



Revised joint UKISCRS / RCOphth advice:

# **Cataract surgery: Protecting patients and professionals during COVID-19**

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This 'editorial' is released for our members to accompany the newly revised joint UKISCRS / RCOphth guidance.



# Background

- As we are all aware the issue of Personal Protective Equipment (PPE) is highly emotive, playing out in the national press as well as in the profession
- In the early days of the COVID pandemic there was professional (and public) perception that Public Health England (PHE) recommendations for PPE were lagging behind equivalent international bodies
- It was considered by some, that national PPE advice was affected pragmatically by low availability of equipment, at least initially
- We feel that UK practice should aim to lead a search for evidence
- For the want of such evidence, however, our practice should neither lag behind best practice elsewhere in the world, nor be made less safe by enforced comparison to other healthcare systems more financially constrained than our own
- We concur that it is important to provide advice that is based on, but not restricted to, the best prevailing evidence; this should additionally be based upon intelligent and informed expert opinion
- A vital consideration is that our advice and actions need to protect and reassure the many theatre staff who are at increased risk by virtue of Black, Asian, and Minority Ethnicity (BAME)
- There is also some evidence that ophthalmologists are amongst those at greatest risk of occupational contraction of COVID-19, in one study third highest behind anaesthetics and emergency medicine
- We feel that it was right jointly to declare at the time of our last document, that phaco should be considered as an AGP; this gave many staff much needed reassurance and peace of mind
- At that time, only urgent surgery was being performed; now that the world-wide direction of travel is a return to routine elective care, it is now appropriate to re-examine our advice in a timely manner
- At the time, prevailing AAO PPE advice was similar to ours; the AAO now states that "... (in cataract surgery) ... for patients not suspected of COVID-19 infection, standard surgical PPE should suffice"
- There are commercial considerations that may influence the development and adoption of advice such as this, both in the US and in the UK
- Notwithstanding the above AAO advice on COVID-19 PPE for surgery, they still offer the following somewhat contradictory advice to employed ophthalmic staff: "... (the employer) ... will provide N95 masks to physicians and employees with close and/or prolonged patient contact" [N95 masks are equivalent to FFP2, filtering 95% of particles rather than 99% for N99/FFP3]
- Furthermore, AAO advice concerning testing for COVID infection in patients is more complex and nuanced, involving RT-PCR antigen testing as well as IgM and IgG antibody testing, so the US and UK situations are not necessarily equivalent
- In any case, it is evidently important to produce UK-specific guidance



# Phaco produces a spray

- A working definition of an aerosol is a liquid or solid particle suspended in air; aerosols can be visible like fog, but are most often invisible like dust or pollen
- Some believe that differences between droplets and aerosols are semantic, but there is an important practical difference; droplets sink onto surfaces, whereas aerosols stay suspended
- Phacoemulsification produces a spray that is readily demonstrated by slow-motion video (Richard Haynes, Bristol Eye Hospital, personal communication); it appears that this spray results from vibration of fluid in contact with the extraocular part of the phaco sleeve
- Though uncertain, it appears likely that the spray produced by phaco results in both droplets and aerosol
- This may however be a red herring, as what is being 'aerosolised' is likely to have a minimal, if any, viral load. Consider the following:
  - Povidone iodine is a highly effective anti-viral and so it can be reasonably expected that the tear film is effectively sterilised by pre-operative skin and conjunctival preparation
  - It has been argued that as the aqueous is fully replaced by the pre-phaco step of viscoelastic exchange, this protects against aerosol transmission; this is illogical as the ejected aqueous is outside the eye at the start of emulsification vibration
  - This may be irrelevant as there is no current evidence of replicating virus in intraocular fluids, though absence of evidence is not evidence of absence
  - The spray effect can be reduced by repeated application of HPMC (Kieren Darcy, Bristol Eye Hospital, personal communication), or confined by a containment system such as 'the microscope drape' (Louisa Wickham, Moorfields Eye Hospital, personal communication)
- In the UK, the Department of Health currently supplies masks free of charge to NHS Trusts, but when this arrangement ends the costs will not be prohibitive
  - Via the NHS Supply Chain, typical costs are £0.05 for surgical fluid-resistant masks, £0.30 for such a mask with a built-in visor, and £0.77 – £4.09 for an FFP3 mask; the price of the FFP3 mask for which I have been fit tested in my own Trust is £1.09



# Effects of airflow concerns

- The belief that aerosolised viral load is negligible may or may not turn out to be true, but this offers little solace to those staff who see the spray and believe themselves therefore to have been exposed to a potentially deadly threat
- We believe that despite reassurance to the contrary, concerns and doubts will persist
- This will have a negative effect on staff morale / mental health and may lead to absence from work
- We therefore have ensured that our guidance is carefully worded in such a way that requires employers to support theatre staff by providing the level of PPE they feel they need for their own protection, up to and including that required for AGPs
- Our minimum recommended standard of PPE should protect everyone, with the option of greater protection for the most vulnerable or those who want it
- Making the recommendation in this way would obviate the need for Trusts to be necessarily bound by air exchange constraints, and in time it would allow for increased surgical throughput (with due consideration of other COVID-related infection control measures)
- Conversely, reassurance that any aerosolised matter is likely to have a negligible viral load may also allow those who do not feel the need to wear FFP3 masks, or those who believe themselves immune, the liberty not to wear what is generally perceived as cumbersome PPE
- This is particularly relevant to issue of difficulties with microscope use while wearing eye protection
- The eye protection most often worn in operating theatres (as well as in even higher risk environments such as ICU) is often only protective against droplet spread, not aerosol spread, as few UK units use full-face masks or those that seal around the eyes; this is equivalent to the difference between a surgical mask and an FFP mask
- It is widely assumed to be highly unlikely that systemic infection can be contracted through extra-ocular aerosol exposure, but this might be considered (and might even explain infection despite currently recommended PPE)
- Apart from concerns of aerosol contamination, there are several other airflow related concerns
  - All microsurgery involves being in close proximity to the patients exhaled breath gases
  - Anxious patients may hyperventilate, especially if uncomfortable under a mask / drape
  - There appears to be a consensus that patients should wear a fluid-resistant surgical for the duration of hospital stay, but little knowledge how this affects airflow and risk in the operating theatre
  - Patient use of FFP3 masks, not yet suggested as far as I am aware, is a possibility but it remains to be seen if these are tolerated by patients



# Eye protection

- Current PHE and RCOphth PPE recommendations require staff to wear eye/face protection in almost all clinical ophthalmology settings
- Sessional use is mostly suggested, with single use (disposal or decontamination of device between each patient or procedure) only mandated when performing an aerosol generating procedure (AGP)
- Eye protection currently worn in the UK usually takes the form of glasses / goggles, or visors which also protect the face; such devices protect against direct droplet contamination
- Some spectacles worn by staff afford a degree of protection face to face, although these do not protect against contamination from the side; reading glasses that need to be taken on and off are a contamination risk so varifocals may be preferred
- Droplet contamination is mainly a risk if a patient coughs or sneezes, which may happen without warning
- Protective devices that also cover the face provide further protection against contamination of facial skin, which then may then be spread manually if the face is touched
- Now that most patients are required to wear a face mask in hospital, the risk of droplet transmission is further reduced
- Extra protection during clinical ophthalmological examination is afforded by breath shields on examination equipment, including slit-lamps and ocular scanning devices, but these are considered inadequate as stand-alone protection and themselves become an infection risk if not decontaminated often enough
- Occupational droplet contamination in the eyes of ophthalmic healthcare professionals might well result in ocular surface infection in staff; the risk of a systemic infection resulting from such exposure, though on the face of it unlikely, is in truth unknown
- Some practitioners choose not to wear eye protection during ophthalmological examination (e.g. slit-lamp) or procedures (e.g. theatre) because of difficulties obtaining a clear view; this may also lead to increased surgical complications, especially in less experienced surgeons
- It would however seem not unreasonable for surgeons and assistants to make this personal choice to dispense with eye protection while patients are under a surgical drape, as long as they are behind the drape

## Eye protection (Continued)

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- Other theatre staff should continue to wear ocular protection because they may not be behind the drape, and because it has been suggested that face masks should be removed from patients during surgery, in order to prevent unpredictable airflow and to minimise patient claustrophobia
- There has been much discussion about different extents of respiratory protection afforded by fluid-resistant surgical masks (droplet protection), as opposed to FFP3 masks (aerosol protection), but little or no equivalent distinction made with respect to ocular protection
- For protection against transmission of ocular or systemic infection by aerosol spread, respirator masks or air-tight fog-free goggles would be required; few units in the UK currently use these to a significant extent
- This may reflect the fact that there is little perceived risk of aerosol transmission of infection (ocular or systemic) through the ocular surface of ophthalmic healthcare workers
- Contraction of COVID-19 by UK healthcare workers wearing recommended PPE (including ocular protection against only droplet spread) does appear to occur, so perhaps the possibility of aerosol transmission via the extra-ocular route of staff should be considered



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# Proposed advice

- We have suggested a form of words that we feel is pragmatic and workable, addressing the above concerns:
  - We suggest that phaco is regarded as a low risk procedure, not a no-risk procedure
  - We state that phaco produces an aerosol but on current evidence it does not necessarily need to be considered a surgical AGP; this advice may change in time
  - We state that employers should be obliged to provide theatre staff with the level of protection they believe that they need
- We are pleased that UKISCRS and the RCOphth continue to work together to provide evidence-based, common-sense and pragmatic advice that we hope will ultimately lead to the best possible care for our patients

**Professor Philip Bloom**

UKISCRS President

On behalf of UKISCRS Council