Operating Room and Anesthesia Journal (OranJ) User Manual

Version 5.0

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Ascom UMS srl unipersonale
Via Amilcare Ponchielli 29, 50018, Scandicci (FI), Italy
Tel. (+39) 055 0512161 – Fax (+39) 055 829030
www.ascom.com

Contents

1. The OranJ system

For general and detailed information about the Product environment and the instructions for use of the Control Bar software, see the specific documents of the Product. The knowledge and understanding of these documents is mandatory for an appropriate and safe use of the OranJ software, described in this document.

1.1. Introduction

The set of modules forming the OranJ solution (Operating Room and Anesthesia Journal) supports the documentation activities of the surgical departments of the healthcare organization.

1.2. General structure

OranJ is structured to supply an up-to-date picture of the situation in the surgical block or individual room. The workstations are configured to provide all and only the information relevant for the current user and related to the actual the step of the surgical workflow. This means that every user has only access to the functionality that are relevant for them in a specific workstation.
There are four types of standard configuration for OranJ workstations:

1) GENERAL CENTRAL STATION: intended for use on any configured surgical block. It allows to monitor every single block and to operate on them.
2) BLOCK CENTRAL STATION: intended for use inside a specific surgical block. It has the same functionalities of the GENERAL CENTRAL STATION, but limited to the single block.
3) OPERATING ROOM: intended for use inside the operating room. It makes it possible to manage the activities of the individual room.
4) CHECK IN: intended for procedures relating to the patients flow to and from the surgical block.

1.3. Colors and operation state in OranJ

The term “operation state” indicates a standard moment in the patient operating process. Four different operation states are possible.

1) Scheduled – the operation has been scheduled;
2) Ready – the patient has undergone block check-in;
3) In progress – the patient has entered the operating room;
4) Completed – the operation has been completed.

Each state is identified by a color.

1) Light gray: indicates that the operation is scheduled (Scheduled).
2) Green: indicates that the patient has undergone block check-in (Ready).
3) Cyan: indicates that the patient has entered the operating room (In progress).
4) Dark gray: indicates that the operation has been completed (Completed).

The Digistat® Smart Scheduler/OranJ combined system envisages six different operation states. The first two (in logical and chronological order) are “foreseen” and “requested”. These two states are managed by the Digistat® Smart Scheduler and are not displayed by the OranJ solution. For more information see the Digistat® Smart Scheduler user manual (USR ENG Smart Scheduler).
It is also possible (depending on the specific configuration) to activate on “OranJ” a “Read-only” operation state. A darker shade of gray characterizes this state.

1.4. The “List of operations” page

To access the “List of Operations” page (Fig 2):

- Click the **Patient** button on the Digistat Controlbar (Fig 1 **A**).

Fig 1 - Control Bar

A page similar to that shown in Fig 2 is displayed.

The “List of Operations” screen is formed of three main areas:

1) The lists of operations (grouped by state - Fig 2 **A**);
2) The filter buttons (Fig 2 **B**);
3) The command bar (Fig 2 **C**).

Fig 2 – List of operations

1.4.1. The list of operations

The operations are displayed as colored boxes (Fig 2 **A**, Fig 3).

Fig 3 – Operation box

Boxes are arranged into four columns. Every column corresponds to an "operation state", it includes all the operations in that state that are scheduled for the selected day in the selected operating block (see paragraph 1.3 for a description of the possible states).
The page shows all the operations scheduled for the current day, plus any operations begun on previous days and still in progress. The color of the operation boxes indicates the "state" of the corresponding operation.

Operation information is displayed in the box. On the right (Fig 3 **A**) the following information can be displayed:

- Patient name;
- Type of operation;
- The hospital unit requesting the operation.

On the left (Fig 3 **B**) the following information can be displayed:

- Room (planned or actual, depending on the operation state - room 6 in Fig 3);
- Block (BLO in Fig 3);
- The operation scheduled start time (10:35 in Fig 3).

The kind and position of the information displayed in a box depend on the configuration in use. The information actually displayed can be different from that displayed in the examples here described.

If an operation is assigned to a block and a room that are different from those specified in the scheduling phase, the corresponding operation box (Fig 3) shows the actual block and room (no longer the scheduled ones). The block and room originally scheduled are still indicated on the record shown on the "Patient and Operation Details" page (described in paragraph 3).

The box can contain small yellow or red letters (Fig 4).

Fig 4 – Allergies and devices

The yellow letters indicate the possible devices required for the operation. The letter is the initial of the name of the device.

The red letters indicate the presence of infections, allergies or transmissible diseases. This information is specified on the Digistat Smart Scheduler system.

One or more requirements can be configured to be displayed on the “Operation box”. For instance: to indicate that an ICU bed is required after the operation, or to indicate that an operation requires no anesthesia. The requirement is displayed on the operation box as a small square, having customizable color and indicating the first letter of the name of the requirement.

When the left part of a box is red (as in Fig 5) it means that the operation is an “Emergency”. “Emergencies” are displayed not only on the current day, but also on the pages referring to future days (see paragraph 1.4.3 for the procedure required to change the day displayed). The small number indicated in Fig 5 **A** indicates the emergency level (level 1 in the figure - the configuration here described envisages three emergency levels).

Fig 5 - Emergency

If the icon (Fig 6 **A**) is displayed alongside the patient’s name it means that patien data is temporary. The procedures related to a “Temporary patient” are described in the Digistat “Smart Scheduler” system user manual (*USR ENG Smart Scheduler*).

The red triangle indicated in Fig 6 **B** means that the operation is a reserve planned for a day that is not the current day. See paragraph 4.3 for the explanation of the term “Reserve” in the “OranJ” context.

Fig 6 – Temporary patient

If a red cross is displayed before the operation name (Fig 7) it means that the patient entered the block and, for some reason, was not operated and checked-out immediately after.

Fig 7

The operation boxes are clickable. Click one of the boxes to access the corresponding “Home OranJ” screen. The “Home OranJ” screen makes it possible to display and manage all the information available for a specific operation. The “Home OranJ” screen, shown in Fig 84, is described in paragraph 2.1.

The boxes characterized by the icon (temporary patient data) cannot be clicked.

1.4.2. The filter buttons

On the left side of the screen there is a vertical bar comprising all the letters of the alphabet (Fig 2 **B**). This bar has the function of an index and makes it possible to display the patients whose names begin with a specific letter.
For example, click the **AB** button on the bar once and only patients whose names begin with the letter A are displayed.
Click again the same button and only patients whose names begin with the letter B appear.
Click the **All** button to see the complete list of patients.

1.4.3. "List of operations" screen command bar

The command bar of the "List of operations" screen (Fig 2 **C**, Fig 8) contains several buttons making it possible to perform specific actions.

Fig 8 – Command bar ("List of operations" screen)

The specific function of each button is described in the following paragraphs.

The command bar may appear differently depending on the type of workstation you are using. Some buttons are not enabled if the related functionality is not relevant for the specific workstation.

1.4.3.1. Block selection

The first button on the left (**BH05** in the figure) shows the name of the operating block currently displayed.

The button can be used, if the workstation is a General Central Station, to display the data relating to another surgical block. To do that

- Click the block selection button.

A list of all the configured blocks opens (Fig 9).

Fig 9 – Block selection

- Click the button corresponding to the relevant block.

The data relating to the selected surgical block are displayed.

1.4.3.2. Selection of another patient

To select a patient that is not currently displayed on screen

- Click the **Other** button on the command bar.

The Patient Explorer module opens. See the patient explorer user manual (*USR ENG Patient Explorer*) for instructions.

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

1.4.3.3. Patient deselection

The **None** button makes it possible to deselect the patient currently selected. The name of the selected patient is displayed on the **Patient** button on "Control Bar". To deselect the patient currently selected.

- Click the **None** button.

The patient's name disappears from the **Patient** button.

1.4.3.4. Displayed day selection

The **Today** button makes it possible to display the data relating to a different day.

To change the day displayed on screen

- Click the **Today** button.

A calendar window opens (Fig 10).

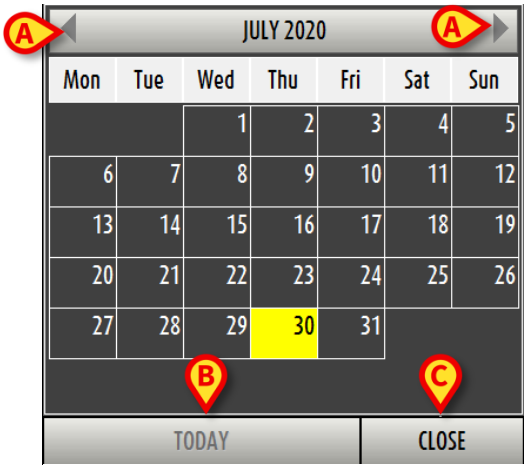

Fig 10 – Calendar

The selected day is highlighted yellow.

The arrows indicated in Fig 10 **A** make it possible to change month. If it is April, for example, click the right arrow to display the calendar for May and the left arrow to display the calendar for March.

After selecting the month,

- Click the day to be displayed.

The day selected on the calendar turns yellow. The page relating to the selected day is displayed.
If the displayed day is in the past, the page is divided into two columns (planned operations and completed operations).

If the displayed day is in the future, the only operations displayed are the planned ones (single light-gray column).
When a different day is selected, the **Today** button displays the date of the day displayed.

To return to the current day:

- Click, on the calendar, the button indicated in Fig 10 **B**.

To close the calendar:

- Click the **Close** button indicated in Fig 10 **C**.

1.4.3.5. Closing the “List of operations” screen

To close the “List of operations” screen:

- Click the **Close** button on the command bar.

2. The “OranJ” module

The Digistat OranJ module provides a help in the documentation tasks in the operating room.

The OranJ module is installed on GENERAL CENTRAL STATION, BLOCK CENTRAL STATION and OPERATING ROOM Workstations.

2.1. “OranJ Home” screen

When accessing the “OranJ” module, the “OranJ Home” screen is displayed (Fig 12). This page is accessed when

a) the OranJ module icon is selected on the side bar - 

;

b) an operation is selected (anywhere possible).

The screen is formed of three main areas that will be described in the following paragraphs. These are:

1. The operation data (Fig 11 **A**);
2. The command bar (Fig 11 **B**);
3. The chronology of the operation (markers list - Fig 11 **C**).

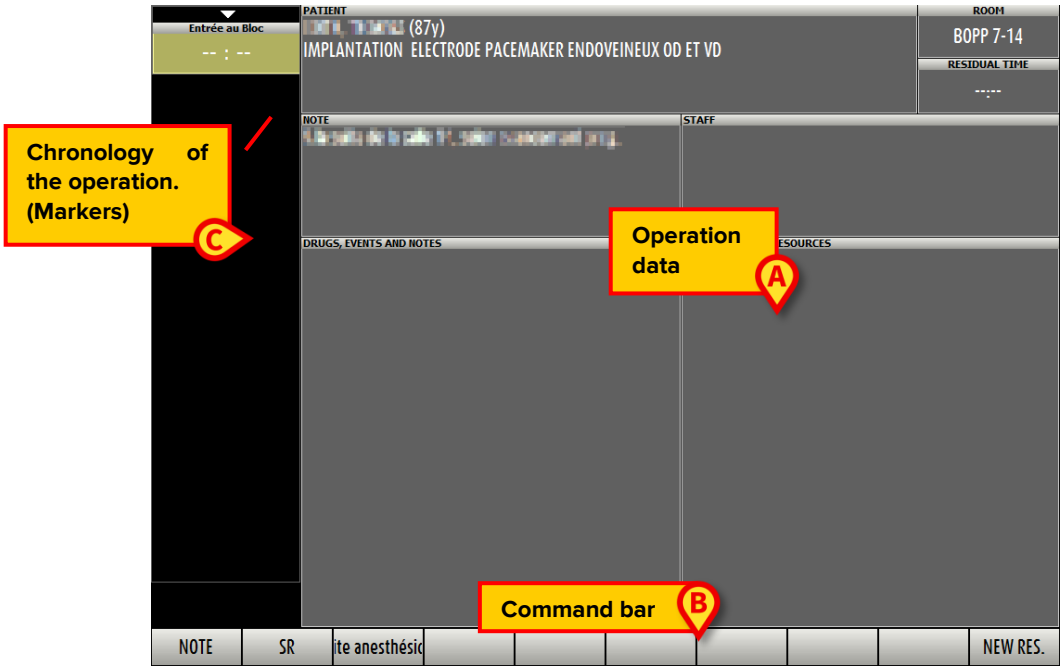

Fig 11 - OranJ Home

2.2. Operation data

The area shown in Fig 12 makes it possible to record and display some of the operation's relevant data.

Fig 12 – Operation data

The "Operation data" area is itself divided in further different sections, each of which is related to a set of features of the operation.
These sections are here listed and briefly described. A detailed description is provided in the indicated paragraphs.

- **"Patient"** area (Fig 12 **A**). Summarizes the data of the patient and the operation. Click it to access the "Patient and Operation Details" page (paragraph 3).
- **"Note"** area (Fig 12 **B**). Shows any notes concerning the operation or the patient. Click it to open a keyboard window and add a note (see paragraph 2.6 for the related procedures).
- "**Drugs, events and notes**" area (Fig 12 **C**). Shows the list of events recorded during the operation, the drugs administered and the notes added, in chronological order. Click it to access the "Events" page and enter, delete or edit these events (paragraph 2.5).
- "**Staff**" area (Fig 12 **D**). Shows the list of names and roles of staff involved in the operation. Click it to access a page to edit this list and manage changes in room staff (paragraph 2.10).
- "**Materials and resources**" area (Fig 12 **E**). Shows the list of materials and instruments used during the operation. Click it to access a page to manage the resources scheduled and to add or eliminate them if necessary during the operation (paragraph 2.11).

- "**Room**" area (Fig 12 **F**). Indicates the surgical block and operating room. This section cannot be clicked. In the event of a change in the room scheduled for the operation, this must be recorded using the OranJ Plan module (paragraph 4) or the "Patient and Operation Details" page (paragraph 3).
- "**Residual time**" area (Fig 12 **G**). Indicates the time remaining to the end of the operation according to the scheduled duration. This quadrant works as a countdown which starts when the patient enters the room (paragraph 2.9).

2.3. Command bar

The command bar of the main page of the OranJ module contains a series of buttons which make it possible to directly access some of the pages and functions described in this chapter.
These are shortcut buttons to facilitate the access to those procedures performed more frequently.
This bar is configurable: i.e., the number and function of the buttons change to suit the specific organisation needs. Below an example is displayed.

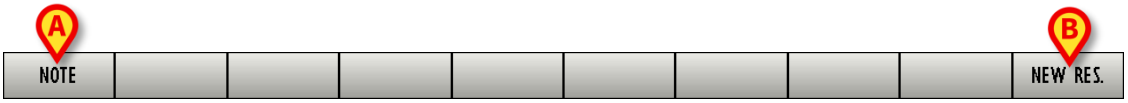

Fig 13 – OranJ module command bar

In the example shown here, the **Note** button (Fig 13 **A**) makes it possible to directly access the page used to add a note. Use the **New Res.** Button (Fig 13 **B**) to directly access the page to manage the operation room resources. Each of these pages is described in later.
Similarly, the other buttons, when so configured, offer direct access to those pages and functions which, depending on the user's needs, are used most frequently.

2.4. Operation chronology: the "Markers"

The left side of the screen (Fig 12 **C**) shows the sequence of events that form an operation, in chronological order.
It is assumed that certain events are repeated for all operations and that they occur in a specific order. These are known as "**Markers**".
Marker are ordered chronologically and logically. The OranJ system envisages 6 markers as standard:

- Block in (the patient has undergone block check-in)
- Room in (the patient has undergone room check-in)
- Skin incision
- Suture
- Room out (Operation done)
- Block exit

The number and nature of Markers, as well as their sequential logic, can be configured to suit the needs of the specific healthcare organization. The example here refers to a standard configuration.

2.4.1. Markers sequence

The markers appear as a sequence of boxes (Fig 14). The boxes are arranged in chronological and logical order.

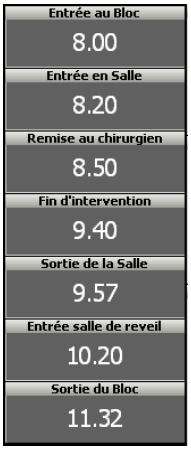

Fig 14 – Markers sequence

The first box, relating to entrance into the surgical block, appears when an operation is scheduled. The box is yellow and contains no information on the moment (date and time) in which the event occurred (Fig 15). This means that the event has not occurred yet (the patient has not yet entered the block).

Fig 15 – First marker

When the patient physically enters the surgical block, to record the event, the user has to click/tap the box.
If so specified by configuration, patient identification is here necessary. Patient identification procedure is described in paragraph 2.4.2.

If an OranJ "Check In" workstation is active it is used to manage the patient's block entrance. OranJ "Check In" is described in paragraph 7.

After patient identification the box becomes gray and displays the time at which it is clicked. A new ochre yellow box (or several boxes, depending on the configuration) is displayed below. New boxes refer to subsequent events (Fig 16).

The system can be configured to show the date also. The date is usually displayed when referring to a day different than today.

Fig 16 – Second marker

The events this way recorded is also dislplayed in the “drugs, events and notes” area of the page (Fig 17).

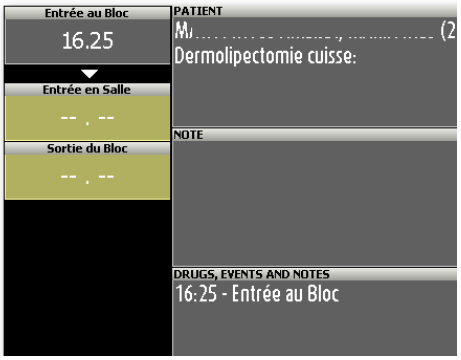

Fig 17 – Markers sequence

In general, to record a marker

- Click/tap the corresponding box.

When the patient enters the operating room (“room in” marker) further confirmation of the patient’s identity can be required (depending on configuration). The identification procedure is the same as that described in paragraph 2.4.2. The identification can be performed by means of barcode, patient code and also reservation number or the admission code (Fig 18). This form enables to specify the actual room and block of the operation.

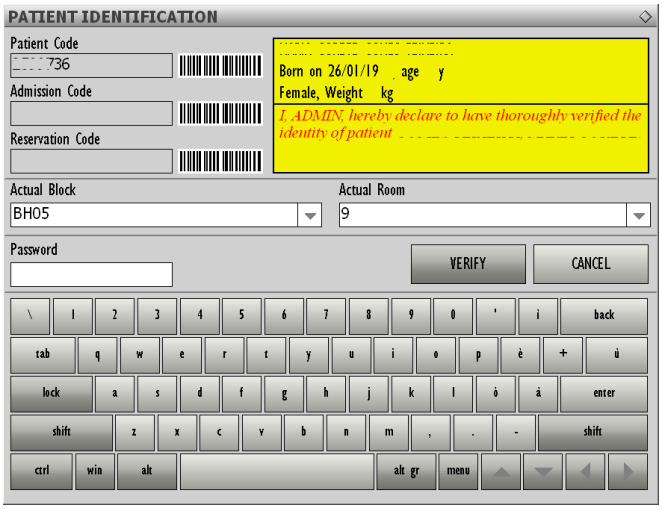

Fig 18 – Patient Identification

After identification, the “room in” box turns gray and shows the room-in time. The marker is also deisplayed as “event” in the “drugs, events and notes” area of the page (Fig 19 **A**).

The patient's entrance into the operating room corresponds to the actual operation start time. Consequently, when the "room in" event is recorded, the length of time envisaged for the operation appears in the "residual time" area and a "residual time" countdown starts (Fig 19 **B** - see paragraph 2.9 for a detailed description of this area). Countdown stops at "Room-out" time. The "residual time" area will display the actual duration time of the operation (in the form "Completed in hh:mm").

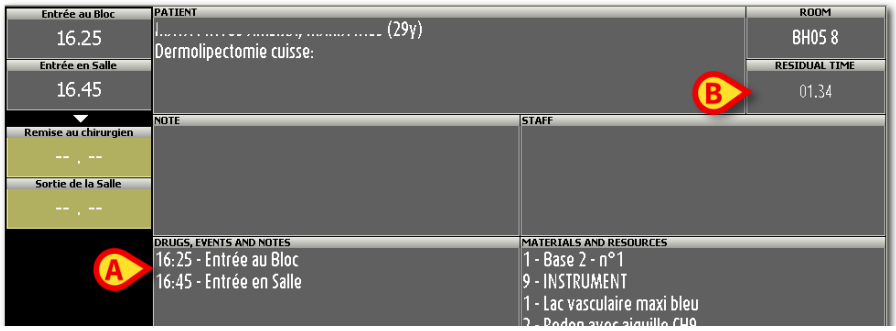

Fig 19 – Markers sequence

2.4.2. Patient identification

"Block in" and "Room in" can require patient identification, according to configuration. If this is the case, at "Block in" time, the following window is displayed (Fig 20).

Fig 20 – Patient identification

To identify the patient

- Enter the patient code in the "Patient Code" field (Fig 20 **A**).
- Click the **Identify** button (Fig 20 **B**).

Or, if the function is available

- Scan the patient's barcode.
- Click the **Identify** button (Fig 20 **B**).

A window containing the patient's data and a declaration of acceptance of responsibility by the user is displayed (Fig 21).

Fig 21 –Identification window

To complete the procedure:

- Enter the user personal password in the "Password" field (Fig 21 **A**).
- Click **Verify** (Fig 21 **B**).

The "Block in" marker is this way recorded.
The **Cancel** button makes it possible to quit the procedure (Fig 21 **C**).

2.4.3. Markers and operation state changes

The changes in the operation state are linked to the markers recorded on the "OranJ Home" screen. The recording of the marker determines a change in the operation state.

- The "Block entrance" marker implies the switch from "Planned" state to "Ready" state.
- The "Room in" marker implies the switch from "Ready" state to "In progress" state.
- The "Cut" marker implies the end of pre-surgical time and the beginning of surgical time.
- The "Suture" marker implies the end of surgical time and the beginning of post-surgical time.
- The "Room out" marker implies the switch from "In progress" state to "Completed" state.

2.4.4. Markers management

2.4.4.1. How to change the time of a marker after it has been recorded

To change the time of a marker after it has been recorded:

- Click the box corresponding to the marker (Fig 22 **A**).

A numeric keyboard is displayed (Fig 22 **B**).

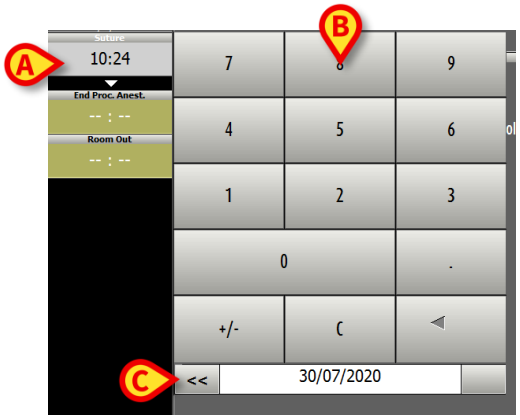

Fig 22 – Markers time change

- Enter the time required using the keyboard.
- Click again the box corresponding to the marker to confirm the new time.

The numeric keyboard disappears and the new time is displayed.

To hide the numeric keyboard, click the box corresponding to the event.

If the time entered is not coherent, an “invalid time” message is provided.

2.4.4.2. Deleting a marker

To delete a recorded marker

- Click the (gray) box corresponding to the marker (Fig 22 **A**).

A numeric keyboard appears (Fig 22 **B**).

- Click the **C** button on the keyboard. Confirmation is required.
- Click **Yes** to delete the marker.

The deleting of a marker implies the deleting of all subsequent markers.
The box corresponding to the deleted marker becomes ocher yellow again, meaning that the related event has not yet occurred. This box is now the last on the markers sequence list; the event related to the deleted marker is the next event to happen.

2.4.4.3. How to change the date of a marker

To change the date of a marker

- Click the box corresponding to a marker (Fig 22 **A**).

A numeric keyboard appears (Fig 22 **B**). The keyboard displays the date on which the marker was recorded. Alongside the date there are two arrow-buttons (Fig 22 **C**).

- Click the left arrow << to bring the date of the event forward by one day.
- Click the right arrow >> to postpone the date of the event by one day.

The date can be changed within a range of specific values, defined in the configuration. The arrow buttons are disabled if the date cannot be changed (either back or forward or both).

2.5. "Drugs, events and notes" area

Other than "Markers", several kinds of events can be documented for an operation. The nature and number of these events are decided during configuration. Commonly, this is data relating to administered drugs, surgical procedures or possible complications. These events are recorded on the "Events" page (Fig 24). To access the "Events" page, on the "OranJ Home" page (Fig 23),

- Click the "drugs, events and notes" area (Fig 23 **A**).

Fig 23 - OranJ Home

The “Events” page opens (Fig 24).

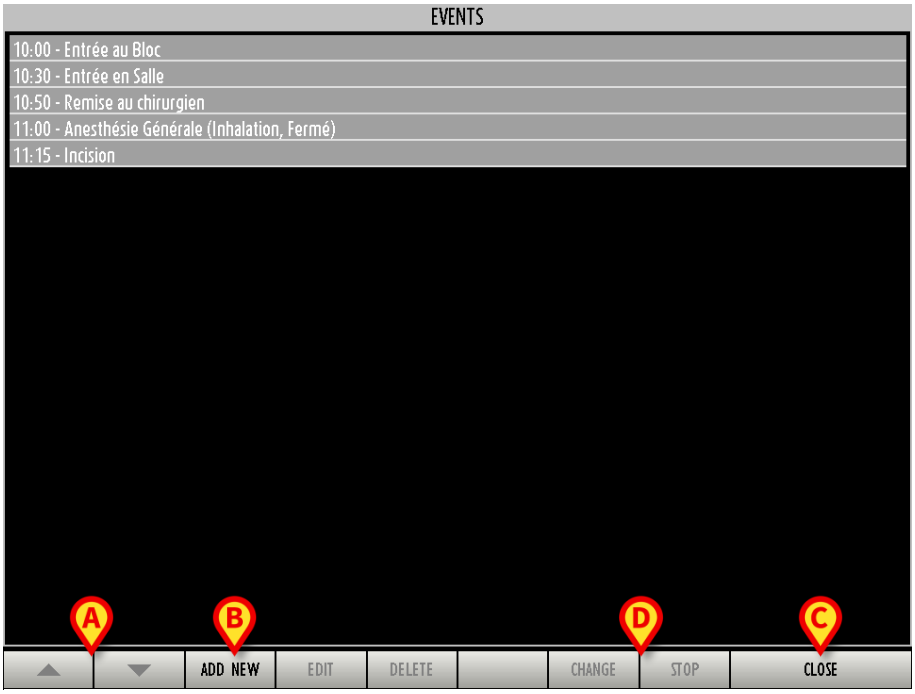

Fig 24 – “Events” page

The “Events” page lists all the events associated with the operation in chronological order, together with the markers and the notes.

Markers cannot be edited on this page. To edit a marker, you have to use the procedure described in paragraph 2.4.

The arrows on the command activate if the list needs to be scrolled (Fig 24 **A**).

Use the **Close** button (Fig 24 **C**) to close the “Events” page. The “OranJ Home” page is displayed again (Fig 12).

The **Change** and **Stop** buttons (Fig 24 **D**) can be used to manage those events that continue over time and which, while occurring, may be subject to changes. For example: to change an infusion speed/rate/dose while in progress.

- Click the **Change** button to access the event documentation page (an example is shown in Fig 27; note that the “event pages” are tailored according to the specific event and therefore very variable).

- Click the **Stop** button to record the end of the event in progress.

2.5.1. How to record an event

To record an event

- Click the **Add New** button on the command bar (Fig 24 **B**).

A page similar to that shown in Fig 25 is displayed.

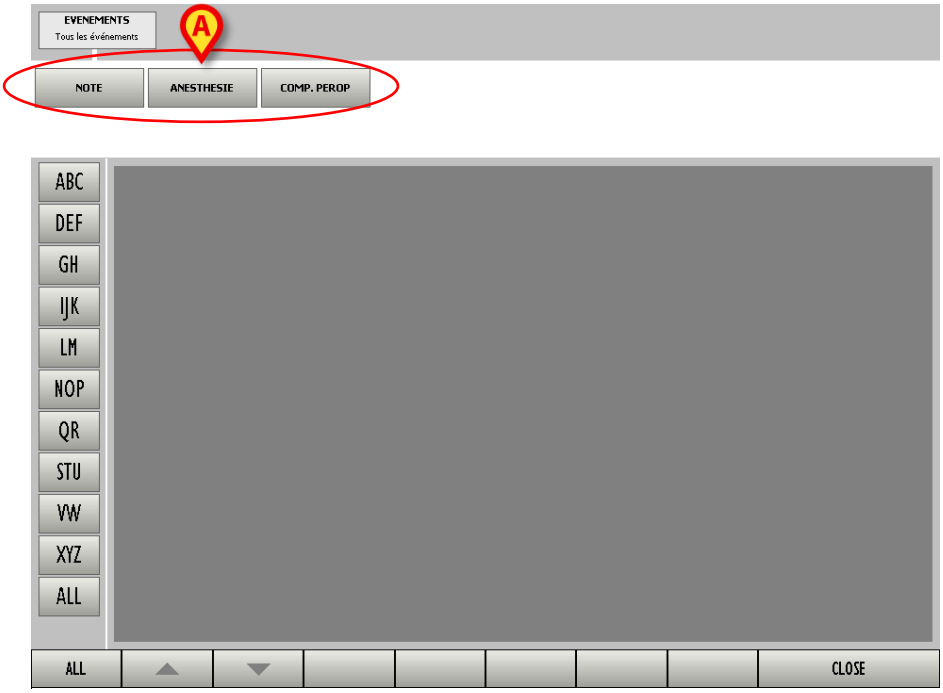

Fig 25 – Adding an event

Every type of event is represented by a gray rectangle.
In this example 3 types of events are configured: notes, type of anesthesia and operating procedures (Fig 25 **A**).

The number and kind of events are customizable. The configuration described here is an example.

To select one of the available types:

- Click the corresponding rectangle.

Every "type" can open various sub-types. In the example shown in Fig 26, the "anesthesia" event opens four specific types of anesthesia. Likewise, the "drugs" event can give access to a list of drug types (sleep inducers, anesthetics, painkillers, etc.); every type of drug then opens a list of specific drugs (Propofol, Midazolam, etc.).
To display the list of all the elements of a specific type (e.g., all the configured drugs or types of anesthesia)

- Click the **All** button (Fig 26 **C**).

The elements on the list can be filtered using the index buttons on the left (Fig 26 **A** - See paragraph 1.4 for the explanation of how these buttons work).

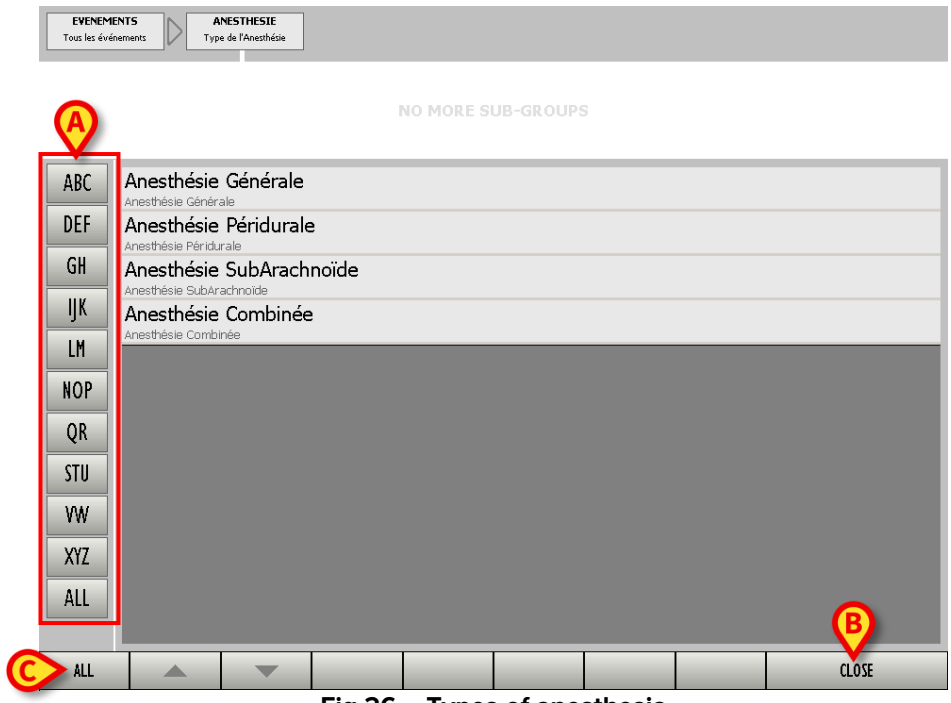

Fig 26 – Types of anesthesia

To add the event:

- Click the name of the relevant event.

In the example below “Subarachnoid Anesthesia” is selected (Fig 27).

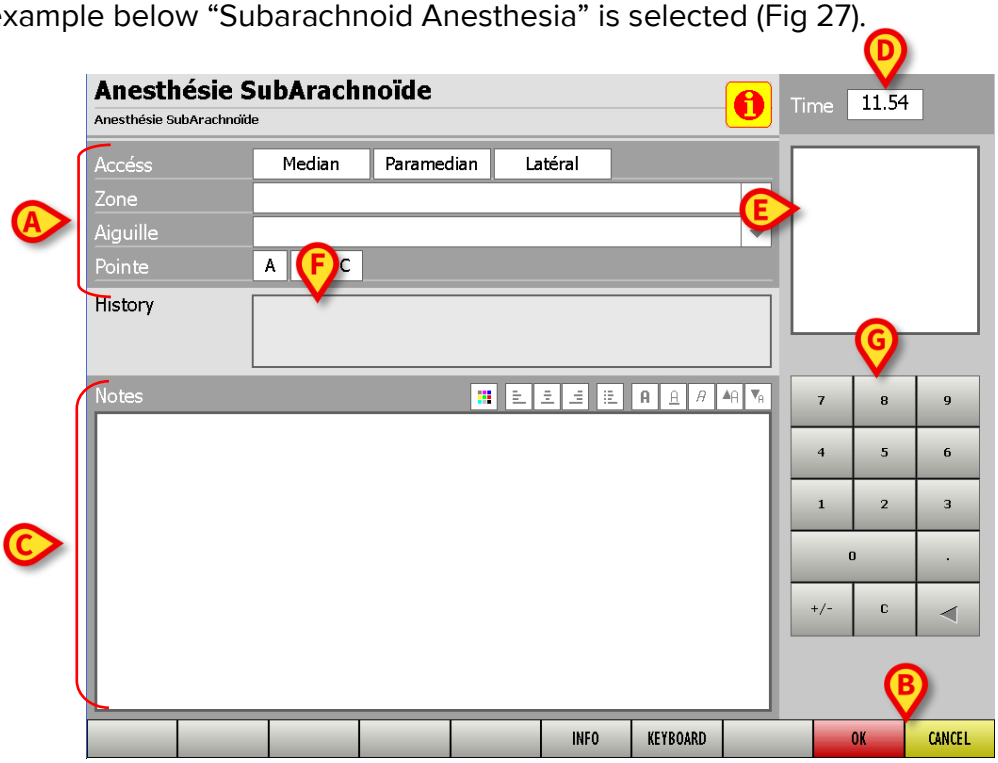

Fig 27 – Event: subarachnoid anesthesia

The page makes it possible to specify, in detail, the type of anesthesia administered (Fig 27 **A**). After entering the specific values, to record the new event

- Click **Ok** (Fig 27 **B**).

The new event recorded appears on the “events” page (Fig 24) and in the “drugs, events and notes” area of the “OranJ Form” page (Fig 23 **A**).

- Click **Cancel** to quit the procedure (Fig 27 **B**).

Event shortcut buttons, described in paragraph 2.3 (Fig 13), can be configured to be displayed on the command bar. Click the buttons to directly access the corresponding page.

The event specification page changes according to the type of event and the requirements of the healthcare organization. It is widely customizable. What follows is a description of the features of the page which are common to all events.

2.5.1.1. The “notes” area

Use the “notes” area (Fig 27 **C**) to add user notes to the event. To do that:

- Click the “notes” area.

A cursor appears inside the area.

- Enter the note using either the workstation keyboard if available.

Otherwise, for touch screens:

- Click the **Keyboard** button (Fig 28 **D**) to display a virtual keyboard on the screen (Fig 28).

To hide the keyboard on the screen click the **Keyboard** button again.

Fig 28 – Virtual keyboard

The buttons on top make it possible to use some of the most common text formatting functions (Fig 28 **A**).

	change the color of the text		write in bold type
	align the text to the left		write underlined
	center the text		write in italics
	align the text to the right		enlarge the character used
	create bulleted lists		shrink the character used

2.5.1.2. Information

The  button (Fig 28 **B**), like the **Info** button (Fig 28 **C**), opens a page containing information on the specific event (Fig 29).

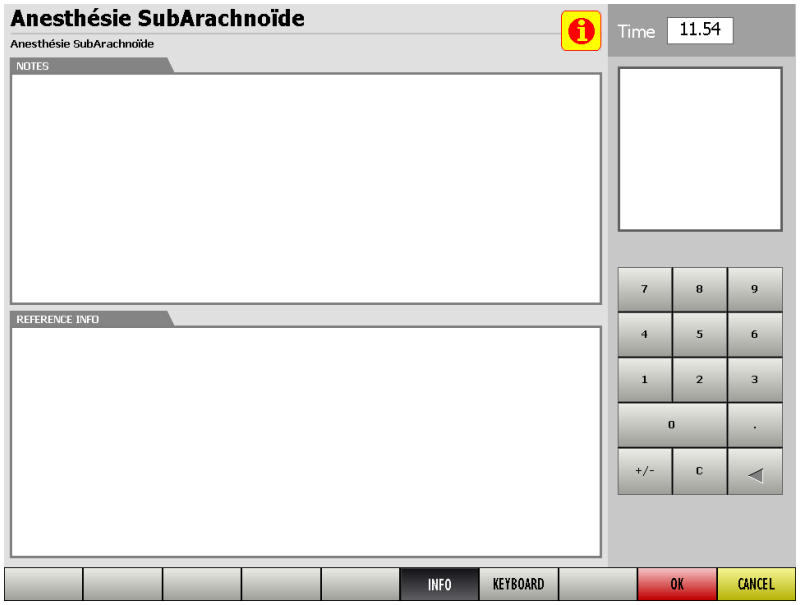

Fig 29 – Event information

If uploaded during configuration, the page can contain notes, bibliographic references, pictures, etc... To exit the information page

- Click the  button again or click the **Info** button.

2.5.1.3. Time

The “Time” field (Fig 27 **D**) shows the current time if you are entering a new event and the time at which the event was entered when displaying an event entered previously. The time field can be edited using the numeric keyboard indicated in Fig 27 **G**.

2.5.1.4. Picture

The white box on the right of the page (Fig 27 **E**) can contain a picture relating to the event being recorded. Pictures must be uploaded during configuration.

2.5.1.5. History

The history area (Fig 27 **F**) displays information on all the past recordings of the same event.

2.5.1.6. Numeric keyboard

The numeric keyboard (Fig 27 **G**) makes it possible to enter numeric values in the fields on the page. To do this, it is necessary to click the field first and then use the keyboard number buttons.

2.5.2. How to edit an existing event

To edit the data relating to an existing event, to add a note to the event or to display the event details, on the “Events” page (Fig 24),

- click the row corresponding to the event to be edited,

The row is highlighted (Fig 30).

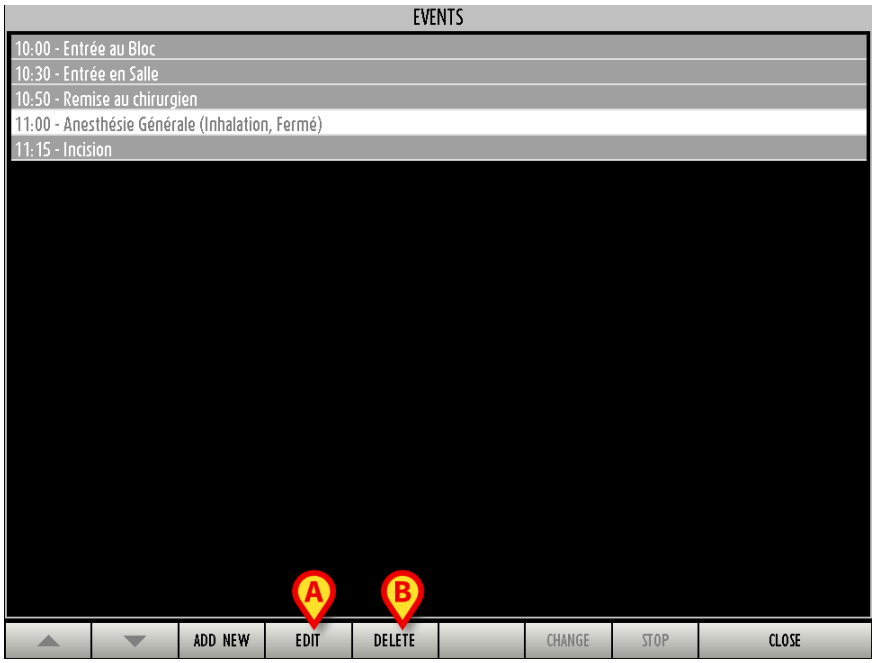

Fig 30 – Event selected

- Click the **Edit** button on the command bar (Fig 30 **A**).

The event page is displayed (Fig 31).

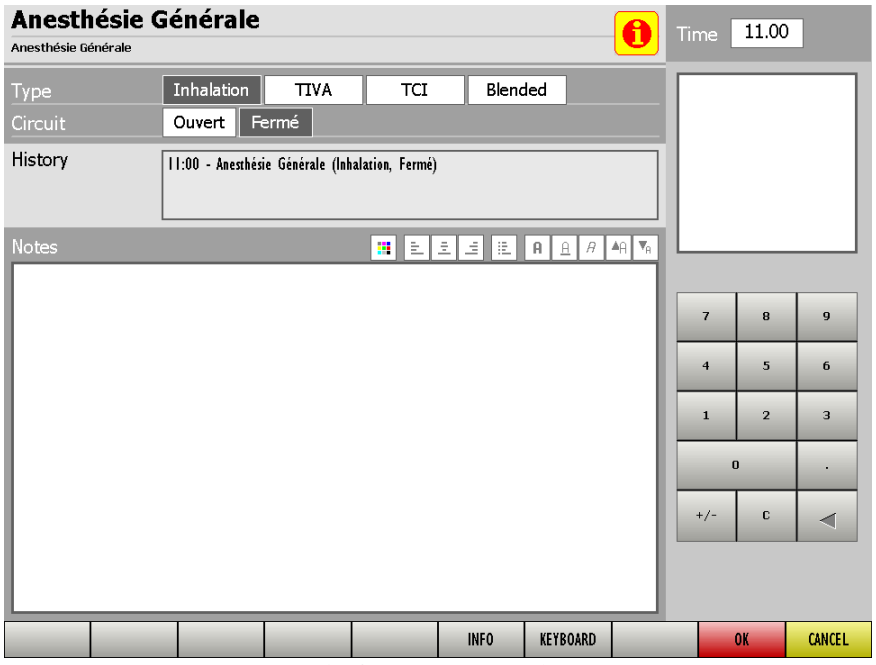

Fig 31 – Event details

- Edit the event data.
- Click **Ok** to save the changes.

Markers cannot be edited or deleted on the "events" page. To edit markers it is necessary to use the procedure described in paragraph 2.4.

2.5.3. How to delete an existing event

To delete an event, on the "Events" page (Fig 24)

- Click the event to be deleted

The row corresponding to the event is highlighted (Fig 30).

- Click the **Delete** button on the command bar (Fig 30 **B**).

User confirmation is required.

- Click **Yes** to delete the event.

The deleted event disappears from the "Events" page (Fig 30) and from the "Drugs, events and notes" area of the "OranJ Home" page (Fig 23 **A**).

2.6. The "Notes" area

To add a note to a selected operation

- Click the "Notes" area of the "OranJ Home" page (Fig 33 **A**).

Fig 32 - OranJ Home

A virtual keyboard is displayed (Fig 33).

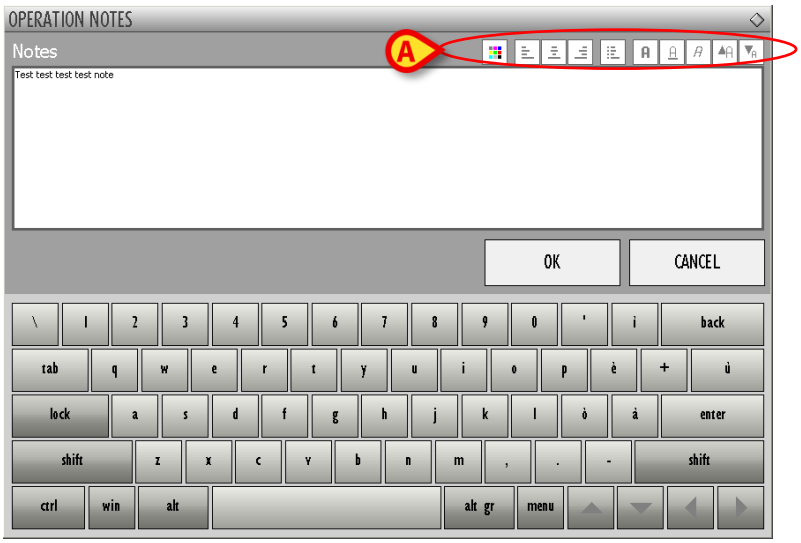

Fig 33 – Virtual keyboard

- Use the keyboard to type the note.
- Click **Ok** to save.

The buttons on top (Fig 33 **A**) make it possible to use some of the most common text formatting functions.

	change the color of the text		write in bold type
	align the text to the left		write underlined
	center the text		write in italics
	align the text to the right		enlarge the character used
	create bulleted lists		shrink the character used

The note is displayed in the “notes” area of the “OranJ Form” page (Fig 34).

Fig 34 - Note

2.7. The “patient” area

The “patient” area of the “OranJ Form” page (Fig 35 **A**) displays the patient and operation main data.

Fig 35 - OranJ Home

The data here displayed depend on the configuration. Some examples are: patient age, operation reservation code, short operation description, requesting hospital unit.

Fig 36 – “Patient” Area

The “patient” area makes it possible to access the “Patient and Operation Details” page (Fig 73).

- Click the patient area to access the “Patient and Operation Details” page.

The “Patient and Operation Details” page contains the data of the patient and the operation. See paragraph 3 for a detailed description of this page.

2.8. The “room” area

The “room” area (Fig 37 **A**) specifies the actual block and operating room.

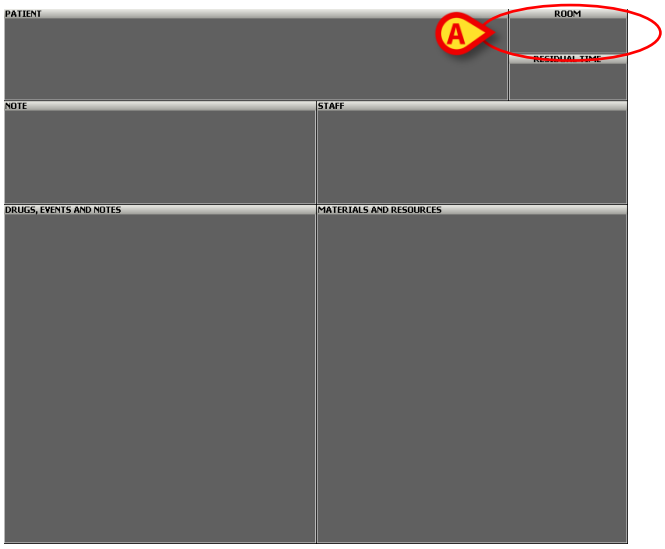

Fig 37 - OranJ Home

In the example shown in the figure “BH05” is the surgical block, “8” is the room number.

Fig 38 – “Room” area

The “room” area cannot be clicked.

2.9. The “residual time” area

The “residual time” area (Fig 39 **A**) indicates the time remaining until the end of the operation according to the scheduled duration. The residual time is the sum of the pre-surgical, surgical and post-surgical times specified at scheduling time (either on the “Patient and Operation Details” - Fig 77 – or on the Digistat® “Smart Scheduler” system, depending on the actual procedure in use).

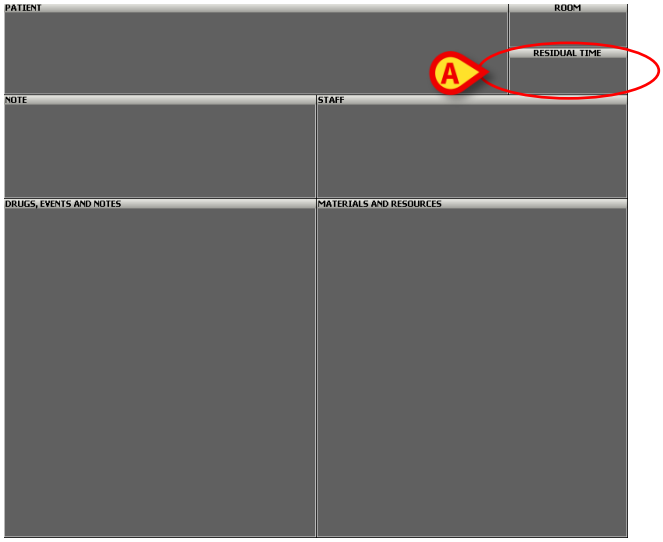

Fig 39 - OranJ Home

This area displays a countdown. The example shown in Fig 40 indicates that there is 1 hour and 27 minutes left to the end of the operation (according to the planned duration).

Fig 40 – “Residual time” Area

The countdown starts when the “Room in” marker is recorded (see paragraph 2.4 for a description of the markers). Before the patient enters the room, the area appears as shown in Fig 41.

Fig 41

When the countdown approaches zero (in the configuration used in the example, when the remaining time is less than thirty minutes) the residual time area turns yellow and starts flashing (Fig 42).

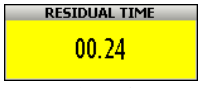

Fig 42

When the actual operation time exceeds the scheduled time, the “residual time” area turns red. The time value becomes negative and starts indicating the delay amount (Fig 43).

Fig 43

It is possible to signal, while the operation is in progress, that the operation is requiring more time than scheduled. To do that

- Click the “Residual time area”.

A quadrant containing four buttons opens (Fig 44).

Fig 44

- Click one of the buttons.

This first click brings the counter back to zero.

- Click the buttons to indicate the time remaining.

The 

button adds 10 minutes to the scheduled duration.

The 

button deducts 10 minutes from the scheduled duration.

The 

button adds an hour to the scheduled duration.

The 

button deducts an hour from the scheduled duration.

After that, the “residual time” area indicates the new duration. The length of the operation-box on the OranJ planning screens changes accordingly (see section 4 for the operation box description). To hide the four buttons, click the “residual time” area again.

The request for additional time can have an impact on the other planned operations. The operations planned after the current one in the same room move to the right on the plan (i.e. they are delayed) according to the additional time requested.
Analogously, if the current operation shares a planned resource with an operation on a different room (can be in a different block as well), a pop up message is displayed, asking the user if he/she wants to “release” the resource from the second operation. If the resource is released (“Discard resources” option on the pop-up message), then a generic resource (not an actual one anymore) is associated to the second operation and the additional time requested on the first one has no impact on it. If the resource is not released (“Push interventions” option on the pop-up message), then the additional time requested on the first operation “moves to the right” the second one (i.e. it is delayed) according to the amount of time requested. Note that the two operations can be in different rooms/blocks.

The scheduling of available resources can be performed on the “Resources” module belonging to the Digistat Smart Scheduler system. See the Digistat Smart Scheduler User Manual, “Resources” section, for instructions on this topic (USR ENG Smart Scheduler).

2.10. The “staff” area

The “staff” area (Fig 45 **A**) allows to indicate the names and roles of the operation staff.

Fig 45 - OranJ Home

It is possible to indicate the staff members. To do that

- Click the “staff” area (Fig 45 **A**).

The page shown in Fig 46 opens.

2.10.1. “Room Staff” page

The “Room Staff” page (Fig 46) is formed of four columns.

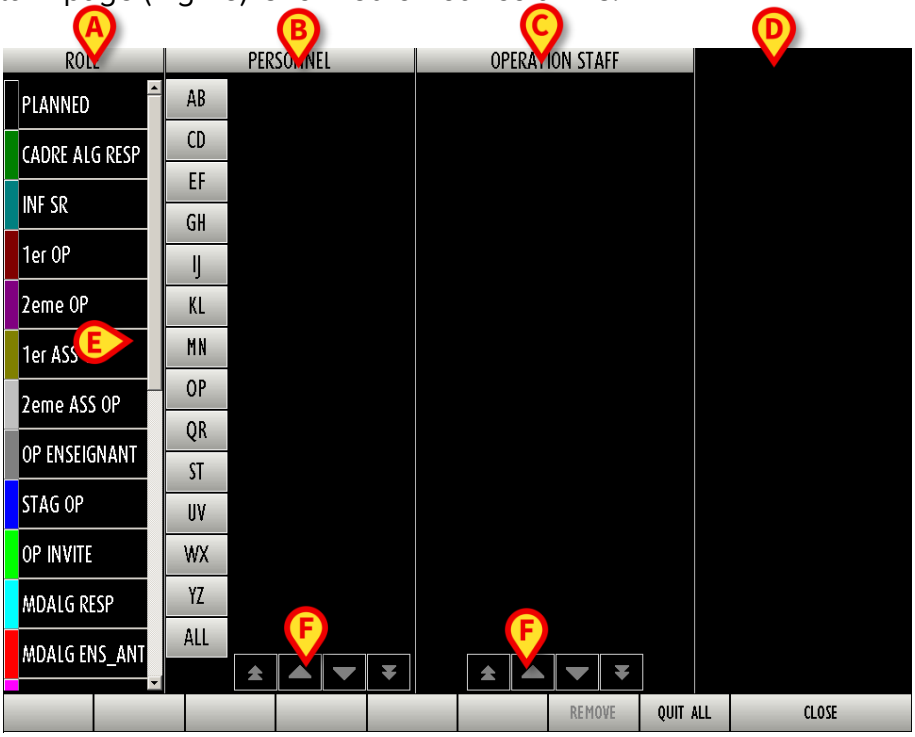

Fig 46 – Room staff

The “role” column (Fig 46 **A**) contains a list of the possible roles of the staff involved in the operation. Every role is characterized by a color.

Roles are customizable according to the healthcare organization needs.

- Click a role to select it.

The names of staff members who are entitled to cover the selected role is displayed in the “personnel” column (Fig 46 **B**).

- Click a name to select it.

The name is displayed in the “Operation staff” column (Fig 46 **C**).

After a name is selected, the fourth column (Fig 46 **D**) displays a numeric keyboard which makes it possible to specify the room entrance and exit times of the selected staff member.

The alphabetic buttons on the left (Fig 46 **E**) make it possible to filter the list of names displayed. Click one of the letters to display the names that begin with that letter. Click the **All** button to display the list of all the names.

The arrows at the bottom of the two central columns (Fig 46 **F**) are scroll buttons.

2.10.2. “Room Staff” page command bar

The command bar of the page contains three buttons

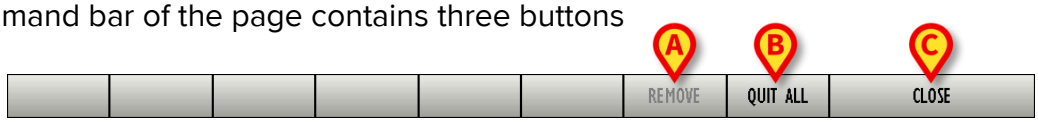

Fig 47 – Command bar of the “Room Staff” page

The **Close** button (Fig 47 **C**) closes the page. Click **Close** to return to the “OranJ Form” page (Fig 45).
The **Quit All** button (Fig 47 **B**) makes it possible to assign as room exit time the current time to all the staff members. To be used, for example, if an entire operating team exits at some time.
The **Remove** button (Fig 47 **A**) makes it possible to remove a “name” (i.e. a staff member) from the operation staff (see the following paragraph for the selection procedure).

2.10.3. Operating staff management – example

See Fig 48 and Fig 49 for an example. In the “Role” column, the “First Operator” role was selected (Fig 48 **A**). The names of all the possible first operators are displayed in the “Personnel” column (Fig 48 **B**).

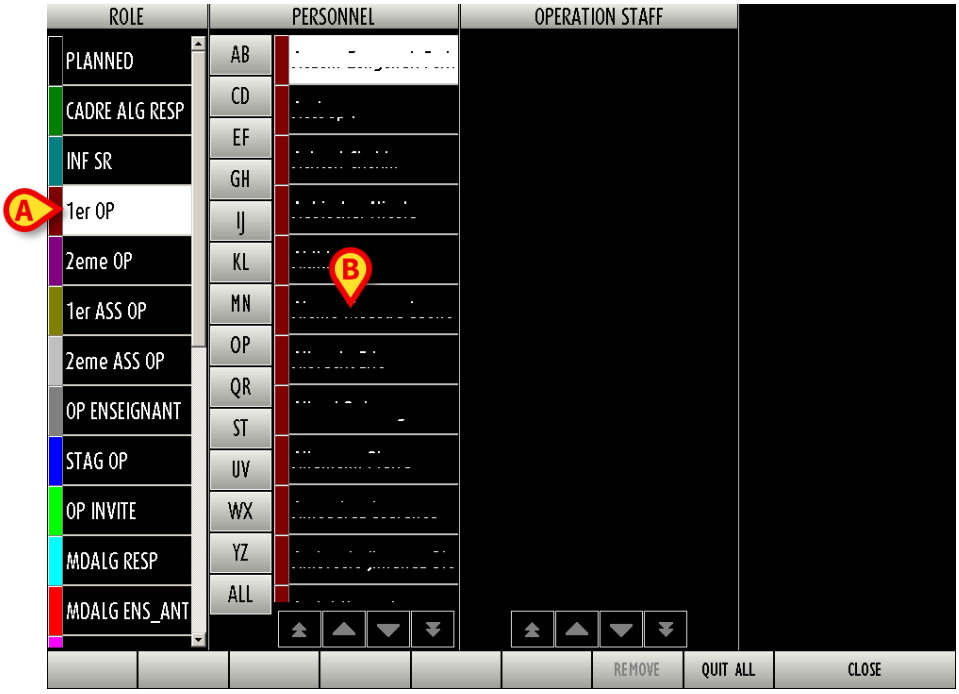

Fig 48 – List of operators

A name was selected on the “Personnel” column (Fig 49). When clicked, the name moves from the “Personnel” column to the “Operating staff” column.
The box corresponding to the person disappears from the “staff” column and appears in the “operation staff” column (Fig 49 **A**). The name of the person selected is marked by the color that characterizes his/her function.

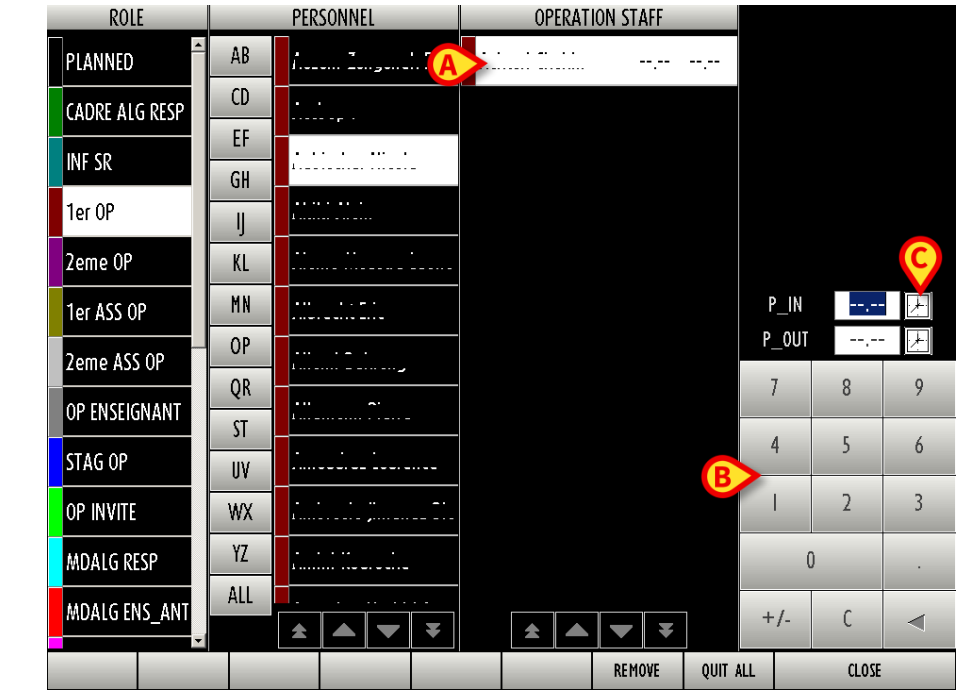

Fig 49 – Staff Selection

At the same time, a numeric keyboard is displayed on the right, making it possible to specify the room entrance and exit time for the person specified (Fig 49 **B**).

The small clocks  indicated in Fig 49 **C** make it possible to automatically assign the current time to the person selected as entrance or exit time.
After closing he page, the specified staff is listed in the “staff” area of the “OranJ Form” page (Fig 50).

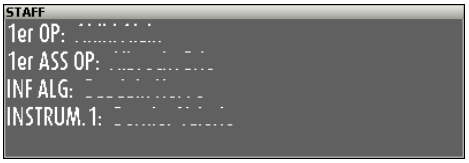

Fig 50 – Operation Staff

2.10.3.1. Recording the entrance and exit time of a member of staff

To record the entrance and exit time of a staff member of staff:

- Click the role.
- Click the name.

The name is moved to the “Operation staff” column. The numeric keyboard is displayed.

- Enter either the entrance or the exit time using the buttons on the numeric keyboard.
- Click the other field (i.e., if you entered the entrance time, click the “IN” field; if you entered the exit time, click the “OUT” field).

In both cases the entrance/exit time is recorded and displayed alongside the selected name (Fig 51).

Fig 51 – Time Recording

2.10.3.2. Removing a member of the operating staff

To remove a member of the operating staff

- On the “Operation staff” column, click the member of staff to be removed.

The name is highlighted. The **Remove** button on the command bar activates (Fig 49 **C**).

- Click the **Remove** button.

User confirmation is required.

- Click **Yes** to confirm.

2.11. The “materials and resources” area

The “materials and resources” area (Fig 52 **A**) allows to manage the resources and materials used during the operation.

Fig 52 - OranJ Home

If there are resources previously scheduled, the list of scheduled resources is displayed in the area. See for example Fig 56 **A**. The resources can be scheduled via Digistat® Smart Scheduler and Digistat® Stock Management – see for instructions the documents *USR ENG Smart Scheduler* and *USR ENG Stock Management*.
The functionality here described allows to edit the quantities indicated and to add/remove resources to the list.

2.11.1. Add resources (barcode procedure)

To add a new resource

- Click the materials and resources area.

The “Resources Used” page opens (Fig 53).

The procedure here described requires, where possible, scanning the barcode of the different resources to select them.
If barcode reading is not possible a manual procedure can be used. The manual procedure is described in paragraph 2.11.2.

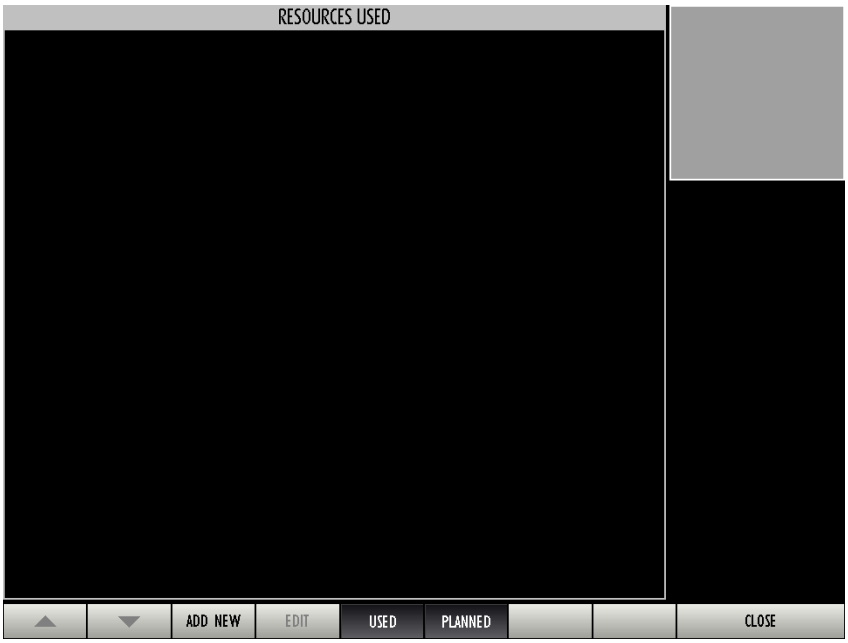

Fig 53 – "Resources Used" page

- Scan the resource's barcode

The single resource can be configured to require, after barcode is scanned, further verification (i.e. through serial number specification). In this case, after barcode is scanned, the following window is dislayed.

Fig 54

- Scan the barcode corresponding to the resource's "Serial number".

or

- Enter the resource's "Serial Number" (Fig 54 **A**), then click the **Ok** button (Fig 54 **B**).

The window shown in Fig 54 does not show up if the resource is not configured to require "Serial number" specification.

The chosen resource is this way added to the "Resources used" list (Fig 55 **A**).

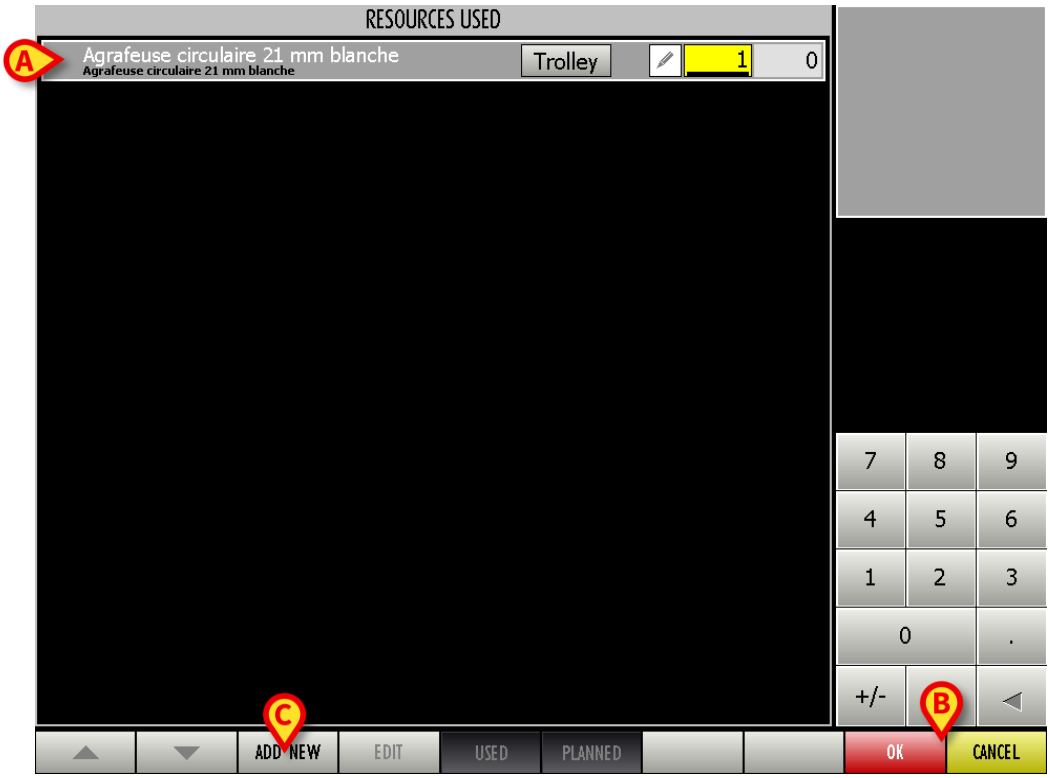

Fig 55 – Resource used

Default quantity is 1. To add resources, scan the barcodes of the additional resources.

- Click **Ok** to complete the procedure (Fig 55 **B**).

The resource name and quantity is displayed in the “materials and resources” area of the “OranJ Form” page (Fig 56 **A**).

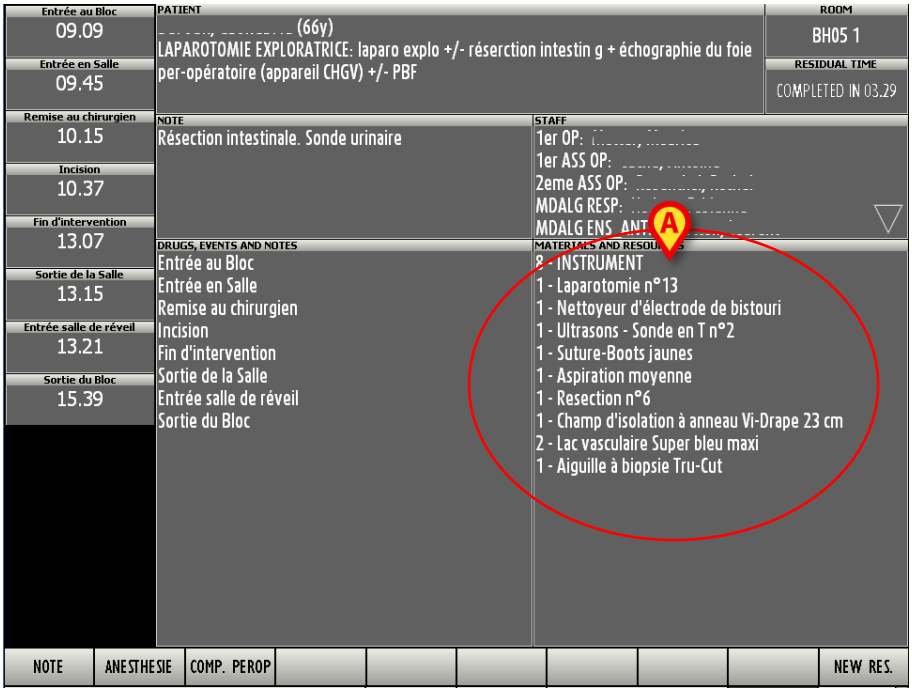

Fig 56

2.11.2. Add resources (manual procedure)

To manually add a resource

- Click the “Materials and Resources” area. The “Resources Used Screen” opens (Fig 55).
- Click the **Add New** button on the command bar (Fig 55 **C**). A page listing the available resources opens (Fig 57).

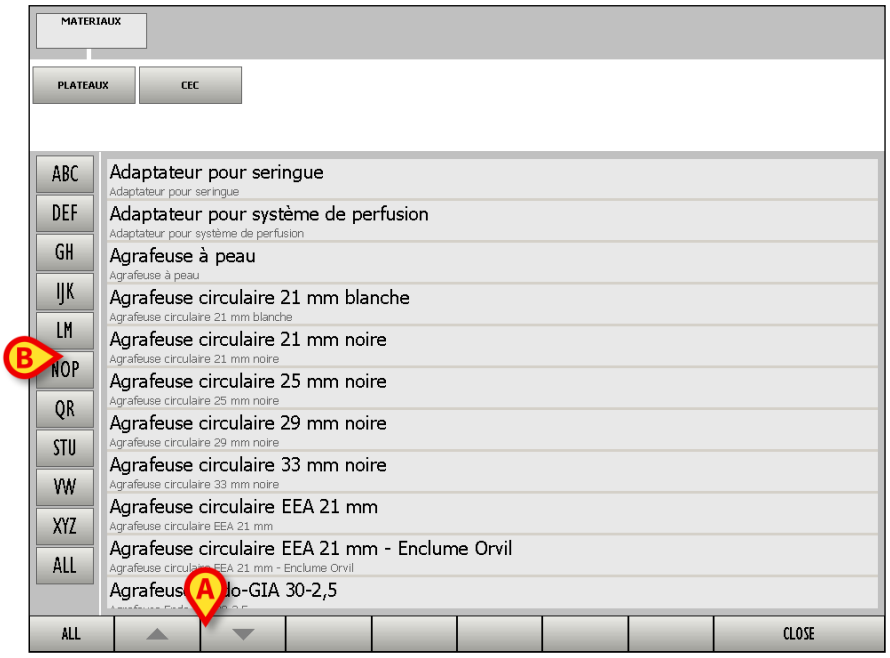

Fig 57 – List of Resources

In the example shown in Fig 57 the resources are grouped by type (“plateaux”, “CEC”). Click one of the boxes representing the type of resource to display all the resources of that type. Use the arrows shown in Fig 57 **A** to scroll the screen contents.
The alphabetic buttons on the left (Fig 57 **B**) make it possible to filter the displayed list. Click one of the letters to display the resources whose names begin with that letter only. Click the **All** button to display the whole list back.

To add a new resource

- Click the name of the resource to be added.

Further specification can be required (depending on the configuration). I.e. the resource serial number can be required (Fig 58).

Fig 58

- Enter the resource's "Serial Number" manually (Fig 58 **A**) and then click the **Ok** button (Fig 58 **B**).

The resource is added to the list of resources used (Fig 59).

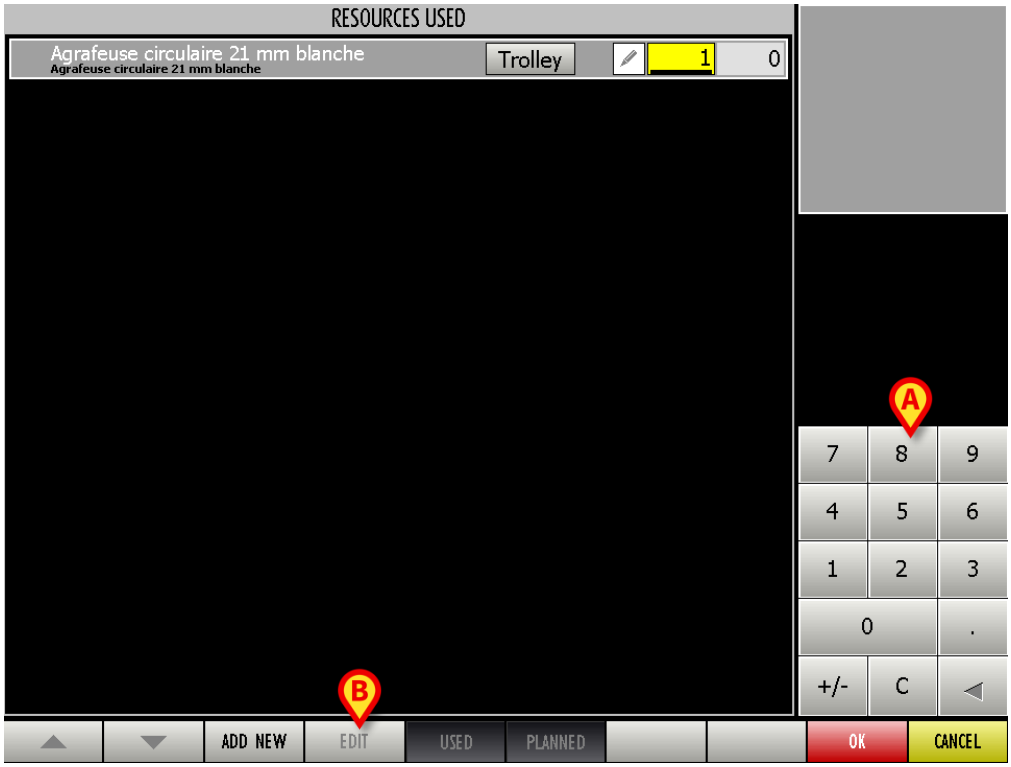

Fig 59 – Resource added

2.12. Resources quantity specification

To enable data entry, the screen must be in “Edit” mode. When a new resource is added, the “Resources used” screen is already in “Edit” mode, by default. When editing an existing resource, it is necessary to first click the **Edit** button on the command bar to enable editing.

On the “Resources used” screen (Fig 59) the resource is displayed on one row (Fig 60 – “Edit mode”).

Fig 60 – Information on the Resource

- The name of the resource is indicated on the left (Fig 60 **A**).
- The **Trolley** button (Fig 60 **B**) can be used to indicate if the resource is on a trolley. Click the button to highlight it.
- The  button (Fig 60 **C**) makes it possible to add a note to the resource.

➢ Click it to open an embedded word processor (Fig 61). See section 2.6.

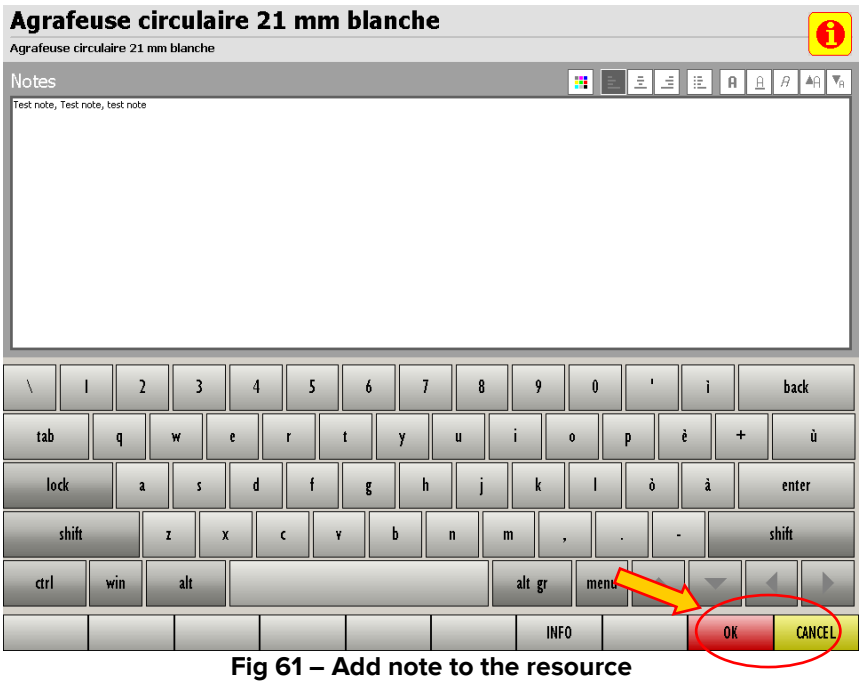

Fig 61 – Add note to the resource

➢ Click **Ok** to save the note (Fig 61).

If a note is present, the button is highlighted -  .

- The box  (Fig 60 **D**) indicates the quantity to be added or removed. Enter the quantity either using the workstation keyboard or the numeric keyboard on the bottom-right corner of the “Resources Used” page (Fig 59 **A**, Fig 62).

Fig 62 – Numeric Keyboard

To specify the quantity of resources

- Click the **Edit** button (Fig 59 **B)**.
- Click the box 

.

A cursor is displayed inside it.

- Click the number to be added/subtracted.
- Click **Ok** to save the new quantity.

The  button deletes the digits in the box.

The 

button allows to specify if the quantity is to be added or subtracted. Click this button to make the number inside the box either positive or negative.

- The box 

(Fig 60 **E**) indicates the quantity of resources previously programmed and from which a quantity is added or subtracted.

The resource selected is displayed, together with the related quantity, in the “materials and resources” area of the “OranJ Home” page (Fig 63).

The information provided by the “materials and resources” area depends on the configuration chosen. Besides name and quantity, it is possible, for example, to display the date and time of addition or the serial number of the resource added.

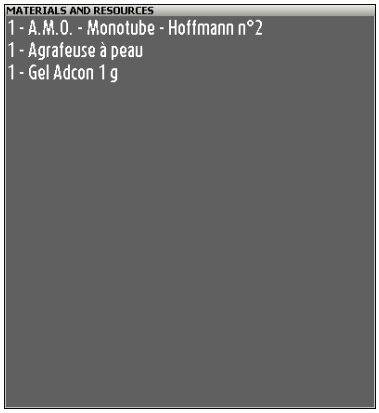

Fig 63 – Resource Added

2.12.1. Quick resources deletion

- Click the “materials and resources” area (Fig 63).

The page shown in Fig 59 (“Resources Used”) opens.

The square (Fig 64) is present on each row, on the left. If there are notes, the square is yellow (Fig 64).

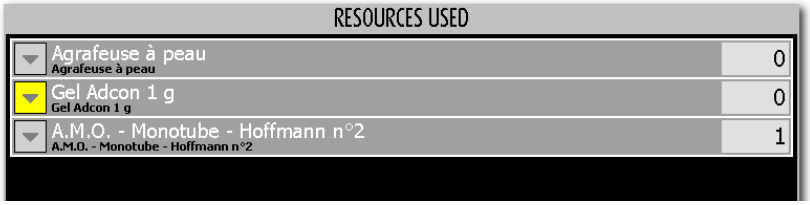

Fig 64

The square can be clicked. Click it to display the details of each editing (time of editing, notes, initials of the user who edited - Fig 65 **A**).

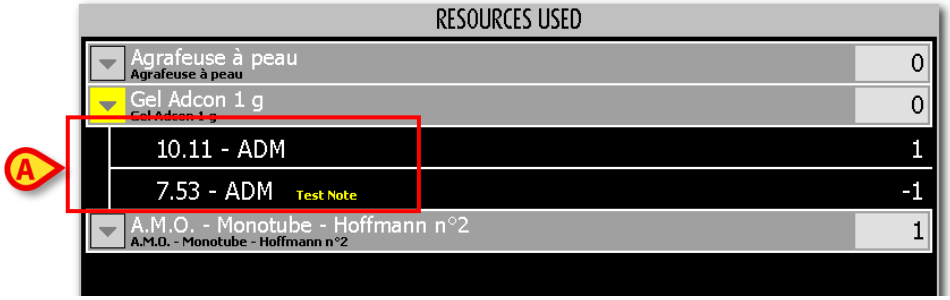

Fig 65 – Display Notes

It is possible to quickly remove a resource using a specific button - . To do that:

- Access the “Resources Used” screen (Fig 59)
- Click the **Edit** button on the command bar (Fig 59 **B**)
- Click the button placed alongside the resource to be removed.

The corresponding row changes as in Fig 66.

- Click the button (Fig 66 **A**).
- Click **Ok**.

The resource is this way removed from the “Materials and Resources” area. The corresponding row is still present on the resources list, but the quantity is changed (to 0).

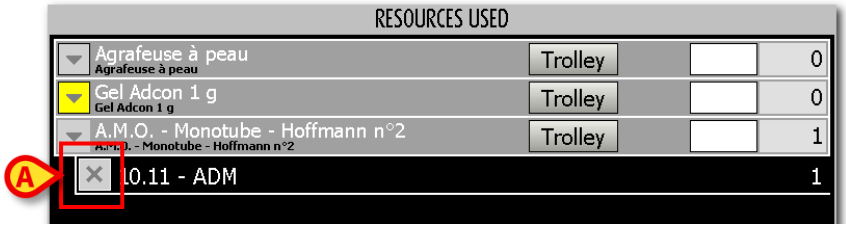

Fig 66

2.12.2. How to move a specified resource set to another operation

It is possible to move the whole set of resources specified for an operation and directly associate it to another operation. To do that

- Click the “Materials and Resources” area (Fig 67 **A**).

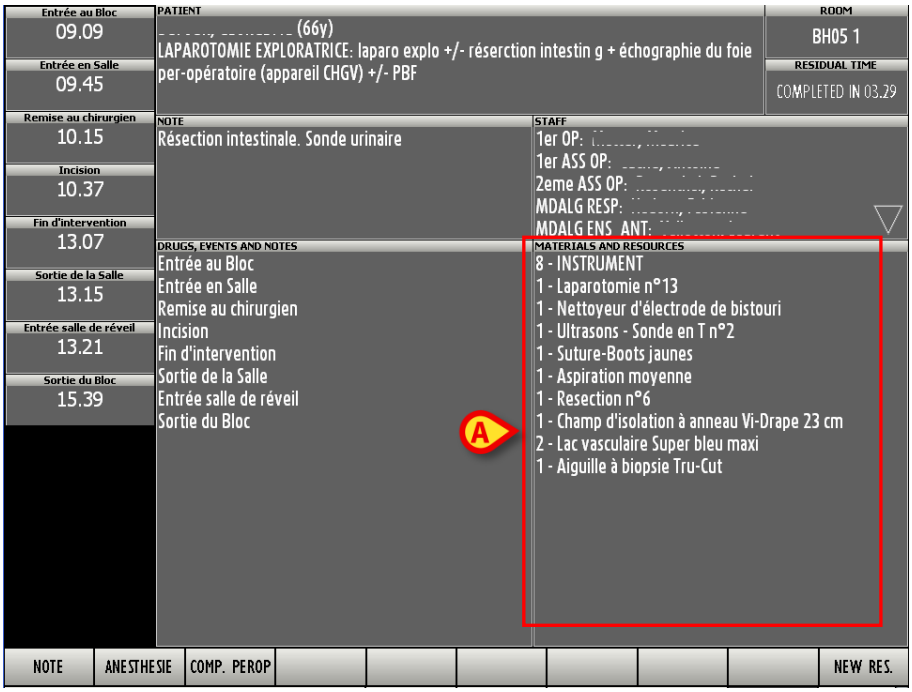

Fig 67

The “Resources Used” screen opens (Fig 68).

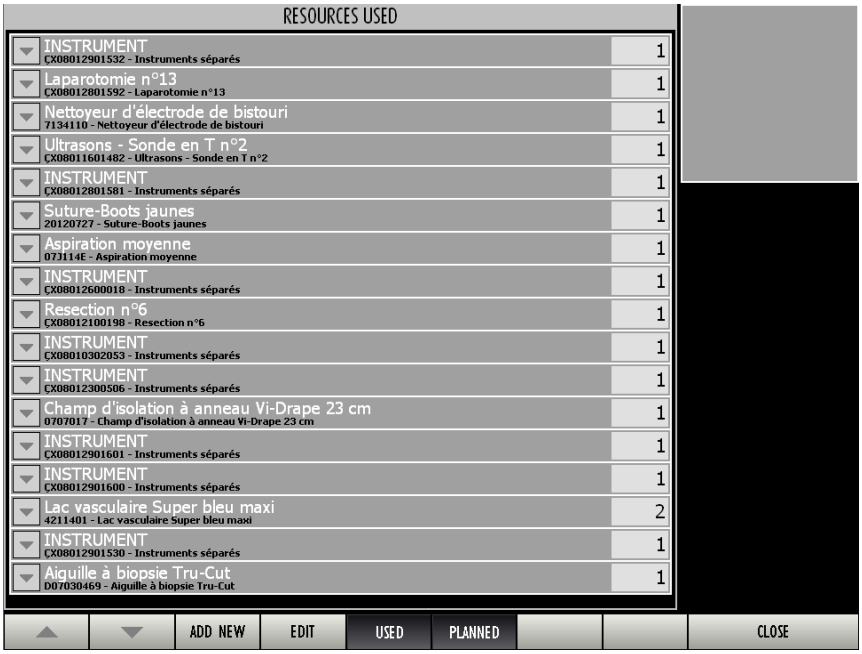

Fig 68

- Click the **Menu** button on the upper left corner of the “Control Bar” (Fig 69 **A**).

Fig 69

The following menu is displayed (Fig 70 **A**).

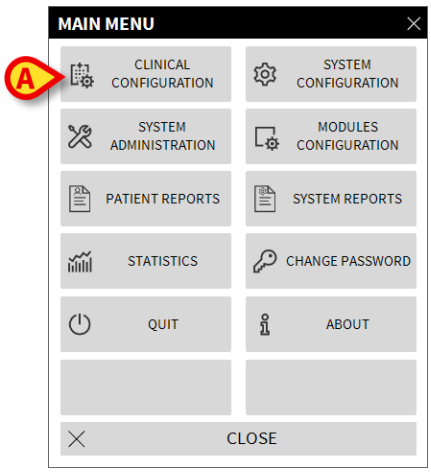

Fig 70

- Click the **Clinical Configuration** button (Fig 70 **A**).

Another menu is displayed.

- Click the **Resource Export** button on this menu. User confirmation is required.
- Click **Yes** to confirm. The "Operation list" screen opens. The selection of the destination operation is now required (Fig 71 **A**).

Fig 71

- Click the operation box corresponding to the destination operation.

The set of resources specified for the original operation is this way automatically associated to the destination operation.

3. Operation and patient management

The OranJ system, if so configured, makes it possible to manage the operation and patient data. This chapter describes the related screens and procedures.

The procedures described in this section can be enabled during configuration. In most installations, the Patient-related procedures are performed on the Digistat® Patient Explorer module (see document USR ENG Patient Explorer for instructions); the operation scheduling-related procedures are performed on the Digistat® Smart Scheduler module (see document USR ENG Smart Scheduler for instructions).
If the procedures described in this section are enabled, they are anyway reserved to users having specific permissions.

In the OranJ context, it is possible to

1) Schedule a new operation for a patient (paragraph 3.1.2);
2) Display and edit the operation data (paragraph 3.1.3);
3) Display and edit the patient data (paragraph 3.1.1).

To access these functionalities

- Click the “Patient” area on the “OranJ Home” screen (Fig 72 **A**).

Fig 72 - OranJ Home

The “Patient and Operation Details” screen opens (Fig 73).

Fig 73 - Patient and operation details

This screen includes three “tabs” (Fig 73 **A**). Each “tab” accesses a subset of information and functionalities.

The “Patient” tab contains the selected patient data (see paragraph 3.1.1).
The “Operation” tab contains the selected operation data (paragraph 3.1.2).
The “Other operations” tab contains data relating to possible other operations for the selected patient (paragraph 3.1.3).

3.1.1. Patient

The “Patient” screen (Fig 74) contains the patient’s main data. To access this screen,

- Click the “Patient” tab (Fig 74 **A**).

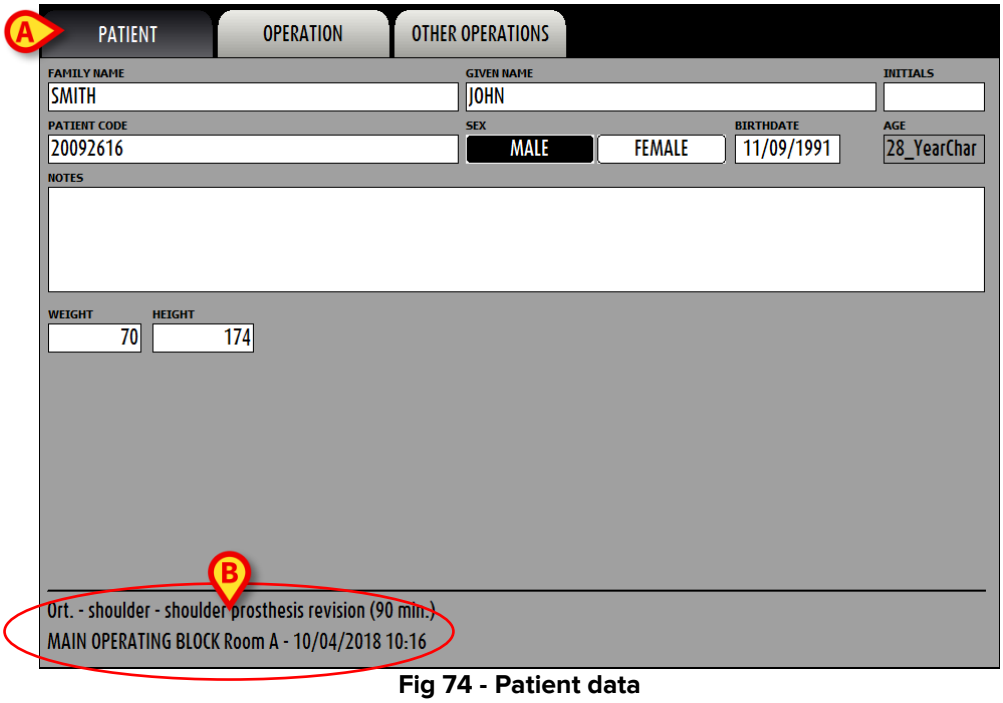

Fig 74 - Patient data

Information that can be here specified is:

- Family name
- Given name
- Initials
- Patient code
- Sex
- Birthdate
- Age
- Notes
- Weight
- Height

If there’s an operation planned for the selected patient the main operation data (type of operation, planned duration, planned block, room and time) are displayed in the bottom-left corner of the screen (Fig 74 **B**).

To specify new data or to modify the existing ones

- Click the **Edit** button on the command bar (Fig 75).

Fig 75

The screen turns to “Edit mode”. It is now possible to modify the patient data.

The **Cancel** and **Update** buttons appear on the command bar (Fig 76).

Fig 76

After editing, click the **Update** button to save the changes made.

3.1.2. Operation

The "Operation" screen makes it possible to display the selected operation main data. If there are other related operations, these can also be displayed. To access this screen

- Click the "Operation" tab (Fig 77 **A**).

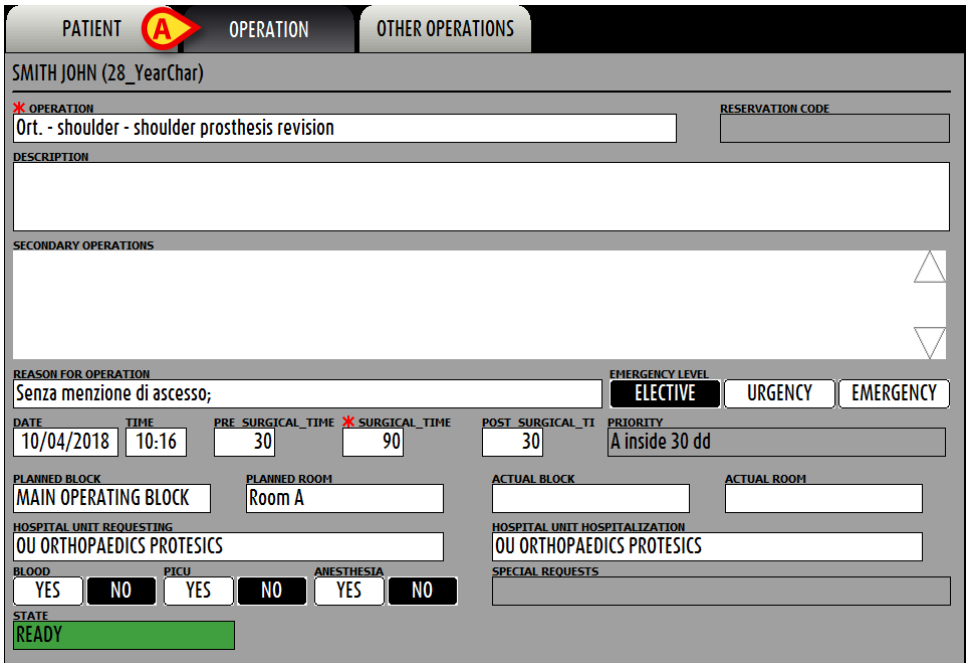

Fig 77 - Operation data

The mandatory fields are signaled by the * symbol (operation name and planned duration). The other information is optional.

The information that can be specified on this page is

- Name of the operation
- Reservation code
- A brief description of the operation
- A list of the possible related operations
- The reason for operating
- The urgency level
- Planned date
- Planned time
- Planned pre-surgical time

- Planned surgical time
- Planned post surgical time
- Planned block
- Planned room
- Actual block
- Actual room
- Hospital unit requesting the operation
- Hospital unit of hospitalization
- Possible necessity of blood
- PICU (Pediatric Intensive Care Unit)
- Possible necessity of anesthesia
- Special requests
- Reason for cancellation (if the operation is canceled)
- State - The “State” box specifies whether the operation is scheduled - SCHEDULED, ready - READY, in progress - IN PROGRESS or completed COMPLETED IN 06.09.

To enable data entry:

➢ Click the **Edit** button on the command bar (Fig 78).

Fig 78

The **Cancel** and **Update** buttons are displayed on the command bar (Fig 79).

Fig 79

After editing, click **Update** to save.

When entering data, some fields can be filled via drop-down menus. These fields are characterized by the button. Click it to open the menu.

3.1.3. Other operations

The “Other operations” screen provides a list of the past, present and future operations of a patient.

Only the operations that are present on the Digistat® systems are displayed.

To access this page

➢ Click the “Other operations” tab (Fig 80 **A**).

The following screen opens.

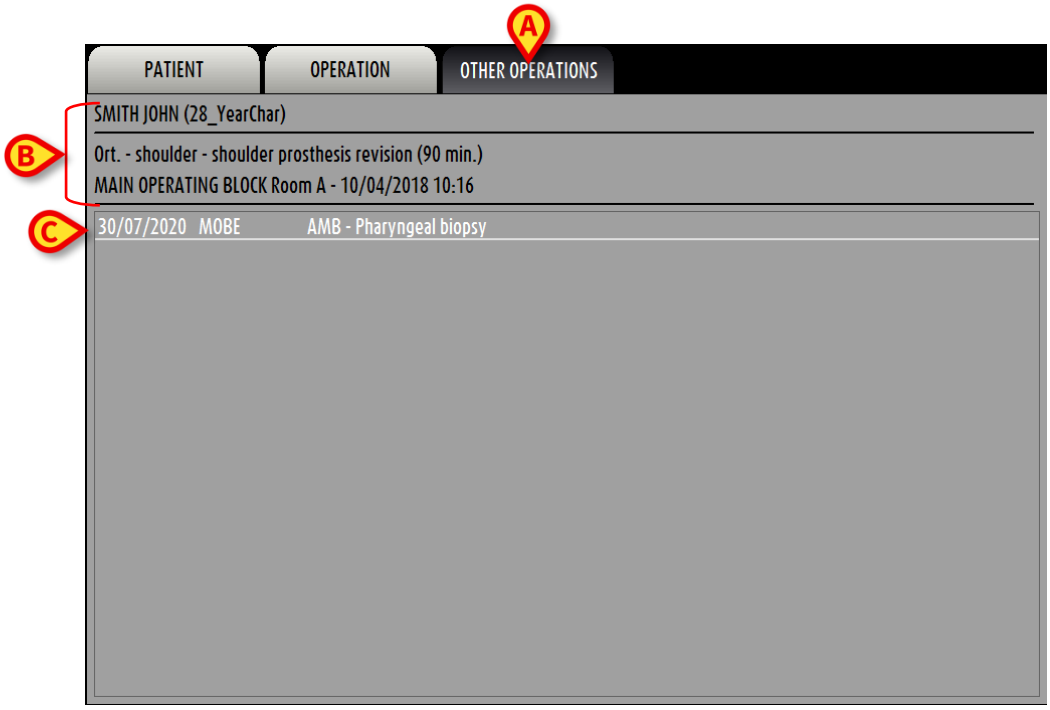

Fig 80 - Other operations

Patient and operation data are displayed on top (Fig 80 **B**).

In case of multiple operations, these are displayed in chronological order, most recent on top (Fig 80 **C**).

Fig 81

Each row corresponds to an operation (Fig 81). The information provided for each operation is:

- Date
- Block
- Room
- Type of operation

The color of the cell containing the date of the operation indicates the state of the operation according to the OranJ system color code. Dark gray = “completed”; cyan = “in progress”; green = “ready”; light gray = “scheduled”.

Each row can be clicked to display a window containing a summary of the operation data.

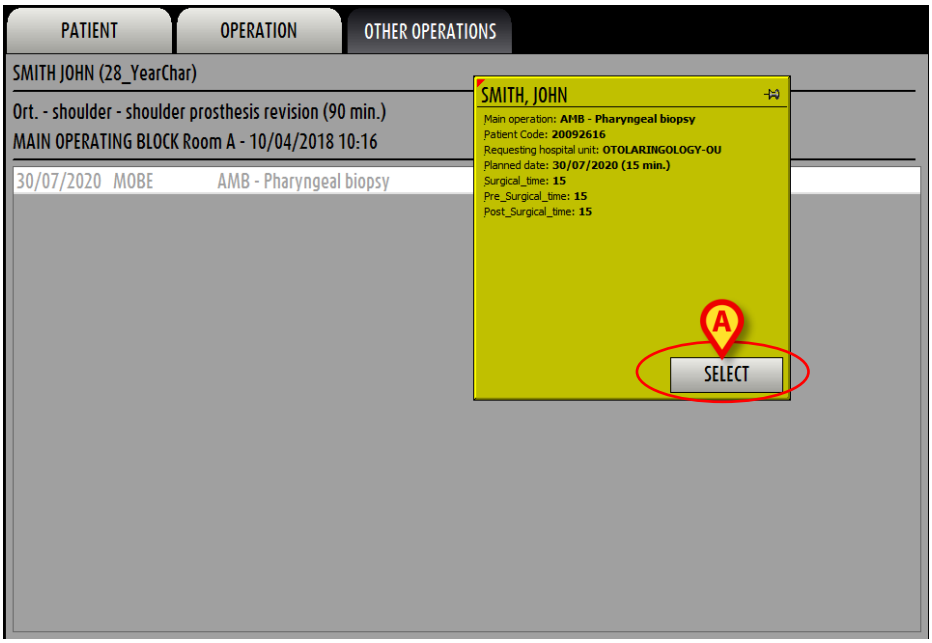

Fig 82

The **Select** button (Fig 82 **A**) on the information window can be clicked to access the "OranJ Home" page for the specific operation. See paragraph 2.1 for a description of the "OranJ Home" screen,

The info window shown in Fig 82 is customizable.

3.1.4. Other information

Some configurations use an additional tab to display more relevant data. The "Other informations" page can contain a set of additional useful information (Fig 83).

Fig 83

To access this screen

- Click the “Other informations” tab indicated in Fig 83 **A**.

The patient and operation data are displayed on top (Fig 83 **B**).
The additional information is displayed in the area indicated in Fig 83 **C**.
The information displayed depends on a pecific query defined during configuration. Refer to the system administrator for the actual content of this page.

3.2. How to schedule a new operation

The “OranJ” system makes it possible to schedule a new operation for a selected patient.
To schedule a new operation

- Select the patient for whom the operation will be scheduled.

The“OranJ Home” screen relating to the selected patient opens (Fig 84 - See paragraph 2.1 for a detailed description of this screen).

Fig 84 – OranJ Home

- Click the “patient” area (Fig 84 **A**).

The “Patient and Operation detail” screen opens (Fig 85).

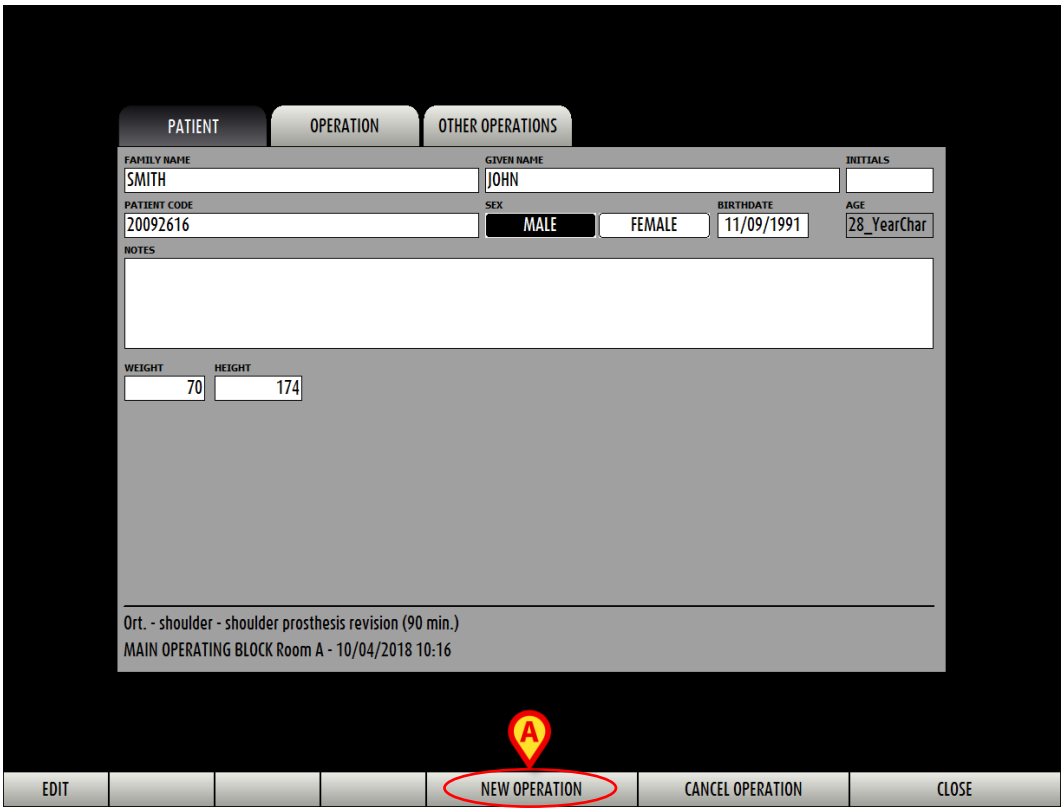

Fig 85

The “Operation” tab is automatically selected in “edit” mode. It is here possible to specify the new operation data (Fig 86).

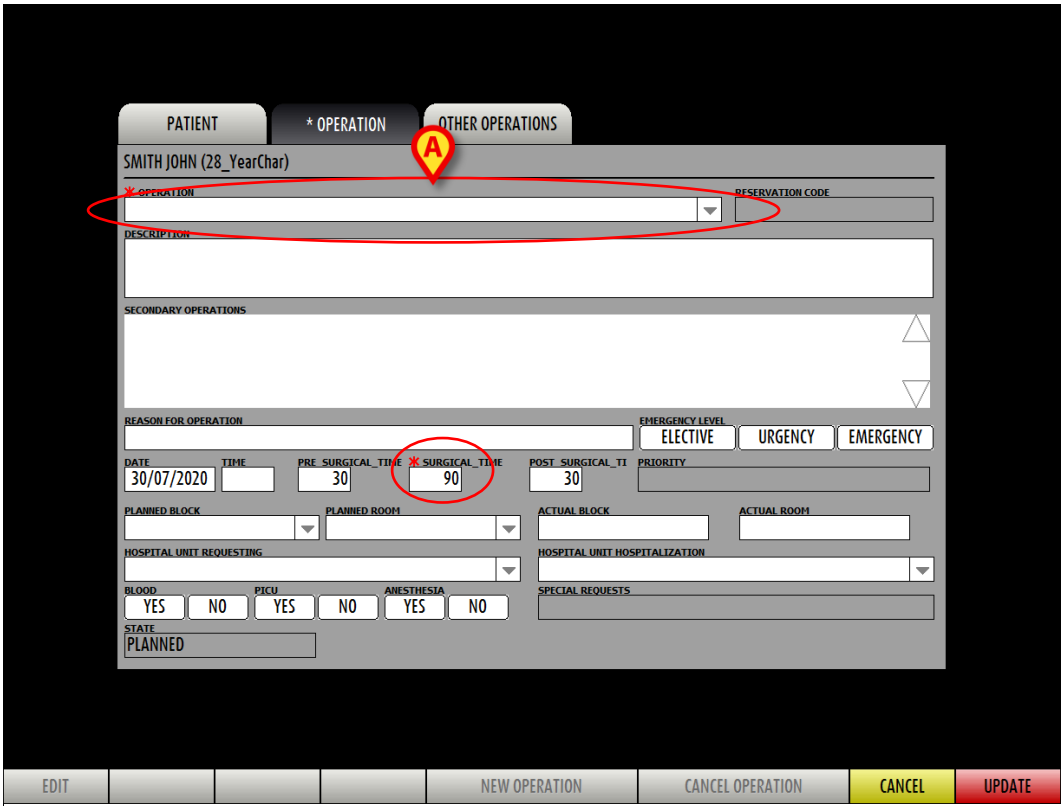

Fig 86 – New operation data specification

- Specify the operation details (operation name and planned duration - indicated in Fig 86 - are mandatory)

Use the drop-down menus where present (button alongside the field). On the drop down menu, either use the arrows on the right of the list to scroll the contents or type the initial letter to display the items starting with that letter.

The pre surgical, surgical and post surgical time can be associated to the selected operation during configuration. When this is the case these values are automatically inserted when the operation is selected.

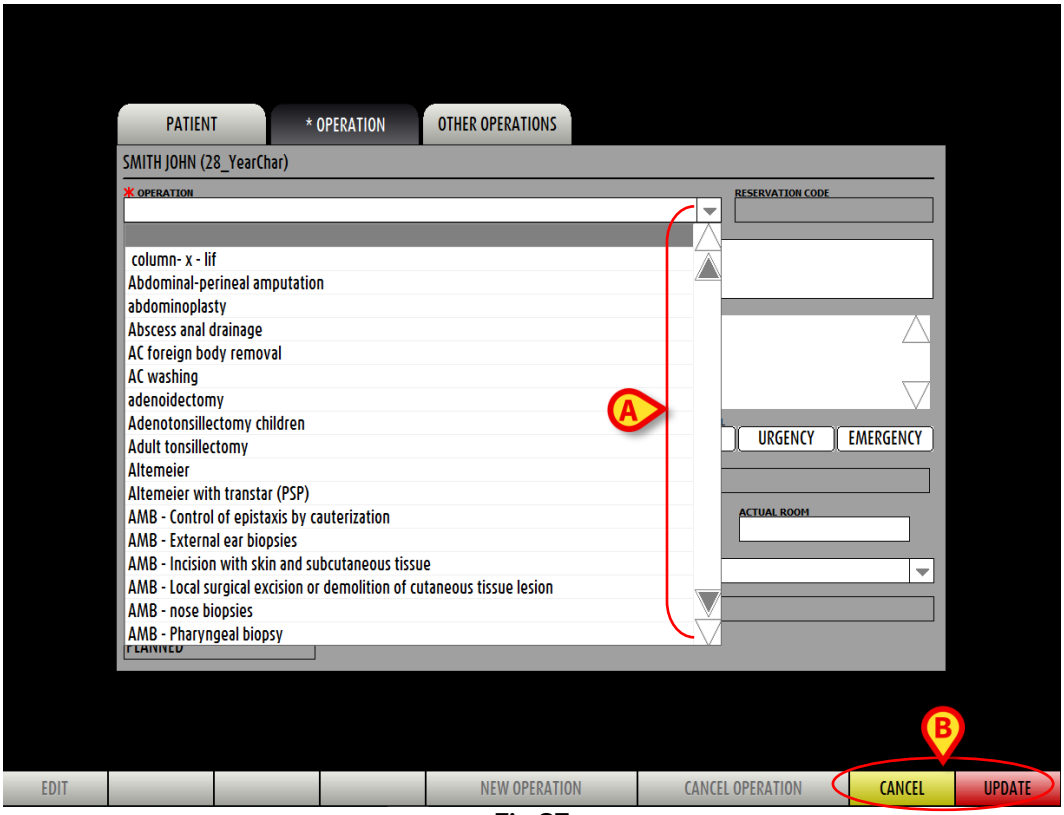

Fig 87

- Click the **Update** button to save (Fig 87 **B**).

The operation is this way scheduled.

3.2.1. How to cancel a scheduled operation

To cancel a scheduled operation

- Select the operation that must be canceled.

The “OranJ Home” screen relating to the selected operation opens (Fig 88).

Fig 88 - OranJ Home

- Click the “Patient” area (Fig 88 **A**).

The “Patient and Operation details” screen opens (Fig 89).

Fig 89

- click the **CANCEL OPERATION** button on the command bar (Fig 89 **B**)

User confirmation is required (Fig 90).

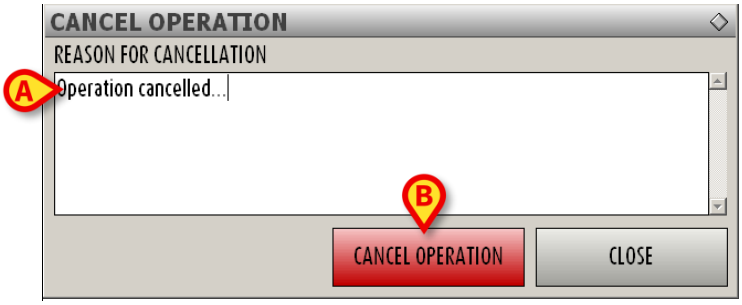

Fig 90 – Operation cancellation

The cancellation reason can be here specified.

- Specify the cancellation reason (Fig 90 **A**)
- Click the **Cancel Operation** button (Fig 90 **B**)

After the reason has been entered, it is displayed on the cancelled operation record in the "Reason for cancellation" field.

The operation state is now "Cancelled" (Fig 91 **A**).

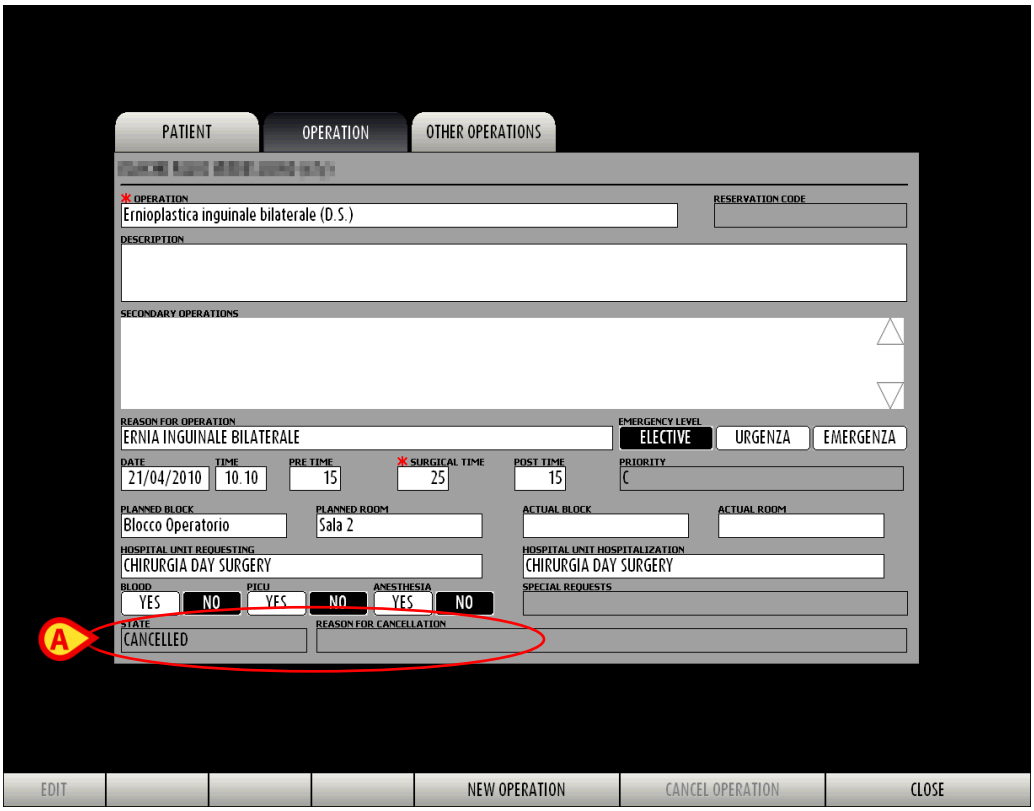

Fig 91 - Cancelled operation

Once cancelled, the operation disappears from all the pages of the OranJ system modules.

4. The OranJ “Plan” module

The “OranJ Plan” module makes it possible to monitor the activities of one or more operating block(s). To select the “OranJ Plan” module

- Click the corresponding icon -  - on the lateral bar.

The “OranJ Plan” module opens. Fig 92 shows an example.
The “OranJ Plan” provides a real-time representation of the actual operations of a block at the current moment.

Fig 92 - Operating day (example)

4.1. Screen description

Every numbered row represents an operating room. The box at the beginning of the row states the room number. In Fig 93 **A** rooms 1 e 2 are indicated.

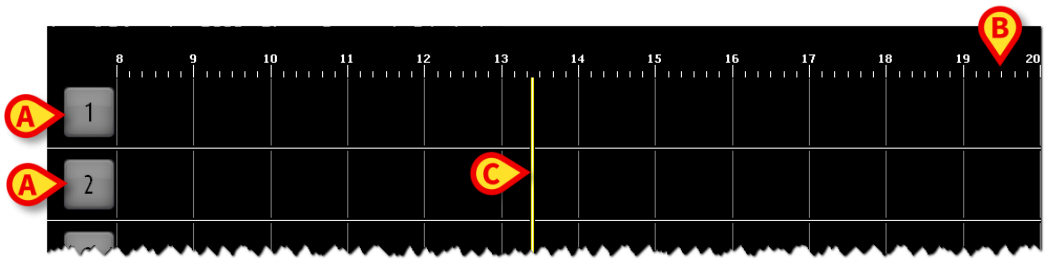

Fig 93

The color of that box can provide information on the state of the operation that is more relevant at present time, depending on configuration. There are four configuration options regarding the room number box color:

- room numbers are always gray;
- only operation states are highlighted;
- only late and close to end operations are highlighted;
- both operation states and late/close to end operations are highlighted.

In this last case the room number color changes according to the following priorities:

- if an operation is late the box turns red;
- if an operation is close to the end (30 minutes or less in the configuration here described) the box turns yellow;
- if an operation is in progress the box turns cyan;
- if an operation is ready (and no operation is in one of the above mentioned states) the box turns green;
- if an operation is planned (and no operation is in one of the above mentioned states) the box turns light gray;
- if there are no operations or all the operations in the room are completed the box turns dark gray.

Fig 92 and Fig 94 show some examples.

Fig 94

The hours are indicated on top and bottom of the screen (Fig 93 **B**).

The yellow bar shown in Fig 93 **C** indicates the current time. In Fig 93 it is about 13:20. The bar runs as time goes by.

Possible yellow letters placed near the room box (Fig 95) indicate the devices that are in the room. The relation between a letter and a device is set during configuration.

Fig 95

The rectangles displayed on screen represent the operations (Fig 96).

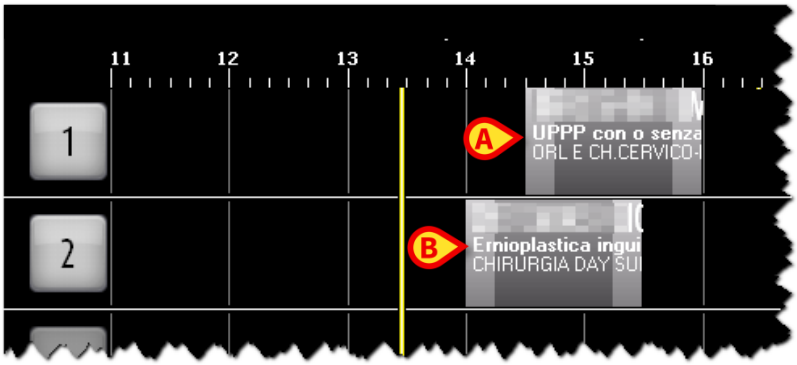

Fig 96

The rectangles on the right of the yellow time-bar represent scheduled operations (they are placed on a future time); their values (duration, room, time etc...) are planned values. The rectangles on the left of the yellow time-bar represent completed operations (they are placed on a past time); their values are actual values. The rectangles intersecting the yellow bar represent operations in progress. In Fig 92 some examples of all types are visible.

The position of every rectangle indicates the scheduled time and the room where the operation will take place (or did take place, if completed). In Fig 96, for example, an operation is planned at 14:30 in room 1 and an operation is planned at 14:00 in room 2.

The size of every rectangle is proportional to the scheduled duration of the corresponding operation (actual duration if the operation is completed). For example: the planned duration of the operation indicated in Fig 96 **A** is 90 minutes (from 14:30 to 15:00); the planned duration of the operation indicated in Fig 96 **B** is 90 minutes as well (from 14:00 to 15:30). The duration includes pre-surgical, surgical and post-surgical times. These times are indicated by different shades of color (Fig 97).

Fig 97

The lighter part on the left (Fig 97 **A**) represents the pre-surgical time; the darker part in the middle (Fig 97 **B**) represents the surgical time; the lighter part on the right represents the post-surgical time (Fig 97 **C**).

Each rectangle displays some operation information, depending on the configuration in use. In the configuration here described the patient name, the name of the operation and the hospital unit requesting the operation are displayed in the rectangle (see Fig 98 for an example).

The rectangle color indicates the operation state. Four different operation states are possible in the OranJ system.

- Planned – the operation has been scheduled; at least the operation day was specified. Light gray indicates the “Planned” state (Fig 98).

Fig 98 - “Planned” operation

- Ready – the patient has undergone block check-in. Green color indicates the “Ready” state (Fig 99).

Fig 99 - “Ready” operation

- In Progress – the patient has entered the operating room. Cyan indicates the “In progress” state (Fig 100).

Fig 100 - “In progress” operation

- Completed – the operation has been completed; the patient is out of the operating room. Dark gray indicates the “Completed” state (Fig 101).

Fig 101 - "Completed" operation

When an operation changes state, then changes the color of the corresponding rectangle.

The changes in the operation state are triggered by the recording of some specific markers on the "OranJ Home" screen (see paragraph 2.4 for a description of the "Markers").

- The "Block In" marker triggers the switch from "Planned" state to "Ready" state.
- The "Room In" marker triggers the switch from "Ready" state to "In progress" state.
- The "Cut" marker triggers the end of the pre-surgical time and the beginning of the surgical time. When this marker is recorded the operation rectangle looks like the one shown in Fig 100, where the different shading differentiate pre surgical and surgical times.
- The "Suture" marker triggers the end of surgical time and the beginning of post surgical time. When this marker is recorded the operation rectangle looks like the one shown in Fig 102, where the different shading differentiate pre surgical, surgical and post surgical times.

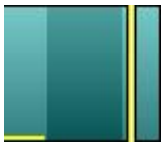

Fig 102

- The "Room out" marker triggers the switch from "In progress" state to "Completed" state.

If enabled by configuration, the possible operation delay is visible on a yellow bar placed at the bottom of the operation-rectangle (Fig 103).

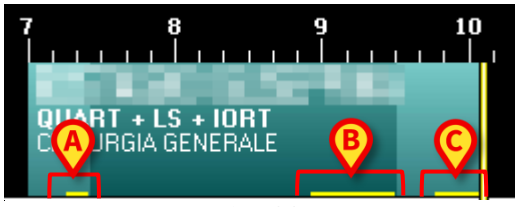

Fig 103

A configuration parameter allows to display separately the possible delays in pre surgical, surgical and post surgical durations. That is the case shown in Fig 103. In the figure here displayed the three yellow bars indicate:

1) a 12 minutes delay in the pre surgical planned duration (Fig 103 **A**);
2) a 40 minutes delay in the surgical planned duration (Fig 103 **B**);
3) a 21 minutes delay in the post surgical planned duration (Fig 103 **C**).

The operation shown in the figure is still in progress. Total delay is 73 minutes so far. This value is indicated in the “residual time” area on the “OranJ Home” screen (see paragraph 2.9). The operations scheduled after the delayed ones are, if necessary, automatically postponed.

The operations indicated as “Emergencies” at scheduling time are characterized by a red stripe on the left (Fig 104). The small box indicated in Fig 104 **A** specifies the emergency level.

Fig 104 - Emergency

Every operation box can be clicked. Click one of the boxes to open a window (Fig 105) containing the main data of the operation.

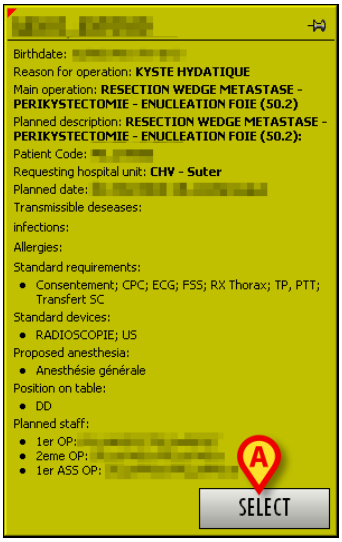

Fig 105 – Operation details

Click the **Select** button in the window (Fig 105 **A**) to access the “OranJ Form” page relating to the operation clicked (Fig 11).

4.1.1. Planned resources availability and operations schedule

Some operating devices can be scheduled as resources required for the operation.

The scheduling of the available resources can be performed on the “Resources” module belonging to the Digistat® Smart Scheduler system. See the document USR ENG Smart Scheduler, paragraph “Resources”, for instructions.

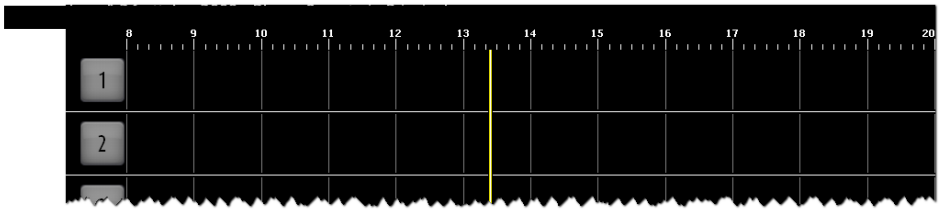

Fig 106

The yellow “now bar” (Fig 106) pushes to the right the operations that, for any reason, don’t start.
If there are special resources scheduled for the operations, the operation rectangles can be pushed to the right not only by the “now bar” but also according to the resources availability.
If two operations share the same resource and the first operation is delayed, then the second operation (temporarily lacking the scheduled resource) can either be pushed to the right or not on the OranJ Plan depending on the resource configuration.

Each resource is defined as “father” (for example: “Laser”, as general category) with a certain number of “children” (that is, the actual lasers existing, usually named “Laser 1”, “Laser 2” and so on).
A property of the father resource defines the behavior of the children resources in the case that, due to delays in the operation duration, a conflict occurs (that is: the same resource is scheduled for two overlapping operations).

If the property is set to 1 (push mode), all the conflicting operations scheduled in other operating rooms belonging to the same block are pushed forward and have their scheduled start time delayed.
Conflicting operations scheduled in different blocks lose the specific resource (child) association. The association with the generic resource (father) remains.

If the property is set to 0, all the conflicting operations (in any block, including the same block) lose the specific (child) resource association and keep the association with the generic (father) resource.

If two resources, one push and one non-push, are scheduled for the same operation and they both conflict, the push mode is adopted for both.

If the the operation duration is prolonged by a user request (that is, a scheduled duration is added on the “OranJ home” screen, see section 2.9), the “push” property is not considered. In this case a message box is displayed, asking if the conflicting operation should be pushed or not. The resources behavior changes according to the user choice (either push or non-push).

The operations sharing the resource can be in different rooms and/or different blocks. Therefore, on the user interface, an operation can be moved to the right with no immediately apparent reason.

4.2. The “OranJ Plan” command bar

The command bar of the OranJ Plan screen is formed of buttons making it possible to perform different procedures. These buttons are listed and shortly described in this paragraph. The procedures are described in detail in the indicated paragraphs.

Fig 107

EDIT	Edit the operation plan. The button must be selected before any editing procedure. See paragraph 4.2.1.
BH05	Display the plan of a different block. This button is only active if working on a “General Central” station (i.e. if multiple blocks are available). See paragraph 4.2.2.
12:00	Display a different time span. See paragraph 4.2.3.
TODAY	Display the plan of a different day. See paragraph 4.2.4.
◄ ►	Scroll buttons - Left (past) and right (future).
BLOC	Filter for the reserve operations (“not assigned” area - See paragraph 4.3.).

4.2.1. How to edit the operation plan

The operation plan can be edited directly on the “OranJ Plan” module main screen. Before any editing it is necessary to click the **Edit** button (Fig 108).

Fig 108

When the button is selected the screen is in “edit” mode. The selected button color changes to dark gray. After editing, the button automatically deselects. Click it again to edit again.

To edit the plan

- click the **Edit** button,

The “drag and drop” functionalities are this way enabled.

- Drag the operation rectangle to the required position on the plan, corresponding to a time and a room (or in the “not assigned” area).

The rectangle stays where dragged, whereas the button deselects. The changes (operation time and room) are recorded on the other OranJ modules.

The term “drag and drop” indicates the possibility to physically take one of the rectangles corresponding to an operation, drag it to the position required and release it. The position of a box on the page indicates the room and the time

scheduled for the corresponding operation, therefore moving a box from one position to another means assigning or changing time and/or operating room. If working on a "touch screen" the same operation can be performed using the fingers.

The Operation Plan can be edited to:

- change the time and/or room of an operation,
- move one of the operations from the "not assigned" area to the daily schedule,
- remove one of the operations from the daily schedule and add it to the "not assigned" area.

4.2.2. How to change the block displayed

This button is only active if the workstation on which you are working is configured to display more than one surgical block (i.e., if it is a GENERAL CENTRAL STATION).

To display the page relating to another surgical block:

➢ Click, on the command bar, the button indicated in Fig 109 (the button displays the name/code of the block currently displayed).

Fig 109

A list of all the blocks configured in the current OranJ system opens.

➢ Click one of the names on the list. The corresponding block is displayed.

4.2.3. How to change the time range displayed

To change the time range displayed

➢ Click the time button on the command bar (Fig 110 - the button displays the time range currently selected).

Fig 110

A drop-down menu offering three different options (6:00 – 12:00 – 24:00) opens (Fig 111).

Fig 111 – Time interval options

- Click the required option.

The screen changes accordingly. Click **6:00**, for instance, to display a 6 hours time range.

4.2.4. How to change the day displayed

The **Today** button (Fig 112) on the command bar makes it possible to change the date displayed (i.e. display the operating plan of a different day).

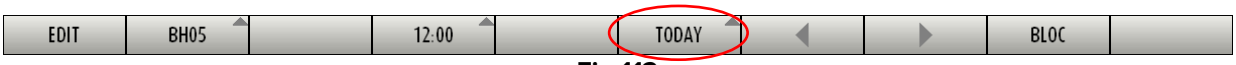

Fig 112

To do that:

- Click the **Today** button.

A calendar window (current month) opens (Fig 113).

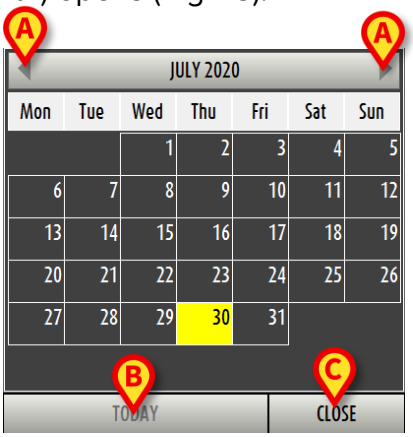

Fig 113 – Calendar

The current day is highlighted yellow. The number of operations completed during a day is shown in the cell corresponding to the past days (dark gray). Use the arrows (Fig 113 **A**) to display previous/following months. After selecting the month:

- Click the day to be displayed.

The day selected on the calendar turns yellow. The page relating to the selected day is displayed. If a day different from the current one is selected, the **Today** button displays the date of the selected day. To return to the current day:

- Click the **Today** button on the calendar (Fig 113 **B**).

To close the calendar window:

- Click the **Close** button on the calendar (Fig 113 **C**).

4.3. The “not assigned” area

The “Not assigned” area on the right of the “OranJ Plan” screen (Fig 114 **A**, Fig 115), contains operations not assigned to a block, room or time (“Reserve” operations).

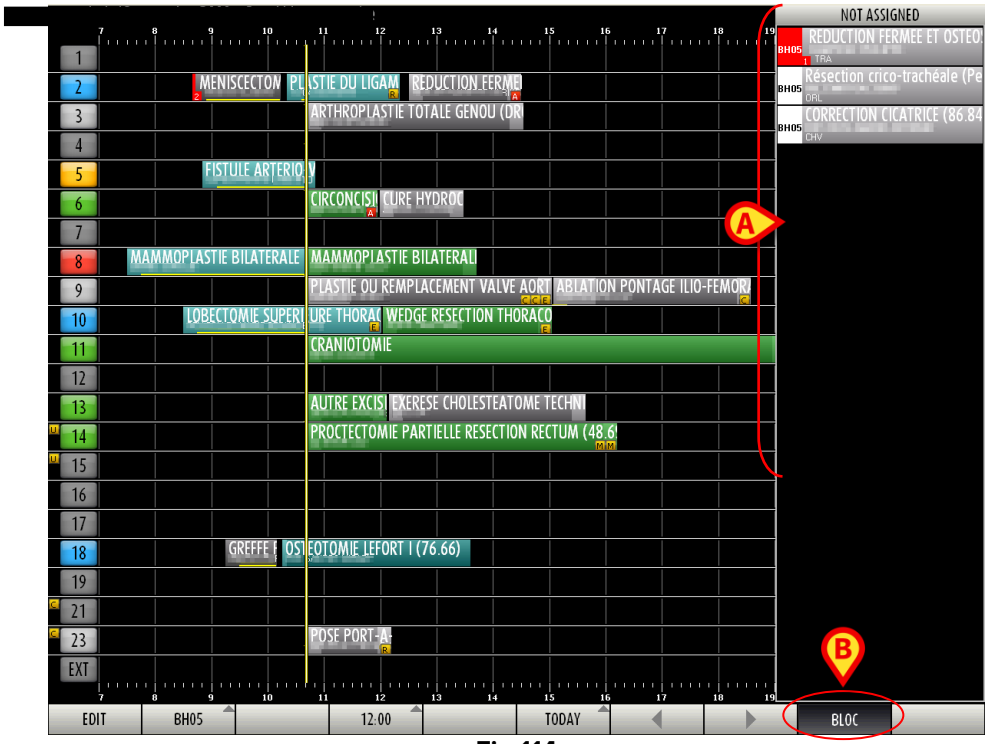

Fig 114

This area can be used to add urgent operations to the daily schedule. The criterion observed for these urgent cases is “as soon as a room is free, the operation goes ahead”; the “not assigned” area makes it possible to display the operations waiting to be added to the daily schedule.

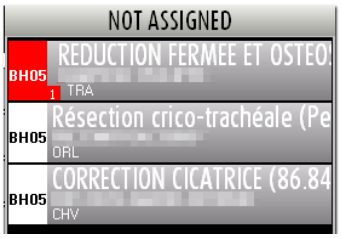

Fig 115 – “Not assigned” area

A scheduled operation is in the “not assigned” column when

- the block is not specified;
- the room is not specified;
- the time is not specified;
- the block and room are not specified;
- the time and room are not specified;
- the time, block and room are not specified.

The “not assigned” area also displays operations which are indicated as “emergencies”. These operations, regardless of the time, block and room specification, are marked red and are not only displayed on the day for which they are scheduled, but also on the days to

come (so that the emergency is always visible). All the emergencies are grouped together on top of the list. The small box indicated in Fig 116 **A** specifies the emergency level.

Fig 116

The emergencies, when inserted in the plan, are characterized by a red stripe on the left (Fig 117).

Fig 117 - Emergency

When a day in the past is displayed on the plan, the "not assigned" area contains the list of the operations that were planned for that day but were not performed. Fig 118, for instance, shows the area referred to a day in the past. Note the title "planned" on top of the list instead of "not assigned".

Fig 118

The operation boxes that appear in the not assigned area in the way indicated in Fig 119 **A** are reserves that were planned for a day that is different from the current day.

Fig 119

The **Block** button on the command bar (Fig 114 **B**) filters the operations of the "not assigned" group. If selected, only the operations relating to the block currently displayed are displayed. If not selected, all the "not assigned" operations of the surgical area are displayed. When you access the page, the **Block** button is selected by default.

4.3.1. Planning a "Reserve" operation

To add a "Not assigned" operation to the daily plan:

- Click the **Edit** button on the command bar.
- Drag the operation-rectangle and drop it to the position corresponding to the wanted room and time.

Similarly, it is possible to "drag and drop" an operation from the daily plan to the "Not assigned" area.

4.4. Room Plan

The plan of a room (i.e. the schedule of a single operating room), can be displayed by clicking the box containing the room number (Fig 120).

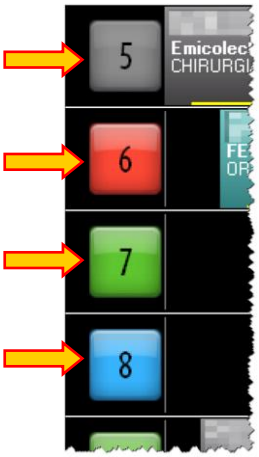

Fig 120

- Click one of the boxes indicated in Fig 120 to access a page showing information relating to the daily schedule of the single room (Fig 121).

Fig 121 – Room Plan

The figure shows the details of room 4.

4.4.1. Room schedule

There is a time line on top of the page, schematically representing the schedule of the operating day (Fig 121 **A**, Fig 122).

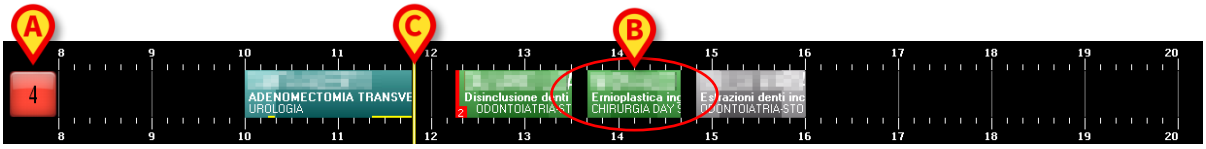

Fig 122

The box on the left (Fig 122 **A**) displays the room number. If enabled by configuration, the color of that box provides information on the state of the operation that is more relevant at present time.

There are four possible configuration options regarding the room number box color:

- room numbers are always gray;
- only operation states are highlighted;
- only late and close to end operations are highlighted;
- both operation states and late/close to end operations are highlighted .

In this last case the room number color changes according to the following priorities

- if an operation is late the box turns red;
- if an operation is close to the end (30 minutes or less in the configuration here described) the box turns yellow;
- if an operation is in progress the box turns cyan;
- if an operation is ready (and no operation is in one of the above mentioned states) the box turns green;
- if an operation is planned (and no operation is in one of the above mentioned states) the box turns light gray;
- if there are no operations or all the operations in the room are completed the box turns dark gray.

Possible letters placed beside the room number (Fig 123) indicate the room devices. The relationship between a letter and a device is defined by configuration.

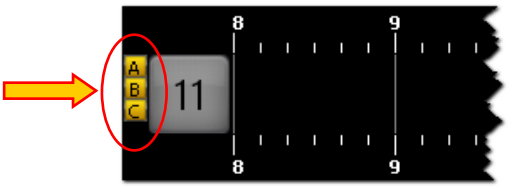

Fig 123

The numbers along the line represent the hours of the day. The boxes inside the line represent the operations scheduled, in progress or completed in that room. The color of the boxes corresponds to the operation state. The association between color and operation state is explained in paragraph 4.2

The length of every box is proportional to the scheduled duration of the corresponding operation. The longer the box, the longer the scheduled duration of the operation.

The position of every box indicates the scheduled time for the operation. The left side of the box is positioned on the start time scheduled for the operation.
For example, the box indicated in Fig 122 **B** corresponds to an operation which should start at 13:40 and should last one hour.

If the data relating to an operation is changed, i.e. if the scheduled time or duration is changed, the corresponding box is automatically moved and/or its size is changed.

The vertical yellow cursor indicates the current time (Fig 122 **C**). In the example shown in the figure, the yellow cursor is in line with 11:50. The cursor runs across the page as time goes by.
If the cursor meets the start time scheduled for an operation (i.e., the left side of a box) and the operation does not start at the scheduled time, the box moves together with the cursor.

In general:

- completed operations (dark gray) are all on the left of the time cursor,
- scheduled operations (light gray) and those that have only undergone block check-in (green) are all on the right of the time cursor,
- in progress operations (cyan) are across the time cursor.

Data relating to completed operations (duration, start time, end time etc...) are actual data; data relating to scheduled operations are planned data.

If enabled by configuration, the possible operation delay is visible on a yellow bar placed at the bottom of the operation-rectangle (Fig 124).

Fig 124

A configuration parameter makes it possible to display separately the possible delays in pre surgical, surgical and post surgical durations. That is the case shown in Fig 124. In the figure here displayed the three yellow bars indicate:

1) a 5 minutes delay in the pre surgical planned duration (Fig 124 **A**);
2) a 15 minutes delay in the surgical planned duration (Fig 124 **B**);
3) a 10 minutes delay in the post surgical planned duration (Fig 124 **C**).

The operation shown in the figure is still in progress. Total delay is 30 minutes so far. This value is indicated in the “residual time” area on the “OranJ Home” screen (see paragraph 2.9).
The operations envisaged after the overrunning operation are automatically postponed. The operations scheduled after the delayed ones are, if necessary, automatically postponed.

The operations indicated as “Emergencies” are characterized by a red stripe on the left (Fig 125). The small box indicated in Fig 125 **A** specifies the emergency level.

Fig 125 - Emergency

Every operation box can be clicked, whether on the page or the “not assigned” column (see paragraph 4.3). Click one of the boxes to open a window (Fig 126) containing the main data of the operation.

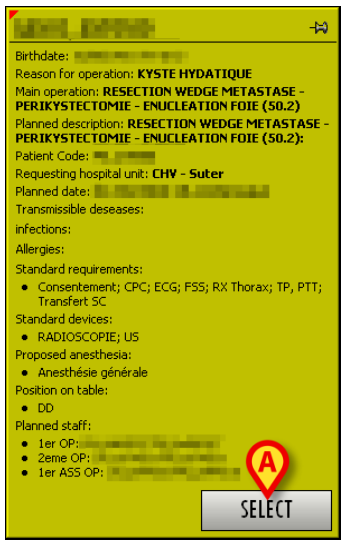

Fig 126 – Operation details

Click the **Select** button in the window (Fig 126 **A**) to access the “OranJ Form” page corresponding to the clicked operation (Fig 11).

4.4.2. The command bar

Fig 127 – Room Plan command bar

On the command bar:

three buttons - **6 Hours**, **12 Hours**, **24 Hours** (Fig 127 **A**) - change the time range displayed. Click **6 Hours**, for example, to display a 6 hours time range. Click **12 Hours** to display a 12 hours time range.

The arrow buttons (Fig 127 **B**) scroll the screen backwards and forwards.

The **Edit** button (Fig 127 **C**) turns the screen to “edit mode” (i.e. allows to edit the page contents). See paragraph 4.4.5.

The **Not Assigned** button (Fig 127 **D**) allows to select a scheduled operation and bring it to the “Not assigned” area. The procedure is described in paragraph 4.4.5.

4.4.3. The “daily program” area

The “daily program” area (Fig 128 **A**) displays in a grid the schedule of the selected operating room.

Fig 128

Every row corresponds to an operation (Fig 129).

Fig 129

The color of the row indicates the operation state (see paragraph 4.2 for the color-state association in OranJ).
On the left the scheduled start time is displayed (Fig 129 **A**). In the row the following information is displayed:

- the planned duration (Fig 129 **B**);
- the patient name (Fig 129 **C**);
- the operation type (Fig 129 **D**).

If specified, the hospital unit which requested the operation is also indicated.
If the left part is highlighted red (Fig 130) it means that the operation is an "Emergency".

Fig 130 – Emergency

All the rows in the "daily program" and "not assigned" areas can be clicked. Click a row to open the window shown in Fig 126, containing the main data of the operation.

4.4.4. The "not assigned" area

The list of "not assigned" operations is displayed in the area indicated in Fig 128 **B**.
These are operations for which no start time, room or block have been scheduled (named "reserves", see paragraph 4.3 for a description).

The "not assigned" area of this page contains the same operations displayed in the "not assigned" area of the OranJ "Plan" screen (Fig 115).

Each row in this area shows the scheduled duration for the operation, the name of the patient, the type of operation scheduled and, if specified, the department which requested the operation (Fig 128 **B**).

4.4.5. How to edit the operations schedule

The operation schedule of a room can be edited in the Room Plan module in the following ways:

- Change the time scheduled for an operation.
- Add one of the operations from the "not assigned" list to the daily schedule.
- Remove one of the operations from the daily schedule and add it to the "not assigned" list.

Fig 131 – Room Plan module command bar

To do that:

- Click **Edit** (Fig 131 **A**).

The screen turns to “Edit mode”. The button is displayed as selected (darker). The “drag and drop” functionalities are enabled.

- Make the change required (i.e. drag and drop an operation box to a difference position on the plan or drag a “reserve” from the “Not Assigned” area to the operating plan).

After editing, the **Edit** button is automatically deselected. To edit the page again it is necessary to click it again. The changes made are automatically displayed on the other Digistat® modules.

Use a slightly different procedure to remove an operation from the daily plan and add it to the “not assigned” list:

- Click **Edit**.
- On the list of scheduled operations (Fig 128 **A**), click the row corresponding to the operation to be removed.

The rectangle on the left (the one displaying the scheduled time) turns yellow (Fig 132).

Fig 132

The **Not Assigned** button on the command bar activates.

- Click the **Not Assigned** button (Fig 131 **B**).

The operation is this way moved to the “not assigned” list.

4.4.6. Room markers

The markers relating to the room events (Fig 133) are displayed and recorded in the column on the left side of the page (Fig 121 **B**).

Fig 133 – Room markers

The room markers work as the operating markers described in section 2.4. See section 2.4 for instructions. The room markers can differ from those described in section 2.4 if it is required to “mark” events of a diferent type. For instance, in Fig 133 they are:

- Room opens
- Start of maintenance
- Start of cleaning
- End of cleaning
- End of maintenance
- Room closes

In most configurations the room markers and the operating markers are the same.

5. The OranJ Central module

The OranJ Central module provides an overview of the situation of the whole surgical area or block. OranJ Central can be used for monitoring the state and availability of the operating structures in real time.
The OranJ Central module is installed on the BLOCK CENTRAL STATION and GENERAL CENTRAL STATION workstations.

5.1. The main page

The main page of this module (Fig 134) represents a surgical block.

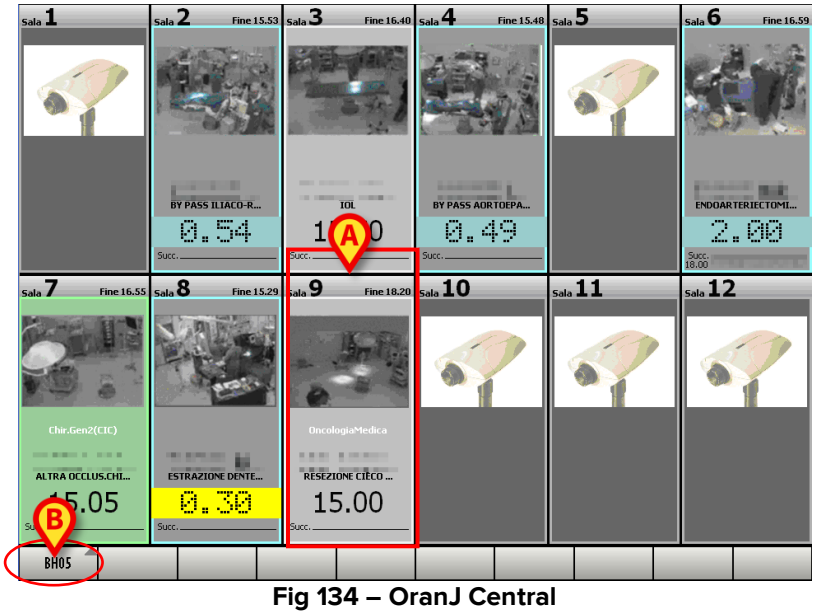

Fig 134 – OranJ Central

If enabled, use the button indicated on the command bar (Fig 134 **B**) to select a different block.
Every cell (Fig 134 **A**, Fig 135) represents an operating room.

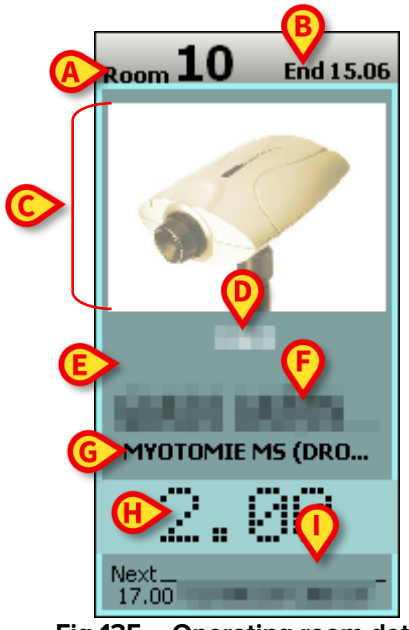

Fig 135 – Operating room detail

The color of the cell indicates the current “state” of the operation. See section 1.3 for the color code in OranJ.
Every cell can display the following information (Fig 135):

- The room number (Fig 135 **A**).
- Envisaged end time (if the operation is in progress - Fig 135 **B**).
- The picture of the operating table. This is only possible if a webcam is installed in the room (Fig 135 **C**).
- The name of the operating unit requesting the operation (if specified - Fig 135 **D**).
- The name of the first operator (if already assigned - Fig 135 **E**).
- The patient name (Fig 135 **F**).
- The type of operation (Fig 135 **G**).
- Time remaining to the end of the operation according to the planned duration (if the operation is in progress, this is the case shown in Fig 135 **H**).
- The scheduled operation start time (if the operation has not started yet; this is the case shown in Fig 134 **A**)
- The following operation (patient name and type of operation - Fig 135 **I**).

Thirty minutes before the scheduled end time, the timer on the cell (Fig 135 **H**) turns yellow and starts flashing.
When an operation exceeds the scheduled time, the timer on the cell (Fig 135 **H**) turns red, indicating, with a negative number, the delay time.

Completed operations are not displayed on the main page of the OranJ Central module. Therefore, there are no dark gray cells.

Click the box containing the picture of the room (or the picture of the webcam) to access a room detail page (Fig 137).
Click any other part of the cell to open a window (Fig 136) containing the main data of the operation.

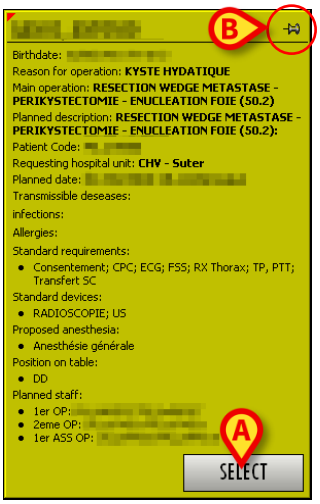

Fig 136 – Operation details

Click the **Select** button (Fig 136 **A**) to access the “OranJ Form” page relating to the operation clicked (Fig 11). The window shown in Fig 136 disappears after a few seconds. Click it to make it disappear immediately. Click the “thumbtack” indicated in Fig 136 **B** to “pin” it to the page.

5.2. Operating Room detail

➢ Click a cell to display a room detail page (Fig 137).

*More exactly: click the area of the cell showing the picture of the room or the picture of the webcam (Fig 135 **C**).*

Fig 137 – Operating room monitor

The name of the surgical block, the room number, the patient name and the type of operation are displayed on top (Fig 137 **A**). Beneath it, a time line displays the daily schedule of the room (Fig 137 **B**).

5.3. Room schedule

A time line represents the schedule of the operating day (Fig 137 **B,** Fig 138).

Fig 138

The box on the left (Fig 138 **A**) displays the room number. If enabled by configuration, the color of that box provides information on the state of the operation that is more relevant at present time (see section 4.1 for more information on this).
The colored boxes represent the scheduled operations (Fig 138 **B**).
The yellow bar indicates the present time (Fig 138 **C**).

5.4. The command bar

Fig 139 – Room monitor screen command bar

Use the buttons **6 Hours**, **12 Hours**, **24 Hours** (Fig 139 **A**) to display a different time range.
Use the arrow buttons (Fig 139 **B**) to scroll backwards and forwards.
The **Close** button closes the window.

5.5. Durations and chronology

The page displays, on the left, the enlarged picture of the operating room (if a webcam is installed - Fig 137 **C**). The operation main data are displayed beside it, on the right (planned, not actual; start time; patient name; type of operation).

The lower part of the page (Fig 137 **D**, Fig 140) displays the data relating to the operation in progress.

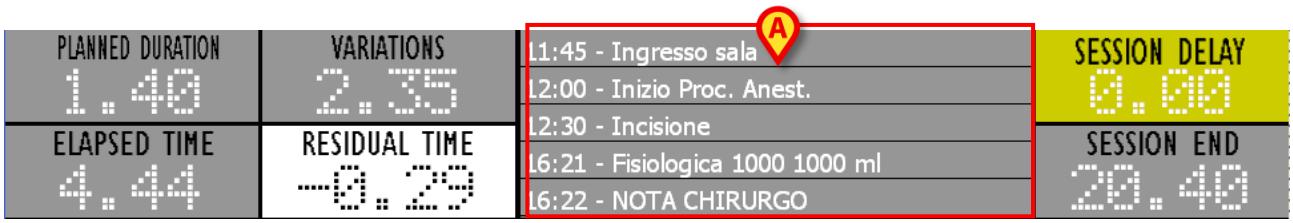

Fig 140 - Operating times detail

The area shown in Fig 140 is described in the following paragraphs.

5.6. Operating times detail

The area indicated in Fig 137 **A** and Fig 141 provides information on both the room times and the current operation progresses.

Fig 141

There are three sections in the area:

1) Operation Times (Fig 141 **A**) - four timers display the currently selected operation times (see section 5.6.1);
2) Chronology (Fig 141 **B**) – the markers and the operating events in chronological order;
3) Room Times (Fig 141 **C**) - two timers display the overall operating times (see section 5.6.2).

5.6.1. Operation times

The operation times (Fig 141 **A**, Fig 143) refer to the operation that is either in progress in the operating room or is the next planned operation. The operation main data are displayed alongside the screen header (Fig 142).

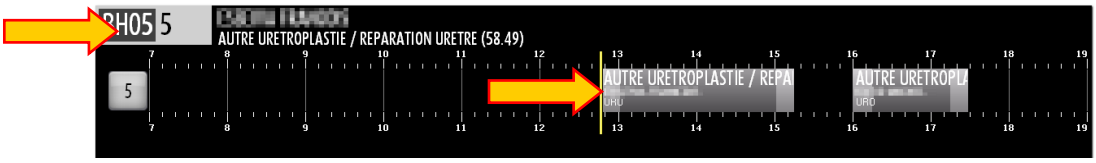

Fig 142

There are four timers indicating the operation times (Fig 141 **A**, Fig 143).

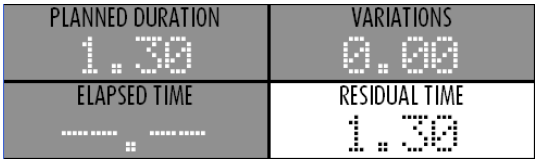

Fig 143

1) The “PLANNED DURATION” timer displays the planned duration of the selected operation and indicates the sum of the pre-surgical, surgical and post-surgical times. The value displayed on this timer changes only when the successive operation is selected.
2) The “ELAPSED TIME” timer displays the time actually elapsed since the beginning of the operation. This timer starts when the operation switches to the “In progress” state, i.e. when the “Room-in” marker is recorded on the “OranJ Home” screen.

3) The “VARIATIONS” marker displays the additional time possibly requested by the operating room staff on the “OranJ Home” screen using the buttons on the “Residual time” area (section 2.9).
4) The “RESIDUAL TIME” timer displays the time remaining to the end of the operation (calculated both on the planned times and on the possible variations requested by the operating staff, those displayed on the “VARIATIONS” timers).
   This timer displays the same time displayed on the “OranJ Home” screen, on the “Residual time” area.

Please note that the sum of the times displayed on the “PLANNED DURATION” and “VARIATIONS” timers equals the sum of the times displayed on the “ELAPSED TIME” and “RESIDUAL TIME” timers.

Times shown in Fig 143 correspond to an operation that is either in “Planned” or “Ready” state (i.e. the operation hasn’t started yet).
The next paragraphs explain the behavior of the timers and show the relation with the markers recorded on the “OranJ Home” screen.

5.6.1.1. Operation beginning - “Room in” marker

The operation switches to the “In progress” state (Fig 144 **A**) when the “Room in” marker is recorded on the “OranJ Home” screen. The “Room in” marker implies the beginning of the pre-surgical time. When the pre-surgical time begins, the “ELAPSED TIME” and “RESIDUAL TIME” timers start displaying their values (Fig 144 **B**).

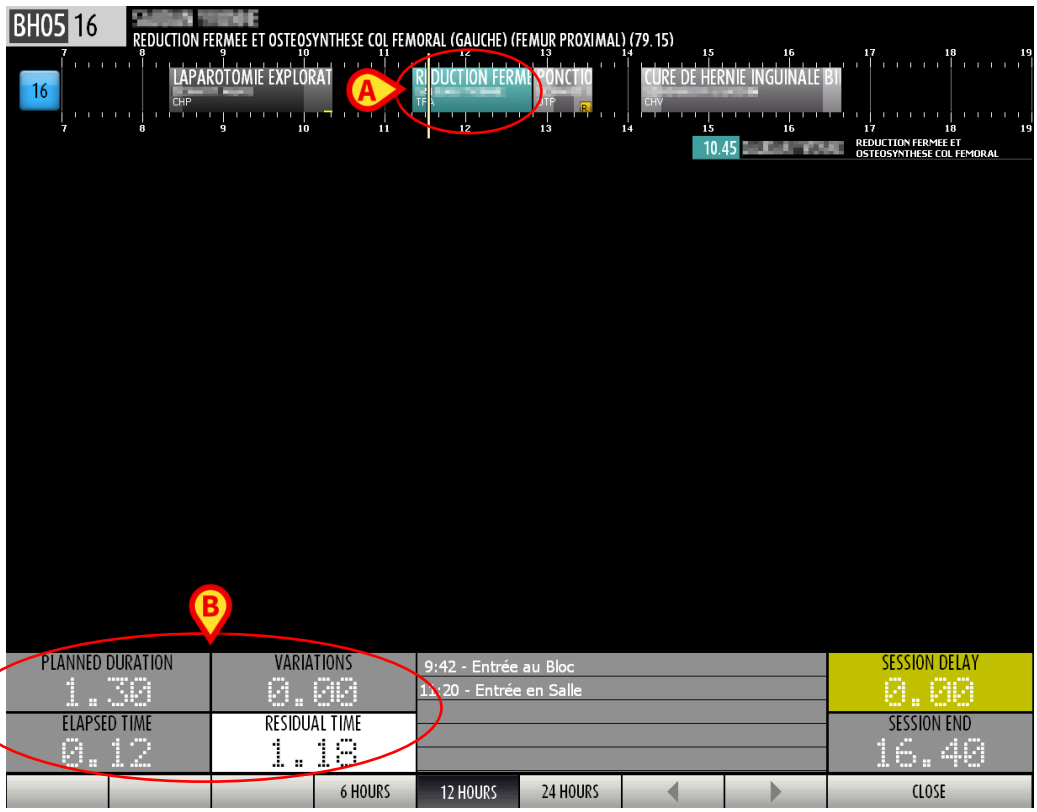

Fig 144

5.6.1.2. Surgical time beginning - “Cut” marker

Pre-surgical time ends when the “Cut” marker is recorded on the “OranJ Home” screen. The “Cut” marker implies the beginning of the surgical time. This change is highlighted on the operation-rectangle by a change in the color shade (Fig 145 **A**).

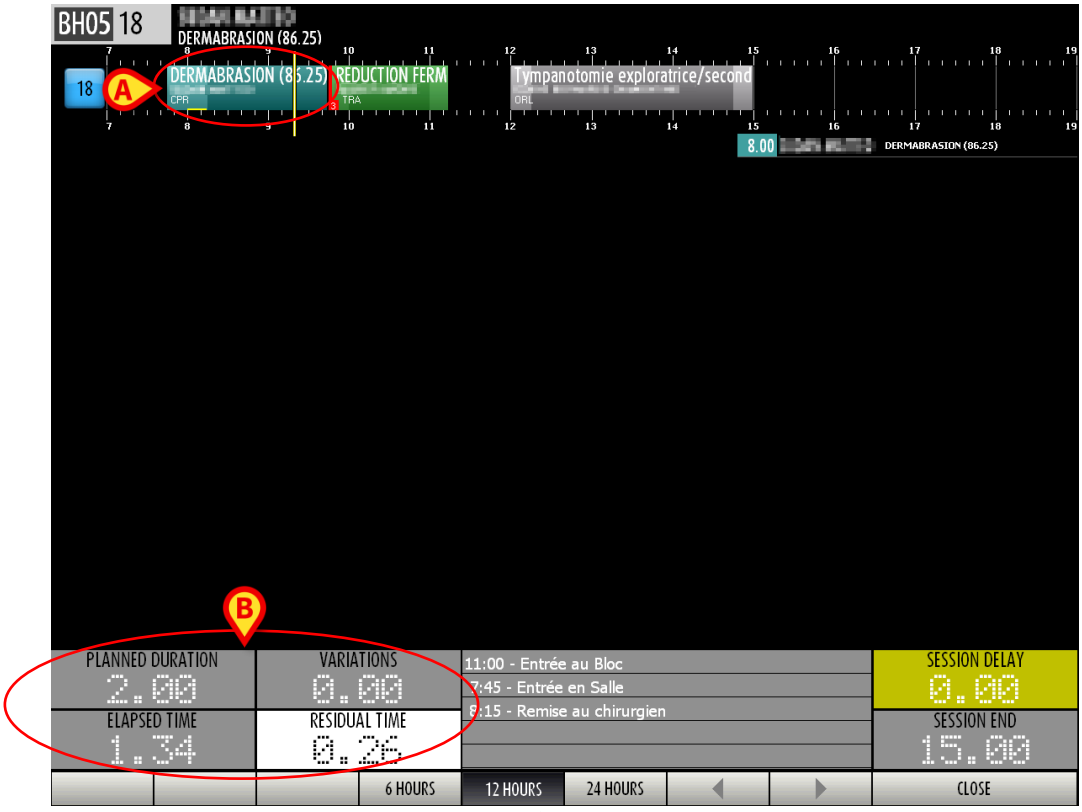

Fig 145

In Fig 145 **B** the timers indicate that:

- 1 hour and 34 minutes passed since the operation began (ELAPSED TIME);
- planned residual operation duration is 26 minutes (RESIDUAL TIME);
- no additional time was requested by the operating staff (VARIATIONS);
- operation planned duration ***was*** 2 hours (PLANNED DURATION).

The “PLANNED DURATION” timer does not change until the current operation is completed. It displays in fact the duration that was planned before the operation started and does not depend on the possible variations recorded during the operation.

The time actually elapsed is displayed on the “ELAPSED TIME” timer.

5.6.1.3. Post-surgical time beginning - “Suture” marker

Surgical time ends when the “Suture” marker is recorded on the “OranJ Home” screen. A different shade of the operation-rectangle color indicates this switch (Fig 146 **A**).
The “Suture” marker implies the beginning of the post-surgical time.

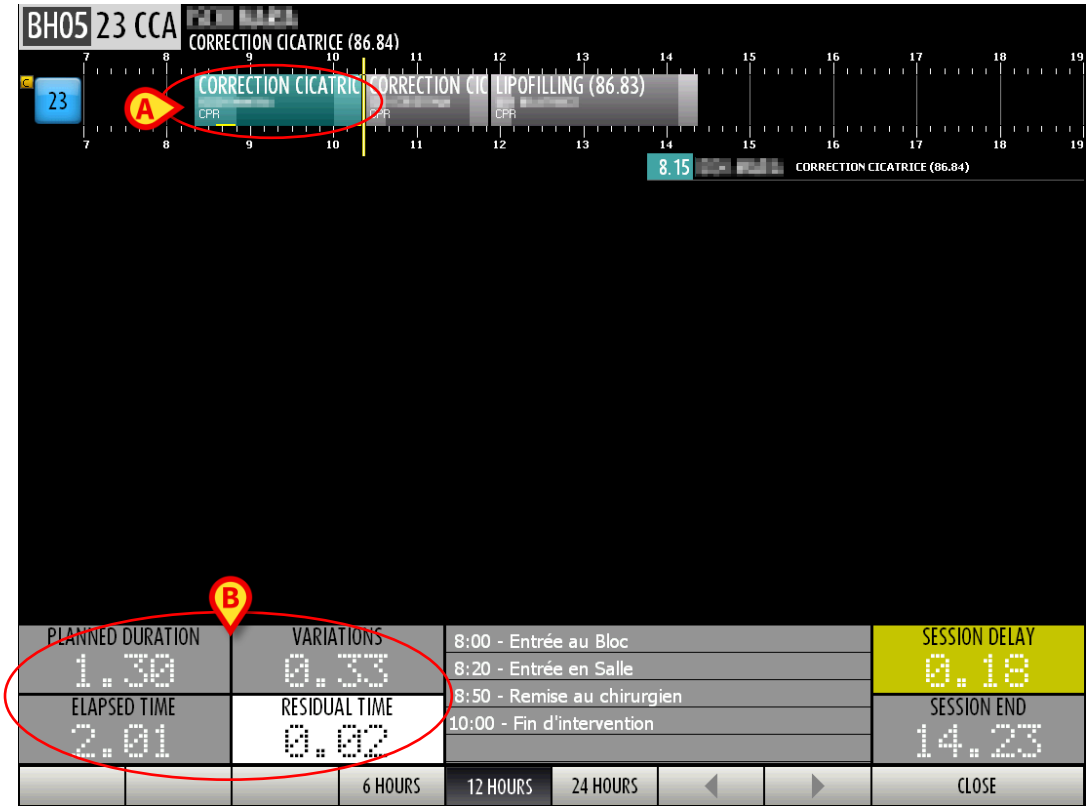

Fig 146

In Fig 146 **B** the timers indicate that

- 2 hours and 01 minutes passed since the operation began (ELAPSED TIME);
- RESIDUAL TIME is 2 minutes. Residual time is calculated as the sum of the PLANNED DURATION value plus the VARIATIONS value (01:30h plus 00:33h in the example shown in Fig 146 **B**), less the ELAPSED TIME value (elapsed time is 02:01h, therefore residual time is 2 minutes).
  A negative value displayed on this timer indicates the possible delay amount. See for instance Fig 147 **A**.
- 33 additional minutes were requested by the operating staff (VARIATIONS);
- operation planned duration ***was*** 1 hour and 30 minutes (PLANNED DURATION).

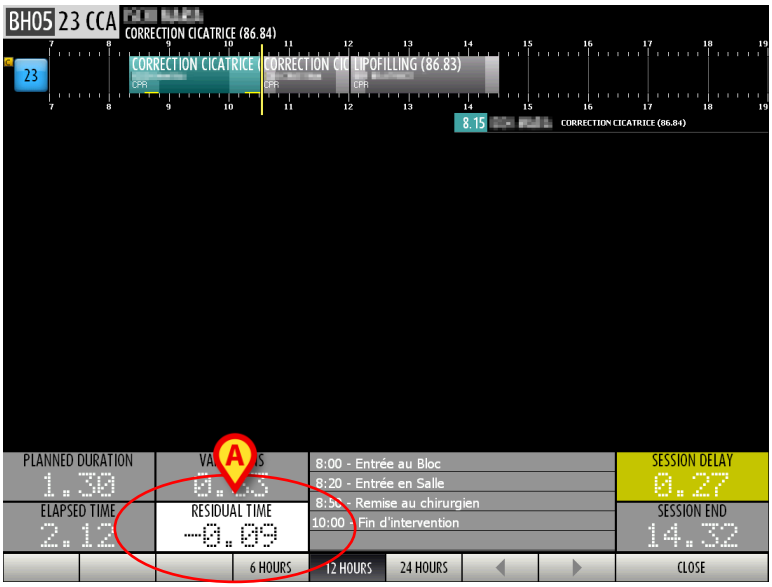

Fig 147 - Operation delay

5.6.1.4. Operation end - “Room out” marker

The operation ends when the “Room out” marker is recorded on the “OranJ Home” screen. The operation switches then to “Completed” state. The operation-rectangle represents the actual operation times and indicates both the overall duration, the specific durations and the delays (if enabled in the configuration) of the pre-surgical, surgical and post surgical times (Fig 148 **A**).

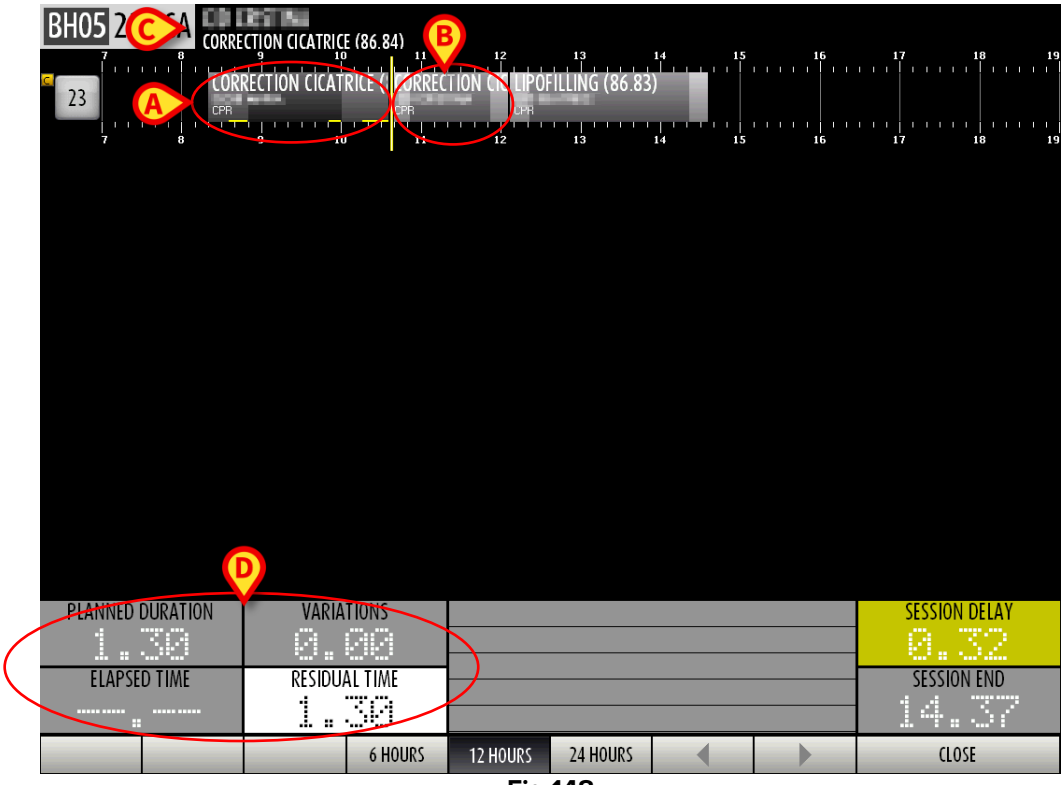

Fig 148

The successive operation is automatically selected (Fig 148 **B**), its main data are displayed alongside the screen header (Fig 148 **C**). The timers display the times of the selected operation (Fig 148 **D**).

5.6.1.5. Variations requests

The operating staff, when the operation is in progress, can request additional time.

Duration variation requests are managed on the "OranJ Home" screen (section 2.1).

The next two figures (Fig 149 and Fig 150) illustrate the changes of the operating room timers after a time variation request.

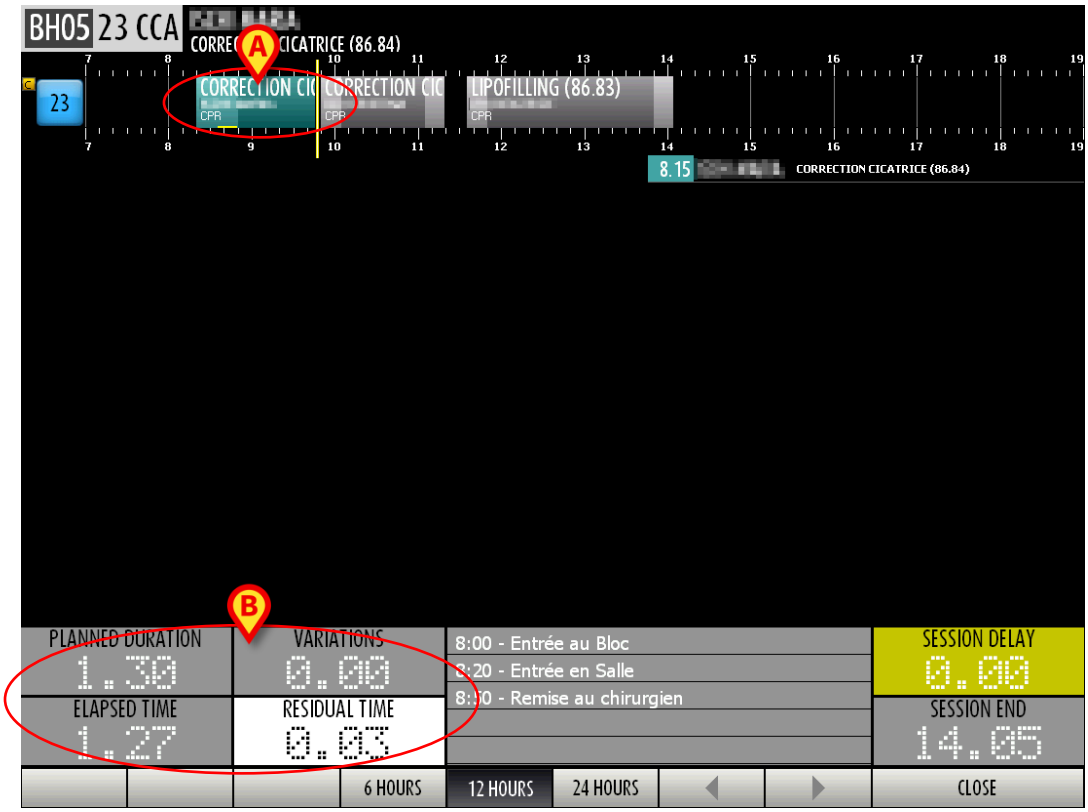

Fig 149 - Times before variation request

Before requesting additional time the timers display the following values (Fig 149 **B**):

- 1 hour and 27 minutes passed since the operation began (ELAPSED TIME);
- the planned residual operation duration is 3 minutes (RESIDUAL TIME);
- no additional time was requested by the operating staff (VARIATIONS);
- the operation planned duration originally ***was*** 1 hour and 30 minutes (PLANNED DURATION).

The operating staff requests 33 additional minutes. The timers display this change in the following way (Fig 150).

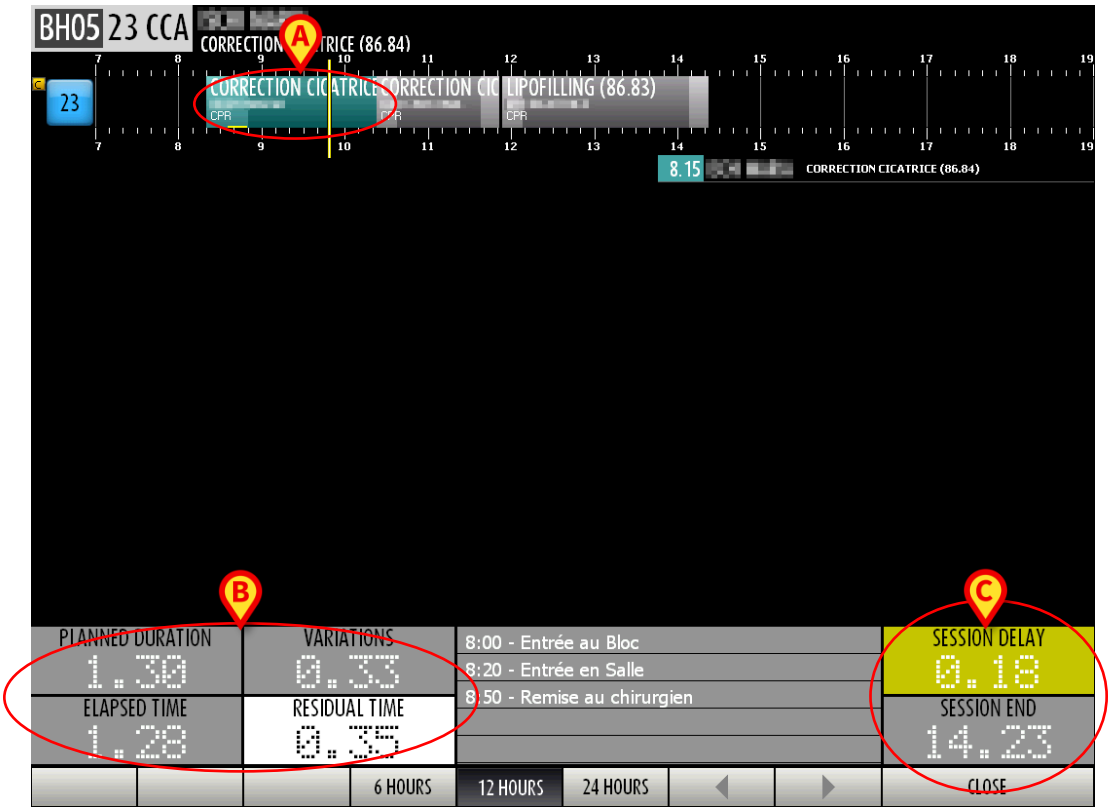

Fig 150 - 30 minutes variation

After requesting additional time the timers display the following values (Fig 150 **B**):

- 1 hour and 28 minutes passed since the operation began (ELAPSED TIME);
- the planned residual operation duration is 35 minutes (RESIDUAL TIME);
- 33 additional minutes were requested by the operating staff (VARIATIONS);
- the operation planned duration originally ***was*** 1 hour and 30 minutes (PLANNED DURATION).

The corresponding operation-rectangle length indicates the overall duration (2 hours and 3 minutes, Fig 150 **A**).

Note that the variation causes a delay in the planned session end time (it was 14:05 before the variation). The new planned session end time and the session delay amount are now displayed on the timers on the right (Fig 150 **C** - see next paragraph 5.6.2 for the “Room times” timers description).

5.6.2. Room times

The room times refer to the overall timing of the operative session. Two timers display the relevant times: session delay and session end (Fig 141 **C**, Fig 151).

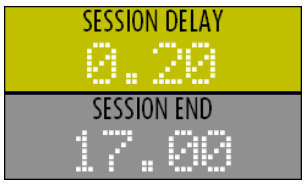

Fig 151

5.6.2.1. Session end

The SESSION END timer displays the planned end time of the last operation in the room. The time indicated by the SESSION END timer always corresponds to the right limit of the last operation-rectangle shown on the time bar (Fig 152 **A**)

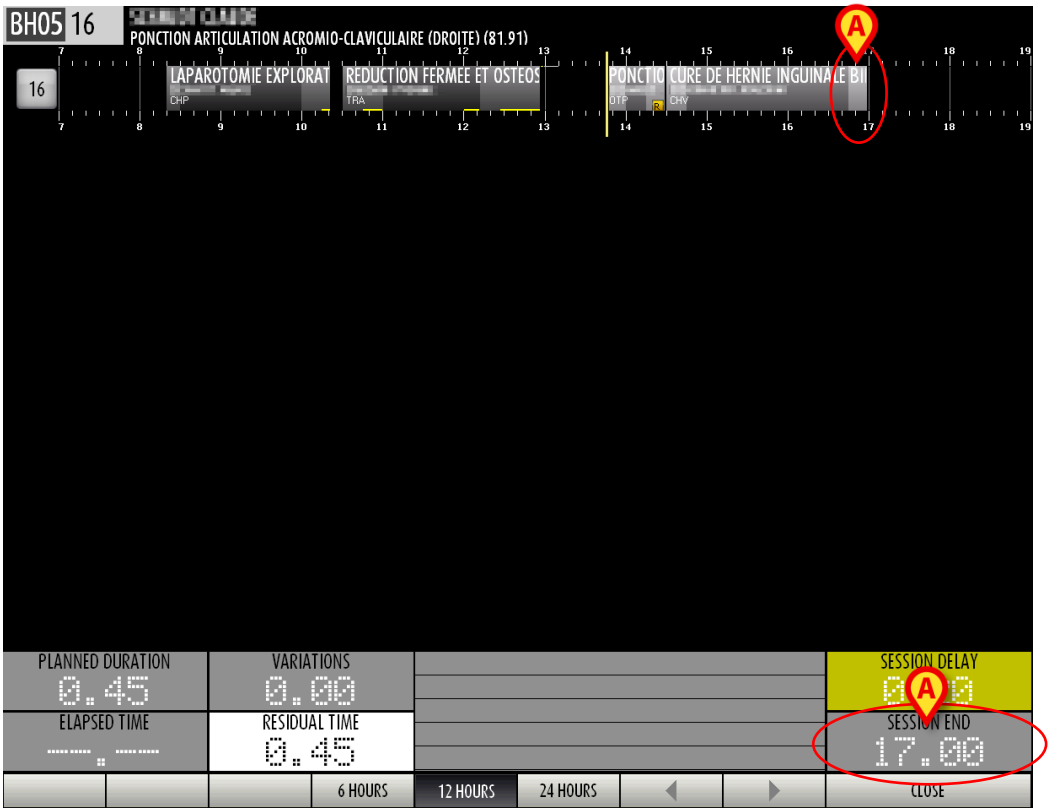

Fig 152 - Session end

5.6.2.2. Session delay

The SESSION DELAY timer indicates if the delays of the completed and in progress operations are likely to cause an overall delay in the operative session. The possible delay amount is displayed. See for instance Fig 153 **A**.

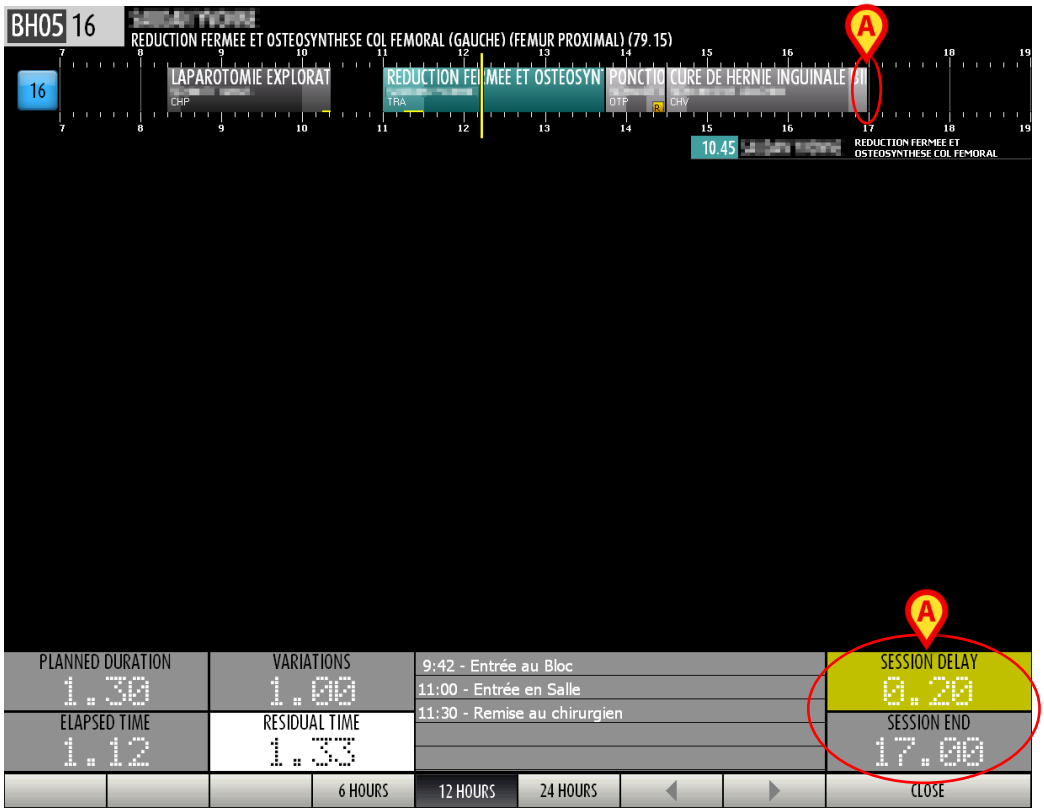

Fig 153 - Session delay

In Fig 153 the planned session end was 16:40 when the room opened. The delay caused by the operation times variations made the planned end of the last operation become 17:00.
The SESSION DELAY timer displays therefore a 20 minutes delay.
As long as the room is open and the operative session goes on, it is a ***planned*** time, not an actual one. The session delay increases when the operations in the room last longer than planned. If they last less, the delay decreases.
When the last planned operation is completed the SESSION DELAY time becomes an actual value.
The SESSION DELAY time can be negative if the planned end of the last operation is anticipated.

6. OranJ Chart module

The OranJ Chart module provides a graphic representation of some of the patient data collected during the operation. Also, this module displays on a time line the operating events recorded.
The main page of the module can change depending on the configuration chosen. The one shown in Fig 154 is an example.

6.1. Page features

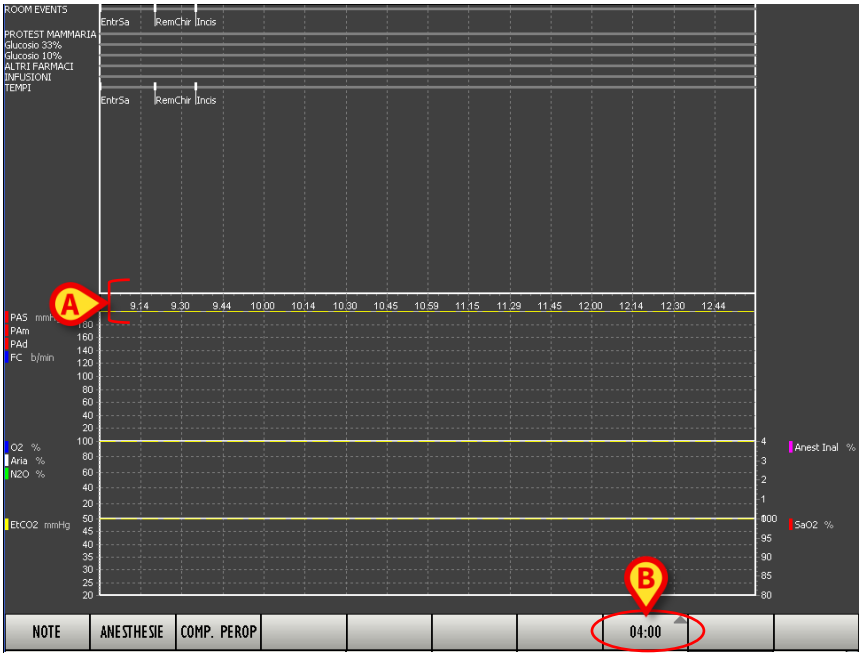

Fig 154 – OranJ Chart

The numbers indicated in Fig 154 **A** indicate the time of the day. If the current operation is still in progress, a vertical yellow bar indicates the current time.

Use the button on the command bar to change the time range displayed (Fig 154 **B**).

The screen contents can be scrolled left or right to display time ranges before or after the current one. Tap/click and scroll to do that.

The page is split into two areas: the “Events” area and the “Chart” area.

6.1.1. The “Events” area

The upper part of the screen (Fig 155) shows on different time lines the events recorded.

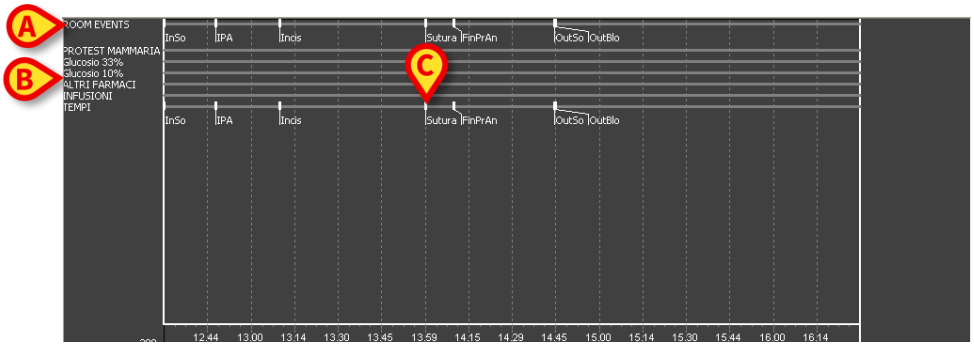

Fig 155 – Events Chronology

Both the markers (Fig 155 **A**) and other room events (as, for instance, the administered drugs, anesthesiological and surgical procedures etc.) are displayed (Fig 155 **B**). See section 2.4 for a description of the possible events in OranJ.
An event is marked on the time bar in correspondence with the moment in which it is recorded. In the figure, for example, the “Suture” event was recorded at 13:59 (Fig 155 **C**).
n the chart, the markers are abbreviated this way (it is an example):

- Block entrance - InBlo
- Room in - InSo
- Start of Anesthesiology Procedure - IPA
- Skin incision - Incis
- Suture - Sutura
- End of Anesthesiology Procedure - FinPrAn
- Room out - OutSo
- Block exit - OutBlo

The markers change according to the configuration chosen.

6.1.2. The “Chart” area

The lower part of the screen (Fig 156) displays the trends of the parameters acquired by the medical devices.

Fig 156 - Charts

The charts are created in real time and updated every minute.
The parameters acquired change according to contingent requirements (devices connected, operating needs, configuration).
The side areas list the kind of data that can be displayed in the charts in the current configuration (Fig 156 **A**). Alongside every type of datum the color used to trace the line of the chart for that datum is displayed.
It is possible to tap/click and scroll. Scroll the chart up/down to display other possible trends. Scroll the chart left/right to display time ranges before or after the current one.

6.1.3. The command bar

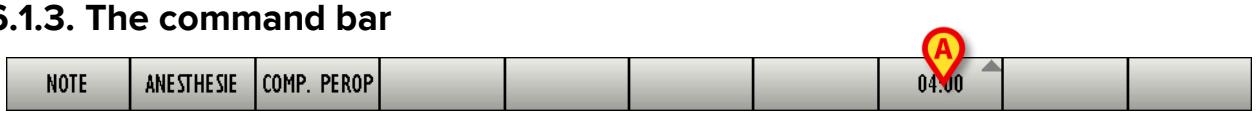

Fig 157 – OranJ Chart screen command bar

The time-range button (Fig 157 **A**) changes the time range displayed. Click the button to open a menu enabling to select 2, 4, 8, 12 or 24 hours

Fig 158 – Time range selection

The option selected is displayed on the button. In Fig 154, for example, an 8-hour time range is displayed.

The other buttons are customized shortcuts to other OranJ functionalities (for example: notes, anesthesia, checklists...). Refer to the system administrators for customization possibilities.

7. Check-In configuration

The Check-In configuration of the Digistat OranJ system is used to identify the patient at block check in and check out.
Identification is preferably performed via patient barcode scan. If barcode reading functionality is not enabled ,a manual procedure is available.
“Barcode” procedure is described in paragraph 7.2.1, manual procedure is described in paragraph 7.2.2.

Barcode technology is recommended when identifying a patient. Scanning the patient’s barcode, instead of selecting it manually, statistically reduces the selection errors.

7.1. Modules in use

The check-in configuration includes two modules: the OranJ Plan module, providing an overall view of the operating block, and the OranJ Check-in module, making it possible to identify the patient when entering the block.

7.1.1. OranJ Plan

The OranJ Plan module is described in chapter 4 in this manual. See chapter 4 for a description of the module’s functionalities.

Fig 159 - OranJ Plan

Some buttons on the command bar are disabled because this configuration only enables monitoring one block on the current day. Thus it is not possible to use the "Edit" functionalities to change the operating plan; it is not possible to change the day displayed; it is not possible to display a different block.

7.1.2. OranJ Check-In

The OranJ Check module can be used to identify the patient at block check in and check out. To select the module

- Click the corresponding icon  on the Digistat® lateral bar.

The following screen is displayed (Fig 160).

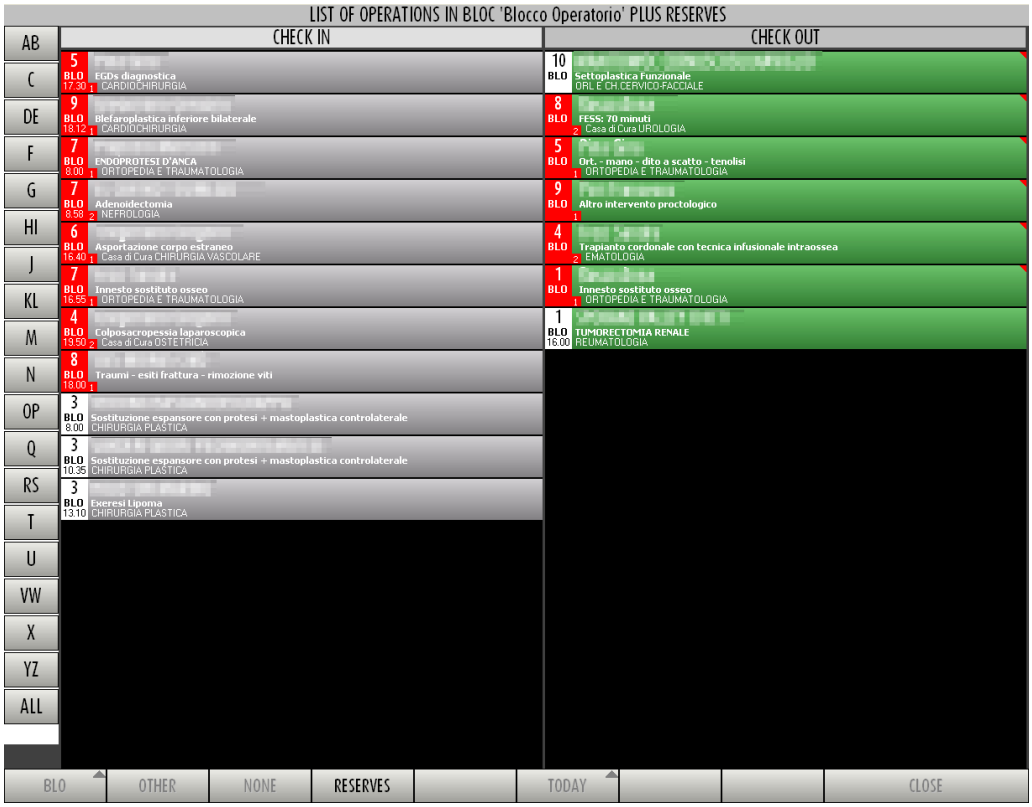

Fig 160 - OranJ Check-in

The screen is split in two columns: Check In on the left (patients waiting to be checked in – these operations are all in Planned state); Check Out on the right (patients checked-in – these operations can be in Ready or In Progress or Completed state. The completed ones will be check out).

In the OranJ system an operation is completed when the "Room out" marker is recorded. See section 2.4 for the explanation of the "markers" in the Digistat OranJ system.

The **Reserves** button on the command bar can be selected to display, on the left column, the "Reserves" operations as well, for which the check-in procedure has not been completed. See section 4.3 for an explanation of the meaning of "Reserve" operation.

7.2. How to perform the patient check-in

7.2.1. Barcode check-in

If barcode selection functionalities are enabled, to perform the patient check-in:

- Access the “Check in” screen (Fig 160).
- Scan the barcode of the patient who is entering the operating block.

A patient identification window is displayed (Fig 161).

Fig 161 - Patient identification

The patient code is visible in the field indicated in Fig 161 **A**.

- Click the **Identify** button (Fig 161 **B**).

The window changes in the following way (Fig 162).

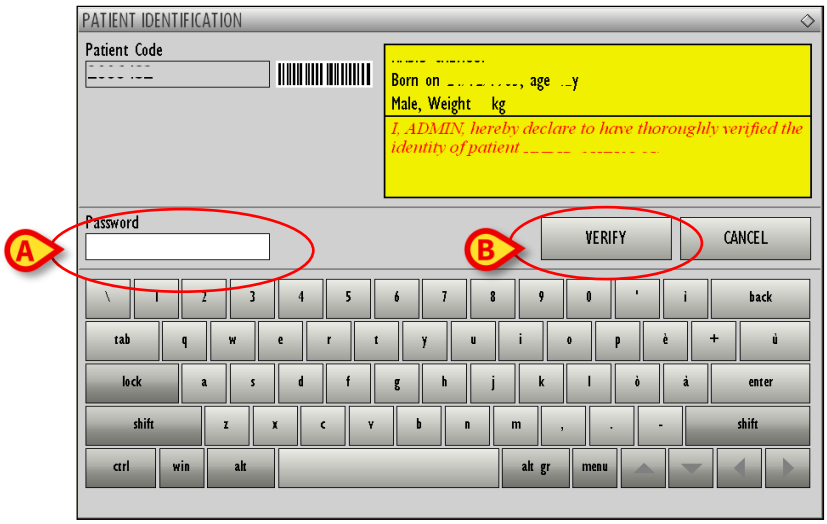

Fig 162 - User identification

The window shown in Fig 162 requires user identification. The logged user declares that he/she personally verified the patient identity.

- Insert user password in the field indicated in Fig 162 **A**.
- Click the **Verify** button (Fig 162 **B**).

The paient is checked-in. The corresponding operation-rectangle disappears from the "Check in" column and is displayed in the "Check out" column. On the "OranJ Home" screen (Fig 11) the "Block-in" marker is recorded. The operation turns to "Ready" state; the corresponding rectangle turns green (Fig 163).

Fig 163

See section 1.3 for a description of the possible operation states and the associated colors.
See section 2.1 for a detailed description of the "OranJ Home" screen.

7.2.2. Manual check-in procedure

Manual check-in is possible if barcode selection is not available. To perform this procedure:

- Click the Check-in icon -  - on the lateral bar to access the OranJ "Check in" module (Fig 164).

Fig 164 - OranJ "Check in"

On the left column (“Check in” column),

- Click the rectangle corresponding to the patient/operation that is checking in (Fig 164 **A**). A patient identification window opens (Fig 165).

Fig 165 - Patient identification

- Type the patient code in the field indicated in Fig 165 **A**.
- Click the **Identify** button (Fig 165 **B**).

The window changes in the following way (Fig 166).

Fig 166 - User identification

The window shown in Fig 166 requires user identification. The logged user declares that he/she personally verified the patient identity.

- Insert user password in the field indicated in Fig 166 **A**.
- Click the **Verify** button (Fig 166 **B**). The block check-in is this way completed.

The paient is checked-in. The corresponding operation-rectangle disappears from the “Check in” column and is displayed in the “Check out” column. On the “OranJ Home”

screen (Fig 11) the “Block-in” marker is recorded. The operation turns to “Ready” state; the corresponding rectangle turns green (Fig 167).

Fig 167

See section 1.3 for a description of the possible operation states and the associated colors.
See section 2.1 for a detailed description of the “OranJ Home” screen.

7.3. How to perform the patient check-out

To record the patient check-out (i.e. the patient exits the operating block):

- Access the OranJ “Check in” module (Fig 168).

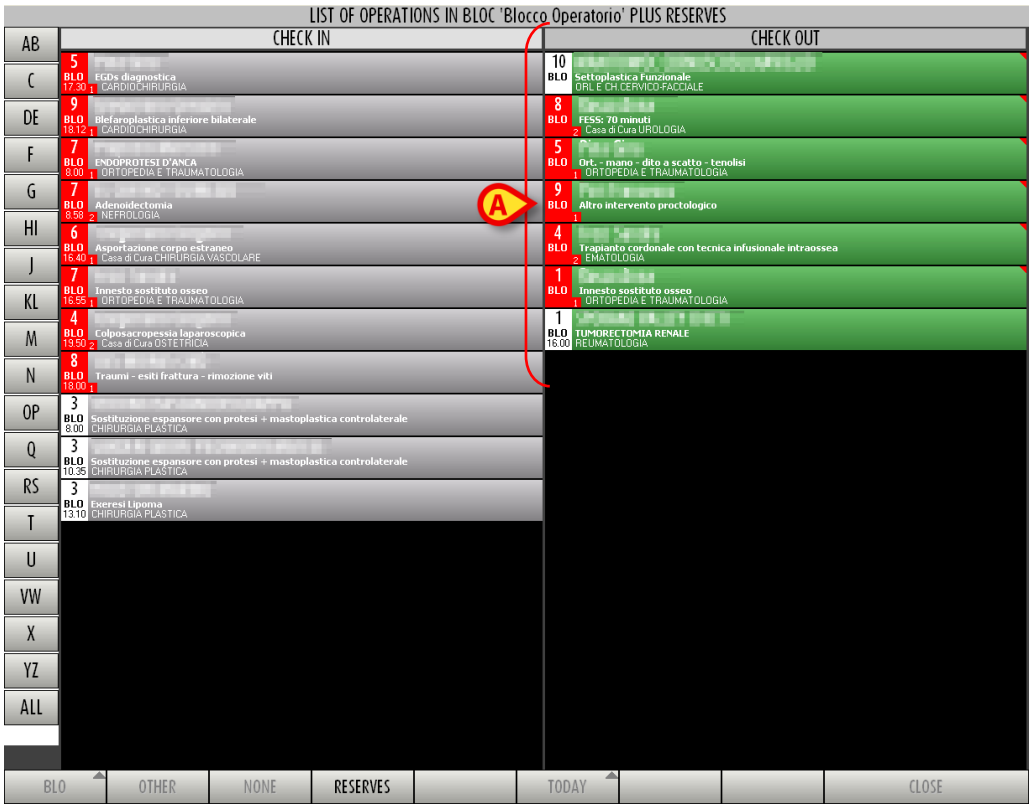

Fig 168 - OranJ “Check in”

On the column on the right (“Check out” column),

- Click the rectangle corresponding to the patient/operation that is checking-out (Fig 168 **A**). User confirmation is required.

- Click **Yes** to record the patient’s check-out.

On the “OranJ Home” screen (Fig 11) the “Block Out” marker is this way recorded.

8. OranJ - “Bedside”Configuration

The OranJ system can be configured to be used inside the operating room and be this way dedicated entirely to the management of the single room. In these cases the system has specific characteristics and functionalities. This type of configuration is called “bedside”.

The bedside configuration of the OranJ system is formed of three modules:

- OranJ Home (see section 2.1).
- Charts (see section 6).
- Room Plan (see section 4.4).

All the information is related to the single configured room.