



Personal Protective Equipment (PPE) use among emergency eye care professionals in the UK during the COVID19 pandemic

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Abstract

EEC staff were provided with rapidly changing personal PPE guidance by Public Health England (PHE) with specific subspecialty advice from the British Emergency Eye Care Society (BEECS) and the Royal College of Ophthalmologists (RCOphth) UK during the COVID19 pandemic. BEECS undertook a baseline survey of its members after the initial response from the RCOphth 16/3/20 mirroring Public Health England (PHE) advice and a follow-up survey after the guidance was updated on 9/4/20. A combined total of 84 responses were received. Improvements after RCOphth changes between the two surveys from hospital respondents showed increases in temperature screening (13%), scrub use (34%), use of aprons (31%), masks (4%), eye protection (35%), gloves (25%) and slit lamp guard (1%). Our findings demonstrate a positive and significant adaptation of PPE in response to change in guidance published by PHE, RCOphth and BEECS between 16/3/20 and 11/4/20. The COVID19 pandemic has rapidly taken over the normal activity of Ophthalmic departments creating unprecedented challenges. Following initial confusion and vulnerability expressed by EEC professionals to PPE guidance, most Trusts appear to have adapted and are doing similar things. The response has been swift and effective as a result of good team work and early advice from BEECS and the RCOphth. On the whole, management teams are listening.

Introduction

The novel coronavirus disease 2019 (COVID19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was declared a global pandemic by the World Health Organisation on the 11th of March 2020 [1]. The Royal College of Ophthalmologists response for UK ophthalmic departments was to reduce activity and provide hospital services for sight-threatening emergencies

due to the threat of fatal COVID19 complications among the UK population [2]. The college of optometry, similarly, provided guidance for practices to stop routine GOS services and only provide emergency eye services by accredited MECS/MECS type practices [3].

Emerging publications from China, where the disease was first reported, highlighted the increased risk of transmission of SARS-CoV-2 for health care workers working in close contact with infected patients [4]. Reports found SARS-CoV-2 present on ocular surfaces and a cause of conjunctivitis of varying incidence [5–7]. Emergency eye care (EEC) professionals come into close contact with patient's ocular surfaces while managing ocular emergencies in both community and hospital settings, increasing their risk of acquiring COVID19 [5–7]. Personal protective equipment (PPE) are (is) used to reduce the risk of health care workers exposure to potentially infectious droplets while managing a patient infected with SARS-CoV-2 [8].

EEC staff were provided with rapidly changing personal PPE guidance by Public Health England (PHE) with specific subspecialty advice from the British Emergency Eye Care Society (BEECS) and the Royal College of Ophthalmologists (RCOphth) UK.

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Table 1 COVID19 Time line of events + RCOphth PPE guidance [1, 2].

12/2019	Cluster of pneumonia of unknown aetiology—Wuhan, China		
7/1/20	New virus identified		
11/3/20	WHO global alert COVID19 pandemic Summary of PPE guidance*		
16/3/20	RCOphth—Coronavirus RCOphth update—need to know points	Hand hygiene, good tissue practice, slit lamp cleaning and SLG	Survey 1 Carried out between 4–6/4/20 covers this PPE advice
27/3/20	RCOphth PPE guidance	As above plus: Asymptomatic patients—SFM Asymptomatic and AGP—SFM, disposable gloves, FRG, eye protection if risk of splash/droplet COVID19 suspect or confirmed—Isolate, SFM, gloves, apron, eye protection if risk of splash/droplet	
9/4/20	RCOphth PPE guidance	As above plus: AGP—FFPR, eye/face protection ITU/HDU All eye patients—Gloves, FRA, FFSM11R, face/eye protection Advice on scrubs	Survey 2 Carried out between 11–20/4/20 covers this change in advice

SFM surgical face mask, *AGP* aerosol generating procedures, *FRG* fluids resistant gown, *FFPR* filtering face piece respirator, *FRA* fluid resistant apron, *FFSM11R* fluid resistant type 11 R surgical mask, *SLG* slit lamp guard.

*Abbreviated summary of advice from online published guidelines [2].

Table 2 Survey 1 and 2 questions.

Survey 1	Survey 2
Do all your patients have their temperature checked on arrival to hospital/eye department?	
Do you wear scrubs when seeing both low (asymptomatic/no contacts) and high-risk COVID19 patients in your Ophthalmology department?	
What type of PPE do you wear while examining low risk, asymptomatic patients?	
My hospital provided me with adequate information regarding PPE	My hospital is providing me with adequate information regarding PPE
The management responsible for the provision of PPE in my department listen to my view and take it into account	The management responsible for the provision of PPE in my department/practice listens to my view and takes it into account
I have experienced a shortage of PPE during an emergency eye care session	In the last week I have experienced a shortage of PPE during an emergency eye care session
I have experienced objection or threat of disciplinary action to wearing PPE I have provided myself	In the last week I have experienced objection or threat of disciplinary action to wearing PPE I have provided myself
The management responsible for the provision of PPE in my department have changed its guidance to me in the last 2 weeks	The management responsible for the provision of PPE in my department/practice have changed its guidance to me in the last week (since the last survey).

Aim of study

The aim of this study was to survey EEC professionals in primary and secondary care about (and evaluate) the provision and response of departments to information given with regard to PPE during the COVID19 pandemic period.

Methods

BEECS undertook a baseline survey of its members after the initial response from the RCOphth 16/3/20 mirroring Public Health England (PHE) advice and a follow-up

survey after the guidance was updated on 9/4/20. See Table 1 for time line of events and RCOphth PPE guidance and Table 2 for survey questions.

Each survey was completed by BEECS members delivering EEC services in both primary and secondary care during the COVID19 pandemic. A total of 50 responses were received for the baseline survey and 34 for the follow-up survey.

Results

A combined total of 84 responses were received for the surveys sent.

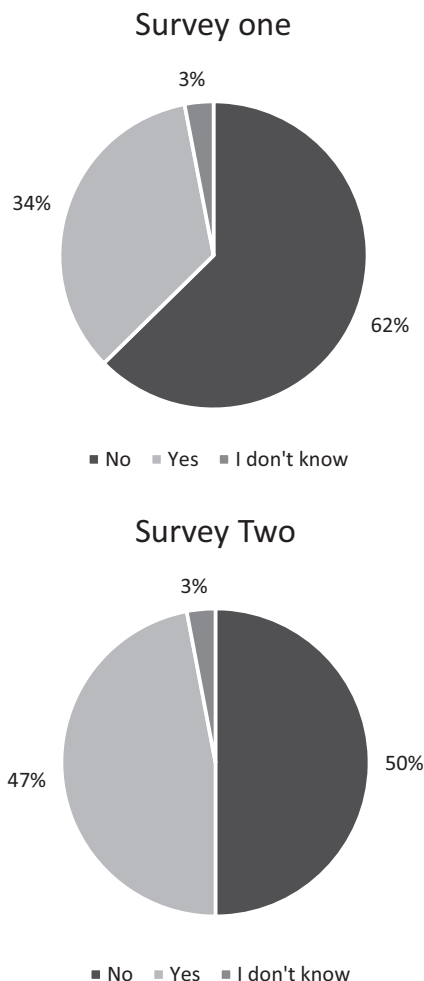


Fig. 1 Survey question: Do all your patients have their temperature checked on arrival to the hospital/eye department?

Hospital respondents

Hospital respondents totalled 29 for survey 1 (20% stand alone eye unit, 52% University Hospital/Acute Trust and 27% District General Hospital) and 32 for survey 2 (19% stand alone eye unit, 44% University Hospital/Acute Trust and 34% District General Hospital).

Figures 1, 2 demonstrate a change between the surveys for temperature screening with an increase of 13% noted and an increase of 34% in the use of scrubs to examine low- and high-risk COVID19 patients. Other changes noted was an increase in the use of aprons (31%), masks (4%), eye protection (35%), gloves (25%) and slit lamp guard (1%) (Table 3).

Hospital management were seen to be more receptive to the demands of EEC professionals after the 9/4/20 RCOphth guidelines were updated, an increase of 21% and 40% more were providing PPE advice. An improvement in the supply of PPE and relaxation on EEC

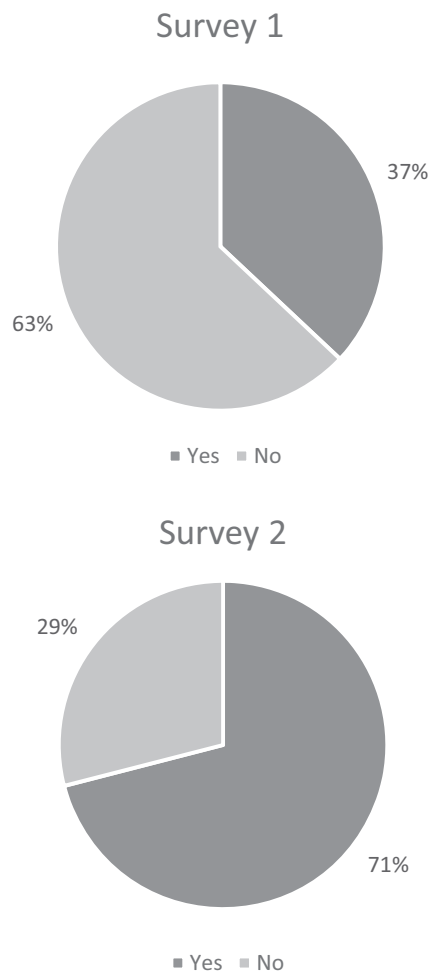


Fig. 2 Survey question: Do you wear scrubs when seeing both low (asymptomatic/no contacts) and high risk COVID19 patients in your Ophthalmology department?

Table 3 Survey question: What type of PPE do you wear while examining low risk, asymptomatic patients?

	Hospitals, n = 29		Hospitals, n = 32		Optometrists, n = 21	
	Survey 1	Survey 2	Survey 1	Survey 2	Survey 1	Survey 2
	No.	%	No.	%	No.	%
Apron	10	34%	21	66%	3	14%
Eye protection (total)	8	28%	20	63%	1	3%
Eye protection—visor	1	3%	7	22%	0	0%
Eye protection—goggles	7	24%	13	41%	1	5%
Face mask (total)	27	93%	31	97%	14	48%
Face mask—fluid resistant surgical mask (FRSM)	26	90%	29	91%	10	48%
Face mask—FFP3 (filtering face piece)	0	0%	2	6%	4	19%
Regular surgical mask	1	3%	0	0%	0	0%
Gown	0	0%	1	3%	0	0%
Gloves	18	62%	28	88%	12	57%
Slit lamp guard	27	93%	30	94%	19	90%

Table 4 Survey 1 and Survey 2 responses for additional questions.

Survey 1	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A	No response given
My hospital provided me with adequate information regarding PPE	4 17%	7 30%	5 22%	3 13%	4 17%	0 0%	6
The management responsible for the provision of PPE in my department listen to my view and take it into account	4 18%	7 32%	2 9%	7 32%	2 9%	0 0%	7
I have experienced a shortage of PPE during an emergency eye care session	0 0%	5 23%	3 14%	7 32%	4 18%	3 14%	7
I have experienced objection or threat of disciplinary action to wearing PPE I have provided myself	3 14%	2 9%	2 9%	5 23%	4 18%	6 27%	7
The management responsible for the provision of PPE in my department have changed its guidance to me in the last 2 weeks	8 36%	11 50%	2 9%	0 0%	1 5%	0 0%	0
Survey 2							
My hospital is providing me with adequate information regarding PPE	8 25%	17 53%	4 13%	2 6%	1 3%	0 0%	0
The management responsible for the provision of PPE in my department/ practice listens to my view and takes it into account	7 22%	12 38%	9 28%	3 9%	1 3%	0 0%	0
In the last week I have experienced a shortage of PPE during an emergency eye care session	0 0%	2 6%	1 3%	20 63%	6 19%	3 9%	0
In the last week I have experienced objection or threat of disciplinary action to wearing PPE I have provided myself	0 0%	2 6%	0 0%	12 38%	11 34%	7 22%	0
The management responsible for the provision of PPE in my department/practice have changed its guidance to me in the last week (since the last survey).	8 25%	16 50%	3 9%	4 13%	0 0%	1 3%	0

professionals wearing personally acquired PPE by 11% and 11% respectively, for the same time period. See Table 4.

Optometrists

Twenty-one optometrists replied to survey 1–76% of which are affiliated to MECS/MECS type services.

See Table 3 for their PPE use.

Discussion

Our findings demonstrate a positive and significant adaptation of PPE in response to change in guidance published by PHE, RCOphth and BEECS between 16/3/20 and 11/4/20.

Initial responses for health care workers during the COVID19 pandemic from PHE meant Ophthalmology was not on Trust radars as a high-risk specialty leading to Ophthalmologists and AHP feeling vulnerable to exposure and objection to self provided protection.

Early response by the RCOphth and BEECS included advice to install substantial guards to slit lamps, thereby creating a physical barrier to the transfer of aerosol droplets during close ocular examination [2]. Ninety-three percent of hospital EEC professions initially surveyed had slit lamp guards; however, not all units were compliant. With the initial guidance, many were forced to use temporary DIY homemade guards while awaiting robust options.

Prior to the change in PPE advice on 9/4/20, 17% of individuals experienced objection or threat of disciplinary action if they were seen to wear their own personally acquired PPE items. This reduced to 6% in the second survey, which may reflect the change in PHE recommendations and provision of additional PPE by the Government to the employers. There was an increase from 47% to 78% in respondents that were satisfied with the information they were given about PPE and from 50% to 60% in those that felt management listened to them about their views on PPE provision.

Importantly after the 9/4/20 update, there was an increase in satisfaction with information about PPE and more felt

their hospital management took into account the clinicians' views and listened to them about their views on PPE provision.

A reduction in the number of responses to our follow-up survey from the primary care ophthalmic practitioners (MECS and non-MECS practices) might reflect that many had to close their doors due to the lack of PPE, which was not prioritized in this sector. Those currently operating are providing telephone consultations and face to face emergency consultations where PPE has been provided.

Conclusion

The COVID19 pandemic has rapidly taken over the normal activity of Ophthalmic departments creating unprecedented challenges. Following initial confusion and vulnerability expressed by EEC professionals to PPE guidance, most Trusts appear to have adapted and are doing similar things. The response has been swift and effective as a result of good team work and early advice from BEECS and the RCOphth. Learning from other affected countries has been paramount when planning and adjusting to this new challenging situation. On the whole, management teams are listening and hopefully in the very near future our Primary care optometry colleagues will be provided with similar levels of PPE for continued collaboration in the management of ocular emergencies during this COVID19 global pandemic.

Summary

What was known before

- Very little was known before as this is a novel infection. No health planning for this type of pandemic.

What this study adds

- A positive and significant adaptation of PPE in response to change in guidance. Most Trusts appear to have adapted and are doing similar things.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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