USER'S MANUAL

The **Indivo** Personally Controlled **Health** Record

FORTH
**Institute of Computer Science**

Contents

General information

Indivo is the original personal health platform, enabling an individual to own and manage a complete, secure, digital copy of her health and wellness information. Indivo integrates health information across sites of care and over time. The Indivo system is essentially an inversion of the current approach to medical records, in that the record resides with the patients and the patients grant permissions to institutions, clinicians, researchers, and other users of medical information. Indivo is a distributed, web-based, personally controlled electronic medical record system that is ubiquitously accessible to the nomadic user, built to public standards, and available under an open-source license.

Getting Started

Register

First step is to create a new user account in order to access the Indivo Health System. Registration link should be clicked to navigate to registration page.
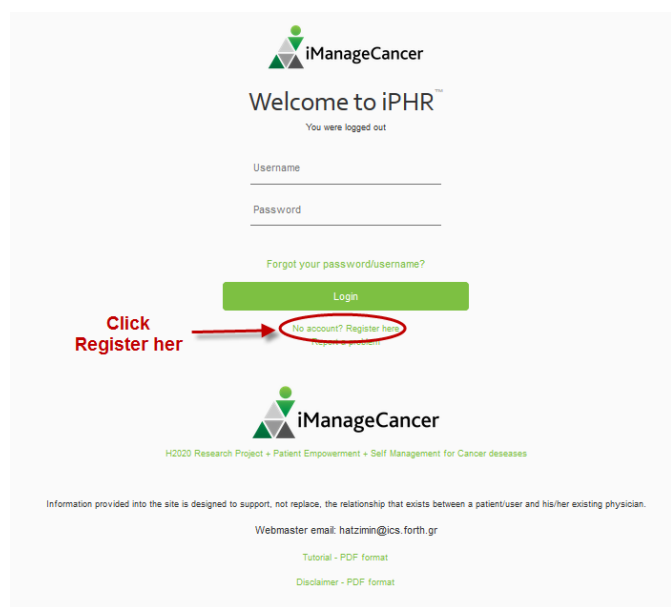
1. The user has to accept the terms and conditions of the portal.
2. In registration page there is a form in which name and email of the new user should be added.Complete name and email field and press register button.

3. After register button is pressed a registration email is send in user's email and a new page is displayed with the registration code that will be used in the link send in registration email.
4. The user will receive an email like the one shown in the next picture
5. The user will receive an email with an activation link
6. Navigate to registration link.
7. In registration link add the code printed in previous step and press activate account.
8. In next page add username and password and complete the registration.
9. After the final step of registration, the home page of indivo appears.

How to use Indivo

Login

First step is to login to the system in https://www.iphr.care/ .After login user will see the Calendar app. User can also select inbox tab which show the email received.

Apps

Role: Patient

Indivo offers a number of different apps for the user. When the user logins for first time all the apps are activated. If a user wants to deactivate or activate an application he/she have to select from menu in the right ''App settings''. In app settings

there are all the available apps and the user can activate them by clicking their check box.
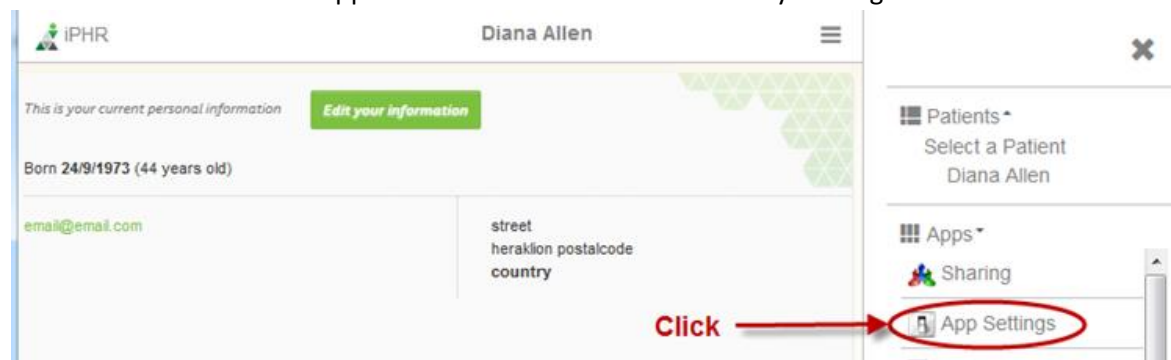
After the user enables the desired apps, apps became part of the menu in the right.

Demographics app

In demographics app contains the demographics of the patient. Each patient can edit his demographics by clicking "You're your information" in home page, updating the information and clicking "Update"

Problems/ Measurements/ Procedures/ Appointments/ Laboratory results/ Medications/ Upload documents app

Problems, measurements, procedures, appointments, laboratory results and medications apps provide similar functionality. The user navigates to the app and a list of his information is shown.

Add information

1. Click Add button on app list
2. Complete the form
3. Click "Add" or "Cancel" in form

Edit information

1. Click "edit" button on app list
2. Update information in form
3. Click Update or Cancel

Select information

1. Click on problem, medication, allergy, procedure, measurement, document, laboratory result or appointment
2. View detailed information

Delete information

1. Click delete on the problem/measurement/procedure/appointments/laboratory result or medication.

Restore delete information

1. Click "deleted" on app list
2. Click restore on deleted information

Example: Appointments app

As we can see in the picture below, user has selected appointments app. In appointments app contains the appointments of the patient. Each patient can add an appointments by selecting ''add an appointment''.

After this step a form will appear.

Add appointment

In this form the user completes the necessary information of the appointment. Then clicks "add an appointment" to confirm the new appointment or cancel. As we can see in picture below the user can add an alert for the appointment which will be shown in calendar app.

Calendar – Timeline

Home page of the patient provides a calendar and a timeline containing all medications, procedures, problems and appointments of the patient. Based on inserted data of the patient system retrieves from the database the titles and dates of each category and posts it both in calendar and timeline view. An example of month June is provided in picture below. As we can see medications are identified by color orange, problems by color pink, procedures by color green and appointments by color blue. Same colors are used in timeline view in order to make it easier for the patient. Chronical problems and chronical medications are not shown in the calendar in order to reduce the psychological impact of the patient. Patient can also check information of a specific category by clicking them. Finally, the alert for the appointments added by the user is shown in Calendar app. The user can also select what categories to be shown by clicking on the four checkboxes.
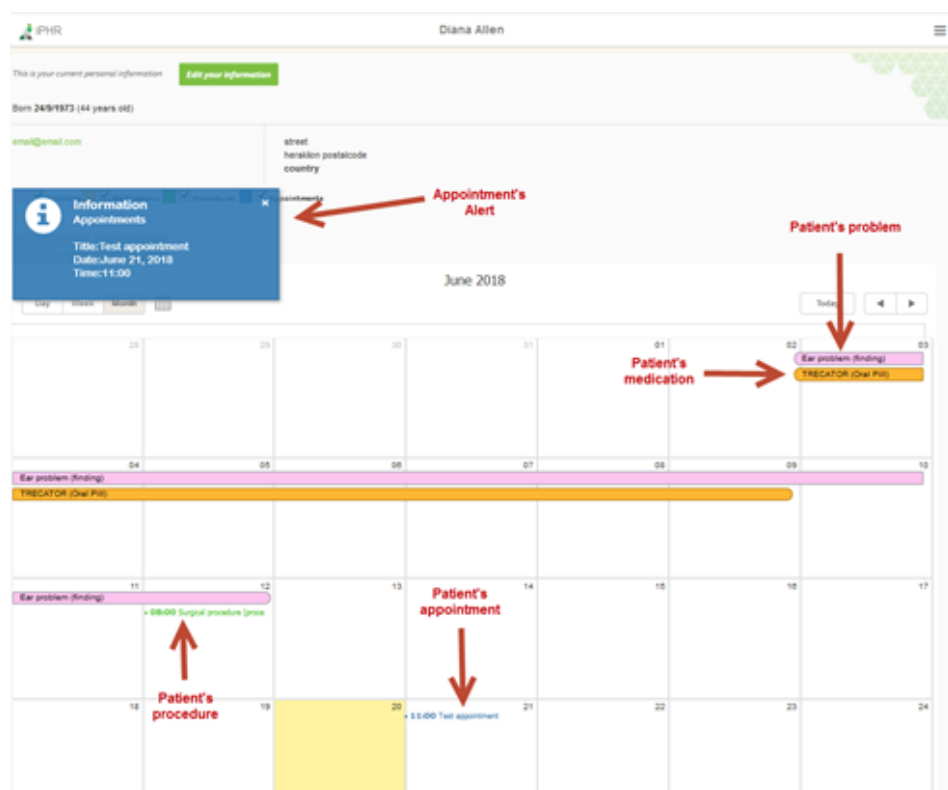
Timeline view provides same colors for each category as calendar, an identifier for current date and the ability to move among dates. As shown in this picture the patient can select as in calendar view which categories from medications, procedures, problems and appointments will be shown.

Add problem/medication/appointment or procedure

1. Click on the date you want to add a problem/medication/appointment or procedure

2. Select category from pop up box

3. Complete information

4. Click "new" button

My statistics app

As we can see in the picture below, user has selected My statistics app. My statistics app provides the statistics of the user's measurements and problems. As shown in the next picture my statistics chart visualize problems as lines and measurements as bars.

Decision aid questionnaire

A questionnaire used to monitor psychological, cognitive, emotional and psychosocial aspects. The user answers the questionnaires and clicks submit.

Parental distress questionnaire

A questionnaire used to monitor psychological, cognitive, emotional and psychosocial aspects. The user answers the questionnaires and clicks submit.

ALGA-C questionnaire

A questionnaire used to monitor psychological, cognitive, emotional and psychosocial aspects. The user answers the questionnaires and clicks submit.

Family Resilience Questionnaire

A questionnaire used to monitor psychological, cognitive, emotional and psychosocial aspects. The user answers the questionnaires and clicks submit.

Forum app

Forum is a mechanism within the platform to enable information exchange among participants.

Personal Medical Information recommender

In recommender app patient can add a query and get personalized results. These results are based on patient's record information, also on links that patient had previously selected and on rankings of links of previous searches. Patient can add a query and based on the query and previous selections of the patient a list of links is returned as result.

After submitting a query patient can rank the results by selecting number of stars and can also navigate to the document by clicking the corresponding link.

Role: Doctor

Annotator app

In the annotator app the doctor can upload high quality information resources that will be available for the patients in the information recommender search.

Clinical assessment app

Clinical assessment app is an application shown only on clinician role. The clinician completes a clinical assessment questionnaire for the patients that have shared their information with him. The clinician has also the option to update, delete and restore the questionnaires.

Profiler

Assess graphically the psycho-emotional patient profile.

Smart Analytical Framework

Doctors have the option to view statistics and analysis of the data that their patient's shared with them. Moreover, they can create and analyze cohorts.

Create and visualize cohorts

The user selects the Smart Analytical Framework which is located above the rest of the apps:

In order to create a new cohort user should select the +New Query option from the menu on the left. In the following images the creation of a simple query is described. The SAF gives also the option to the user to create more complex queries including groups and nested groups.
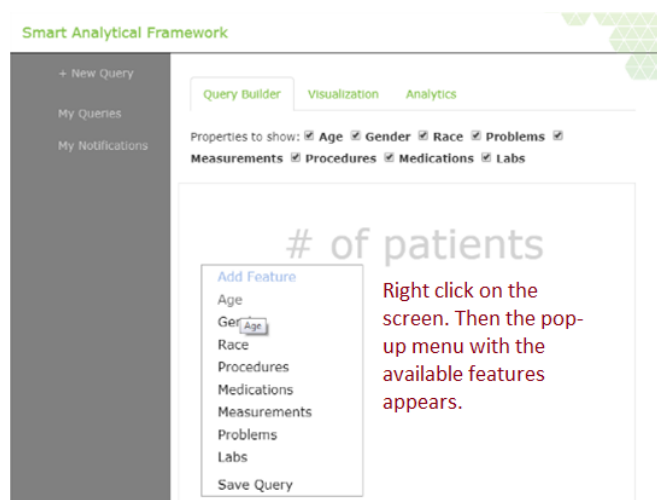
Let's assume that the doctor wants to create a cohort for view the data of his/her patients that are older than 40 years old. Initially doctor should right click and a pop up menu will appear. Then select the feature "Age" The popup menu for the feature Age provides options to set the appropriate conditions for this field. The user can select the appropriate condition (>) and value (40). After selecting "Age", the popup menu for the feature Age provides options to set the appropriate conditions for this field. The user can select the appropriate condition and value.

Analytics

Main objective of the smart analytics framework is to hide the complexity of data mining and statistical algorithms from the end user. The framework supports the well-known K-means clustering algorithm and a feature selection algorithm based on the principal components analysis algorithm.

Clustering

The SAF of iPHR provides k-means clustering to the end users. The user has to select the Analytics tab as shown in the figure above and set the number of clusters to be created.

Feature Selection

Feature selection is the process of selecting a subset of relevant features (variables). In iPHR we use feature selection to identify the most informative feature in our dataset. The results contain list of features with a weight that represents how informative is each feature.

Share information

A user can share some of his apps or all his apps with other users or groups (called carenets). There are three default groups (carenets) called : Work/School, Physicians and Family. In each of these groups user can add as many users as he desires and also the apps he wants. User can also create new groups except the default.

There is also available the "Guardian" functionality which is used by users that want to share their whole personal health record with a user or children under 18 years old. If a use adds a guardian, the guardian has complete control of his personal record and can edit, delete or add information compared to the carenets users which have only the ability to read the shared information. As we can see in picture below a user should select sharing from menu in order to see the available groups. There is also a video explaining the functionality of sharing.
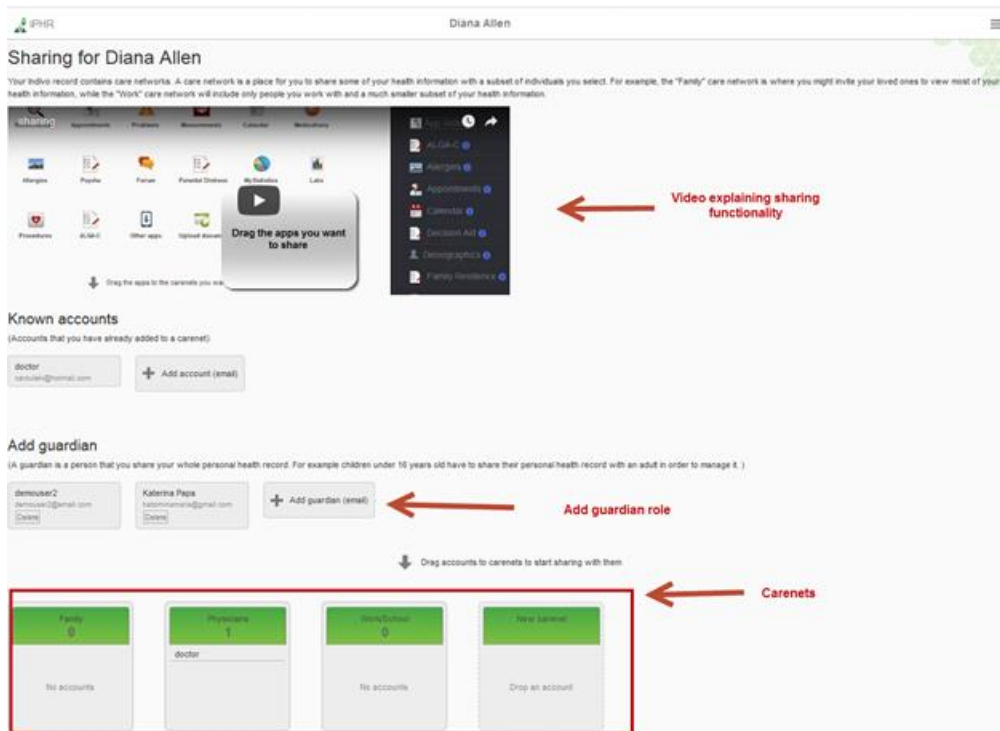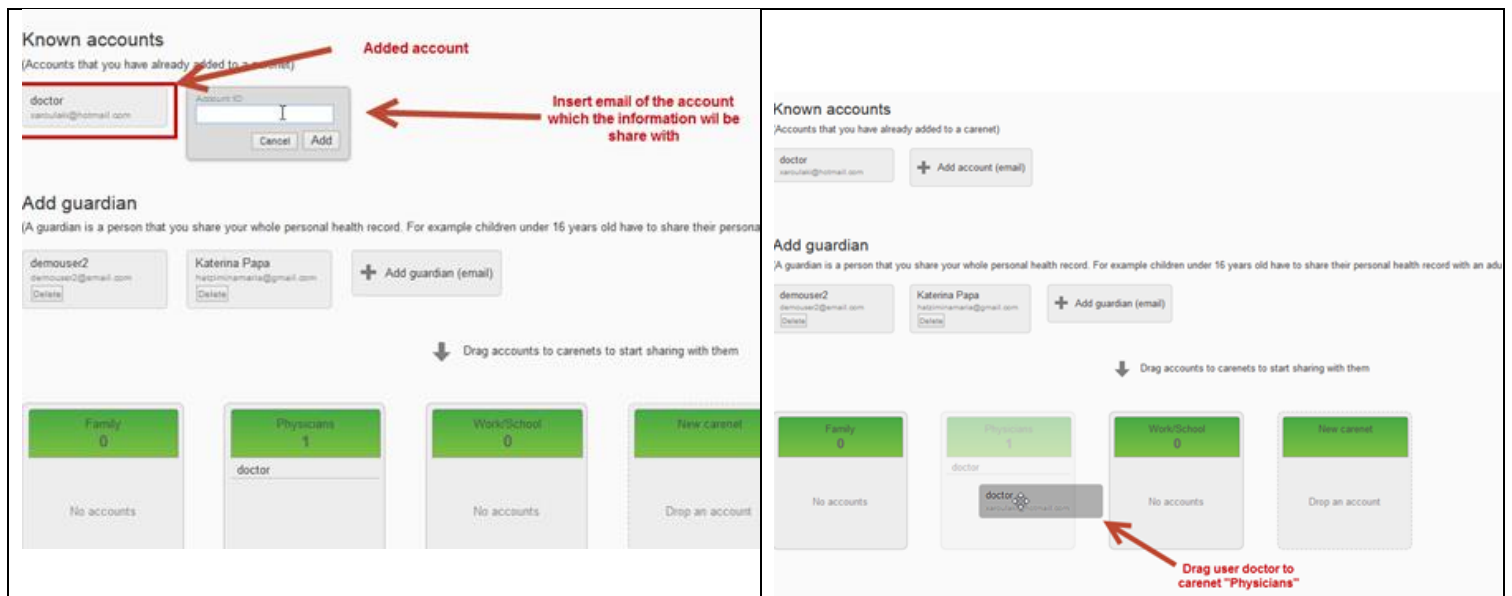
Add carenet

If a user wants to create a new group (carenet), clicks ''New carenet'' and adds a name for the group.

Add account to share information

In order to share his documents and apps with other users, user should add accounts by clicking ''Add account'' and adding an email of an existing user. An example is shown in picture below. Next step is to drag new user into the groups.

Share apps

After this step access have been granted to user "doctor". Next step is to add which apps the user "doctor" can access. In order to do that user must select ''app settings'' from menu. In this page user can drag apps to groups. In example below "measurements" app will be dragged in group "Physicians" (in the group we added user ''doctor').
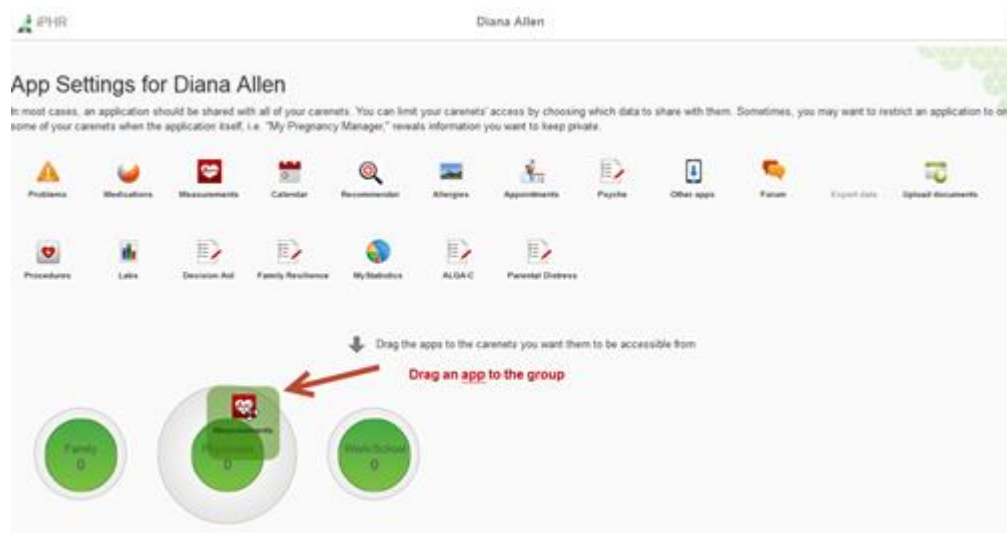

As we can see in next image, each app that have been added in group is shown inside the circle of the group and also there is the number three in our example indicating that there are three apps in this sharing group.

Share documents

Final step is to share with the external user (doctor in our example) the documents the user wants. "Doctor" in order to see documents from these apps our user should first share app's documents with the group.
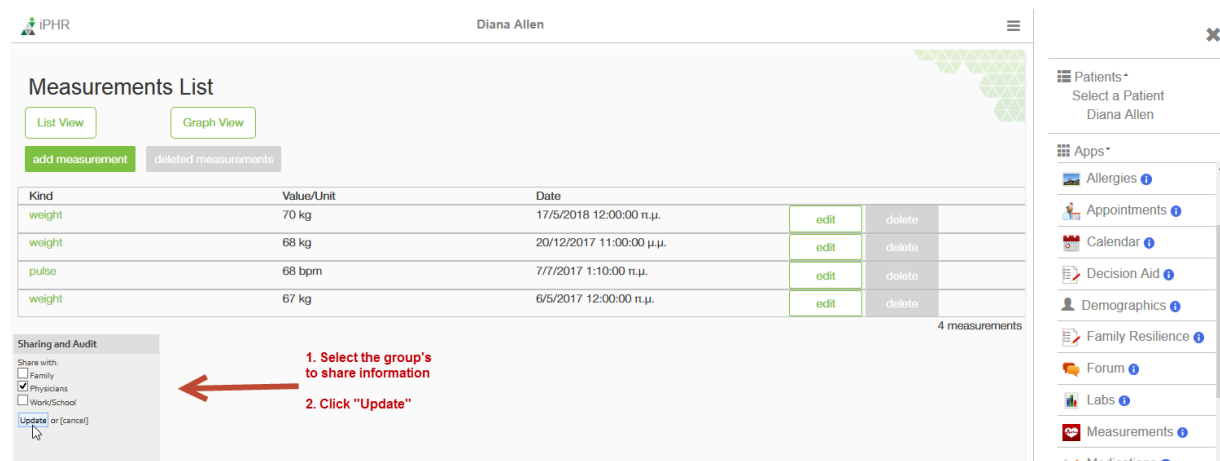
If we login as user "Doctor", that we have granted access in group/carenet "Physicians" we will see the measurements of the user. If we click "Select patient" we can see that there is an extra user with the name and surname of the previous user and in parenthesis the word "carenet", which means that this is a user who shares information with "Doctor".
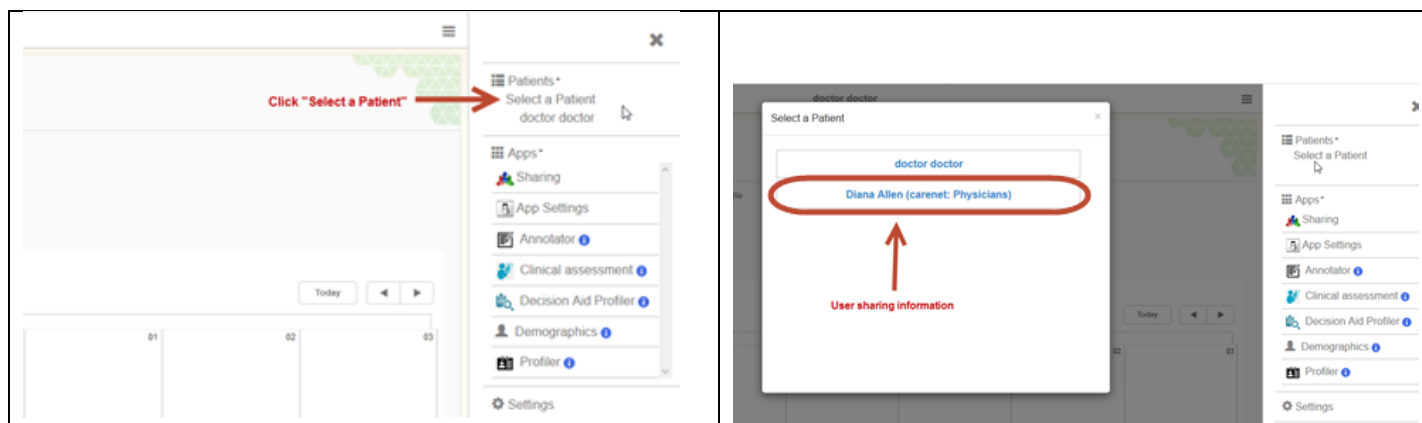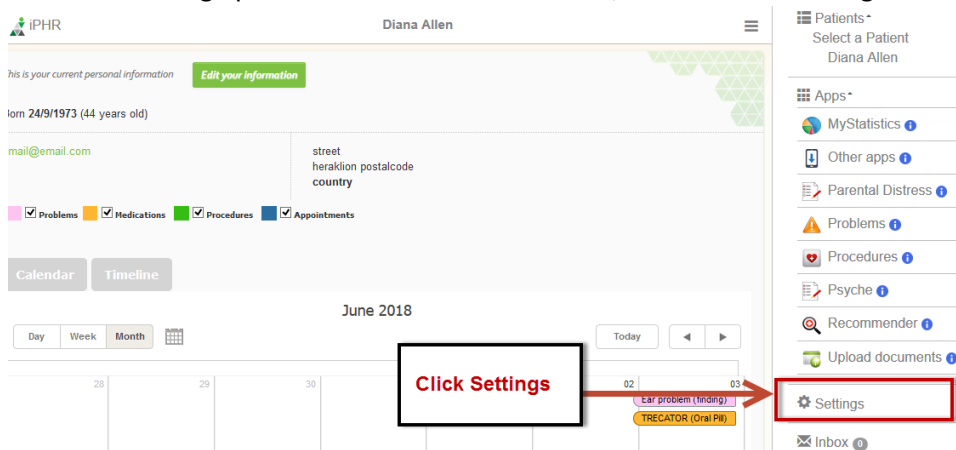
If we select the user we can see the apps that have been shared with "Doctor". If we select "Measurements" app we will see the shared measurements with the doctor
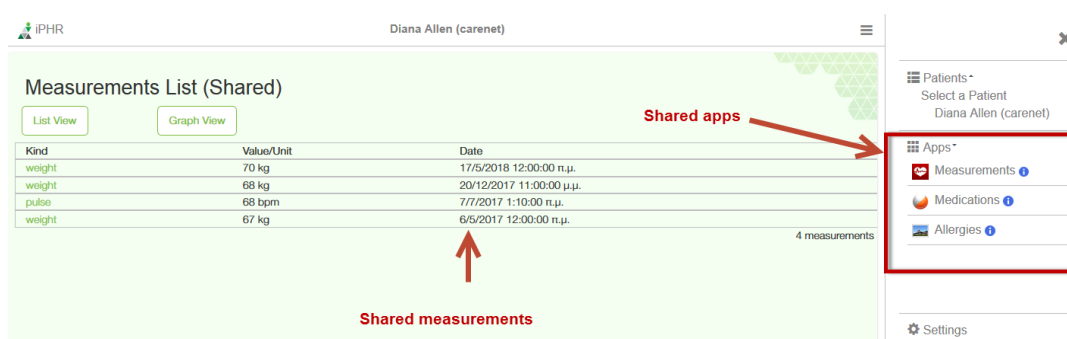
Account settings

In order to change password or delete the account, the user has to navigate to menu "Settings".

Change password

1. Update password on settings
2. Click "Update" button

Delete account

1. Click "Delete account" on settings