Therapy Web User Manual

Version 4.0

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Contents

Therapy Web

For information about the Product environment, precautions, warnings and intended use see USR ENG Digistat Care and/or USR ENG Digistat Docs (depending on the modules installed - for the Digistat Suite EU) or USR ENG Digistat Suite NA (for Digistat Suite NA). The knowledge and understanding of the appropriate document are mandatory for a correct and safe use of Therapy Web, described in this document.

The treatments displayed in the figures of this manual are examples created to better explain the procedures of Therapy Web. Their features (as, for example, dosages and names) are not intended to be in any way clinically relevant.

1. Introduction

Digistat® "Therapy Web is a web application that can be of help for the clinical staff for the documentation of the prescription and administration of treatments.

2. Module selection

Digistat® "Therapy Web" is formed of two modules: "Therapy Prescription" for the treatment prescription documentation, mainly used by physicians; "Therapy Execution" for the treatment administration documentation, mainly used by the nursing staff.

On the lateral bar:

- Click the  icon to launch "Therapy Prescription".
- Click the  icon to launch "Therapy Execution".

2.1. Patient selection

If no patient is selected, no data is displayed.

To select a patient,

- click the **Patient** button on the Control Bar (Fig 1)

Fig 1

The "Patient Explorer Web" module opens. See the "Patient Explorer Web" module user manual for the operating instructions (*USR ENG Patient Explorer Web*).

Other modules can be configured for the patient selection in place of "Patient Explorer Web", depending on the configuration of the Digistat Suite. If this is the case, see the specific documentation for instructions.

When a patient is selected the patient's name is displayed on the **PATIENT** button instead of "**Choose Patient**".

The "Therapy Prescription" and "Therapy Execution" modules display the data of the selected patient.

3. Basic concepts

This section explains some basic notions whose preliminary understanding is essential to the appropriate use of "Digistat Therapy".

3.1. Prescription status

The "Therapy Prescription" module (described in section 4) allows to create a treatment plan and keep it active in time after periodic confirmations. Possible variations can be recorded quickly while the general plan remains the same.

The patient's treatment plan is summarized and displayed in a table (Fig 2). Each row corresponds to a treatment prescription.

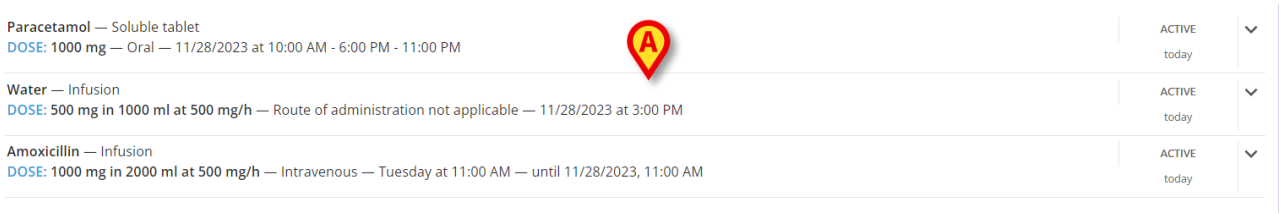

Fig 2

Each prescription generates a certain number of orders. The orders correspond to the single administrations of the treatment.

A prescription is terminated when all the orders that it generated are executed and no other order will be generated by it in the future.

The prescription status is displayed on the right (Fig 3).

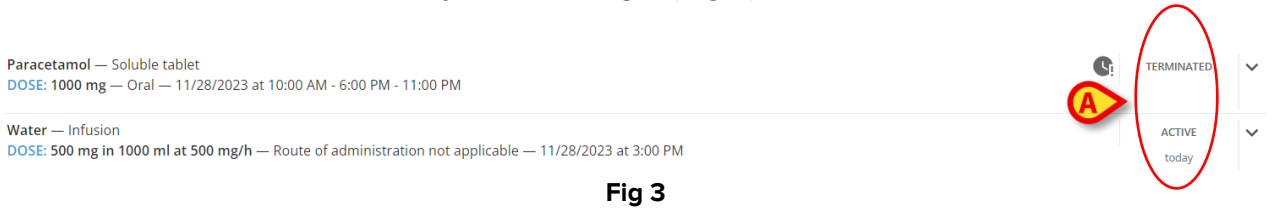

Fig 3

There are four possible prescription statuses:

1. “Active” - when a prescription is in “Active” status, the prescription values can be displayed and edited. Click the corresponding row to open the related “prescription specification” window.

2. “Terminated” - a prescription is terminated when all the orders that it generated are executed and no other order will be generated by it in the future. Terminated prescriptions are still active. That means that the prescription values can be displayed and edited. Double-click the row corresponding to the prescription to expand the row and display the related “prescription specification” tools.

3. “Suspended” - the prescription suspension, performed using the **Suspend** button (see section 4.5), deletes the prescription from the prescription plan and deletes all the related administration orders. The suspended prescriptions can be displayed again (in strikethrough text) by means of the available filter (see section 4.11 for the filters explanation). Suspended prescriptions can then be resumed (section 4.5). A suspended prescription does not generate administration orders.

4. “Removed” - a prescription can be removed by means of the **Remove** button (see section 4.6). All the administration orders generated by it are deleted. The removed prescriptions can be displayed again (in strikethrough text) by means of the available filter (see section 4.11 for the filters explanation). Removed prescriptions do not generate administration orders and cannot be resumed.

3.2. Repeatable vs. Not Repeatable Prescriptions

Repeatable prescriptions
A prescription is “***Repeatable***” if it generates orders that must be administered at given intervals. For example: a prescription can state that a drug must be administered every day at a certain time. In this case the prescription is repeatable; it generates the corresponding orders placing each of them in the required days at the required time/s.

Non-repeatable prescriptions
Non-repeatable prescriptions generate only the administration orders explicitly specified in the prescription. When all the orders are executed, the prescription is “Terminated” (see section 3.1).
The repeatability of a prescription is set by a specific checkbox on the prescription specification window (see Fig 55 for an example).

The repeatability of a prescription is indicated by a specific icon - - on the prescriptions table of the “Therapy Prescription” module (see, for example, Fig 4 **A**).

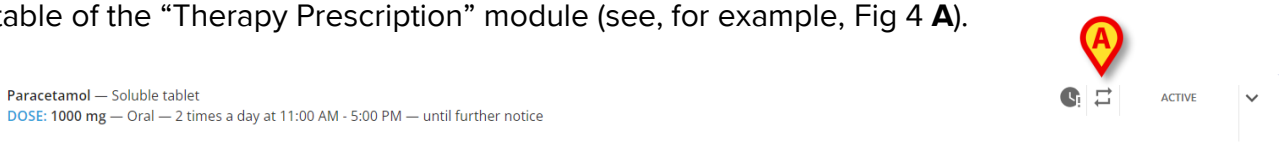

Fig 4

3.3. Punctual vs. Durative administrations

Punctual administrations start and end in one moment (it's the case of a tablet, for instance).

Durative administrations last a certain amount of time (it's the case of a drip, for instance).

Punctual and durative administrations are characterized by different graphic features and different management procedures on the Therapy Execution module. See section 5.3 for the description of the possible administration types on Therapy Execution.

3.3.1. The therapy cycle - treatment plan re-confirmation

The validity of the treatment plan created on "Digistat Therapy" is limited in time and needs to be re-confirmed by the medical staff. The treatment plan validity period is called "Therapy Cycle". The "Therapy Cycle" re-confirmation is a safety procedure that forces to check and verify the treatment plan at specified intervals. The "Therapy Cycle" duration is configurable. See section 4.16 for the therapy cycle update procedure.

3.3.2. Orders generation

This paragraph explains how the system generates the orders from a prescription specified in the treatment plan.
At prescription time, i.e. when the **Save** button on the "Summary" screen is clicked (Fig 73 **A**, see paragraph 4.14.3), the system generates the orders corresponding to the prescription specifications.

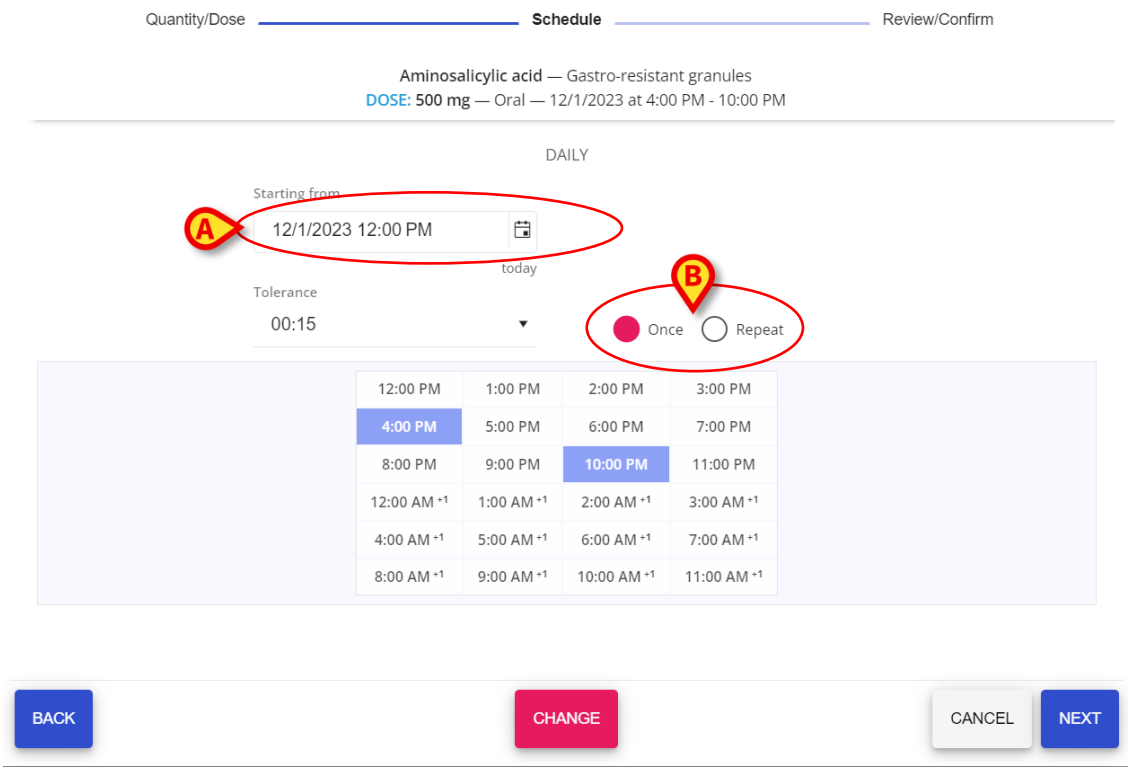

Fig 5

Conditional prescriptions (paragraph 4.14.2.2) do not generate orders. These prescriptions are executed only when certain specific conditions occur.

3.3.3. Orders validity

The order execution standard procedure requires the order validation before the execution. The orders that, when generated, are within the "Therapy Cycle" are automatically validated.
The other orders are validated every time the "Therapy Cycle" is updated when they are within this period (paragraph 4.16).

Non-validated orders are signaled by a specific icon -  - on the Therapy Execution module (Fig 6). They can be executed only after a specific procedure, described in paragraph 5.5.7.

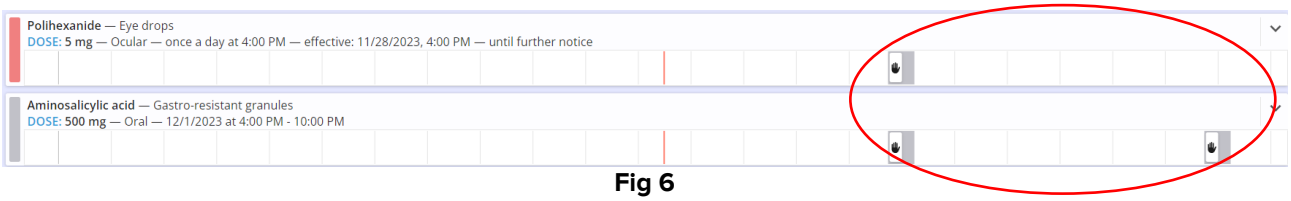

Fig 6

See paragraph 3.3.1 for the explanation of the "Therapy Cycle" (or "treatment plan validity period").
See paragraph 4.16 for the treatment plan update procedure.

3.3.4. Order validity expiration

The validity of an order expires after a certain amount of time after the scheduled administration time has passed. That is: if a validated order is not administered at the scheduled time, it remains validated for a certain period. After this period the order goes back to non-validated state (it is named "expired" to differentiate it from future not-yet-validated orders). Expired orders can be deleted from the treatment plan through the "Therapy Cycle" update procedure. See paragraph 4.16. Expired orders can be executed only using a specific procedure. The procedure is described in paragraph 5.5.7.

The orders validity duration is defined by a specific configuration parameter. Refer to the system administrator for more information.

The validity of a conditional prescription expires when the "Therapy Cycle" expires. Thus, conditional prescriptions are automatically validated every time the "Therapy Cycle" is updated. See paragraph 4.14.2.2 for the explanation of "Conditional prescriptions".

4. The “Therapy Prescription” module

4.1. Module selection

To select the “Therapy Prescription” module:

- click on the  icon on the lateral bar provided on the left:

When a module is selected the corresponding icon is highlighted.
When a patient is selected, it is possible to access to his or her prescription page and the “Therapy Prescription” module’s main screen opens.

4.2. Prescription main page

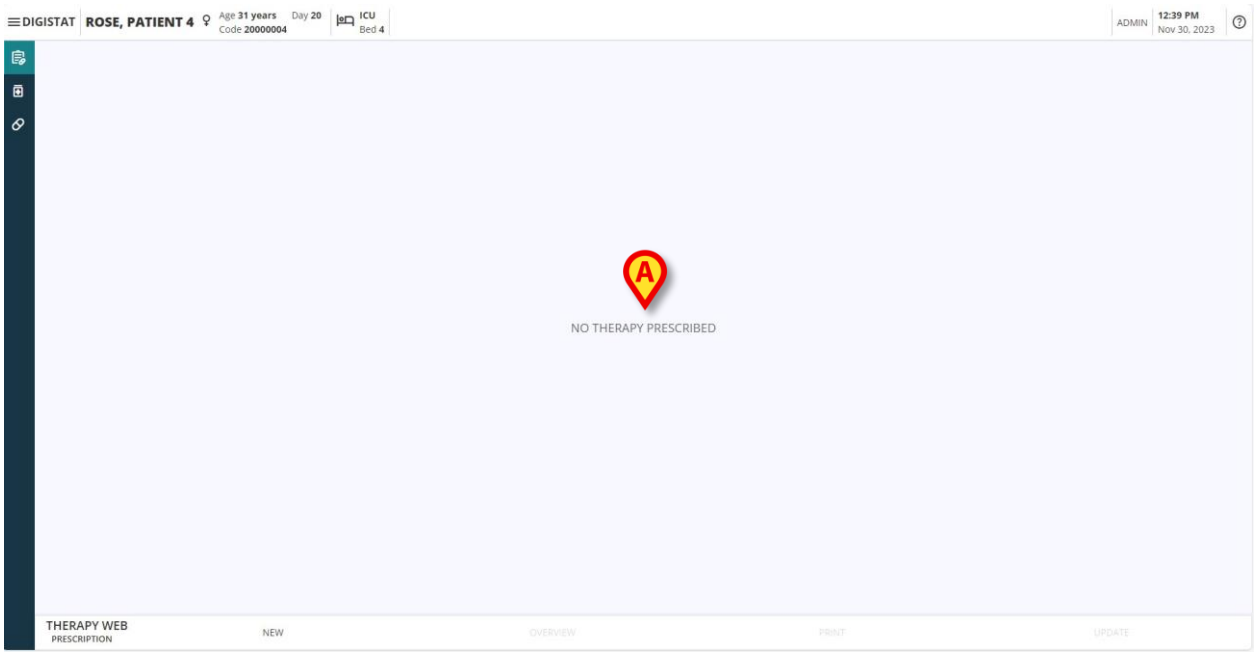

Fig 7

When a patient does not have any prescribed therapy, the page is empty and the message “**No Therapy Prescribed**” (Fig 7 **A**) is displayed in the central part of the page.

If some therapies have been prescribed, the patient’s therapeutic plan is shown and the treatments listed in the central part of the page (Fig 8 **A**), together with information on their modes of administration, dosages, schedule, and status.

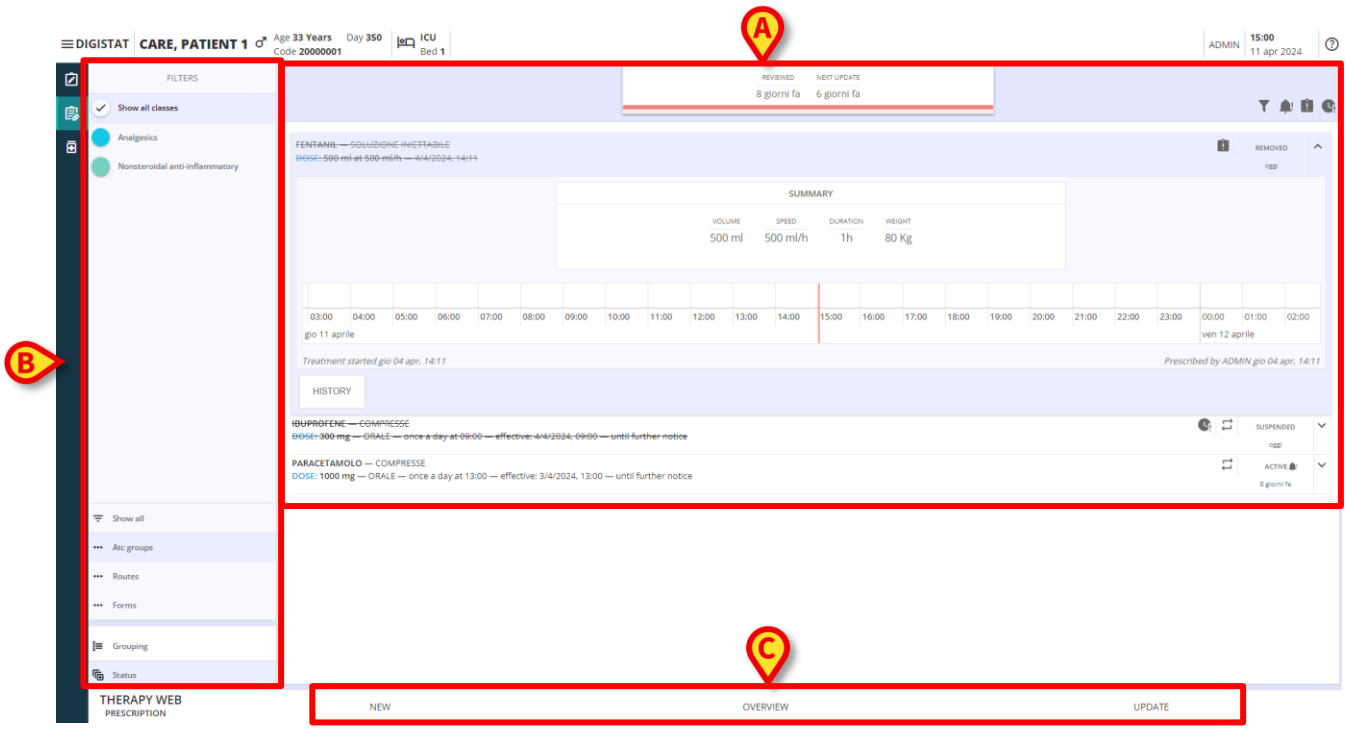

Fig 8

Each row in the list corresponds to a treatment prescription and the prescriptions are managed and displayed according to the user preferences.

The **name** of the administered drug/product name, together with information on its **mode of administration**, **dosages** (first element displayed on the second row of the prescription string) with **solution speed/amount/volume information**, **routes of administration/infusion** (if present) and **scheduling** (date and time) of prescribed order/s are displayed on each prescription row.

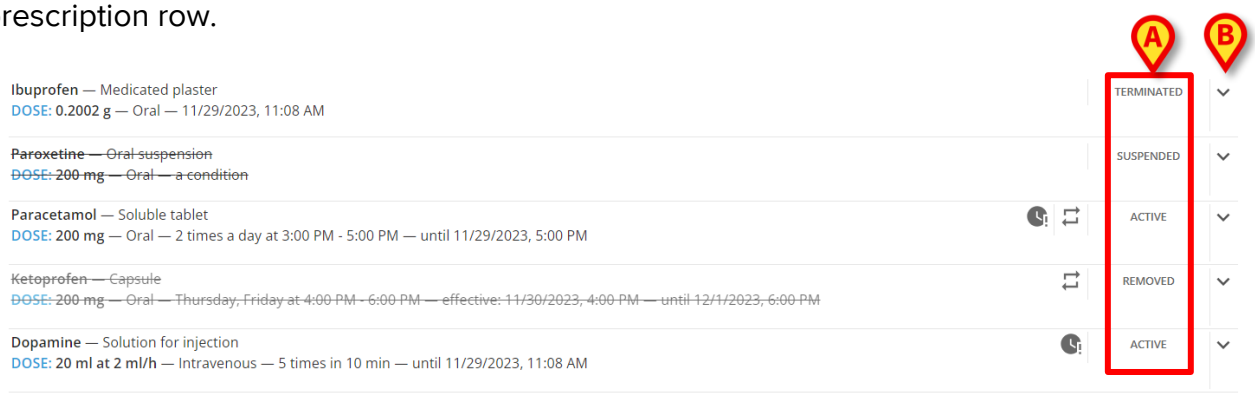

Fig 9

The **status** of each prescription is displayed on the right part of the prescription row (Fig 9 **A**).

The following statuses can be retrieved and shown:

- **Active** (enabled by default);
- **Suspended;**
- **Removed;**
- **Terminated.**

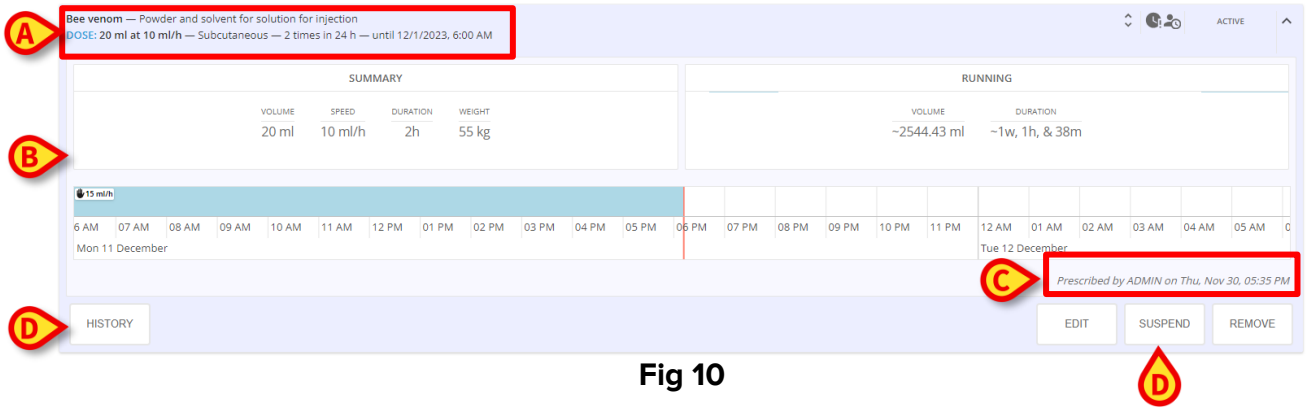

Fig 10

A down-arrow button (Fig 9 **B**) is available to expand a **detailed section** where a summary (Fig 10 **A**) of the treatment and its prescription values (amount, volume, speed, duration, patient weight), as well as information on the ongoing therapy and prescribed scheduling are shown (Fig 10 **B**). Information on the **user** who created and saved the prescription together with the **date-time** the prescription was last modified is also provided (Fig 10 **C**). Finally, several buttons are available depending on the current status of the prescriptions (Fig 10 **D**).

By default, on an active prescription, the following buttons are provided:

- **History**: to access the prescription history information;
- **Edit**: to edit the prescription;
- **Suspend**: to temporarily stop the prescription;
- **Remove**: to permanently remove the prescription (it cannot be resumed).

4.3. History

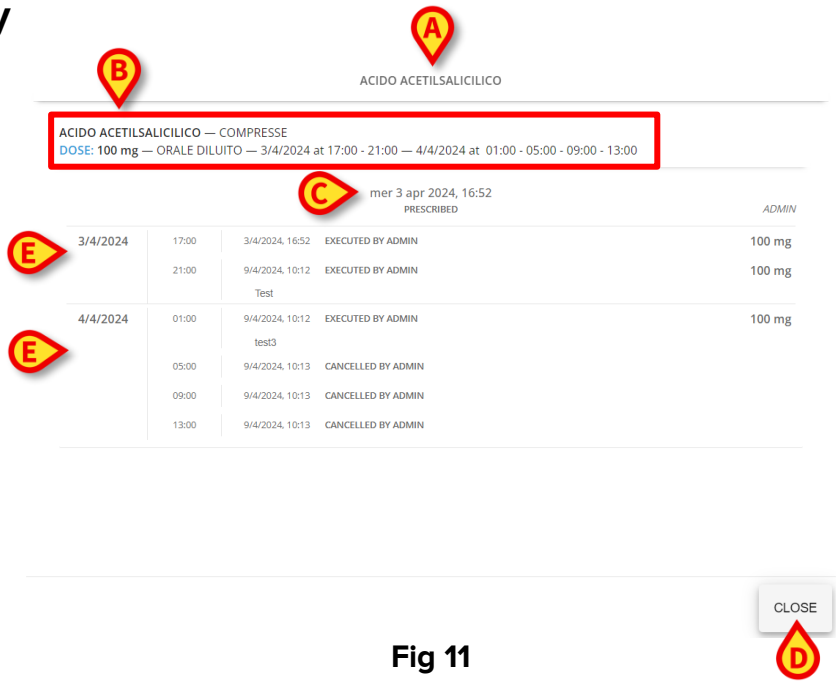

Fig 11

Clicking the **History** button, a modal window opens (Fig 11) and the prescription module in the background is dimmed.

The **name of the treatment/drug** is placed on the window header (Fig 11 **A**), then the prescription string (or prescription strings if the prescription has been modified) is shown (Fig 11 **B**).

Date and time of the prescription creation is retrieved together with the username of the user who created the prescription (Fig 11 **C**).

The button **Close** (Fig 11 **D**) is present in the right-bottom part of the window to close the History view.

Sections for each treatment day of the selected prescription are displayed and the actions performed on the prescription are recorded, listed, and grouped by the date on which they were performed (Fig 11 **E**).

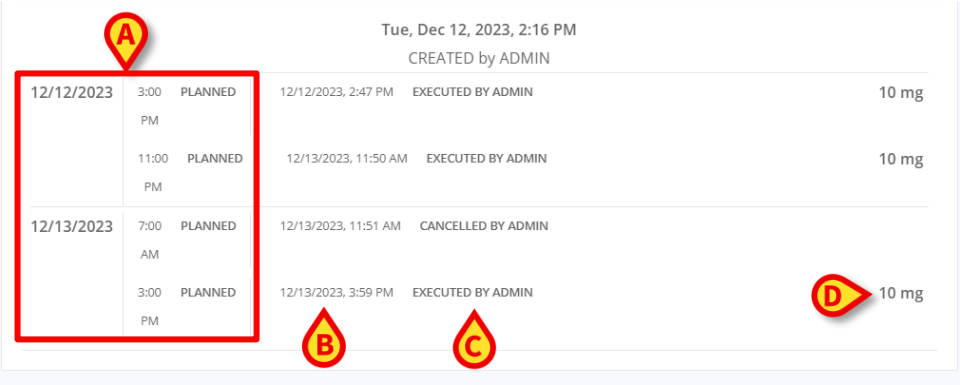

Fig 12

Each section contains:

- Date and time of originally planned administrations (Fig 12 **A**);
- Date and time of the performed actions on the prescription orders (Fig 12 **B**);
- The action performed and the name of the user who performed it (Fig 12 **C**);
- The dosage of the administrated prescription order (Fig 12 **D**).

4.4. Edit a prescribed treatment

Fig 13

Clicking on the **Edit** button (Fig 13 **A**), the **Edit window** of the selected prescription is displayed.

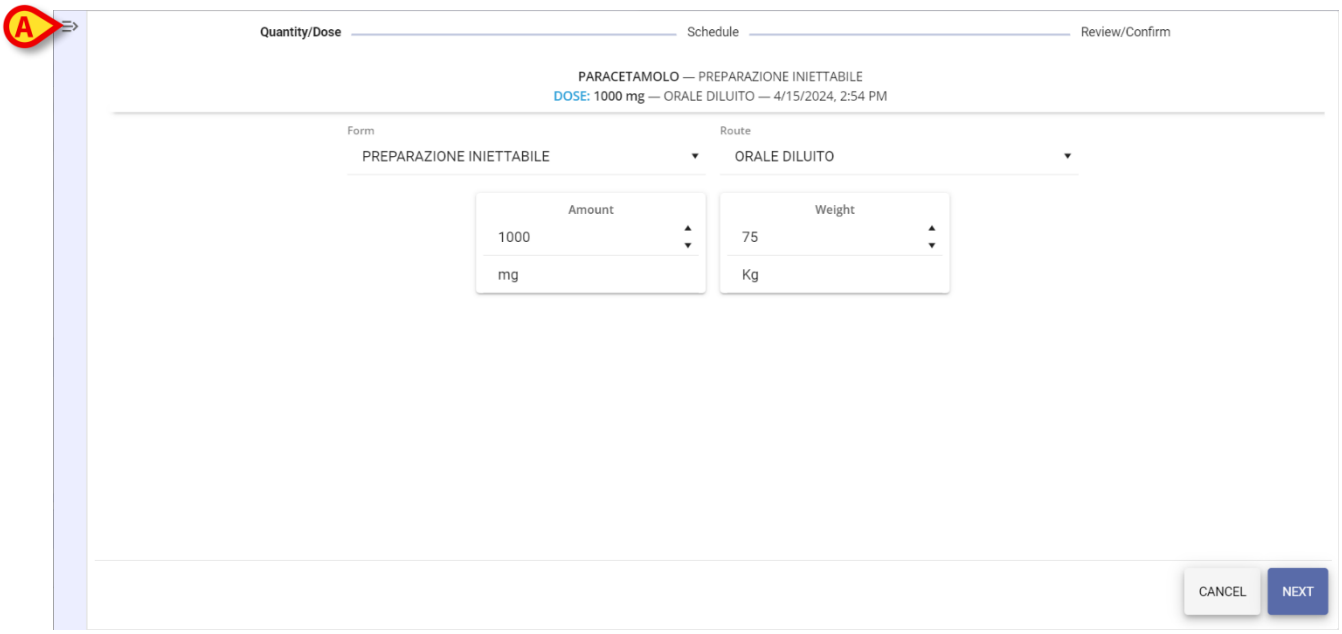

Fig 14

The Edit window opens on the **Quantity/Dose** step (Fig 15 **E**) that will be described later on in paragraph 4.14.1.
On the left, a lilac bar with a button is provided to expand a section (Fig 14 **A**), which is compressed by default, containing therapy information.

- Click on the available button to expand the section.

Fig 15

On the left, the section opens, and it consists of two parts:

- The **Current Therapy** portion (Fig 15 **A**) containing all the prescriptions created and associated to the selected patient (including the selected to be edited one) and
- the **History** portion (Fig 15 **B**), containing a history summary of the actions performed on the selected prescription.

Both cannot be modified, and they appear in read only mode.

The originally **prescribed values**, **form** and **route of administration** are retrieved and shown. It is not possible to change the form and the route of administration, but only the prescribed values (Fig 15 **C**). It is not possible to change the units of measure originally set. To edit the values:

- Replace the values to be changed by overwriting the new value or by using the up and down arrows to increase or decrease the original value by one unit at a time.
- Click the **NEXT** button (Fig 15 **D**) to move to the **Schedule** step (Fig 15 **F**). Some modifications on the schedule settings can be performed but it is not possible to opt for a totally different schedule and change it. More information on prescription scheduling will be provided in paragraph 4.14.2.
- Click the **NEXT** button to move to the **Review/Confirm** final step (Fig 15 **G**). The summary is provided, and it shows the edited values. A note field is given to enter a note to the Editing procedure. More information on prescription Review step will be provided in paragraph 4.14.3.
- Click the **Update** button to save the edited prescription and update it accordingly or on **Cancel** button to abort the editing procedure.

It is also possible to click on **Back** button to go back to **Schedule** and **Quantity/Dose** step.

4.5. Suspend a prescribed treatment

To suspend a prescribed treatment:

- Click the **Suspend** button.

A popup appears asking the user to confirm the action.

Fig 16

Once the prescription of the selected treatment is stopped, it disappears from the list displayed on the main page or, in case the suspended prescription are not filtered out (see paragraph 4.11.4), the entire prescription string appears in strikethrough font (Fig 16 **A**) and the **Status** is set to "**Suspended**" (Fig 16 **B**).

Fig 17

Exploding the suspended prescription row again, the **Resume** button (Fig 17 **A**) is present instead of the **Edit** and **Suspend** ones. To resume the administration of the prescribed treatment:

- Click on the **Resume** button provided.

4.6. Remove a prescribed treatment

To remove an administered treatment:

- Click the **Remove** button.

A popup appears asking the user to confirm the action.

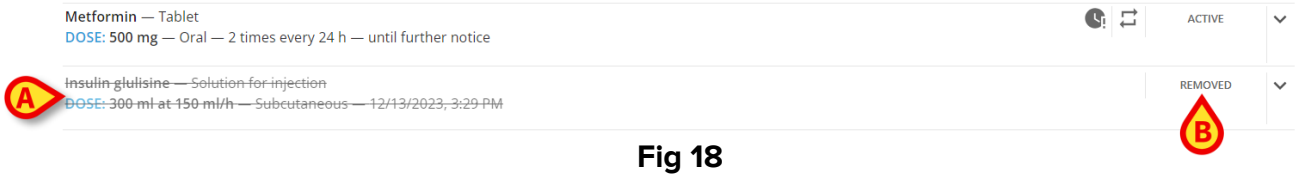

Fig 18

Once the prescription of the selected treatment is removed, it disappears from the list displayed on the main page or, in case the removed prescription are not filtered out (see paragraph 4.11.4), the entire prescription string appears crossed out and written in light grey characters (Fig 18 **A**), and the **Status** is set to "**Removed**" (Fig 18 **B**).

4.7. Skip or Execute an expired prescribed order

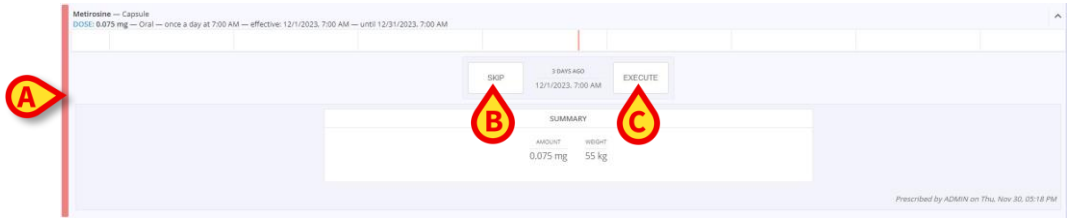

Fig 19

When a prescription contains an expired order, which has not been administered according to the established treatment plan, the prescription is highlighted with a red colored bar (Fig 19 **A**). Exploding the prescription row, two buttons are provided:

- **Skip** button (Fig 19 **B**) to skip the administration of the expired treatment or

- **Execute** button (Fig 19 **C**) to execute the administration immediately.

For the administration to be successful, it is essential to enter a note justifying the delay in execution.

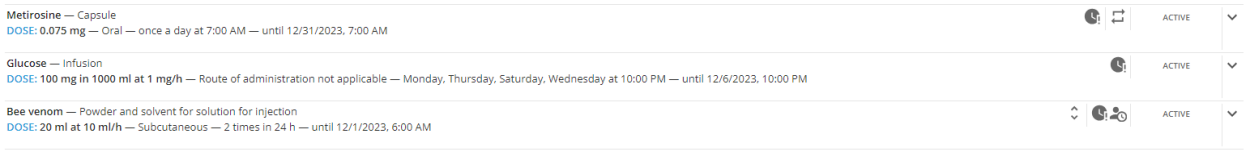

Fig 20

4.8. Prescribe changes to a running administration

It is possible to prescribe changes or to generate a “Stop” order to durative administrations while they are running (see sections 3.3 and 5.3 for the description of durative administrations).

To do that:

- ➢ Click the row of the prescription that generated the order for the running administration.

The prescription row enlarges to display the prescription buttons, summary, administration values and chart (Fig 21).

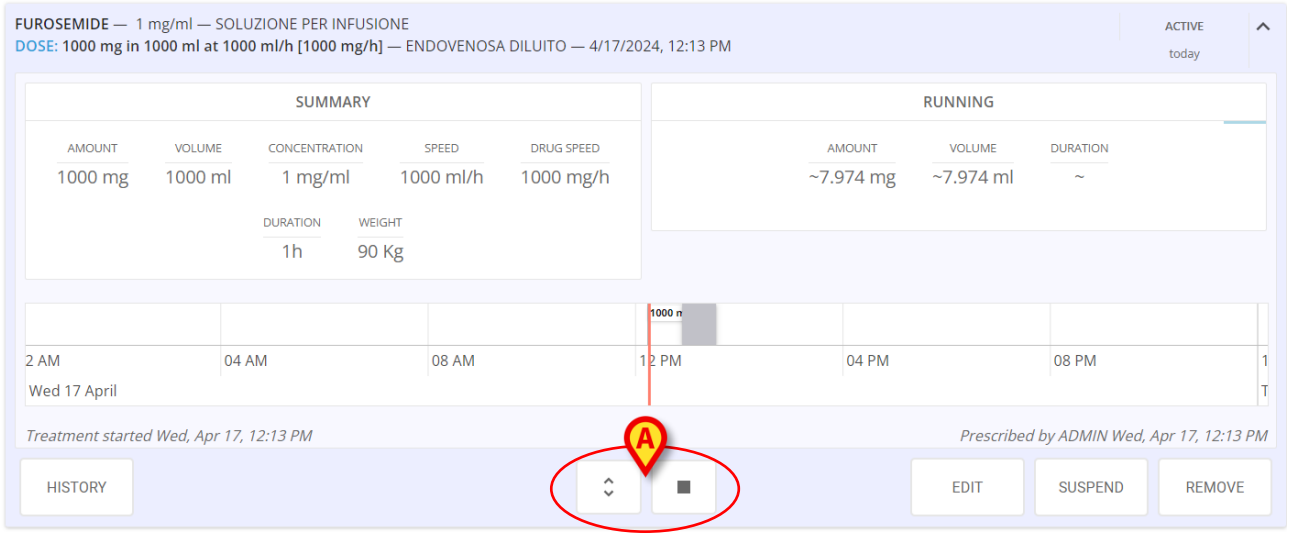

Fig 21

Two additional buttons are on the window (Fig 21 **A**).

“Change” order

- ➢ Click the ⇕ button to prescribe a change to the current administration values.

The following window is displayed (Fig 22).

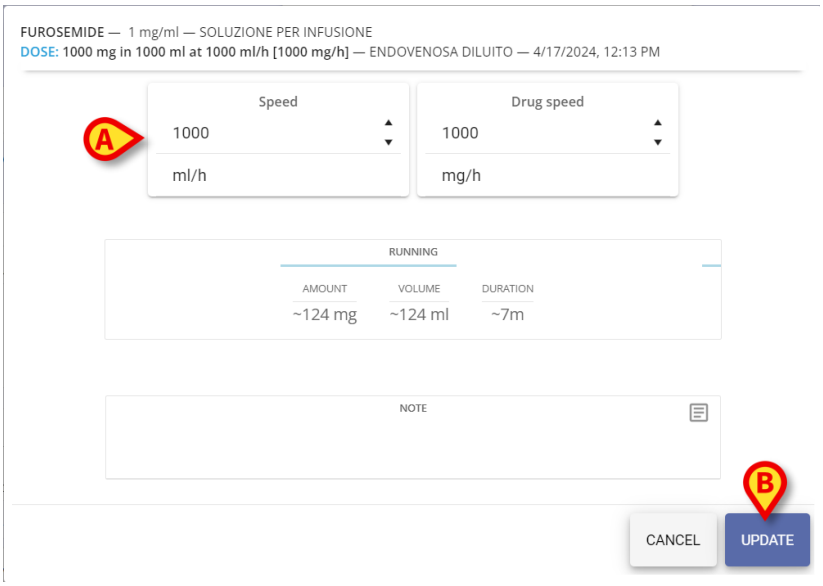

Fig 22

- Change the administration speed or drug speed (Fig 22 **A**).
- Click the **Update** button (Fig 22 **B**).

A “Change” order is generated on the Therapy Execution module. This case is described in paragraph 5.5.7.

“Stop” order

- Click the ■ button to prescribe to stop the current administration.

The following window is displayed (Fig 23).

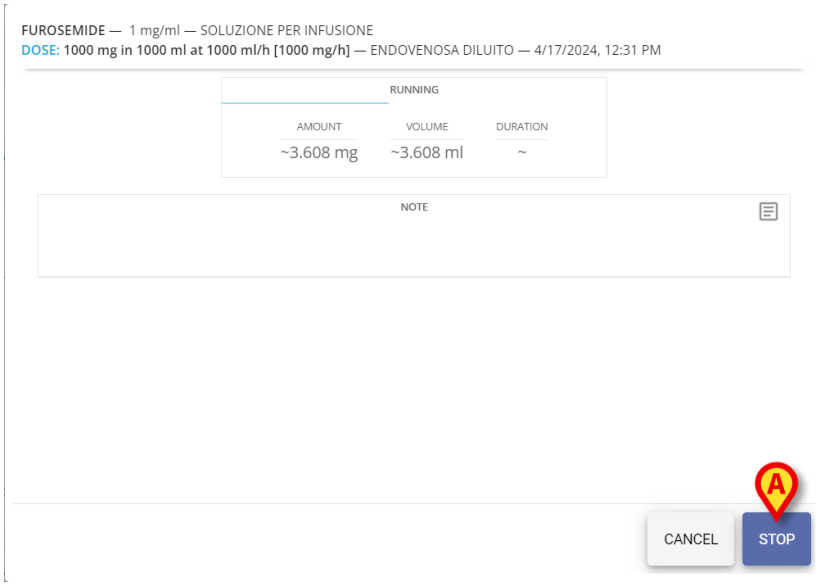

Fig 23

- Click the **Stop** button (Fig 23 **A**).

A “Stop” order is generated on the Therapy Execution module. This case is described in paragraph 5.5.7.

*The buttons indicated in Fig 21 **A**, - and - generate a “Change” or “Stop” order that refers to the current running administration. The **EDIT** button, described in paragraph 4.4, changes the values of the overall prescription and generates a new set of orders aligned to the updated values.*

4.9. Indicators on prescriptions

Finally, different icons/indicators can be displayed next to the status label, which can indicate:

- the current prescription **status** related to the prescription itself (like the **repeated** schedule), the orders, the active infusion (if any);
- if the prescribed drug has interactions with other drugs prescribed within the same treatment plan ;
- if the prescribed drug is allergic to the patient, as indicated in the patient's file ;
- if the treatment was prescribed urgently and the chosen scheduling was "Emergency" ;
- changes in the **patient weight** : if the patient weight set in the prescription does not match with the one retrieved from the system the **scale icon** is displayed;
- differences between:
    - the prescription of a drug and its administration in time (**execution clinical time changed** or **administration time outside of the prescribed range**) or
    - the **dose values administered** or the **infusion values administered** and the values originally prescribed.

4.10. Therapy Cycle

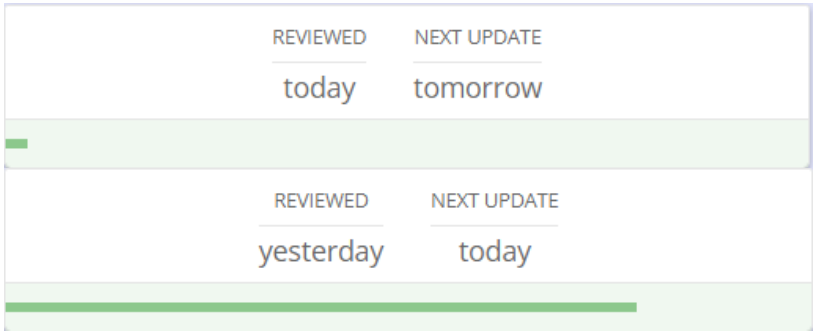

Fig 24

On the central part of the page, on top of the prescription list, the **therapy cycle status box** is provided, with updated information on the date of the last therapy review and on the next update due. A green horizontal bar is available indicating the progress of the current therapy. The size of the bar grows proportionally to the elapsed therapy time.

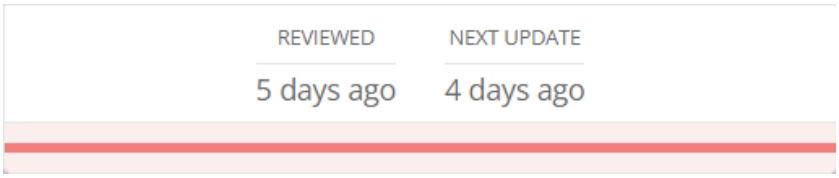

Fig 25

Once the therapy has expired, the completion tracking bar turns red.

4.11. Filters

The created prescriptions can be filtered using different provided filters and combinations of those available filters. On the left part of the page, the filters section is provided (Fig 8 **A**).

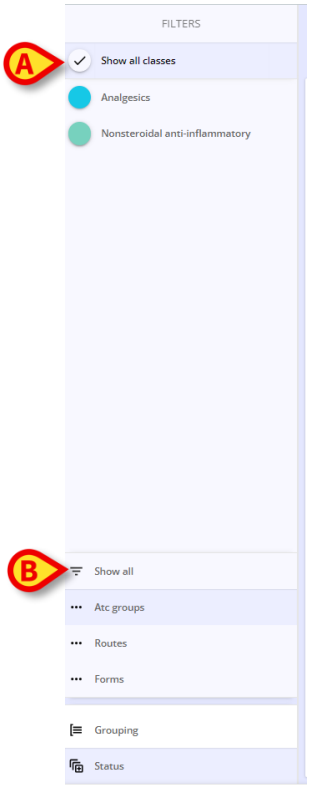

Fig 26

The “**Show all classes**” (Fig 26 **A**) and “**Show all**” (Fig 26 **B**) buttons are selected by default, and they can be also used to remove all the filters applied. This way, all prescriptions are displayed in the central part of the prescription view. When corresponding filters are selected, the "Show All" and "All ATC Groups" buttons are automatically deselected.

4.11.1. Filters - Categories

Each treatment can be associated to a single class (the therapies can be grouped under a customizable number of classes) and to one or multiple routes of administration and forms by configuration. So, it is possible to filter the treatments by their **Category**, **Routes** and **Forms**. Moreover, it is possible to filter the treatments by their **Status**.

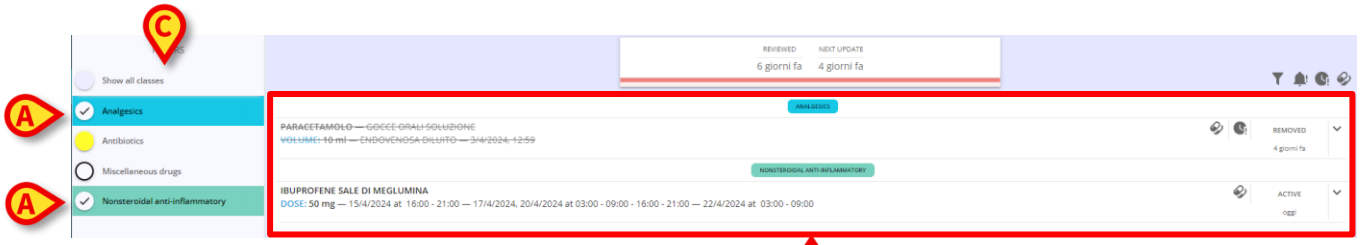

Fig 27

A button is provided for each class. To filter the treatments according to their Class:

- Click on a colored button corresponding to a class (Fig 27 **A**) to display on the central screen only those treatments corresponding to that class (Fig 27 **B**).

It is possible to select one or more classes: the treatments associated to those classes will be all displayed. Once selected, the buttons are highlighted, and a check mark symbol appears in the radio button provided for each class.

- Click a second time to deselect the selected class.
- Click on the "Show all classes" button (Fig 27 **C**) to display all prescribed treatments belonging to all available classes.

Only the classes to which the actual prescribed treatments belong are displayed in the filter section and not all available and configured ones.

4.11.2. Filters - Routes

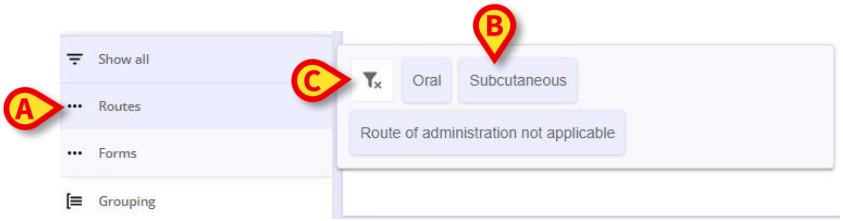

Fig 28

It is also possible to filter the prescribed treatments according to their **Routes** of administration:

- Click on **Routes** filter button (Fig 28 **A**) to open the menu where available routes (only those configured for the prescribed therapies) are collected and can be selected (Fig 28 **B**).
- Select one or more routes.

Prescribed treatments are filtered on the page according to the selected routes.

- Click on the **funnel** button provided (Fig 28 **C**) to remove the applied filter/s.

The list of routes configured and present in all prescriptions associated with the selected patient and only those routes (not all possible routes) is displayed.

4.11.3. Filters - Forms

Fig 29

It is possible to filter the prescribed treatments according to their **Forms**:

- Click on **Forms** filter button (Fig 29 **A**) to open the menu where available forms (only those configured and selected for the prescribed therapies) are collected and can be selected (Fig 29 **B**).
- Select one or more forms. Prescribed treatments are filtered on the page according to the selected forms.
- Click on the **funnel** button provided (Fig 29 **C**) to remove all the applied filters.

The list of forms configured and present in all prescriptions associated with the selected patient and only those forms (not all possible forms) is displayed.

4.11.4. Filters - Status

It is possible to filter the prescribed treatments according to their changing **Status**:

- Click on **Status** filter to open the menu where available actual statuses can be selected. The following prescription statuses can be displayed:
  - **Active**, that is selected by default;
  - **Suspended** (only if there are suspended prescriptions in the treatment list/plan);
  - **Removed** (only if there are removed prescriptions in the treatment list/plan);

- Select one or more statuses.

Prescribed treatments are filtered on the page according to the selected statuses.

- Click on the **funnel** button provided to remove all the applied filters.

4.12. Grouping

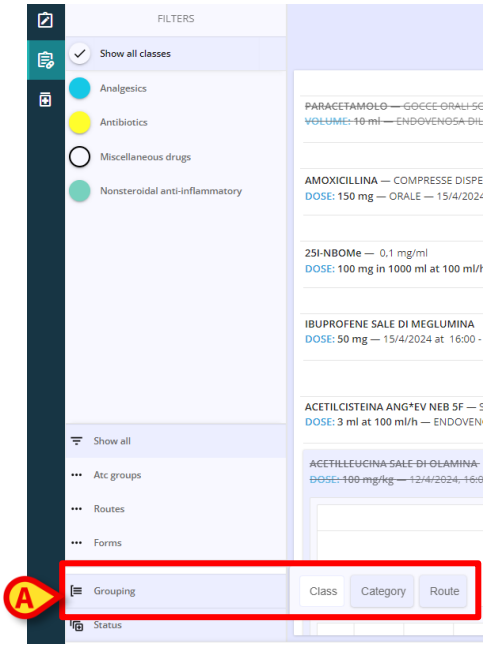

Fig 30

It is possible not only to filter but also to group the treatments on the main screen.

- Click on the **Grouping** button (Fig 30 **A**) and then choose between the three available options:

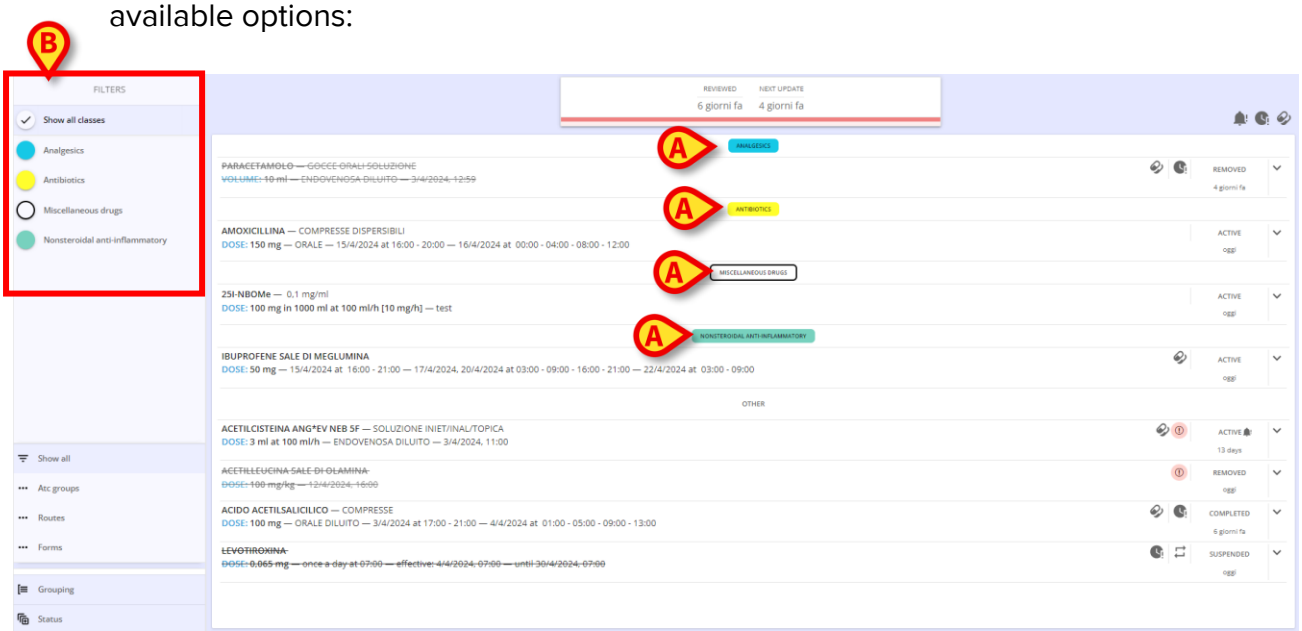

Fig 31

- **Class**: to group treatments according to their classes. Treatments are collected in different sections - as numerous as the classes of treatments prescribed - under colored labels (Fig 31 **A**) whose colors coincide with those assigned by configuration to the classes and which are also visible in the "Filters" section (Fig 31 **B**);
- **Category**: to group treatments according to their categories;
- **Route**: to group treatments according to their routes.

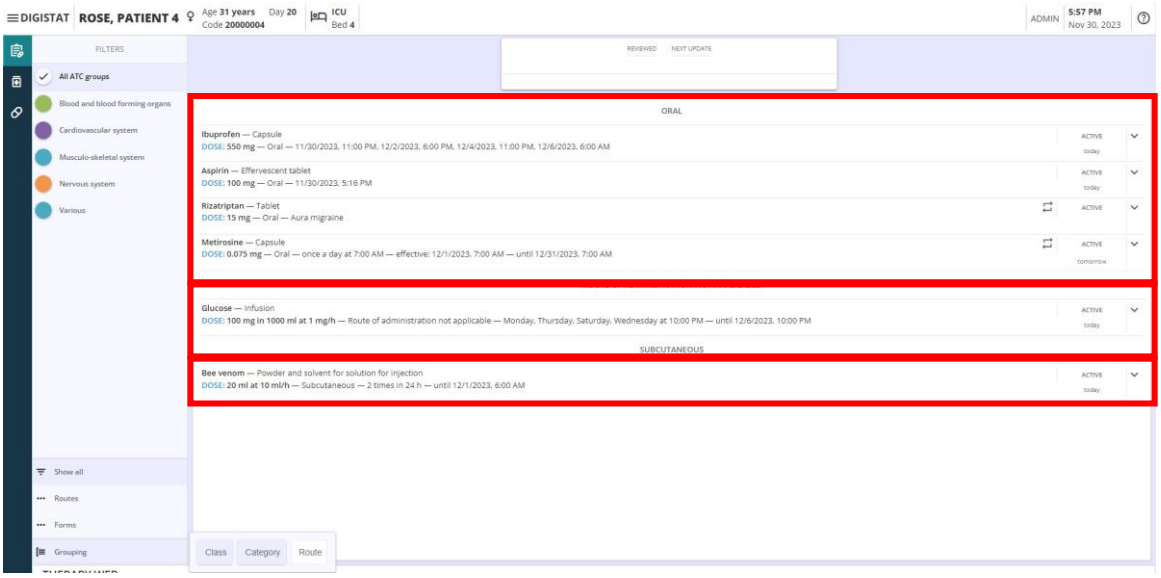

Fig 32

In the example provided in Fig 32 the Grouping option "**Route**" is chosen. As a result, the prescribed treatments are grouped according to their route of administration into three different lists, indicated by the name of the route configured for each of them (also missing or unspecified route options are available).

4.13. Command Bar – Action buttons

Fig 33

A command bar is available at the bottom part of the page (Fig 8 **C**), and it contains three buttons:

- **NEW** (Fig 33 **A**): to start the creation of a new prescription for the selected patient;
- **OVERVIEW** (Fig 33 **B**): to open a calendar time plan or a summary view;
- **UPDATE** (Fig 33 **C**): to open a therapy review window and update the treatment plan.

4.14. Create a New Prescription

To create a new prescription for the selected patient:

➢ Click on **NEW** button (Fig 33 **A**).

A modal window is opened (Fig 34), and it contains two sections:

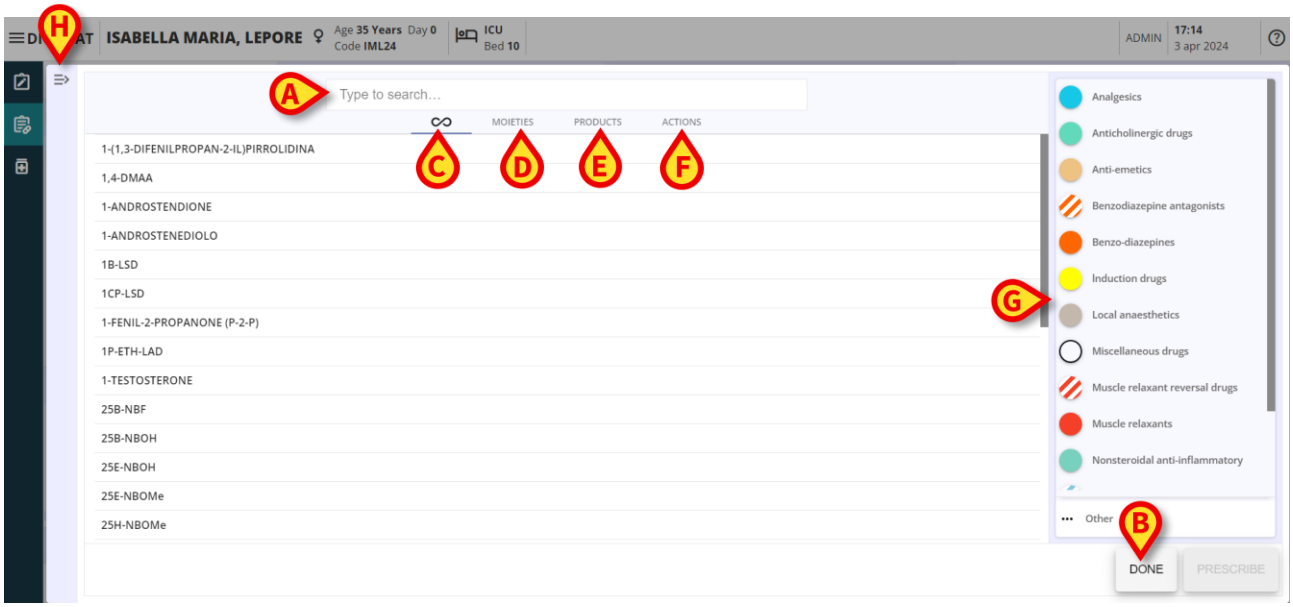

Fig 34

- On the central section of the window, a search bar (Fig 34 **A**) on top of the page to search for the treatments to be prescribed, a **DONE** button (Fig 34 **B**) to close the window and four tabs are provided:
  - **All** (Fig 34 **C**) tab;
  - **Moieties** tab (Fig 34 **D**);
  - **Products** tab (Fig 34 **E**);
  - **Actions** tab (Fig 34 **F**).

The tab selected by default depends on a configuration option (*DefaultCatalogSearchLevel* System Option – See the document DSO ENG System Option for more information).

- On the right side of the window (Fig 34 **G** filters are given to select treatments - moieties, products, and actions - by configured class. Select one or more filters to display on the central page only treatments belonging to the selected classes. Click on **Other** to select additional configured filters, , like **Categories** ones.

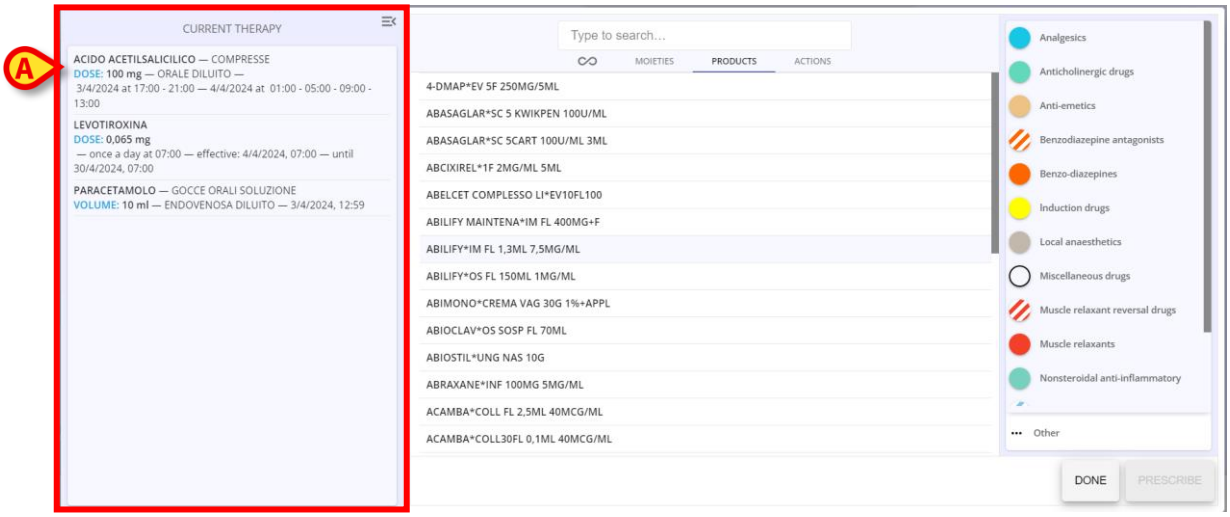

Fig 35

- On the left, the current therapy for the patient can be shown clicking on the provided button to expand the section (Fig 34 **H**) and it contains the list of already prescribed treatments for the selected patient, and all the information on their forms and routes of infusions, dosages, and schedule (Fig 35 **A**).

If no therapy has been prescribed yet, the section will be blank.

Fig 36

If a therapy has already been prescribed and it selected a second time (because it needs to be re-prescribed by emergency or administered in an alternative way or with a different scheduling), the history tab, containing the history of prescription and administration of the therapy, will be displayed below the tab containing the current therapy. The possibility to prescribe the same therapy does not generate any warnings.

4.14.1. New Prescription – Active Moieties Quantity/Dose step

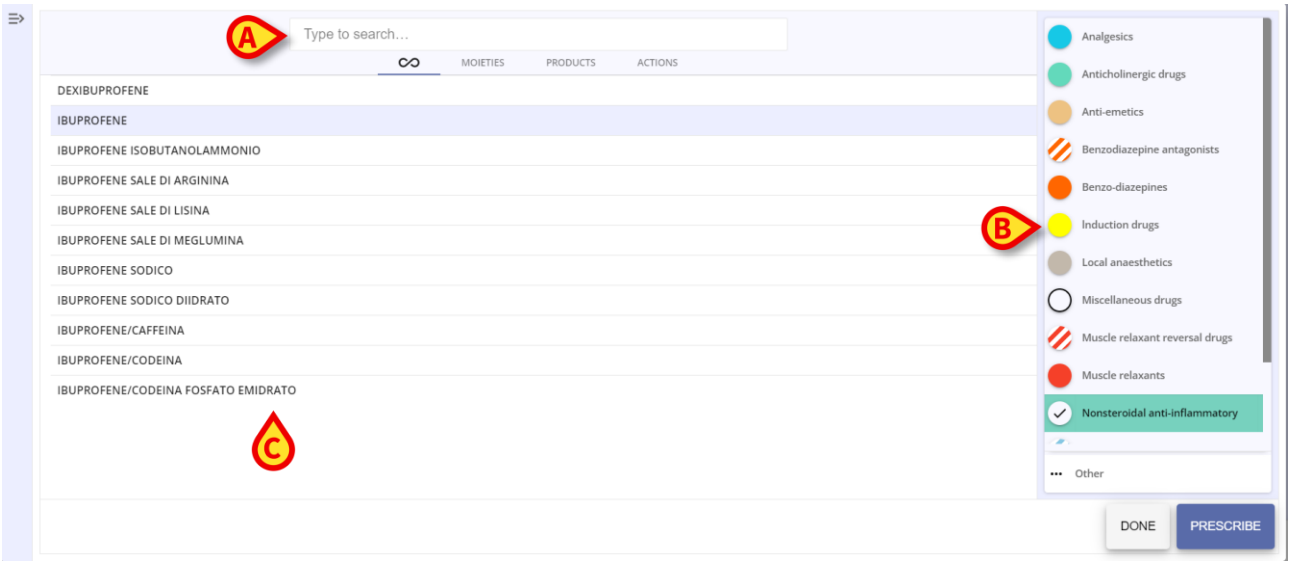

Fig 37

To create a new prescription with a single active **Moiety**:

- Search for an active Moiety by entering its name (partially or in full) in the search bar (Fig 37 **A**) or use the class filters on the right (Fig 37 **B**). The resulting active moiety/ies are displayed in the central results section (Fig 37 **C**). If only **Moieties** are to be prescribed and we want to avoid retrieving **Products** and **Actions**, select the **Moieties** tab and perform the searches and filterings within it.
- Double-click on a treatment to be prescribed or select the treatment and then click on **Prescribe** button.
- To abort the procedure click on **Done** button.

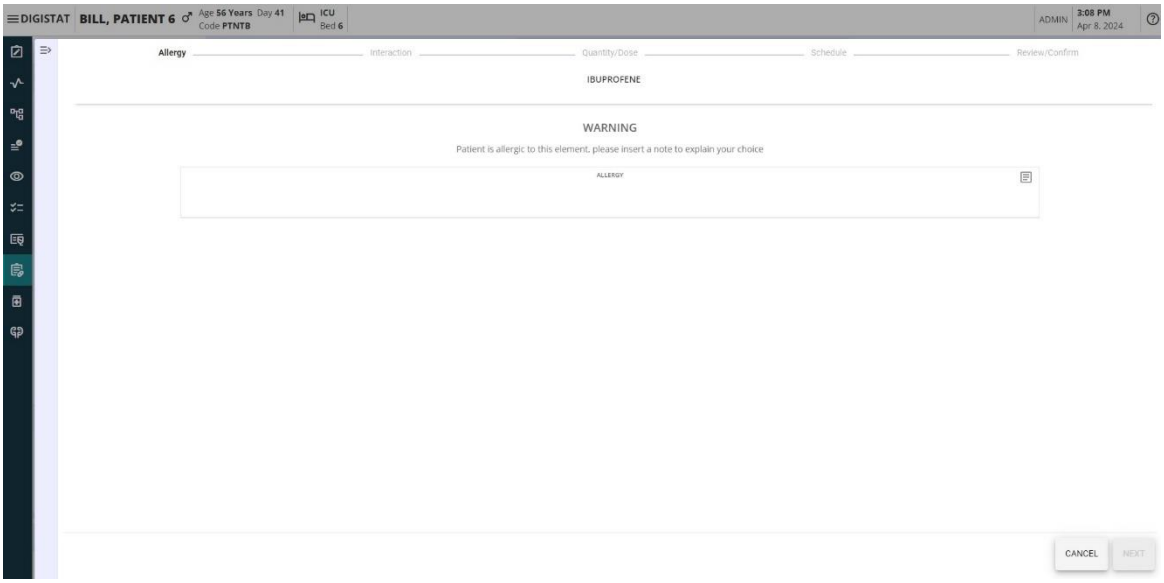

Fig 38

If allergies to certain drugs are listed in the patient's file and the source is correctly configured (the patient's file can be set as source file setting the **AllergySource** system option to 1), once the drug to be prescribed is chosen, the first screen displayed is the **Allergy** screen. A warning is displayed indicating that the patient is allergic to that medication and that a note must be entered to justify the choice. Entering the note is mandatory, otherwise the user cannot click the **Next** button - which remains disabled - and continue with the prescription.

- Enter a note in the **Allergy** text field and click on **Next** button to complete the prescription.

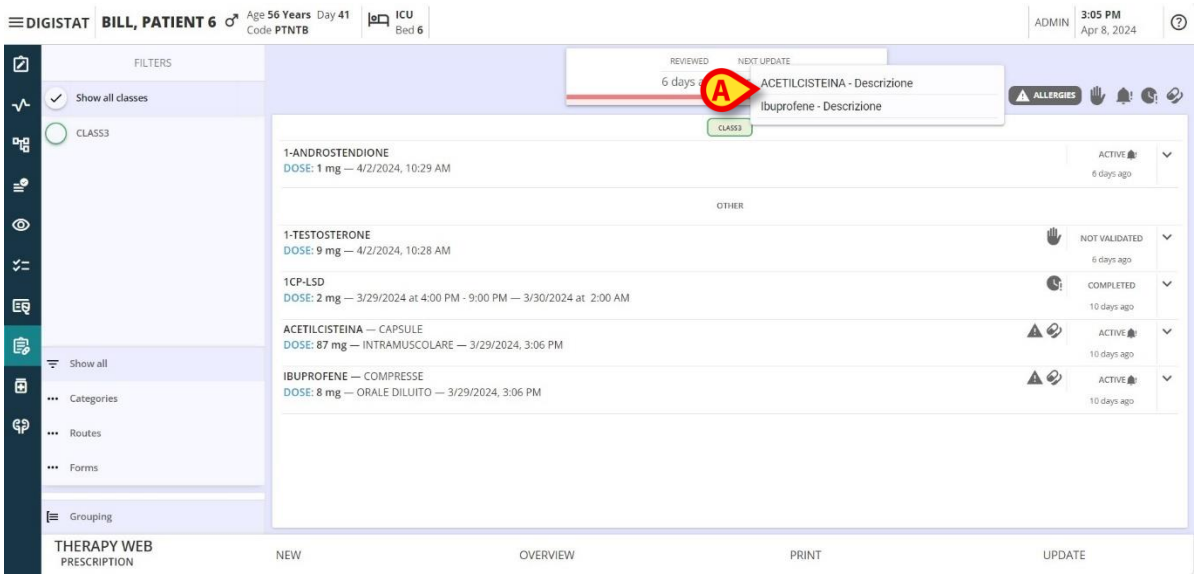

Fig 39

Thus, if a therapy containing an allergic medication is prescribed to the patient, a warning is displayed on the right of the central screen of the **Prescription** page. By hovering the cursor over it, the drug(s) to which the patient is allergic are displayed one above the other as in the example shown in Fig 39 **A**.

Fig 40

Allergies listed in the patient's file can be ignored if the system option **AllergyMode** is set to 0 – False. If it is set to 1 - True, it is mandatory that possible allergies be listed, otherwise, when landing on the first prescription page of a treatment, the message Warning: "Missing Allergies Information" is retrieved (Fig 40).

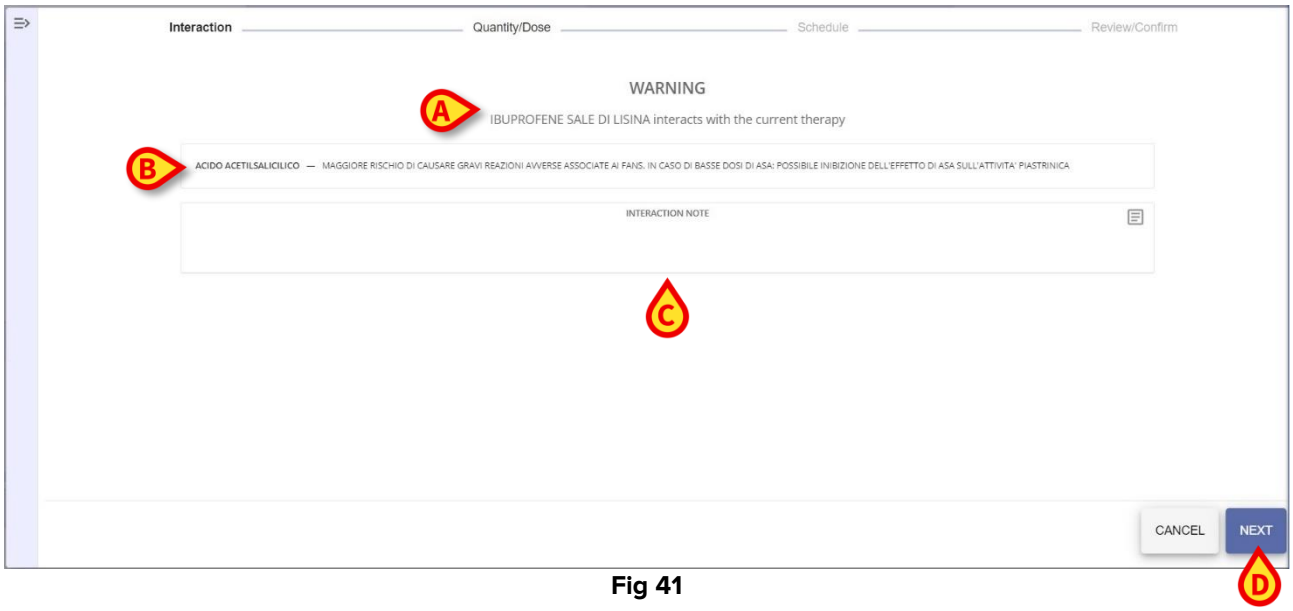

Fig 41

In case one drug or treatment interacts with others, the first step of the prescription opens to the **Interaction** view (Fig 41): a warning is displayed (Fig 41 **A**) indicating that the chosen drug interacts with the current therapy. A configured section also appears in the center of the page (Fig 41 **B**) where further information about the risks and unwanted effects or possible effects of the interaction are provided. Then, before the quantity dose is selected, interaction notes can be entered in the text field provided (Fig 41 **C**). The note entry is not mandatory.

- Click on **Next** button (Fig 41 **D**) to proceed to the next step.

Fig 42

The **Quantity/Dose** step of the prescription workflow is shown (Fig 42), and the name of the selected active moiety is shown on top of the page (Fig 42 **A**). The **DOSE** is *null* by default, the unit of measure is displayed next to the label, and the default route is also displayed (Fig 42 **B**).

Two dropdown menus are provided to choose, respectively:

- The active moiety **Form** (Fig 42 **C**);
- The active moiety **Route** of administration (Fig 42 **D**).

Variable number of cards is available in the central part of the screen (Fig 42 **E**) according to the configuration properties and parameters set for each treatment/drug mode. Different properties are associated with the different prescription modes, that represent specific clinical flows and configurations related to a set of catalog items.

Fig 43

There can be moieties and products with a single mode of prescription (and then their properties and configuration sets are displayed directly on the treatment specification window) or with **multiple modes of prescription**. In the latter case, before configuring the properties, it is necessary to choose from the prescription modes, provided as clickable buttons (Fig 43 **A**).

Any active moiety or product can be configured as a prescribable treatment and has its own default parameters and values. Therefore, the appearance and features of the treatment specification window depend on the prescribed treatment.

The treatment can be configured to enable only one possible prescription mode. If this is the case the selection buttons shown in Fig 43 are not displayed and the specification window (Fig 42) is instead directly displayed.

The button **Cancel** (Fig 42 **F**) is provided and enabled while the **Next** button (Fig 42 **G**) is disabled and will be enabled once the Quantity/Dose section is filled and completed.

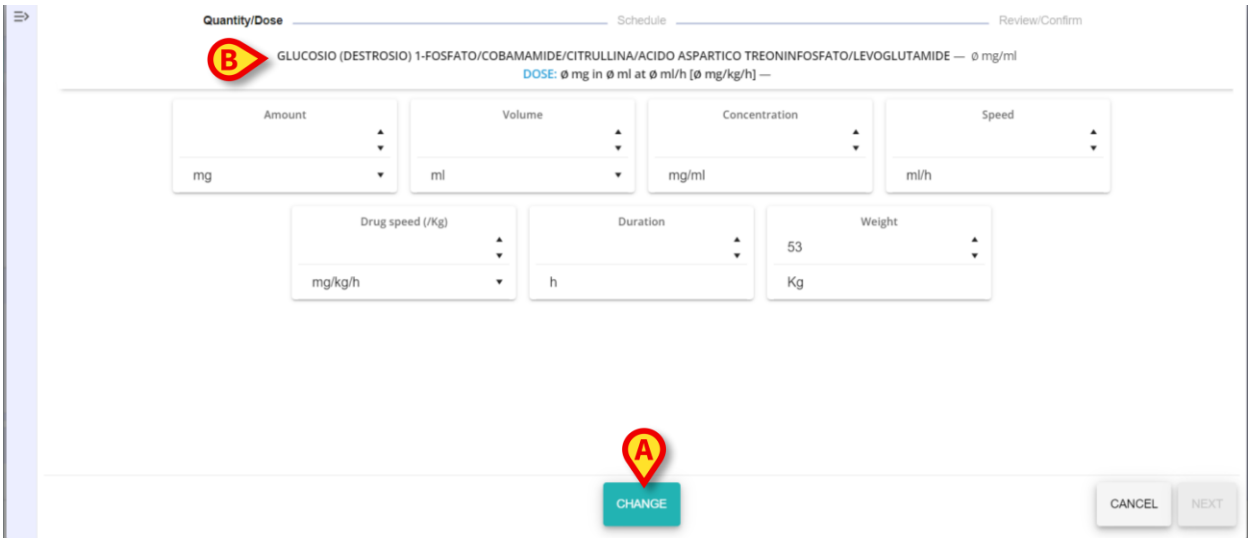

Fig 44

- Enter the desired values in the fields provided, either manually or by using the up and down arrows to increase or decrease the amount of value added by a unit.

When forms or routes are selected or the first values are entered into the available fields within the different cards, a blue **Change** button (Fig 44 **A**) appears. The **prescription script** (Fig 44 **B**) is filled in progressively with each choice and entry made.

Some configured fields are dependent on each other (e.g. Concentration, Amount and Volume or Volume, Speed and Duration). As a result, once a value is entered in two related fields, the corresponding value in the dependent field is automatically calculated.

By clicking **Change** button, the partial prescription string is reset, and the list of modes associated with the selected active moiety is displayed.

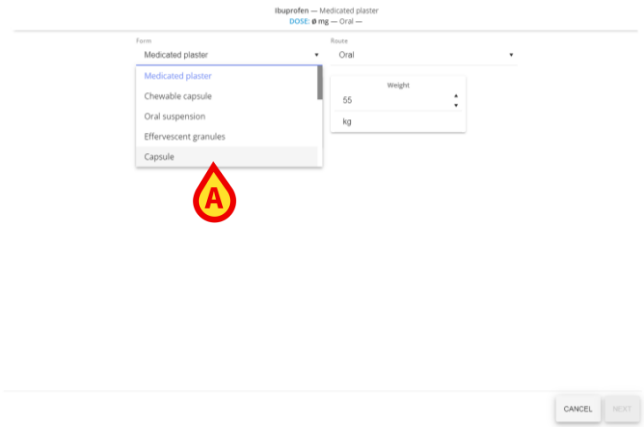

Fig 45

- Choose a **mode** or, if only one mode is available, select a **form** from the provided dropdown menu (Fig 45 **A**);

Fig 46

- Select a route of administration from the provided dropdown menu (Fig 46 **A**);
- Fill in the fields of all the available Quantity/Dose prescription properties cards;

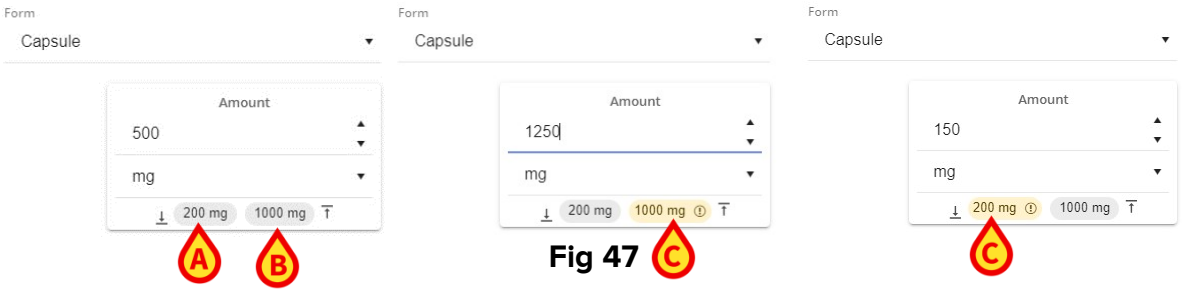

Fig 47

For some parameters, such as **Amount** in the examples shown above, **lower** (Fig 47 **A**) and **upper** (Fig 47 **B**) **limits** are given, indicated with the exact dosages and specific symbols. When the value entered in the provided field is greater or less than the configured limits, the value of the exceeded limit is highlighted in yellow (Fig 47 **C**). When the value entered is correctly within the given limits, no highlighting occurs. Entering a dose outside the suggested limits does not stop the prescription creation process, but a note must be entered at the **Review/Confirmation** stage to justify prescribing values outside the configured range.

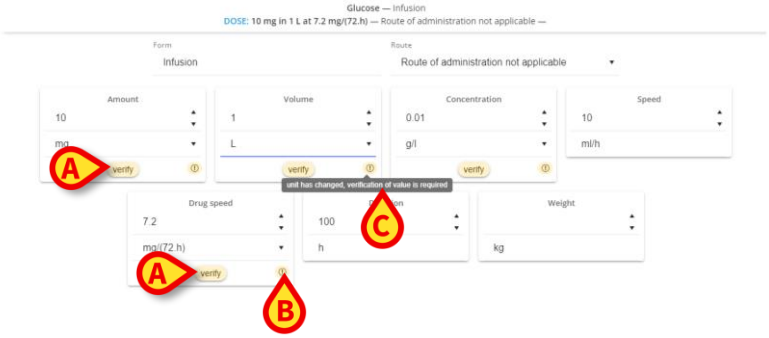

Fig 48

If an unexpected value is entered in some field, or the unit of measure is changed from the originally selected one (or from the default one), a **Verify** button (Fig 48 **A**) appears to confirm the inserted value. In addition, a yellow warning (Fig 48 **B**) is displayed at the bottom right of the card containing the value to be verified. Moving the cursor over the icon, a tooltip (Fig 48 **C**) appears warning the user about the "unexpected input, verification of the value is required".

To verify or validate the inserted value:

- Just click on the **Verify** button. The warning icon disappears.

In particular, if a value has been entered with a specific unit of measure, if that unit of measure is changed, the value originally entered is recalculated and modified according to the new unit of measure (e.g., if the value entered is 1 and the unit of measure is changed from g to mg, the new value will be 1000).

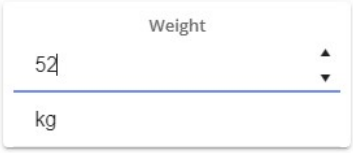

Fig 49

It is also possible to enter the weight of the patient (Fig 49).

- Click on **Next** button (Fig 44 **C**) to proceed to the **Schedule** step.

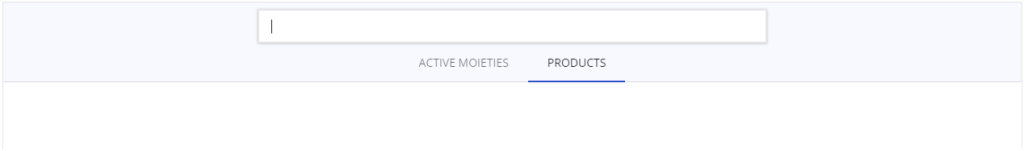

Fig 50

The procedure just described for creating a prescription from an active moiety can also be replicated for **Products** and **Actions**.

- Click on the "Products" or “Actions” Tab and search for the product by entering the name (partially or in full) in the search bar provided;
- Double click on the desired product/action;
- Proceed to configure and customize the treatment as previously described.
- Click on **Next** button to proceed to the **Schedule** step.

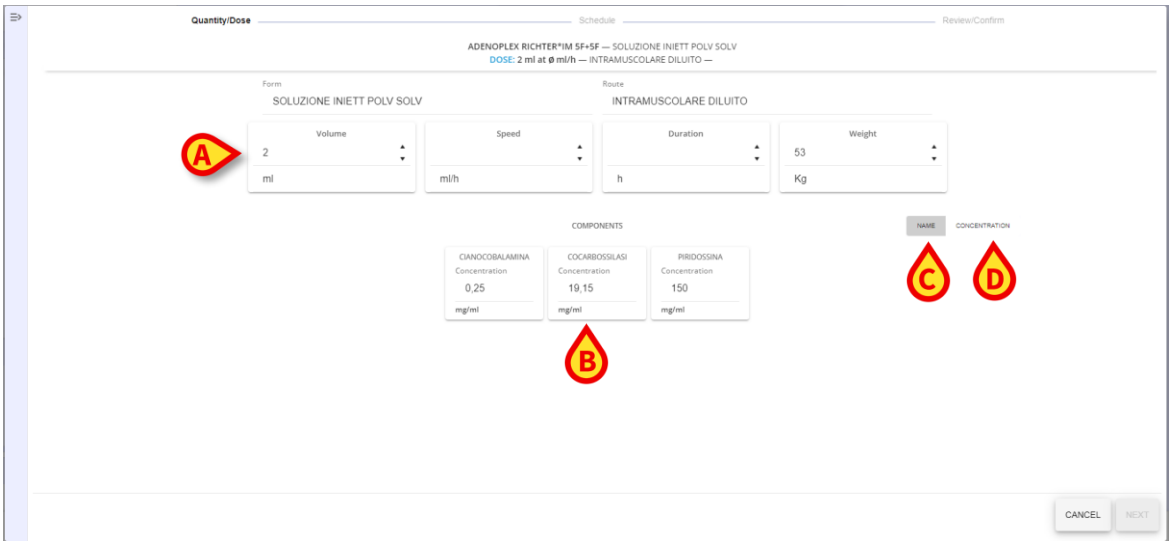

Fig 51

Regarding **Products**, the Quantity Dose section shows the parameters (Fig 51 **A**) to customize (their values may be present by default, but they can be edited) but also a **Components** section (Fig 51 **B**) with some concentration values already set by default and these values are not editable. They can also be sorted alphabetically by name by clicking on the **Name** button (Fig 51 **C**) or by decreasing concentration values, clicking on **Concentration** button (Fig 51 **D**).

4.14.2. New Prescription – Scheduling step

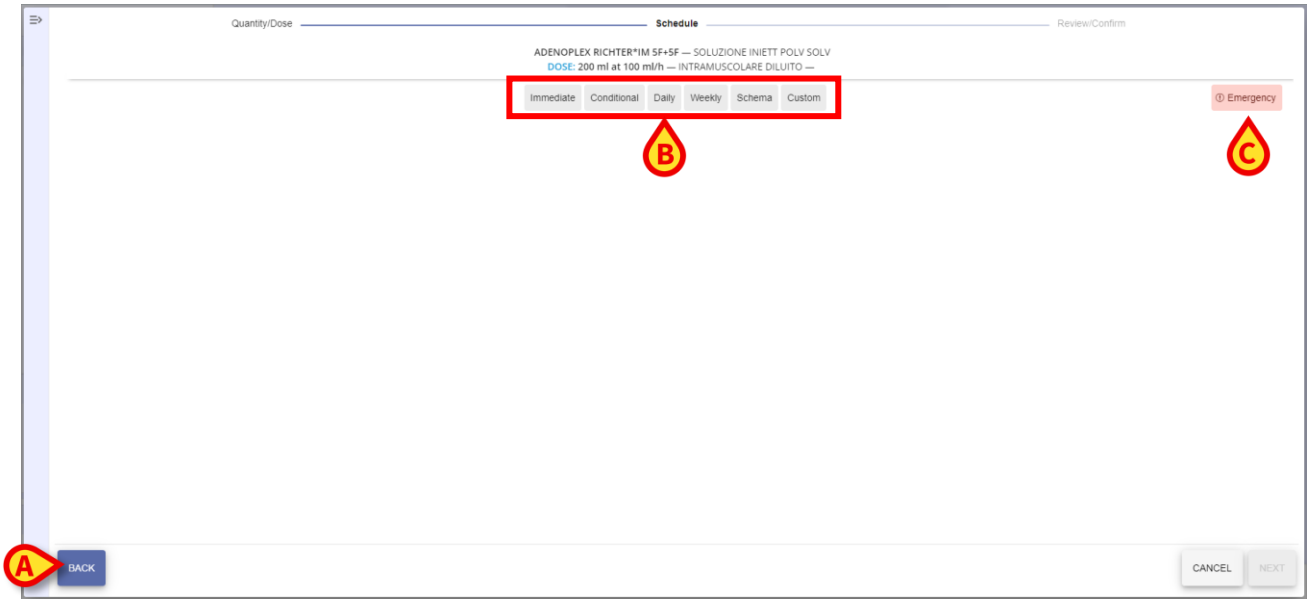

Fig 52

The page lands on the **Schedule** page and the blue **Back** button (Fig 52 **A**) is provided to go back to the previous step.

The list of six scheduling options presented as individual buttons is displayed (Fig 52 **B**). The following options are provided:

- **Immediate**: to immediately administer the prescribed treatment;
- **Conditional**: to administer the prescribed treatment only if certain conditions occur;
- **Daily**: to administer the prescribed treatment in one day, one or more times, at given times;
- **Weekly**: to administer the prescribed treatment on different days during a week, at given times;
- **Schema**: to administer treatment according to a fixed, user-defined pattern;
- **Custom**: to administer treatment according to a fully customizable schedule.
- **Emergency**: to administer an emergency executed treatment.

It is possible to set the automatic plan type selection (conditional, weekly, daily, schema etc...) by configuration. Once a treatment is selected, the corresponding window will automatically be displayed.

4.14.2.1. Schedule - Immediate

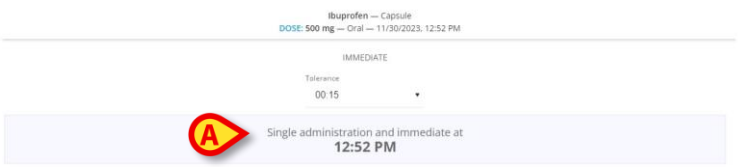

Fig 53

If the **Immediate** schedule is chosen, the treatment is immediately administered. The message “Single administration and immediate at” followed by the administration time (the current time when the **Immediate** scheduling option was selected) is displayed (Fig 53 **A**). No further configuration is required.

Fig 54

It is possible to only set the **tolerance time** i.e., the time interval before and after the specified administration time - in the case of prescriptions with immediate schedules – within which the administration is considered “on time”, by choosing one of the options available in the dropdown menu provided (Fig 54 **A**). If a tolerance of 15 minutes is specified for an administration prescribed for 11:00 a.m., the administration is on time if it is performed between 10:45 a.m. and 11:15 a.m.
The following options are given:

- 00:05
- 00:10
- 00:15 (the default tolerance value is set to 00:15 minutes)
- 00:20
- 00:30
- 00:45
- 01:00
- 01:30
- 02:00

➢ Set the tolerance time.

The blue button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule.
The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.2. Schedule - Conditional

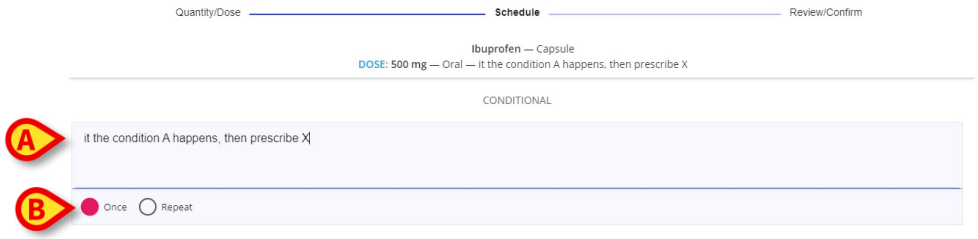

Fig 55

If the conditional administration is chosen, the prescribed treatment will be administered only if certain conditions, that must be specified in the textbox provided, are met.

- Set the condition or conditions to be met in the textbox available (Fig 55 **A**);
- Choose between the **Once** or **Repeat** options (Fig 55 **B**), selecting the corresponding radio button to indicate whether the treatment is to be administered only once or whether, after being administered the first time, it is to be retained in the treatment plan in order to be repeated in the future.

The red button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule.
The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.3. Schedule – Daily

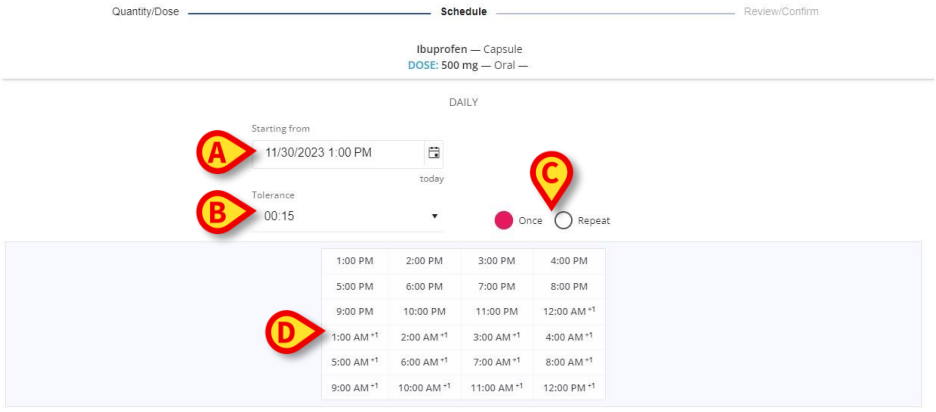

Fig 56

If daily administration is chosen, the prescribed treatment can be administered once or several times a day at set times. To schedule the treatment administration times, multiple fields are provided:

- The **Starting from** field (Fig 56 **A**) to set the date and time of the first administration of the prescribed treatment;
- The **tolerance** field (Fig 56 **B**), to set the tolerance time (the default value is 00:15 minutes);
- **Once** and **Repeat** radio buttons (Fig 56 **C**);

- A card grid with **24 full-hour-buttons** to be selected (Fig 56 **D**). The 24 buttons correspond to the 24 hours of a day. The first hour is the one set in **Starting from** field or, if the set hour is not a full hour, the first hour will be the nearest full hour. The indication "+1" means that those hours are relative to the next day.

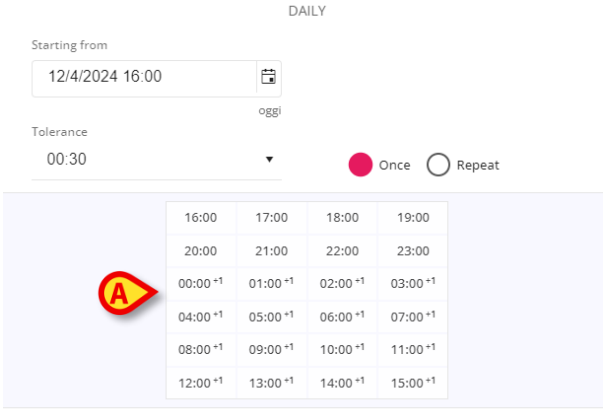

Fig 57

It is possible to set and configure the timetable on 24 hours as well as 12 hours am/pm (Fig 57 **A**). To prescribe a daily schedule:

Fig 58

- Click on the field itself or on the calendar button (Fig 58 **A**) provided in the **Starting from** field to open a dropdown calendar view;
- Select the date in the **Date** tab (Fig 58 **B**) and the time in the **Time** tab (Fig 58 **C**), then click on **Next** button (Fig 58 **D**). It is possible to specify the start of treatment on a future day and/or at a future time, but not in the past;

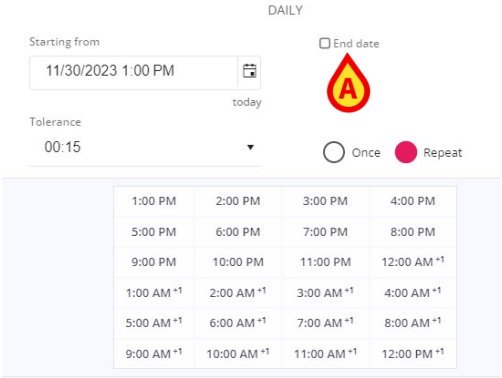

Fig 59

- Set the **tolerance** time and select the desired options from the available radio buttons. If **repeated** prescription is selected, then the **End date** checkbox (Fig 59 **A**) appears.

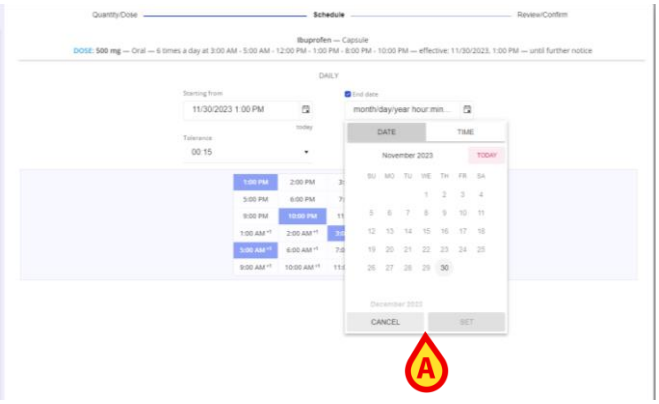

Fig 60

- Checking this box, it is possible to set the end date for the daily treatment (which can then be administered on multiple days according to the fixed times set) on a calendar view (Fig 60 **A**);

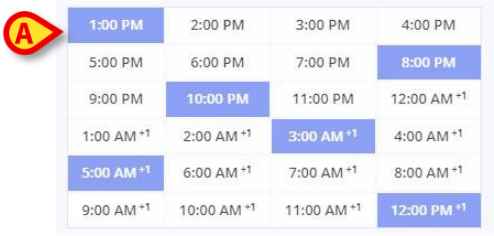

Fig 61

- Select the hours on the hour-cards grid by simply clicking on them (double-click the selected hours to deselect them). The selected hours are colored in blue (Fig 61 A).

The red button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule. The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.4. Schedule – Weekly

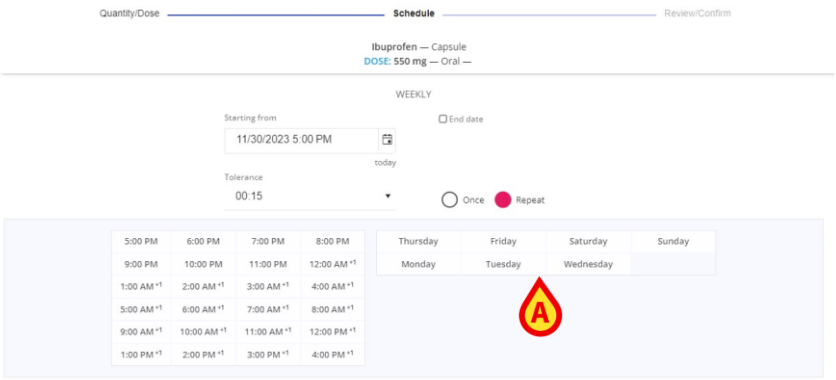

Fig 62

If **weekly** administration is chosen, the prescribed treatment can be administered once or several times a day at set times for one week. To schedule the treatment administration times, multiple fields are provided and most of them have already been described for the **daily** prescription plan. The previously described functionalities are integrated with a **button/card grid with the 7 weekdays** (Fig 62 **A**) to be selected. The 7 buttons correspond to the 7 days of a week. The first day is the weekday of the one set in **Starting from** field.
To prescribe a weekly schedule:

- Click on the field itself or on the calendar button provided in the **Starting from** field to open a dropdown calendar view;
- Select the date in the **Date** tab and the time in the **Time** tab, then click on **Next** button;
- Set the **tolerance** time and select the desired options from the available radio buttons. If repeated prescription is selected, then the **End date** checkbox appears;
- Checking this box, it is possible to set the end date for the weekly treatment (which can then be administered on multiple weeks according to the fixed days and times set) on a calendar view;
- Select the hours on the hour-cards grid by simply clicking on them;

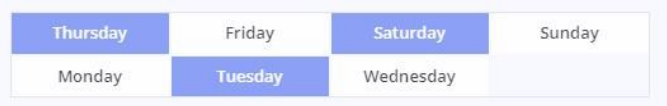

Fig 63

- Select the days on the day-cards grid (Fig 63) clicking on them (double-click the selected days to deselect them). The selected days are colored in blue.

When prescribing a weekly treatment plan, it is necessary to specify both the times of administration and the days of administration. The red button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule.
The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.5. Schedule – Schema

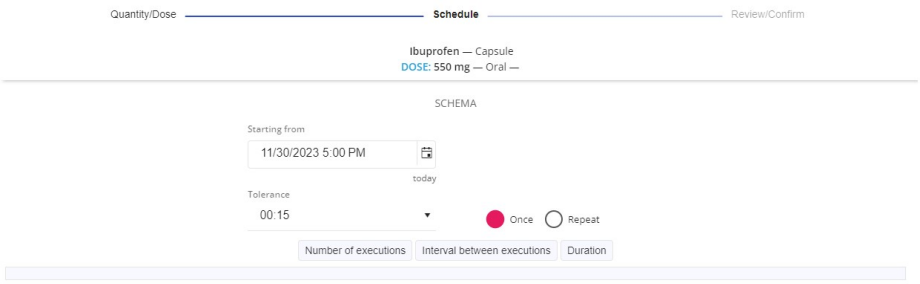

Fig 64

If schema administration is chosen, the prescribed treatment can be administered according to a fixed, generic pattern, like “Execute this treatment N times in X days”. The system calculates the appropriate time intervals and enters administration orders from the time indicated in the **Starting From** field. To schedule the treatment administration times, multiple fields are provided and most of them have already been described for the **daily** prescription plan.

To prescribe a schema schedule:

- Click on the field itself or on the calendar button provided in the **Starting from** field to open a dropdown calendar view;
- Select the date in the **Date** tab and the time in the **Time** tab, then click on **Next** button;
- Set the **tolerance** time and select the desired options from the available radio buttons. If repeated prescription is selected, then the **End date** checkbox appears;
- Checking this box, it is possible to set the end date for the schema treatment on a calendar view;

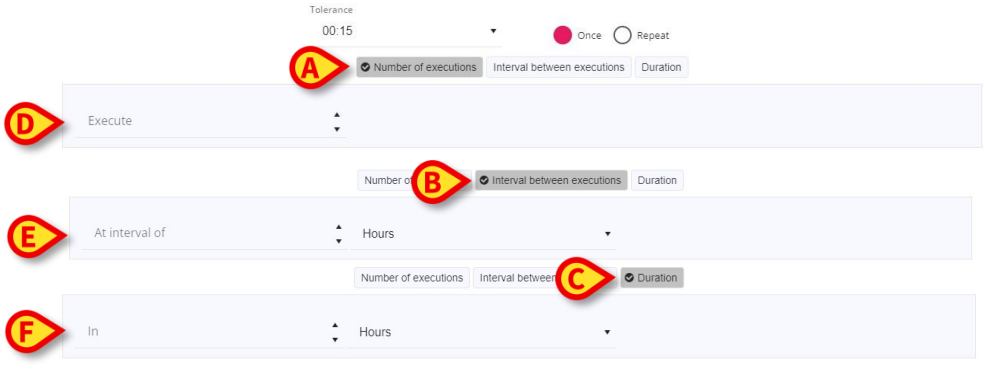

Fig 65

To define a schema,

- Use the buttons shown in Fig 65 (**A**, **B** or **C**) to select the appropriate option for the desired schema to be composed. Three buttons are available:

- **Number of executions**, to specify the number of administrations. If selected, the **Execute** field (Fig 65 **D**) is provided to enter the desired number of administrations;
- **Interval between executions**, to specify the time interval between one administration and the next. If selected, the **At interval of** field (Fig 65 **E**) is provided to enter the desired time interval. The unit of measurement (Minutes, Hours or Days) can be chosen from a dropdown menu provided;
- **Duration**, to specify the period of time (how long) within which to perform therapy administrations. If selected, the **In** field (Fig 65 **F**) is provided to enter the desired period of time. The unit of measurement (Minutes, Hours or Days) can be chosen from the dropdown menu provided (Fig 66 **A**);

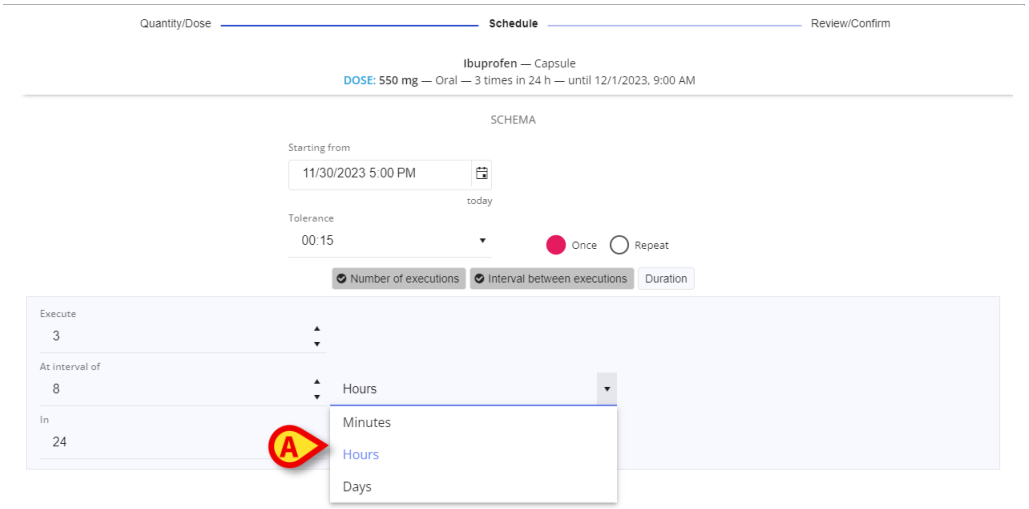

Fig 66

Two buttons must be selected at a time in order to establish a pattern. If **Number of executions** and **Interval between executions** are selected, like in the example shown in Fig 66, values can be entered in the **Execute** and **At interval of** fields. The **In** field is populated accordingly, since the system automatically calculates the total time period by multiplying the set number of administrations by the chosen time interval.

Fig 67

Similarly, if the selected fields are **Number of executions** and **Duration**, the user can enter the desired values in the **Execution** and **In** fields, and the value in the **At the interval of** field is automatically calculated.

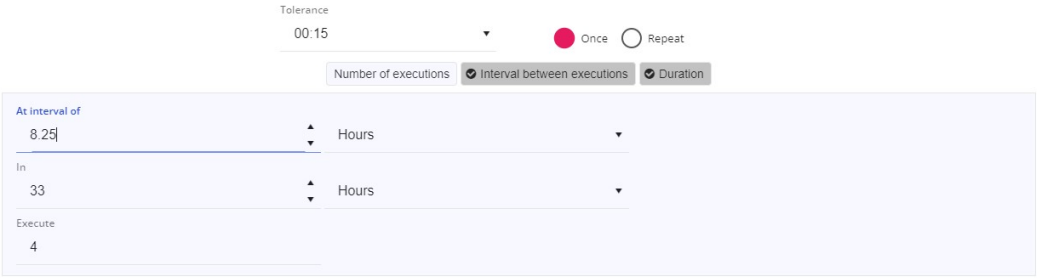

Fig 68

Finally, if the selected fields are **Interval between executions** and **Duration**, the user can enter the desired values in the **At interval of** and **In** fields and the number of executions is automatically calculated.

- Choose the schema, selecting the desired fields to be filled in;
- Enter the desired values in the fields provided, either manually or by using the up and down arrows to increase or decrease the amount of value.

The red button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule.
The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.6. Schedule – Custom

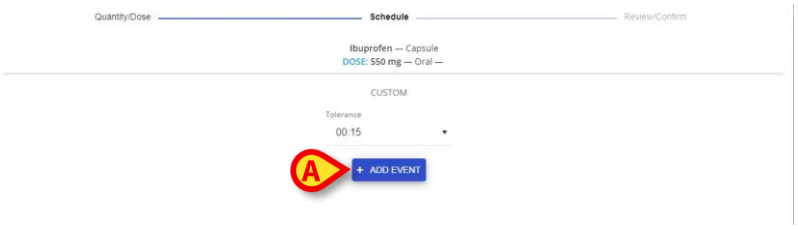

Fig 69

If custom administration is chosen, the prescribed treatment can be administered according to a fully customizable schedule. In this case, the orders that will be generated are all explicitly specified, one by one.

To prescribe a custom treatment:

- Set the **tolerance** choosing one option from those provided in the provided dropdown menu;

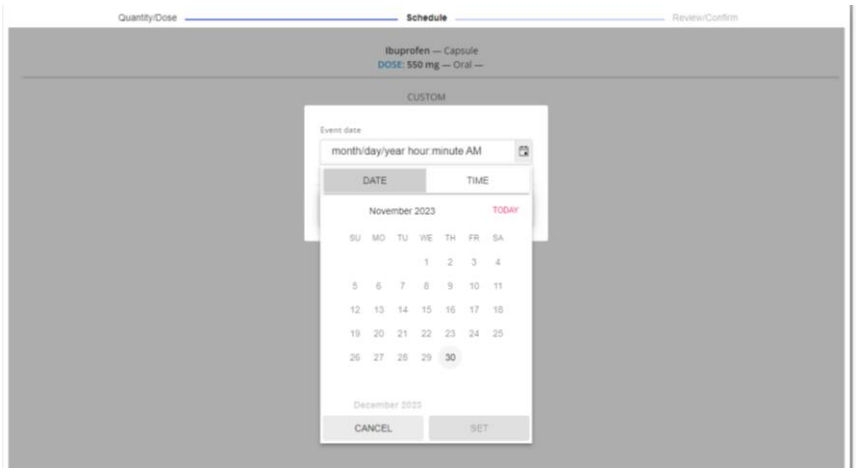

Fig 70

- Click on + **Add Event** blue button (Fig 69 **A**) to set the schedule of the first "event" from the provided calendar;
- Set the date in the **Date** tab and the time in the **Time** tab, then click on **Next** button;

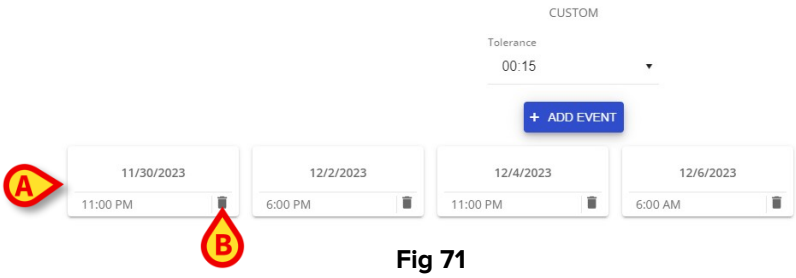

Fig 71

- Enter all desired event orders by clicking the button and completing the customization of the schedule for each administration;

For each order, a card with the date and time of administration of the customized treatment is displayed (Fig 71 **A**). The events are displayed and listed in chronological order (even if they've been created in non-chronological order). To cancel an incorrect or no longer needed order, a **bin** button is available (Fig 71 **B**).

To cancel the order,

- Just click on the **bin** button and confirm the deletion.

The red button **Change** (Fig 54 **B**) is enabled, and it is possible to change the selected scheduling, going back to the selection window shown on Fig 52, to opt for another schedule.
The blue **Next** button (Fig 54 **C**) is enabled, and it is possible to proceed to the **Review/Confirmation** stage.

4.14.2.7. Schedule – Emergency

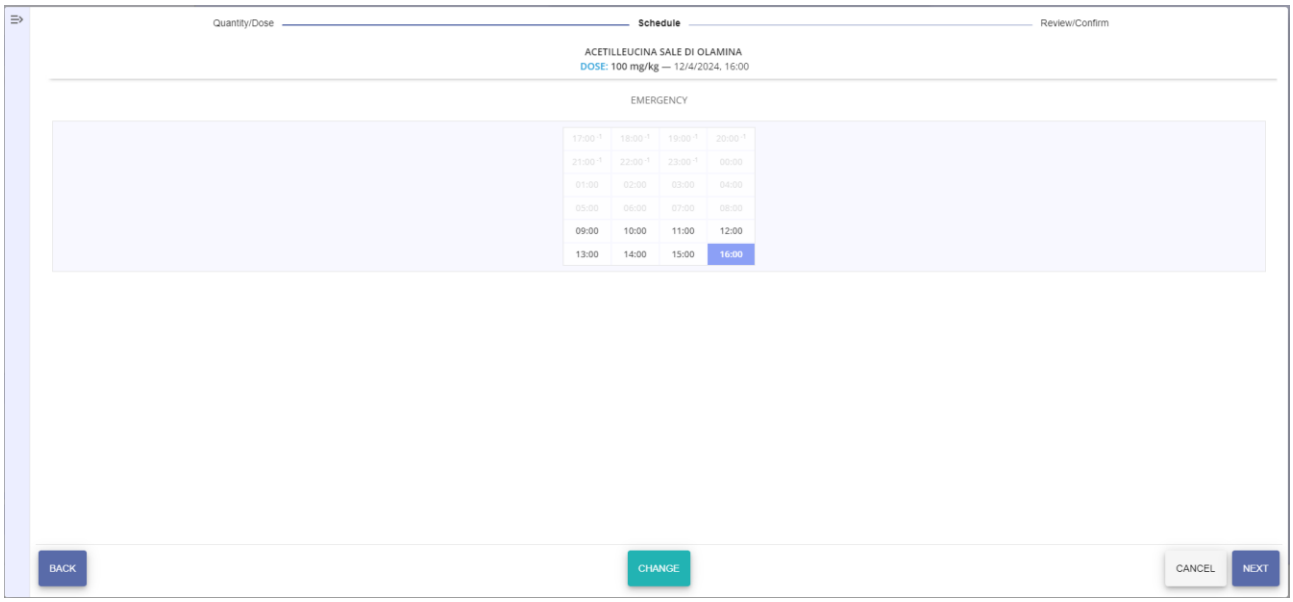

Fig 72

In case the emergency option is chosen, only one administration with the same or previous time can be prescribed. In the example provided in Fig 72, the prescription was registered at 16:45. Eight previous full hours are selectable.

- Select an hour from the clickable ones provided in the grid and then
- click on the **Next** button.

The number of selectable hours in the past is configurable, depending on the EmergencyHoursLimit *System Option. See the document DSO ENG System Options for more information.*

4.14.3. New Prescription – Review/Confirm step

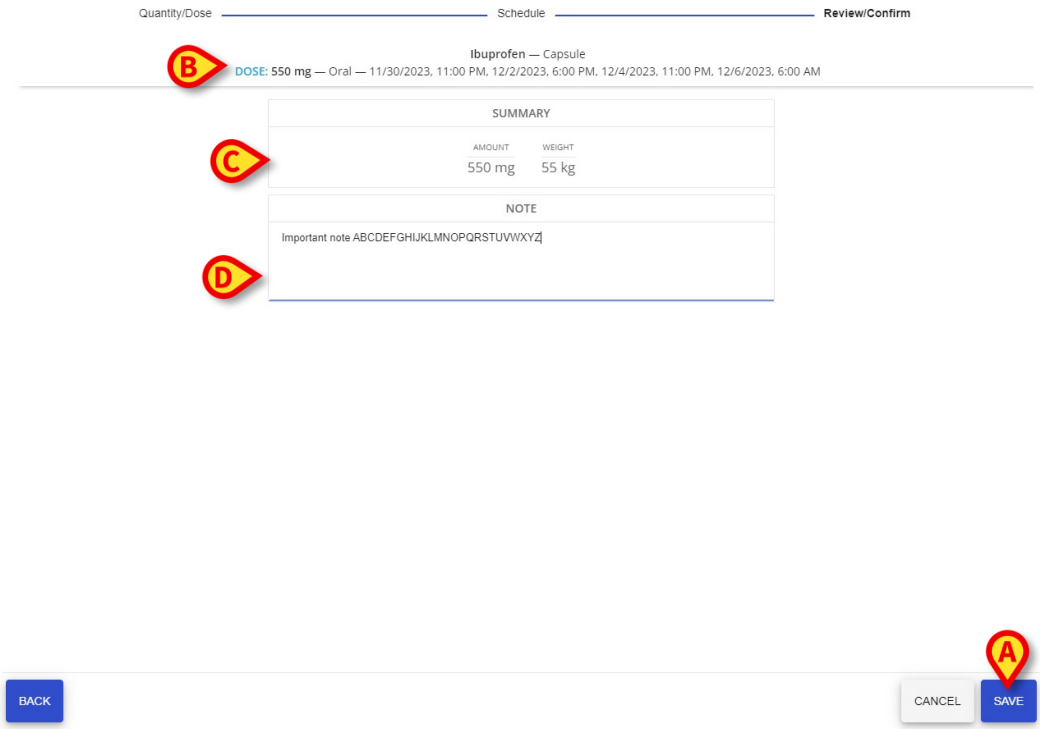

Fig 73

After clicking the **Next** button, the user can review and complete the prescription in the last available window, under the **Review/Confirmation** tab, where the summary of the prescription can be read.

Three sections are provided:

- The full prescription string (Fig 73 **B**) is displayed on top of the page, with the set dosages, unit of measures, form and route of administration and the full scheduling plan for the prescription. The prescription field is not editable;
- A summary section (Fig 73 **C**) shows the prescribed values with their unit of measure. The summary is also not editable;
- An additional field (Fig 73 **D**) is also available to enter a **note** to the prescription. It is not necessary to fill in this field, but to do so:

    ➢ Manually enter the note inside the textbox provided.

To save the prescription:

➢ Click the blue **Save** button (Fig 73 **A**).

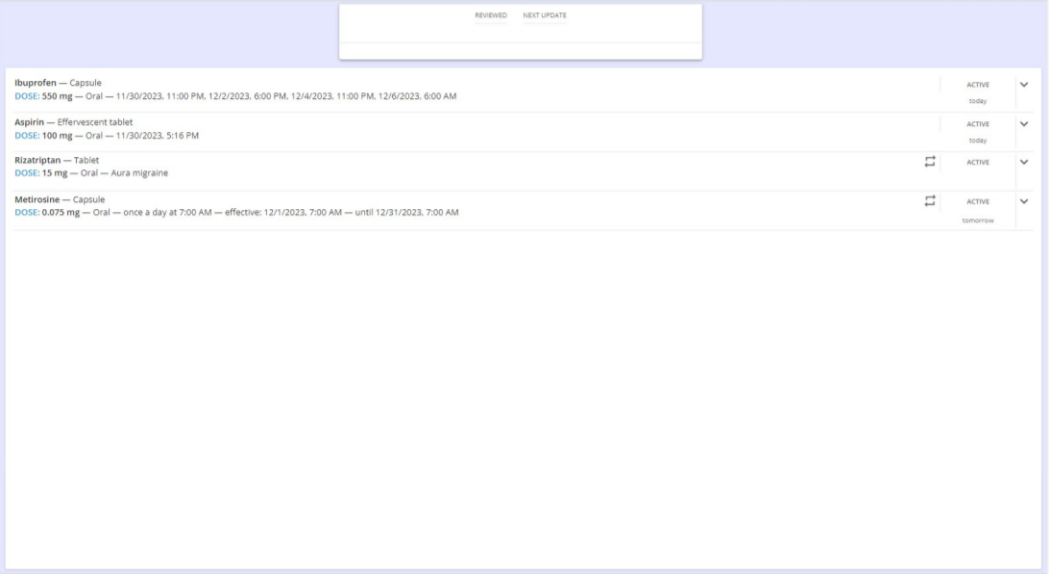

Fig 74

The prescription is added to the current therapy of the selected patient on the Prescription main page (Fig 74).

4.15. Overview the created Prescriptions

Fig 75

The second button provided on the command bar is the **Overview** one (Fig 75 **A**).
Clicking on it, a window opens containing a **summary** of all the active prescribed treatments and the **statuses** of the corresponding orders on a calendar view.

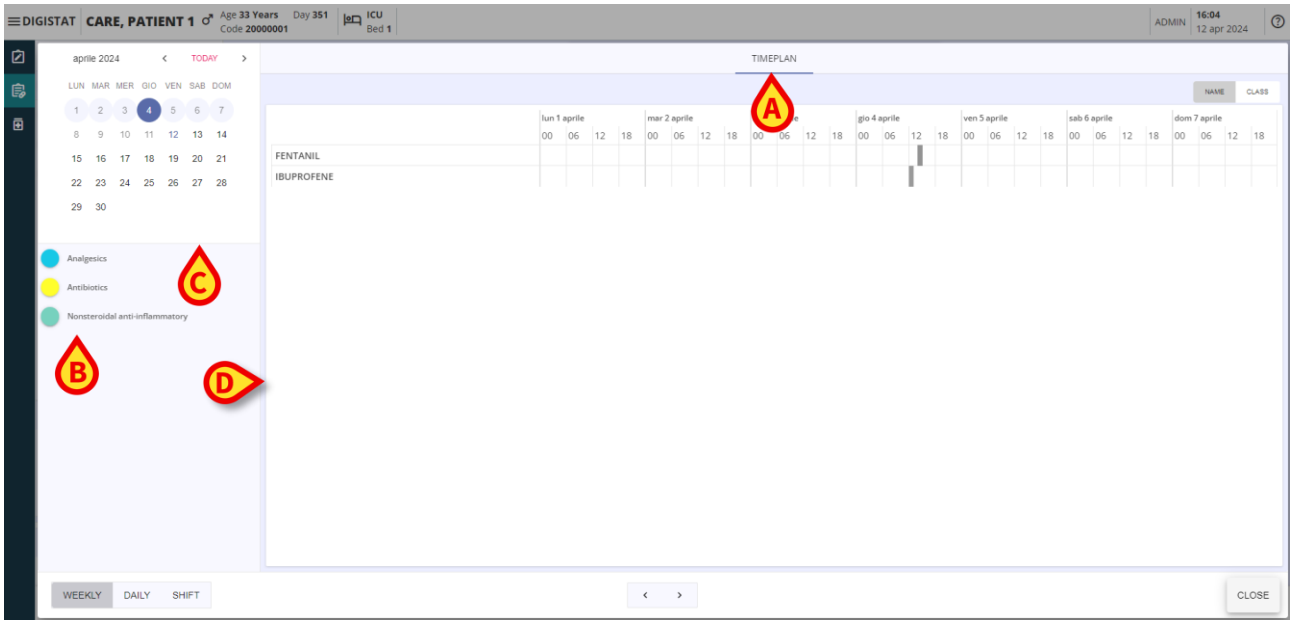

Fig 76

The page opens to the TimePlan tab (Fig 76 **A**).

Filters related to the classes of drugs prescribed in the therapy are displayed on the left (Fig 76 **A**). By clicking on one or more button filters, only the timeplan related to the prescription drugs belonging to that class will be displayed (Fig 76 **D**).
A calendar (Fig 76 **C**) is provided on the left part of the page. The current date is highlighted, but it is possible to scroll through the calendar to select days in the past and future directly by clicking on them. As a day is selected, the corresponding time plan (Fig 76 **D**) for that day is displayed in the central part of the screen.

4.15.1. Overview – Timeplan view

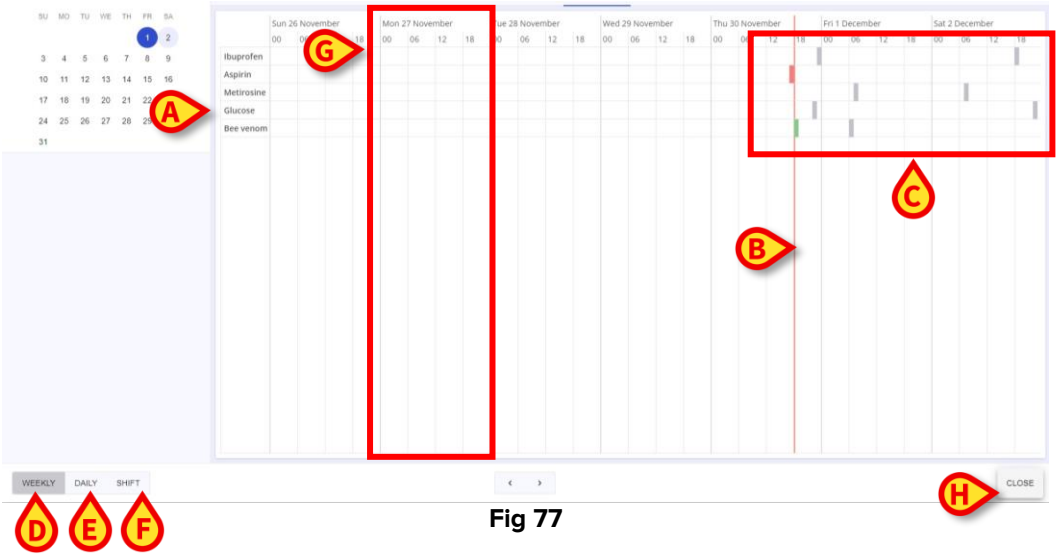

Fig 77

In the **timeplan** view, the schedule of administered orders or to be administered orders for each prescribed treatment is shown in a grid. Treatments are listed as individual rows in the grid (Fig 77 **A**). A **red vertical bar** (Fig 77 **B**) marks the "now" moment, and the orders scheduled for each treatment are represented as **cells** (Fig 77 **C**) that can display different colors:

- **Gray**, if it is an order to be administered in the future;
- **Green**, if it is a "ready" order, an order to be executed at the present time, i.e., within the time frame configured as the "tolerance interval".
- **Red**, in case of an unexecuted and overdue order;
- **Black**, in case of a correctly executed order.

It is possible to change the time plan display using the three buttons available at the bottom left part of the Overview page. Those same buttons are also provided in case the **Summary** view is selected and they are:

- **Weekly** button (Fig 77 **D**), to show the entire week from Sunday to Saturday (days when no orders are prescribed are also shown). Each day is divided into 4 time slots (00-06, 06-12, 12-18, 18-00), represented as separate cells (Fig 77 **G**) within which the orders are represented as colored portions of the cell placed at the corresponding time;

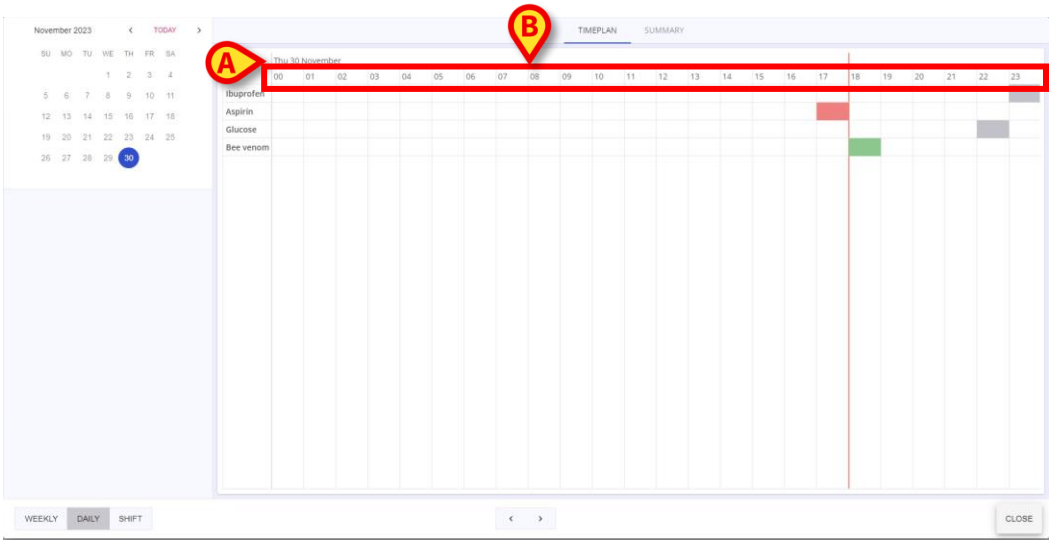

Fig 78

- **Daily** button (Fig 77 **E**), to show the full day in detail: the day is shown at the top left of the grid (Fig 78 **A**), while 24 cells are provided (Fig 78 **B**), one for each full hour;

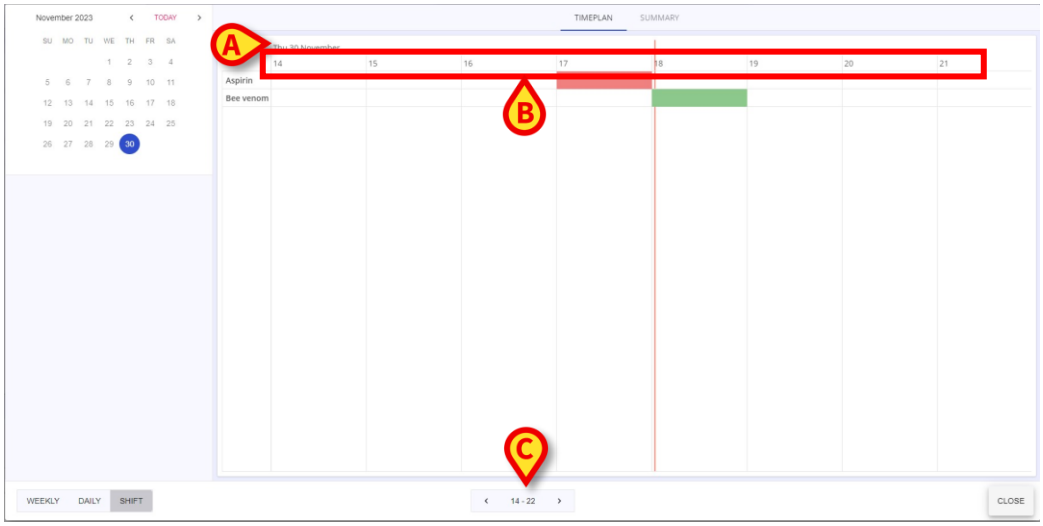

Fig 79

- **Shift** button (Fig 77 **F**), to show administered or to be administered orders within an 8-hour shift. The day is shown at the top left of the grid (Fig 79 **A**), while 8 cells are provided (Fig 79 **B**), one for each full hour of the displayed shift.

Two arrows (left and right arrows) are provided in the command bar, to move between **time slots** and **days** of the week, **hours** of the day, and **shifts** (they can be configured, in the example the programmed shifts are as follows: 14-22, 22-06, 06-14), respectively.
Finally, a **Close** button (Fig 77 **H**) is provided to exit the Overview page.

4.16. Update the Therapy Cycle

Fig 80

The treatment plan update procedure allows to update the prescriptions' orders and to delete the expired orders or the orders to be removed.
To update the treatment plan:

- Click the **Update** button on the command bar (Fig 80 **A**).

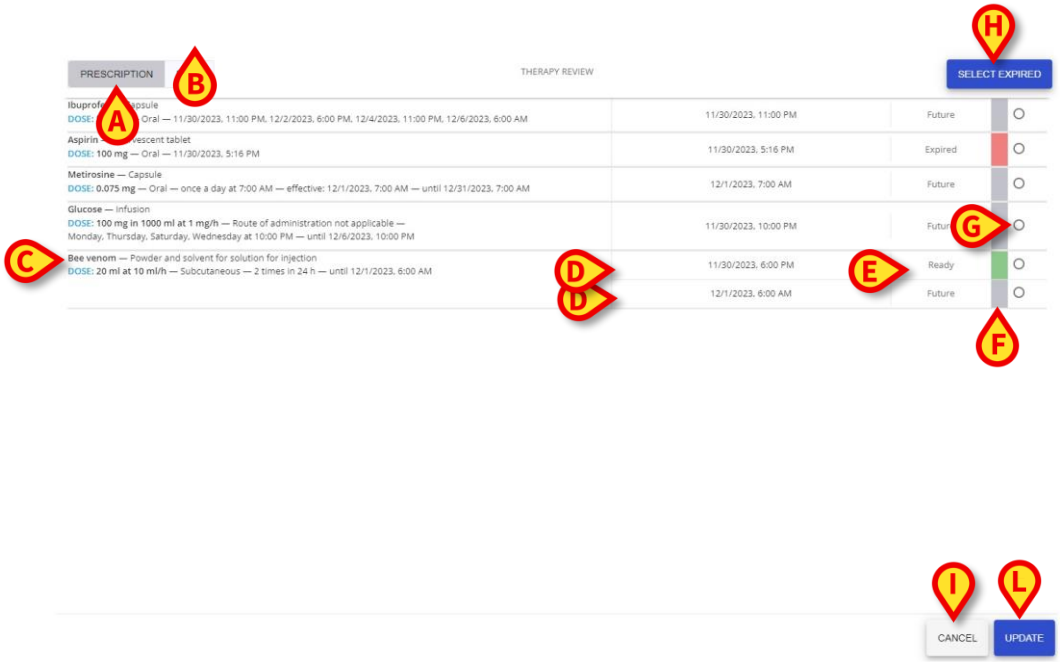

Fig 81

The **Therapy Review** window opens on the **Prescription** tab (Fig 81 **A**) showing all the created prescriptions' orders grouped by prescription names. Clicking on the **Date** tab (Fig 81 **B**), the prescriptions' orders will be displayed by prescription order date and time and their status (**Ready** orders first, then **Future** orders, finally **Expired** ones).

The prescriptions' orders associated to the selected patient contains the following information:

- Full **prescription strings** (Fig 81 **C**);
- **Scheduled date-time** (Fig 81 **D**) for each order;
- **Status** (Future, Expired or Ready) (Fig 81 **E**);
- **Colored cells** (Fig 81 **F**) depending on the status of the order (gray for Future, red for Expired and green for Ready);
- **Buttons** (Fig 81 **G**) to select/deselect the prescriptions' orders.

Fig 82

To delete expired orders:

- Manually select the expired orders one by one or click on **Select Expired** blue button (Fig 81 **H**) provided to select all the expired orders at a time;

All the expired orders are automatically selected and marked with a **bin** icon (Fig 82 **A**).

- Click the **Update** button (Fig 81 **L**). The **Therapy Review** window is automatically closed.

Fig 83

It is also possible to delete not-expired orders (Fig 83 **A**):

- Manually select the orders to be removed;
- Click the **Update** button. The **Therapy Review** window is automatically closed.

The orders selected in the **Therapy Review** window for removal won't be present anymore in the patient's prescriptions list.

A **Cancel** button (Fig 81 **I**) is provided to close the window without performing any update.

4.17. Closed Therapy

If the Therapy is closed, a “lock” icon - - is displayed on top of the Prescription module. See Fig 84 **A** for an example.

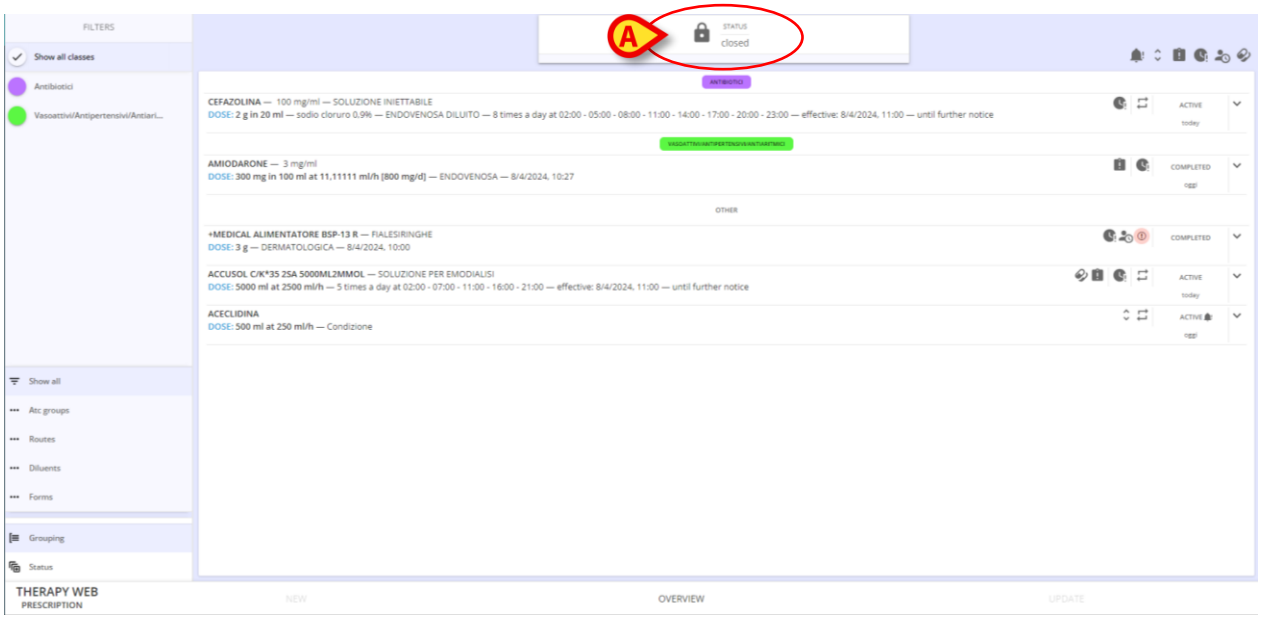

Fig 84

For closed therapies it is only possible to display the History (4.3) or the Overview (4.15). No action is allowed.

The therapy is closed outside of the Therapy Web application, on other modules.

5. The “Therapy Execution” module

“Therapy Execution” is an application aimed at assisting the nursing staff in the tasks related to the documentation of the administration of the prescribed treatments.
The administration orders are generated according to the treatment plan specified by the physician on the “Therapy Prescription” module (see section 4). The generated orders are displayed as rectangles and placed on the “Therapy Execution” module’s main screen, on a “treatment schedule” table. The nursing staff can use the available tools to document the administration of the prescribed treatments.

5.1. “Therapy Execution” module selection

To select the “Therapy Execution” module

- Click the corresponding button  on the lateral bar.

5.2. Main screen

The module’s main screen is displayed. See Fig 85 for an example.

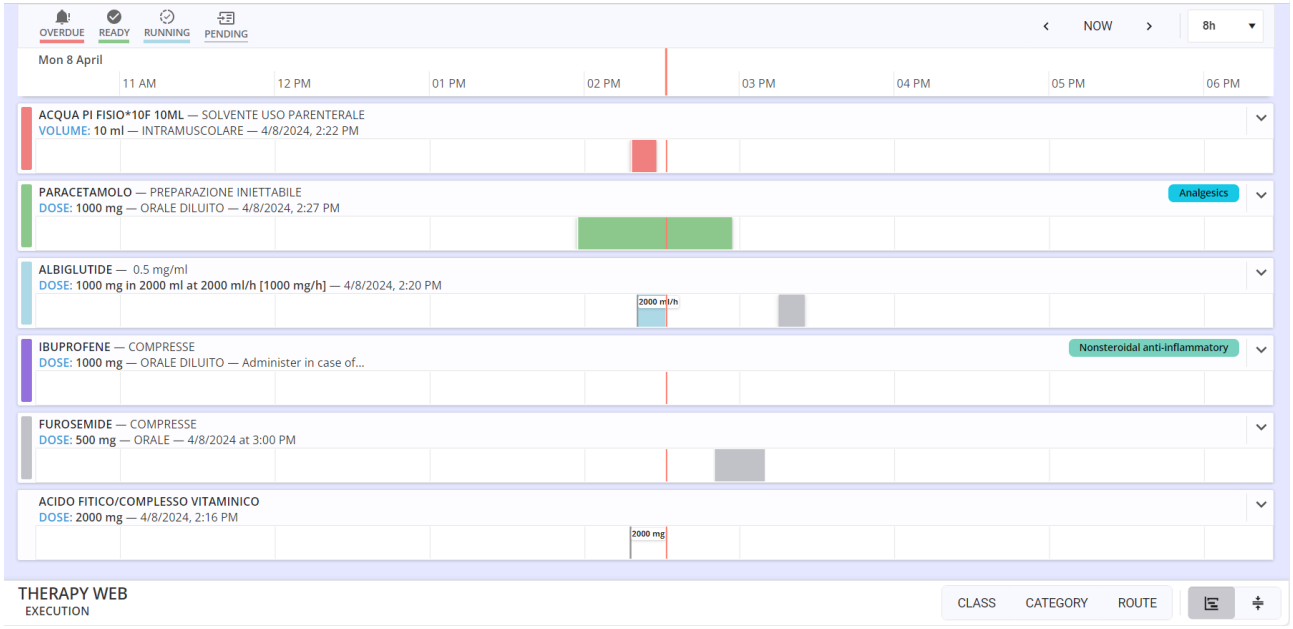

Fig 85

5.3. Prescribed orders representation

The treatments prescribed on the “Prescription” module are displayed as rows.

Fig 86

The color on the left of the row provides information on the prescription status and/or type. See section 5.3.1 for the colors legenda.

On the left of the row the available information for the prescription is specified. In Fig 86 **A**, for example, the information available is: treatment name and type, dose, administration route, administration schedule).
The rectangles on the route represent the single administration orders (Fig 86 **B**). See section 5.4 for the description of the administration chart.

The upper half of the row - ⌄ - can be clicked to open the administration details and commands.
For the treatments that belong to a specified class, the class is indicated in the upper-right corner of the row (Fig 86 **D** – "Paracetamol" belongs to the "Analgesic" class. The class of a treatment is specified during configuration.

5.3.1. Colors legenda

The different colors provide information on the prescription status and/or type.

There are 6 possible colors:

Furosemide — Oral suspension DOSE: **700 mg** — Oral — 12/4/2023 at 12:00 PM	Grey characterizes active prescriptions whose orders must be administered in the future.
Brilliant green — Paint DOSE: **1000 mg** — Cutaneous — 12/4/2023, 10:19 AM	White characterizes completed prescriptions.
Paracetamol — Soluble tablet DOSE: **1000 mg** — Oral — 12/4/2023 at 11:00 AM - 5:00 PM	Green characterizes prescriptions having an order "ready to be administered".
Polihexanide — Eye drops DOSE: **500 mg** — Ocular — 12/4/2023, 10:12 AM	Red characterizes prescriptions having at least one "late" order.
Albiglutide — Powder and solvent for solution for injection DOSE: **20 ml at 10 ml/h** — Subcutaneous — 12/4/2023, 10:15 AM	Cyan characterizes durative prescriptions having one order in progress (see paragraph 3.3 for a description of durative prescriptions).
Aminosalicylic acid — Gastro-resistant granules DOSE: **500 mg** — Oral — Administer in case of...	Purple characterizes conditional prescriptions; these are treatments to be administered only if specific conditions occur.

The boxes are displayed "by urgency" on the "Administration" screen. The "late" orders are on top, then the "ready" ones, then the "durative" orders in progress, then the "conditional" ones, then those to be executed in the future. In the end are the boxes corresponding to completed prescriptions.
Therefore, the colors appear in this order, from the top of the screen:

1. *red*
2. *green*
3. *cyan*
4. *purple*
5. *light grey*
6. *white*

*The treatments can be sorted otherwise using the buttons on the bottom-right corner (Fig 87 **E**, described in paragraph 5.9).*

5.4. The orders chart

The administration screen displays on a chart all the orders already generated (the already executed ones, the future ones and the “in progress” ones - Fig 87).

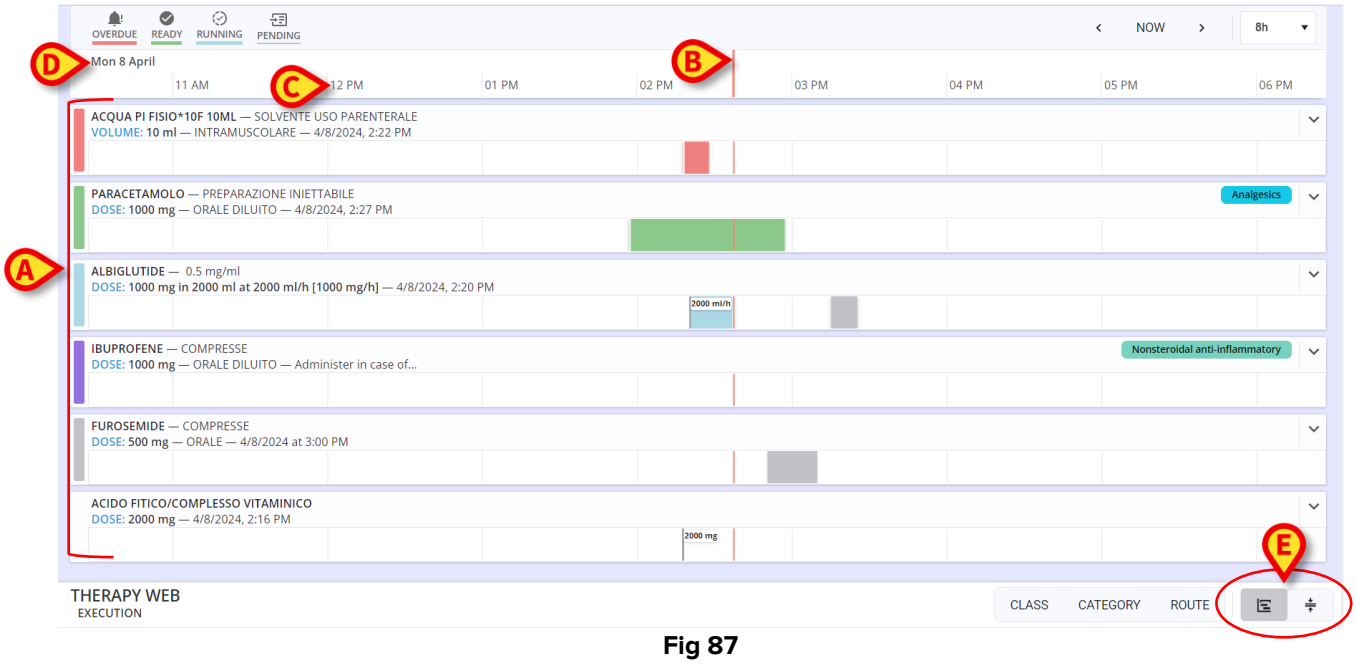

Fig 87

The orders are positioned in a grid, made of rows and columns. The orders corresponding to the same treatment are on the same row (in Fig 87 there are six prescribed treatments on the left - Fig 87 **A**); the columns correspond to the hours of the day.

The red bar (Fig 87 **B**) indicates the present time. The screen scrolls left as time goes by, thus the bar indicates the present moment on each row. In Fig 87 it is 2:30 PM approximately. The time can be read on top (Fig 87 **C**). The date is displayed in the top left corner (Fig 87 **D**).

5.4.1. Graphic representation of the orders

The colored rectangles represent the different orders, positioned in the place corresponding to their prescribed administration time (or execution time if already executed).

5.4.1.1. Administration tolerance period

The length of the rectangles is proportional to the period that was indicated as “tolerance period for the administration” when the order was prescribed (see section 4.14).

For instance: if the treatment is prescribed at 13:00 and the administration tolerance period is set to 30 minutes, the administration time indicated on the chart is a period going from 12:30 to 13:30.
The position of the rectangles corresponds to the prescribed administration times. The rectangles length is proportional to the tolerance period.

5.4.1.2. Order status

The rectangle color indicates the status of the order.

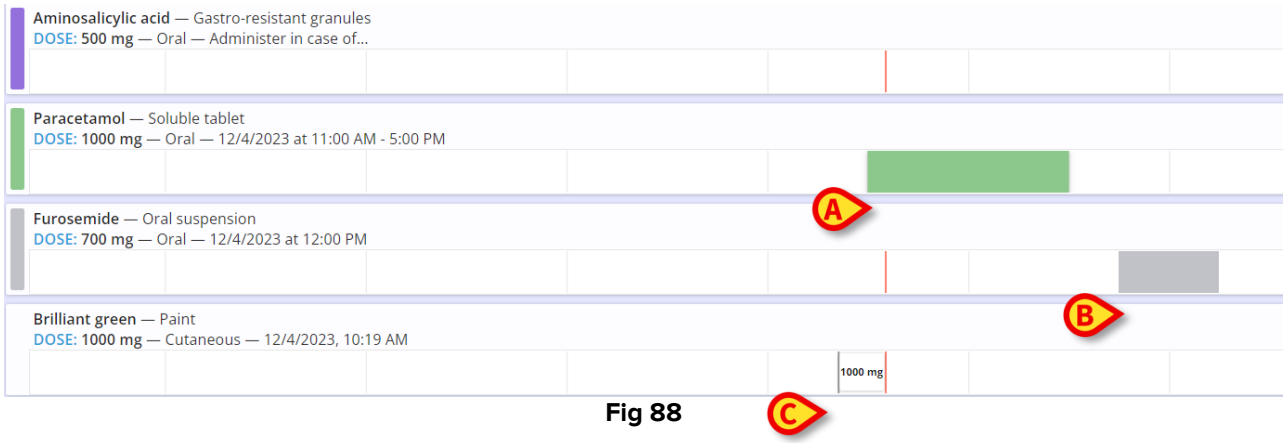

Fig 88

Green means that the order is to be administered immediately, i.e.: it means that it is within the administration tolerance period. When the rectangle is green the vertical time bar intersects the rectangle (Fig 88 **A**).
Light grey means that the order is to be executed in the future. When the rectangle is light grey the vertical time bar is on the left of the rectangle (Fig 88 **B**).
When a treatment is administered, a vertical grey bar is positioned on the prescription row, in the place corresponding to the exact administration time. The administered dose is specified nearby. The vertical time bar is on the right (Fig 88 **C**).

The length of the boxes corresponding to an executed order is reduced to indicate the exact administration time. The tolerance period is not displayed anymore. When the prescription is durative (a drip, for instance) the administration duration is fully displayed in grey. See paragraph 5.5.2 for the durative orders administration procedure.

Red means that the administration of the order is late, i.e.: the tolerance period is over (Fig 89 **A**). When the rectangle is red the vertical time bar is on the right of the rectangle.

Cyan characterizes durative administrations in progress (Fig 89 **B**). The vertical time bar in these cases coincides with the rectangle right side. The administered dose is specified inside the rectangle, on the left. A “Stop” order can be generated for durative administration if the administration duration is specified at prescription time. The “Stop” order is positioned according to the scheduled duration of the administration (Fig 89 **C**).

Fig 89

The duration of an administration is displayed in cyan. When the administration is stopped the duration becomes grey (Fig 90). Possible changes in the administration dose are specified inside the rectangle.

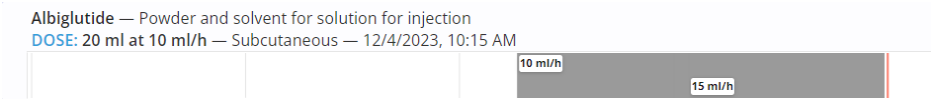

Fig 90

When the icon is displayed on the left of a rectangle (Fig 91), it means that the order has not been validated yet or is expired. See section 3.3.3 for the explanation of the "order validation" concept. The non-validated orders can be administered using a specific procedure. This procedure is described in section 5.5.7.

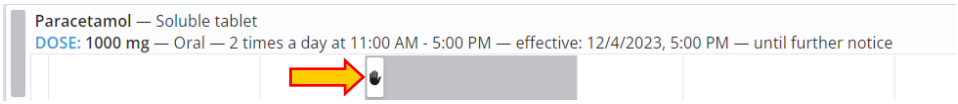

Fig 91

"Late" orders (the red ones) expire after a time that is defined by the ExpiredOrderTimeoutHours system option (see the document DSO ENG System Options for more information).

5.5. How to record the treatment administration

5.5.1. Punctual treatment administration

To record the administration of a treatment,

- Click the upper half of the row corresponding to the treatment to be administered (Fig 92 **A**).

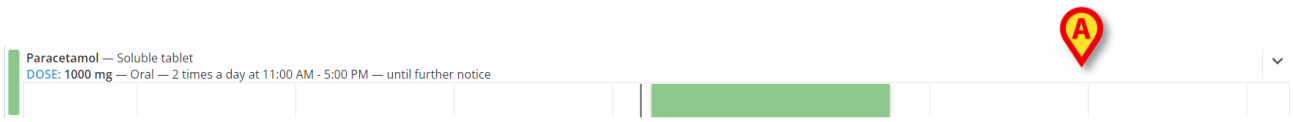

Fig 92

The row enlarges to show the prescription summary and the administration commands (Fig 93).

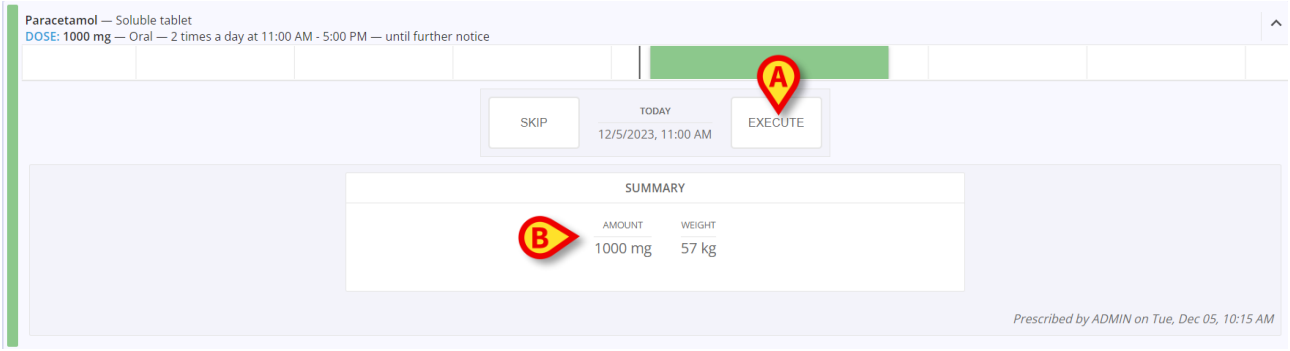

Fig 93

- Click the **Execute** button (Fig 93 **A**).

*The "summary" indicated in Fig 93 **B** refers to the prescription values, not to the values of a specific administration. Therefore, if the values of an administration change, the summary values remain the same.*

The following window is displayed, making it possible to confirm or change the administration values. The window is described in section 5.6.

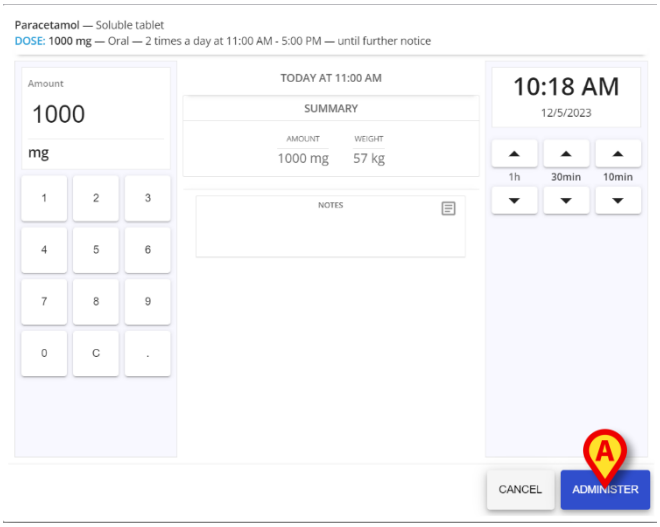

Fig 94

- Click the **Administer** button to record the administration of the treatment (Fig 94 **A**).

The rectangle corresponding to the specific order changes in the following way (Fig 95 **A** – a vertical grey bar remains in the position corresponding to the administration time; a label indicates the administered amount).

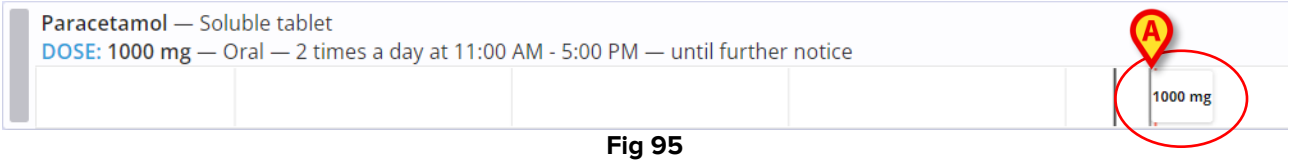

Fig 95

The treatment administration is this way recorded.

The order does not need to be in "Ready" status (green color) to be administered. The administration can be recorded before (or after) the prescribed administration time (light grey or red). Specific user permissions are required to perform these tasks. The reason for anticipating or delaying the administration must be explained in a note (see section 5.5.7).

5.5.2. Durative treatment administration

For durative treatments, it is necessary to record the beginning and the end of the administration.

To record the administration of a durative treatment:

- Click the upper half of the row corresponding to the treatment to be administered (Fig 96 **A**).

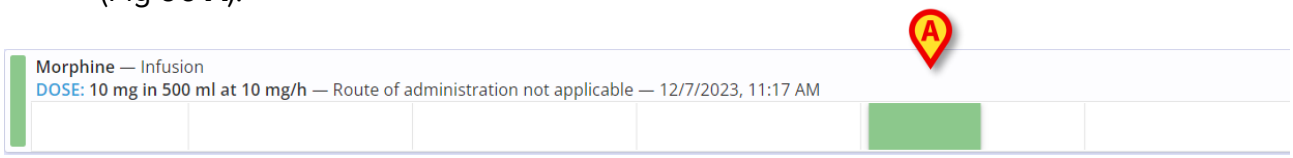

Fig 96

The row enlarges to show the prescription summary and the administration commands (Fig 97).

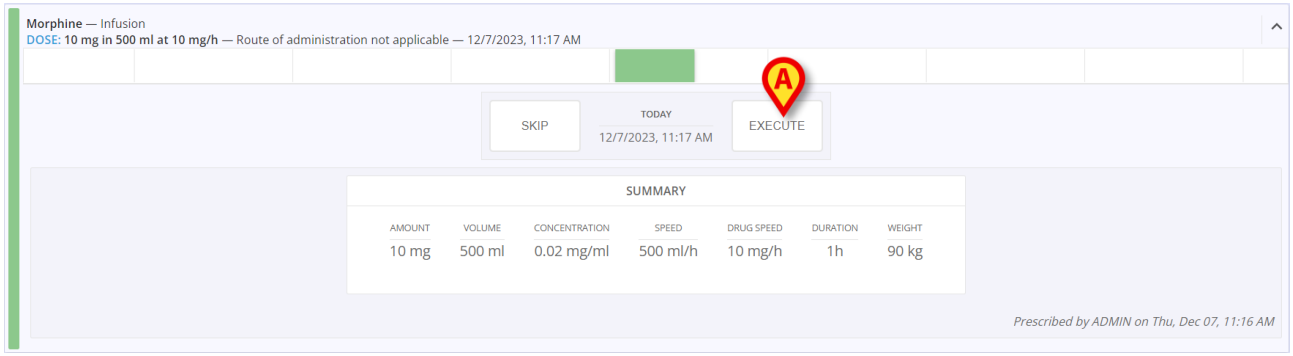

Fig 97

- Click the **Execute** button (Fig 97 **A**).

The following window is displayed, making it possible to confirm or change the administration values. The window is described in paragraph 5.6.

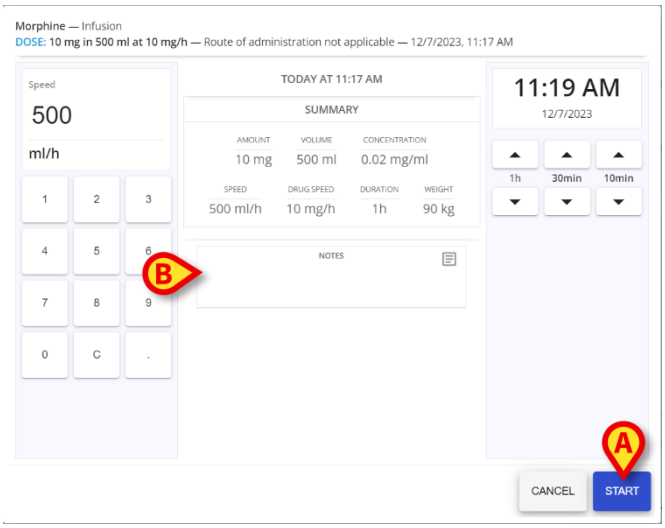

Fig 98

- Click the **Start** button to record the beginning of the administration (Fig 98 **A**).

The rectangle corresponding to the specific order becomes cyan. A cyan bar is drawn on the chart while the administration goes on; a label indicates the infusion rate (Fig 99 **A**).

If, at prescription time, a duration is indicated for the administration, a stop indication is created on the row according to the indicated values. The "Stop" rectangle, if present, is positioned according to the infusion total duration (Fig 99 **B**). If the exact duration of the administration is not indicated, then the "Stop" rectangle is not present. The administration procedure remains the same.

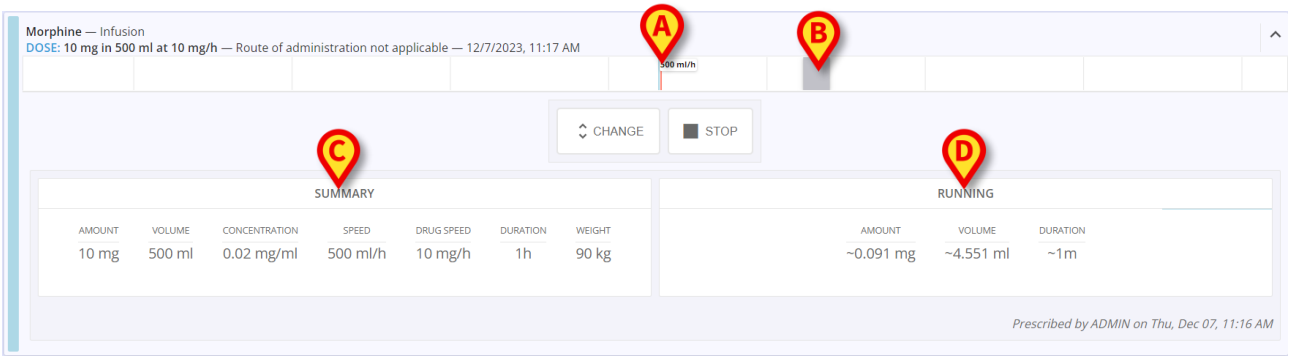

Fig 99

The prescribed administration values are displayed on the left (Fig 99 **C** - Summary). The administered values are displayed on the right (Fig 99 **D** – Amount, Volume, Duration – these values are updated in real time).

*The "summary" indicated in Fig 99 **C** refers to the prescription values, not to the values of a specific administration. Therefore, if the values of an administration change, the summary values remain the same.*

If the "Stop" rectangle is present, when the red "now" bar intersects it, it turns green, meaning that user action is required (Fig 100 **A**). From this moment on, the "Change" button

is not available anymore. Only the **Stop** button is available (Fig 100 **B**). The tolerance period for stopping the infusion “in time” is 15 minutes (configurable).
If the “Stop” rectangle is not present, the “Change” option remains present.

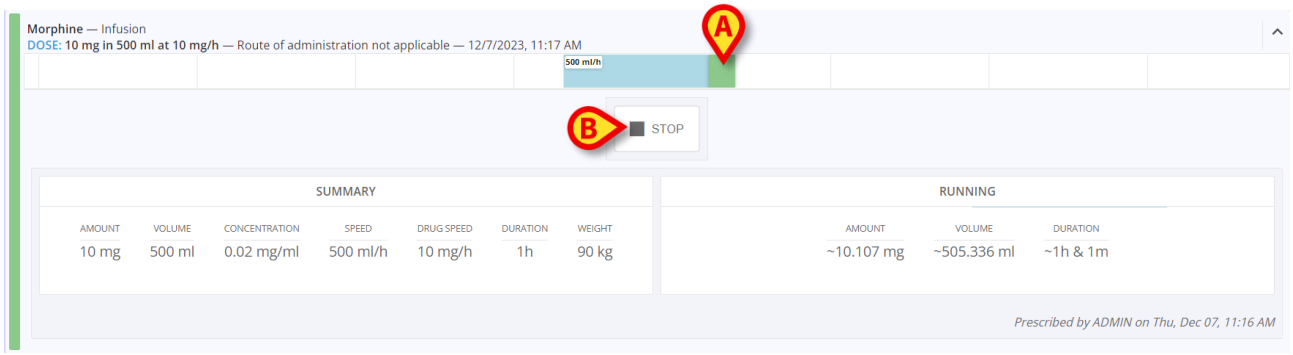

Fig 100

In both cases:

- Click the **STOP** button to stop the durative administration.

An administration window is displayed (Fig 101). If required, it is here possible to insert notes or operate on the recorded administration time (see paragraph 5.6).

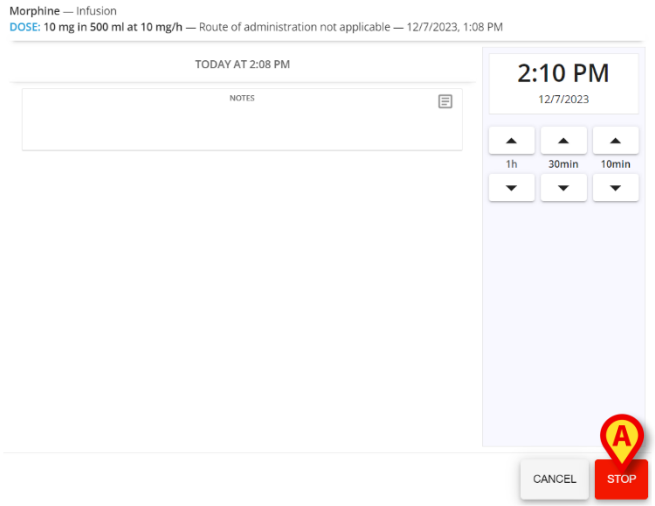

Fig 101

- Click the **Stop** button on the administration window (Fig 101 **A**).

The administered order remains as a dark grey rectangle on the chart, its length corresponding to the actual duration (Fig 102 **A**).

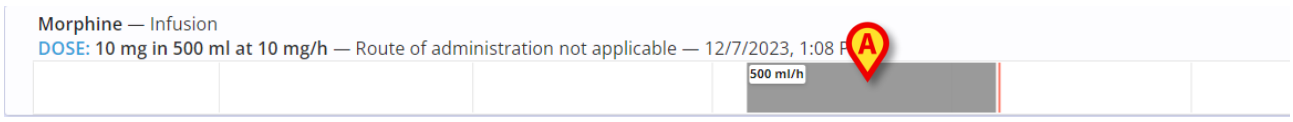

Fig 102

5.5.3. Drugs interactions

If there are interactions between the current administration and other prescribed treatments, a warning is displayed below the summary, indicating the involved treatments and the interaction type. See, for example, Fig 103 **A**. Drug interactions are defined during configuration.

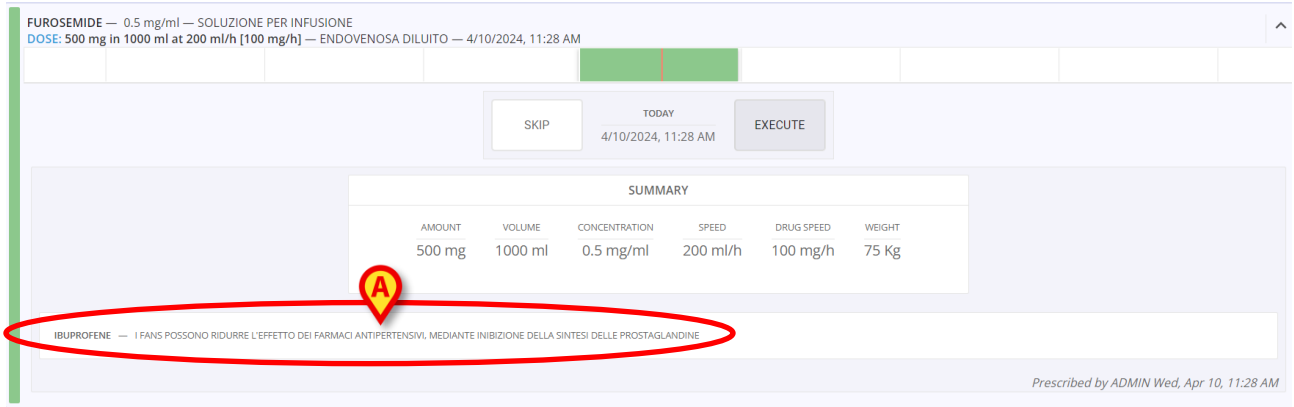

Fig 103

5.5.4. Allergies

If allergies are indicated for the patient, a flag is present on top of the Execution page (Fig 104 **A**). If a treatment which the patient is allergic to is administered, the “Allergy” is notified before the administration (Fig 104 **B**). It is here possible, not mandatory, to add a note. Patient allergies are indicated outside of the Therapy Web application, on other modules.

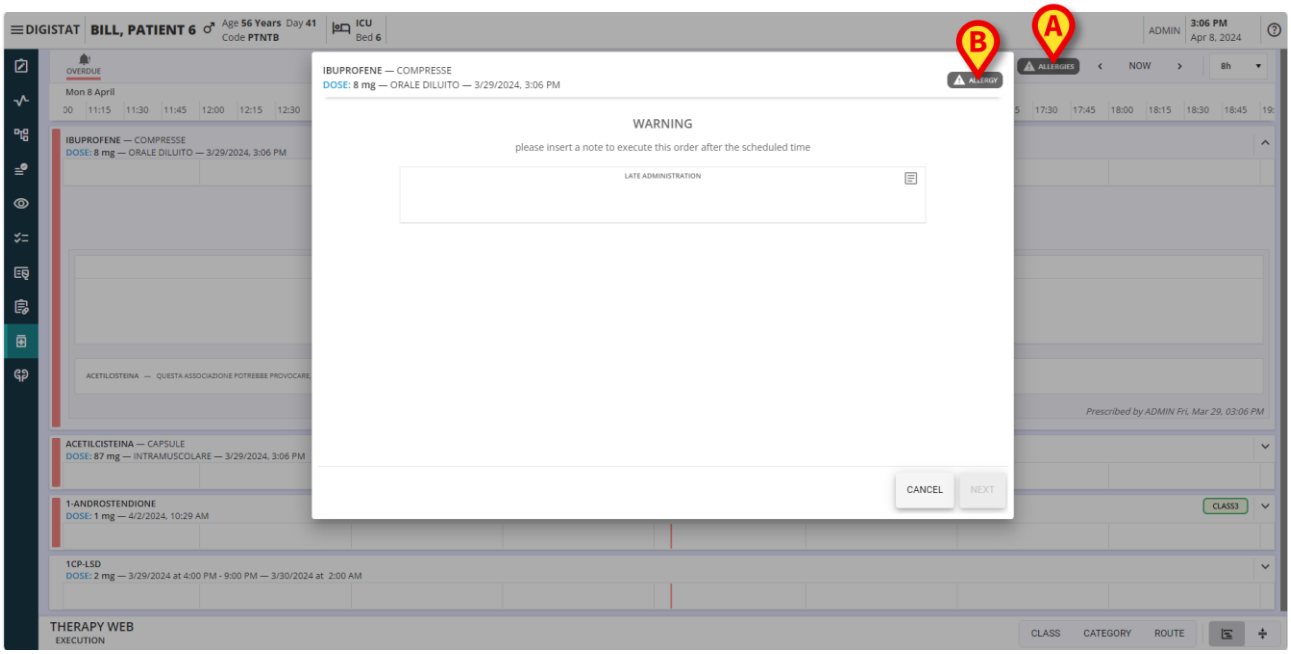

Fig 104

5.5.5. End a durative administration before or after the scheduled time

If there is not a “Stop” rectangle, the system does not provide any indication on the administration stop. If there is a “Stop” rectangle, there are cases in which the administration is stopped before or after the scheduled time.
If the administration is stopped before the scheduled time (i.e. when the “Stop” rectangle is grey, positioned on the right of the red “now” bar – see for an instance Fig 101 **A** and **B**), then, after clicking on **STOP**, the user is required to specify in a note the reason for anticipating the end of the administration. The note is then displayed in the administration window (Fig 101).
The tolerance period for stopping the durative administration “in time” is 15 minutes (configurable). After 15 minutes, the “Stop order” is late and the “Stop rectangle” turns red (Fig 105 **A**). The administration goes on.

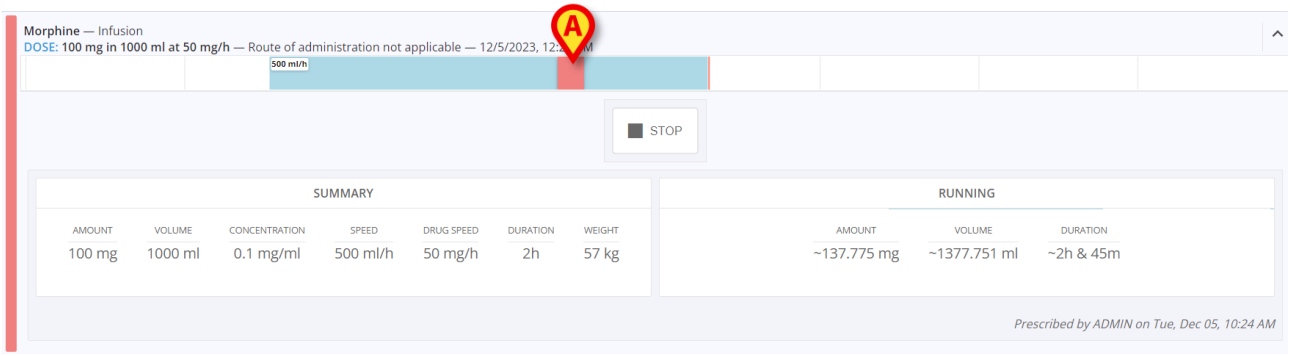

Fig 105

To stop an administration after the scheduled time, also, the user is required to specify in a note the reason for delaying the end of the administration. The note is then displayed in the administration window (Fig 101).
In both cases, the administered orders remain as a dark grey rectangle on the chart, their length corresponding to their actual duration.

5.5.6. Changing the administration values

It is possible to change the administration values of a durative administration while the administration is in progress. To do that:

- Click the upper half of the row (Fig 106 **A**).

The administration details and commands are displayed (Fig 106 **B**).

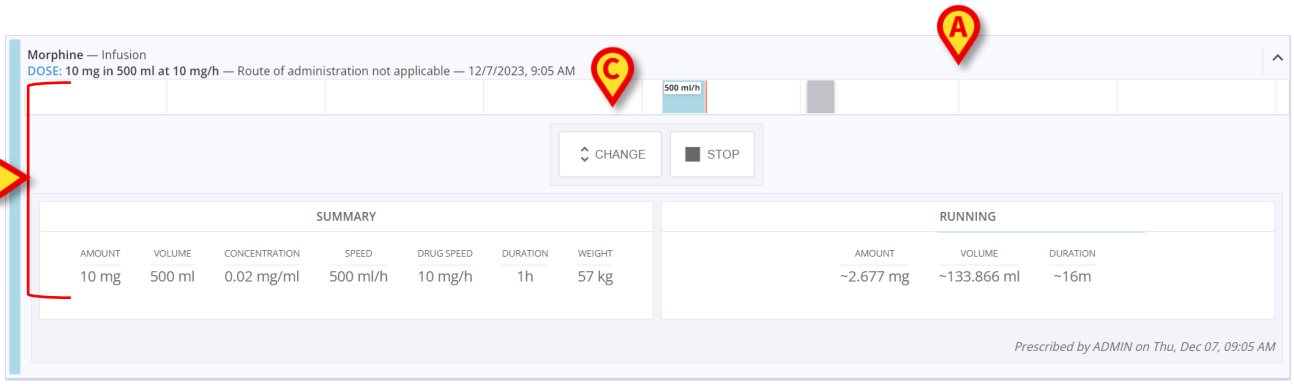

Fig 106

- Click the **CHANGE** button (Fig 106 **C**).

The administration details window is displayed (Fig 107).

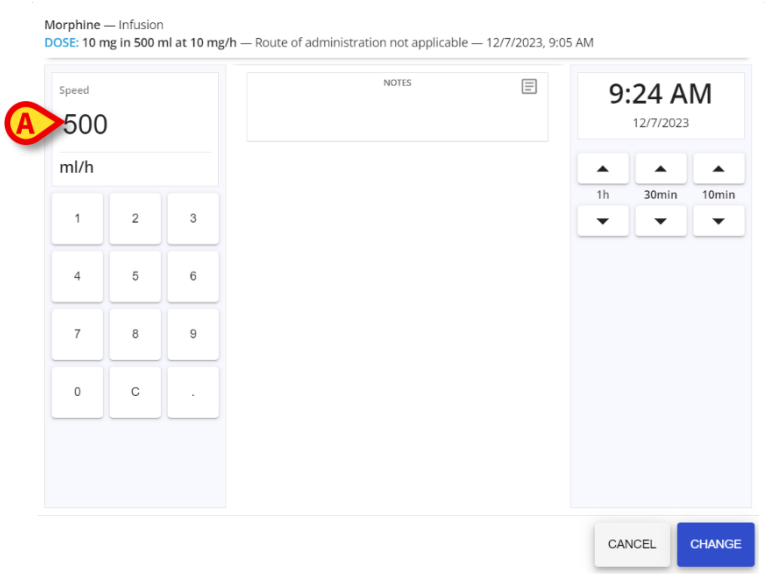

Fig 107

- Use either the virtual keyboard or the workstation keyboard to insert the new value in the field indicated in Fig 107 **A**.

The window changes as shown in Fig 108. The user is required to indicate in a note the reason for changing the administration values (Fig 108 **A**).

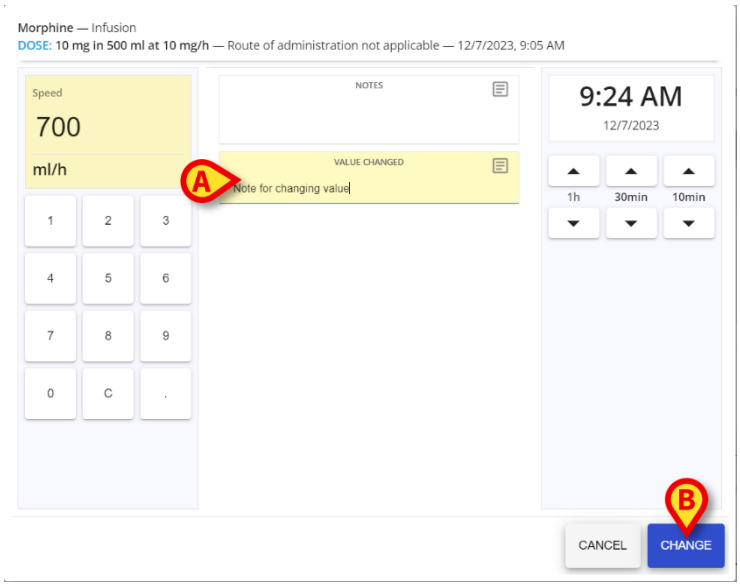

Fig 108

- Click the **CHANGE** button (Fig 108 **B**).

The administration chart changes as follows. The new speed is indicated in a label (Fig 109 **A**).

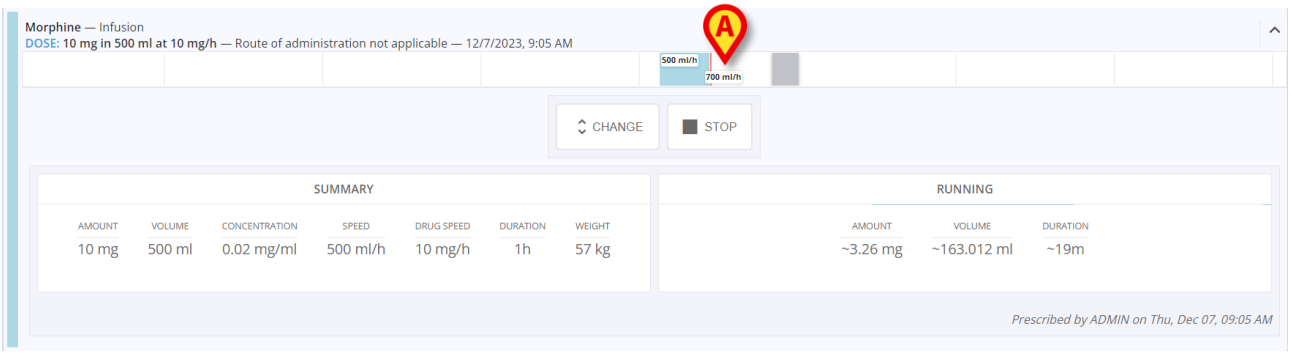

Fig 109

The change is signaled on the "Prescription" module by the icon on the prescription table.

5.5.7. Prescribed changes of a running administration

The necessity to either change the values of a running durative administration or to stop it can be prescribed on the Prescription module (see paragraph 4.8). In these cases, a "Change" or "Stop" order is created on Execution, on the administration row.

"Change" order

See, for example, Fig 110.

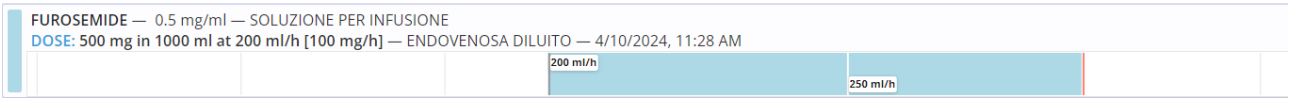

Fig 110

In Fig 110 the administration of Furosemide is running with a speed of 250 mL/h. On Prescription, the physician prescribes to change the speed to 300 mL/h. A green rectangle, with 15 minutes tolerance, is displayed on Execution, informing the nursing staff that an action is required for that treatment. The treatment status turns to “ready” again (green). See Fig 111 **A**.

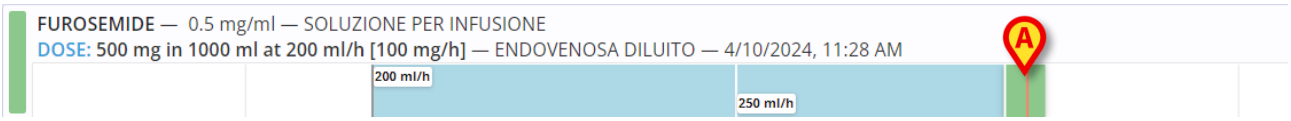

Fig 111

To document the administration change:

- Click the upper half of the row (Fig 112 **A**).

The administration details and commands are displayed (Fig 112 **B**).

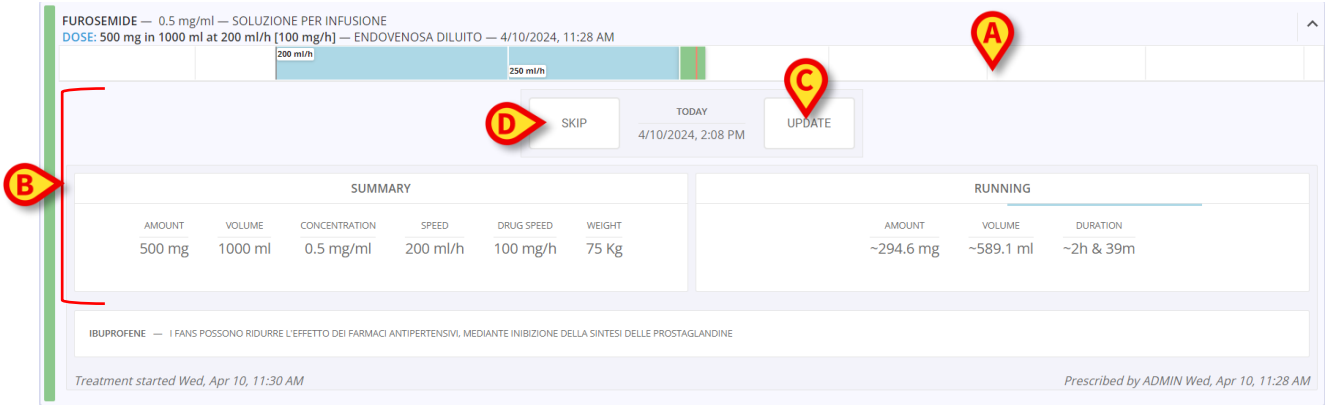

Fig 112

- Click the **UPDATE** button (Fig 112 **C**).

The administration details window is displayed (Fig 124).

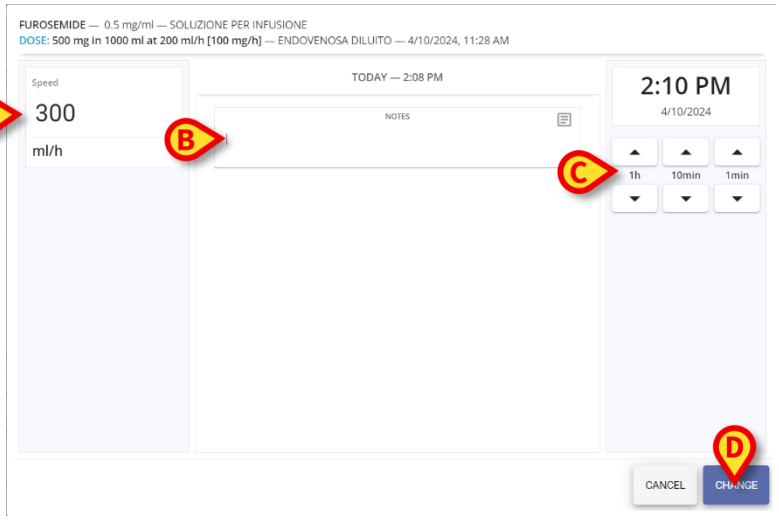

Fig 113

The new administration values are read-only (Fig 124 **A**). It is possible to adjust the execution time and to add a note, if necessary (Fig 124 **B** – **C**).

- Click the **CHANGE** button (Fig 124 **D**).

The administration chart changes as follows. The new speed is indicated in a label (Fig 125 **A**).

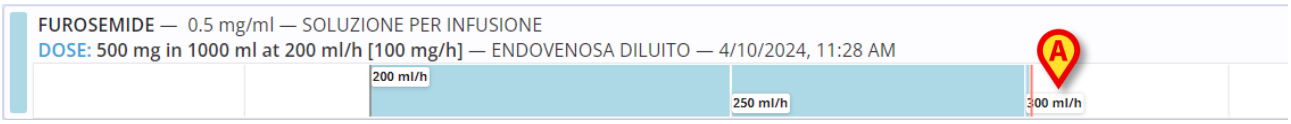

Fig 114

If the prescribed change is not performed in time (i.e. within the tolerance period), the green "change rectangle" turns red, meaning that there is a prescribed action that is late (Fig 115 **A**). The treatment status turns to "late" (red); the infusion goes on with the current values. Then, when the change is made, it is mandatory to specify in a note the reasons for not performing the action when prescribed.

Fig 115

If the prescribed change in the administration value is not performed, the user can document the fact that the action was skipped.

To do that:

- Click **SKIP** instead of **UPDATE** on the administration chart (Fig 112 **D**).

It is then mandatory to specify in a note the reasons for not performing the prescribed action (Fig 116 **A**).

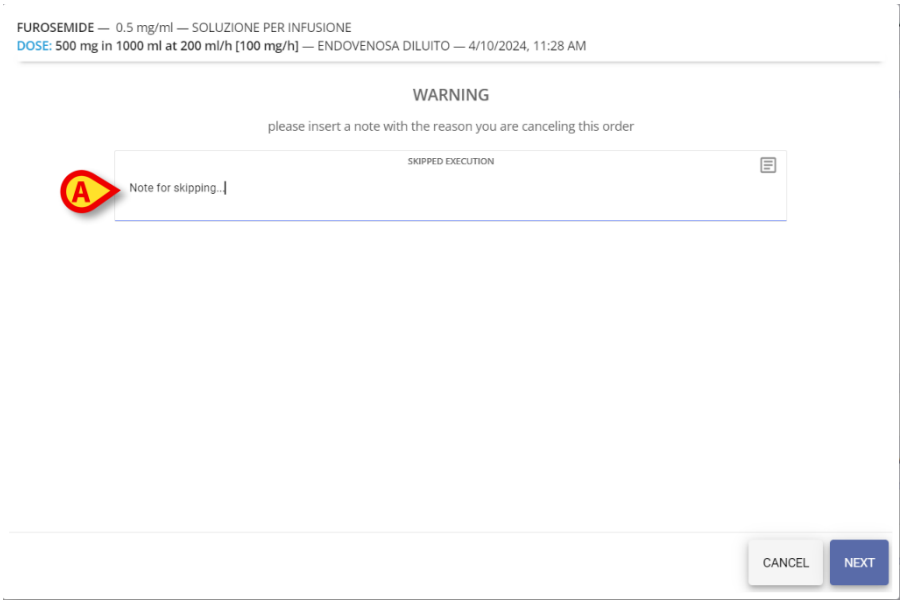

Fig 116

- Click **NEXT** (Fig 116 **B**).

Further confirmation is required. The window changes in the following way (Fig 117).

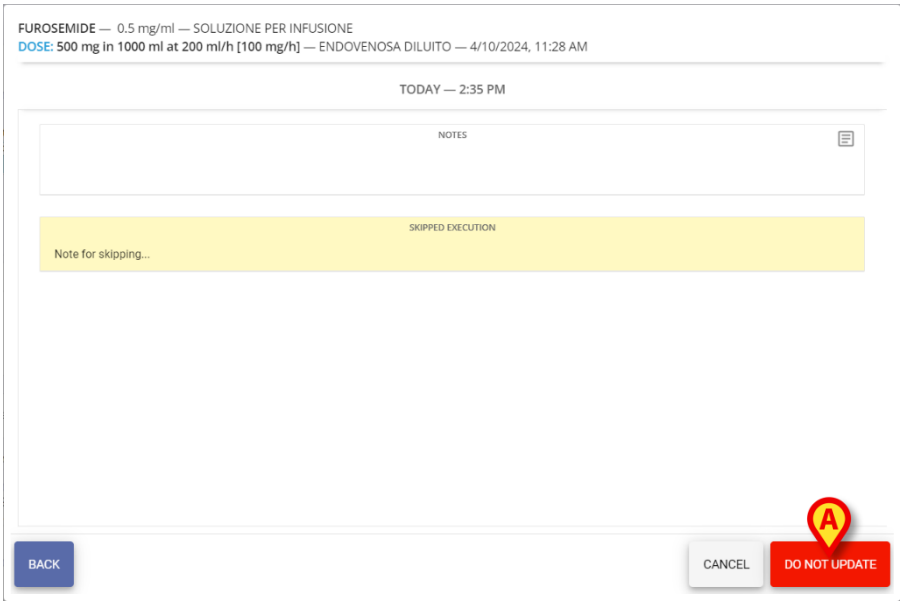

Fig 117

- Click **DO NOT UPDATE** (Fig 117 **A**).

The prescribed update is not performed, the reason for not updating is recorded. The administration chart returns to the original state (Fig 110).

"Stop" order

See, for example, Fig 118.

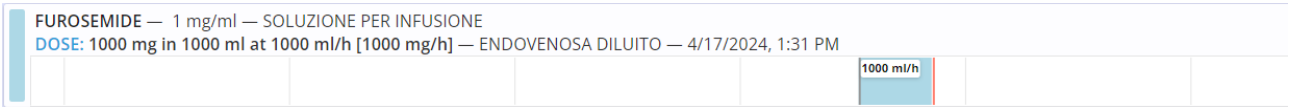

Fig 118

In Fig 118 the administration of Furosemide is running with a speed of 1000 mL/h. On Prescription, the physician prescribes to stop the administration. A green rectangle is displayed on Execution, informing the nursing staff that an action is required for that treatment. The treatment status turns to “ready” again (green). See Fig 119.

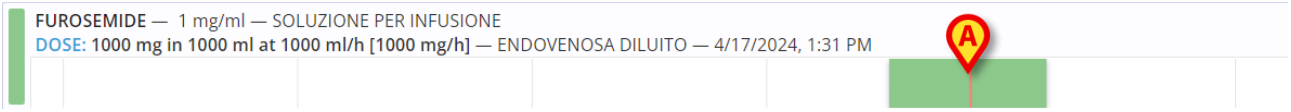

Fig 119

To document the administration stop:

- Click the upper half of the row (Fig 120 **A**).

The administration details and commands are displayed (Fig 120 **B**). Only the “Stop” button is available (Fig 120 **C**).

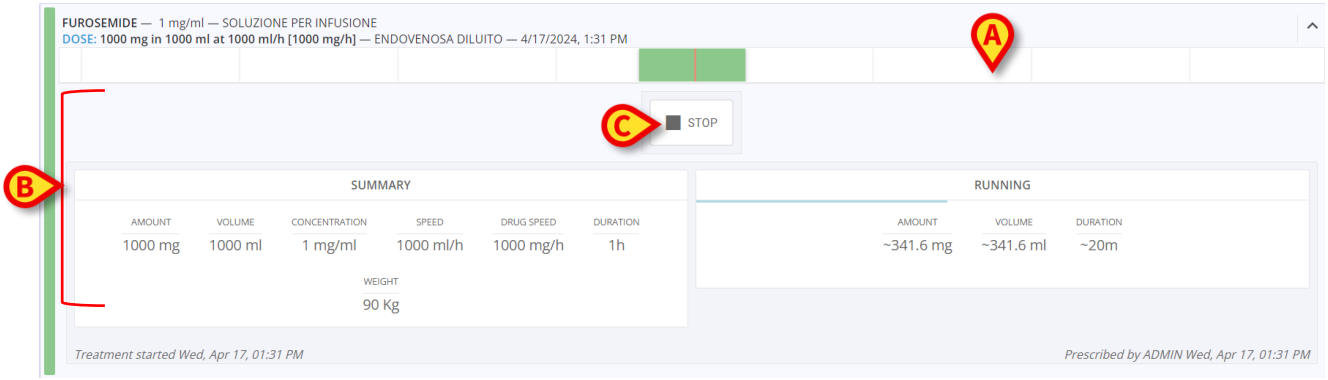

Fig 120

- Click the **STOP** button (Fig 120 **C**).

The administration details window is displayed (Fig 121).

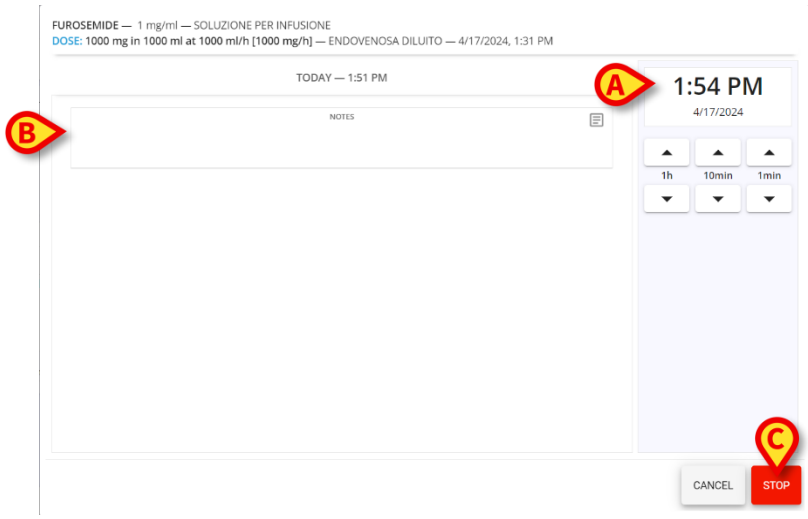

Fig 121

It is possible to adjust the stop time and to add a note, if necessary (Fig 121 **A** – **B**).

- Click the **STOP** button (Fig 121 **D**).

The administration chart changes as follows. The length of the grey rectangle corresponds to the actual duration of the administration (Fig 122 **C**).

Fig 122

5.5.8. Administration of an order either expired or not-yet-validated

The order validity expires after a certain time (see paragraph 3.3.4 for more information). An expired order can be administered anyway but requires specific user permissions and a specific procedure. Expired orders are characterized by the icon (Fig 123).

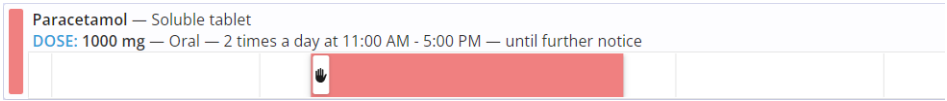

Fig 123

To administer an expired order (or not yet valdated):

- Click the upper half of the row. The administration details and commands are displayed (Fig 124).

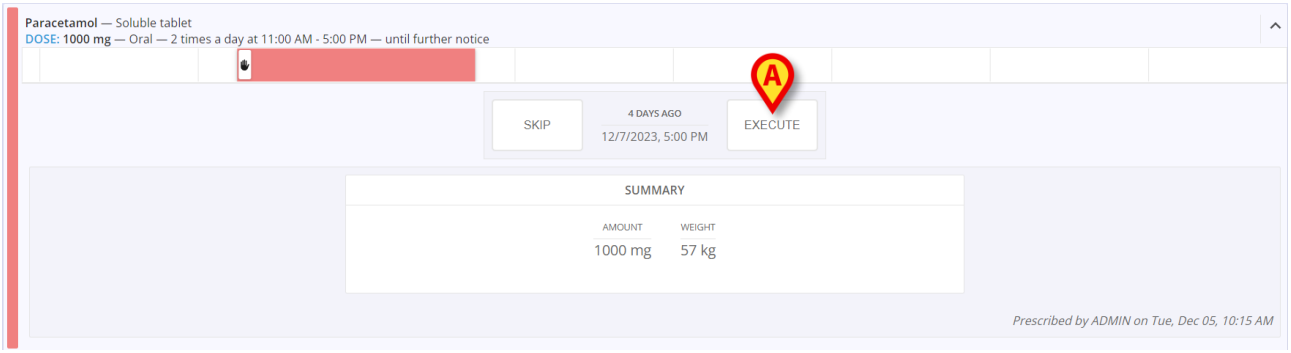

Fig 124

- Click the **Execute** button (Fig 124 **A**).

A window opens, requiring the user to insert the reason why an expired order is administered.

- Specify, in a note, the reason for administering an expired order.

- Click **Next**.

The administration detail window is then displayed. The note is displayed on the window (Fig 125 **A**).

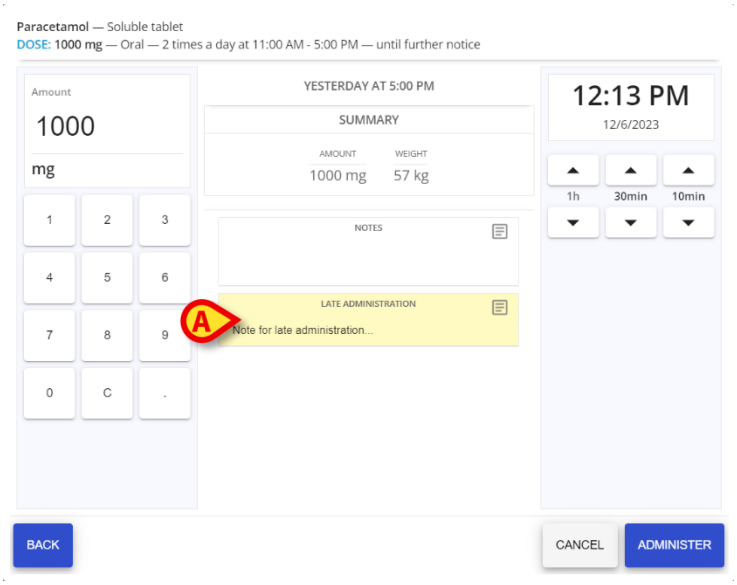

Fig 125

- Click **Administer** to administer the order.

The same procedure can be used to record the administration of a future not-yet-validated order.

5.5.9. Skip administration

To document the fact that a certain treatment was not administered:

- Click the upper half of the row. The administration details and commands are displayed (Fig 126).

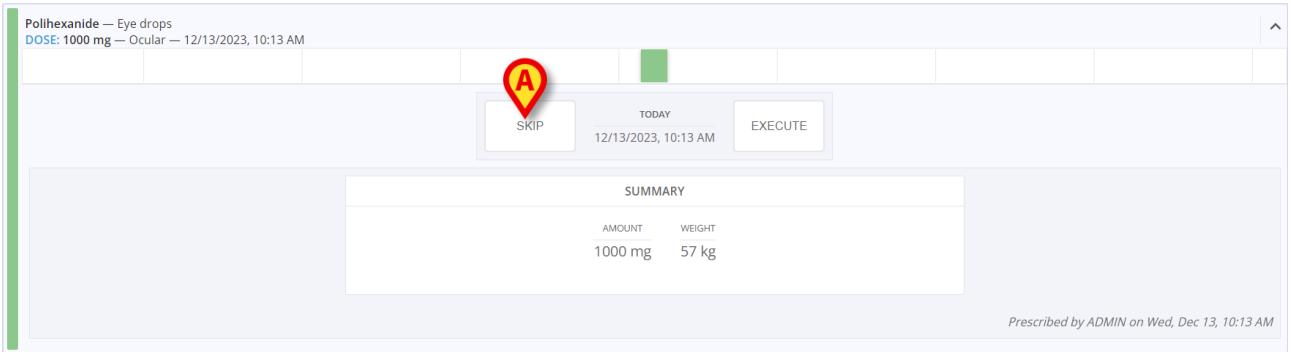

Fig 126

- Click the **Skip** button (Fig 126 **A**).

- Specify, in a note, the reason for not administering the treatment (Fig 127 **A**).

Fig 127

- Click **Next** (Fig 127 **B**).

The administration detail window is displayed. The note is displayed on the window (Fig 128 **A**).

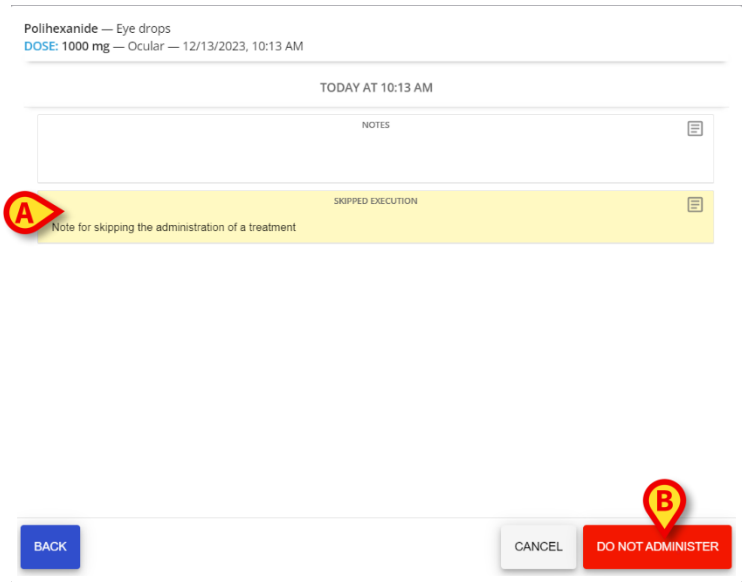

Fig 128

- Click **Do Not Administer** to skip the administration (Fig 128).

5.6. The administration window

The treatment administration window (Fig 129) allows to edit some of the values of the administration on the "Therapy Execution" module.

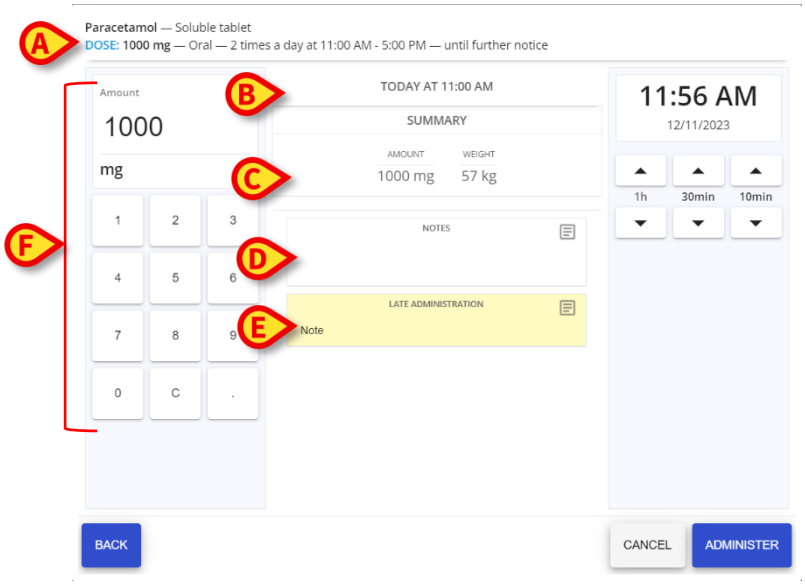

Fig 129

The prescribed values are indicated on top (Fig 129 **A**).

In the central area of the window the following information is displayed:

- Administration scheduled time (Fig 129 **B**).
- Administration summary (Fig 129 **C** – Note: the values specified in this area depend on the treatment type).
- Generic user notes (Fig 129 **D**).

- Notes related to: late/early administrations; changes in the administration values; changes in the administration time (Fig 129 **E**).

On the left, a numeric keyboard allows to change the administered quantities (Fig 129 **F**).

To change the administration amounts:

➢ Use the virtual keyboard to specify the new amount. The window changes as shown in Fig 130.

➢ Type a note explaining the reason for the changes, if required (Fig 130 **B**).

The treatment administration mode can be configured to require a mandatory note, an optional note or to not allow the amount change.

➢ Click the **Administer** button (Fig 130 **C**).

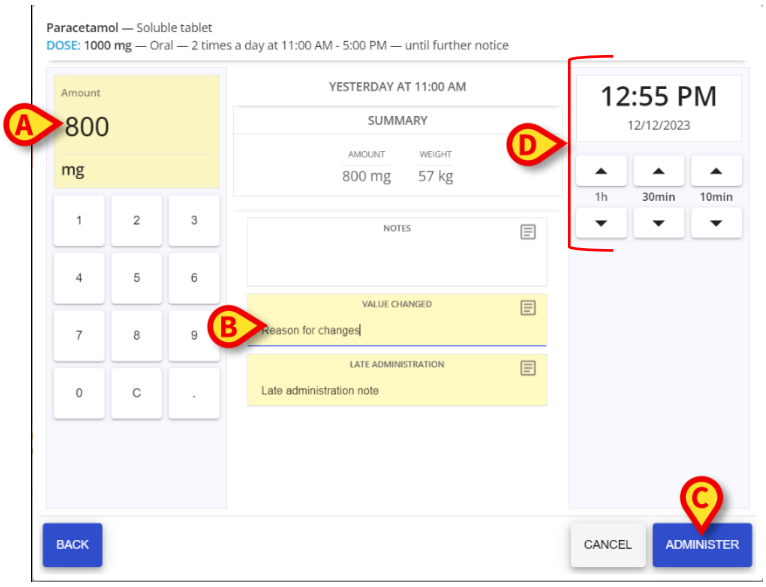

Fig 130

The time display on the right (Fig 130 **D**) should indicate the time at which the treatment is actually administered. The time displayed by default is the time at which the administration window opens. If the administration of an order is documented at a time that is different from the time of the actual administration, it is possible to change the displayed time and indicate the correct administration time.

To do that:

➢ Use the arrow buttons placed below the time display (Fig 130 **D**).

The upward arrows add 1 hour (left arrow), 30 minute (center), 10 minutes (right) to the time displayed.

The downward arrows subtract 1 hour (left arrow), 30 minute (center), 10 minutes (right) to the time displayed.

The window changes in the following way (Fig 131).

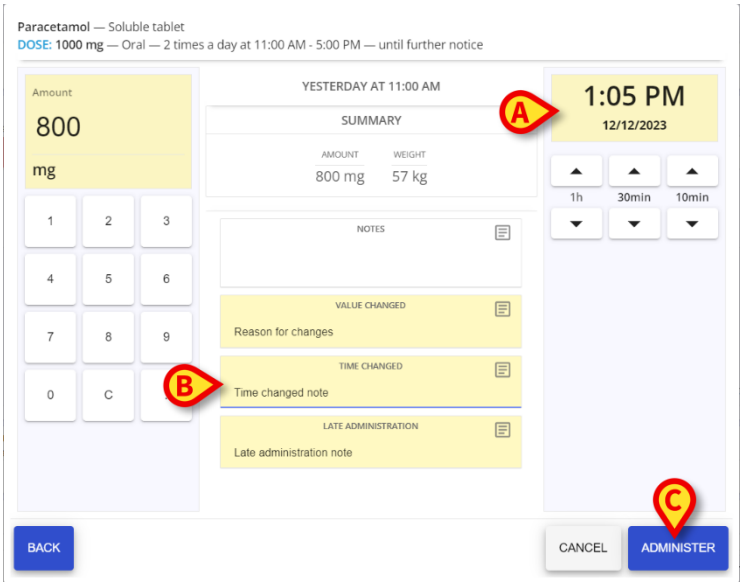

Fig 131

- Type a note, if required, explaining the reason for the time changes (Fig 131 **B**).

The treatment administration mode can be configured to require a mandatory note, an optional note or to not allow the time change.

- Click the **Administer** button (Fig 131 **C**).

The administered order bar or rectangle (in case of durative administration) is placed in the chart according to the time and values specified on the administration window (Fig 132).

Fig 132

5.7. “Execution” module prompts

On the upper left corner of the “Execution” screen different icons can be displayed as prompts for the user relating to the overall status of the treatment plan (Fig 133 **A**).

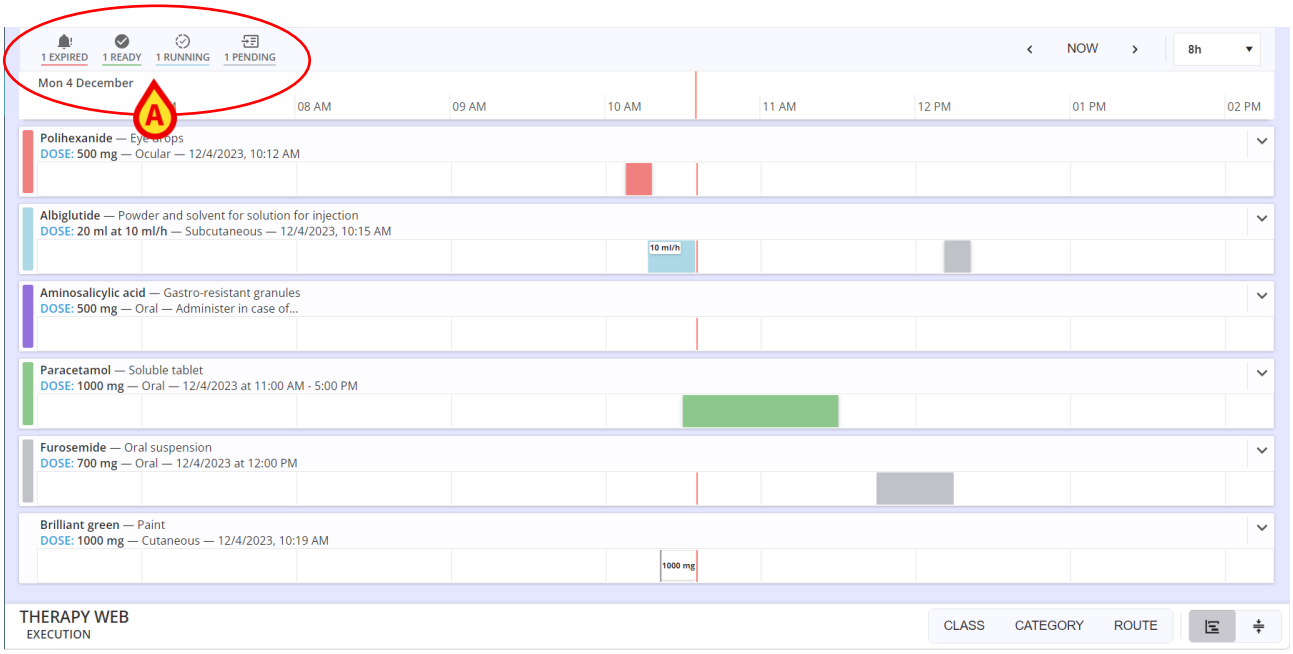

Fig 133

In Fig 133 **A**, for example, the icons indicate that on the treatment plan there are:

- 1 order expired (red)
- 1 order ready (green)
- 1 order running (cyan)
- 1 order pending (grey)

See, in Fig 134, an enlarged view.

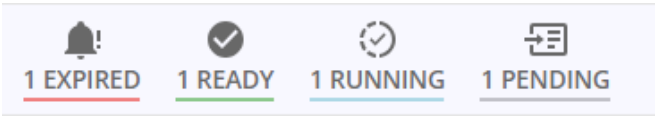

Fig 134

5.8. “Execution” time range display

The commands available in the top-right corner of the “Execution” screen allow to change the time range displayed (Fig 135 **A**).

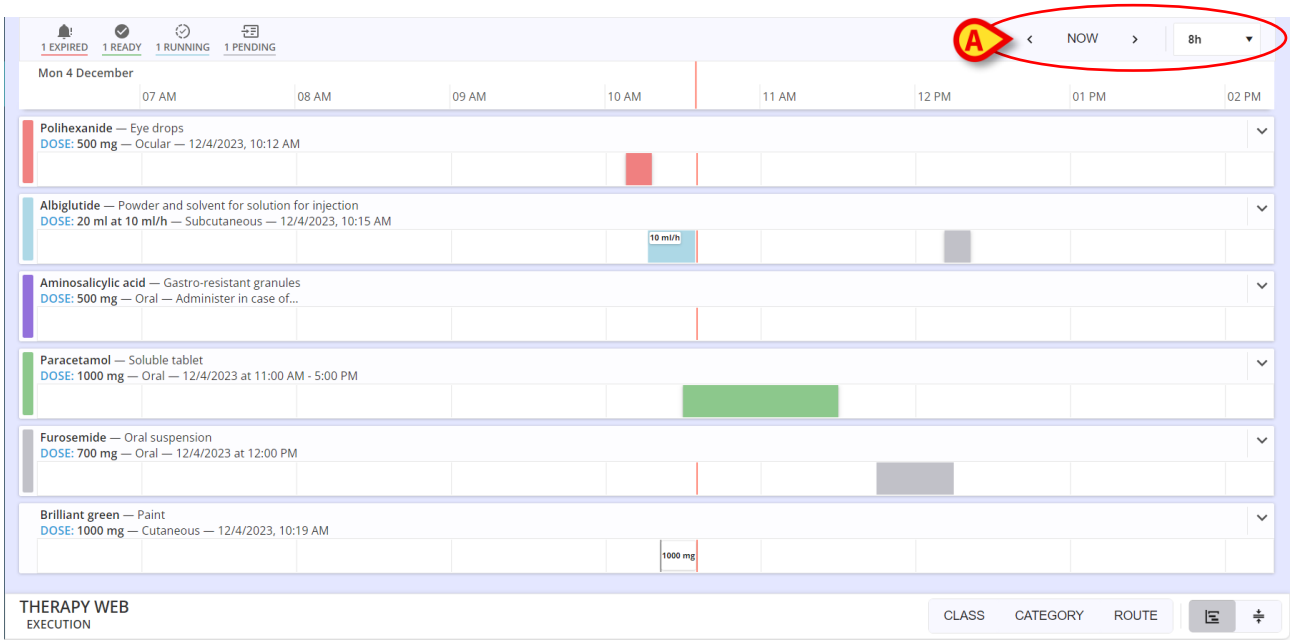

Fig 135

Use the drop-down menu indicated in Fig 136 **A** to change the display mode.

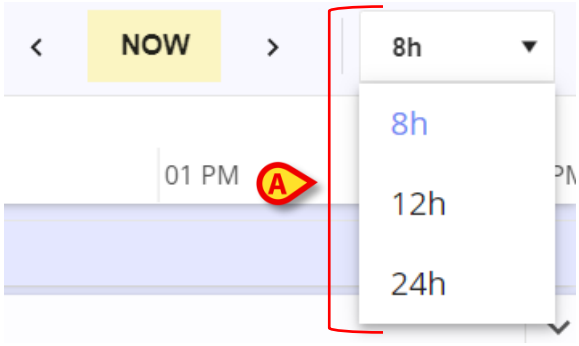

Fig 136

The default display range is 8 hours. Click 12h or 24h to display the corresponding range. Fig 137 shows, as example, a detail of a 24 hours display.

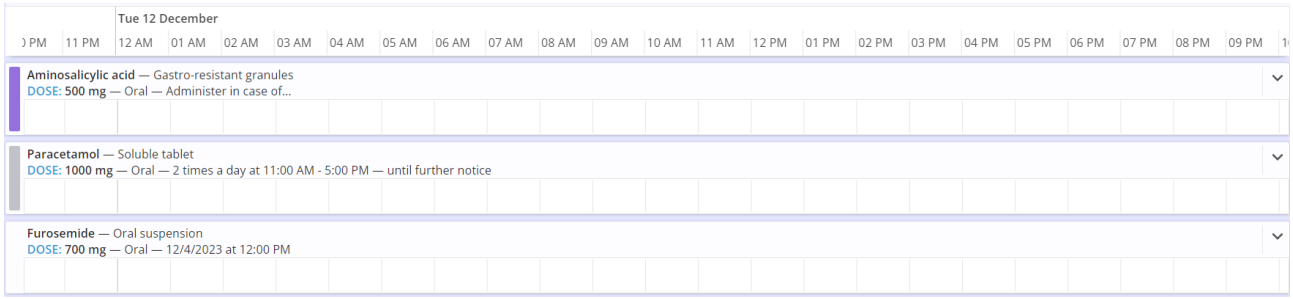

Fig 137 - 24 hours display (detail)

Use the left and right arrows (Fig 138 **A**) to scroll the screen contents back (left) and forward (right).

Fig 138

One click on the arrow button moves the screen for the time range specified in the field (i.e. if 8h is selected - as in the figure -, click the left arrow once to display the previous 8 hours, click the right arrow once to display the following 8 hours; if 12h is selected, the screen moves 12 hours per click).

Use the **NOW** button to display the current time again.

5.9. Treatment sorting buttons

The buttons indicated in Fig 139 **A** allow to sort and group the existing treatments by class, category or administration route.

The class, category and route of a treatment are defined during the configuration of the treatment.

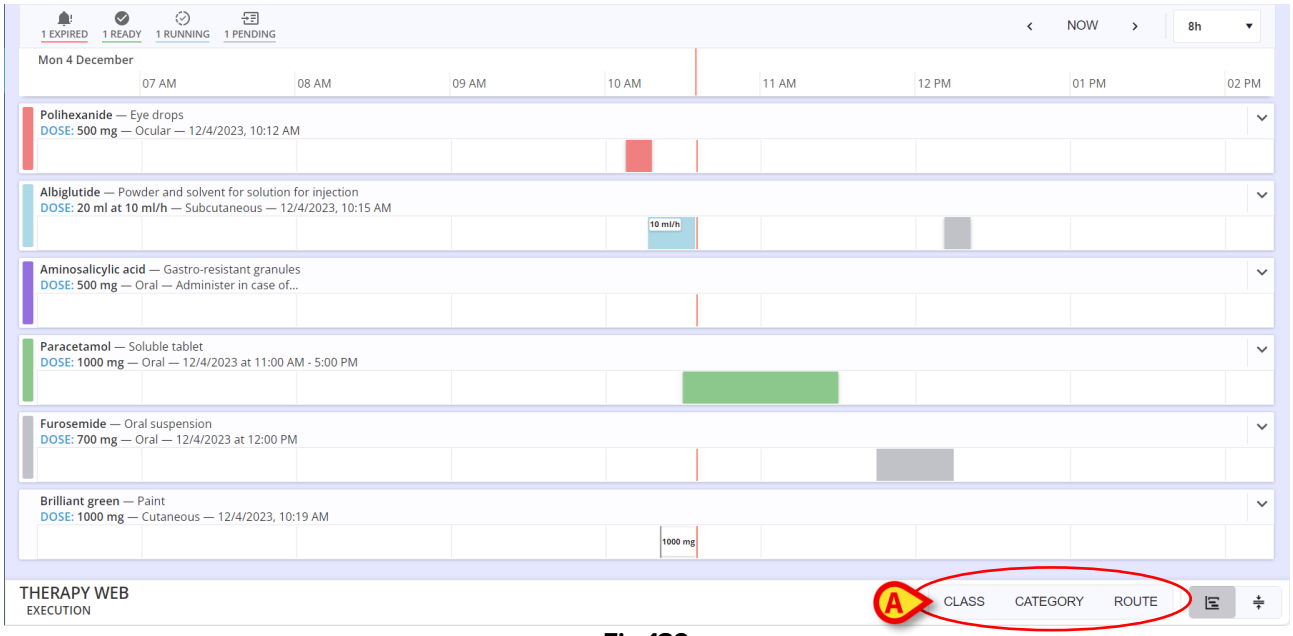

Fig 139

Click a button to sort the treatments according to the related sorting criterion. See, for example, in Fig 140, the treatments sorted by administration route (in the figure: Oral, Ocular, Subcutaneous, Cutaneous).
Click the button again to go back to the original sorting.

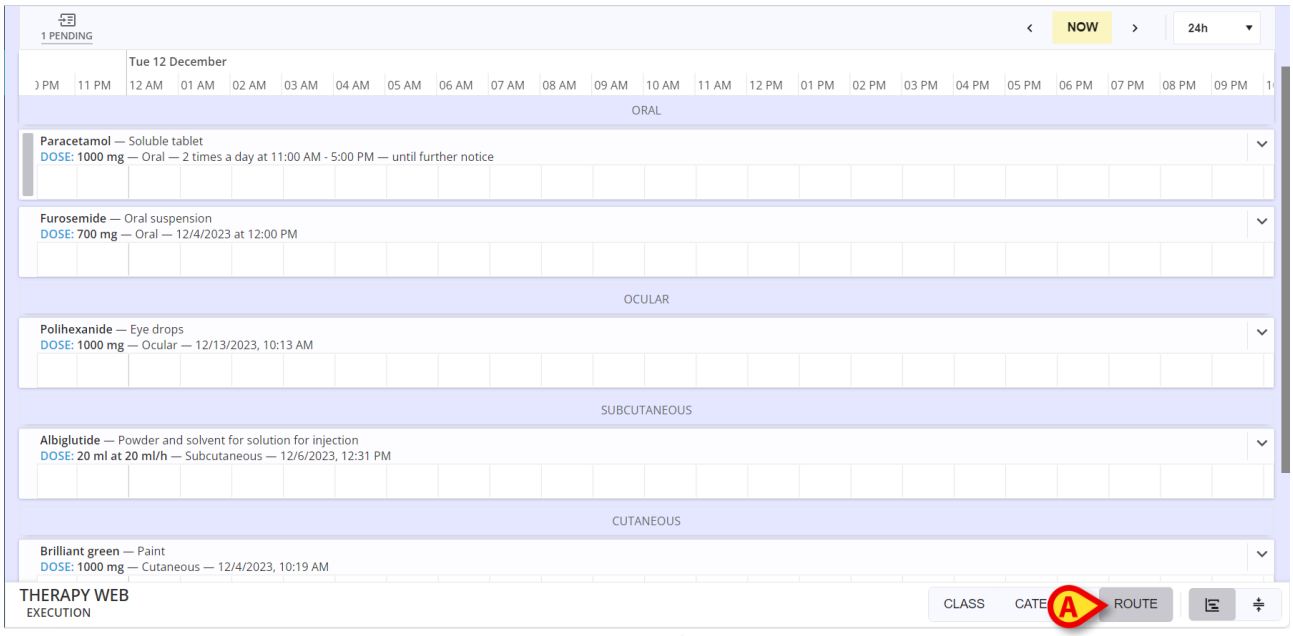

Fig 140

5.10. Compact view

Use the buttons indicated in Fig 141 **A** to switch to a more compact display mode (and back to normal). Fig 141 shows the normal view.

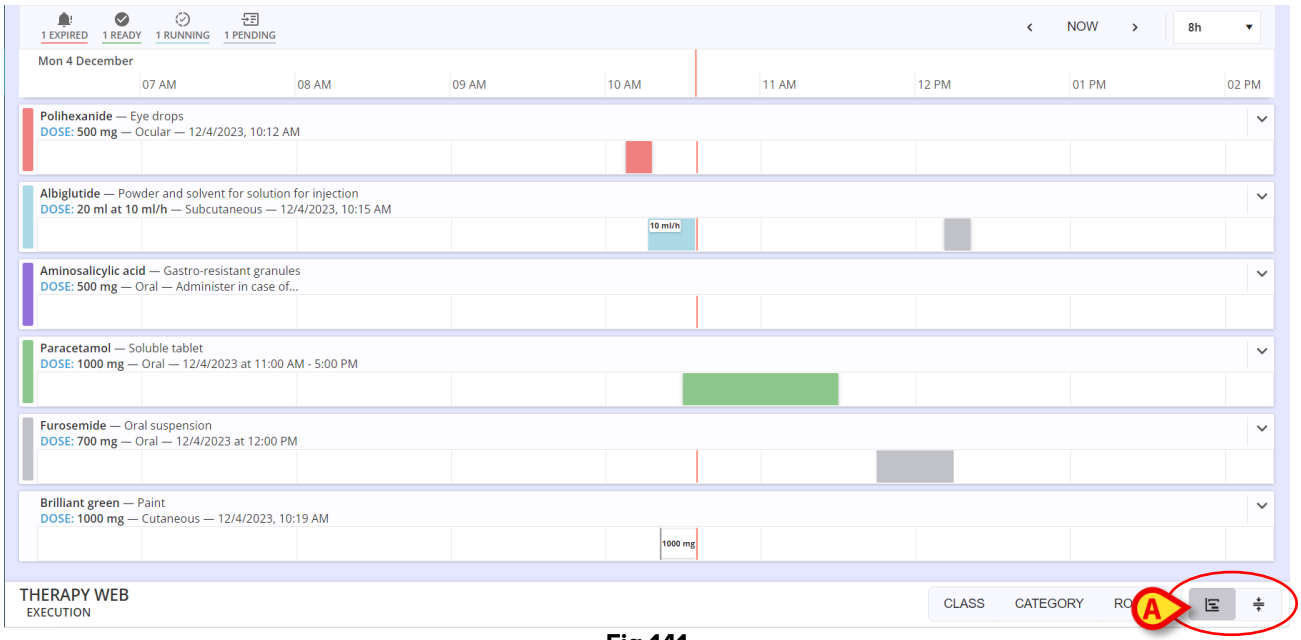

Fig 141

Fig 142 shows the compact view.

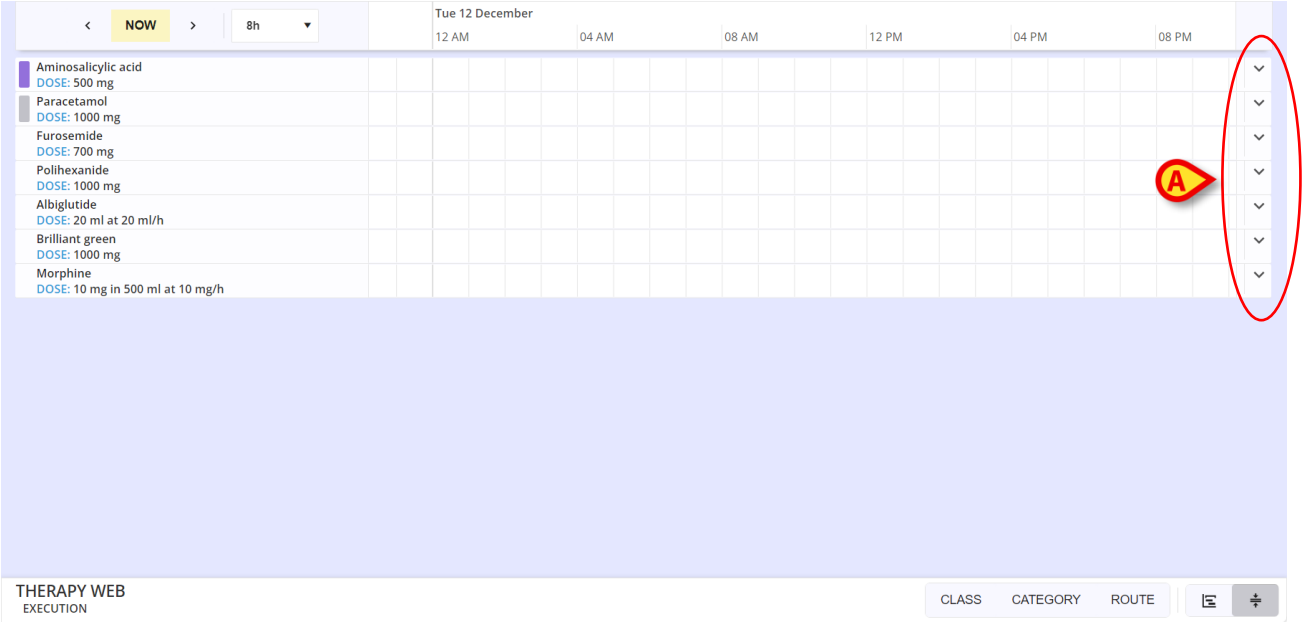

Fig 142

Use the arrows on the right to enlarge the treatment rows and display the administration details and commands (see, for example, Fig 143).

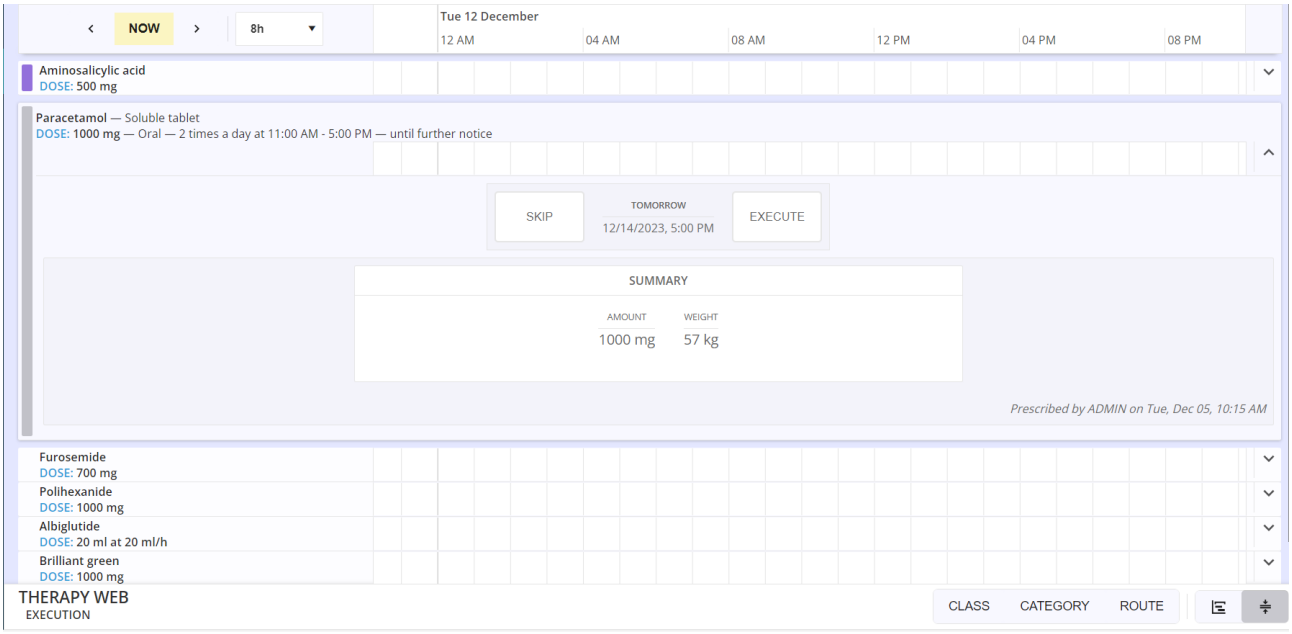

Fig 143

5.11. Closed Therapy

If the Therapy is closed, a “lock” icon - - is displayed on top of the Prescription module. See Fig 84 for an example.

On the Execution module, the only actions allowed on closed therapies are “Stop” and “Update” of running continuative administrations.