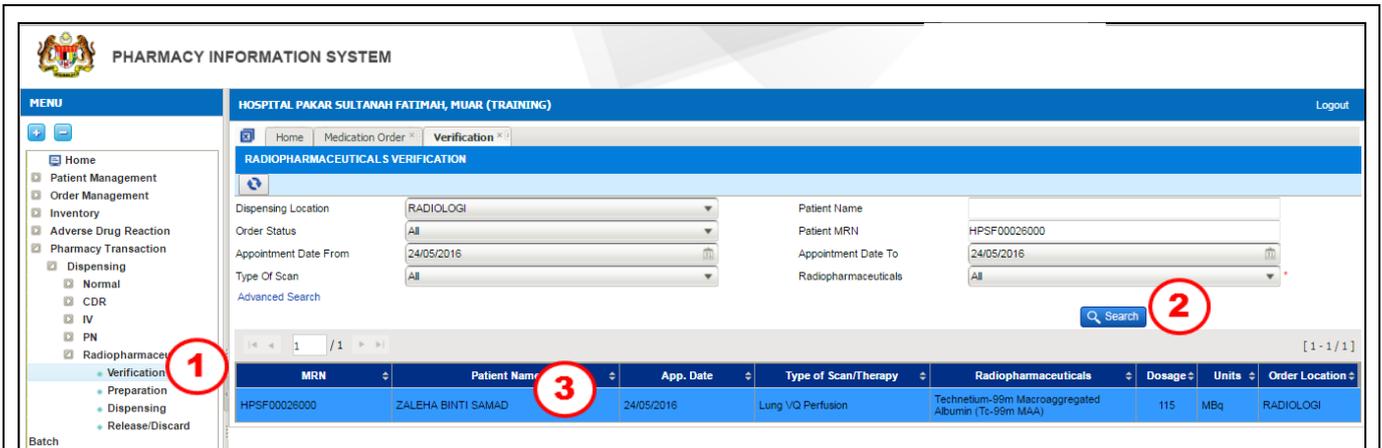
**Figure 3.3.1-5 Modify Order Alert Message**

**Note**

- Click on the  button to save modify order record.

### 3.3.2 Hold/Resume Order

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



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

#### STEP 1

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

#### Note

- Various search criteria is provided as below:
  - a) Dispense Location
  - b) Patient Name
  - c) Order Status
  - d) Patient MRN
  - e) Appointment Date From
  - f) Appointment Date To
  - g) Type of Scan
  - h) 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 3.3.2-1

| PRESCRIPTION <span style="float: right;">Verify</span> |   |  |                  |         |                  |         |              |
|--|---|--|------------------|---------|------------------|---------|--------------|
| 1 / 1  | Drug Name                                   | Order Details  | Drug Counselling | Dosage  | Reserve Activity | Remarks | Status       |
| 4  | Techne-99m Macroaggregated Albumin (Tc-99m) | App.Date/Time: 24/05/2016 14:15PM Scan/Therapy: Lung V/Q Perfusion | Details          | 115 MBq | 0 MBq            | Remarks | Ordered (PA) |
|  | Intervention                                |  |                  |         |                  |         |              |
|  | Hold  |  |                  |         |                  |         |              |

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

**STEP 4**

Right click in the  button to select either **Intervention** or **Hold Order** as per Figure 3.3.2-2

**STEP 5**

Click on the  button to hold order

**HOLD ORDER - PHARMACIST REMARKS** 7

History
Hold
Refresh
Close

Hold Reason 6  \*

Hold Remarks

**Figure 3.3.2-3 Hold Order – Pharmacist Remarks**

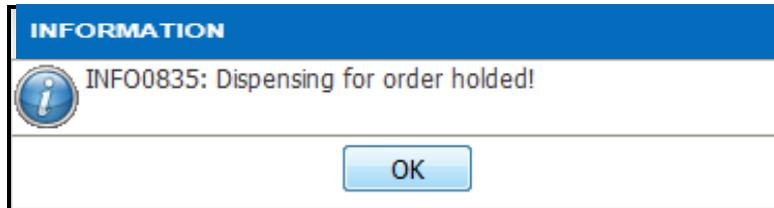
**STEP 6**

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

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

### STEP 7

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

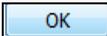


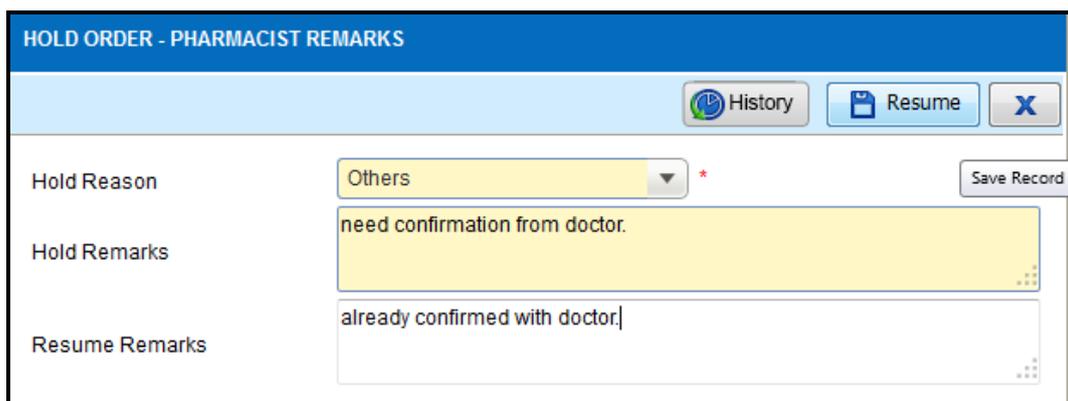
**Figure 3.3.2-4 Information Alert Message**



**Figure 3.3.2-5 Radiopharmaceuticals Verification**

### Note

- Click on the  button to hold order.
- The  button is to cancel the entered data.
- Click on the  button to close Hold Order – Pharmacist Remarks screen.
- Status will change to Ordered Hold.
- Click on the  link to resume order as per Figure 3.3.2-5.



**Figure 3.3.2-6 Hold Order – Pharmacist Remarks**

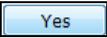
**Note**

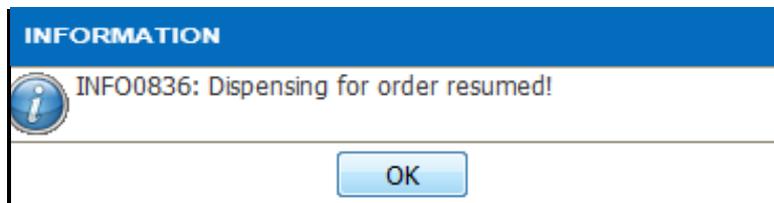
- Enter reason at **Resume Remarks** field as per Figure 3.3.2-6.
- Click on the  button to resume order.



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

**Note**

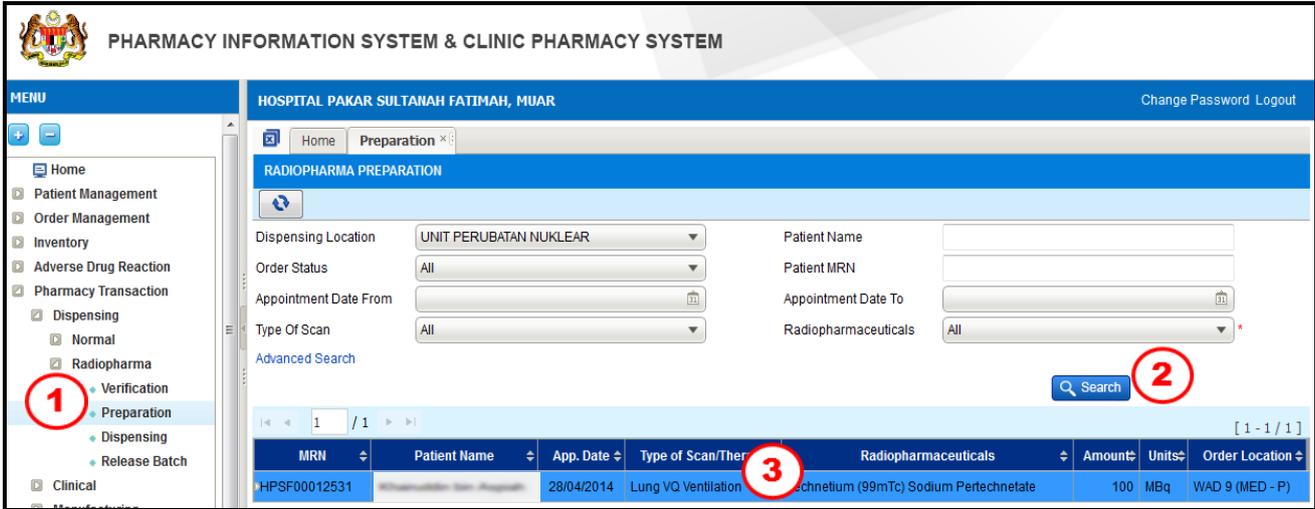
- Click on the  button to resume order.



**Figure 3.3.2-8 Information Alert Message**

### 3.4 Radiopharmaceuticals Preparation

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



**Figure 3.4-1 Radiopharmaceuticals Preparation Listing Page**

**STEP 1**

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

**Note**

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

**STEP 2**

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

**STEP 3**

Double click on the selected patient record and system will be displayed Radiopharmaceuticals Preparation screen as per Figure 3.4-1

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

| 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**

4

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

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

| 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 08:03 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 3.4-3.
- Please refer sample of data at Item Batch Details screen as per Figure 3.4-4.

BATCH DETAILS Edit Details

[ 1 - 1 / 1 ]

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

**Figure 3.4-4 Edit Batch Details**

**STEP 5**

Click on Edit Details quantity to allocate quantity

**RADIOPHARMACEUTICALS VERIFICATION**

Date: 28/01/2016    Receipt No: RI16018636

[ 1 - 1 / 1 ]

| Radiopharmaceuticals          | Received Qty | Received SKU | Batch No. | Expiry Date | Status   |
|-------------------------------|--------------|--------------|-----------|-------------|----------|
| Sodium Pertechnetate (Tc-99m) | 200          | vial         | 4SRP99    | 02/01/2021  | Accepted |

[Confirm](#) [Refresh](#)

**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      | 2012/2016 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:

Survey at 1 Meter Distance:

Wipe Test:

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

**Figure 3.4-5 Label Packaging Type Guidelines**

**Figure 3.4-6 Batch Details**

**STEP 7**

Click on  button to finalize batch details as per figure 3.4-6

**STEP 8**

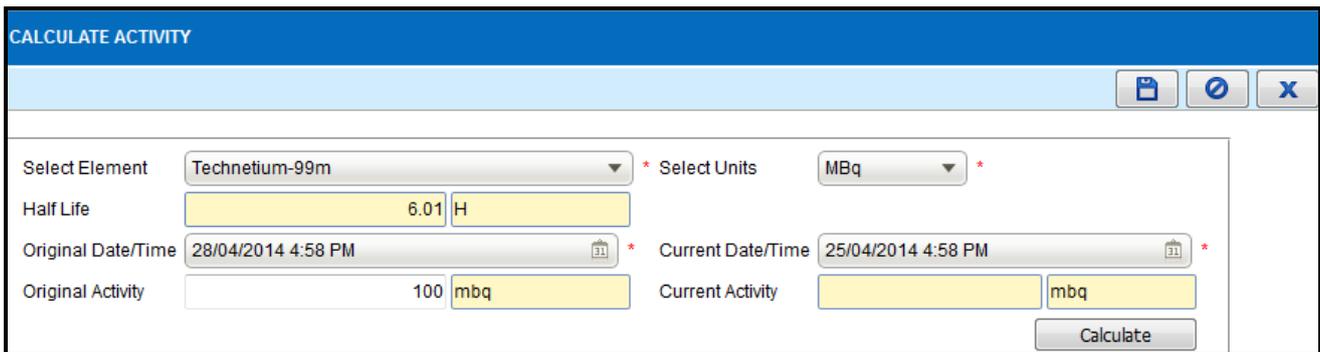
Click on  button to close Item Batch Details screen

**Figure 3.4-5 Radiopharmaceuticals Preparation**

**Note**

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

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



**CALCULATE ACTIVITY**

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

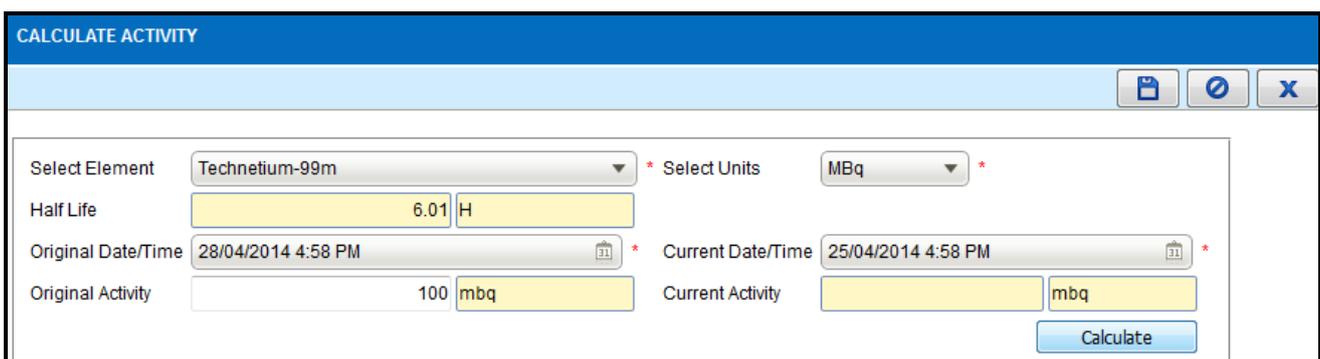
Half Life: 6.01 H

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

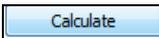
Original Date/Time: 28/04/2014 4:58 PM \* Current Date/Time: 25/04/2014 4:58 PM \*

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.

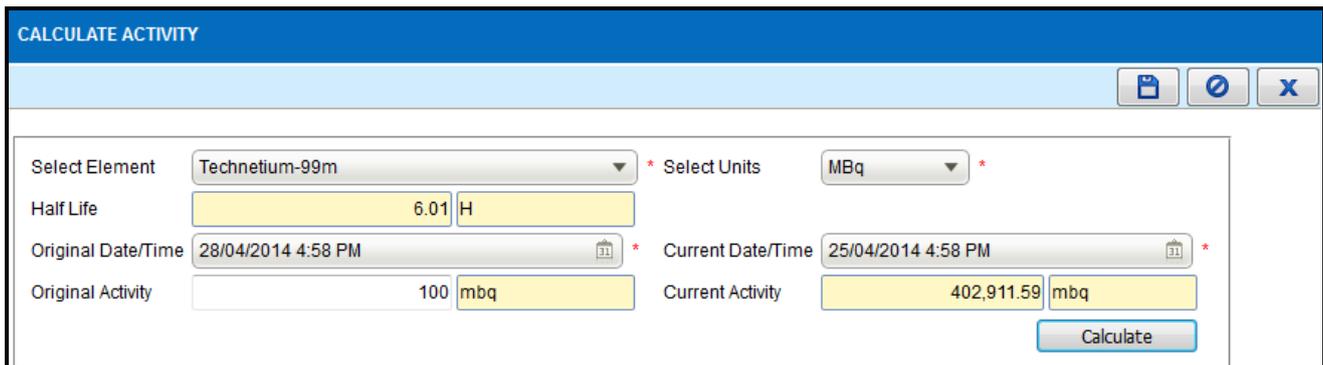


Figure 3.4-8 Calculate Activity

**Note**

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

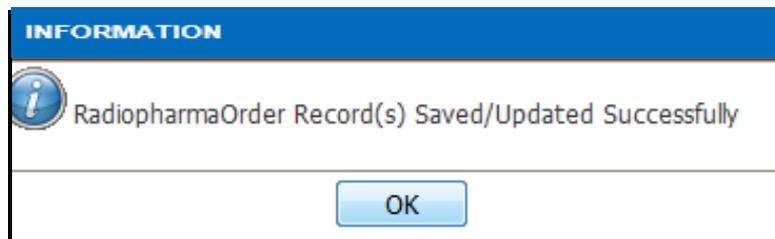


Figure 3.4-9 Save Record Alert Message

**Note**

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

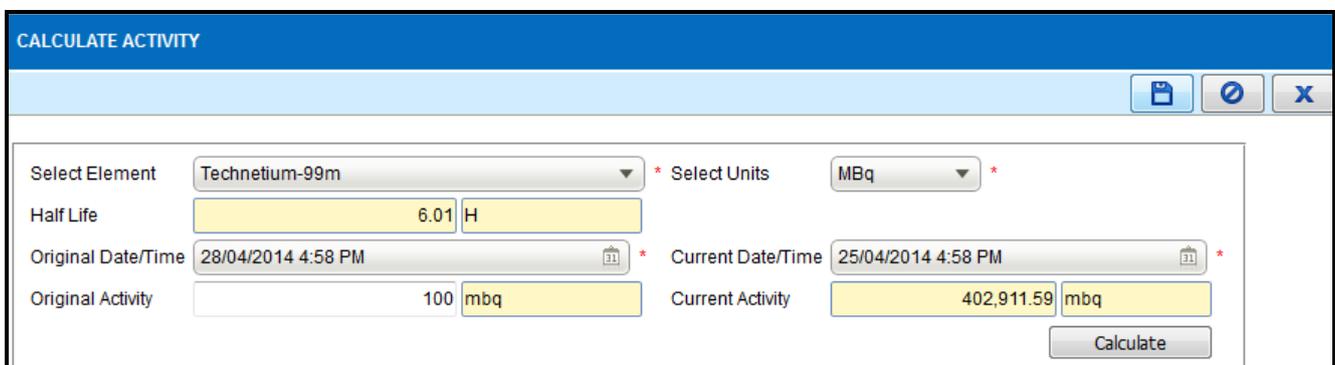


Figure 3.4-10 Calculate Activity

**Note**

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

| 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 | <input type="checkbox"/> Details | 15 mCi | 25 mCi (05/05/2016 11:29 AM) | Remarks | Verified |  |

**Figure 3.4-11 Radiopharmaceuticals Preparation**

**Note**

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

| DRUG LABEL           |  |   |   |
|----------------------|--|---|---|
| Radiopharmaceuticals |  | Technetium (99mTc) Sodium Pertechnetate |   |
| Batch No.            |  | Expiry Date                             | <input type="text"/>                          |
| Radioactivity        | <input type="text" value="80"/> MBq              | Administered By                         | <input type="text" value="Pharmacist Radio"/> |
| Measured Date/Time   | <input type="text" value="25/04/2014 04:54 PM"/> |   |   |

**Figure 3.4-12 Drug Label**

**Note**

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

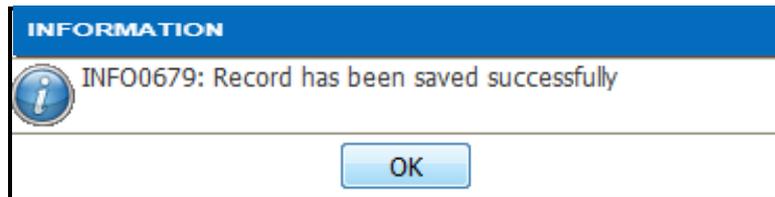
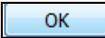


Figure 3.4-13 Alert Message

**Note**

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

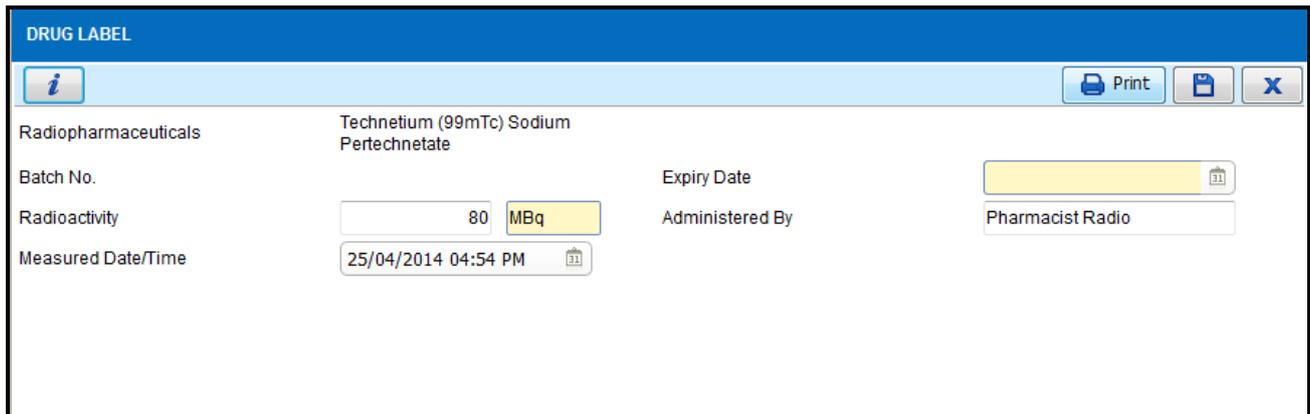


Figure 3.4-14 Drug Label

**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.

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

---

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

Figure 3.4-15 Sample Radiopharmaceuticals Label

**Note**

Sample of Radiopharmaceuticals Label as per Figure 3.4-15.

**DRUG LABEL**


Print  

|                      |   |                 |  |
|----------------------|---|-----------------|--|
| Radiopharmaceuticals | Technetium (99mTc) Sodium Pertechnetate                               |                 |  |
| Batch No.            |   | Expiry Date     | <input style="width: 100%;" type="text"/>                          |
| Radioactivity        | <input style="width: 50%;" type="text" value="80"/> MBq               | Administered By | <input style="width: 100%;" type="text" value="Pharmacist Radio"/> |
| Measured Date/Time   | <input style="width: 100%;" type="text" value="25/04/2014 04:54 PM"/> |                 |  |

Figure 3.4-16 Drug Label

**Note**

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

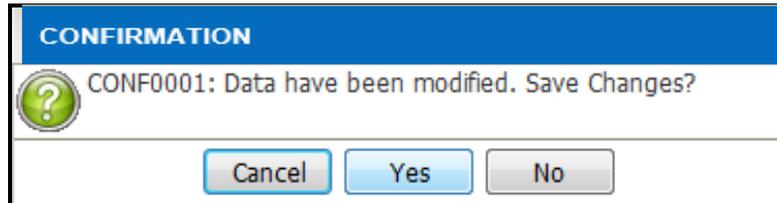


Figure 3.4-17 Save Record Alert Message

**Note**

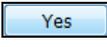
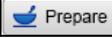
Click on the  button to save record as per Figure 3.4-17.



Figure 3.4-18 Radiopharmaceuticals Preparation

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

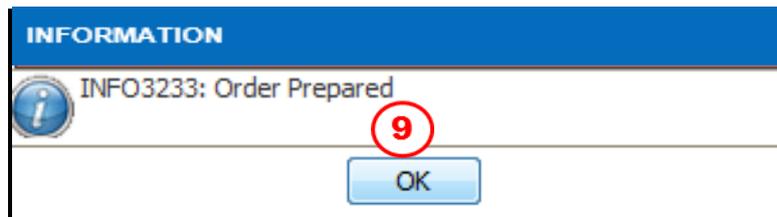
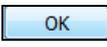


Figure 3.4-19 Ordered Prepared Alert Message

**STEP 9**

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

**Note**

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

### 3.5 Radiopharmaceuticals Dispensing

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

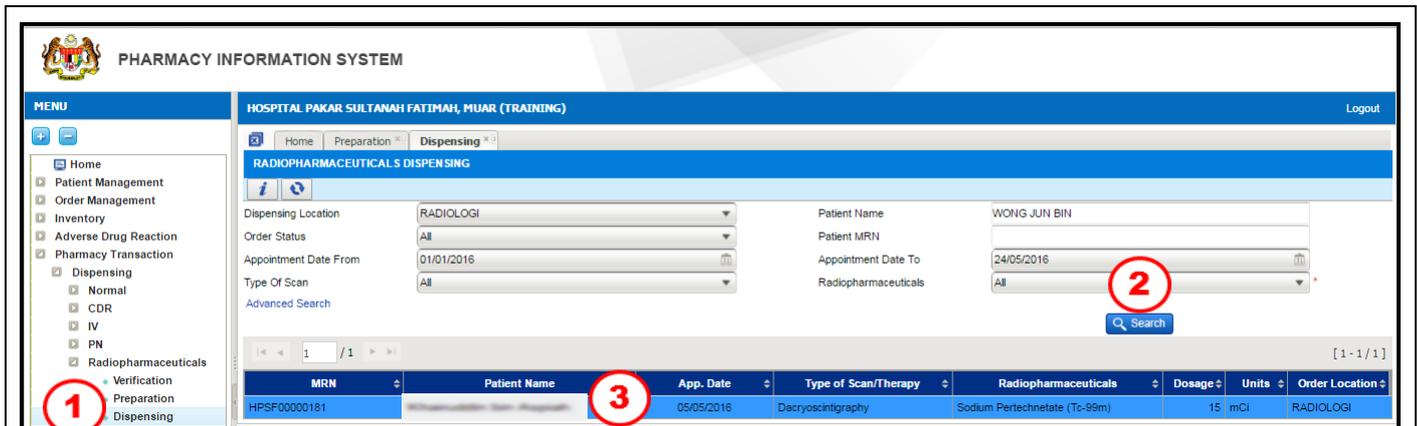


Figure 3.5-1 Radiopharmaceuticals Dispensing Listing Page

#### STEP 1

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

#### Note

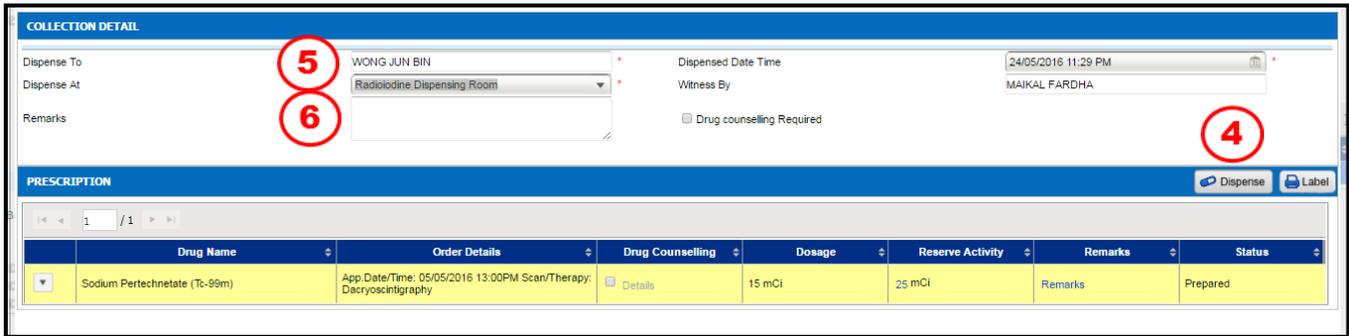
- Various search criteria is provided as below: Dispense Location
  - a) Patient Name
  - b) Order Status
  - c) Patient MRN
  - d) Appoinment Date From
  - e) Appoinment Date To
  - f) Type of Scan
  - g) Radiopharmaceuticals
- Click on the [Advanced Search](#) hyperlink for advance search.

#### STEP 2

Click on the  button and system will be displayed related order

#### STEP 3

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



**Figure 3.5-2 Radiopharmaceuticals**

**STEP 4**

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

**Note**

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

**STEP 5**

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

- Administration Room
- Radioiodine Dispensing Room

**STEP 6**

Enter **Remarks** field

**Note**

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



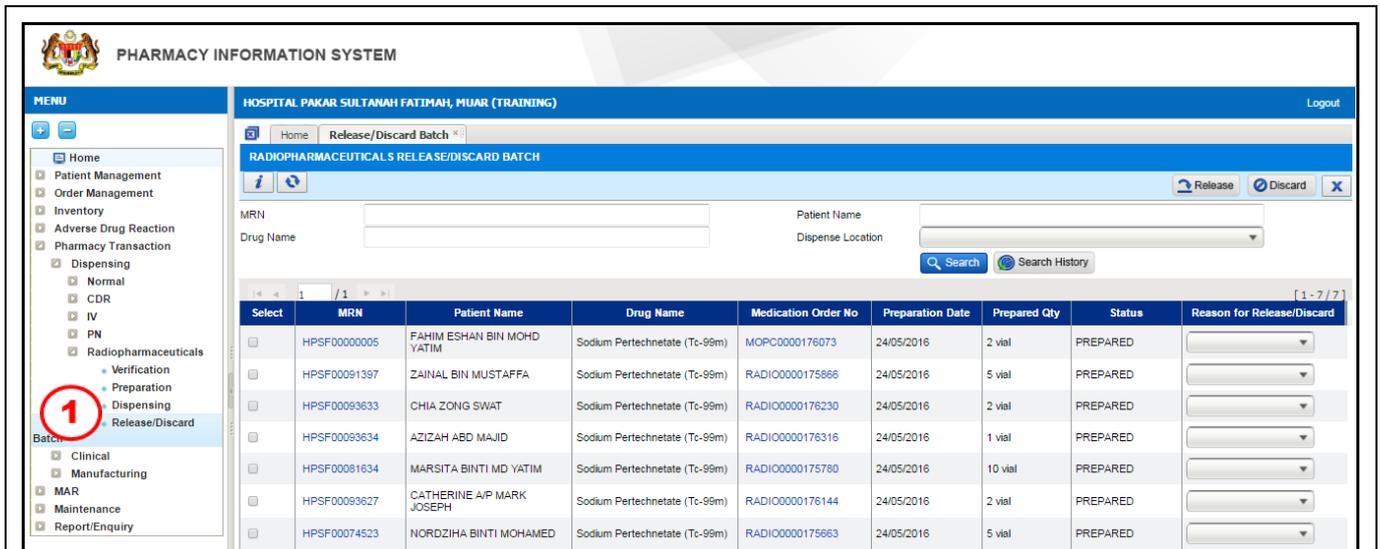
**Figure 3.5-3 Save Order Alert Message**

**STEP 7**

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

### 3.6 Release Batch

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



**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING) Logout

Home | Release/Discard Batch \* | Release | Discard | X

MRN:  Patient Name:   
 Drug Name:  Dispense Location:

Search Search History

| Select                   | MRN          | Patient Name               | Drug Name                     | Medication Order No | Preparation Date | Prepared Qty | Status   | Reason for Release/Discard |
|--------------------------|--------------|----------------------------|-------------------------------|---------------------|------------------|--------------|----------|----------------------------|
| <input type="checkbox"/> | HPSF00000005 | FAHIM ESHAN BIN MOHD YATIM | Sodium Pertechnetate (Tc-99m) | MOPC0000176073      | 24/05/2016       | 2 vial       | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00091397 | ZAINAL BIN MUSTAFFA        | Sodium Pertechnetate (Tc-99m) | RADIO0000175866     | 24/05/2016       | 5 vial       | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00093633 | CHIA ZONG SWAT             | Sodium Pertechnetate (Tc-99m) | RADIO0000176230     | 24/05/2016       | 2 vial       | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00093634 | AZIZAH ABD MAJID           | Sodium Pertechnetate (Tc-99m) | RADIO0000176316     | 24/05/2016       | 1 vial       | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00081634 | MARSITA BINTI MD YATIM     | Sodium Pertechnetate (Tc-99m) | RADIO0000175780     | 24/05/2016       | 10 vial      | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00093627 | CATHERINE A/P MARK JOSEPH  | Sodium Pertechnetate (Tc-99m) | RADIO0000176144     | 24/05/2016       | 2 vial       | PREPARED | <input type="text"/>       |
| <input type="checkbox"/> | HPSF00074523 | NORDZIHA BINTI MOHAMED     | Sodium Pertechnetate (Tc-99m) | RADIO0000175663     | 24/05/2016       | 5 vial       | PREPARED | <input type="text"/>       |

**Figure 3.6-1 Radiopharmaceuticals Release Batch Listing Page**

#### STEP 1

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

#### Note

Various search criteria is provided as below:

- a) MRN
- b) Patient Name/Drug Name
- c) Dispense Location

**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING) Logout

Home | Release/Discard Batch \* | Release Discard X

**RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH**

MRN:  Patient Name:   
 Drug Name:  Dispense Location:

| Select                              | MRN          | Patient Name               | Drug Name                     | Medication Order No | Preparation Date | Prepared Qty | Status   | Reason for Release/Discard |
|-------------------------------------|--------------|----------------------------|-------------------------------|---------------------|------------------|--------------|----------|----------------------------|
| <input checked="" type="checkbox"/> | HPSF00000005 | FAHIM ESHAN BIN MOHD YATIM | Sodium Pertechnetate (Tc-99m) | MOPC0000176073      | 24/05/2016       | 2 vial       | PREPARED | Change of Regimen          |
| <input type="checkbox"/>            | HPSF00091397 | ZAINAL BIN MUSTAFFA        | Sodium Pertechnetate (Tc-99m) | RADIO0000175866     | 24/05/2016       | 5 vial       | PREPARED | Faulty Product             |
| <input type="checkbox"/>            | HPSF00093633 | CHIA ZONG SWAT             | Sodium Pertechnetate (Tc-99m) | RADIO0000176230     | 24/05/2016       | 2 vial       | PREPARED | Intervention               |
| <input type="checkbox"/>            | HPSF00093634 | AZIZAH ABD MAJID           | Sodium Pertechnetate (Tc-99m) | RADIO0000176316     | 24/05/2016       | 1 vial       | PREPARED | Uncollected                |

**Figure 3.6-2 Radiopharmaceuticals Release Batch**

**STEP 2**

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

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

**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING) Logout

Home | Release/Discard Batch \* | Release Discard X

**RADIOPHARMACEUTICALS RELEASE/DISCARD BATCH**

MRN:  Patient Name:   
 Drug Name:  Dispense Location:

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

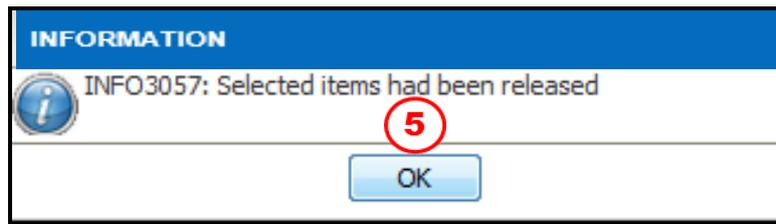
**Figure 3.6-3 Radiopharmaceuticals Release Batch**

**STEP 3**

Check the  **Select** checkbox

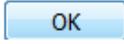
**STEP 4**

Click on the  button to release batch and  button to discard



**Figure 3.6-4 Information Alert Message**

**STEP 5**

Click on the  button to release selected items

**Note**

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

### 3.7 Radiopharmaceuticals Manufacturing

#### 3.7.1 Generator Elution

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

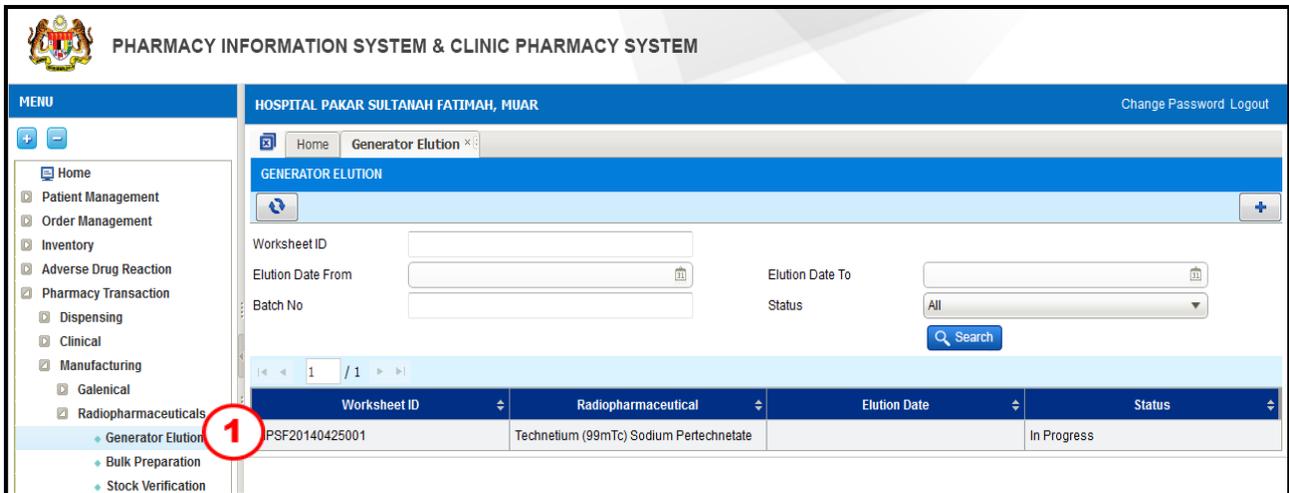


Figure 3.7.1-1 Generator Elution Listing Page

#### STEP 1

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

#### Note

- Various search criteria is provided as below:
  - a) Worksheet ID
  - b) Date From
  - c) Date To
  - d) Batch No
  - e) Status
- Click on the  button and system will display related record.

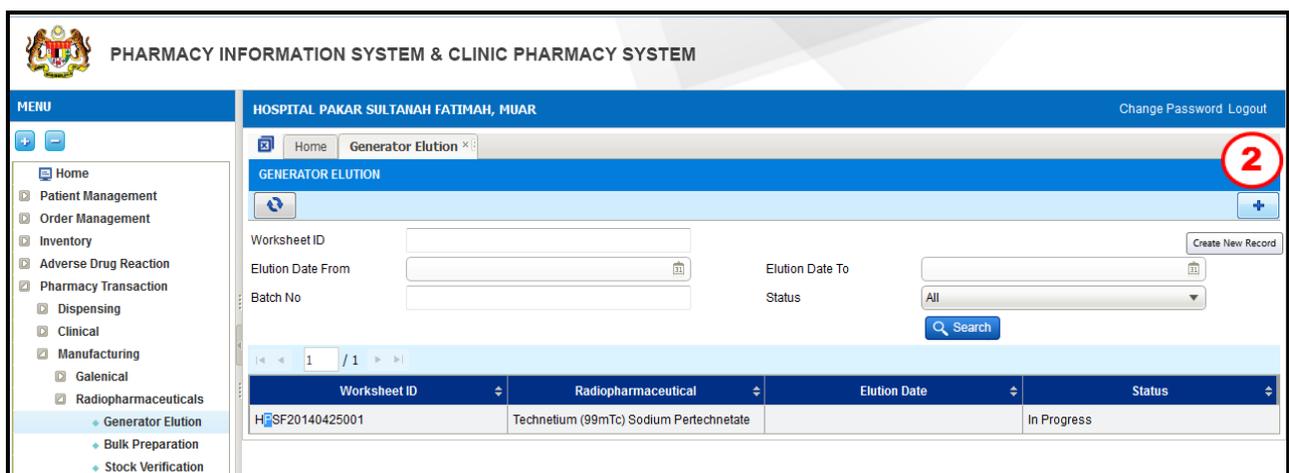


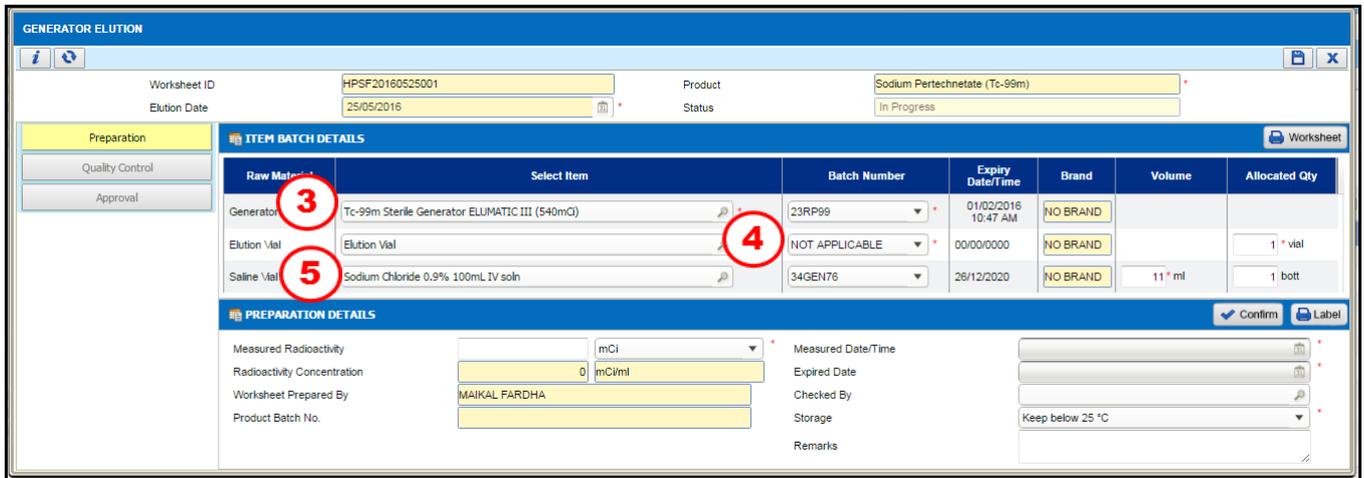
Figure 3.7.1-2 Generator Elution Listing Page

## STEP 2

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

### Note

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



**GENERATOR ELUTION**

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

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

**PREPARATION DETAILS**

Measured Radioactivity: [ ] mCi | Measured Date/Time: [ ]  
 Radioactivity Concentration: 0 mCi/ml | Expired Date: [ ]  
 Worksheet Prepared By: MAIKAL FARDHA | Checked By: [ ]  
 Product Batch No.: [ ] | Storage: Keep below 25 °C  
 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

| 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 3.7.1-4 Generator Elution

### STEP 6

Click on the button to save record

### STEP 7

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

#### Note

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

### STEP 8

Enter **Measured Date/Time** field

GENERATOR ELUTION

Worksheet ID: HPSF20160525001

Product: Sodium Pertechnetate (Tc-99m)

Elution Date: 25/05/2016

Status: In Progress

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) | 23RP99         | 01/02/2016 10:47 AM | NO BRAND |         |               |
| Elution Vial | Elution Vial                                   | NOT APPLICABLE | 00/00/0000          | NO BRAND |         | 1 vial        |
| Saline Vial  | Sodium Chloride 0.9% 100mL IV soln             | 34GEN76        | 26/12/2020          | NO BRAND | 11 * ml | 1 bott        |

PREPARATION DETAILS

Confirm

Lab

Measured Radioactivity: 110 mCi

Radioactivity Concentration: 10 mCi/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Measured Date/Time: 25/05/2016 12:24 AM

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

Checked By: Inventory

Storage: Keep below 25 °C

Remarks:

**Figure 3.7.1-5 Generator Elution**

**STEP 9**

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

**Note**

Enter **Remarks** if applicable.

CONFIRMATION

CONF0089: Do you want to generate/print worksheet ?

Cancel

Yes

No

**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

| <b>RADIOPHARMACEUTICALS WORKSHEET</b>                       |                               |                                      |                            |           |                           |
|---|-------------------------------|--------------------------------------|----------------------------|-----------|---------------------------|
| MINISTRY OF HEALTH  |                               |                                      |                            |           |                           |
| Hospital Pakar Sultanah Fatimah, Muar (Training)            |                               |                                      |                            |           |                           |
| Generator Elution records for Sodium Pertechnetate (Tc-99m) |                               |                                      |                            |           |                           |
| Eluate Batch No:  |                               |                                      |                            |           |                           |
| Worksheet ID: HPSF20160524001                               |                               |                                      |                            |           |                           |
| Preparation of Sodium Pertechnetate (Tc-99m) Eluate         |                               |                                      |                            |           |                           |
| Date  | 24/05/2016                    |                                      | Remarks :                  |           |                           |
| Generator BN/Expiry Date                                    | Z3R.P56 / 01/02/2016 10:47 AM |                                      |                            |           |                           |
| Buflon Vial BN/Expiry Date                                  | NO T APPLICABLE /             |                                      |                            |           |                           |
| Saline Vial BN/Expiry Date                                  | 34GEN76 / 25/12/2020 00:00 AM |                                      |                            |           |                           |
| Volume  | 1 ml                          |                                      | Vial checked Prepared By : |           |                           |
| Buflon BN   |                               |                                      |                            |           |                           |
| Measured Activity   |                               |                                      | Preparation Done By :      |           |                           |
| Measured Date/Time  |                               |                                      |                            |           |                           |
| Radioactivity Concentration                                 | 0 mCi/ml                      |                                      | Signature/Date/Time        |           |                           |
|   |                               |                                      |                            |           |                           |
| Quality Control of Eluate                                   |                               |                                      |                            |           |                           |
| Measure Mo-99 Activity                                      |                               | Limit                                |                            | Pass/Fail | Quality Control Done By : |
| Quality Control Test  | Mo-99 Breakthrough            | <0.15 µCi of Mo-99 per mCi of Tc-99m |                            |           |                           |
|   | Eluate pH                     | 4.0-8.0                              |                            |           |                           |
|   | Alumina Breakthrough          | Intensity less than Standard         |                            |           |                           |
| Approval of Eluate  |                               |                                      |                            |           |                           |
| Checked for approval :                                      |                               |                                      | Approved By :              |           | Label                     |
| Preparation done accordingly:                               |                               |                                      |                            |           |                           |
| QC done accordingly and pass                                |                               |                                      |                            |           |                           |
| Label done accordingly:                                     |                               |                                      |                            |           |                           |
| Remark  |                               |                                      |                            |           |                           |

**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

**ITEM BATCH DETAILS**

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

**PREPARATION DETAILS**

Measured Radioactivity: 111 MBq      Measured Date/Time: 06/01/2016 3:08 PM  
 Radioactivity Concentration: 1 MBq/ml      Expired Date: 31/01/2016 3:08 PM  
 Worksheet Prepared By: Pharmacist Radio      Checked By:   
 Product Batch No.: 90.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.

**GENERATOR ELUTION**

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

**ITEM BATCH DETAILS**

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

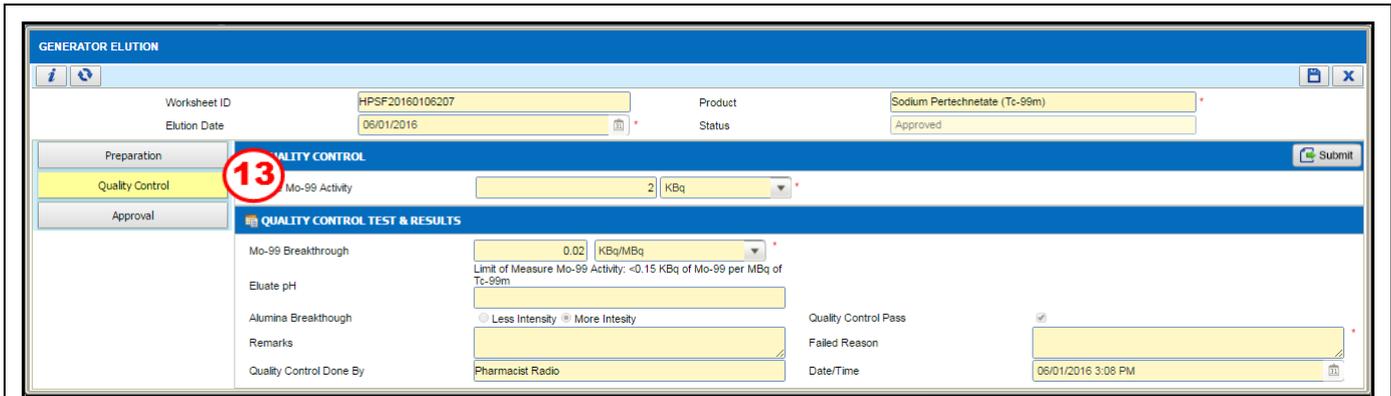
**PREPARATION DETAILS**

Measured Radioactivity: 111 MBq      Measured Date/Time: 06/01/2016 3:08 PM  
 Radioactivity Concentration: 1 MBq/ml      Expired Date: 31/01/2016 3:08 PM  
 Worksheet Prepared By: Pharmacist Radio      Checked By:   
 Product Batch No.: 90.TC160106      Storage: Keep below 25 °C  
 Remarks:

**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

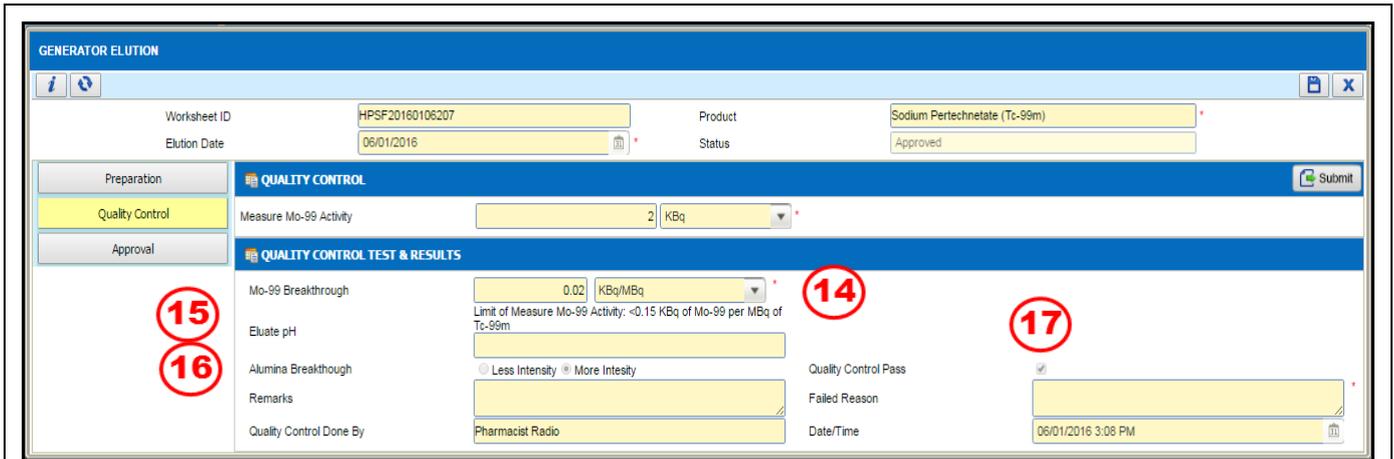


Figure 3.7.1-11 Generator Elution

**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

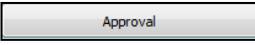
Figure 3.7.1-13 Generator Elution

**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.

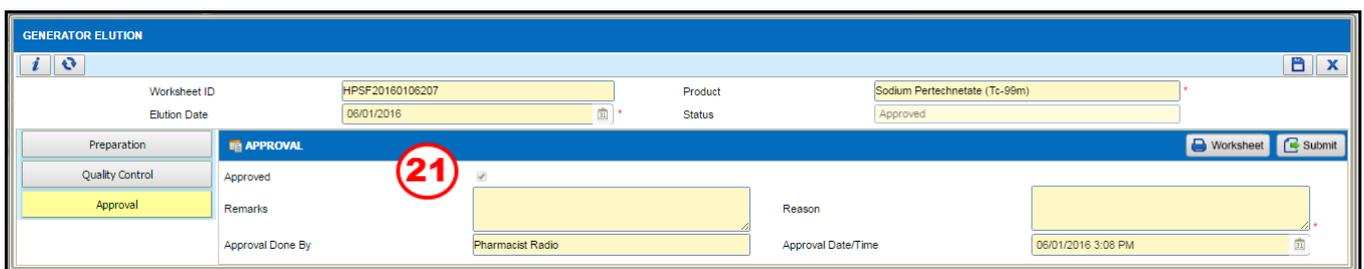


Figure 3.7.1-14 Generator Elution

## STEP 21

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

### Note

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

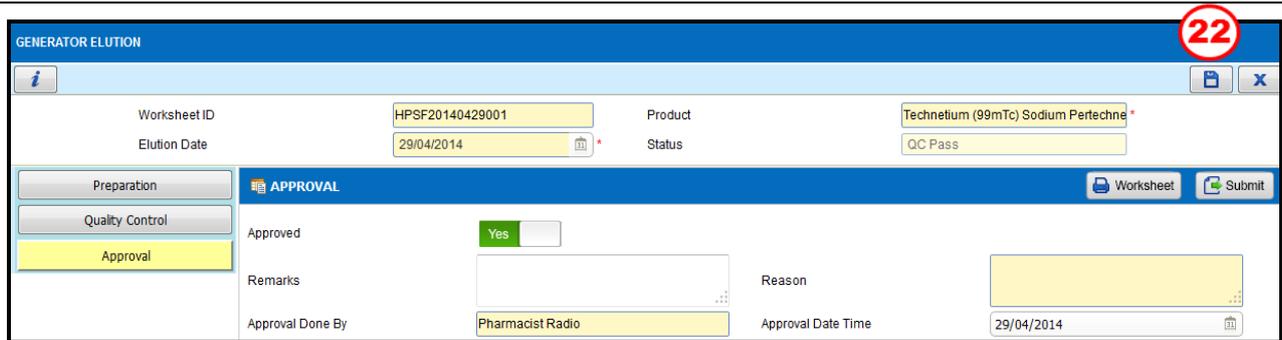


Figure 3.7.1-15 Generator Elution

STEP 22

Click on the  button to submit the approval details

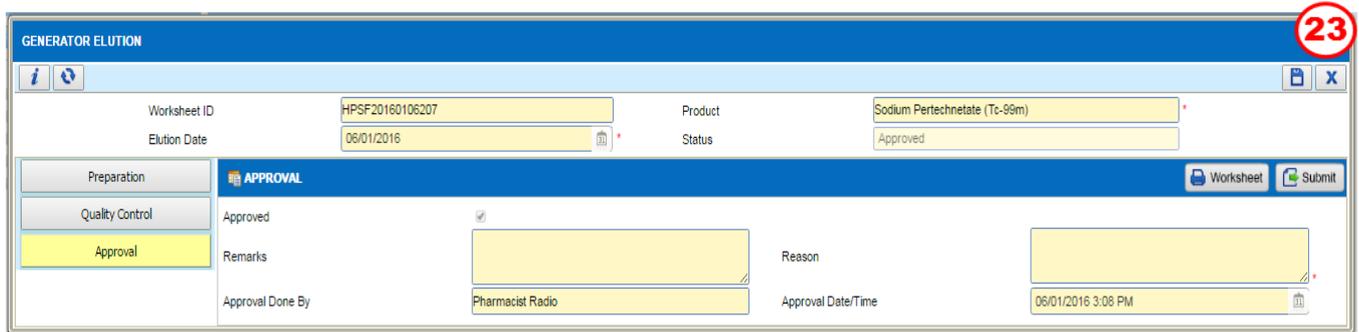


Figure 3.7.1-16 Generator Elution

**Note**

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

STEP 23

Click on the  button to close generator elution screen

### 3.7.2 Kit Preparation

**PHARMACY INFORMATION SYSTEM**

HOSPITAL PAKAR SULTANAH FATIMAH, MUAR (TRAINING) Logout

Home | Release/Discard Batch | Generator Elution | **Kit Preparation**

**KIT PREPARATION**

Worksheet ID:  Product:

Created Date From: 01/12/2015 Created Date To: 25/05/2016

Batch No:  Status: All

Request Type: All Requesting Facility:

[ 1 - 10 / 90 ]

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

**Figure 3.7.2-1 Kit Preparation Listing Page**

**STEP 1**

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

**Note**

- Various search criteria is provided as below:
  - Worksheet ID
  - Product
  - Ordered Date From
  - Ordered Date To
  - Batch No
  - Status
  - Request Type/Requesting Facility
- Click on the  button and system will be displayed related record.

**STEP 2**

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

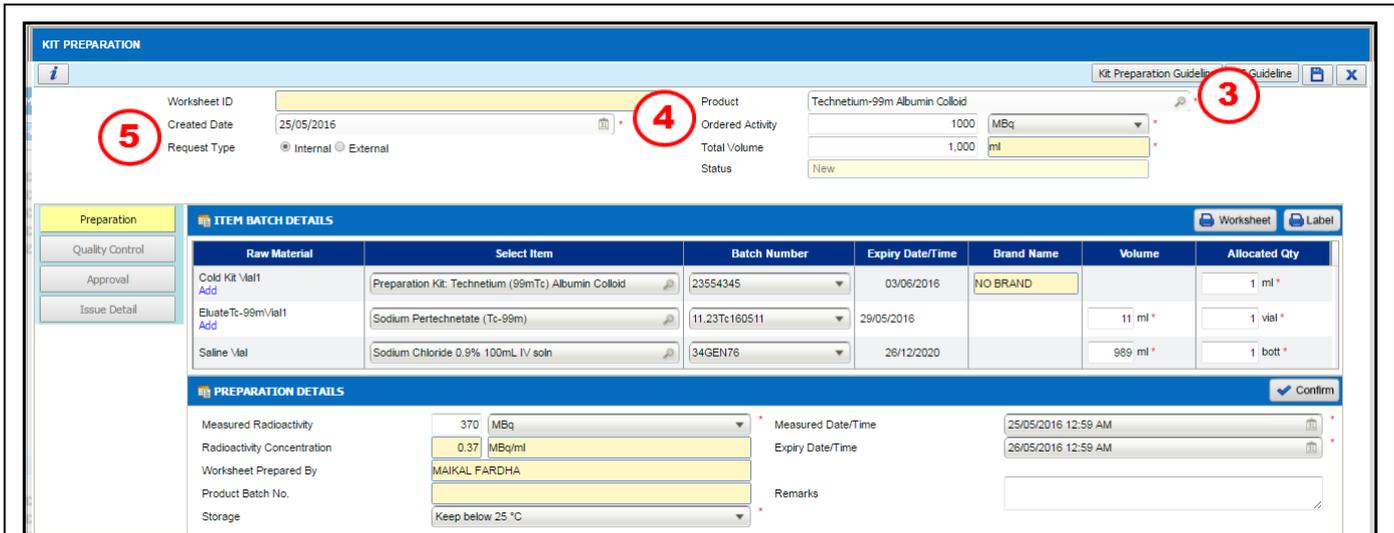


Figure 3.7.2-2 Kit Preparation

### STEP 3

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

### Note

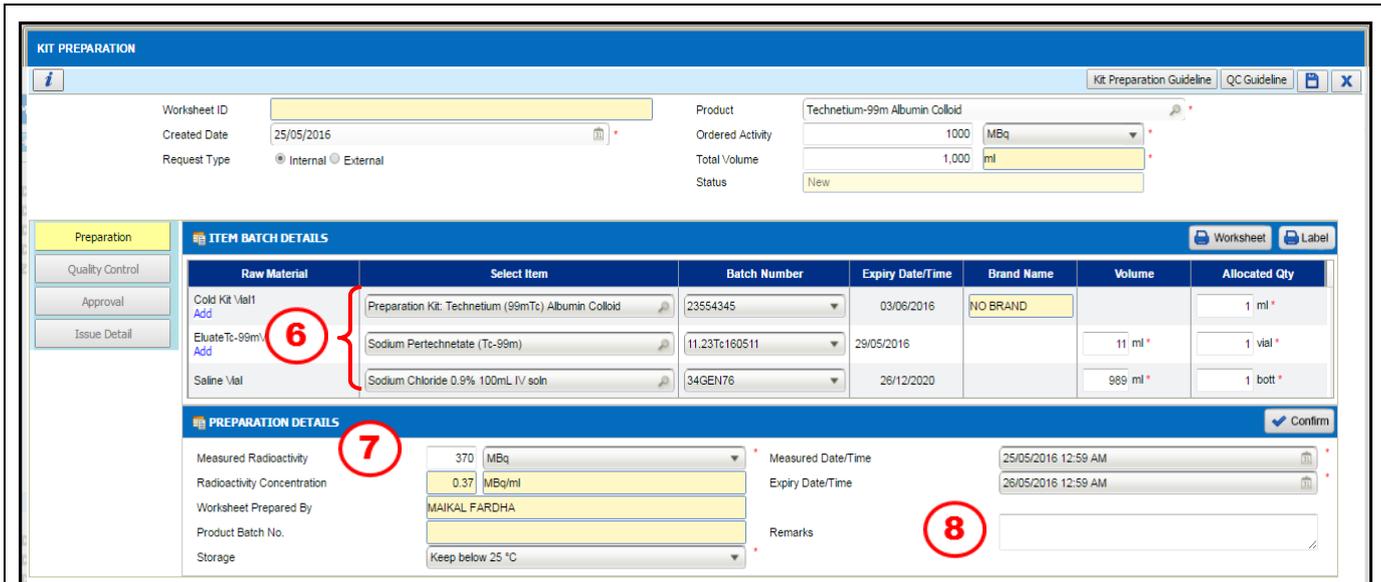
- The **Created Date** field will automatically default to current date by system.
- The **Request Type** will automatically default to **Internal** radiobutton.

### STEP 4

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

### STEP 5

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



**Figure 3.7.2-4 Kit Preparation**

**STEP 6**

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

**Note**

- **Batch Number, Expiry Date and Brand Name** will be automatically displayed after done the selection for **Item** field.
- **Enter Volume and Allocated Qty** field.
- **Cold Kit Vial1, Eluate Tc-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 11

Worksheet ID:

Created Date: 25/05/2016

Request Type:  Internal  External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: New

Preparation

ITEM BATCH DETAILS

Worksheet

Label

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

PREPARATION DETAILS

Confirm

Measured Radioactivity: 370 MBq

Radioactivity Concentration: 0.37 MBq/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.:

Storage: 9 Keep below 25 °C

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

Expiry Date/Time: 10 26/05/2016 12:59 AM

Remarks:

**Figure 3.7.2-5 Kit Preparation**

**Note**

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

**STEP 8**

Enter **Remarks** if applicable

**STEP 9**

Select **Storage** from drop down box:

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

**Note**

- **Storage** is mandatory field.

**STEP 10**

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

**STEP 11**

Click on the  button to save record

**Figure 3.7.2-6 Kit Preparation**

**Note**

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

- The **Worksheet** button will be activated after saving.
- The **Label** button will be activated after generate worksheet.

**STEP 12**

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

**Figure 3.7.2-7 Bulk Preparation**

**STEP 13**

Click on the **Yes** button to generate/print worksheet and worksheet will be displayed as per Figure 3.7.2-7

| <b>RADIOPHARMACEUTICALS WORKSHEET</b>  |                            |                   |                 |   |  |
|--|----------------------------|-------------------|-----------------|---|--|
| MINISTRY OF HEALTH<br>Hospital Pakar Sultanah Fatimah, Muar (Training)                                   |                            |                   |                 |   |  |
| Kit Preparation records for Technetium-99m Albumin Colloid<br>Batch No:<br>Worksheet ID: HPSF20160525002 |                            |                   |                 |   |  |
| <b>Preparation of Technetium-99m Albumin Colloid</b>   |                            |                   |                 | <b>Cold Kit Brand/Manufacturer Name:</b>  |  |
| Date   | 25/05/2016                 | Expected Activity | 1000 MBq        | NO BRAND - Manufacturer Unknown   |  |
| Raw Material   | Batch Number/Expiry        |                   | Volume          |   |  |
| Cold Kit Vial  | 23554345 - 03/06/2016      |                   | Total : 1000 ml | Worksheet Prepared By :<br>MAIKAL FARDHA<br><br>Worksheet Checked By :<br><br>Preparation Done By : |  |
| Eluate Tc-99m Vial   | 11.23Tc160511 - 29/05/2016 |                   | 11 ml           |   |  |
| Saline Vial  | 34GEN76 - 26/12/2020       |                   | 989 ml          |   |  |
| Measured Activity  |                            |                   |                 |   |  |
| Measured Date/Time   |                            |                   |                 |   |  |
| Radioactivity Concentration  |                            |                   |                 |   |  |
| <b>Quality Control of Technetium-99m Albumin Colloid</b>   |                            |                   |                 | <b>Label</b>  |  |
| <b>QC Sampling Time</b>  |                            |                   |                 | <b>Remarks :</b>  |  |
|  |                            | Measure           | Actual          | %   |  |
| First Strip  | BG Reading                 | N/A               |                 |   |  |
|  | 1st Portion                | N/A               | N/A             | N/A   |  |
|  | 2nd Portion                | N/A               | N/A             | N/A   |  |
| Second Strip   | BG Reading                 | N/A               |                 |   |  |
|  | 3rd Portion                | N/A               | N/A             | N/A   |  |
|  | 4th Portion                | N/A               | N/A             | N/A   |  |
| Radiochemical Purity   |                            |                   |                 | Pass/Fail   |  |
|  |                            |                   |                 | <b>Approval of Technetium-99m Albumin Colloid</b>   |  |
| <b>Checklist for approval :</b>  |                            |                   |                 |   |  |
| Preparation done   |                            |                   |                 |   |  |
| QC done accordingly and  |                            |                   |                 |   |  |
| Label done accordingly   |                            |                   |                 |   |  |
| Remarks :  |                            |                   |                 |   |  |
| Approved By :  |                            |                   |                 |   |  |

**Figure 3.7.2-8 Sample Worksheet**

**Note**

Sample of worksheet as per Figure 3.7.2-8.

**KIT PREPARATION**

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

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

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

**PREPARATION DETAILS**

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

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

Remarks:

**14** Label

**Figure 3.7.2-9 Bulk Preparation**

**STEP 14**

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

**Note**

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

**DRUG LABEL**

Product Name: Technetium-99m Albumin Colloid  
 Batch Number:  
 Radioactivity: MBq  
 Concentration: MBq/ml  
 Storage: Keep below 25 °C

Expiry Date/Time:  
 Prepared By: MAIKAL FARDHA  
 Checked By: MAIKAL FARDHA  
 Elution Date/Time: 25/05/2016 1:22 AM

**16** **15**

**Figure 3.7.2-10 Drug Label**

**STEP 15**

Click on the button to save edited label

**STEP 16**

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

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

Figure 3.7.2-11 Drug Label

**Note**

Sample of Drug Label as per Figure 3.7.2-11.

**DRUG LABEL**

Print Save 17

|               |                                |             |                   |                    |
|---------------|--------------------------------|-------------|-------------------|--------------------|
| Product Name  | Technetium-99m Albumin Colloid |             | Expiry Date/Time  |                    |
| Batch Number  |                                | Prepared By | MAIKAL FARDHA     |                    |
| Radioactivity | <input type="text" value=""/>  | MBq         | Checked By        | MAIKAL FARDHA      |
| Concentration | <input type="text" value=""/>  | MBq/ml      | Elution Date/Time | 25/05/2016 1:22 AM |
| Storage       | Keep below 25 °C               |             |                   |                    |

**Figure 3.7.2-12 Drug Label**

**STEP 17**

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

**KIT PREPARATION**

Kit Preparation Guideline QC Guideline Save 18

|              |  |                  |                                    |     |
|--------------|--|------------------|------------------------------------|-----|
| Worksheet ID | <input type="text" value="HPSF20160525002"/>                             | Product          | Technetium-99m Albumin Colloid     |     |
| Created Date | <input type="text" value="25/05/2016"/>                                  | Ordered Activity | <input type="text" value="1000"/>  | MBq |
| Request Type | <input checked="" type="radio"/> Internal <input type="radio"/> External | Total Volume     | <input type="text" value="1,000"/> | ml  |
|              |  | Status           | In Progress                        |     |

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

| PREPARATION DETAILS         |                                   |        |                    |  |
|-----------------------------|-----------------------------------|--------|--------------------|--|
| Measured Radioactivity      | <input type="text" value="370"/>  | MBq    | Measured Date/Time | <input type="text" value="25/05/2016 12:59 AM"/> |
| Radioactivity Concentration | <input type="text" value="0.37"/> | MBq/ml | Expiry Date/Time   | <input type="text" value="26/05/2016 12:59 AM"/> |
| Worksheet Prepared By       | MAIKAL FARDHA                     |        |                    |  |
| Product Batch No.           |                                   |        |                    |  |
| Storage                     | Keep below 25 °C                  |        |                    |  |
|                             |                                   |        | Remarks            | <input type="text"/>                             |

Confirm

**Figure 3.7.2-13 Drug Label**

**STEP 18**

Click on the Confirm button to confirm information preparation details

KIT PREPARATION

Worksheet ID: HPSF20160525002

Created Date: 25/05/2016

Request Type:  Internal  External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: Prepared

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: Technetium (99mTc) Albumin Colloid | 23554345      | 03/06/2016       | NO BRAND   |        | 1 ml          |
| Eluate Tc-99m Vial1 | Sodium Pertechnetate (Tc-99m)                       | 11.23Tc160511 | 29/05/2016       |            | 11 ml  | 1 vial        |
| Saline Vial         | Sodium Chloride 0.9% 100mL IV soln                  | 34GEN76       | 26/12/2020       |            | 999 ml | 1 bott        |

PREPARATION DETAILS

Measured Radioactivity: 370 MBq

Radioactivity Concentration: 0.37 MBq/ml

Worksheet Prepared By: MAIKAL FARDHA

Product Batch No.: 11.23Tc160511.162

Storage: Keep below 25 °C

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

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

Remarks:

**Figure 3.7.2-14 Kit Preparation**

**Note**

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

KIT PREPARATION

Worksheet ID: HPSF20160525002

Created Date: 25/05/2016

Request Type:  Internal  External

Product: Technetium-99m Albumin Colloid

Ordered Activity: 1000 MBq

Total Volume: 1,000 ml

Status: Prepared

19
20
Submit

QC Sampling Time: 12:59 AM

Ph Value:

Strip Calculation Method: Manufacturer Recommendation

21
22

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

Quality Control Pass:

Remarks:

Quality Control Done By: MAIKAL FARDHA

Failed Reason:

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

**Figure 3.7.2-15 Bulk Preparation**

### STEP 19

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

### STEP 20

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

### STEP 21

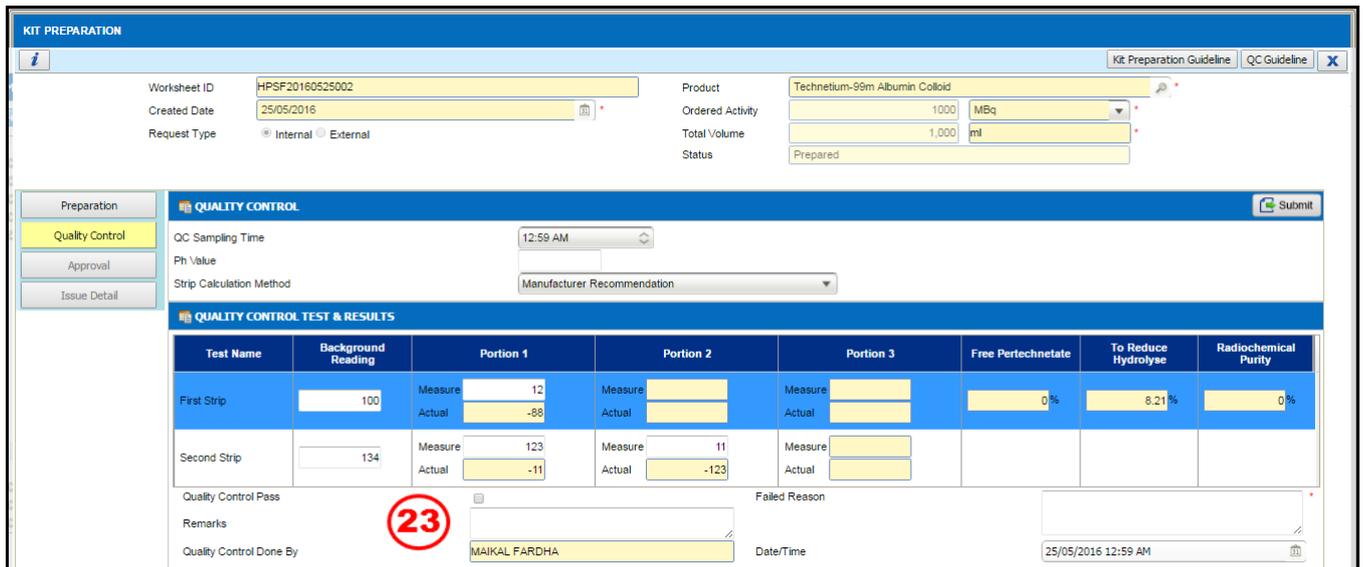
Enter **First Strip, Second Strip, Radiochemical Purify** and **Ph Value** field as per Figure 3.7.2-15

### STEP 22

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

### Note

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



**Kit Preparation**

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

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

**QUALITY CONTROL**

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

**QUALITY CONTROL TEST & RESULTS**

| Test Name    | Background Reading | Portion 1                   | Portion 2   | Portion 3   | Free Pertechnetate | To Reduce Hydrolyse | Radiochemical Purity |
|--------------|--------------------|-----------------------------|---|---|--------------------|---------------------|----------------------|
| First Strip  | 100                | Measure: 12<br>Actual: -88  | Measure: <input type="text"/><br>Actual: <input type="text"/> | Measure: <input type="text"/><br>Actual: <input type="text"/> | 0%                 | 8.21%               | 0%                   |
| Second Strip | 134                | Measure: 123<br>Actual: -11 | Measure: 11<br>Actual: -123                                   | Measure: <input type="text"/><br>Actual: <input type="text"/> |                    |                     |                      |

Quality Control Pass:  **23**   
 Remarks:   
 Quality Control Done By: MAIKAL FARDHA  
 Failed Reason:   
 Date/Time: 25/05/2016 12:59 AM

Figure 3.7.2-16 Bulk Preparation

### STEP 23

Enter **Remarks** if applicable

### Note

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

Kit Preparation Guideline
QC Guideline

---

Worksheet ID: **HPSF20160525002**

Created Date: **25/05/2016**

Request Type:  Internal  External

Product: **Technetium-99m Albumin Colloid**

Ordered Activity: **1000 MBq**

Total Volume: **1,000 ml**

Status: **Prepared**

---

Preparation

Quality Control

Approval

Issue Detail

**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<br>Actual: -88  | Measure: <input type="text"/><br>Actual: <input type="text"/> | Measure: <input type="text"/><br>Actual: <input type="text"/> | 0%                 | 8.21%               | 0%                   |
| Second Strip | 134                | Measure: 123<br>Actual: -11 | Measure: 11<br>Actual: -123                                   | Measure: <input type="text"/><br>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 3.7.2-17 Bulk Preparation**

**Note**

- User is allowed to click on the **Strip Guideline** hyperlink and system will be displayed as per Figure 3.7.2-18.

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |

**Figure 3.7.2-18 Bulk Preparation**

**Note**

Sample of Strip Guideline as per Figure 3.7.2-18.

**KIT PREPARATION**

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

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

**QUALITY CONTROL**

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

**QUALITY CONTROL TEST & RESULTS**

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

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

**Figure 3.7.2-19 Bulk Preparation**

**STEP 24**

Click on the button to submit quality control results

**Note**

- The button will disable after done the submission.
- The button will be activated after the submission.

**KIT PREPARATION**

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

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

**APPROVAL**

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

**Figure 3.7.2-20 Bulk Preparation**

**STEP 25**

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

**Note**

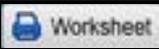
Status will be changed to QC Pass after done the submission.

**Figure 3.7.2-21 Bulk Preparation**

**STEP 26**

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

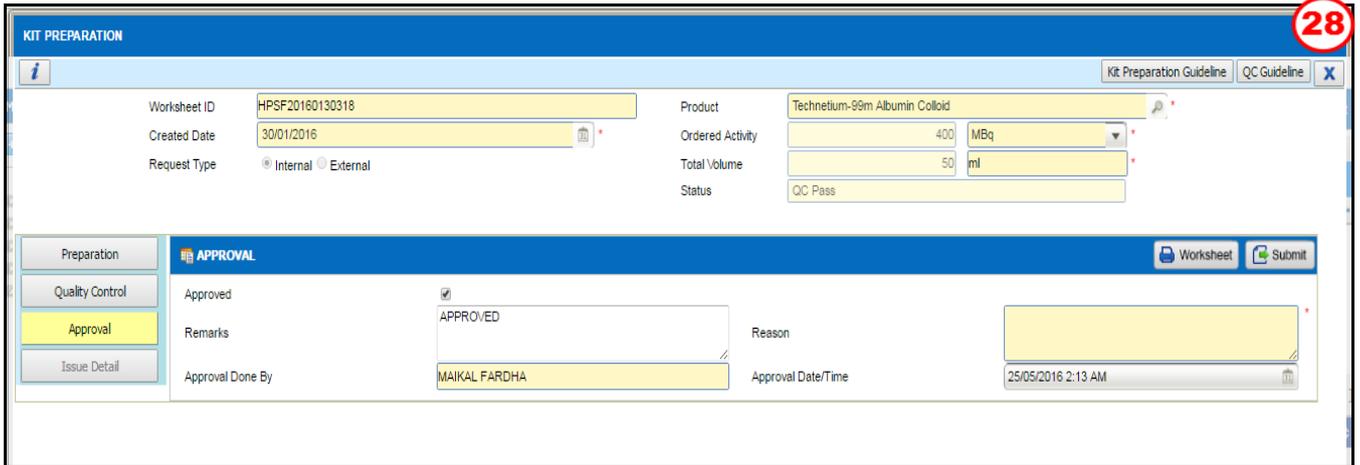
**Note**

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

**Figure 3.7.2-22 Bulk Preparation**

**STEP 27**

Click on the  button to submit the approval details



| KIT PREPARATION  |  |
|------------------|--|
| Worksheet ID     | HPSF20160130318  |
| Created Date     | 30/01/2016   |
| Request Type     | <input checked="" type="radio"/> Internal <input type="radio"/> External |
| Product          | Technetium-99m Albumin Colloid   |
| Ordered Activity | 400 MBq  |
| Total Volume     | 50 ml  |
| Status           | QC Pass  |

| APPROVAL           |                                     |
|--------------------|-------------------------------------|
| Approved           | <input checked="" type="checkbox"/> |
| Remarks            | APPROVED                            |
| Reason             |                                     |
| Approval Done By   | MAIKAL FARDHA                       |
| Approval Date/Time | 25/05/2016 2:13 AM                  |

Figure 3.7.2-23 Bulk Preparation

**Note**

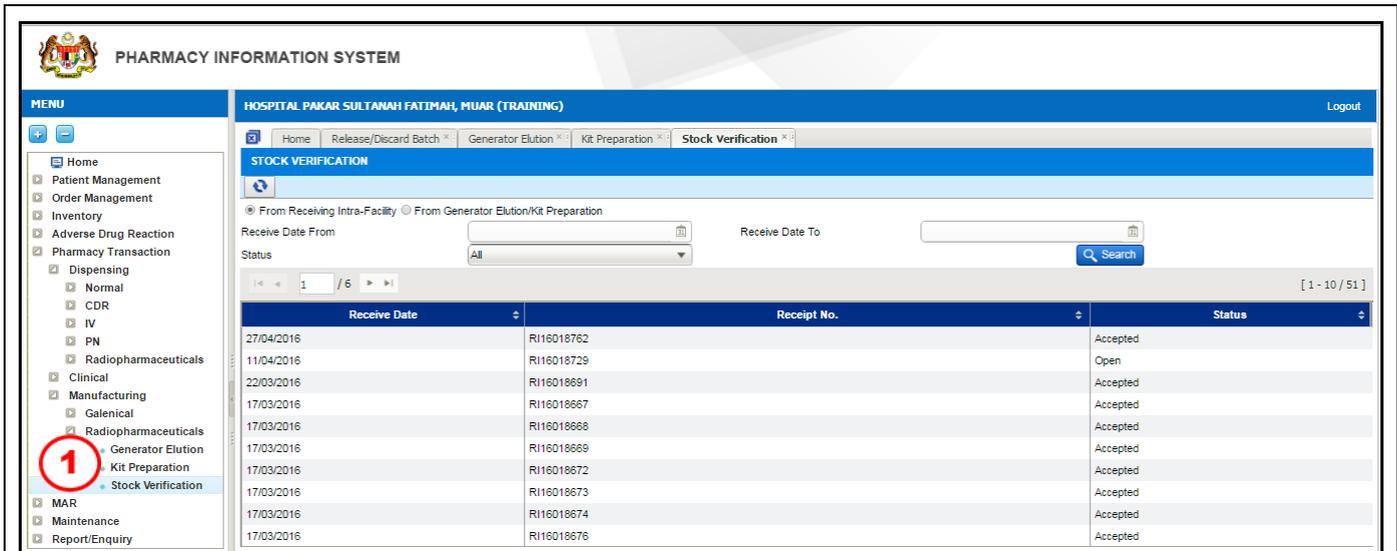
- **Status** will change to *Approved* after the submission had done.

**STEP 28**

Click on the  button to close Bulk Preparation screen

### 3.7.3 Stock Verification

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



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

Figure 3.7.3-1 Stock Verification Listing Page

#### STEP 1

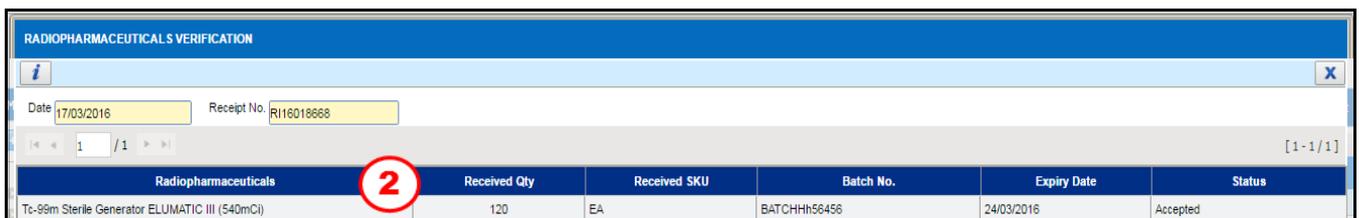
Click on 'Pharmacy Transaction' menu follow by 'Manufacturing' and click on 'Radiopharmaceuticals Stock Verification' sub-menu

#### Note

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

#### STEP 2

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

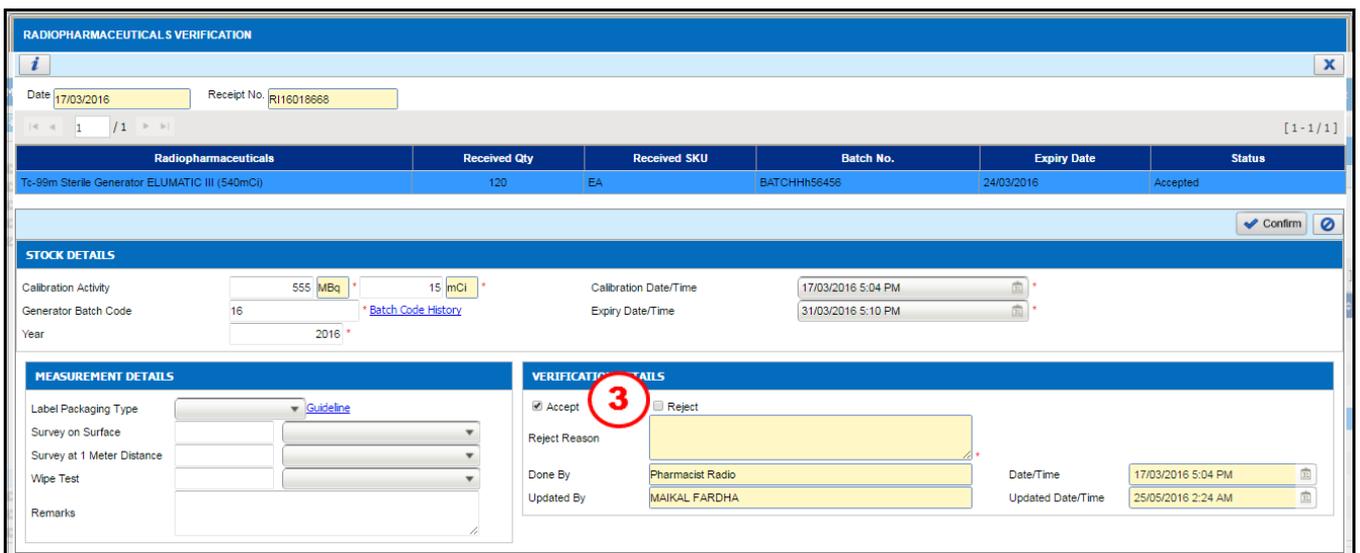


| Radiopharmaceuticals                           | Received Qty | Received SKU | Batch No.    | Expiry Date | Status   |
|--|--------------|--------------|--------------|-------------|----------|
| Tc-99m Sterile Generator ELUMATIC III (540mCi) | 120          | EA           | BATCHHH56456 | 24/03/2016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

Figure 3.7.3-2 Stock Verification

#### Note

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



**RADIOPHARMACEUTICALS VERIFICATION**

Date: 17/03/2016    Receipt No: RI16018668

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

**STOCK DETAILS**

Calibration Activity: 555 MBq, 15 mCi  
 Generator Batch Code: 16  
 Year: 2016

Calibration Date/Time: 17/03/2016 5:04 PM  
 Expiry Date/Time: 31/03/2016 5:10 PM

**MEASUREMENT DETAILS**

Label Packaging Type: Guideline  
 Survey on Surface: [Dropdown]  
 Survey at 1 Meter Distance: [Dropdown]  
 Wipe Test: [Dropdown]  
 Remarks: [Text Area]

**VERIFICATION DETAILS**

Accept     Reject

Reject Reason: [Text Area]

Done By: Pharmacist Radio    Date/Time: 17/03/2016 5:04 PM  
 Updated By: MAIKAL FARDHA    Updated Date/Time: 25/05/2016 2:24 AM

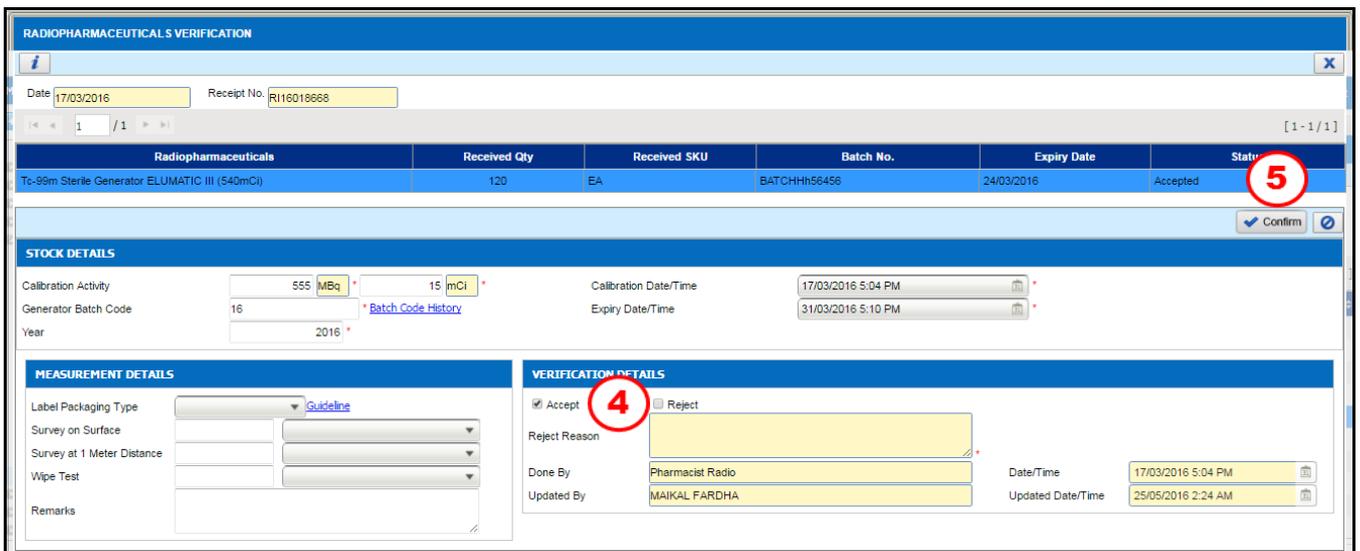
**Figure 3.7.3-3 Stock Verification**

**STEP 3**

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

**Note**

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



**RADIOPHARMACEUTICALS VERIFICATION**

Date: 17/03/2016    Receipt No: RI16018668

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

**STOCK DETAILS**

Calibration Activity: 555 MBq, 15 mCi  
 Generator Batch Code: 16  
 Year: 2016

Calibration Date/Time: 17/03/2016 5:04 PM  
 Expiry Date/Time: 31/03/2016 5:10 PM

**MEASUREMENT DETAILS**

Label Packaging Type: Guideline  
 Survey on Surface: [Dropdown]  
 Survey at 1 Meter Distance: [Dropdown]  
 Wipe Test: [Dropdown]  
 Remarks: [Text Area]

**VERIFICATION DETAILS**

Accept     Reject

Reject Reason: [Text Area]

Done By: Pharmacist Radio    Date/Time: 17/03/2016 5:04 PM  
 Updated By: MAIKAL FARDHA    Updated Date/Time: 25/05/2016 2:24 AM

**Figure 3.7.3-4 Stock Verification**

**STEP 4**

Check on the  **Accept** checkbox to accept verification

### STEP 5

Click on the  button to save record

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

Figure 3.7.3-5 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.

| Date       | Receipt No. | Status   |
|------------|-------------|----------|
| 11/04/2014 | RI14000059  | Accepted |
| 11/04/2014 | RI14000060  |          |

Figure 3.7.3-6 Stock Verification Listing Page

### 3. Acronyms

| Abbreviation | Definition                                   |
|--------------|--|
| PhIS         | Pharmacy Information System                  |
| CPS          | Clinical Pharmacy System                     |
| PM           | Patient Management                           |
| eGL          | Electronic Guarantee Letter                  |
| HRMIS        | Human Resource Management System             |
| MRN          | Medical Record Number                        |
| TDM          | Clinical Pharmacokinetics Services           |
| ADR & DAC    | Adverse Drug Reaction and Drug Allergic Card |
| DICE         | Drug Information and Consumer Education      |
| MTAC         | Medication Therapy Adherence Clinic          |
| MOH          | Ministry Of Health                           |
| PN           | Parenteral Nutrition Order                   |

### 4. Links to Clinical Modules

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



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