Gastroenterologist Decision Support System

HelicoSense Scientific

User’s manual

Saint-Petersburg
2011
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Introduction
An electronic security key is delivered together with a program. Software is not operable without it. The key is provided for a universal serial bus (USB).

Getting started. Selection of a user
At the start there is proposed to choose a user from a list. Later on, this name will be used in report documentation.

Addition and delete of users from the list is done by the like-named buttons in the “Selection of a user” window. To come to main window press button “Select”. Pressing “Cancel” button will close the program.

Main window
Selection of a patient

Selection of a patient is carried out by clicking a left button of the mouse in the table or by cursor control keys (arrow keys). At this moment a family name, name and middle name of the patient will be presented in the window caption. On the right side of the patient list there will be presented:

- Antibodies blood test results (a positive result has a red background and negative – green);
- HelicoSense test results diagram.

Having selected the patient, choose a necessary action with toolbar buttons.

If the result of some of the blood tests is not specified, the results panel will have another appearance:

```
<table>
<thead>
<tr>
<th>Blood test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Ab to HP</td>
</tr>
<tr>
<td>Ab to HAT-phase</td>
</tr>
<tr>
<td>Specify</td>
</tr>
</tbody>
</table>
```

The button “Specify” is equivalent to the button 5 of the toolbar (see below) “Testing and entering the results”

Search of the patient

If there are many patients in the table, one can use a filter. Please enter for this necessary information in the filter fields.

```
<table>
<thead>
<tr>
<th>Last name</th>
<th>First name</th>
<th>Middle name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Along with entering the information there will be an automatic filtering of the list. Filter fields are case insensitive. To cancel the filtration press “Reset”, this will clear the filter fields. Besides this, for a search, one can sort the patient list according to a corresponding table column, for this it is necessary to click the column title with the left button of the mouse. Sorting order is shown with a small triangle: 

 ascendin

descending order. One can sort simultaneously by several columns – hold for this [Ctrl] when clicking the mouse.

Description of general functions

Toolbar

All program actions are done with toolbar buttons:
1) Creation of a new patient;
2) Deleting the patient selected in the table;
3) Filling the patient’s card in;
4) Filling in the patient state alteration history;
5) Carrying out HelicoSense diagnostics and filling the test results in;
6) Printing patient’s card;
7) Show a list of patients to be notified (if such ones are available);
8) Program settings;
9) Information about the program.
**Input of a new patient**

To enter a new patient press button 1 of the toolbar (see above) or a combination of buttons [Ctrl+N].

Fill in the appeared window and press “OK”. Press “Cancel”, [Esc] or close button in the upper right corner of the window to close it and cancel editing.

**Working with calendar**

The program is using such a control as “Calendar”. It is opened by a click at the dropdown button of a date field.

- To select a necessary date within a current month click the necessary number.
- To move to the next or previous month use navigation buttons.
- To select month promptly – click month with the left button of the mouse and select the necessary one from the list.
- To select a year – click it and change the year with “up” and “down” buttons in the field which has appeared.
- By clicking the field “Today” the current date will be choosen.

**Deletion of a patient**

To delete a patient from the data base mark him in the table and press button 2 of the toolbar (see above). There will appear a warning:
Warning! By deleting a patient from the data base all the related information will be deleted: both patient card and test results.

**Edition of the patient data**

To change the entered data it is necessary to double click the table at the selected patient with the mouse. The editing field is identical to the field of a new patient input.

**Filling in the patient card**

A patient card is filled in during primary inspection. Before entering data in the patient card, other actions (entering state changes, testing) are disabled. The card is editable at any moment.

To fill the card in press button 3 of the toolbar (see above).

Patient card consists of several pages. After entering data press “Next” to move to the next page.

Initial two pages – “Complaints” are filled in by a doctor according to words of patient.
Page “Anamnesis vitae” is filled in depending on the age of the patient. The program will propose an option either for children or for adults. Age limit for children is set in program settings.
### Anamnesis vitae. Adults

<table>
<thead>
<tr>
<th>Education</th>
<th>Socioeconomic status</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher</td>
<td>above the average</td>
</tr>
<tr>
<td>secondary</td>
<td>average</td>
</tr>
<tr>
<td>elementary</td>
<td>below the average</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nutrition</th>
<th>Alcohol usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>regular</td>
<td>abstinent</td>
</tr>
<tr>
<td>irregular</td>
<td>reasonable</td>
</tr>
<tr>
<td>asthma</td>
<td>above normal</td>
</tr>
</tbody>
</table>

#### Allergic reactions

- Food allergy
- Respiratory allergy
- Drug allergy
- Other

#### Birth Intention (with your answer)

<table>
<thead>
<tr>
<th>Tuberculosis (tbc)</th>
<th>Venereal diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>Irregularity</td>
</tr>
</tbody>
</table>

#### Health is limited by

- Consistent diseases

#### Takes chronic medication

#### Patient card - Rue Richard

### Anamnesis vitae. Children (1.2)

<table>
<thead>
<tr>
<th>Pregnancy</th>
</tr>
</thead>
</table>

#### Accomplishment

<table>
<thead>
<tr>
<th>normal</th>
<th>premature</th>
<th>overmature</th>
<th>birth trauma</th>
</tr>
</thead>
</table>

| Birth weight | 3000       | Birth height | 52          |

#### Neonatal period

<table>
<thead>
<tr>
<th>featureless</th>
<th>other</th>
</tr>
</thead>
</table>

#### Physical growth and development on a first year of life

- Normal
- Retardation
- Advance

#### Motorial development on a first year of life

- Normal
- Retardation
- Advance

#### On first year of life

- Normal
- Retardation
- Advance

#### Premature feeding

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Supplemental feeding since (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Necessary nutrition

- Regular
- Irregular
- Nervous habits
- Respiratory Virus Infection
Later on, physician inspection results are filled in.
Entering data on changes in patient state

Information about patient state changes is filled in during a subsequent visit. For this press button 4 of the toolbar (see above). To add a new record into a table or delete an existing one use “+” or “–” button correspondingly. “Pain syndrome dynamic” (PSD) and “General condition dynamic” (GCD) are to be chosen from the dropdown list.

Testing and entering the results

To run HelicoSense testing and enter the results, press button 5 of the toolbar (see above).
In this window one can also specify the results of antibodies blood tests that are necessary to compose the recommendations to a patient. The examination is bound in the data base upon a physician visit number. A new visit entry is created when adding a record to patient state changes table. If the new entry does not add up into the patient state changes table the examination will be bound upon the last visit. If one visit includes several examinations, the patient state changes card will include just the results of the last examination for the mentioned date (see “Entering data on changes in patient state” and “Patient card printout”). Such situation can arise in case of a wrong examination which data are to be saved by some reason.

**New examination**

Select an available examination technique from a list on the left and press a button for running the examination.

If one has chosen one of HelicoSense techniques (Complete, Express or Expert) – the device interaction window will come up. The chosen technique will be in the caption. Other techniques are to be added into the table of the accomplished examinations and their results are set manually in a corresponding column.
Status bar warning “Device is not detected. Check connection!” can mean that the device is not started or not properly connected to a computer. Check the connection and press the button “Check”. If everything is connected properly there will appear a notification “The device is on COM#:,” (where # – is the number of the port to which the device is connected, usually 1 or 2).

Afterwards, the necessary activities with a patient are to be done and the button “Start” is to be pressed.

Later on, current concentration value is received and they are presented in the chart. The examination time for HelicoSense Complete is 10 minutes, for HelicoSense Express – usually less than 10 minutes. HelicoSense Expert runs until interrupted by a doctor. If it is necessary to stop the examination in advance – press “Stop”.

At the end of the work there will be a beep sound and there will appear a message window of the test completion.

Wait until the end of cleaning (30 sec) and press button “Save” to close the window and save the current examination results in the data base.

**Examination results review**

For review of the HelicoSense examination results it is necessary to select it in the list of the accomplished examinations. Examination chart will present concentration curve obtained during the test and calculated value of the Infection Index (I.I.).
One can append the examination with a text pressing the button \[ \text{Comments} \] in the column “Comments”. Also for making a text description of the examination one can use a chart. Double click left mouse button nearby the chart point which you want to be clarified. There will appear a window to enter the comments, in which automatically will be added a new line with time, corresponding to the mentioned chart point. Change the selected text for your own and press “OK” to save it.

**Attention.** Maximal length of the comment to be saved is 2048 characters.

![Comment Window](image)

There is a possibility to put the numeric array received from the device into the report for subsequent export to Microsoft® Excel™ for further analysis. One can use for it a “Report” button. To remove the accomplished examination from the data base one has to mark it in the list and press button “Delete”. There will appear a confirmation request.

![Confirmation Window](image)

**Work with chart**

The chart can be zoomed. To enlarge some part of it press the left mouse button and, holding it, move the cursor downwards to the right hand corner. To undo zoom and return to the initial scale repeat the operation, moving the mouse cursor by holding left button pressed in the backwards up-left direction.

**Patient card printout**

Button 6 of the toolbar (see above) drops down a menu.

![Patient Card Printout Menu](image)

An item “Full history printout” is designed for print preview of a full patient card with all changes. An item “Changes printout” consists of subitems according to the quantity of visits (see “Entering data on changes in patient state”). If during a visit there were several examinations, the
most recent data will be put into the card. Choosing a subitem causes patient card inlay print preview containing description of the patient condition dynamic and a chart of the corresponding examination. It is possible to export print preview to Microsoft® Word™ or Microsoft® Excel™.

**Notifications**

At a program start up, there will be presented a request for a list of patients to be notified if their visit was longer than a month ago.

In case of a positive answer there will appear a list of patients to be notified.

The same window is opened by pressing the button 7 of the toolbar (see above). After notification of the listed patient one can click on checkbox in the column “Notified”. After closing the window, the patient will be excluded from the notification list. If the list is empty – the button 7 is inaccessible.

**Program settings**

To open setting window there is used button 8 at the toolbar (see above).

In this window one can set:

- Interface program language. The chosen language is kept after restarting the program;
- Age limit for children. This parameter is used to determine the type of the patient card (adults or children).
**Information about the program**

The last button of the toolbar opens a window with program information.

**Recommendations**

If the blood test results are specified and HelicoSense breath test is done there is a possibility to provide a patient with an advice. For this, please use a button “Open” in the “Recommendations review” area. It is located in the main window under the diagram of HelicoSense results. By pressing the button there will be opened a window “Recommendations card”.

All the recommendations provided for a patient are saved date depended. Navigation buttons serve for looking through all the recommendations, their deleting and adding. The “Compose” button starts a procedure of analyzing the entered data and composing a recommendation.