The information in this guidebook may benefit both the responsible administrator and the school staff that has been selected to organize and implement the student sessions. We recommend at least two school staff review the material in this book and receive training from the school’s IT department so that someone will be available on any given day.

This guidebook will also help you select the best room and arrange it to optimize the effectiveness of the telehealth sessions.
Staging the Session

- Room Selection
- Lighting
- Audio Equipment
- Camera Position
- Seating Arrangements
Room Selection

Privacy and Available Hardware

Room selection in a school setting is first and foremost based on privacy and secondarily on where the best hardware and internet connection are located.

Having a great videoconference experience starts with great room selection. You can videoconference in any room, but choosing the best room can greatly improve the quality of the sessions.

Room selection in a school setting is first and foremost based on privacy and secondarily on where the best hardware and internet connection are located.

Schools can host their destination site in a wide variety of rooms and settings. Your options include classrooms, library study rooms, counselor offices, conference rooms, and temporary arrangements with laptop computers.

Most of the time our school partners have chosen to host the destination site in the counselor’s office of the Student Services Coordinator’s office. This also makes the students feel more comfortable in the sessions because they are already familiar with the school staff that will facilitate and sometimes participate in the session. Counselor offices are good choices for several reasons. Usually one or two counselors are working with the students we are treating. The counselor is more motivated to host the site because he or she is working with the student. This makes him or her more willing to help with logistics and technical challenges because he or she has a vested interest in the student’s treatment.

Videoconferencing equipment is often kept in school conference rooms.
Additionally, counselor offices are usually centrally located and generally offer more privacy than classrooms, conference rooms, and libraries.

The room selection is often limited by practical concerns and technological limitations. Many schools have a lot of “vintage” equipment. You will want to find a newer computer that is working well and available to the videoconference program.

Privacy
In exchange for receiving medical treatment in your home, you must make the environment suitable for the medical interaction and ensure that privacy and safety needs are met for both yourself and the clinician. Choose a setting in which only the appropriate people are part of the session and others can’t hear what is going on during the session.

Depending on the nature of your condition and who you want to be part of the treatment team, you can choose to have a one-on-one session with your clinician or invite the whole extended family.

Ideally, if you've set up your videoconferencing site well, both you and the clinician will feel free to share important, private or sensitive information during the virtual home visit.

Power and Network
If you are using a computer, you should plug it into the router with an Ethernet cable. If you are using a wireless device, keep it close to the Wi-Fi router or in a location where the 4G signal is strong. This will give you the best picture and sound because the internet signal will be strongest. All equipment should be on a power surge protector (see picture.) Both electrical cords and network cables should be close to where the system is positioned to avoid lengthy cabling across the room which is easy to trip over or become accidentally unplugged.
Secondary Considerations

If you have more than two rooms to choose from that provide privacy, and hardware, selection can be made based on the following criteria.

**Sound and Distractions**

When choosing between different rooms, take a moment to listen to the sounds present in each room. Do your best to minimize the impact of the background noises. We often don't appreciate the intensity of background noises because we get used to the normal noises in our environment. How loud is the air conditioner or fan? Can you hear other people talking? Can you hear background music? Is there noisy machinery? Do the lights hum? Can you hear traffic or people outside the windows? Try to choose the room with the fewest distracting noises.

Once you have selected the quietest room, try to decrease the background noise as much as possible. Close windows and doors, especially if they open to the street or a busy hallway. Turn down window air conditioners to the lowest setting or turn them off for a short session. Close the door to other nearby rooms that are noisy or where people are doing other things. Turn off all other electronics like radios and televisions in the room.

**Background Wall Colors**

Selecting a room with an optimal color scheme will improve the way we see each other. Point the camera towards a wall that is painted in neutral color shades so that your participants look more lifelike on camera. These colors include beige, tan, pale gray, or light blue. Vibrant colors can reflect light and cast pale hues onto the participant’s face.

Try to have a fairly empty wall behind the student. Avoid pointing the camera at walls that are decorated with small, intricate, or highly detailed patterns. Stripes and swirls can distort video
images. They also can trick the camera into focusing in on the background if the people in the foreground shift in their chairs.

For Your Background, Use Neutral Colors

<table>
<thead>
<tr>
<th>Light Blue</th>
<th>Pale Grey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beige</td>
<td>Tan</td>
</tr>
</tbody>
</table>

Summary: When selecting your room, make sure...

1. Everyone feels comfortable.
2. Distractions are minimized.
3. Everyone is able to see each other.
4. Everyone is able to hear each other.
5. The room will remain private during video-conference.
Lighting

The camera needs more light than your eyes to produce a clear image with accurate colors. Bad lighting causes silhouetting and unflattering color casts that distract the participants by distorting your image.
**Turn on More Lights!**

The automatic gain control (AGC) feature of most cameras will produce grainy images when there is not enough light. This is especially true if it’s after sunset and there is less natural light.
Direct and Indirect Lighting

Light from the sun or a fixture that shines directly onto a subject without being reflected or diffused is called direct lighting. Direct lighting is the most energy efficient light you can use for your teleconference, but it produces hard, unflattering facial shadows.

We recommend using indirect lighting instead of direct lighting. Indirect lighting is much softer and more flattering because it uses diffused or reflected light. A ceiling fixture that aims up and bounces light off of a wall or the ceiling is an example of indirect lighting.
Make Sure Light Sources Are Not Behind You

Make sure most of the lights aren't coming from directly behind you because it will make you a silhouette. Think about the last time you tried to take a picture of someone in front of a sunset. Position any additional room lights in front of you or to your side, but not behind you to prevent these shadows. Similarly, natural lighting sources should be in front of you as shown in the pictures below.

Natural Lighting and Window Treatments

Ideally, videoconferences will be conducted in rooms with either a lot of natural or artificial lighting. If your room does have exterior windows, you either need to account for how that light will change throughout the session or block it out. If your session is during sunrise or sunset, have more lights available in the room that you can turn on to compensate for the changing light.

Light coming through windows acts like a flashlight pointed directly at the camera. It will cause the camera to create shadows and you will become a black silhouetted figure. Use blinds and curtains to control your natural lighting. Natural lighting should be shining on your faces. If you cannot orient the camera away from the windows, close the drapes and blinds or cover them with a blanket. Try to minimize any gaps between vertical blinds, which will send beams of bright light into the camera lens. You may need to cover them with an additional layer of material like a towel or bed-sheet to block light coming through the blinds.
Examples of Common Lighting Situations

Avoid silhouettes and shadows by having light above and in front of you. Have a look at the pictures of Dr. Roth below. Which one do you think has the best lighting for a telehealth session?

The correct answer is picture 2 because it has the right amount of side, back, and front lighting and uses mostly indirect light. In picture 1, the only lighting is dim direct lighting from Dr. Roth's right side, which creates a distracting shadow behind him. Picture 3 shows side and backlighting, but no front lighting. In picture 4, Dr. Roth is lit with direct light from just the computer which casts dark shadows on his face.
Audio Equipment

Single Student Session

Often, the student will be the only person who needs to be close to the microphone. Under most circumstances your computer or tablet’s built-in microphone is good enough for the video-conference. If a patient would like more privacy, or the room is not very private, they can wear headphones with or without a microphone. The combination headphone and microphone sold with smart phones works well in most circumstances.

If your room is a bit noisy and you’re having trouble hearing, do not try to fix it by connecting external speakers by a cord or bluetooth. These speakers will often induce delays, echoes, and feedback loops.

If you would like more privacy, or the room is not very private, you can wear headphones with or without a microphone. The combination headphone and microphone sold with smart phones work well in most circumstances. An alternative is the bluetooth hands-free earphone. Avoid sharing a single set of headphones when possible. We recommend using two sets of headphones joined by a headphone splitter.

When we have a poor connection, which often happens when there is bad weather or a lot of people are using the internet in your neighborhood, we may need to call you on the phone in addition to the videoconference. When this happens, the provider will call you on the telephone. Use your landline if it has a good speakerphone. Otherwise, a cell phone with a good signal and a strong speaker will usually work well. When you can hear the clinician on the phone, you need to mute your computer or tablet’s microphone and speaker to avoid echoes and feedback.
Conference Room Setting

Microphone placement becomes very important when your destination site is hosting a conference with several participants. You will be using a single multidirectional microphone or conference phone as when you have a group of 4-12 people. You can see examples of these microphones or conference phones above. These microphones or conference phones should be placed in the middle of the group with extension microphones employed as necessary to reach everyone.

Full duplex professional grade conference speakerphone

Table-top microphone connected to Polycom video-conferencing system.

Use a full duplex microphone or conference phone, whenever possible. Full duplex devices allow you to hear what the other person is saying even if you are speaking. Without the capacity for full duplex, participants cannot speak simultaneously. This makes it extremely difficult to redirect a person who is monologuing or calm a person who is distraught.
Trouble Shooting a Poor Connection

When we have a poor connection, which often happens when there is bad weather or a lot of people are using the internet at the school, you may need to switch to a telephone for the audio portion of the videoconference. Because most schools use a PBX system, it is easier for you to call the clinician from a phone with speakerphone capability. The clinician will give you the number to call from the regular landline. A cell phone with a good signal and a strong speaker will also work well. When you can hear the clinician on the phone, you need to mute your computer to tablet’s microphone and speaker to avoid echoes and feedback.

If you have a poor connection, use a telephone to hear each other better. After connecting by phone, make sure you mute your device’s microphone & speaker.

Continue on to next page
Camera Position

Place the computer or device on a desk or table so it won't move around. When it moves too much the other participants become sea-sick! It also causes the camera to lose focus, good lighting, and internet connection. If you must use a handheld device, prop it up and then let go. Nobody can hold a tablet, phablet, or smartphone steady for an entire session.

Your camera should be pointing straight at you so you will be looking directly at the other participants. If you have a separate web-camera, place it on top of your computer or on a shelf so that it is positioned directly over the clinician's face on the screen.

Keep moving objects such as curtains or fans out of the camera's view because they are very distracting to the other participants.

External USB cameras usually offer better picture and sound quality compared to the built-in equipment.
Seating Arrangements

Physical Seating Arrangements

**Classroom Setting**

Decide how you want to arrange the tables and chairs in the room. When focusing on a single person have them sit close to the camera. The chair should be stationary but light enough for anyone to reposition it so that the seating can be easily rearranged if someone else joins the session.

The subject should be sitting 2-4 feet away from the camera and screen. If you have more people in the room, add at least 2 feet to the distance between the camera and the participants for each additional participant. So, if you have 3 people in the camera’s field of view, positioning the participants at least 6 feet from the camera will make everyone the most comfortable. If 2-3 people want to sit within 3 feet of the camera, they will have to sit almost shoulder to shoulder to fit in the frame.

Chairs with straight backs and no armrests work best when trying to get 2-3 people in the camera frame and seated close enough for the microphone to work well.

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**Group Arrangements**

2-4 feet away from camera

+2 feet = 4-6 feet away

+2 feet = 6-8 feet away
Conference Room Setting

If you are trying to showcase 4-10 people in a conference room you will need to arrange them with a “down the table view” as shown below.

A long conference table can work but it is very easy to have one or more participants blocked by another one. It can also be difficult for everyone to see the screen.

Virtual (On Screen) Arrangement

The way you position your videoconferencing partner(s) image on your screen has an important impact on your experience. You should aim to create the illusion of eye contact by placing the other site’s image(s) as close to your camera as possible. The advantage of this is that when you’re looking at the participants, your eyes will be fairly near your camera, and the other people will perceive you looking at them when you look at their pictures.

Below, you’ll find information on virtual arrangement for two site, three site, and four site videoconference scenarios. If multiple participants are joining the session from multiple sites, they will appear on your screen. Clinicians will often do this when a family has divorced or a parent is at the office or out of the home during the scheduled session. You’ll want to arrange everyone’s picture on your screen to create the most realistic experience possible.

Create realistic eye contact by placing the other site’s image(s) as close to your camera as possible.
When videoconferencing with one other site, you can create good eye contact by positioning the camera as close to your eye level as possible and positioning the picture of the other site as close to the camera as possible.

Place your image directly below the other site’s image. Make it smaller so it does not distract you.

If there are three sites total, including the clinician and yourself...
1. Enlarge the clinician’s picture and the other person’s picture and have the edges meet directly below your camera’s lens. In most situations, this will be in the midline of your monitor directly below your device’s built-in camera.
2. Place your image directly below their images so you can make sure you stay in the frame and are seen well by the other sites.

When you have four sites total including the clinician and yourself, place the three other sites in a row at the top of the screen and put your image directly below the middle image. If you have trouble looking at everyone at the same time, squeeze the pictures closer together towards the camera (as indicated by arrows). You may need to sit farther back to see everyone easily without moving your eyes a lot.

If you have more than four sites total, including the clinician and yourself, place the second two below the first two.
Once seated, position yourself and/or adjust the camera so that your eyes appear to be about 1/3 down from the top of the screen. This will create the natural framing you see when watching television newscasters.

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1. Avoiding Distracting Sounds and Movements During the Session

2. A Step By Step Guide for Your Videoconference
   - Before The Session
   - Setting Up the Videoconference
   - Beginning the Videoconference
   - Trouble-Shooting During the Session
   - Closing the Session
Avoiding Distracting Sounds & Movements During Your Session

Distracting Sounds

Unanticipated Sounds
There are a variety of sounds that can distract participants from the videoconference. Ideally, you would eliminate them, but oftentimes they cannot be completely silenced or prevented. Most of these distractions can be eliminated by simple awareness and a modicum of environmental management. Other unanticipated ones might occur during the session, (like your neighbor weed-whacking right outside your window) but the mute button can save the day!

User Generated Sounds
Most people are unaware of the distracting sounds their restless legs make. A microphone will detect shuffling feet or tapping toes and transmit them to the listener, so do your best to keep your lower body in one position.

Shuffling papers is another one of the most common user-generated sounds. This noise usually seems insignificant to the guilty party but it has a huge impact on the other participants! Most microphones seem to love sharing this noise with the world. Even quietly shuffled or sorted papers sound like a miniature thunderstorm to other participants.

The mute button can save the day! Use the mute button to save your participant’s ears from shuffling papers or unanticipated sounds.
Distracting Movements

Drifting Out of The Camera Frame
Try to stay in the camera frame for the whole session. Your clinician will usually prompt you to return if you drift away. This is a common problem because people usually move around and change positions while seated. Most software allows you to see your picture as a smaller window on the screen. You can check this picture of yourself periodically to see if you are still in front of the camera.

Camera Disturbance
As we established above, restless legs cause distracting sounds. They also cause camera disturbance. This happens when the restless leg or foot touches the desk supporting the camera and when our arms are resting on the same surface as the camera. Because our restless legs are connected to our arms, the vibration is transferred from legs, to arms, to table, and to the camera. The restless person may not perceive this as a significant movement, but it will cause the camera to shake and the optics of the camera will amplify this disturbance. The other participants will see the restless person violently move up and down or side to side like they are in an earthquake!
A Step-By-Step Guide for Your Videoconference

Before the Session

Before Your First Session
Practice with the clinician’s staff at least one day in advance. This give you time to have your IT department help you download and install the software and fix any technological issues. It also gives you time to make modifications to the room decorations, arrangement, and lighting.

Every Time
1. Call for the student to leave their classroom at least 10 minutes before the conference starts.
2. Login five minutes early to download and install software updates.
3. Have a speakerphone available if needed along with the passcode needed to dial long-distance phone numbers. Have the clinician’s office phone number available for technical support.
4. Have the alternative telephone conference number available if there are connectivity issues.

Setting Up for the Videoconference
5. Turn on the electronics, plug into power supplies, and connect all cables for Ethernet, speakers, microphones, and speakerphones.
6. Turn on overhead, floor, and table lights. Position floor and table lights to optimize lighting.
7. Close drapes, blinds, doors, and windows to improve lighting and privacy and decrease distractions.
8. Arrange chairs, tables, and other furniture to suit the videoconference. Remove any chairs or furniture that would block the camera.
9. Turn down or turn off loud air conditioners or fans.
10. Cover shiny surfaces in the foreground or background, like polished tables or whiteboards
11. Seat the participants in your room so they all face the camera and can see the display.
12. Place the microphone in a central location (when applicable.)

Starting Up the Videoconference

9. Log into the telehealth videoconferencing software.
10. Once connected, adjust the camera, microphone and speaker.
   a. Adjust the camera location, change the camera zoom, and adjust the camera angle to fit all the site participants at your site in the camera frame. Let the other sites know if they are poorly framed, dark, or overexposed.
   b. Confirm all participants can hear you by asking them to give a thumbs up. Confirm the correct microphone has been selected in the software settings and adjust microphone sensitivity and position as needed.
   c. Confirm that you can hear the other participants by giving a thumbs up when they ask you for confirmation. Everyone should be easy to hear and understand without any site sounding like they’re yelling or whispering. If they can’t hear you at all, confirm the correct speakers are selected in the software settings. If they can hear you but it’s too quiet, adjust the speaker volume to overcome any background noise. These audio adjustments are well worth the time and effort when setting up a multi-party conference because the session feels more authentic when the participants hear each other well.
   d. Expand the clinician’s video to full size. This makes the clinician seem more lifelike and your experience will feel more realistic.
11. Troubleshoot a poor connection.
   a. If the signal is poor with pixilated video or garbled audio. Tell people you will disconnect. Then disconnect and reenter the conference. If they cannot hear you at all, send a message through the chat window or point to your ear and shake your head before restarting the conference.
   b. If the signal remains poor, consider restarting the internet modem and router. The system may take as long as five minutes to reboot, so let the other participants know if you will do this. You may want to start a teleconference with the clinician so you can stay connected while the hardware restarts.
During the Session

Numbers 12-15 apply when using videoconference for larger meetings like school team meetings and IEPs.

12. Whoever will lead the session should begin with a greeting and identify the meeting agenda. This ensures everyone has joined the correct conference.

13. The leader will begin introductions and instruct the other site to introduce the participants at each site in an arbitrary order. This will confirm all the participants were actually invited.
   
   a. The order of speaking can be anything that eliminates confusion and silence. It can be alphabetical, geographical, or replicate the organizational structure. The goal of whatever organization you use is for everyone to have a chance to speak and know when it is their turn to speak. Without a speaking order or prompts from the leader, many quieter participants may not offer contributions to the videoconference. You want to avoid situations where loud, talkative participants dominate the interaction.
   
   b. If there are connection delays caused by poor bandwidth or old computers at one or more sites, it becomes difficult for the participants at that site to contribute. When the participant at a slow site tries to speak after a pause in the conversation, another person at a faster site will have already begun talking. The result is two participants speak at the same time. Usually they both stop talking, or they talk over each other. The session leader wants to encourage dialogue, so in these situations, the slower site(s) should signal that he or she wants to make a contribution by raising a hand or object. Some videoconferencing software like Go to My Meeting and WebEx allow a participant to “raise their hand” electronically, but the leader must attend to this information on the screen.

14. When introductions are complete, the leader begins the session by either initiating the meeting agenda or by conducting a patient or parent interview.

15. Begin to close the session a few minutes before it has to end. This gives the participants a chance to say things that they may have been waiting to contribute to the group. If you have time, ask each destination site if they have anything else to add or any additional questions for the other parties.
Closing the Session

16. Move into a summary statement about the meeting and what was achieved or completed. In a treatment session, review the treatment plan and key updates.

17. Arrange the follow up meeting.

18. Thank everyone for his or her participation.

19. Close the session with culturally appropriate social scripts and gestures.

20. The leader then disconnects all of the destination sites, unless they have already disconnected themselves.

After the Session

21. Restore the room and equipment to their normal state and arrangement.

22. Charge any battery-operated equipment including tablets, speakerphones, and microphones.

Summary

Thanks for taking the time to review these guidelines. By implementing them, we are confident your telemedicine program will be a success!
David Roth M.D., F.A.A.P., F.A.P.A. is a triple Board-Certified physician who has been practicing medicine in Hawaii for 18 years. Dr. Roth earned his Bachelors Degree from Northwestern University and his Medical Degree from the University of Louisville. He completed the prestigious Triple Board Residency Program at University of Hawaii where he trained in General Pediatrics, Child & Adolescent Psychiatry, and Adult Psychiatry & Neurology. He is a Fellow of both the American Academy of Pediatrics and the American Psychiatric Association. Dr. Roth serves on the American Academy of Child and Adolescent Psychiatry's Telemedicine Committee and helped author the Academy's 2016 Telemedicine Practice Parameter.

Dr. Roth has been a passionate telemedicine pioneer and advocate for 16 years. He has personally conducted over 4,000 telehealth sessions and under his leadership our clinic has conducted over 10,000 patient care and collaborative care sessions. He created one of the nation's first self-sustainable private practice psychiatry and developmental pediatrics telemedicine clinics in 2009. He then launched one of the nation's first sustainable school-based and home-based telepsychiatry programs in 2010 that has treated hundreds of moderately to severely mentally ill students. These psychiatric services are now delivered statewide to Hawaii public school students in both urban and rural areas. These youth are treated in their homes and schools in collaboration with their families, school-based mental health providers, and teachers.

The material in this book is distilled from presentations Dr. Roth and Mrs. Zeković-Roth have given at several national conferences including the Annual Conference on Advancing School Mental Health in 2013, the Annual Meeting of the American Academy of Child and Adolescent Psychiatry in 2014, and along with Mrs. Richardson and Mr. Yasutake the telehealth media skills workshop at the American Telemedicine Association's Annual Meeting in 2015. Our team will also be conducting another telehealth provider media skills workshop at the 2016 American Telemedicine Association meeting on May 14th 2016.
Mrs. Sofija Zeković -Roth D.O.M. has been practicing in Honolulu, Hawaii for 12 years as a Board Certified Oriental Medicine practitioner. As the Clinical Director of Mind & Body Works, Inc., she developed the clinical and administrative telemedicine models for home-based and school-based telepsychiatry services that have effectively delivered medical care to children, adolescents, and adults throughout the Hawaiian Islands and California. These innovative models have helped them sustain one of the oldest self-sufficient telemedicine private practices in the nation. Mrs. Zeković-Roth and Dr. Roth have conducted several telehealth workshops at national conferences since 2013. She will be co-presenting our upcoming telehealth provider media skills workshop at the 2016 American Telemedicine Association meeting on May 14th 2016.

Mrs. Zeković -Roth graduated summa cum laude from Spalding University in Louisville, Kentucky with Bachelor Degrees in both Chemistry and Biology. She then earned her Masters Degree in Acupuncture and Oriental Medicine from the World Medicine Institute in Honolulu, Hawaii. She is a master practitioner of both Pilates and yoga, who has developed and conducted training seminars across the Pacific Rim.

Michael Yasutake B.A. is an award winning producer, director of videography and editor based in Honolulu Hawaii. He has 26 years of experience in television and video production. He has received several Telly awards, several Emmy award nominations, and he won an Emmy award for Best Regional Sports Programming. He co-presented the telehealth media skills workshop Mind & Body Works, Inc. conducted at the American Telemedicine Association’s Annual Meeting in 2015. He will also be co-presenting our upcoming telehealth provider media skills workshop at the 2016 American Telemedicine Association meeting on May 14th 2016.

Mr. Yasutake has shot and edited television shows and sporting events for PGA Tour Entertainment, E! Entertainment, EXTRA!, NBC’s national news, The Golf Channel, TLC, Entertainment Tonight, ABC’s national news, MTV, HGTV, and The Discovery Channel. He received his Bachelor Degree in Telecommunications and Film from the University of Oregon.

Mrs. Mahealani Richardson B.A. was an anchor woman on Hawaii’s premier network news station for 12 years. During her 20 distinguished years as a journalist she won many awards including the prestigious Edward R. Murrow Award for her nationally televised documentary on the Iraq War. Mrs. Richardson perpetuates her distinguished family’s legacy of advocacy and community service by
hosting a popular community affairs television program on ‘Olelo, Hawaii’s public broadcasting channel, and by moderating numerous political forums, and other special television events on Hawaii’s public and national affiliate television stations.

After stepping away from the anchor desk in 2014, Mrs. Richardson joined Honolulu’s world-famous Shriners Hospital for Children as the Director of Public Relations. She co-presented the telehealth media skills workshop Mind & Body Works, Inc. conducted at the American Telemedicine Association’s Annual Meeting in 2015.

Ms. Kierdre Kalani Howard edited and helped design this guidebook.