

# MODERN MANAGEMENT OF RETINAL DISEASE DURING THE COVID-19 PANDEMIC

## Basic Information

1. Gender:

Female

Male

Prefer not to say

2. Age:

18-30 years

31-40 years

41-50 years

51-60 years

60-65 years

>65 years

Prefer not to say

3. In what country are you practicing?

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4. Choose all the diseases you have particular expertise in. Please select all that apply:

- Age-related macular degeneration
- Diabetic retinopathy and maculopathy
- Retinal vein occlusions
- Myopic maculopathy
- Retinopathy of prematurity
- Epiretinal membrane
- Retinal detachment and tears
- Uveitis
- Retinal Oncology
- Other

5. What is/are your current job position(s)? Please select all that apply:

- Attending doctor / Clinician
- Clinical academic
- Purely academic
- Employee at or head of a reading center
- Clinical Fellow
- Research Fellow
- Consultant
- Head of a department /Program director
- Other

6. What is your level of experience in clinical Ophthalmology?

- <5 years
- 5-10 years
- 11-15 years
- >15 years

7. In what sort(s) of institution(s) do you currently work? Please select all that apply:

- Tertiary ophthalmology center: stand alone
- Tertiary ophthalmology center: department within a hospital
- Secondary care: private practice
- Academia
- Other

8. Does your institution have an electronic health record system?

- Yes
- No
- Combined paper-based and electronic system

9. How would you best describe the current state of the IT infrastructure of your institution compared to international standards in healthcare (i.e. speed of access to imaging, dropout rate, imaging storage capacity)?

Very Poor

Excellent

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10. How would you best describe the extent of interdisciplinary work among ophthalmologists and i.e. opticians, optometrists, nurses, technicians in your institution?

Very Poor

Excellent

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## Teleophthalmology

Teleophthalmology is a branch of tele-medicine that delivers eye care at a distance, which is then transferred via tele-communication technology to remote eye specialists. It provides a platform in which i.e. digital retinal imaging may interact with mutual technological advancements. Currently, the "store-and-forward model" of teleophthalmology is in use, in which images are taken at a different time and place than when assessed by a trained grader or an Ophthalmologist. Teleophthalmology may involve virtual triage, referrals and clinics or approaches to "smart history-taking".

Examples:

- (i) Technicians acquiring standardized fundus images of patients with diabetic retinopathy which are then graded by Ophthalmologists.
- (ii) Triage via a smart-phone app that asks questions regarding the patient's history based on a decision-tree.

11. Did your institution provide virtual or remote assessments for the triage of patients (i.e. telephone-triage to decide who needs to be seen by an ophthalmologist BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

12. Were there any approaches to "smart history-taking" in your clinic? (i.e. technicians supported by a decision-tree, smartphone apps etc.) BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

13. Did your institution provide virtual or remote consultations (i.e. via telephone, video, remote assessment of multi-modal imaging, movie-based patient education, virtual second-opinion platforms) BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

14. Did your institution have established virtual clinics or teleophthalmology services BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

15. Has an electronic referral platform been used in your institution (i.e. doctors from primary or secondary care referring to tertiary care) BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

16. Has your institution regularly used remote assessment of multi-modal imaging to substitute slit-lamp investigation BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

17. Did your institution use automated imaging analyses- or decision-making tools and/or tools for automated triage of patients BEFORE THE PANDEMIC?

- Yes
- No
- Don't know
- Other

18. How often was teleophthalmology used in your institution BEFORE THE PANDEMIC?

Never

Frequently

                            

19. BEFORE THE PANDEMIC: Did you think teleophthalmology was useful to deliver eye care to your patients?

Not useful at all

Very useful

                      

20. Is your institution CURRENTLY doing teleophthalmology (virtual triage/ consultations/ referrals)?

- Yes
- No
- Don't know
- Other

21. Is your institution CURRENTLY using teleophthalmology to reduce contact time with patients (i.e. remote history-taking via video-call from a separate room before a face-to-face assessment via slit-lamp)?

- Yes
- No
- Don't know
- Other

22. Is your institution CURRENTLY using "imaging only" approaches to substitute the slit-lamp investigation in your institution?

- Yes
- No
- Don't know
- Other

23. If teleophthalmology was used DURING THE PANDEMIC in your institution, what would you use it for?

	Never	Rarely	From times to times	Frequently
Counselling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Triage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Therapy instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Follow-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Do you think the experience you are making with teleophthalmology during the pandemic will sustainably change the way you practice ophthalmology?

- Yes
- No
- Don't know
- Other

## Home monitoring

Home monitoring: In the field of Ophthalmology, the Amsler grid is one of the most widely used paper-based home monitoring instruments. Recently, several digital home-measurement tests have entered the market to monitor visual function (i.e. FDA-approved tools such as myVisiontrack® or Alleye®) and anatomy (i.e. home-OCT of Notal Vision).

25. What sort of home monitoring for visual function did your institution use in patients with retinal disease BEFORE THE PANDEMIC? Please select all that apply:

- Paper-based (i.e. Amsler Grid)
- Smartphone-based (i.e. Alleye)
- Hardware-based (i.e. Preferential hyperacuity perimetry)
- None
- Don't know
- Other

26. Which visual functions did your institution home-monitor BEFORE THE PANDEMIC? Please select all that apply:

- Visual acuity
- Hyperacuity / metamorphopsia / scotoma
- Contrast sensitivity
- None
- Don't know
- Other



27. For which retinal diseases did your institution home-monitor visual function BEFORE THE PANDEMIC? Please select all that apply:

- Age-related macular degeneration
- Diabetic macular edema
- Cystoid macular edema (i.e. due to vein occlusion or Irvine-Gass Syndrome)
- None
- Don't know
- Other

28. What sort of anatomical home monitoring did your institution use in patients with retinal disease BEFORE THE PANDEMIC? Please select all that apply:

- Home-OCT (i.e. Notal Vision)
- Fundus photography (i.e. smartphone-based: Peek Vision)
- None
- Don't know
- Other

29. BEFORE THE PANDEMIC: Did you think home monitoring was a useful tool to deliver retinal care?

- Yes
- No
- Don't know
- Other

30. How did the use of home monitoring change in your institution DURING THE PANDEMIC?

- We do not use home monitoring
- We have already used home monitoring before the pandemic and we are using it to the same degree now
- We have started to use home monitoring now
- We have already used home monitoring before the pandemic, but we are using it more now
- We have stopped the use of home monitoring now

31. Do you think the experience you are making with home monitoring during the pandemic will sustainably change the way you practice ophthalmology?

- Yes
- No
- Don't know
- Other

### Other Types of Decentralized Patient Care

Other ways of decentralized patient care may involve the delivery of intravitreal injections in patient's homes or the screening of elderly patients for retinal disease in nursing homes with hand-held fundus imaging.

32. What other types of decentralized patient care did your institution provide BEFORE THE PANDEMIC? Please select all that apply:

- Screening for retinal disease in non-medical settings (i.e. nursing homes, pharmacies etc).
- Intravitreal injections in non-medical settings (i.e. in patient homes)
- None
- Don't know
- Other

33. What other types of decentralized patient care are you CURRENTLY providing in your institution? Please select all that apply:

- Screening for retinal disease in non-medical settings (i.e. nursing homes, pharmacies etc).
- Intravitreal injections in non-medical settings (i.e. in patient homes)
- None
- Don't know
- Other

34. How comfortable do you or would you feel to provide decentralized patient care in non-medical settings?

Uncomfortable

Very Comfortable

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35. Do you think the experience you are making with decentralized patient care during the pandemic will sustainably change the way you practice ophthalmology?

Yes

No

Don't know

Other

## Practice Patterns and Recommendations

36. What sort of barriers challenged the adoption of teleophthalmology, homemonitoring and decentralized patient care BEFORE THE PANDEMIC in your institution?

- Reimbursement
- Patient's acceptance
- Level of infrastructure
- Doctor's acceptance
- Don't know
- No barriers
- Other

37. Are the following services CURRENTLY reimbursed in your institution?

- Teleophthalmology
- Homemonitoring
- Decentralized patient care (other)
- Yes
- No
- Don't know

38. In your opinion, how could tele ophthalmology, home monitoring and other types of decentralized patient care contribute to tackle the challenges of retinal-care delivery DURING THE PANDEMIC?

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39. Which patients with retinal disease are CURRENTLY seen face-to-face and/or treated in Retina and Uveitis clinics in your institution? Please select all that apply:

- Wet AMD
- Retinal detachments
- Retinal tears
- Proliferative diabetic retinopathy
- Diabetic macular oedema
- Uncontrolled uveitis
- Retinal vein occlusion
- All first-time referrals
- Myopic CNV
- ROP (screening)
- F-2-F consultation
- Treated

40. In your opinion, which patients with retinal/uveitic disease are at risk for irreversible vision loss due to impeded care delivery DURING THE PANDEMIC?

- Wet age-related macular degeneration
- Retinal detachments
- Retinal tears
- Proliferative diabetic retinopathy
- Diabetic macular oedema
- Uncontrolled uveitis
- Retinal vein occlusion with neovascularisations
- First-time referrals
- Myopic maculopathy including choroidal neovascularisations
- Retinopathy of prematurity (incl screening)
- None
- Other

41. How can future service extensions involving teleophthalmology, home monitoring and other types of decentralized patient care avoid that patients face irreversible vision loss during ANOTHER PANDEMIC?

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42. Do you think that the experience gained during the pandemic (with teleophthalmology, home monitoring or other types of decentralized patient care) will be useful for routine care in the future?

	Yes	No
Tele ophthalmology	<input type="checkbox"/>	<input type="checkbox"/>
Home monitoring	<input type="checkbox"/>	<input type="checkbox"/>
Decentralized patient care (other)	<input type="checkbox"/>	<input type="checkbox"/>

43. Please state any on-going projects within teleophthalmology, home monitoring or other types of decentralized patient care in your country you are aware of that resulted from the challenges posed by the pandemic or write "None".

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44. We may have missed to ask an important question. Please add any further comments you have below or write "None":

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