



Smart Central User Manual

Version 8.0

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1. Smart Central



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 Smart Central module, described in this document.

1.1 Module selection

To select the Smart Central module:

- Click the corresponding icon on the lateral bar (Fig 1)



Fig 1

The Smart Central screen, shown in Fig 2, opens.



In some configurations, the Smart Central module is the only one available and is automatically selected after user log in.

1.2 Smart Central functionality

The Smart Central screen displays a schematic representation overview of the situation of each patient in the ward (Fig 2).

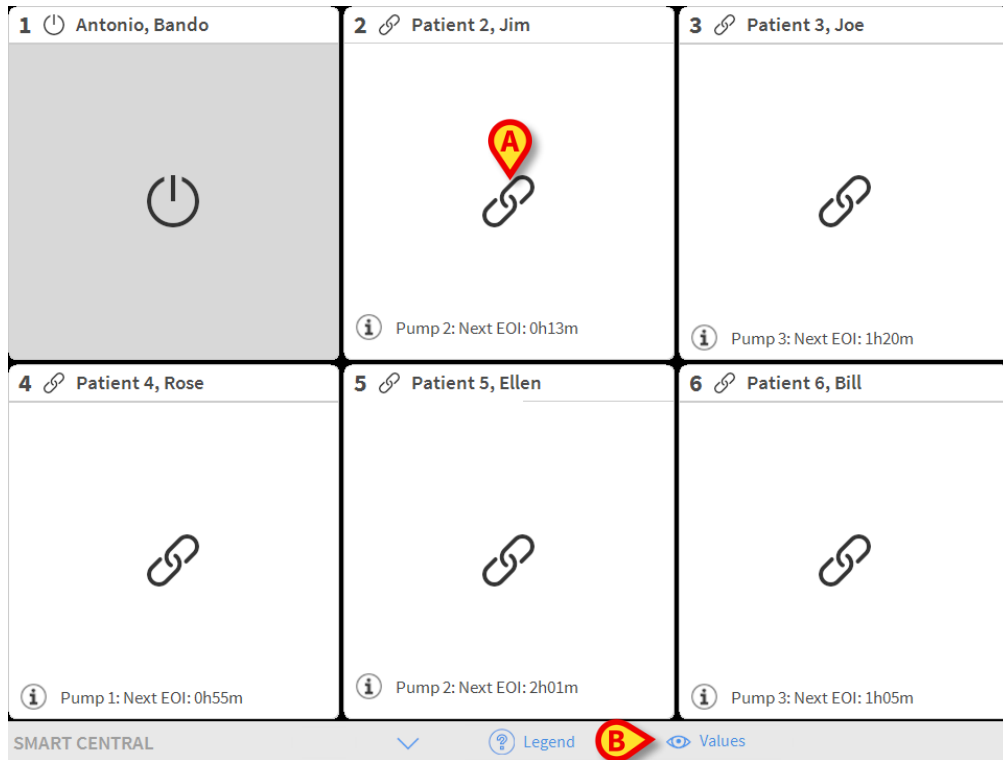


Fig 2

The screen is divided into rectangular areas, named Bed Cards (Fig 2 **A**). Every area refers to a bed and displays information on the devices connected to the patient admitted to that bed. By default, only the data referring to alarmed beds is displayed (Fig 4), and only data relating to alarms is displayed. A bed is alarmed if at least one of the devices connected to the bed is alarmed. If multiple alarms occur at the same time on the same bed, the alarm with the highest priority is notified.

It is possible to display all the available data (both referring to the non-alarmed beds and referring to the non-alarmed devices on the alarmed beds) by clicking the “VALUES” button on the command bar (Fig 2 **B**).

To display all the available data:

- Click the **Values** button on the command bar (Fig 2 **B**)

The button will be selected. The available information will be displayed as in Fig 3.

1 Antonio, Bando <div></div>	2 Patient 2, Jim AGW P1: Amiodaron 10 ng/mL/min P2: Noradrenaline 14 ng/mL/min P3: P4: Frusemide 12 ng/mL/min CARESCAPE HR ECG: 75 bpm NBP: 112/66 (89) mm Hg >>> More devices Pump 2: Next EOI: 0h13m	3 Patient 3, Joe AGW P1: Amiodaron 10 ng/mL/min P2: Noradrenaline 14 ng/mL/min P3: P4: Frusemide 12 ng/mL/min More devices Pump 3: Next EOI: 1h20m
4 Patient 4, Rose AGW P1: Amiodaron 10 ng/mL/min P2: Noradrenaline 14 ng/mL/min P3: P4: Frusemide 12 ng/mL/min CARESCAPE HR ECG: 76 bpm NBP: 117/61 (89) mm Hg >>> More devices Pump 1: Next EOI: 0h55m	5 Patient 5, Ellen AGW P1: Amiodaron 10 ng/mL/min P2: Noradrenaline 14 ng/mL/min P3: P4: Frusemide 12 ng/mL/min CARESCAPE HR ECG: 77 bpm NBP: 126/67 (96) mm Hg >>> More devices Pump 2: Next EOI: 2h01m	6 Patient 6, Bill AGW P1: Amiodaron 10 ng/mL/min P2: Noradrenaline 14 ng/mL/min P3: P4: Frusemide 12 ng/mL/min CARESCAPE HR ECG: 71 bpm NBP: 128/62 (95) mm Hg >>> More devices Pump 3: Next EOI: 1h05m

SMART CENTRAL

 Legend
 Values

Fig 3

1.3 Bed Cards

Each Bed Card displays some of the data provided by the devices connected to the patient (Fig 4). The kind of data displayed depends on the design and configuration of the device.

If the Bed Card is light blue, as in Fig 4, it means that there is at least one low priority alarm, and no medium and/or high priority alarms, coming from the connected devices.

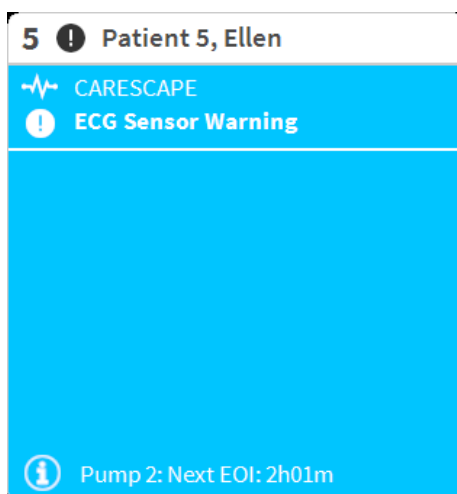


Fig 4

If the Bed Card is yellow, as in Fig 5, it means that there is at least one medium priority alarm, and no high priority alarms, coming from the connected devices.

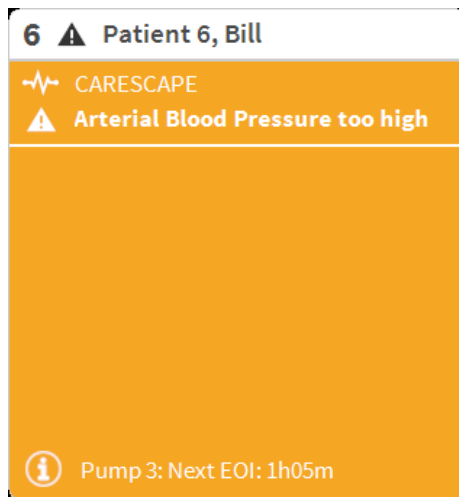


Fig 5

If the Bed Card is red, as in Fig 6, it means that at least one of the connected devices is in high priority alarm state.

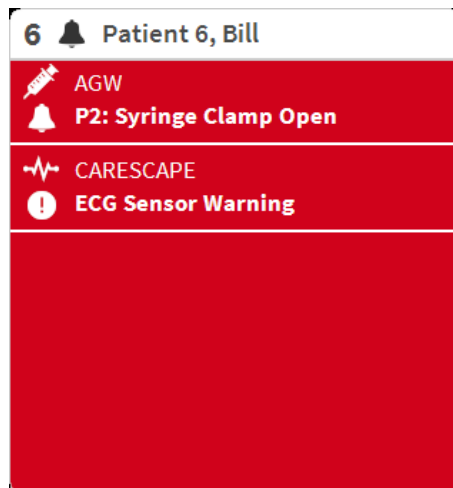


Fig 6

The connected beds from which no alarms are received appear as in Fig 7. No device data is displayed as this might distract the reading of possible alarms occurring on the other beds.

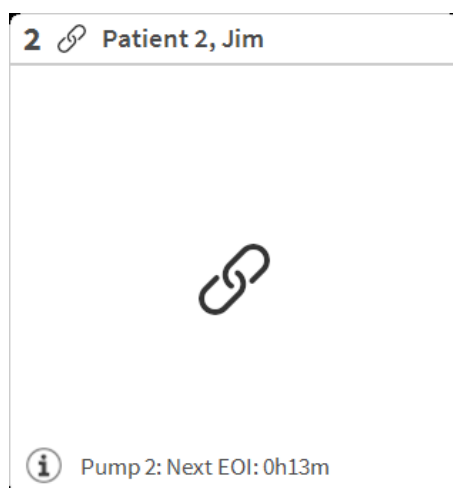


Fig 7

To display device data on these devices “pump” click the **Values** button on the command bar (Fig 2 **B**). The Bed Card will appear as in Fig 8.

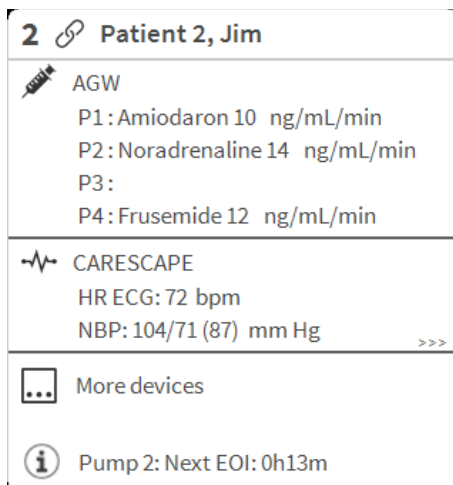


Fig 8

Disconnected beds are displayed as in Fig 9.

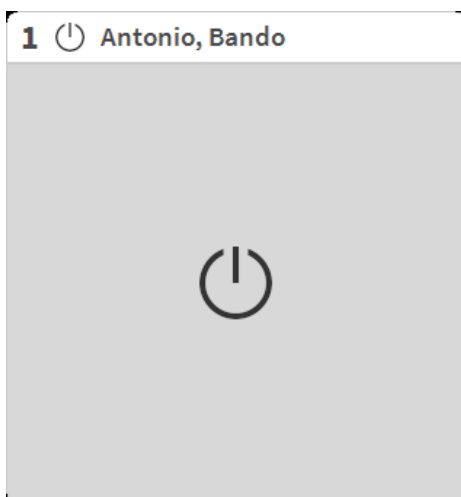




Fig 9

1.3.1 Bed Card description

This section provides a detailed description of the way information is displayed on every Bed Card. On top of the Bed Card the bed number and the patient name are displayed (Fig 10). The  icon means that the bed is connected to Smart Central and that Smart Central is currently receiving device data from the bed. If one of the devices connected to the bed is notifying a low priority alarm the  icon is displayed instead.



If one of the devices connected to the bed is notifying a medium priority alarm the  icon is displayed instead. If one of the devices connected to the bed is notifying a high priority alarm the  icon is displayed instead.



Fig 10

The information in the Bed Card is divided by “Device type”. Each device type is characterized by a specific icon (Fig 11 **A**).

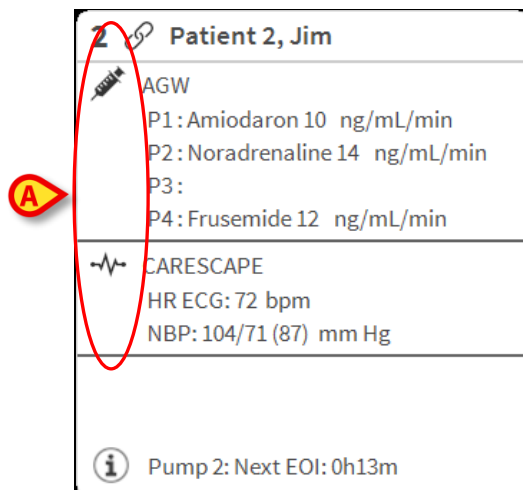


Fig 11

A legend is available showing which device type a specific icon refers to.

To display the legend:

- Click the **Legend** button on the command bar. See paragraph 1.4.1 for a detailed description

Data coming from the same kind of devices are grouped together. In Fig 12, for instance, two groups are indicated: infusion pumps and patient monitor.

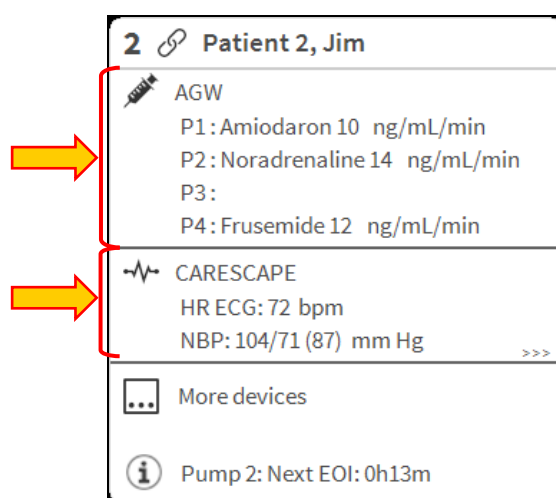


Fig 12

It is possible that not all the data coming from the devices is displayed in the box. If there is hidden data the >>> symbol is displayed at the end of every group (see Fig 13 **A**).

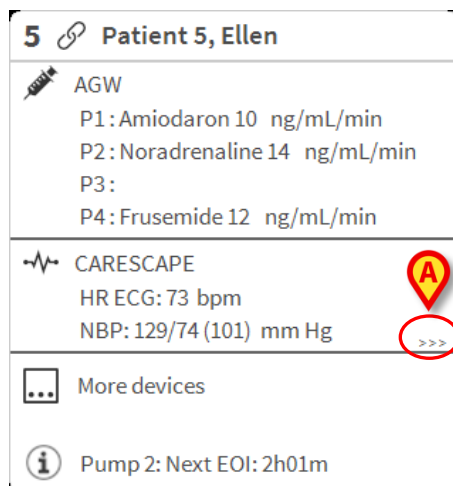


Fig 13

Hidden data can be displayed by clicking the Bed Card, which is enlarged to full-screen mode (Fig 14). All the available information is displayed.

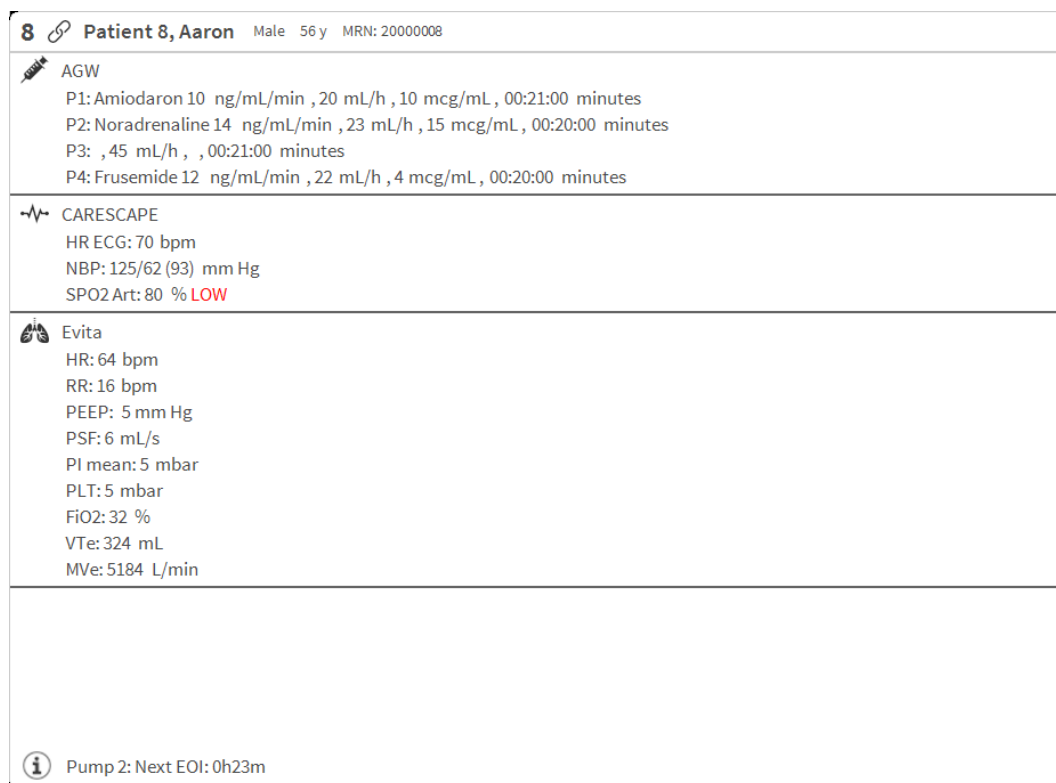


Fig 14

Additional information about the connected devices and the list of the possible disconnected devices are displayed at the bottom of the Bed Card (Fig 15 **A**). Disconnected devices are indicated by the icon. Additional information is indicated by the icon.

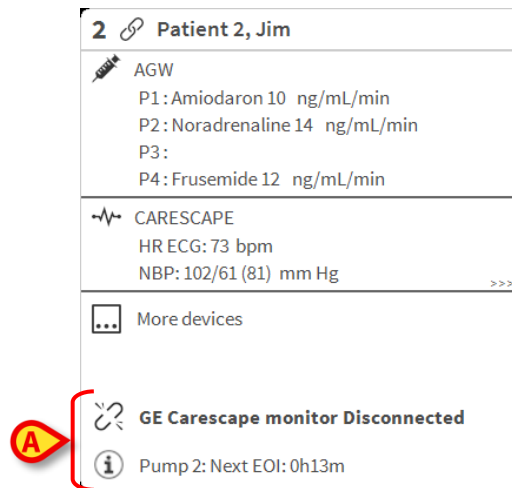


Fig 15

It is possible, by configuration, to associate messages to the displayed values. For instance it is possible to define a range of values that are “normal” and configure the system to inform the user if the collected values are outside this range. See for instance Fig 16 **A**, in which the values are defined as “Low”.

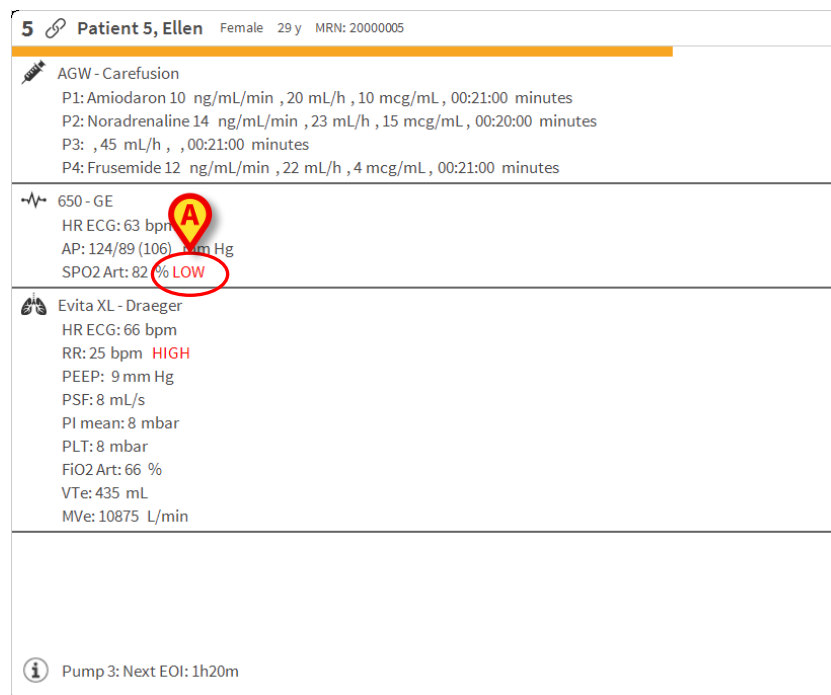


Fig 16

A visual feature on the upper bar on each Bed Card keeps temporarily track of the last alarm notification provided after the Bed Card has changed to a different priority alarm (or no alarm). This makes it possible to be aware of alarms occurring and rapidly passing (Fig 17).

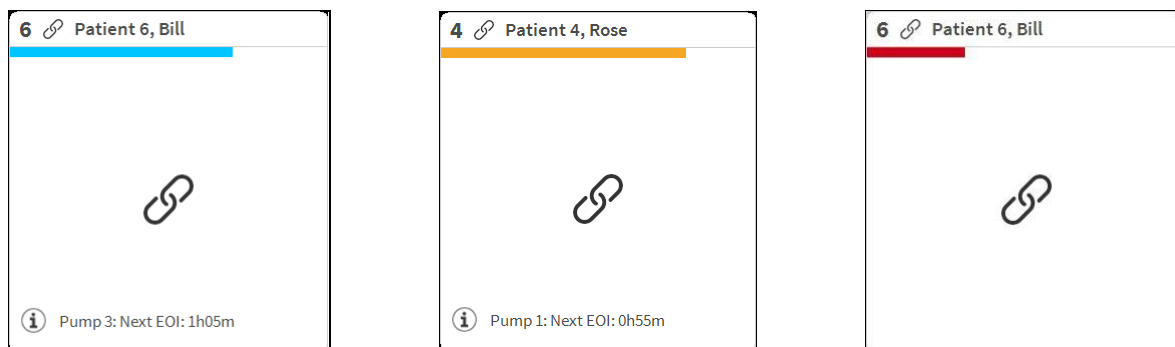


Fig 17

1.4 The Smart Central command bar

The buttons on the command bar of the Smart Central make it possible to perform different actions.



Fig 18

The arrow buttons (Fig 18 **A**) make it possible to scroll up and down the screen when it is not possible to display all the configured Bed Cards at the same time.

When one (at least) of the non-displayed Bed Cards is notifying an alarm, the corresponding button takes the color corresponding to the alarm priority level (blue = low; yellow = medium; red = high).

In case of multiple alarms the arrow color corresponds to the highest priority notified.

An icon can be displayed in the box between the arrow buttons (Fig 19). It indicates that there is an alarm on one of the Bed Cards currently displayed.



Fig 19

The **Legend** button displays a window with the meaning of all the different icons that can be found while using the software (See paragraph 1.4.1).

The **Values** button displays all the available data (both referring to the non-alarmed beds and referring to the non-alarmed devices on the alarmed beds).

The **ICU** button contains an acronym indicating the ward currently displayed. If the system is configured to cover more than one ward, the button can be clicked to open a menu displaying all the configured wards.

1.4.1 Legend

The **Legend** button opens a window explaining the meaning of all the different icons that can be found while using the software.

To display the “Legend”:

- Click the **Legend** button

The following window is displayed (Fig 20).

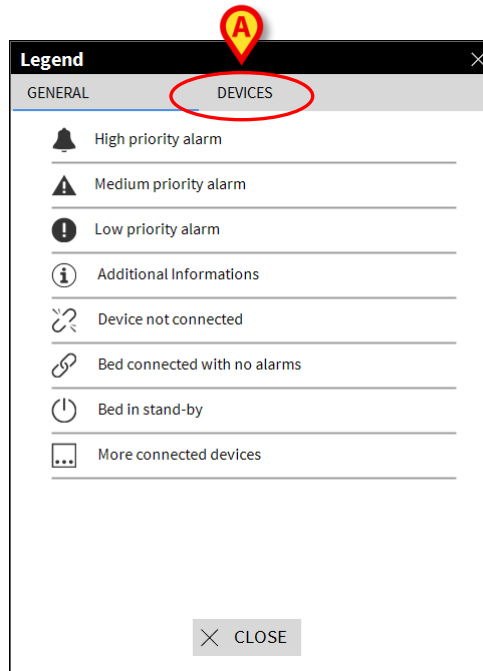


Fig 20

The window lists the “General” icons that can appear in different contexts. Another list of icons, those indicating the connected devices, can be displayed by clicking the “DEVICES” button indicated in Fig 20 **A**. To see the “Devices”:

- Click the **Devices** button indicated in Fig 20 **A**

The “Devices” legend is this way displayed (Fig 21)

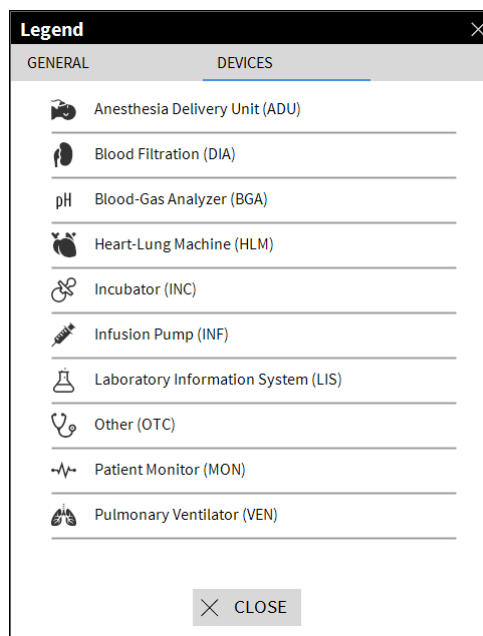


Fig 21

On this window all the possible icons are listed. Alongside the icon the device name is specified, with the corresponding abbreviation / acronym (e.g. INF refers to infusion pumps, MON to patient monitors and so on).

1.5 Events list

It is possible to display a detailed list of all the events occurred for a patient.

To display the events list:

- Click the Bed Card referring to the bed to be displayed (Fig 22)

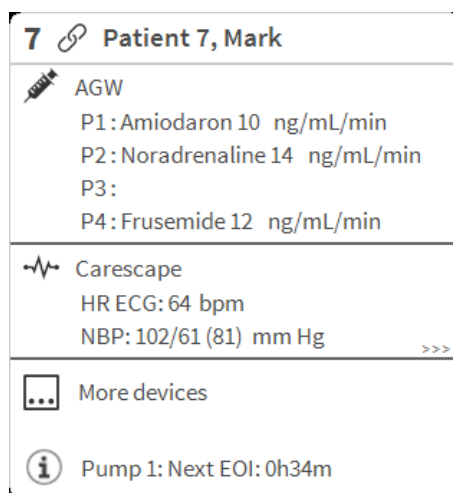


Fig 22

The events list will be displayed on the right (Fig 23).

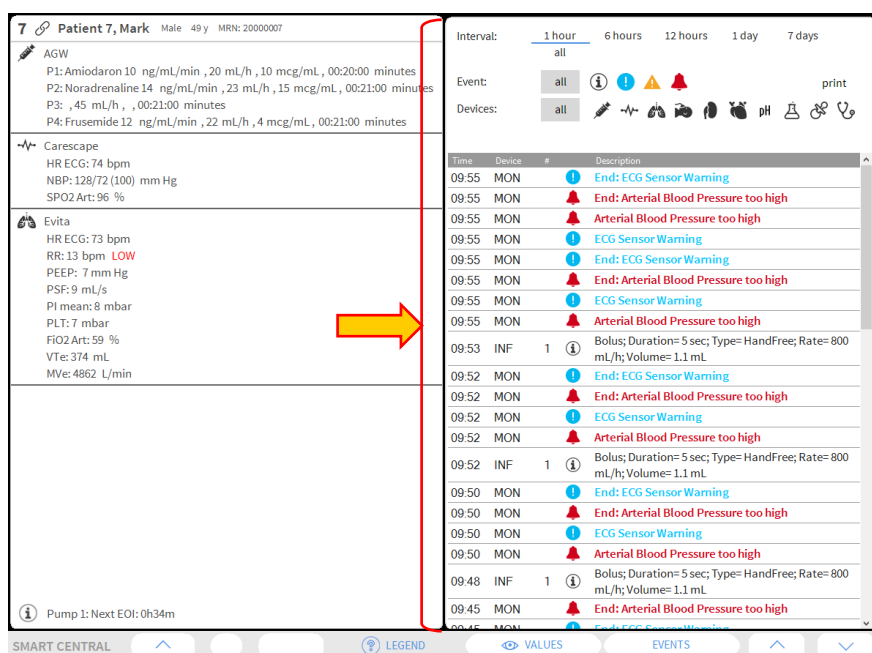


Fig 23



The vertical bar indicated in Fig 23 delimiting the Events area, can be dragged left/right to resize the area.

1.5.1 Events list description

The table shown in Fig 24 contains the list of all the events occurred on all the devices connected to the selected patient during their stay.

Time	Device	#	Description
12:22	ECG		End: ECG Sensor Warning
12:22	ECG		End: Arterial Blood Pressure too high
12:21	ECG		Arterial Blood Pressure too high
12:21	ECG		ECG Sensor Warning
12:14	ECG		End: ECG Sensor Warning
12:14	ECG		End: Arterial Blood Pressure too high
12:14	ECG		Arterial Blood Pressure too high
12:14	ECG		ECG Sensor Warning
12:13	Infusion Pump	1	Bolus; Duration= 5 sec; Type= HandFree; Rate= 800 mL/h; Volume= 1.1 mL
12:11	Infusion Pump	1	Bolus; Duration= 5 sec; Type= HandFree; Rate= 800 mL/h; Volume= 1.1 mL
12:11	ECG		End: ECG Sensor Warning

Fig 24

The time period to which the events list refers can be selected using the “**Range**” filters (Fig 24 **A**).

The “**Event**” buttons indicated in Fig 24 **B** are also filters making it possible to display only certain types of events. The **All** button, selected by default, displays all the events occurred in the selected time period. The **i** button only displays the “Information” events; the **!** **!** buttons only display the low and medium priority alarms; the **bell** button only displays the high priority alarms. Multiple selections is possible to display two kinds of events at the same time (i.e. only low and medium priority alarms).

The “**Device**” buttons indicated in (Fig 24 **C**) are also filters making it possible to display only the events referring to a specific device. The **All** button, selected by default, displays all the events occurred in the selected time period; the **Infusion Pump** button only displays the events referring to the infusion pumps; the **ECG** button only displays the events referring to patient monitors and so on... The full list of icons with their explanation can be found in the “**Legend**” window

(see paragraph 1.4.1). Multiple selection is possible to display the events referring to two or more devices at the same time.

The **Print** button indicated in Fig 24 **D** makes it possible to print the list of events displayed (Fig 25).

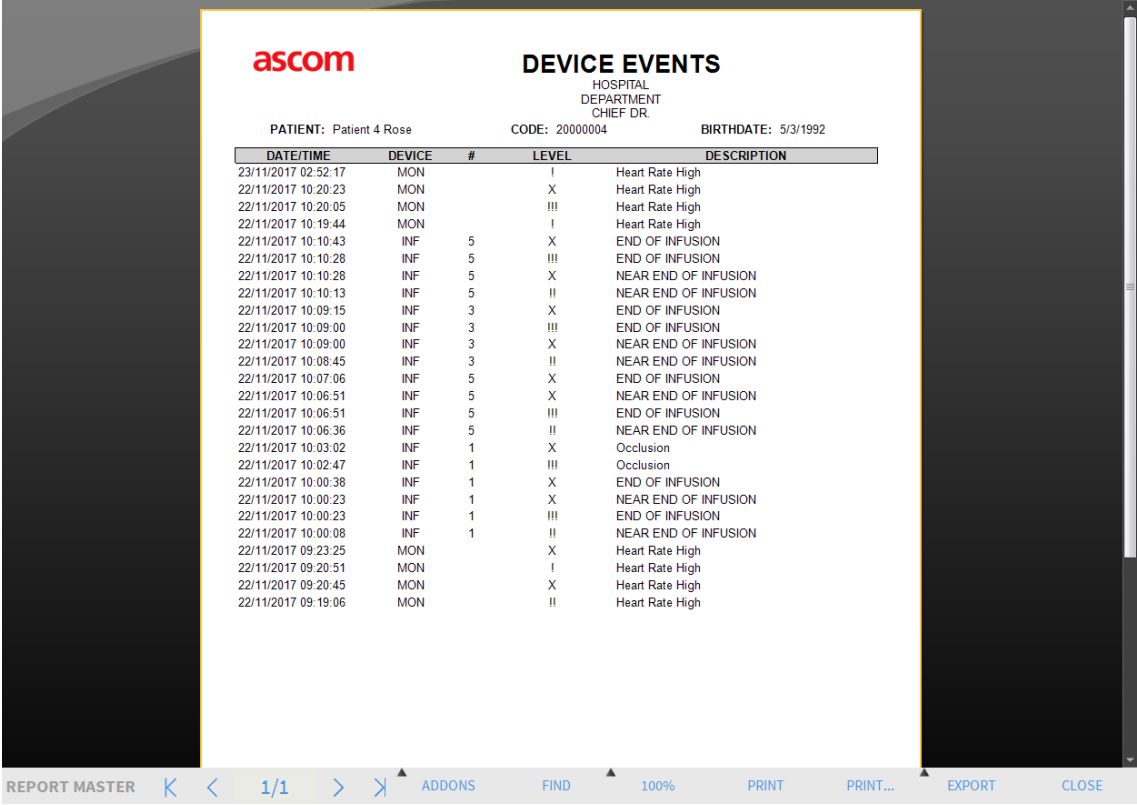


Fig 25

The events table is displayed below (Fig 26).


Time	Device	#	Description
12:22			End: ECG Sensor Warning
12:22			End: Arterial Blood Pressure too high
12:21			Arterial Blood Pressure too high
12:21			ECG Sensor Warning
12:14			End: ECG Sensor Warning
12:14			End: Arterial Blood Pressure too high
12:14			Arterial Blood Pressure too high
12:14			ECG Sensor Warning

Fig 26

The events table provides the following information:

- Event time (indicated as hh:mm);
- Type of device in which the event occurred;
- Number (in case of infusion pumps it indicates the pump number);
- Alarm priority level;
- Event description;
- The black cross on the alarm symbol indicates the end of the corresponding alarm.

Events snapshot

- Double-Click the  icon (if present - Fig 27) to display the snapshot of the waveform related to the corresponding event.





15:40			RR Low	
15:40			RR Low	
15:40			MVexp Low	
15:39			MVexp Low	

Fig 27

1.5.2 User Events

A Smart Central feature makes it possible for users to manually enter “user” events.

To enable this feature it is necessary:

1. to set to “true” the EventEditorEnabled system option;
2. the required permissions level for the logged user.

See the Web Configurator User Manual for more information (*CFG ENG Web Configurator*).

When the EventEditorEnabled system option is set to true, a new action bar is displayed at the bottom of the events grid (Fig 28 **A**):

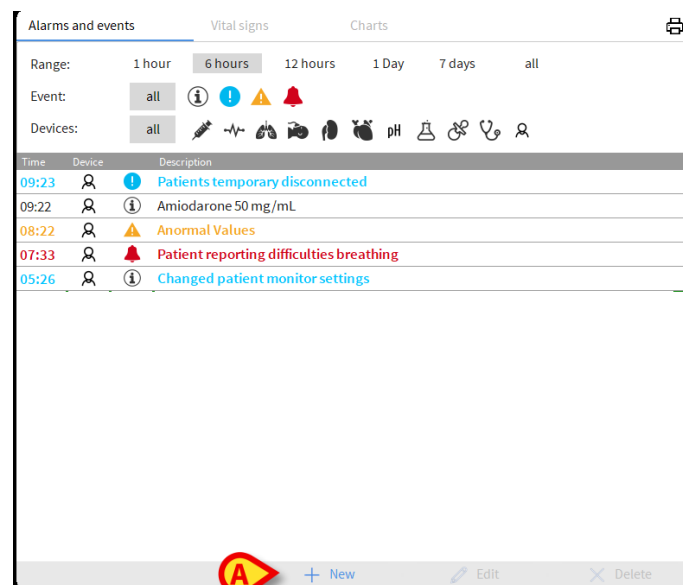


Fig 28

The new action bar allows to create, edit and delete “user” events.

A user event is then marked by a specific icon:  .

1.5.2.1 Creating new user events

To create a new user event:

- Click the **New** button (Fig 28 **A**).

The following window is displayed (Fig 29):

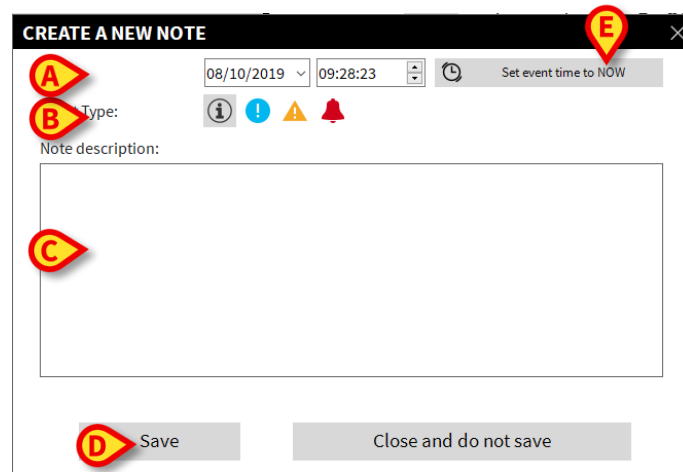


Fig 29

The following information can be specified on the window:

- Time: date and time of the event (Fig 29 **A**).
 - Event Type: an event can have different priorities, from information to low/medium/high priority (Fig 29 **B**).
 - Note Description: note text (Fig 29 **C**).
- Click **Save** to save the note or **Close and do not save** to quit without saving (Fig 29 **D**).

The **Set event time to NOW** button (Fig 29 **E**) can be used to set to current date and time as time of the event.

The user event is then displayed in the events grid, marked by the 📍 icon (see Fig 28).

To select an existing event, in the events grid:

- click the row corresponding to the event to be selected.

The behavior of the action bar changes according to the type of event selected:

- If no row is selected it is only possible to create a new “user” event. The **Edit** and **Delete** buttons are disabled.
- If a row corresponding to a user event is selected, it is possible to edit or delete it. It is still possible to create a new user event.
- If a row corresponding to a device event is selected, it is only possible to create a new “user” event. In this case:

- Click **New** to display a “New Event” window (Fig 29) having the same date and time of the selected event. This feature allows to easily create user events having the same date and time of existing device events.

1.5.2.2 Editing user events

To edit a user event, on the events grid:

- Click the row corresponding to the user event
- Click **Edit** on the action bar.

The window shown in Fig 29 is displayed.

- Edit the event (Date/time, priority, description).
- Click **Save**.

1.5.2.3 Deleting user events

To delete a user event, on the events grid:

- Click the row corresponding to the user event.
- Click **Delete** on the action bar.

User confirmation is required.

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

The corresponding row disappears from the events grid.

1.6 Dashboard configuration

If the Smart Central is configured as a “Dashboard” Smart Central, some additional functionalities are available. These are the “Vital Signs” and “Charts” functionalities, described below (Fig 30 **A**).

Both functionalities are accessible from the “Notification area”.

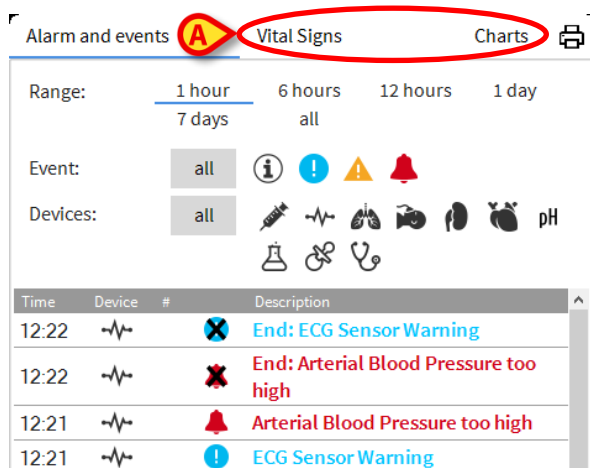


Fig 30

1.6.1 Vital Signs

To activate the “Vital Signs” functionality:

- Click the Vital Signs button (Fig 31 **A**).

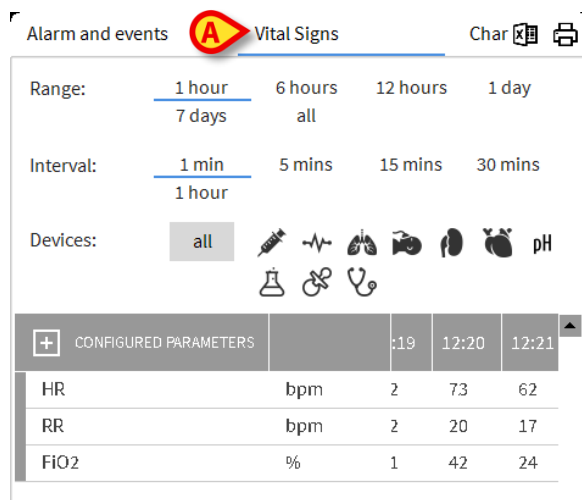


Fig 31

“Vital signs” makes it possible to display in a table some selected patient parameters (Fig 32). The displayed parameters are defined by configuration. In the table they are grouped by acquisition device.

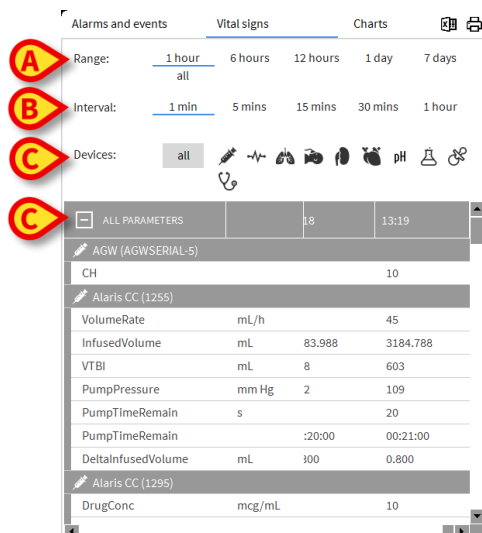


Fig 32

Use the “Range” filter (Fig 32 **A**) to display the time span within which the parameters are acquired. For instance: if **1 hour** is selected the table displays the parameters acquired from one hour in the past to the present time; if **6 hours** is selected the table displays the parameters acquired from six hours in the past to the present time, and so on.

Use the “Interval” filter (Fig 32 **B**) to define the values acquisition interval (i.e., depending on the interval selected, the values displayed in the table are acquired each minute, every 5 minutes, every 15 minutes, and so on).


Use the “Devices” filter (Fig 32 **C**) to display only the values acquired by the selected devices.


Click on “Configured Parameters” (Fig 32 **D**) to display all the acquired parameters (1 minute interval).

The “all” option displays all the acquired parameters (1 minute interval).



A task in the database deletes the previous data at a set time.

Click the print button  to create a print report of the displayed parameters.

Click on the excel icon  to export the data to an XLS file.

1.6.2 Charts

Click the **Charts** button to activate the “Charts” functionality (Fig 33 A).

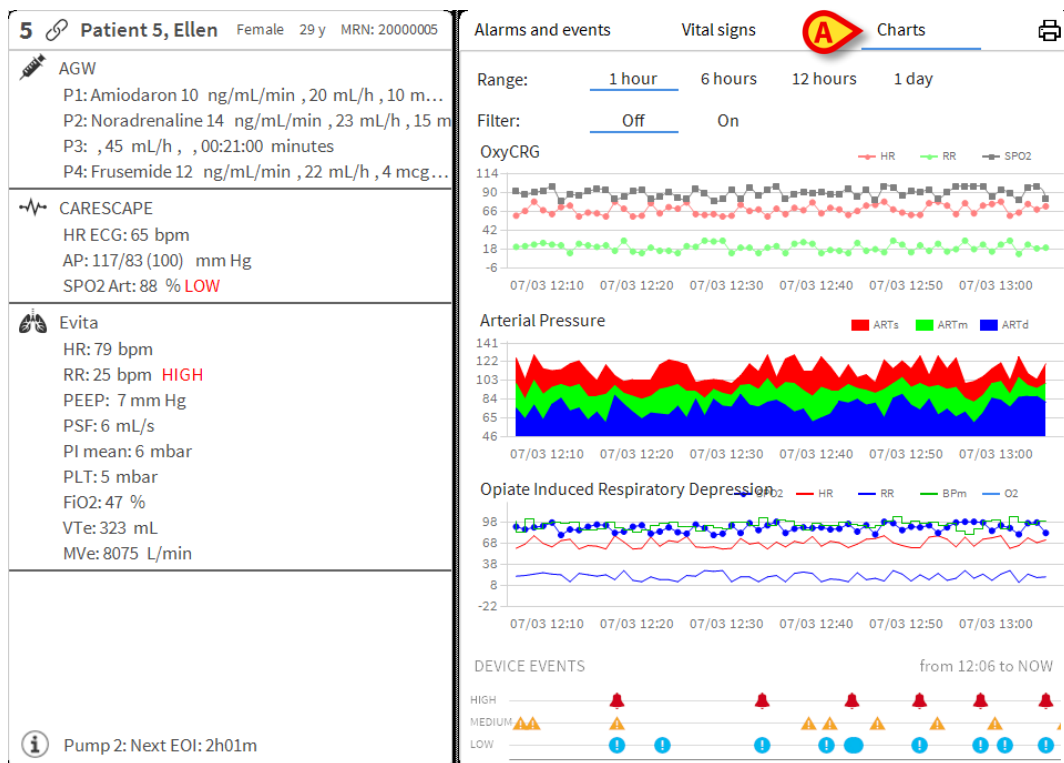


Fig 33

“Charts” makes it possible to display different charts drawn from the acquired parameters (Fig 34). The charts show the configured parameters as trends. The number of charts, their contents and names are defined by configuration.

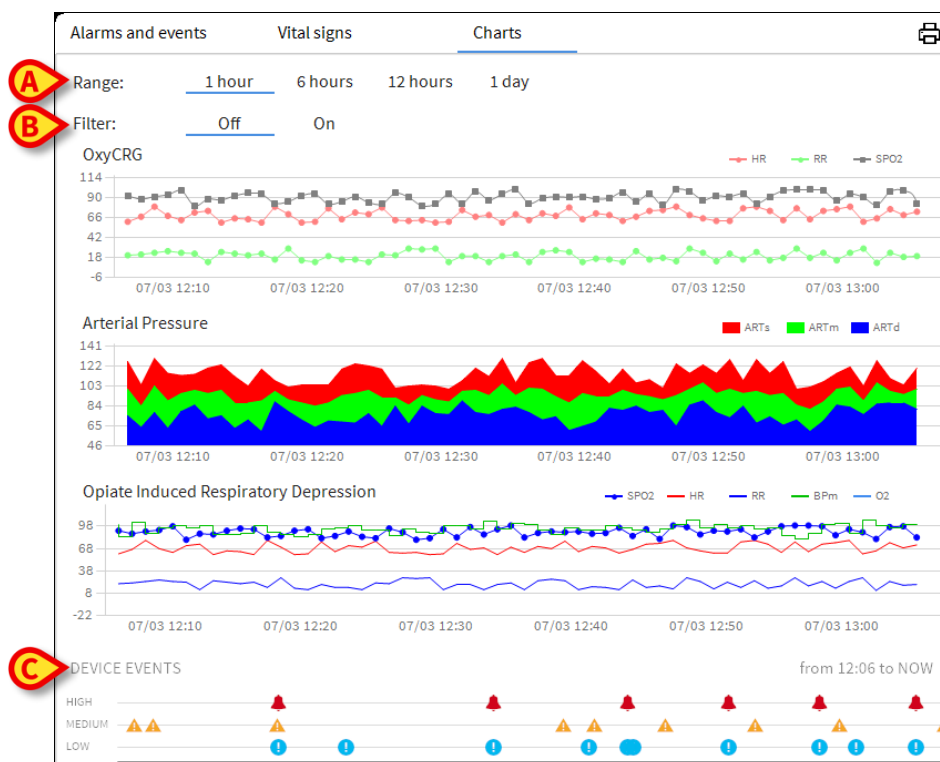


Fig 34

Use the “Range” filter (Fig 34 **A**) to define the time span to which the charts refer. For instance: if **1 hour** is selected the charts display the trends starting one hour in the past until present time; if **6 hours** is selected the charts display the trends starting six hours in the past until present time, and so on.

Use the “Filter” option (Fig 34 **B**) to activate an algorithm that approximates the charts values in a way making it possible to better display and evaluate the trends. If this option is activated the acquired data are grouped five by five. Each group of five is then ordered. Then only the middle value of five is kept, while the other four are discarded. This procedure eliminates the lowest and highest values (i.e. artefacts) and provides a “normalised” chart.

The chart indicated at the bottom of the page (Fig 34 **C**) is always present and displays on three rows the device events. Each event is positioned according to its priority level and time of occurrence.

Click any chart to display a vertical cursor making it possible to display the values of all charts at a given time (Fig 35 **A**).

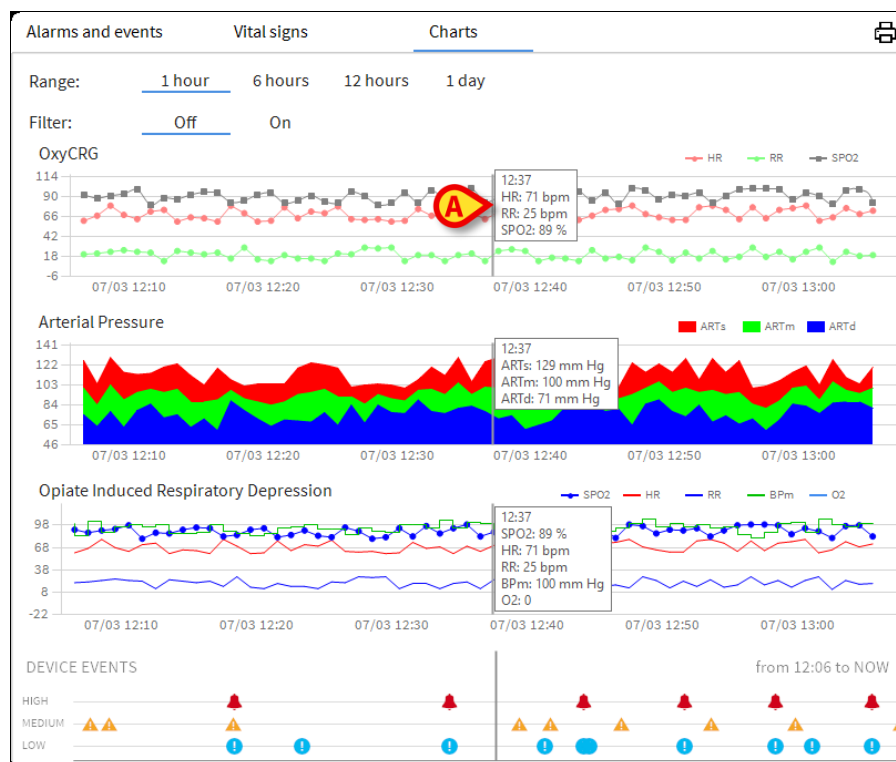


Fig 35

1.6.3 Alarms statistics

A printed report of the alarm statistic history can be generated by accessing the System Report menu.

To print an Alarm statistic report:

- Click the **Menu** button on “Control Bar”

The Digistat main menu opens

- Click on **System Reports**
- Click Smart Central Dashboard

Select the data source (either All patients or the selected patient). Select the Date Range.

- Click the **Generate** button

A print preview of the selected Event statistics will open.

1.7 Notification area

A notification area is displayed on the right of the Smart Central screen, reporting various notifications sent by the connected devices (Fig 36 **A**).

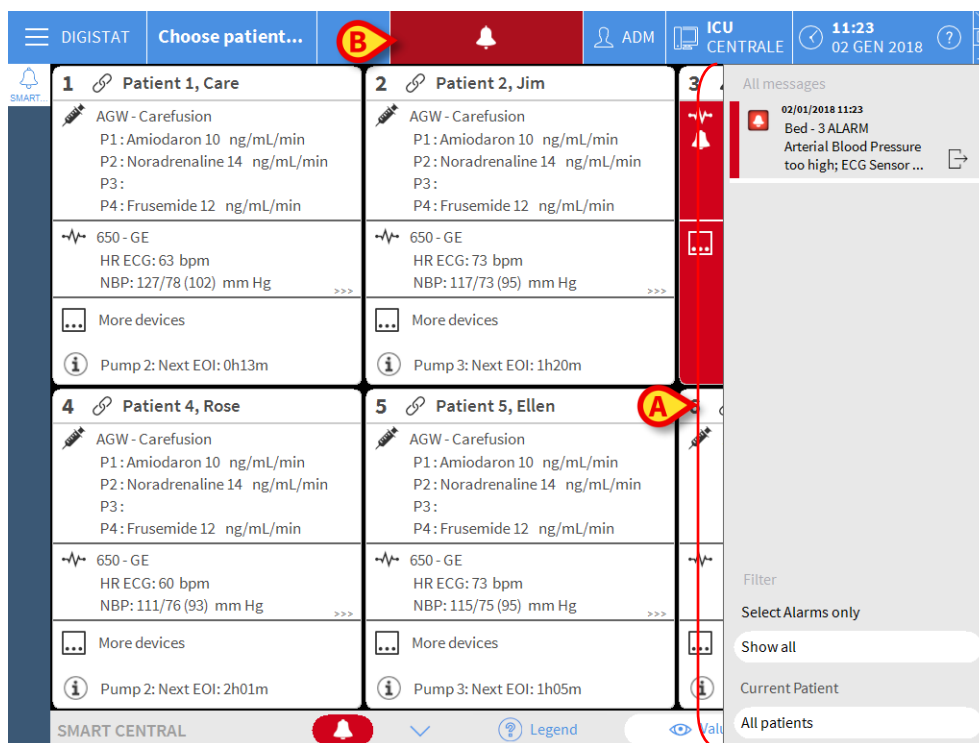


Fig 36

The notification area can be, by configuration:

- Always visible
- Automatically displayed when a new notification comes
- Only visible after user click on the Control Bar button (Fig 36 **B**).

The different messages are displayed in chronological order, (most recent on top - Fig 37 **A**) and by criticality (High priority alarms on top, then medium priority, then low priority).

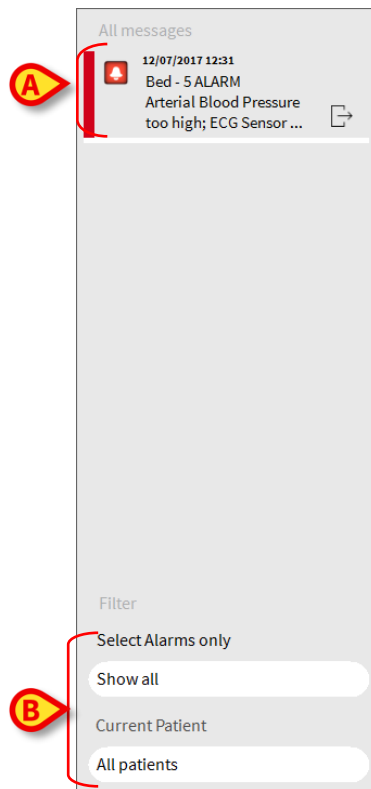


Fig 37

Each notification is characterized by the colour corresponding to the priority level (red for high priority, yellow for medium priority, blue for low priority).

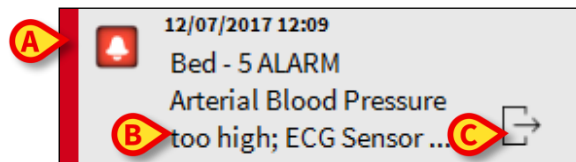


Fig 38

In the message box (Fig 38), the following information is displayed:

- Date-time of occurrence.
- The number of the bed from which the message comes.
- The actual message text.
- An icon characterizing the message type (Warning, Alarm, Info - Fig 38 **A**).
- An icon indicating the message category (Fig 38 **B**).
- A “Callback” button. Click the button to access the patient station on which the notification occurred (Fig 38 **C**).

At the bottom of the area, four different filters are available, making it possible to choose the type of message to be displayed (Fig 37 **B**). The available filters are:

- Only alarms.
- All messages.
- Messages relating only to the selected patient.
- Messages relating to all patients.

1.8 Alarms notification

By default, the Smart Central screen displays the device data referring to a bed only if there is an alarm notification coming from at least one of the devices connected to that bed.

In a condition of “No alarms” the Smart Central screen would appear as in Fig 39, where five connected “Beds” are displayed and where no devices on any of the beds is in alarm state.

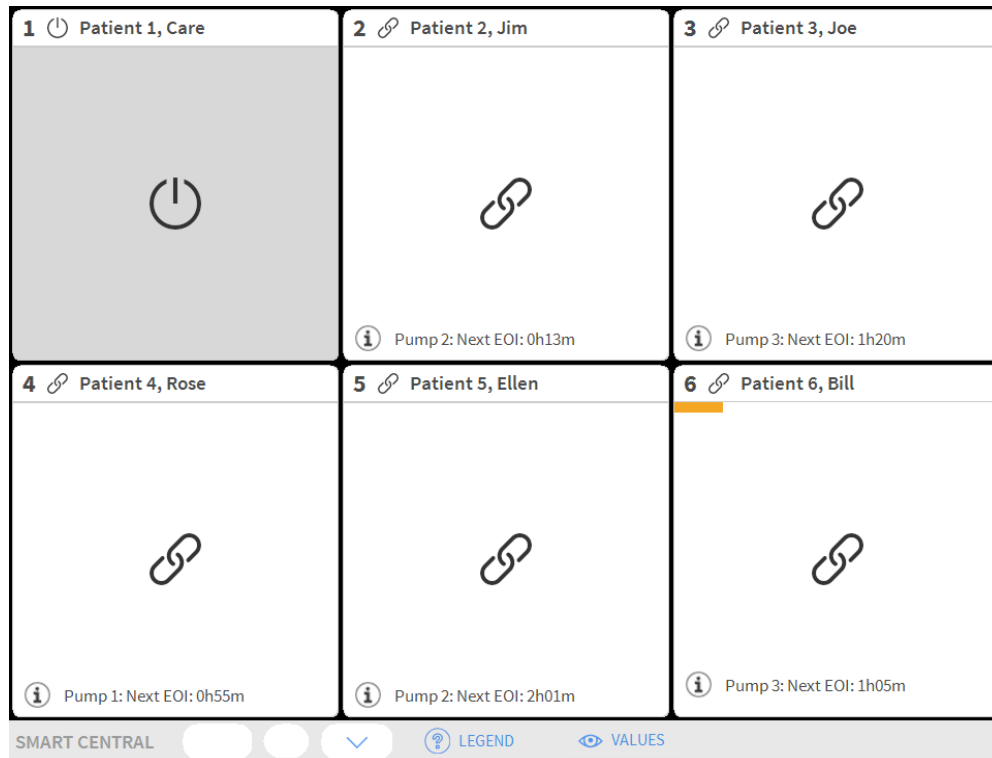


Fig 39

Each time an alarm occurs on one of the devices, the data relating to the bed to which the device is connected is displayed. In Fig 40, for instance, bed 3 is notifying a high priority alarm. A short text specifying the kind of alarm occurring is displayed on the Bed Card.

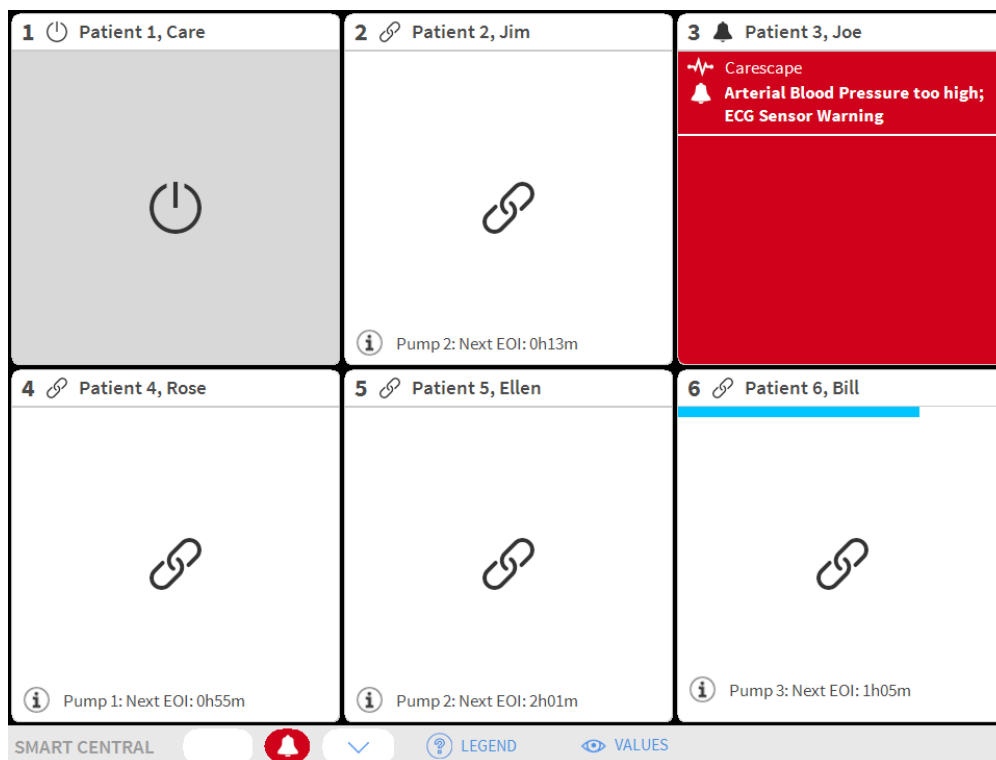


Fig 40

In addition, a sound notification is provided. Three different sounds exist, one for each alarm priority level. In case of multiple alarms, the sound corresponding to the one with highest priority is provided.

The occurrence of alarms is also notified on the command bar by the arrow-buttons indicated in Fig 41, Fig 42 and Fig 43.



Fig 41



Fig 42



Fig 43

These buttons make it possible to scroll up and down the screen when it is not possible to display all the configured Bed Cards at the same time.

When one (at least) of the non-displayed Bed Cards is notifying an alarm, the corresponding button takes the color corresponding to the alarm priority level (blue = low; yellow = medium; red = high).

In case of multiple alarms the arrow color corresponds to the one with the highest priority. An icon can be displayed within the box between the arrow buttons (Fig 44). It indicates that there is an alarm on one of the Bed Cards currently displayed.



Fig 44

A visual feature on the upper bar on each Bed Card keeps temporarily track of the last alarm notified after the Bed Card has changed to a different priority level alarm (or no alarm). This makes it possible to be aware of alarms occurring and rapidly passing.

When the state of a Bed Card changes to a lower level alarm (or no alarm), the color relating to the previous alarm (Fig 45) remains on the heading bar for a certain configurable time.

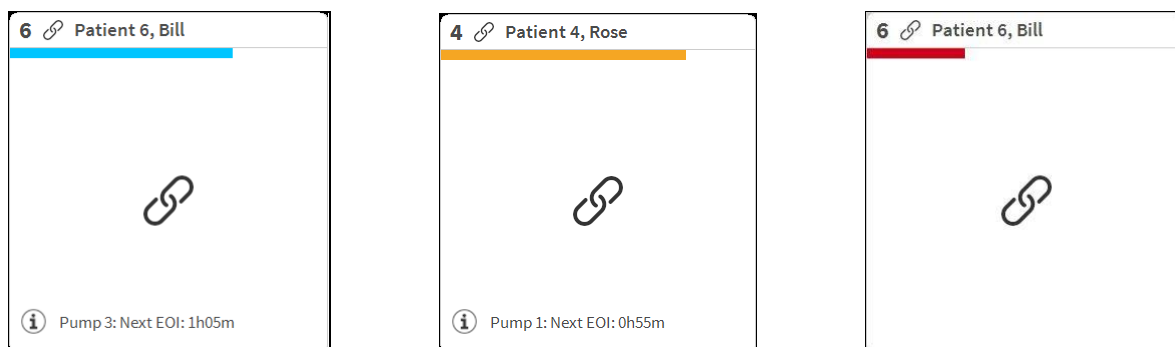


Fig 45

1.8.1 Alarms notification on Control Bar

Alarms are also notified on Control Bar, so that they are always visible in case other modules are installed and currently selected.



Fig 46

The button color depends on the alarm priority level (cyan=low; yellow=medium; red=high). For high and medium priority alarms, the button flashes.

- Click the button to display the notification area (Fig 46 **A**)

The notification disappears when the alarm conditions no longer exist.

1.9 Sound Check procedure



The Sound Check procedure shall be performed at least once per shift.

When Smart Central is started, it provides a specific sound indicating that the sound notification of alarms is working properly.

The user can perform a “Sound Check” procedure. To perform the “Sound Check” procedure

- Click the **Menu** button on Control Bar (Fig 47)



Fig 47

The following menu is displayed (Fig 48).

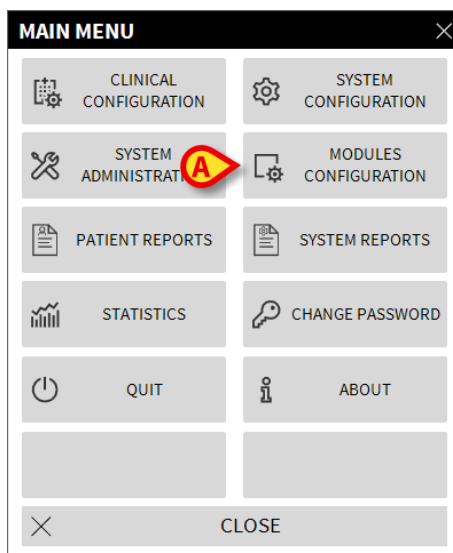


Fig 48

- Click on **Modules Configuration** (Fig 48 A)

The following menu opens (Fig 49).

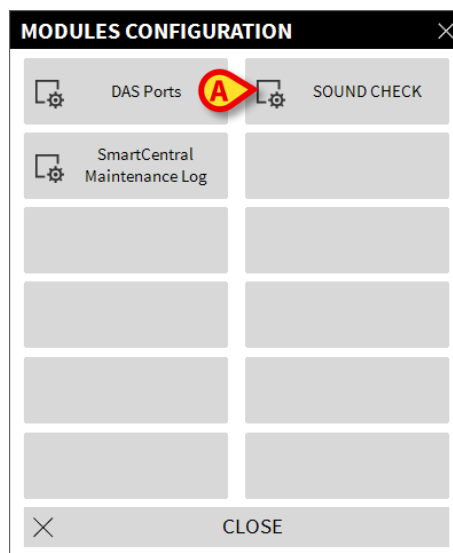


Fig 49

- Click on **Sound Check** (Fig 49 **A**)

The following pop-up window opens, asking whether a sound is heard or not (Fig 50).

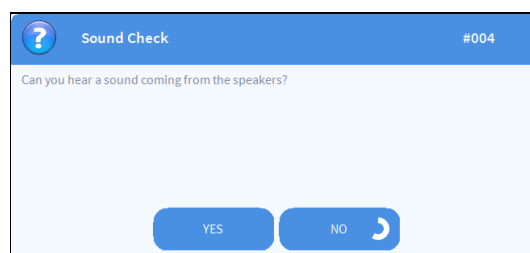


Fig 50

If a sound is heard, then click **Yes**. The pop-up window disappears and nothing else happens (meaning that the system is working correctly).

If no sound is heard, then click **No**. The pop-up window disappears and a notification is displayed on Control Bar, meaning that an error occurred while checking the sound notification system (Fig 51 and Fig 52).



Fig 51

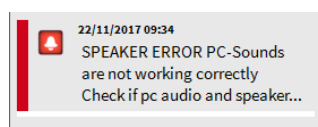


Fig 52

The notification remains while working with Smart Central. It disappears when another “Sound Check” procedure is performed and a “YES” answer is provided in the end.

The notification button can be clicked to display a more detailed explanation of the error occurred.



If the sound check fails, stop using the Smart Central module and promptly contact the technical assistance.

1.10 Notification Mute on Smart Central Mobile

The notifications can be muted in the Smart Central Mobile instances for a specified amount of time and for a specific bed. The “Mute” feature affects only the Smart Central Mobile application. Smart Central desktop continues to provide audio notifications and cannot be muted.

To enable this possibility it is necessary to enable the global parameter named “ManageMobilityAlarms” on the Digistat Web Configurator. See document *CFG ENG Web Configurator*.



The mute procedure can be performed both on desktop and on mobile workstations, but only mobiles are affected.

1.10.1 On desktop workstations

If the “ManageMobilityAlarms” parameter is enabled a new icon is displayed on top of every Bed Card (Fig 53 A):

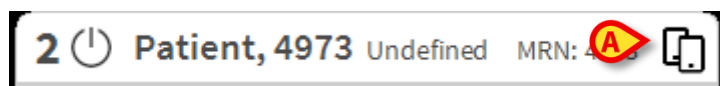


Fig 53

The icon means that notifications are enabled on Smart Central Mobile, for the specified bed (the bed number is on the left).

- Click the icon to open a new view in which it is possible to select a single choice among multiple choices. Those are:
 - enable notifications,
 - disable notifications for X,Y,Z minutes.

The X,Y,Z values are specified in the configuration by the global parameter “SilenceMobilityAlarmsIntervals” on the Digistat Web Configurator. See document *CFG ENG Web Configurator*.

- Click **SAVE** or **CANCEL** to close the view.

If the notifications are disabled, the icon on the Bed Card turns red, and a countdown number (minutes) is displayed next to it (Fig 54 A).



Fig 54

When the countdown reaches zero, the icon turns black again, the countdown is removed and the notifications are restored. In the picture above, for example, the notifications on Smart Central Mobile are disabled for bed 2 for 20 minutes.

- Click the red icon to turn on the audio again or restart the muting countdown.

When the mobile notifications are disabled for a bed:

- On Smart Central Desktop there are no differences in the notifications communication.
- On Smart Central Mobile the notifications related to the muted bed are displayed but the audio and vibration are disabled for the specified amount of time.

1.10.2 On mobile workstations

To enable/disable the notifications on the mobile workstations:

- Click on a Bed Card to navigate to the bed details screen.

If the ManageMobilityAlarms parameter is enabled, a new icon is displayed on top of this screen, alongside the patient data (Fig 55 **A**):

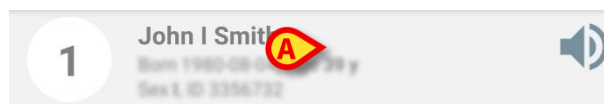


Fig 55

- Tap the icon to open a new view in which it is possible to select a single choice among multiple choices. Those are:
 - enable notifications,
 - disable notifications for X,Y,Z minutes.

The X,Y,Z values are specified in the configuration by the global parameter “SilenceMobilityAlarmsIntervals” on the Digistat Web Configurator. See document *CFG ENG Web Configurator*.

- Click **SAVE** or **CANCEL** to close the view.

When notifications are disabled the following icon is displayed (Fig 56). Below the icon a countdown number indicates the “mute time” remaining:

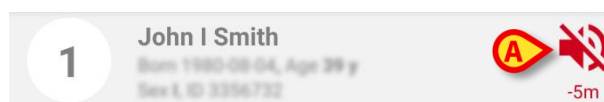


Fig 56

In Fig 56, for example, the notifications are disabled for 5 minutes on bed 1. When the countdown reaches zero the icon turns black again and the notifications are restored.

If notifications are disabled for a specific bed, also the corresponding Bed Card displays a mute icon (Fig 57 a/b shows the icon when on “All patients” mode - left - and “My Patients” mode - right):



Fig 57 a/b



The possibility to mute the notifications on mobile devices is disabled by default. If this possibility is enabled, the healthcare organization requires a strong risk assessment to be sure to mitigate all possible risks. During a temporary muting of notifications it is required that Smart Central Desktop is always monitored by a user.

Unite integration

When Digistat is integrated with Unite and notifications are generated by the Axess application (or the equivalent app on Myco 2 devices), muting notifications on Smart Central affects the Unite integration as well.

1.10.3 Nurse Presence

When the system is configured to work with automatic nurse presence, using infrared, the silencing mechanism is automatically managed.

When nurse enters a patient room, alerts are automatically muted on mobile devices (same behaviour as manual silencing) for that specific bed. When nurse goes out of a patient room, alerts are enabled again. If there are many nurses inside the patient room, alerts are silenced (on mobile devices) as long as a nurse is inside the patient room.

The nurse presence mechanism is enabled thanks to the infrared functionality (present in the Myco 2 or Myco 3 devices). User must be aware that the smartphone must be always in a position where infrared beacons are visible to the smartphone itself. User must avoid to place the smartphone inside a bag or a closed pocket.

If the smartphone is detected inside a patient room and, after a configured amount of time, is not detected anymore, silencing is automatically disabled. This mitigation reduces the risk for nurses to leave the patient room forgetting the smartphone inside.

When nurse is inside a patient room, in the bed card, a "nurse" icon is displayed next to the silencing icon.

1.11 Smart Central Video

The Smart Central module can be configured to support the video stream of a webcam. This feature enables the visual monitoring of the patient area.

If the Smart Central Video feature is enabled and properly configured, the Smart Central main screen is like the one reported below (Fig 58).

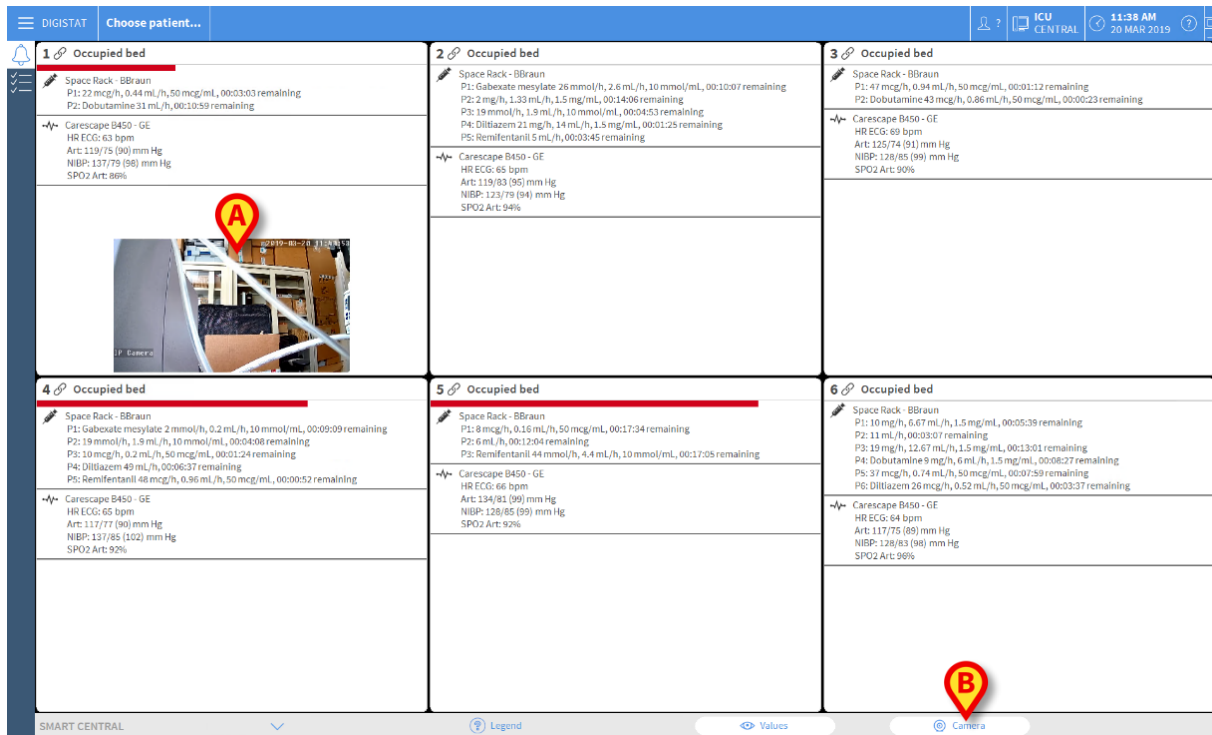



Fig 58

A thumbnail is displayed in the Bed Card, showing the real-time video stream of the webcam (Fig 58 A). The thumbnail size is configurable.

An additional button is present in the Smart Central command bar.

- Touch the button  Camera to toggle (show or hide) the webcam thumbnail (Fig 59).

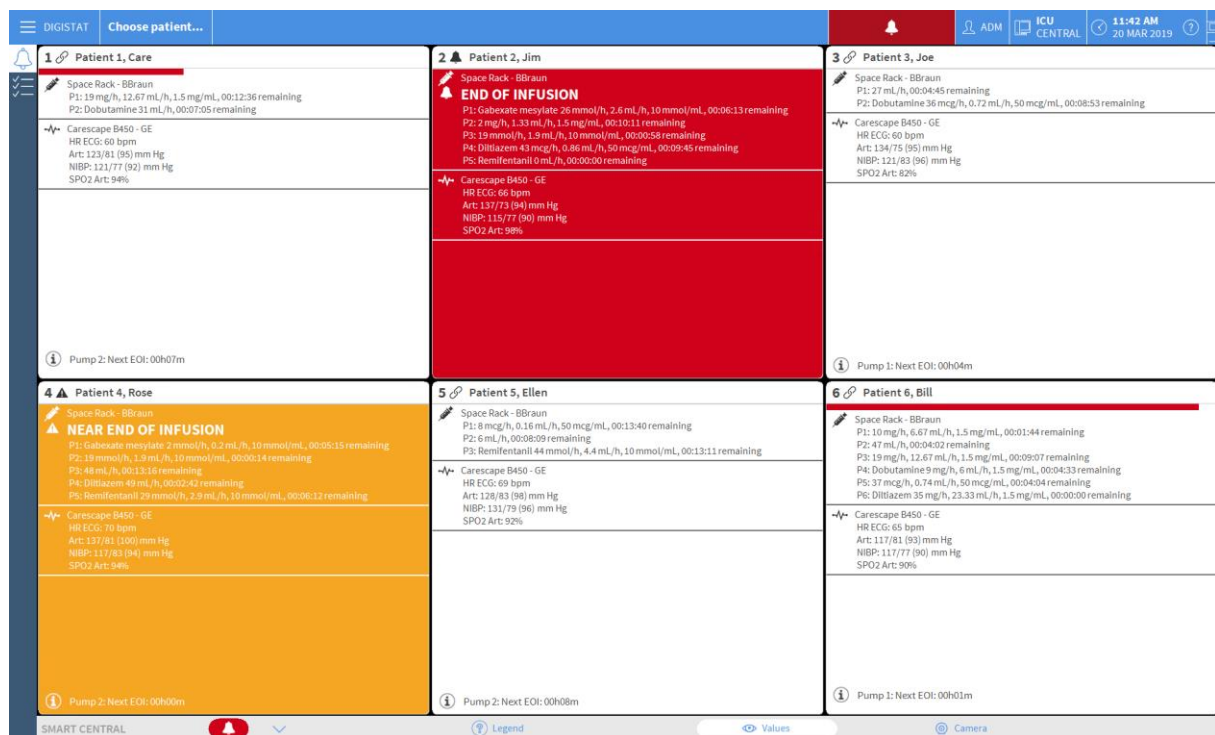


Fig 59

- Touch the relevant Bed Card (Fig 58 A) to enlarge the video (Fig 60):

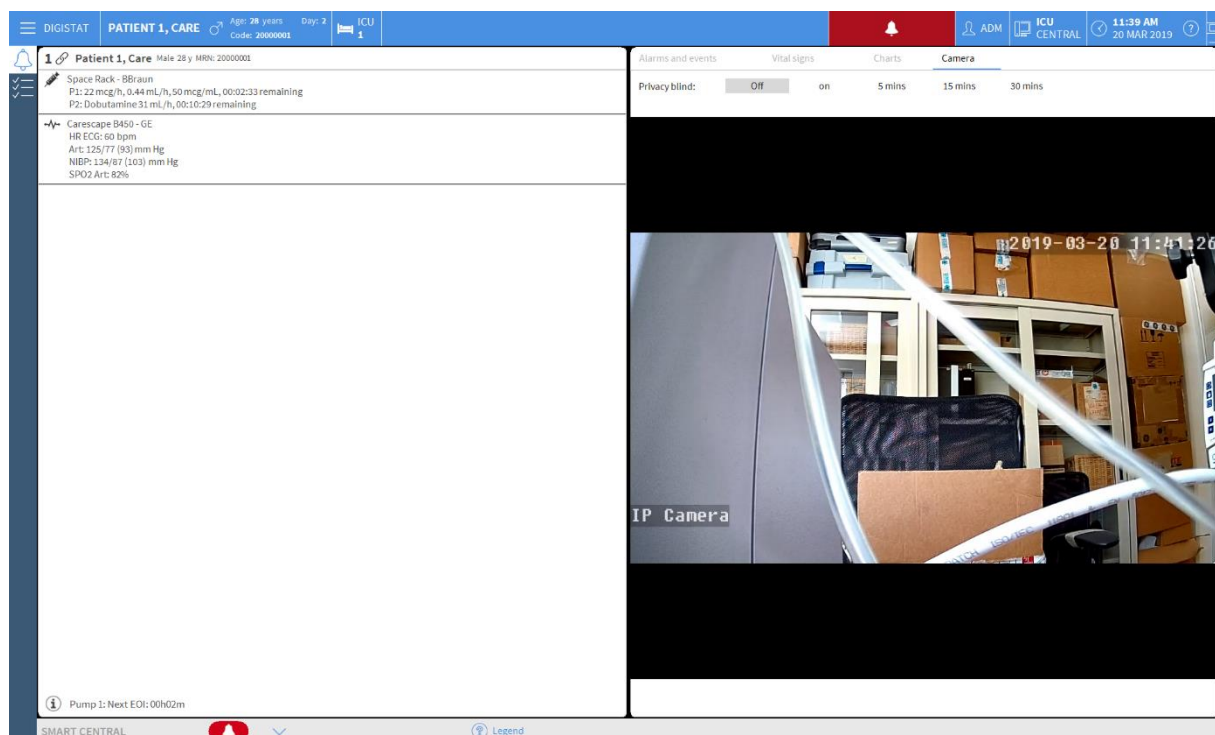
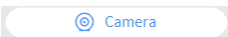


Fig 60


The patient Dashboard displays an additional tab, labelled as **Camera**, corresponding to the enlarged view.

Alarms and events Vital signs Charts **Camera**

The Camera tab is shown first if the  button is selected in the Smart Central main screen:

- Touch the **Camera** label to select the Camera tab in the Dashboard, if not currently selected.

The “Privacy Blind” feature allows the user to turn off the webcam of the considered patient: this can be done either permanently or for a certain time interval. During the Privacy Blind mode no video stream can be viewed. The Privacy Blind mode is disabled by default.

The Privacy Blind mode is indicated by the icon  in the Smart Central screen and in the Bed Card screen.

The Privacy Blind button bar is represented below

Privacy blind:  Off  on  5 mins  15 mins  30 mins

- Touch the On button to enable the Privacy Blind mode.

When selected, the **On** button is highlighted.

Privacy blind: Off  on  5 mins  15 mins  30 mins

In Privacy Blind mode the Bed Card is like the one shown below (Fig 61):

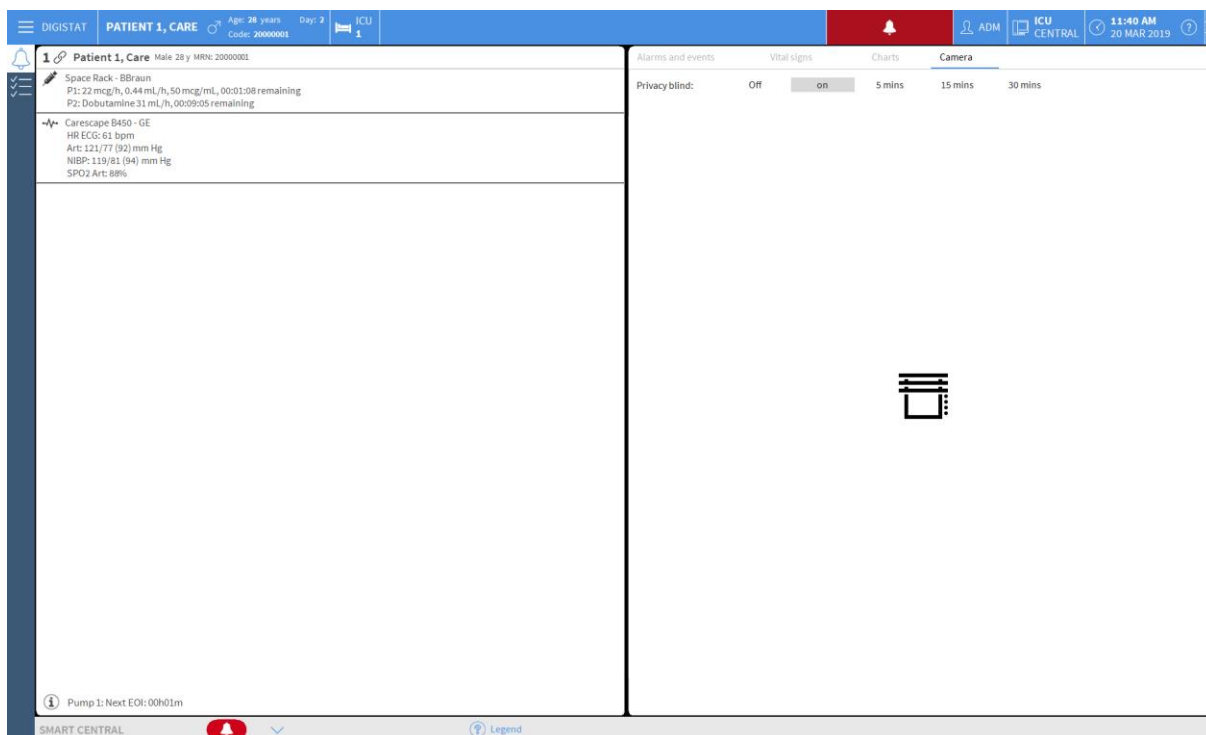


Fig 61

In Privacy mode the Smart Central screen is like the one shown below (Fig 62):

DIGISTAT

Choose patient...

ADM

ICU CENTRAL

11:40 AM

20 MAR 2019

1

🔗

Patient 1, Care

🔧

Space Rack - BBraun

P1: 22 mcg/h, 0.44 mL/h, 50 mcg/mL, 00:01:20 remaining

P2: Dobutamine 31 mL/h, 00:09:17 remaining

➔

Carescape B450 - GE

HR ECG: 63 bpm

Art: 119/74 (89) mm Hg

NIBP: 115/85 (95) mm Hg

SPO2 Art: 90%

2

🔗

Patient 2, Jim

🔧

Space Rack - BBraun

P1: Gabexate mesylate 26 mmol/h, 2.6 mL/h, 10 mmol/mL, 00:08:25 remaining

P2: 2 mg/h, 1.33 mL/h, 1.5 mg/mL, 00:12:24 remaining

P3: 19 mmol/h, 1.9 mL/h, 10 mmol/mL, 00:03:11 remaining

P4: Diltiazem 43 mcg/h, 0.86 mL/h, 50 mcg/mL, 00:00:00 remaining

P5: Remifentanyl 5 mL/h, 00:02:03 remaining

➔

Carescape B450 - GE

HR ECG: 68 bpm

Art: 117/81 (93) mm Hg

NIBP: 121/77 (92) mm Hg

SPO2 Art: 88%

3

🔗

Patient 3, Joe

🔧

Space Rack - BBraun

P1: 27 mL/h, 00:06:57 remaining

P2: Dobutamine 36 mcg/h, 0.72 mL/h, 50 mcg/mL, 00:11:05 remaining

➔

Carescape B450 - GE

HR ECG: 64 bpm

Art: 134/74 (94) mm Hg

NIBP: 123/83 (96) mm Hg

SPO2 Art: 88%

4

🔗

Patient 4, Rose

🔧

Space Rack - BBraun

P1: Gabexate mesylate 2 mmol/h, 0.2 mL/h, 10 mmol/mL, 00:07:27 remaining

P2: 19 mmol/h, 1.9 mL/h, 10 mmol/mL, 00:02:26 remaining

P3: 48 mL/h, 00:00:00 remaining

P4: Diltiazem 49 mL/h, 00:04:54 remaining

P5: Remifentanyl 29 mmol/h, 2.9 mL/h, 10 mmol/mL, 00:08:24 remaining

➔

Carescape B450 - GE

HR ECG: 68 bpm

Art: 125/83 (97) mm Hg

NIBP: 121/74 (90) mm Hg

SPO2 Art: 88%

5

🔗

Patient 5, Ellen

🔧

Space Rack - BBraun

P1: 8 mcg/h, 0.16 mL/h, 50 mcg/mL, 00:15:52 remaining

P2: 6 mL/h, 00:10:22 remaining

P3: Remifentanyl 44 mmol/h, 4.4 mL/h, 10 mmol/mL, 00:15:23 remaining

➔

Carescape B450 - GE

HR ECG: 66 bpm

Art: 121/85 (97) mm Hg

NIBP: 134/77 (96) mm Hg

SPO2 Art: 90%

6

🔗

Patient 6, Bill

🔧

Space Rack - BBraun

P1: 10 mg/h, 6.87 mL/h, 1.5 mg/mL, 00:03:57 remaining

P2: 11 mL/h, 00:01:25 remaining

P3: 19 mg/h, 12.67 mL/h, 1.5 mg/mL, 00:11:19 remaining

P4: Dobutamine 9 mg/h, 6 mL/h, 1.5 mg/mL, 00:06:45 remaining

P5: 37 mcg/h, 0.74 mL/h, 50 mcg/mL, 00:06:17 remaining

P6: Diltiazem 26 mcg/h, 0.52 mL/h, 50 mcg/mL, 00:01:55 remaining

➔

Carescape B450 - GE

HR ECG: 67 bpm

Art: 131/74 (93) mm Hg

NIBP: 131/75 (94) mm Hg

SPO2 Art: 84%

SMART CENTRAL

Legend

Values

Camera

Fig 62

- Touch the **Off** button to disable the Privacy Blind mode.

To activate the Privacy Mode only for certain time interval:

- Touch the **5 mins** or **15 mins** or **30 mins** buttons to enable the Privacy Mode for 5 or 15 or 30 minutes.

The selected button in the button bar is highlighted.

Privacy blind: Off on 5 mins **15 mins** 30 mins

After the selected time interval, the Privacy Mode automatically turns off.

1.12 Waveforms

Smart Central can display near real time waveforms collected from medical devices. To enable this functionality it is necessary to enable at least one waveform parameter in the configuration section of the driver capabilities.

To access this functionality

- Click the relevant Bed Card.
- Click the “Waveforms” tab (Fig 63 **A**).

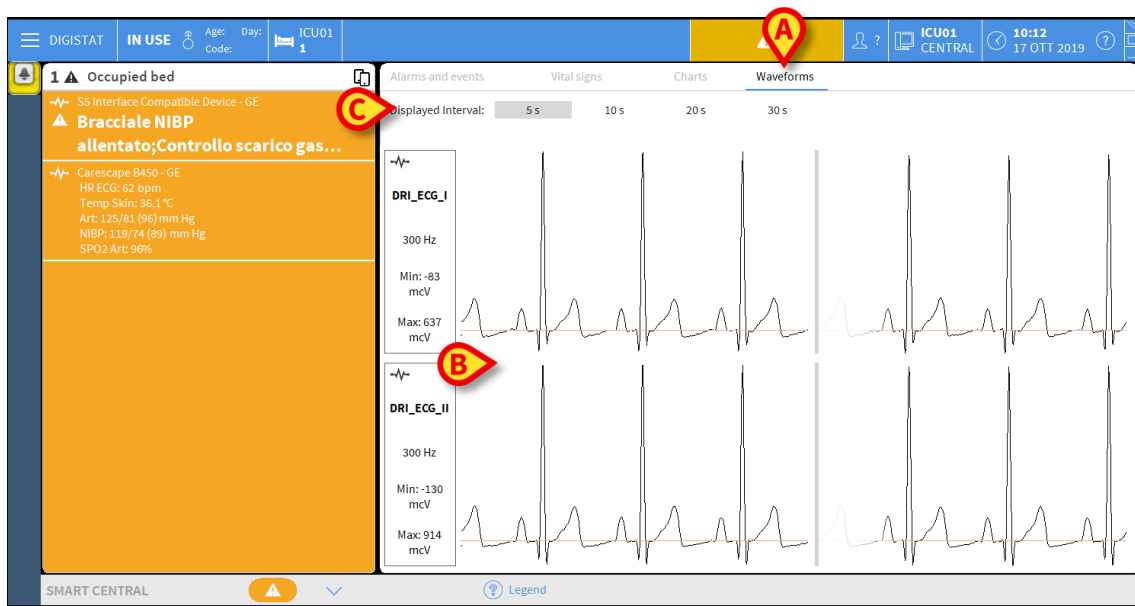


Fig 63

The Waveforms screen is displayed (Fig 63 **B**).

The waveform view contains all configured waveforms, updated in near real time. For every waveform, on the left side, the following values are displayed:

- Name of the waveform.
- Source device: the device that is producing the waveform (ex. Patient monitor).
- Maximum and minimum values: the maximum and minimum values calculated from the instant the waveform is displayed to current time.
- Unit of measure: unit of measure of the waveform.

The buttons indicated in Fig 63 **C** allow to change the time interval displayed (i.e. 5 seconds).

1.13 Patient admission, selection and search

Although Smart Central is commonly used as a monitor in the ward or unit to facilitate alarms notification and management, in some installation it is possible, for users having specific permissions, to use patient admission, search and selection tools. These tools are part of the Patient Explorer module. 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.

1.14 Bedside configuration

The Smart Central system can be configured to be “locked” to a single bed. In this case the screen displays the data of the connected bed in full-screen mode. In Fig 64 the workstation is locked to bed 2.

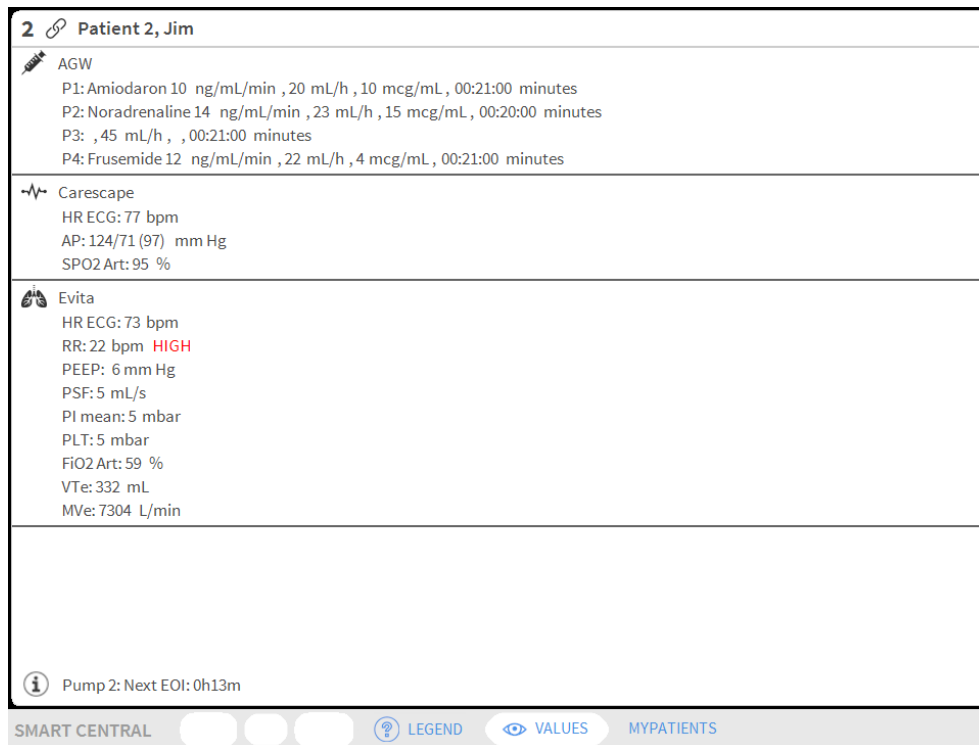


Fig 64

The Bed Card is the same as described above.

Three buttons are in the command bar.

Use the **Legend** button to display the “Legend” window explaining the meaning of the different icons (see paragraph 1.4.1).

Use the **Values** button to display the device values when no alarm is provided (see paragraph 1.3.1).

Use the **MyPatients** button to select other beds to be displayed on the screen (see next section).

1.14.1 My Patients

The “My patients” functionality makes it possible to display up to 4 additional Bed Cards on a “Bedside” workstation (maximum 5 in total, depending on configuration).

To use this functionality:

- Click the **MyPatients** button on the command bar

The following window opens (Fig 65).

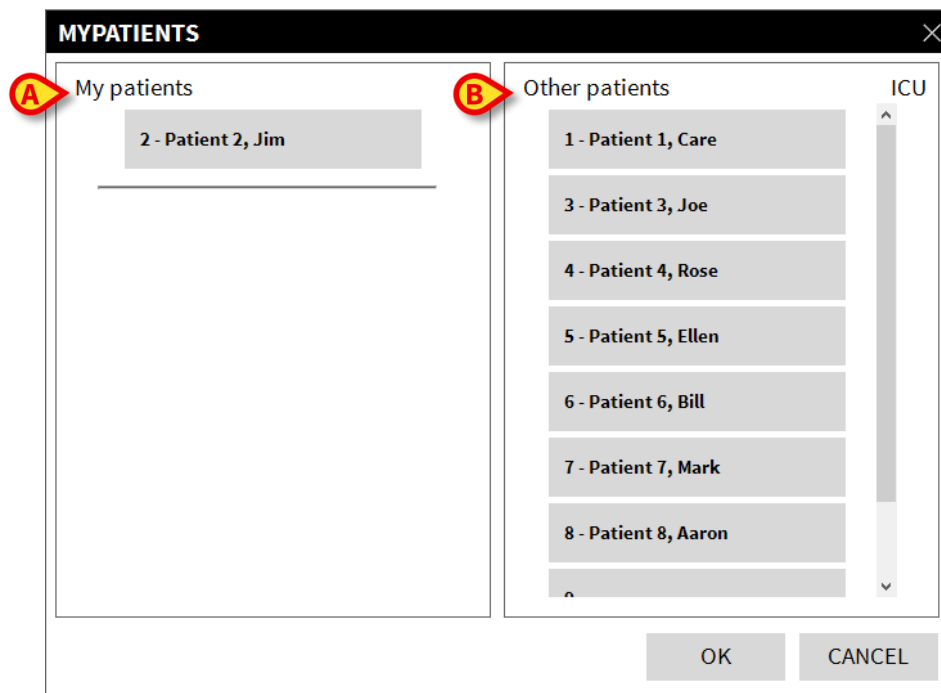


Fig 65

On the left, in the “My patients” column, is the list of Bed Cards currently displayed (Fig 65 **A**). Each box represents a Bed Card. The box on top represents the patient to which the workstation is locked.

On the right, in the “Other Patients” column, all the existing Bed Cards are listed (Fig 65 **B**).

To select a Bed Card to be displayed on screen,

- Click the corresponding box for the patient in the “Other Patients” column

The box disappears from the “Other Patients” column (right) and is displayed on the “My Patients” column (Left). A maximum of 4 additional Bed Cards can be selected (depending on configuration).

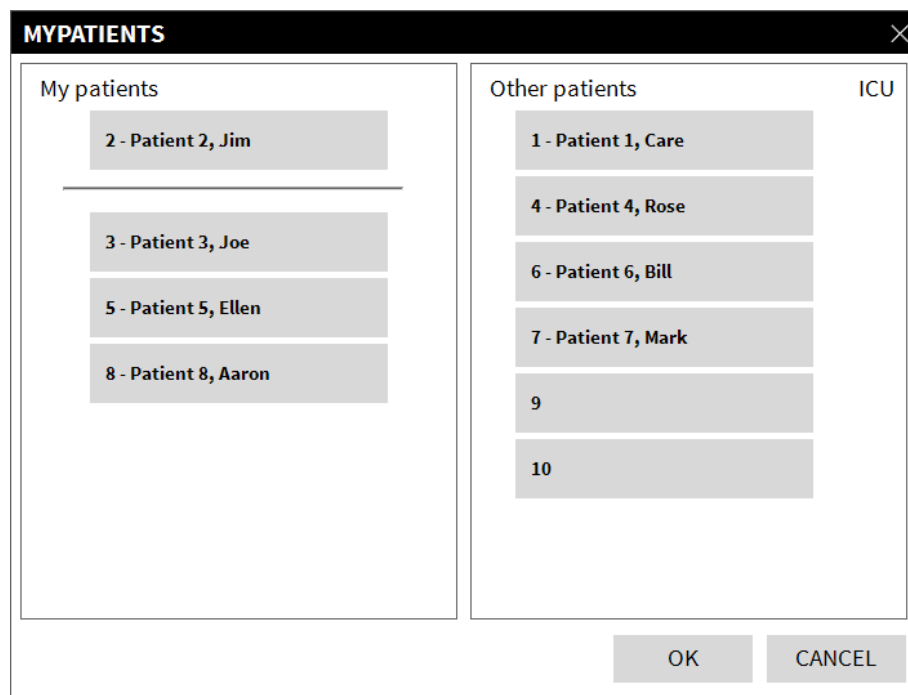


Fig 66

In Fig 66 Bed Cards 3, 5 and 8 are selected.

- Then click the **Ok** button

The Smart Central screen is displayed as shown in Fig 67.

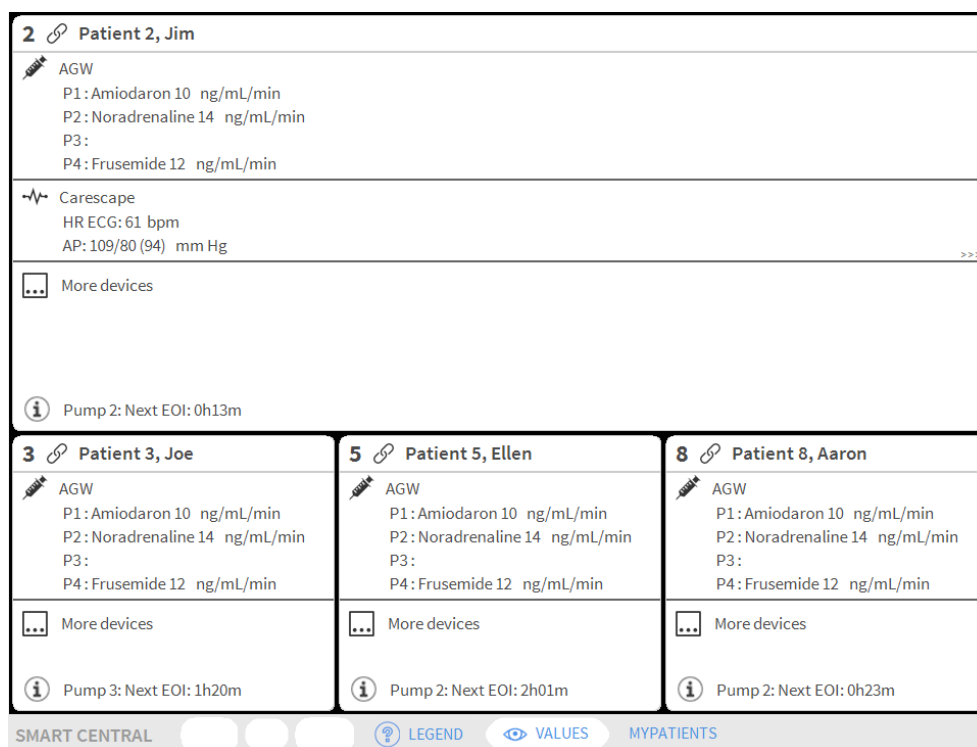


Fig 67

The Bed Card to which the workstation is locked is number 1 (large, on top). Bed Cards 3, 5, 8 are displayed underneath the locked Bed Card and are smaller.

The additional Bed Cards can be enlarged.

- Click on one of the additional Bed Cards to enlarge it. Click again to bring it back to the original proportions

In order to remove one or all the additional Bed Cards,

- Click the **MyPatients** button on the command bar

The “My Patients” window is displayed (Fig 66).

To remove an additional Bed Card,

- Click the box corresponding to the Bed Card to be deselected in the “My Patients” column

The box disappears from the “My Patients” column (left) and is displayed on the “Other Patients” column (Right). The deselected Bed Card will not be displayed anymore.

1.15 Annex – Examples of user workflows

1.15.1 Display patient events

1 – Click a Bed Card to display the patient events.

The screenshot displays the SMART CENTRAL interface for patient John, Doe. On the left, patient information and vital signs are listed. On the right, the 'Alarms and events' tab is active, showing a list of events with a red 'A' icon highlighting the 'New' button at the bottom.

Time	Device	Description
14:13	NIBP	NIBP Sensor Fault
14:13	HR	HR High
14:13	HR	HR High
14:13	HR	HR High
14:13	HR	HR High
14:13	HR	HR High
14:11	HR	HR High
14:11	HR	HR High
14:11	HR	HR High
14:11	HR	HR High
14:06	EtCO2	EtCO2 Low
14:06	EtCO2	EtCO2 Low
14:02	SpO2	SpO2 Low
14:02	SpO2	SpO2 Low

The patient events are displayed on the right.

1.15.2 Add user event

1 – Click the **New** button (A)

The screenshot shows the SMART CENTRAL interface with the 'Alarms and events' tab selected. A red 'A' icon highlights the 'New' button at the bottom of the event list.

Time	Device	Description
09:23	Patients	Patients temporary disconnected
09:22	Amiodarone	Amiodarone 50 mg/mL
08:22	Anormal Values	Anormal Values
07:33	Patient reporting difficulties breathing	Patient reporting difficulties breathing
05:26	Changed patient monitor settings	Changed patient monitor settings

The following window is displayed.

CREATE A NEW NOTE

Time: 08/10/2019 09:28:23 Set event time to NOW

Event Type: [Info] [Warning] [Error]

Note description:

[A] [B] Save Close and do not save

- 2 - Type the note in the “Note description” field **(A)**.
- 3 - Click **Save (B)**.

1.15.3 Edit user events

To edit a user event, on the events grid:

- 1 - Click the row corresponding to the user event
- 2 - Click **Edit** on the action bar.

The window shown in the above figure is displayed.

- 3 - Edit the event (Date/time, priority, description).
- 4 - Click **Save**.

1.15.4 Delete user events

To delete a user event, on the events grid:

- 1 - Click the row corresponding to the user event.
- 2 - Click **Delete** on the action bar. User confirmation is required.
- 3 - Click **Yes** to delete the event.

The corresponding row disappears from the events grid.

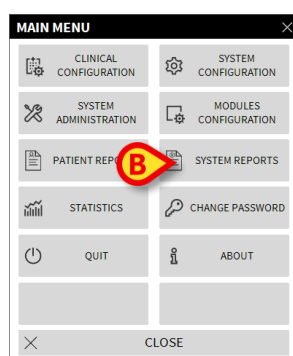
1.15.5 Alarms statistics

To print an Alarm statistic report:

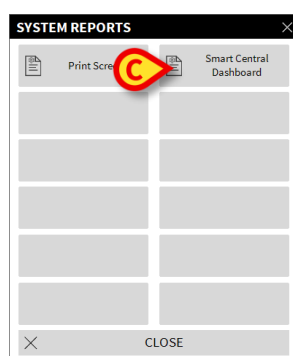
1 - Click the **Menu** button on “Control Bar” **(A)**.



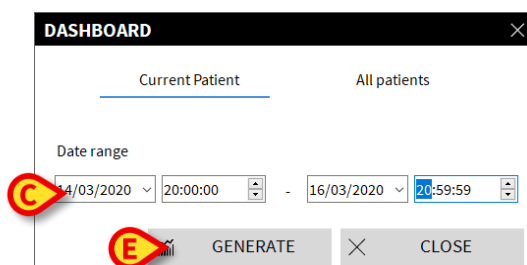
The following menu opens:



2 - Click on **System Reports** **(B)**. Another menu opens.



3 - Click **Smart Central Dashboard** **(C)**. The following window opens.



Select the date range for either the current patient or all patients **(D)**.

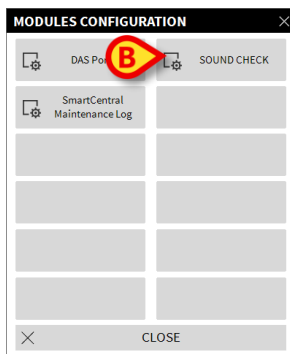
4 - Click the **Generate** button **(E)**. A print preview is displayed.

1.15.6 Perform “Sound Check” procedure

To perform the “Sound Check” procedure:



- 1 - Click the **Menu** button on “Control Bar” (A). The Digistat main menu opens.
- 2 - On the main Menu, click on **Modules Configuration**. Another menu opens.



- 3 - Click on **SOUND CHECK** (B).

A pop-up window opens, asking whether a sound is heard or not.

If a sound is heard, then click **Yes**. The pop-up window disappears and nothing else happens (meaning that the system is working correctly).


If no sound is heard, then click **No**. The pop-up window disappears and a notification is displayed on “Control Bar”, meaning that an error occurred while checking the sound notification system.

The notification only disappears when another “Sound Check” procedure is performed and a **Yes** answer is provided in the end.



If the sound check fails, stop using the Smart Central module and promptly contact the technical assistance.

1.15.7 “Privacy Blind” mode on smart central video

If the Smart Central video functionality is activated for a patient, the “Privacy Blind” feature allows the user to turn off the webcam either permanently or for a certain time interval. If the Privacy Blind mode is enabled, then no video stream is viewed. The “Privacy Blind” mode is disabled by default. The “Privacy Blind” mode is indicated by the  icon. To activate the “Privacy Blind” permanently:

- 1 - Click the relevant Bed Card to enter the patient detail screen.
- 2 - Select **On** on the upper bar (A).

Privacy blind: Off  on 5 mins 15 mins 30 mins

To activate the “Privacy Blind” for a pre-defined period:

- 2 – Select the wanted period on the upper bar (5 mins, 15 mins, 30 mins).

1.15.8 Display Waveforms

To display the Waveforms screen:

- 1 - Click the relevant Bed Card to enter the patient detail screen.
- 2 – Click **Waveforms** on the upper bar.