FAQ Intensive Care Products

Q: I need to draw blood samples. Which ports should I use?

A: The red access port should be used to draw patient blood samples. The blue return port should be used to obtain blood samples to monitor filter performance. Access is gained via a 20-gauge (or smaller diameter) needle, attached to a syringe.

Q: How long can PrismaSate be used after opening?

A: Once the over wrap is removed, PrismaSate should be mixed and used within 24 hours.

Q: I set the Prisma up in CVVHDF. At the end of the "Self Prime Test", an alarm appeared "Prisma Set Recognition Test Failed."

A: This alarm is a safety mechanism that insures that the correct set is being used for the chosen modality. If CVVHDF was selected and a TPE set was placed on the machine, "Prisma Set Recognition Test Failed" would alert the operator to assess that the correct set is loaded. If the operator loaded the correct set and this alarm occurs, the following should be checked: 1) Dialysate pump segment loaded correctly in the dialysate pump. 2) The dialysate line is unclamped. After correcting either step, press "RETEST".

Q: The Prisma alarmed "Replacement weight (Incorrect weight change detected)" I pressed CONTINUE and now too much fluid was removed from the patient. Why is this happening?

A: When this alarm occurs, the replacement weight isn't changing, which indicates that no fluid is being pulled from the replacement bag. The operator should assess the following before pressing CONTINUE. Is the bag swinging on the hook? Is replacement bag partially supported? Is the replacement line clamped or is the bag spiked all the way?Once the cause is remedied, press CONTINUE.

If the cause is not resolved or recurs, and the operator presses CONTINUE, the replacement, effluent, and dialysate pump, will restart at the prescribed flow rates. However, it is unable to remove fluid from the replacement bag. Fluid will come from the path of least resistence, which is the patient. Every time CONTINUE is pressed, a specific volume of fluid is pulled by the effluent pump. This could quickly remove large amounts of fluid from the patient.

DIALYSATE WEIGHT (INCORRECT WEIGHT CHANGE DETECTED) should be managed in the same manner as the REPLACEMENT WEIGHT (INCORRECT WEIGHT CHANGE DETECTED).

Q: We use PrismaSate® and we aren't sure how to prepare the solution?

A: PrismaSate is a two-compartment bag. Compartment A contains all the electrolytes and compartment B contains bicarbonate.There is a red frangible pin that separates the two compartments. Break the red frangible pin and allow A to drain into B compartment. Rinse compartment A by pressing the mixed solution from the large compartment back and forth between the two compartments. When compartment A is empty, shake large compartment to mix completely. The solution is now ready to use. PrismaSate connection to dialysate connection should be done in one of two ways: 1) Spike the gray injection port using the dialysate spike. 2) Remove spike for dialysate line and connect luer lock access port. Be sure to BREAK THE CLEAR FRANGIBLE PIN to start the solution flow.

Q: What additives can we add to PrismaSate®?

A: Only a physician can prescribe additives for dialysate solution. If you have questions about compatibilities, we recommend you speak with your pharmacists.

Q: How do I troubleshoot a Filter Clotted alarm?

A: The "Filter Clotted" alarm occurs either when the TMP ³ 450 mmHg or if the filter pressure minus return pressure ³ 250 mmHg. Ensure that all lines in use are unclamped and that the anticoagulation syringe is properly placed. Smaller filters may not be able to withstand high replacement solution flow rates; therefore, try turning down the replacement solution flow rate. If the alarm continues, the filter is most likely clotted or clogged. Change the set if the Filter Clotted alarm reoccurs.

Q: Why does the ACCESS PRESSURE EXCESSIVELY NEGATIVE alarm occur?

A: As the blood pump pulls blood from the catheter, a negative pressure is applied to the access. This alarm indicates that the catheter cannot tolerate the blood flow rate. Check the catheter for clotting and kinks. Flushing the catheter does not always give a good indication of clotting. Clots may be located on the outside of the catheter, like flaps, that close over the holes when pulling from the catheter but offer no resistance upon flushing. Sometimes, the catheter needs to be relocated to another vessel to give better performance. Low MAP can cause access pressure to become more negative, as well. If possible, try repositioning the patient to increase pressure in the area of the catheter tip.

Q: What actions should be taken if the Prisma® System fails a Self Test?

A: The periodic Self Test occurs every two hours and tests the pressure sensors and pods, return line clamp, blood leak detector, air bubble detector, and 24-volt switch. If any one of these fails the test, a 4-digit code is given. Compare the 4-digit code with the Appendix A in the Prisma Operator's Manual. If the code is 00X0 ("X" being any number or letter), a pressure pod or sensor is affected. The Appendix A lists the affected pressure pods with the matching code and instructs the user to reposition the diaphragm in the corresponding pressure pod(s). Follow instructions in Chapter 6 for the Diaphragm Reposition Procedure. If the code is 000X ("X" being a letter or number), then check for air in the return and effluent lines. If air is present, remove the air and press RETEST. Also, check for proper placement of the return and effluent lines and press RETEST. If the Self Test continues to fail, call the 24-hour Gambro hotline for assistance.

Q: How would one perform a Diaphram Reposition Procedure?

A: Supplies Needed:

Isopropyl alcohol and lint-free cloth

20-gauge (or smaller diameter) needle attached to a 5-cc (or less) syringe

Sterile saline (neededonly for Access and Effluent pods)

Reposition for Access and Effluent Pods

Follow the steps below to reposition the diaphragm of the Access line pod (near lowest red sample site) or the Effluent line pod (near upper yellow sample site).

1. Stop all pumps, then clamp the line below the affected pod and above the sample site of the pod.
2. Remove the affected pod from its pressure sensor housing.
3. Use a lint-free cloth and alcohol to clean the sealing cone inside the sensor housing.
4. Use the needle and syringe to reposition the diaphragm of the affected pod. When the procedure has been completed, resume treatment, or press the appropriate softkey on the Alarm screen: CAUTION: Use aseptic technique when repositioning with needle and syringe.
5. Draw 3-cc saline into the 3-5-cc syringe.
6. Inject a maximum of 1 cc of saline into the color-coded sample site between the clamps. If resistance is felt, remove ½ cc volume.
   CAUTION: Injecting more than 1 cc of saline may move the diaphragm beyond the center point of the pod.
7. Remove the needle from the sample site. Reinstall the pressure pod in the correct pressure sensor housing and remove the clamps from the line.
8. Resume treatment.
9. For access pod reposition only: Perform the following test to ensure proper functioning of the access pod. When the control unit is in Run mode, place a clamp on the access line between the access pressure pod and the cartridge. The Warning: Access Pressure Extremely Negative alarm should occur. Unclamp the access line and press the CONTINUE softkey on the Warning screen. Verify that the alarm is cleared (Warning screen leaves the display, green light illuminates).

If the Warning: Access Pressure Extremely Negative alarm does not occur, perform the reposition procedure again.

Reposition for Filter and Return Pods

1. Stop all pumps, and then clamp the line below the affected pod and above the sample site of the pod.
2. Remove the affected pod from its pressure sensor housing.
3. Use a lint-free cloth and alcohol to clean the sealing cone inside the sensor housing.
4. Use the needle and syringe to reposition the diaphragm of the affected pod. When the procedure has been completed, resume treatment, or press the appropriate softkey on the Alarm screen:

Insert needle with empty syringe into the color-coded sample site between the clamps.

1. Remove a maximum of 1 cc of fluid (if resistance is felt, reinject ½ cc).
   CAUTION: Removing more than 1 cc of fluid may move the diaphragm beyond the center point of the pod.
2. Remove the needle from the sample site. Reinstall the pressure pod in the correct pressure sensor housing and remove the clamps from the line.
3. Resume treatment.
4. Perform the following test to ensure proper functioning of the pressure pod. When the control unit is in Run mode, place a clamp on the line below the affected pressure pod. An "Extremely Positive" Warning alarm should occur. Unclamp the line and press the CONTINUE softkey on the Warning screen. Verify that the alarm is cleared (Warning screen leaves the display, green light illuminates).

If the "Extremely Positive" alarm does not occur, perform the reposition procedure again.

Q: What therapy options are available on Prisma?

SCUF: (Slow Continuous Ultrafiltration)

The sole objective of SCUF therapy is to provide fluid balance in the patient by removing plasma water (Paganini, 1986). The patient fluid removal rate may be set to balance the effects of infusions to the patient, such as parenteral nutrition or drug administration, or to correct a fluid overload condition. The patient fluid removal rate is the net amount of fluid that the PRISMA System removes from the patient each hour.

CVVH (Continuous Veno-venous Hemofiltration)

The objective of CVVH therapy is to provide fluid balance as well as to control azotemia and electrolyte balance through convection. In CVVH therapy, plasma water is removed from the patient's blood by ultrafiltration, while a sterile replacement solution is simultaneously infused into the blood flowpath to maintain intravascular fluid volume.

Because unwanted solutes are removed by taking off plasma water, increased clearances are achieved by using higher ultrafiltration rates to remove more plasma water. Compared to CVVHD therapy (hemodialysis), CVVH therapy provides less efficient removal of solutes of small molecular weight (<350 daltons), but more efficient removal of solutes of larger molecular weight (Bellomo, 1996).

CVVHD (Continuous Veno-venous Hemodialysis)

The objective of this therapy is to provide fluid balance as well as to control azotemia and electrolyte balance through diffusion. Plasma water is removed from the patient's blood by ultrafiltration only to the degree required to maintain fluid balance. A dialysate solution is continuously pumped through the fluid side of the filter and the concentration gradient between the filter's blood and fluid sides causes unwanted blood solutes to diffuse into the dialysate, where they can be removed.

CVVHDF (Continuous Veno-venous Hemodiafiltration)

The objective of this therapy is to provide fluid and electrolyte balance, as well as to control azotemia through both convection and diffusion. This is accomplished by running CVVH therapy and CVVHD therapy concurrently (See explanations of CVVH and CVVHD therapies above).

TPE (Therapeutic Plasma Exchange)

A unique system for plasmafiltration with complete monitoring of fluid balance.

TPE is utilized to separate plasma from whole blood through the pores of a filter membrane. To maintain euvolemia, a fluid of variable composition, depending on the therapeutic goal, replaces the extracted plasma.

FOR FURTHER INFORMATION ABOUT THERAPY PARAMETERS, REFER TO THE PRISMA OPERATOR'S MANUAL, OR CALL THE CLINICAL INFORMATION CENTER AT 1-800-525-2623.

Q: What kind of treatment history data is stored on Prisma?

A: Vital machine conditions and operating data are stored and updated minute-by-minute in software memory. The memory stores up to 24 hours of treatment data. The history data can be viewed on the Treatment History screen and on the Events screen. These screens are available during a treatment (Run mode) and when ending treatment (End mode). History data for the last treatment can be viewed from the Choose Patient screen (Setup mode).

I/O History
Cumulative totals for the I/O Data displayed on the Status screen are stored and displayed on the Treatment History screen. Data for the last full I/O Period are displayed when the operator first brings the Treatment History screen to the display. The operator can change the time period on the Treatment History screen by using the arrow keys. In this way, the operator can view fluid totals for all or a portion of the last 24 hours of treatment.

Events History
Certain events that may occur during setup and delivery of a treatment are stored and displayed on the Events screen. The control unit stores the hour and minute that events occur, as well as the name of the event. Up to 100 events can be stored.

An event is recorded when any of the following occur:

1. Therapy, flow rates, and anticoagulant settings are initially selected (Setup mode).
2. Treatment is started (Run mode).
3. A flow rate or anticoagulant setting is changed during treatment.
4. The sensitivity of the blood leak detector is set (normalized).
5. An alarm occurs.
6. An alarm screen is cleared from the display.
7. Any of these softkeys are pressed: LOAD, PRIME, RESUME, STOP, and UNLOAD.

History Data After a Treatment
After a treatment is concluded, the treatment history data is stored in memory. It can be viewed from the Choose Patient screen (Setup mode) by pressing the LAST TREATMENT HISTORY softkey. The Last Treatment History data is deleted when the NEW PATIENT softkey is pressed as well as any time the date or time is changed in the Custom Mode.

History Data During a Power Loss
If a power loss occurs during a treatment, the treatment history data is retained in memory.

Q: How do I calculate fluid removal rate?

A: The patient fluid removal rate is the net amount of fluid the PRISMA system removes from the patient each hour (after accounting for any replacement solution being used). Net fluid removal occurs whenever the operator sets the patient fluid removal rate to a value above zero.

Calculating the desired patient fluid removal rate:
The PRISMA Control Unit software does not measure or account for non-PRISMA sources of patient fluid intake (such as hyperalimentation, blood, or drug infusion) or fluid output (such as urine and wound drainage). It also does not account for anticoagulant solution infused via the PRISMA anticoagulant syringe pump. The operator must account for these other sources when calculating the patient fluid removal rate, as well as when calculating the patient's input/output totals. The following formula may be useful:

Non-PRISMA fluid input (ml/hr)
\- Non-PRISMA fluid outputs (ml/hr)
\+ Prescribed patient fluid loss (ml/hr)

= Patient fluid removal rate to be set on the PRISMA Control Unit (ml/hr)

The patient fluid removal rate must be adjusted if the weight loss prescribed by the physician is changed or if the patient's non-PRISMA fluid inputs or outputs change.

Machine Control of Patient Fluid Removal Rate:

The PRISMA software automatically calculates the ultrafiltration rate needed to achieve the patient fluid removal rate. Any PRISMA replacement solution additions are automatically accounted for. During operations, software controls the effluent pump speed to maintain the required ultrafiltration rate