

VIRTUAL VENTILATOR

GAME 7: STUDENT HANDOUT

Estimated Time: 45 minutes



Scan to Begin



Patient Name: Collin P. Davis

INSTRUCTIONS

There are six levels for you to complete in this serious game. Instructions are provided in the tabbed content area of the iPad. They are included here for added flexibility.

Note: You can access the ARISE Virtual Ventilator and other content in the tabbed iPad content throughout the serious game.

LEVEL 1: SUGGESTED VENTILATOR SETTINGS

- Given your patient's recent ABG, a decision has been made to intubate your patient. ARISE Hospital protocol states that all Adult Patients use the Volume Control mode, but "Respiratory Therapy" must choose the Rate, Tidal Volume, O₂ %, and PEEP according to NBRC standards. On the next screen, you will get 3 attempts to enter the correct settings for your patient. ALL settings must be correct to proceed.
- If you are unable to choose the correct settings within 3 attempts, you are exited from the program, because choosing correct ventilator settings isn't a game.

- If you choose correctly, you will advance to the next level and attempt to enter your chosen settings on the ARISE Virtual Ventilator.
- Note: Make sure you write down your correct settings as you will need them later.

LEVEL 2: ENTER VENTILATOR SETTINGS

- You must enter the EXACT settings you chose on the last level. These are tied to programming and eventually, you will confirm that the settings you enter on the ARISE Virtual Ventilator are correct.
- You can also set a Flow or I Time. When setting these, notice the relationship between the two and relate that to your mechanical ventilator course content.
- When you think your settings are correct, press the “Test Lung” button. This will allow you to see the settings you chose “in action” and adjust the Flow or I Time to achieve the desire I:E ratio. Please refer to your mechanical ventilator course content for this information. Note: If you update the ARISE Virtual Ventilator settings while in the “Test Lung” mode, you must tap the “Test Lung” button again to activate those settings.
- When you think you are ready to place your patient on the ARISE Virtual Ventilator, press the “Connect Patient” button. This will take you to a final confirmation screen. If you are a little nervous and want to check your settings one more time, press the “Back to Ventilator” button. If you’re sure the settings are correct, press the “Connect Patient” button.
- Like before, you will get 3 attempts to enter the correct settings on the ARISE Virtual Ventilator. The Rate, Tidal Volume, O₂% and PEEP must be correct to proceed. If you are incorrect, you must re-enter the Ventilator through the tabbed content area of the iPad to try again.
- If you are unable to enter the correct settings on the ventilator within 3 attempts, you are exited from the program, because entering settings on a ventilator isn’t a game.
- If you choose correctly, you will advance to the next level and attempt to enter appropriate alarms settings on the ARISE Virtual Ventilator.

LEVEL 3: SET VENTILATOR ALARMS

- Alarms must be set according to NBRC standards. These are tied to programming and eventually, you will confirm that the alarms you enter on the ARISE Virtual Ventilator are correct.

- Press the “Alarms” button and to enter the alarms area of the ARISE Virtual Ventilator. There are alarms for Pressure, Rate, Minute Volume and Apnea.
- When choosing patient appropriate alarms, you need to know patient parameters. Therefore, the corresponding patient parameter is featured on each alarm bar.
- To set an alarm, press a “Max” or “Min” button and rotate the knob.
- When you think you’ve selected correct patient appropriate alarms, press the “Commit Changes” button. Then, on the main screen of the ARISE Virtual Ventilator, press the “Verify Alarm Settings” button. This will take you to a final confirmation screen. If you are a little nervous and want to check your alarm settings one more time, press the “Back to Ventilator” button and re-enter the alarms area of the ARISE Virtual Ventilator. If you’re sure the settings are correct, press the “Verify Alarms” button.
- If you are incorrect, you must re-enter the Ventilator through the tabbed content area of the iPad to try again.
- Like before, you will get 3 attempts to enter the correct alarm settings on the ARISE Virtual Ventilator. ALL alarms must be correct to proceed.
- If you are unable to enter the correct settings on the ventilator within 3 attempts, you are exited from the program, because entering settings on a ventilator isn’t a game.
- If you choose correctly, you will advance to the next level and perform a few ventilator calculations.

LEVEL 4: SUGGESTED VENTILATOR CHANGES

- Given your patient’s recent ABG, mechanical ventilator changes are needed. ARISE Hospital protocol states “Respiratory therapy” is to change ventilator settings according to NBRC standards to maintain the following: pH = 7.35-7.45, PaCo₂ = 35-45 mmHg, PaO₂ = 80-100 mmHg. Current ventilator settings are: Rate = 18, Vt = 530, O₂ = 50%, and PEEP = 8.
- Given the provided data, you must choose the most appropriate ventilator setting changes.
- If you are unable to choose the correct ventilator setting changes within 3 attempts, you are exited from the program because changing ventilator settings isn’t a game.

- If you choose correctly, you will advance to the next level and attempt to enter your setting changes on the ARISE Virtual Ventilator.
- Note: Make sure you write down your correct settings as you will need them later.

LEVEL 5: ENTER VENTILATOR SETTINGS AND ADJUST ALARMS

- The Provider has ordered the following ventilator changes: $V_t = 550$, Rate = 26, $O_2 = 60\%$ (adjust O_2 to keep $SpO_2 > \text{ or } = 92\%$), and PEEP = 10. Now enter those settings and adjust the alarms on the ARISE Virtual Ventilator. Follow the instructions below:
- You must enter the EXACT settings you chose on the last level. These are tied to programming and eventually, you will confirm that the settings you enter on the ARISE Virtual Ventilator are correct.
- Remember to check the Flow and/or I Time. When making ventilator changes these will often need changing as well. See course content for more information.
- When you think your settings are correct, press the "Test Lung" button. This will allow you to see the settings you chose "in action" and adjust the Flow or I Time to achieve the desired I:E ratio. Please refer to your mechanical ventilator course content for this information. Note: Be careful not to tap the "Apply Changes" button before adjusting the alarms. But, if you do, just tap the "Back to Ventilator" button.
- You will also need to adjust the alarms at this time according to NBRC standards. To do this press the "Alarms" button and enter the alarms area of the ARISE Virtual Ventilator. Press a "Max" or "Min" button and rotate the knob to the desired limit. The corresponding patient parameter is featured on each alarm bar. These are tied to programming and eventually, you will confirm that the alarms you enter on the ARISE Virtual Ventilator are correct.
- When you think you've selected correct patient appropriate alarms, press the "Commit Changes" button. Then, on the main screen of the ARISE Virtual Ventilator, press the "Apply Changes" button. This will take you to a final confirmation screen. If you are a little nervous and want to check your setting change and alarms one more time, press the "Back to Ventilator" button. If you're sure the settings are correct, press the "Apply Changes" button.
- Like before, you will get 3 attempts to enter the correct settings and adjust the alarms on the ARISE Virtual Ventilator. If you are incorrect, you must re-enter the Ventilator through the tabbed content area of the iPad to try again.

- If you are unable to enter the correct settings and adjust the alarms on the ventilator within 3 attempts, you are exited from the program, because entering settings on a ventilator isn't a game.
- If you choose correctly, you will advance to the next level and attempt to perform several ventilator calculations.
- You can also set a Flow or I Time. When setting these, notice the relationship between the two and relate that to your mechanical ventilator course content.

LEVEL 6: PERFORM CALCULATIONS

- The next screen displays a nearly completed Ventilator Flowsheet for your patient. It is missing the Static Compliance, Dynamic Compliance, Airway Resistance, and I:E ratio.
- Perform these calculations using the numbers provided on this flowsheet. Then, enter them onto the Ventilator Flowsheet.
- If you are incorrect, you will find the fillable ventilator flowsheet under the “Ventilator Calculations” tab on the iPad.
- Like before, you will get 3 attempts to enter the correct calculated parameters on the Ventilator Flowsheet. ALL calculations must be correct to proceed.
- If you are unable to enter the correct calculations within 3 attempts, you are exited from the program, because calculating patient ventilator parameters isn't a game.
- If you choose correctly, you have completed this ARISE Virtual Ventilator experience.

SCORING

The iPad keeps track of how many attempts it takes you to pass each level of the serious game. FYI, you get 3 attempts on each level. So, not only do you want to complete each game, but you want to do so using the fewest number of attempts as possible. Your score will be calculated by dividing the number of attempts that are left when you finish the serious game by the total number of available attempts.

- Example: There are 3 available attempts on each of the four levels in serious game #1 – for a total of 12 available attempts. By the end of the serious game, you used 4 attempts, which leaves 8 available attempts. $8/12 = 67\%$. So, you completed the game, but did not score a 75% or better.



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