# Remotely Viewing Through The Eyes Of A Microscope!

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### INTRODUCTION

Unlike other Specialties where the patient and their medical problem is easily seen without any other assistive technology, Ophthalmology is very unique in that all teaching of medical students and health staff utilises a microscope. This means that both the clinician, patient and student are often head to head at the microscope, with the clinician and student often using the same microscope eye piece. The Covid 19 Pandemic and social distancing, has put an end to this, but we are equally determined that innovation and continued teaching will prevail.

#### AIN

To develop a worldwide financially viable innovative alternative of ensuring that live teaching with patients can continue for medical students during their Ophthalmology placements during and post Covid 19.

### MATERIALS

The following items are needed:

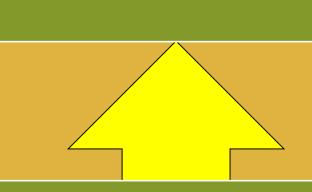
- Slit lamp with a standard eyepiece or teaching arm or beam splitter with C mount.
- Mobile / cell Phone
- Mobile phone to Eye piece adaptor mount (cell phone adapter mount) – available on Amazon
- PC with Screen Monitor & webcam or any other mobile device with a large screen & camera.
- Access to Microsoft (MS) Teams on both the Mobile Device on the slit lamp and also the PC/Other large screen mobile device.
- Two email addresses one address associated with your PC to host a MS meeting and send invites and the other ("teaching email address") associated with the mobile phone to be invited to the meeting.

## METHODS

Attach your mobile/cell phone to the phone adapter mount making sure it is securely attached.

Invite your students via Ms teams & once in the meeting ask them to "PIN" the teaching email address on their screen. This will make the eyepiece view their main screen. The students will also see & hear the tutor as well have a LIVE view from the slit lamp biomicrocope.

Use the diffuser / diffuser mirror to minimise reflections and clearly view the anterior segment. Use the normal mirror (without the diffuser) to view the anterior and posterior segment.



You should now get a live view from the slit lamp / microscope eyepiece through the MS teams meeting on your phone screen.

This live view will also simultaneously be on your PC screen.

Invite your patient in and position at the slit lamp such that their eye is at the appropriate level and ensure that you can see their eye clearly on your phone & PC screen.

Carefully attach your mounted phone to your chosen eyepiece on the slit lamp ensuring that your camera and the eyepiece are aligned on the same visual / optical axis.



Put your phone's camera on and ensure you can visualise the slit lamp light through the eyepiece to your camera. Make adjustments to X and Y axis of the mount if necessary to you have a full view through the eyepiece from your phone.

On your PC log into Microsoft teams start a meeting and send an invite to the email address associated with your mobile phone.

On your mobile phone respond to the invite link and join the meeting. Once in the meeting click the camera reverse icon so that you get forward facing "front" view.

On your mobile phone, mute the

On your mobile phone, mute the microphone on MS Teams as well as the speaker to prevent audio feedback.

### RESULTS

Live remote teaching utilising the slit lamp biomicroscope with standard eye pieces was successfully achieved. Our Live results can be seen by scanning the QR code on your mobile device.

### **DISCUSSION**

To the authors knowledge this is the 1<sup>st</sup> time this method of live teaching has been described. It is not only financially viable but also cost effective for most institutions.

This novel new easily reproducible method can be utilised in other ophthalmology departments and the other specialties that utilise microscopes or perform microsurgery. It is also adaptable with most eye pieces, teaching viewing arms or beam splitter with a C mount.

### CONCLUSION

While problems and obstacles may arise due to circumstances beyond our control, we can turn them into stepping stones for opportunity and success.

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