

Quiz for Module 2: **Aquarius** Training (Rev. 1)

Lesson 1: Introduction to **Aquarius**

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Please circle the correct answers:

1. Select the answer(s) that represent design concepts used for **Aquarius**:
 - A. Patient safety and innovation
 - B. Flexibility and simplicity
 - C. Consistent messaging
 - D. All of the above

2. Select the answer that BEST describes the purpose of the Main selector button on **Aquarius**:
 - A. It allows access to the screen
 - B. It is used in conjunction with a touch screen to program parameters
 - C. It is used to select and confirm different functions and to modify treatment parameters
 - D. All of the above

3. Select the answer that is NOT correct regarding 'Are you sure' messages on **Aquarius**:
 - A. The default selection is YES
 - B. The default selection is NO
 - C. The 'Are you sure' is in a red message box
 - D. The operator must acknowledge and confirm the choice

4. **Aquarius** has three status lights at the top of the monitor. Select the answer that BEST describes what is happening when the green and yellow lights are flashing:
 - A. **Aquarius** is in Preparation mode
 - B. Heater self-test is still running
 - C. System test is running
 - D. A bag change is required

5. **Aquarius** has three status lights at the top of the monitor. Select the answer that describes what is happening when ONLY the green status light is illuminated.
 - A. **Aquarius** is in Preparation mode
 - B. **Aquarius** is in Treatment mode
 - C. System test is running
 - D. An alarm has occurred



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6. **Aquarius** has three status lights at the top of the monitor. Select the answer that describes what is happening when the green and yellow status lights are illuminated and solid:
 - A. **Aquarius** is in Preparation mode
 - B. **Aquarius** is in Recirculation or Connection mode
 - C. A bag change is required
 - D. All of the above
7. **Aquarius** allows the operator to mute alarms using the Mute function key. Alarms can be muted for:
 - A. 5 minutes
 - B. 3 minutes
 - C. 2 minutes
 - D. 1 minute
8. The Blood pump function key is used to immediately stop the blood pump.
Select the answer that also describes a function(s) of the Blood pump function key:
 - A. Green LED is solid when the Blood pump is running
 - B. This key is used to reset alarms
 - C. Pressing the Blood pump function key during treatment will also stop the fluid pumps
 - D. All of the above
9. Select the answer that BEST describes the purpose of the Balance Start/Stop key?
 - A. Controls the weight on the scales
 - B. Monitors the weight on the scales
 - C. Starts and stops the substitution, dialysate and anticoagulant pumps
 - D. Starts and stops the substitution, dialysate and filtrate pumps
10. The Clamp function key is used to manage air detection in the **Aquarius** circuit.
Select the answer that describes the features of the Clamp key during an Air detected alarm
 - A. The LED is the key is red when air is detected in the circuit
 - B. The LED will flash green when the air is removed form the circuit
 - C. Pressing the Clamp key will permit a temporary opening of the line clamp, but will not allow the blood pump to start
 - D. All of the above

Edwards Lifesciences S.A.
Ch. du Glapin 6
1162 Saint-Prex
Switzerland
+41 21 823 4300
www.edwards.com

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Quiz for Module 2: **Aquarius** Training (Rev. 1)

Lesson 2: Preparing **Aquarius**

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Please circle the correct answers:

1. Select the answer that BEST describes the **Aquarius** system test
 - A. The test is conducted at the start of treatment and intermittently throughout the treatment
 - B. The test is not mandatory
 - C. The test takes approximately four minutes and must be completed before bags, tubings or solutions are placed on the machine
 - D. All of the above
2. The blood flow rates available with **Aquarius** during a regular treatment are
 - A. 50 – 400 ml/min
 - B. 10 – 200 ml/min
 - C. 30 - 450 ml/min
 - D. 20 – 400 ml/min
3. On the **Aqualine** each pump segment has a colored indicator that determines which pump it belongs to. What is the correct position for these indicators?
 - A. The top of each pump
 - B. The bottom of each pump
 - C. All of the above
 - D. None of the above
4. Select the answer(s) that BEST apply to the Automatic degassing chamber (ADU) located on the right front panel of the **Aquarius**:
 - A. The ADU is under the green pumps
 - B. The line with the hydrophobic filter attaches to the ADU sensor with the clamp closed
 - C. The line with the hydrophobic filter attaches to the ADU sensor with the clamp open
 - D. A and C



5. **Aquarius** has four pressure sensors located on the front of the machine.

Select the answer that identifies these sensors:

- A. Pre-filter, Arterial, Venous, Filtrate
- B. Pre-filter, Access, Venous, Filtrate
- C. Filter, Arterial, Return, Filtrate
- D. Pre-filter, Access, Return, Filtrate

6. **Aquarius** primes the circuit with the blood pump running counter clockwise (backwards).

Select the answer that correctly indicate the connection of the blood line to the priming solution

- A. Red end of blood line to priming solution
- B. Blue end of blood line to priming solution
- C. Both red and blue ends are connected to the priming solution
- D. The blood line is not connected to the priming solution

7. When attaching the **Aqualine** to the hemofilter the filtrate line is ALWAYS attached to

- A. Red top port of the hemofilter
- B. Luer-lock side port near the top of the hemofilter
- C. Luer-lock side port near the bottom of the hemofilter
- D. Blue bottom port of the hemofilter.

8. When using **Aquarius**, the 'free line' connection determines the type of therapy performed.

Select the answer that describes the correct connection for the 'free line' during CVHD and CVHDF:

- A. Connected to the dialysate port near the bottom of the hemofilter
- B. Connected to the filtrate port near the top of the hemofilter
- C. Connected to the luer-lock port located on the **Aqualine** just above the hemofilter
- D. None of the above

9. Select the answer that correctly describes the choices in the 'Prepare anticoagulant' screen during

Aquarius set up:

- A. Select volume in syringe
- B. Prime anticoagulant line
- C. Program Heparin
- D. All of the above

10. Priming **Aquarius** takes approximately nine minutes. At the end of priming the operator has two choices, 'Next' or 'Reprime'. After the operator confirms 'Next', select the answer that correctly identifies the next step.
- A. Go to programming
 - B. Go to connection
 - C. Go to Clamp and Pressure test
 - D. Go to recirculation
11. **Aquarius** allows the operator the opportunity to reprime the circuit. Choose the correct steps to reprime if there is a need to flush another 800 mL of priming solution through the circuit. Hang a new bag of priming solution then:
- A. Select 'Next' and continue
 - B. Select 'Reprime' and Filtrate Line
 - C. Select 'Reprime' and Blood circuit
 - D. Select 'Post-dilution' and continue

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Lesson 3: Treatment Mode

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Please circle the correct answers:

1. Select the answer that indicates the DEFAULT highlighted parameter on the 'Treatment' screen:
 - A. Heparin
 - B. Blood flow
 - C. Go to programming
 - D. Help
2. The **Aquarius** 'Treatment' screen provides information regarding several therapy parameters. Select the answer that is NOT part of the information displayed on this screen:
 - A. Blood flow rate and access pressure
 - B. Fluid loss and substitution/dialysate totals
 - C. Options and Help
 - D. UF variation and filtration fraction
3. Selecting and confirming the 'More' choice from the 'Treatment' screen will allow the operator to:
 - A. Program and make changes
 - B. View additional parameters with no ability to make changes
 - C. Access 'Help' and 'History' screens
 - D. Change therapy
4. Select the answer that BEST describes the **Aquarius** 'History' screens:
 - A. Available from 'Options' screen or directly from Help
 - B. Available in graphic and list format
 - C. Available for three consecutive treatments
 - D. All of the above
5. The patient may be disconnected from **Aquarius** by selecting and confirming 'Recirculation' or 'End treatment' from the 'Options' screen. Select the answer that BEST describes when 'Recirculation' might be selected during a treatment:
 - A. The circuit has clotted and the operator needs to change the complete circuit
 - B. The patient has been receiving treatment for a few hours and needs to go for an MRI
 - C. The patient's renal function is improving and the physician has written an order to discontinue therapy
 - D. The physician has written an order to change the therapy from CVWH to CVHHD.

6. The patient may be disconnected from **Aquarius** by selecting and confirming 'Recirculation' or 'End treatment' from the 'Options' screen. Select the answer that BEST describes when 'End Treatment' might be selected during a treatment.
 - A. The circuit has partially clotted and the operator needs to change only the hemofilter
 - B. The patient has been receiving treatment for a few hours and needs to go for an MRI
 - C. The patient's renal function is improving and the physician has written an order to discontinue therapy
 - D. The physician has written an order to change the therapy from CVWH to CVVHD.

7. Select the answer that BEST describes what happens when the operator selects and confirms 'End Treatment' from the 'Options' screen
 - A. This selection terminates the treatment and leads to disconnection
 - B. This selection starts a temporary disconnection
 - C. This selection allows the operator to return to the 'Treatment' screen
 - D. All of the above

8. Select the answer that BEST describes the procedure for turning off **Aquarius** at the end of a treatment:
 - A. Remove the solution bags and confirm '**Aquarius OFF**'
 - B. Confirm '**Aquarius OFF**' then remove tubing set and solutions
 - C. Completely remove the tubing set and solutions, then confirm '**Aquarius OFF**'
 - D. It doesn't matter how it's done.

9. Certain events during a treatment may cause excessive pressure to build inside the blood circuit. If excessive pressures are present at the end of any treatment, **Aquarius** displays a message indicating pressures inside the circuit exceed 400 mmHg. Select the answer that BEST describes the correct procedure for removal of the tubing set:
 - A. Select '**Aquarius OFF**' and remove the tubing set
 - B. Use a syringe to decrease the pressure before removing the tubing set, then turn '**Aquarius OFF**'
 - C. Clamp all the lines and remove the tubing set
 - D. All of the above

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Quiz for Module 2: **Aquarius** Training (Rev. 1)

Lesson 4: Pressures, Alarms & Fluid Balance

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Name: _____

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Please circle the correct answers:

1. **Aquarius** uses four pressure sensors to monitor and control the system. Pressures from the blood and fluid sides of the circuit are used in combination to manage the treatment safely and effectively. Select the answer that BEST describe the pressures used to monitor only the blood side of the circuit:
 - A. Filtrate, Transmembrane pressure (TMP), Pressure Drop (PD) and Access
 - B. Transmembrane pressure (TMP), Pressure Drop (PD), Access and Return
 - C. Access, Return, Pressure Drop (PD), and Pre-filter
 - D. Pre-filter, Transmembrane pressure (TMP), Access and Filtrate

2. Select the answer that BEST describe features that apply to the Access pressure on **Aquarius**:
 - A. Monitors the negative pressure generated to remove blood from the patient
 - B. The pressure may be affected by the patient's access catheter and the blood flow rate
 - C. The pressure is displayed on the 'Treatment' screen
 - D. All of the above

3. Select the answer that BEST describes the Filtrate pressure on **Aquarius**:
 - A. Monitors a pressure on the blood side of the circuit
 - B. Blood flow rates and fluid flow rates do not affect this pressure
 - C. Monitors both positive and negative pressure in the filtrate compartment of the hemofilter
 - D. Clotting in the hemofilter does not affect this pressure

4. Transmembrane pressure (TMP) is calculated using Return pressure, Access pressure and Filtrate pressure. The primary role of TMP is to provide information on the condition of the hemofilter throughout the therapy. TMP is displayed on the:
 - A. 'End treatment' screen
 - B. 'Treatment' screen
 - C. 'Options' screen
 - D. 'More' screen



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5. **Aquarius** safety mode is determined by the nature of occurring alarms. Select the answer that correctly identifies the types of alarms that occur:
 - A. Alarms in the blood circuit
 - B. Alarms in the filtrate/dialysate circuit
 - C. System errors
 - D. All of the above
6. Select the answer that BEST describes what happens during an **Aquarius** blood circuit alarm:
 - A. A visual and audible alarm is generated, all pumps stop and the line clamp closes
 - B. An audible alarm is generated and the blood pump stops
 - C. An audible alarm is generated and the fluid pumps stop
 - D. Only an audible alarm is generated
7. Messages related to alarm types are displayed in color-coded message boxes and are also indicated by illumination of status lights on the display monitor. Select the answer that BEST describe these parameters during a blood circuit alarm
 - A. Message box is red and the red and yellow status lights are illuminated
 - B. Message box is yellow and the red and yellow status lights are illuminated
 - C. Message box is yellow and yellow status light is illuminated
 - D. Message box is yellow and red status light is illuminated
8. Select the answer that correctly identifies characteristics of alarms on **Aquarius**:
 - A. Alarms may be silenced for two minutes using the Mute key
 - B. Blood circuit and System alarms are cleared by pressing the Blood Pump key
 - C. Fluid circuit alarms are cleared by pressing the Balance Stop/Start key
 - D. All of the above
9. **Aquarius** uses a system of scales and pumps to ensure accuracy in patient fluid removal. Select the answer that correctly identifies when a balance alarm occurs if the treatment is performed using a regular **Aqualine**.
 - A. 25 milliliters
 - B. 20 milliliters
 - C. 60 milliliters
 - D. 50 milliliters



10. **Aquarius** uses a system of scales and pumps to ensure accuracy in patient fluid removal. Select the answer that correctly identifies when a balance alarm occurs if the treatment is performed using a low volume **Aqualine**.
- A. 25 milliliters
 - B. 20 milliliters
 - C. 60 milliliters
 - D. 50 milliliters

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