SIMpro1 Anesthesia sheet: User´s guide

1. Patient selection 3

2. New patient: personal data entry

Patient background 3,4

3. . Associated Pathologies 5

4. . Allergies 6

5. . Addictions 6

6. . Other relevant information. 7

7. Surgeries

. Previous surgeries 8

. Open a new surgery file. 8

8. Enter new surgery: basic data

. Surgery data entry, ASA, medical professionals involved 9

9. Anesthesia type selection

. Sedation, Local, Locoregional, General anesthesia 9

10. Lines Selection

. Arteries, Central Lines, Peripheral Lines, Epicutaneous Lines 10,11,12

11. Catether selection 13

12. Ventilation mode selection 13

. Spontaneous , Assisted and/or Controlled Ventilation 13,14,15,16,17

13. Local Anestesia information entry 18

14. Locoregional Anesthesia information entry:

. Spinal Anesthesia data 19

. Epidural Anesthesia data 20

. Peripheral Blocks 20

. IRA 20

Anesthesia Datasheet

15. Opening a new datasheet 21

Entering the start time Data entry 21

16. Data entry 22

Data entry menu 23

17. Medication 24,25,26

18. Ventilator parameters 27

19. Respiratory Variables 28

20. Vital Signs 29

21. Fluids 29,30,31,32,33,34

Surgery start time 34

22. Notes entry 34,35

Closing a datasheet

23. Tracking surgery completion 36

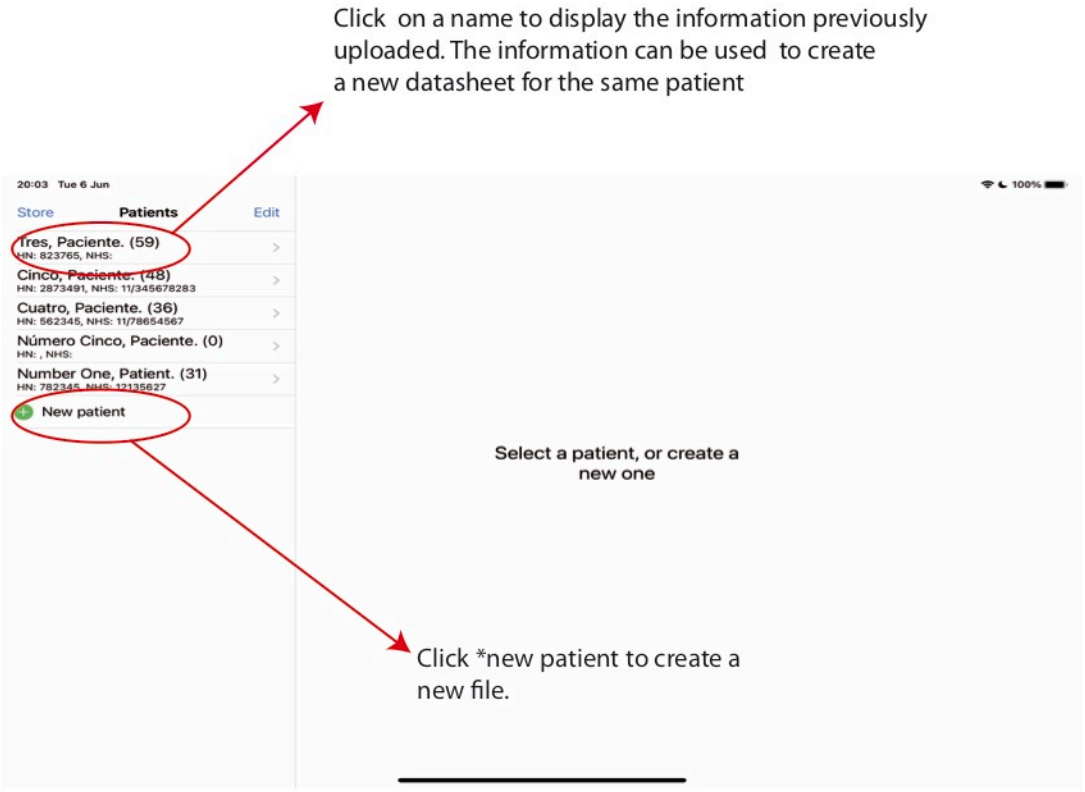
24. Postsurery Anesthesia data introduction 37,38,39

25. Generating an anesthesia report 39

26. Generating an consumption report 40

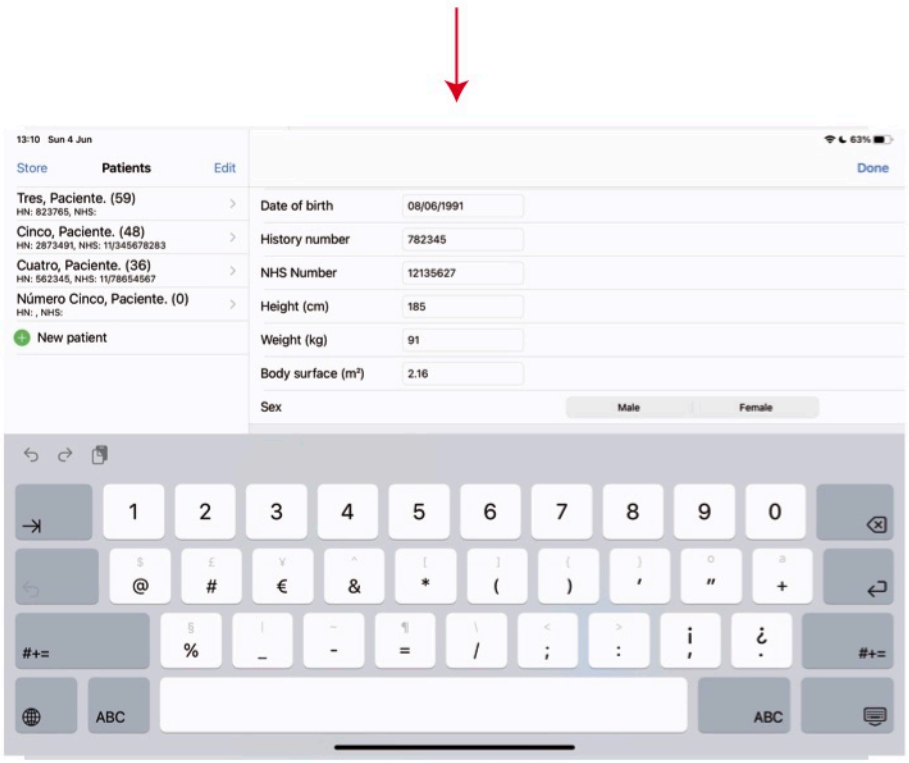
APP INITIAL STEPS: PERSONAL DATA INTRODUCTION

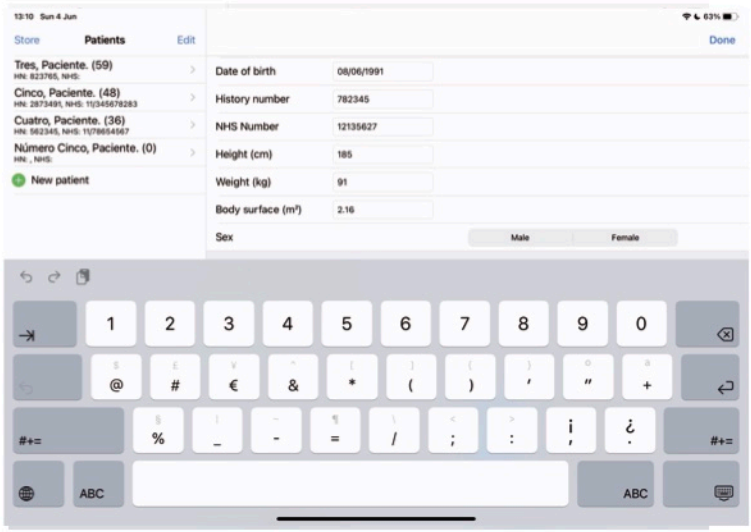
1. PATIENT'S SELECTION: two possibilities: patient already exists or new patient. Existing patients have already datasheets available to consult. New patients required a new datasheet. Obviously, the first possibility would be available if tablets are connected to a central server, sharing a common data management system.



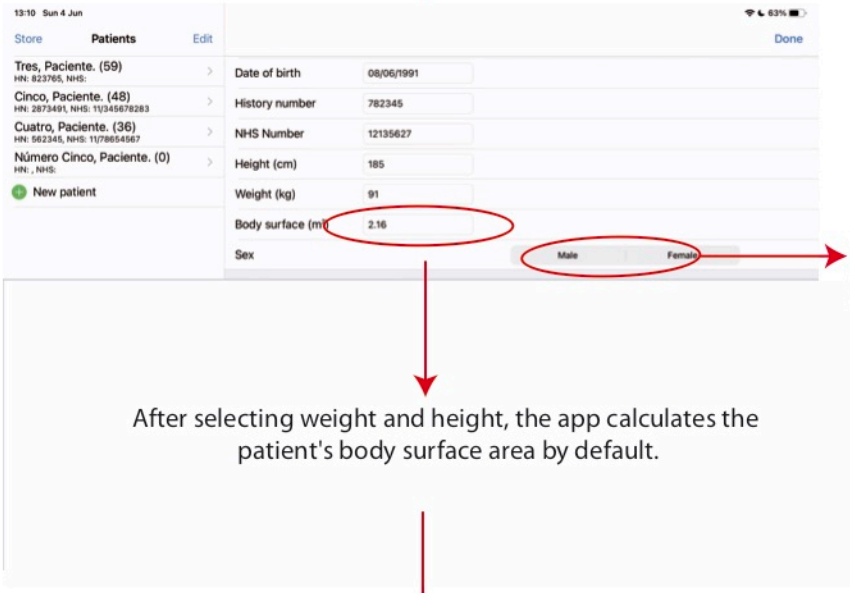
2. The * **New patient** option allows entering patient's data using the iPad keyboard .

Note: it is not mandatory to enter the history number nor ID to continue working with the app.



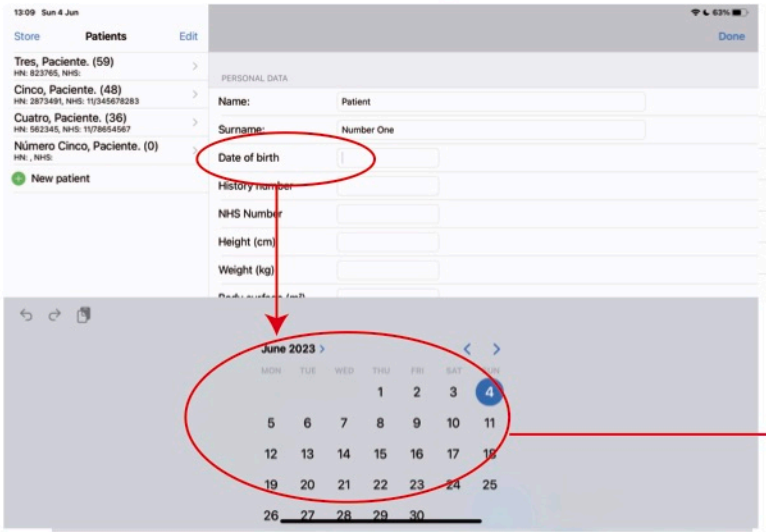


Most of the patient´s personal data will be entered through the text keyboard.



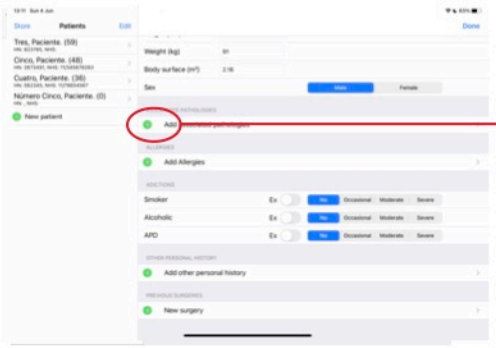
Patient´s sex is selected by pressing the correspondent option.

After selecting weight and height, the app calculates the patient's body surface area by default.



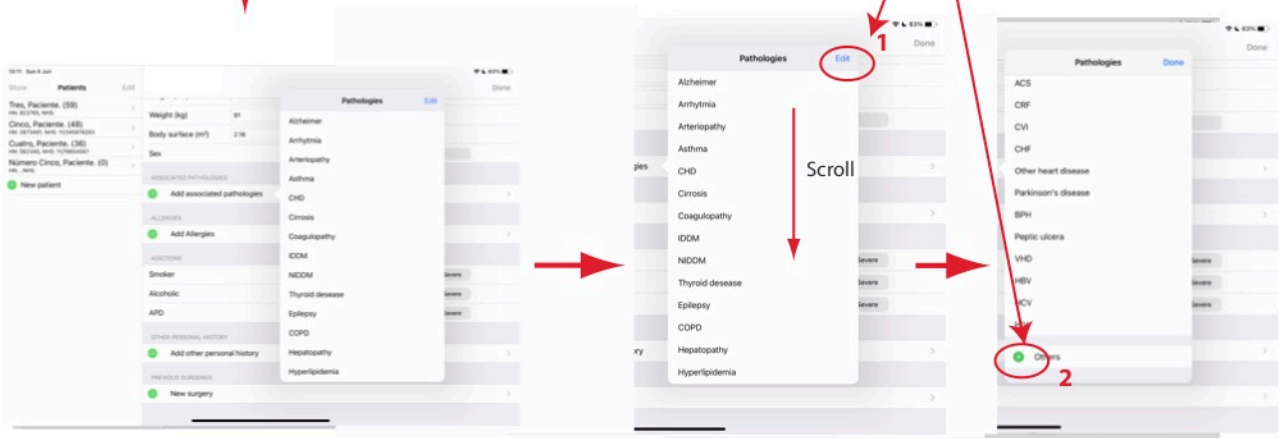
date of birth is selected through a simple scrolling menu.

3. Adding possible **PATIENT´S ASSOCIATED PATHOLOGIES** . Click on "**Add Associated Pathologies",** then **"Edit"** and a menu with most frequent pathologies will pop up. If a given pathology is not shown, click "**Other"** (end of the list), and then type it. Likewise, we can eliminate those previous pathologies that are no longer present or have been incorrectly entered.

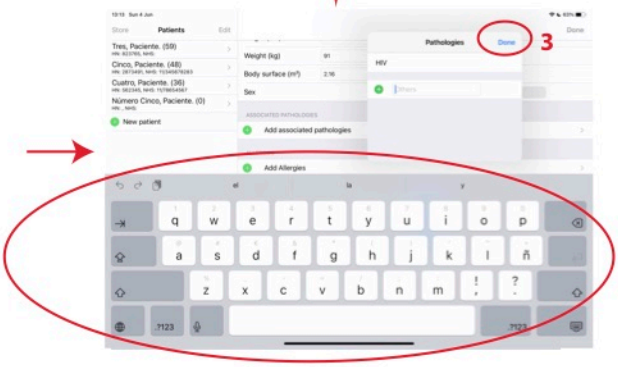


Press + to open the menu of associated pathologies

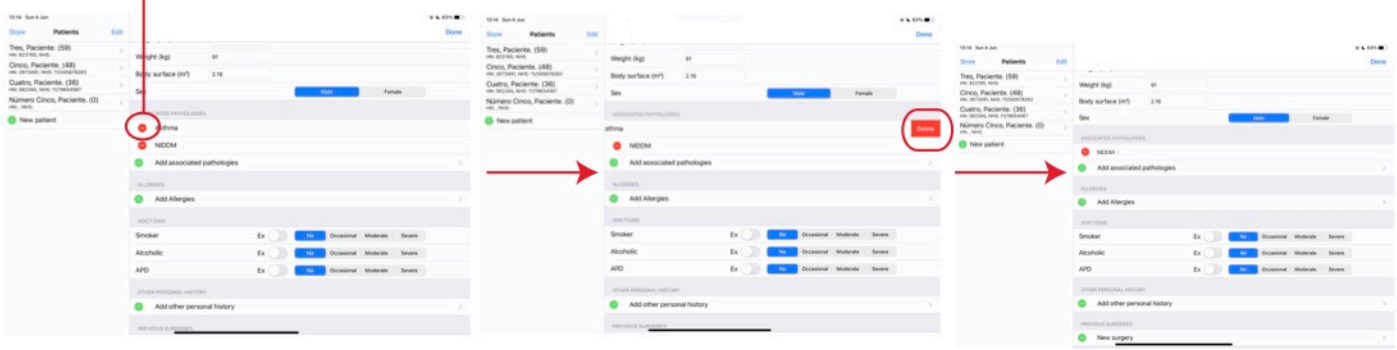
After pressing **Edit**, the **Other** selection option is enabled at the end of the scrolll.



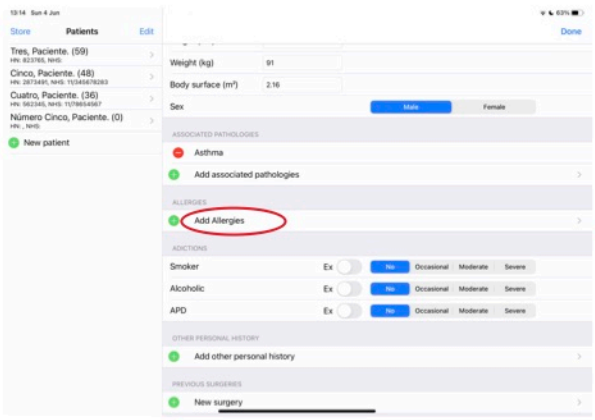
Other enables a retractable keyboard that allows the introduction of new required pathologies which are listed in alphabetical order. Press **Done** to save changes.

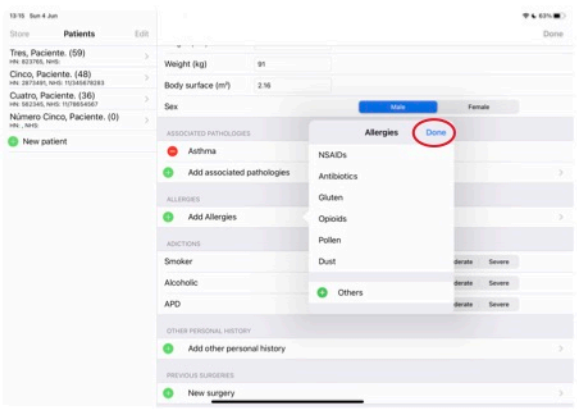


Press — to delete pathologies as needed.

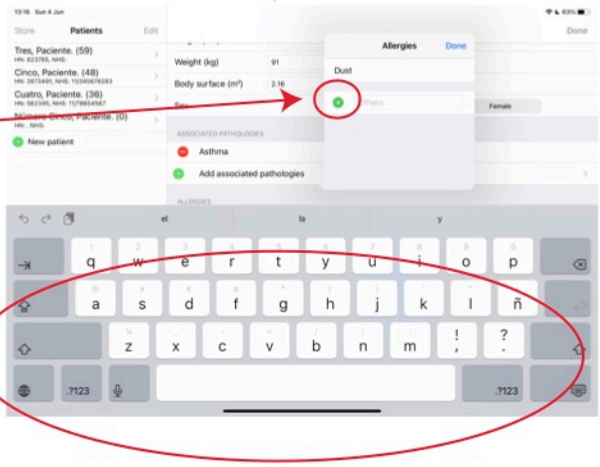


4. Similarly to associated pathologies, the "**ALLERGIES"** option allows you to add the most frequent ones from a preselected list, and also new ones using thre keyboard and the **Others** option.

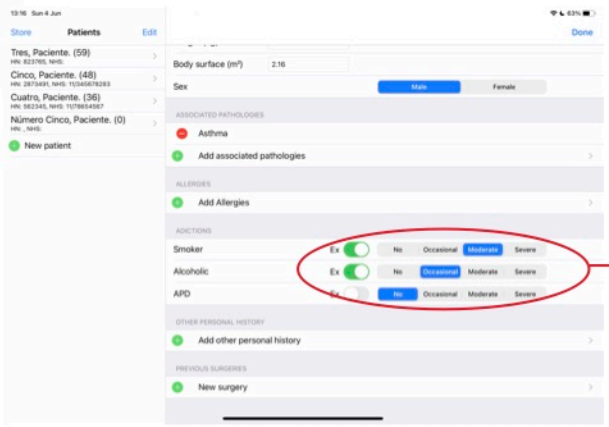




Pressing + a retractable keyboard unfolds which allows you to select what you need. Click **Done** to save the data.

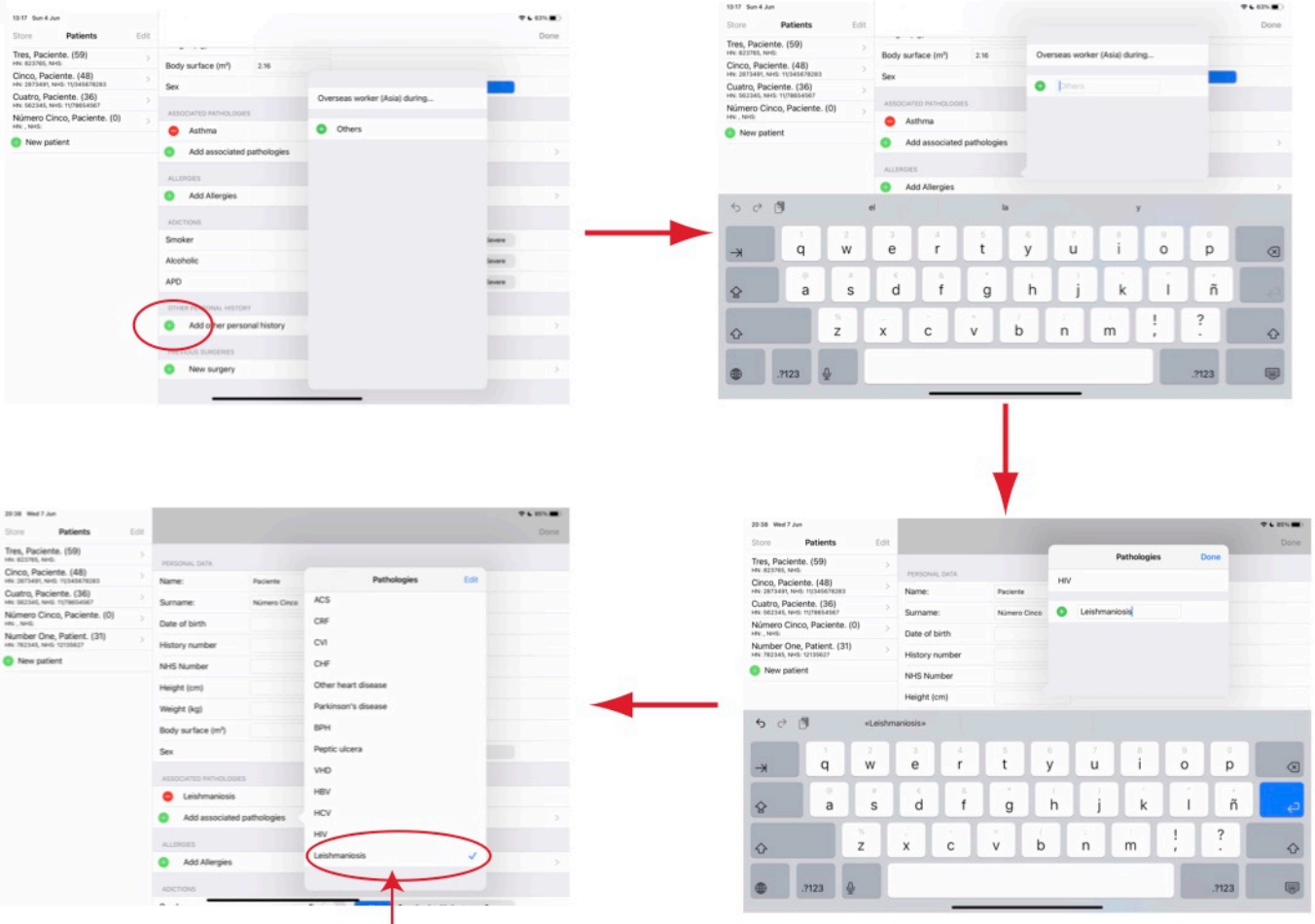


5. ADICTIONS: they are selected by just clicking on the corresponding item. The option **Ex** allows to indicate former addictions not currently active.



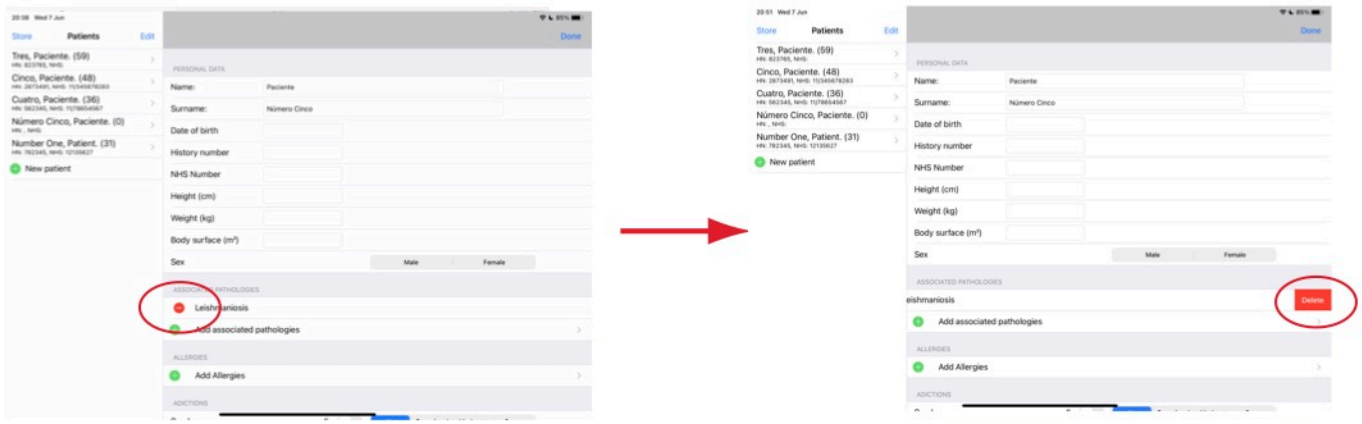
Click on the corresponding item.

6. Click on **OTHER PERSONAL HISTORY**, to open a text field and a keyboard. This option allows to add all the personal history information that we want but are not included by default in the previous lists list. These new additions will be stored and displayed in alphabetical order.

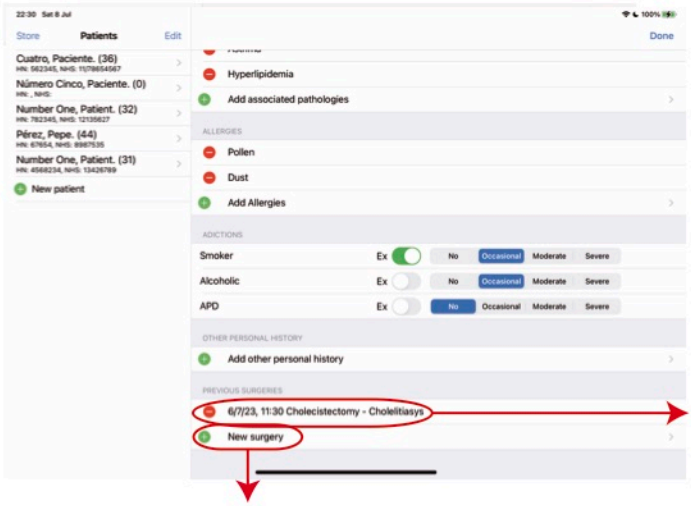


Once a new antecedent is created we must click on it to select it

We always have the option to delete an item that has been entered by mistake or no longer applicable by clicking the icon ⊖ on the left hand side and then clicking Delete



7. The selection of **SURGERIES** will allow you to consult already saved surgeries or open a new one.

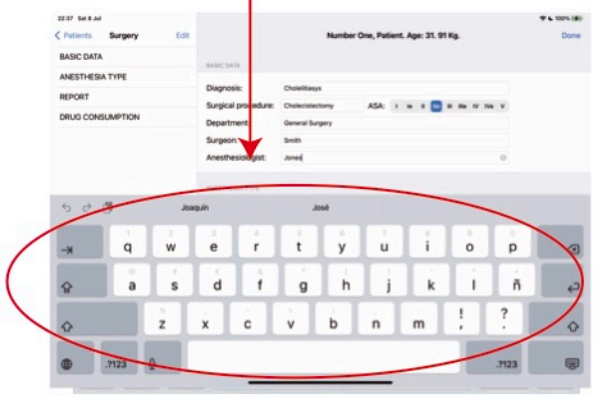


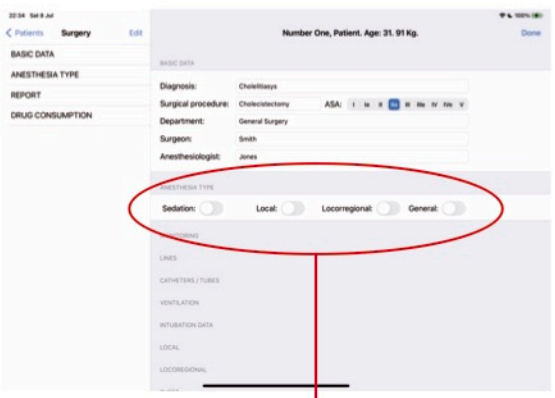
Query of previous surgeries stored data.

Create a new anesthesia sheet

8. When clicking a **NEW SURGERY**, a drop-down menu allows entering basic data. After entering a field, the following fields will be offered in an orderly manner.

ASA selection allows to differentiate between patients scheduled or emergent.

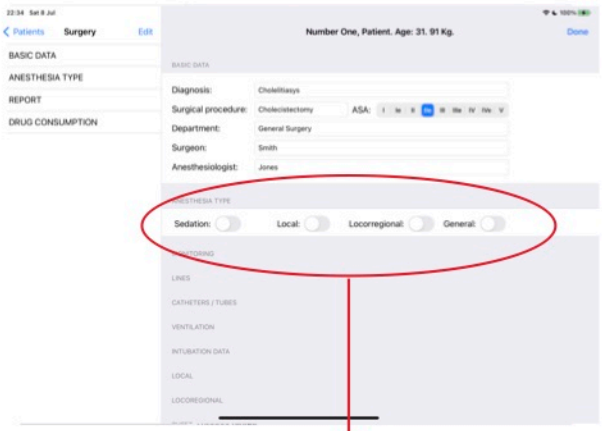


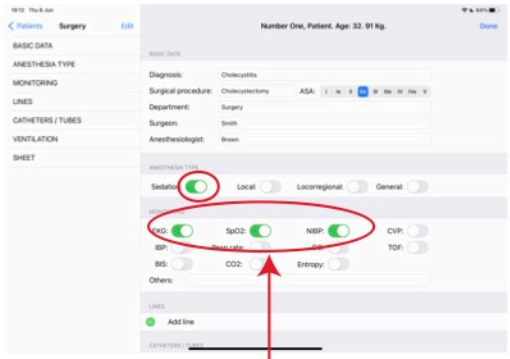


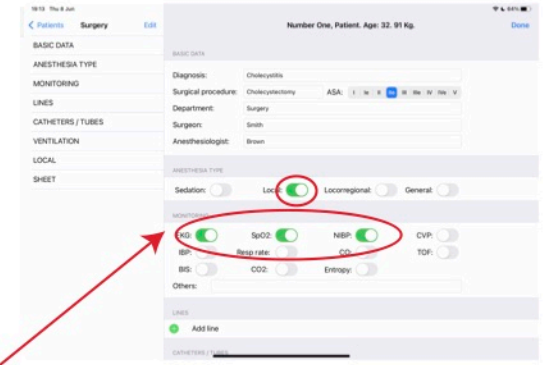
Data is entered through retractable text keyboard

After entering the basic data,the app will display a submenu that allows selection of the type of anesthesia.

9. After entering the basic data we can select the **TYPE OF ANESTHESIA** used. The selection of the type of anesthesia will asigned by default the applicable basic monitoring usually applied. The proposed standard can be modifed by clicking on the corresponding items to select or delete them.

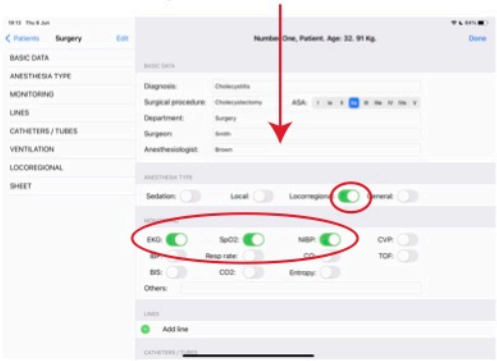


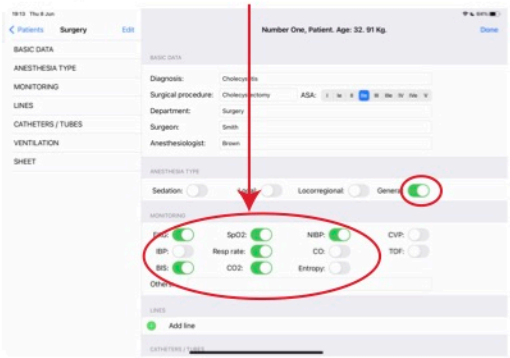




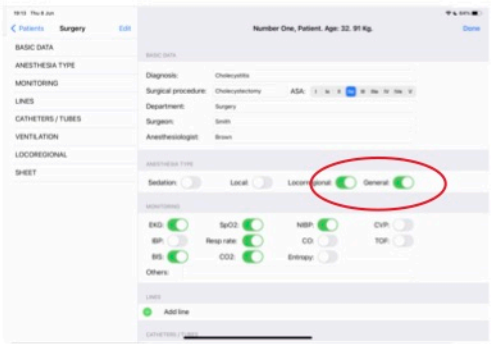
Sedation, Local and Locoregional: select standard basic monitoring of SpO2, NIBP and ECG

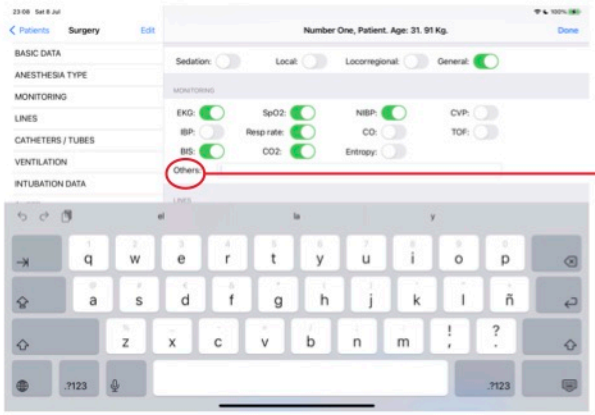
General Anesthesia: Respiration, BIS and CO2 is added to the basic monitoring. Dispayed options can be added or removed as needed





Two anesthetic modalities can be selected at the same time, for example in the case of combined anesthesia, or add another anesthetic modality later in the case that the one that is being used is modified.

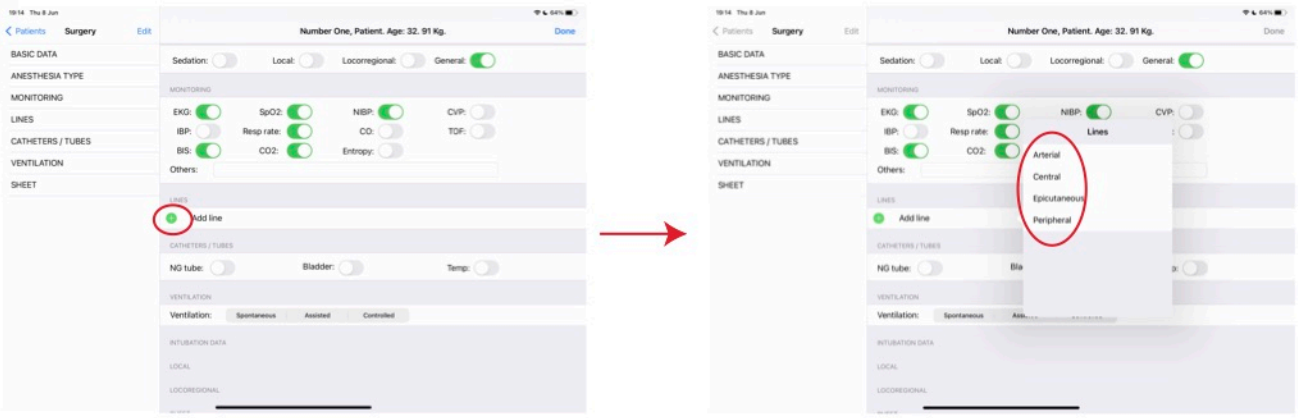




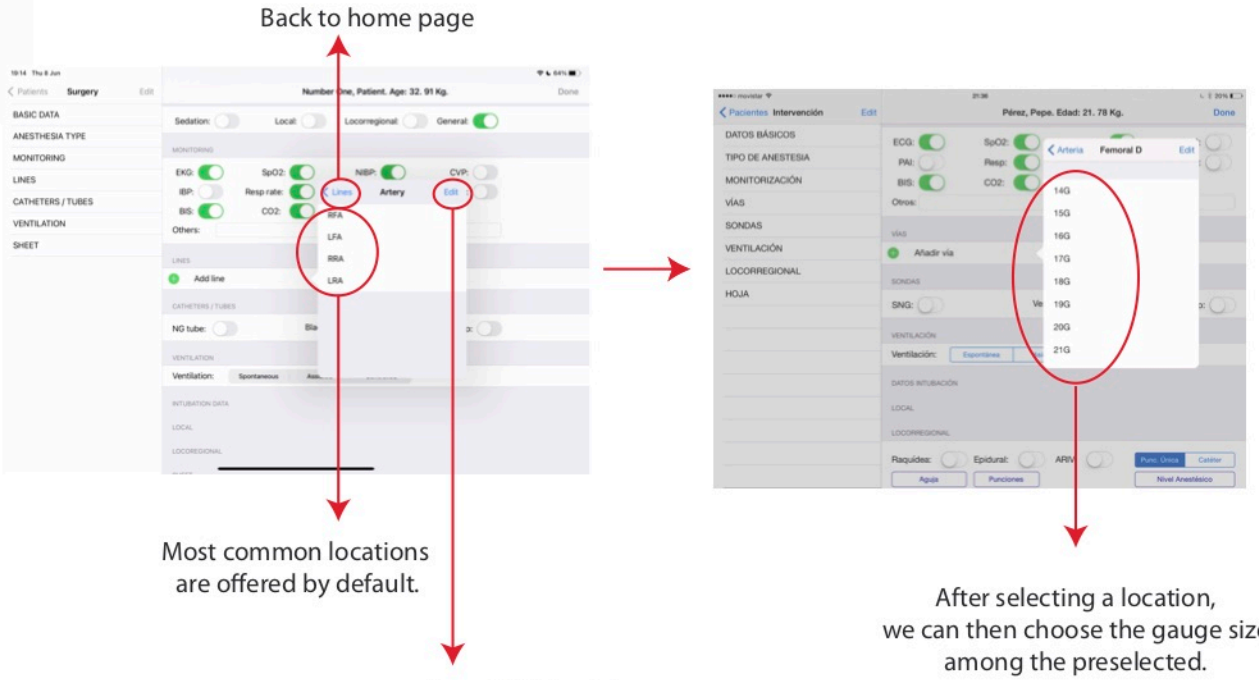
Using the **Others** option we can enter any type of monitoring not included by default in the list, and add it using a retractable keyboard

.

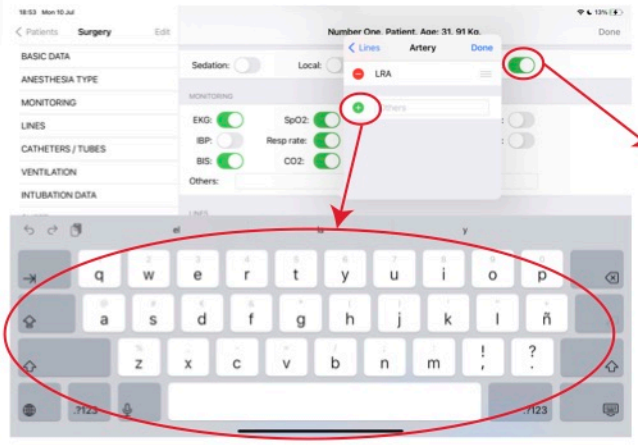
10. SELECTION OF LINES: clicking on the **Add Line** icon a dropdown menu will appear with the following options: Arterial, Central, Epicutaneous and Peripheral, in that order.



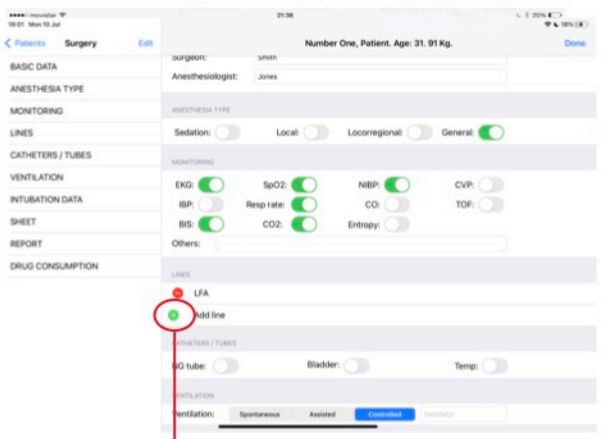
Artery selection example



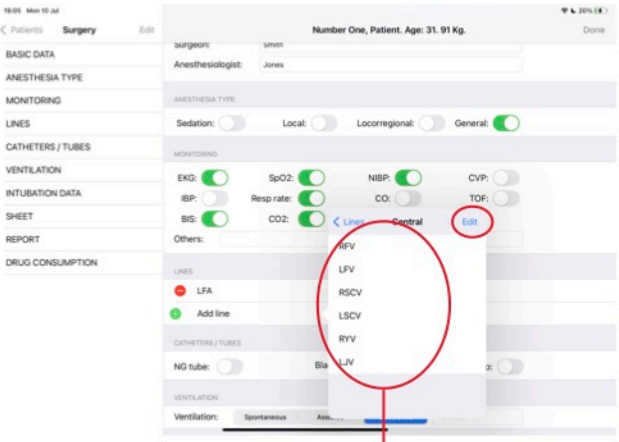
10. LINES´ SELECTION (2): click **Edit** and use the keyboard in the event that we are using some gauge size not displayed in the default list. After this, simply accept by clicking **Done** and the new line will be added to the list.



Click **Done** to accept the addition and incorporate it to the list. Additions can be removed at any time, just like any other gauge mistakenly selected by pressing the icon

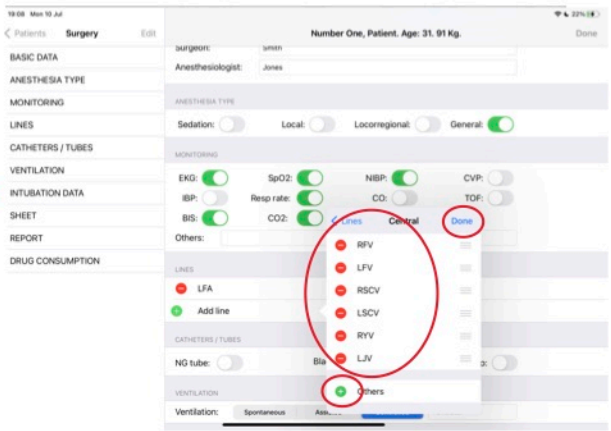


Click again on **Add Line** to select **Central Lines**, if applicable.



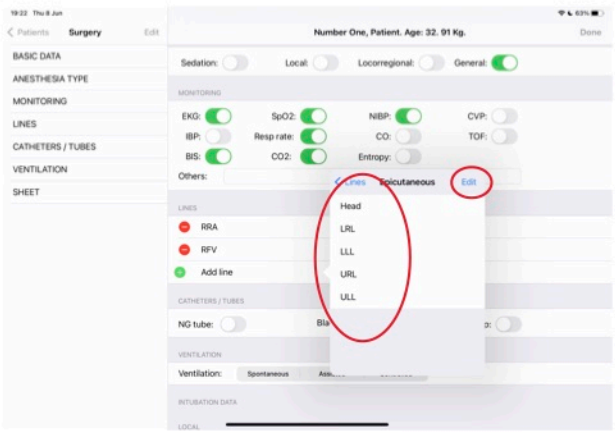
Same as previous cases, most usual locations are offered by default. Click **Edit** to add new ones or delete if necessary.

As previously explained, we can add or eliminate those central lines that are not preselected or that we have selected by mistake, accepting the modification by clicking **Done**.

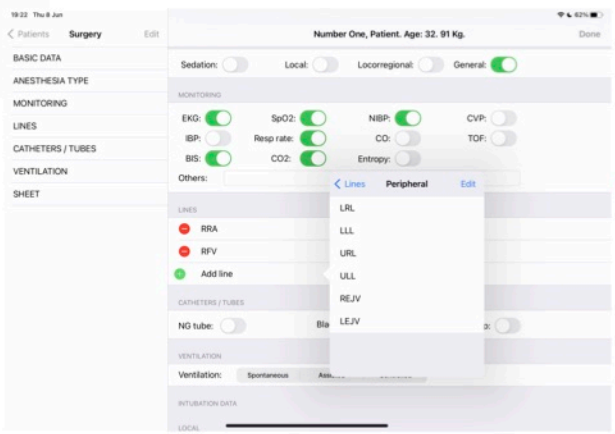


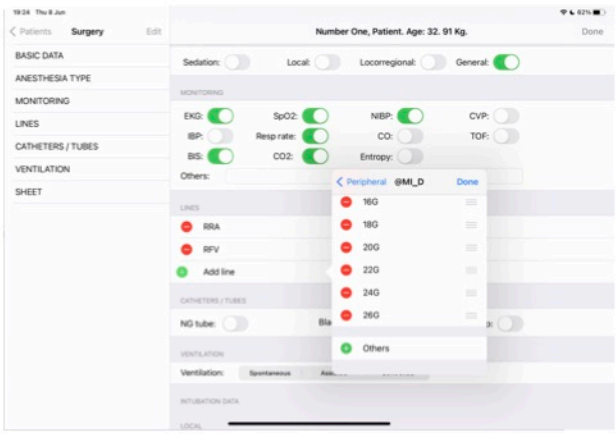
Simply by clicking again on **Add Line** we can add as many lines as needed, for example in the event of using more than one peripheral line or adding a second central line or another artery. This can be done at any time during the surgery, returning from the anesthesia datasheet to the main menu.

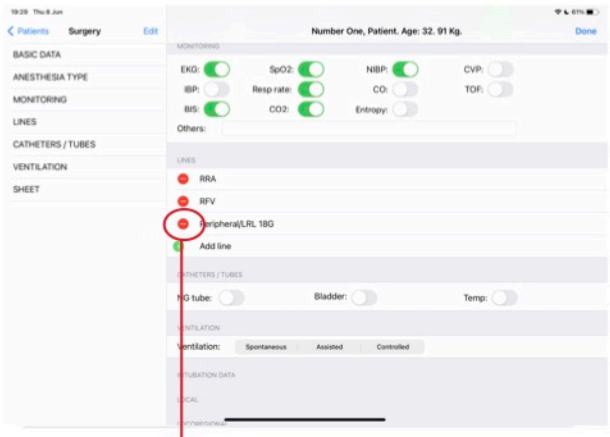
10. LINES SELECTION (3): the **Epicutaneous** option is available for anesthesia cases where it is not possible to cannulate a small gauge size peripheral line. Similarly, a dropdown menu appears with the main locations. It is also possible to add or remove new locations by pressing **Edit**. As in the rest of the lines, it is possible to add as many epicutaneous lines as needed.

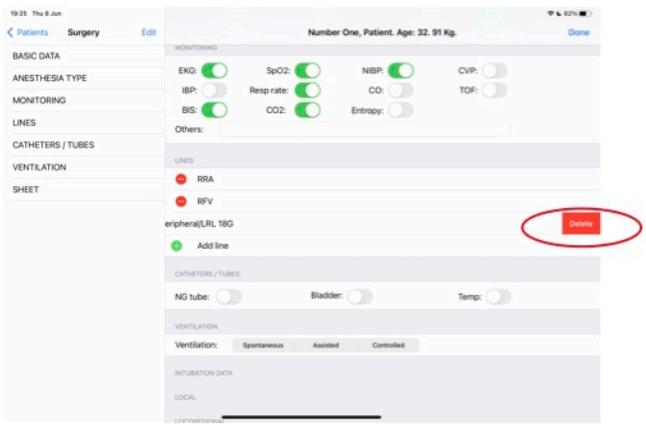


The same method previously described is used for the **Peripheral Lines**. It is also possible to add or remove peripheral lines as needed, and as many as we want.



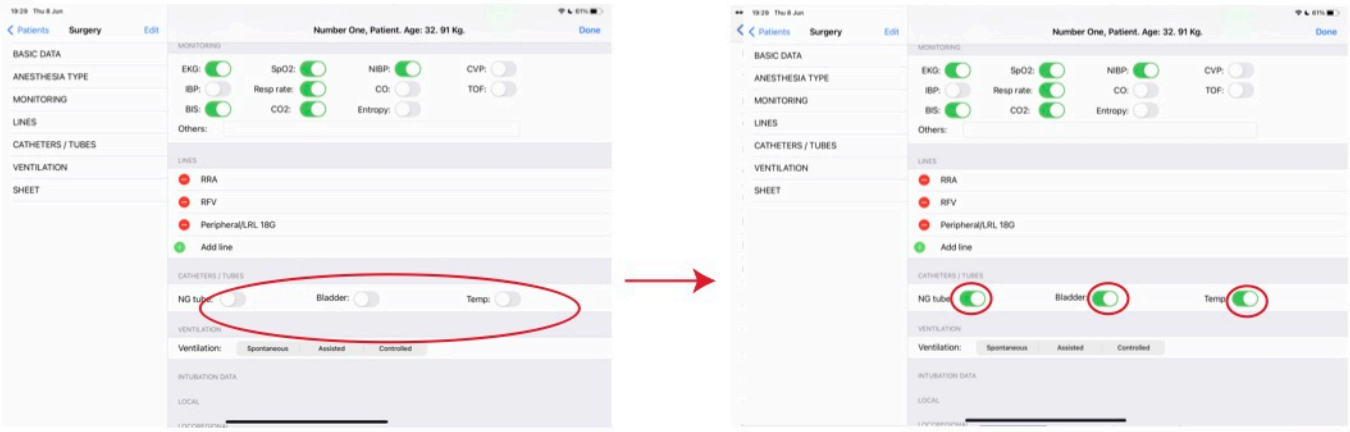




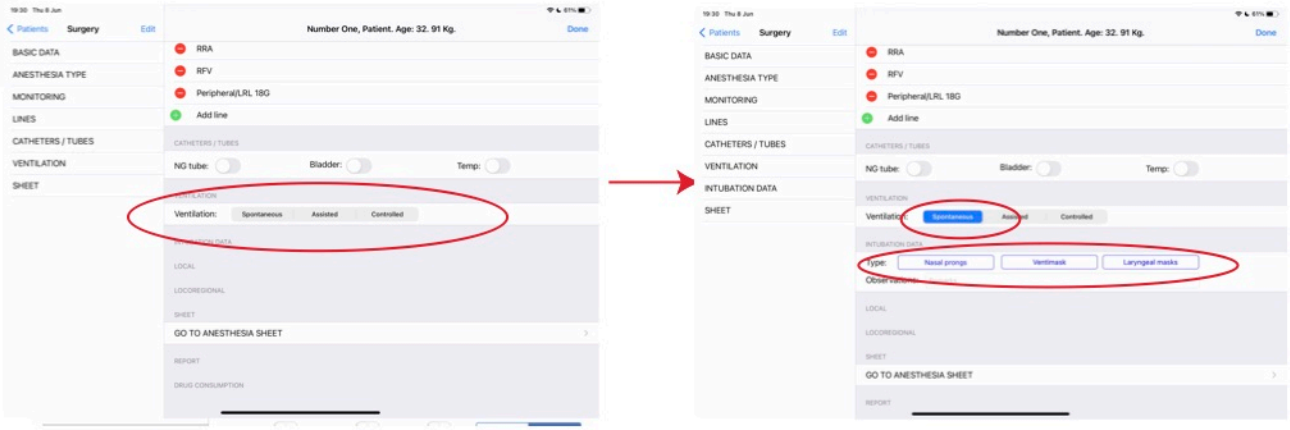


The selected lines are listed orderly.
Lines can be deleted if necessary
by clicking — and then Delete

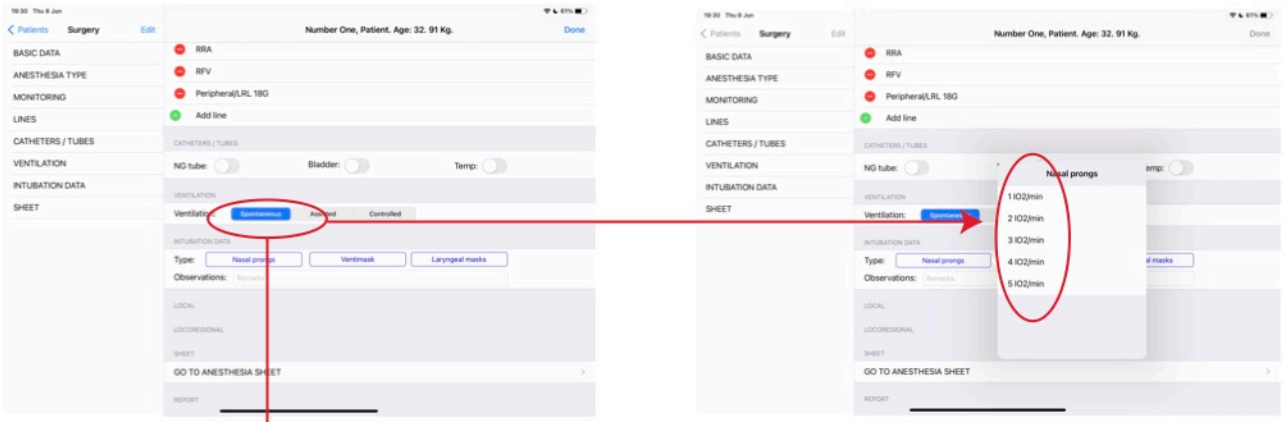
11. The selection of **CATHETERS/TUBES** is done by simply clicking the corresponding icon. Nasogastric, Bladder and Temperature are offered by default.



12. The app allows the selection of three main types of **VENTILATION**: Spontaneous, Assisted and Controlled. Click on the corresponding icon to open the main menu of each one.

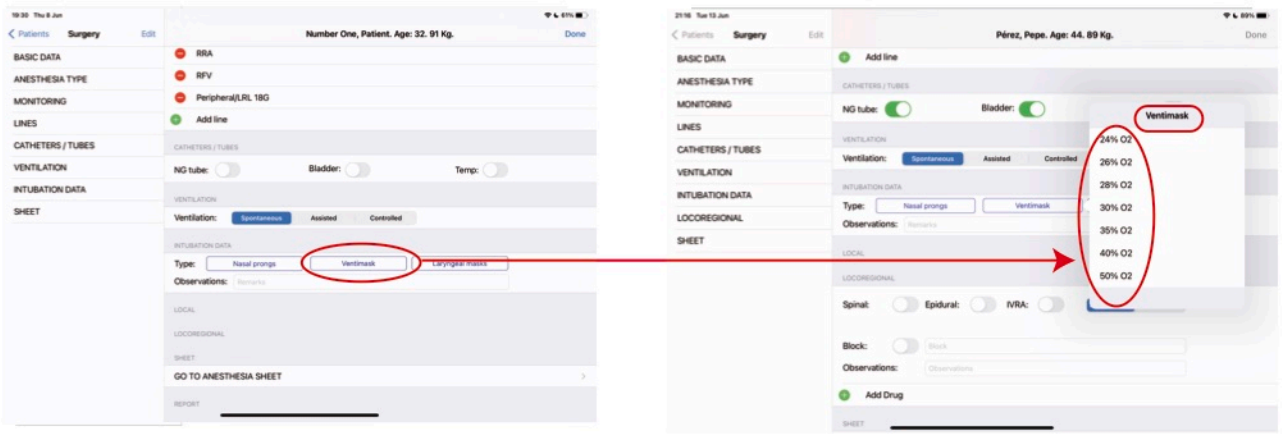


Selecting **Spontaneous** displays three preselected options (Nasal prongs, Ventimask or Laryngeal mask). To avoid duplications, the app allows selection of only one of the three types to be used. If a new option is applied later, previous options are ignored, so only the last option is recorded in the datasheet.

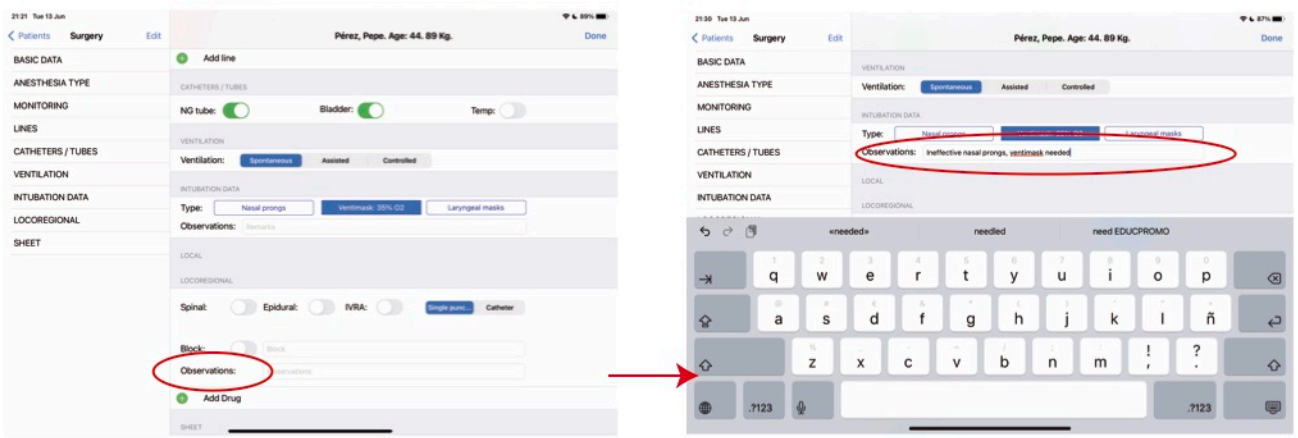


For nasal prongs, a drop-down pops up wich allows selection of O2 flows between 1 and 5 liters / min.

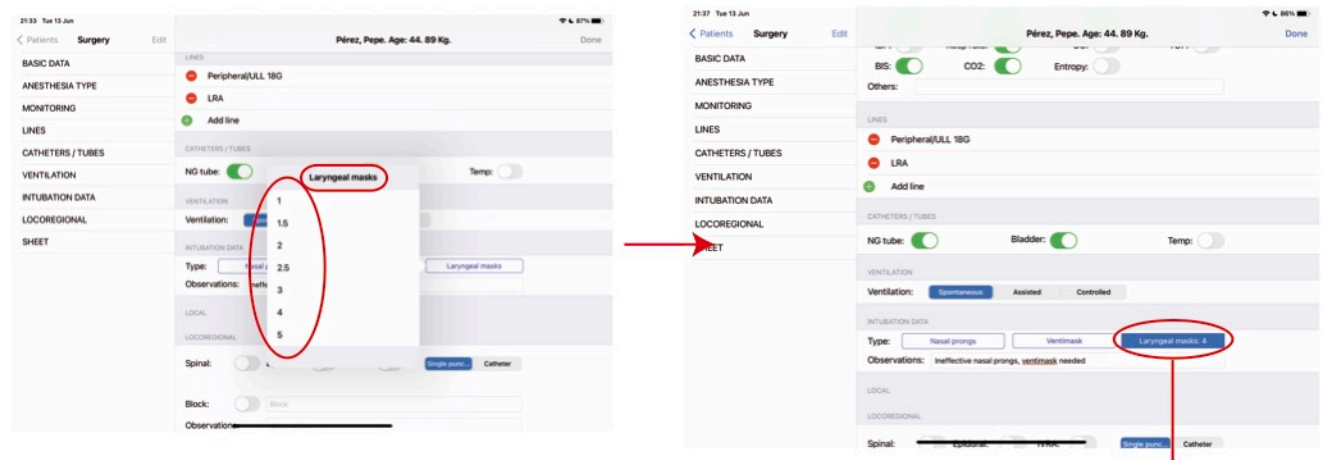
12. VENTILATION (2): similarly, if the **Ventimask** option is chosen, it will show a menu with the most usual O2 concentrations. As previously described, data is automatically deleted by clicking again on the selection icon of the type of spontaneous ventilation, the data is automatically deleted. For example, in case of having previously selected the nasal prongs and later changed to Ventimask, nasal prongs data is deleted by default to give priority to the new ventilation data.



Any additional comment can be added through the Observations option and a retractable text keyboard.

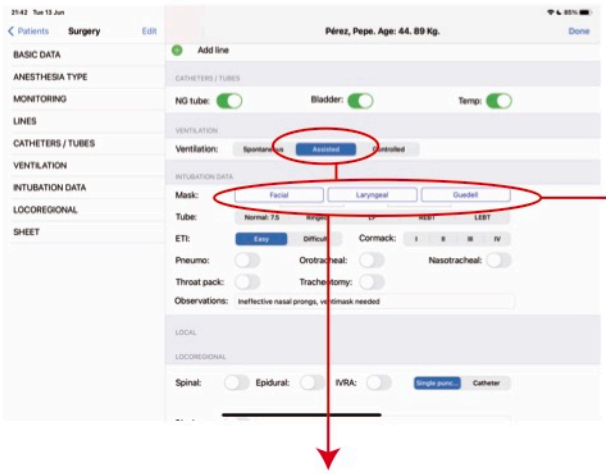


Similarly, when selecting **Laryngeal Mask**, a menu is displayed with the most common sizes used to choose the desired one. We also have the option to add **Observations**.

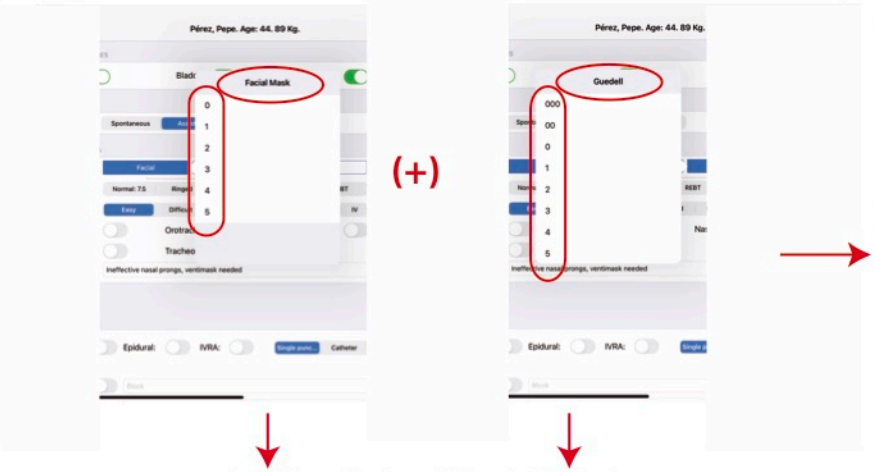


The selected size is indicated on the ventilation mode box.

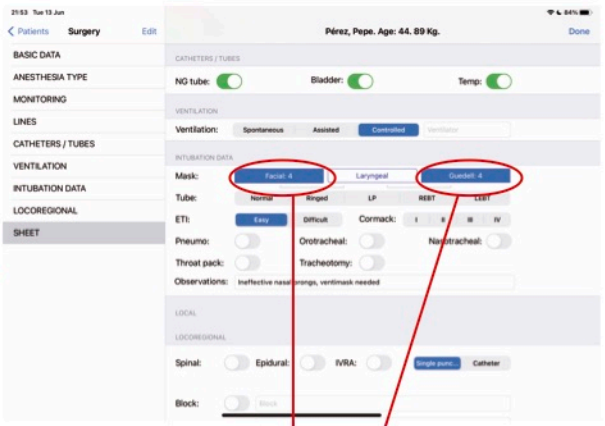
12. VENTILATION (3) : ASSISTED ventilation options allow us to distinguishing between ventilation with a Face Mask or Laryngeal Mask, as well as selecting the Guedell size being used, if any.



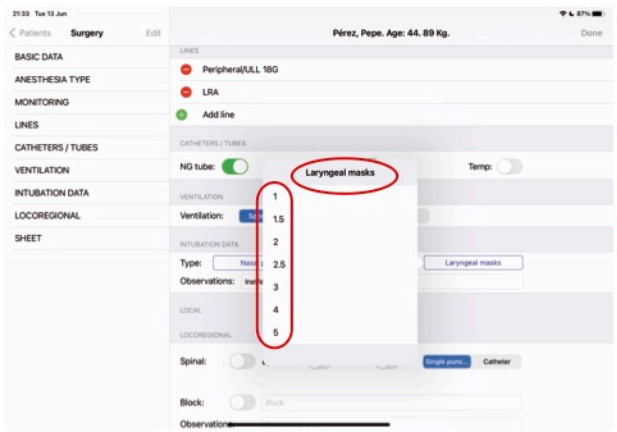
Select Assisted and we can choose between Facial, Laryngeal Mask and Guedell, each of them with the appropiate sizes.



Both Face Mask and Guedell include pediatric sizes. They can be selected together.

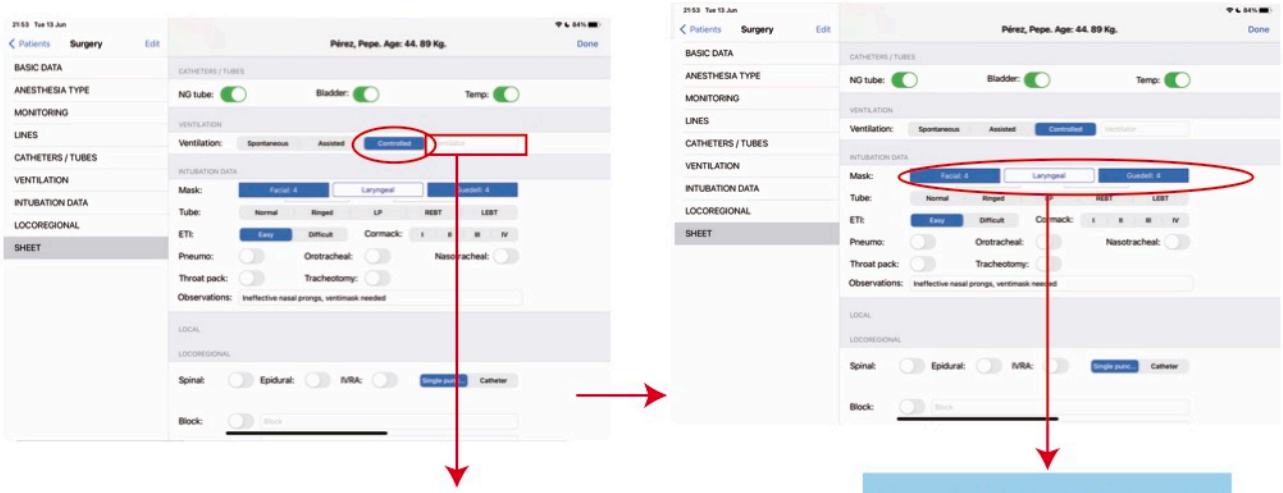


It is possible to select a facial mask size with or without a Guedell, but the app by default avoids selection of the Guedell option along with the laryngeal mask.



See Laryngeal Mask section on page 14.

12. VENTILATION (4): we find next the **CONTROLLED** ventilation menu, which will allow us to select the main data from among the elements of ventilation previous to the endotracheal intubation (ETI) and the ETI itself. The submenus dedicated to Facial and Laryngeal Masks and Guedell have been discussed previously and will not be repeated now. As explained in the Assisted section, it is possible to select a face mask size and a Guedell, but not a laryngeal along with any of these two parameters, as they are not compatible.

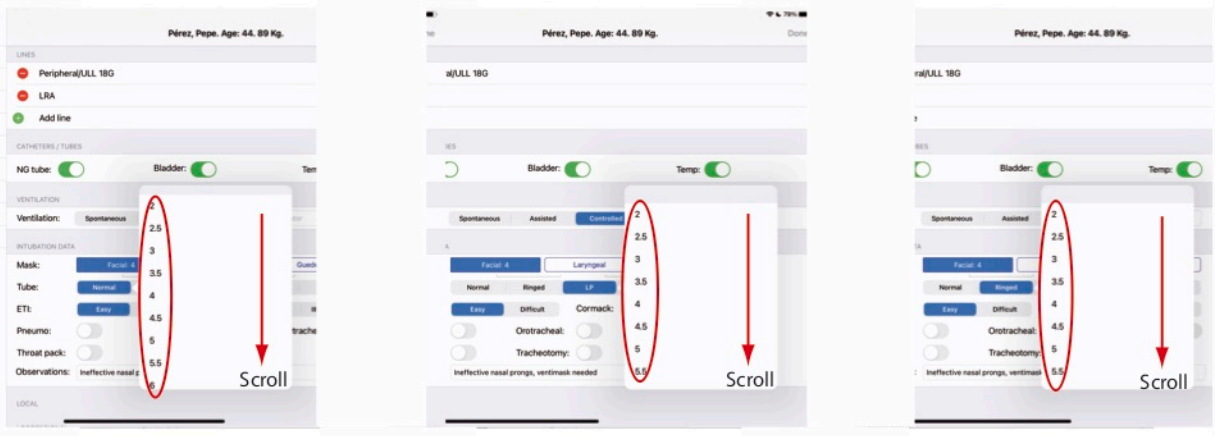


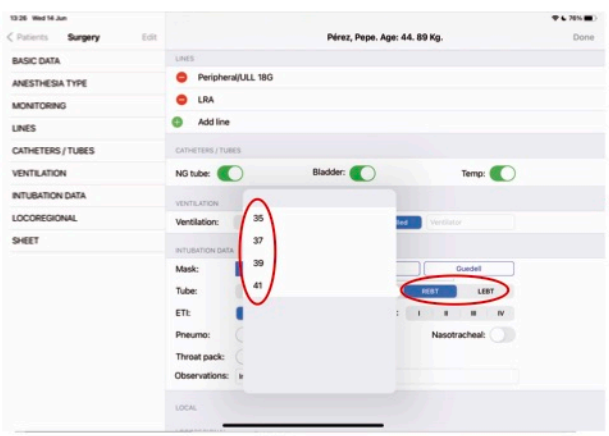
The possibility of entering the brand and model of the ventilator used is offered trough a retractable text keyboard.

See Facial M and Guedell sections on page 15

See Laryngeal M section on pág 14

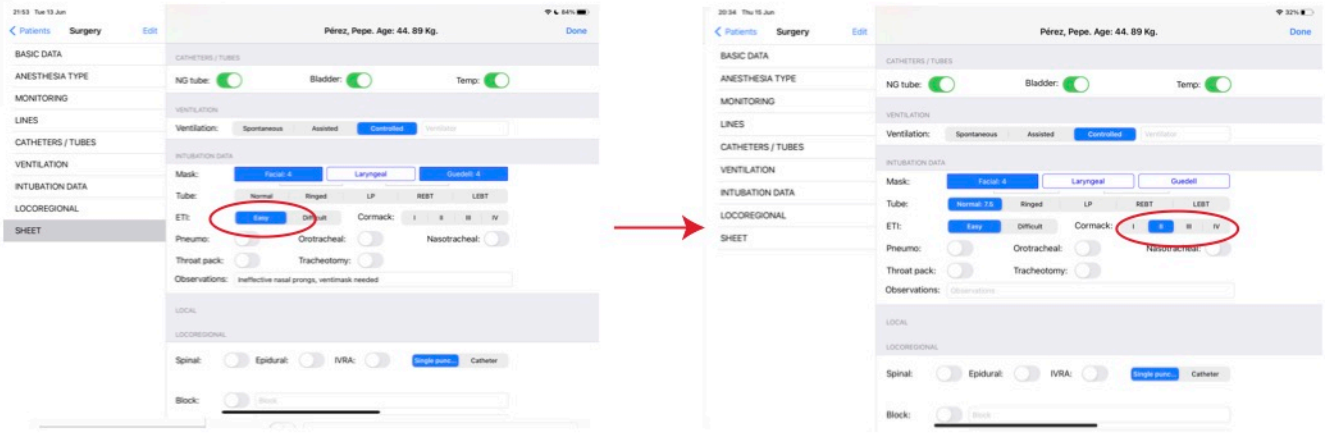
A choice of normal, ringed and low pressure ETI tubes is offered, each one with a range of sizes between 2 mm and 9mm , with incremental intervals of of 0.5 mm.



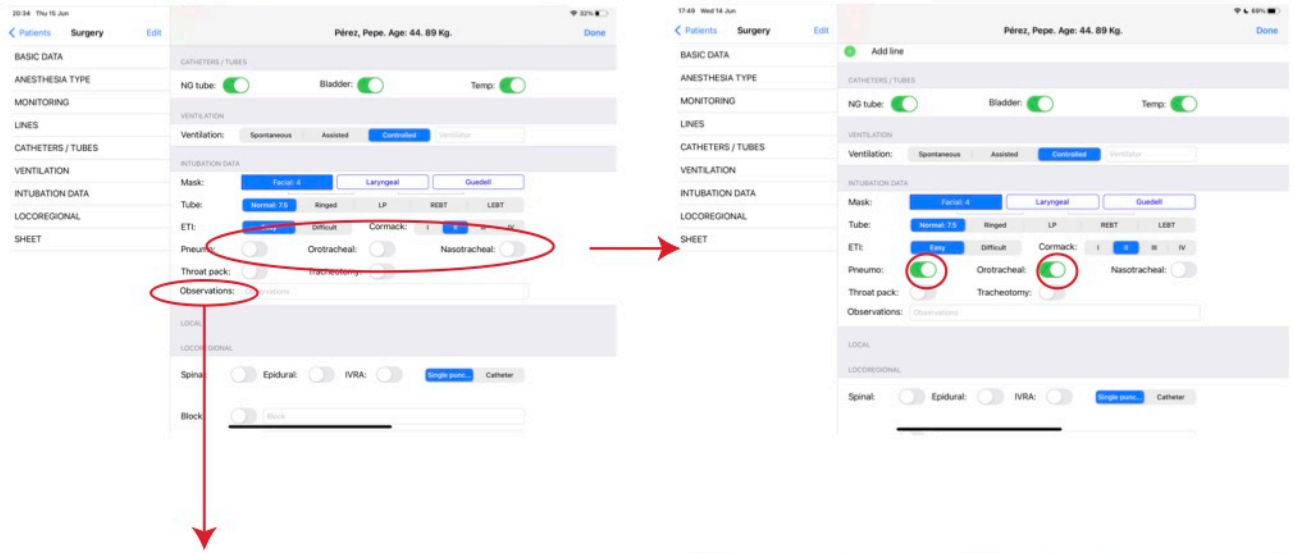


It is still possible to differentiate right or left endobronchial tubes, with sizes from 35 to 41.

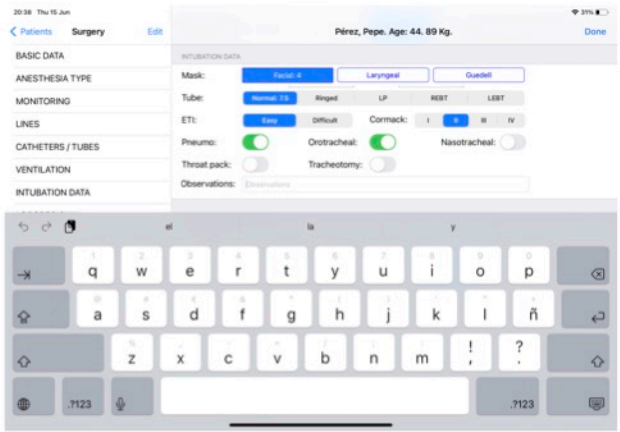
12. VENTILATION (next): The app allows to distinguish between easy (default) or difficult ETI, including a Cormack scale to assess the degree of difficulty.



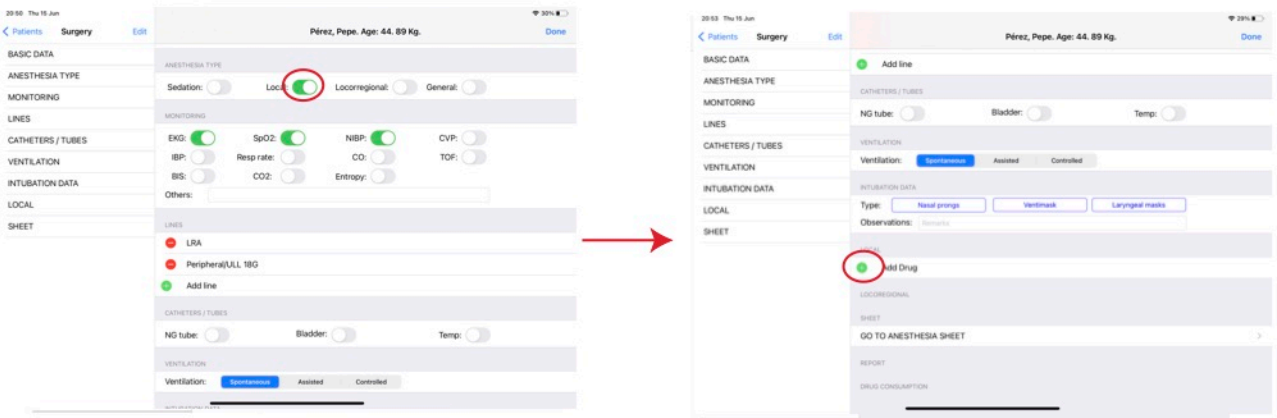
The remaining ETI general data is selected simply by clicking the correspondent icon.



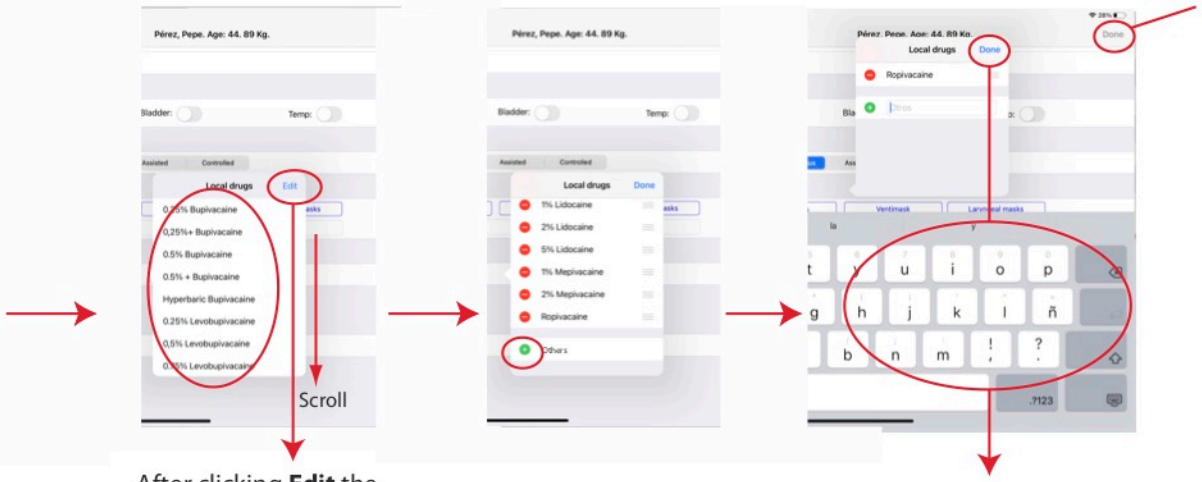
Any information not included in the ETI menu, unexpected events, complications or added comments can be entered and saved by using the retractable text keyboard that is made available when clicking on **Observations**.



13. LOCAL ANESTHESIA: if this type of anesthesia is selected, clicking the **Add drug** option will display a submenu with the most frequently used local anesthetics.

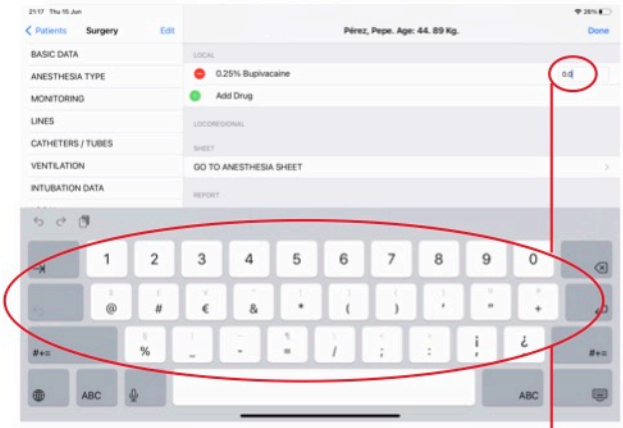


Click **Done** to save the information

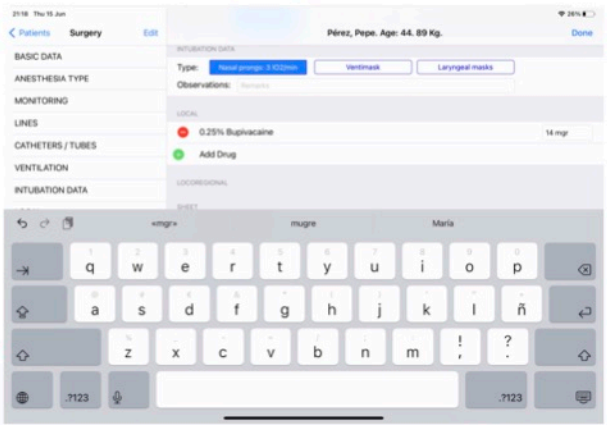


After clicking **Edit** the **Others** option is enabled and can be found at the end of the scroll.

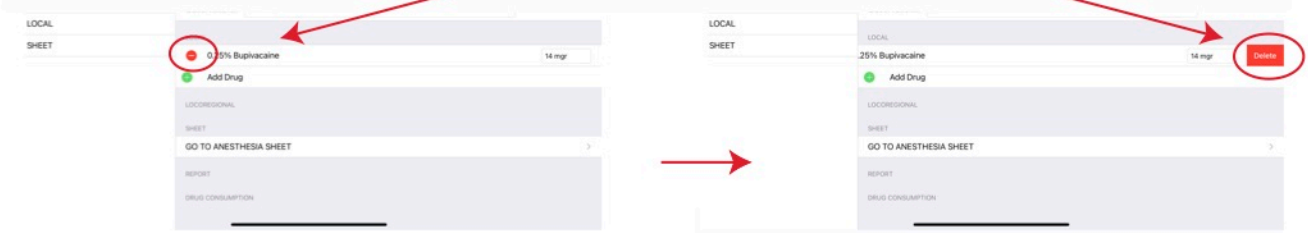
Others will allow to add options not included in the list trough a retractable keyboard



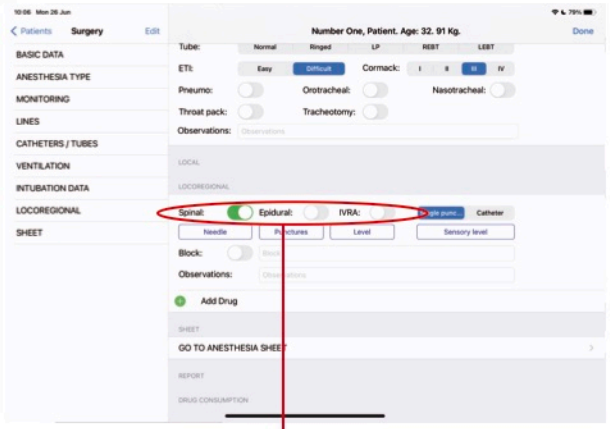
The dose and the units are entered through the text keyboard.



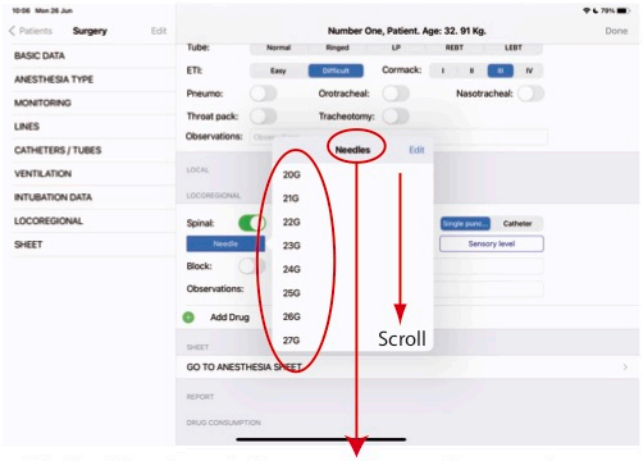
As explained earlier, clicking on the icon — activates the Delete option that allows removing the selection.



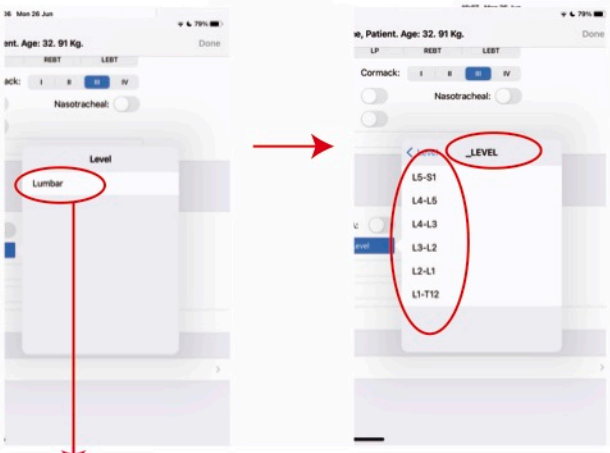
14. LOCOREGIONAL ANESTHESIA: if this is have selected option when choosing the type of anesthesia, a menu will be offered that will describing the typo of anesthesia performed, material and drugs. The menu is displayed by default just before starting the anesthesia sheet.



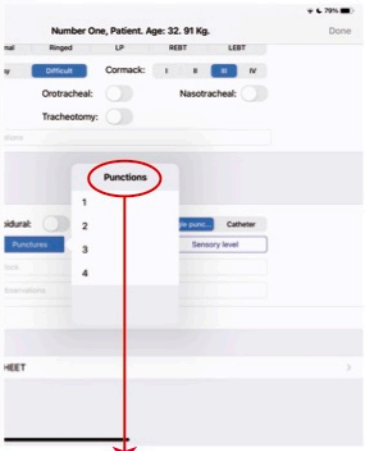
Technique selection. The user can choose between Spinal, Epidural or IRA.



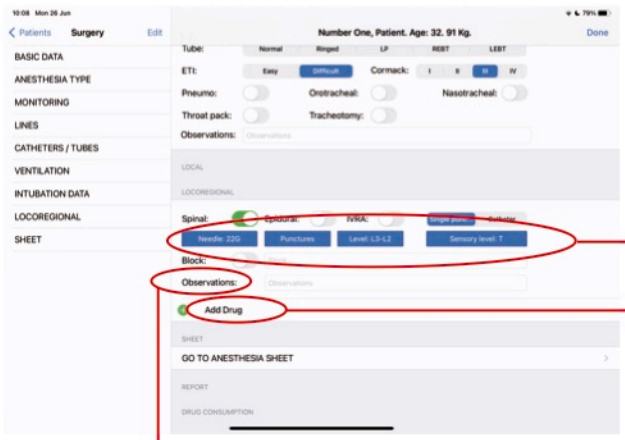
If **Spinal** is selected, the app offers a submenu that will allow selection of the gauge of the needle. Again, by scrolling at the end of the list we can add any not listed by default through a retractable keyboard that will appear when clicking **Edit**.



In the case of Spinal technique, default options are the level of Lumbar puncture, admitting all sensory levels.



If more than one puncture has been performed, the app allows to reflect it by offering a submenu that allows to enter up to 4 punctures.



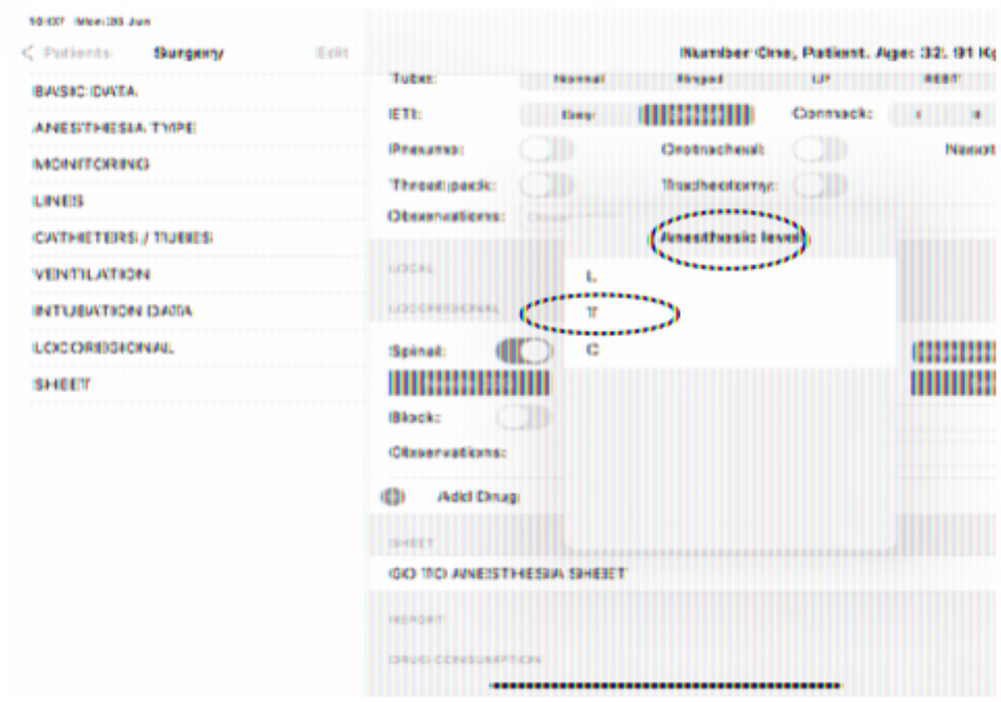
This information can be found later as sheet would indicate the technique performed and, in the case of spinal anesthesia: gauge, level of puncture, single/multiple puncture and level reached.

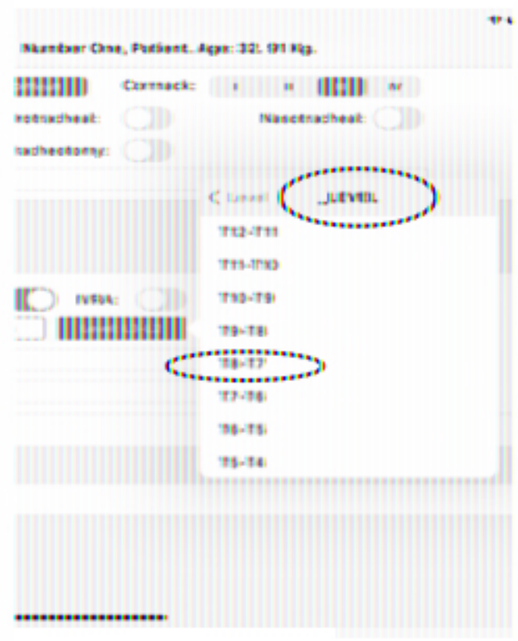
Selection of local anesthetic(s) used.

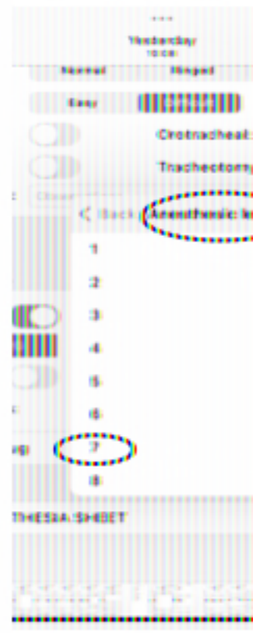
See local anesthetic drugs on page 18.

Any type of incident or data that needs to be recorded can be introduced through **Observations** option and a the retractable text keyboard

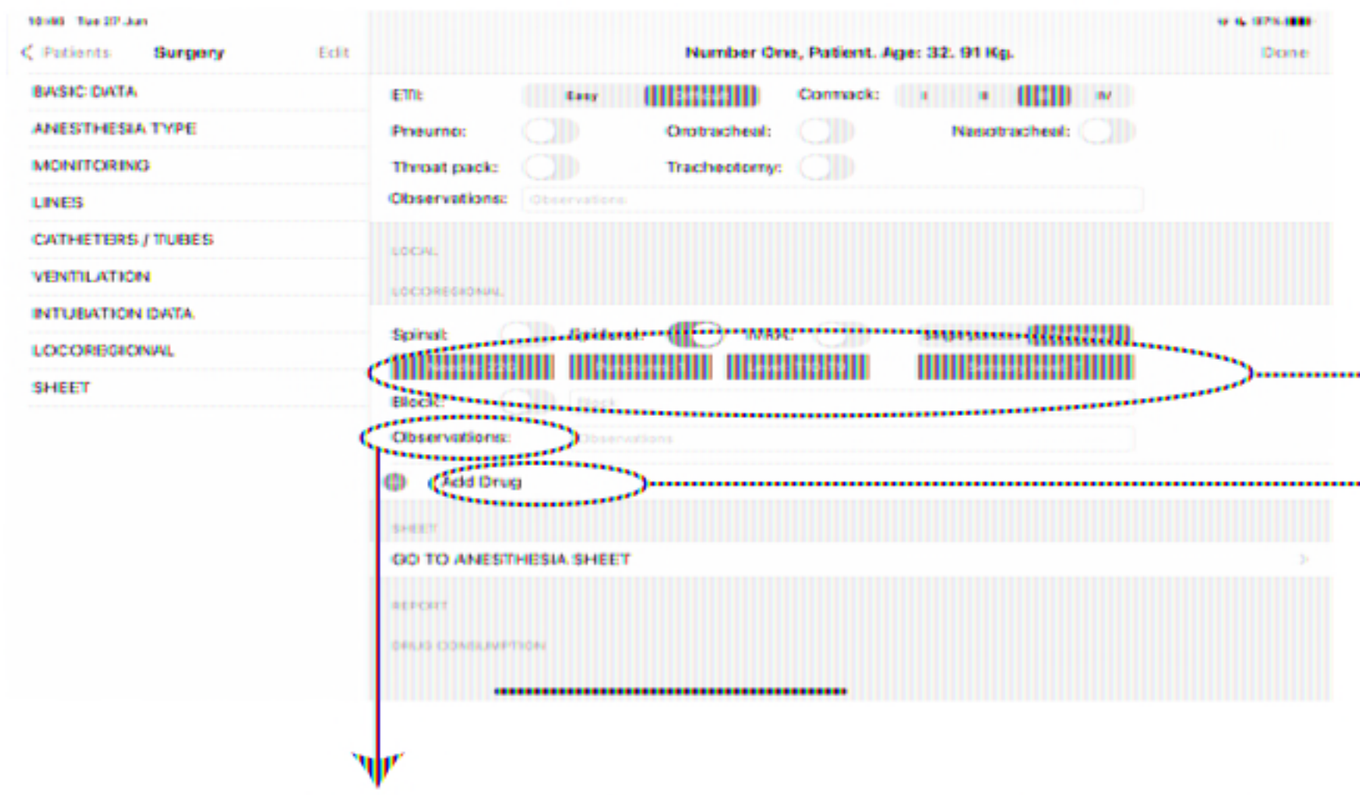
14. **LOCOREGIONAL ANESTHESIA(2):** In the case of use of **Epidural** anesthes
procedure is similar to Spinal Anesthesia but also offering Thoracic and Cervica
of them with its puncture and anesthetic levels. An example of a chest catheter
follows.







In the loc
the cathet

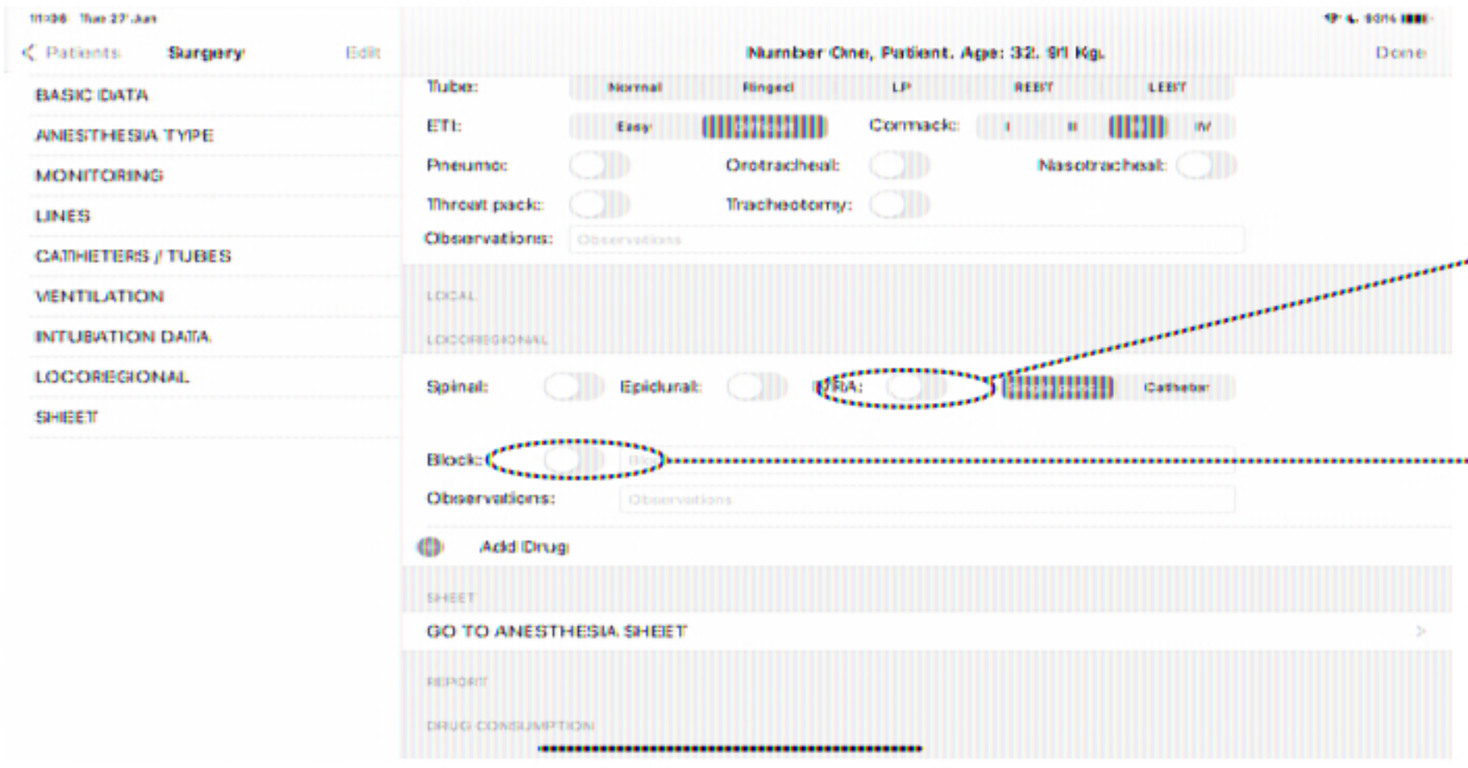


The information will
indicated in the shee
in the case of our epi
level of epidural punc
puncture, use of cath
reached.

Drug selection has al

See Local anesth
drugs on page

As explained before in the spinal anesthesia, any type of incident or data can be added by clicking on **Observations** and typing on the retractable text keyboard



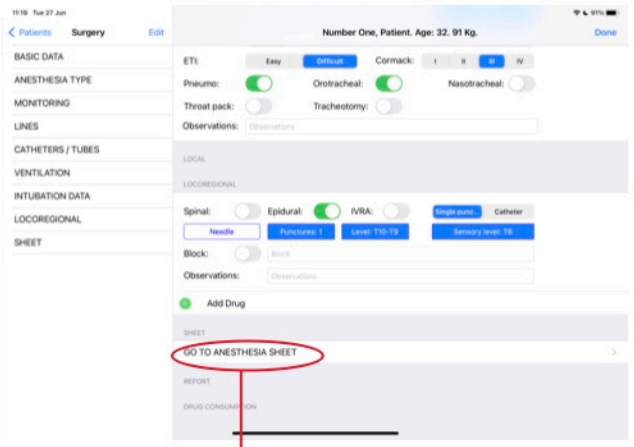
For IRA option, simpl
technique and add th

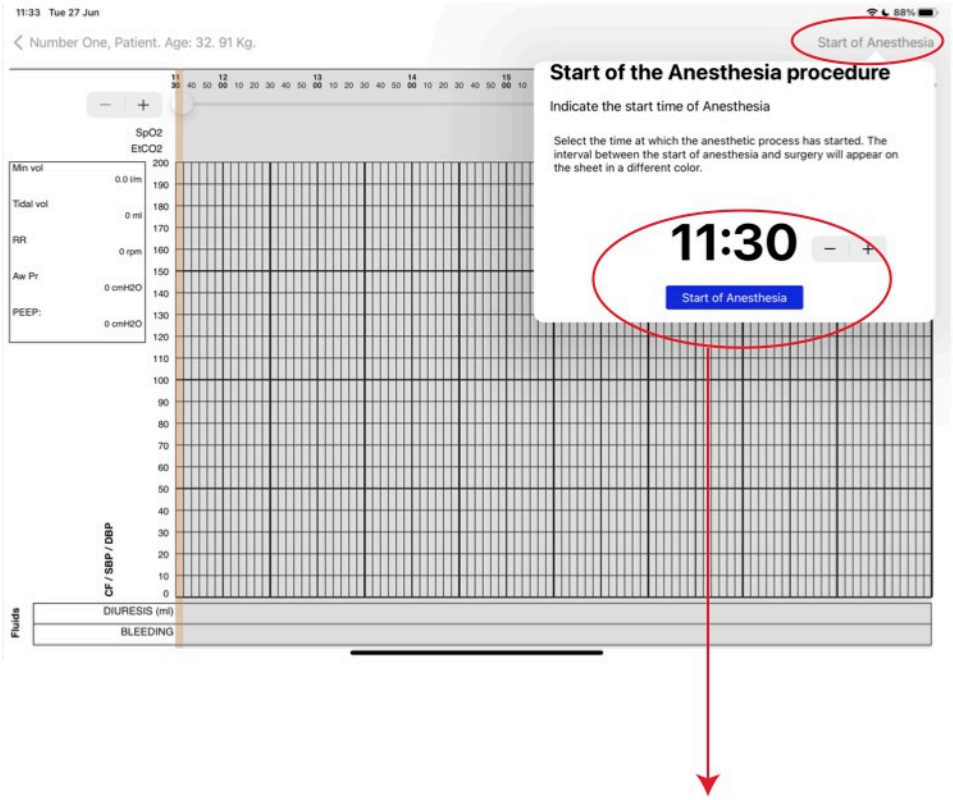
See Local anesth
drugs on page

For nerve block techn
allows to indicate the
icon **Blocks** and, subs
corresponding data t
text keyboard. Simila
cases explained, user
observations. The sel
used is the same.

See Local anesth
drugs on page

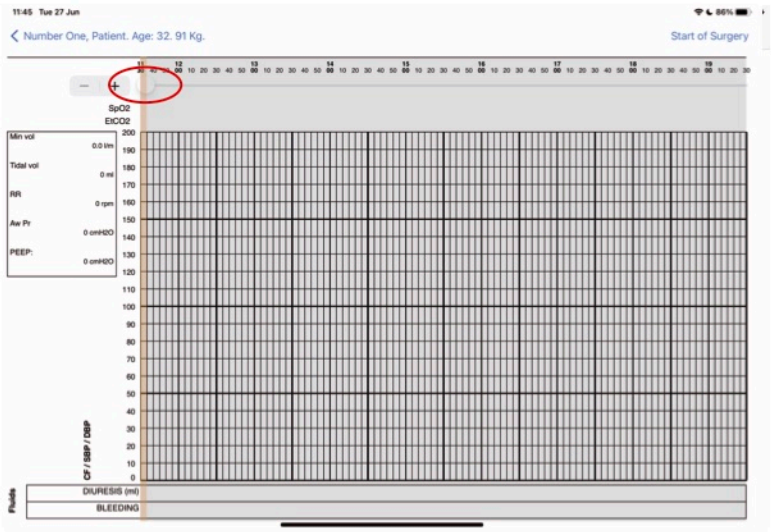
15. START DATASHEET: once all the previous reference data have been entered, clicking on **GO TO ANESTHESIA SHEET** to access the file .



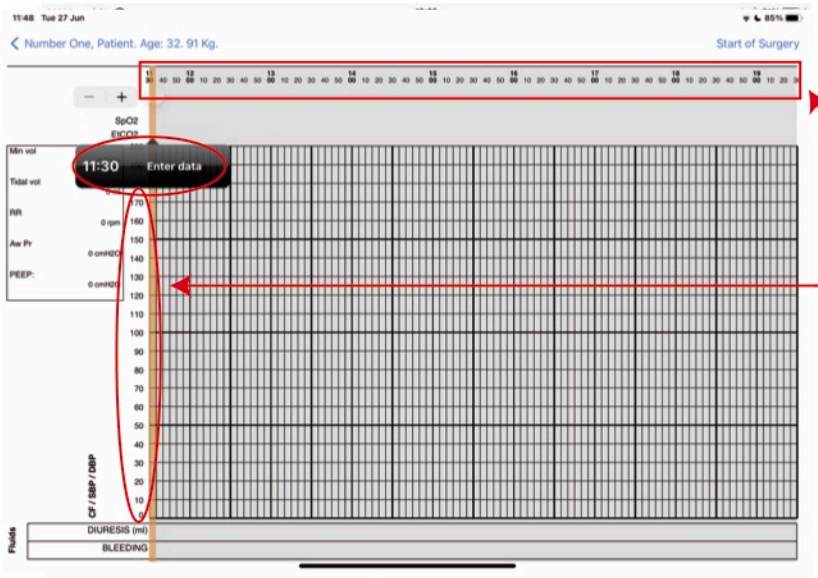


The first piece of information that the datasheet will request is to indicate the start time of the anesthesia. The datasheet is by default synchronized with the current time, but allows to select a different time by using the + - commands for those cases in which the anesthesiologist begins to fill in the datasheet when he has some free time, usually when enough time has elapsed since the beginning of the surgery. After selecting the start time, press **Start anesthesia** to begin entering the data. The app will calculate at the end of the process both the duration of anesthesia and the duration of surgery, allowing to extract both data separately for its analisys if desired, (i.e. operating room time management).

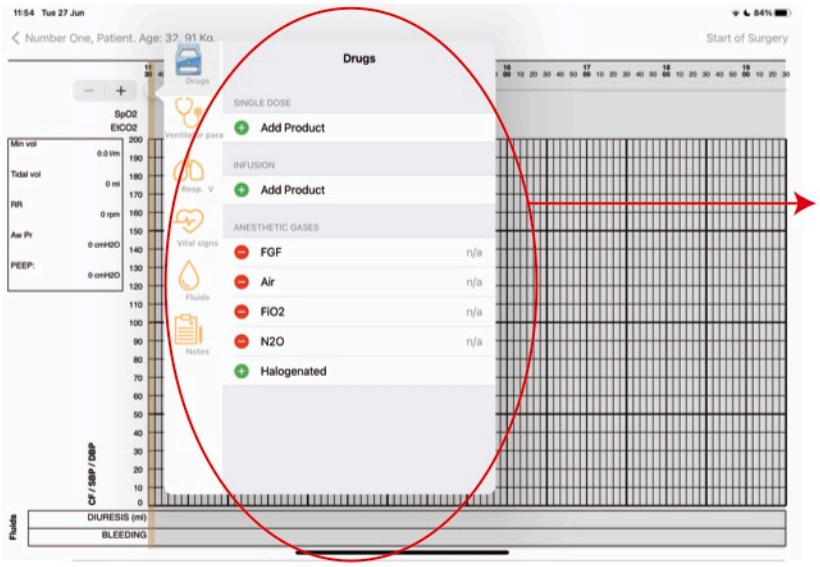
16. Access the anesthesia datasheet itself: to start working with it press the white circle that appears on the time bar



Then click on **Enter data**. Use commands +- to navigate through the time bar in intervals of 5 minutes, both forward and backward directions



The time bar is synchronized with the current time.



Entering data displays the main menu of the datasheet, which allows at any time to enter any required data concerning the course of the anesthesia of our patient.

The **ENTER DATA** menu is the heart of the anesthesia datasheet. Its main characteristics are listed below, and will be later explained.

Data entry referring to drugs doses (single or perfusions) and anesthetic gases

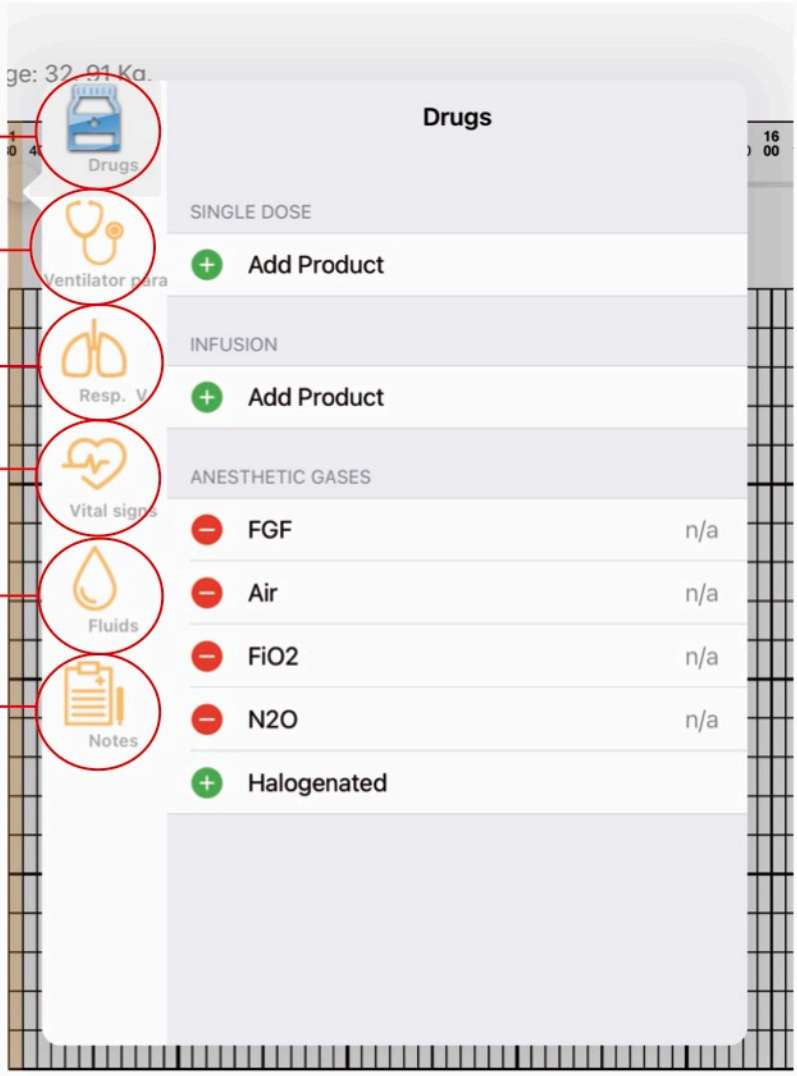
Entering the type data of ventilation used and the variables of Mv, Tv, RF, AP and PEEP

Data entry of SpO2 and EtCO2

Data entry of SBP, DBP and HR

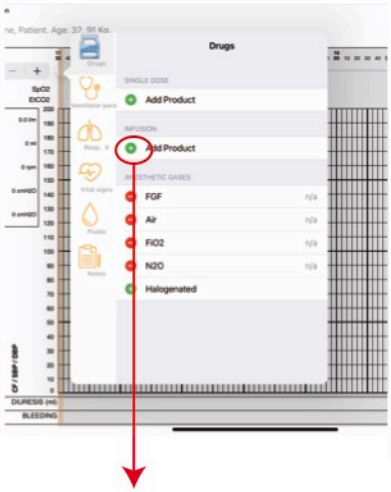
Entering all the information regarding fluid therapy, transfusions and/or losses

Allows adding needed text notes at any moment



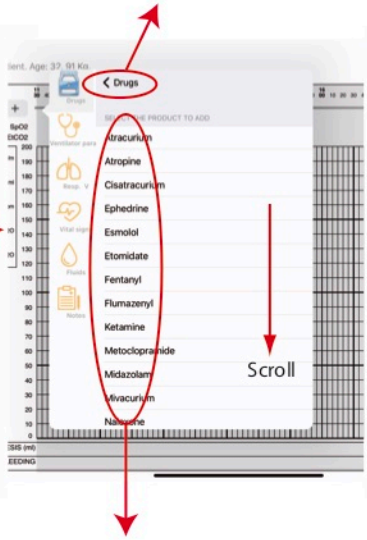
By default the menu shows the Drugs field displayed. Just click on the remainig icons to select them and access the different submenus. To exit a data entry field, just touch again anywhere on the anesthesia datasheet.

17. DRUGS: the app allows choosing between punctual doses of drugs, most common drugs used in Infusion and chosen anesthetic gases.



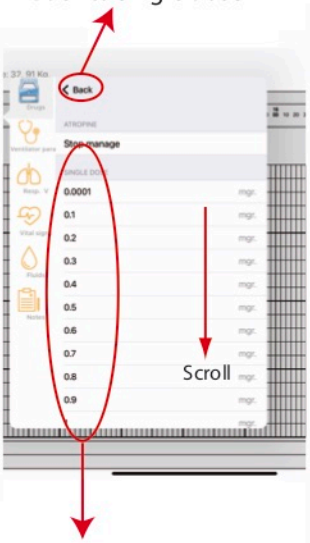
If we click on the symbol ⊕ **Add product** in Single Dose it shows a drop-down menu with the most commonly used anesthetic drugs.

Back to Drugs menu

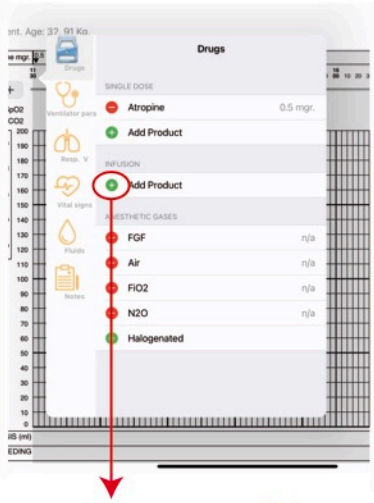


After selection of the drug to be used, a submenu is displayed that allows choosing the dose used.

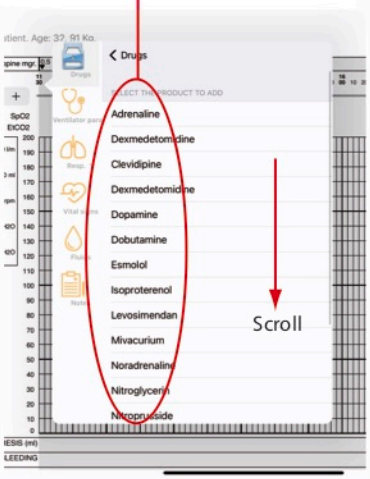
Back to single dose

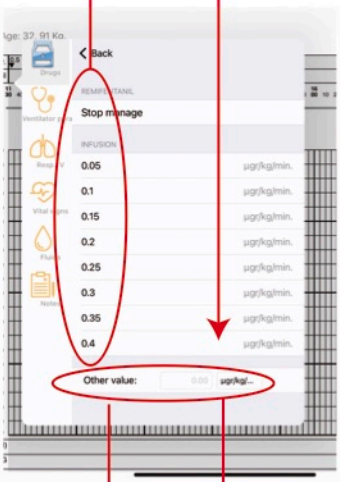


Select the desired dose. The option **Other value** at the bottom of the screen will be offered to enter doses that are not previously considered.



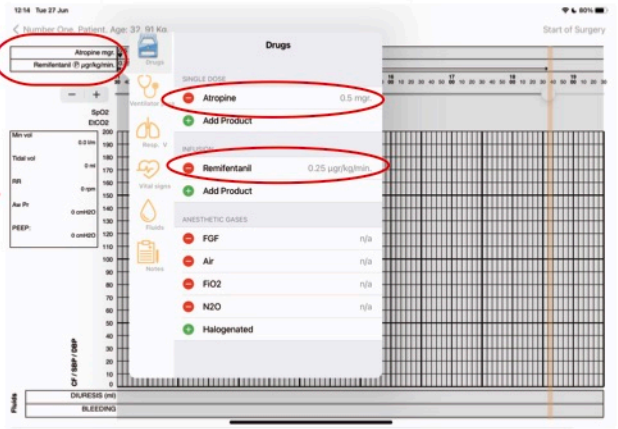
By pressing on the icon ⊕ **Add product** in **Infusion** a drop-down menu with the most commonly used anesthetic drugs will be displayed.



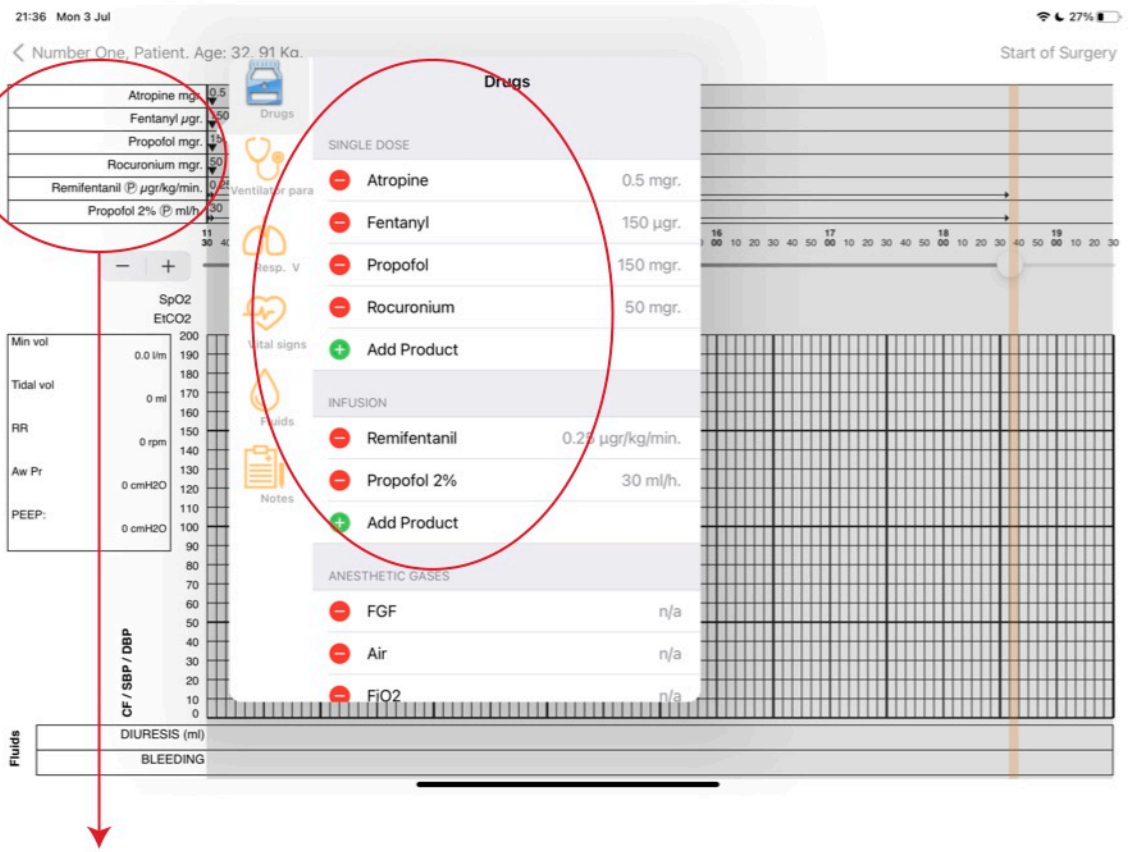


Unplanned doses can be entered trough keyboard

The app allows checking the different drugs chosen with their corresponding doses. The information is listed and accesible.

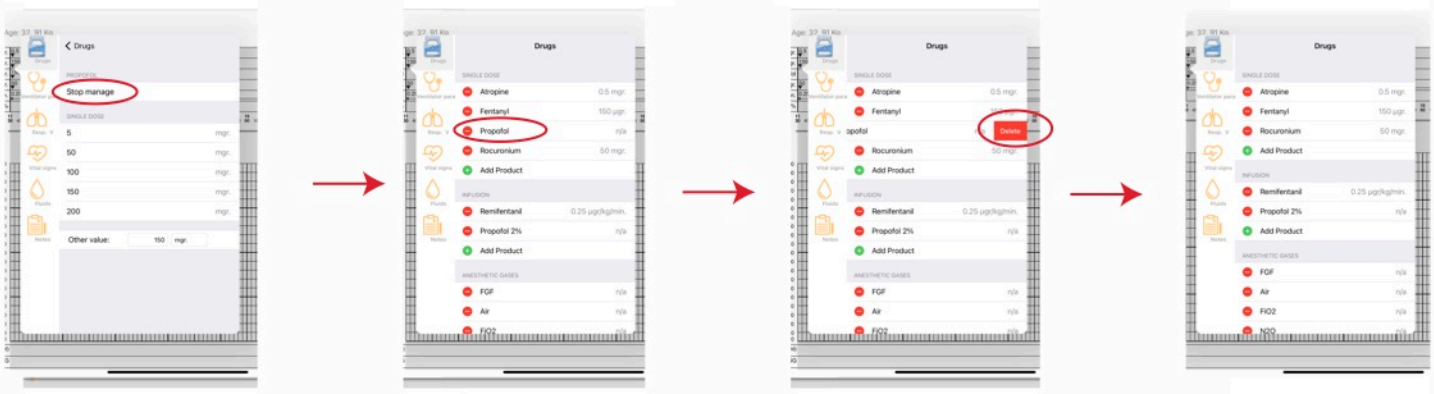


17. DRUGS (next): drugs and infusions continue to be added as needed. Each of them will provide its own dosage range, and they will appear in the order of administration.

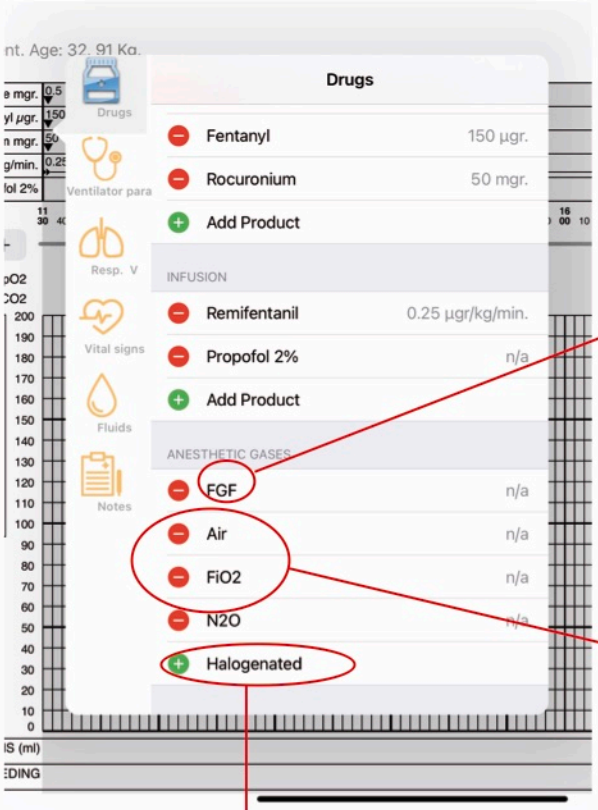


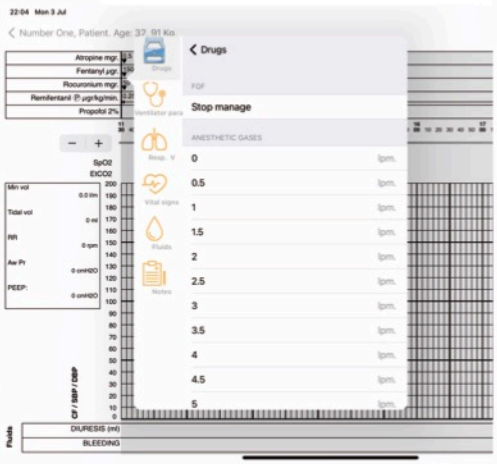
Check out how the selected drugs are shown on the datasheet

DELETE DRUG: to remove a drug that we have mistakenly included or not longer in use, select it from the list and click on **Stop Manage**. The app will return automatically to the main screen of the menu, where the drug will be found with the symbol ⊖ . As previously indicated, clicking on Delete will remove from the list. The process will be the same to eliminate Perfusions or Anesthetic Gases.

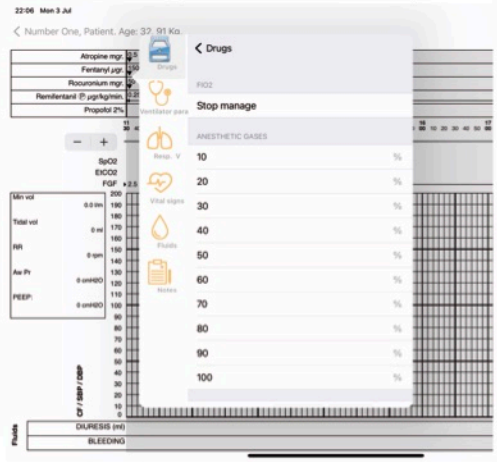


The next step is the selection of the **Anesthetic Gas** parameters. The app allows you to choose FGF, Air (%), FiO2 (%), N2O (%) and Halogenated.

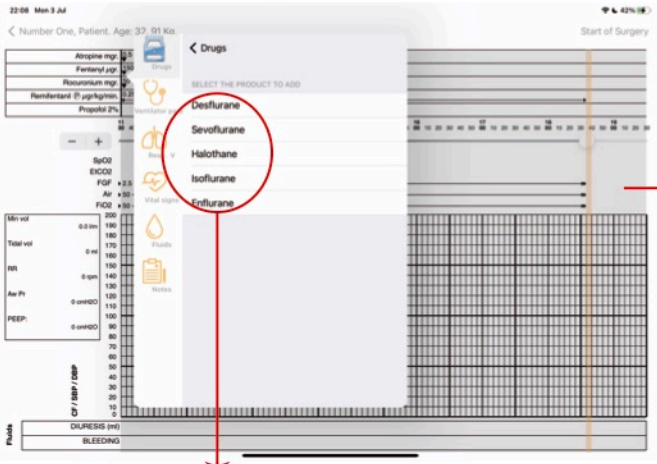




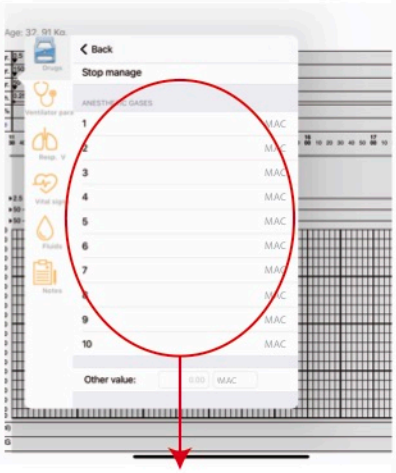
Fresh Gas Flow (FGF) default units are liters / min, between 0.5 and 5 in 0.5 increments. It is possible to type different values through the keyboard (scroll down to access).



It is possible to select the percentage of Air, FiO2 and N2O in the mixture supplied to the patient, and type percentages not contemplated by using the keyboard (scroll down to access).



Halogenated opens a submenu in which inhalational anesthetics most commonly used are displayed and made available for selection.



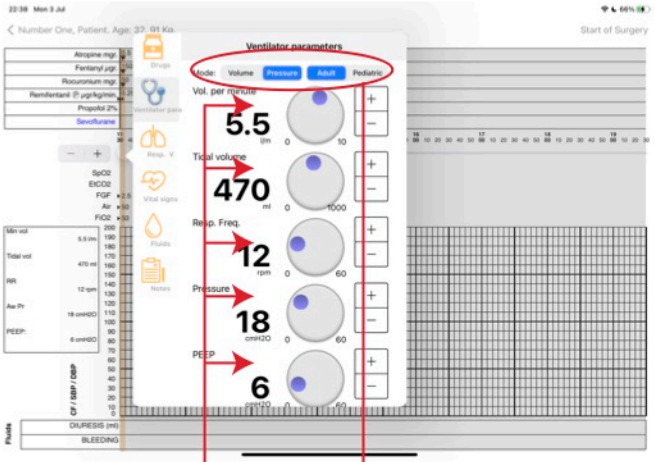
The unit for inhalational anesthetics will be the MAC. Clicking on **Another value** allows entering different MACs as necessary.

18. RESPIRATOR PARAMETERS allows us to select between two modes of ventilation: Adult (by volume or pressure) or Pediatric (with the same possibilities but with some parameter selection ranges which more appropriate for this age/weight ratio). The selection of values is done through by using a simple setup wheel . More precise adjustments can be made by using commands + -.

Volume units are adult age-appropriate .

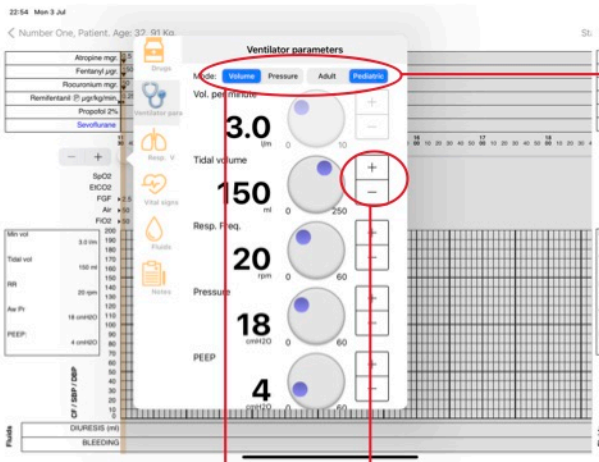
The Minute Volume is calculated automatically when we enter liters/min and the respiratory frequency. The app **does not provide** default selections in this case.

The app distinguishes between volume mode and pressure mode by simply pressing the desired option.



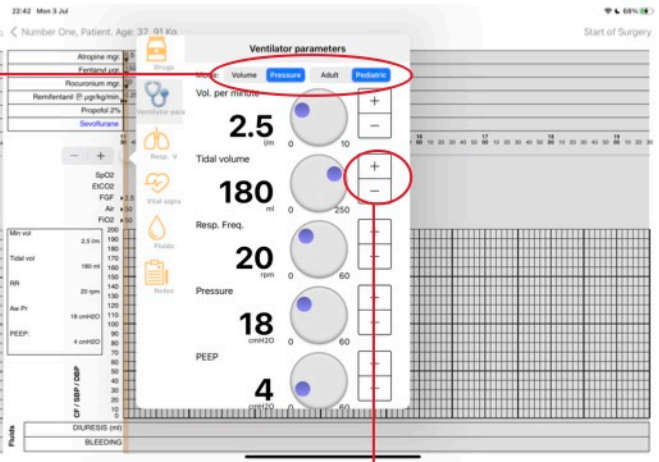
Ventilation mode by pressure in adults.

In this ventilation mode, the different parameters can be individually adjusted using the set up wheels.



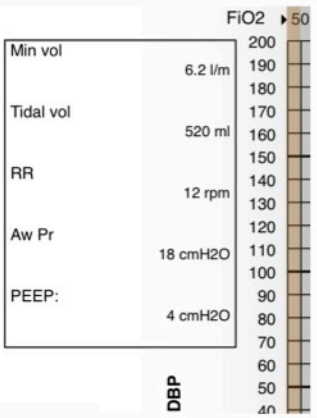
Volume units are age-appropriate pediatric.

Similarly, the app distinguishes between volume or pressure ventilatory modes in pediatric patients.

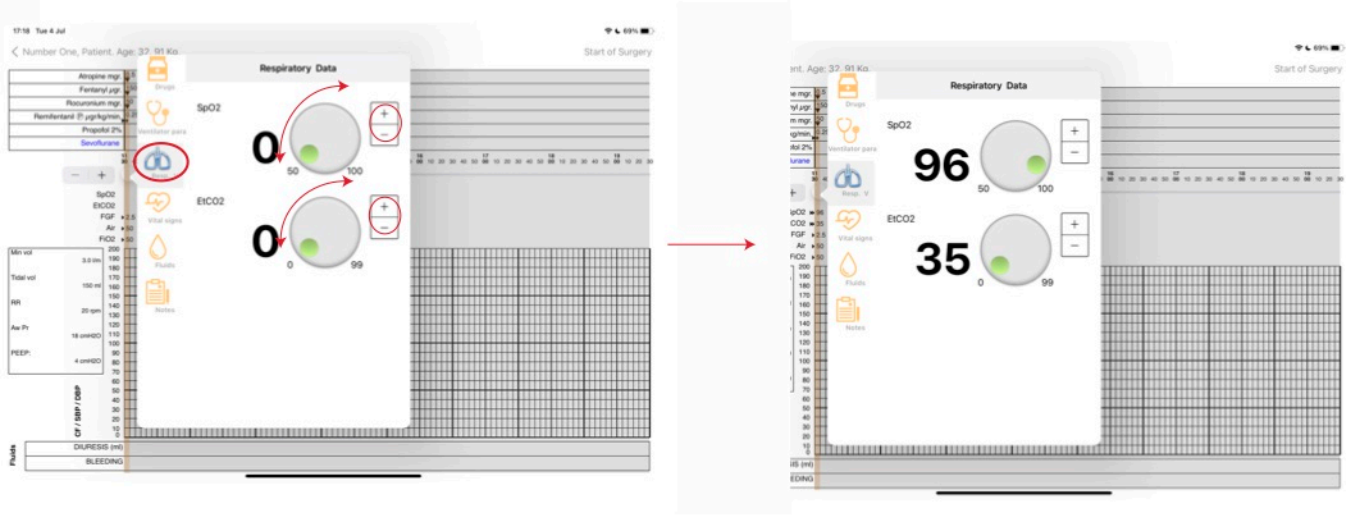


Fine adjustments in the pediatric ventilation are made incrementally, milimiter by milimiter.

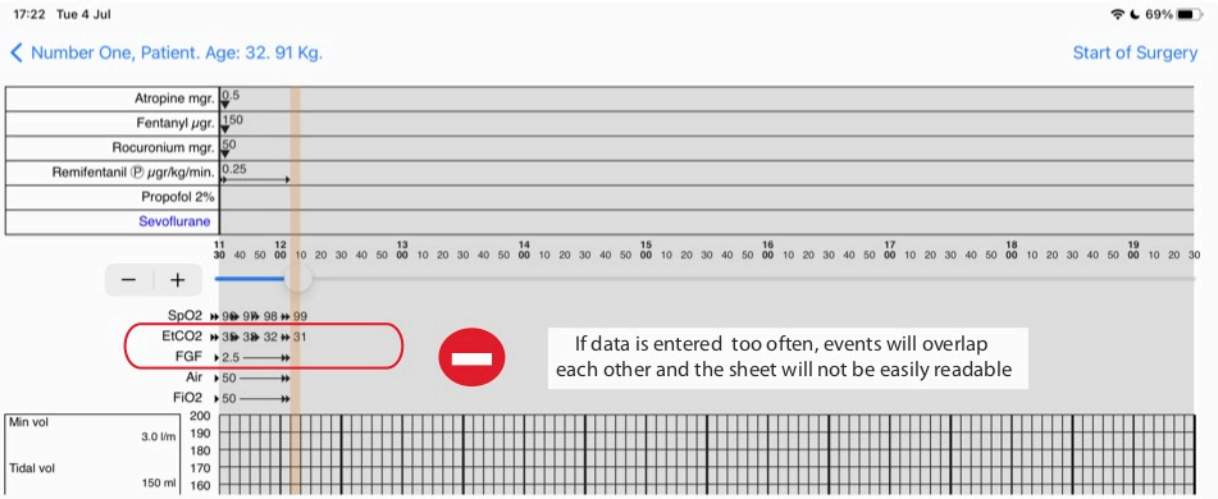
The data will be displayed in a box.
on the left side hand of the datasheet.



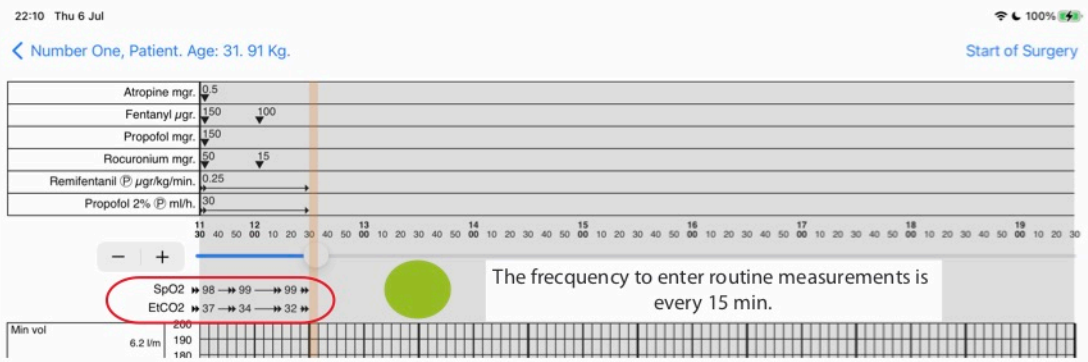
19. RESPIRATORY VARIABLES allows us to select the values of SpO2 and EtCO2 via selection wheels, allowing more precise adjustments by using the + - keys



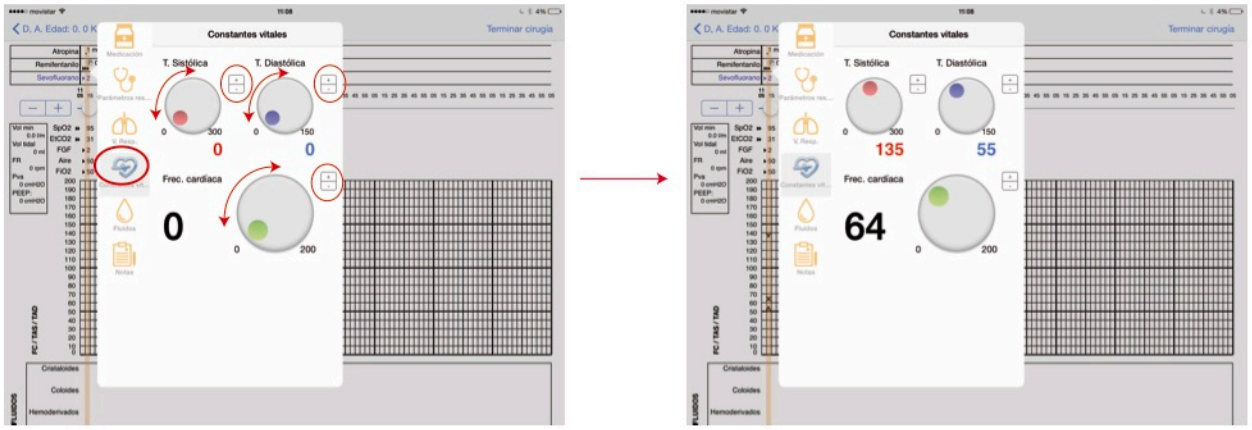
IMPORTANT: to ensure changes in SpO2 or EtCO2 are correctly recorded in the datasheet, it is recommended to allow at least 15 min interval between them. Otherwise the values would be shown overlapped and will make the datasheet unclear. Relevant changes can be indicated using the **Notes** option.



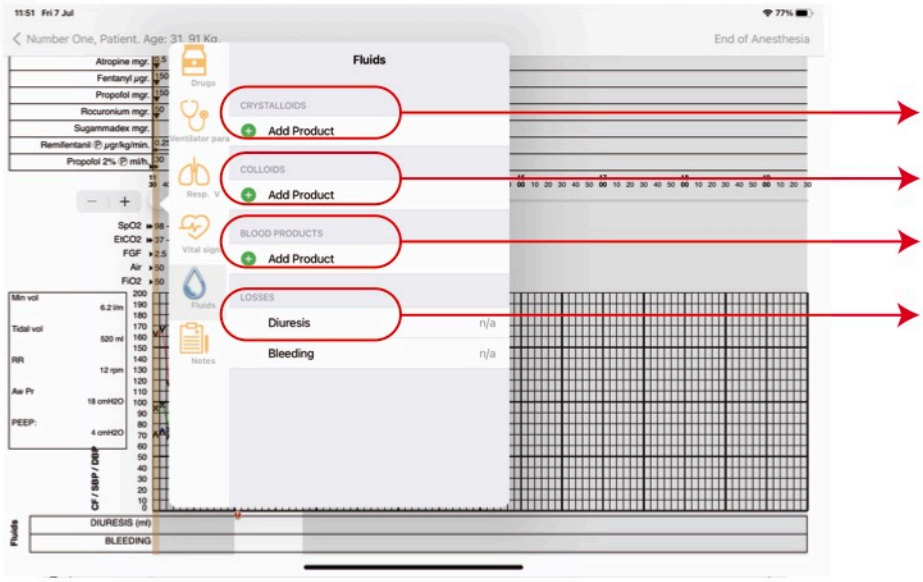
Just like when manually writing records, its is recommended to space notes to avoid overlapping.
The ideal interval is 15 min between notes when these are routine (eg reporting SpO2 during anesthesia).



20. VITAL SIGNS allows selection of 5 of Blood Pressure Systolic, Diastolic Blood Pressure and Heart Rate values every 5 minutes by using the selection wheels. It also allows fine adjustments by clicking the + - keys.



21. FLUIDS allows to reflect on the datasheet the any type contributions provided to the patient (crystalloids, colloids and/or blood products) as well as losses due to diuresis or bleeding.



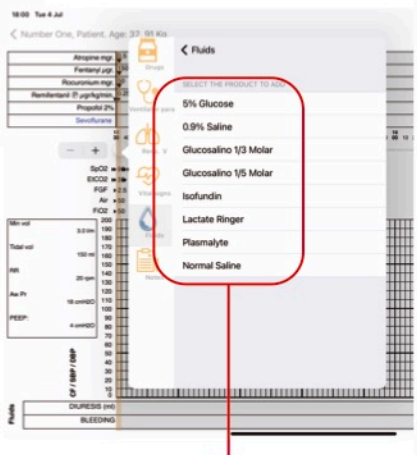
Use this section to enter crystalloid data.

Use this section to enter colloid data.

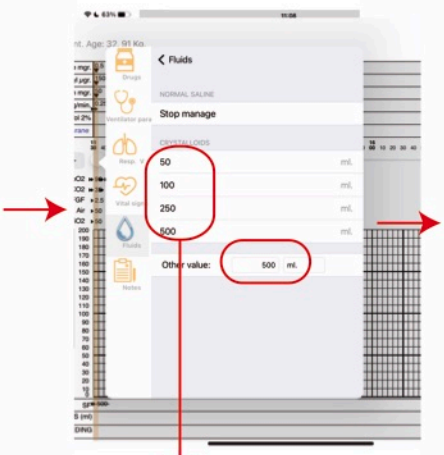
Use this section to enter blood products transfusion data.

Use this section to enter diuresis and bleeding data.

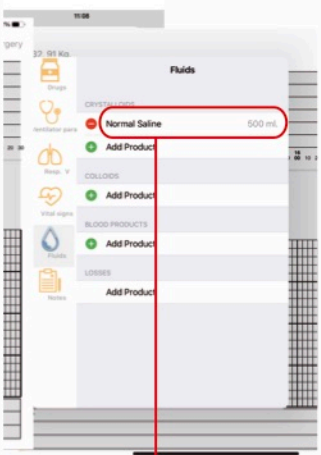
CRISTALOIDES AND COLOIDS INPUT: the selection system is similar to previous sections.



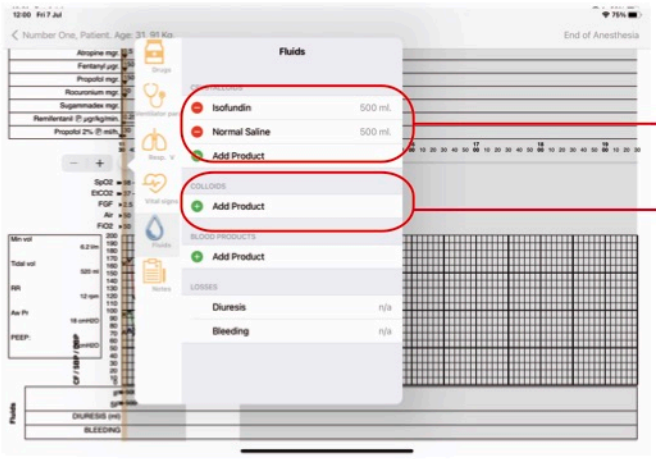
A dropdown menu shows the most frequently used crystalloids. After selection, the app procceds to the volume selection menu.



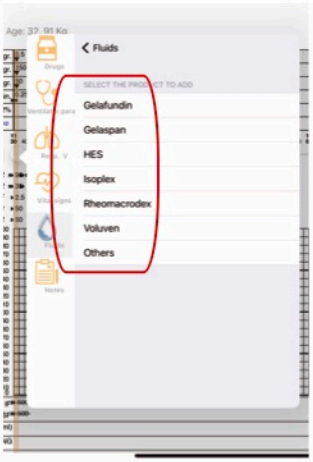
A dropdown menu shows the most frequent presentations. Unforeseen volumes can be chosen.



The selected crystalloid is shown in the list along with its quantity.



The selected crystalloids are shown in the list along with quantity

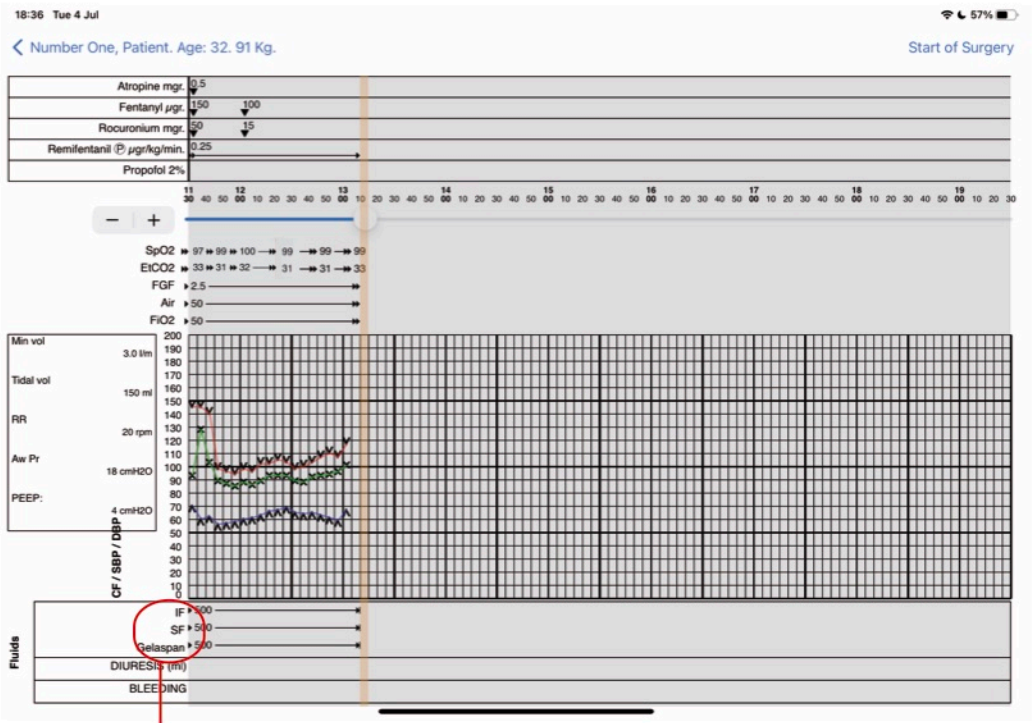


Clicking on Colloids shows the most commonly used ones. Crystalloids and Colloids are selected in the same way.

IMPORTANT: FLUÍDS MANAGEMENT

The app manages each type of fluid used separately and with no linkage it to any line. If a second unit of the same fluid is needed, then it is necessary first to stop its use and, 5 minutes later, at the next data collection interval, resume it again. By default, the app will not offer what type of fluids has been managed through each line (obvious exception is if the patient has only one line). Instead the app will provide consolidated information that indicates the number of units that have been administered of each fluid.

Each administered fluid will therefore have its own field, in which we can track the number of units of that fluid that have been administered to the patient. There will be as many different fields as different fluids are selected.



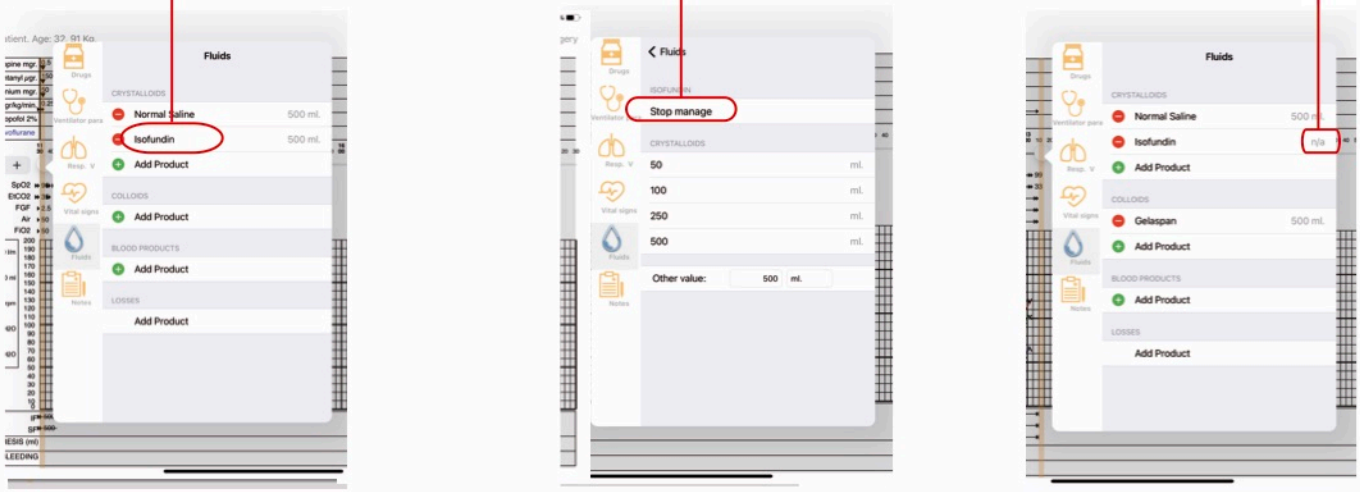
In this example, Isofundin®, Normal Saline and Gelaspan® have been selected, and each one is shown separately in its own field.

EXAMPLE

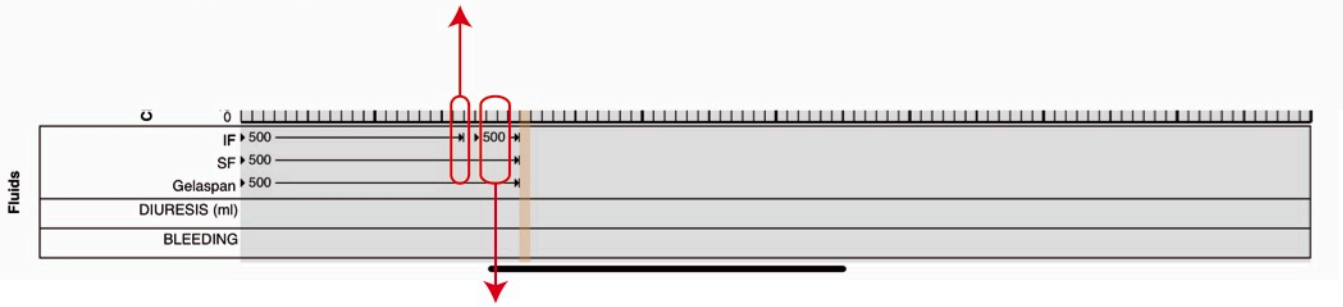
1 Choose Isofundin® from the list of fluids being infused.

2 Select the **Stop manage** option. That will stop its administration on the datasheet

3 It appears on the list as unmanaged (u/m). The FSS had already been stopped before.



The datasheet includes an icon for stopping the administration of the selected fluid once the previous process has been carried out.

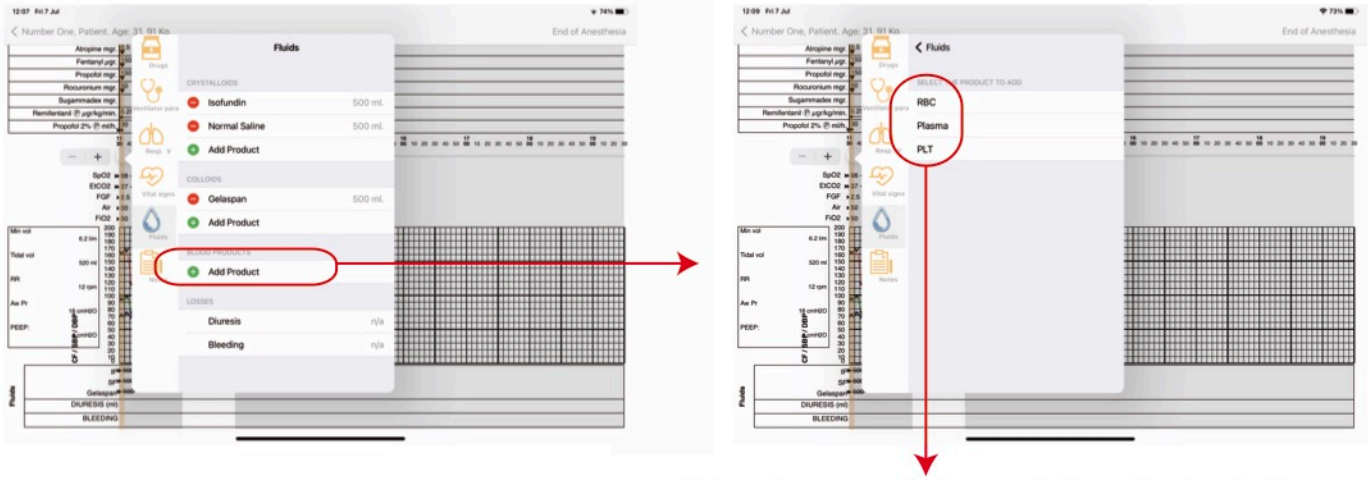


After 5 min we can enter the fluid information again with the same method used previously.

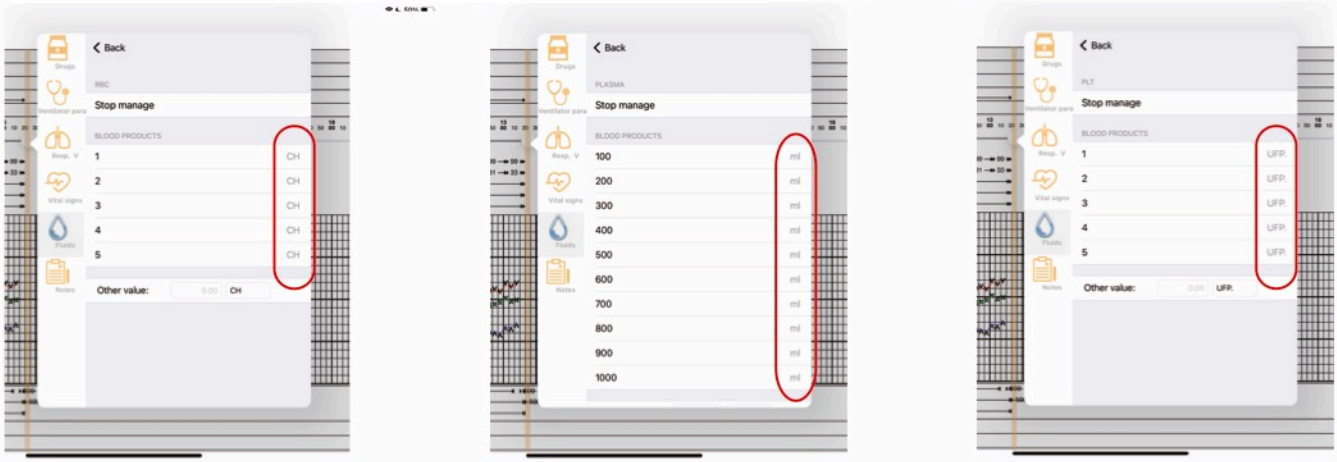
REMEMBER: Just as in the hand-filled datasheet, it is not possible to overlap one fluid on top of another, for reasons of space and clarity of the datasheet itself, exactly the same thing happens in the app. An interval of 5 min should be left between the end of one fluid and the beginning of the next, if they are repeated fluids. The sheet will faithfully reflect the fluid change. If you don't wait, the icons get overlapped and the datasheet won't look right.

REMEMBER: The app will not distinguish between fluids administered via an specific line, instead it will offer us the total number of administered units of each fluid.

Clicking on **Blood products** the user can enter the different transfusion products.

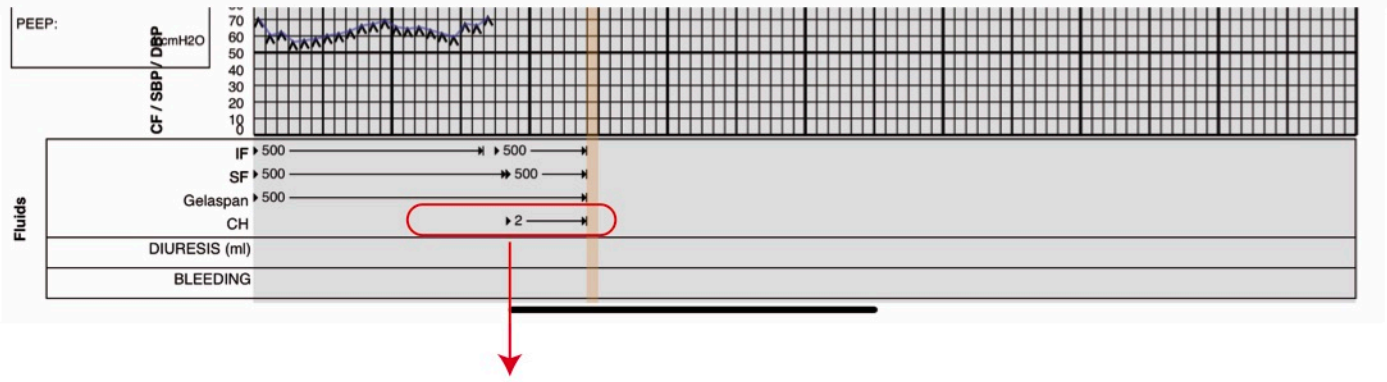


A drop-down menu is shown with the option to select Concentrated Red Blood cells (CRC), Plasma and/or Platelets.



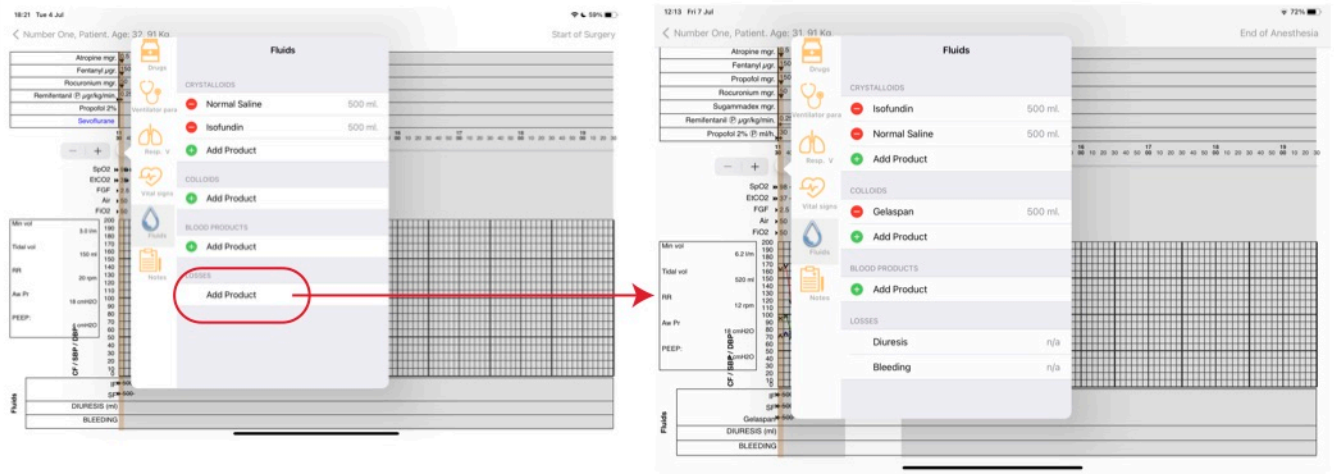
Each transfusion product will appear with its own units (CRC, ml, FPU). Selection processes and choice of the number of units used are identical to the rest of fluids already explained.

See Fluids management on pag 29

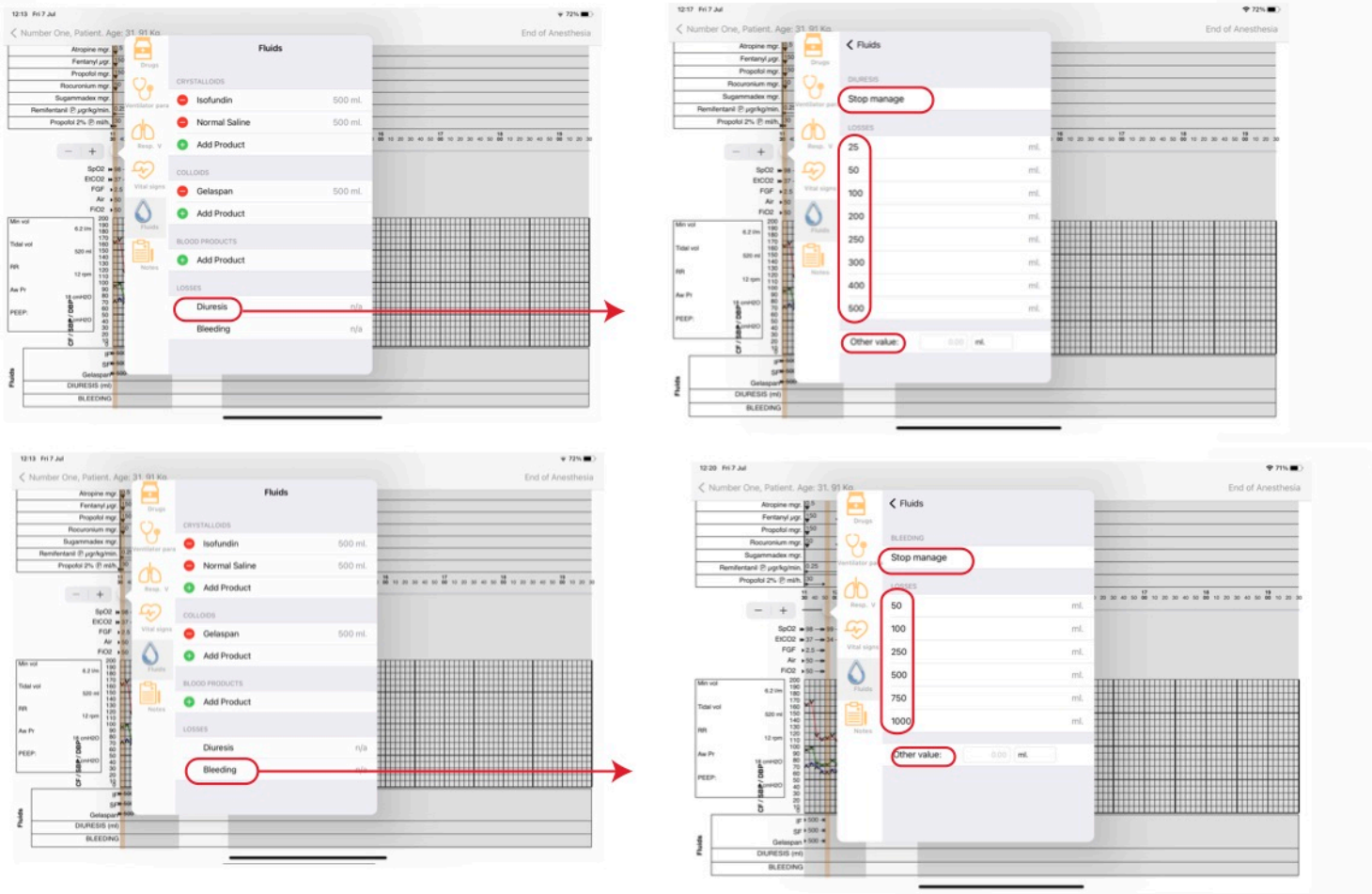


Like any other fluids, the user can indicate the start and end of the transfusion on the datasheet. This will be the same system for Plasma and Platelets administration.

Finally, if the user selects **Losses**, caused by Diuresis and/or Bleeding, it allows to add to the datasheet the amounts that the patient loses due to these reasons.

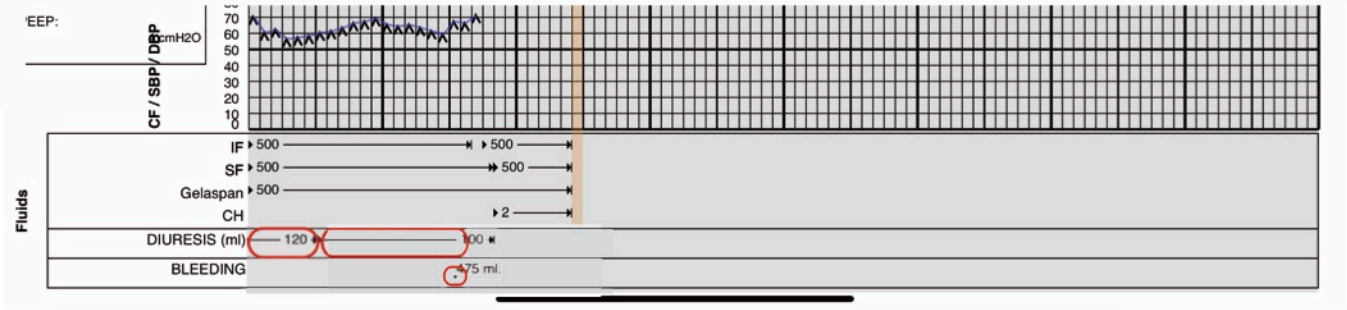


Diuresis allows selection of a preestablished quantity or, as any other Fluid, entering different quantities through the text keyboard by clicking on **Other value**.
This method applies also to **Bleeding** information.

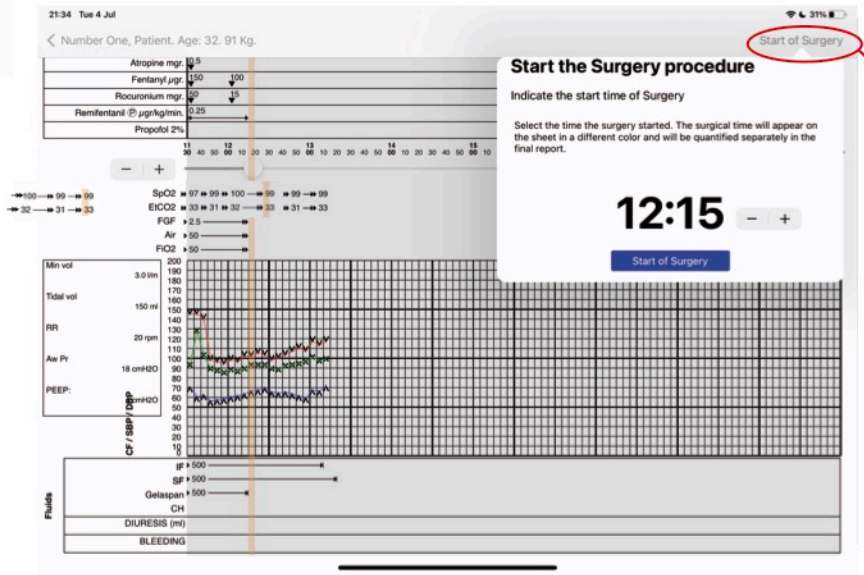


On the next page it can be seen an example of how both data would look on the datasheet once entered.

Loss display example: seeking to get as close to reality as possible, observe how diuresis will be shown as an amount in a selected time interval, while bleeding is reflected as a specific event.

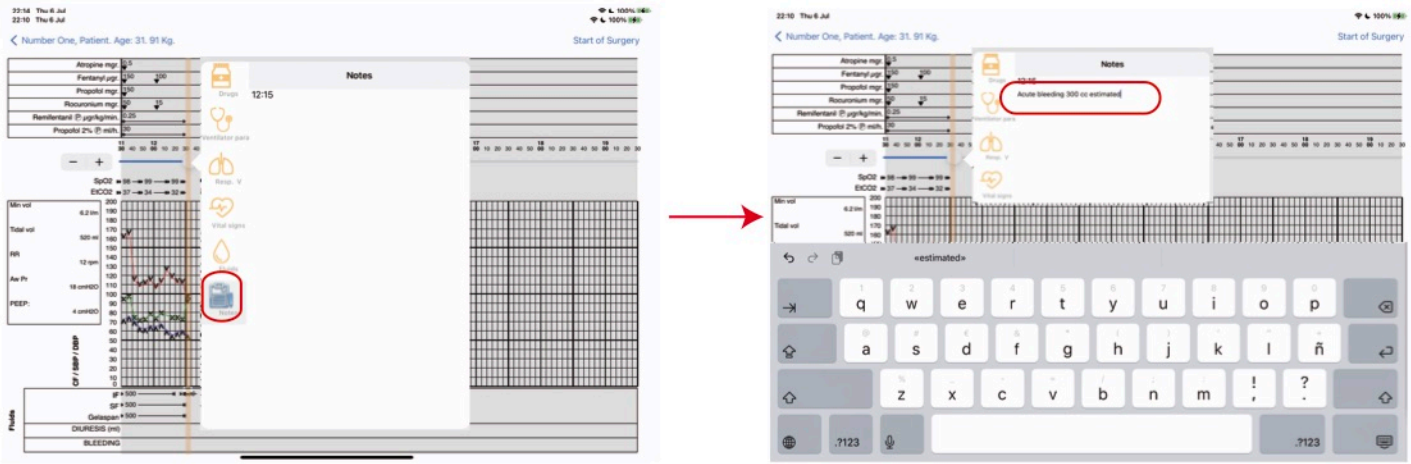


START SURGERY: at any time during the process, we can indicate the time the surgery has began by clicking on the icon located in the upper right corner.

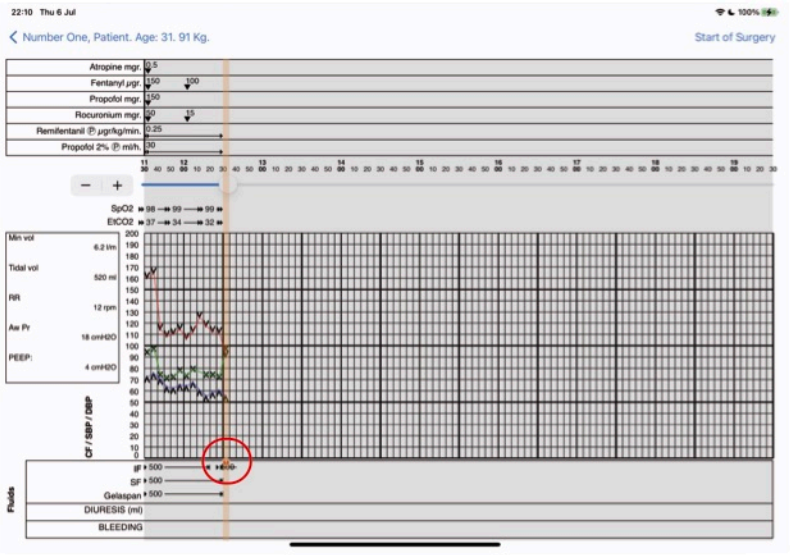


When clicking on **Start surgery** the app starts an independent timer that will measure the duration of it. The timer can be stopped with the option **End surgery** offered at the end of the datasheet. This timer will be shown as an independent data to exploit as desired. During the surgical time the interface of the sheet changes to white status.

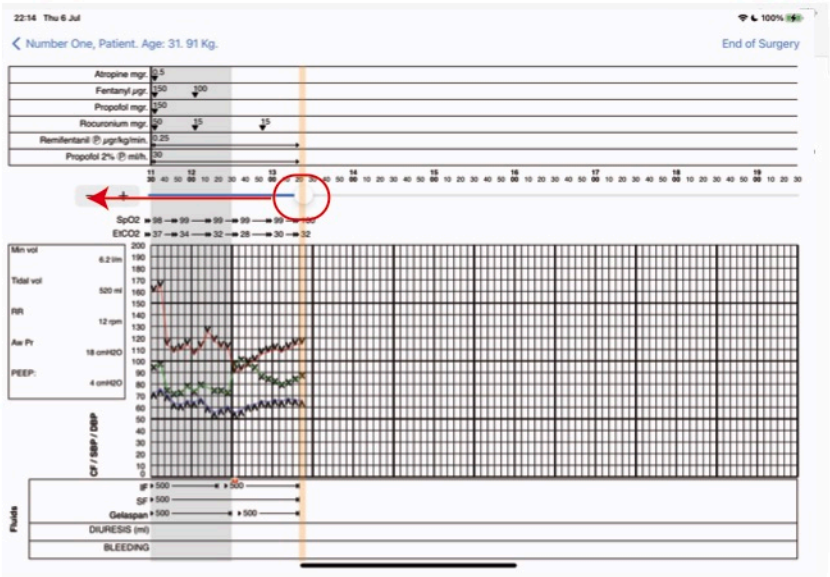
22. NOTES: can be added to the anesthesia datasheet at any time to record any information required. Clicking the option will display a text field with a retractable keyboard. Each note will appear individually in the final report with the time at which it was recorded.



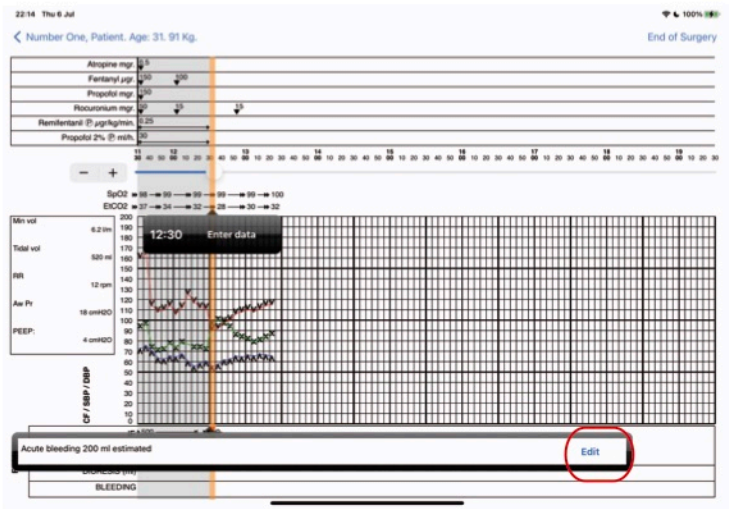
The notes will appear on the datasheet as a warning in the lower area of the vital signs field.



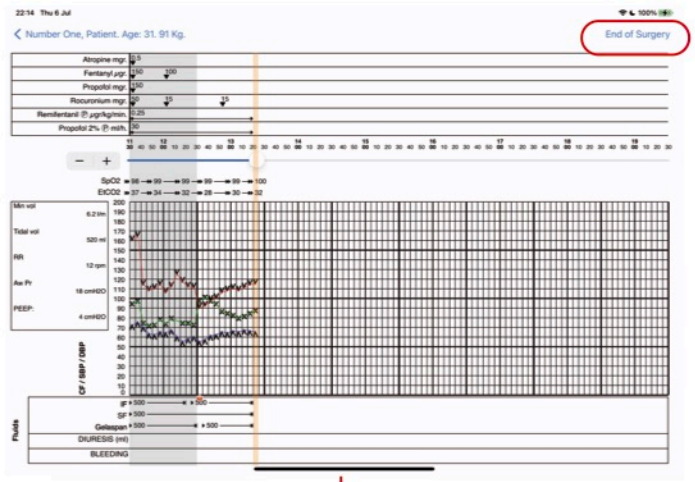
This warning will remain hidden while the datasheet continues to fill in, but it can be consulted at any time by simply moving the time bar back and place it on top, thus displaying the text field linked to it.

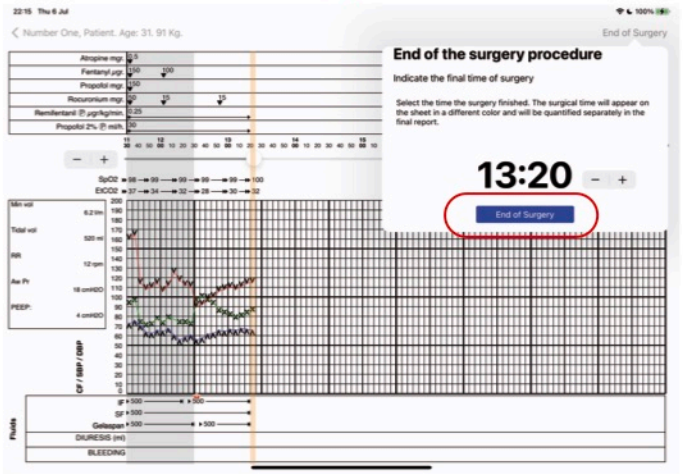


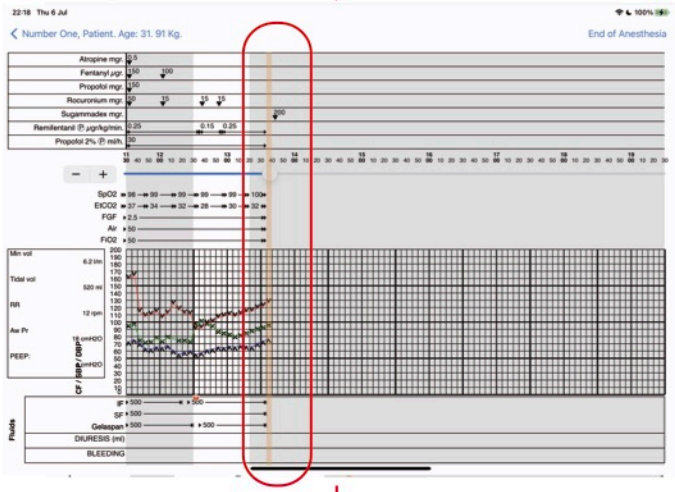
The text can be modified if necessary by selecting **Edit**. This will reopen the **Data** menu that will grant access to Notes again.



23. END SURGERY: press on the **End Surgery** icon that appears in the upper right corner of the datasheet to indicate that the surgery has finished. This action will open a submenu that will allow entering the end time and fine adjustment of it by using the + - buttons. An entry will be created that includes the duration of the surgery which will appear separately in the final report for its statistical or informative uses as needed.

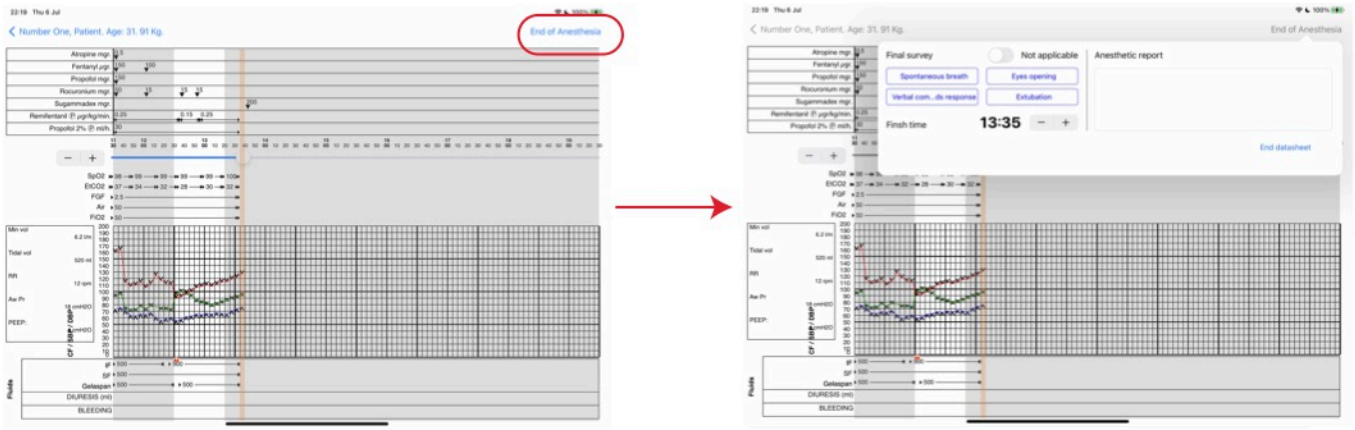


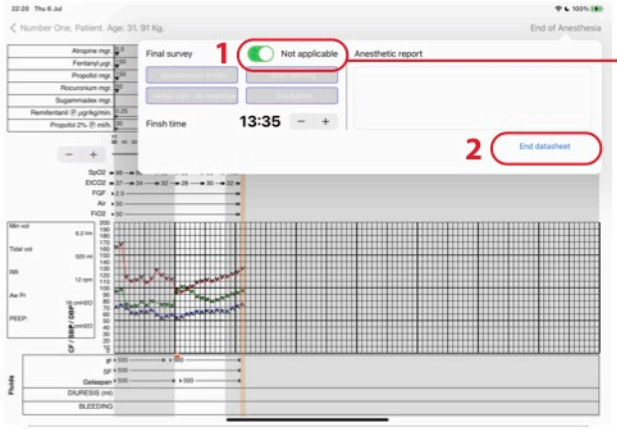




The surgery is over but the anesthesia time continues counting. Notice how the field color has changed again on the datasheet indicating that the status is no longer in surgical time.

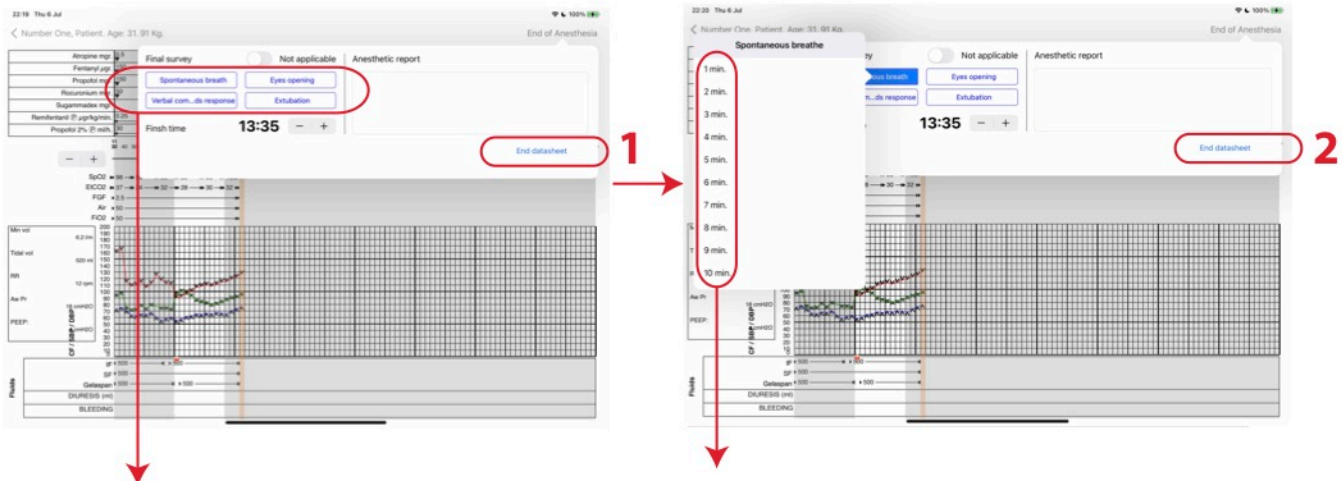
24. END ANESTHESIA: after closing the surgical time, proceed to finish the anesthesia time adecquately. In the example below is shown how after the end of the surgery the color of the datasheet has changed again, and that the user has added specific measures for transporting the patient to the postoperative unit. To finish, click on **End of anesthesia**, which will open a submenu to optionally enables a small survey that gathers anesthetic recovery times for statistical purposes.





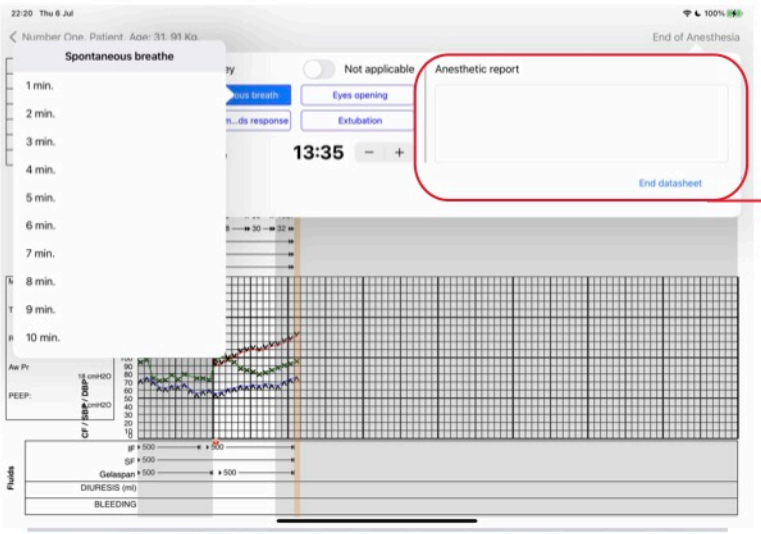
Select **Not applicable** if the patient leaves the operating room intubated or we just don´t want to complete the survey. In this case the filling of the data is blocked and allows you to close directly the file by clicking on **End datasheet**. Closing time can be accurately adjusted using the + - commands.

If the user proceeds to carry out the survey, selecting each of the four items that are asked, a time drop-down menu will appear to indicate the time corresponding to each of the four items requested. These times are shown in the final report already availables for statistical purposes if desired. After completing the survey, click on **End of anesthesia** and then on **Finish Datasheet** to close it. As previously mentioned, the true potential of these data collections will be in the future, once tablets are networked to a central server.

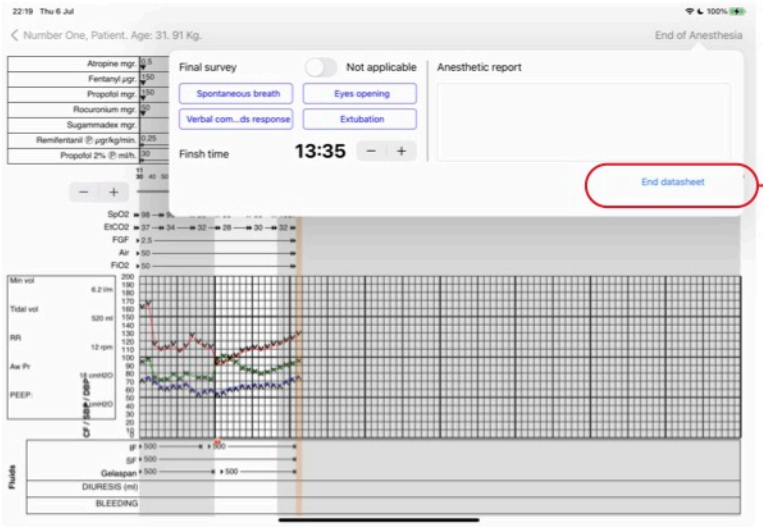


Final survey with four questions to answer.

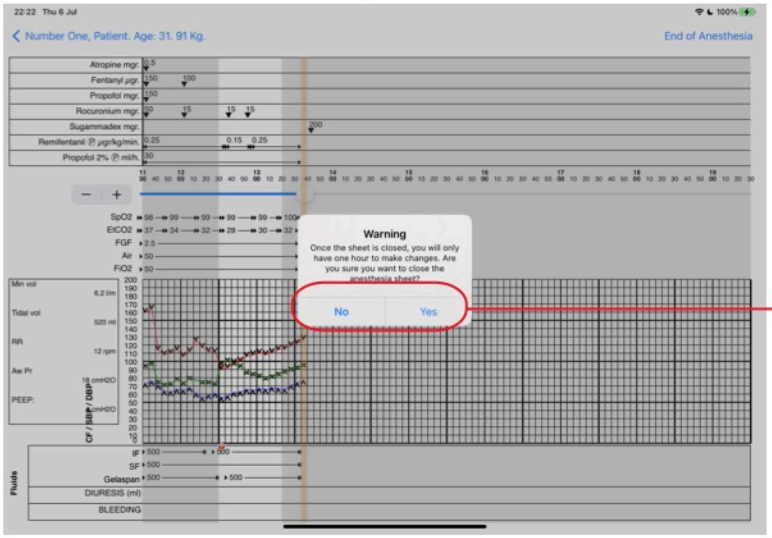
Each item displays a submenu that allows selecting a time interval in minutes from 1 to 15.



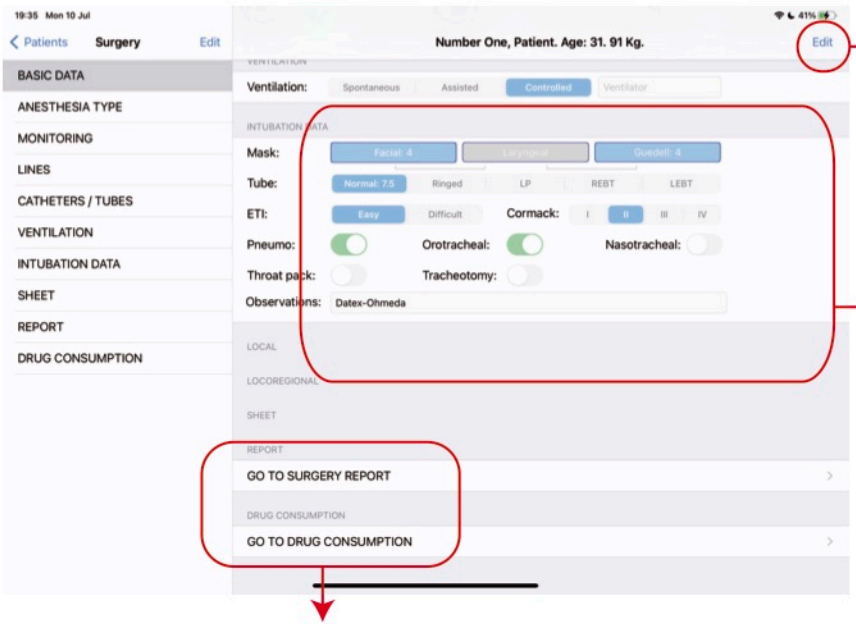
Whether the survey is carried out or not and before closing the datasheet is possible to write an anesthetic report that will be added to the end of it.
In order to do this, click on the intended field to unfold a text keyboard that enables entering the information for the aforementioned report.



Once entering all needed data, the user can close the datasheet by pressing **End datasheet**.



Accepting **YES** closes the datasheet and a 60-minute range time begins counting for the final closing of the sheet.

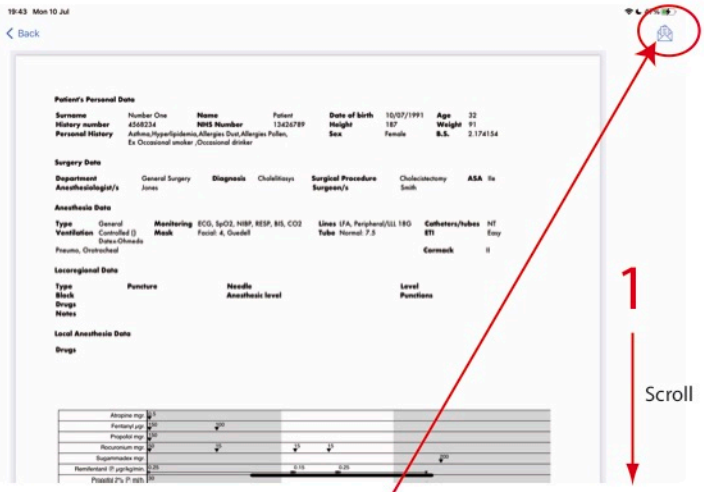


Edit allows users to access the sheet during 1 hour and modify or correct the data.

After closing the sheet, the data will appear locked.

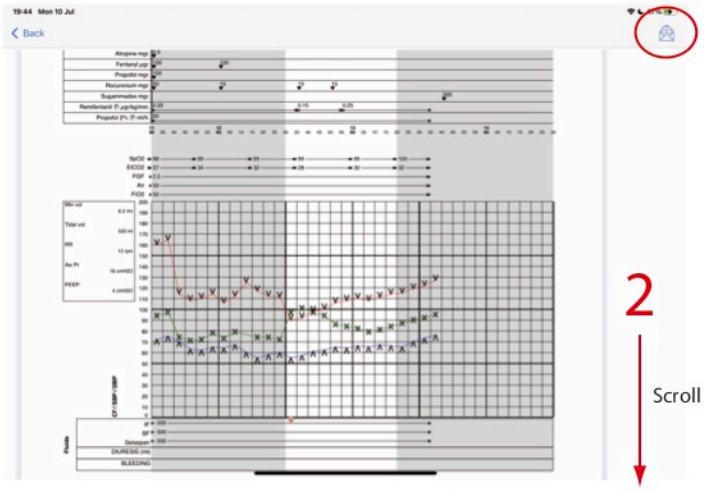
Access to consult the surgery, anesthesia reports and drug consumption

25. The **FULL REPORT** function displays the final report, along with the anesthesia datasheet and adjusted in size to the schedule actually used. The first section contains the report of the general data of the patient and all the anesthesia data. Below it the vital signs chart followed by fluids and losses. A second sheet shows the hourly data, observations and reports. This report may be mailed for printing if desired.



1

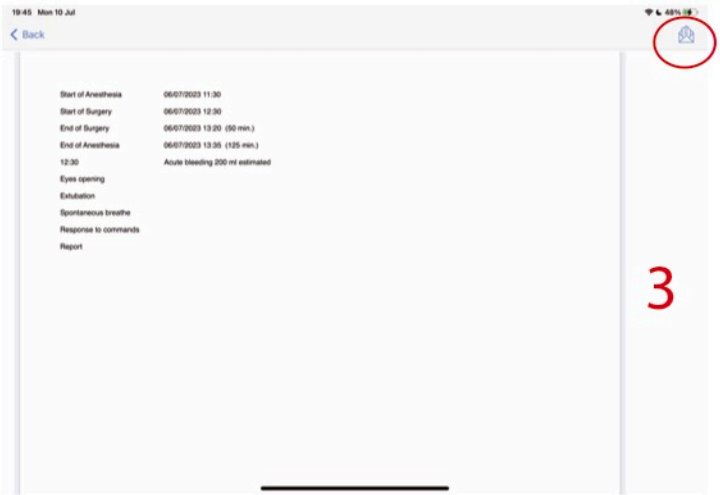
Scroll



2

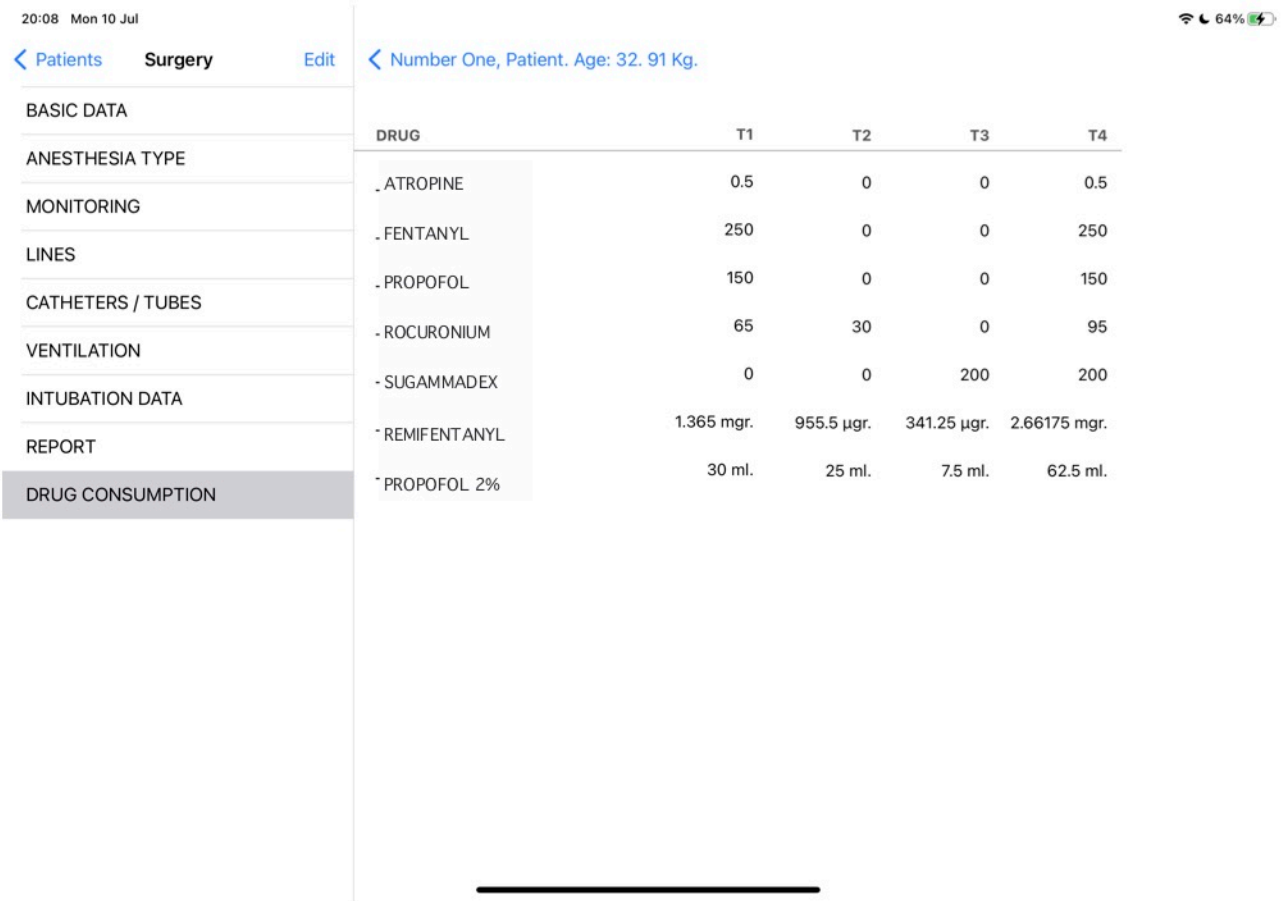
Scroll

The option to send the sheet by email for print is available.



3

26. CONSUMPTION REPORT: finally, the app includes a section with ability to consult the total consumption of the drugs used during the anesthesia, including the calculation of the drugs in perfusion. This section is particularly interesting for the management of the operating room costs. The real value of this feature will be verified in the future, once medical systems based on the use of tablets is further deployed and data is stored on a shared server rather than local networks currently in use. Servers will bring data together and will manage big amount of data, including surgical-anesthetic app calculated times.



In conclusion, we are sure that the project we present is an extremely useful and easy-to-use friendly, intuitive tool. The app will not only allow the basic filling of a routine anesthesiology document,but also data mining from a large amount of information that is currently lost. This will consequently apply to operating room management, in terms of time and consumption, allowing conclusions to be drawn based on real data that will help optimizing the operation of the surgical block. We could summarize the characteristics and potentialities that we believe that, in our opinion, Intrasalus will contribute benefit once the implementation reaches its maximum degree of development and connectivity:

.
Intrasalus is offered in its current state as a simple and effective alternative in the anesthesiologist work environment, both in private activity and/or small size and low volumen hospitals to manage the daily data for the anesthesia records. In the near future, this may be extended to complementary apps planned for Preanesthesia, ICU/Postoperative Unit and Acute Pain, offering a comprehensive view of the entire process of surgical patient. Ideally, here is the future state once the system is fully developed and connected to a central cloud data storage.

. Intrasalus will allow tracking and analyzing the management of drugs associated with the anesthetic procedure.

. Intrasalus will enable **to improve the consumption** and cost of anesthetic products, helping healthcare professionals to **improve efficiency**.

. Intrasalus will make it possible **to optimize** the use of drug administration protocols in the anesthetic procedure.

. Intrasalus will allow **progression** in adecquate fluids management, including gases and any other products involved in the anesthetic procedure.

And, as results of above, with the future development of Intrasalus

. Intrasalus will allow a better management of resources and drugs.