EuMAR
User manual

July 2024

Contents

Introduction

EuMAR is a three-year project (2023-2025), co-funded by the EU4Health program at the European Commission (DG SANTE) and run by ESHRE. Its aim is to develop a pan-European registry of prospective cycle-by-cycle data on the use and outcomes of medically assisted reproduction (MAR) treatments. EuMAR addresses the need for:

- **Monitoring** of trends and treatment outcomes in MAR
- **Harmonised data** from different EU countries
- Data for **open science**
- **Inter-institutional and cross-border** data collection
- Collection and calculation of **cumulative outcome** parameters
- **Quality assurance** and benchmark of fertility clinics against national average

The EuMAR registry is being tested in a **pilot study from 1 July to 31 December 2024 in some clinics in Germany, Portugal, and Slovenia**. The EuMAR pilot study is a feasibility study aimed at testing different methods for the submission of cycle-by-cycle data on MAR treatments from EU Member States into a single registry. The pilot study will help us to identify challenges and best practices before the registry is extended to all European countries.

Definitions

Individual Reproductive Care Code (IRCC) is unique patient code assigned to each patient and their partner to link all their treatments and facilitate the calculation of cumulative live birth rates. Each IRCC will only be visible to the treating clinic and the national registry (when there is one). When shared with the EuMAR registry, the IRCC will be encrypted into the EuMAR code. These two codes are always different to ensure patients' privacy is protected. This means that the IRCC will never be stored in the EuMAR registry, and it is essential that IRCCs are saved in the clinics' own medical record system as soon as they are created. That will be the only way to retrieve an IRCC.

ClinicSwitch Code is a QR code (made up of a long code of letters and numbers) that patients should use if they change clinics. It ensures the cumulative registration of data, while respecting patients' privacy. The ClinicSwitch Code does not contain any information whatsoever, it does not allow to see a patient's information. It is used by a clinic treating a patient that comes from another clinic to create a new IRCC. Each member of the couple will have a different ClinicSwitch Code.

Users are the clinic staff members that will be able to log in the EuMAR registry and be responsible for requesting IRCCs and ClinicSwitch codes for patients and submitting cycle-by-cycle data.

System administrator is the ESHRE staff member responsible for assigning user roles to pilot study participants in the EuMAR registry.

Clinic users

1.   Login

Upon accessing the designated URL (see below), users will encounter the login screen (Figure 1). Credentials (username and password) will be provided by the system administrator at ESHRE. This will be your email address and a password that you will need to change after your first login.

Link to the EuMAR registry

To log into the EuMAR registry to submit cycle-by-cycle data and request patient codes (IRCCs), you can enter the link provided below. This is the definitive link to use throughout the whole pilot study.

1. **URL**: https://prd-weu.efertility.eu/eumar/
2. **Username:** the same email you provided in the form to confirm the participation of your clinic
3. **Password:** type the initial password you received
4. Define your new password
5. Log-in with your new password

Testing the EuMAR registry before entering real patient data

If you want to get familiar with the EuMAR registry before submitting real patient data and requesting patient codes (IRCCs), you can enter 'test patients' that will not be taken into consideration for the data analysis. You can do this at any time during the pilot study (e.g., if you need to onboard a new colleague).

To register a 'test patient' while you experiment, please insert date of birth 01/1964. Patients that are registered with this birthdate will be excluded from our analysis.

Additionally, a two-factor authentication (2FA) process is mandatory for login. Several standard authenticators, such as Google, Microsoft and DUO, can be used. In Appendix A you can find a brief explanation of what 2FA is and how to make one for the EuMAR system.

Figure 1: login screen of the EuMAR system.

Upon successful authentication, a pop-up screen will appear with EuMAR's terms of use (Figure 2). Users will have to click on "I have read the EULA (End-user license agreement)" and save. Users will then be directed to the EuMAR homepage (Figure 3).
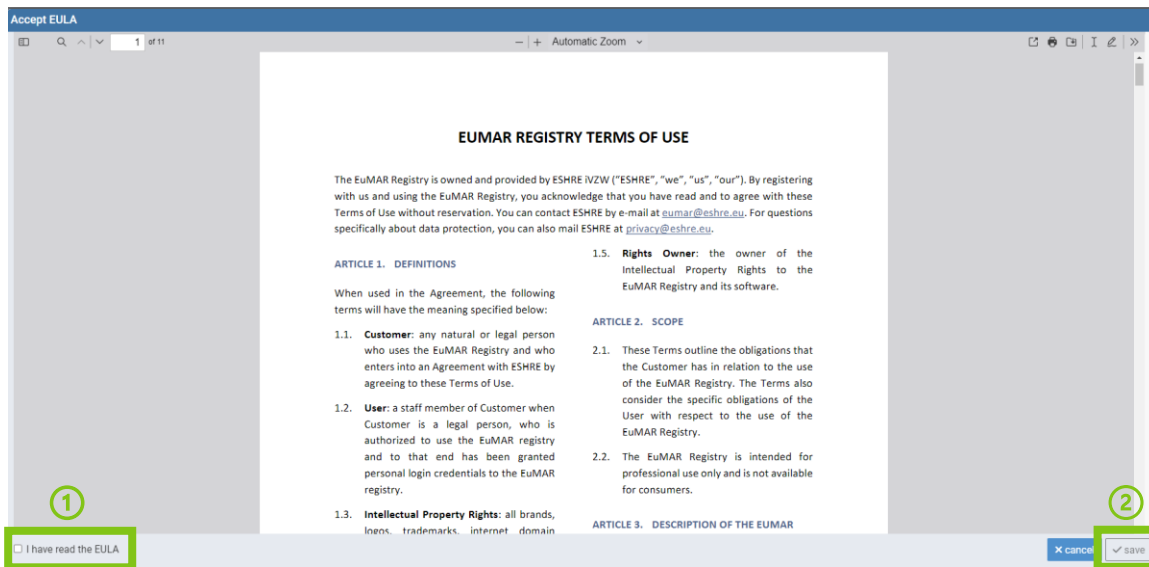

Figure 2: EuMAR terms of user pop-up window to read and accept before using the EuMAR registry.
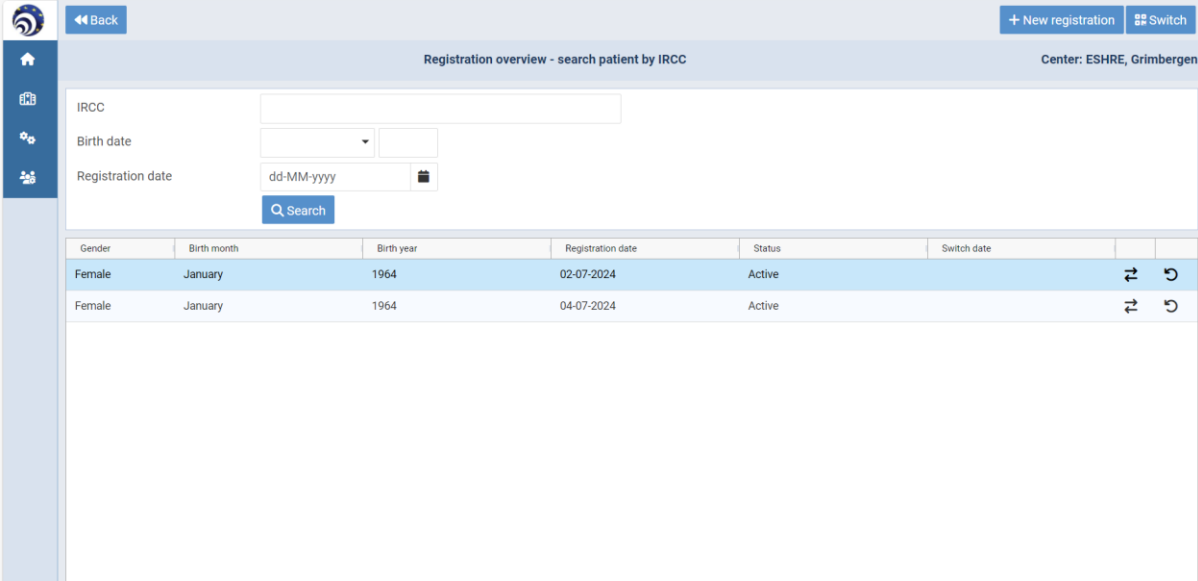
Figure 3: EuMAR system homepage.

2.   Cycles

Navigating to EuMAR -> The tab "Cycles" (Figure 4) provides an overview of patient registrations according to user permissions.

Figure 4: Navigating to patient cycle overview.

Below is an example of the patient list (Figure 5). Patients can be searched based on the Individual Reproductive Care Code (IRCC)*, birthdate, and registration date.
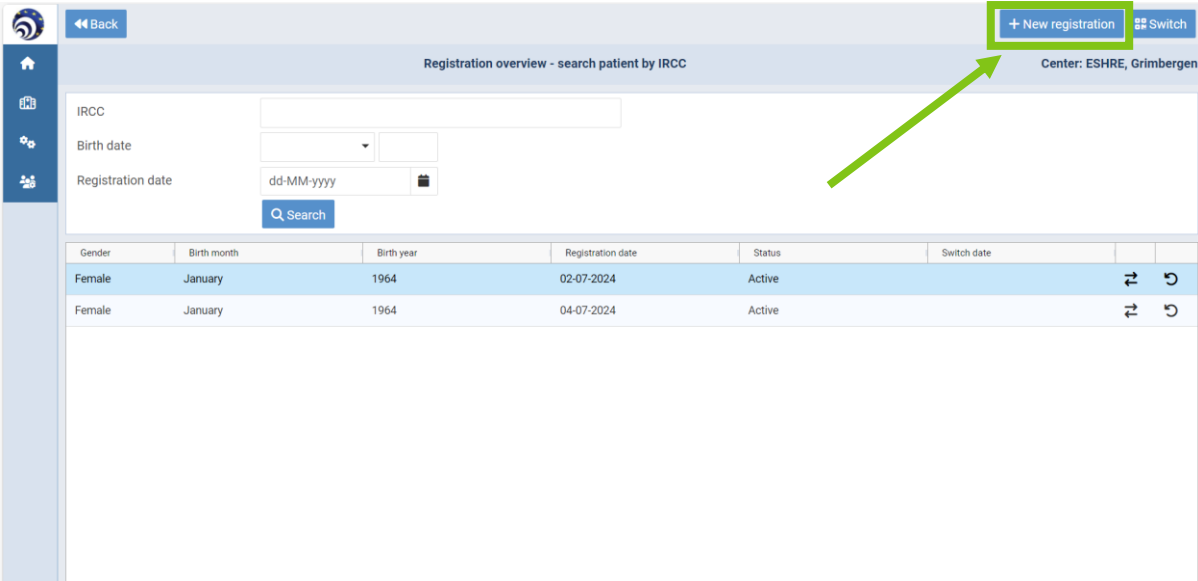
Figure 5: List of patients registered in EuMAR by a clinic.

3.   Registering a patient

To register a new patient, users click on the "+new registration" button (Figure 6).

Figure 6: Registration of a new patient.

Once clicked, it will open the "New patient" window (Figure 7). Users need to enter the patient's gender, month and year of birth, and registration date. The EuMAR portal will create an Individual Reproductive Care Code (IRCC) for each new patient. The IRCC needs to be saved into the clinic's own medical record system, as the EuMAR system will not store the IRCC. To

facilitate this process, the IRCC will be automatically copied to allow users to paste it into the patient record.
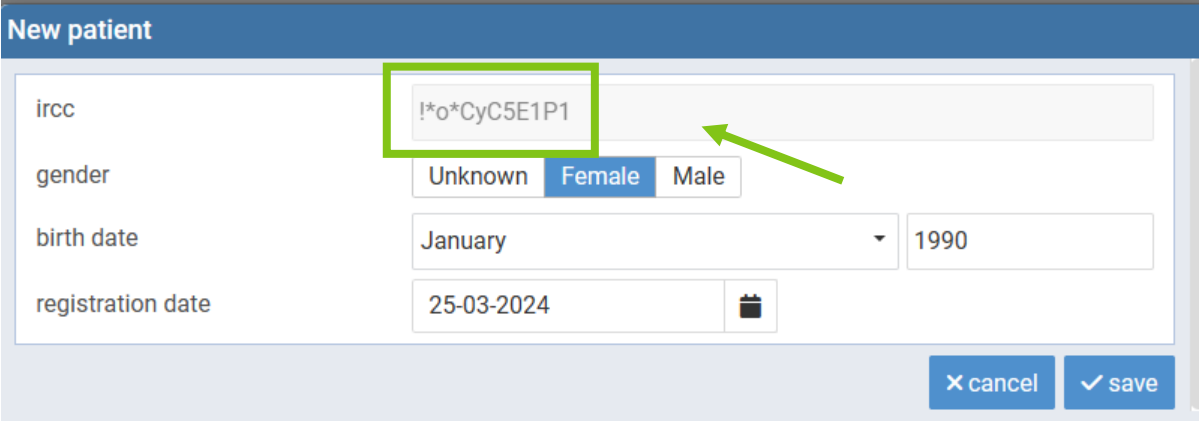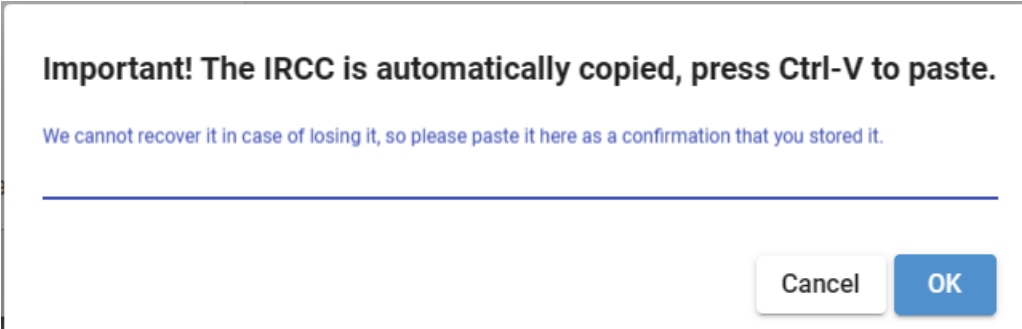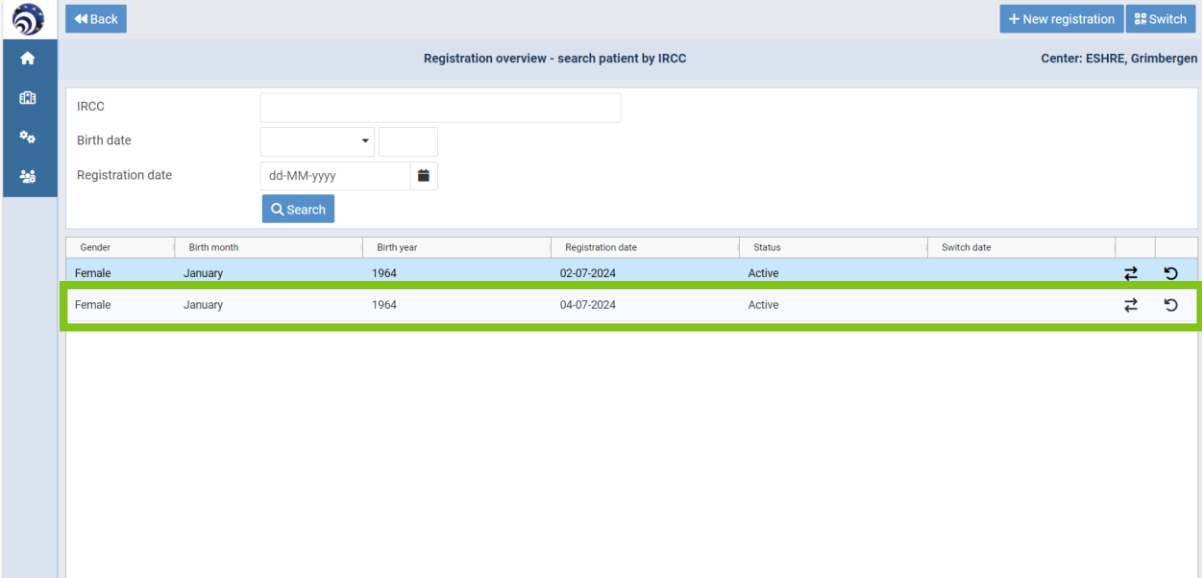

Figure 7: Generating an IRCC code for a new patient.

Figure 8: Verification of the IRCC code.

Once the "save" button is clicked, a warning screen pops up (Figure 8). In this warning screen you must paste the IRCC code to verify that it has been correctly copied. This step is only a validation. Copying the IRCC in the pop-up screen will not save it, please ensure you have saved the IRCC in your own records.

> ⚠️ **It is very important that you immediately save the IRCC somewhere outside of the EuMAR portal (electronic medical record of your clinic, Excel sheet, etc.). The IRCC is not stored in the EuMAR system, so it cannot be retrieved from the EuMAR portal anymore after its creation.**

Figure 9: Newly registered patient.

Once saved, the patient will be added to the list, and the IRCC, previously saved in your own medical record system, can be used to search for the patient's cycle overview (Figure 10).
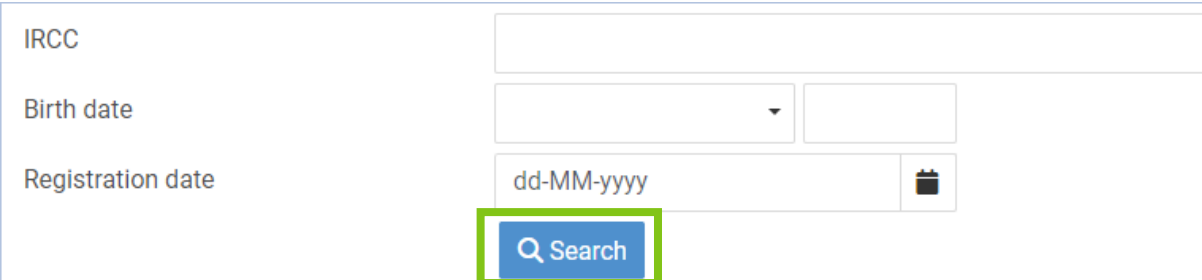

Figure 10: Search a patient using IRCC.

Repeat this process to register the partner of the patient. Each member of a couple needs to have an individual IRCC.

4.   Creating a cycle

To access the cycle overview of a patient, double click on the patient's record. To create a new treatment cycle, click on the "+new cycle" button (Figure 11).
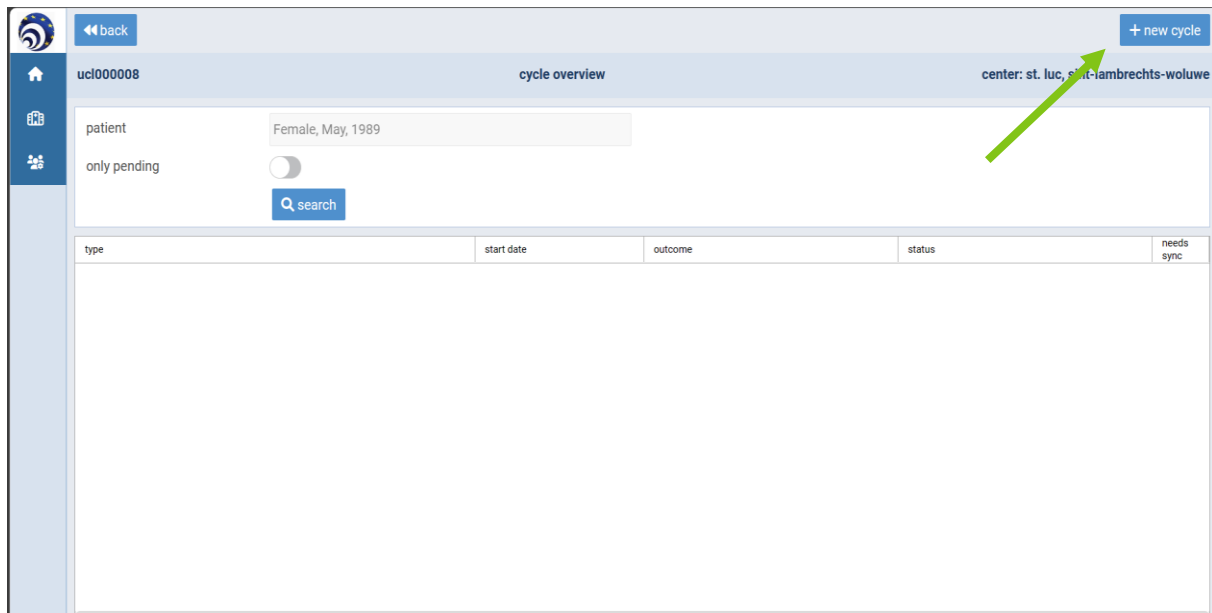
Figure 11: Creating a new cycle for a patient.

5. Adding a partner's IRCC to a cycle

If you have created an IRCC for a partner, you can link the partner's IRCC by clicking on the magnifying glass inside the patient's record (Figure 12).
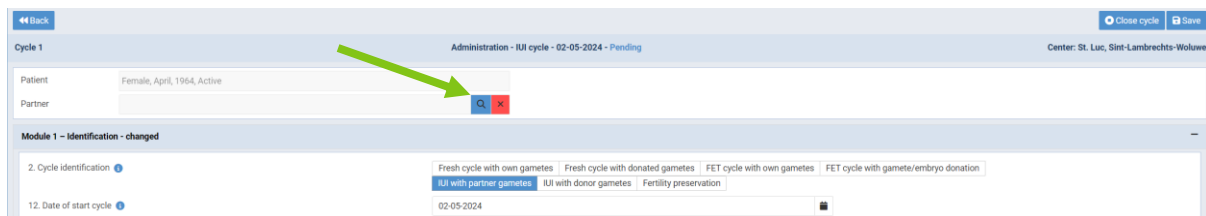

Figure 12: Linking of a partner to the cycle.

This will open a search window where the partner can be searched based on their IRCC code (Figure 13). Double-click on the partner's record to add them.

Figure 13: Searching the partner via the IRCC code

6. Manual data entry and validations

Figure 14: Overview of the modules of a patient's cycle.

There are 9 different modules with questions (Figure 14). The modules are: 1) Identification; 2) Patient variables; 3) Cycles with ovarian stimulation; 4) Laboratory data; 5) Embryo transfer; 6) IUI; 7) Complications during pregnancy; 8) Pregnancy and outcome; 9) Fertility preservation. Only relevant modules will appear, based on the cycle identification selected (e.g., for a fresh cycle with own gametes, modules 6) IUI and 9) Fertility Preservation will not show). All questions have a logical relation to each other. Additional fields may appear or disappear based on predefined rules.
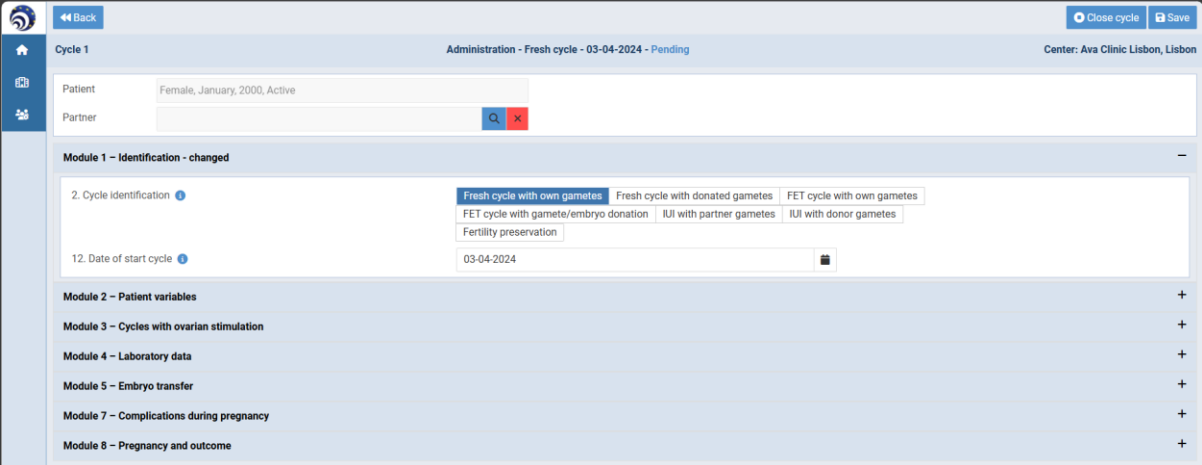
For example:

Figure 15: Example of the logic behind questions.

Upon selecting the "Fresh cycle with own gametes" option in Module 1, Modules 6 and 9 will dynamically disappear, as they are irrelevant to the current cycle.

The system also incorporates predefined "cycle validation rules" to ensure accurate data entry. These rules serve as guardrails, preventing erroneous input and maintaining data integrity. It also monitors that the data set is complete.
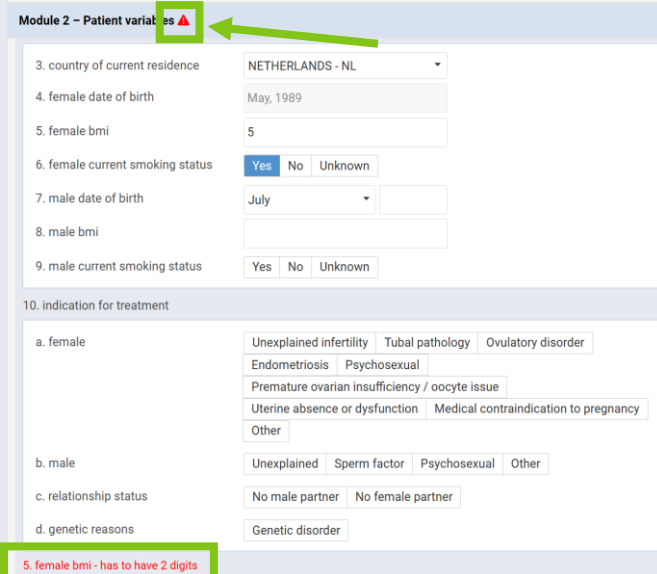

Figure 16: Error message will appear when illogical data is provided.

When a user enters data that violates these rules, warning signs promptly alert them. For instance, a warning sign may appear at the top of the module, signalling an issue with the entered data.

To provide further clarity, specific error messages are displayed at the bottom of the module. These messages detail the violated rule and the reason behind it. For example, if the "Body Mass Index (BMI)" of the female participant is under 10, the system would indicate that the value must be 2 digits (Figure 16).
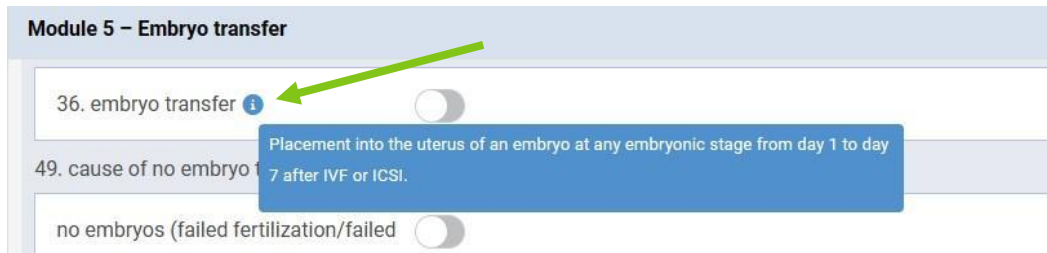

Figure 17: Explanation of questions can be found behind the information icon

Certain data entry fields feature an informational icon ⓘ . Hovering your cursor over this icon reveals an explanatory text, providing additional context or guidance related to that specific field (Figure 17).

Alternatively, users can click on the ⓘ icon to open a window displaying the same explanatory text (Figure 18).
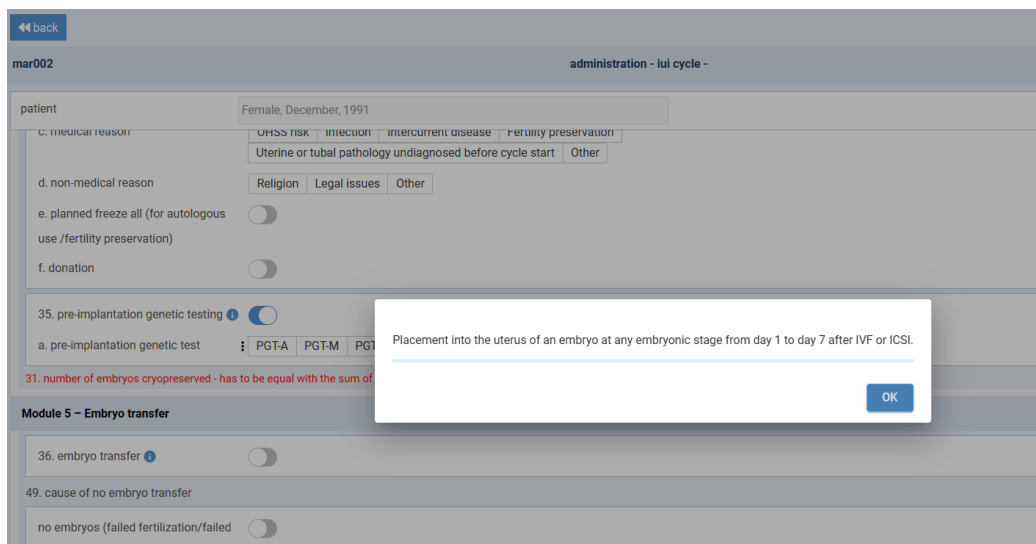

Figure 18: A window displaying the same explanatory text.

7.   Switching clinics

If a patient continues their treatment at a different clinic, the patient needs to bring a ClinicSwitch Code with them to ensure that data on their treatments from different clinics can be linked in the EuMAR registry (i.e., recorded cumulatively). This part of the manual describes

how the first clinic can request a ClinicSwitch Code and how the second clinic can use it to request a new IRCC for the patient.

Process at the clinic where the patient was first treated

There are three different types of patient status:
- Active
- Switch initiated
- Switched

All newly registered patients show up as "Active". Patients who do not move to a different clinic will keep the status "Active", even after their treatment is completed (Figure 19).
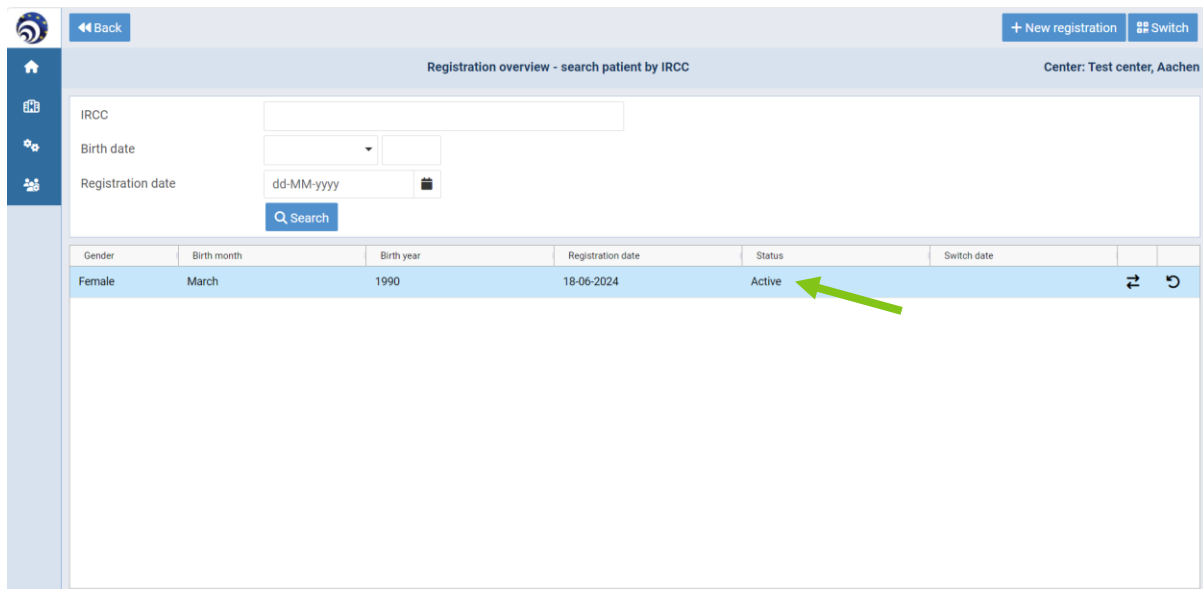

Figure 19: Patient showing as "active patient" in the clinic.

Patients can only be "Active" in one clinic at a time. If a patient decides to continue their treatment at a different clinic, the first clinic is asked to request a ClinicSwitch Code for this patient. The ClinicSwitch Code is requested by clicking on the ⇄ sign on the right side of the screen (Figure 20).
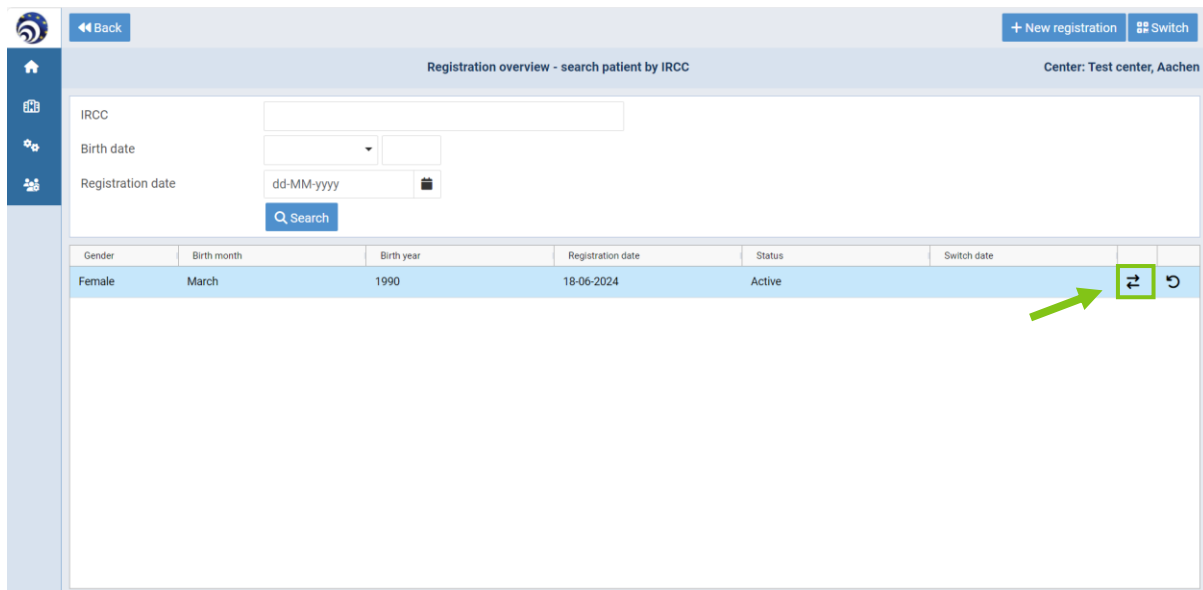
Figure 20: Generating a ClinicSwitch for a patient.

If the last cycle of a patient was linked to a partner, a pop-up window will appear, asking whether a ClinicSwitch Code shall also be created for the partner. If the answer is "Yes", two ClinicSwitch Codes will be created (Figure 21).
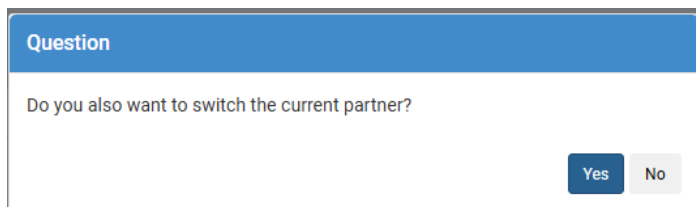

Figure 21: Question in pop-up window to switch the current partner.

After selecting to request (or not) a ClinicSwitch code for the current partner, a window with a QR code will appear, offering the options to copy the code and to download a pdf (Figure 22).
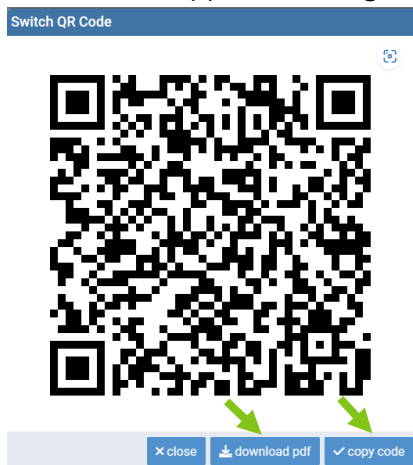

Figure 22: A ClinicSwitch code.

The ClinicSwitch Code is a very long code that also appears in the form of a QR code (Figure 23). Here is an example of the format:

T7zt0IJ9ewk*3WHl6HrdAmw178KhoAbvDjjbxt@OE4ahoN^xd%guuynn#6v$N%qhoXa3%i5&hj!Bt8RH8Hli1*ZxTxroUkBb5efn$PqWoQBH0IFV%$OkQc#*

Clicking on "copy code" implies that the whole ClinicSwitch Code will be copied and can be pasted anywhere by using Ctrl+v. It is recommended to click on "download pdf". This will lead to the generation of a letter to the patient (Figure 23), which includes the code both in a QR format and in a format that can be copied and pasted at the next clinic, along with some information for the patient on the purpose of the code and what is asked from them. If a ClinicSwitch Code was also requested for the partner, the letter will include two codes, first for the main patient (in heterosexual couples the female patient) and then for the partner (in heterosexual couples the male patient).

02-07-2024

IMPORTANT: Bring this letter with you on your first visit to a new clinic

Dear patient,

Enclosed you will find your EuMAR ClinicSwitch code. We kindly ask you to provide this letter to your new clinic if you decide to continue your infertility treatment elsewhere.

EuMAR is a European registry of medically assisted reproduction treatments. The data in the EuMAR registry will be used for statistical and scientific purposes. EuMAR maintains complete anonymity, ensuring that none of the data on your treatments can be traced back to you. **Your new clinic will not be able to access any data on your previous treatments with this code.**

The purpose of the ClinicSwitch code is to allow linking the anonymous data on your treatments at different clinics within the EuMAR registry. This is important for estimations of the real chances of achieving a live birth over an entire treatment course.
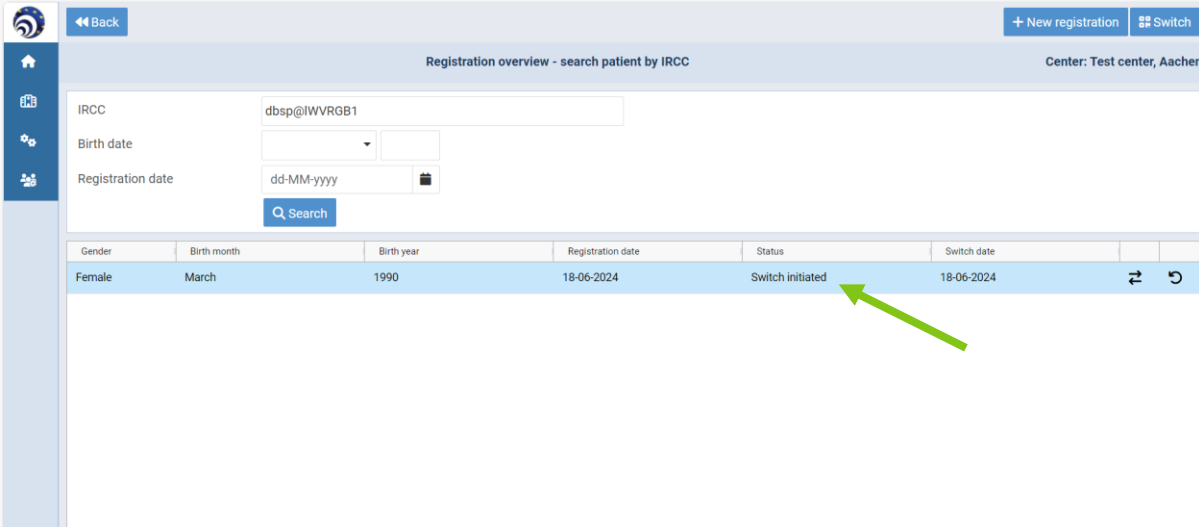
Thank you for your cooperation.

For more information on the EuMAR registry and the ClinicSwitch code, please visit www.eshre.eu/eumar or reach out to eumar@eshre.eu.

qaBz5FNJewqfOlEi$wHBUxhd@lF4cgzMkb8jlQgni6FtzfuFsGM2$U4Bxz%9cm3wbjG1lCT*6*`b03ft&XTIqQdohgIkm6m6eYBhz9S$xKiWDqzumiZUAy%s

Figure 23: Example of a ClinicSwitch code letter together with the QR code and the plain code.

Once the ClinicSwitch Code is requested, the patient status will change to "Switch initiated" (Figure 24).
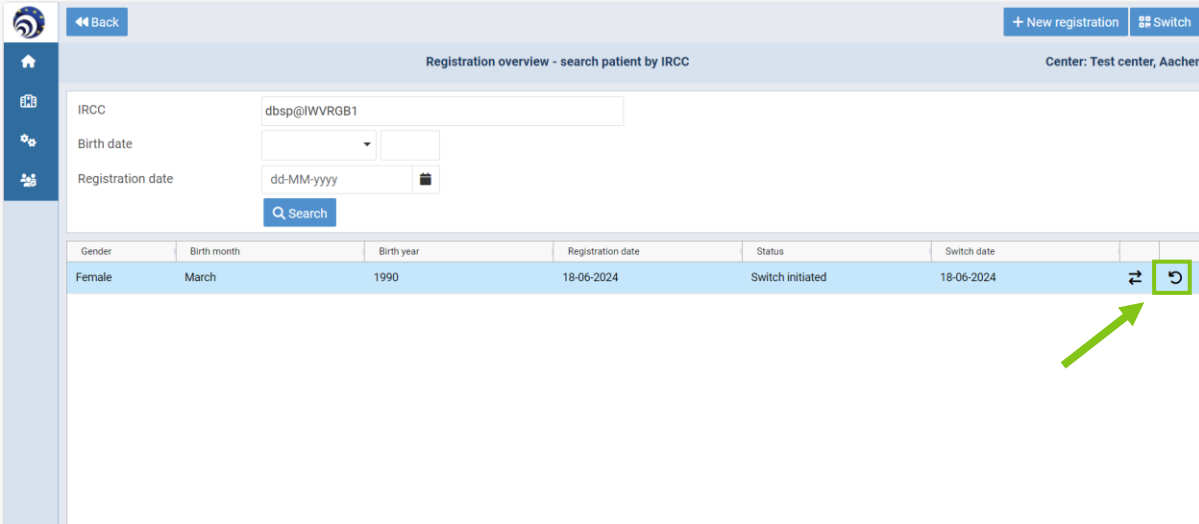
Figure 24: Patient status changed to "Switch initiated".

If the ClinicSwitch Code has not yet been scanned, it is possible to reverse the switch process, e.g., if the ClinicSwitch Code was requested by accident. This can be undone by clicking on the ↺ sign (Figure 25).

Figure 25: Reversing an initiated switch.

After reversing the switch process, the patient status will change back to "Active". After reversing the switch process, a new ClinicSwitch code can be requested again at any time.

If the ClinicSwitch Code is used in another clinic, the patient's status in the previous clinic will change from "Switch initiated" to "Switched". At this stage, the reverse button will be deactivated, so that it is no longer possible to reverse the switch process. It will also no longer

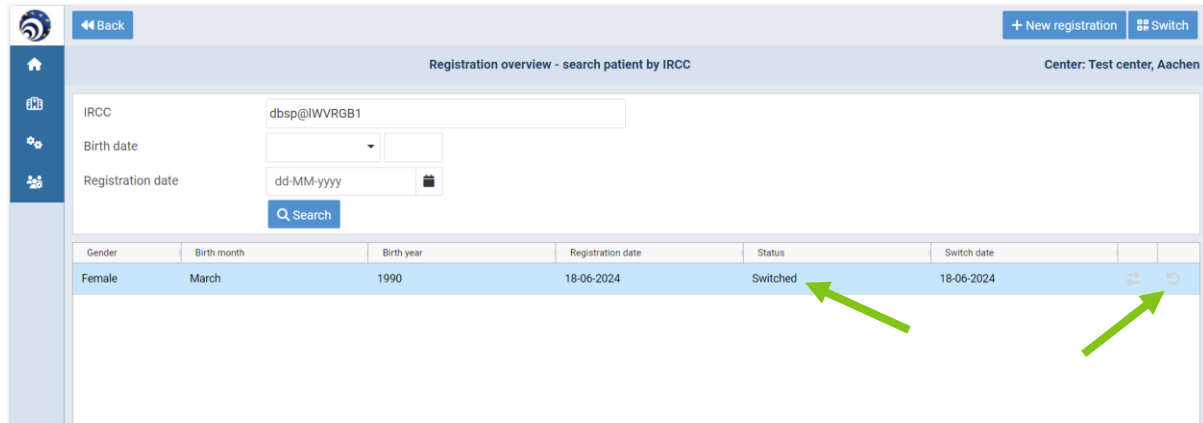be possible for the first clinic to modify the data they entered on cycles in this patient (Figure 26).

Figure 26: Switch finalised, patient status changed to "Switched" after the code has been used at a different clinic.

Process at the receiving clinic

When changing clinics, patients are asked to present the ClinicSwitch Code at their next clinic to allow the creation of a new IRCC. The clinic has two different options to request a new IRCC based on a ClinicSwitch Code:

Option 1: Copying and pasting the ClinicSwitch Code

This option may be useful if the patient sends the ClinicSwitch letter to the clinic via email. The receiving clinic can click on the "Switch" button at the top right corner. This will open a window where the ClinicSwitch code (the long, plain code below the QR code in the letter) can be entered (Figure 27).
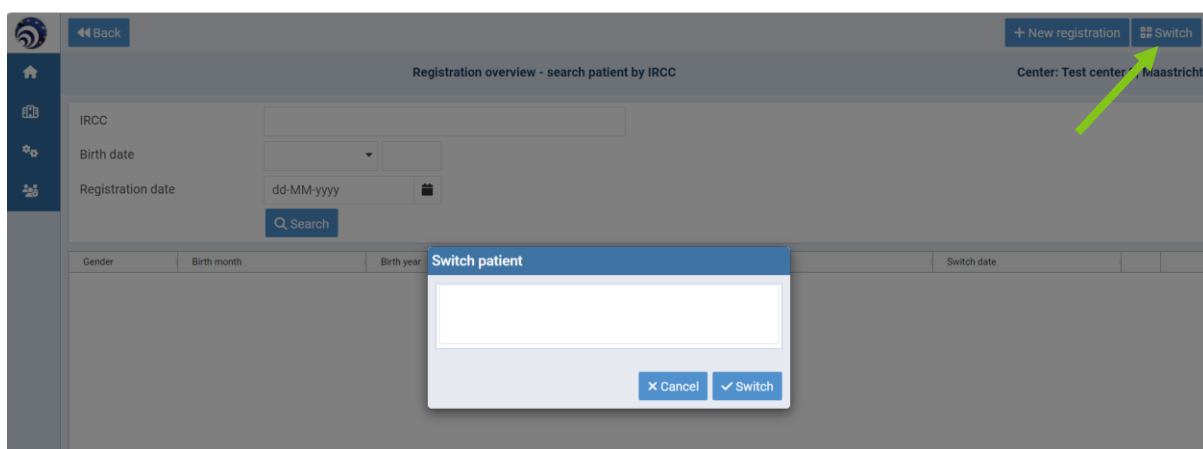

Figure 27: Entering a ClinicSwitch Code in the EuMAR registry.

After pasting the ClinicSwitch Code from the letter into this window, an IRCC is created for the patient, which is automatically copied (Figure 28). This will be indicated by a pop-up window, in the same way as a regular IRCC request (i.e., same as for a patient who did not present a ClinicSwitch Code). Again, the IRCC should be saved in the patient record immediately, since it will not be stored in the EuMAR system.
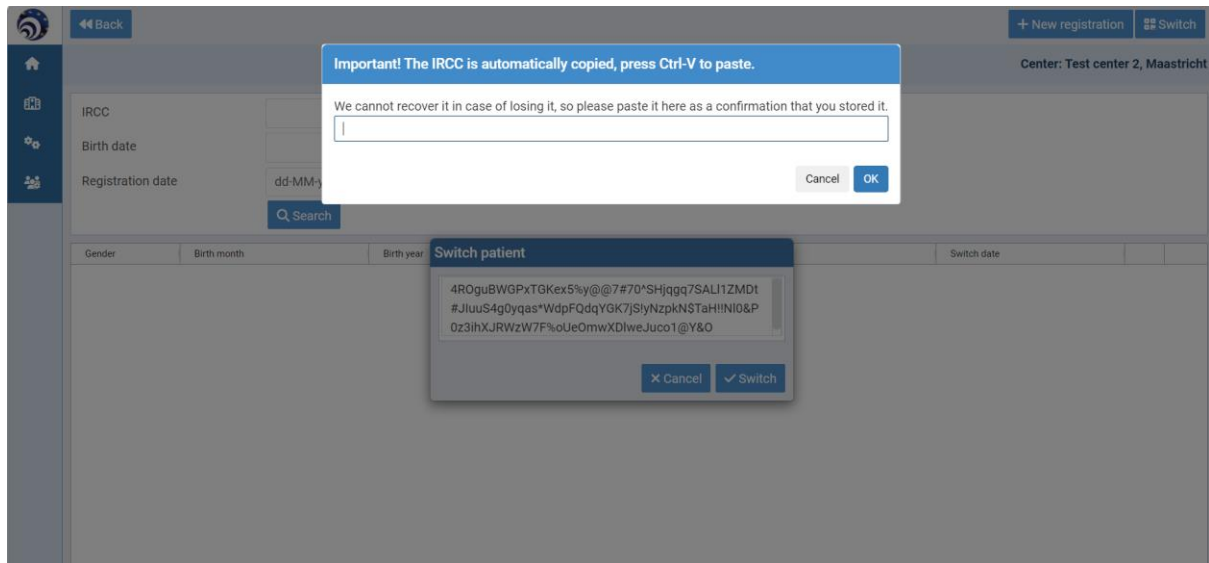

Figure 28: Validating the newly generated IRCC code.

Option2: Scanning the ClinicSwitch QR code

If a clinic has a barcode scanner, it can use it to scan the QR code on the letter presented by patients. In this case, clinic staff should also click on the "Switch" button on the top right before scanning the code. Scanning the barcode merely replaces the step of copying and pasting the code into the pop-up window.

In the absence of a barcode scanner, clinic staff can use a phone to scan the QR code. This will direct them to the login page of the EuMAR portal. After entering the login credentials, the switch will be confirmed and the IRCC will be shown. To be able to access the IRCC from the computer, clinic staff can use the option to email the IRCC to an email address of their choice (Figure 29).
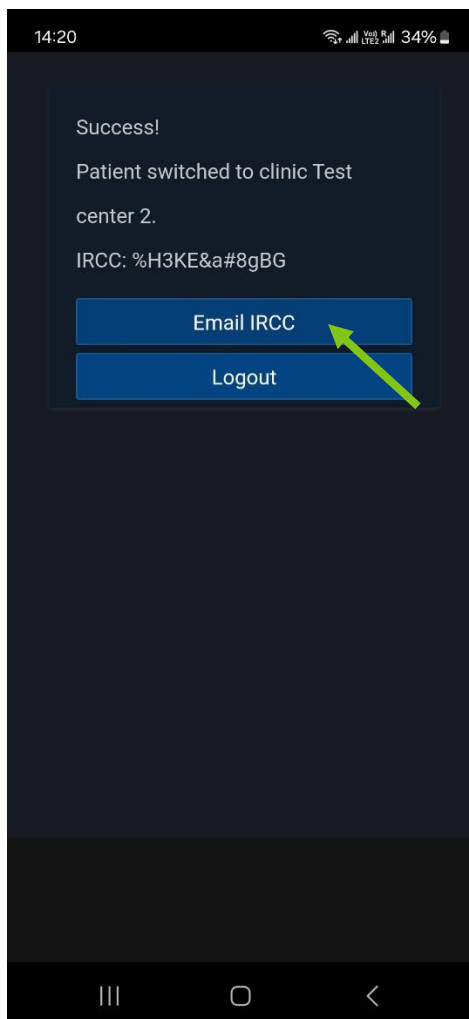
Figure 29: Registering a ClinicSwitch code with a mobile device.

Once the clinic has used the ClinicSwitch Code, the patient will show up in their patient list with the status "Active". The clinic will not see any data on previous treatments at the first clinic. Likewise, cycle data entered by the new clinic will not be visible to the previous clinic.

8.   User settings

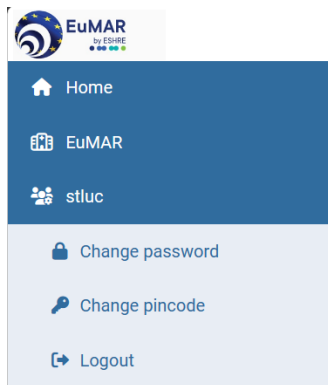End-users can change their password by clicking on the user settings button (Figure 30).

Figure 30: Accessing user settings.

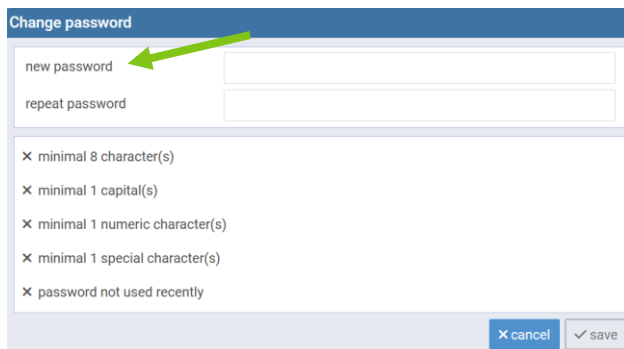To change the user password, click on "new password" (Figure 31).

Figure 31: Changing your password.

9.   Helpdesk information

If you need technical support, please reach out to the EuMAR helpdesk at eumar@eshre.eu

For more information, visit our pilot study website for professionals [here](#).
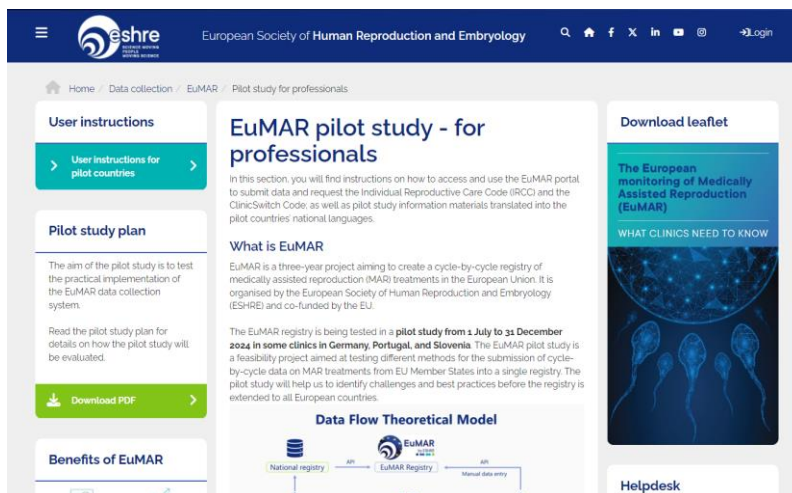

Figure 32: EuMAR pilot study website for professionals.

Appendices

1.   Appendix A: Configuring a Two-Factor-Authenticator (2FA)

The Eumar system requires the use of two-factor-authentication to prevent unauthorised people from login in with stolen login credentials.

During the first-time logging in to the EuMAR system you are presented by the system with a QR code and a secret key.

Figure 33: QR code for setting up a new 2FA application

The QR code can be scanned with an authenticator app from for example DUO, Google or Microsoft.

By pressing on the "+" button in the authenticator app you can scan the QR code on your EuMAR login screen to get a new 2FA key (Figure 34). The 6-digit code that is now displayed in the app should be entered to verify if the 2FA setup has been a success.

After a login with the 2FA, you are not required to use 2FA for the next 12 hours.
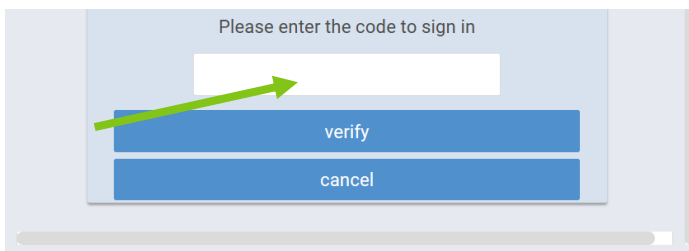
Figure 34: the "+" icon for adding a new 2FA to your app.

Figure 35: Where to enter the 6-digit 2FA code.