

Zambia Electronic Immunization Registry



VERSION 1.4.0 USER MANUAL

RELEASE DATE: 27-04-2018



BETTER IMMUNIZATION DATA
INITIATIVE



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ACRONYMS

ZEIR – Zambia Electronic Immunization Registry

BID – Better Immunization Data

OpenSRP - Open Smart Register Platform

DHIS - District Health Information Software

HIA - Health Information Aggregation

1.0 INTRODUCTION

1.1 Overview

The Better Immunization Data (BID) Initiative was designed to shine a light on the challenges surrounding data collection, quality, and use. BID partnered with the Government of the Republic of Zambia to address key challenges in immunization data and data use from 2013 to 2018. The identified areas of concern included; accuracy of immunization data, Completeness and timeliness of data, limited utilization of data at facility level and inefficiency in monitoring vaccine supply chain. In the light of these challenges the BID Initiative developed a package of interventions designed in collaboration with the potential users. These interventions included the development of an electronic immunization register, and thus the birth of ZEIR - Zambia Electronic Immunization Registry.

1.2 What is ZEIR

The Zambia electronic immunization registry (ZEIR), powered by OpenSRP (Smart Register Platform), is an open source android application geared towards frontline health workers with offline functionality and is interoperable with other open source global goods such as District Health Information Software (DHIS2). ZEIR is standard based and has been built to ensure timely, complete and accurate immunization data that enables the tracking of children and their vaccination records. Children are registered at birth and the system is designed to generate lists of all children due for vaccination at any given time. ZEIR is able to: register children; update immunization status; monitor child growth (including z-scores), supplements such as Vitamin A and deworming status; track stock levels at service delivery point; capture insecticide treated net ownership; and populate the HIA2 (Health Information Aggregation Form 2) monthly. ZEIR has an inbuilt mechanism for generating unique identification for children entered into the system and also has an option to use quick response codes (QR codes) to uniquely identify children. See summary of the ZEIR capabilities

1.3 Introduction to this manual

This user manual provides instructions on how to use the ZEIR app during your daily work at the health facility.

2.0 NAVIGATING ZEIR

2.1 Logging in

To login into the system, the user is expected to enter the username and the password. The PATH team will provide you with a unique username and password to log in to the app. This username and password is unique to you, so you should not share your login details with anyone else. Memorize your password, so that you don't have to write it down.

- a. To log in to the app, tap on the ZEIR app icon (fig 1) from your device's home screen.
- b. Enter your username and password on the login screen that appears (in fig 2). When finished, tap the 'LOG IN' button.

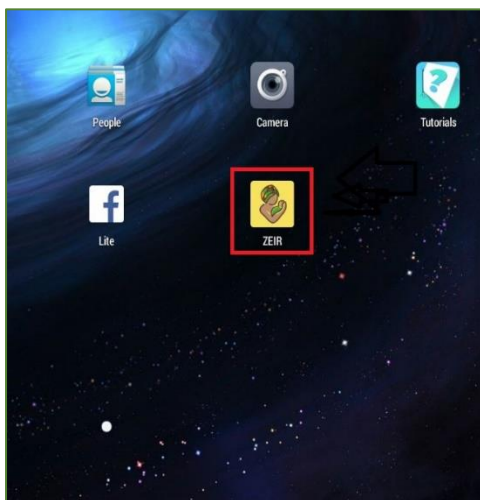


Fig 1

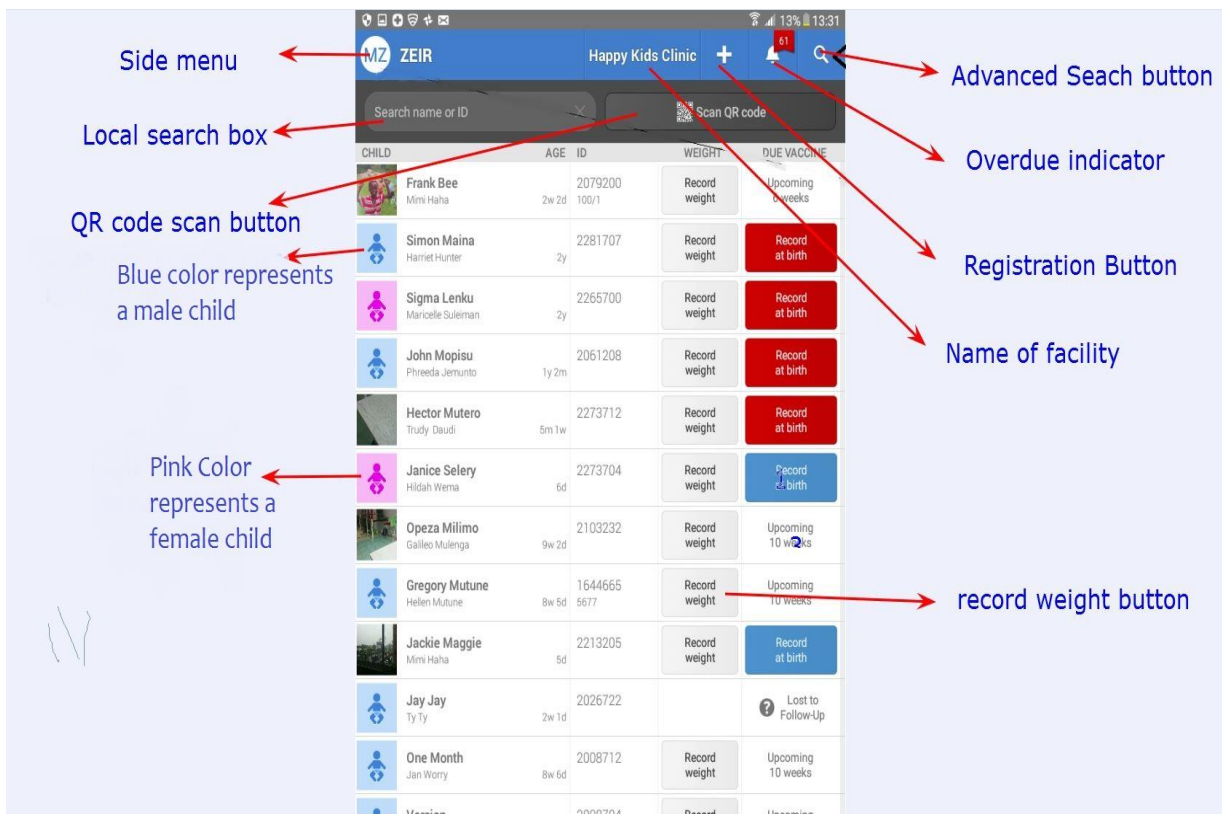


fig 2

Note: Users are grouped and mapped onto a facility tablet you belong. You cannot therefore login onto a tablet that belong to another facility. This will generate a user group error. If user is transferred to another facility, kindly request admin to move the user to the intended facility.

2.2 Home screen

The first screen you see when you log in to the application is the main register or home page (see below). This is a list of all of the children that are registered to your health facility. The list of children is sorted by date last modified, meaning the children who most recently visited the health facility and received services will appear on top. *See general views of the Home screen below*



MZ

ZEIR


Linda

+

75

Search name or ID

Scan QR code

CHILD	1	AGE	ID	2	3	HT	DU	4	CINE
	Fred Maina M/G:	7w 5d	2798882		✓ 2.0 kg			Record at birth	
	Kemunto Maina M/G:	4y 1m	2798874		Record weight			Record 6 weeks	
	David Livingstone Martha Livingstone	4d	3692316 45/17		✓ 5.8 kg			Due 6 weeks	
	Geofy Tenga Emmy Rose	1y	3729316 45		✓ 3.0 kg			✓ 9 months	
	Moono Choolwe Maa... Jerina Munsaka	10m	3628864		Record weight			Record 10 weeks	
	Julius Malemba Mary Makau	2y 2m	3777810 98657		Record weight			Record 6 weeks	
	GepfyTwo Tenga Zeka Tum	5w	3729324		Record weight			Record at birth	
	Joyce Chanda Alice Musonda	9d	3559887 546/17		Record weight			Due 6 weeks	
	Zelu Tembo Brenda Tembo	9m 3w	3650314 456/16		Record weight			✓ 10 weeks	
	Bonq Suluki Salina Magodi	5m 1w	3697315 218/17		Record weight			Due 10 weeks	

1. The child's photo, name, name of mother/guardian, and age will appear in the first box.
2. The second box shows the child's ZEIR ID and register card number. The ZEIR ID is a unique, 7-digit ID number assigned to the child when they are registered. The ZEIR ID is embedded within a QR code sticker that is stuck to the child's vaccine card when they are first registered in the ZEIR app. The ZEIR ID is totally unique. No two children in the country will have the same ZEIR ID. This is why the ZEIR ID is the primary ID number used in the ZEIR app. below is a picture of a QR code
3. The third box is the weight indicator. A tick shows the child has been weighed otherwise it will state record weight
4. The fourth box is the vaccine status button. The button will be blue if the child is due for a vaccine, red if the child is overdue and a tick will indicate that the child has been given vaccinations. If the child is fully immunized, the button will indicate so.



The QR CODE is stuck on the child's card on first registration. This makes searching for child and retrieving the child's records much quicker.

3.0 REGISTRATIONS

3.1 Registering a birth.

1. You can register a new birth in the app by tapping on the **Plus (+)** button in the main register view (Home screen) or by tapping the **Register** button in the side menu.

The image displays three overlapping screenshots of the ZEIR app interface, illustrating the steps to register a birth.

Screenshot 1 (Main Register View): Shows the top navigation bar with the MZ ZEIR logo, the user name Linda, a '+' button (labeled 1), a notification bell with 75 alerts, and a search icon. Below the bar is a search bar labeled 'Search name or ID' and a QR code scanner labeled 'Scan QR code'.

Screenshot 2 (Birth Registration Form - Step 1): Shows the 'Birth Registration' form (labeled 2) with a 'SAVE' button. The form includes a 'TAKE A PHOTO OF THE CHILD' button and the following fields: Child's home health facility *, Child's ZEIR ID * (2260701), Child's register card number, Child's birth certificate number, First name, Last name *, and Sex *.

Screenshot 3 (Birth Registration Form - Step 2): Shows the 'Birth Registration' form (labeled 3) with a 'SAVE' button. The form includes the following fields: Child's DOB *, Date first seen *, Birth weight (kg) *, Mother/guardian first name *, Mother/guardian last name *, Mother/guardian DOB, Mother/guardian NRC number, Mother/guardian phone number, Father/guardian NRC number, Place of birth *, Child's residential area *, Home address *, Landmark, CHW name, CHW phone number, and HIV exposure.


2. Tapping on the birth registration button opens the Birth Registration form. In the form, you can take a picture of the child (if the mother/guardian of the child permits) and record the details of the child and his/her parents or guardians. Fields marked with an asterisk (*) are required, meaning you cannot save the form until all required fields are answered at a minimum. The Child's ZEIR ID field is populated with the child's 7-digit unique ZEIR ID. Write this number on the child's vaccine card for easier identification in the future.
3. Once you are finished, tap the **SAVE** button in the top right of the screen to save the child's record. You will return to the home screen. The child's record should immediately appear in the register view. You can then open the child's vaccine card to record any vaccinations given.

Note: By registering a birth, you are creating a new record in the app for that child, so that you can record the child's vaccines and weights going forward.

3.2 Editing Records

In the detailed view, editing data can be done via the edit menu. The user can access the edit menu by tapping the edit icon (pencil icon) in the top right of the detailed view screen. The edit registration data option opens the Birth Registration form. Edits can be made to the data and then submitted again.

<
Geofy Tenga's Health Details



Geofy Tenga
ZEIR: 3729316 Age: 1y

Registration Data

Child's home health facility	Linda
Child's ZEIR ID	3729316
Child's register card number	45
Child's birth certificate number	45
First name	Geofy
Last name	Tenga
Sex	Male
Child's DOB	04-07-2016
Age	1y
Date first seen	04-07-2017
Birth weight	4 kg
Mother/guardian first name	Emmy
Mother/guardian last name	Rose
Mother/guardian DOB	04-03-1990
Mother/guardian NRC number	454545/45/4
Mother/guardian phone number	0973808503

Change status
Edit registration data
Edit weight data
Edit immunisation data
Edit recurring services data
Report deceased
Report adverse event

4.0 CHILDS CARD


4.1 Vaccine card screen

By tapping anywhere in the first box of the child's record on the home screen, you can open the child's vaccine card (see below the child's card once you tap on the child's record).

←

ZEIR > Fred Maina

Linda




Fred Maina

ZEIR: 2798882 Age: 7w 5d


⋮

WEIGHT-FOR-AGE

✓ 2.0 kg



HIS SIBLINGS



SM

IMMUNISATION & SERVICES

DOB: 16/05/2017

Recurring Services

Record Vit A IFC 2

Record ITN 1

Birth

Record all

Record OPV 0

✓ BCG - 15/05/17

6 Weeks

Record all

Record OPV 1

Record Penta 1

Record PCV 1

Record Rota 1

4.2 Vaccine schedules


Vaccine schedules are available in both offline and online mode, this will enable you register older children and be able to mark previous vaccine doses given.

The vaccine card view shows you the complete vaccine record for the child. From this screen, you can record the child's weight and vaccinations. You can also see the child's siblings who are also registered in the app (if any). To see the details of the siblings simply tap on the listed siblings. Deworming, ITNS and Vitamin A services appear under Recurring Services.

←

ZEIR > Fred Maina

Linda




Fred Maina

ZEIR: 2798882 Age: 7w 5d


⋮

WEIGHT-FOR-AGE

✓ 2.0 kg



HIS SIBLINGS



SM

IMMUNISATION & SERVICES

DOB: 16/05/2017

Recurring Services

Record Vit A IFC 2

Record ITN 1

Birth

Record all

Record OPV 0

✓ BCG - 15/05/17

6 Weeks

Record all

Record OPV 1

Record Penta 1

Record PCV 1

Record Rota 1

4.3 Vaccine saving

When you record a vaccination, a blue “Undo” button appears. This allows the user to delete, or undo the recording of the vaccination. The vaccine reverts to the original due state if undone.

IMMUNISATION RECORD

DOB: 05/04/2017

Birth

Record all

✓ OPV 0 - 07/04/17

Undo

Record BCG

Note: If you do not give all of the vaccines that are due, the home screen will still display the due button for the vaccine(s) that weren't given.

MZ

ZEIR








Linda

+

75

Search name or ID

Scan QR code

CHILD	AGE	ID	WEIGHT	DUE VACCINE
 <div>Fred Maina M/G:</div>	7w 5d	2798882	<div><div>✓</div><div></div></div>	<div>Record at birth</div>
 <div>Kemunto Maina M/G:</div>	4y 1m	2798874	<div>Record weight</div>	<div>Record 6 weeks</div>
 <div>David Livingstone Martha Livingstone</div>	4d	3692316 45/17	<div><div>✓</div> 5.8 kg</div>	<div>Due 6 weeks</div>
 <div>Geofy Tenga Emmy Rose</div>	1y	3729316 45	<div><div>✓</div> 3.0 kg</div>	<div><div>✓</div> 9 months</div>
 <div>Moono Choolwe Maa... Jerina Munsaka</div>	10m	3628864	<div>Record weight</div>	<div>Record 10 weeks</div>
 <div>Julius Malemba Mary Makau</div>	2y 2m	3777810 98657	<div>Record weight</div>	<div>Record 6 weeks</div>
 <div>GepfyTwo Tenga Zeka Tum</div>	5w	3729324	<div>Record weight</div>	<div>Record at birth</div>

5.0 GROWTH MONITORING

5.1 Recording weight

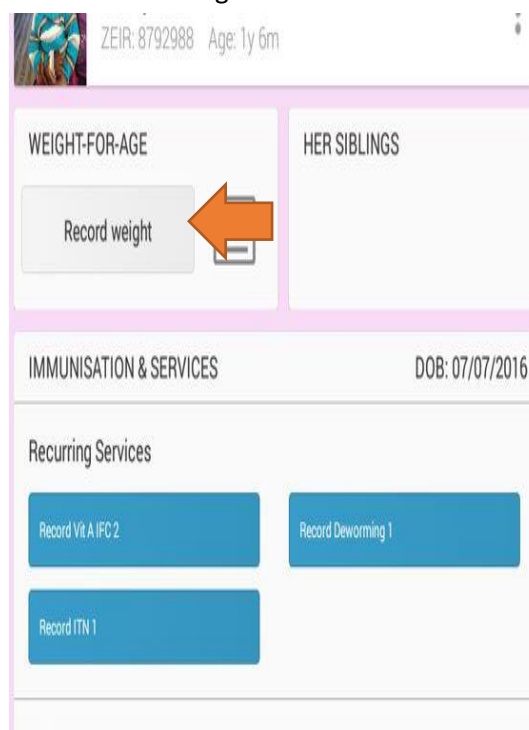
Once you locate the child's record, you can record the child's weight.

1. From the register view, you can tap on the Record weight button next to the child's ID. See fig 1
2. You can also tap this button from the child's vaccine card view. See fig 2

Fig 1

75

Fig 2



ZEIR: 8792988 Age: 1y 6m

WEIGHT-FOR-AGE

Record weight

HER SIBLINGS

IMMUNISATION & SERVICES DOB: 07/07/2016

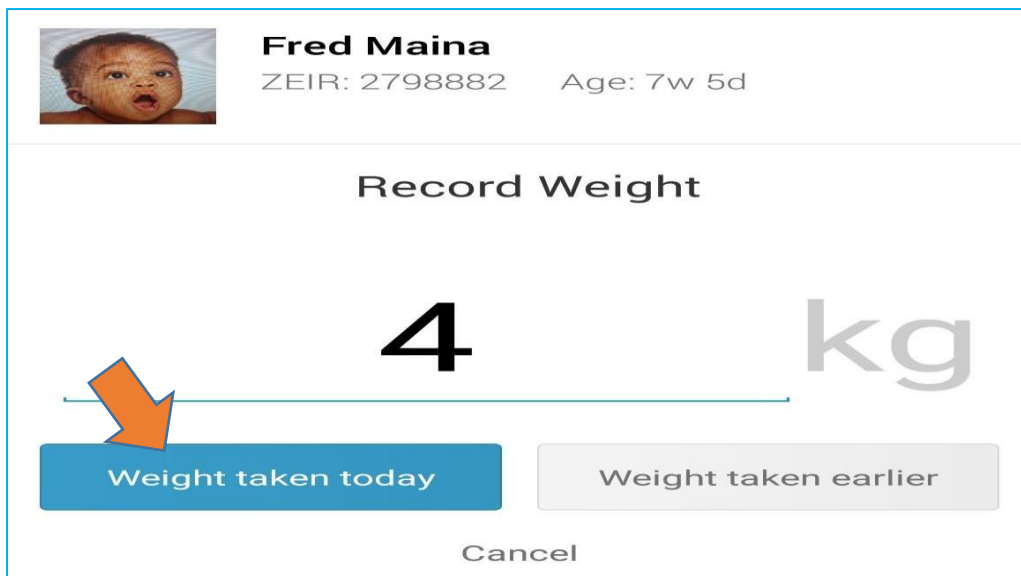
Recurring Services

Record Vit A /FC 2

Record Deworming 1

Record ITN 1

After tapping on the record weight button, a weight screen will appear (see below). Verify the child's name and age before recording the child's weight. If the weight was taken that day, select the **Weight taken today** button. If the weight was taken earlier, tap the **Weight taken earlier** button. A calendar will appear, where you can select the previous date when the weight was taken. Tap the Cancel button to exit the screen without recording weight.



Fred Maina
ZEIR: 2798882 Age: 7w 5d

Record Weight

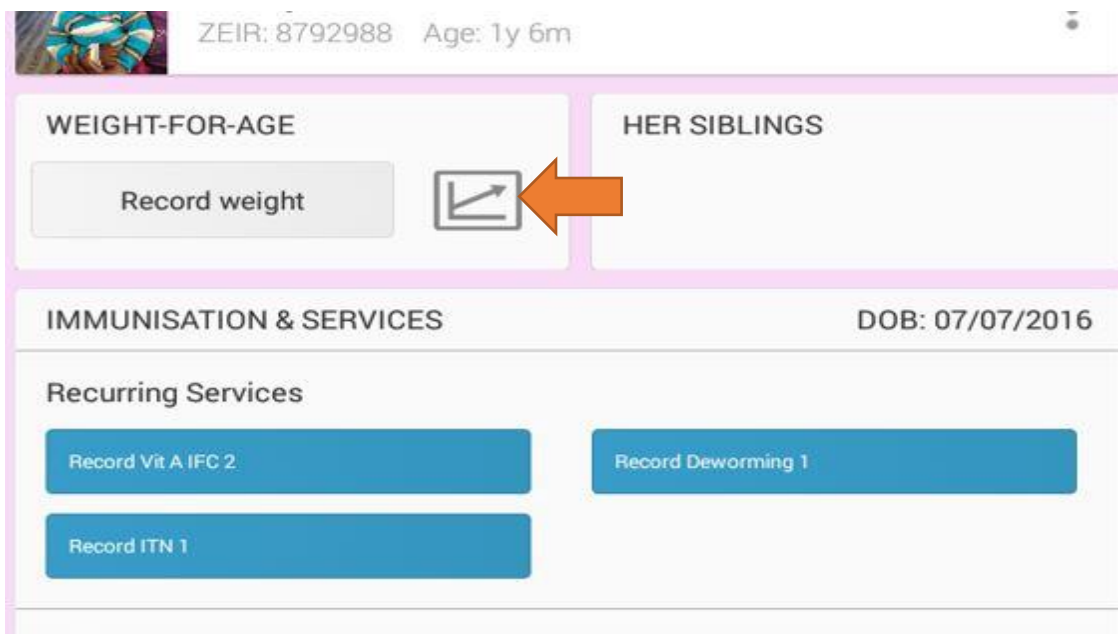
4 kg

Weight taken today Weight taken earlier

Cancel


5.2 Z-scores and growth charts

After weight is recorded, the child's weight-for-age z-score is automatically calculated. The z-scores can be displayed in the growth chart modal, which can be opened by selecting the growth chart icon (see below) next to the "Record weight" button on the vaccine card view.



ZEIR: 8792988 Age: 1y 6m

WEIGHT-FOR-AGE

Record weight 

HER SIBLINGS

IMMUNISATION & SERVICES DOB: 07/07/2016

Recurring Services

Record Vit A IFC 2 Record Deworming 1

Record ITN 1

The growth chart displays the weight history and accompanying z-score for all previous weights. See picture below.

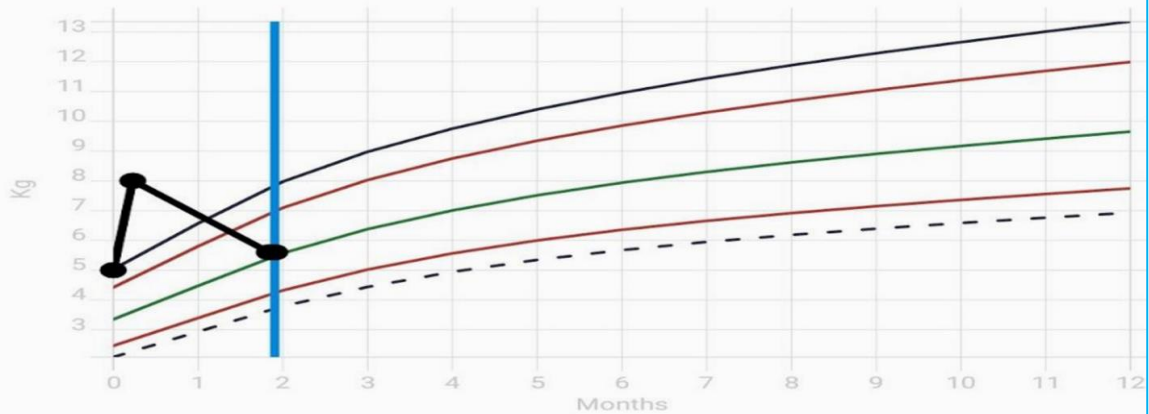


Fred Maina

ZEIR: 2798882

Age: 8w 2d

Weight-for-age BOYS



PREVIOUS WEIGHTS

Age	Weight	Z-score
8w 2d	5.6 Kg	0.0
8w	5.6 Kg	0.0
7d	8.0 Kg	7.0
0d	5.0 Kg	0.0

Done


The z-score is color-coded according to the cutoffs:

- < -3 = dark grey
- ≥ -3 and < -2 = red
- ≥ -2 and $\leq +2$ = green
- $> +2$ and $\leq +3$ = red
- $> +3$ = dark grey


6.0 RECORDING VACCINATIONS

Once you locate the child's record, you can record the vaccines given to that child. The vaccines are grouped by when they are due, e.g., BCG and OPV 0 are grouped together, since they are both given at birth, and OPV 1, Penta 1, PCV 1, and Rota 1 are grouped together, since they

are all given at 6 weeks of age. In the register view, when you see Record **birth** button or **Record 6 weeks** button, it allows you to record at one time all vaccines given at that age.



Fred Maina
2798882



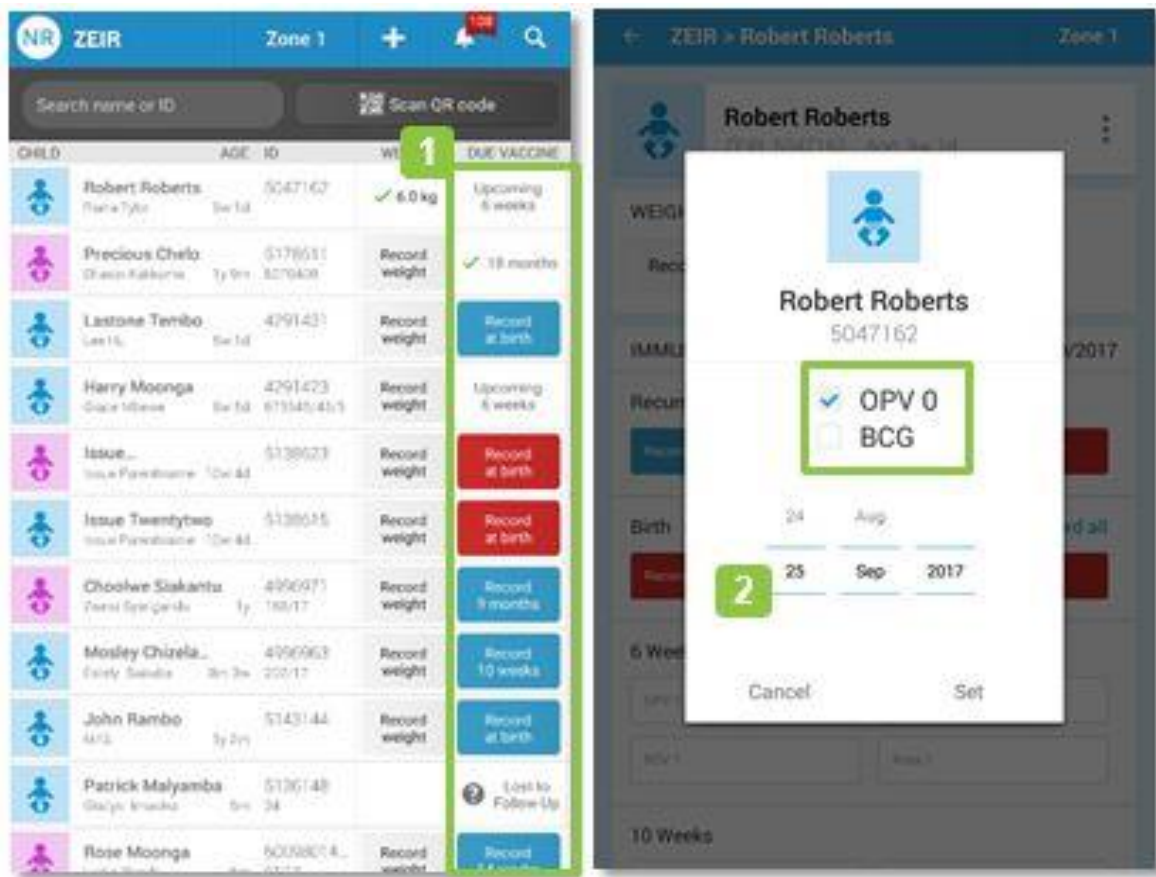
- ☒ Rota 1
- ☒ Penta 1
- ☒ OPV 1
- ☒ PCV 1

Vaccinations done today


Vaccinations done earlier

Cancel

The vaccine buttons are also color-coded according to when they are due. Blue means the vaccine(s) are due now, while red means the vaccine(s) are overdue (i.e., 10 or more days past the vaccine due date) and a green tick means they were administered. (See highlighted column)



By tapping on the vaccine button on home screen, the app opens the vaccine screen (see picture 2 above) Verify the child's name and ZEIR ID before recording the child's vaccines. If the vaccines were given that day, select the Vaccinations done today button. If the vaccines were given earlier, tap the Vaccinations done earlier button. A calendar will appear, where you can select the previous date when the vaccines were given. Tap the Cancel button to exit the screen without recording vaccines.



Fred Maina
2798882

☒ Rota 1
 ☒ Penta 1
 ☒ OPV 1
 ☒ PCV 1

Vaccinations done today

Vaccinations done earlier

Cancel

If not all of the vaccines were given at the same time, you can un-check the vaccines that were not given. You can also record vaccines directly from the child's vaccine card. Tapping on an individual vaccine will let you record vaccines one by one. Tapping on the Record all option allows you to record all vaccines in that group together.

The system also allows recording of either Measles or MR at either 9 months or 18 months.

9 Months

Record all

Measles 1 / MR 1 - due 27/02/16

OPV 4

18 Months

Measles 2 / MR 2

6.1 Under five History

The detailed view of the child's record can be opened by tapping anywhere in the child's name row from their vaccine card. The detailed view has two views: the birth registration data and under 5 history views. Shows the child's complete weight and immunization history as well as the PMTCT status (HIV exposure). See figure below

Version's Health Details

Version
ZEP: 2008704 Age: 8m 2w
Active status

Registration Data **Under Five History**

PMTCT: CE

LAST 5 WEIGHTS

9m 1w	12.0 kg
9m 1w	8.0 kg
0d	3 kg

IMMUNIZATIONS

OPV 0	<input checked="" type="checkbox"/>	22-06-2017
BCG	<input checked="" type="checkbox"/>	22-06-2017
OPV 1	<input checked="" type="checkbox"/>	26-02-2018
Penta 1	<input checked="" type="checkbox"/>	22-02-2018
PCV 1	<input checked="" type="checkbox"/>	22-02-2018

6.2 Overdue/due filter

The overdue/due filter filters the list of records to only those children that are currently due or overdue for a vaccine. The number shown in the red flag on the filter icon is the total number of overdue children. On the filtered view, the total number of children due and overdue for a vaccine are shown in parentheses in the top bar.


7.0 VIEWING CHILDS PROFILE

7.1 Detailed profile view

The detailed view of the child’s record can be opened by tapping anywhere in the child’s name row from their vaccine card. The detailed view has two views: the birth registration data and under 5 history views. You can switch between the views by tapping the column name or by swiping the screen. The birth registration data view shows all of the data recorded in the Birth Registration form. The under 5 history view shows the child’s complete weight and immunization history as well as the PMTCT status (HIV exposure).

Birth Registration view screen

← Fred Maina's Health Details



Fred Maina

ZEIR: 2798882 Age: 7w 5d

Active

status

Registration Data

Under Five History

Child's home health facility	Linda
Child's ZEIR ID	2798882
Child's register card number	
Child's birth certificate number	
First name	Fred
Last name	Maina
Sex	Male
Child's DOB	16-05-2017
Age	7w 5d
Date first seen	16-05-2017
Birth weight	5 kg
Mother/guardian first name	
Mother/guardian last name	
Mother/guardian DOB	
Mother/guardian NRC number	
Mother/guardian phone number	
Father/guardian full name	
Father/guardian NRC number	

8.0 REPORT DECEASED

Selecting the report deceased option in the edit menu opens the deceased reporting form. This can be accessed by clicking on the pencil at the right corner of the child's profile. See picture with the menu and the report deceased form.

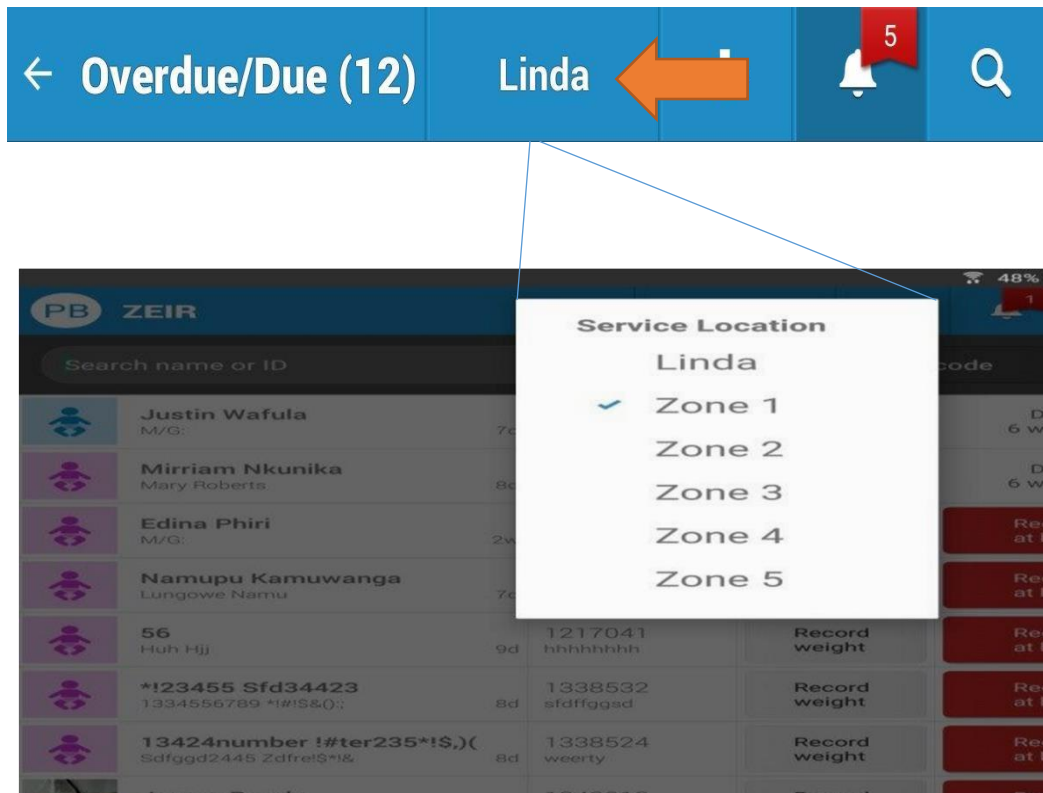
The screenshot shows the 'Version's Health Details' form. At the top, there is a header with a back arrow, the title 'Version's Health Details', and a status bar. Below the header, there is a profile card for 'Version' with a ZAIR ID of 2008704 and an age of 8m 2w. To the right of the profile card, an edit menu is open, listing options: Change status, Edit registration data, Edit weight data, Edit immunisation data, Edit recurring services data, Record BCG 2 (if no scar), Report deceased, and Report adverse event. The 'Report deceased' option is highlighted. Below the profile card, there is a 'Registration Data' section with a list of fields and their values.

Field	Value
Child's home health facility	Fort Jameson
Child's ZAIR ID	2008704
Child's register card number	
Child's birth certificate number	
First Name	Version
Last Name	Version
Sex	Male
Child's DOB	22-06-2017
Age	8m 2w
Date first seen	24-06-2017
Birth weight	3 kg
Mother/guardian first name	Rose
Mother/guardian last name	Mary
Mother/guardian DOB	
Mother/guardian NRC number	
Mother/guardian phone number	
Father/guardian full name	
Father/guardian NRC number	
Place of birth	Health Facility
Health facility the child was born in	Fort Jameson
Child's residential area	Nkuku Compound

The screenshot shows the 'Report Deceased' form. It has a blue header with the title 'Report Deceased' and a 'SAVE' button. The form contains three main sections: 'Date of death *' with the value '07-04-2017', 'Suspected cause of death' (empty), and 'Where did the death occur? *' (empty). At the bottom, there is a section for 'Child's DOB' with the value '05-01-2017'.

9.0 SELECTING THE SERVICE LOCATION

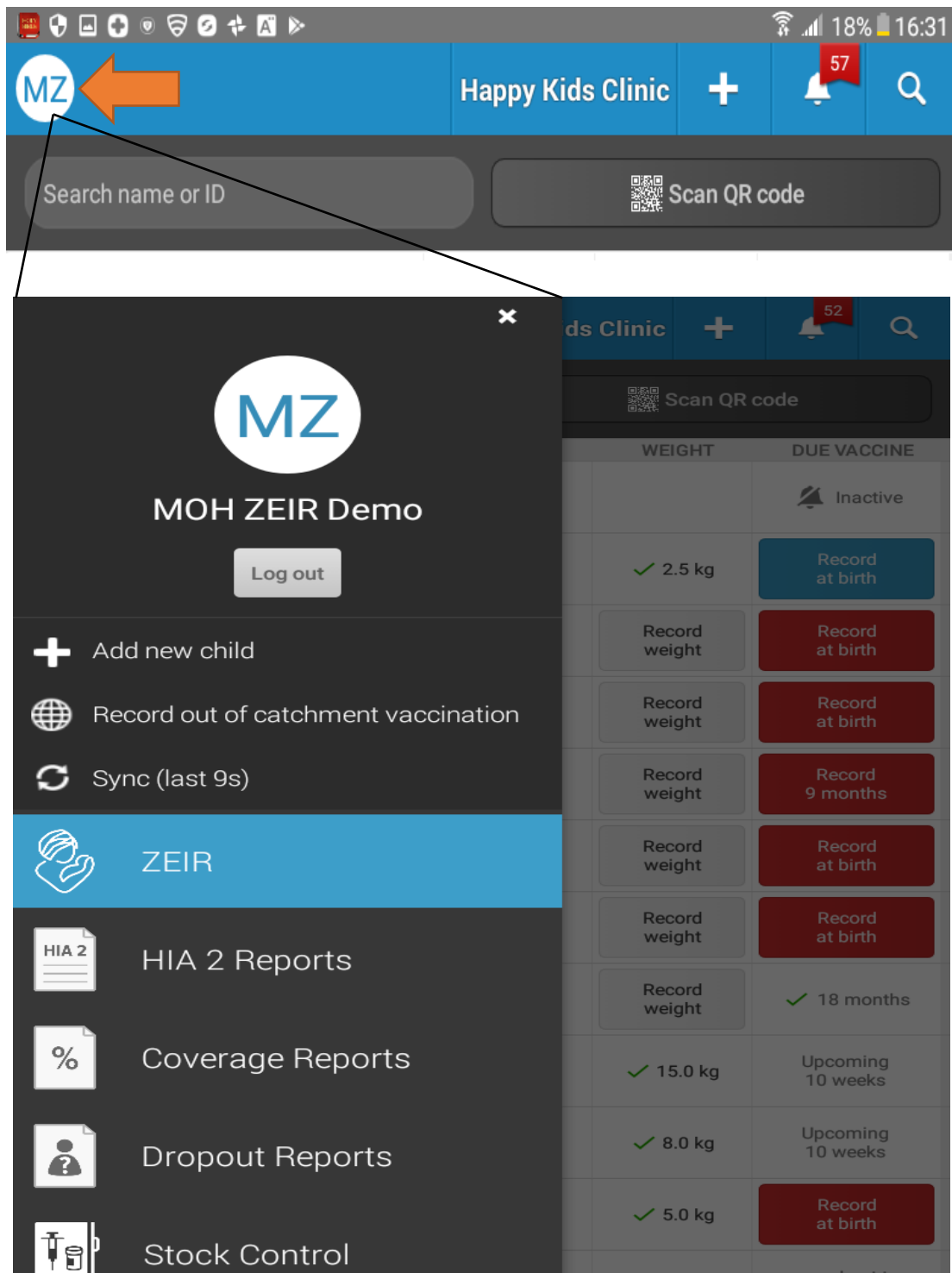
Services are either provided at your health facility or during outreach in one of the zones or areas within the health facility's catchment area. You can change the location of where services are given from the register view by tapping on the name of your health facility in the top blue bar of the app. A screen will appear where you can select the health facility or one of the zones as the service location.



10.0 THE SIDE MENU

The side menu gives you access to more features of the ZEIR. Some of the features include Record out of catchment vaccinations, HIA 2 Reports and the Stock Control module and some reports. The “Register” button opens the Birth in the side menu registers a new child .Under this same screen you are able to see the name of the logged-in user (in this case, the name of the user is” MOH ZEIR DEMO”. The logout button logs you out of the app. The data is maintained on the tablet when the user logs out. The Sync **button** can be tapped to sync records with the server. This is done automatically, but it can be forced in between automatic syncs by tapping the

button. There is an indicator on the home screen whether or not a sync was currently taking place, was Successful or failed.



10.1 Record Out of Catchment Vaccination

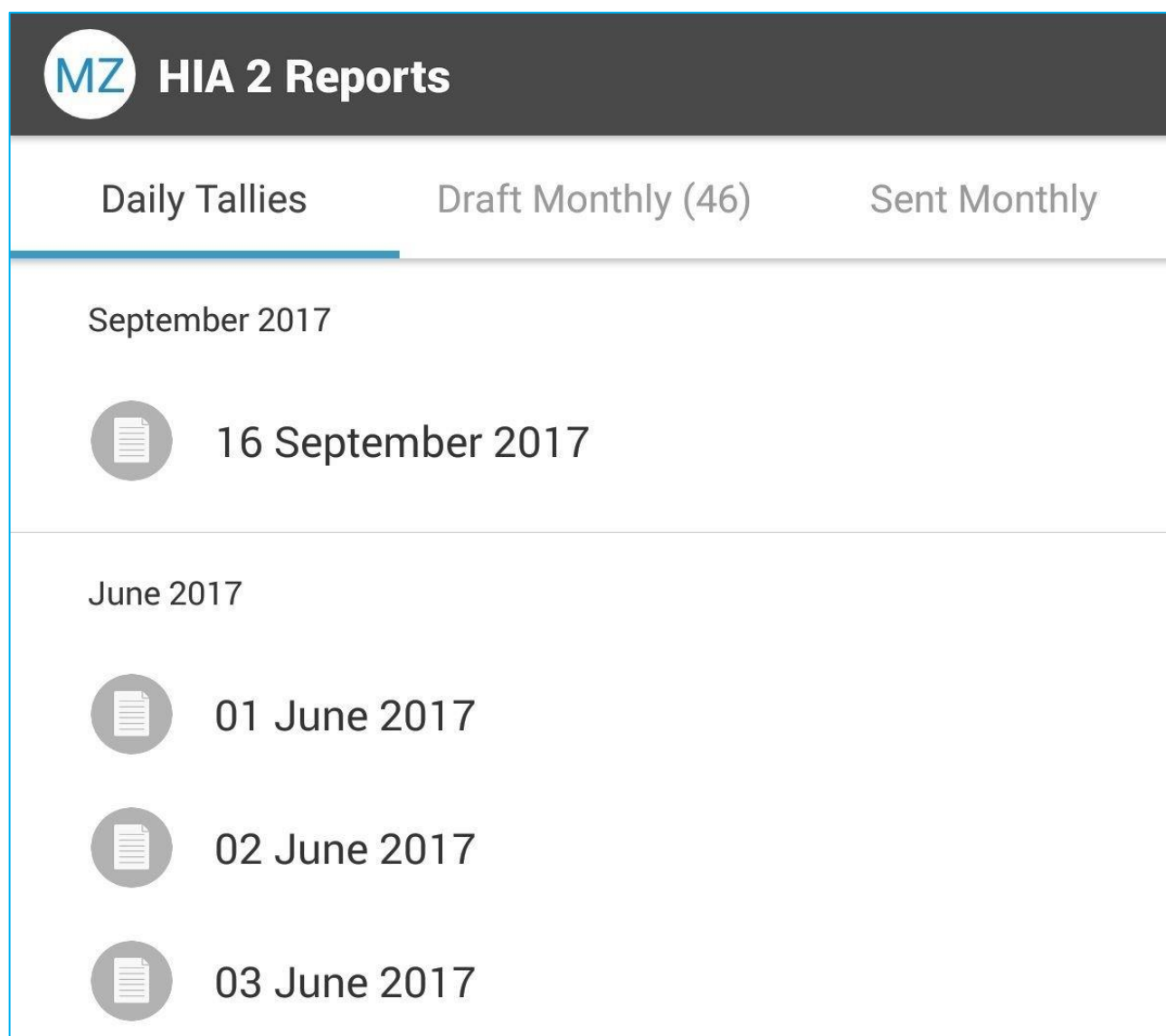
This form can be accessed from the side menu and is used to record out of catchment Vaccinations

Record out of catchment area service		SAVE
ZEIR ID *	<div>SCAN QR CODE</div>	
<div></div>		
Service date *		
<div></div>		
Child's weight (kg)		
<div></div>		
Which vaccinations were provided?		
Birth		
<input type="checkbox"/>	OPV 0	
<input type="checkbox"/>	BCG	
6 Weeks		
<input type="checkbox"/>	OPV 1	
<input type="checkbox"/>	Penta 1	
<input type="checkbox"/>	PCV 1	
<input type="checkbox"/>	Rota 1	

11.0 HIA 2 MODULE

HIA 2 Reports are also accessed from the side menu. Tapping on the icon opens the HIA 2 module. To go back to the ZEIR register view, tap on the “ZEIR” icon in the side menu. The HIA 2 Reports module allows users to view the aggregate service indicators for the month. The report module is also meant to allow you fill in the monthly HIA 2 report form, which will be sent directly to DHIS2.

The HIA 2 reporting module is divided into three sections: Daily Tallies, Draft Monthly, and Sent Monthly. The Daily Tallies tab is divided into separate sections for each calendar month that has data. Under each calendar month heading, specific dates are displayed that have data. Tapping on any of these dates opens the daily tally summary view, where the user can view the HIA 2 service indicator values for that day.

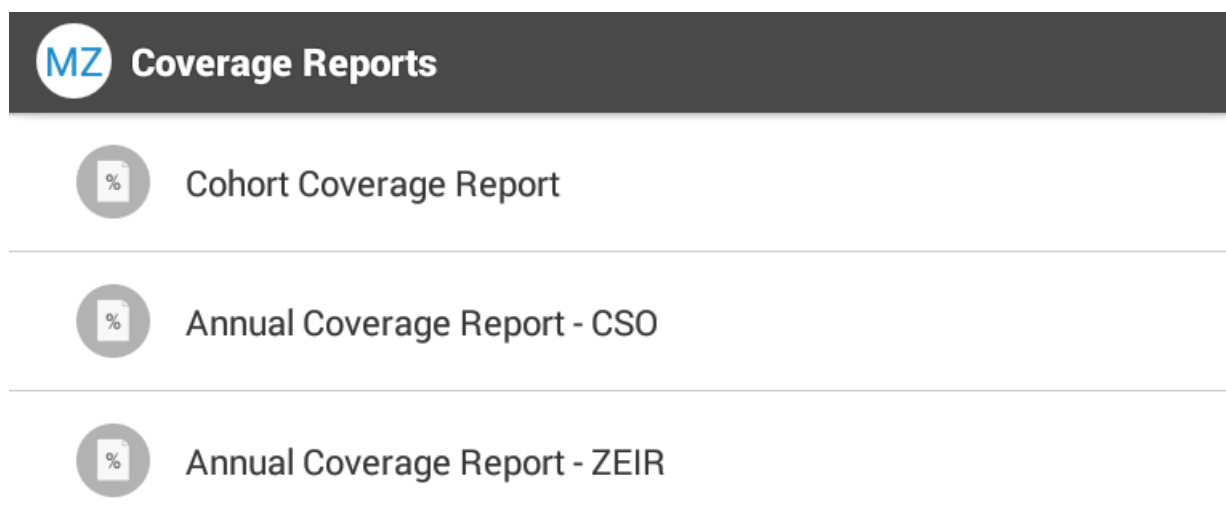


The Draft Monthly tab displays all saved draft HIA 2 reports. The “Start new report” button opens a list of reports available to fill in. Selecting a report launches the form for that month’s HIA 2 Report.

The screenshot shows a web interface for 'HIA 2 Reports'. At the top, there is a dark header bar with the 'MZ' logo and the title 'HIA 2 Reports'. Below this, there are three tabs: 'Daily Tallies', 'Draft Monthly (46)', and 'Sent Monthly'. The 'Draft Monthly (46)' tab is currently selected, indicated by a blue underline. The main content area of the selected tab is empty, displaying the text 'No draft reports' in the center. At the bottom of the interface, there is a large blue button labeled 'Start new report'.

12.0 COVERAGE REPORTS

The side menu also has the Coverage Reports module, tap the icon to open the coverage reports module. To go back to the ZEIR register view, tap on the “ZEIR” icon in the side menu.



12.1 Cohort Coverage Report

Tapping the Cohort coverage report displays the report. The report can be viewed according to the month and year selected as shown below.

← Cohort Coverage Report			
Cohort: MAR 2018		Cohort Size: 7 Children	
Vaccine		Vaccinated	Coverage
BCG		4	57%
OPV 0		4	57%
OPV 1		0	0%
OPV 2		0	0%
OPV 3		0	0%
OPV 4		0	0%
PCV 1		0	0%
PCV 2		0	0%
PCV 3		0	0%
PENTA 1		0	0%

12.2 Annual Coverage Report – CSO

Tapping the Annual Coverage Report – CSO button displays the report. However, to view this report, you will have to set the CSO target for the facility at the top right corner. The report can be viewed according to the year. To select the year, a drop down list option is available to the top left. The current year will be displayed by default and will display “in progress” to indicate that the year has not elapsed.

Fig a– set CSO target

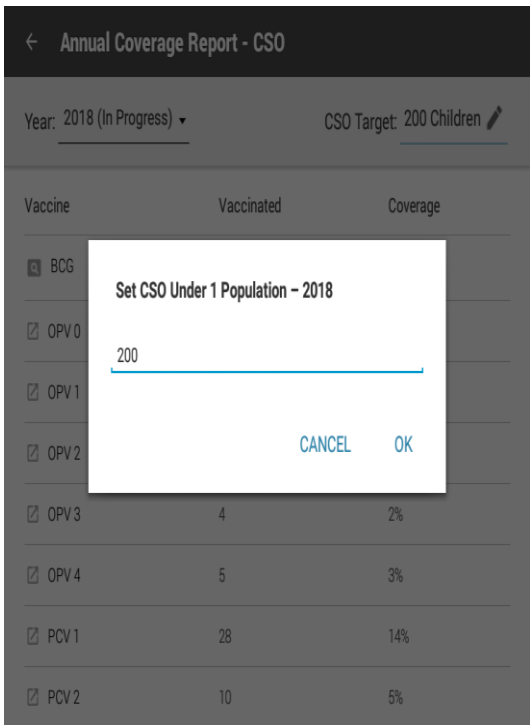
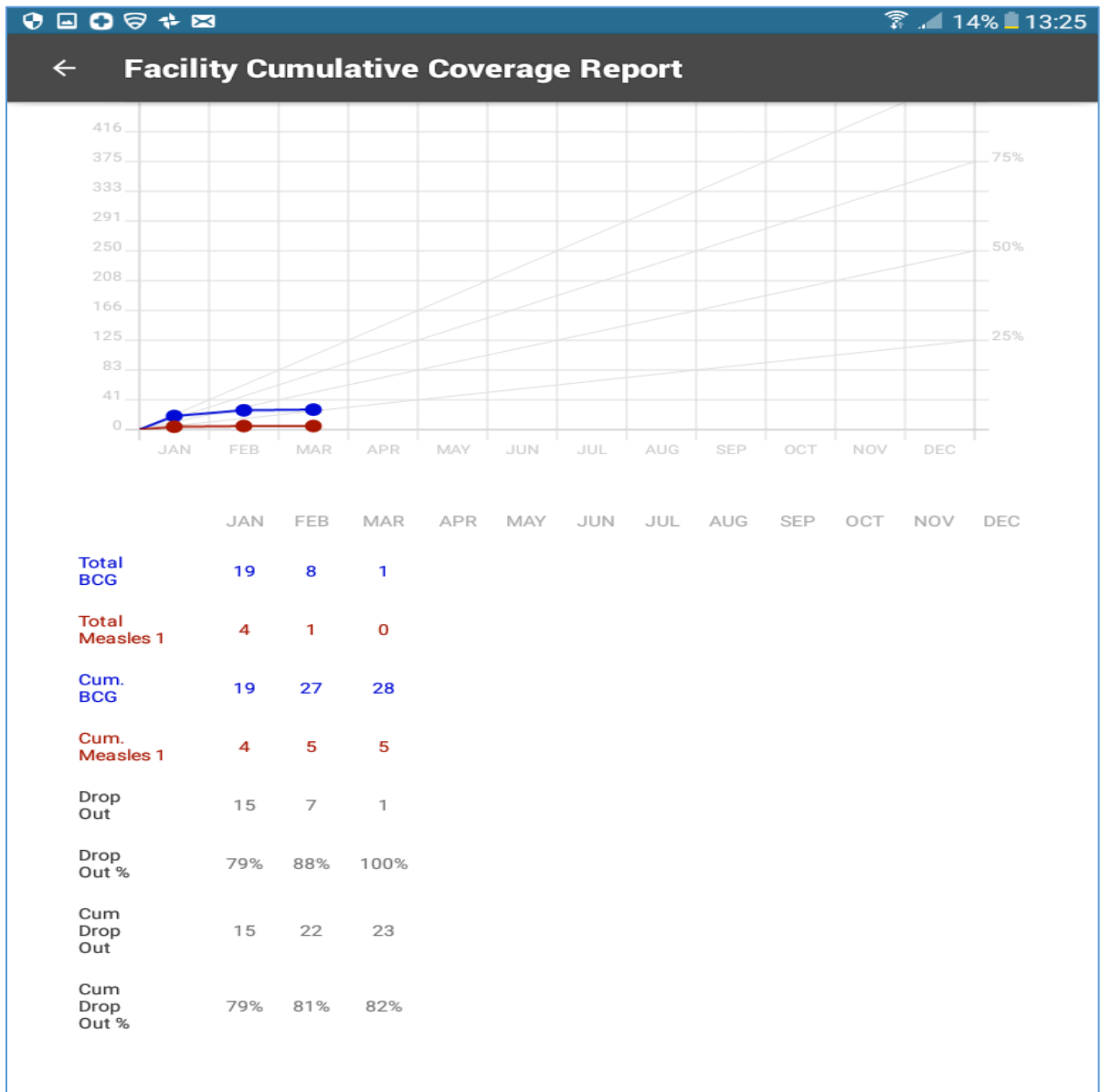


fig b - Annual coverage report auto calculated

The screenshot shows the 'Annual Coverage Report - CSO' interface with the CSO target set to 500 Children. The table displays the following data:

Vaccine	Vaccinated	Coverage
<input checked="" type="checkbox"/> BCG	28	6%
<input checked="" type="checkbox"/> OPV 0	23	5%
<input checked="" type="checkbox"/> OPV 1	14	3%
<input checked="" type="checkbox"/> OPV 2	2	0%
<input checked="" type="checkbox"/> OPV 3	0	0%
<input checked="" type="checkbox"/> OPV 4	2	0%
<input checked="" type="checkbox"/> PCV 1	13	3%
<input checked="" type="checkbox"/> PCV 2	1	0%
<input checked="" type="checkbox"/> PCV 3	0	0%
<input checked="" type="checkbox"/> PENTA 1	13	3%
<input checked="" type="checkbox"/> PENTA 2	1	0%
<input checked="" type="checkbox"/> PENTA 3	1	0%
<input checked="" type="checkbox"/> ROTA 1	13	3%
<input checked="" type="checkbox"/> ROTA 2	1	0%

Note that you can further tap the antigen in figure b and view a visual plot with dropout calculations. See screen with details.



12.3 Annual Coverage Report – ZEIR

Tapping the Annual Coverage Report – ZEIR lets you view the report. The report can be viewed according to the year selected. To select the year, a drop down list option is available to the top left. The current year will be displayed by default and will display “in progress” to indicate that the year has not elapsed.

← Annual Coverage Report - ZEIR		
Year: 2018 (In Progress) ▼	ZEIR Target: 13 Children	
2017		
Vaccine	Vaccinated	Coverage
BCG	45	346%
OPV 0	38	292%
OPV 1	27	208%
OPV 2	11	85%
OPV 3	4	31%
OPV 4	5	38%
PCV 1	28	215%
PCV 2	10	77%
PCV 3	4	31%

13.0 DROPOUT REPORTS MODULE

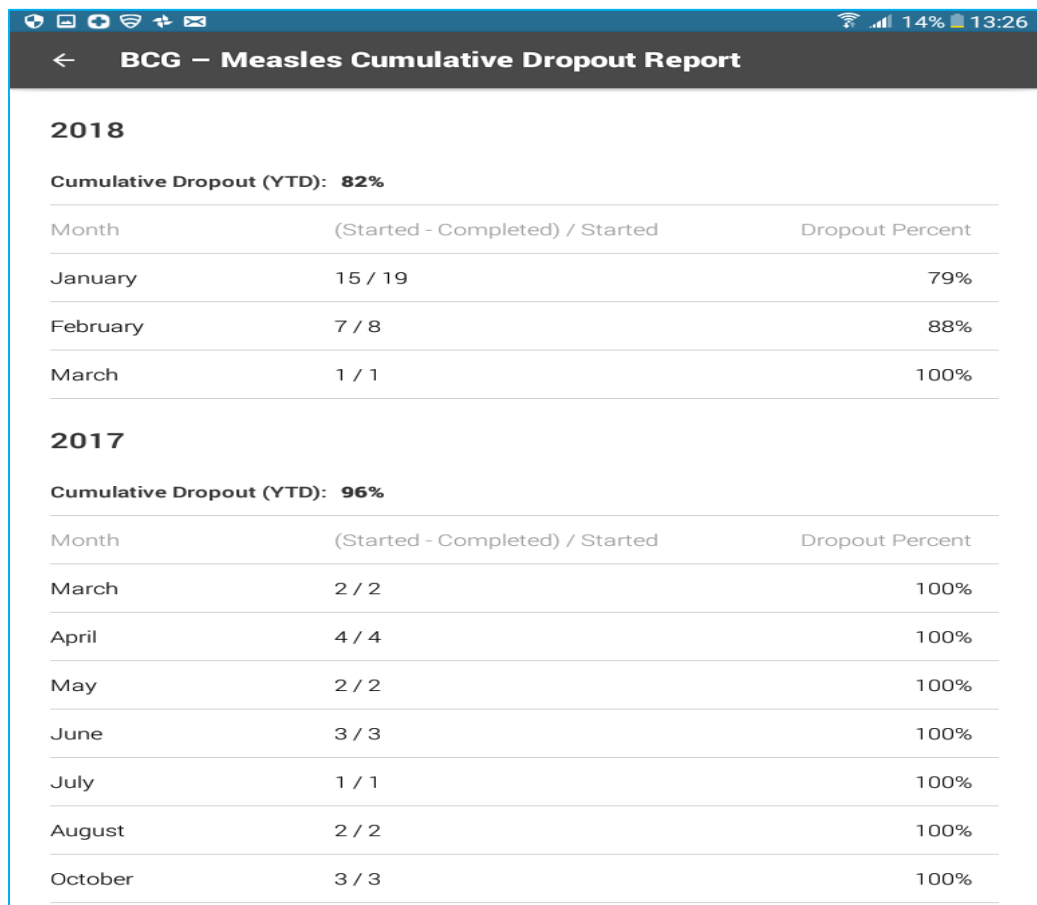
Users can see the Dropout Reports” module in the side menu. Tap on the icon to open the Dropout Reports module. To go back to the ZEIR register view, tap on the user initials, then tap on the “ZEIR” icon in the side menu. The Dropout Reports screen lists the dropout reports as follows:
Each row is tappable and opens up that report.



13.1 BCG - Measles Cumulative

This report is a comparison between the number of children who start the immunization schedule (BCG) against the number of children who complete it (Measles 1 / MR 1). The dropout rates are grouped by calendar year (years are listed in reverse chronological order) and by calendar month (months are listed in chronological order).

- A new month row gets added to the Month column when the first child is vaccinated with BCG in that calendar month.
- The "(Started - Completed) / Started" column shows the number of kids who dropped out between BCG and Measles 1/ MR 1 divided by the number of kids who started the schedule by receiving BCG.
- The "Cumulative Dropout (YTD): %" is the cumulative dropout percent for all months in that calendar year so far.



BCG – Measles Cumulative Dropout Report

2018

Cumulative Dropout (YTD): 82%

Month	(Started - Completed) / Started	Dropout Percent
January	15 / 19	79%
February	7 / 8	88%
March	1 / 1	100%

2017

Cumulative Dropout (YTD): 96%

Month	(Started - Completed) / Started	Dropout Percent
March	2 / 2	100%
April	4 / 4	100%
May	2 / 2	100%
June	3 / 3	100%
July	1 / 1	100%
August	2 / 2	100%
October	3 / 3	100%

13.2 BCG - Measles Cohort

This is a comparison between the number of children who start the immunization schedule (BCG) in a cohort against the number of children in the same cohort who complete it (Measles 1 / MR 1). The dropout rates are listed in reverse chronological order and grouped by calendar year.

- The “Cohort” column lists the cohort calendar months in the year. A new month row gets added to the Month column when the first baby born in that calendar month is vaccinated with BCG and joins the cohort.
- The "(Cohort Size - M/MR 1) / Cohort Size" column shows the number of children in the cohort who dropped out between BCG and Measles 1/ MR 1 divided by the number of children who started in the cohort.
- Children are dropped from the cohort if they die (Report Deceased form) or move away (Move to other catchment). Children can be added to the cohort if they move into the area (Move to my catchment) and were born in calendar month and received BCG <=12 months of age.
- The font color is grey if the dropout percent calculation is in progress, and it turns to blue font when it is finalized.

BCG – Measles Cohort Dropout Report		
2018		
Cohort	(Cohort Size - M/MR 1) / Cohort Size	Dropout Percent
February	6 / 6	100%
January	17 / 17	100%
2017		
Cohort	(Cohort Size - M/MR 1) / Cohort Size	Dropout Percent
December	4 / 4	100%
November	4 / 4	100%
October	5 / 5	100%
September	2 / 2	100%
August	2 / 2	100%
July	1 / 1	100%
June	3 / 3	100%
May	2 / 3	67%
April	0 / 4	0%
March	2 / 3	67%
February	1 / 1	100%

13.3 Penta Cumulative

This is a comparison between numbers of children who start the Penta immunization schedule (Penta 1) against the number who complete it (Penta 3). The dropout rates are grouped by calendar year (years are listed in reverse chronological order) and by calendar month (months are listed in chronological order).

- A new month row gets added to the Month column when the first child is vaccinated with Penta 1 in that calendar month.

- The "(Started - Completed) / Started" column shows the number of children who dropped out between Penta 1 and Penta 3 divided by the number of children who got Penta 1.
- The "Cumulative Dropout (YTD): %" is the cumulative dropout percent for all months in the calendar year so far.

13.4 Penta Cohort

This report is a comparison between number of children who start the Penta immunization schedule in a cohort (Penta 1) against the number who complete it (Penta 3). The dropout rates are listed in reverse chronological order and grouped by calendar year.

- The "Cohort" column lists the cohort calendar months in the year. A new month row gets added to the "Month" column when the first baby born in that calendar month is vaccinated with Penta 1 and joins the cohort.
- The "(Cohort Size - Penta 3) / Cohort Size" column shows the number of children who dropped out between Penta 1 and Penta 3 divided by the number of children who started in the cohort.
- Children are dropped from the cohort if they die (Report Deceased form) or move away (Move from my catchment). Children can be added to the cohort if they move into the area (Move to my catchment) and are born in the calendar month and have received Penta 1 at ≤ 12 months of age.
- Dropout rates are in black font if they're in progress and turn to blue font when they're finalized.

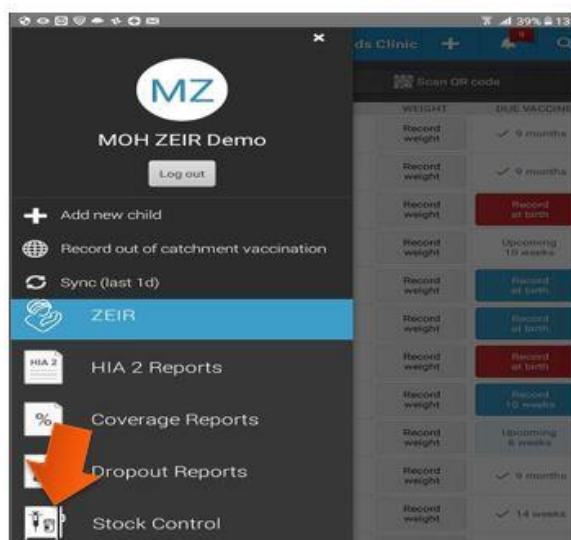
13.5 Measles Cumulative

This is a comparison between number of children who receive Measles 1 / MR 1 against the number who receive Measles 2 / MR 2. The dropout rates are grouped by calendar year (years are listed in reverse chronological order) and by calendar month (months are listed in chronological order).

- A new month row gets added to the "Month" column when the first child is vaccinated with Measles 1 or MR 1 in that calendar month.
- The "(Started - Completed) / Started" column shows the number of children who dropped out between Measles 1/ MR 1 and Measles 2/ MR 2 divided by the number of children who got Measles 1/ MR 1.
- The "Cumulative Dropout (YTD): %" is the cumulative dropout percent for all months in that calendar year so far.

14.0 STOCK MODULE

The side menu also has the Stock Control module, tap the icon to open the stock Control module. To go back to the ZEIR register view, tap on the "ZEIR" icon in the side menu. The stock control module lets you track your vaccine stock levels for BCG, OPV, Penta, PCV, Rota, and M/MR vaccines. The first screen in the stock control module is the stock overview screen. This screen shows the number of vials (and auto-calculated number of doses based on the known number of vaccine doses per vial) for each type of vaccine.



Stock Control

- To access the stock management component, tap on the tap on the side menu icon
- The side menu has other components and also has the Stock Control module. tap the icon to open the stock control module.
- The stock control module lets you track your vaccine stock levels for BCG, OPV, Penta, PCV, Rota, and M/MR vaccines..

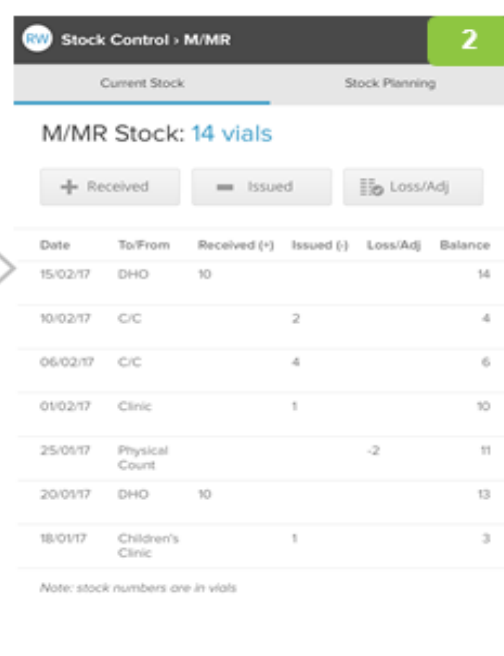
14.1 Stock control main screen

1. Tap on stock control on side menu to access screen 1. This screen shows the number of vials (and auto-calculated number of doses based on the known number of vaccine doses per vial) for each type of vaccine. Tap on vaccines to access screen 2.
2. Tapping on any of the stock “cards” (screen 1) opens the current stock screen for that vaccine. The current vaccine stock screen shows a table of all past stock transactions, sorted in reverse chronological order (**i.e. most recent on top**).

Screen 1



screen 2



14.2 Performing stock transactions.

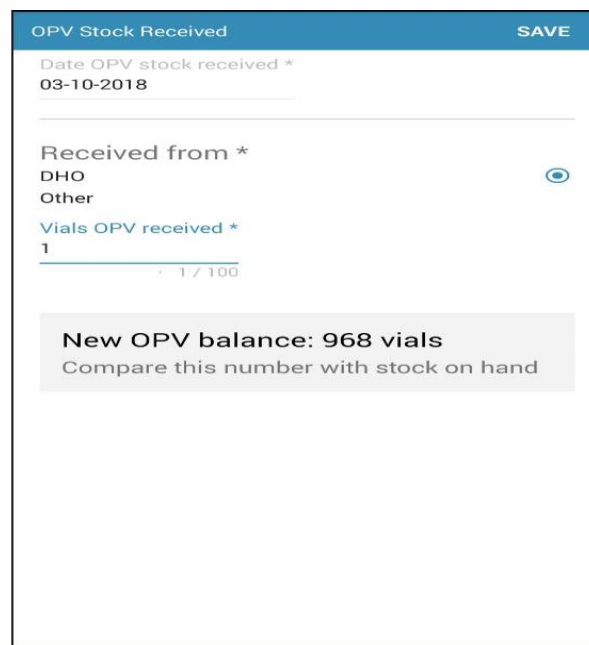
You can adjust your vaccine stock balance by filling in the Received, Issued, and Loss/Adjustment buttons as can be seen in the picture below.



The screenshot shows a mobile application interface for 'Stock Control > OPV'. At the top, there is a dark header with a back arrow and the title 'Stock Control > OPV'. Below this is a tab bar with two tabs: 'Current Stock' (active, highlighted with a blue underline) and 'Stock Planning'. Under the 'Current Stock' tab, the text 'OPV Stock: 967 vials' is displayed. Below this, there are three buttons: a '+ Received' button, a '- Issued' button, and a 'Loss/Adj' button with a checklist icon.

14.2.1 Receiving stock

The Received form adds the number of vials received to the balance on hand. Click on the received button as to the above screen and the form below loads for the user to fill in.



The screenshot shows the 'OPV Stock Received' form. At the top, there is a blue header with the title 'OPV Stock Received' and a 'SAVE' button. The form contains the following fields: 'Date OPV stock received *' with the value '03-10-2018'; 'Received from *' with radio button options for 'DHO' (selected) and 'Other'; and 'Vials OPV received *' with the value '1' and a range indicator '1 / 100'. At the bottom, there is a grey box displaying 'New OPV balance: 968 vials' and the instruction 'Compare this number with stock on hand'.

The user can indicate the date, where they have received the stock from and i.e. from

DHO or from other i.e. Specify using free text e.g. from another facility. Once done, you can save the entry using the 'save' button from the top right corner. In case you need to cancel the transaction, use the tablet back button and the system will prompt to cancel the transaction.

14.2.2 Issuing stock.

The Issued form deducts the number of vials used + number of vials wasted from the stock balance. The Issued form will display a note showing the user how many children were vaccinated with that vaccine on that day (the date entered in the form) and will display an estimate of the total number of vials used (calculated from number of children vaccinated and known number of doses per vial). The user can indicate additional vials wasted, if applicable. The new calculated balance will display at the bottom of the form before submission for the user to verify. This will also include the lost doses. *See issue picture below.*

14.2.3 Adjusting Stock.

The Loss/Adjustment form allows the user to either add or deduct stock from the balance on hand, while giving a reason for the manual adjustment. This form is meant to be used sparingly and only in instances where the user's stock levels in the ZEIR app do not match the physical stock on hand at her health facility. *See loss and adjustment picture below.*

Issuing stock form

OPV Stock Issued SAVE

Date OPV stock issued *
03-10-2018

Children vaccinated on this date: 0
Estimated vials issued on this date: 0

Actual number of OPV vials issued *
0 / 100

Issued to *
Children's Clinic (C/C) ☒
Other ☐

Number of wasted vials (e.g. damaged vials)

New OPV balance: 967 vials
Compare this number with stock on hand

Total wasted doses: 0 doses
Unused doses in issued vials + wasted vials (20 doses/vial)

Loss and adjustment form

OPV Stock Loss/Adjustment SAVE

Date of OPV stock loss/adjustment *
03-10-2018

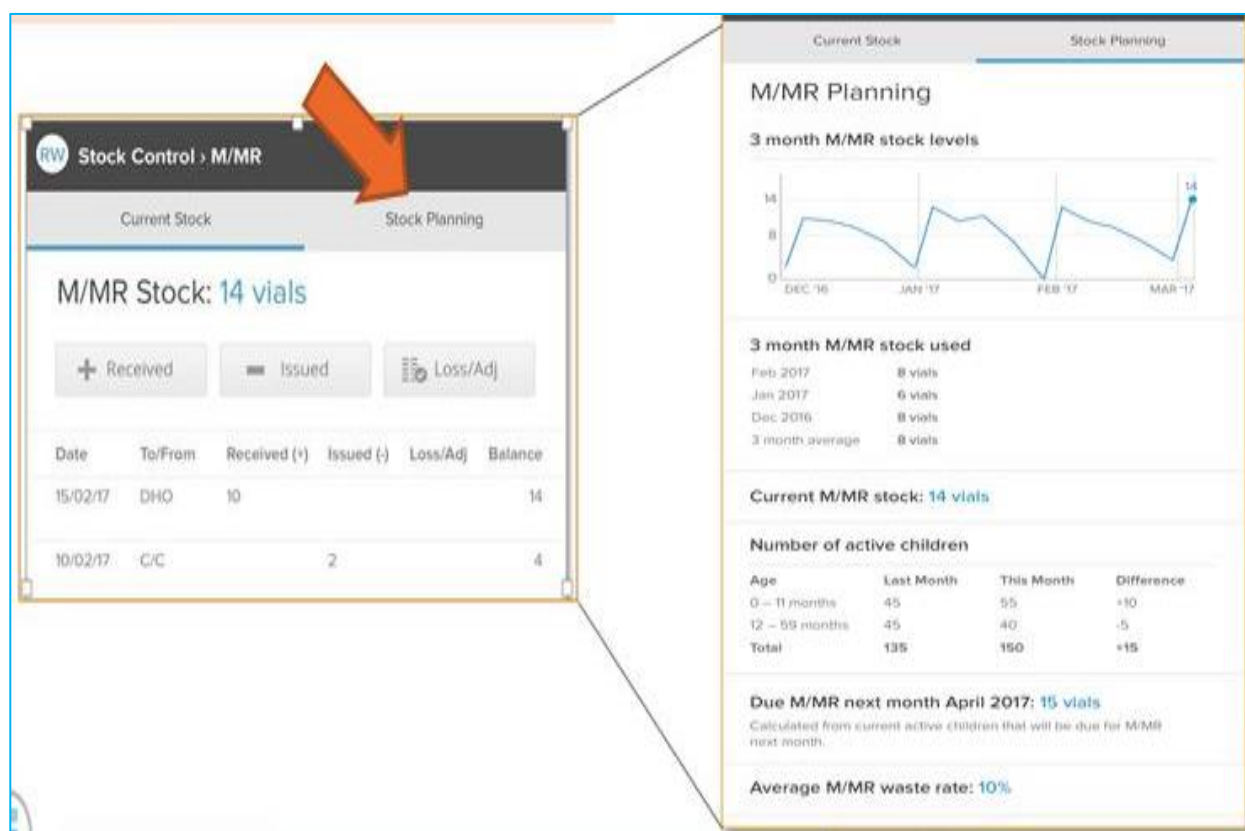
Reason for OPV adjustment *
Physical recount ☒
Other ☐

Vials OPV adjustment *
+ 1

New OPV balance: 968 vials
Compare this number with stock on hand

14.3 Stock planning

From the Current Stock screen, users can swipe over to the Stock Planning screen (or tap the heading). The stock planning screen is meant to show the last 3 month usage of that particular vaccine and the 3 month average (in number of vials). In addition, the screen shows the total number of active children currently registered in the app, disaggregated by age (0-11 months and 12-59 months). The estimated number of vials needed for children that will be due for that vaccine in the next calendar month is displayed. The average waste rate for that vaccine, calculated from the number of vials they indicate as wasted or unused compared to the number of children who were vaccinated, is also displayed.



15.0 ZEIR SYNCHRONIZATION

ZEIR app syncs regularly with the server and database when online, and will queue actions to be synced while offline. This is all managed within the system and to manually sync.

1. Navigate to the Side menu and tap on the sync button.



16.0 LOGGING OUT

Before putting down your tablet, you should logout of the app. This is so another person cannot pick up the tablet and see patient information. To logout of the app, open the app's side menu bar. You can open the side menu bar by tapping the white circle in the top left of the home screen that contains your initials or by swiping the screen from the left hand side.



ZEIR HELPDESK LINE

Phone: +260977806102

Email:zeirhelpdesk@gmail.com