TACTICS VR Telehealth - User Manual

Contents

1. Overview

TACTICS VR - Telehealth was developed to provide stroke workflow training with a specific emphasis on stroke telehealth integration. It seeks to increase awareness of stroke telehealth workflow processes and provide familiarisation with relevant resources to inform clinical workflow.

This application was developed in partnership between the [NSW Agency for Clinical Innovation](#) (ACI) and [Centre for Advanced Training Systems](#) (University of Newcastle). Content was developed in consultation with a diverse range of experts, particularly members of the Hunter New England Local Health District and the NSW Telestroke Service. VR development was supported by Jumpgate Virtual Reality. The application assumes a pre-existing knowledge of stroke diagnosis, treatment and management workflow.

It builds on the 1st TACTICS VR – Hyperacute Stroke Management module, which was developed as part of the TACTICS stroke reperfusion clinical trial and funded by the National Health and Medical Research Council (NHMRC).

For more information, access the TACTICS website: https://www.tacticsvr.com.au

This user manual contains information on how to setup and use the virtual-reality headset hardware, how to initiate and navigate the teaching application and a brief summary of content with additional support.

2. Initial hardware setup (Oculus Quest 2)

TACTICS VR - Telehealth was designed for the stand-alone Oculus Quest 2 virtual reality headset system.

If you are using a new Oculus Quest 2 headset, you will have to perform the initial headset setup and install the application. The application implementation uses the Oculus for Business enterprise management system to manage and maintain the headset fleet.

For support in this process, please contact the Centre for Advanced Training Systems directly for advice and support: ATS@newcastle.edu.au

Detailed instructions relating to the Oculus Quest 2 are available on the company website: https://support.oculus.com/quest/.

3. How to use the Oculus Quest 2

This section will guide you on how to use and maintain the Oculus Quest 2 headset and controllers. Detailed instructions are also available on the Oculus website: https://support.oculus.com/quest/.

Make sure the headset and controller are turned on, and that they have sufficient battery power for use (instructions on "Charging the Oculus Quest 2" on page 10).
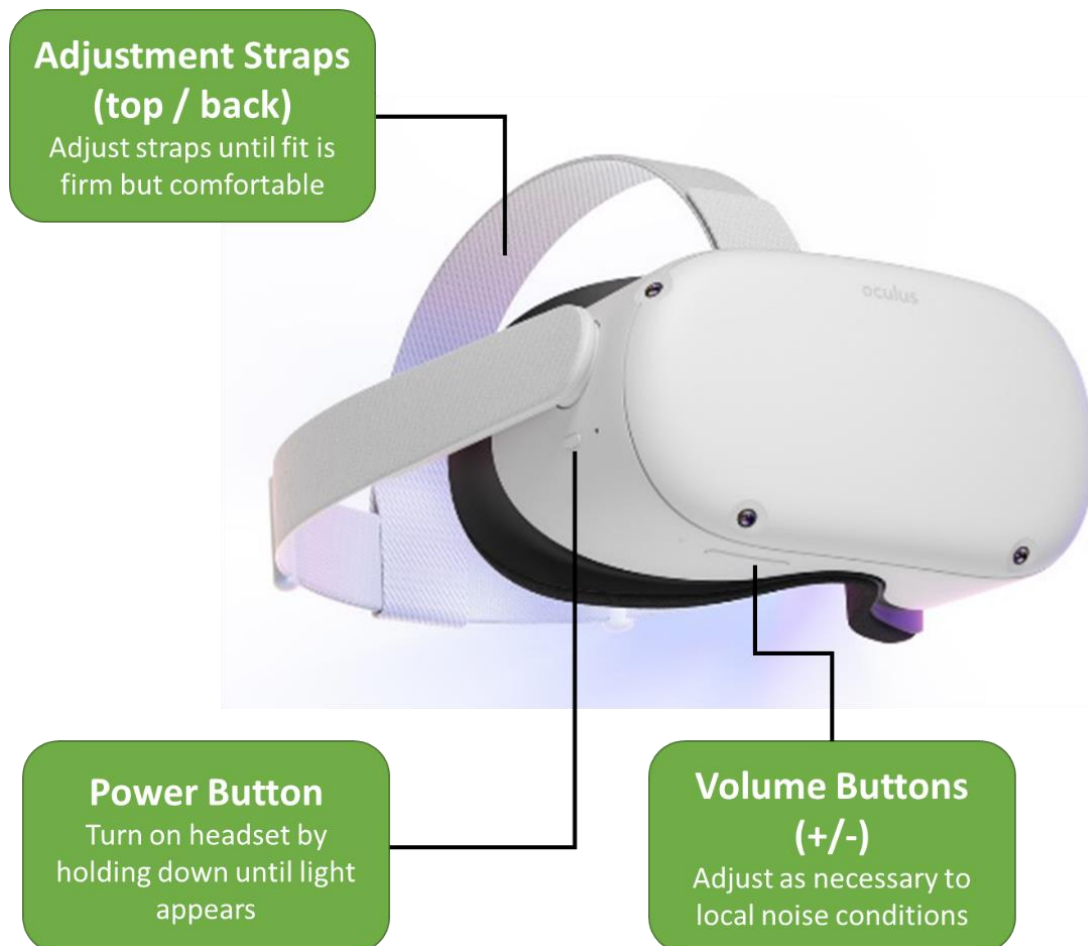
3.1 Using the headset

To put the headset on, slip the straps over your head by holding the headset against your face and moving the straps into place.

Adjust the length of the straps by releasing and reattaching the Velcro on the top strap and adjusting the toggles on the back of the side strap. The headset should fit firmly against your face without having to hold it, while feeling comfortable.

If the graphics are blurry, adjust the eye spacing between the lenses by gently moving the lenses sideways. There are 3 options for eye spacing. Move the lenses to the spacing that has the clearest image quality.

During training, you can adjust the audio volume by using the +/- volume buttons on the bottom right-side of at the front of the headset.

Adjustment Straps (top / back)
Adjust straps until fit is firm but comfortable

Power Button
Turn on headset by holding down until light appears

Volume Buttons (+/-)
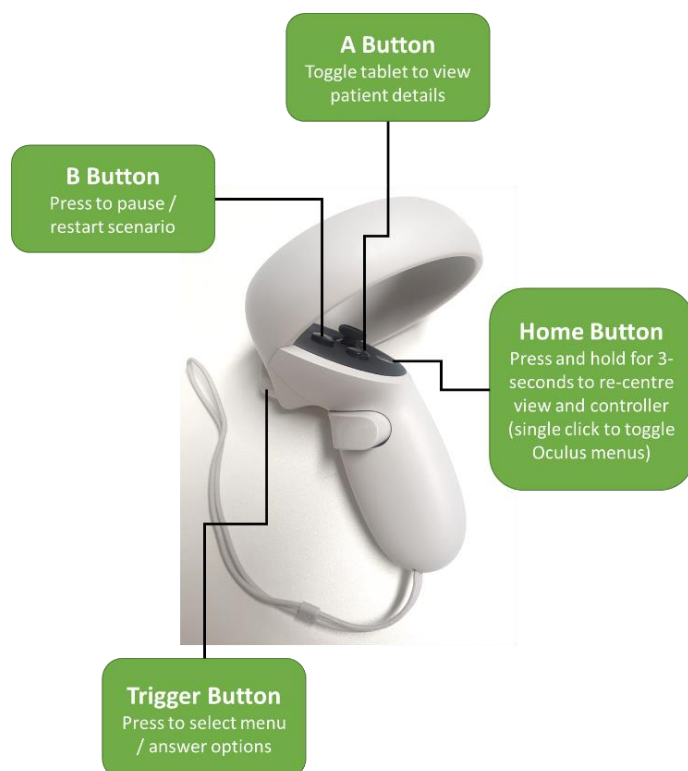Adjust as necessary to local noise conditions

3.2 Using the controllers

The Oculus Quest 2 controllers are battery-operated and wirelessly pair with the headset. TACTICS VR – Telehealth only requires the right-hand controller.

Each controller uses 1 x AA battery. To insert the battery, remove the battery cover of your controller by lightly pulling at the bottom half of the controller until it comes loose. Replace the battery if it will not connect to the headset.

The headset detects controller motion and displays the relative controller position on screen. A pointer extends from the front of the controller to enable interactions using the relevant buttons. Controllers are activated by clicking any button on the controller.

Button functionality:

A Button
Toggle tablet to view patient details

B Button
Press to pause / restart scenario

Home Button
Press and hold for 3-seconds to re-centre view and controller (single click to toggle Oculus menus)

Trigger Button
Press to select menu / answer options

Trigger: Used to select items and menu buttons

Oculus Home button (⭕):
- Press and hold for 3 seconds to reset orientation of virtual environment and controller
- Press once to exit the application

A Button: Press to toggle the tablet view, which displays collected patient information

A Button: Press to pause / restart scenario during training

3.3 Using TACTICS VR – Telehealth – Considerations

Note: *TACTICS VR – Telehealth* is designed to be used in a seated position, to avoid moving into obstacles and to minimise the risk of experiencing motion sickness. If the user experiences any motion sickness, it is recommended they pause or discontinue training.

Remember: Obstacles such as furniture and other people are not detected whilst in the VR application.

Note: *TACTICS VR – Telehealth* requires an active WiFi connection, which provides capability for automated data capture from the headset. The headset has been deployed with a mobile WiFi router which must be powered on before using the VR

application. Alternatively, the headset can be directly connected to the local WiFi network, by updating the WiFi login details from the Oculus Settings menu.

4. Opening the TACTICS VR - Telehealth Application

TACTICS VR – Telehealth has been deployed using the Oculus for Business enterprise management approach. This allows the headsets to be maintained remotely via WiFi, supporting updates to the VR application and remote deployment of network settings. If you have any issues modifying the settings in the VR headset, please contact ATS directly for support (ATS@newcastle.edu.au).

The *TACTICS VR - Telehealth* application will be directly available by clicking on its icon in the Oculus Applications menu upon headset start-up.

If the menu is not visible:
1. Point the controller straight in front of you and hold down the Oculus / home button for 3 seconds to reorient the virtual environment and controller
2. Press the Oculus / home button once to toggle the main menu
3. Select App library from the main menu (represented by a 9-dot grid)
4. Launch the TACTICS VR – Telehealth app by clicking on the relevant icon

You can exit the application at any time by clicking the Oculus / home button on the controller.

5. TACTICS VR application content

The training application occurs within a virtual hospital setting and directs the user step-by-step through a stroke telehealth workflow scenario. Audio / video guidance is provided for each step of training.

The application proceeds through the following "scenes":
1. Start Scene
2. Introduction
3. Pre-Hospital Notification / Initial Assessment
4. Telehealth Consult #1: Assessment
5. Radiology Imaging
6. Telehealth Consult #2: Imaging
7. Telehealth Consult #3: Treatment & Consent
8. User Feedback

5.1 Start Scene

The opening virtual environment provides navigation to start training (Start button), access additional information (website = www.tacticsvr.com.au) and details about the VR application (About button).
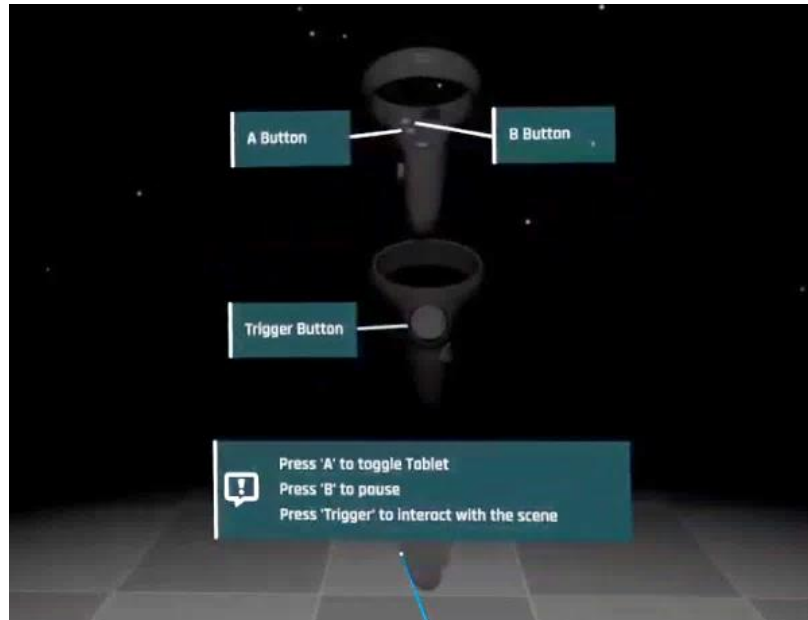

After selecting "Start", users are prompted to provide basic demographics on their location, department, position and relative experience in stroke management. This information is collected via WiFi for anonymised data capture of VR usage.

5.2 Introduction

An overview of the TACTICS VR – Telehealth application is provided by Prof. Ken Butcher (Director – NSW Telestroke Service). Following this, guidance on user interactions and controller button functions is provided.
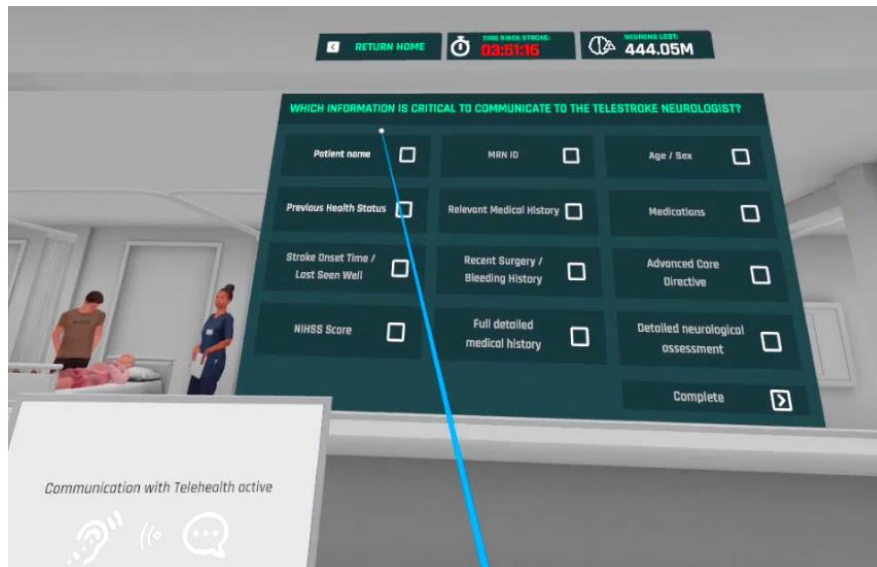

5.3 Pre-Hospital Notification / Initial Assessment

Provides a streamlined overview of initial patient assessment upon arrival in the ED, with emphasis on key data to collect and familiarisation with the ASAP Triage Tool. Emphasis is on timely data collection and accessing telehealth early, with recognition that complete data capture may not be optimal at this stage.

5.4 Telehealth Consult #1: Assessment

The 1st interaction with the telehealth neurologist provides familiarisation with the process with emphasis on communicating key data.
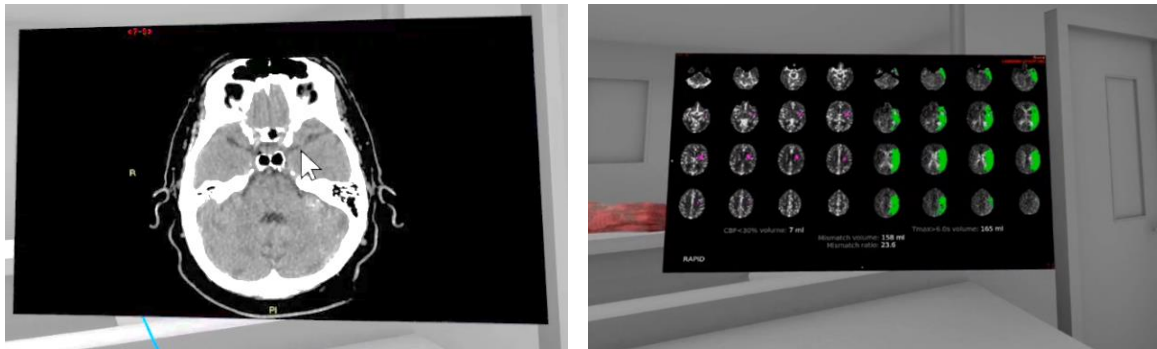

5.5 Radiology Imaging

Workflow proceeds with transfer of the patient for imaging and interactions with the radiographer to confirm the correct imaging to capture for initial stroke assessment.

5.6 Telehealth Consult #2: Imaging

The 2nd interaction with the telehealth neurologist provides an overview of advanced imaging interpretation. It provides an overview of the process to identify the preliminary treatment decision.
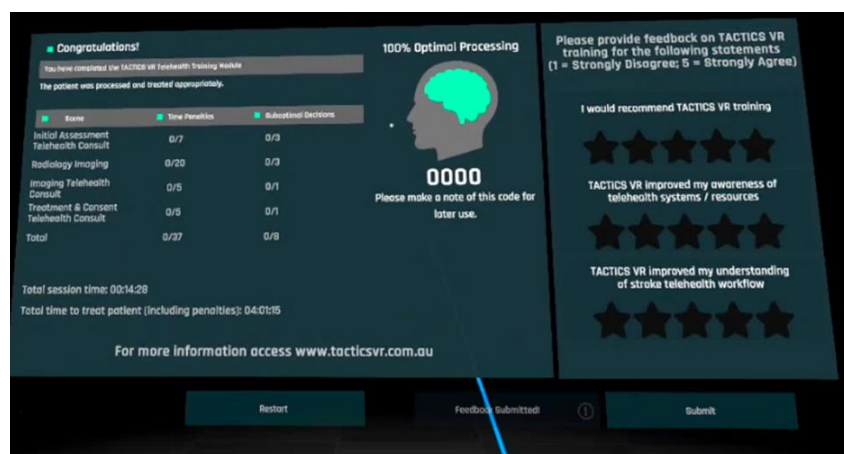

5.7 Telehealth Consult #3: Treatment & Consent

Workflow proceeds with transfer of the patient to the ED / resuscitation suite and interactions with the telestroke neurologist for patient education, consenting and treatment delivery.

5.8 User Feedback

Upon completion of training, users are provided with an overview of their performance, including sub-optimal decisions and total training time. This information is also automatically transmitted via WiFi to the reporting environment. Users are also invited to provide feedback on their experience with the VR application.

6.   How to care for the Oculus Quest 2

This section will give you a brief overview on how to care for and maintain your headset and controllers. Detailed instructions including video tutorials are also available on the Oculus company website: https://support.oculus.com/quest/

Cleaning the headset and controllers
Clean the headset and controllers after each use and between every user. Clean the headset and the straps with non-abrasive, anti-bacterial wipes. Do not use alcohol or an abrasive cleaning solution. Wipe down the controllers with a mild cleaning or antibacterial solution between users.

Keep out of direct sunlight
Do not place the device near windows and make sure no direct sunlight hits the lenses of the headset. Direct sunlight can permanently damage the lenses and screen inside the headset.

Using the Oculus Quest 2 with glasses
If you wish to use the Oculus Quest with glasses, you can use the glasses spacer provided with the headset.

The headset will allow for glasses with a width of 142mm or less and a height of 50mm or less.

Gently remove the lens rings from around the lenses inside the headset, then remove the facial interface foam.

Now insert the glasses spacer and gently press it into place, so that it does not move or fall out of the headset.

Re-insert the facial interface foam and carefully place the lens rings back into place so that they click.

Charging the Oculus Quest 2
The Oculus Quest comes with a USB cable and a power adapter. Attach the USB-C end of the cable to the power adapter, and plug into a power outlet or into the USB-C port on a laptop or computer.

A red or orange light beside the power button indicates that the headset is charging. The light will turn green when the headset is fully charged.

The controllers use 1 x AA battery, and cannot be charged. To insert the battery, remove the battery cover of your controller by lightly pulling at the bottom half of the controller until it comes loose. A light will appear on the controller if the battery is inserted correctly.

7.   Troubleshooting

My Oculus Quest keeps turning off
Your headset will go to sleep unless the sensor above the displays inside the headset is covered. The time period can be changed within the headset settings.
- Put on the headset to activate the screen
- Press the power button on the right side of the headset to turn it on

The text and pictures in the headset are blurry
1. Try adjusting the straps so that the headset is sitting securely but comfortable and the picture is clear. Sometimes a snug fit is required for the best clarity of the picture.
2. Adjusting the eye spacing by gently moving the lenses closer together or farther apart to improve clarity
3. Check the battery status of the headset

The main interface has disappeared, or the view in VR or controller keeps moving or panning outside of my control
- Reset your view and controller orientation by holding down the home / Oculus button for 3 seconds on the controller, whilst pointing it forwards.
- If you continue experiencing problems, turn off your headset and turn it back on.

My controller is not visible within the application.
- Check the battery life of the controller in the home screen area of the headset and change the batteries if levels are low.
- If the issue persists, turn your device off and on again or contact Oculus support for assistance.

I'm having trouble with the glasses spacer on my VR headset
If you're having trouble with the lens rings, make sure that you:
- Take care to avoid scratching or damaging the lenses with your fingers when reconnecting the lens rings
- Fit the facial interface properly so that the lenses come through the openings cleanly
- Align the lens rings so that the thinner portion runs along the top of the lens and nose of the headset
- Press firmly until you hear and feel it click in place when reconnecting the lens ring

I'm having trouble with the straps on my VR headset
It's important to adjust your straps and headset carefully while using your headset. Hold the headset at the front whilst adjusting the head straps.

While adjusting your headset straps:
- Tighten straps one at a time
- Don't pull on the straps excessively or with too much force
- If you feel the strap arm coming loose or disconnecting from your headset, you're pulling the straps too hard or the headset is fitted too tightly on your head

I'm having trouble charging my VR headset
- Only charge your headset using the included charger
- When charging, ensure that your charging cable is firmly connected to your headset
- Make sure that the LED light beside the power button on the side of the headset is lit while charging
- When your headset isn't charging and isn't in use, make sure that the proximity sensor within your headset is not blocked by the headset straps or other items

I'm having trouble connecting or pairing my controller
1. Press any button to wake the controller while using the headset
2. Press and hold the Oculus button to reorientate the controller
3. Remove the battery and place it back into your controller (or replace with new batteries)

8. Support

If you have followed the instructions in this User Manual and are still having trouble using your Oculus Quest, you can go to https://support.oculus.com/quest/ for more support.

If you are having issues with the *TACTICS VR - Telehealth* application, contact the Centre for Advanced Training Systems at ATS@newcastle.edu.au.

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10. Funding and Support

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