



# **Vaccine Management System Mobile Application**

## **USER MANUAL**

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User Manual

VMS Mobile Application Version 1.0

1st Edition: 17-02-2021

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# 1 INTRODUCTION

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## 1.1 WHAT IS VACCINE MANAGEMENT SYSTEM?

Vaccine Management System, VMS is track and trace system for COVID-19 vaccine to ensure credible information to support the issuance of Covid 19 immunization digital certificate.

The system is a software solution to enable the pharmacist, medical and respective officers to track and trace the vaccine supply chain from the manufacturers until its recipient (the patient) using Blockchain technology. The system will allow:

1. The pharmacist to track the vaccine movements (throughout the supply chain) from receiving until it arrives at distribution centres and reaches the patients
2. To provide traceability based on the serialized number to know the recipient of the vaccine or its sets.
3. To provide a patient's vaccination status to authority as Covid 19 immunization digital certificate when travelling or when required.
4. To prevent counterfeit or fake vaccine being used.
5. To provide vaccination status check for subsequent vaccine doses.
6. Allow patients to provide feedback on any symptoms experienced due to the vaccination.

This manual contain the detail description for each function available in the VMS mobile application and give explanation on all the steps involved for each activity.

## 1.2 HOW THIS MANUAL IS ORGANISED

This manual is organised as follows:

- **Chapter 1: Introduction** provides a basic introduction to VMS system and this manual
- **Chapter 2: System Outline** describes the detailed overview and functionality of VMS mobile application system
- **Chapter 3: General guideline** explains the basic function of the VMS mobile application
- **Chapter 4: VMS application Guide** describes VMS functions and menu in detail
- **Chapter 5: Negative Scenarios** explains the error message/alert encountered by users of VMS mobile application



## 2 SYSTEM OUTLINE

### 2.1 SYSTEM OVERVIEW

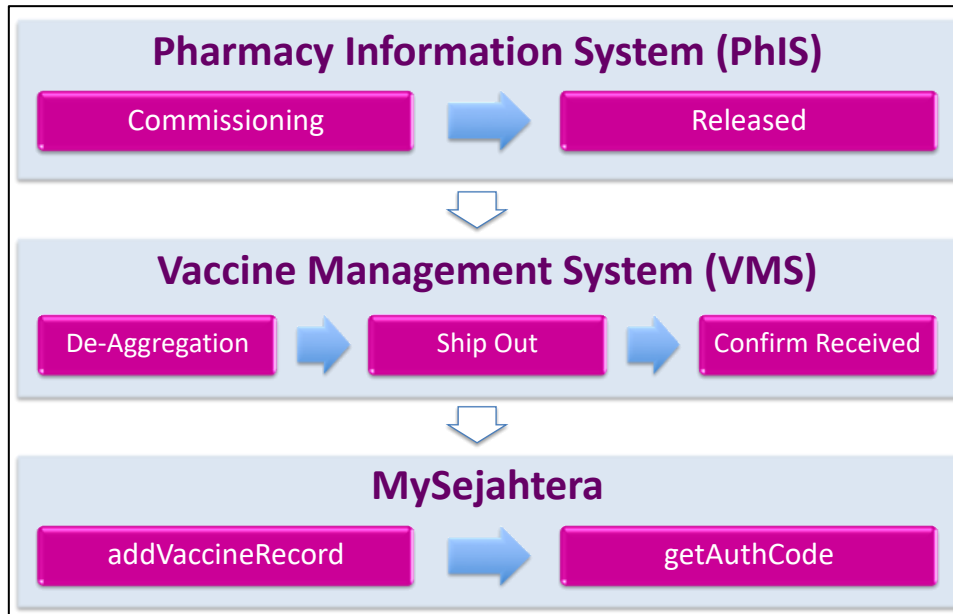


Figure 1: VMS Activity Flow

### 2.2 VMS FUNCTIONS

1. VMS is integrated with PhIS & CPS platform and MySejahtera to track vaccine movements starting from stock acquisition point until vaccine distribution to public.
2. Its receiving function, serialization & commissioning at PSV will integrate with PhIS+ for facility using PhIS & CPS
3. VMS will be used as a stand-alone application at PSV & PPV not using PhIS & CPS
4. Administration function at vaccine distribution counter (PSV & PPV), integrated with My Sejahtera
5. Verification platform for Covid 19 immunization digital certificate.

VMS shall act as a platform that consolidates all the information gathered by multiple parties such as manufacturer (list of vaccines identifiers and quantities), the shipments or logistic movements (the checkpoints), storage and warehouse information (including the critical information such as temperature logs) and its destination. It shall cover the WHAT (vaccine identifier), WHEN (date and time), WHERE (destination or location of events), WHO (person-in-charge), HOW (activities involved).

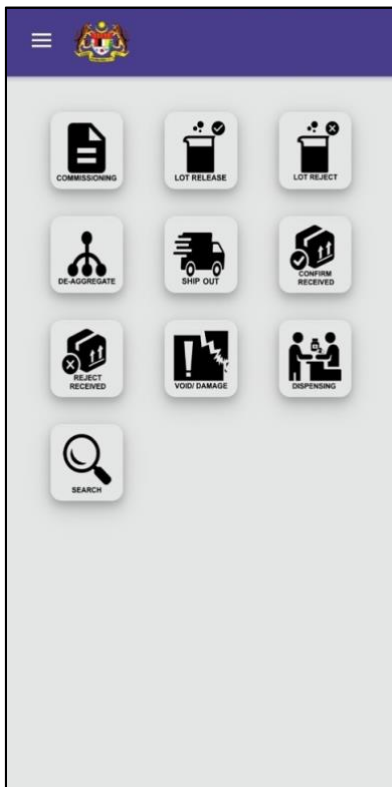
## **2.3 SYSTEM REQUIREMENTS**

VMS mobile application is only compatible with Android Version 9 minimum. Ensure that your android operating system has been upgraded prior to installation.

VMS mobile application has to be downloaded and installed in the user's mobile phone.

## 3 GENERAL GUIDELINE

### 3.1 VMS MOBILE APPLICATION CORE FUNCTION



Function	Description
Commissioning	Process of associating an instance-level identifier (serial number) with a newly delivered (physical) vaccine packaging. A serial number have been encoded (in barcode and qr-code) and applied in this step
Release	Approval process of a lot or batch of product which are previously in testing or quarantine state. The release will allow the lot or batch to be used
Rejected	Rejecting a lot or batch of product which are previously in testing or in quarantine state. The product can no longer be used and shall be removed from the supply chain
Disaggregation	Process of unpacking and repacking an instance into one or more small packages. The small packages shall new identifier (serial number) known as child
Ship Out	Indicates the product movement is being recorded as departing out from the current place.
Confirm Received	Denotes a specific activity within a business process that indicates that the product is being received at a location and is added to the receiver's inventory.
Reject Received	Denotes a specific activity within a business process that indicates that the product is being rejected during receiving or delivery process, probably due to damages or due to any other reason
Void / Damage	Denotes a process of declaring that one or more products were not in good or expected condition
Dispensing	Denotes a specific activity within a business process where a product is made available in full or part to a consumer or to the last delivery point
Search	The feature to track or trace an identifier through out the system's supply chain

Figure 2: VMS Core Function

## 4 APPLICATION GUIDELINE

### 4.1 LOGIN

All users are required to login into VMS Mobile Application. After login, each ID will be tagged to the location already determined through VMS Portal. All account registration will be managed by the Administration at HQ.

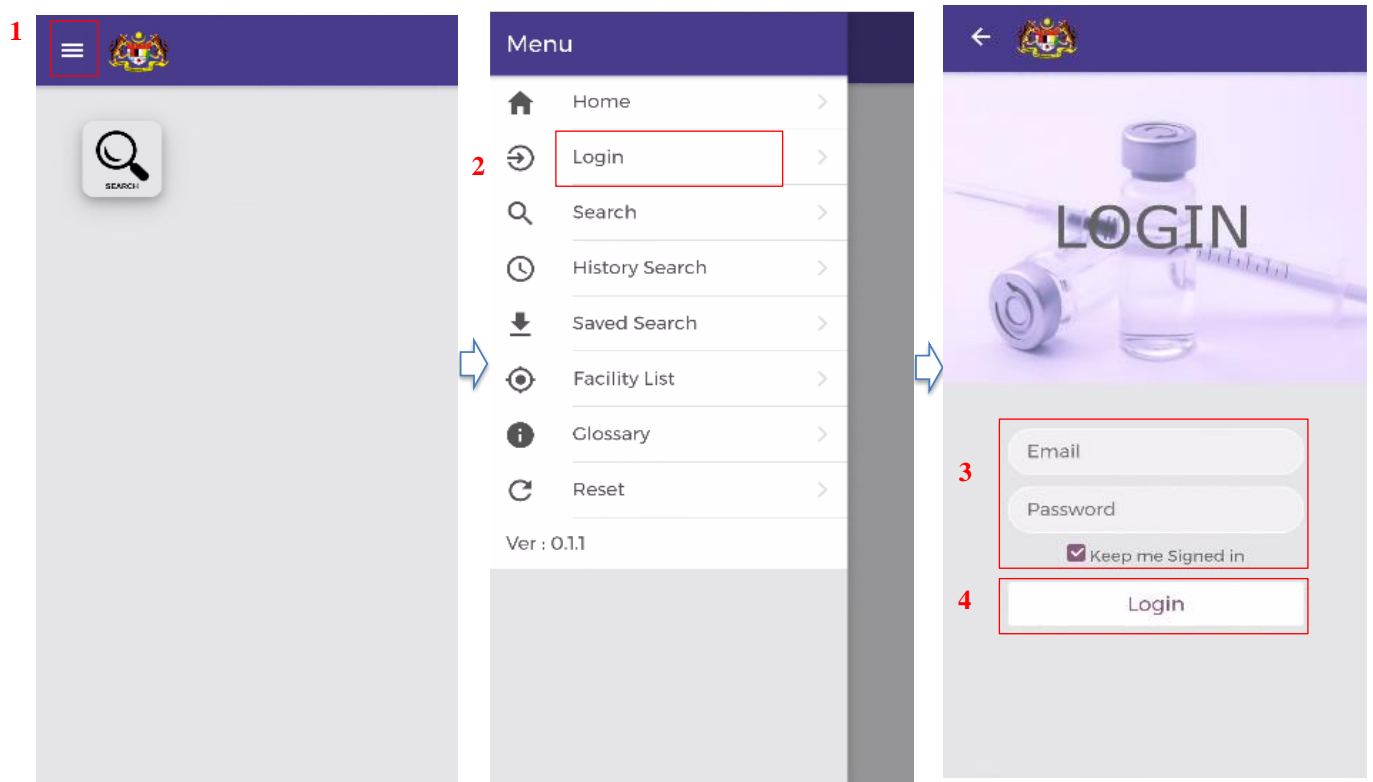


Figure 3: VMS Login Page

#### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click Login
3. Enter email and Password
4. Click Login

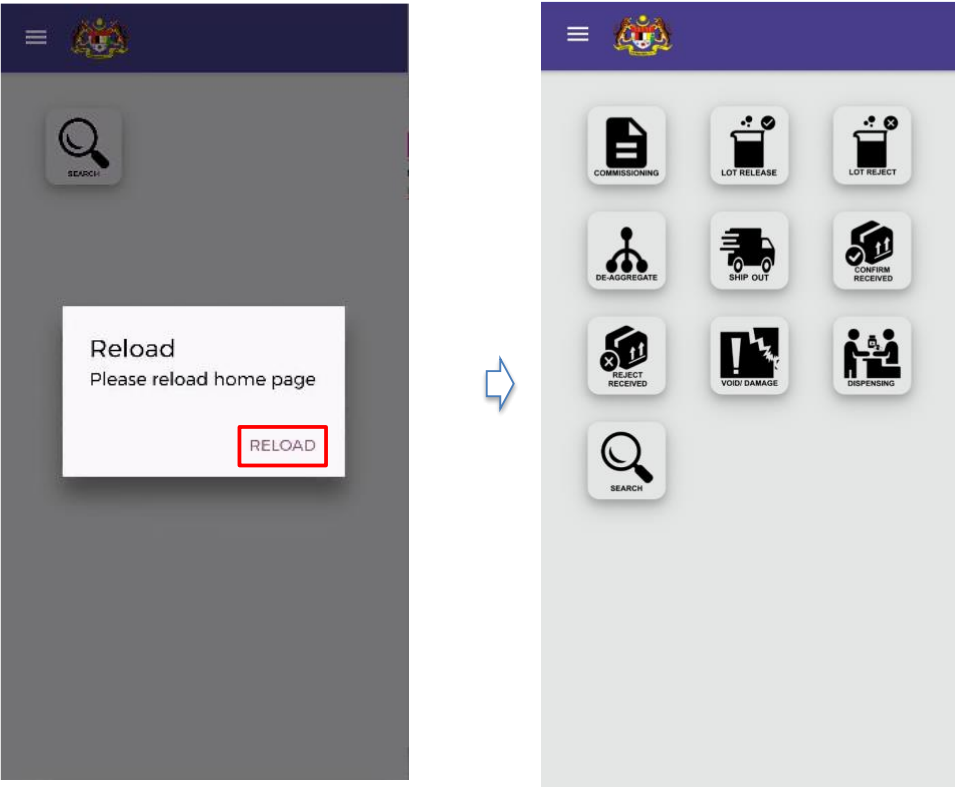


Figure 4: Reload Home Page

5. After user has successfully login, click **Reload**.

User will only able to access icon related to their account based on their role as determined by HQ.

## 4.2 FACILITY SETTING

User can select the facility setting she is currently stationed if her user account contained more than 1 facility.

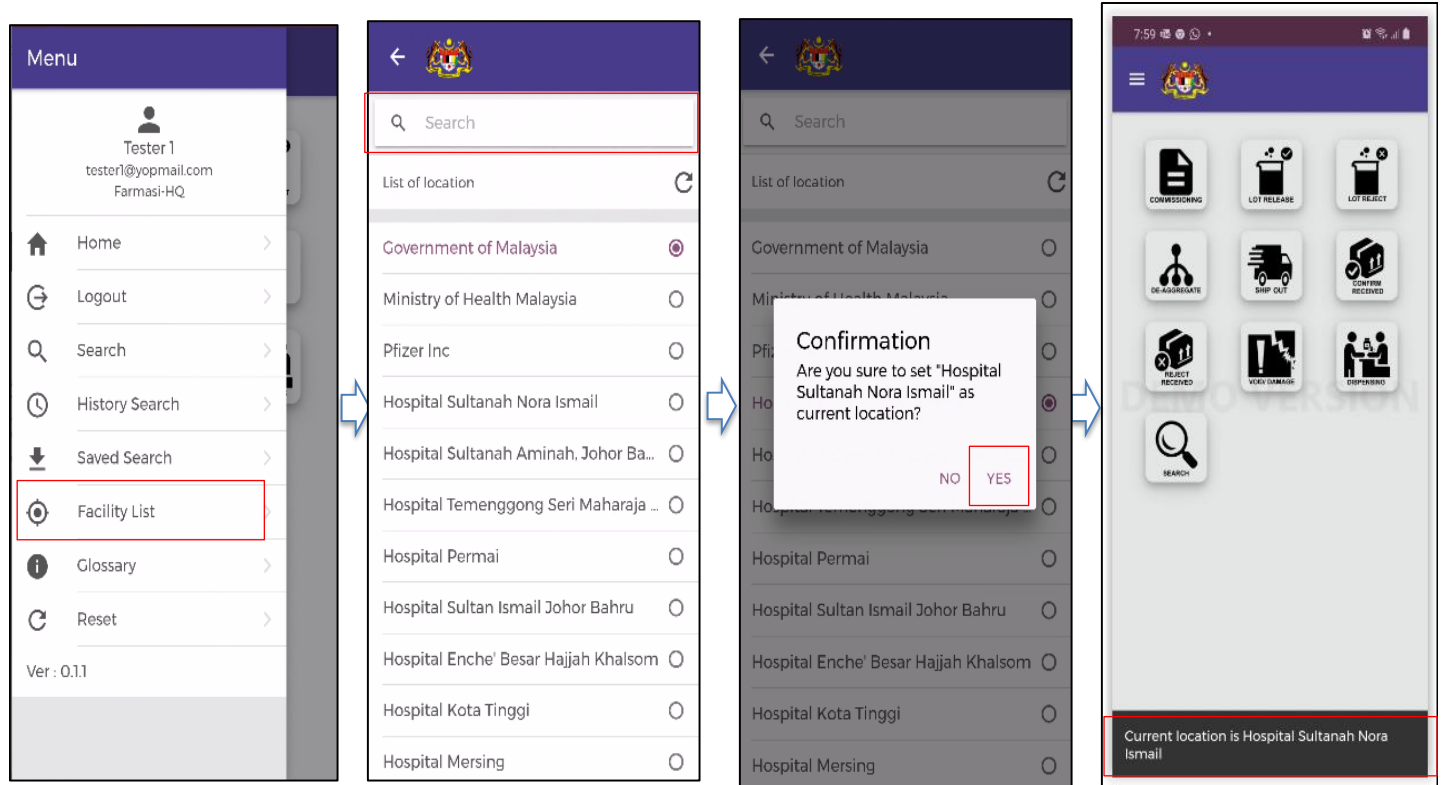


Figure 5: Facility List Menu

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **Facility List**
3. Search and select default location
4. Click **Yes** to confirm the location

### 4.3 COMMISSIONING

Commissioning is a process of associating an instance-level identifier (serial number) with a newly delivered (physical) vaccine packaging. A serial number have been encoded (in barcode and QR-code) and applied in this step.

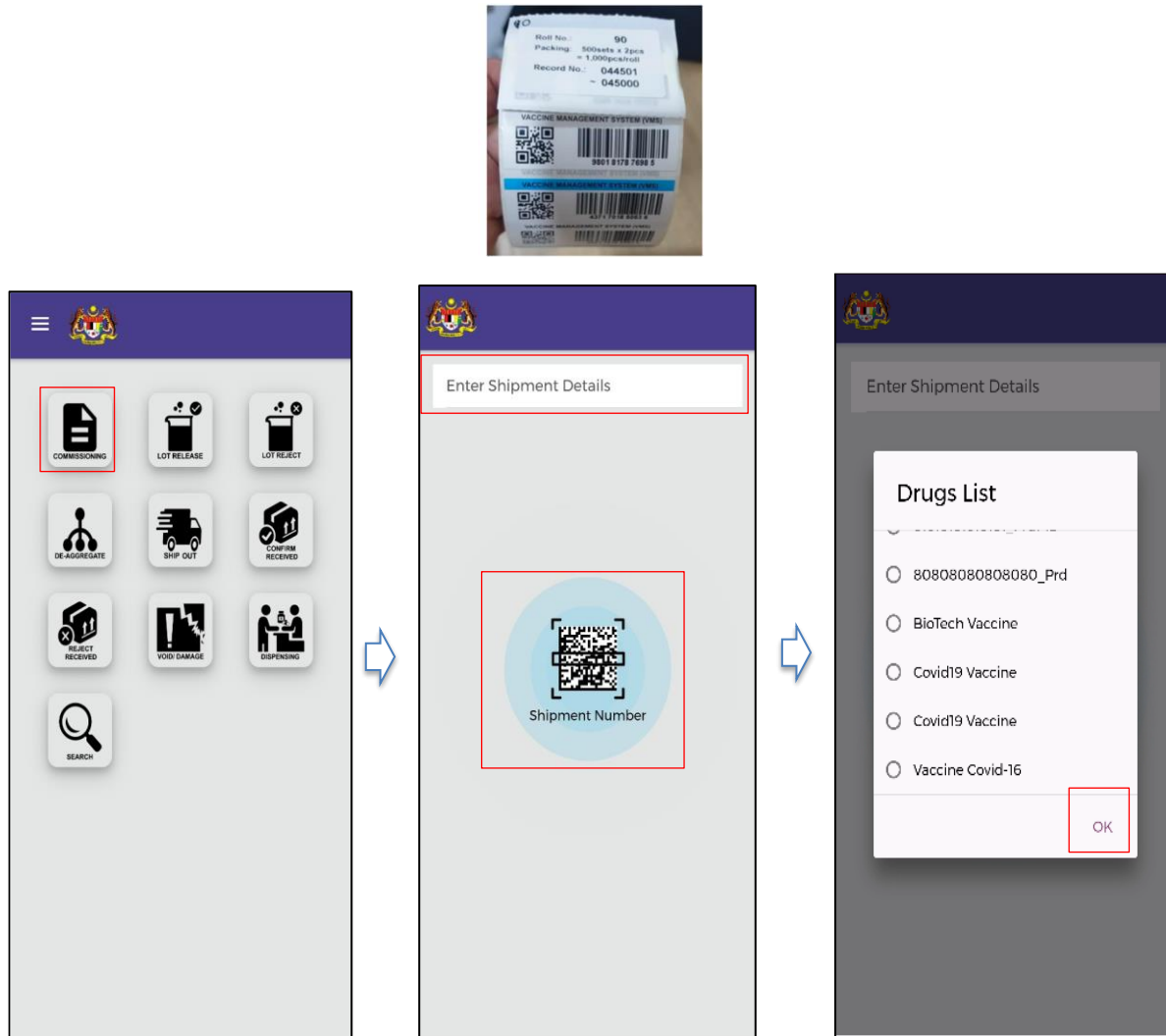


Figure 6: Commissioning

**INSTRUCTION:**

1. Click **Commissioning** in menu
2. Scan/Enter shipment detail (GTIN number)
3. Select the Vaccine Name from the Drug List
4. Click **OK**

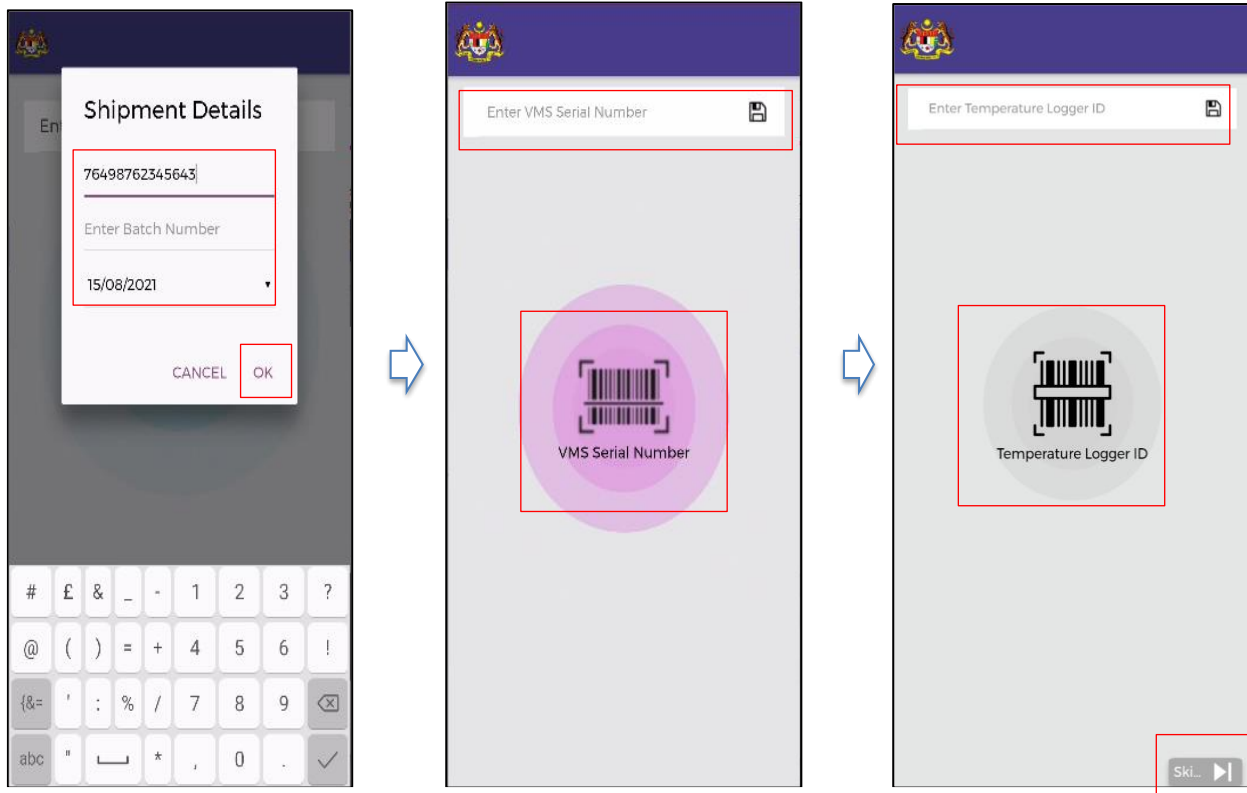


Figure 7: Commissioning – Shipment Details

5. Enter **Shipment Number**, **Batch Number** and **Expiry Date**.
6. Click **OK**
7. Scan/Enter **VMS serial number**
8. Scan/Enter **Temperature Logger ID** or click **Skip** (Optional)



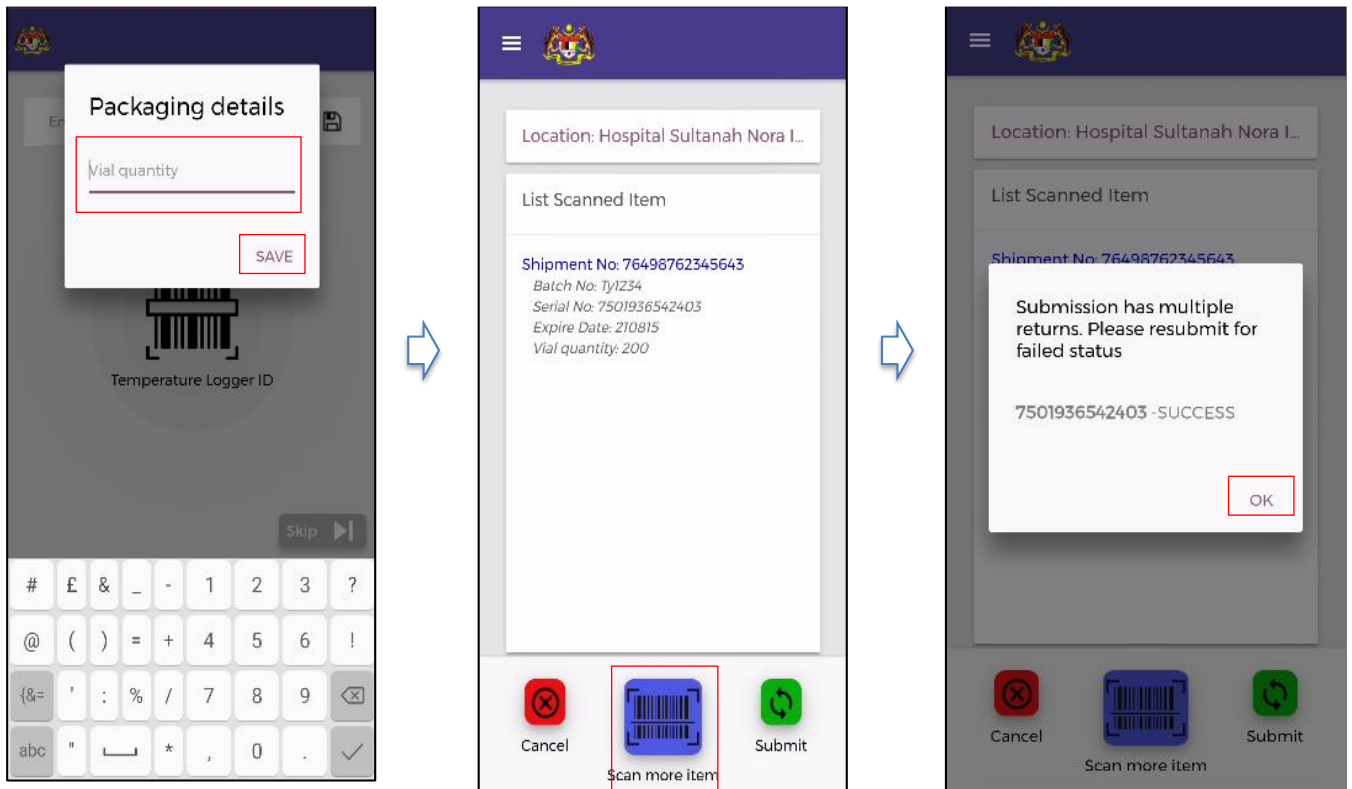


Figure 8: Commissioning – Packaging Details

9. Enter **Packaging Details** such as vial quantity. Click **Save**
10. Click **Scan More Item** to scan more items in the same shipment
11. Click **Cancel** to cancel
12. Click **Submit** after each item scan or after scanning all items in the same shipment
13. Successful Submission Pop Up displayed. Click **OK**.

Note:

If the VMS Serial Number is valid, the VMS will register the identifier and associate it with the vaccine. The officer needs to stick the VMS Serial Number to the container.

## 4.4 LOT RELEASE

Lot Release is the approval process of a lot or batch of product which are previously in Testing or “Quarantine state”. The release will allow the lot or batch to be used



Figure 9: Lot Release

### INSTRUCTION:

1. Click **Lot Release** in menu
2. Scan/Enter **VMS serial number**
3. Click **Scan More Item** to scan more lot to be released
4. Click **Cancel** to cancel
5. Click **Submit** after each release lot scan or after scanning all release lots.
6. Successful Submission Pop Up displayed. Click **OK**.

## 4.5 LOT REJECT

Lot Reject is rejecting a lot or batch of product which are previously in testing or in “Quarantine state”. The product can no longer be used and shall be removed from the supply chain.



Figure 10: Lot Reject

### INSTRUCTION:

1. Click **Lot Reject** menu in dashboard.
2. Scan/Enter **VMS Serial Number** of the lot selected for reject.
3. Click **Scan More Item** to scan more rejected lot
4. Click **Cancel** to cancel
5. Click **Submit** after each reject lot scan or after scanning all reject lots.
6. Successful Submission Pop Up displayed. Click **OK**.

Note:

Subsequence use of the rejected VMS serial number shall be blocked

## 4.6 DISAGGREGATION

Disaggregation is the process of unpacking and repacking an instance into one or more small packages. The small packages shall have new identifier (serial number) known as child. Break bulk is specifically for inter facility distribution of vaccine.

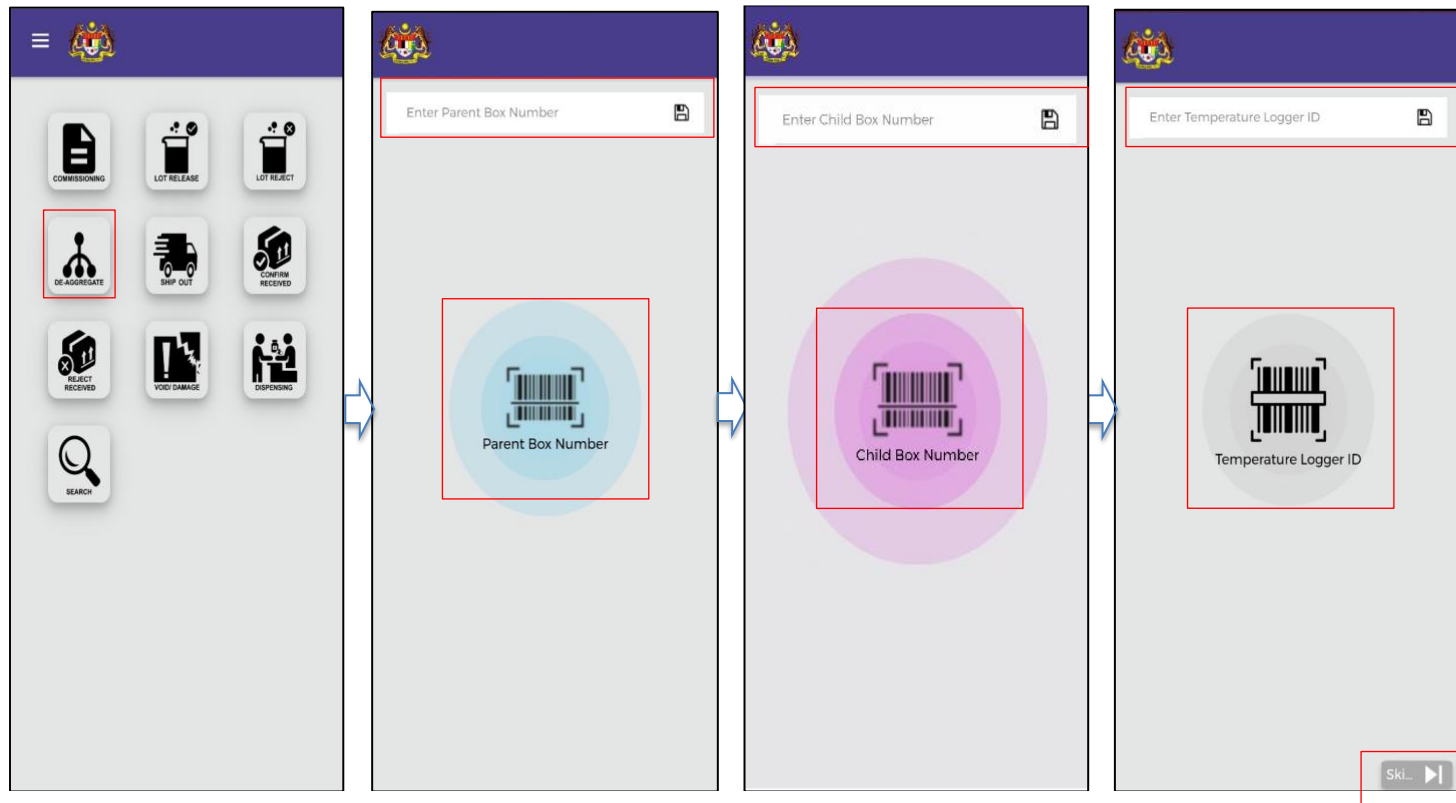


Figure 11: Disaggregation

### INSTRUCTION:

1. Scan/Enter **Parent Box Number**
2. User Scan/Enter **Child Box Number** after the box has been assigned with new identifier (serial number) sticker.
3. Scan/Enter **Temperature Logger ID** or click **Skip** (Optional)

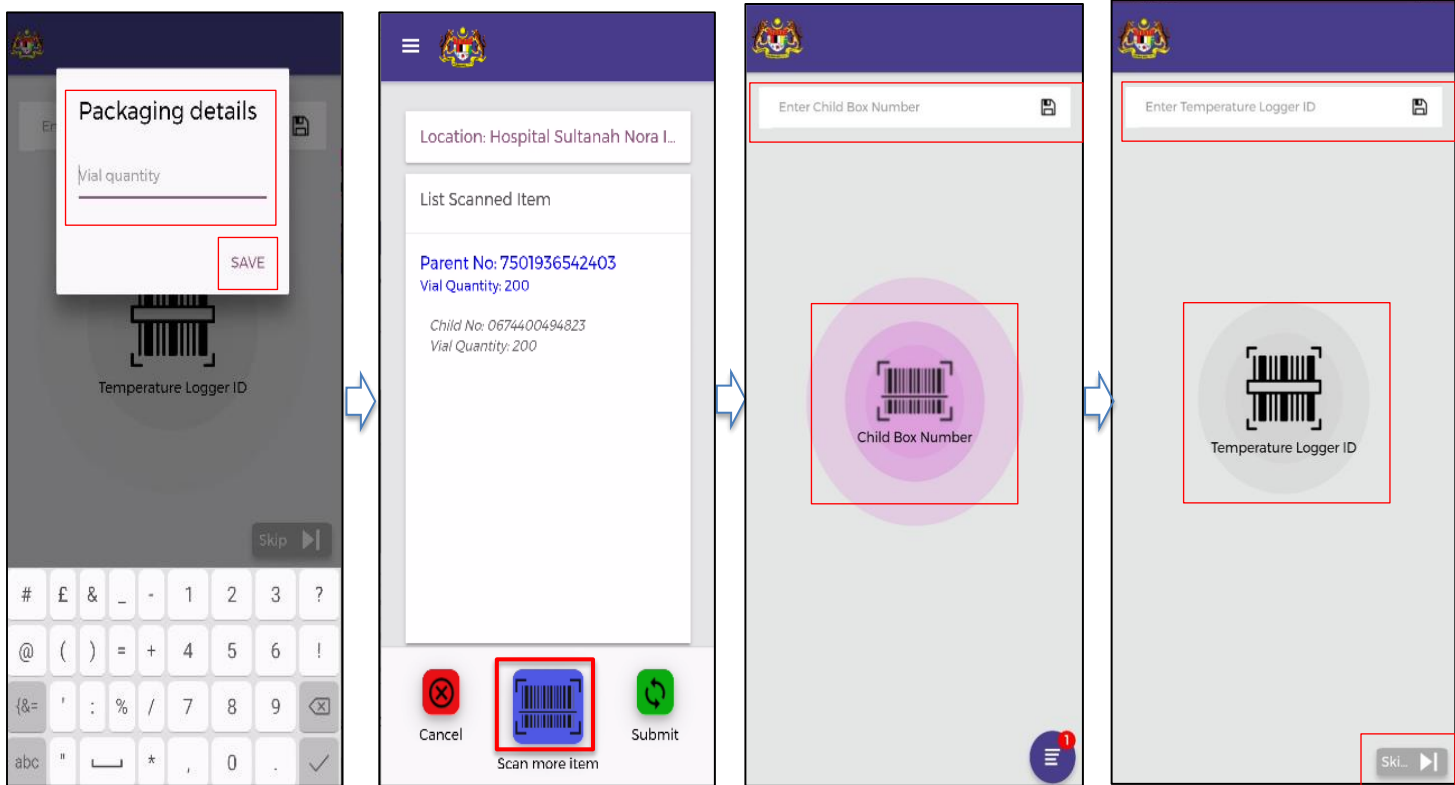


Figure 12: Disaggregation - Packaging Details

4. Enter **Packaging Details** such as vial quantity for Child Box Number.
5. Click **Save**
6. Click **Scan More Item** to scan more child.

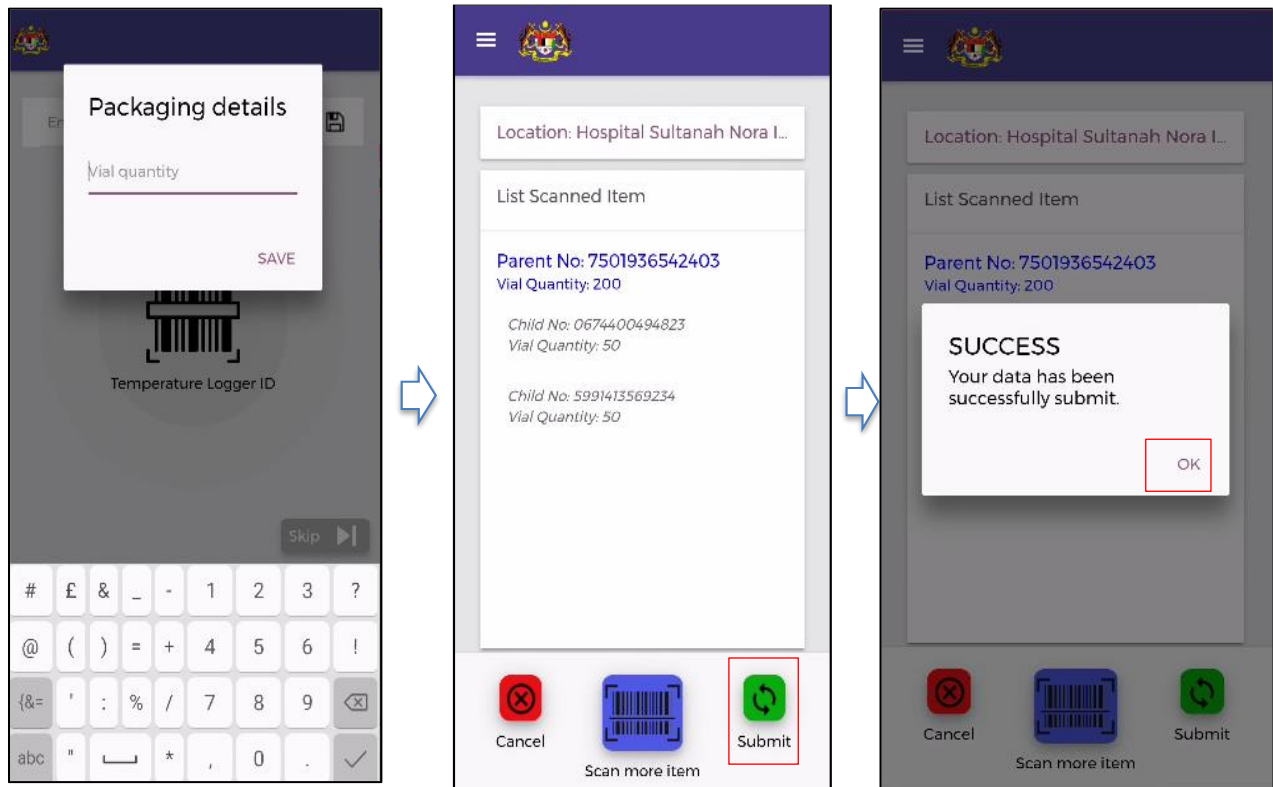


Figure 13: Disaggregation – Successful submit

7. Repeat steps 3-6
8. Click **Cancel** to cancel.
9. Click **Submit** after scanning all child.
10. Successful Submission Pop Up displayed. Click **OK**.

## 4.7 SHIP OUT

Indicates the product movement is being recorded as departing out from the current place. If the product is in transit, Receive & Shipping out process has to be performed at the transit facility.

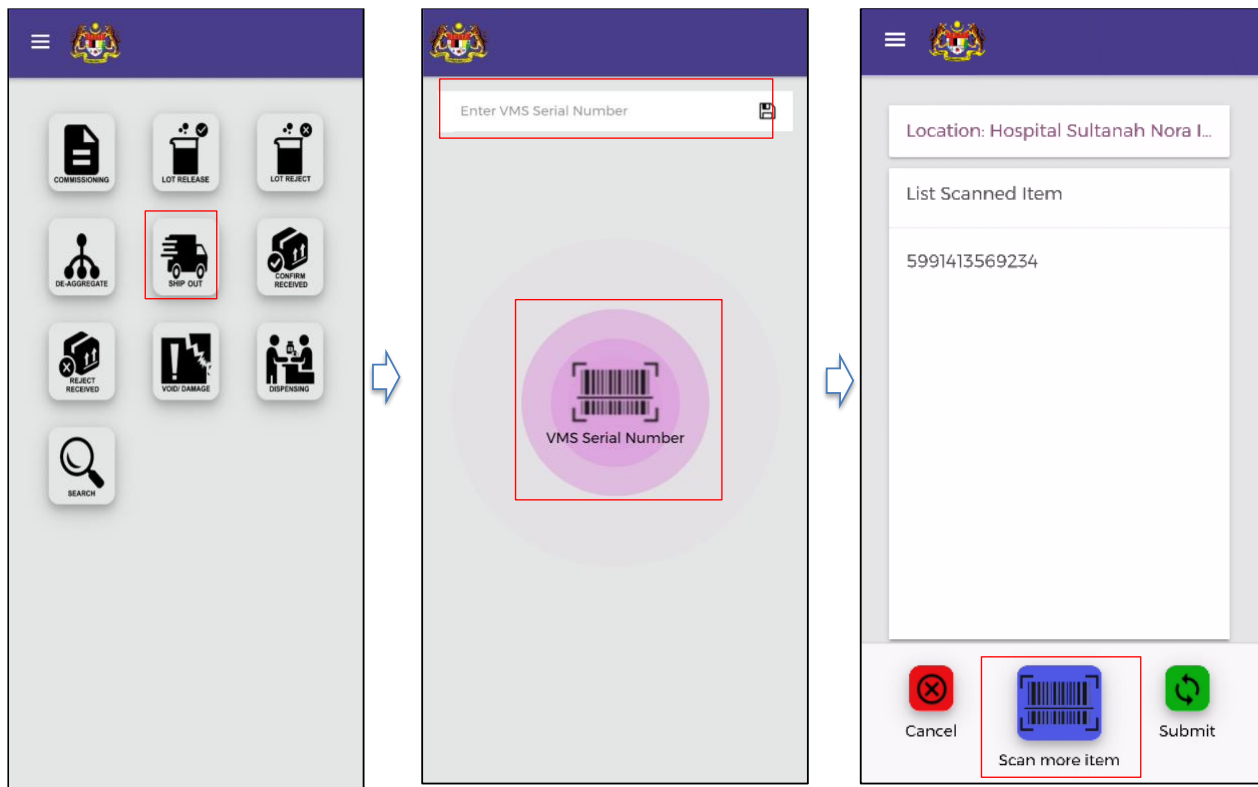


Figure 14: Ship Out

### INSTRUCTION:

1. Click **Ship Out** in menu
2. Scan/Enter **VMS serial number** of the item to be shipped out.
3. Click **Scan More Item** to scan more item to be shipped out.

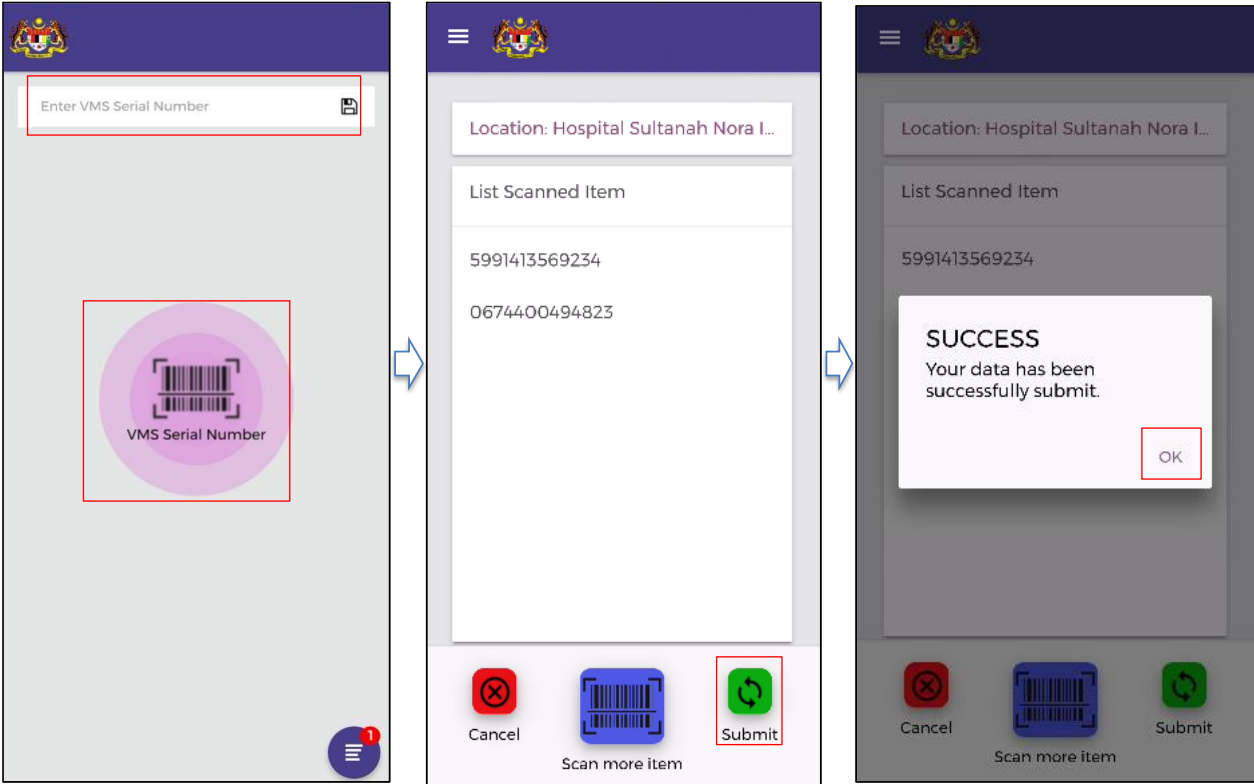


Figure 15: Ship Out- Successful Submit

- 4. Repeat step 2
- 5. Click **Submit**.
- 6. Successful Submission Pop Up displayed. Click **OK**.



## 4.8 CONFIRM RECEIVED

Denotes a specific activity that indicates that the item is being received at a location and is added to the receiver's inventory. All items, both in PhIS and non- PhIS that has been shipped out and received need to be scanned by the receiving facility.

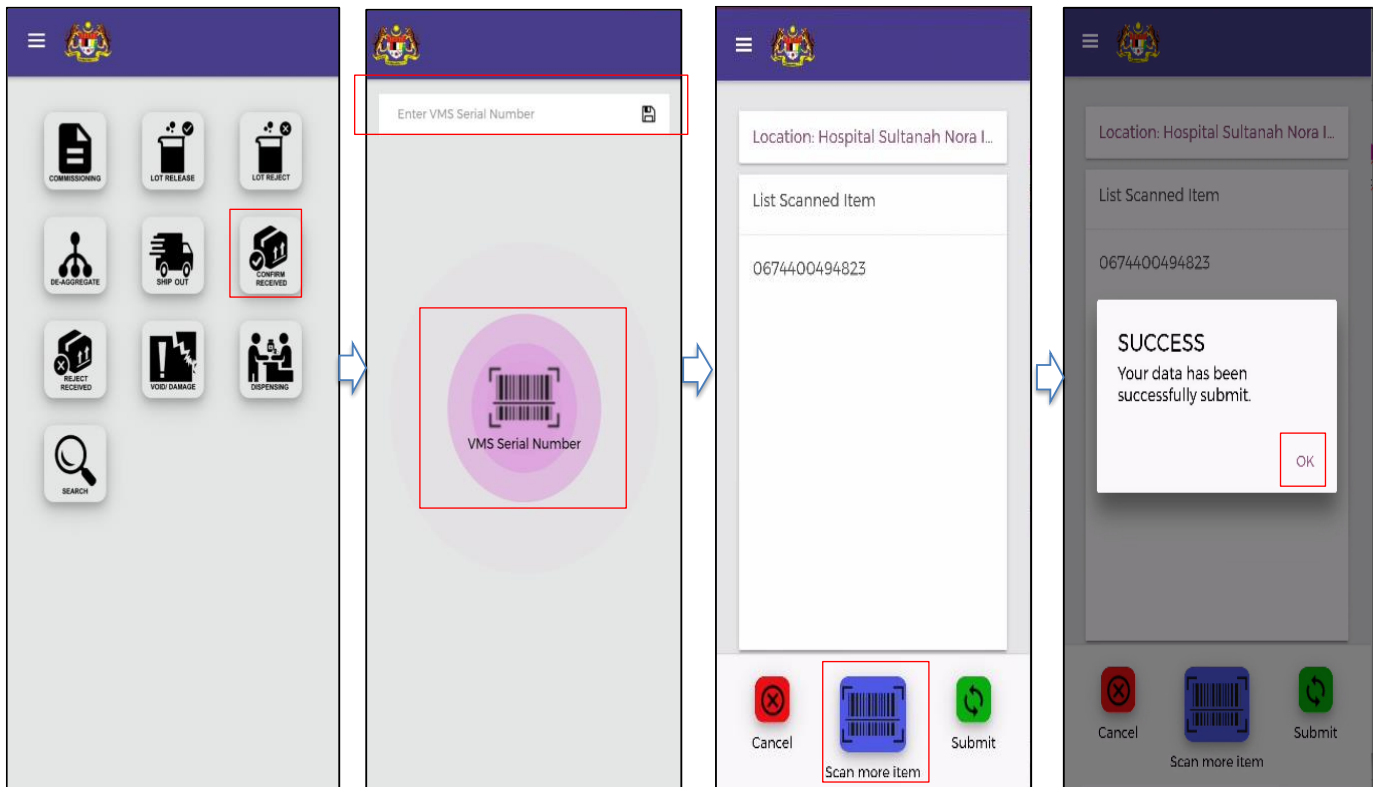


Figure 16: Confirm Received

### INSTRUCTION:

1. Click **Confirmed Received** in menu
2. Scan/Enter **VMS serial number** of the item received.
3. Click **Scan More Item** to scan more item received.
4. Repeat step 2
5. Click **Submit**
6. Successful Submission Pop Up displayed. Click **OK**.

## 4.9 REJECT RECEIVED

Denotes a specific activity that indicates that the item is being rejected during receiving or delivery process, probably due to damages or due to any other reason. If the item delivered is not similar to the indented, the facility is allowed to Reject Received and the item should be returned to PSV. The officer needs to confirm that the item issued out is the correct item as in the indent.

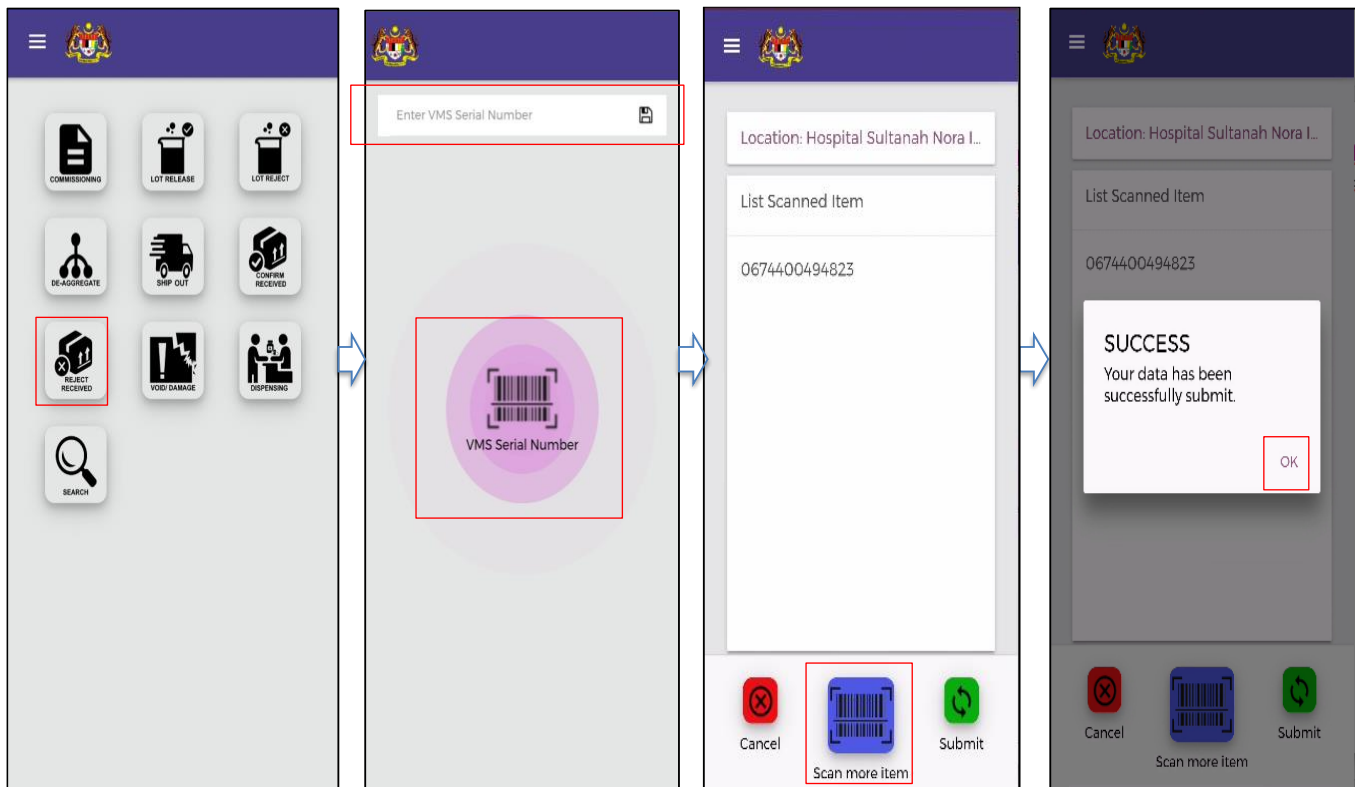


Figure 17: Reject Received

### INSTRUCTION:

1. Click **Confirmed Received** menu in dashboard.
2. Scan/Enter **VMS Serial Number** of the item received.
3. Click **Scan More Item** to scan more item received.
4. Repeat step 2
5. Click **Submit**
6. Successful Submission Pop Up displayed. Click **OK**.

## 4.10 VOID/DAMAGE

Denotes a process of declaring that one or more products were not in good or expected condition. The vaccine will be cancelled out from the current inventory stock. The inventory stock will be deducted accordingly.

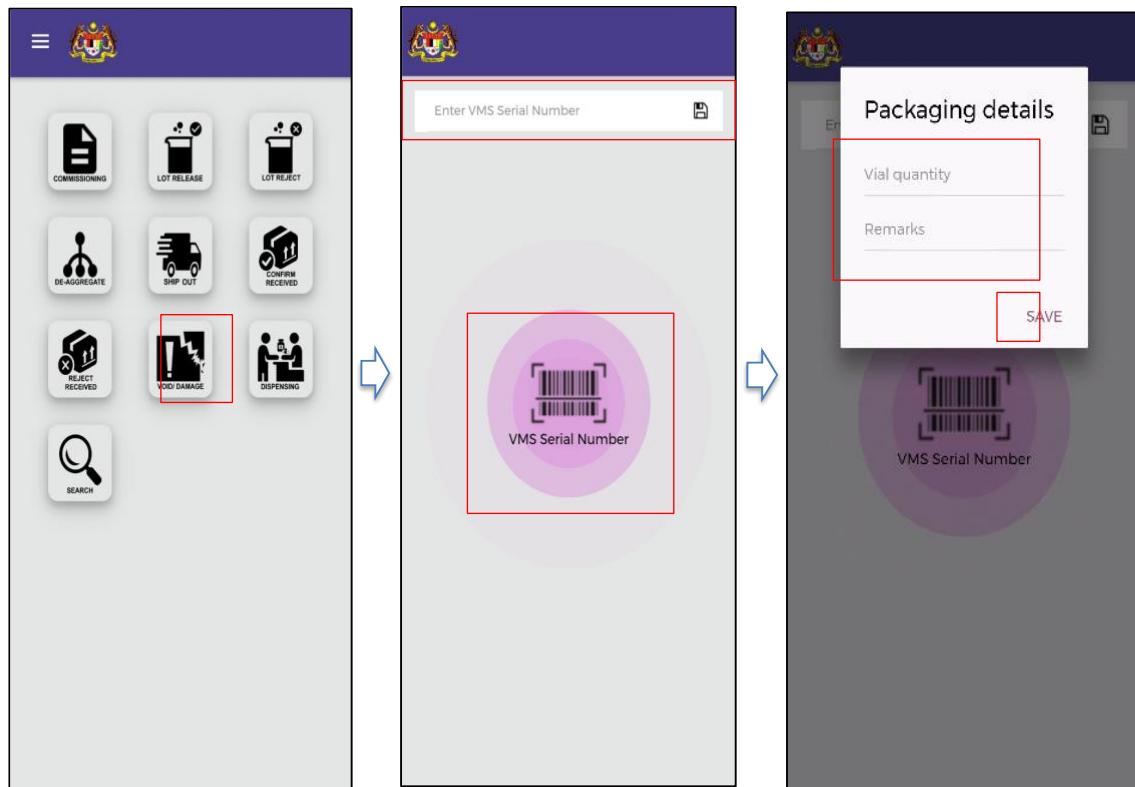


Figure 18: Void Damage

### INSTRUCTION:

1. Click **Void Damage** in menu
2. Scan/Enter Void/Damage Item **Serial Number**
3. Enter **Packaging Details** such as the vial quantity of the void/damage item
4. Click **Save**

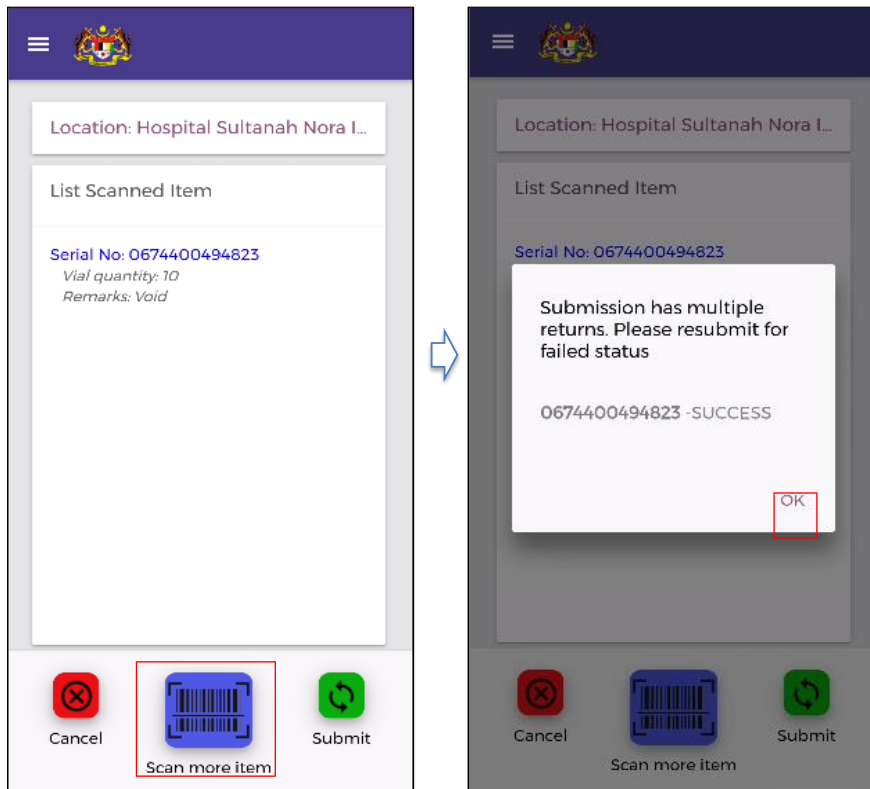


Figure 19: Void Damage -Successful Submit

5. Click **Scan More Item** to scan more void/damage items
6. Repeat steps 2-4
7. Click **Submit**.
8. Successful Submission Pop Up displayed. Click **OK**.

## 4.11 DISPENSING

Denotes a specific activity where a product is made available in full or part to a consumer or to the last delivery point. The function is to record the number of vial taken out and sent off to vaccine administration counter at their own facility to enable the tracking of vial usage in VMS. The inventory stock will be deducted accordingly. This process needs to be conducted for items in PhIS and non-PhIS facility.

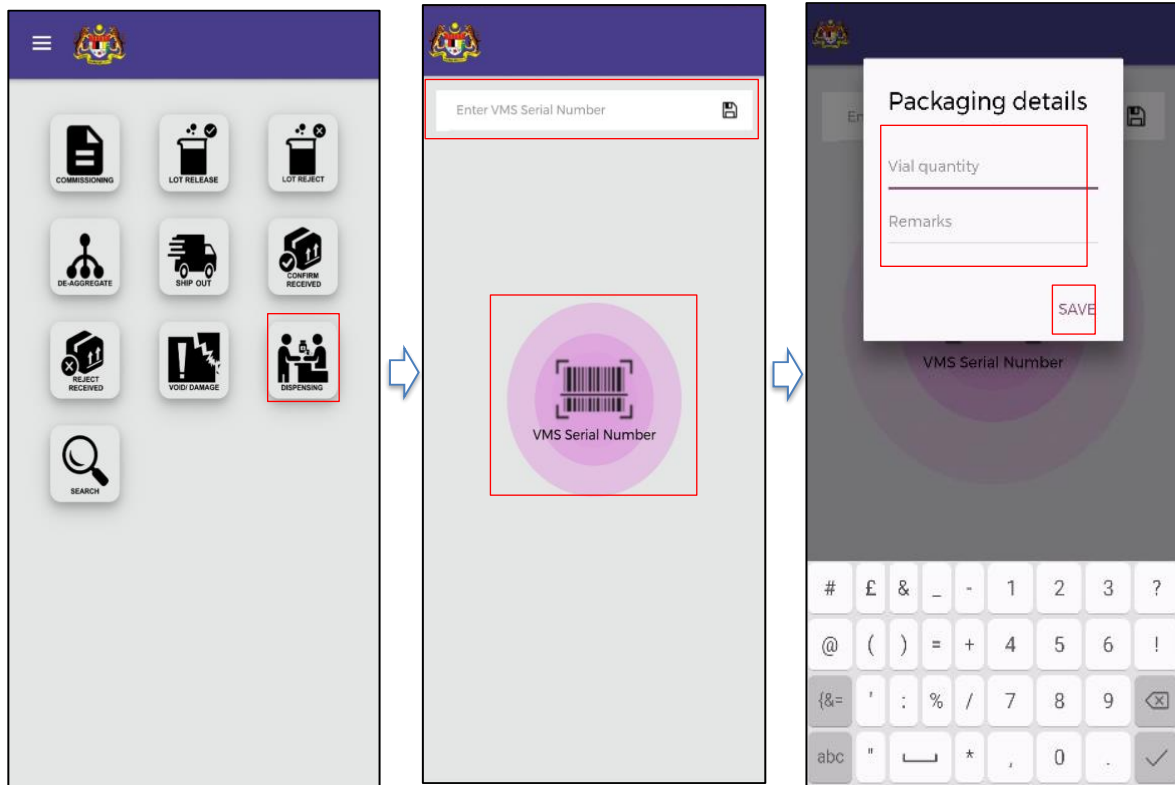


Figure 20: Dispensing

### INSTRUCTION:

1. Click **Dispensing** in menu.
2. Scan/Enter Vial Serial Number
3. Enter **Packaging Details** such as the vial quantity
4. Click **Save**

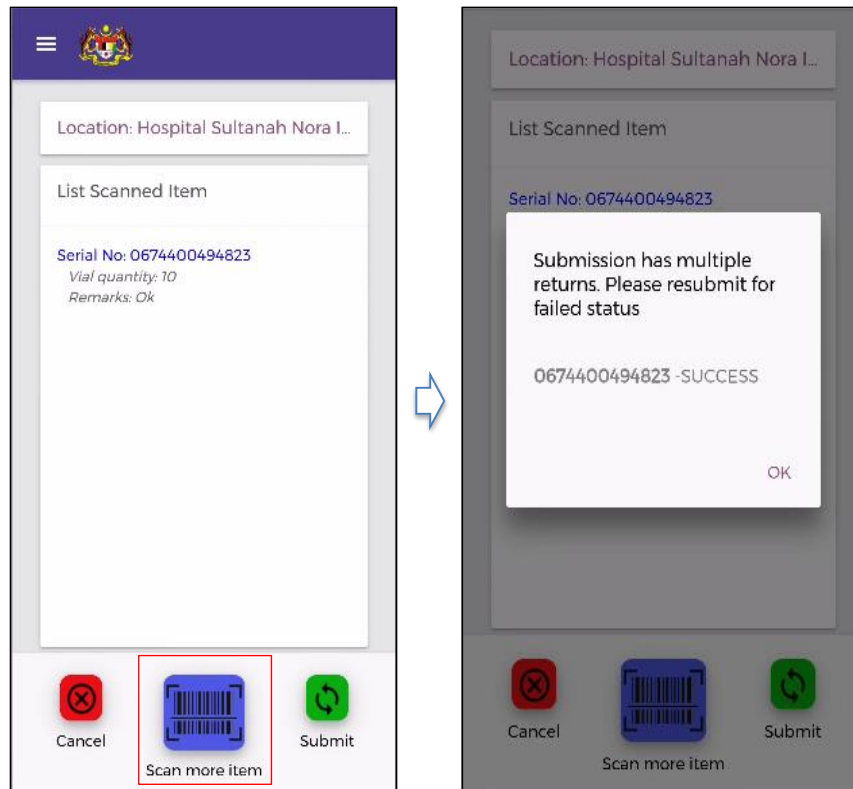


Figure 21: Dispensing - Successful Submit

5. Click **Scan More Item** to scan more vials to be dispensed.
6. Repeat steps 2-4
7. Click **Submit**.
8. Successful Submission Pop Up displayed. Click **OK**.

## 4.12 SEARCH

The function is to check the audit trail or the track the record and status of each identifier (bar code) used throughout the system's supply chain.

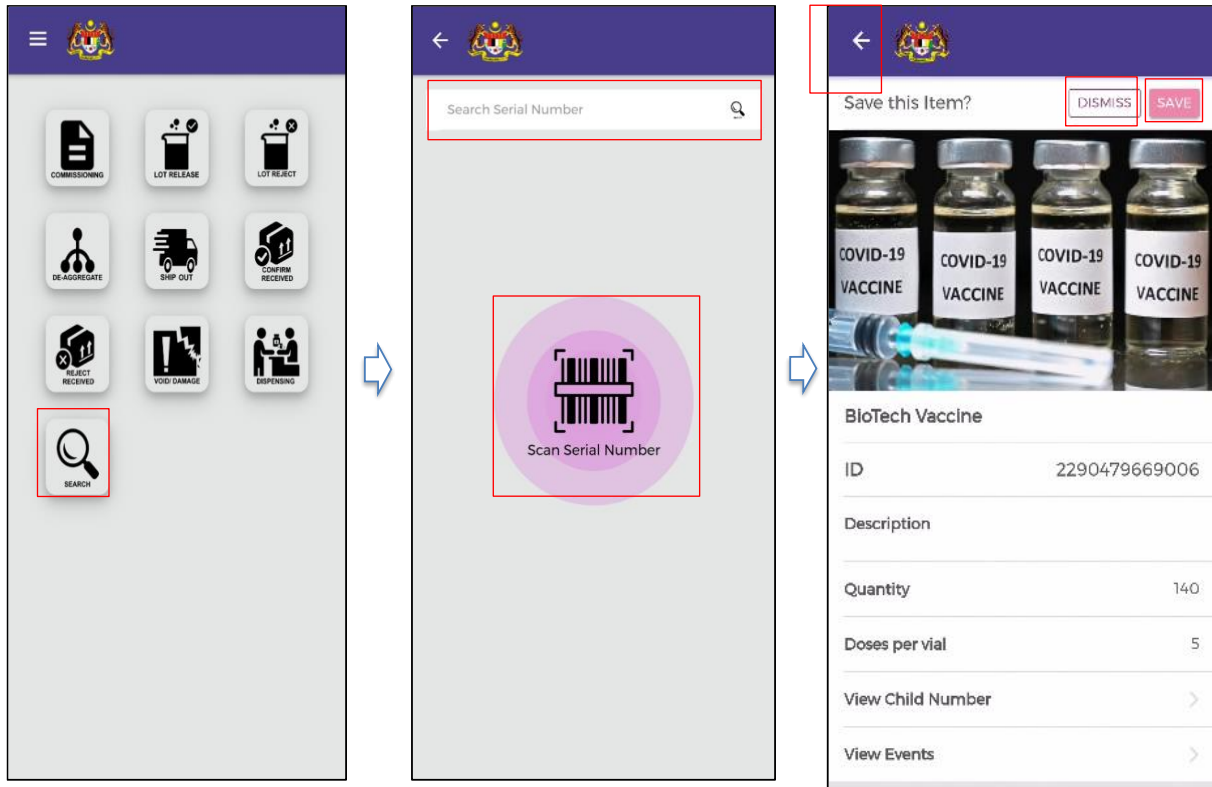


Figure 22: Search Function

### INSTRUCTION:

1. Click **Search** in menu screen
2. Scan/Enter **Serial Number**
3. Click **Dismiss** to dismiss the item record
4. Click **Save** to save the item record for further use
5. Click arrow icon to go back to the previous screen

### Note:

The information displayed will be based on the access level according to the vaccine information (such as assigned location/facility Code)

## 4.13 LOGOUT

The function is to exit the application

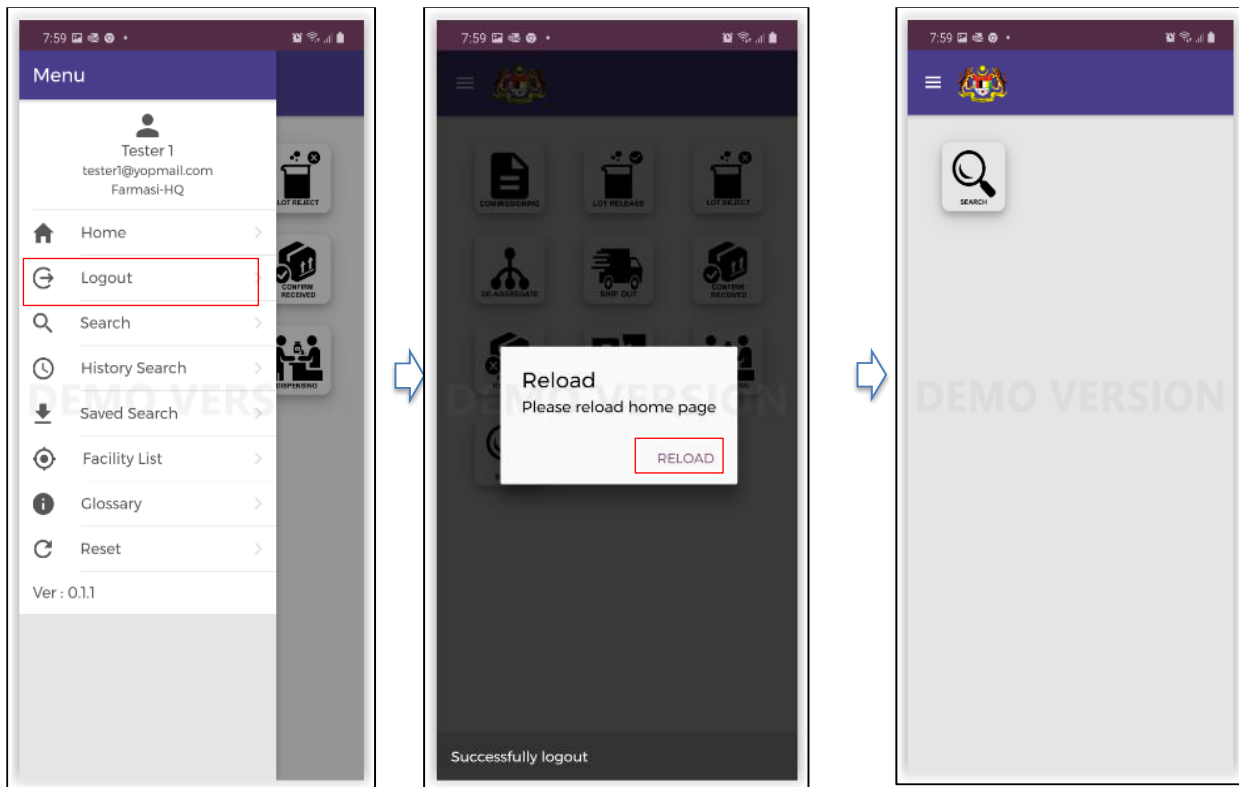


Figure 23: Logout Function

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **Logout**
3. After user has successfully logout, click **Reload**.



## 4.14 OTHER FUNCTIONS – HISTORY SEARCH

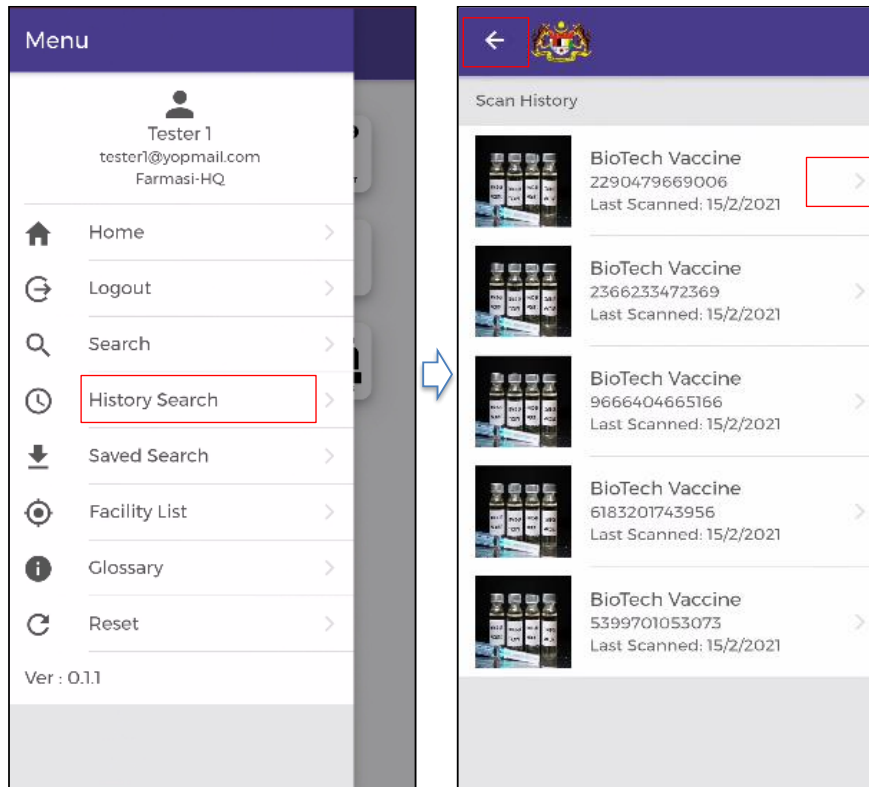


Figure 24: History Search Menu

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **History Search**
3. Click arrow icon to go back to the previous screen
4. Click for more detail information

## 4.15 OTHER FUNCTIONS – SAVED SEARCH

Saved search are search records that have been saved earlier for further use

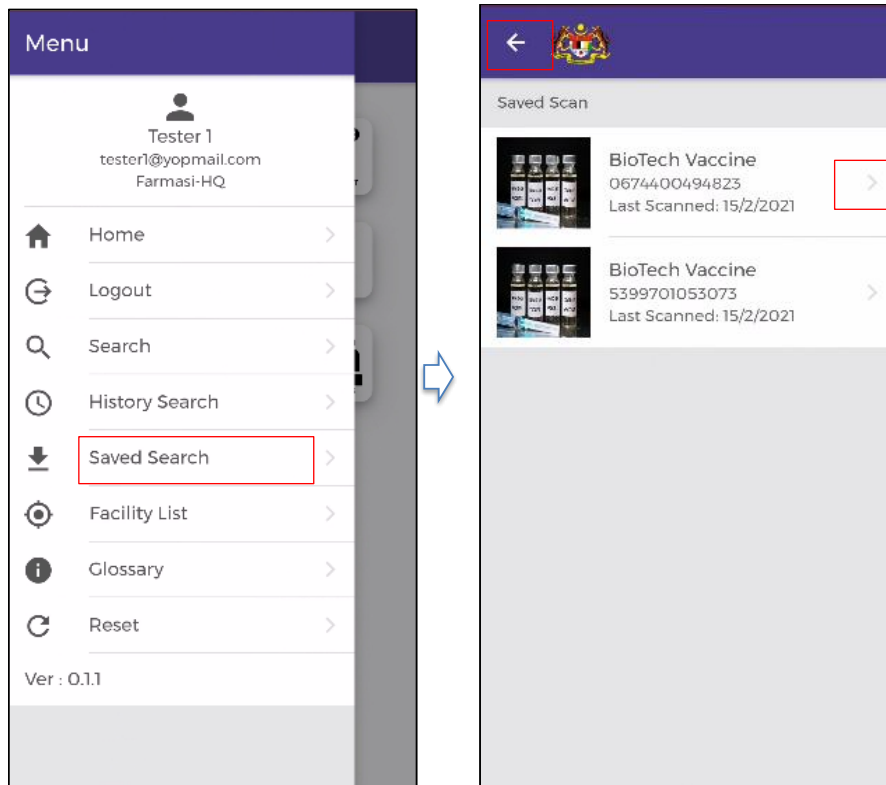


Figure 25: Saved Search Menu

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **Saved Search**
3. Click arrow icon to go back to the previous screen
4. Click for more detail information

## 4.16 OTHER FUNCTIONS – GLOSSARY

Glossary of functions and menus in VMS for reference.

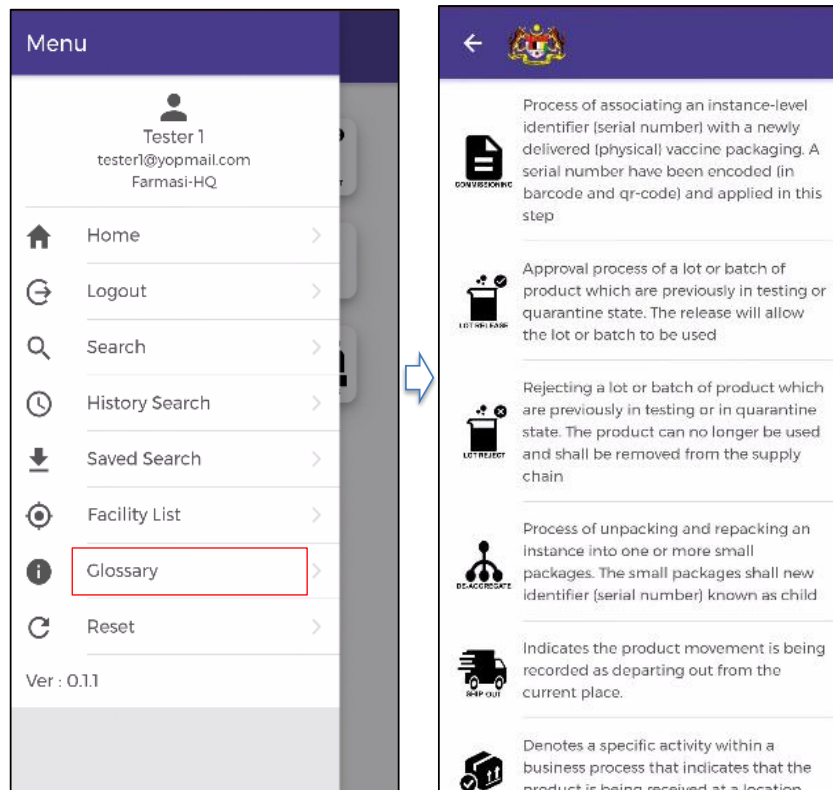


Figure 26: Glossary Menu

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **Glossary**
3. Click arrow icon to go back to the previous screen

## 4.17 OTHER FUNCTIONS – RESET

Reset to default setting, all data in storage will be deleted.

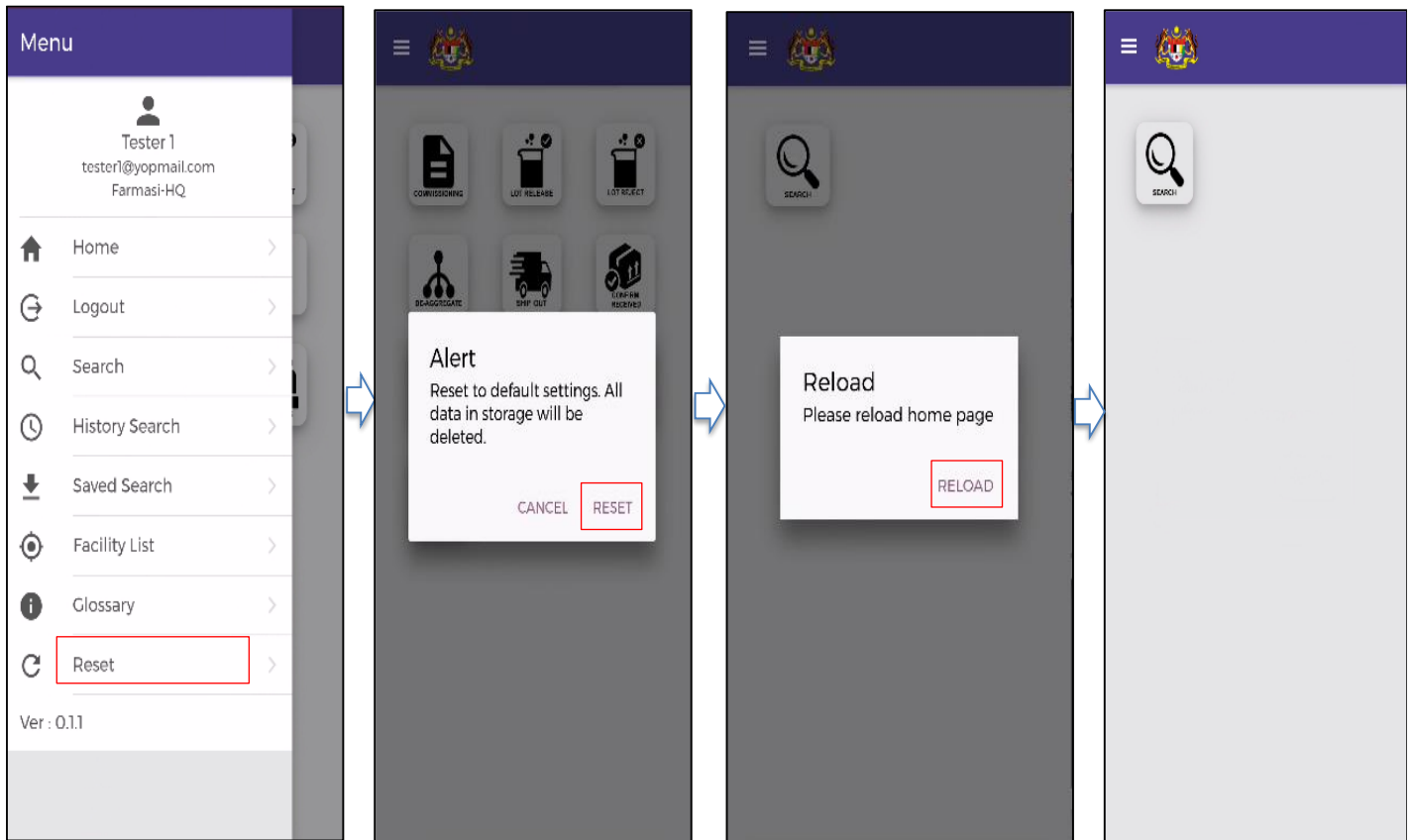


Figure 27: Reset Menu

### INSTRUCTION:

1. Click icon '≡' to open side menu
2. Click **Reset** menu
3. Click **Reset** to reset to default settings
4. Click **Cancel** to cancel reset
5. After user has successfully reset, click Reload.

## 5 NEGATIVE SCENARIOS

Describe the list of warnings/errors/ alerts together with the probable cause and proposed solution.

### 5.1 LOGIN

#### 5.1.1 Incorrect Username

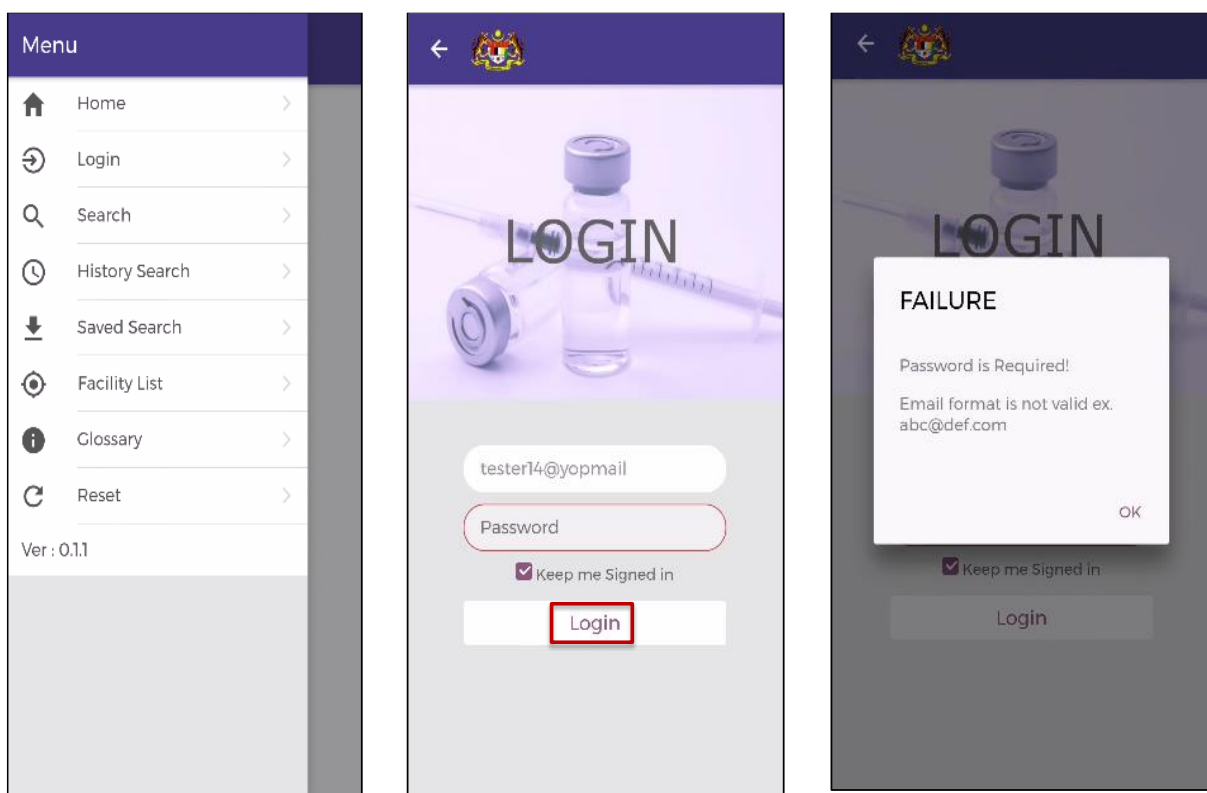


Figure 28: Incorrect Username

Warning/Error Message	Description/Probable Cause	Solution
“Password is Required”	Email format is not valid	Login again with valid email format

5.1.2 Incorrect password

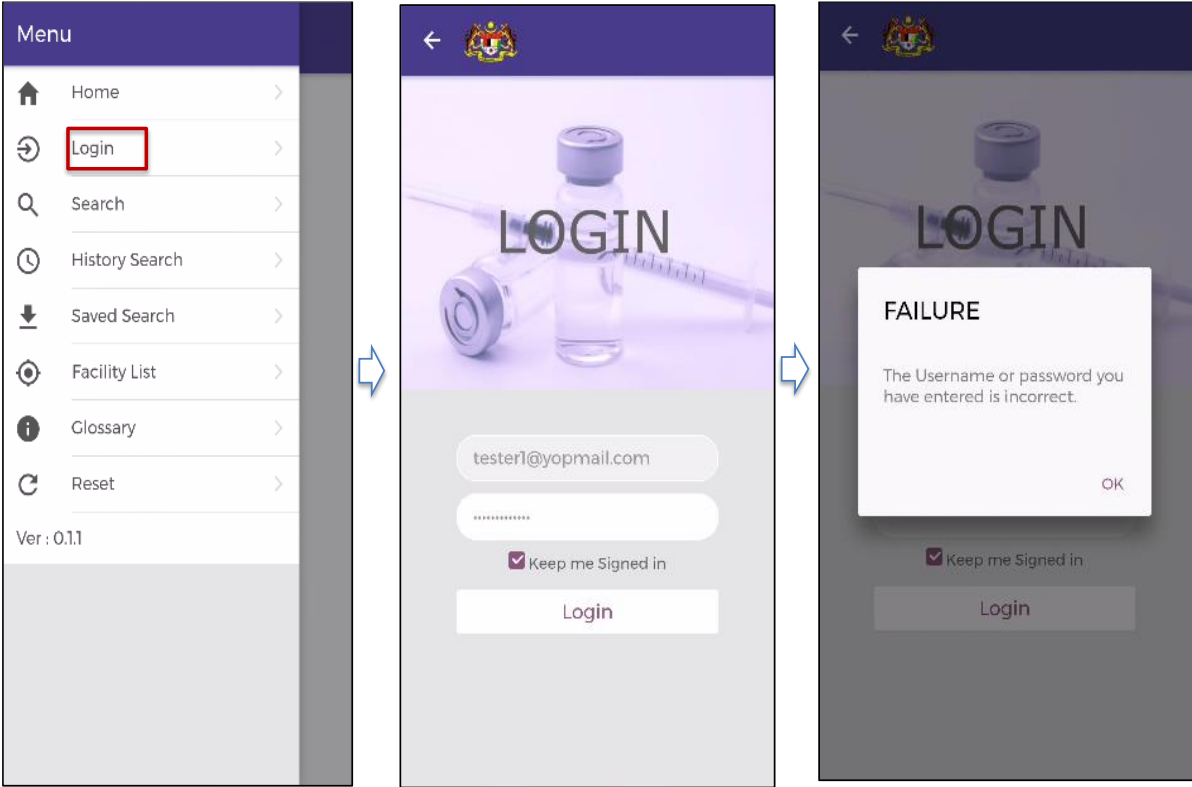


Figure 29: Incorrect Password

Warning/Error Message	Description/Probable Cause	Solution
“The Username or password you have entered is incorrect”	Incorrect password	Login again with correct Password



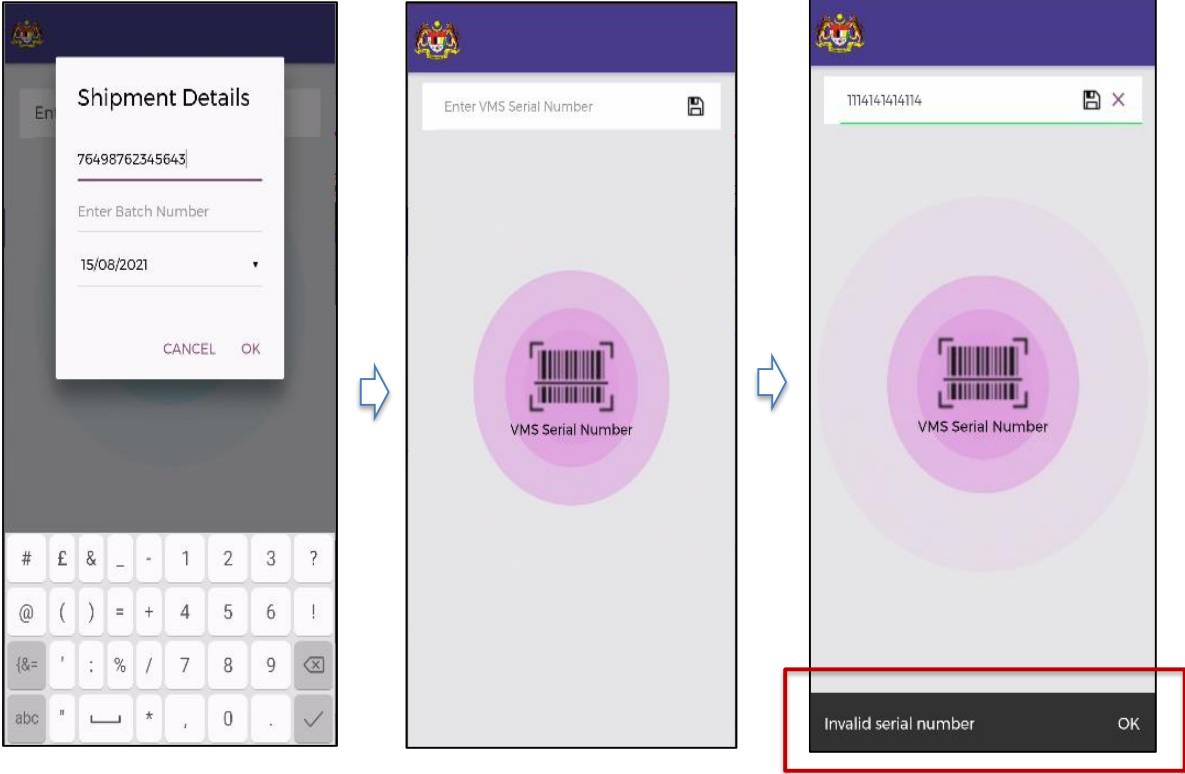


Figure 31: Invalid Serial Number (2)

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number”	Serial Number entered not valid	Enter Serial Number again



5.2.2 Used Serial Number

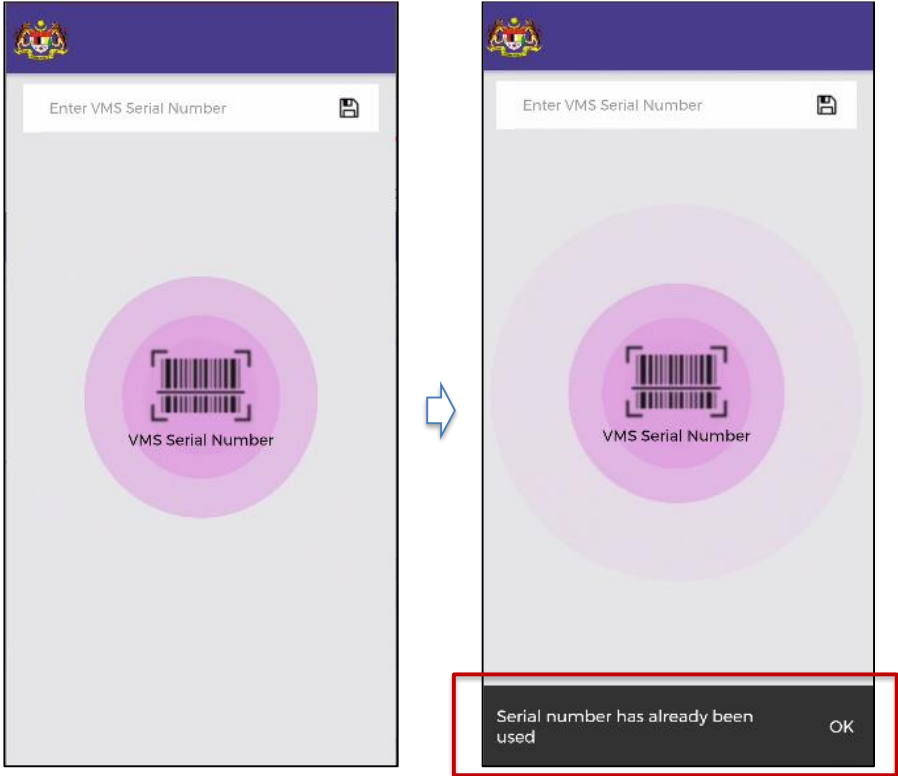


Figure 32: Used Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Serial Number has already been used”	Serial Number that underwent Lot Reject already Serial Number that underwent Log Release already Serial Number that underwent commissioned already	

### 5.3 LOT RELEASE

#### 5.3.1 Serial Number that was not yet commissioned

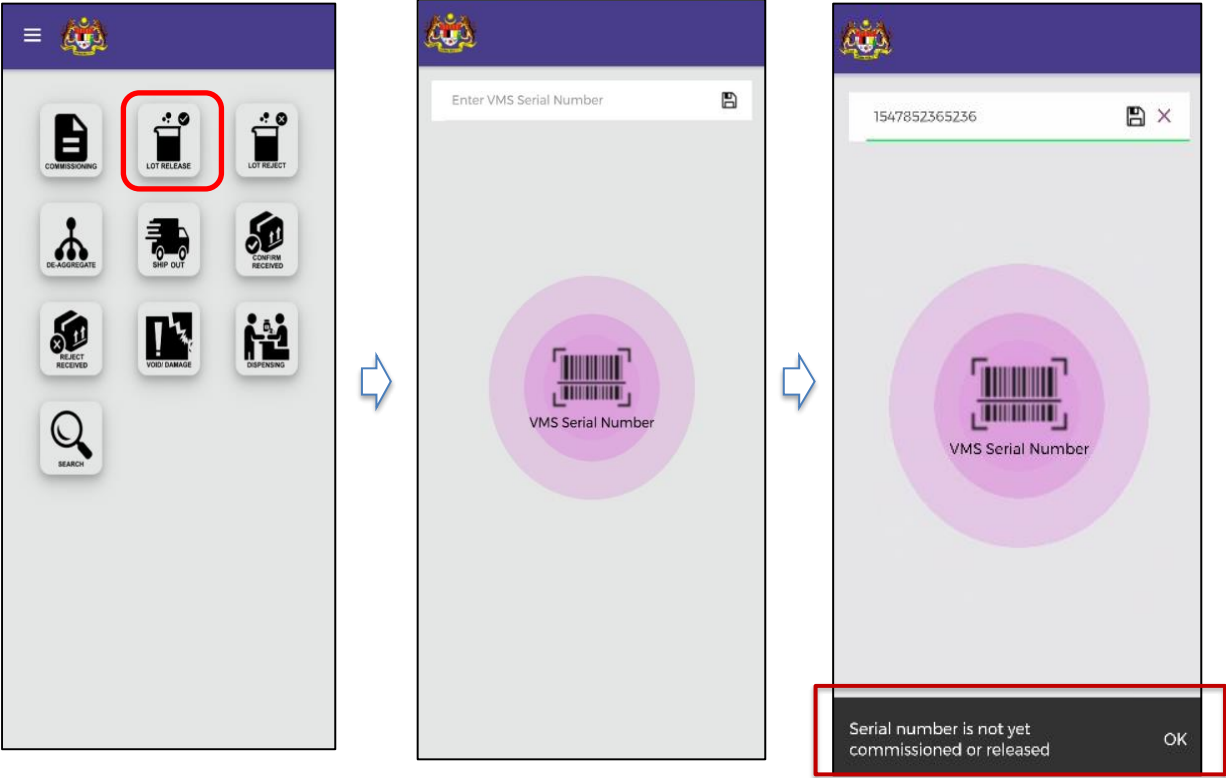


Figure 33: Serial Number Not Commissioned

Warning/Error Message	Description/Probable Cause	Solution
“Serial number is not yet commissioned or released”	Serial Number entered not commissioned	Perform commissioning or release

5.3.2 Serial Number rejected

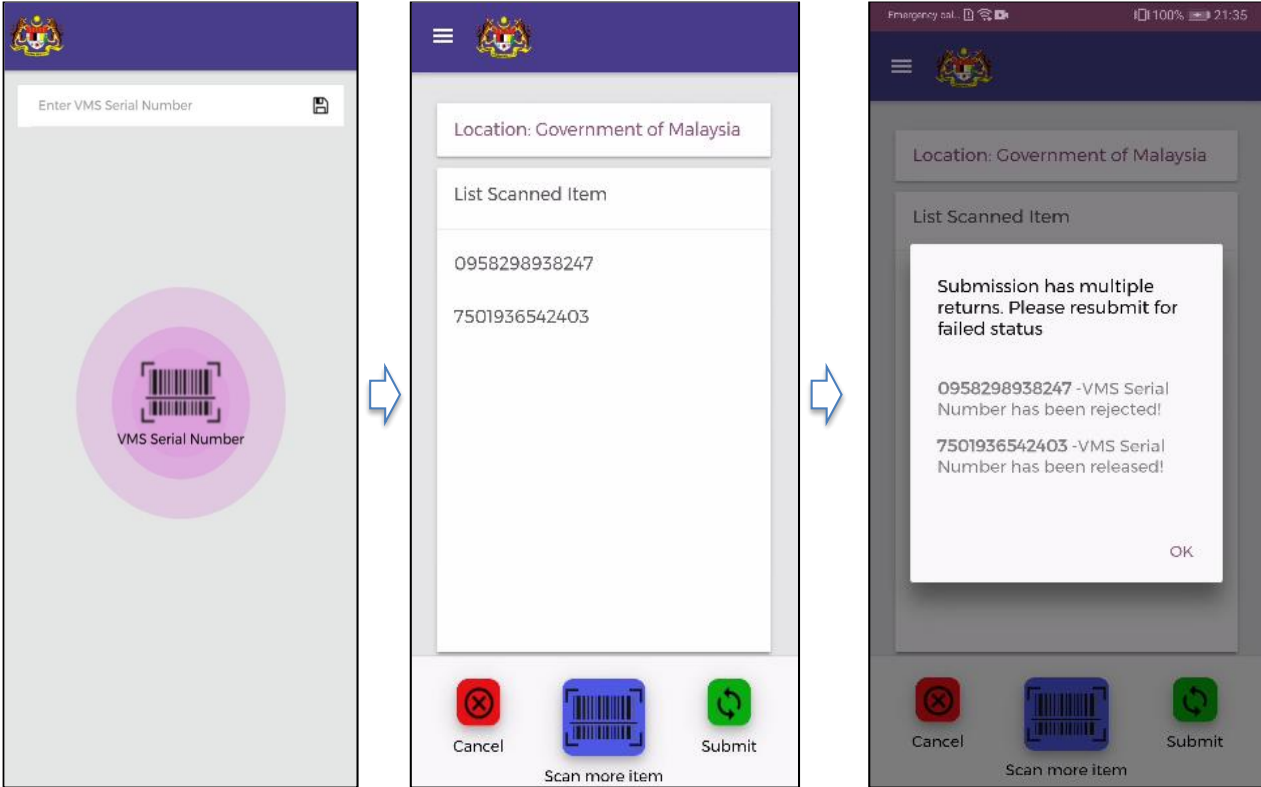


Figure 34: Serial Number Rejected

Warning/Error Message	Description/Probable Cause	Solution
<p>“Submission has multiple returns. Please resubmit for failed status”</p>	<p>Serial Number that underwent Lot Release already</p> <p>Serial Number that underwent Lot Reject already</p>	

### 5.4 LOT REJECT

#### 5.4.1 Serial Number that was not yet commissioned

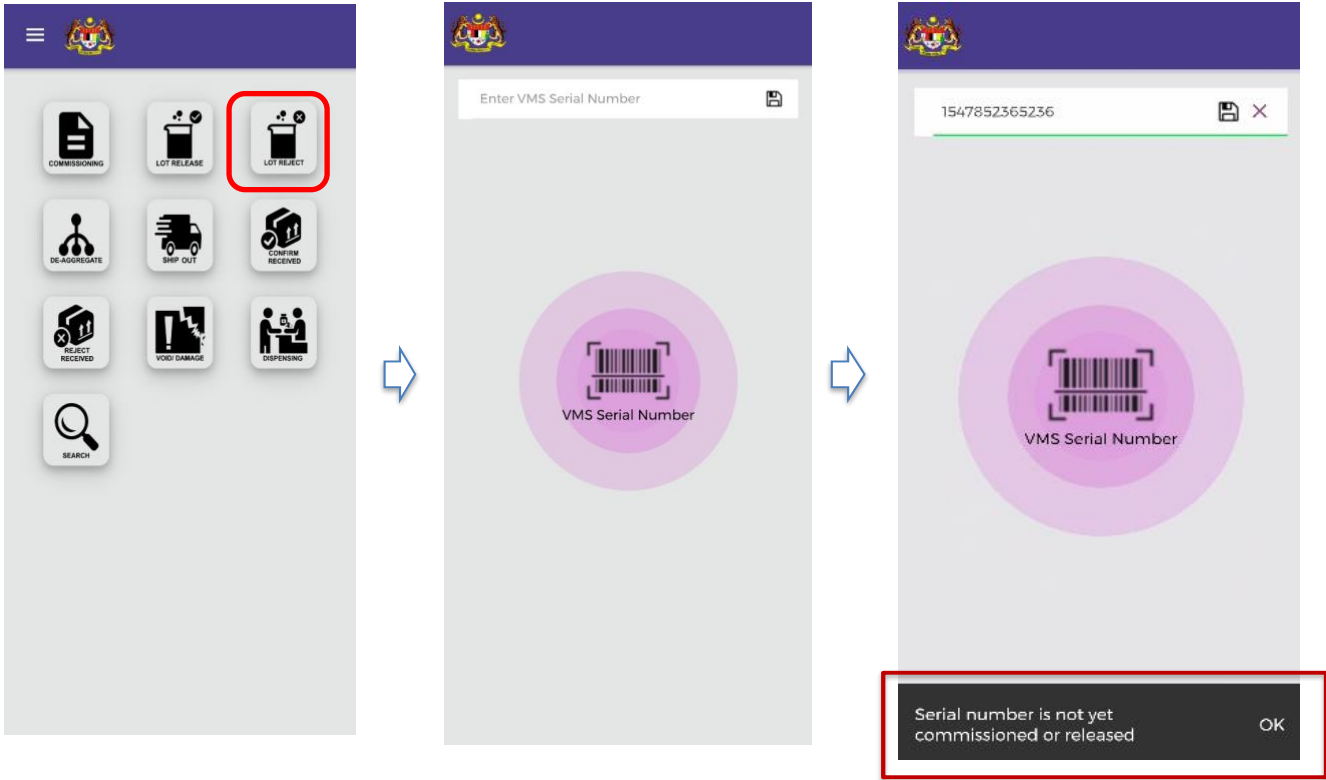


Figure 35: Lot Reject - Serial Number Not Commissioned

Warning/Error Message	Description/Probable Cause	Solution
“Serial number is not yet commissioned or released”	Serial Number entered not yet commissioned	Perform commissioning or release

5.4.2 Serial Number rejected

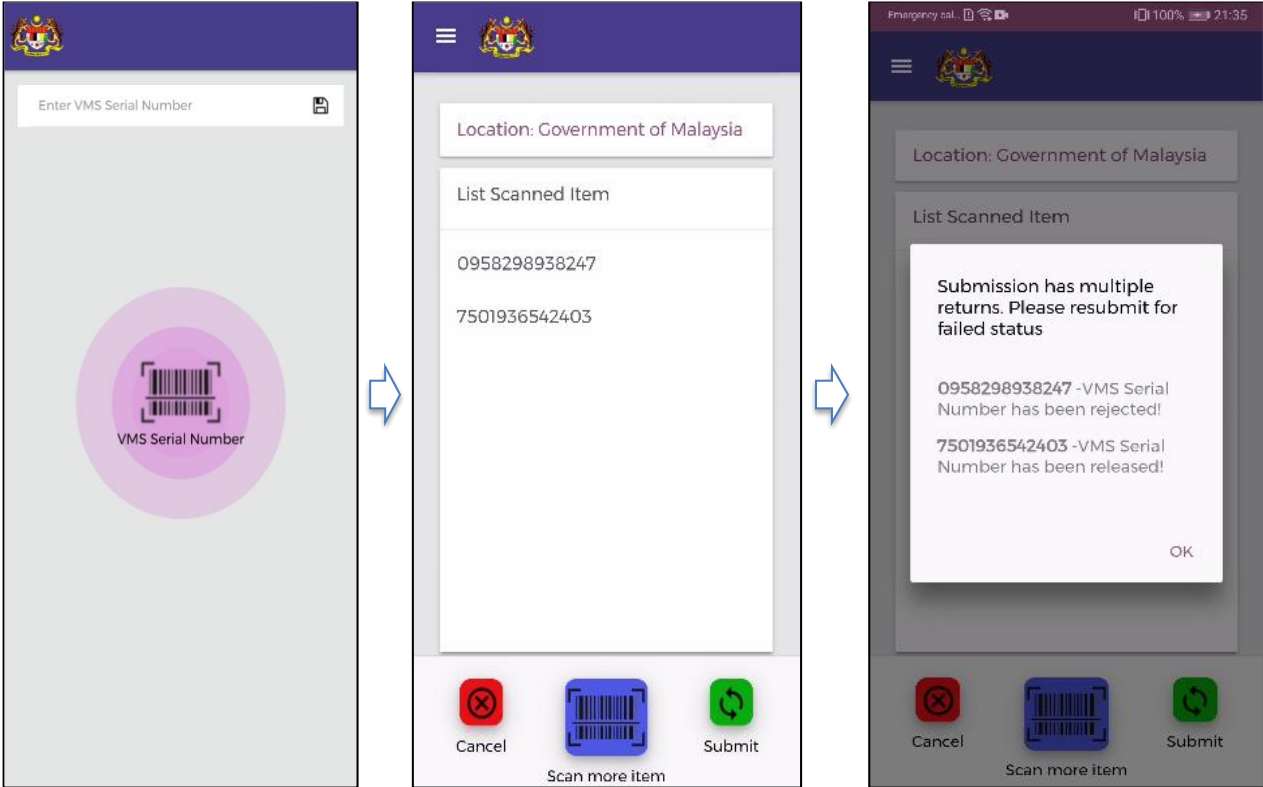


Figure 36: Lot Reject - Serial Number Rejected

Warning/Error Message	Description/Probable Cause	Solution
<p>“Submission has multiple returns. Please resubmit for failed status”</p>	<p>Serial Number that underwent Lot Release already</p> <p>Serial Number that underwent Lot Reject already</p>	

## 5.5 DISAGGREGATION

### 5.5.1 Invalid Serial Number

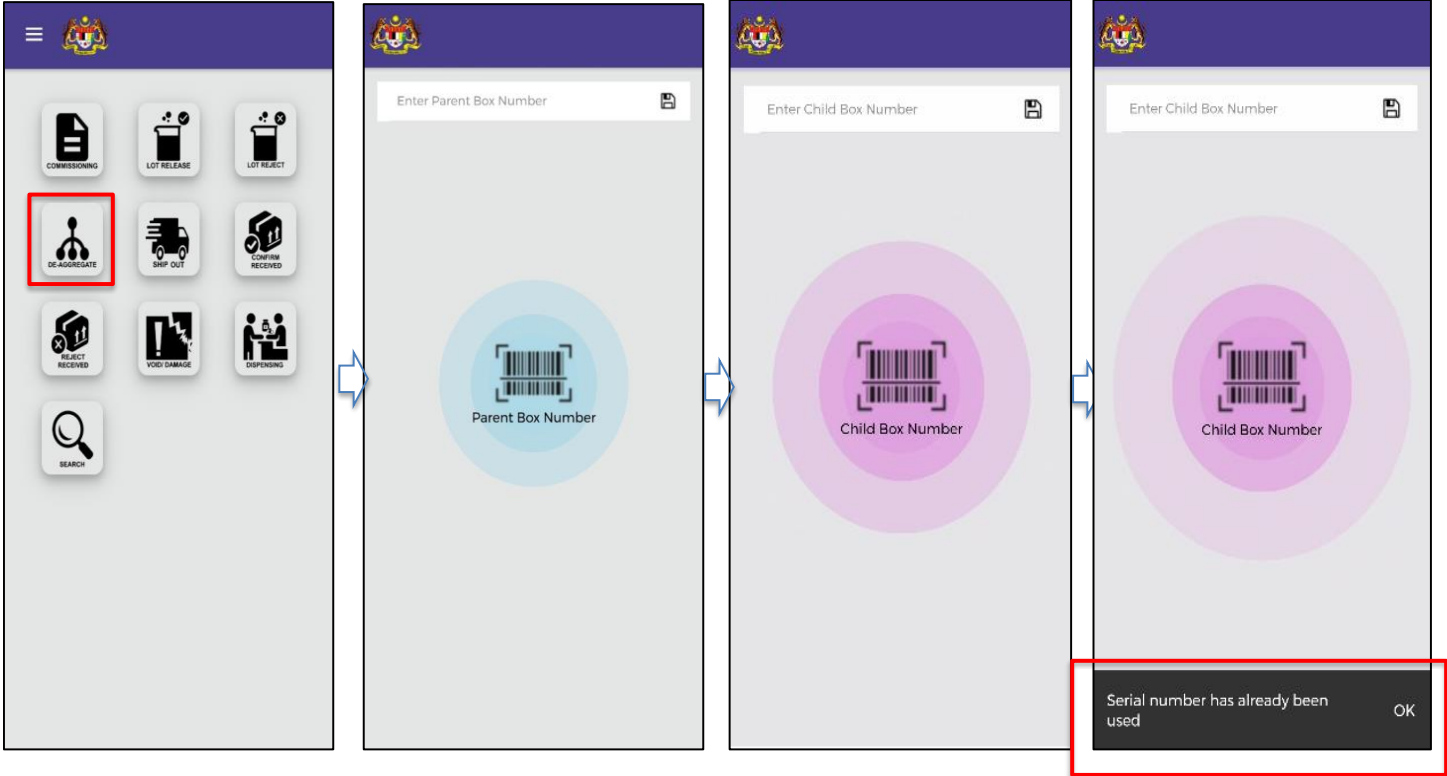


Figure 37: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number” “Serial Number is not yet commissioned or released”	Serial Number that was not commissioned Parent or Child Serial Number that is not in the system Parent or Child Serial Number is already invalid	

### 5.5.2 Rejected Parent Serial Number

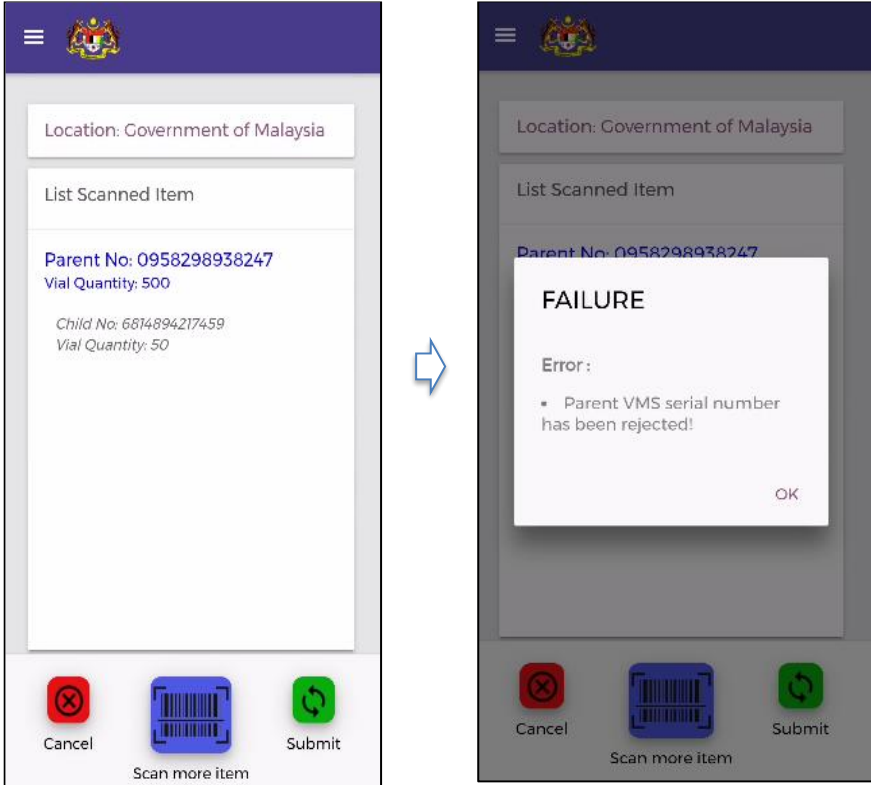


Figure 38: Rejected Parent Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Parent VMS Serial Number has been rejected”	Parent Serial Number that underwent Lot Reject already	

5.5.3 Used Child Serial Number

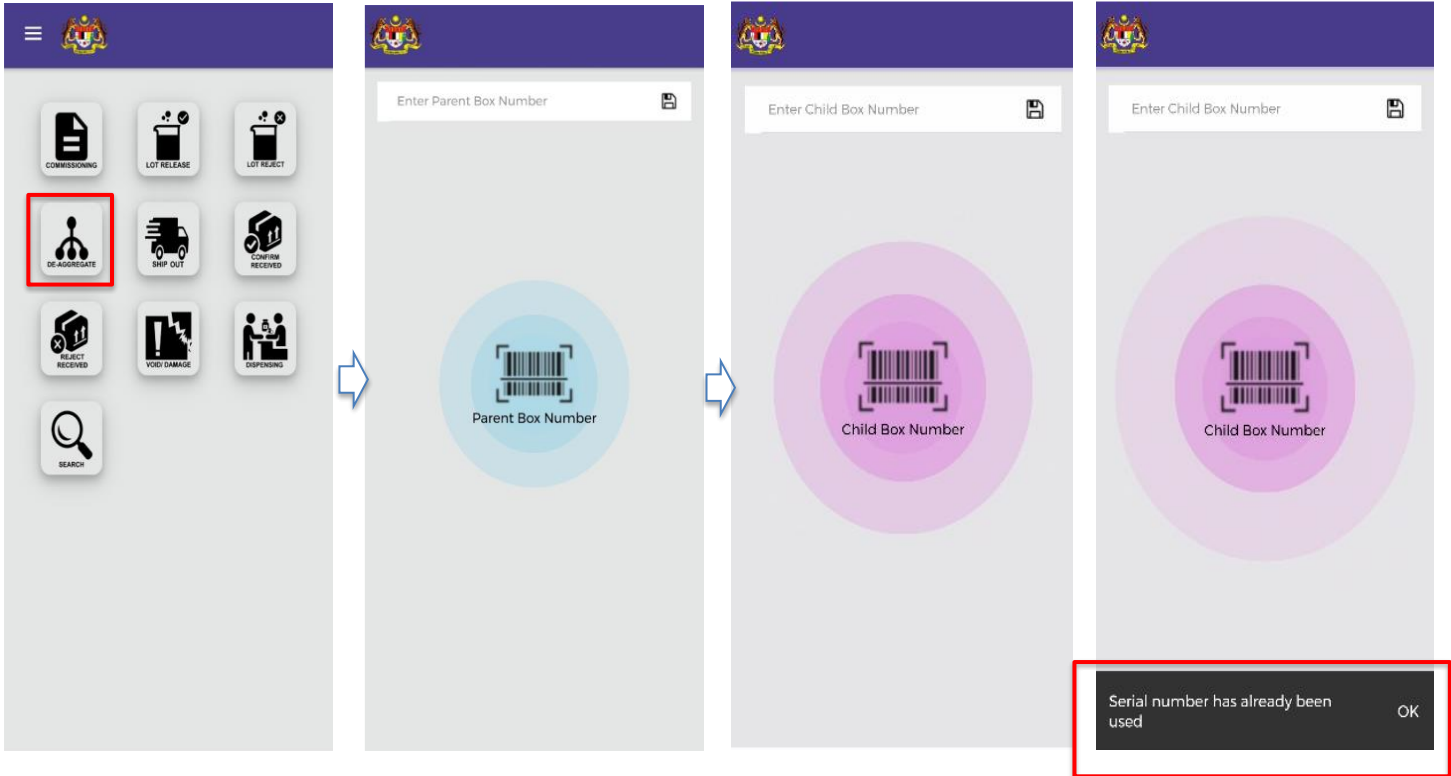


Figure 39: Used Child Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Serial Number has already been used”	Child Serial Number that underwent Log Reject already Child Serial Number that underwent Log Release already Child Serial Number that underwent commissioned already	



### 5.5.4 Child quantity exceeds

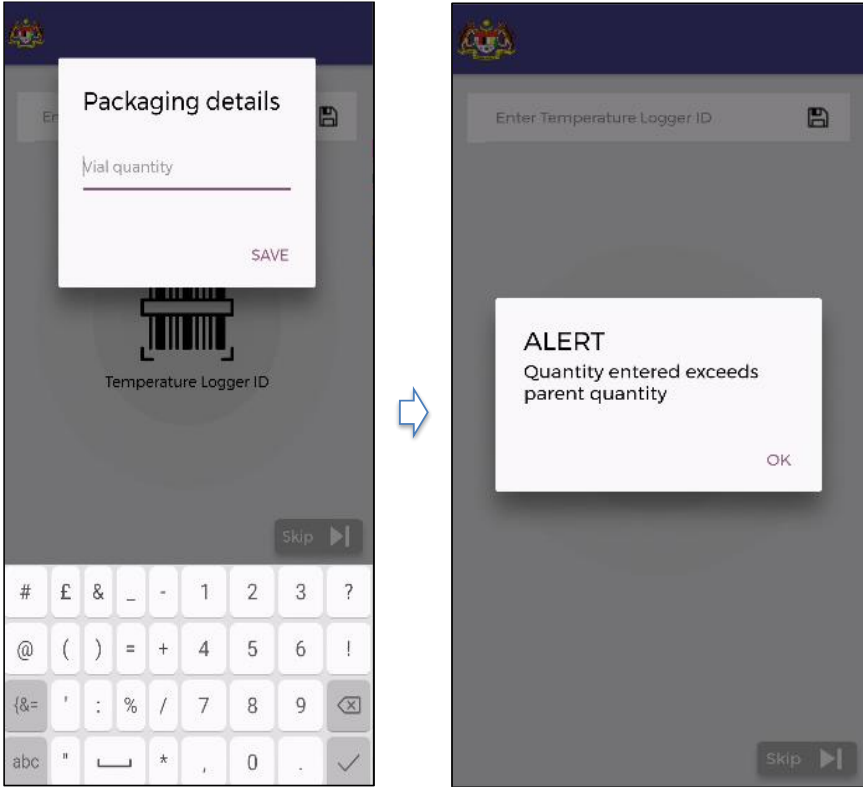


Figure 40: Child Quantity Exceeds

Warning/Error Message	Description/Probable Cause	Solution
“Quantity entered exceeds parent quantity”	Quantity that exceeds the commissioned Parent serial number	

## 5.6 SHIPPING OUT

### 5.6.1 Not commissioned/ Invalid Serial Number

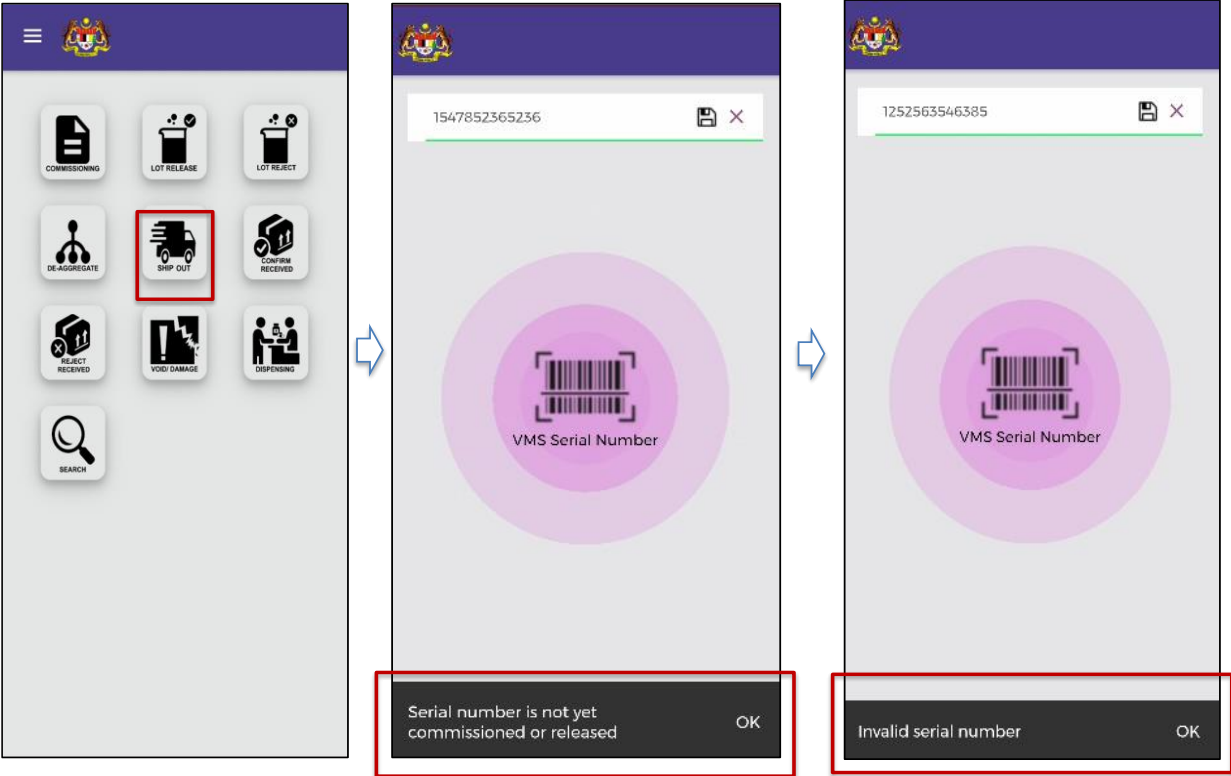


Figure 41: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number”	Serial Number that was not commissioned	
“Serial Number is not yet commissioned or released”	Serial Number that is not in the system	

### 5.6.2 Rejected Serial Number

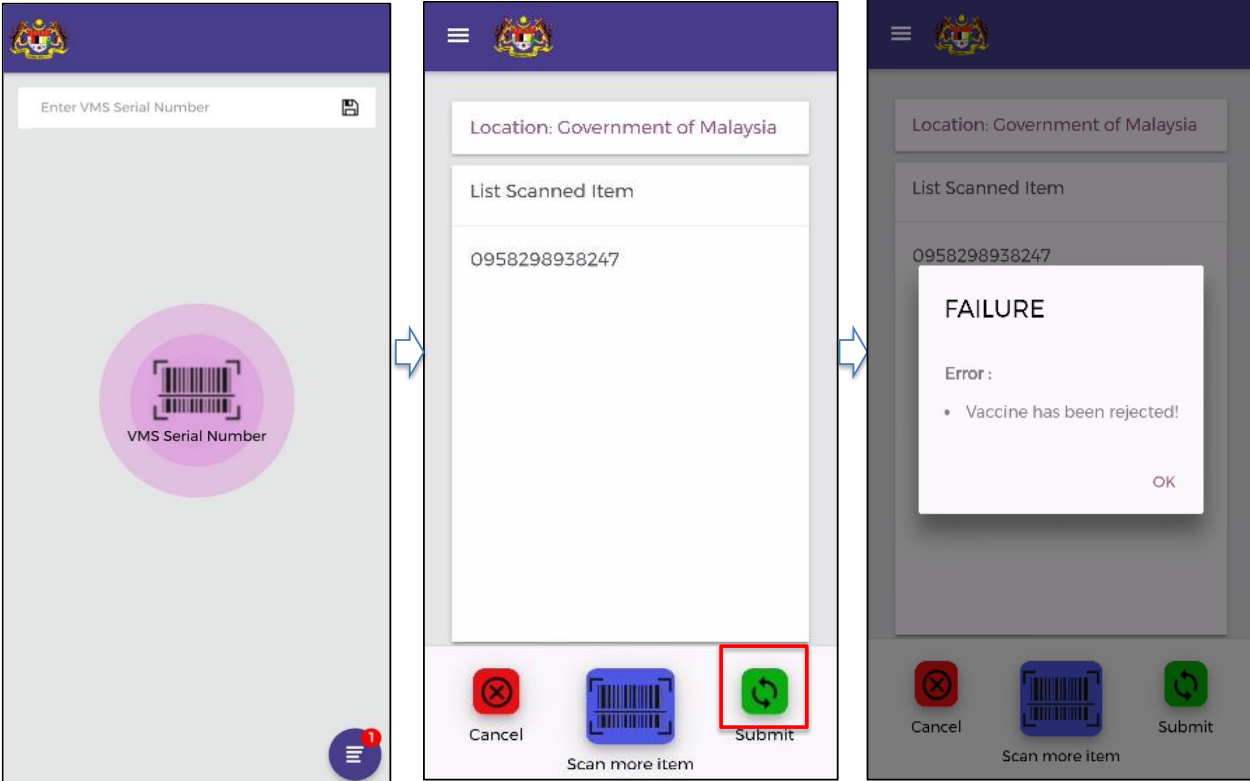


Figure 42: Rejected Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Vaccine has been Rejected”	Serial Number that underwent Lot Reject already	

## 5.7 CONFIRM RECEIVED

### 5.7.1 Not commissioned/ Invalid Serial Number

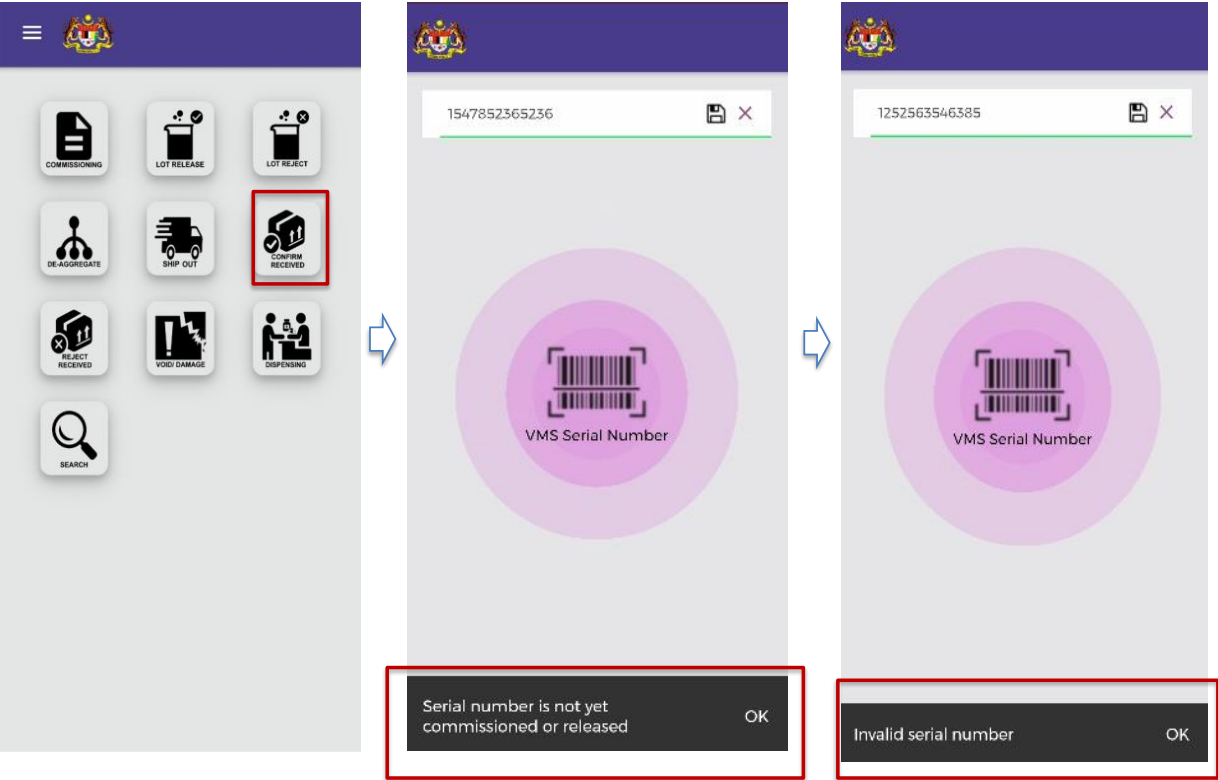


Figure 43: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number” “Serial Number is not yet commissioned or released”	Serial Number that was not commissioned Serial Number that is not in the system	

### 5.7.2 Rejected Serial Number

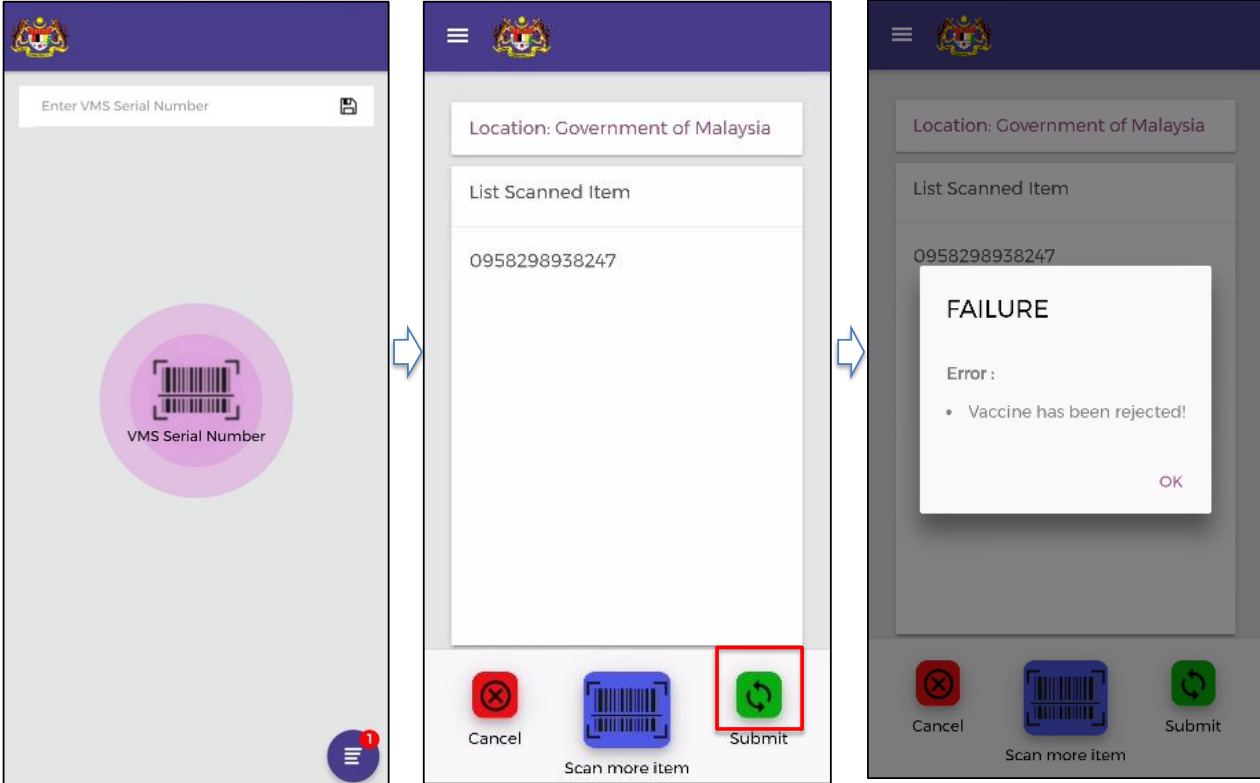


Figure 44: Rejected Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Vaccine has been Rejected”	Serial Number that underwent Lot Reject already	

## 5.8 REJECT RECEIVED

### 5.8.1 Not commissioned/ Invalid Serial Number

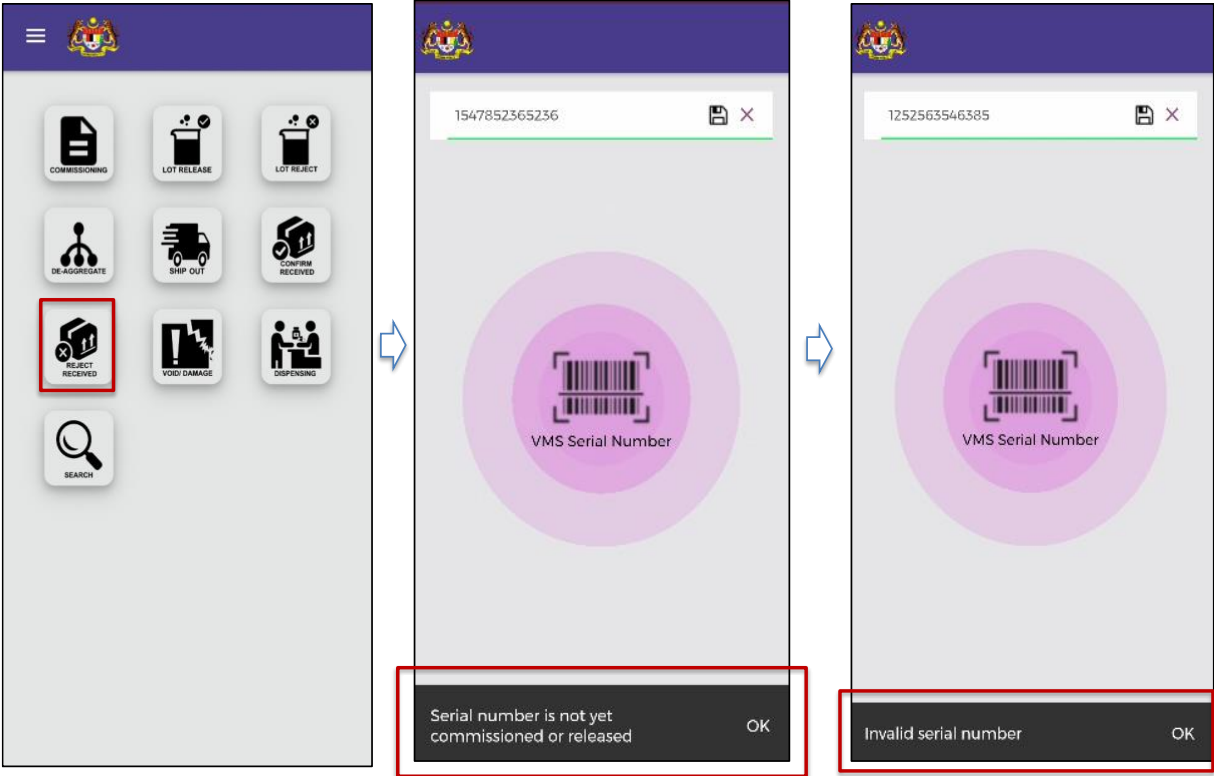


Figure 45: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number” “Serial Number is not yet commissioned or released”	Serial Number that was not commissioned Serial Number that is not in the system	

### 5.8.2 Rejected Serial Number

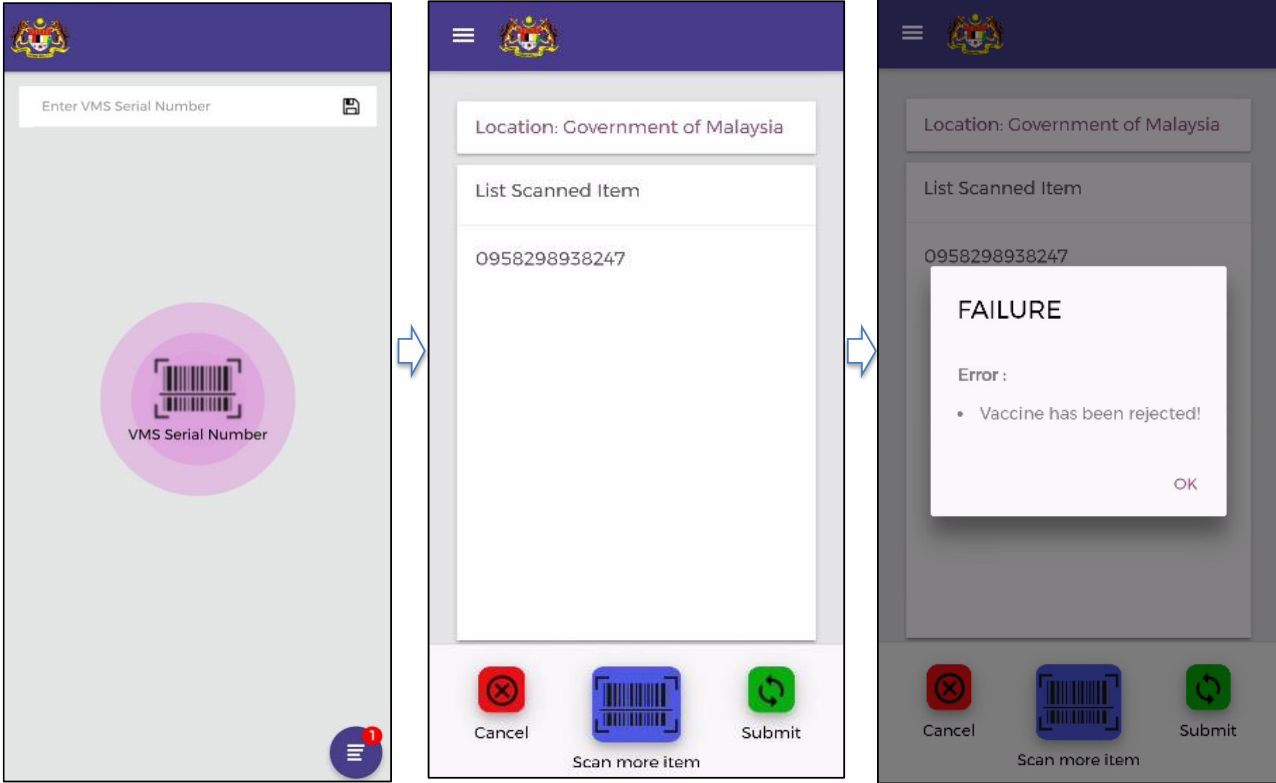


Figure 46: Rejected Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Vaccine has been rejected”	Serial Number that underwent Lot Reject already	

## 5.9 VOID/ DAMAGE

### 5.9.1 Not commissioned/ Invalid Serial Number

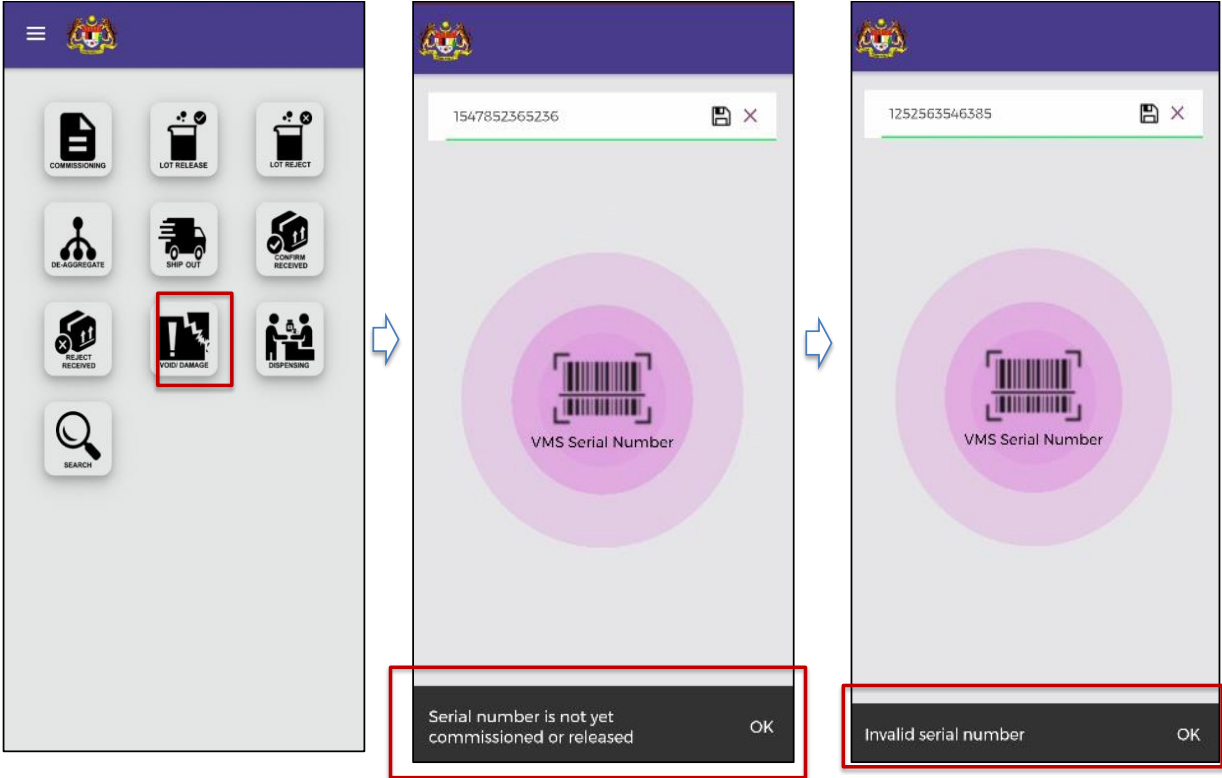


Figure 47: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number” “Serial Number is not yet commissioned or released”	Serial Number that was not commissioned Serial Number that is not in the system	



5.9.2 Quantity exceeds

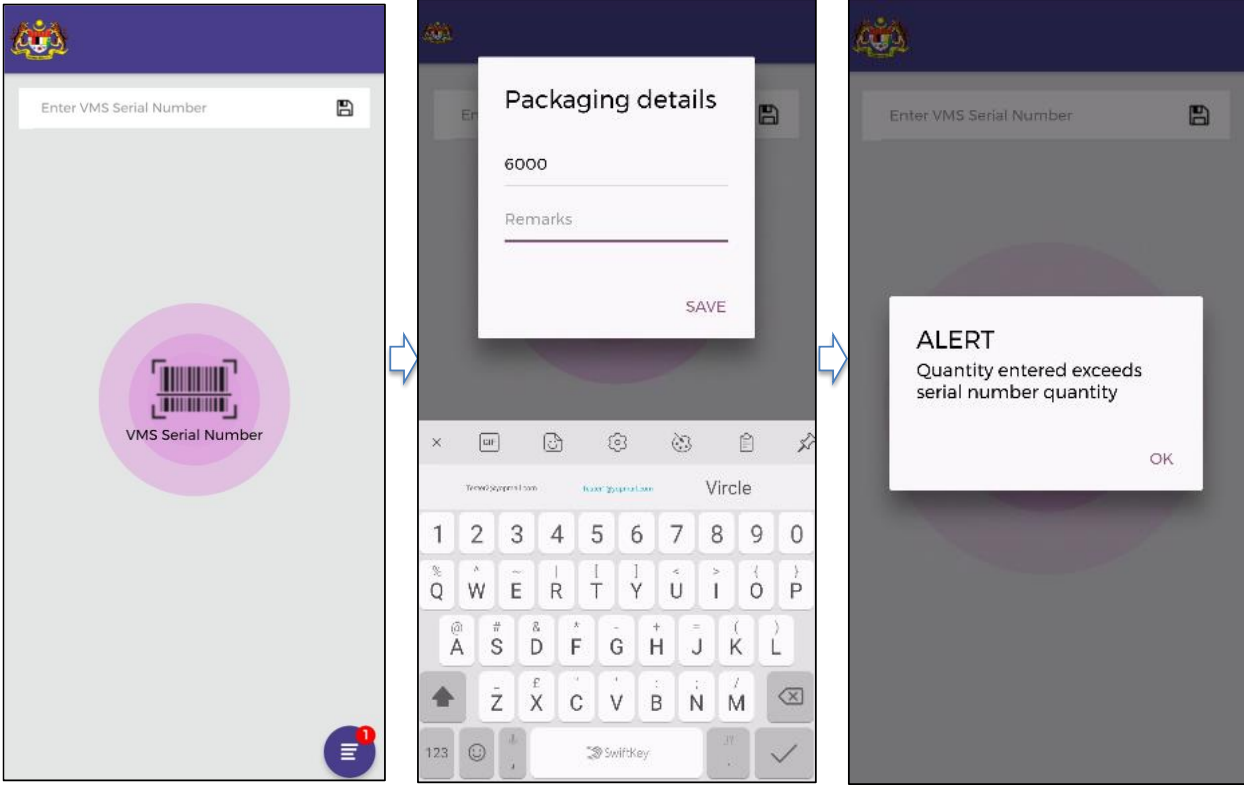


Figure 48: Quantity Exceeds

Warning/Error Message	Description/Probable Cause	Solution
"Quantity entered exceeds serial number quantity"	Quantity that exceeds the serial number quantity	

## 5.10 DISPENSING

### 5.10.1 Not commissioned/ Invalid Serial Number

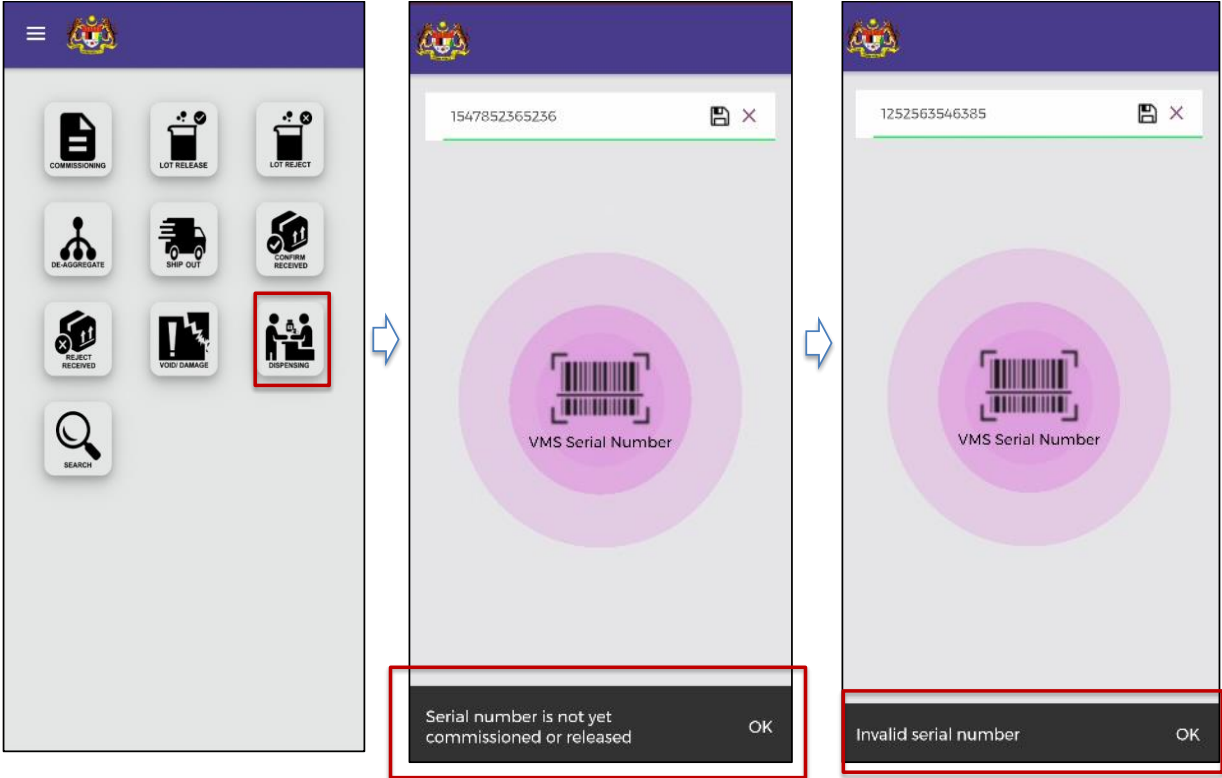


Figure 49: Invalid Serial Number

Warning/Error Message	Description/Probable Cause	Solution
“Invalid Serial Number” “Serial Number is not yet commissioned or released”	Serial Number that was not commissioned Serial Number that is not in the system	

5.10.2 Quantity exceeds

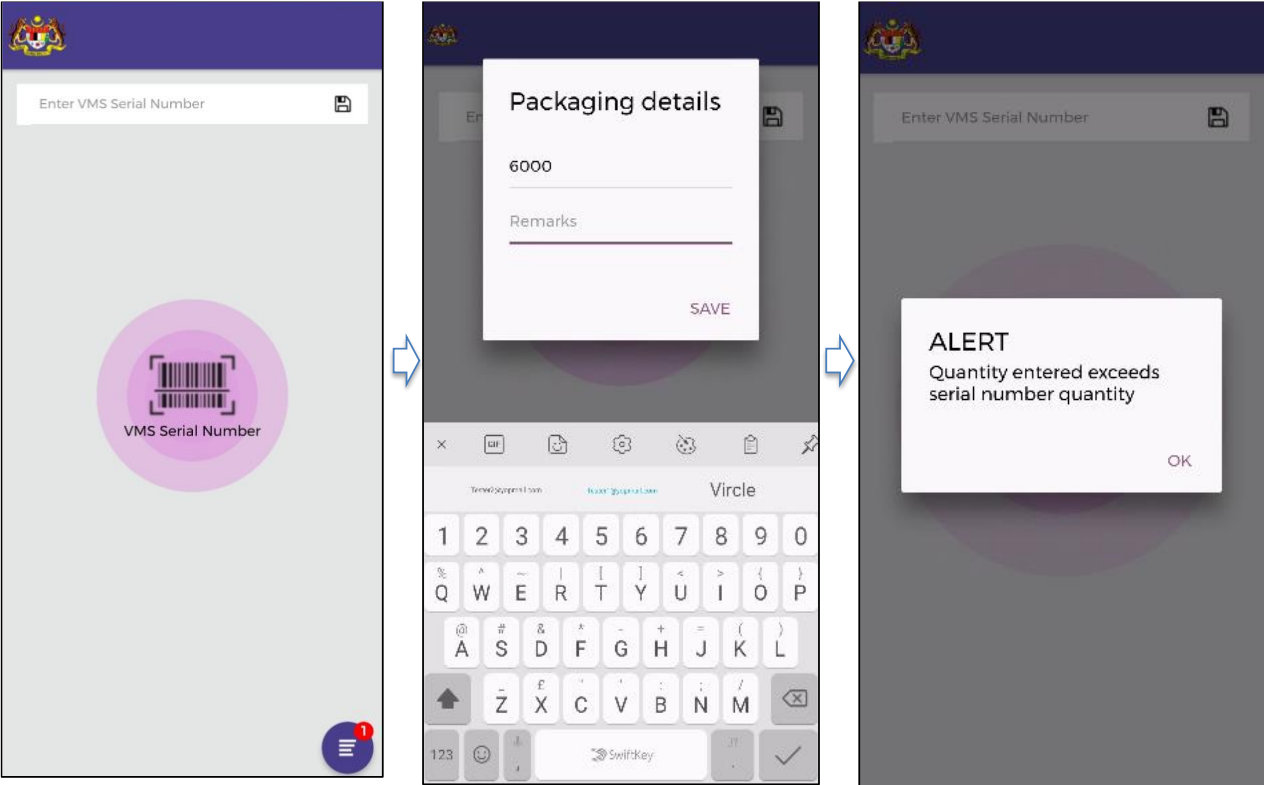


Figure 50: Quantity Exceeds

Warning/Error Message	Description/Probable Cause	Solution
“Quantity entered exceeds serial number quantity”	Quantity that exceeds the serial number quantity	

## 6 FREQUENTLY ASKED QUESTIONS (FAQ)

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NA

## 7 TECHNICAL SUPPORT CONTACT INFORMATION

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Vaccine Management System is developed by MIMOS Berhad. If you have any comments or questions regarding VMS 1.0, please contact:

MIMOS Berhad

Technology Park Malaysia

57000 Kuala Lumpur, Malaysia

Tel: 1300 88 8030

E-mail: [support.vms@mimos.my](mailto:support.vms@mimos.my)

Service Desk: <https://mi-latte.mimos.my/mi-latte/> (for user account registration, contact the above e-mail address)

Operating Hours: 8.30am to 5.30pm (Mon-Fri) except National and Federal Territory public holidays

## APPENDIX A: PACKAGING DEFINITION

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Based on the following packaging types and definition as per WHO shipping guidelines, the system is proposed to use the following GS1 standard data carriers and data types:

Type <sup>1</sup>	Definition <sup>1</sup>
Primary packaging	The first level of container for the vaccine: the vaccine primary container – vial, ampoule, pouch or other
Secondary packaging	The second level of packaging comprises the intermediate packaging that contains the primary packages: the vaccine carton box with the vials/ampoules/leaflet, such as tray.
Grouping case	The grouping case is a box in which there are multiple units of secondary packaging, such as box, shipper, etc.
Tertiary packaging	The third level of packaging is the shipping unit. The shipping unit is the outer insulated box (protected by a cardboard or plastic external layer) that contains the secondary packages or grouping cases. Tertiary packaging shall be the outer shipping unit, such as pallet, lorry, shipping container, etc.

<sup>1</sup> Definition derived from WHO Vaccines Shipping Guidelines

[https://www.who.int/immunization\\_standards/vaccine\\_quality/vaccines\\_packaging\\_guidelines2019/en/](https://www.who.int/immunization_standards/vaccine_quality/vaccines_packaging_guidelines2019/en/)

## APPENDIX B: CARE AND MAINTENANCE

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NA

## APPENDIX C: TECHNICAL SPECIFICATIONS

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NA



## GLOSSARY

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<b>Acronym/Abbreviation/Term</b>	<b>Expansion</b>
<b>VMS</b>	Vaccine Management System
<b>PhIS</b>	Pharmacy Information System
<b>PPV</b>	Pusat Pemberian Vaksin
<b>PSV</b>	Pusat Simpanan Vaksin