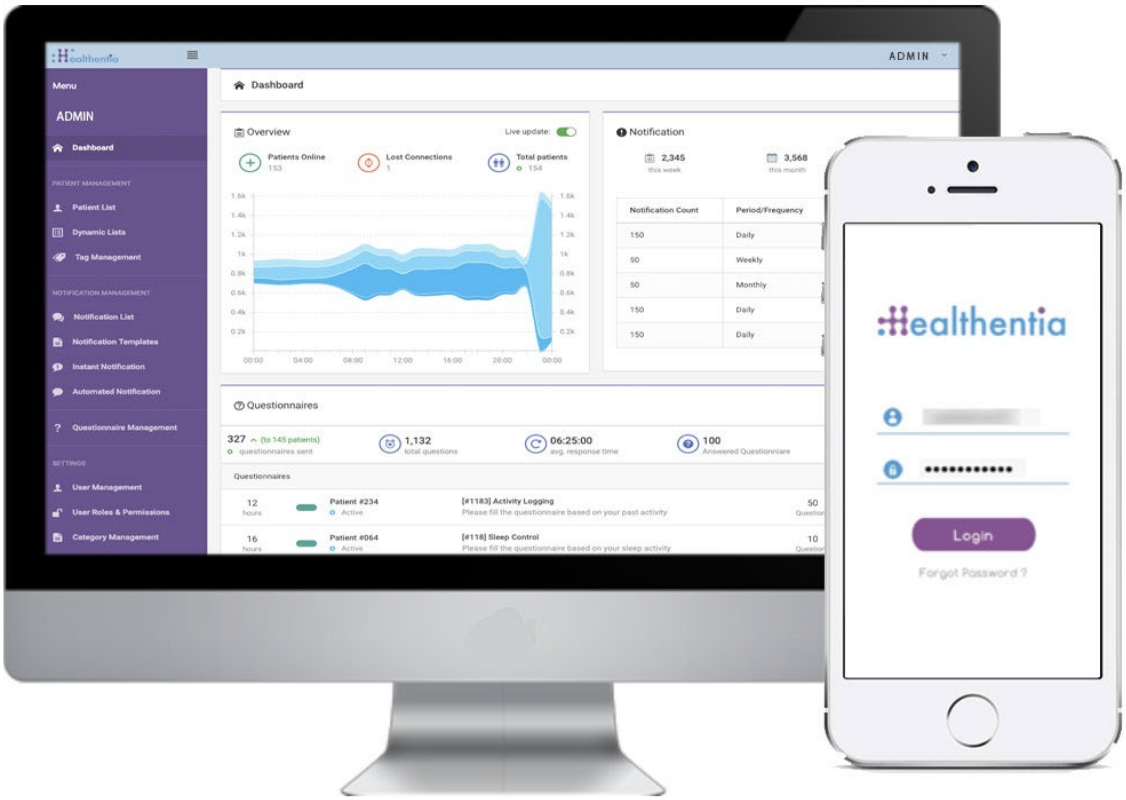
Healthentia

STUDY PORTAL



INVESTIGATOR MANUAL

APRIL 2020

HEALTHENTIA v2

Innovation Sprint Sprl
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v2 (27/04/2020)

HEALTHENTIA is a medical decision support software developed by INNOVATION SPRINT and intended monitor, detect, offer virtual coaching services and generate automatic alerts regarding events, based on Real World Data gathered from patient taking part of clinical investigation, or those using it as a medical or wellbeing device.

The intended use of the device is: Software intended for monitoring of non-vital parameters to support decision making and virtual coaching of patients during clinical trials or under a medical or wellbeing treatment context.

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DOCUMENT HISTORY

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1.0	14/3/2019	Konstantina Kostopoulou	Healthentia version 1
1.1	14/5/2019	Konstantina Kostopoulou	Healthentia version 1 -upd
2.0	27/4/2020	Sofoklis Kyriazakos	Healthentia version 2

1 GETTING STARTED

HEALTHENTIA can be used both by individuals and by sponsors of clinical trials. Individuals can report and monitor their outcomes (e.g. symptoms) and activity and receive automatic-generated questionnaires for wellbeing. Aggregated data provided after users' consent, can be processed for conducting non-profit research studies. Clinical trial sponsors can operate HEALTHENTIA to collect ePROM/ePREMs under the appropriate regulatory framework (e.g. Good Clinical Practice) to carry out study protocols, often by the use of a PaaS instance of the platform. Individuals, depending on their consent information, may receive invitation to participate in research studies.

This manual is targeting Organization Admins, Study Admin, Investigators and other authorized personnel of the Study Portal.

1.1 LOGIN/REGISTER AS A PORTAL USER

To login user should go to the login page, which is available in https://saas.healthentia.com for the SaaS version, or a specified URL for the PaaS version.

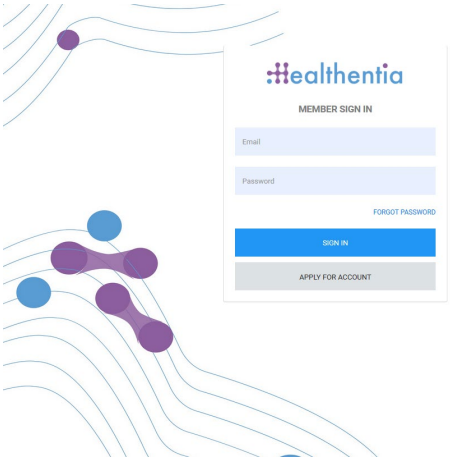

Figure 1: Login page

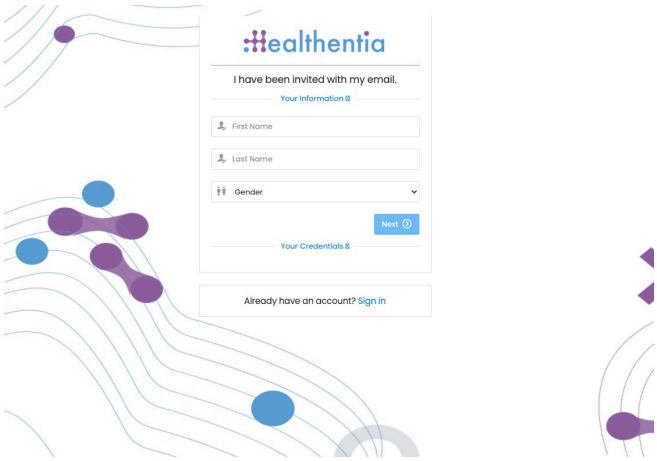

Figure 2 - Registration page

Users receive an invitation from an Organization Admin to register their account and enter in the portal in the allocated study with an allocated role.

2 STUDY MANAGEMENT

2.1 STUDY OVERVIEW

After log in you are directed to the Study Overview Page – My Studies, which has a list of your available studies and some overall statistics. You can access your Studies, edit them or create a new one.

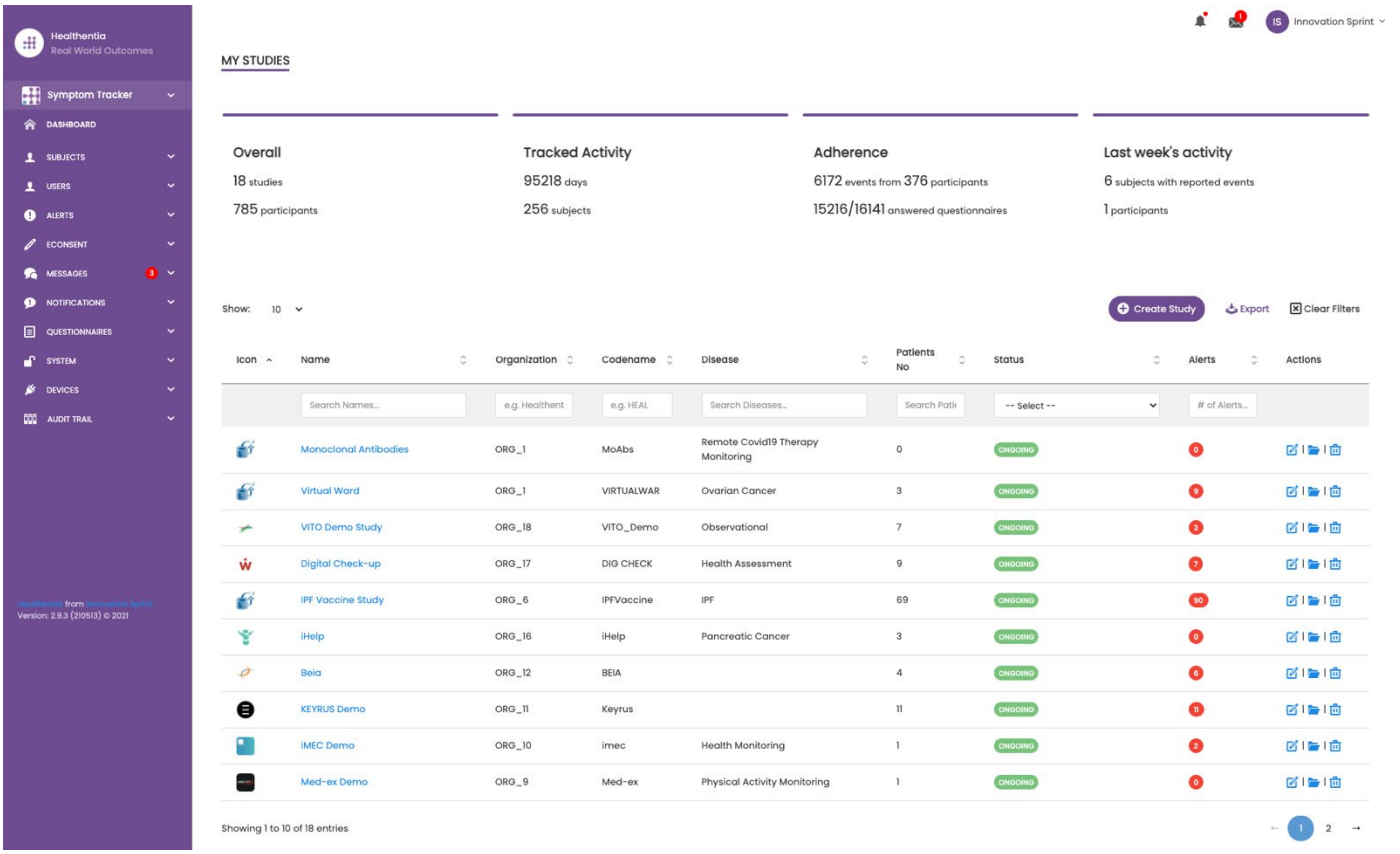

Figure 3 - Study Overview

2.2 SETTING UP A NEW STUDY

From this first page, you have the option to create a new study. Depending on the type of study, investigator provides different information. In Figure 4 one can see the available configurations for the study per se but also the mobile App. There is a selection of available widgets to select for the new study and configure the data sources but also several fields to fill in like Name, Code, logo, Languages, therapeutic area, duration and consents.

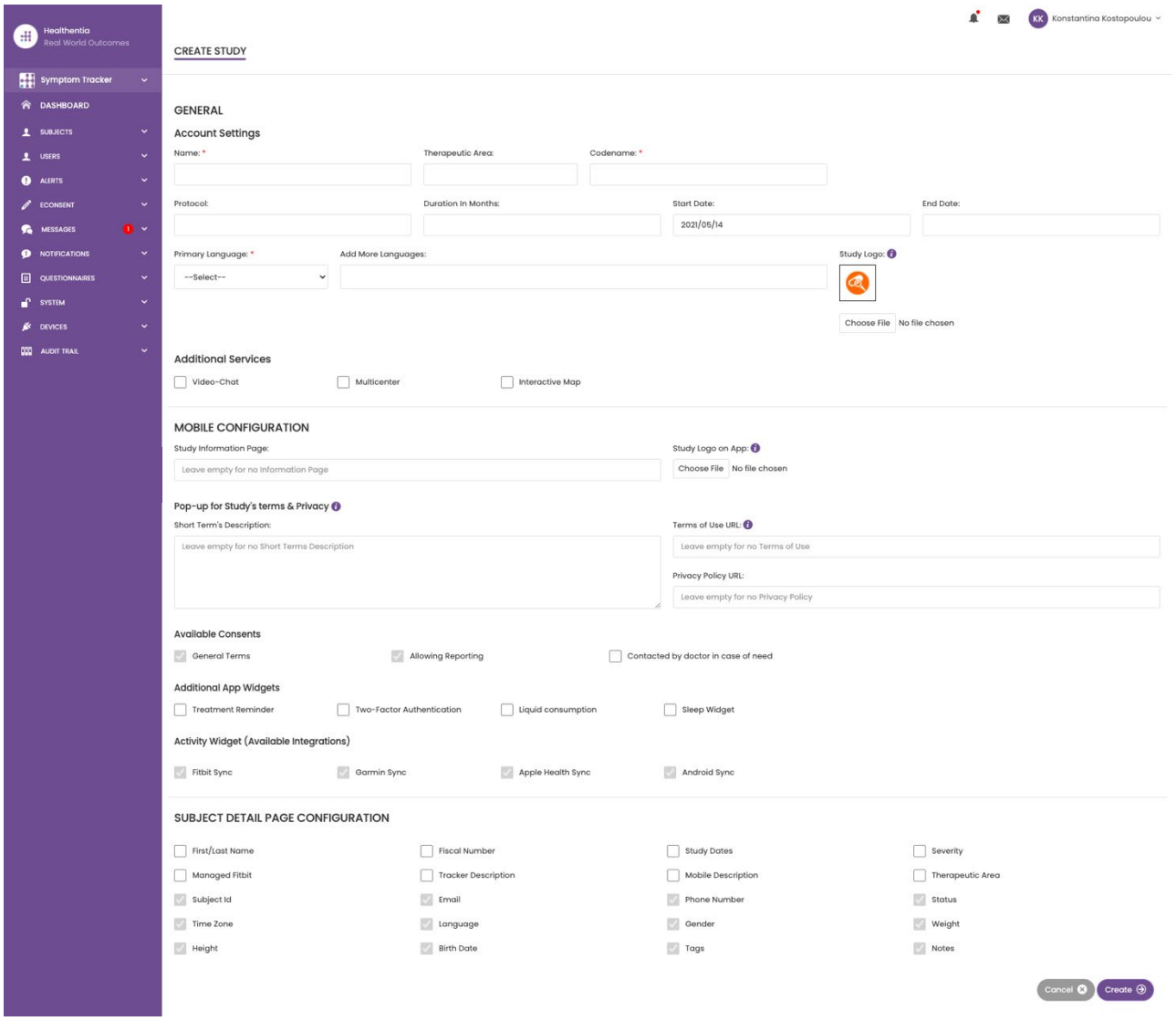

Figure 4 - Create New Study

3 DASHBOARD

The user dashboard contains information of the selected study in tabs, e.g. Interactive map, Study Overview, Measured Activities Overview and Outcomes Overview. This is a customizable set of dashboard tabs; they depend on the Outcomes that each trial collects. The map is connected to a Location question, Measured activity requires a connection the mobile sensors (or fitbit, Garmin, etc) and the reported outcomes tab has a self-service mechanisms for questions asked in the questionnaire to be seen in two types of graphs

3.1 INTERACTIVE MAP

At the configuration of the study, the Study Admin can select to enable the interactive map if there are questions regarding location. Portal users can select parameters through several filters and have an overview of subject outcomes at a geographical level, as presented in Figure 5.

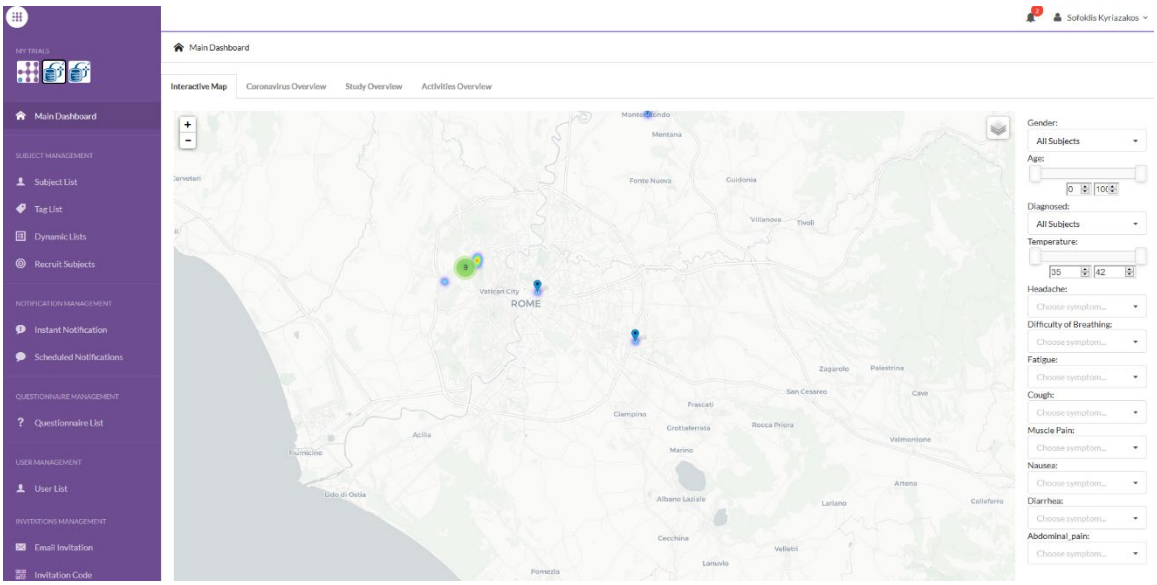

Figure 5: Interactive Map

3.2 BI

Further to the Interactive map, there are other tabs in the Dashboard that can be configured with study Overview statics, like registrations and protocol adherence – Figure 6.

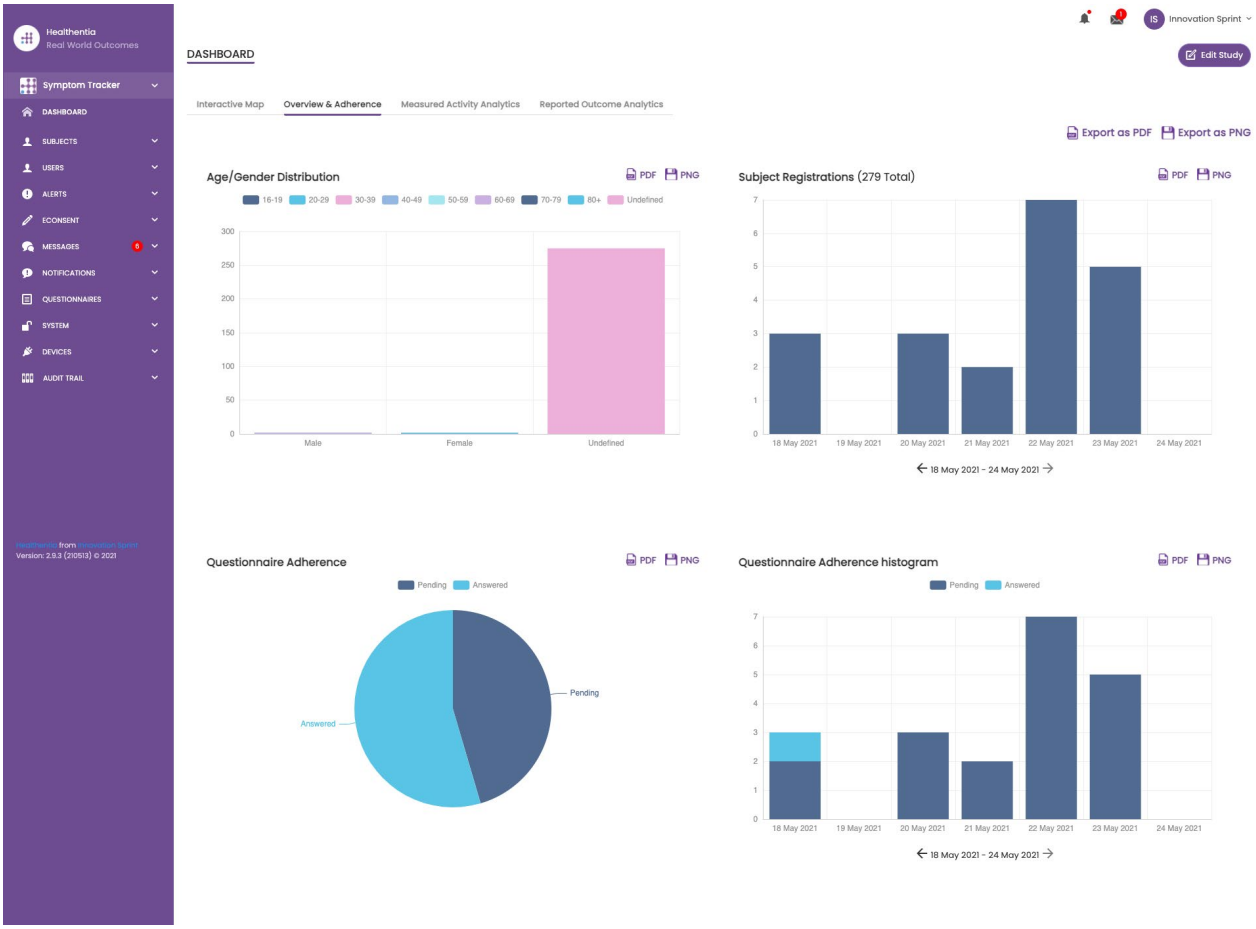

Figure 6: Study registration and compliance overview

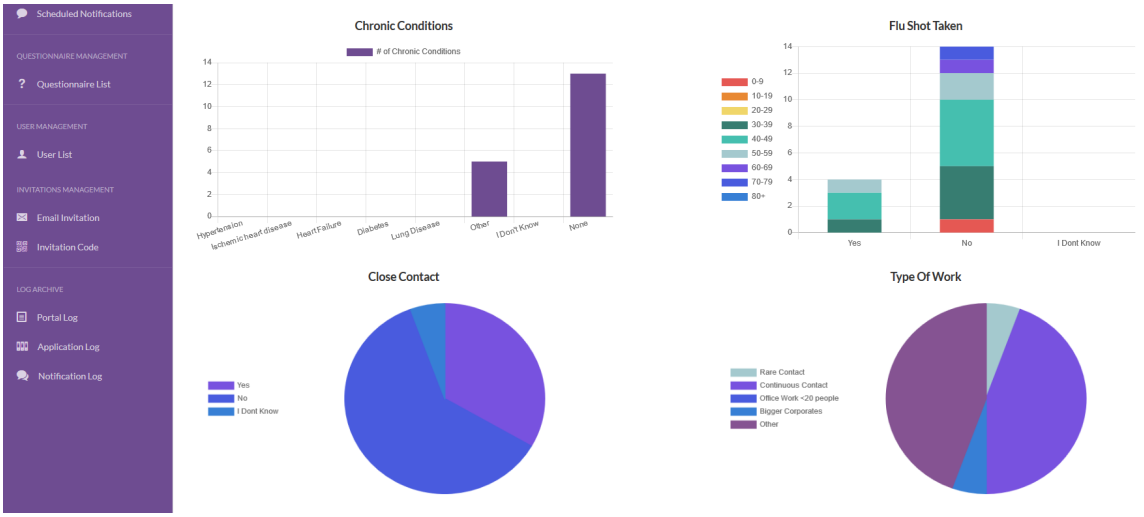

Figure 7: Study statistics overview

Figure 8: Measured Activity overview

4 SUBJECTS

4.1 ADD A SUBJECT

Subjects are either imported via an integration with an EDC into Healthentia as inactive subjects that are activated once they have logged in to Healthentia, they can be manually added by the button on the Subject List or invited through the system from the Subject Invitations. The email used for the invitation will be recognized by the system to allow them, at registration on the App to enter to the specific Study. **Not using the same email will not enroll the Subject in the correct Study.**

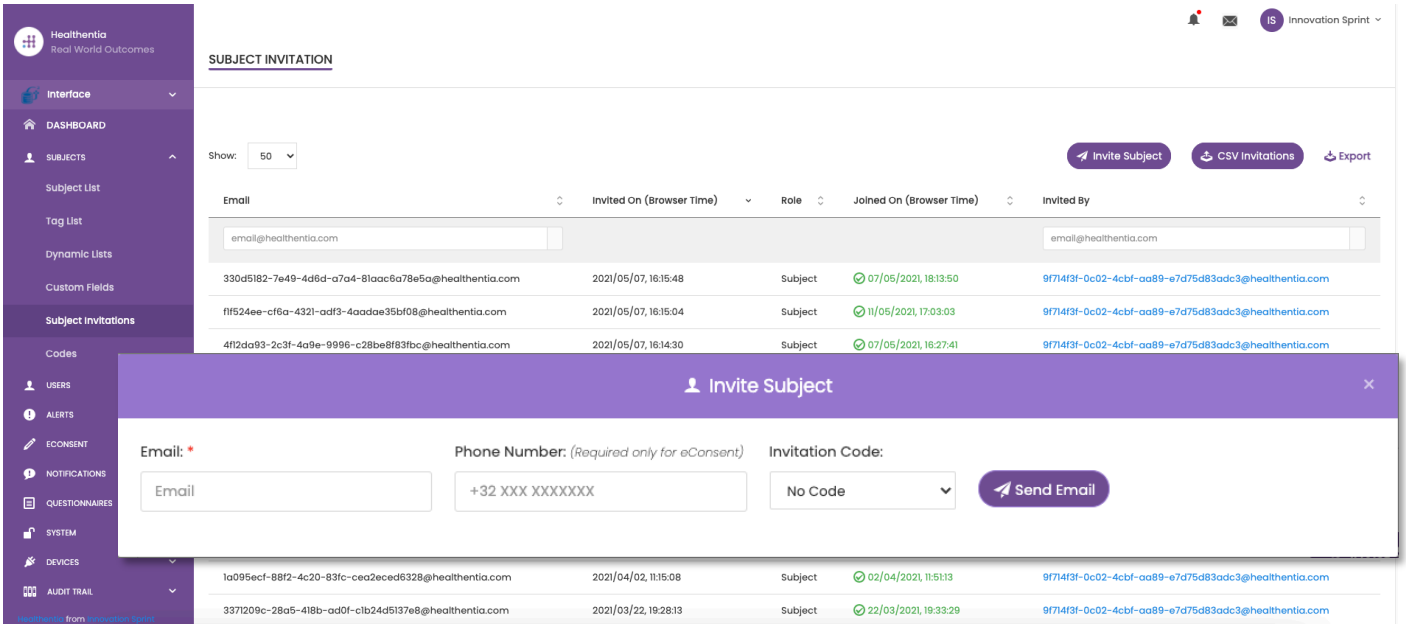

Figure 9 - Invite Subjects

Similarly, to the Email invitation above, the investigator can invite patients by providing them a code. Subjects can enter this code at the registration, even if they have not received an email. Once they register, they are automatically connected to that specific study only. They can be massively generated to use one per subject and or one can be used for all the subjects for the Study as seen in Figure 10

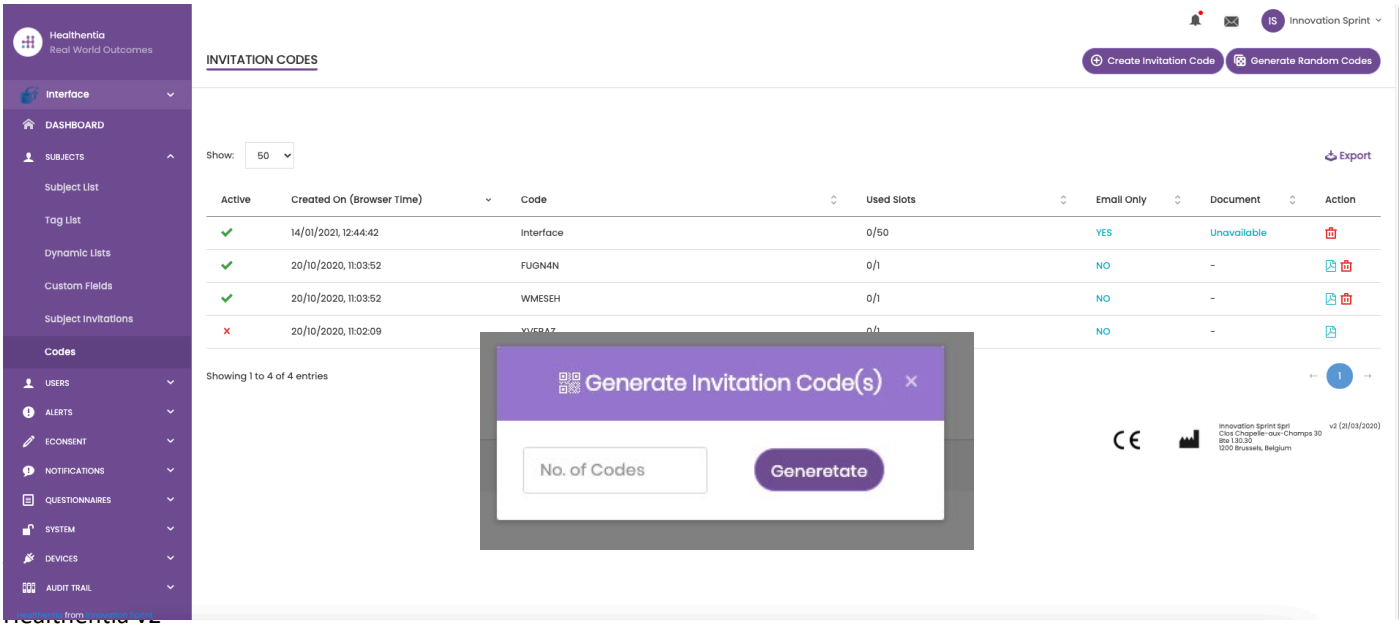

Figure 10 - Invitation Codes

4.2 SUBJECT RECORD

In the Subject record, the portal user that has permissions to view or edit the patient details and view ePRO related data and measured activity can have access to the different tabs of information coming from different sources. They can even have the ability to complete questionnaires for them.

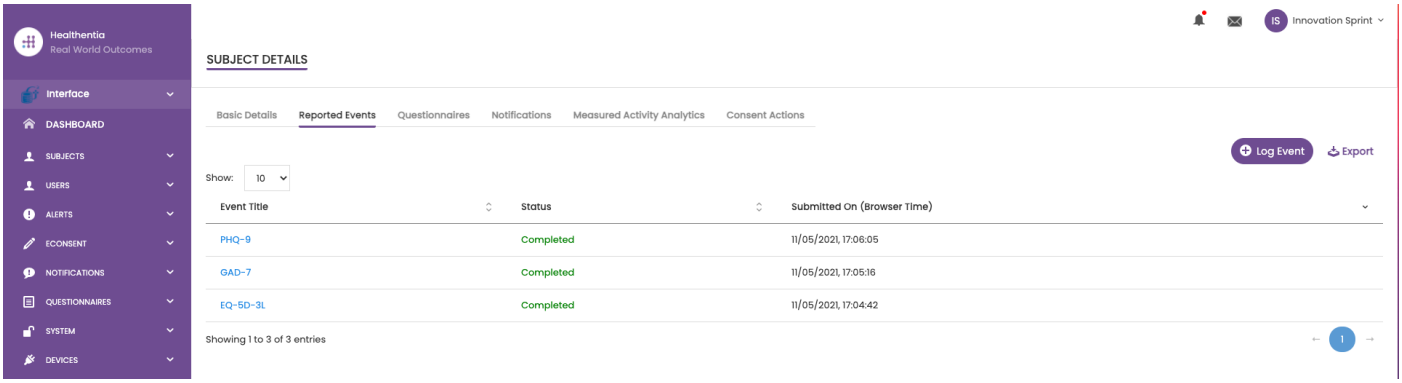

Figure 11 - Subject Details

4.3 SUBJECT LIST

The subject's list gathers in a table all patients assigned in the specific study. The list table gives an overview of important elements like dates, Questionnaire adherence, tags, activity status and more.

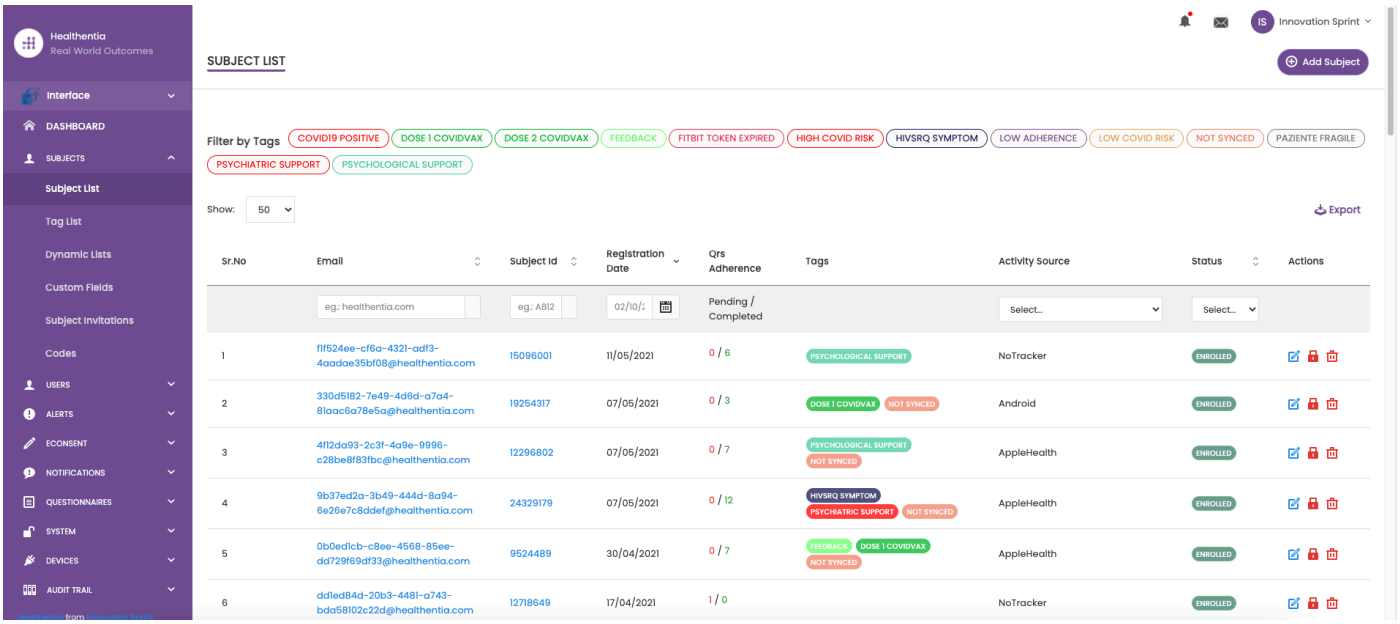

Figure 12 Subject list

4.4 TAGS & DYNAMIC ALERTS

In the section of Tags, we list all the tags available in the study as seen in Figure 13 to be used for grouping the patients in their entry in the system or depending on their answers in the questionnaires. These tags can be than attached to an Alert seen in Figure 14. All Alerts are featured in a table as seen in Figure 15. As in all sections of the portal all data are exportable to an excel file.

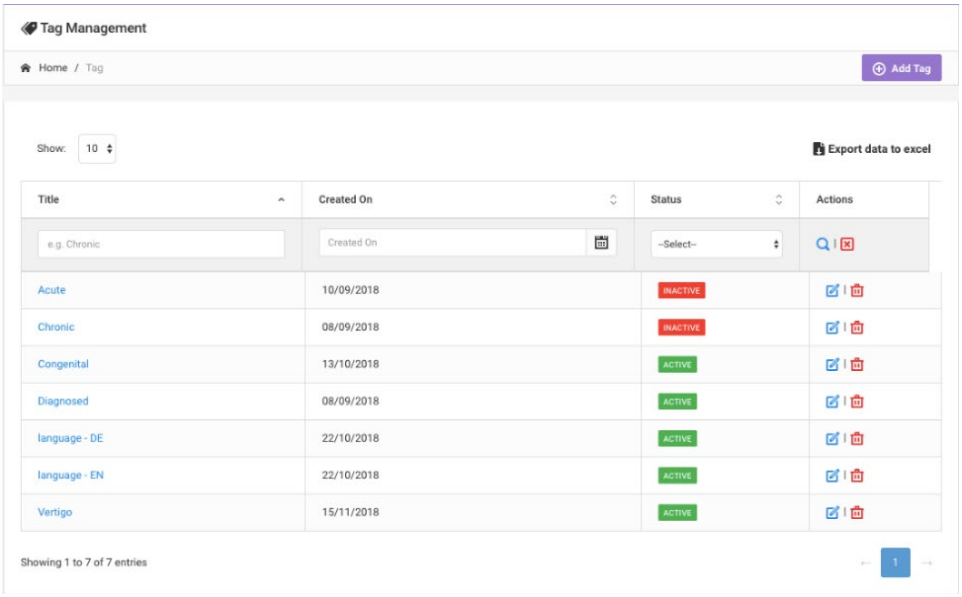

Figure 13 Tags List

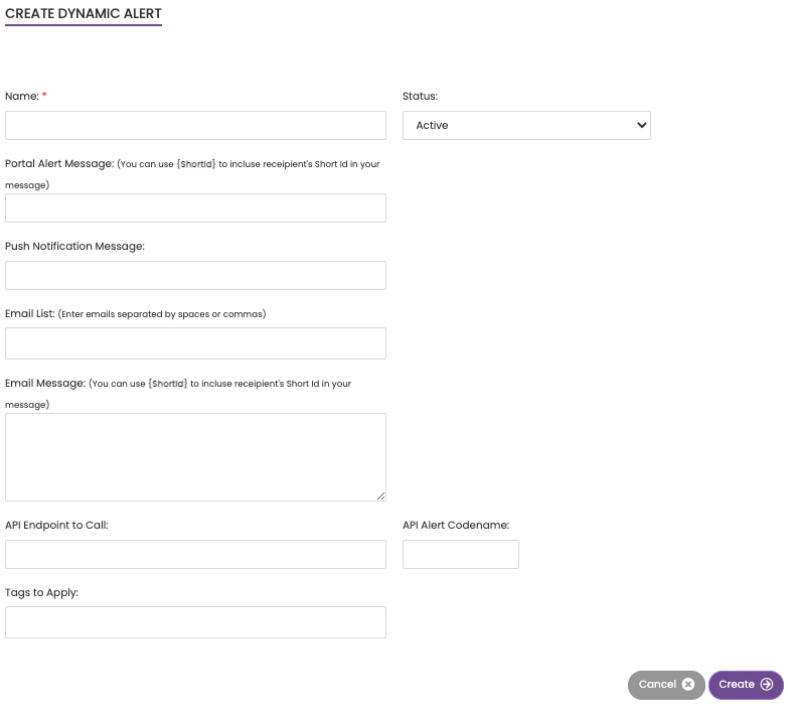

Figure 14 - Create New Alert

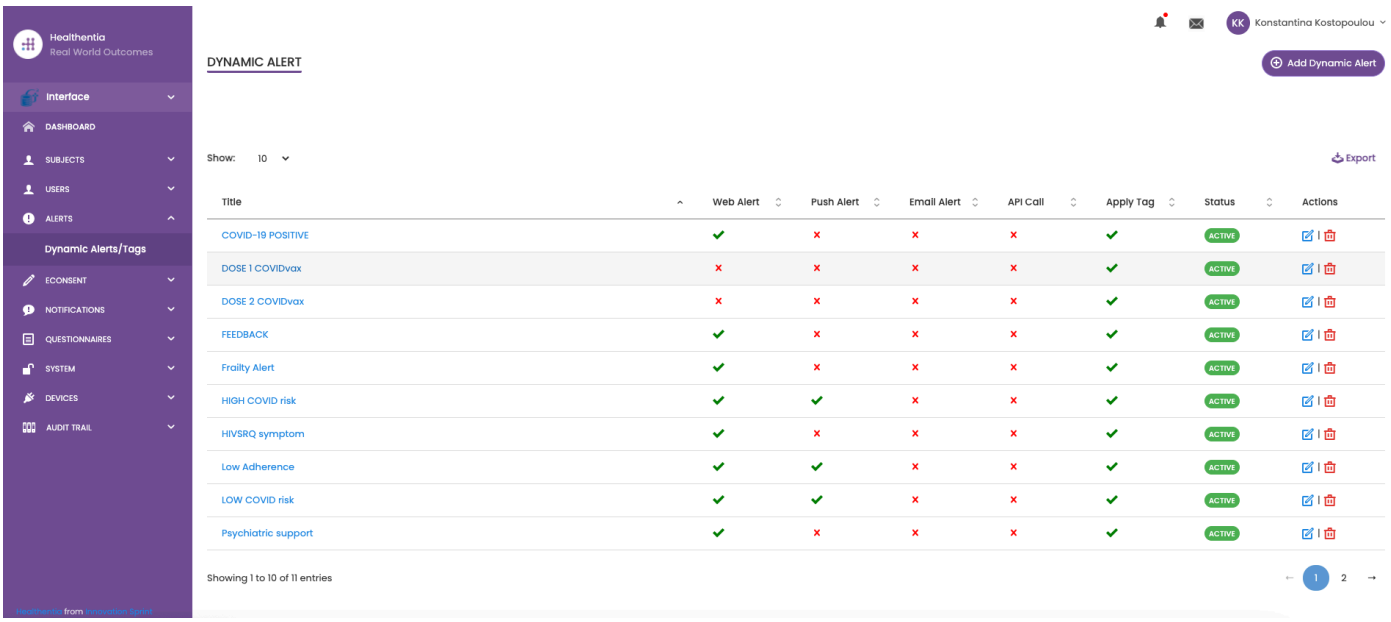

Figure 15 - Dynamic Alerts List

4.5 ALERTS DASHBOARD

The Alerts are shown in a separate Dashboard where the portal user has an overview of what tags are allocated and whether a patients requires an immediate action or has low adherence in his reporting of questionnaires.

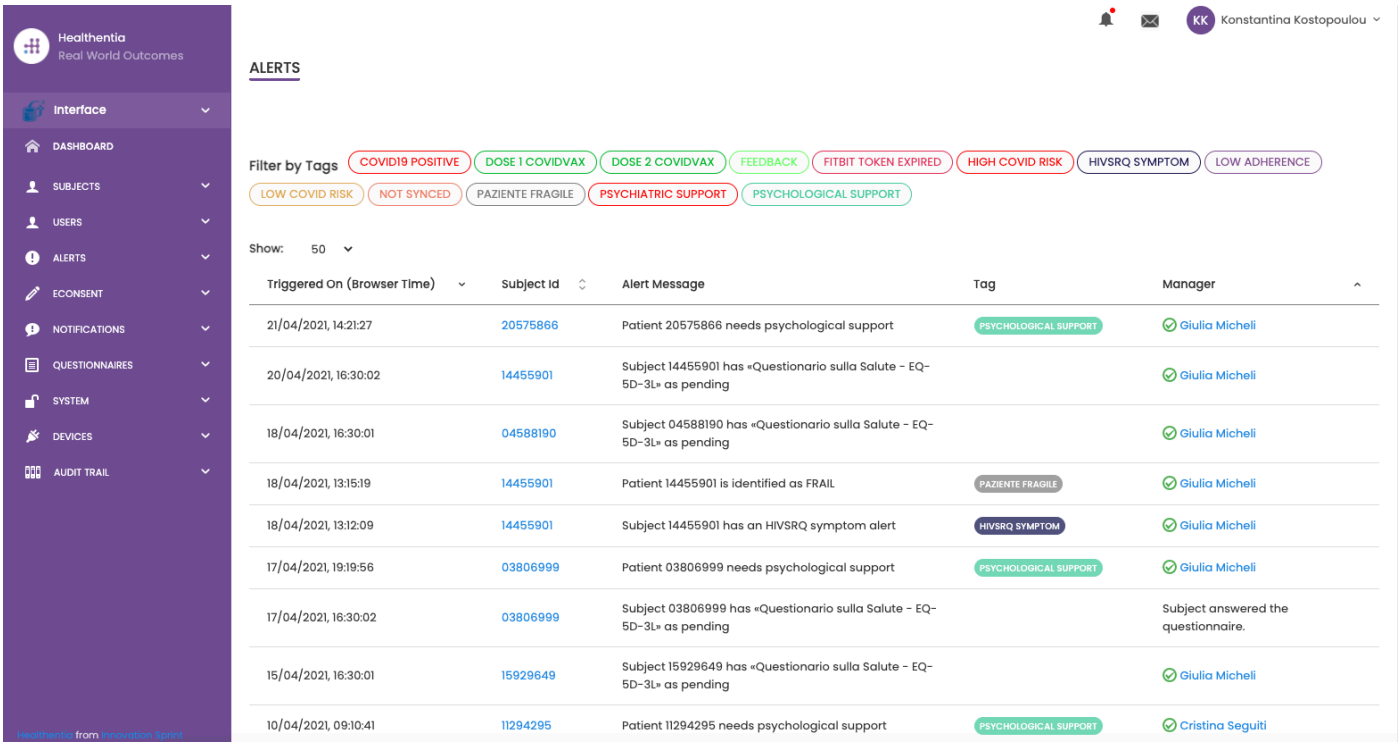

Figure 16 - Alerts Dashboard

4.6 DYNAMIC LISTS

The Dynamic lists are used to group patients in a dynamic way. We create grouping requirements and patients are added automatically in a list when they meet the criteria. The attributes of patients that can be used as criteria for filtering the patient list are status, screening, termination or treatment switch date and even using tags that are explained below. As in all sections of the portal all data are exportable to an excel file, as presented in Figure 17.

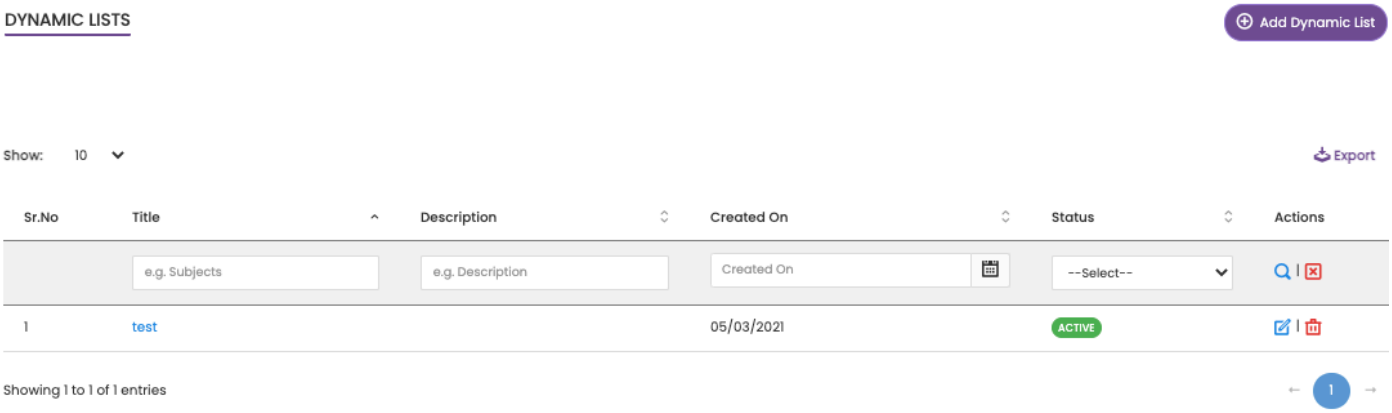

Figure 17 Dynamic List table

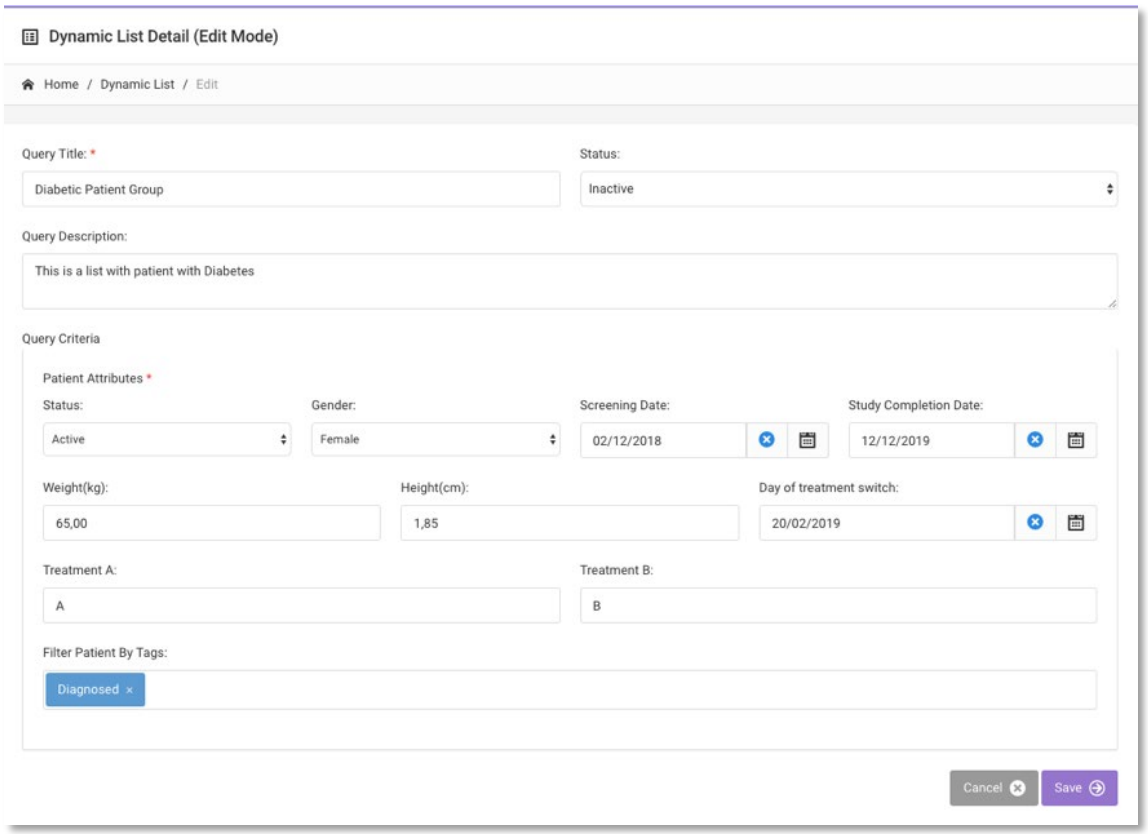

Figure 18 - Dynamic list details

5 NOTIFICATIONS

5.1 NOTIFICATION LOG

In the section of Notifications, we can see all communication sent by the system to patients, we can create instant notifications or scheduled. All notifications are listed by date in the Notification List and you have an overlook of the content of these notifications and if their type. As in all sections of the portal all data are exportable to an excel file, as presented in Figure 19.

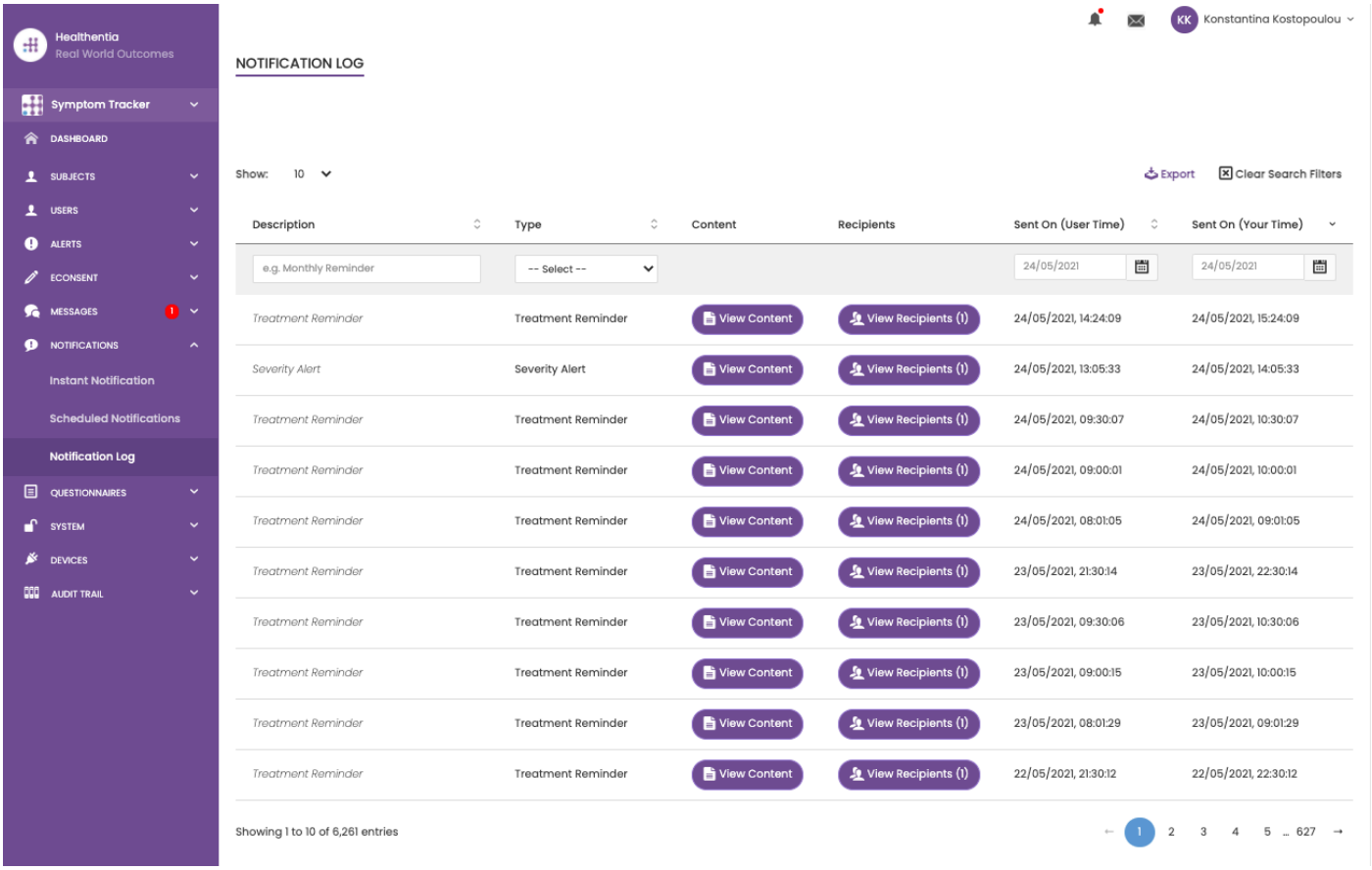

Figure 19 - Notification Log

5.2 INSTANT NOTIFICATIONS

Instant Notifications are the ad hoc messages that the investigator can send to a patient that hold a simple message or accompany a questionnaire. You can select individual recipients for the notification from the full subject list or filter by using tags or Dynamic Lists as seen in Figure 20.

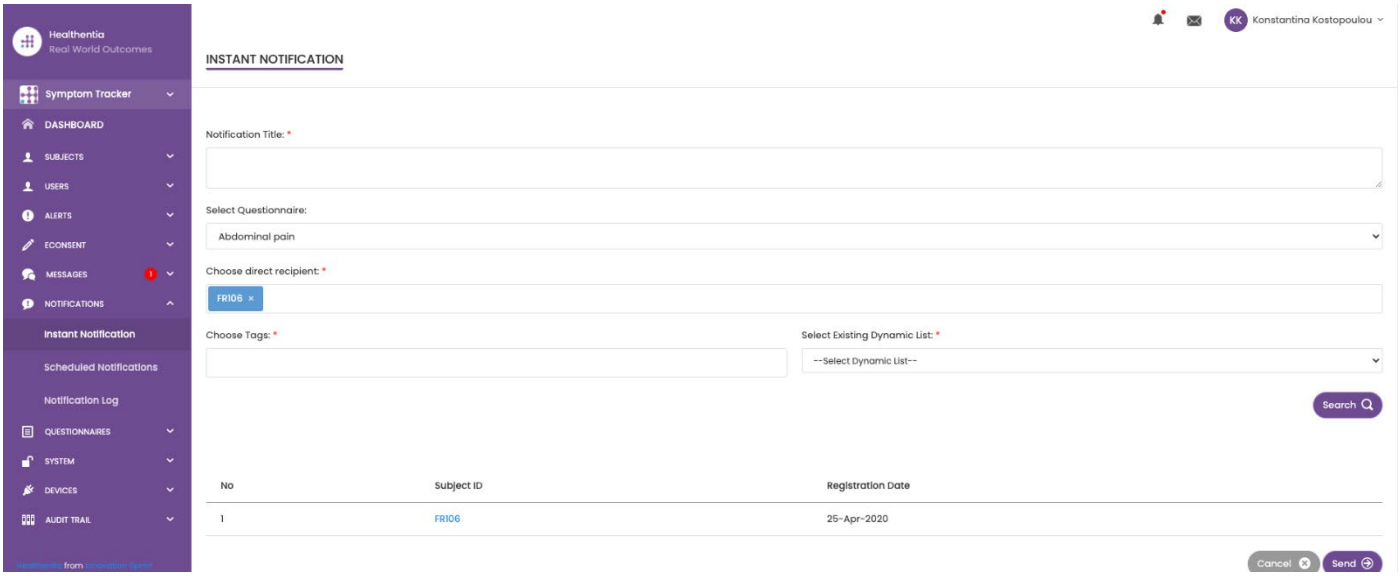

Figure 20 - Instant Notification

5.3 SCHEDULED NOTIFICATIONS

Scheduled notifications are the ones that are created in the beginning of the study and are used to schedule the questionnaires to be sent to a group of recipients based on a filtering by tags or dynamic lists or to the whole list.

The scheduling of a notification can be done based on a regular Date with a Daily, weekly or Monthly interval sent once at a specific time or recurring. The system also allows the coordinator to send notifications based on the protocol's specific dates and X days before or after these days. You can see the Notifications List at Figure 21 and the New Scheduling Notification at Figure 21

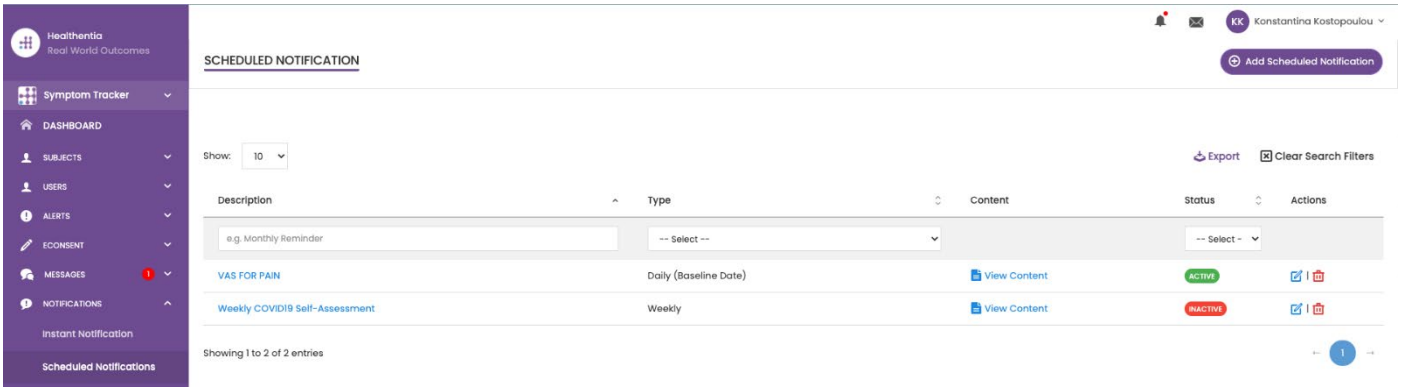

Figure 21 - Scheduled Notifications

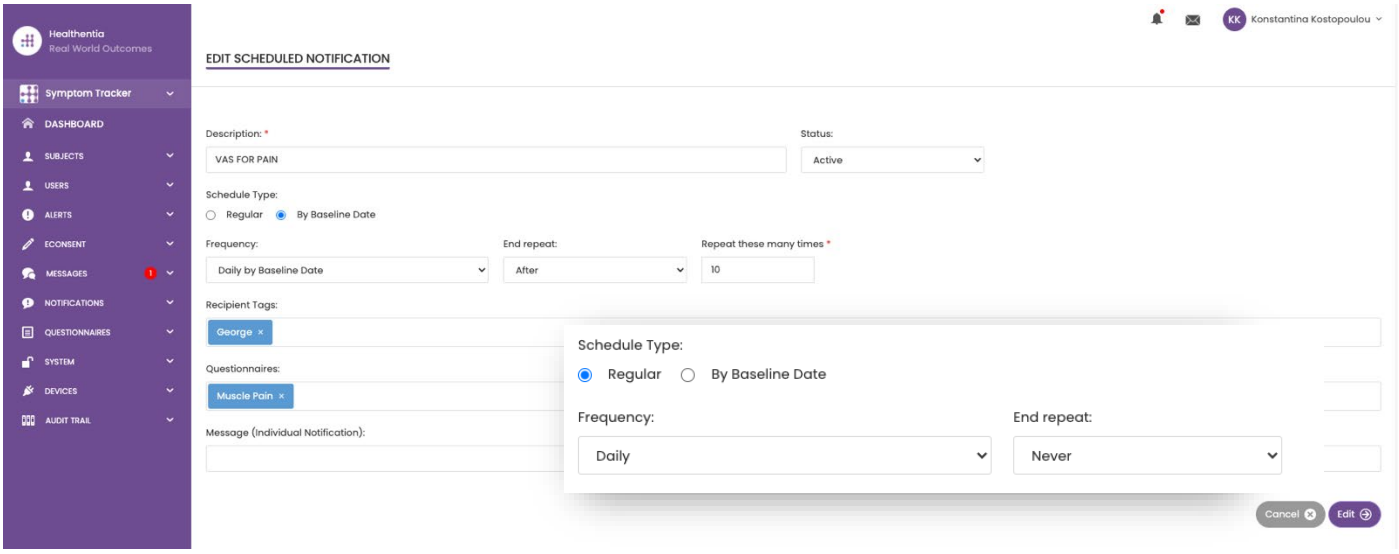

Figure 22 - New Scheduled Notification

6 MESSAGES-TELECONSULTATION

6.1 MESSAGE INBOX

End-users of the mobile app if the feature is enabled they can send a Message to the Investigator/study assistant and start a conversation. If needed the investigator can start a teleconsultation video link that will be valid for 15 minutes. See inbox in Figure 23 and the conversation in

Figure 24.

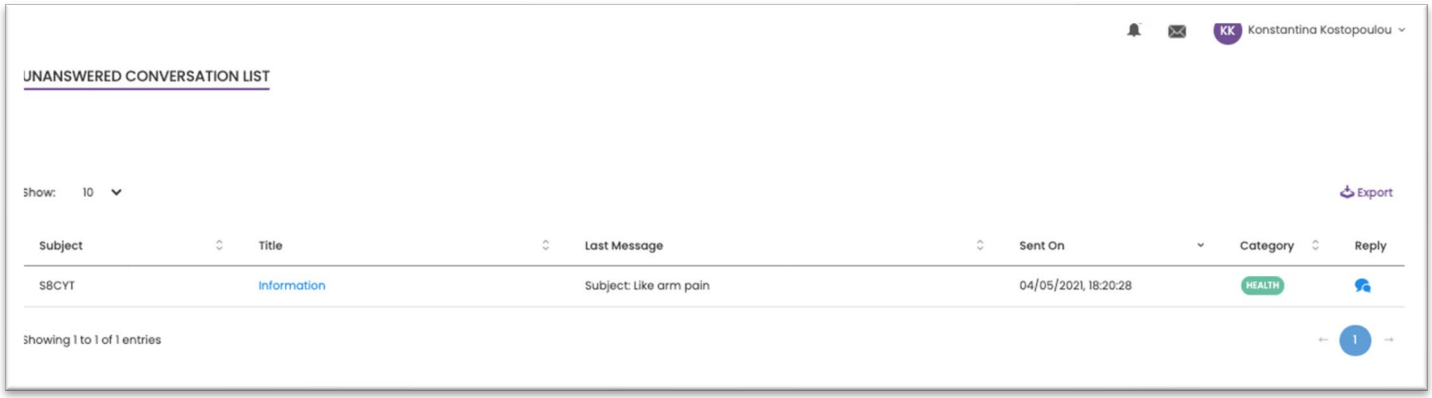

Figure 23 - Message Inbox

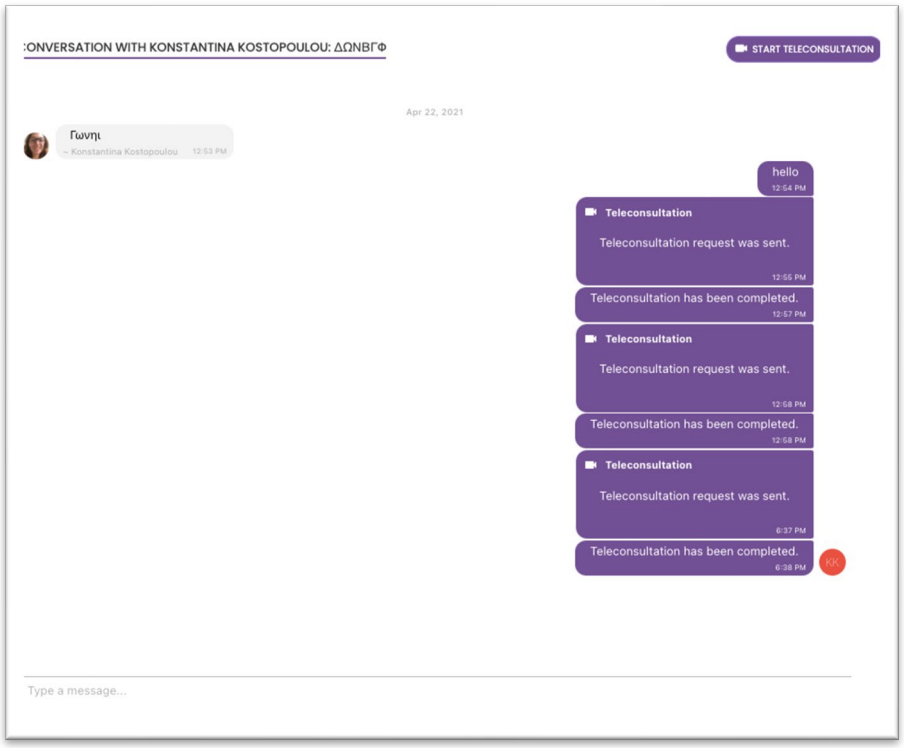

Figure 24 - Message conversation

6.2 TELECONSULTATION

If needed, the investigator can start a teleconsultation video link that will be valid for 15 minutes, as shown in the Figure below.

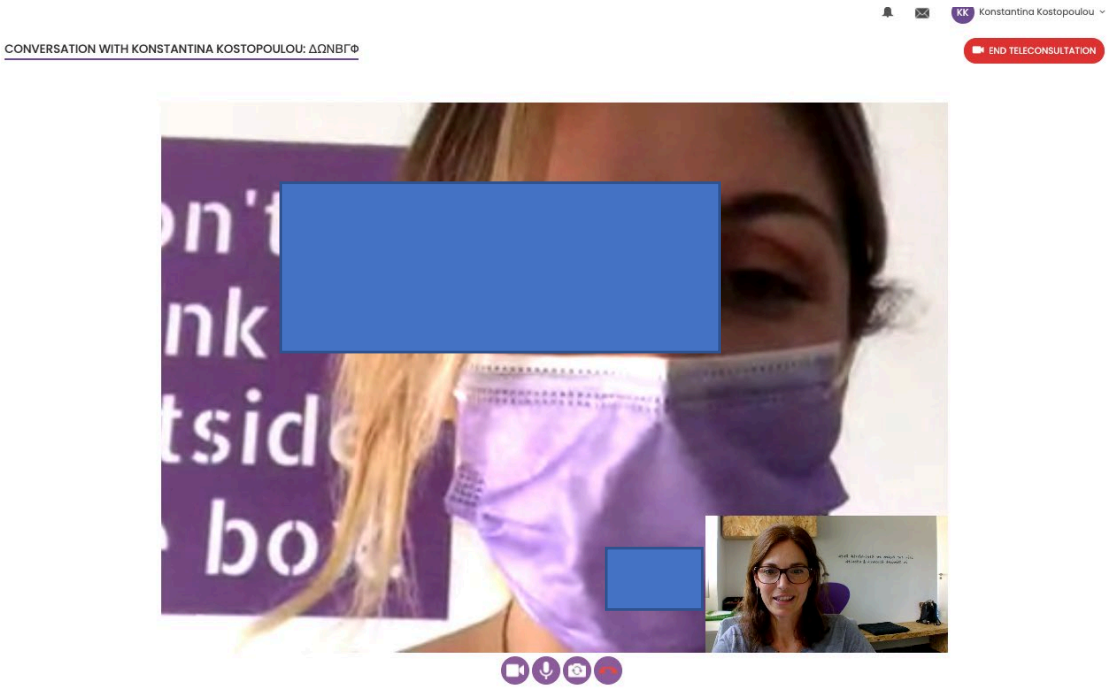

Figure 25 – Teleconsultation

7 ECONSENT

7.1 ECONSENT

If the trial has an active eConsent, the eConsent is triggered by the Healthentia app after the user has registered and agreed with the Terms of the Healthentia application. Each eConsent form must have a unique Version and a unique Title in the context of this study or site (in case of multicenter trials). When creating or editing an eConsent form, users with the appropriate permission shall be able to: (1) add a plain text field to write the "Terms" of the eConsent Form; (2) add a plain text field to write the "Introduction" of the eConsent form; (3) upload a url from a video streaming provider to the eConsent form; and (4) define a Status. An eConsent setup has three status: "draft", "active" and "inactive". While in "draft" mode, the eConsent is editable. Once the investigator changes its status to "active", the eConsent is locked and no longer editable. The "inactive" status is given to eConsent forms that are no longer active but that have been signed at least by one study participant. See Figure 26 and Figure 27.

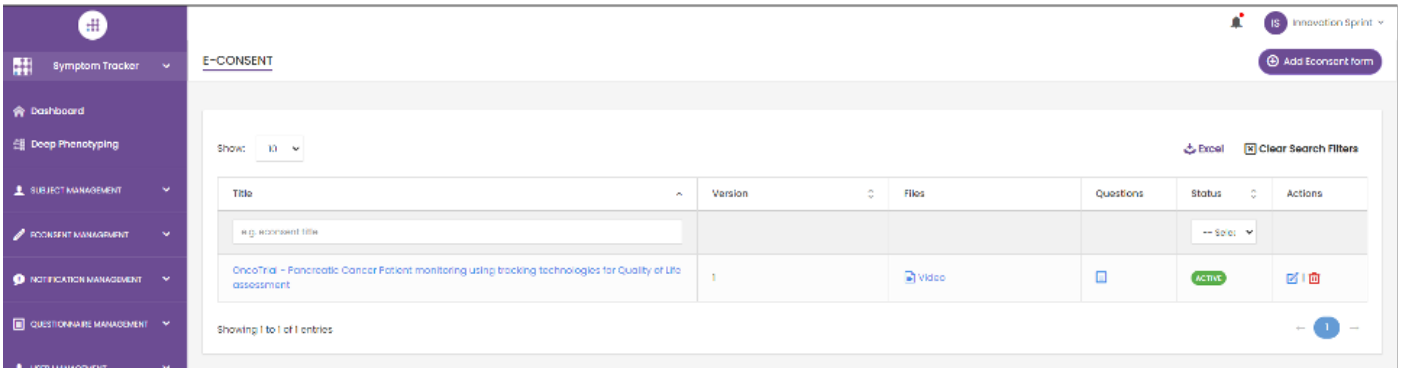

Figure 26 - eConsent list

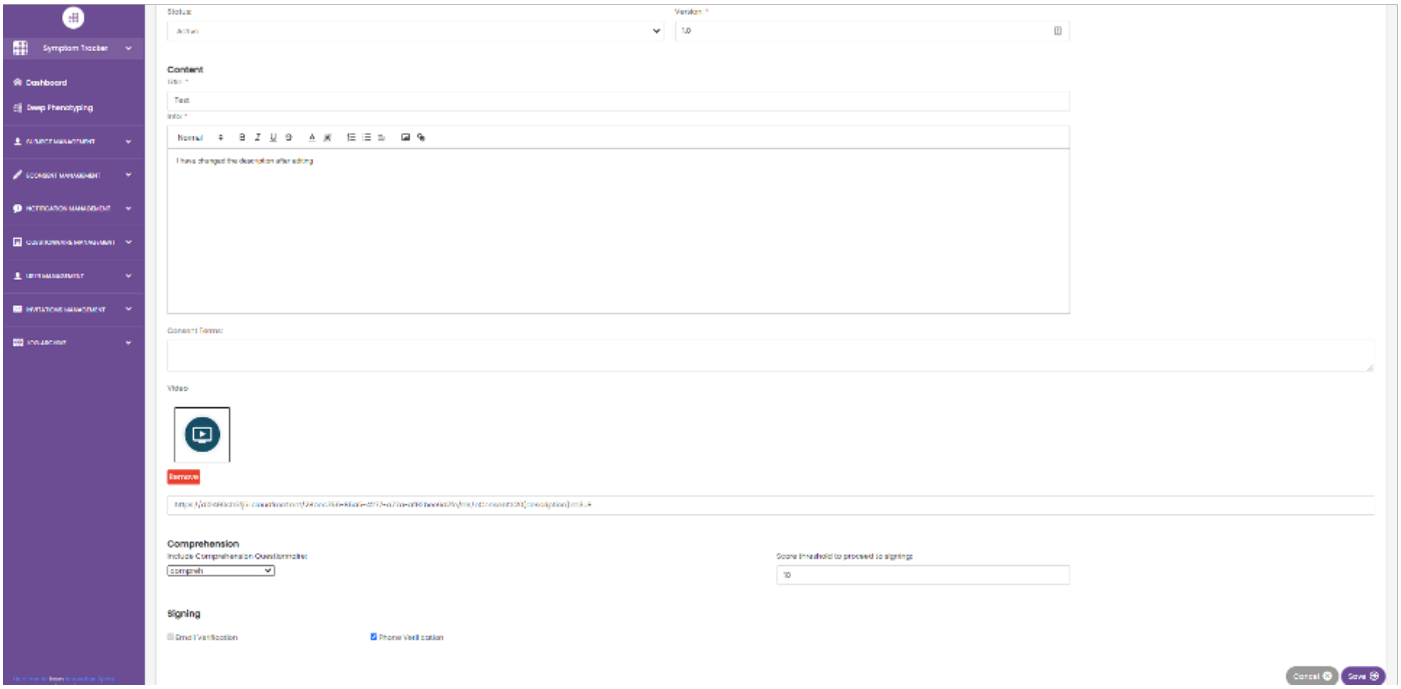

Figure 27 - eConsent configuration

The process of signing an eConsent form can only be completed after a mobile app user has verified his identity providing a code received via email or mobile phone. Once the participant has signed the eConsent, a pdf document is created with the name, date and signature of the participant on top of the Terms plain text. The pdf document created after the participant signed the eConsent is saved in the Healthentia Patient documents with type "consent". Once the participant has signed the eConsent, the tag of the eConsent in the subject list changes from "not started" to "requires signature".

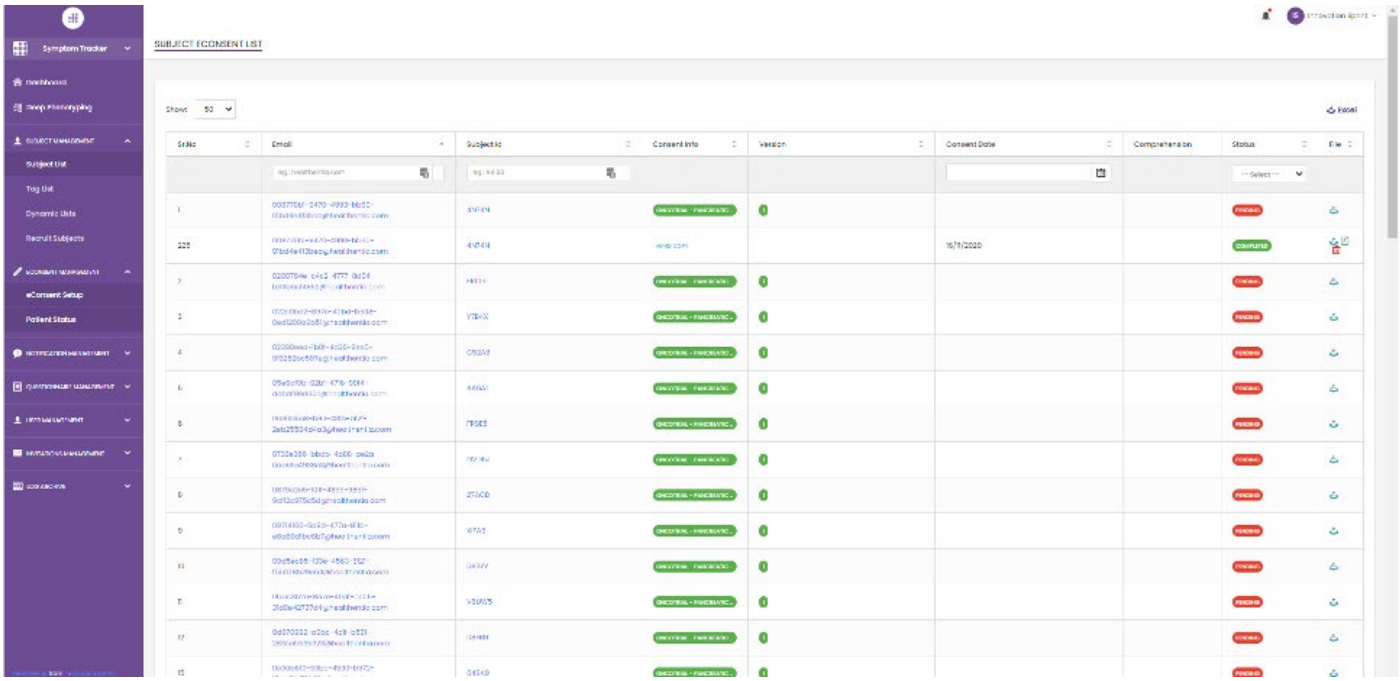

Figure 28 - eConsent PDF list

8 QUESTIONNAIRES

8.1 QUESTIONNAIRE LIST

The portal allows the study coordinators to create a questionnaire with different question types but also allows the questionnaire to be uploaded from a specified excel file. These questionnaires are then sent to the patient through a notification. In the Questionnaire management one can see the list of available questionnaires in the study and the number of questions that each has as well as their status and date created. As in all sections of the portal all questionnaires can be exportable to an excel file.

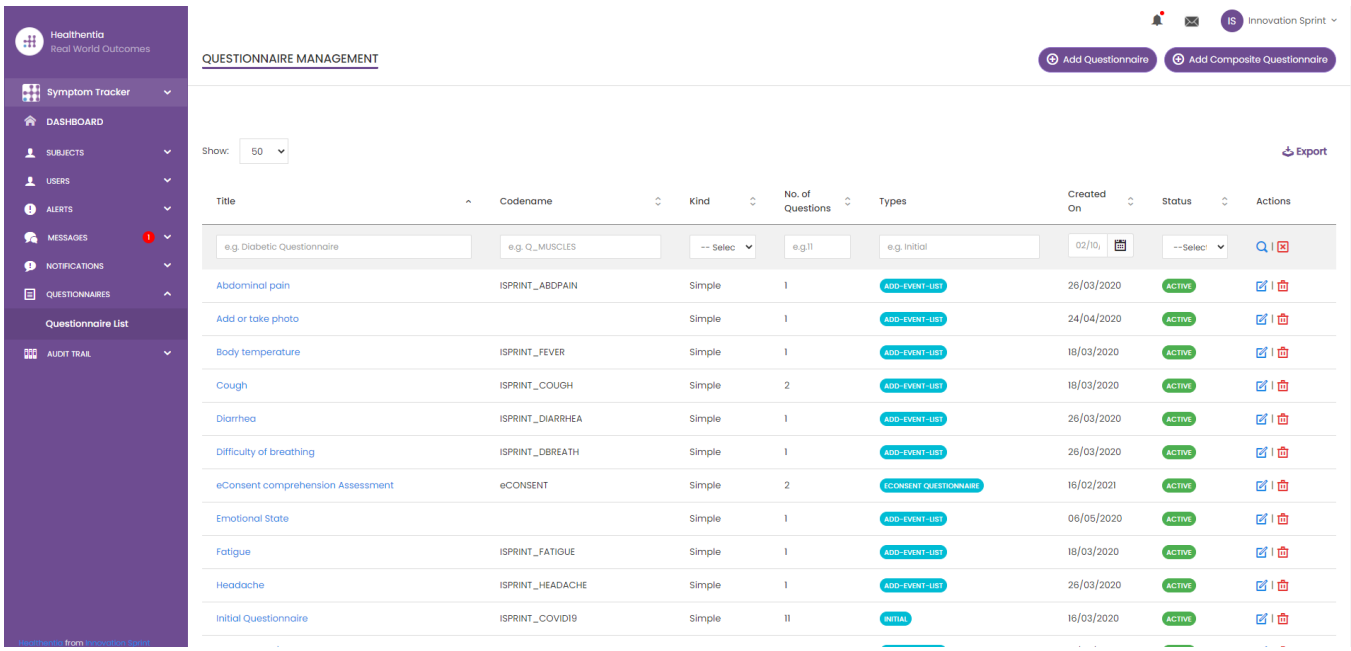

Figure 29 Questionnaire Management

When creating a new one you define the title and questionnaire type (select from a list created by the admin) and upload a characteristic image for it if you want it to be shown on the app and start adding the questions one by one. In the question options you can choose from a variety of UI controls like if the question is a single, multiple, entry text or slider bar as presented in Figure 30.

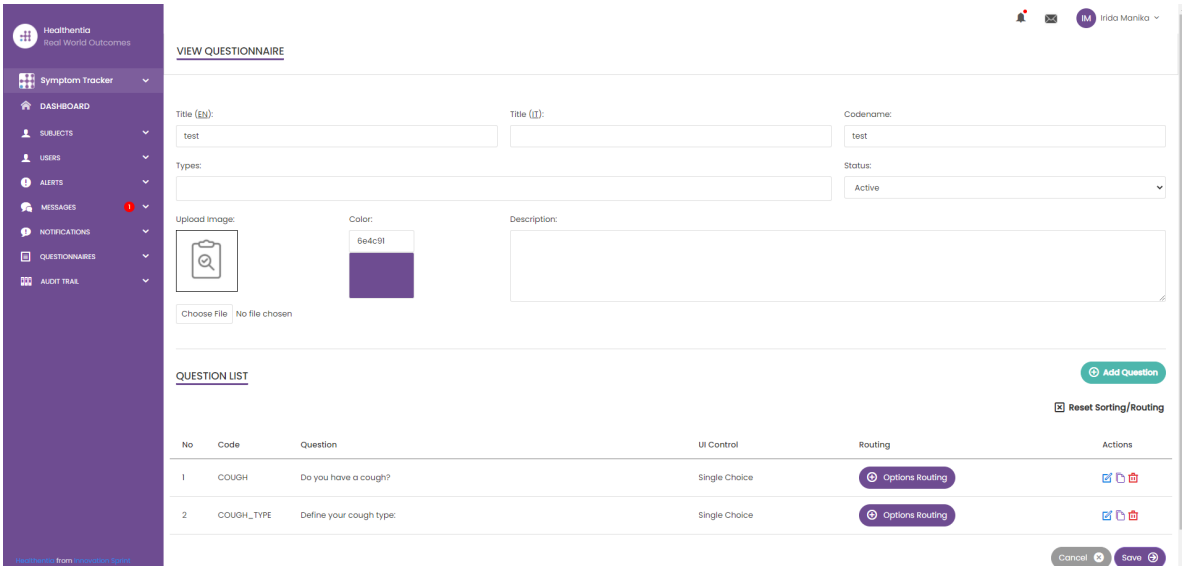

Figure 30 - Simple Questionnaire Details

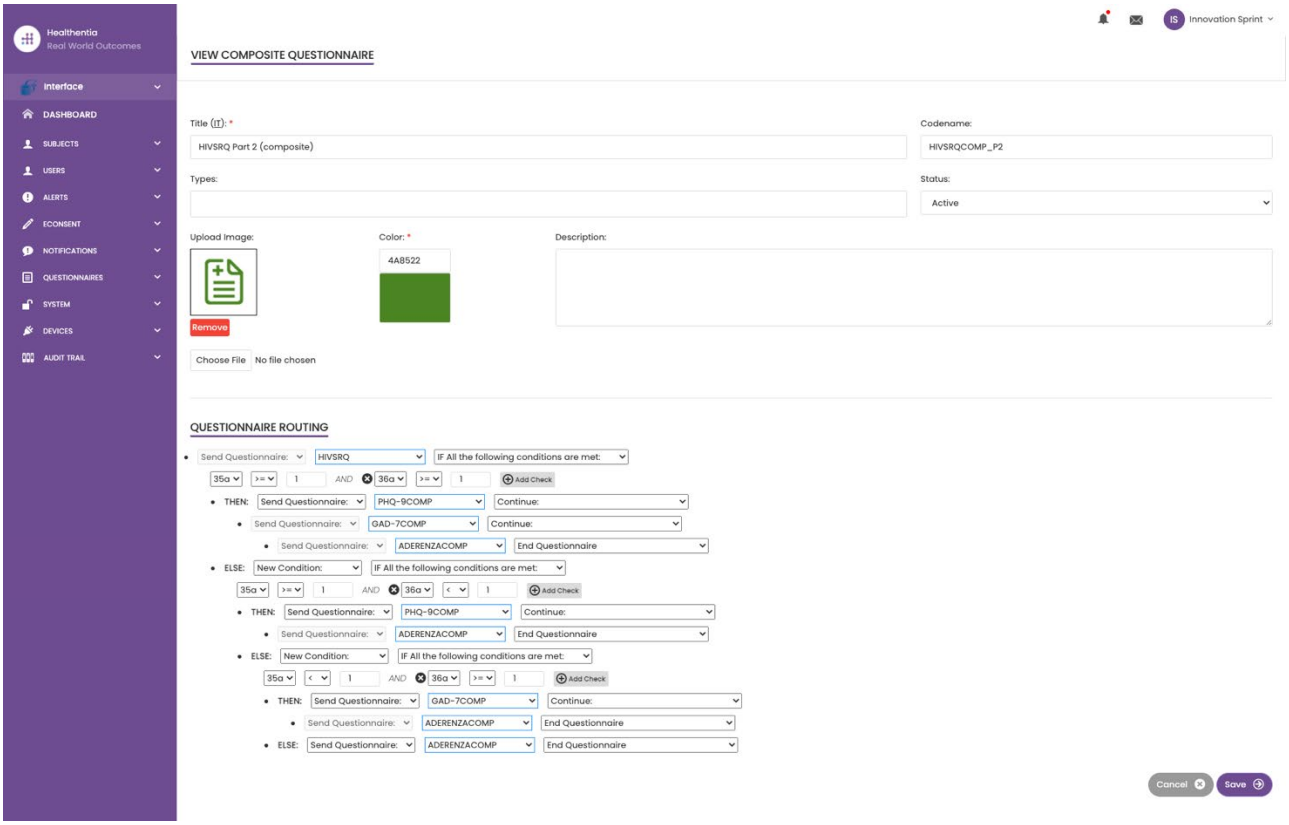

Figure 31 - Composite Questionnaire

9 USERS

9.1 ROLES & PERMISSIONS

This section is used by the admin to create the main roles and their permissions in the portal sections. Permissions can be configured for viewing, editing and delete, as depicted in Figure 32.

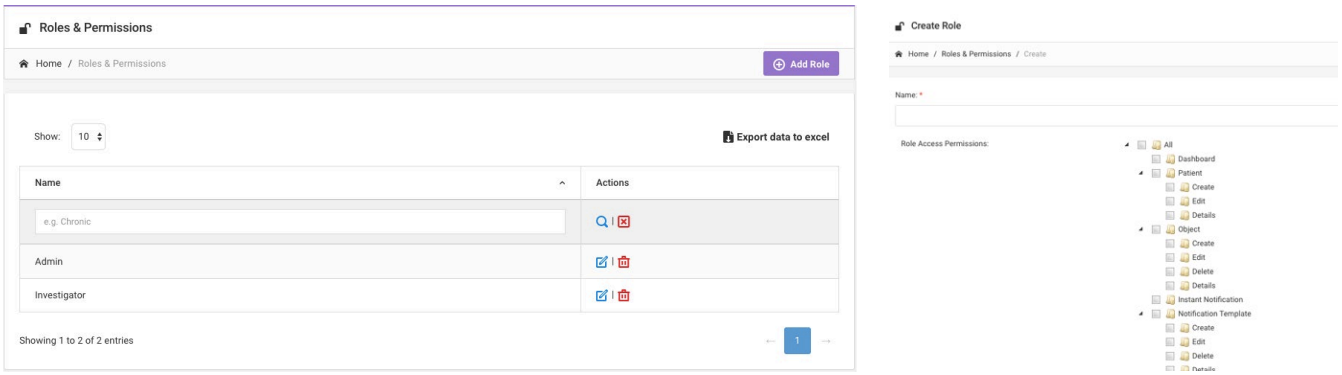

Figure 32 Role Management and Add new Role

9.2 USER LIST

In the users list you can find all the portal users that are assigned in the study. The study admin can create or invite new users or assign existing ones to a specific study with a permission role. The user provides the email of an investigator that triggers an auto generated email to that email. Upon receipt, investigators need to confirm the email and follow a registration. This list can be then exported to an excel, as depicted in Figure 33.

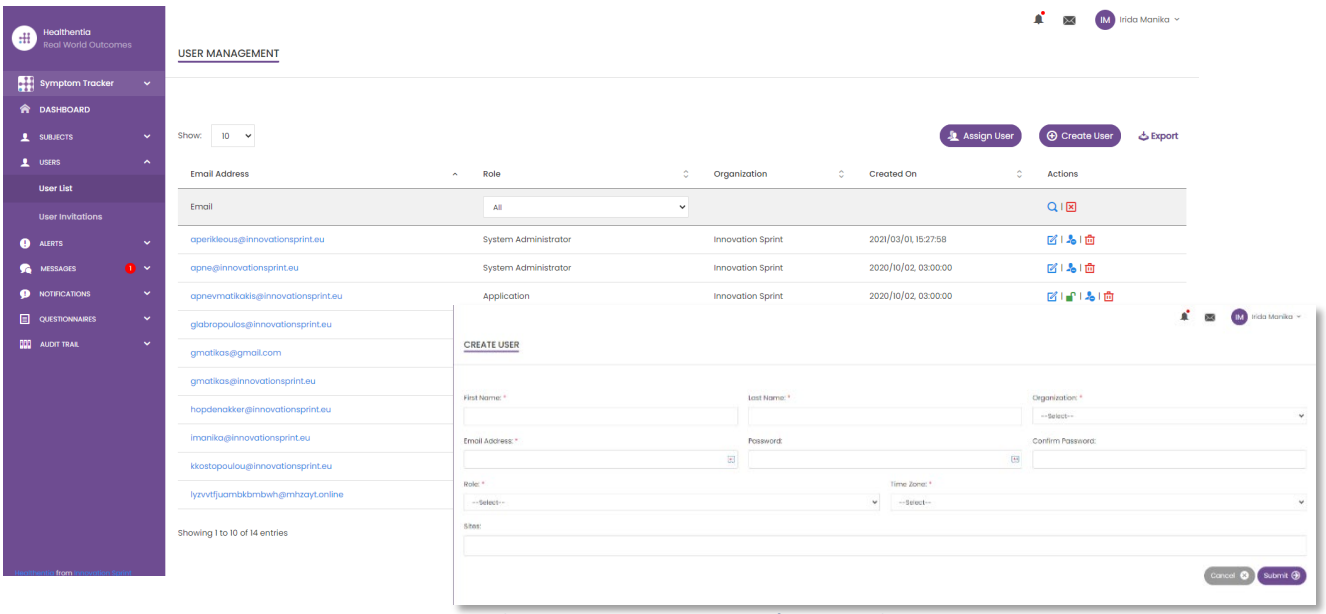

Figure 33 User Management and User Creation

10 AI MODULE

10.1 DEEP PHENOTYPING

Further to the currently supported features of Healthentia, i.e. collecting data from patients and making it available to an EDC for further statistical evaluation, the wealth of information collected is used in real time by the Healthentia AI/ML module to create clusters of patients' phenotypes and provide useful insights for clinical endpoints. Based on the patients' vector data, we create behavioural phenotype models and we cluster patients' profiles into them. Using the clustering mechanism, we can characterise patients' habits and detect deviations from them to generate alarms. The clustering of patients into to behavioural phenotypes creates a valuable content to associate them with drug efficacy and support the self-configured adaptive trials. Finally, AI/ML algorithms can train models to predict outcomes, e.g. VAS, QoL, bleedings, falls, before the patients report them, by feeding the system with the automatically collected vectors.

10.2 PREDICTION SERVICES

The deep phenotyping process described in the previous section, enables a number of forecasting services, among them the ability to predict study endpoints, or behavioural biomarkers. In Figure 34, one can see how activity patterns are recognized and characterized, while the system is able to provide predictions or alarms.

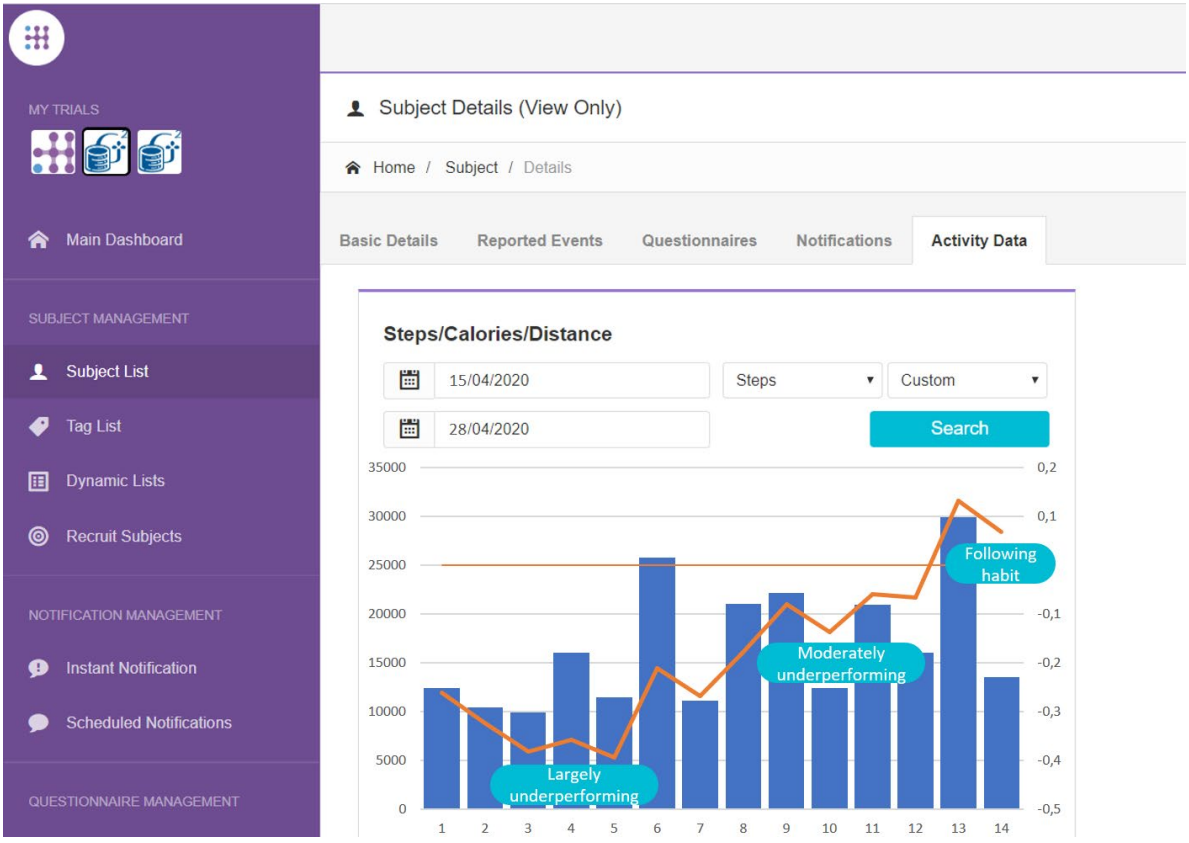

Figure 34: Activity patterns for specific subject

Further to the patter detections, the system uses AI/ML algorithms to break down the distribution of several behavioral biomarkers and evaluate their prediction capacity; see Figure 35 and Figure 36.

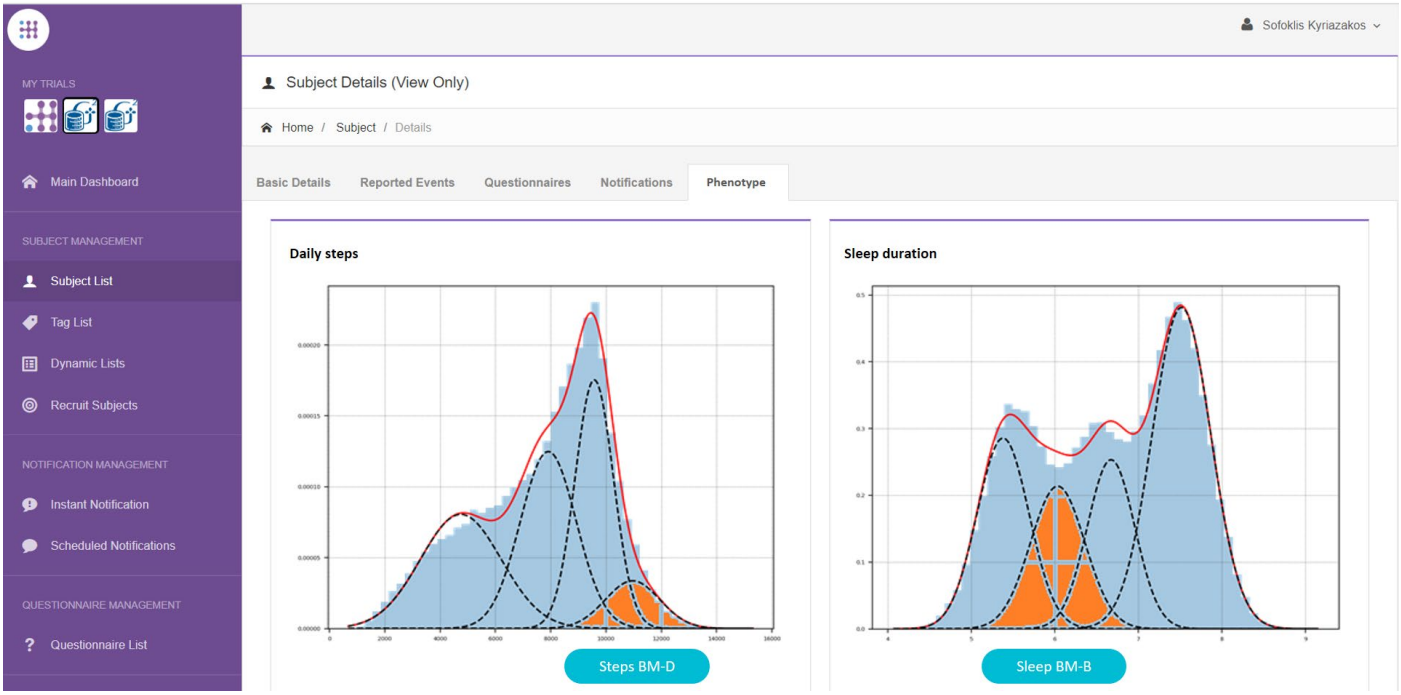

Figure 35: Distribution of activity biomarkers

Figure 36: Prediction capabilities of behavioral phenotypes

11 AUDIT TRAIL

11.1 PORTAL LOG

In the section of Log Management all actions that users do from viewing to editing or deleting. The log list of actions can be filtered by date from the top of the page, while each column on the table allows the search for a specific result. You can also short by alphabetic or numeric order per column. When viewing the log details you can get more information on the reported action. As in all sections of the portal all data are exportable to an excel file.

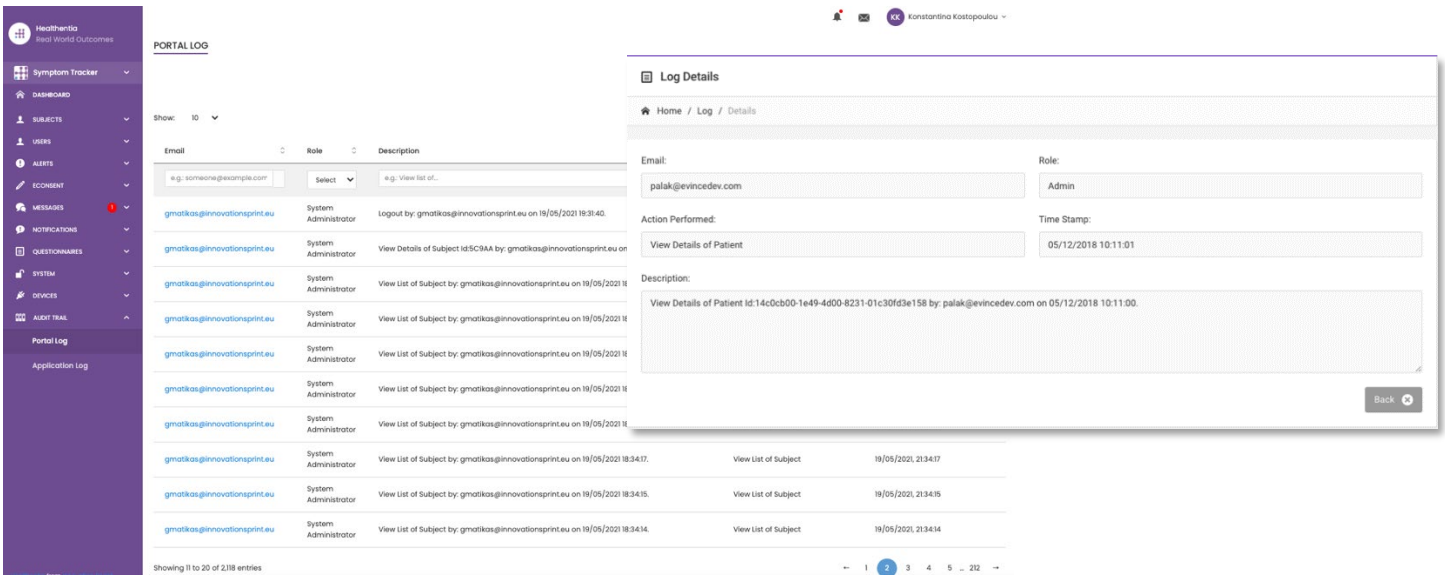

Figure 37 Log Management & Details

11.2 APPLICATION LOG

The application log, provides information about the actions of the subjects, e.g. their participation in questionnaires, as shown in Figure 38

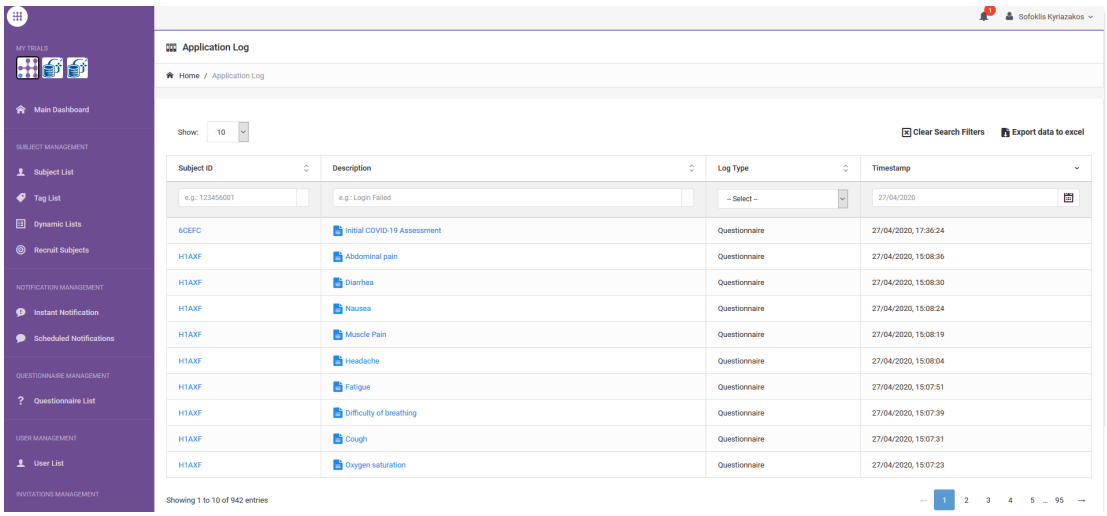

Figure 38 Application Log Details