ERN VIRTUAL ADVISORY BOARDS

European Reference Networks (ERNs) are virtual networks involving healthcare providers across Europe. They aim to tackle complex or rare diseases and conditions that require highly specialised treatment and a concentration of knowledge and resources. To review a patient's diagnosis and treatment, ERN coordinators convene 'virtual' advisory boards of medical specialists across different disciplines, using a dedicated IT platform, CPMS.

Clinical Patient Management System, CPMS, is a secure web-based application to support European Reference Networks in the diagnosis and treatment of rare or low prevalence complex diseases or conditions across national borders. The main objective of the CPMS is to provide tools for virtual consultation and collaboration.

How is the process of virtual consultations?

ERNs' virtual consultations are carried out through the CPMS IT platform; these advisory boards follow a series of steps listed below. These boards experts across Europe are invited to collaborate in a consultation panel for a particular patient.

The first step of a virtual consultation is to enrol the patient in the CPMS platform. The patient enrolment must be done by any authorized Health Professional from the centre. This requires the patient to sign the informed consent that allows their anonymised data to be shared in the ERN.

Figure 1. Stages of a panel in the consultation process on the CPMS.

1. Panel creation

In order to open a new panel, a consultation form must be fill out with the patient clinical information. The form is composed of different sections, some of them specific for transplantation. This form can be edited as necessary, by an authorized Health Professional of the Medical centre.

Figure 2. Basic consultation panel form

2. Panel Selection

The panel lead is the responsible of the transition workflow, invite members to the panel and sign off the outcome document. By default, whoever opens a consultation panel will be assigned as a Panel Lead unless otherwise specified.

At this stage the Panel Lead, can form the panel by inviting other Health Professionals of the network to join. Guests and other ERN members can also be invited to the panel.

Figure 3. Panel Selection

3. Assessment: Experts contribution

During this stage, all the invited experts can contribute to the case by commenting on the textboxes on the "Contributions and outcome" tab. The Panel Member can also view the other panel members' contributions and request additional information of the patient.

Figure 4. Record contribution.

At this stage, the panel lead or a panel member can schedule meetings under the "Meetings" tab. During the meetings, any of the members can record their contribution, share the screen, upload files etc.

4. Outcome

After the assessment is completed and the contributions are recorded, an outcome for the panel must be considered and decided upon.

The Panel Lead records the outcome at this stage and the rest of the panel have the opportunity to view and comment on the outcome.

5. Sign-off

In the 'Sign-Off' stage, the Panel Lead confirms the outcome of the consult process. Once the outcome is signed-off the panel can be closed, and the outcome can no longer be edited.

6. Closed

Once the outcome has been signed-off, the panel can be closed. Only the Panel Lead can close the panel and make it available to Researchers in the ERN.

How is CPMS structured?

For these advisory boards to be possible there are two main applications in CPMS: **1 Centre**, where the user can enrol patients and open panels for any of the patients in the centre; and the **2 ERN** application, where users can actively participate in the ERN consultation panels, attend meetings, view webinars etc.

Moreover, there are other tools available on CPMS that can be useful in the consultation process such as user manual, CPMS training webinars, informative documents, and map for the ERNs.

All the CPMS applications and tools can be found in the main general dashboard separated in three different sections:

1 Applications	**2** Training videos	**3** CPMS user manual and documentation
The user can access the three available applications of the CPMS platform.	The user can find webinars regarding the CPMS functions in this section.	All the important documents such as the manual user, the informed consent and others will be uploaded in this section.

1 Centre **2** ERN   **3** Map
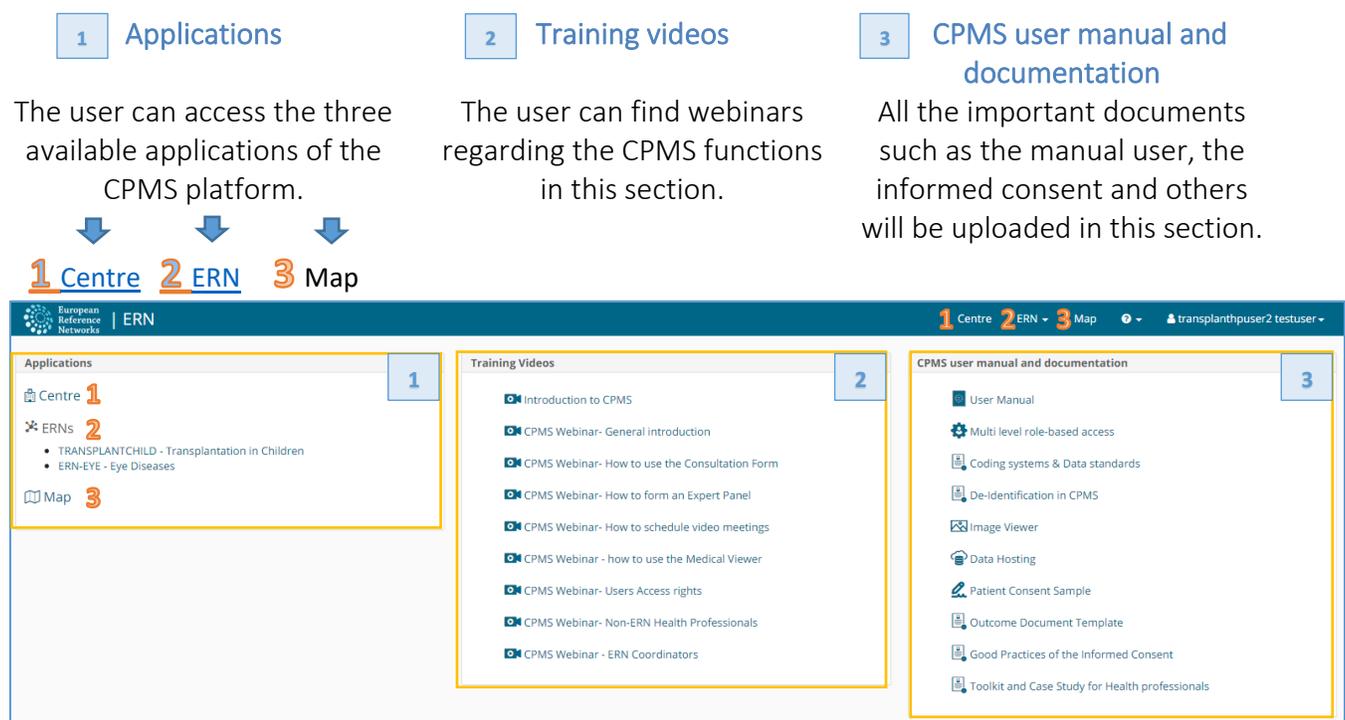
Figure 5. General Dashboard: sections
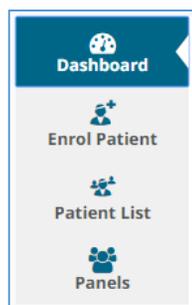
1. Centre

Clicking the tab "Centre" it will access to all the information of the user's centre/ hospital. The Health Professional can enrol patients and open panels for virtual consultation from this application.

There is a side menu on the left, which facilitates quick navigation CPMS's features. There are four different tabs in this menu, Dashboard, Enrol Patient, Patient List, Panels.

1.1. Centre Dashboard

In the dashboard there is a summary of the patients enrolled, the panels opened and the recent activity of the user's centre.
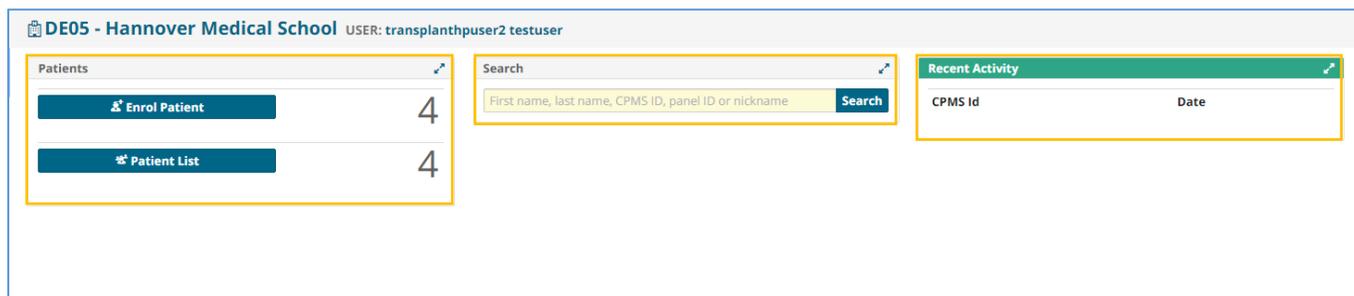
Figure 6. Centre Dashboard

1.2. Enrol a Patient

In order to enrol a new patient for a certain medical centre, the enrolling Health Professional can click on either of the 'Enrol Patient' buttons on the centre dashboard. Basic information of the patient has to be entered in this page. These fields can be changed or deleted at any moment if the patient withdraw the consent.

Note that all authorised users from this centre can see all patients enrolled within this centre regardless of enrolling user.

1.3. Patient List

All the patients enrolled from the centre will be found in this section, the table includes basic information such as enrolling date, the gender and the date of birth.
To open a new panel for a patient, any authorized Health Professional from the enrolment centre can access the patient, in the patient list, and click the 'Open New Panel' button.

1.4. Centre Panels

In the Panels section there is a summary list of all the panels opened in the user's centre, the list includes basic information of the panel: the nickname, the panel lead, the start date, the state of the panel, and the thematic area.
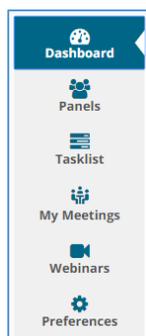
2. ERN:

In the ERN application it will appear the ERN the user belongs to, in this section all the information regarding the panels and activities of the network is available. There is also a side menu that facilitates the navigation.

The ERN Dashboard is a summary of the activity on the network within the CPMS platform. The panel is divided in different sections: Panel invitations, contributing panels, task list etc.

2.1.   ERN Dashboard

Basic information of each section is available in this overview of the CPMS network activity.

Panel Invitations		
You have no unanswered invitations at this time.		

Urgent Panels		
There are no urgent panels.		

My Panels

Panel ID	Date	Nickname
#202	19/10/2017	sd2
#24	12/07/2017	hannove_1

Contributing Panels

Panel ID	Date	Nickname
#25	13/07/2017	TestUser
#195	17/10/2017	niña_IDP_1
#199	18/10/2017	hannove_1

Member Tasklist

Nickname	Task
#98 twest_3	You have been invited to join this panel. Please A...
#195 niña_IDP_1	Please review the data that is provided for this Panel.

My Meetings	
You are not scheduled to attend any meetings.	

Figure 7. ERN Dashboard

2.2.   ERN Panels

In the panels tab there is a list of all the panels of the Reference Network. In the list it can be seen the information of the centre, panel lead and thematic area of each panel.

2.3.   ERN Task-list

The Task List in the ERN dashboard contains a list of pending tasks awaiting the user's interaction: respond to invitations, record contribution, review an outcome document etc.

2.4.   Meetings

Meeting can be schedule for specific panels: in this tab, the upcoming and past meeting will appear on a list.

2.5.   Webinars

In the webinar tab there are recorded and live webinars related with the ERN thematic area. list.

2.6.   Preferences

In this section the Health professional has to set his professional role and the thematic area the user is interested in