# **Original Research Article**

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# Learning from COVID-19 experience: a study amongst ENT surgeons' COVID behaviour

# Kranti Bhavana<sup>1</sup>, Sweta Soni<sup>1\*</sup>, Bhartendu Bharti Sharma<sup>1</sup>, Neha Chaudhary<sup>2</sup>

<sup>1</sup>Department of ENT and Head and Neck Surgery, <sup>2</sup>Department of Community and Family Medicine, AIIMS, Patna, Bihar, India

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# \*Correspondence:

Dr. Sweta Soni,

E-mail: swetapmch@gmail.com

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# **ABSTRACT**

**Background:** Health care services across the world have undergone several modifications in view of ongoing COVID-19 pandemic. Otolaryngology needs special mention in this context owing to its proximity to virus's natural habitat. Various ENT procedures are significantly aerosol generating and hence appropriate precautions and procedural modifications are needed. We aimed to determine attitude and practices of ENT professionals during COVID-19 pandemic and their level of preparedness towards resuming practice, teaching and training activities.

**Methods:** We conducted an online survey through Google forms, participants were asked to fill up a multiple choice questionnaire. Responses collected were analysed and interpretations made on basis of most favoured options.

**Results:** Majority of respondents was aware of the potential risks and precautions to be taken during Outpatient and surgical procedures and was willing to adapt their clinical setups to protect themselves and their patients. Few of them wanted to follow stricter protocols like doing endoscopies for therapeutic purposes only, using a PAPR for lengthy surgeries, not allowing trainees to assist in surgeries etc.

**Conclusions:** We concluded that fresh guidelines are needed taking in account the opinion of government and private practitioners, with provisions for continuing training activities.

**Keywords:** Pandemic, COVID-19, Health care professional, ENT, Online survey

# **INTRODUCTION**

Year 2020 witnessed a novel crisis in form of COVID 19 pandemic. There was worldwide panic and several stringent steps taken to limit the spread and keep it at manageable levels. Lockdowns helped flattening the curve and reduce the patient load on healthcare facilities. The highly contagious nature of SARS-COV-2 and the mortality rate associated with it forced healthcare professionals to shutdown routine OPD and elective surgeries. Patients were asked to postpone their hospital visits and telemedicine became a norm.

The idea of COVID and non COVID hospitals was materialized to continue medical and surgical services for

both infected and non-infected patients separately.1 This may, however, not be possible in all settings due to infrastructure constraints. Testing for COVID 19 had also posed limitations on the healthcare system. There is only one reliable test RT-PCR, that too has a maximum sensitivity of 71% for upper respiratory tract and 93% for bronchoalveolar lavage (lower respiratory tract) with high false negative results which is of significant concern.<sup>2</sup> Due to unavailability/shortage of testing kits in India, testing was not carried out widely. Each country/state had its own protocol for testing. Many healthcare workers were infected in the early part of the pandemic due to lack of awareness and insufficient infection control plans, being higher with the risk among Otorhinolaryngologists.3

Even after COVID-19 being declared as pandemic by WHO on 11 March 20204 and months have passed there is no clear explanation as to how the virus transmits. Many studies have proven it to be airborne, aerosol borne and few describe transmission through fomites.<sup>5,6</sup> As of now the only effective methods advocated by various authorities for the medical professionals are to use personal protective equipment and social distancing.<sup>7</sup>

Several national and international organizations came up with guidelines for ENT practice during the pandemic which kept updating as per changing information about the virus. India being a developing country with a vast population and limited health care resources had to prioritize patient needs and ensure judicious use of protective equipments. Through the lockdown, the Indian council for medical research (ICMR) issued testing protocols which included - all symptomatic individuals with travel history, all symptomatic contacts of labconfirmed cases, symptomatic healthcare workers and hospitalized patients with severe acute respiratory illness (SARI) with the inclusion of patients with influenza-like illness (ILI) later.8 Therefore, testing could not be carried out in hospitalized patients not fitting in any of the above categories.

Recommendations for PPE usage have been defined the world over depending on the level of exposure and the type of spread anticipated. The current standard is to use gloves, triple layer mask and gown for anticipated contact spread (level I), N95 or FFP2 mask for droplet prevention (level II) and full PPE with goggles, face shield and hood when aerosol generating procedures are done (level III). India faced a shortage of PPE supplies and usage guidelines were made to ensure its rational use. Reuse of N-95 masks was also advised by some and protocols regarding its disinfection and reuse were made.

As we enter a phased unlock in this pandemic, preparedness amongst health care professionals is warranted. ENT being a susceptible domain due to its close proximity to virus' natural habitat needs special measures to sustain this pandemic. Procedures like endoscopies, nasal packing, oral cavity examination, tracheostomies, sinus surgeries are known to have high transmission risks. Nevertheless, emergencies and urgencies can't wait and we need to brace to provide adequate care to the needy patients without compromising each other's' safety.

With too many uncertainties and lack of effective vaccination the world is trying to restore normalcy. To stay safe there is a need to modify our pre-pandemic practices at every step to protect the surgeon and the supportive staff. Earlier our focus was to prevent patients from infection but now our concern has also shifted to protect ourselves and other health care workers involved in patient care. Thus, there was a need for assessment of views of ENT professionals about practicing in COVID era and correlating their responses to current guidelines.

Hence, this study was planned with the aim to assess preparedness amongst ENT professionals towards resuming practice amid COVID-19 pandemic.

# Aim and objectives

Aim and objectives were 1) to determine the attitude and practices of ENT professionals during COVID 19 pandemic 2) to know the level of preparedness that ENT professionals are having with their protective gear and mask they are going to use, the outpatient department (OPD) and operating modifications they are planning to establish, the kind of surgeries they plan to take up and how do they plan to continue teaching and training the trainee residents under them.

#### **METHODS**

A cross sectional study was done in August 2020 by conducting an online survey amongst ENT professionals practicing across India. The study duration was 30 days from advertisement of form. An online Google form questionnaire was created to extract information regarding demographic profile, type of setup, measures taken in view of COVID-19 pandemic, opinion about current guidelines and further planning. Convenient sampling was done for the recruitment of participants. Those willing to participate in the study and gave consent were included in the study. Participants giving consent or those with incomplete forms were excluded from the study.

# Study tool

Survey development and sharing

The Google form link was advertised on social media platforms like WhatsApp and Facebook. The participants were asked to disseminate the form link further to their contacts, after filling form themselves.

# Data privacy

After the description and informed consent part all the participants were informed that their data will be anonymous and will be used solely for the purpose of research. No names or contact information of the participants was requested as part of the survey and the responses by the participants were kept confidential in terms with Google's privacy policy (https://policies.google.com/privacy?hl=en).

# Questionnaire

The questionnaire shared contained 16 questions covering multiple aspects such as the demography of the participants, screening practices and OPD setups, procedure they are doing and protection they have implemented for self and fellow employees, the

modifications they would do to OPD and OT set ups and how will they modify trainee resident programs.

Data collection and analysis

The collected responses were summarized in form of tables and charts and data analyzed using descriptive statistics.

#### **RESULTS**

We included the responses obtained by us in the 30 days' time after sharing the invite link for the questionnaire and we were able to get 297 complete entries following which the responses were halted for the link.

#### **Demography**

Majority of the responders was practicing in urban areas (92.6%) and rest practiced in rural areas (7.4%). There were almost equal participants from government setup (38%) and personal clinics (40.1%) followed by some

from corporate setup (21.9%). Respondents included senior faculties (108), residents (51), medical officers (22), private practitioners (93) and others (Figure 1). We had responses from almost each state with maximum participants from Uttar Pradesh (48), Bihar (45) and Gujarat (25) followed by Assam (20), West Bengal (18), Chhattisgarh (15) and Maharashtra (15).

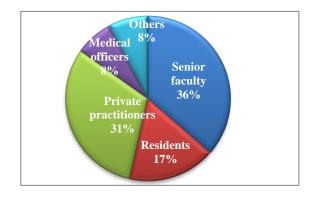


Figure 1: Distribution of participants as per their designations.

Table 1: Adaptations in OPD setup.

Variables	Responses in favor	Percentage of total responses
Screening methods		
Questionnaire screening	157	52.9
Thermal scanning	187	63
Will assume each patient to be infective	201	67.7
Will do antigen testing for each patient	20	6.7
OPD setup		
Limiting number of patients and attendants	246	83.4
Use of negative pressure rooms	29	9.8
Social distancing norms	261	88.5
Donning and doffing areas	66	22.4
Wear PPE in OPD		
For every patient contact	143	48.5
For aerosol generating procedures	128	43.4
For all COVID suspect cases	90	30.5
For all COVID confirmed cases	95	32.2
OPD endoscopies		
Use special drapes and screens	133	45.1
Not do, use radiological investigations instead	63	28.5
Do only for therapeutic purposes	84	21.4
Do only after COVID negative report	123	41.7

# **OPD** adaptations

When being asked about screening of patients in OPD for Covid-19 infection, 67.7% of them told that they will assume each patient to be infective. Questionnaire and thermal scanning was most preferred method of screening while 6.7% were willing to do an antigen testing for each patient. Social distancing norms in waiting area were followed by majority of professionals (88.5%) in addition to limiting number of patients and attendants in waiting

area (83.4%). Very few (22.4%) of them had a separate donning and doffing area in their OPD setup and even fewer (9.8%) had negative pressure rooms. Almost half of the respondents wanted to wear a PPE for each patient contact while 43% of them would wear a PPE while doing aerosol generating procedures regardless of COVID status of the patient. About one third were in favour of wearing PPE for COVID suspect and confirmed cases only. For OPD endoscopies, 45.1% wanted to use special drapes and screens and 41.7% will perform the procedure after getting a COVID negative report. Quite a

few (21.4%) were of the opinion of doing endoscopies for therapeutic purposes only and 28.5% would not do endoscopies but rather use radiological investigations for diagnosis (Table 1).

# Aerosol generating procedures

Majority of professionals (43.1%) said that they were always taking precautions while doing aerosol generating procedures while 37.7% admitted that they did not use to care much before but now take special precautions. A fair number (26.9%) also said they consider AGPs to be high risk in view of COVID 19 only and shall resume to usual after the pandemic. Few professionals said they never heard about AGPs before this pandemic. Some also said they have oriented themselves towards AGPs now only.

# Operating room adaptations

Almost half of the professionals were of opinion to take only emergent cases in OR to begin with followed by urgent cases. Few wanted to take time sensitive cases and routine cases too. When asked about choice of PPE in OR, majority (51.9%) opted for level II PPE in COVID negative cases and level III for COVID positive or unknown status cases.

Level III PPE for all cases was also opted by 40.4% of them. Double draping method to limit aerosol generation was also a favoured choice by many of them (32.3%). Very few (7.4%) will be using a PARP for lengthy surgeries (Table 2).

# Training of fellows and residents

Training would be ensured by majority of surgeons (50.4%) by asking them to assist in each case after prior training. One third of the respondents was not in favour of allowing entry in OR and asked their residents to learn through video recordings only and would allow to assist in COVID negative cases only.

Very few were in favour of allowing them to assist in emergent cases only (Table 3).

Variables	Responses in favour	Percentage of total responses
Selection of cases		
All urgent cases	116	40.3
Only emergent cases	146	50.7
Time sensitive cases	59	20.5
Routine cases	84	29.2
PPE during surgery		
Level III PPE for all cases	115	40.4
Level II for COVID negative	148	51.9
Use PAPR for lengthy surgeries	21	7.4
Double draping method to limit aerosol spread	92	32.3

**Table 2: Adaptations for surgeries.** 

Table 3: Strategies for employee protection.

Variables	Responses in favor	Percentage of total responses
Participation of residents		
Assist in COVID negative cases	84	31.3
Only observation through video recordings	84	31.3
Assist in emergent cases	48	17.9
Assist in each cases with prior training	135	50.4
Testing protocol		
All symptomatic employees	150	50.7
All exposed with/without symptoms	102	34.5
All exposed and symptomatic	130	43.9
Anyone can get tested	120	40.5
Exposure with/without PPE	1	0.3
Choice of care after getting positive		
Government hospital	106	36.3
Private hospital	153	52.4
As per employer's protocol	49	16.8
Telemedicine providers	35	12.7

# Employee protection

HCQ prophylaxis was being already taken by 43.9 % of the professionals, 32.2% of them shall be taking after baseline investigations. Few of them shall be taking after exposure or as per ICMR guidelines.

Regarding testing of employees 50.7% advocated testing of all symptomatic ones while 43.9% will go for testing of exposed and symptomatic ones. 40.5% allowed testing of anyone who wants to and 34.5% of them were of the opinion to test all exposed without PPE with or without symptoms. Majority of the respondents chose visiting private hospitals (52.4%) if they contract COVID infection followed by government designated COVID hospitals (36.3%). Very few relied on employer's protocol (16.8%) or telemedicine providers (12.7%) (Table 3).

# How long to continue

Half of the respondents (50.7%) were willing to continue these changes as per government guidelines, 43.2 % wanted to wait till some vaccine is available and 37.8% will wait till no new case in their state. Only 5.1% will end these changes after end of this year.

#### **DISCUSSION**

This online survey was taken up by ENT professionals from all states in India with almost equal participation of government and private practitioners. Majority of the participants were faculties and consultants. In India, government health care facilities are cheaper and cater to a large chunk of lower and lower middle class population. On the other hand, private setups are costlier and have little aid from government. Hence opinions of both the groups in COVID management protocols differ and have to be taken in account while drafting guidelines.

Adaptations in the Outpatient department (OPD) and the Operation theatre surrounding would be the most challenging work, till the pandemic is around. Social distancing in OPD and waiting area is very effective in reducing the risk of cross infection. An Indian study said protective measures like face mask and face shield effectively reduce the leakage and reach of the sneeze within 3 ft. It is well known that the spread of COVID-19 infection is mainly through droplets ejected during coughing, sneezing, and talking hence maintaining social distancing of 6ft from all orientations was recommended to prevent transmission of COVID-19.15 It can be achieved with little changes in the infrastructure and doesn't add much to the routine expenses on maintenance. Limiting number of patients by pre scheduling their visits via phone calls helps accommodating them in same area. AAO-HNS guidelines suggests measures like blocking off furniture, asking patients to wait for their turn in their cars only, moving patients on designated paths etc to achieve adequate distancing amongst patients. 16 Attendants should be discouraged to accompany patients in OPD unless absolutely necessary. Our study revealed that maximum number of practitioners (88.5%) plan to follow the social distancing norms in their OPD along with limiting the number of patients and their attendants. Though half the responders wanted to wear PPE kits for each and every patient contact, 43% of them wanted to limit their PPE usage to aerosol generating procedures only. ENT evaluation sometimes include deep instrumentation, excessive mucous and blood which triggers cough and the jet of droplets and aerosols expelled can hit the examining physician and nearby health care workers at a high velocity and at close range.14 Since COVID can be transmitted via asymptomatic careers, all patients presenting to OPD should be considered positive until unless proved otherwise and it is wiser to use PPE kits for routine practice too. In spite of all responders agreeing to use some kind of personal protection for their routine work, only few (22.4%) had demarcated, donning and doffing areas in their setup. Fewer (9.8%) had negative pressure rooms. While negative pressure rooms may not be compulsory, but examinations should be in well aerated rooms and designated areas for donning and doffing should be made a norm.<sup>17</sup>

Screening of patients before entering OPD is vital to filter out patients with suspected COVID 19 infection. Owing to the limited availability of testing kits, cost issues and time factor, everyone can't be subjected to testing before entering OPD. In our study majority of the practitioners prefer thermal scanning and questionnaire method to screen out COVID suspects. This may lead to a deceptive feeling of false security in case of asymptomatic carriers or asymptomatic infections.

Resuming operative and OPD services has to be strategic and well-guarded to ensure patient and healthcare workers (HCW) safety at all times. Majority of head and neck procedures generate significant amount of aerosols which is very dangerous in view of virus spread. Awareness about aerosol generating procedures (AGPs) and to take precautions while performing them is now more than ever necessary. 14 Our study revealed that while 43.1% of professionals were already taking precautions while performing AGPs procedures but 37.7% of responders were not taking much precaution before the pandemic. They would do so only now. Though ENT practitioners are used to these precautions but SARS-Cov-2 mandates more fail proof methods to reduce aerosol spread during procedures. 26.9% of practitioners suggested that they would take high risk AGPs precautions only till the pandemic persists and would return to old methods once it is over. Guidelines enumerate some common AGPs in ENT to highlight its importance. OPD endoscopy is one of them and it is advised to limit endoscopies to patients who have clear indications and should be done by experienced personnel available and in an expedited fashion preferably in a negative pressure room.<sup>17</sup> Indian guidelines suggest performing all endoscopies in a separate area wearing level II PPE.<sup>18</sup> Endoscopies in COVID era has led to several innovations like using masks, disposable sheaths, screens and portable chambers etc. General precautions include using nasal pledgets or lignocaine viscous instead of sprays, standing at the back of the patient, flexible scopes via nasal route instead of rigid ones, video recording of procedure to avoid repetitions for review etc.<sup>19</sup> For OPD endoscopies, 45.1% wanted to use special drapes and screens and 41.7% would do the procedure after getting a COVID negative report. Quite a few (21.4%) were of the opinion of doing endoscopies for therapeutic purposes only and 28.5% will not be doing endoscopies rather use radiological investigations for diagnosis. Studies suggest revisiting CT as a substitute for nasal endoscopy and advice getting a CT scan done, if facilities are available, thus negating the need for an endoscopy.20

Initially at the start of pandemic, there was an acute shortage of supply of Personal protective equipments which led all agencies to issue guidelines for its judicious use. However most of the clinicians in our study would like to use a PPE for each patient contact and almost all of them will need it while doing aerosol generating procedures. This is because of the highly infectious nature of virus and unreliability of the available tests.

There is broad international consensus that not urgent/emergent and not time-sensitive (e.g. concerning malignancies) surgeries should be avoided during the pandemic. 19,21

In this context, opinion from our questionnaire was divided amongst surgeons as to what type of surgeries they will prefer; majority of the respondents would restrict themselves to emergency cases. Few wanted to take time sensitive and routine cases too. Most of them would though go for a negative COVID 19 antigen report before proceeding. Although still a huge number would like to postpone their elective surgeries for some time and prefer taking cases which have emergency indications and can't be deferred but then with a negative COVID 19 antigen reports only.

When it comes to operating room adaptations, it is difficult to perform surgeries wearing level III PPE comprising coverall, face shields and gloves. Surgeons preferred using level II PPE for COVID negative cases and level III PPE9 for COVID positive cases. Double draping method22 to limit aerosol generation was also a favoured choice by many of them. Very few (7.4%) were ready to use PAPR (Powered air purifier respirator) for lengthy surgeries. PAPRs are expensive but given the benefits of negligible leakage and omitting the need of additional eye protection, the investment appears to be reasonable for lengthy high risk procedures. This is also suitable for individuals who fail fit tests and those whose religious beliefs prevent them from shaving.<sup>23</sup>

Academic activities and training of post graduate students and residents have suffered a lot during this pandemic. Given earlier recommendations of having smallest possible surgical team, the presence of trainees and observers in the OR was to be avoided.<sup>24</sup> But slowly they need to be incorporated in procedures while ensuring their safety at all times. Allowing them to assist in COVID negative cases can be a good start. They should be trained regarding necessary precautions while doing procedure in COVID patients and then they can start to assist in each case. In our study we saw that majority supported the idea of letting residents assist in surgeries after due care and training. One third of responders felt that residents should have restricted entry and teaching can take place in video conferencing mode. Studies suggest training could be enhanced by recording the procedure digitally and sharing it later with the trainees.<sup>24</sup> It is important to understand that the training, teaching and set up of hospitals in our country is very varied. Modi et al. conducted a questionnaire based survey amongst healthcare professionals and students in Mumbai metropolitan region about COVID-19 and concluded that there is a need for regular education and update about infectious disease control.<sup>25</sup> Thus, it is important for the consultant to take up the responsibility and minimize the risk to their trainee and supporting staffs.

When it came to getting the staff and trainees tested for COVID 19 after getting exposed unprotected, half of the respondents would get them tested irrespective of symptom present in them or not. While the other half would take a cautious approach and would test their employee and residents only when symptomatic. As far as Hydroxychloroquine prophylaxis was concerned, 43.9% had already taken the drug and around 40% would go ahead only after doing a baseline investigation. Though around one third of the respondents showed concern towards side effects, need of these therapy and efficacy of these drugs, as no reliable trial is available to resolve the concerns. <sup>26</sup>

In worst case scenario if anyone would get infected, more than half of the responders (52.4%) would prefer private hospitals, whereas around 36.3% would rely on government set ups. Very few were relying on telemedicine providers. Though majority of states are treating COVID patients in their government hospitals, but our study indicated that most of them would opt for private hospitals for their treatment.

All these adaptations and changes will need to continue in near future as efficacy of vaccination is still a matter of debate and inspite of mass vaccination strategies it will take time to vaccinate each and everyone in the line. Government setup clinicians are relying on government guidelines to change back to normalcy. While private practitioners are going to continue these changes as long as no vaccine is available. Ananth et al discuss modifications and protocols adapted for surgical procedures in COVID era and advocate continuing

services with all precautions to ensure timely and appropriate attention to the needy. They suggest these protocols to be relevant as long as pandemic persists.<sup>27</sup>

The strength of this assessment lies in its diversity and including ENT professionals of different geopolitical locations and level of care centers. This assessment provides a snapshot of how the professionals are adapting to the situation and how acceptable they are to new protocols and precautions.

#### Limitations

It is more of subjective analysis and opinions survey at individual level rather than a scientific study.

# **CONCLUSION**

It has been almost a year with this pandemic and it seems to persist longer. Many patients are getting delayed or suboptimal treatment. There is a need to formulate new guidelines for ENT practice which incorporates protocols for semi urgent and time sensitive cases too. Teaching and training activities can't be kept on hold for long, there should be clear directives regarding that. Opinion of private and government setup practitioners vary and it should be taken in account while making guidelines. India being a developing country has to consider cost and supply constraints too while setting new guidelines. It's high time to restart ENT practice with appropriate precautionary measures and brace ourselves to provide timely and adequate service to needy patients.

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Institutional Ethics Committee

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