



User manual for ALBI Score

Version 1, February 2024, 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 ALBI 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.

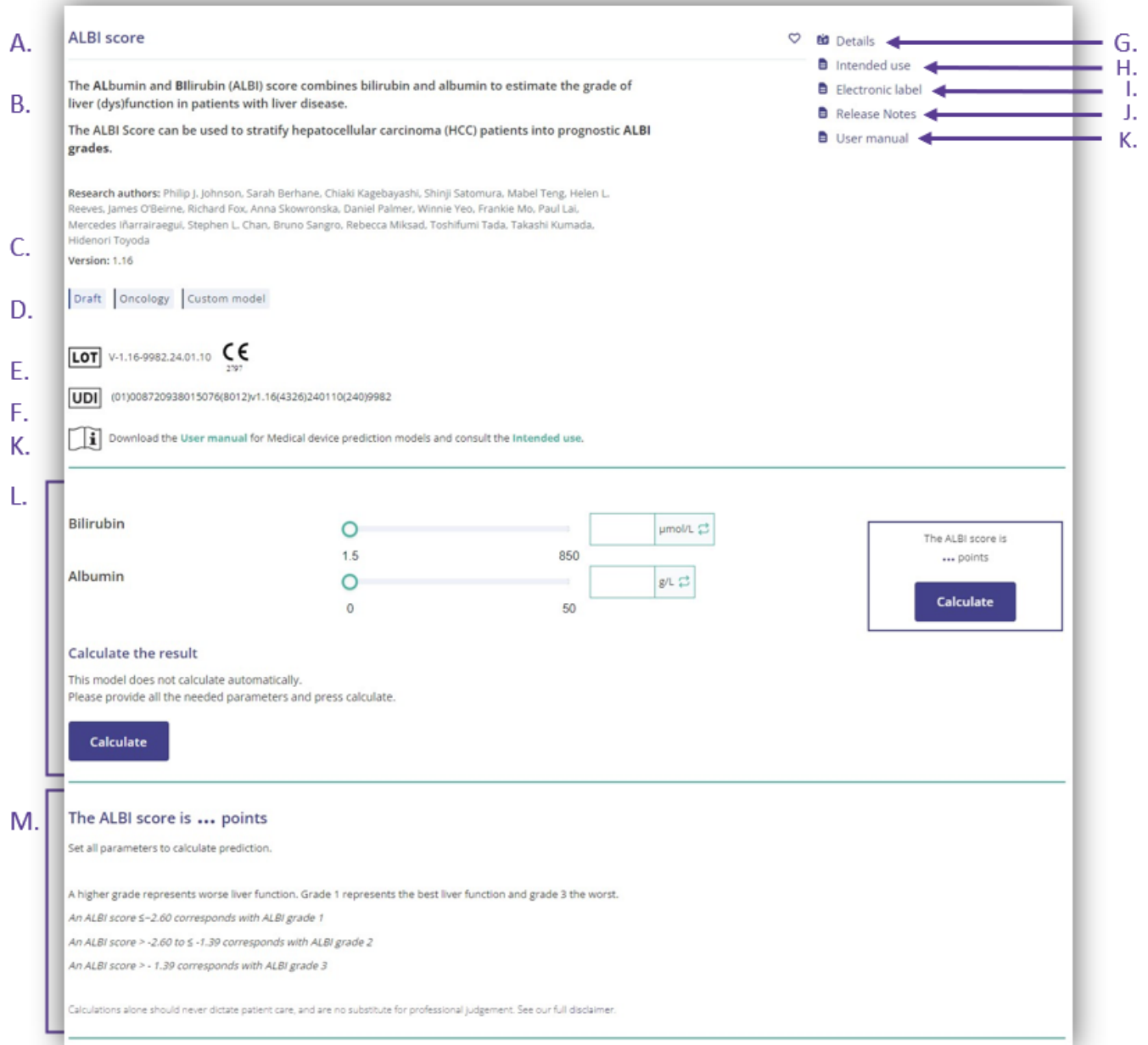


Figure 1. An example of a model landing page.

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. "Hepatology".

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	Vanity Steneker	Status	Draft	
Model ID	9982	Share	<div><div></div><div></div><div></div></div>	
Version	1.16			
Revision date	2024-02-06			
Specialty	Hepatology , Oncology			
Model type	Custom model (Calculation)			
MeSH terms	No MeSH classifications added			
Formula				
$(\log 10(\text{Bilirubin}) \cdot 0.66) + (\text{Albumin} \cdot (-0.085))$				

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

Assessment of Liver Function in Patients With Hepatocellular Carcinoma: A New Evidence-Based Approach—The ALBI Grade

DOI: <http://dx.doi.org/10.1200/JCO.2014.57.9151>

Tags

Paper

Related files

No related files available

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

H. Intended use button

Intended medical use

The ALBI Score combines bilirubin and albumin to estimate the grade of liver (dys)function in patients with liver disease.

The device is intended to be used for patients with liver disease by professionals in a healthcare setting. The device is not intended for use by patients on their own.

The ALBI Score is not intended to replace clinical decision-making, it can only provide information to the user on the grade of liver (dys)function. The user can use this information to support clinical decision-making regarding prognosis and treatment of the patient.

Clinical Benefit

The ALBI 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 with liver disease, in order to support clinical decision-making regarding treatment options. Correct functioning of the ALBI Score can result in these clinical benefits:

- The ALBI Score can assist in risk stratification for patients with liver diseases
- Risk stratification can reduce the burden of (invasive and intensive) medical procedures for diagnostic and treatment purposes.
- Risk stratification can reduce the unnecessary consumption of (scarce) medical resources, decreasing costs and optimize allocation of resources.
- Digital implementation of the algorithm underlying the ALBI Score as a medical device can improve the speed and reliability of calculation.

Intended target population and exclusion

The ALBI Score should be used for HCC patients. The ALBI Score is intended to be used only for a specific group of patients, corresponding to the below indications and contra-indications. The target population of the model is HCC patients, provided that they fit the listed indications and contra-indications.

Clinical indication

The ALBI Score should be used for patients who meet the following inclusion criteria:

- Being at least 18 years old

While the ALBI Score was originally developed for HCC, there are a number of other diseases for which it's validity has been confirmed, namely:

- Chronic viral hepatitis C
- Chronic viral hepatitis B

- Autoimmune hepatitis
- Primary biliary cholangitis
- Liver cirrhosis
- Acute-on-Chronic liver failure

Contra-indications

The ALBI Score should not be used for patients who meet one or more of the following exclusion criteria:

- Patients without the diagnosis of a liver disease.
- Patients with non-liver malignancies.

User profile

Since mortality is regarded as a 'critical healthcare situation or condition', the use of the SaMD is intended for specialised trained users in a clinical setting. The ALBI Score should not be used by patients alone. Users do not require additional training prior to the use of the medical device.

Intended use environment

The medical device software 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 in Evidencio's mobile App. The calculator can be used through the Evidencio iFrame representation of the calculator, as an embedded view, provided that the specific Evidencio guidelines for iFrame implementations of this model are adhered to. The ALBI score can be calculated automatically using Evidencio's API. The medical device software is only intended for use in settings where the usage and results are never immediately needed.

Functioning, physical principle

The SaMD's underlying mathematical formula concerns the prognostic index, derived from a multivariable cox regression model aimed at overall survival. The prognostic index was subsequently divided into three grades. 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 ALBI Score are described in the original studies from Johnson et al. Entering the details of an individual in the Evidencio SaMD initiates the calculation of the grade of liver (dys)function.

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.

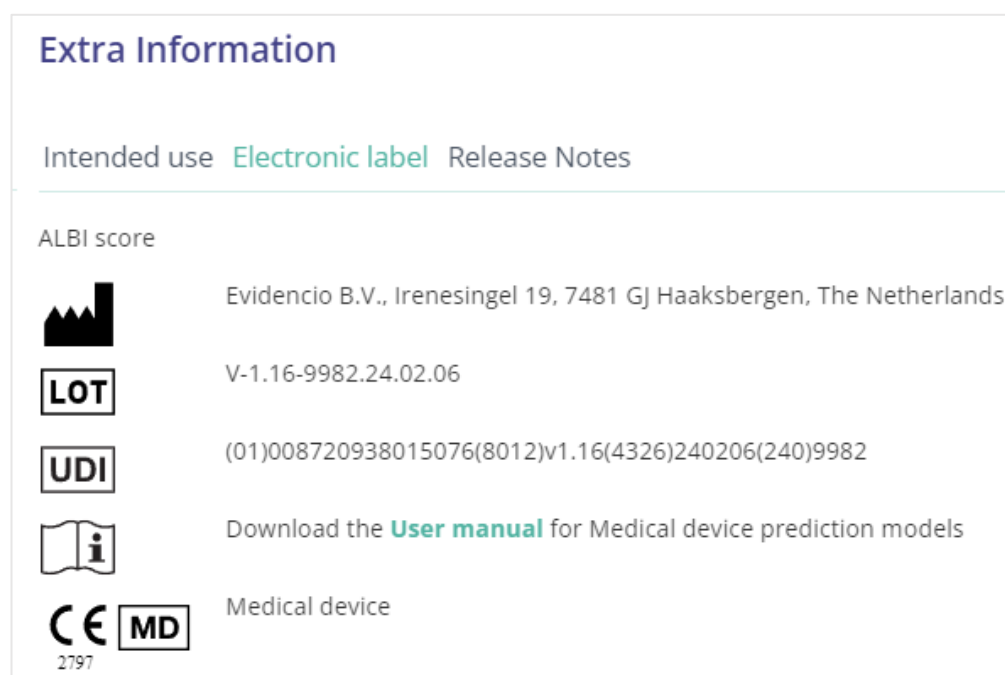


Figure 4. Example of the electronic label

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.

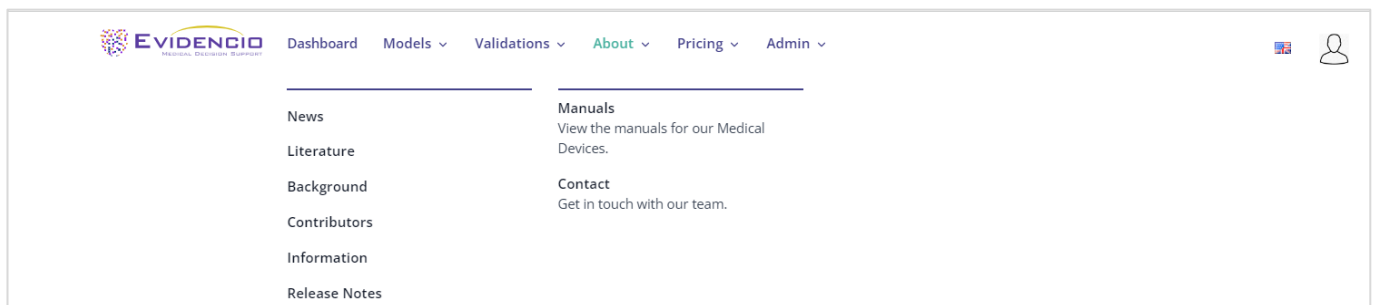


Figure 5. The drop-down menu where the user manual page can be found.

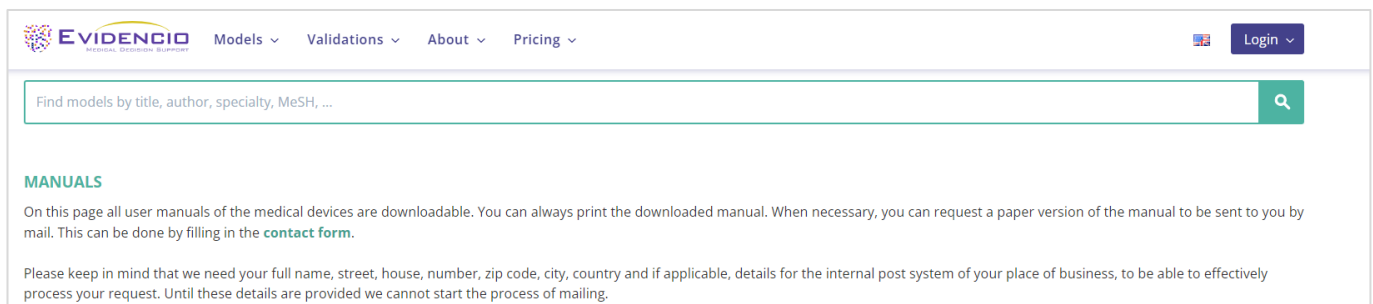


Figure 6. The user manual page for all user manuals.

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. For the ALBI score only continuous variables are required to enter

Continuous variables

In the example shown in Figure 7, the **Bilirubin** 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 50 $\mu\text{mol/L}$ is entered for **Bilirubin**).

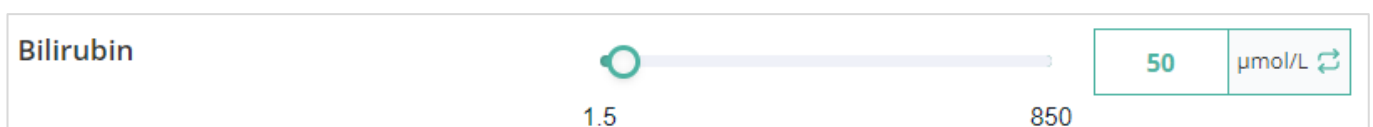


Figure 7. The variable for Bilirubin, where "50 $\mu\text{mol/L}$ " has been entered

It is possible to use unit conversion, by clicking on the unit. See the figure below where the unit is clicked.

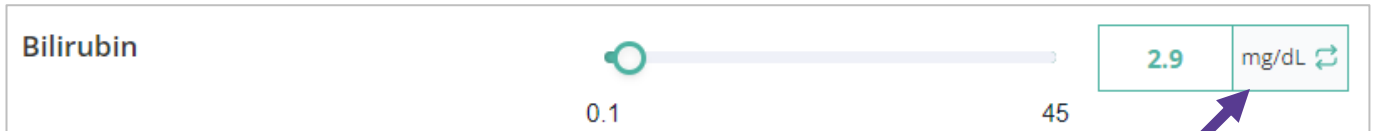


Figure 8. The variable for Bilirubin, where "2.9 mg/dL" has been entered

M. Result section

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

Result calculation

The model does not calculate automatically, when all variables are filled in, a result can be calculated. No risk is displayed until all variables are filled in, and the "Calculate" is clicked. The result section indicates "Set all parameters to calculate prediction." Until all parameters are entered and the calculate button is clicked.

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 9.

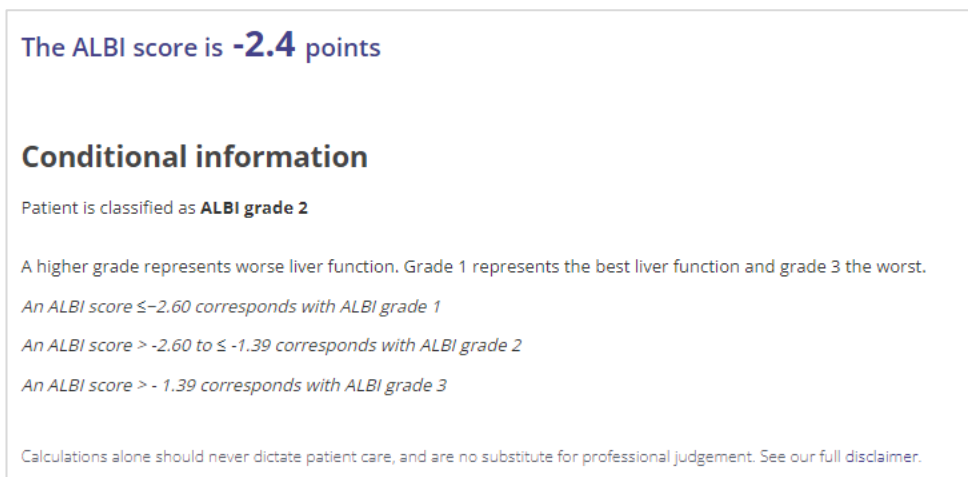


Figure 9. The result information

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:



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