

Remote examination guide for clinicians



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Overview

Medicspot allows you to perform a video consultation augmented by remote examinations. The patient sits in front of the station and uses the examination equipment on themselves whilst you consult from a different room/location. The consultation is performed as a video chat, but you can capture vital signs and use a stethoscope/otoscope to further enhance the consultation.

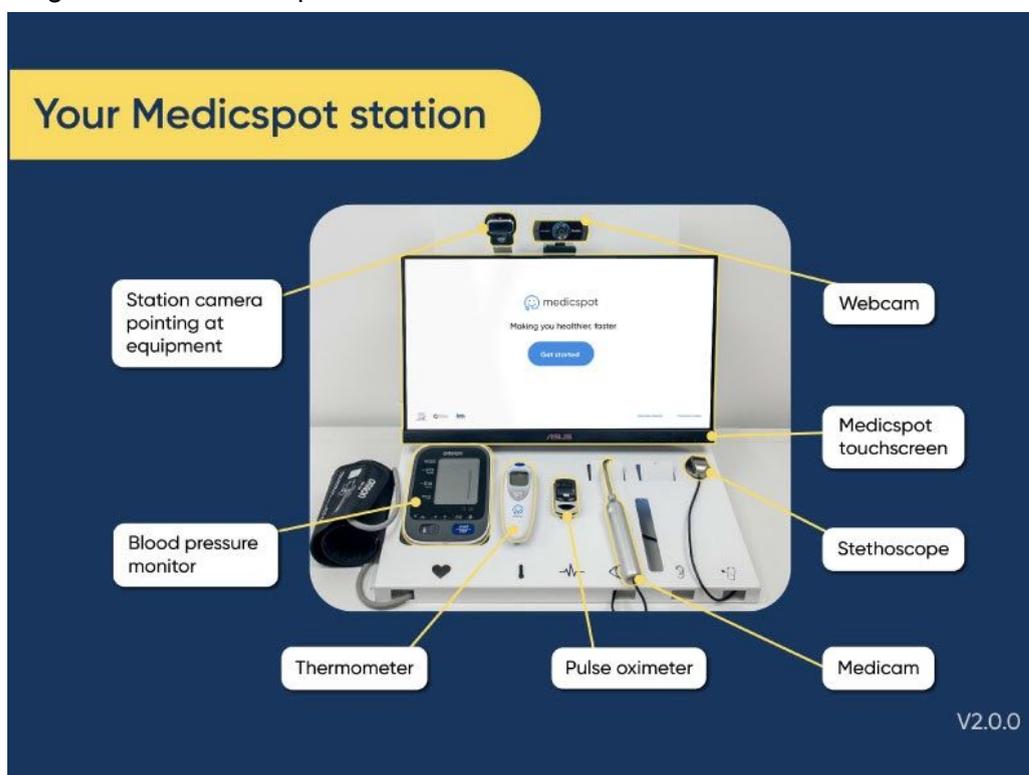
All instructional videos on use of the medical examination equipment will also be shown to the patients at the Medicspot POD side.

Examination equipment

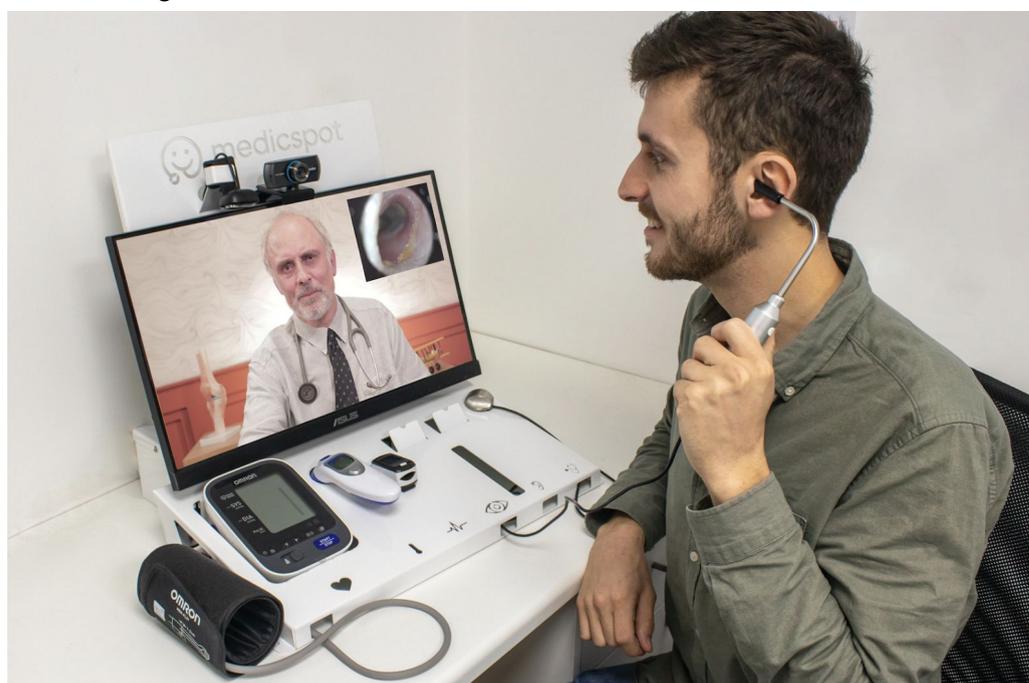
Each Medicspot station is equipped with:

- Digital Stethoscope
- Medicam (Otoscope/hand held camera)
- Blood Pressure Machine
- Thermometer
- Pulse Oximeter

Diagram of the Medicspot station



Patient using Medicam



Using the diagnostic tools

The Medicspot station and platform is designed to allow the patient to use the examination equipment on themselves; with guidance from the remote clinician. Learning some simple techniques will improve your remote examination skills.

- Patient's can be nervous the first time they use a Medicspot station. Explain that you will guide them through the examination and that you will make sure they are well supported.
 - *“OK, I would like to take some measurements and look into your ear. Don't worry if you've never done this before - I'll guide you through; we will do this with the tools in front of you”*
- Use of props can be helpful - for instance you can show the patient similar medical equipment and demonstrate the devices on yourself.
- Make use of the instructional videos - these are there as much for you as they are for the patient.

Stethoscope

The stethoscope can be used to listen to heart and lung sounds. There is no bell to the stethoscope (only a diaphragm which is used to listen to heart/chest sounds).

You must use earphones to listen to the stethoscope sounds as most laptop/computer speakers are not of suitable quality.

Stethoscope usage

- 1) Inform the patient that you need to listen to their chest and/or heart and that you will be using the stethoscope to do so
- 2) Ensure you have the full chest wall in the frame so you can check placement and position of the stethoscope - you may have to ask the patient to move forward/back or stand up
- 3) Ask the patient to:
 - a) get down to their last layer of clothing. Shirts should be unbuttoned all the way down.
 - b) pick up the stethoscope and put their fingers on the grooves (this minimises movement artefact)
 - c) place the diaphragm (white part) *directly* onto the skin pressing *firmly* at the required position
 - d) breath in and out through an mouth (as you normally would ask)
 - e) move it to the next required position

Stethoscope tips and tricks

- 1) Make use of the positioning diagram or point to your own chest to demonstrate the positioning of the stethoscope
- 2) Bra straps get in the way; so tell female patients that if the bra strap is in the way, they are probably in the right place - but they need to adjust the bra strap
- 3) A better contact with the skin is generally made by using the contralateral hand. So listen to the right lateral chest wall with the left hand reaching across. This may be difficult for larger patients. Anterior chest and lateral bases are typically easier for the patient to self position the stethoscope to

Stethoscope troubleshooting

There is too much artificial sound artefact coming from the stethoscope

- Ensure that the patient is pressing the stethoscope firmly onto the skin
- Ensure that clothes are not rubbing against the stethoscope
- Ensure the arm is not overly stretched (an over-stretched arm will cause the stethoscope to move during inspiration/expiration)

The sounds are too quiet

- Increase the volume on your computer
- Increase the volume of the stethoscope from the Medicspot platform
- Ensure that the patient is pressing the stethoscope firmly onto the skin

Medicam – secondary handheld camera (otoscope)

The medicam can be used as an otoscope or as a general handheld examination camera (to look into the throat or at the skin/eyes)

Medicam - ear usage

- 1) Inform the patient that you need to use the Medicam to take a closer look into the ears
- 2) Ask the patient to:
 - a) pick up the Medicam
 - b) switch the light to your desired setting by cycling through the button (off, low, medium or high)
 - c) put otoscope cover onto the end of the Medicam (NB: covers are not a perfect fit and may slip off)
 - d) insert the otoscope into their ear
 - e) pull their ear up and back with their free hand
 - f) move the otoscope around until you see what you wish to visualise
 - g) remove the Medicam and place it onto the desk

Medicam - ear tips and tricks

- 1) The ear examination is the most difficult part of the whole Medicspot examination, but it is possible to get it right the vast majority of occasions and obtain good views of the tympanic membrane in 90%+ of cases. Have patience, especially at the start, it does get better.

- 2) If the tympanic membrane is not in focus, ask the patient to pull the otoscope out and re-insert it.
- 3) The patient can sometimes point the otoscope directly at the walls of the ear canal at the wrong angle. Asking the patient to re-insert the medicam or using the other hand can sometimes help the patient 'reset their positioning'.
- 4) As in normal practice, asking the patient to pull their ear up and back with their other hand can help straighten out the ear canal for a better view.
- 5) The medicam can become warm if the light has not been switched off after the last patient. If this is the case; ask patient to switch off the light and return back to this after a few minutes.
- 6) Asking a family member to hold the medicam can achieve better views if available

Medicam - throat usage

- 1) Inform the patient that you need to use the Medicam to take a closer look into their mouth (if you say "throat" the patient will stick it down their throat)
- 2) Ask the patient to
 - a) pick up the Medicam
 - b) switch the light to your desired setting by cycling through the button (off, low, medium or high)
 - c) put it **JUST** below the top teeth whilst keeping the front of the Medicam outside the mouth (any front teeth in view will cause a light reflection and the back of the throat won't be visible)
 - d) "Stick your tongue out and say "aaaaahhh"

Medicam - throat tips and tricks

- 1) The Medicam should stay external to the mouth and should not go inside the mouth
- 2) Using a prop such as a pen or bent finger to demonstrate the position is often quite helpful

Medicam - skin usage

- 1) Inform the patient that you need to use the Medicam to take a closer look at the skin
- 2) Ask the patient to
 - a) pick up the Medicam
 - b) switch the light to your desired setting by cycling through the button (off, low, medium or high)
 - c) Point it to the affected area of skin (NB: patients have a tendency to get too close to the skin)

Medicam - skin tips and tricks

- 1) Patients have a tendency to get too close to the skin - ask them to hold the Medicam about 10cm away
- 2) Asking them to show you a typical lesion is useful
- 3) A measurement can be taken with a reproducible object such as a coin
- 4) It is good to get at least two views of a lesion. From above and another from the side which will help you assess size and protrusion from the surrounding skin

Medicam troubleshooting

The image is too bright or dark

- Ask patient to adjust the light by clicking the button

The image is unfocused

- Ask the patient to move the Medicam closer or farther, to bring the image into focus
- Ask the patient to give the Medicam a little 'wiggle'

The image is poor quality

- Check your internet connection and speed
- Ensure that the patient is holding the Medicam as still as possible (this can be difficult)
- Press 'capture image'. This will take a high definition photo of the image which can provide more detail even if the internet connection is poor (NB: This is only available if you have enabled this option)

The patient is having difficulty pointing to the desired area

- Ask the patient to look at the main screen (they can see what you can see) so they can navigate themselves to the external canal

Digital sphygmomanometer (blood pressure machine)

Medicspot uses digital blood pressure monitors with 360 degrees wrap cuff technology. This means that the air tube does not have to align with the brachial artery and it can be rotated around the arm without loss of accuracy. The blood pressure monitor also provides a pulse rate.

Blood pressure usage

- 1) Inform the patient that you need to take their blood pressure using the blood pressure machine
- 2) Ask the patient to:
 - a) Roll up their sleeve or slip their arm out of their clothes
 - b) Rest their arm onto the table, at heart level, with feet flat on the ground
 - c) Wrap the cuff around the upper arm - ensuring that the air tube is coming out from the bottom and that the bottom of the cuff is about 2cm above the elbow
 - d) Stay as still as possible, not to speak
 - e) Use their other hand to press the 'START' button
 - f) Inform you when the machine has stopped deflating
- 3) You can visualise the readings on the downwards facing camera view if your blood pressure machine is not yet integrated
- 4) Repeat if/as required

Blood pressure troubleshooting

The cuff is not inflating

Ensure that the air tube is not being obstructed and the arm is in the correct position

There is an 'Error'

Listen to the patient's heart with the stethoscope to make sure pulse is regular

Pulse oximeter

The pulse oximeter measures oxygen saturations and heart rate. Pulse oximeters are stuck down onto the station and it is not possible to remove them so think 'finger to sats probe' rather than 'sats probe to finger'.

Pulse oximeter usage

- 1) Ask the patient to:
 - a) Insert their finger into the pulse oximeter **all the way** until their finger touches the back of it (patient's often don't put their finger in all of the way) and for the finger to be kept as still as possible, and as flat as possible
 - b) Press the white button down for 1 second to switch the pulse oximeter on ('brief but firm press')
- 2) The pulse oximeter will now start to measure values and display the oxygen sats and pulse
 - a) Blue (2 digit) number = oxygen saturations
 - b) Green (3 digit) number = heart rate

Pulse oximeter tips and tricks

- 1) If you don't specify a finger the patient will ask you which finger to use, so save time by telling them at the start "either forefinger"
- 2) It takes time for the numbers to stabilise so wait a while before taking a note of the readings
- 3) You can double check the pulse rate with the blood pressure machine or listening to the heart sounds
- 4) The pulse oximeter switches off if it does not recognise a finger within 10 secs. If this happens; the patient should switch the pulse oximeter on again, and push their finger in further

Pulse oximeter troubleshooting

The following factors can provide inaccurate readings on pulse oximeters

- The finger not being inserted all the way in
- Cold fingers
 - ask patient to warm their hands for a few minutes (ie by sitting on them)
- Nail polish/varnish
 - ask patient to turn their finger sideways or remove the nail polish if practical (nail polish/varnish can absorb light emitted by the pulse oximeter to give false readings)
- Bright lights nearby
 - Remove interfering light source (ie direct sunlight, Medicam light source)

Other tips to get a good reading

- Use the patient's thumb
- Use the other hand

The pulse oximeter is displaying lots of text and has stopped displaying numbers

- Ask patient to press the white button a few times to go to "Exit". Once there; hold the white button down for 2 seconds. This will take the pulse oximeter back to monitoring mode
- Perform the rest of the consultation and come back to this

Thermometer

Medicspot stations come with either ear or forehead thermometers (some can do both). Forehead thermometers are easier to use for patients, but normally give a reading of 0.5C lower than a tympanic thermometer.

Ear thermometer

Ear thermometer - usage

- 1) Inform the patient that you wish to take their temperature from their ear
- 2) Ask the patient to:
 - a) pick up the thermometer
 - b) ensure that the thermometer cap is on the tip of the thermometer or ask the patient to get a fresh cap and put it on
 - c) insert the thermometer into their ear and angle it towards their eye
 - d) pull their ear up and back (down and back for infants)
 - e) press the button to take temperature and let go after 1 second - this should result in a beep sound
- 3) You can ask the patient to show you the reading or read it out if it is not integrated

Ear thermometer - tips and tricks

- 1) The button needs to be pressed and let go after 1 second. Unless this is communicated; patients may keep the button pressed continuously.

Ear thermometer - troubleshooting

Thermometer is not giving readings/no sign of life

The batteries of the thermometer are likely low. Replace the batteries.

Thermometer giving abnormally low readings (Ear)

Ensure that the thermometer tip is correctly angled in the ear canal. Changing ears or asking them to change hands may help.

Forehead thermometer

Forehead thermometer - usage

- 1) Inform the patient that you wish to take their temperature from their forehead
- 2) Ask the patient to:
 - a) pick up the thermometer
 - b) move any hair on their forehead or temples out of the way
 - c) Touch the thermometer onto the forehead and move it towards the temple along the forehead whilst pressing down the button
- 4) You can ask the patient to show you the reading through the camera or read it out if it is not integrated

Forehead thermometer - tips and tricks

- 1) It is easiest if you ask the patient to touch the thermometer against the skin
- 2) You can also check temperature from the temple area (over temporal artery) if patient is struggling with the 'scanning across forehead method'

Forehead thermometer - troubleshooting

Thermometer is not giving readings/no sign of life

The batteries of the thermometer are likely low. Replace the batteries.

Thermometer giving abnormally low readings (Forehead)

Ensure that the thermometer is touching the forehead.