DIGISTAT® Fluid Balance

DIGISTAT® Version 4.3

User Manual

DIG UD FLD IU 0005 ENG V01
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Contents

1. Fluid Balance

For general and detailed information about the DIGISTAT® environment and the instruction for use of the Control Bar software see the document "DIG UD CBR IU 0005 ENG V01 - Digistat Control Bar User Manual".

1.1. Introduction

The DIGISTAT® **Fluid Balance** module gives the patient's precise fluid balance by recording daily fluid input and output. The administered volumes can either be acquired automatically from the configured infusion devices or inserted manually by the clinical staff. The system calculates both partial and total balances. The "in" and "out" items are configurable according to the department's needs.

1.2. Module selection

To select the "Fluid Balance" module

- click the corresponding icon on the lateral bar (Fig 1).

Fig 1 -"Fluid Balance" module icon

If no patient is selected the screen shown in Fig 2 is displayed. No data is displayed on the screen shown in Fig 2. When a patient is selected the screen displays the selected patient's data.

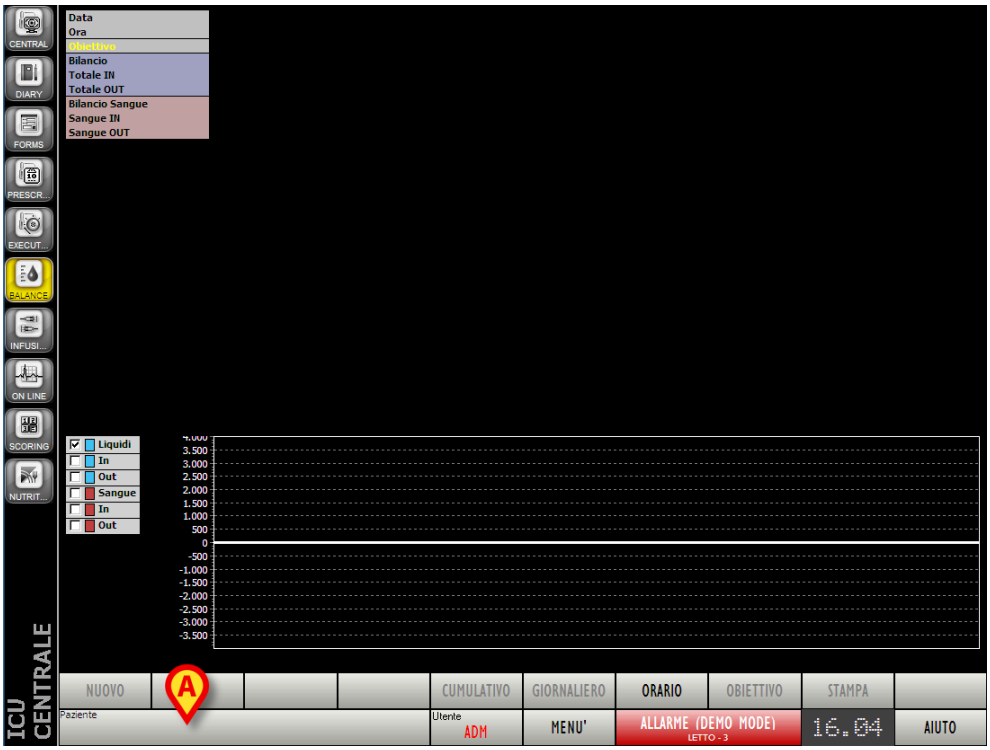


Fig 2 - No patient selected

1.3. Patient selection

To select a patient, if you are using for this purpose a DIGISTAT® software,

- click the **Patient** button on the Control Bar (Fig 2 **A**).

The DIGISTAT® Patient Explorer module opens, if the module is in use. Otherwise the patient search and selection functionalities are accomplished by Control Bar. See the related technical documentation to know the specific search and selection procedures. If the software in use is not a DIGISTAT® software see the related documentation.

If your Healthcare Structure doesn't use a DIGISTAT® software for the patient search and selection procedures, please refer to the related documentation.

When a patient is selected the data displayed on the screen are referred to the selected patient (in Fig 3 a patient is selected).

1.4. "Fluid Balance" main screen

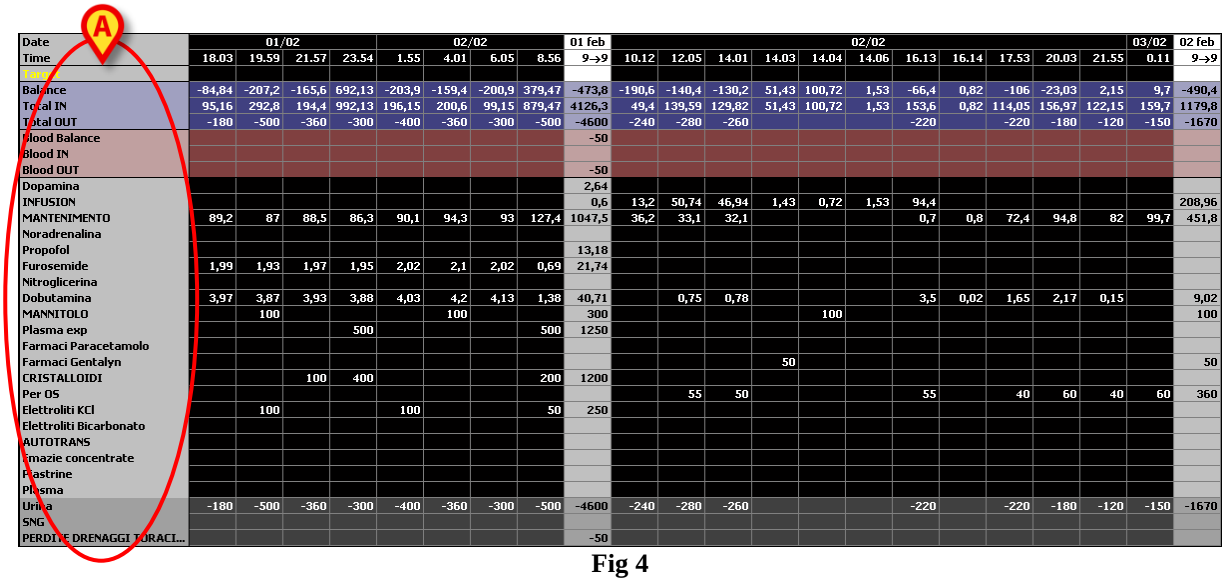
The main screen is formed of three main parts:

- a table (Fig 3 **A**, see paragraph 1.5 for the description),
- a chart (Fig 3 **B** see paragraph 1.6),
- a command bar (Fig 3 **C** see paragraph 1.7).

Fig 3 - Main screen - Patient selected

1.5. Table

The table (Fig 4) displays all the “in” and “out” values of the fluids to and from the patient, providing at the same time total and partial fluid balances.



Date	01/02				02/02				01 feb	02/02											03/02	02 feb
Time	18.03	19.59	21.57	23.54	1.55	4.01	6.05	8.56	9→9	10.12	12.05	14.01	14.03	14.04	14.06	16.13	16.14	17.53	20.03	21.55	0.11	9→9
Balance	-84,84	-207,2	-165,6	692,13	-203,9	-159,4	-200,9	379,47	-473,8	-190,6	-140,4	-130,2	51,43	100,72	1,53	-66,4	0,82	-106	-23,03	2,15	9,7	-490,4
Total IN	95,16	292,8	194,4	992,13	196,15	200,6	99,15	879,47	4126,3	49,4	139,59	129,82	51,43	100,72	1,53	153,6	0,82	114,05	156,97	122,15	159,7	1179,8
Total OUT	-180	-500	-360	-300	-400	-360	-300	-500	-4600	-240	-280	-260				-220		-220	-180	-120	-150	-1670
Blood Balance									-50													
Blood IN																						
Blood OUT									-50													
Dopamina									2,64													
INFUSION									0,6	13,2	50,74	46,94	1,43	0,72	1,53	94,4						208,96
MANTENIMENTO	89,2	87	88,5	86,3	90,1	94,3	93	127,4	1047,5	36,2	33,1	32,1				0,7	0,8	72,4	94,8	82	99,7	451,8
Noradrenalina																						
Propofol									13,18													
Furosemide	1,99	1,93	1,97	1,95	2,02	2,1	2,02	0,69	21,74													
Nitroglicerina																						
Dobutamina	3,97	3,87	3,93	3,88	4,03	4,2	4,13	1,38	40,71		0,75	0,78				3,5	0,02	1,65	2,17	0,15		9,02
MANNITOLO		100				100			300					100								100
Plasma exp				500				500	1250													
Farmaci Paracetamolo																						
Farmaci Gentalyn													50									50
CRISTALLOIDI			100	400				200	1200													
Per OS											55	50				55		40	60	40	60	360
Elettroliti KCl		100			100			50	250													
Elettroliti Bicarbonato																						
AUTOTRANS																						
Emazie concentrate																						
Piastrine																						
Plasma																						
Urina	-180	-500	-360	-300	-400	-360	-300	-500	-4600	-240	-280	-260				-220		-220	-180	-120	-150	-1670
SNG																						
PERDITE DRENAGGI TORACI...									-50													

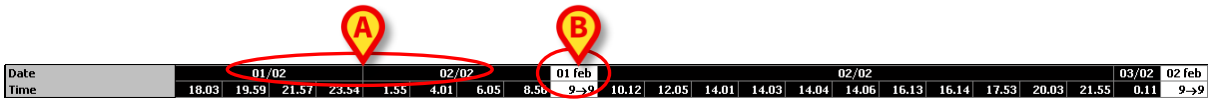
Fig 4

1.5.1. How to read the table - Rows

On the left are the names of the fluid balance items whose values are specified in the table (Fig 4 **A**). The first cell of every row indicates the name of the balance item whose values are displayed in the row itself.

1.5.1.1. Date

The first row indicates the date to which the values on the table refer.



Date	01/02				02/02				01 feb	02/02											03/02	02 feb
Time	18.03	19.59	21.57	23.54	1.55	4.01	6.05	8.56	9→9	10.12	12.05	14.01	14.03	14.04	14.06	16.13	16.14	17.53	20.03	21.55	0.11	9→9

Fig 5

The system considers a 24 hours period (configurable) as one “clinical day”. The “clinical day” usually begins at 9:00 o’clock (configurable). Therefore, a day starts at 9:00 and ends the morning after at 9:00. All the values recorded during this period are assigned by the system to the same clinical day and labelled together. The actual date is anyway displayed for every fluid balance calculation. Fig 5 **A** indicates the actual dates. Fig 5 **B** indicates the “clinical dates”, i.e. the label used by the system to refer to a work day going from 9:00 to 9:00.

1.5.1.2. Time

The second row displays the time of every fluid balance calculation.

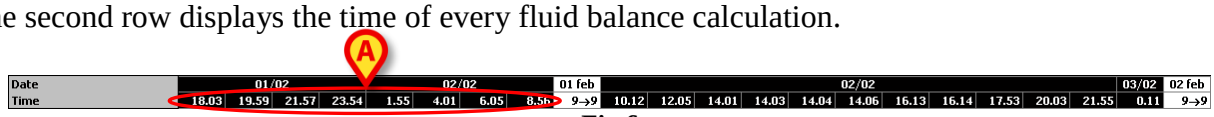


Fig 6

Time is automatically recorded every time a fluid value is recorded. See paragraph 1.14.1 for the fluid balance values recording procedure.

1.5.1.3. Target

The third row displays the daily target, i.e. the target balance indicated for the patient.

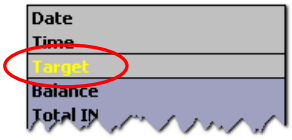


Fig 7 - Target

The daily target can be specified both for the current and for the following day. See paragraph 1.5.1.3 for the daily target setting procedure.

1.5.1.4. Total balances

Three lines, highlighted violet, display the total balances (Fig 8).

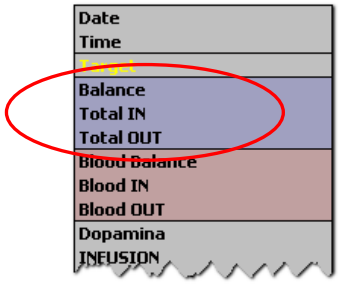


Fig 8 - Total Bilances

The total balance, the total “in” balance and the total “out” balance are displayed (in this order).

1.5.1.5. Blood balance

Three lines, highlighted red, display the blood balances (Fig 9).

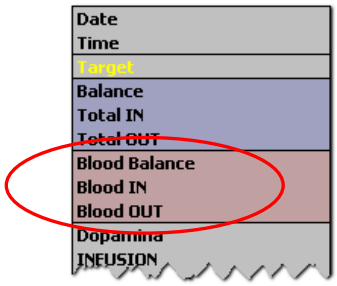


Fig 9 - Blood balance

The blood IN balance, the blood OUT balance and the total blood balance (the sum of "Ins" and "Outs") are displayed. The values "Blood balance", "Blood in" and "Blood out" can be either included or not, depending on a configuration parameter.

1.5.1.6. Detalied IN and OUT values

The rows highlighted light grey display the detailed fluids IN values (Fig 10 **A**).
The rows highlighted dark grey display the detailed fluids OUT values (Fig 10 **B**).

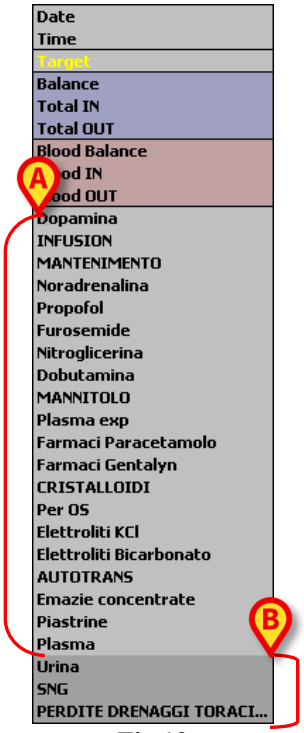
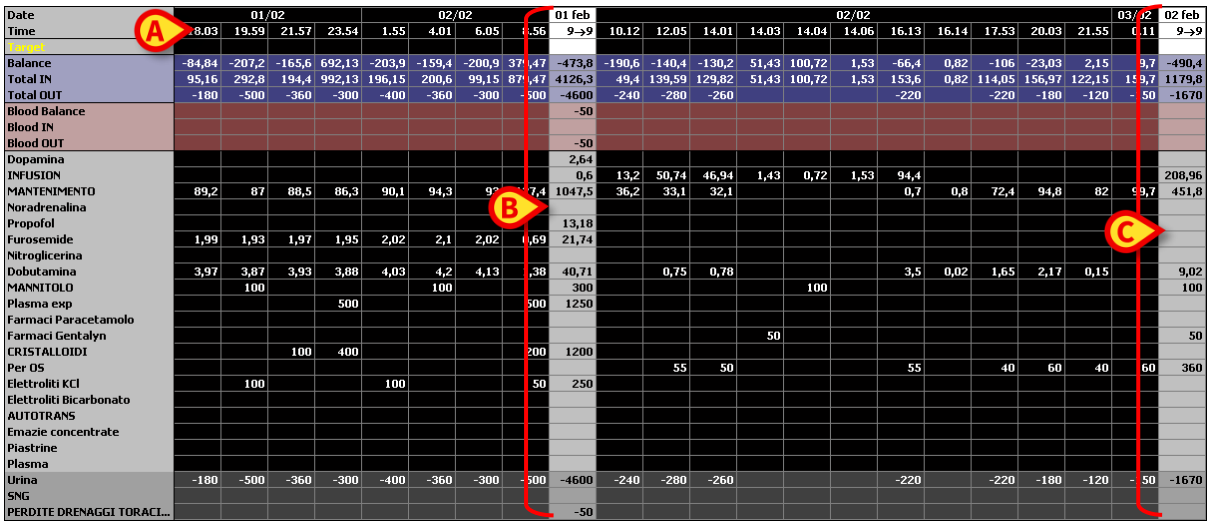


Fig 10

If the DIGISTAT® "Infusion" module is installed the values coming from the infusion pumps are automatically acquired.

1.5.2. How to read the table - columns

A column is added to the table every time a user specifies any fluid values. See paragraph 1.14.1 for the related procedure.
The first cell of every column displays the time the column was added. The time displayed, therefore, is the values insertion time (Fig 11 **A**).



Date	01/02				02/02				01 feb	02/02											03/02	02 feb
Time	18.03	19.59	21.57	23.54	1.55	4.01	6.05	8.56	9->9	10.12	12.05	14.01	14.03	14.04	14.06	16.13	16.14	17.53	20.03	21.55	0.11	9->9
Target																						
Balance	-84,84	-207,2	-165,6	692,13	-203,9	-159,4	-200,9	37[illegible]47	-473,8	-190,6	-140,4	-130,2	51,43	100,72	1,53	-66,4	0,82	-106	-23,03	2,15	[illegible]9,7	-490,4
Total IN	95,16	292,8	194,4	992,13	196,15	200,6	99,15	87[illegible]47	4126,3	49,4	139,59	129,82	51,43	100,72	1,53	153,6	0,82	114,05	156,97	122,15	159,7	1179,8
Total OUT	-180	-500	-360	-300	-400	-360	-300	-500	-4600	-240	-280	-260				-220		-220	-180	-120	-50	-1670
Blood Balance									-50													
Blood IN																						
Blood OUT									-50													
Dopamina									2,64													
INFUSION									0,6	13,2	50,74	46,94	1,43	0,72	1,53	94,4						208,96
MANTENIMENTO	89,2	87	88,5	86,3	90,1	94,3	9[illegible]	[illegible]7,4	1047,5	36,2	33,1	32,1				0,7	0,8	72,4	94,8	82	[illegible]9,7	451,8
Noradrenalina																						
Propofol									13,18													
Furosemide	1,99	1,93	1,97	1,95	2,02	2,1	2,02	[illegible],69	21,74													
Nitroglicerina																						
Dobutamina	3,97	3,87	3,93	3,88	4,03	4,2	4,13	[illegible],38	40,71		0,75	0,78				3,5	0,02	1,65	2,17	0,15		9,02
MANNITOLO		100				100			300					100								100
Plasma exp				500				500	1250													
Farmaci Paracetamolo																						
Farmaci Gentalyn													50									50
CRISTALLOIDI			100	400				200	1200													
Per OS											55	50				55		40	60	40	60	360
Elettroliti KCl		100			100			50	250													
Elettroliti Bicarbonato																						
AUTOTRANS																						
Emazie concentrate																						
Piastrine																						
Plasma																						
Urina	-180	-500	-360	-300	-400	-360	-300	-500	-4600	-240	-280	-260				-220		-220	-180	-120	-50	-1670
SNG																						
PERDITE DRENAGGI TORACI...									-50													

Fig 11 - Table

The total fluid values referring to the previous day are displayed in a specific column, characterized by lighter colors (Fig 11 **B**). This column is automatically added when the clinical day begins and is updated during the day with the new values specifications. At daily balance closing time the column is "frozen" and a new column is created. The daily balance closing time depends on a configuration parameter. In the configuration here explained the clinical day ends at 9:00. The last column of the table (Fig 11 **C**) displays the total values for the current day updated to the present time.
The first cell of the "Totals" column displays the date to which the total balances refer (Fig 12 **A**); the second cell specifies the relevant time span (Fig 12 **B** - in the present configuration it is 9:00 to 9:00); the third column displays, if specified, the daily target (Fig 12 **C**).

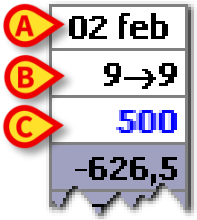


Fig 12

Specific information tooltips are displayed when the mouse pointer indicates the column headings on the table (Fig 13).

Fig 13

1.6. Chart

The lower part of the DIGISTAT® Fluid Balance main screen (Fig 14 **A**) displays in a chart the balance values specified in the table.

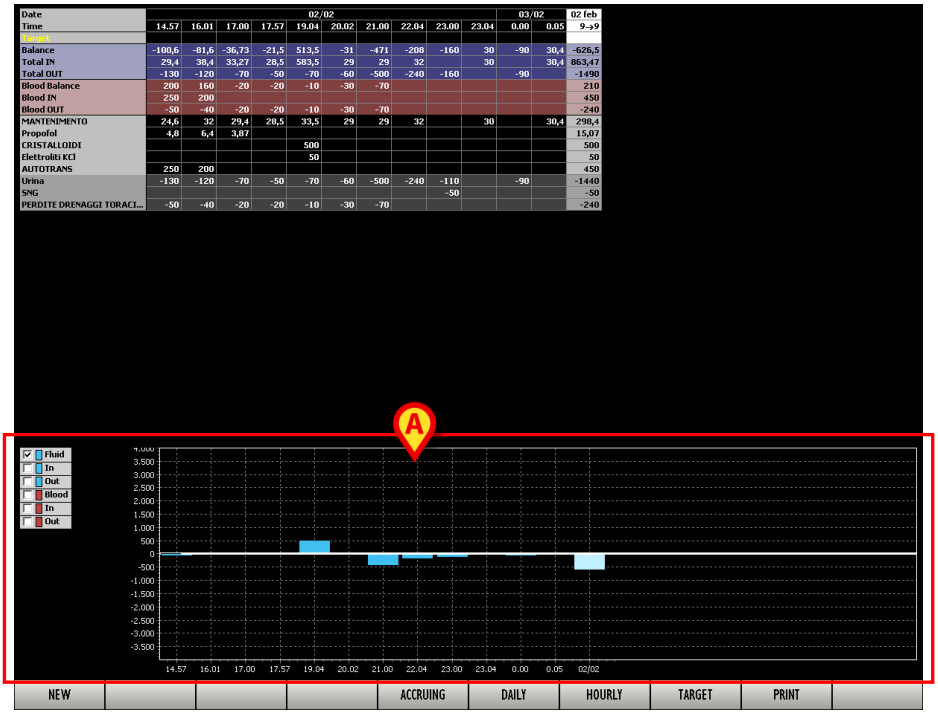


Fig 14

The fluid IN and OUT quantities can be read on the vertical axis (in ml - Fig 15 **A**).
The fluid variation date and time can be read on the horizontal axis (Fig 15 **B**).

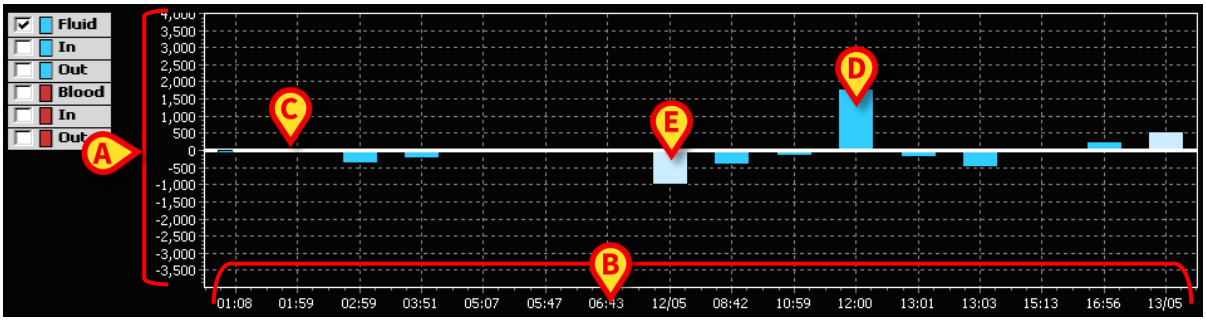


Fig 15 - Chart

The variations in the fluid balance are represented by the blue vertical bars (Fig 15 **D** - the color is red when referred to blood changes, see Fig 18). The white line in the middle of the chart is the zero level (Fig 15 **C**). The bars above the white line represent fluid INs, the bars below the white line represent fluid OUTs.
When the clinical day changes a bar of a lighter color is added to indicate the total fluid balance of the previous day (Fig 15 **E**). This value corresponds to the balance value displayed on the table in the lighter colored column (Fig 11 **B**).

The box on the left (Fig 16) makes it possible to select what kind of values are to be displayed on the chart.

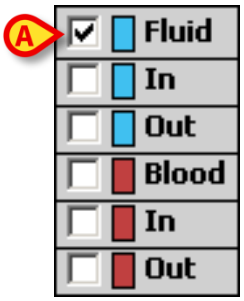


Fig 16

The checkboxes on the left can be either selected or deselected to display on the chart the corresponding values. If, for instance, “Fluid” and “Blood” are selected as in Fig 17,

Fig 17

the chart displays the “Fluid” and “Blood” values separately (Fig 18).

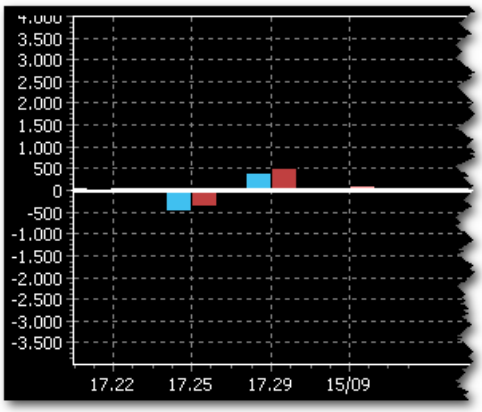


Fig 18

The system makes it possible, by selecting the corresponding boxes, to display in the chart the values relating to the in and out values both of the total fluids and of blood (the corresponding boxes are [“fluid”, “fluid in” and “fluid out”] and [“blood”, “blood in” and “blood out”]).
If the “Fluid”, “Fluid IN” and “Blood”are selected, for instance (Fig 19),

Fig 19

this is the corresponding chart:

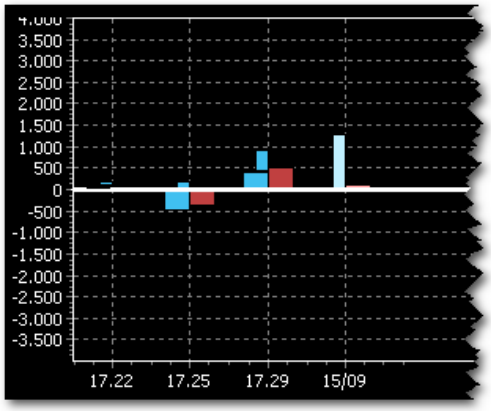


Fig 20

Three different istograms indicate the three values separately (blue-wide for the total fluid; blue - thin for the fluids in; red wide for the total blood).

1.7. The command bar

The buttons on the command bar of the Fluid Balance module main screen make it possible to perform different procedures.

Fig 21 - Command bar

This paragraph briefly describes the functions of the different buttons. The related procedures are described later in the indicated paragraphs.

New - use this button to insert values in the fluid balance table (see paragraph 1.8).

Accruing - use this button to display the fluid balance values in a cumulative mode on every column of the table (see paragraph 1.9).

Daily - use this button to display on the table only the daily total values (see paragraph 1.10).

Hourly - use this button to display on the table the fluid values at 60 minutes intervals. These are approximated values calculated by linear interpolation (see paragraph 1.11).

The presence of the **Hourly** *button depends on a configuration parameter. Please ask your system administrators if you need more details.*

Target - use this button to set the daily target (see paragraph 1.12).

Print - use this button to access the system's print functionalities (see paragraph 1.13).

1.8. Data entry: the “New” button

The **New** button on the command bar (Fig 22) makes it possible to record a change in the patient’s fluid balances (i.e. to insert a fluid balance value - see paragraph 1.14.1 for an example of this functionality).

Fig 22 - Command Bar

Click the **New** button to access the following screen (Fig 23).

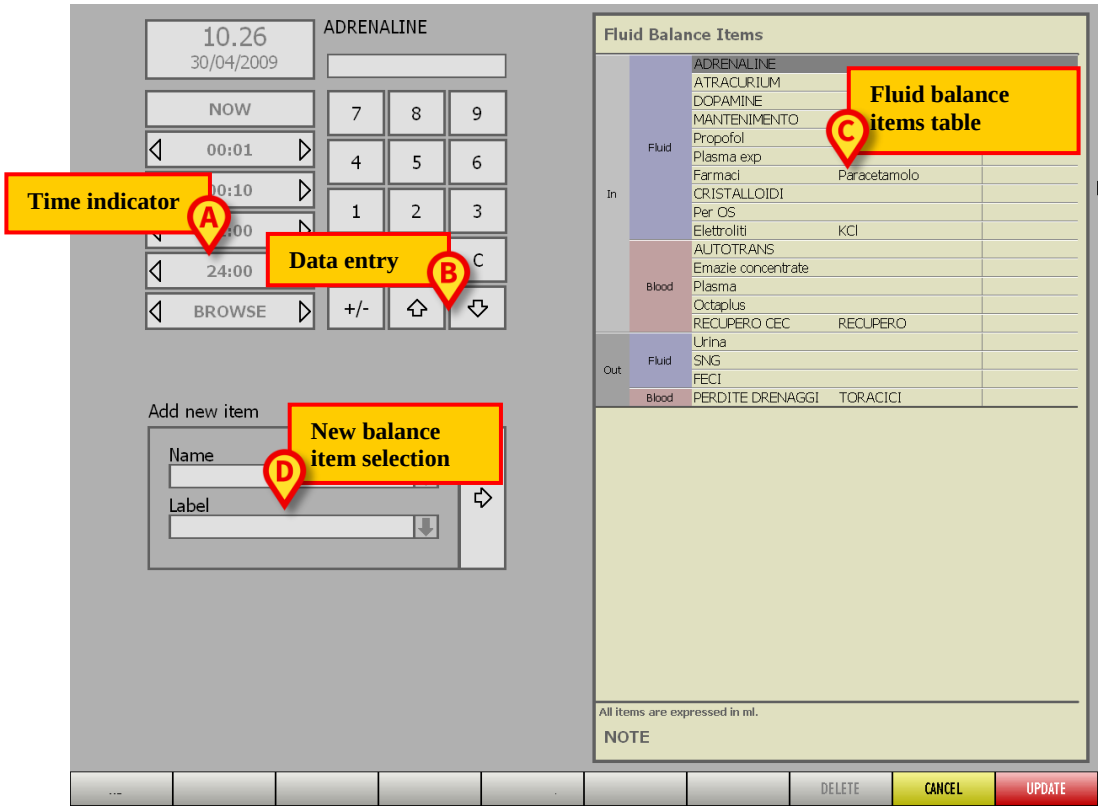


Fig 23 - Add a balance value

The screen is in “edit” mode, i.e. it is possible to edit the data displayed; the **Cancel** and **Update** buttons on the command bar are active. The screen contains various tools:

- a time indicator, enabling to specify the time of data insertion (Fig 23 **A**, see paragraph 1.8.1);
- a numeric data entry keyboard (Fig 23 **B**, see paragraph 1.8.2);
- the balance items table (Fig 23 **C**, see paragraph 1.8.3);
- the new balance items specification panel (Fig 23 **D**, see paragraph 1.8.4).

The different tools are described in the indicated paragraphs.

1.8.1. Time indicator

In the top left corner of the screen a time indicator (indicated in Fig 23 **A** and enlarged in Fig 24), can be used to select the time of data entry.

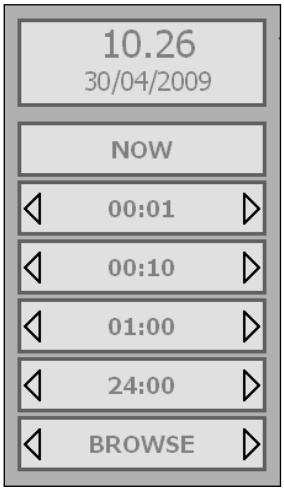


Fig 24 - Time Indicator

The first box, on top, displays the selected time and date. Any value displayed in the table on the right side of the screen (Fig 23 **C**) refers to the date and time selected here. The buttons below the date/time display make it possible to move either forwards or backwards on the time line.

Use the **Now** button to display the current time.

Use the **00:01** button to move one minute back / forward (left arrow is the back button).
Use the **00:10** button to move ten minutes back / forward (left arrow is the back button).
Use the **01:00** button to move one hour back / forward (left arrow is the back button).
Use the **24:00** button to move 24 hours back / forward (left arrow is the back button).
Use the **Browse** button to "jump" directly to the time (preceding or subsequent) in which a set of values was recorded (these "times" correspond to columns on the fluid balance table - Fig 11).

After any editing, click the **Update** button on the command bar to save the changes made.

1.8.2. Fluid balance values specification

On the right of the time specification buttons described in the previous paragraph there is a numeric keyboard making it possible to specify the value of the selected fluid balance item (Fig 23 **B**, Fig 25).

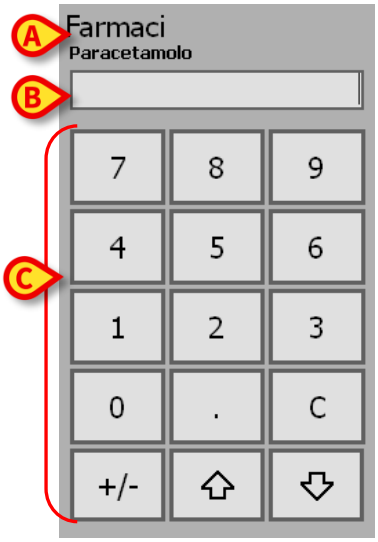


Fig 25

The name of the selected item is displayed above the keyboard (Fig 25 **A**). The example shown in the figure displays "Farmaci (Paracetamolo)". This is the item selected on the "Fluid Balance items" table (Fig 27). When another item on the table is selected the name displayed in Fig 25 **A** changes accordingly. The field indicated in Fig 25 **B** is the field where the values (in ml) of the selected balance item are inserted.
The numeric keyboard indicated in Fig 25 **C** makes it possible to specify the value.
Two arrow-buttons  on the keyboard make it possible to select a different row on the "Fluid Balance items" table (moving the selection up and down the table - Fig 27).

To specify a value on the table,

- use the arrow buttons to select an item on the table, or touch the corresponding row.

The name of the item is highlighted on the table; it is also displayed above the numeric keyboard (Fig 26 **A**).

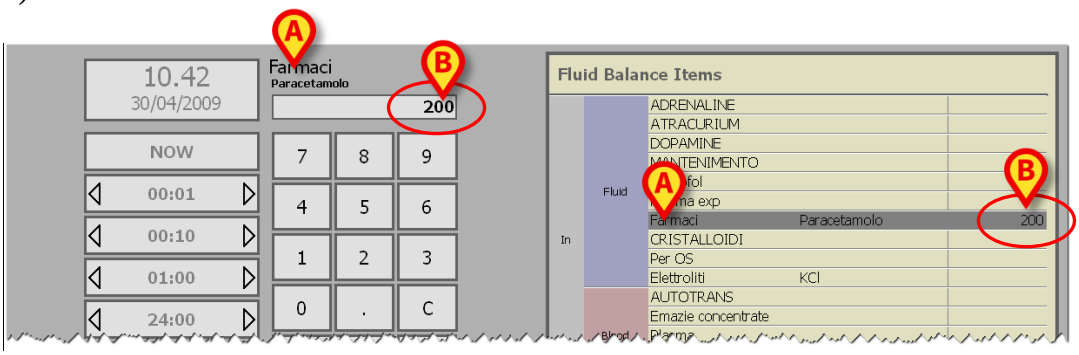
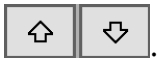


Fig 26 - Value specification

- Click the field indicated in Fig 25 **B**. A cursor appears.
- Use the numeric keyboard to specify the value.
- Click one of the two arrow-buttons  .

The preceding or following item is selected on the table. The specified value is displayed in the "Fluid Balance items" table (Fig 26 **B**). After any editing, click the **Update** button on the command bar to save the changes made.

1.8.3. The “Fluid Balance items” table

The table on the right of the screen (Fig 27, Fig 23 **C**) lists the items that can be specified in the fluid balance.

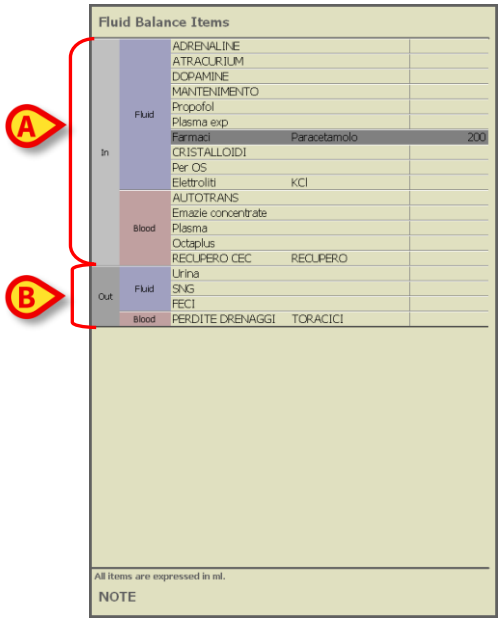


Fig 27 - “Fluid Balance items” table

The items are divided in two groups:
the upper group contains the “IN” items (Fig 27 **A**);
the lower group contains the “OUT” items (Fig 27 **B**).

Each group can be further divided into “Fluid” and “Blood” if necessary. See Fig 28 for an instance.

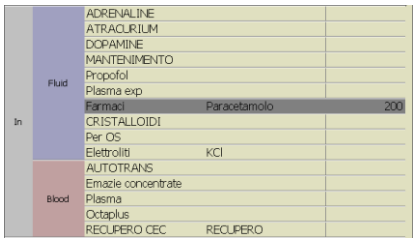


Fig 28

Once the value of a certain item is specified it is displayed on the right (Fig 29). The value specification procedure is described in paragraph 1.8.2.

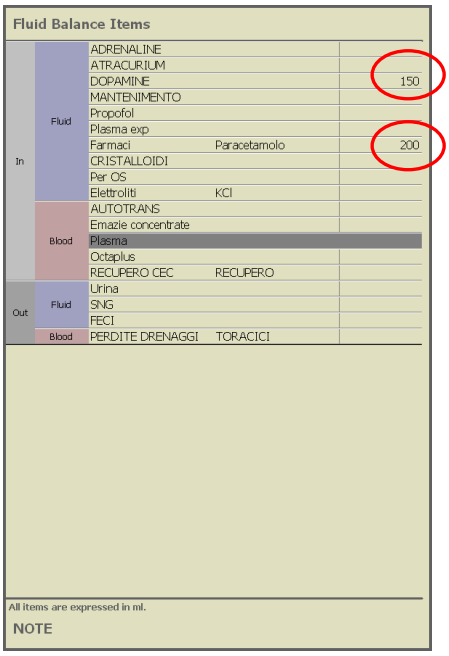


Fig 29

The values automatically acquired by the infusion devices are characterized by a specific icon and are red bordered (Fig 30).

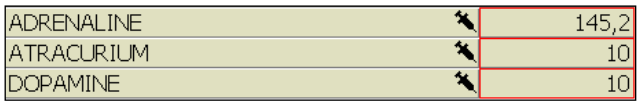


Fig 30

It is possible to add balance items to the table. The balance items addition procedure is described in paragraph 1.8.4.

1.8.4. How to add a balance item

A tool placed on the bottom-left corner of the screen can be used to add an item to those listed in the "Fluid Balance items" table (Fig 23 **D**, Fig 31).

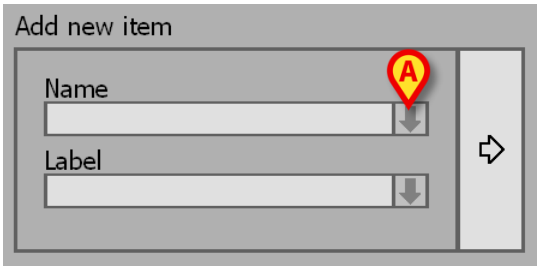


Fig 31 - Add new item

This is the procedure:

- Click the button placed alongside the "Name" field (Fig 31 **A**). A menu containing all the configured items appears (Fig 32 **A**). The items list on the menu is divided in groups ("IN" items and "OUT" items, each one further divided in "Fluid" and "Blood"). The items on the menu are defined by configuration.

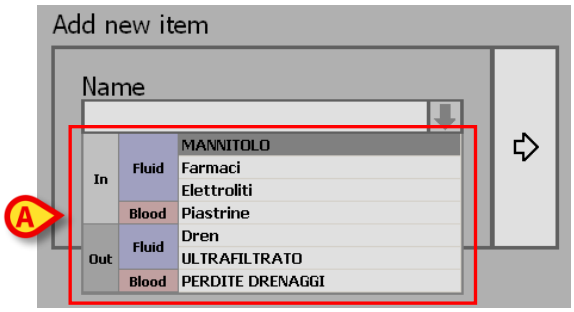


Fig 32 - Select new item

- Click the item you want to add. The name of the clicked item is dislplayed in the field (Fig 33).

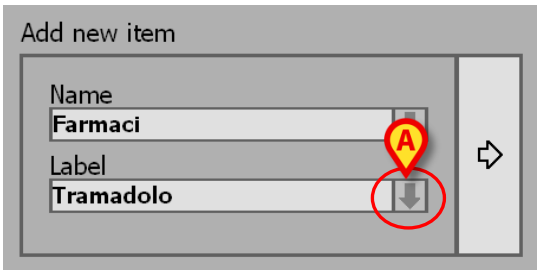


Fig 33 - Selected item

A default value is dislplayed in the "label" field. To change this value

- click the button placed alongside the field (Fig 33 **A**). A menu containing the possible options opens (Fig 34).

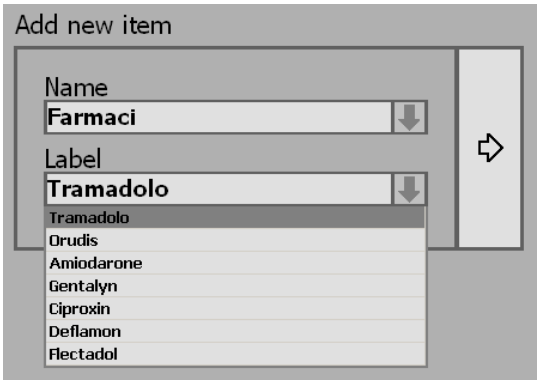


Fig 34 - Label selection

- Click the wanted option. The clicked option is dislplayed in the "Label" field (Fig 35 **A**).

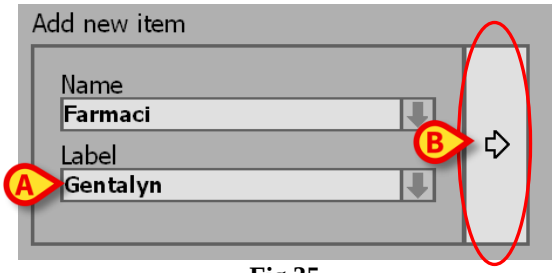


Fig 35

- Click the button indicated in Fig 35 **B**. The selected item is this way displayed in the "Fluid Balance items" table (Fig 36 **A**).

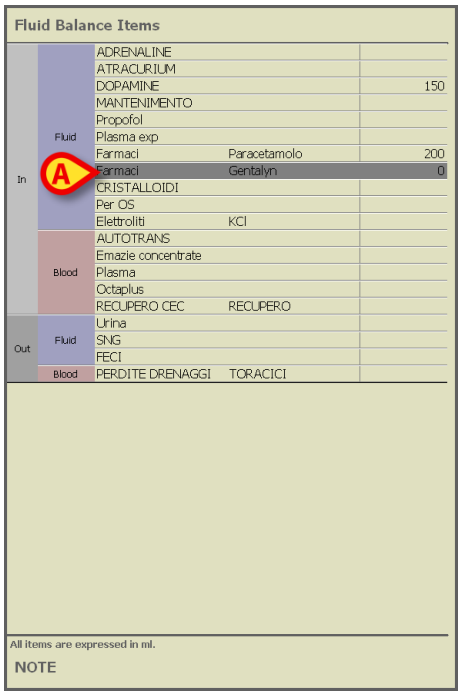


Fig 36

After every editing, click the **Update** button on the command bar to save the changes made.

1.9. “Accruing” fluid balance

The **Accruing** button on the command bar (Fig 37) changes the display mode of the fluid balance values on the main page table (the table shown in Fig 11 and described in paragraph 1.5).

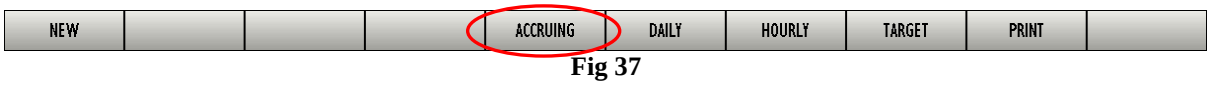


Fig 37

This button, when selected, displays the total values in every column in an “Accruing” mode.
The following example shows the difference between the two display modes (Fig 38 and Fig 39):

Date	30/04		NOW
Time	11.49	11.52	9→
Target			
Balance	200	350	350
Total IN	200	350	350
Total OUT			
Blood Balance			
Blood IN			
Blood OUT			
CRISTALLOIDI	200	350	350

Fig 38 - Accruing mode

Date	30/04		NOW
Time	11.49	11.52	9→
Target			
Balance	200	150	350
Total IN	200	150	350
Total OUT			
Blood Balance			
Blood IN			
Blood OUT			
CRISTALLOIDI	200	150	350

Fig 39 - Normal mode

The two tables displayed in Fig 38 and Fig 39 refer to the same balance. The first one is displayed in “Accruing” mode, the second one is displayed in “Normal” mode.
The table refers to two subsequent data entries. The first one at 11.49 (200 ml cristalloids); the second one at 11:52 (150 ml cristalloids).
Notice, on the tables, the values referring to the cristalloids administration (red circled in the figure).
In Fig 38 (accruing mode), the second column displays the value 350 (200 in the first administration plus 150 in the second administration).
In Fig 39 (normal mode), the second column displays the value 150, referring only to the administration corresponding to the column.
Total values are diaplayed in the third column. They are the same in both figures (350 is the total value administered).
The same kind of difference can be noticed in the “Balance” and “Total IN” rows.

WARNING!

When the* Accruing *button is selected the values displayed on the table are not those specified by the user.
A specific warning is therefore displayed on top of the screen every time the “Accruing” mode is activated (Fig 40).

Fig 40 - Warning!

It is also possible to select the **Accruing** and **Daily** buttons at the same time to display the total daily values in "Accruing" mode. See paragraph 1.10 for an explanation of the "Daily" mode.

1.10. "Daily balance" mode

The **Daily** button on the command bar (Fig 41) makes it possible to display only the daily total values.

Fig 41 - Command bar

Namely, only the "lighter colored" columns are displayed, summarizing the balance of the previous day.

For instance, if the normal display mode is the following (Fig 42),

Date	02/02									03/02	02 feb	04/02	04 feb	06/02		06 feb	02/03		02 mar	30/04	NOW
Time	16.59	17.01	17.56	17.58	19.01	19.53	20.49	21.58	22.48	22.53	0.03	9→9	11.54	9→9	11.53	17.03	9→9	12.29	15.28	9→9	11.29	9→
Target																100	100					
Balance	-46,46	2,3	-286,7	2,3	521,3	40,6	-13,8	-18,7	159	-64	12,6	-157,4	-334,8	-334,8	185,2	85,2	270,4	165,2	165,2	330,4	350	350
Total IN	73,54	2,3	163,3	2,3	571,3	110,6	66,2	81,3	159	6	82,6	2062,7	165,2	165,2	185,2	165,2	350,4	165,2	165,2	330,4	350	350
Total OUT	-120		-450		-50	-70	-80	-100		-70	-70	-2220	-500	-500		-80	-80					
Blood Balance	-20		-130		-40	-10	-50	-10				-340						100	200	300		
Blood IN												100						100	200	300		
Blood OUT	-20		-130		-40	-10	-50	-10				-440										
ADRENALINE												145,2	145,2	145,2	145,2	145,2	290,4	145,2	145,2	290,4		
ATRACURIUM												10	10	10	10	10	20	10	10	20		
DOPAMINE												10	10	10	10	10	20	10	10	20	150	150
MANTENIMENTO	69	2,3	63,3	2,3	71,3	60,6	66,2	81,3	59	6	82,6	850,2										
Propofol	4,54											47,27										
Farmaci Paracetamolo			100						100			200									200	200
Farmaci Gentalyn																					0	0
CRISTALLOIDI					500							600										
Elettroliti KCl						50						200			20		20					
Emazie concentrate												100										
Octaplus																		100	200	300		
Urina	-120		-50		-50	-70	-80	-100		-70	-70	-1820	-500	-500								
SNG			-400									-400										
FECI																-80	-80					
PERDITE DRENAGGI TORACI...	-20		-130		-40	-10	-50	-10				-440										

Fig 42

the corresponding daily display mode is shown in Fig 43.

Date	02 feb	04 feb	06 feb	02 mar	NOW
Time	9→9	9→9	9→9	9→9	9→
Target			100		
Balance	-157,4	-334,8	270,4	330,4	350
Total IN	2062,7	165,2	350,4	330,4	350
Total OUT	-2220	-500	-80		
Blood Balance	-340			300	
Blood IN	100			300	
Blood OUT	-440				
ADRENALINE	145,2	145,2	290,4	290,4	
ATRACURIUM	10	10	20	20	
DOPAMINE	10	10	20	20	150
MANTENIMENTO	850,2				
Propofol	47,27				
Farmaci Paracetamolo	200				200
Farmaci Gentalyn					0
CRISTALLOIDI	600				
Elettroliti KCl	200		20		
Emazie concentrate	100				
Octaplus				300	
Urina	-1820	-500			
SNG	-400				
FECI			-80		
PERDITE DRENAGGI TORACI...	-440				

Fig 43

Only the columns containing the daily totals are displayed.

1.11. “Hourly” mode

The **Hourly** button on the command bar (Fig 44) displays in the table an evaluation of the fluid balance variations at 60 minutes intervals. These are expected values obtained by linear interpolation.

Fig 44

Basing on (at least) two values provided by the user for a certain item, the system can calculate an evaluation of the IN or OUT quantities at every full hour for that item.

A configuration parameter either enables or disables the **Hourly** *button. For more information please contact your system administrator.*

If, for example, three values for a certain item are specified at 11.49, at 11.52 and at 14.19, the **Hourly** button can be clicked to display a table in which the values are approximated evaluations of the fluid balance variations at every full hour starting from 12.00 o’clock.

Date	30/04			NOW
Time	11.49	11.52	14.19	9→
Target				
Balance	200	150	175	525
Total IN	200	150	175	525
Total OUT				
Blood Balance				
Blood IN				
Blood OUT				
CRISTALLOIDI	200	150	175	525

Fig 45 - “Normal” display mode

Fig 45 shows a table in “Normal” display mode, while Fig 46 shows the same table in “Hourly” display mode.

Date	30/04			NOW
Time	12.00	13.00	14.00	9→
Target				
Balance	359,52	71,43	71,43	502,38
Total IN	359,52	71,43	71,43	502,38
Total OUT				
Blood Balance				
Blood IN				
Blood OUT				
CRISTALLOIDI	359,52	71,43	71,43	502,38

Fig 46 - “Hourly” display mode

The hourly values can be calculated if there are at least two “actual” values recorded on the table. The time span between the two values must be at least one hour. When, for a certain value on the table, it is not possible to calculate the hourly values and the “hourly” mode is selected, the value remains the same.

The total IN and OUT balances are calculated on the values displayed on the table, when in "Hourly" mode as well. Therefore, being the values in "Hourly" mode different from the actual values, the totals can differ from the actual values.

To know the actual values it is necessary to deselect the* Hourly *button and go back to the "normal" display mode.

WARNING!

When the* Hourly *button is selected the values displayed on the table are not those specified by the user. The values diplayed are expected values not actual ones.
A specific warning appears therefore on top of the screen every time the "Hourly" mode is activated (Fig 47).

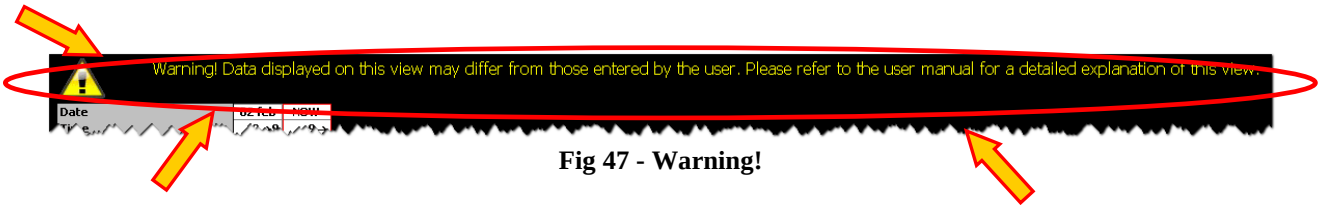


Fig 47 - Warning!

It is also possible to select the **Hourly** and **Accruing** buttons at the same time to display the hourly valuations in "Accruing" mode. See paragraph 1.9 for an explanation of the "Accruing" mode.

1.12. Target

The **Target** button on the command bar (Fig 48) can be used to specify the balance daily target.

Fig 48

The daily target can be specified both for the current day and for the next day. To specify the daily target

- click the **Target** button. The following window opens (Fig 49).

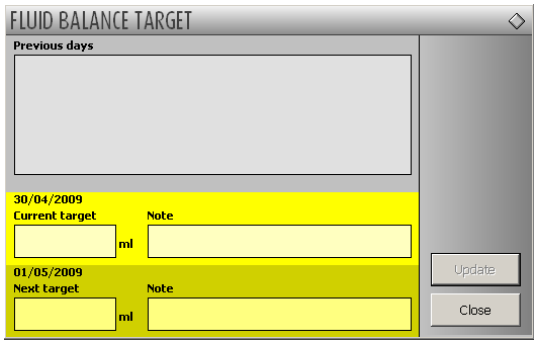


Fig 49 - Fluid balance target

- Type the target value in the "Current target" field (Fig 50 **A**).

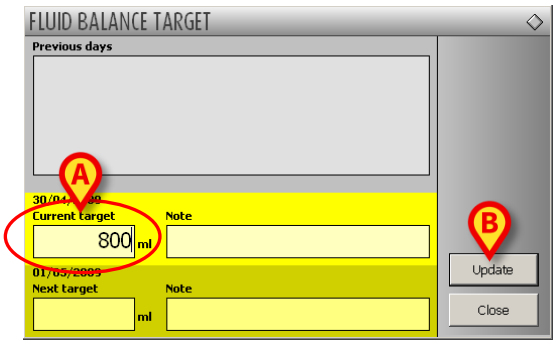


Fig 50 - Target specification

- Click the **Update** button (Fig 50 **B**). The fluid balance target is displayed in the table (Fig 51 **A**).

Date	30/04			NOW
Time	11.49	11.52	14.19	9→
Target			800	800
Balance	200	150	175	525
Total IN	200	150	175	525
Total OUT				
Blood Balance				
Blood IN				
Blood OUT				
CRISTALLOIDI	200	150	175	525

Fig 51 - The target is displayed on the table

1.12.1. "Fluid balance target" window description

The "Fluid balance target" window provide sfurther information.

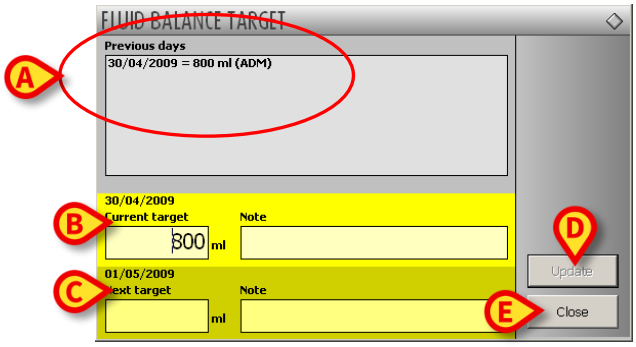


Fig 52 - "Fluid balance target" window

The "Previous days" field (Fig 52 **A**) displays a list of all the targets specified since. The display format is "Date / Target value / Acronym of the user who specified the value". The possible notes are specified in this field as well.
The "Current target" area (Fig 52 **B**) makes it possible to specify the target for the current day. Use the "Note" field to insert a textual note.
The "Next target" area (Fig 52 **C**) makes it possible to specify the target for the next day. Use the "Note" field to insert a textual note.
Both areas display the date to which the specified target refers.

The **Update** button (Fig 52 **D**) records the specified target and inserts it into the fluid balance table.

The **Close** button (Fig 52 **E**) closes the window without saving the changes.

1.13. Print reports

The **Print** button on the command bar makes it possible to create a print report containing the patient's fluid balances data (Fig 53).

Fig 53 - Command bar

To create a print report

- click the **Print** button. The following window is displayed (Fig 54).

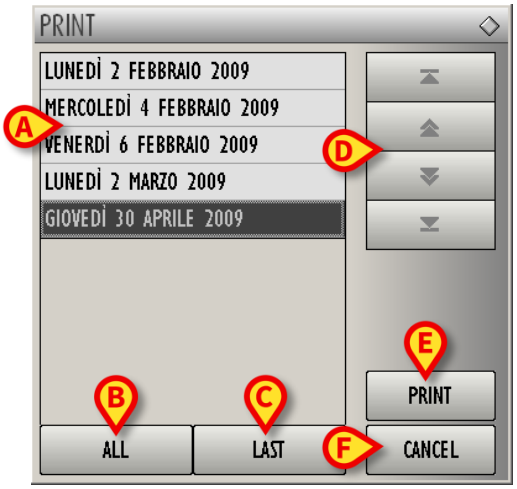


Fig 54 - Day selection

The window lists the days in which balance data were entered (Fig 54 **A**). To select a date, click the corresponding row in the list. The selected row is this way highlighted. Only the data referring to the selected day (or days) are printed. In the example shown in Fig 54 the day "Giovedì 30 Aprile 2009" is selected.
The **All** button (Fig 54 **B**) selects all the days in the list
The **Last** button (Fig 54 **C**) selects the last day in the list.
The arrow buttons on the right of the window (Fig 54 **D**) scroll the list up and down.
The **Cancel** button (Fig 54 **F**) closes the window without printing anything.
The **Print** button (Fig 54 **E**) displays a print preview.

1.14. Some common procedures

1.14.1. How to record a fluid balance entry

This paragraph describes the procedure making it possible to specify a fluid balance value. In the example shown in Fig 55 there are no values for the selected patient.

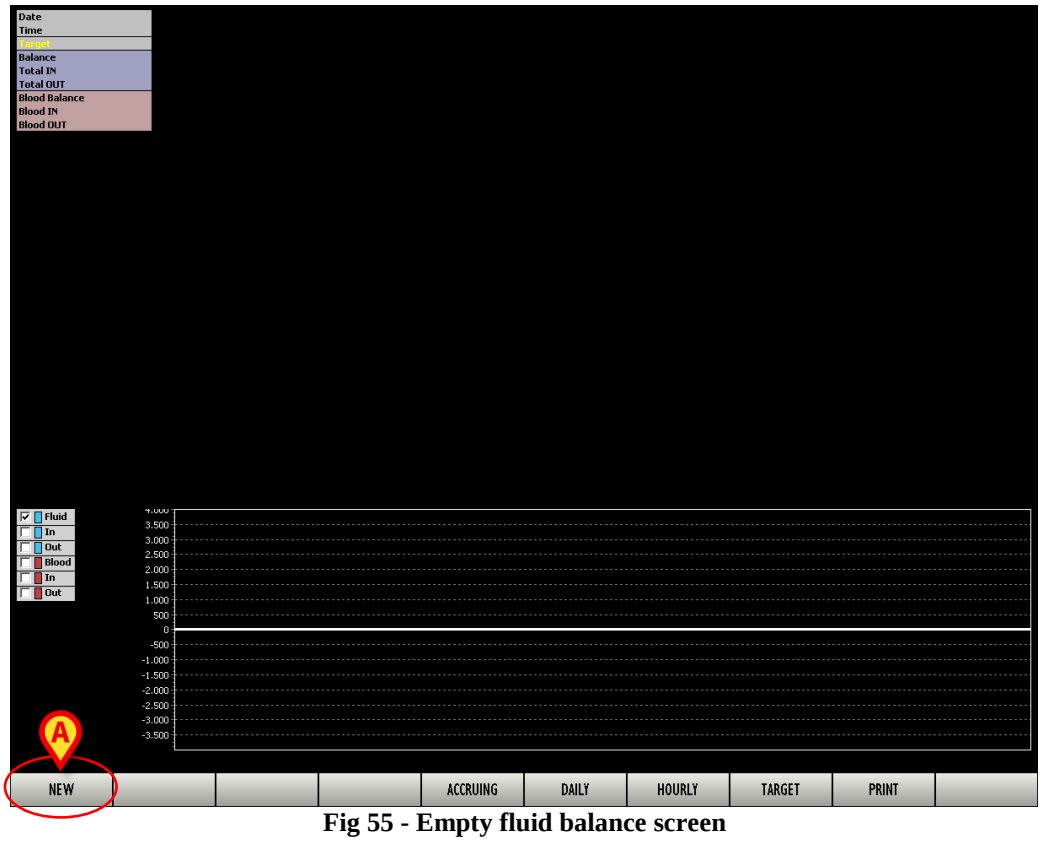


Fig 55 - Empty fluid balance screen

To insert a new value,

- click the **New** button on the command bar (Fig 55 **A**).

A screen making it possible to specify the details of the new value opens (Fig 56 - this screen is described in paragraph 1.8).

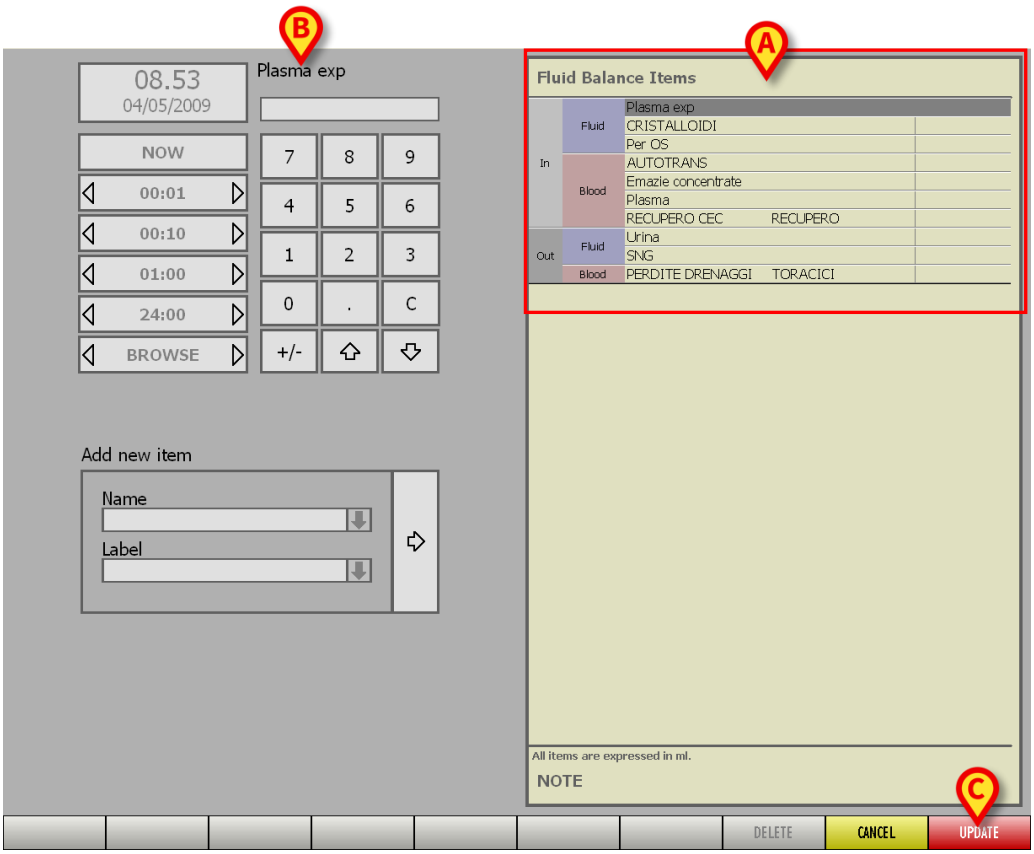


Fig 56 - Balance item specification

- Select, on the table on the right (Fig 56 **A**), the fluid balance item that must be added (click the name of the item to select it).

In Fig 56 the item "Plasma exp" is selected. The name of the selected item is displayed on the left, alongside the date/time indication (Fig 56 **B**). It is now necessary to specify the value of the balance item.

- Click the field indicated in Fig 57 **A**. A cursor blinks inside the field.

- Specify the item's value using either the virtual keyboard on screen (Fig 57 **B**) or the workstation keyboard.

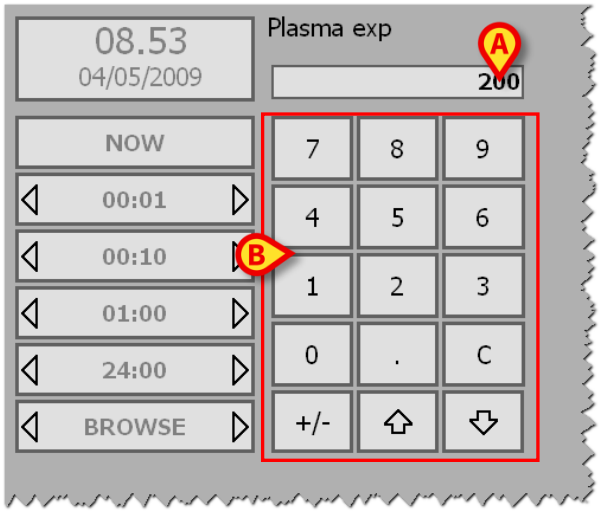


Fig 57

- Click either the **Return** button on the workstation keyboard or the  button on the virtual keyboard to confirm the specified value. The specified value appears on the table on the right (alongside the selected value - Fig 58 **A**).

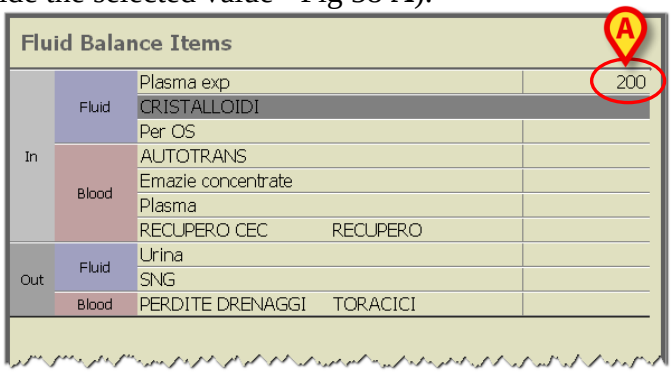


Fig 58

- Repeat the procedure for any other value to be inserted.

- Click the **Update** button on the command bar (Fig 56 **C**). The screen changes in the following way (Fig 59).

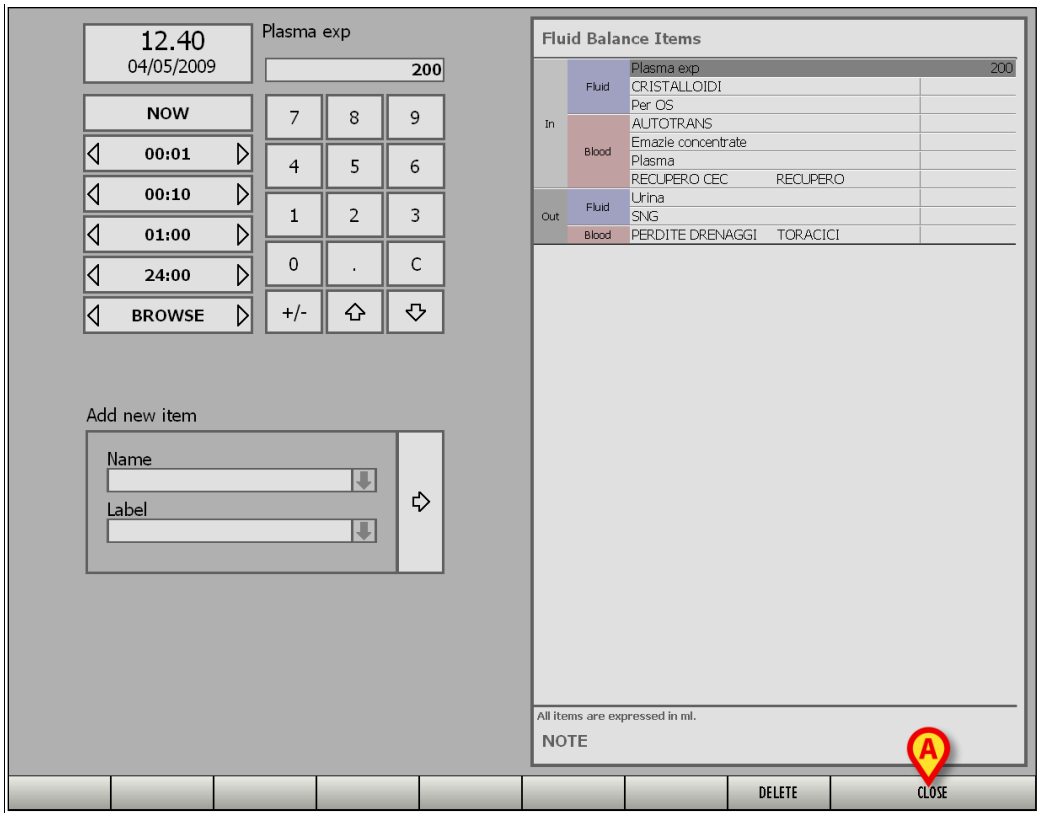


Fig 59

- Click the **Close** button (Fig 59 **A**) to go back to the module's main screen. The new value is displayed on the table (Fig 60).

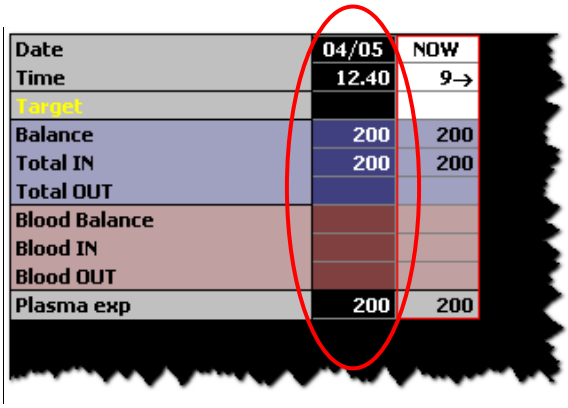


Fig 60

1.14.2. How to edit past fluid balances

It is possible to edit the values of the fluid balance items specified in the past. To do that

- click the **New** button on the command bar (Fig 61).

Fig 61

The following screen opens. This screen is described in paragraph 1.8.

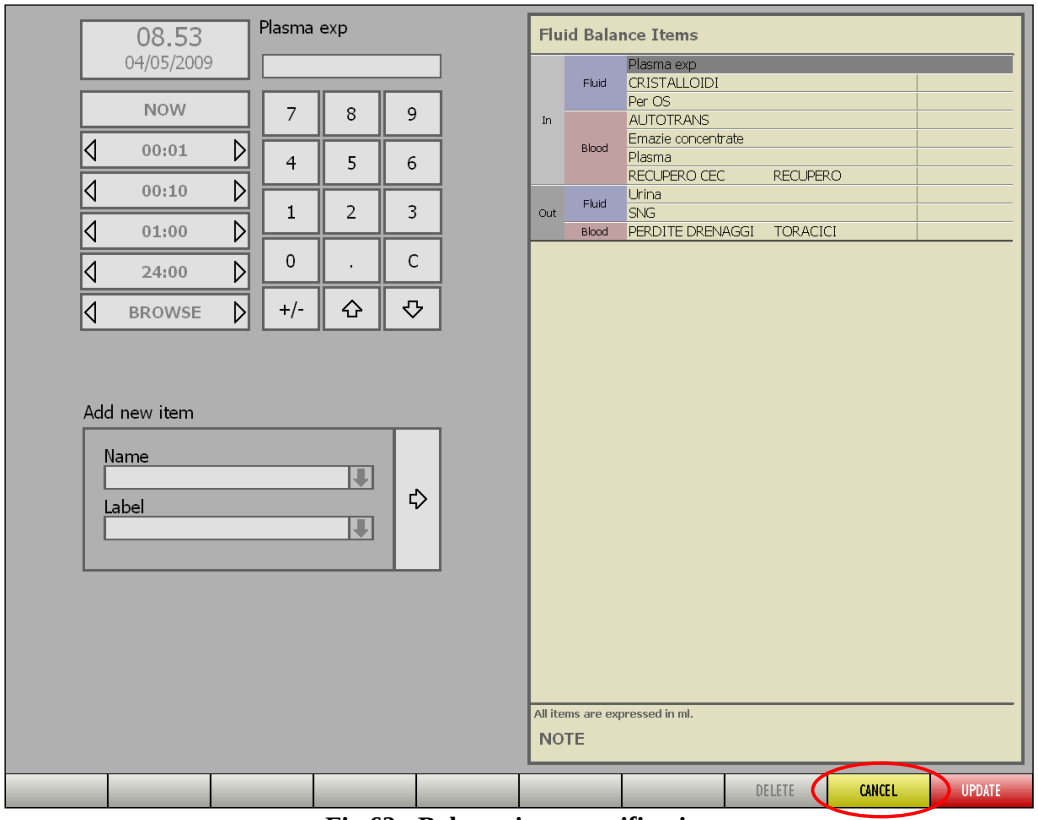


Fig 62 - Balance item specification

- Click the **Cancel** button to exit edit mode (Fig 62). The screen changes in the following way (Fig 63).

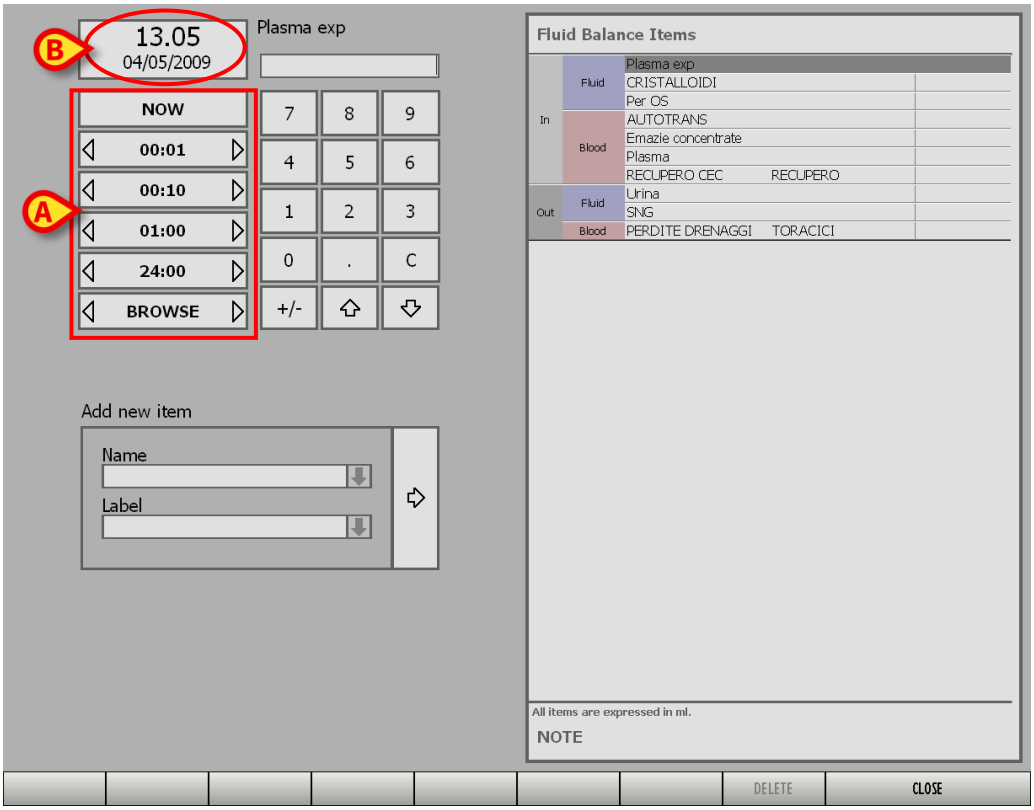


Fig 63

The buttons highlighted in Fig 63 **A** activate. These buttons make it possible to select a time preceding the current time. The **Browse** button makes it possible to "jump" directly to the time at which the value that must be edited was recorded.

- Use either the time-line buttons or the **Browse** button to go to the time in which the value that must be edited was recorded.

All the balance values recorded at the time selected are displayed on the "Fluid Balance Items" table (Fig 64).

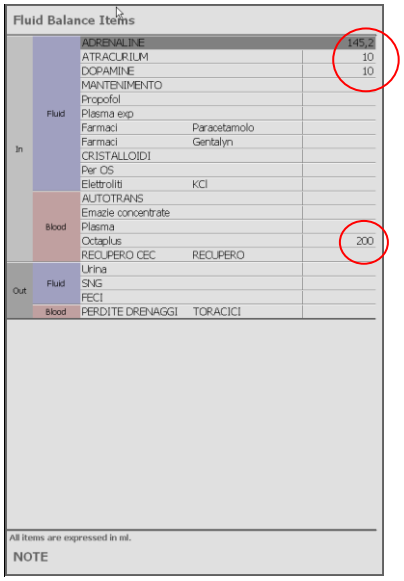


Fig 64 - Fluid balance items

- Click the row containing the value that must be edited. The row is this way highlighted. The corresponding value is displayed in the field indicated in Fig 65.

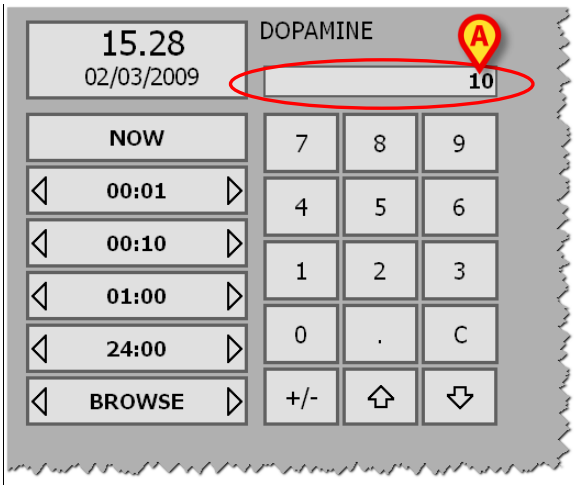


Fig 65

- Specify the new value using the numeric keyboard.

The **Cancel** and **Update** buttons on the command bar activate.

- Click the **Update** button. The value is this way changed.

1.14.3. How to delete a fluid balance insertion

To delete all the values of a past fluid balance specification (i.e. all the values belonging to a same column in the fluid balance table),

- use the procedure described in paragraph 1.14.2 to display the time and the values corresponding to the balance to be deleted.

The relating values are displayed in the "Fluid Balance items" table (Fig 66 **A**). The **Delete** button on the command bar activates (Fig 66 **B**).

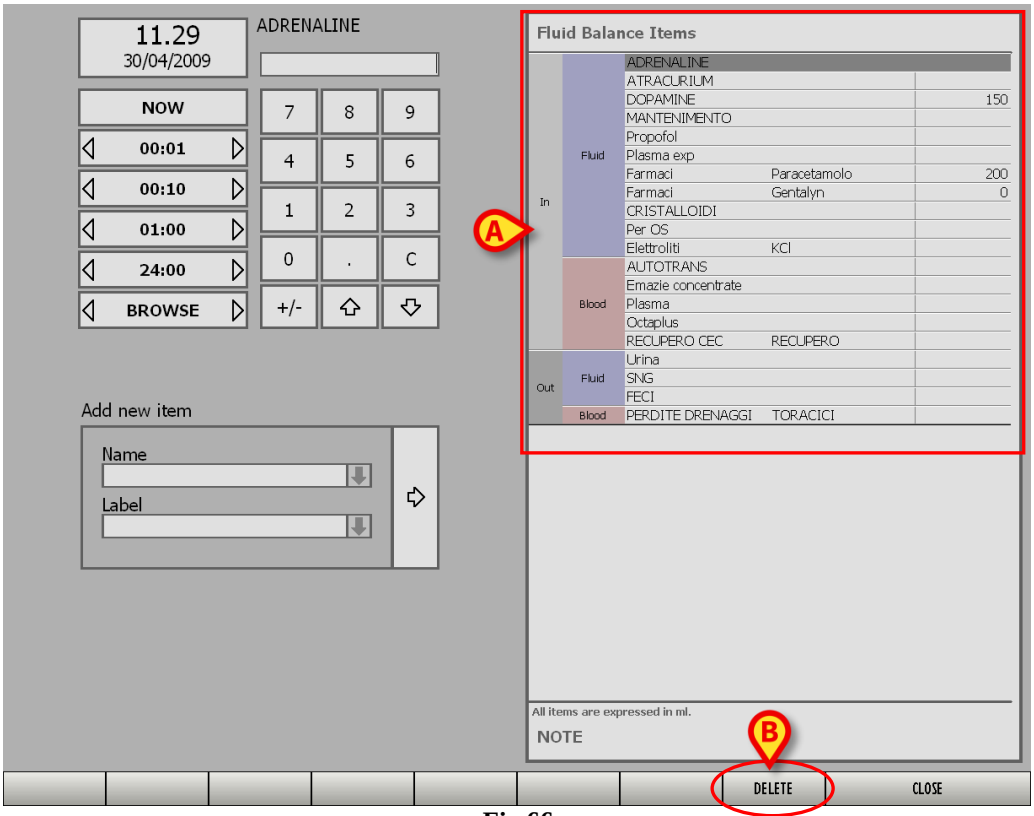


Fig 66

- Click the **Delete** button. User confirmation is required.

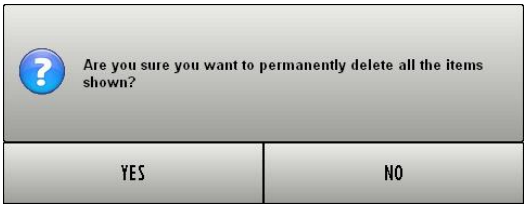


Fig 67

- Click **Yes**. All the items on the "Fluid balance items" table (Fig 66 **A**) are this way deleted. The corresponding column on the table on the main screen is also deleted.

1.14.4. How to change the insertion time

It is possible to associate a time that is different from the current time to a fluid balance specification. I.e., for example, it is possible to specify some balance values at 16:00 and make the system display them as recorded at 14:00. To do that

- click the **New** button on the command bar (Fig 68).

Fig 68

The following screen opens (this screen is described in paragraph 1.8).

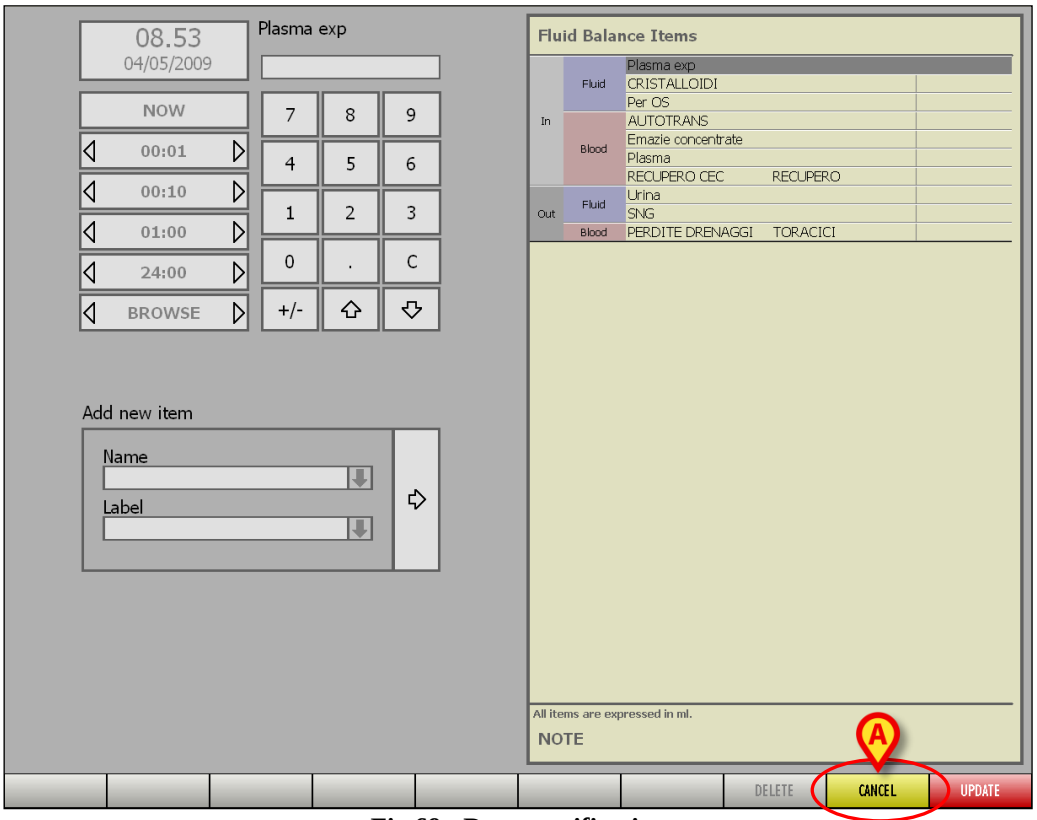


Fig 69 - Data specification

- Click the **Cancel** button to exit edit mode (Fig 69). The screen changes in the following way (Fig 70).

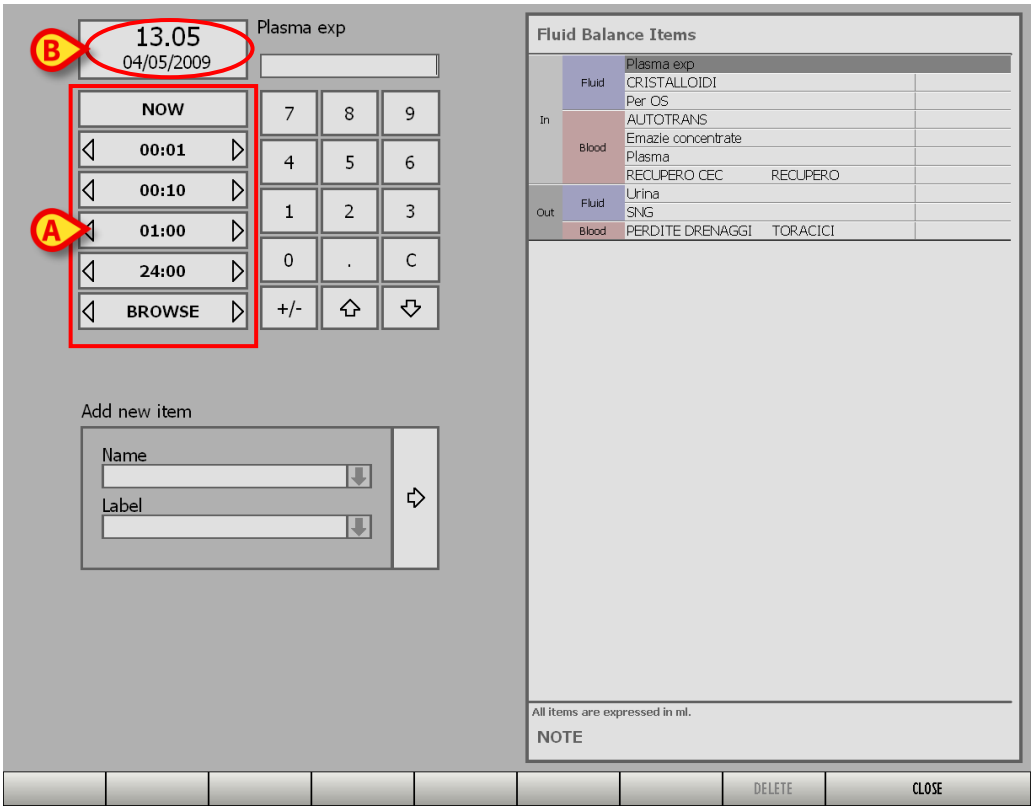


Fig 70

The buttons highlighted in Fig 70 **A** activate. These buttons make it possible to specify a time that is different from the current time.

- Use the buttons to display, in the box indicated in Fig 70 **B**, the time that you want to set as recording time (see paragraph 1.8.1 for an explanation of how these buttons work).

- Specify the fluid balance values (see paragraph 1.14.1 for the values specification procedure).

The **Cancel** and **Update** buttons on the command bar activate.

- Click the **Update** button. The values are this way recorded at the time specified.

3. Contacts

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