



User manual for ROMA score

Version 1, December 2023, in English

1. The Evidencio platform

The Evidencio platform facilitates the creation, use, validation and implementation of medical prediction models and clinical decision support tools. This user manual specifically relates to the ROMA score. The User Manual can also be referred to as the Instructions For Use (IFU).

Throughout this manual CE-marked content and the term medical device are used interchangeably.

2. Disclaimer

Evidencio provides information, models, calculators, equations, and algorithms (tools) intended for use by healthcare professionals. Some of these tools have been certified as CE-medical devices. For such CE-marked content the 'Official Legal Disclaimer for CE-marked content' applies. All other content and tools provided by Evidencio are explicitly only covered by the 'Official Legal Disclaimer for non CE-marked content' both are available here:

<https://www.evidencio.com/disclaimer>

3. Warnings



1. Warnings for CE-marked content

Calculations alone should never dictate patient care, and are no substitute for professional judgement. This tool is only to be used by physicians in a clinical setting, and is not for patient use.

Always read the intended use before using this tool.

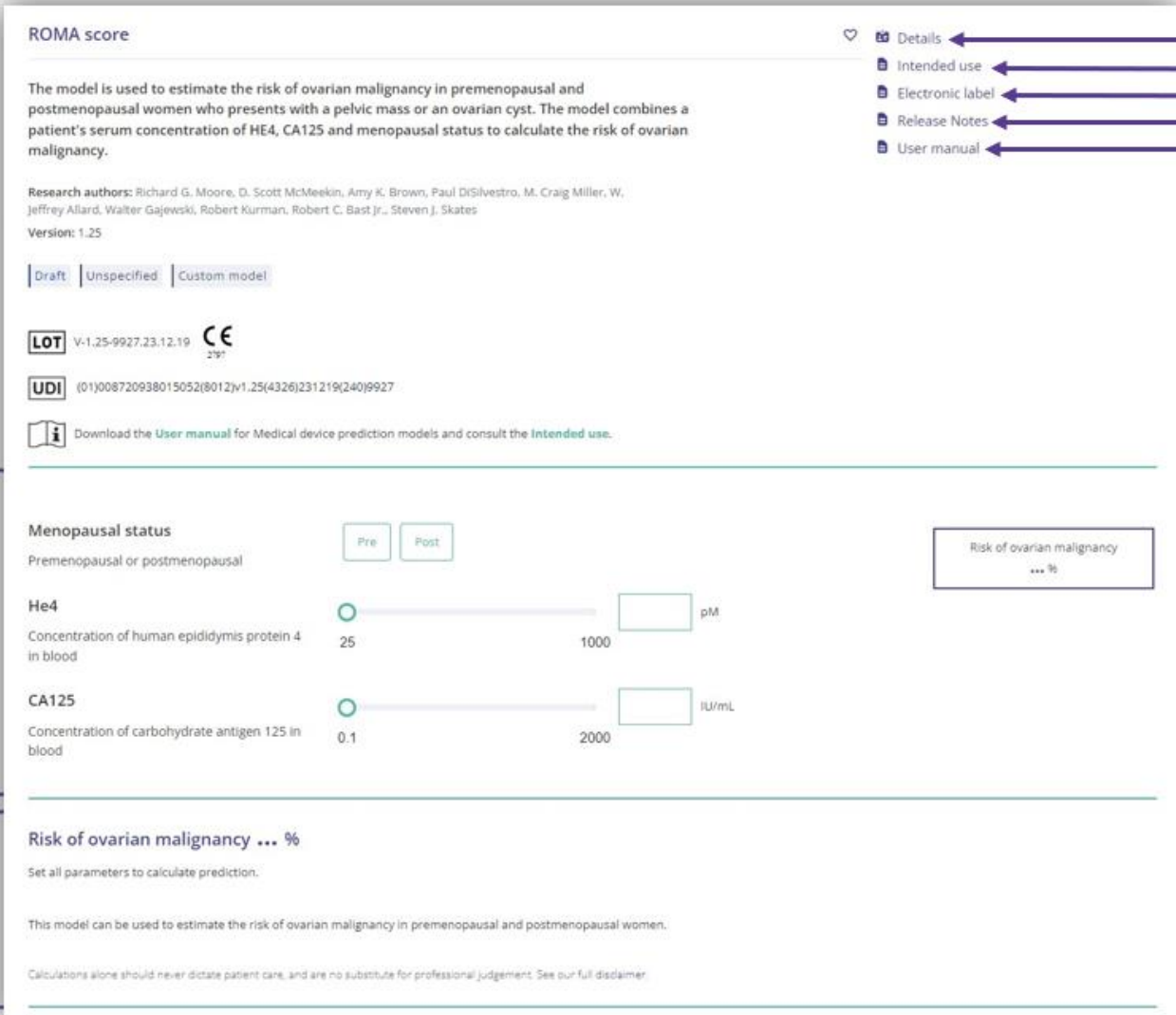
Before reading the result, double check the filled in values to prevent errors.

Results that concern risk percentages, do not guarantee certain outcomes. When there is a risk present, do not expect an event to not occur at all, even if the risk is very small.

This model is only intended for use in settings where the usage and result of a model are never immediately needed.

4. Model landing page

The medical device model on the Evidencio platform is shown in Figure 1. The model landing page contains the following sections, that are indicated in Figure 1.



The screenshot shows the 'ROMA score' model landing page. On the right side, there is a vertical menu with icons and labels G through K pointing to specific links: G. Details, H. Intended use, I. Electronic label, J. Release Notes, and K. User manual. The main content area is labeled with A through M:

- A.** ROMA score (Model title)
- B.** The model is used to estimate the risk of ovarian malignancy in premenopausal and postmenopausal women who presents with a pelvic mass or an ovarian cyst. The model combines a patient's serum concentration of HE4, CA125 and menopausal status to calculate the risk of ovarian malignancy. (Model description)
- C.** Research authors: Richard G. Moore, D. Scott McMeekin, Amy K. Brown, Paul DiSilvestro, M. Craig Miller, W. Jeffrey Allard, Walter Gajewski, Robert Kurman, Robert C. Bast Jr., Steven J. Skates. Version: 1.25 (Research authors)
- D.** Draft | Unspecified | Custom model (Model status)
- E.** LOT V-1.25-9927.23.12.19 CE (Lot and CE mark)
- F.** UDI (01)008720938015052(8012)v1.25(4326)231219(240)9927 (UDI)
- K.** Download the User manual for Medical device prediction models and consult the Intended use. (User manual link)
- L.** Menopausal status (Pre | Post) (Menopausal status)
- M.** Risk of ovarian malignancy ... % (Risk of ovarian malignancy)

The input section includes sliders for He4 (Concentration of human epididymis protein 4 in blood) and CA125 (Concentration of carbohydrate antigen 125 in blood), and a button for 'Risk of ovarian malignancy ... %'.

Figure 1. An example of a model landing page.

A. Model title

This is the title and name of the model.

B. Model description

This is a short description of the model.

C. Research authors

These are the research authors of the paper that originally published the model.

D. Model tags

These are the tags that are assigned to the model. Evidencio has the following status tags: "Draft", "Public", "Private", "Under review". Evidencio has the following model type tags: "Composite model", "Sequential model", "API model". Evidencio has the following calculation method tags: "Linear model", "Logistic regression", "Cox regression", "RScript" and "Custom model". Next to this, there are tags that indicate the specialty e.g. "Cardiology".

E. LOT number

The LOT number indicated the model version, the model identifier, and the model publication date. Publication date is indicated as YY.MM.DD.

Additionally, the CE mark is displayed next to the LOT number. This way, medical devices can be easily recognized.

F. UDI number

The UDI number is an international tool that helps users identify and find information on products. UDI stands for Unique Device Identifier. Evidencio's UDIs have the following format:

(01)UDI-DI number(8012)versionnumber(4326)releasedate(240)identificationnumber

The UDI-DI number is a unique numeric code. For each medical device of Evidencio, a unique UDI-DI is ascribed. This UDI-DI is used as an "access key" for information stored in a unique device identification database (UDID). Information on Evidencio's medical devices can be found by searching for the UDI-DI number in the following data base:

<https://gepir.gs1.org/index.php/search-by-gtin>

G. Details button

On the top right of the model page, several clickable buttons are displayed that show a pop-up when clicked. The first button opens a pop-up concerning additional information about the model. This pop-up has three sections: Details, Study characteristics and Supporting publications & related files.

Details

The first part of the additional information concerns the details of the model as shown in Figure 2.

Details

Model author

Romee

Status

Model ID

9927

Share

Version

1.25

Revision date

2023-12-19

Specialty

Unspecified

Model type

Custom model (Conditional)

MeSH terms

No MeSH classifications added

Draft

f

t

in

Condition

Formula

Menopausal status=Pre

$$\left(\frac{e^{-12+2.38\cdot\ln(\text{He4})+0.0626\cdot\ln(\text{CA125})}}{1+e^{-12+2.38\cdot\ln(\text{He4})+0.0626\cdot\ln(\text{CA125})}}\right)\cdot 100$$

Menopausal status=Post

$$\left(\frac{e^{-8.09+1.04\cdot\ln(\text{He4})+0.732\cdot\ln(\text{CA125})}}{1+e^{-8.09+1.04\cdot\ln(\text{He4})+0.732\cdot\ln(\text{CA125})}}\right)\cdot 100$$

Figure 2. The model details.

Study characteristics

Below the 'Details section' the section labeled 'Study characteristics' provides information on the characteristics of the patient data used to derive and validate the model. Additional information is provided on the methods used to develop and/or validate the model.

An important part of the Study characteristics is the information on Supporting publications and related files. These sections can be found at the bottom of the Details-pop-up as shown in Figure 3.

Supporting Publications

Title or description

A novel multiple marker bioassay utilizing HE4 and CA125 for the prediction of ovarian cancer in patients with a pelvic mass
DOI: 10.1016/j.ygyno.2008.08.031

Tags

Related files

No related files available

Figure 3. An example of Supporting publications & related files.

H. Intended use button

Intended medical use

The device is intended to aid in assessing the risk of ovarian malignancy in premenopausal or postmenopausal patients who present with an ovarian adnexal mass.

The device combines a patient's serum concentration of the Elecsys HE4 essay, Elecsys CA125 II essay and the menopausal status into a numerical score to calculate the risk of finding ovarian malignancy after surgery.

The device is intended to be used for patients with an ovarian adnexal mass for which surgery is planned, by qualified medical specialists in a clinical setting. The device is not intended for use by patients on their own.

The ROMA score is not intended to replace clinical decision-making, it can only inform the decision-making process, and only provides a cumulative amount of points and corresponding risk of finding ovarian malignancy after surgery for patients with an ovarian adnexal mass. No direct instructions for further diagnostics, treatment, or otherwise, are given.

Clinical benefit

The ROMA score is intended to assist patients with relevant and specified clinical outcome parameters. Concretely, this is achieved by estimating a risk in order to support clinical decision making aimed at patients presenting with an ovarian adnexal mass in order to support clinical decision-making regarding patient triage. Correct functioning of the ROMA score can result in these clinical benefits:

- The ROMA score can assist in risk stratification for patients who present with an ovarian adnexal mass.
- Risk stratification can reduce the burden of (invasive and intensive) medical procedures such as tests on patients with low risks, reducing, shortening or avoiding stays in hospitals or other care facilities.
- Risk stratification can reduce the unnecessary consumption of (scarce) medical resources, decreasing costs and increasing their availability for high-risk patients.

Intended target population and exclusion

The ROMA score is intended to be used only for a specific group of patients, corresponding to the below indications and contra-indications. Additionally, for the use of the ROMA score on Evidencio, the patient's age should be at least 18 years, and the patient should have a diagnosis of an ovarian adnexal mass with a planned surgical intervention.

Inclusion criteria

The ROMA score is intended for:

- Premenopausal or postmenopausal patients who present with an ovarian adnexal mass for which surgery is planned
- Patients who are not yet referred to an oncologist

Exclusion criteria

The ROMA score should not be used for patients that do not fulfil the inclusion criteria, i.e. it is not intended for:

- Patients who are pregnant
- Patients who have had a prior bilateral oophorectomy

User profile

Professionals in a healthcare setting do not require additional training prior to the use of the medical device. The SaMD should not be used by patients.

Intended use environment

The SaMD can be used as made available on the Evidencio platform in any actively supported web-browser on personal computers, mobile devices, or tablet PCs, and on the mobile app provided by Evidencio. Furthermore, the SaMD can be used through the Evidencio iFrame representation of the SaMD, as an embedded view, provided that the specific Evidencio guidelines for iFrame implementations of this SaMD are adhered to. In addition, automatic calculation for the model can be used through Evidencio's API. The model is only intended for use in settings where the usage and result of a model are never Immediately needed.

Functioning, physical principle

The SaMD's underlying mathematical formula is a logistic regression. The acquisition and processing of the data, the analyses to assemble the relevant criteria for the SaMD as well as the setup and refinement of the ROMA score are described in the original study from Moore et al. 2009. Entering the details of an individual in the Evidencio SaMD initiates the estimated risk of finding ovarian malignancy after surgery in premenopausal and postmenopausal patients who present with an ovarian adnexal mass.

I. Electronic label button

The electronic label button opens a pop-up with the location and address of Evidencio, the LOT number, the UDI number, the CE-mark, the medical device logo and a download link for the declaration of conformity of the medical device. The example of the electronic label is shown in Figure 4.

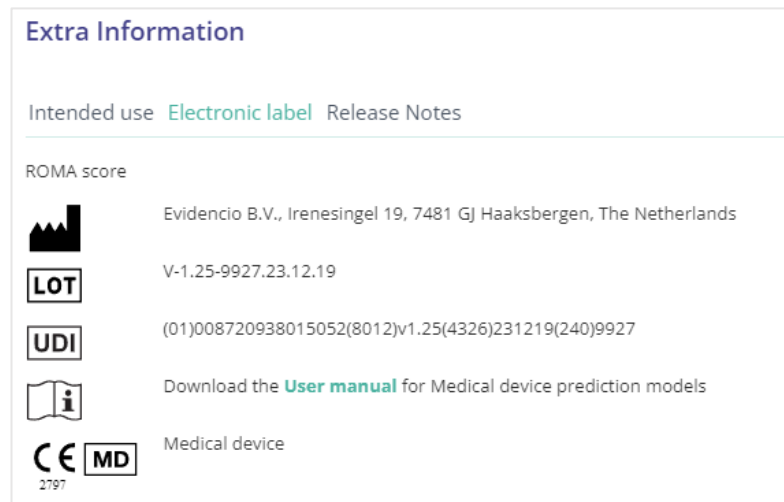


Figure 4. Example of the electronic label

J. Release notes

The 'Release Notes' button opens a pop-up with the latest release notes of the model. Here you can find what has changed over the last versions of the model. Additionally, if there are any known residual anomalies the user should be aware of, they are listed here.

K. User Manual

This user manual can be found in three places: 1) under the short description, 2) on the right of the model page, and 3) in the electronic label. Additionally, all versions of the user manual can be found in the general page for all user manuals for medical devices. The page can be found under the 'About' drop-down menu button as shown in Figure 5. The user manual page is shown in Figure 6.

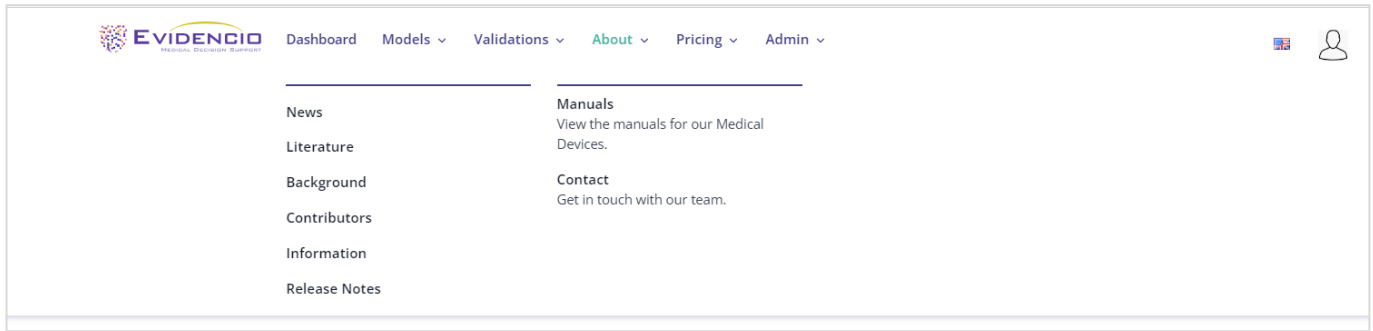


Figure 5. The drop-down menu where the user manual page can be found.

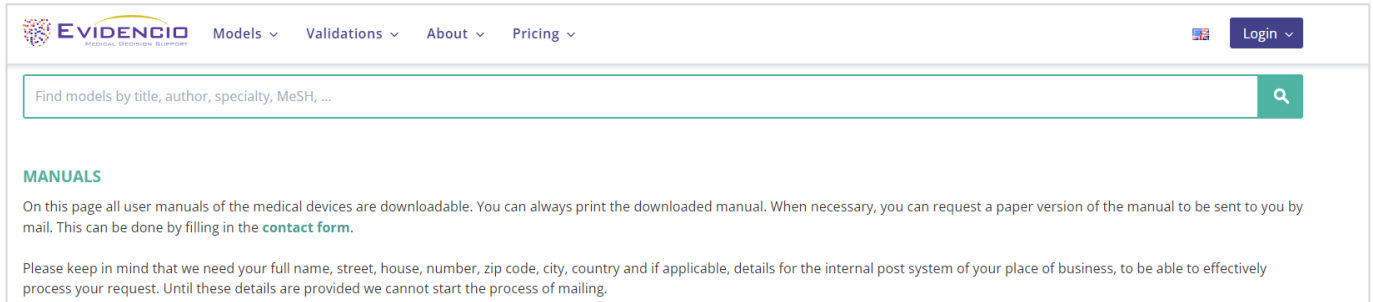


Figure 6. The user manual page for all user manuals.

You (The user) can always print this downloaded manual. When necessary, you can request a paper version of the manual to be sent to you by mail. Evidencio's contact details are listed in Chapter 6 of this user manual.

L. Input section

The Evidencio platform allows two separate input variables; categorical, and continuous variables.

Categorical variables

In the example shown in Figures 7 and 8, the **Menopausal status** variable concerns a categorical variable. The patient status can be entered by clicking on either button. The selected button changes to green, as seen in Figure 8.

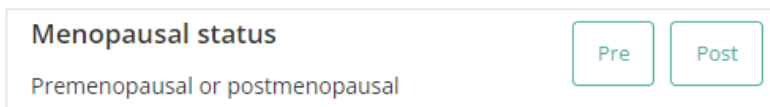


Figure 7. The variable for Menopausal status, where no button has been clicked, and thus no input has been provided by the user.

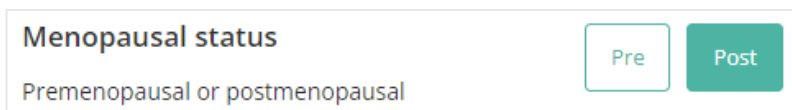


Figure 8. The variable for Menopausal status, where the "Post" button has been clicked.

Continuous variables

In the example shown in Figure 9, the **He4** variable, exemplifies a continuous variable. The plausible ranges for the variables are used for the model.

The details for a patient can be entered by sliding the button to the correct value, or by entering the correct value in the box on the right-hand side (i.e., where the 200 is entered for **He4**).



Figure 9. The variable for He4, where "200" has been entered

Details on variable measurements

Directly underneath the name for each variable, additional details can be provided on the methods required to enter the correct value for each variable. In Figure 9, the details below **CA125** explain what the variable is.

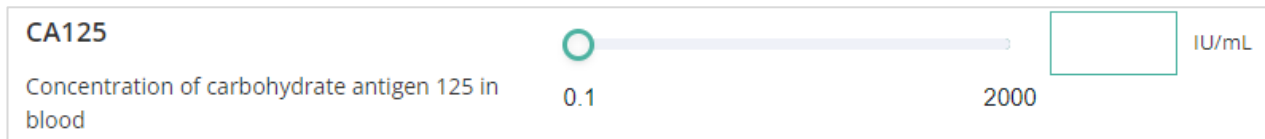


Figure 9. An example on how additional information can be provided for a variable.

M. Result section

At the bottom of the page, the results of the model are shown.

Result calculation

When all variables are filled in, a result will be calculated. No risk is displayed until all variables are filled in. The result section indicates “Set all parameters to calculate prediction.”

Result interpretation

In the result interpretation, a risk stratification is given based on the risk score. An example of the information is shown In Figure 10.

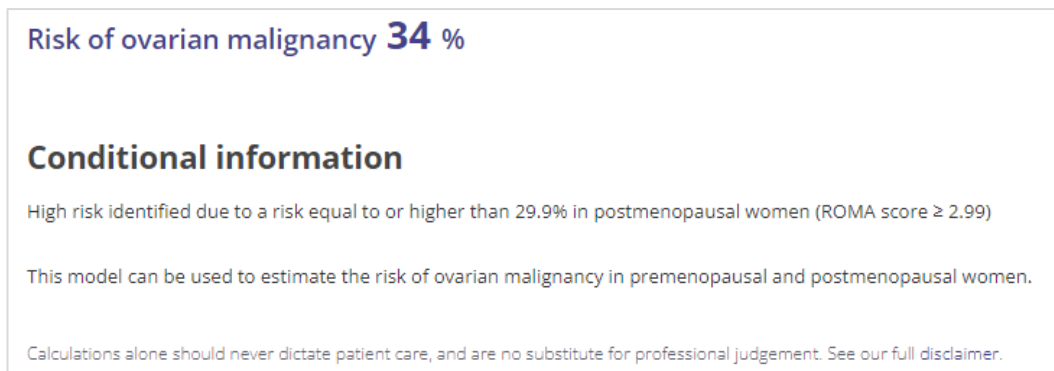


Figure 10. The result information

Relevant information for correct use of the model

At the bottom of the page, there is a link to Evidencio’s terms and conditions of use, the privacy policy, and the disclaimer.

5. Use of Medical devices

In general, and unless explicitly stated otherwise, CE-marked tools on Evidencio are only to be used by physicians in a clinical setting, and are not for patient use.

To use the tool, Evidencio requires a stable internet connection and runs on the following devices:

- Personal computers or laptops using the following browsers:
 - Safari (the latest three versions)
 - Chrome (the latest three versions)
 - Firefox (the latest three versions)
 - Edge (the latest three versions)
- Tablets or smartphones running on the next operating systems:
 - IOS (the latest three versions)
 - Android (the latest three versions)

The medical device cannot be used in combination with Internet Explorer. The personal computers, laptops, tablets or smartphones used should at least be able to have an internet connection and use the browsers mentioned above. The minimal screen resolution should be 800x600.

Furthermore, the model may be used through the Evidencio iFrame representation of the calculator, as an embedded view, provided that the specific Evidencio guidelines for iFrame implementations of that model are adhered to.

The Evidencio SaMD models can be used with any browser settings that don't distort the regular display of websites, with a 50% to 500% zoom rate, and at a display resolution starting from 800x600. However, factory recommended browser settings, 100% zoom rate and regular display resolution are recommended.

This model is only intended for use in settings where the usage and result of a model are never immediately needed.

6. Manufacturer details

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the country in which you, the reader, are established. A competent authority is the institute that governs all issues related to medical devices in a country.

Contact details of your competent authority can be found here: <https://www.ema.europa.eu/en/partners-networks/eu-partners/eu-member-states/national-competent-authorities-human>

Please contact Evidencio when you suspect any malfunction or changes in the performance of a medical device. Do not use the device, until Evidencio replies to your message that it is safe to start using it again.

Contact details of Evidencio:



Evidencio B.V., Irenesingel 19, 7481 GJ Haaksbergen, The Netherlands
www.evidencio.com
tel: +31 53 85195 08
e-mail: info@evidencio.com