

# IonRemedies Solution Manual

Version 1 - July 19, 2022



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## Introduction

IonRemedies will address one of the world's healthcare-related dilemmas; high expenditures and medication adherence. Up until today, limited technological intervention has been offered to measure whether patients are actually taking their medication. While the available market solutions are directed towards package tracking, we are tracking the human's body reaction against the taken medication. Thus, providing accurate evidence of the medication adherence and compliance with zero added costs.



It is clear that all of todays solutions have some sort of limitation. There is still a need for that one solution that can integrate between users acceptability and comfort, precisely monitor the adherence, and is smart and wireless. That is what drove us to think about our innovation.

What can be more precise than the patient's own body and vital signs to reflect on medication administration? In our solution, we rely on using wearable technology to detect biological changes due external attributes of a user's observations. Medications, as chemical substances, are considered to be a chemical attribute, so if the device detects the expected change of biomarkers for a certain medication, this will absolutely prove that the patient is in compliance with their medication plan. And vice versa, when the wearable device is expecting a change in an observation and that did not happen, the solution will be able to remind the patient to take their medication.

Our solution will offer a dashboard that will be available to physicians and insurance companies. And a mobile application that will be used by the patient to document and track their own progress.

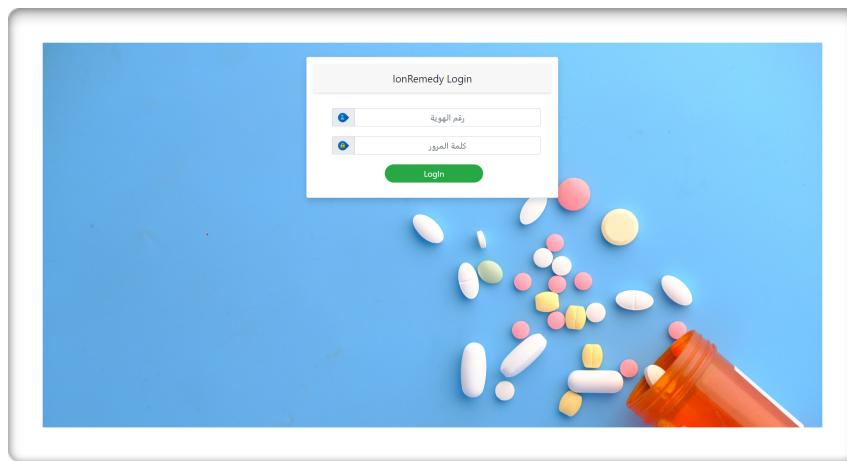
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## 1- The Dashboard

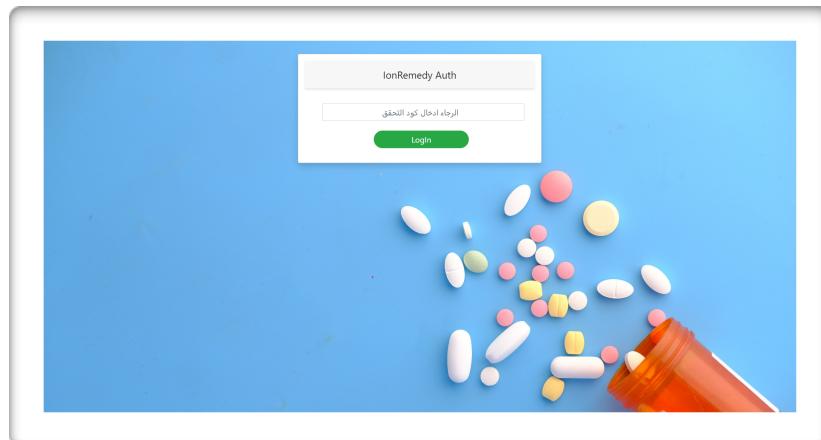
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### Log in and Authorization

During the first log in, a password will be generated from the health information system, and an authorization code will be sent to the mobile number assigned to the patient. The user will be able to access the dashboard when the patient ID and the password assigned to that patient are entered. The potential users are the healthcare providers and insurance companies.



*Log in Screen*

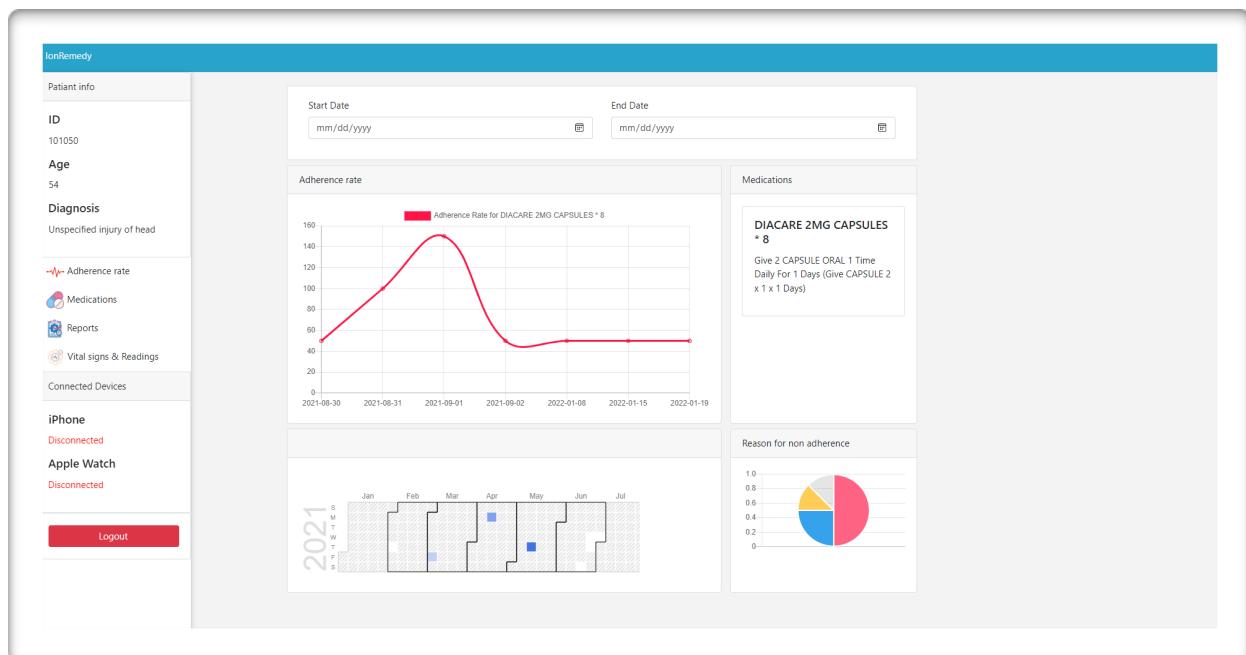


*Authorization Screen*

## Main Adherence Screen

The user will be able to select a start and an end date to view the compliance of the patient with their medication. In the Medications section the user will view and select those certain medications chosen to monitor its compliance. Once selected, an adherence chart will display the actual compliance with the selected medication (according to solutions interpretation of patient's data).

In the lower two sections, the source of data will be the application used by the patient. The calendar chart will display the data entered by the patient. For example, a red block represent that the patient documented that they missed a dose. When a patient misses a dose, they will be asked to choose the reason why they did. The missed doses data statistics will be represented in a pie chart. Such arrangement will give the user a wider view about actual compliance versus the patient's reporting of their compliance.



*Adherence Screen*

## Medication Screen

In this screen the user will be able to view all medications took by the patient. From this screen, the physician will choose the medications they will be tracking for adherence. The data source for this screen will be the health information system.

The screenshot shows a medical application interface titled "iRxMeddy". On the left, a sidebar displays "Patient info" with ID 101050, Age 54, and Diagnosis "Unspecified injury of head". Below this are sections for "Adherence rate", "Connected Devices" (iPhone and Apple Watch both disconnected), and a "Logout" button. The main content area is titled "Medication" and lists the following medications:

Medication	Date
PERFALGAN 10 MG/ML	2022-02-14
ACETYLCYSTEINE ACETYLHYCETINE [20%] 200 MG VML INJECTION ( 10ML, AMPOULE)	2022-02-14
ALBUNORM, HUMAN ALBUMIN 20%	2022-02-14
Furosemide fressenius 20 MG/2ML	2022-02-14
ULCERON 40 MG /1 VIAL	2022-02-14
ADDAMEL-N	2022-02-14
COLIRACIN 6ML VIAL	2022-02-14
FLAMINAL FORTE 50gr	2022-02-14
FLUCONAZOLE MBI 200 MG 100 ML	2022-02-14
Kaliphos 10ml(potassium phosphate)	2022-02-14
MAGNESIUM SULFATE ( MgSO4) 50% 10M	2022-02-14
Pantherderm 100 ml Greece CREAM	2022-02-14
Potassium Chloride ( KCL ) 14.9% 10 ML	2022-02-14
PROCUTASE IONIC HYDROGEL, [50g, Tube]	2022-02-14
SMOKABIVEN CENTREL EMULSION, ELECTROLYTE FREE FOR INFUSION 1970 ML BAG	2022-02-14
SOLUVIT N 15ML 10 X VIALS	2022-02-14
ACETYLCYSTEINE ACETYLHYCETINE [20%] 200 MG VML INJECTION ( 10ML, AMPOULE)	2022-02-13

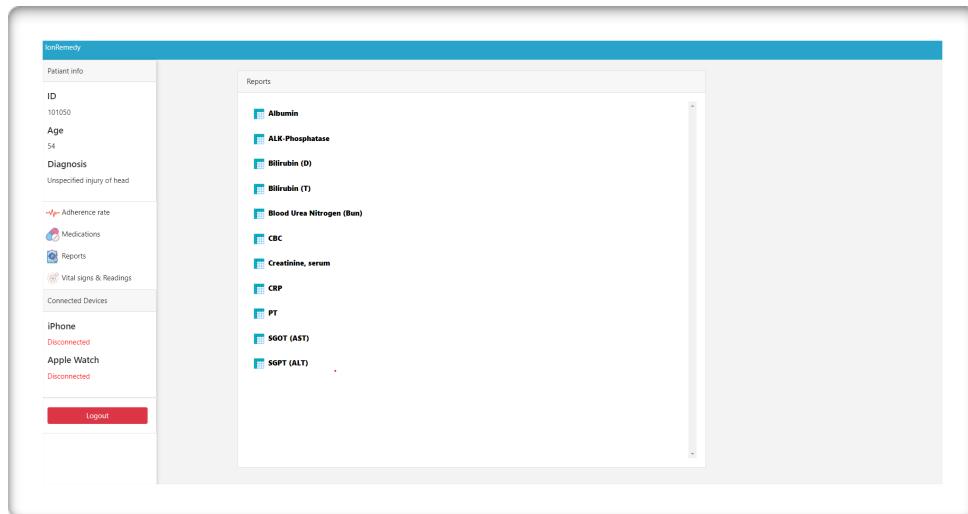
Medication Screen

This screenshot shows the same "iRxMeddy" interface as above, but with a modal window titled "Medication instructions" overlaid. The modal contains the following text: "Give 1 VIAL IM/IV INFUSION 4 Times Daily For 1 Weeks (Give VIAL 1 x 4 x 1 Weeks) As Needed". At the bottom right of the modal is a red "Close" button. The background of the application is dimmed to indicate the pop-up is active.

Medication Instructions Pop Up

## Reports Screen

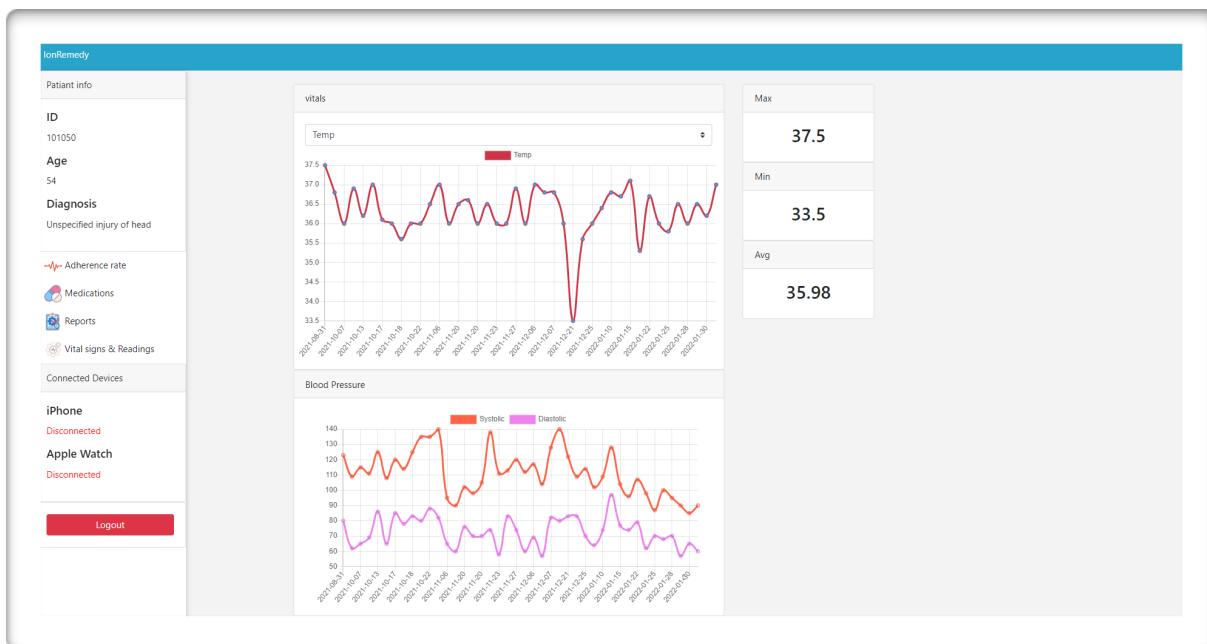
In this screen the user will be to display the lab results of the patient. The user can choose to display the results according to date or according to test name. The data can be displayed in a table format or in a chart format.



*Reports Screen*

## Vital Signs and Readings Screen

In this screen the user will view the vital signs ( Blood Pressure, Temperature, O2 Saturation and Heart Rate) results of the patient that are measured by the wearable device. The user can choose the date to display data according to date. The maximum, minimum and average reading will be displayed next to the chart. An Add Medication button will be available next to chart. This button will allow the user to view the vital readings in accordance to the medication administration time.

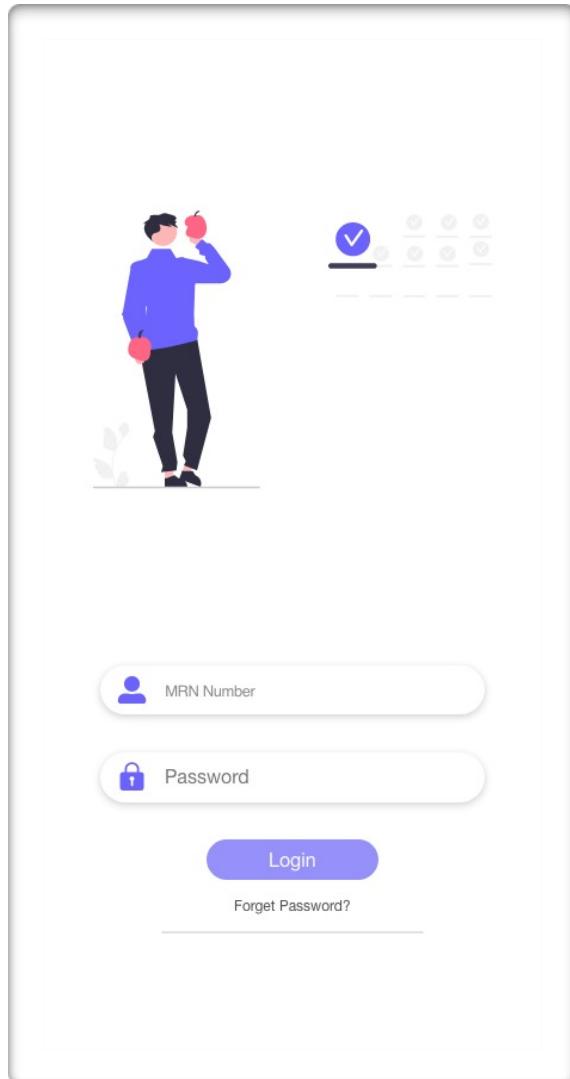


*Vital Signs Screen*

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## 2- The Application

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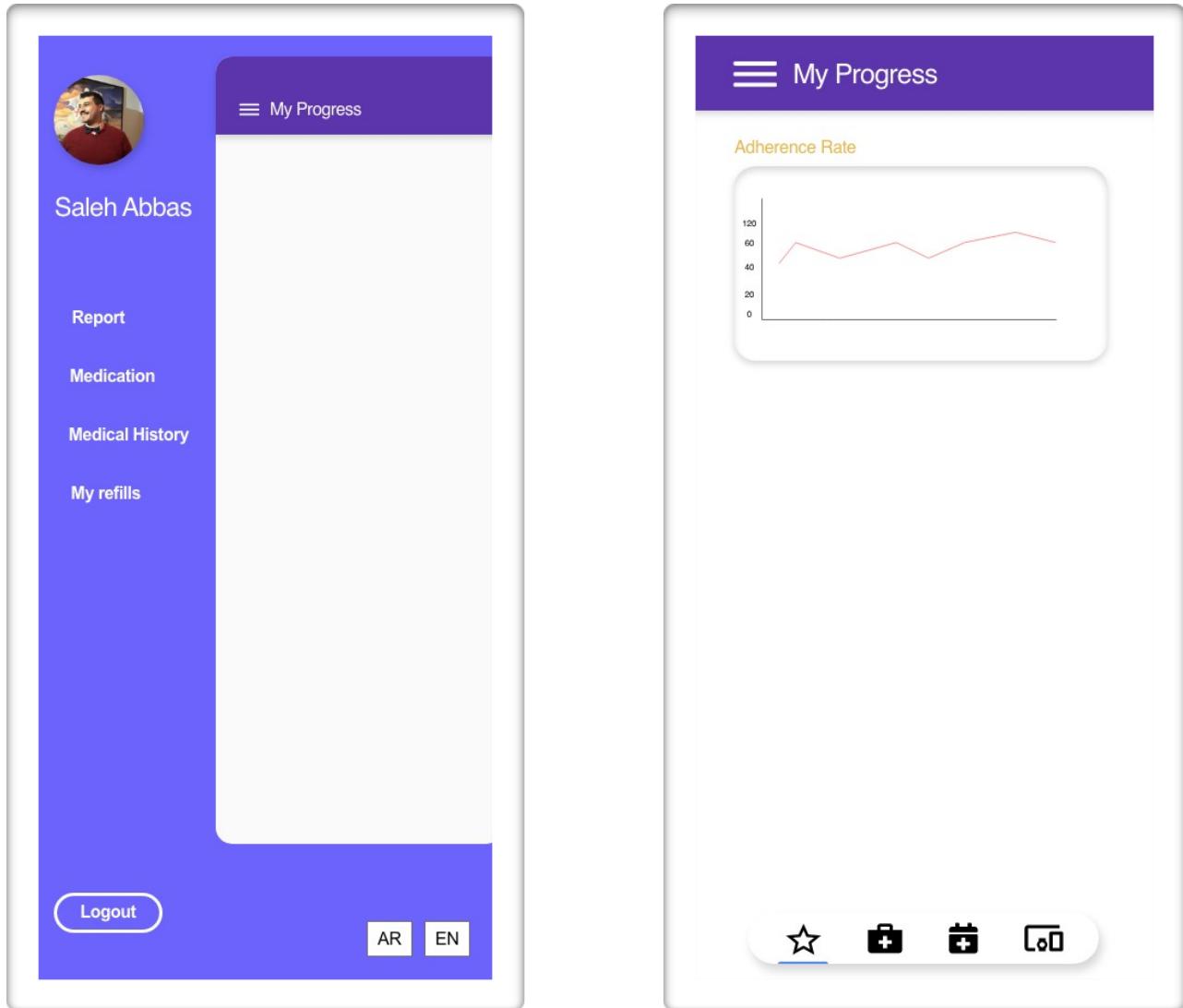


### Log in Screen

During the first log in, the user will use their Medical Record Number (MRN) and a password will be given to them by the physicians. The password will be generated by the Health Information System (HIS).

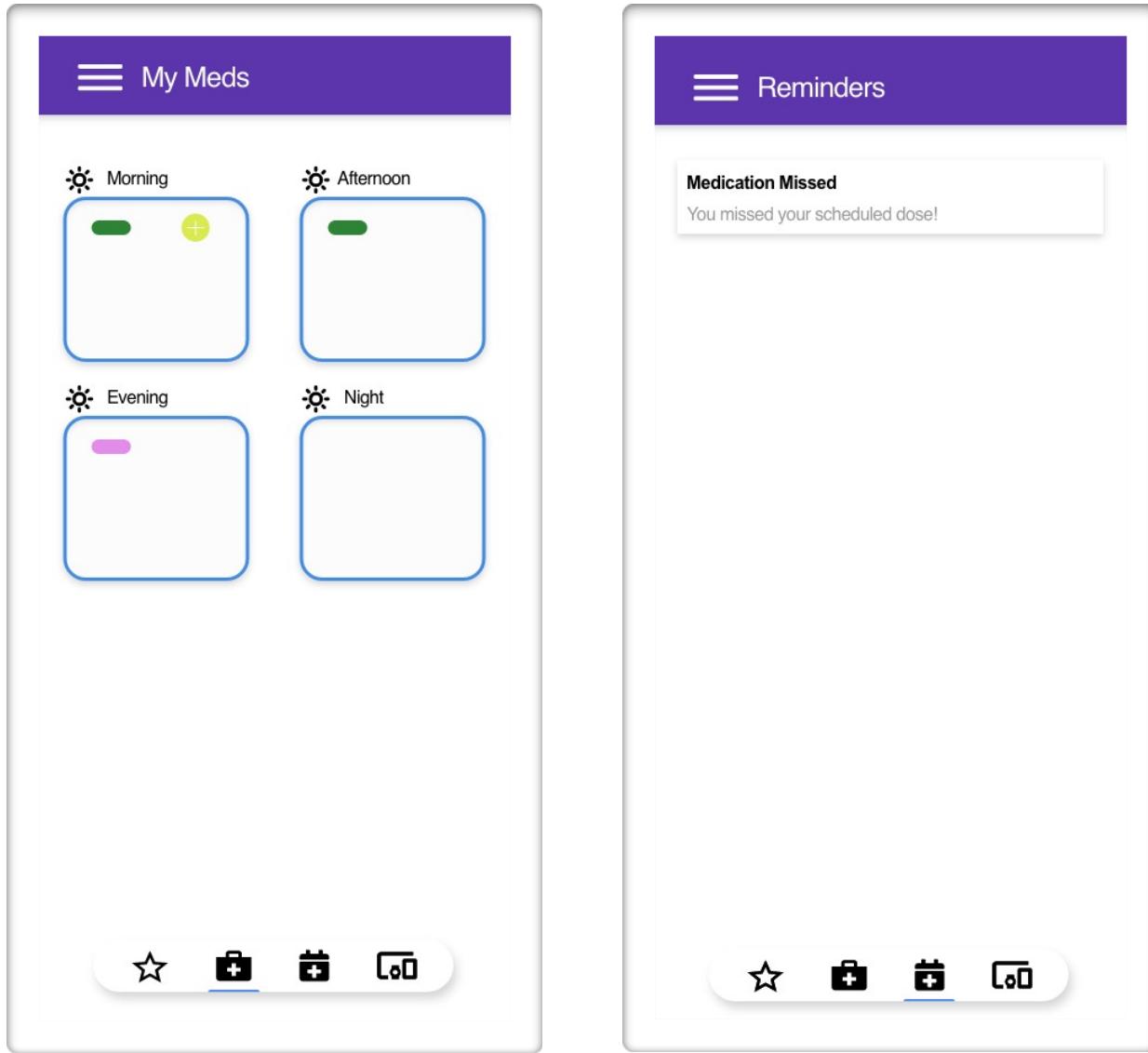
To verify the user, a code will be sent to the phone number assigned to the medical record. The patient will enter the verification code and can access their information accordingly.

## My Progress Screen



The main screen will be the My Progress screen. Users can view multiple charts representing their compliance with the medication. The user can also choose from multiple view options to add the medication on different charts (adherence, vitals, lab results charts,...). This will help users understand the effect of the monitored medication on their readings.

## My Meds and Reminders Screens

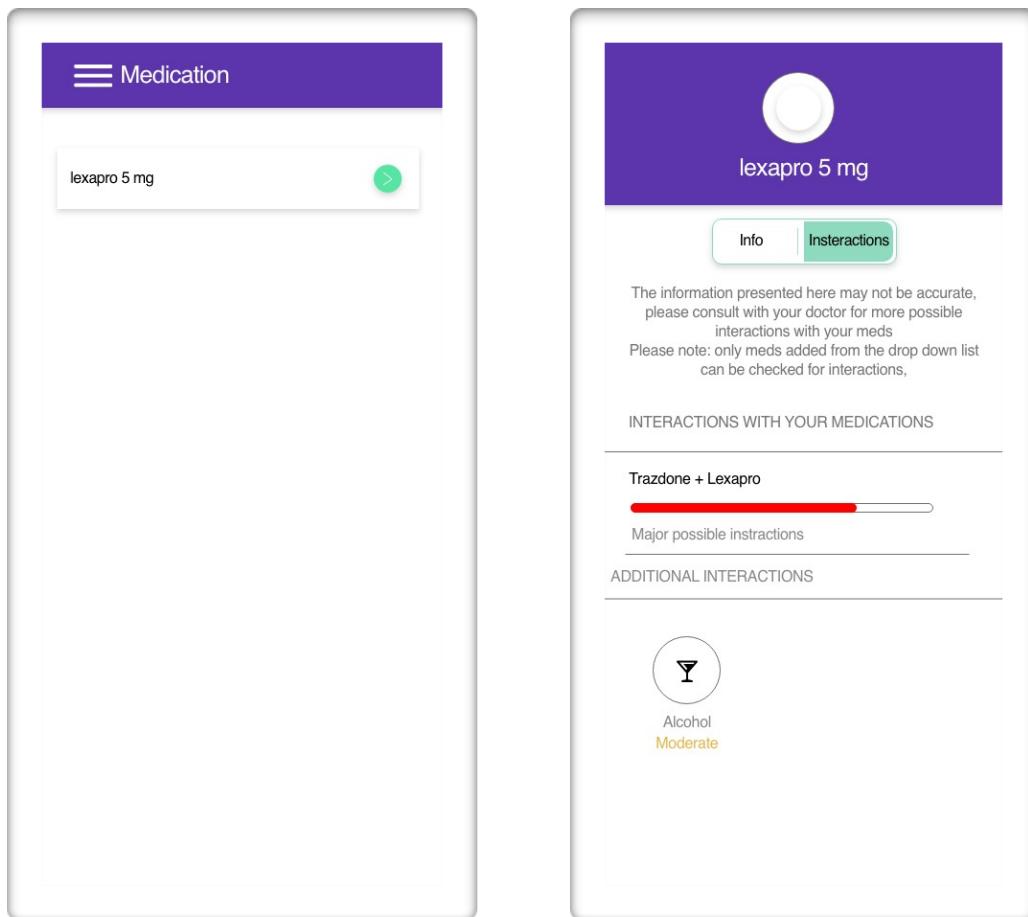


In the My Meds screen, the user will view the doses of the monitored medication in a schedule format. Shapes and colors of the medication will be taken into consideration, as some patients can only recognize their medications by their shapes or colors. When the medication is due, the user will click on the medication, confirm from the pop up screen that that the medication was taken. Once the medication was taken, the tablet will change in color to grey. In case the dose was missed, the user will have to chose from the pop up screen that the dose was missed and choose the reason for missing the dose.

These options will include; 1- I forgot to take my medication 2- I had side effects 3- The medication schedule is too complex for me 4- I don't have any symptoms 5-I ran out of the medication.

Prior to the medication due time, a reminder will be sent to the user. Reminders will not only include those related to taking the medication, but also include reminders related to medication instructions. For example, some medication require food intake 30 minutes prior taking the medication. In such cases, a reminder will be sent to 30 minutes before the medication due time.

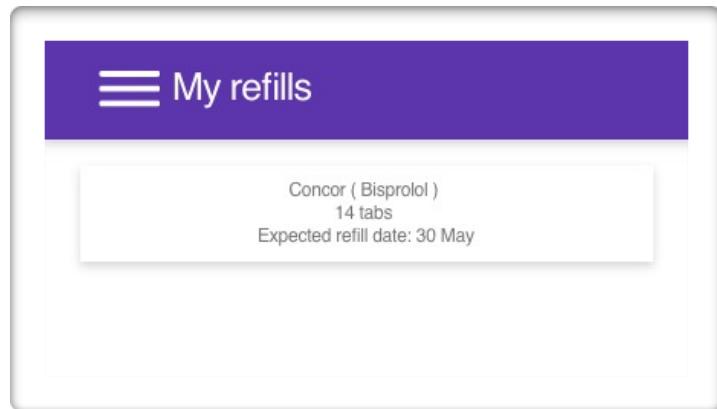
## Medications Screens



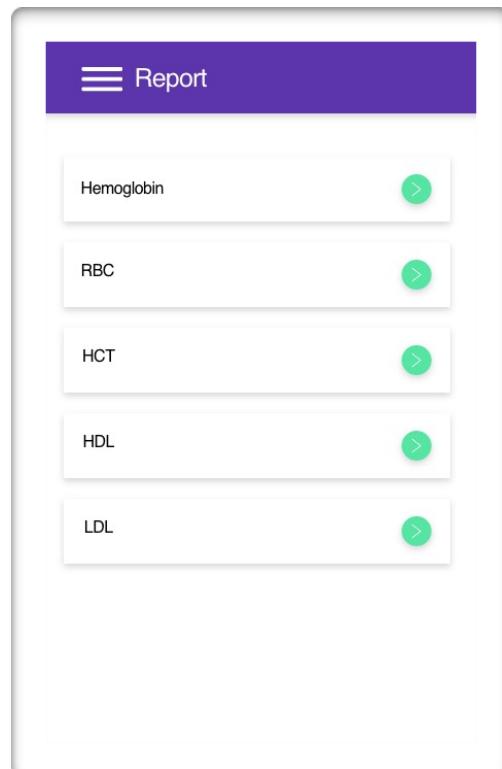
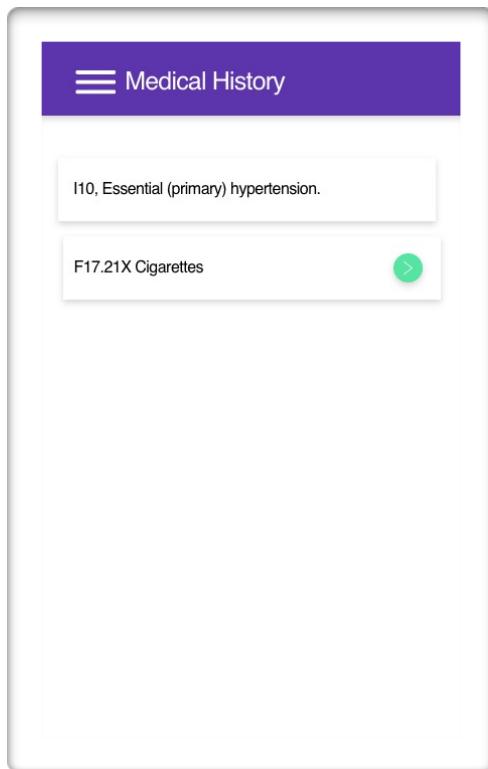
In the medications screens, users will have information about their medications in an easy user - friendly format.

## My Refills Screen

In this screen, patients will view refill dates and the number of remaining tablets left.



## My Reports and Medical History Screens



Users will have access to their medical history and reports. Users can choose from multiple view options to view the lab results.



### My devices Screen

Through this screen, users can connect their devices and handle connectivity issues.